



DIETZGEN



**DRAFTING &
SURVEYING
SUPPLIES**

A Few Samples of

DIETZGEN

Recommended

DRAWING

and

**TRACING
PAPERS**

and

Samples of Stock

Used for Our

**Profile and Cross
Section Papers**

—

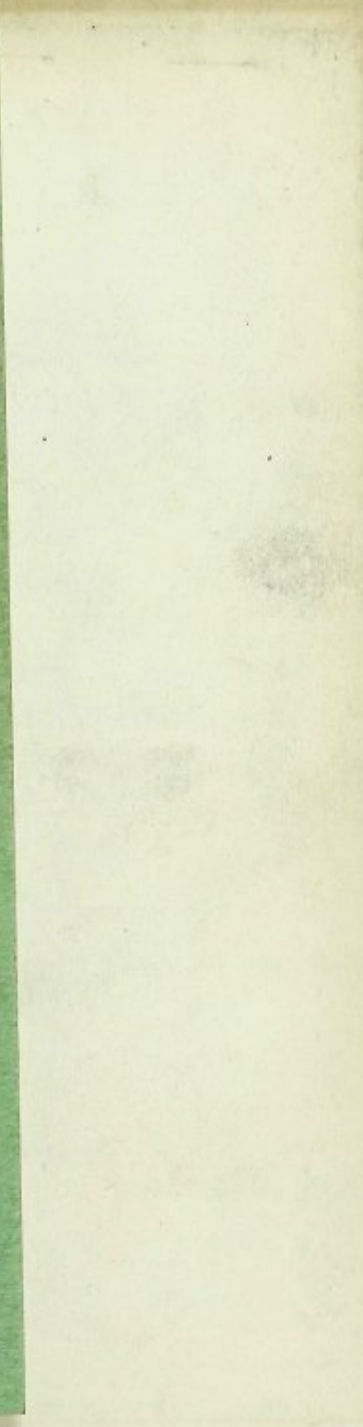
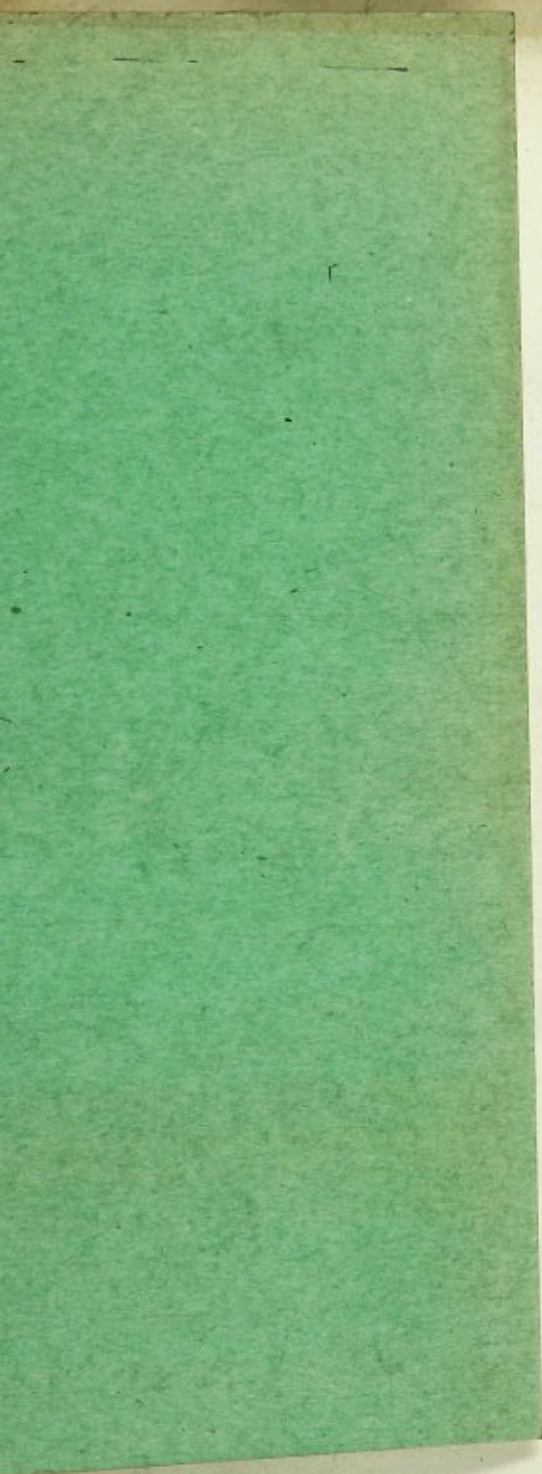
*Samples of other papers listed
in this catalog and not shown
herein will be sent upon request*

This light buff color detail drawing paper is of a thick, selected Manila stock. Made especially for drafting purposes. Slightly grained surface with reasonably good erasing qualities. Suitable for pencil or ink drawings.

No. 53B. Huron, in original rolls of 100-120 lbs. width shown. In rolls of 100 yds. and 50 yds.; 36, 42, 48 in. wide.

No. 7B. Huron (Same as No. 53B but in sheets). In reams, Sizes: 9x12, 11x15, 12x18, 15x20, 18x24, 22x30, 24x36 in.

No. 53B. HURON.	<i>Detail Paper.</i>	No. 7B HURON
No. 54B. ORION.	<i>Detail Paper.</i>	No. 8B ORION
No. 59B. HAVLON.	<i>Drawing Paper.</i>	No. 11A BURTON
No. 60. EDCO CREAM.	<i>Drawing Paper.</i>	No. 12. EDCO CREAM
No. 70. DOUBLE FORCE.	<i>Drawing Paper.</i>	No. 5 NAPOLEON
No. 132. LAWTON.	<i>Tracing Cloth</i>	
No. 162. NELSON.	<i>Tracing Paper</i>	
No. 163. LUPTON.	<i>Tracing Paper</i>	
No. 167. BRISTON.	<i>Tracing Paper</i>	
No. 171. CLAYTON.	<i>Tracing Paper</i>	
No. 173. MILTON.	<i>Tracing Paper</i>	
No. 183. BOLTON.	<i>Tracing Paper</i>	
No. 191. KELTON.	<i>Tracing Paper</i>	
No. 193. ETON.	<i>Tracing Vellum</i>	<i>available in tubes.</i>
No. 195. STERLING.	<i>Tracing Vellum</i>	
No. 275. PERFECT.	<i>Profile Paper.</i>	(Tracing)
No. 307. PERFECT.	<i>"X" Section Paper.</i>	(Drawing)
No. 340. "EFFICIENCY".	<i>Co-ordinate Paper.</i>	(Tracing)
No. 345. CONSTRUCTOR.	<i>"X" Section Paper.</i>	(Drawing)
No. 346. CONSTRUCTOR.	<i>"X" Section Paper.</i>	(Tracing)



FOURTEENTH EDITION

Catalog of
**EUGENE
DIETZGEN
CO.**

Manufacturers
Blue Print Papers
Drafting Room Supplies
Surveying Instruments
and Accessories
Measuring Tapes

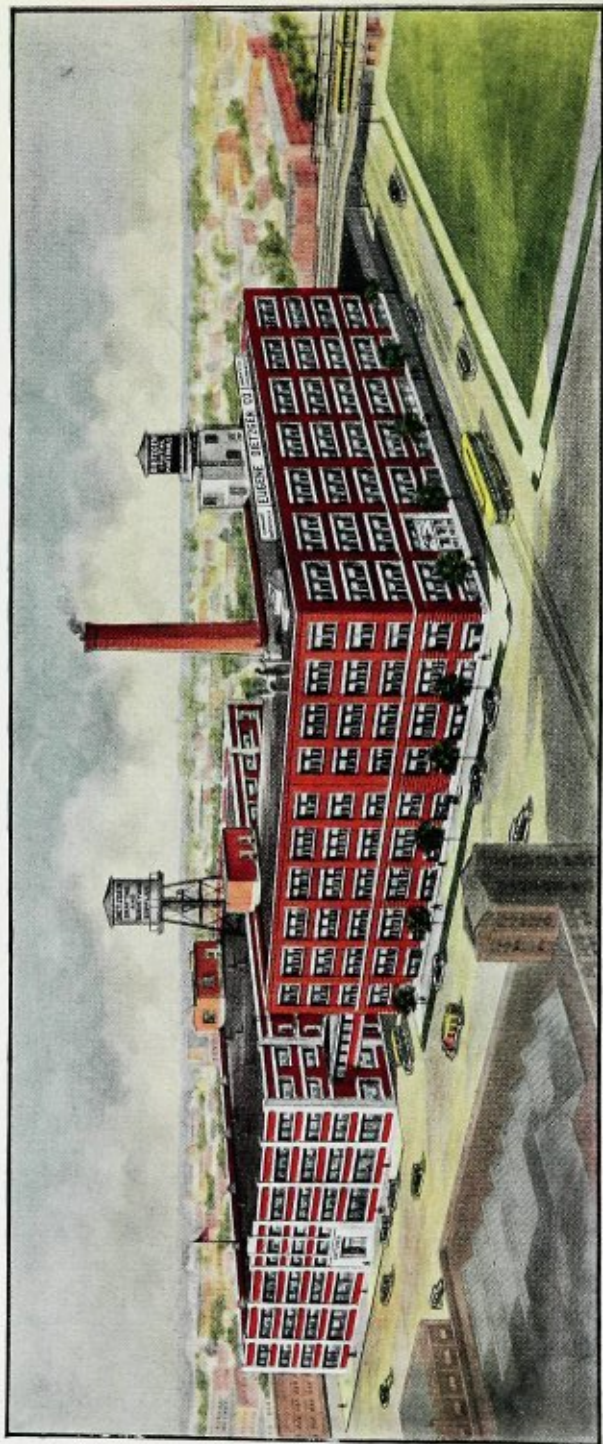


BRANCHES

CHICAGO 2425 Sheffield Ave.	NEW YORK 218 E. 23rd St.	SAN FRANCISCO 523 Market St.
NEW ORLEANS 318 Camp St.	PITTSBURGH 805 Liberty Ave.	LOS ANGELES 945 S. Broadway
PHILADELPHIA 1521 Sansom St.	WASHINGTON 407 Tenth St. N. W.	MILWAUKEE 611 N. Broadway

FACTORY AT CHICAGO

Cable Address: Anabasis, New York



EUGENE DIETZGEN CO.

Factory
and

General Office of Chicago Branch
Chicago, Illinois



218 E. 23rd St.
NEW YORK



523 MARKET ST.
SAN FRANCISCO



318 CAMP ST.
NEW ORLEANS

805 LIBERTY AVE.
PITTSBURGH



945 S. BROADWAY
LOS ANGELES



PREFACE

IT IS our constant desire to present the Dietzgen line to our customers and friends in such a way that the information and illustrations may be most helpful for reference as to specific data on drafting and surveying supplies.

We believe that this, our Fourteenth Edition, has achieved that goal, and that it will be a valuable addition to your active reference file.

Herein you will find the results of nearly fifty years of intensified study and research in the drafting and surveying fields combined into a quick reference volume. Related items are grouped and cataloged together, permitting a more convenient visual inspection of the wide selection offered in each division. A study of the contents will undoubtedly provide you with ideas that will prove of material help.

Quality is a heritage at Dietzgen. Since our inception nearly a half century ago, we have adhered faithfully to the policy of the founders "Enduring Worth at Reasonable Cost." This policy has earned a wealth of friends in every part of the world. It has made the name Dietzgen synonymous with quality and honest value everywhere.

Our prices are and will continue to be the lowest, consistent with the selected stock and the unsurpassed workmanship that enters into all of our products.

The strategic locations of Dietzgen branches also offer very definite advantages to the buyer. Your orders will be promptly filled from offices in Chicago, New York, San Francisco, New Orleans, Pittsburgh, Los Angeles, Philadelphia, Washington and Milwaukee—also from progressive dealers in all principal cities in the United States, Canada, Mexico and elsewhere.

EUGENE DIETZGEN CO.

Question of Ownership of Goods In Transit



THE consignor's (seller's) responsibility for delivery of or damage to goods sold on an f. o. b. shipping point basis ends when a receipt is obtained from the Transportation Companies by the consignor, the title passing to the consignee (buyer) when the goods are shipped.

As non-delivery rests with the Transportation Companies, against whom claims **must be made by the consignee**, the goods should therefore, in justice to the consignor, be paid for according to the agreed terms, even if not delivered.

The period within which claims must be made, this period **dating from the date of shipment**, is limited to **four months** by the Express Companies and to **six months** by the Railroad Companies. A notice to the Transportation Company of non-delivery, and a request that tracer be issued, does not extend the claim limits.

[We will, if requested, supply documents necessary for making claims. . .]

Notice

Ordering

WHEN ordering, always give the catalog number of each article desired and, on certain articles, like Papers, "T" Squares, Triangles, Drawing Boards, Colors, etc., state the size, thickness, color, etc. An omission of any of these important particulars often causes a delay of several days, as it is necessary, before we can fill the order correctly, to write for this information. If you have had the goods before and wish to order them again, specify on your order the description as given on our bill, or give the date of the bill.

Shipping Directions

State whether you wish the goods sent by parcel post, express or freight; if by freight, designate the route preferred. Small packages or parcels weighing less than 50 to 60 pounds can be forwarded more safely, more expeditiously and, in most instances, equally as cheap by express as by freight.

Parcel Post: Parcel Post packages will be forwarded at purchaser's risk, and cost of postage added to the invoice; if requested, these packages will be insured, and fee added to the invoice.

Express: Express shipments will, if requested, be forwarded prepaid, and charges added to the invoice.

Freight: Freight shipments usually require packing boxes; these will be billed at cost.

When no shipping directions are given, we send goods according to our best judgment.

As we exercise the greatest care in preparing shipments and in forwarding as directed, we are not responsible for goods damaged or lost in transit. Every assistance will, however, be given in tracing shipments which have not been delivered promptly.

Remittances

Remittances may be made either by bank draft payable to our order, or by post office money order, or by cash sent by any of the express companies. If cash is forwarded by mail, the letter should be registered. When goods are ordered by express, C. O. D., a remittance to cover packing and express charges both ways must accompany the order, and express charges for collection will be added to the invoice. Collection charges will be saved and goods delivered quicker by remitting in full with order.

Accounts

If you have never had an account with us and wish to order goods, either send a remittance with the order or give satisfactory references. Failure to remit or to give references compels us to make inquiry as to the responsibility of the party ordering, thus delaying the shipment until we receive satisfactory information.

Guarantee

All our goods are guaranteed to be exactly as described, and if any article is found to be otherwise it may be returned for replacement or for money refund.

We ask co-operation to the extent that if any cause for complaint arises that we be notified immediately.

Prices subject to change without notice.



Drawing Papers in Sheets

Whatman Hand Made

The **Whatman** Drawing Papers are made with three different surfaces, **H. P.**, **C. P.** and **R.**, as follows:

H. P., or "**Hot Pressed**," has a smooth surface: used principally for pencil, ink and fine-line drawings.

C. P., or "**Cold Pressed**," has a finely grained surface: used for general drawings and water-color work.

R., or "**Rough**" (**Torchon Paper**), has a coarsely grained surface: used for water-color work, sketching, and very bold drawings.

When ordering, always specify size and surface wanted—**H. P.**, **C. P.** or **R.**

No. 1. Whatman Drawing Paper. With H. P. or C. P. surface.

The thickness is in proportion to size of sheet.

Cap,	13 X 17 inches,	. . . . .	Ream, \$	Quire, \$
Demy,	15 X 20 "	. . . . .	"	"
Medium,	17 X 22 "	. . . . .	"	"
Royal,	19 X 24 "	. . . . .	"	"
Super Royal,	19 X 27 "	. . . . .	"	"
Imperial,	22 X 30 "	. . . . .	"	"
Double Elephant,	27 X 40 "	. . . . .	"	"
Antiquarian,	31 X 53 "	. . . . .	"	"
"	31 X 53 "	. . . . .		Sheet,

2. Whatman Drawing Paper. With R. surface (Torchon Paper).

The thickness is in proportion to size of sheet.

Royal,	19 X 24 inches,	. . . . .	Ream, \$	Quire, \$
Imperial,	22 X 30 "	. . . . .	"	"
Double Elephant,	27 X 40 "	. . . . .	"	"

3. Whatman Drawing Paper. Extra heavy, with H. P., C. P. or R. surface.

Imperial,	22 X 30 inches,	. . . . .	Ream, \$	Quire, \$
Double Elephant,	27 X 40 "	. . . . .	"	"

Mounted Whatman Papers listed under Nos. 125-126.

Samples of Sheet Papers sent on request.

See Price List in back of Catalog.

Drawing Paper

Drawing papers are made in various qualities, each answering a specific purpose. Such elements as color, finish, strength, texture and thickness place limitations upon their use with the result that the selection of an appropriate drawing paper should be made with a full knowledge of its intended use.

Quality in a paper is first determined by the grade of raw materials used in its manufacture. The finest grades are made principally from rags which have not been subject to wear, the fibres thus retaining their full strength. Numerous vegetable fibres are also employed in the manufacture of fine papers, but it is usually a large percentage of high grade rags which imparts strength and keeping qualities. Such papers will not discolor, nor become brittle with age, and they will stand a considerable amount of erasing without serious impairment of the surface.

There is, however, a limit beyond which erasing quality cannot be featured in a given paper if at the same time unusual strength is required. It is, for instance, possible to make a very strong paper by using low grade materials, if the fibre is left sufficiently long, but such a paper cannot be erased and would be unfit for drafting purposes.

It follows that a paper which will stand repeated erasures in one place cannot, at the same time, be the strongest for a given weight, nor possess the best folding test.

Since it is, therefore, impossible to combine in one paper all desirable elements, in the highest degree, slight variations must be made to permit the full development of those qualities which are to predominate.

We are presenting in our catalog a wide assortment of papers made solely and especially for us, according to our specifications, answering all conceivable needs, from a tough economical detail paper, intended largely for full sized pencil sketching, to the finest grades suitable for drawings of permanent value and map work. These papers are the product of renowned mills, having special facilities for the manufacture of drawing papers, hence users of our papers may be assured of uniform shipments as regards texture, weight, color, etc., which mean so much to the profession.

To protect our customers against spurious imitations most of our papers bear their brand names along the edge of each roll, such as



"EDCO - CREAM"



DIETZGEN "DOUBLE FORCE"

thus furnishing a guarantee that the paper supplied is genuine.

For valuable drawings and maps of a permanent character which are subject to much handling, we recommend our No. 70 **Double Force**, No. 80 **Clifton Cold Pressed** and No. 81 **Wilton Cold Pressed** papers, which represent the finest papers on the market, unexcelled in strength, which they will not lose altho kept for a great many years. Paper of this high quality will, furthermore, stand considerable erasing without impairment of the surface. Erasures may be ruled over without a spreading of the lines, and this operation may be repeated several times, with equally satisfactory results.

For **Architectural drawings**, white papers are usually preferred, such as our No. 5, 9, or 9A, in sheets, or No. 56, 58, and 65 in rolls.

For **Engineering Departments** in industrial plants Cream, Buff or Green colored papers are mostly preferred, such as our No. 11, 11A, 11B, and 12 in sheets, or No. 59, 59B, 60 and 61 rolls.

For **Detailing in pencil**, our **Huron** No. 53A, B and C, and **Orion** No. 54A, B and C, are excellent.

For **Water-color work** we recommend Whatman's papers No. 1, 2 and 3 in sheets, as well as our high grade sheet or roll papers No. 9, 65, 80 and 81.

For **Charcoal drawings**, special papers are provided, such as our No. 19 and 19B.

It is difficult, if not impossible, to cover all fields in which drawing papers are used. The above remarks are intended as a guide and we call attention to the description of each number in this catalog, which sets forth the particular features of each brand accurately and concisely, and we guarantee each paper to be exactly as represented.

Drawing Papers in Sheets

For general description of our Drawing Papers, see page 2.

- No. 5. Napoleon Cold Pressed Drawing Paper.** Thick. A hard, smooth, pure white paper. High rag content and uniform surface, specially adapted for map work and for complicated drawings. Of great strength and durability. Perfect erasing qualities. Will not discolor. For School and College use it is unequalled. (Sample in front of catalog.)

Royal,	19 X 24 inches,	Ream, \$	Quire, \$
Imperial,	22 X 30 "	"	"
Double Elephant,	27 X 40 "	"	"

- 7A. Huron Detail Drawing Paper.** Medium Thick. Light Color. Selected manila stock, specially made for drafting purpose. Slightly grained surface. Erases reasonably well and takes pencil and ink.

9 X 12 inches,			Ream, \$
11 X 15 "			"
12 X 18 "			"
15 X 20 "			"
18 X 24 "			"
22 X 30 "			"
24 X 36 "			"

- 7B. Huron Detail Drawing Paper.** Like No. 7A but Thick. (Sample in front of catalog.)

9 X 12 inches,			Ream, \$
11 X 15 "			"
12 X 18 "			"
15 X 20 "			"
18 X 24 "			"
22 X 30 "			"
24 X 36 "			"

- 8A. Orion Detail Drawing Paper.** Medium Thick. Buff Color. Highest grade manila stock. Slightly grained surface. Good erasing quality. Takes both pencil and ink. Buff color prevents soiling easily.

9 X 12 inches,			Ream, \$
11 X 15 "			"
12 X 18 "			"
15 X 20 "			"
18 X 24 "			"
22 X 30 "			"
24 X 36 "			"

- 8B. Orion Detail Drawing Paper.** Like No. 8A but Thick. (Sample in front of catalog.)

9 X 12 inches,			Ream, \$
11 X 15 "			"
12 X 18 "			"
15 X 20 "			"
18 X 24 "			"
22 X 30 "			"
24 X 36 "			"

Samples of Sheet Drawing Papers sent on request.

See Price List in back of Catalog.



Drawing Papers in Sheets

- No. 9. "EDCO Standard" Drawing Paper.** A pure white paper of exceptional quality and slightly grained surface. Largely used by Mechanical and Architectural draftsmen. Strong, with uniform surface and excellent erasing properties. A perfect pencil paper, also suitable for both ink and water-color.

			Ream, \$	Quire, \$
Cap,	medium thick,	14 × 17 inches,	.	.
Demy,	"	" 15 × 20 "	"	"
Medium,	"	" 17 × 22 "	"	"
Royal,	"	" 19 × 24 "	"	"
Imperial,	thick,	22 × 30 "	"	"
Double Elephant,	"	27 × 40 "	"	"

- 9A. Nepton Drawing Paper.** Similar in quality to No. 9 "EDCO Standard" Drawing Paper, but smooth surface.

			Ream, \$	Quire, \$
Medium,	medium thick,	17 × 22 inches,	.	.
Royal,	"	" 19 × 24 "	"	"
Imperial,	thick,	22 × 30 "	"	"
Double Elephant,	"	27 × 40 "	"	"

- 10. Union Drawing Paper.** White. Very suitable for school use. Slightly grained surface. The thickness is in proportion to the size of the sheet.

			Ream, \$	Quire, \$
Cap,	.	14 × 17 inches,	.	.
Demy,	.	15 × 20 "	"	"
Medium,	.	17 × 22 "	"	"
Royal,	.	19 × 24 "	"	"
Imperial,	.	22 × 30 "	"	"
Double Elephant,	.	27 × 40 "	"	"

- 11. Saxon Drawing Paper.** Medium thick. Light cream color. Slightly grained surface. Strong, does not become brittle, stands erasing exceptionally well, and takes ink, pencil and water-color. Listed in the generally accepted standardized drawing sizes of 9 × 12, 12 × 18, 18 × 24, and 24 × 36 inches, as well as other commercial sizes.

			Ream, \$	Quire, \$
		9 × 12 inches,	.	.
		12 × 18 "	"	"
		18 × 24 "	"	"
Royal,	.	19 × 24 "	"	"
Imperial,	.	22 × 30 "	"	"
Special,	.	24 × 36 "	"	"
Double Elephant,	.	27 × 40 "	"	"

- 11A. Burton Drawing Paper.** Thick. Excellent high grade light cream color, slightly grained surface paper, strong, durable, and will stand erasing exceptionally well. Takes ink, pencil and water color. Listed in the generally accepted standardized drawing sizes of 9 × 12, 12 × 18, 18 × 24, and 24 × 36 inches as well as other commercial sizes. (Sample in front of Catalog.)

			Ream, \$	Quire, \$
		9 × 12 inches,	.	.
		12 × 18 "	"	"
		18 × 24 "	"	"
Royal,	.	19 × 24 "	"	"
Imperial,	.	22 × 30 "	"	"
Special,	.	24 × 36 "	"	"
Double Elephant,	.	27 × 40 "	"	"

Samples of Sheet Drawing Papers sent on request.

See Price List in Back of Catalog.



Drawing Papers in Sheets

- No. 11B. **Fulton Drawing Paper.** Medium Thick. Light green in color, with medium smooth, hard surface. Takes both ink and pencil. Does not become brittle, and stands erasing to the greatest extent. On account of its color, it is more agreeable to work on than either white or cream papers. Listed in the generally accepted standardized drawing sizes of 9 × 12, 12 × 18, 18 × 24, and 24 × 36 inches, as well as other commercial sizes,

	9 × 12 inches,	12 × 18	18 × 24	19 × 24	22 × 30	24 × 36	27 × 40	Ream, \$	Quire, \$
Royal,
Imperial,
Special,
Double Elephant,

- 11T. **Macon Drawing Paper.** Medium thick. A light cream colored paper with a slightly grained surface. Very suitable for school use. Listed in the generally accepted standardized drawing sizes, as well as other commercial sizes.

	9 × 12 inches,	12 × 18	18 × 24	19 × 24	22 × 30	24 × 36	27 × 40	Ream, \$	Quire, \$
Royal,
Imperial,
Special,
Double Elephant,

12. **"EDCO Cream" Drawing Paper.** Thick. Cream color. Slightly grained surface. An exceptional paper. Stands erasing perfectly and takes pencil, ink and water-color well. Will not break in folding. Permits of much handling without soiling and the cream tint is very agreeable to the eyes. Listed in the generally accepted standardized drawing sizes of 9 × 12, 12 × 18, 18 × 24, and 24 × 36 inches as well as other commercial sizes. (Sample in front of Catalog.)

	9 × 12 inches,	12 × 18	18 × 24	19 × 24	22 × 30	24 × 36	27 × 40	Ream, \$	Quire, \$
Royal,
Imperial,
Special,
Double Elephant,

Strathmore Drawing Papers and Boards

13. **Strathmore White Drawing Paper.** Single Ply. Medium surface. For pencil, pen and water-color drawings. Of excellent erasing properties.
23 × 29 inches 100 Sheets, \$
- 13B. **Strathmore White Drawing Paper.** Single Ply. Smooth surface. For pen and ink sketching. Of excellent erasing properties.
23 × 29 inches 100 Sheets, \$
14. **Strathmore White Drawing Board.** 2-ply. Medium surface. For pencil, pen and water-color drawings.
23 × 29 inches. 100 Sheets, \$
15. **Strathmore White Drawing Board.** 2-ply. Smooth surface. For pen and ink drawings.
23 × 29 inches. 100 Sheets, \$
16. **Strathmore White Drawing Board.** 3-ply. Medium surface. For pencil, pen and water-color drawings.
23 × 29 inches. 100 Sheets, \$
- 16B. **Strathmore White Drawing Board.** 3-ply. Smooth surface. For pen and ink drawings.
23 × 29 inches. 100 Sheets, \$

Sample of Sheet Drawing Papers sent on request.

See Price List in back of Catalog.

Strathmore Illustrating Boards

- No. 16C.** Strathmore White, heavy weight, Illustrating Board. Medium surface. Water-color paper mounted on heavy board.
- | | | |
|-----------------------------|----------------|--|
| 22½ × 28½ inches, | 100 Sheets, \$ | |
| 30 × 40 " | 100 " | |
- 16D.** Strathmore White, light weight, Illustrating Board. Medium surface. 22 × 30 inches, (One side only), 100 Sheets, \$
- 16E.** Strathmore White, heavy weight, Illustrating Board. Rough surface. Water-color paper mounted on heavy board.
- | | | |
|-----------------------------|----------------|--|
| 22½ × 28½ inches, | 100 Sheets, \$ | |
| 30 × 40 " | 100 " | |
- 16H.** Strathmore White, light weight, Illustrating Board. Rough surface. 22 × 30 inches, (One side only), 100 Sheets, \$

"EDCO" Illustrating Boards

- No. 17A.** "EDCO" Illustrating Board. White. Extra heavy, "Cold Pressed," finely grained surface. Used for general drawing and water-color work.
- | | | |
|--------------------------|----------------|--|
| 30 × 40 inches | 100 Sheets, \$ | |
|--------------------------|----------------|--|
- 17B.** "EDCO" Illustrating Board. White. Extra heavy, "Hot Pressed," smooth surface. Used principally for pencil, ink, and fine line drawings.
- | | | |
|--------------------------|----------------|--|
| 30 × 40 inches | 100 Sheets, \$ | |
|--------------------------|----------------|--|
- 17C.** "EDCO" Illustrating Board. White. Heavy, "Cold Pressed," finely grained surface. Used for general drawing and water-color work.
- | | | |
|--------------------------|----------------|--|
| 30 × 40 inches | 100 Sheets, \$ | |
|--------------------------|----------------|--|

Charcoal Papers

- No. 19.** Strathmore Charcoal Paper. White.
- | | | |
|---------------------------------|----------|-----------|
| Royal, 19 × 25 inches | Ream, \$ | Quire, \$ |
|---------------------------------|----------|-----------|
- 19B.** Michallet Charcoal Paper. White.
- | | | |
|---------------------------------|----------|-----------|
| Royal, 19 × 25 inches | Ream, \$ | Quire, \$ |
|---------------------------------|----------|-----------|



Dietzgen Bristol Boards

Each Sheet
Stamped



Dietzgen Patent Office Bristol Board is of the thickness, quality, tint and size required by the United States Patent Office. It can be rolled without injury, and has a hard, white surface that stands erasing perfectly.

No. 21-2.

- No. 20-2.** Dietzgen Patent Office Bristol Board. White. Plain. 2-ply. For pen or ink drawings.
- | | | |
|---|-----------|--|
| 10 × 15 inches, U. S. Standard, | Dozen, \$ | |
| 15 × 20 " English Standard, | " | |
- 20-3.** Dietzgen Patent Office Bristol Board. White. Plain. 3-ply. For pen or ink drawings.
- | | | |
|---|-----------|--|
| 10 × 15 inches, U. S. Standard, | Dozen, \$ | |
| 15 × 20 " English Standard, | " | |
- 21-2.** Dietzgen Patent Office Bristol Board. White. 2-ply. Printed with border, etc. For pen or ink drawings.
- | | | |
|---|-----------|--|
| 10 × 15 inches, U. S. Standard, | Dozen, \$ | |
|---|-----------|--|
- 21-3.** Dietzgen Patent Office Bristol Board. White. 3-ply. Printed with border, etc. For pen and ink drawings.
- | | | |
|---|-----------|--|
| 10 × 15 inches, U. S. Standard, | Dozen, \$ | |
|---|-----------|--|
- 24.** Dietzgen Ivory White. Bristol Board. 3-ply. For pen or ink drawings.
- | | | |
|-----------------------------|-----------|--|
| 22½ × 28½ inches, | Dozen, \$ | |
|-----------------------------|-----------|--|



Reynolds Bristol Boards

No. 26. Reynolds White Bristol Board. Smooth Surface. Plain.

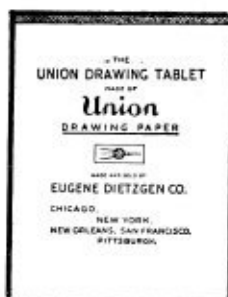
				2-ply	3-ply	4-ply
Trade Mark,	8	× 13	inches,	Dozen, \$		
Patent Office	10	× 15	"	"		
Cap,	12½	× 15¼	"	"		
Demy,	14⅝	× 18¼	"	"		
Medium,	16½	× 20¾	"	"		
Royal,	18¼	× 22¾	"	"		
Imperial,	21½	× 28¾	"	"		

27. Reynolds White Bristol Board. Printed with border, etc., for U. S. Patent and Trade Mark Office drawings.

				Gross, \$	Dozen, \$
8 × 13 inches,	Trade Mark,	2-ply,		"	"
10 × 15	"	U. S. Standard,	2-ply,	"	"
8 × 13	"	Trade Mark,	3-ply,	"	"
10 × 15	"	U. S. Standard,	3-ply,	"	"

Printing Frames for Patent Office Drawings listed under Nos. 4260-4261.

School Drawing Tablets And Sketch Blocks



No. 31.

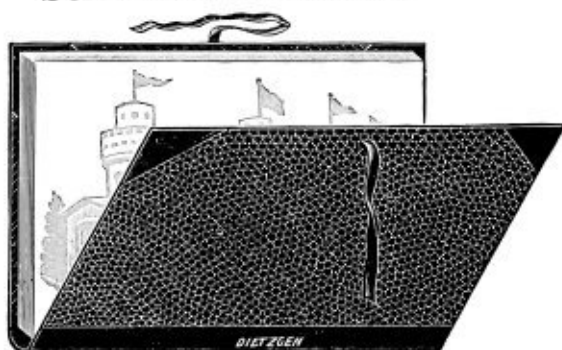


32.

- No. 31. Union School Drawing Tablet. Made of No. 10 Union Drawing Paper, 9 × 12 inches, 16 sheets, heavy manila envelope with each tablet, Dozen, \$ Each, \$
32. EDCO Standard School Drawing Tablet. Made of No. 9 EDCO Standard Drawing Paper, 9 × 12 inches, 16 sheets, heavy manila envelope with each tablet, Dozen, \$ Each, \$
33. EDCO Sketch Block. Made of good quality white drawing paper, 9 × 12 inches, 20 sheets, with cardboard backing; excellent and convenient for sketching, Dozen, \$ Each, \$

See Price List in back of Catalog.

Solid Sketch Blocks



No. 36.

Solid Sketch Blocks—24 Sheets—Plain

Sizes, 5 × 7 7 × 10 9 × 12 10 × 14 14 × 20 in.

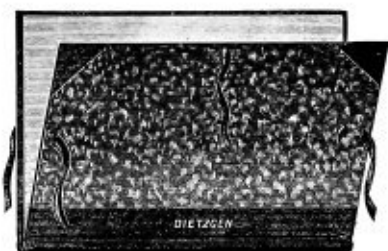
- | | | | |
|---------|----------------------|----------|------------|
| No. 34. | EDCO Standard Paper, | Doz., \$ | |
| | | Each, | |
| 35. | Whatman | " | } Doz., \$ |
| | Cold pressed surface | Each, | |

Solid Sketch Blocks—24 Sheets—Bound Leather Back and Corners, Cloth Sides, Pencil Loop

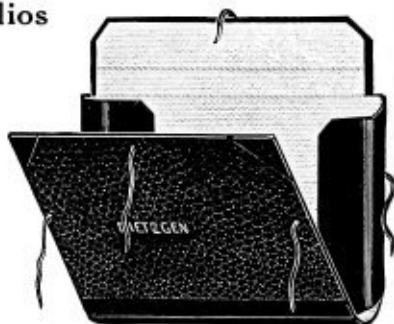
Sizes, 5 × 7 7 × 10 9 × 12 10 × 14 14 × 20 in.

- | | | | |
|---------|----------------------|----------|------------|
| No. 36. | EDCO Standard Paper, | Doz., \$ | |
| | | Each, | |
| 37. | Whatman | " | } Doz., \$ |
| | Cold pressed surface | Each, | |

Portfolios



No. 38



No. 39

- | | | | |
|---------|---|-------|--|
| No. 38. | Paper Sides, substantially made of binders board covered with black paper,
Cloth Back and Corners. | | |
| | | Doz., | Sizes, 12 × 16 14 × 18 17 × 22 20 × 26 23 × 31 in. |
| | | Each, | |
| | | | \$ |
| 39. | Cloth Sides, substantially made of binders board covered with black cloth,
Leather Back and Corners, with three flaps. | | |
| | | Doz., | Sizes, 12 × 16 14 × 18 17 × 22 20 × 26 23 × 31 in. |
| | | Each, | |
| | | | \$ |

See Price List in back of Catalog.

Manila and Detail Papers in Rolls

The Manila and Detail Papers listed by us have been selected with great care and are especially well adapted for detail and preliminary drawings, their qualities not being excelled in manila stock. The description of each grade is guaranteed representative of the properties claimed.

Manila Paper

No. 50. Hampton Manila Paper. Smooth. Can be used for detail drawings, but will not stand much erasing. Used principally by pattern makers, ornamental glass workers, stone cutters, clothing designers, etc., for stencils and patterns. Three weights: Medium (X); thick (XX); and extra thick (XXX).

In rolls 36 in. wide, approx. 125 lbs. per roll,		Pound, \$
“ “ 40 “ “ “ 140 “ “ “		“
“ “ 48 “ “ “ 185 “ “ “		“

Detail Drawing Papers

Huron (Light Color) Detail Paper. Of selected manila stock, made specially for drafting purpose. Slightly grained surface. Erases reasonably well and is suitable for ink and pencil drawings.

No. 53A. Huron (Light Color) Detail Paper. Medium.

In rolls of about 100-120 lbs., 36 and 42 in. wide,		Pound, \$
36 inches wide 100 yds.,		50 yds.,
42 “ “ 100 “		50 “

53B. Huron (Light Color) Detail Paper. Thick. (Sample in front of Catalog.)

In rolls of about 100-120 lbs., 36, 42, 48 in. wide,		Pound, \$
36 inches wide, 100 yds.,		50 yds.,
42 “ “ 100 “		50 “
48 “ “ 100 “		50 “

53C. Huron (Light Color) Detail Paper. Extra Thick.

In rolls of about 100-120 lbs., 36 and 42 in. wide,		Pound, \$
36 inches wide, 100 yds.,		50 yds.,
42 “ “ 100 “		50 “

Orion (Buff Color) Detail Paper. The best manila drafting paper. Slightly grained surface. Good erasing quality. Adapted for ink and pencil drawings. The buff tint permits of considerable handling without soiling.

No. 54A. Orion (Buff Color) Detail Paper. Medium.

In rolls of about 100-120 lbs., 36 and 42 in. wide,		Pound, \$
36 inches wide, 100 yds.,		50 yds.,
42 “ “ 100 “		50 “

54B. Orion (Buff Color) Detail Paper. Thick. (Sample in front of Catalog.)

In rolls of about 100-120 lbs., 36, 42, 48, 54 in. wide,		Pound, \$
36 inches wide, 100 yds.,		50 yds.,
42 “ “ 100 “		50 “
48 “ “ 100 “		50 “
54 “ “ 100 “		50 “

54C. Orion (Buff Color) Detail Paper. Extra Thick.

In rolls of about 100-120 lbs., 36 and 42 in. wide,		Pound, \$
36 inches wide, 100 yds.,		50 yds.,
42 “ “ 100 “		50 “

See Price List in back of Catalog.

Drawing Papers in Rolls



(Reduced print of our labels)

For General Description of our Drawing Paper, see page 2.

- No. 55. Trevon Drawing Paper.** Thick. Very moderately priced white paper, suitable for preliminary work. Strong, with good erasing properties. Slightly grained surface. Will take ink and water-color.
 In rolls of about 35 to 40 lbs., 30, 36, 42 inches wide, . . . Pound, \$
- | | | |
|---------------------------|---------|---------|
| 30 inches wide, | 50 yds. | 10 yds. |
| 36 " " | | |
| 42 " " | | |
- 56. Milon Drawing Paper.** Medium. An extremely tough, white sketching paper, with smooth surface. Will not break in folding. With good erasing qualities, and suitable for pencil, ink and water-color work. Moderate in price.
 In rolls of about 40-45 lbs., 36 or 42 inches wide, . . . Pound, \$
- | | | |
|---------------------------|---------|---------|
| 36 inches wide, | 50 yds. | 10 yds. |
| 42 " " | | |
- 58. Toulon Drawing Paper.** Thick. Similar to No. 56, but of much heavier stock.
 In rolls of about 40-45 lbs., 36 or 42 inches wide, . . . Pound, \$
- | | | |
|---------------------------|---------|---------|
| 36 inches wide, | 50 yds. | 10 yds. |
| 42 " " | | |
- 59. Saxon Drawing Paper.** Cream Color. Smooth, slightly grained surface. Takes pencil and ink. Stands erasing to the greatest extent. Does not become brittle.
 In rolls of about 35 to 40 lbs., 30, 36, 42 inches wide, . . . Pound, \$
- | | | |
|---------------------------|---------|---------|
| 30 inches wide, | 50 yds. | 10 yds. |
| 36 " " | | |
| 42 " " | | |
- 59B. Havlon Drawing Paper.** An excellent high grade light cream color paper, with slightly grained surface. Strong, durable and of good erasing properties. Will stand rough handling; takes ink and pencil well. (Sample in front of Catalog.)
 In rolls of about 40-45 lbs., 30, 36, 42, 54, 62 inches wide, . . . Pound, \$
- | | | |
|---------------------------|----------|-----------------|
| 30 inches wide, | 100 yds. | 50 yds. 10 yds. |
| 36 " " | | |
| 42 " " | | |
| 54 " " | | |
| 62 " " | | |

See Price List in back of Catalog.

Drawing Papers in Rolls

- No. 60. "EDCO Cream" Drawing Paper.** Cream Color. Slightly grained surface. An exceptional paper. Stands erasing perfectly and takes pencil, ink and water colors. Will not break in folding. Permits of much handling without soiling and cream tint is very agreeable to the eyes. (Sample in front of Catalog.)

In rolls of about 40 lbs.*for 30, 36, 42 inches, 45 lbs. for 54 inches, and 50 lbs. for 62 inches wide, Pound, \$

	50 yds.	10 yds.
30 inches wide,	\$	\$
36 " "		
42 " "		
54 " "		
62 " "		

- 61. Fulton Drawing Paper.** Medium Thick. Light green in color, with slightly grained surface. Takes both ink and pencil. Does not become brittle, and stands erasing to the greatest extent. On account of its color, it is more agreeable to work on than either white or cream papers.

In rolls of about 35-40 lbs., 30, 36, 42, 62 inches wide, Pound, \$

	50 yds.	10 yds.
30 inches wide,	\$	
36 " "		
42 " "		
62 " "		

- 65. "EDCO Standard" Drawing Paper.** A pure white paper of exceptional quality. Uniform in thickness and surface. Strong, with excellent erasing properties. Suitable for ink, pencil and color work.

In rolls of about 40-45 lbs., 36, 42, 62 inches wide, Pound, \$

	50 yds.	10 yds.	Yard.
36 inches wide,	\$		
42 " "			
62 " "			

- 70. Double Force Drawing Paper.** A very tough, strong, hard sized, white drawing paper of high rag content. It has a smooth, calendered surface and because of the formation of the fibres, stands erasing perfectly and will take sharp ink lines over repeated erasures. It has a high tearing strength and will fold without breaking.

It is an exceptional paper of superior quality and is recommended for the most elaborate or complicated fine line drawings in ink or pencil. It is also an ideal paper for permanent records, map work, and because of its pure rag stock, for drawings that are to be roughly handled. The highest grade paper for mechanical drawings. (Sample in front of Catalog.)

In rolls of about 40-45 lbs., 36, 42, 63, 72 inches wide, Pound, \$

	50 yds.	10 yds.	Yard
36 inches wide,	\$		
42 " "			
63 " "			
72 " "			

For General Description of our Drawing Paper, see page 2.

Our Roll Drawing Papers cut into any size sheets desired, at prices but little higher than for roll stock.

Samples of Roll Papers mailed on request.

See Price List in back of Catalog.

Drawing Papers in Rolls

No. 80. **Clifton Cold Pressed Drawing Paper.** White—100% Rag Stock. It is made of the very best materials obtainable; no effort or expense has been spared to make it the best paper that can be produced. It has a finely grained surface which permits effective color work. Its uniformity of surface has heretofore been unattained, as well as its firmness, which adapts it equally well to pencil, ink and color work. Its erasing qualities are unsurpassed.

We recommend this paper for competitive drawings, fine maps, or other particular work of permanent value. We guarantee Clifton Drawing Paper to give perfect satisfaction, and will exchange any which is not found as represented.

Each roll is stamped along the edge Dietzgen "Clifton," furnishing guarantee of the high character of this stock.

In rolls of about 40 lbs., 36, 42 in. wide; 40 to 50 lbs., 58 in. wide, Pound, \$
10 yds. Yard

36 inches wide,	\$
42 " "	
58 " "	

81. **Wilton Cold Pressed Drawing Paper,** is like No. 80 but **extra thick.**

In rolls of about 50 lbs., 58 inches wide, Pound, \$
10 yds. Yard

58 inches wide,	\$
---------------------------	----

Mounted Drawing Papers in Rolls

Mounted on Muslin

On account of the increased demand for Mounted Papers to be used for Recorders' plats, County and State maps, and all drawings which are of permanent value, we have greatly enlarged our facilities for this line of work.

All our papers are mounted stretched, and air-dried.

By this process the muslin and paper become inseparable, the paper adhering at the edges equally as well as in the center. Both the surface and strength of the paper remain the same as in the unmounted stock.

No. 99. **"EDCO Cream" Drawing Paper.** Cream Color. Mounted. The same paper as described under No. 60.

36 inches wide,	10 yds.	Yard.
42 " "	\$	\$
54 " "		
62 " "		

For General Description of our Drawing Paper, see page 2.

Our Roll Drawing Papers cut into any size sheets desired, at prices but little higher than for roll stock.

Samples of Roll Papers mailed on request.

See Price List in back of Catalog.



Mounted Drawing Papers in Rolls

Mounted on Muslin

- No. 99B. **Fulton** Drawing Paper. Light Green. Mounted. The same paper as described under No. 61.
- | | | |
|-----------------|---------|-------|
| 36 inches wide, | 10 yds. | Yard. |
| 42 " " " | \$ | |
| 62 " " " | | |
- No. 101. **EDCO Standard** Drawing Paper. White. Mounted. The same paper as described under No. 65.
- | | | |
|-----------------|---------|-------|
| 36 inches wide, | 10 yds. | Yard. |
| 42 " " " | \$ | |
| 62 " " " | | |
- No. 105. **Double Force** Drawing Paper. White. Mounted. The same paper as described under No. 70.
- | | | |
|-----------------|---------|-------|
| 36 inches wide, | 10 yds. | Yard. |
| 42 " " " | \$ | |
| 63 " " " | | |
| 72 " " " | | |
- No. 115. **Clifton Cold Pressed** Drawing Paper. White. 100% rag stock. Mounted. The same paper as described under No. 80.
- | | | |
|-----------------|---------|-------|
| 36 inches wide, | 10 yds. | Yard. |
| 42 " " " | \$ | |
| 58 " " " | | |
- No. 116. **Wilton Cold Pressed** Drawing Paper. White. 100% rag stock. Mounted. The same paper as described under No. 81.
- | | | |
|-----------------|---------|-------|
| 58 inches wide, | 10 yds. | Yard. |
| | \$ | |

Indestructible Paper Cloth

- No. 120. **Sharon** Indestructible Paper Cloth. Smooth. An article made of muslin to which paper pulp is applied. Pliable and very strong, takes both pencil and ink, and stands erasing to a serviceable extent.
- In rolls of 30-40 yds., 38 inches wide, Yard, \$

Mounted Drawing Papers in Sheets

Furnished either with the muslin extending over on one or all edges, or with edges trimmed to the exact size of the sheet. Unless otherwise specified the sheets will be furnished with muslin trimmed on all edges.

- No. 125. **Whatman** Drawing Paper. Mounted. (Specify whether hot or cold pressed surface.)
- | | | |
|----------------------------|-----------------|-----------|
| Imperial, | 22 X 30 inches, | Sheet, \$ |
| Double Elephant, | 27 X 40 " " | " " |
- No. 126. **Whatman** Drawing Paper. Double Mounted. (Specify whether hot or cold pressed surface.) For Map or Atlas work. Double mounted—muslin in the middle, with paper on both sides.
- | | | |
|----------------------------|-----------------|-----------|
| Imperial, | 22 X 30 inches, | Sheet, \$ |
| Double Elephant, | 27 X 40 " " | " " |

Mounted Sheets to Order

Mounted sheets differing in size from those listed can be furnished to order. We also supply double mounted sheets; that is, two sheets of paper with a muslin center, the grain of one sheet running at right angles to the grain of the other sheet. By this method of mounting the effects of the atmosphere on the paper, causing contraction and expansion, are reduced to a minimum.

The prices for mounted paper apply to sheets on which the muslin is trimmed to the size of the paper.

If it is desired that the muslin should extend beyond the edge of the paper on one or more sides, this must be clearly stated in the order. Mounting with the muslin protruding, increases the price of the sheets.

Tracing Cloths

No. 128. **Madison** Tracing Cloth, 24 yd. rolls, one side glazed, the other dull. A popular priced cloth adapted for drafting room use, transparent, strong, and will withstand considerable erasing.

Roll, Width, 30 in. 36 in. 42 in.
 \$

129. **Prudence** Tracing Cloth, 24 yd. rolls, one side glazed, and the other dull.
 Roll, Width, 30 in. 36 in. 42 in.
 \$

131. **Arkwright** Tracing Cloth, 24 yd. rolls, one side glazed, other dull.
 Roll, Width, 30 in. 36 in. 42 in.
 \$



No. 132.

132. **Lawton** Tracing Cloth, 24 yd. rolls, one side glazed, other dull. Specially adapted for drafting room use, very transparent, strong and will withstand considerable erasing without becoming opaque.

Roll, Width, 30 in. 36 in. 42 in.
 \$

The tendency now of standardizing drawings to uniform multiple sizes permits the economy of using ready cut sheets. This saves time and stock formerly wasted in cutting, trimming and preparing papers and cloths from rolls. We list *Lawton* in ready cut sheets, in those sizes most generally used, packed 250 sheets in wax paper carton.

9 × 12 inches,	Carton of 250 Sheets, \$
12 × 18 "	" " 250 "
18 × 24 "	" " 250 "
24 × 36 "	" " 250 "



No. 135.

No. 135. **Imperial** Tracing Cloth, 24 yd. rolls, one side glazed, other dull.
 Width, 24 in. 30 in. 36 in. 38 in. 42 in. 48 in. 54 in.
 Roll, . \$
 Yard, .

137. **Excelsior** Tracing Cloth, 24 yd. rolls, one side glazed, other dull. Very uniform and exceptionally transparent.
 Roll, . \$
 Yard, .

Samples of Tracing Cloths mailed on request. Tracing Cloth Preparations listed under Nos. 141-144.

See Price List in back of Catalog.

Pencil Cloths

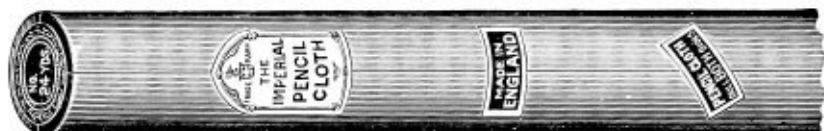


No. 138

No. 138. **Pencil Cloth**, 24 yd. rolls. A durable, transparent material suitable for both pencil and ink work. Specially adapted for use in Architectural and Structural Steel drafting rooms and by Contractors and Designers of Special Machinery.

The original drawing, made direct on the cloth, can, if desired, be altered many times, as the erasing quality of this material is exceptional. In addition to being suitable for permanent drawings on account of its strength, its transparency permits of making excellent reproductions.

Width, 36 to 38 in. Roll, \$



No. 140D

No. 140D. **Imperial Pencil Cloth**, 24 yd. rolls, dull on both sides. This cloth is made especially as an economical media for permanent originals in pencil or ink—for architectural, structural and machine drawing. Because it erases without leaving a trace and its strength permits of permanent drawings, the original drawing can be made direct on the cloth. It also permits of making excellent reproductions from pencil or ink drawings. Another important advantage of this cloth is the special tooth of both sides, permitting typewriting with carbon back as required for certain railway reports, specifications, etc.

Width, 30 in. 36 in. 42 in.

Roll, \$

Samples of Pencil Clothes mailed on request

See Price List in back of Catalog.



No. 141.

Tracing Cloth Preparations

No. 141. Liquid Tracing Cloth Cleaner. Excellent for removing pencil marks, dirt, and grease spots from tracings. Has no effect on waterproof ink, and does not injure the surface for inking. A piece of flannel, furnished with each can, is moistened and rubbed lightly over the part to be cleaned.

In 16 oz. cans, Each, \$

142. Tracing Cloth Powder. For preparing tracing cloth so it will take ink readily. No cloth or tuft of cotton needed, as the powder is rubbed evenly over the surface with,

and thoroughly removed by, the felt disc which is securely fastened to the top of the cover. In 3 oz. canister shakers.

Dozen, \$
Each,



No. 142.



No. 143.

No. 143. "EDCO Glossgone" Tracing Cloth Powder, . Doz., \$ Each, \$

"EDCO Glossgone" is a tracing cloth powder of exceptional merit, and is absolutely free from grit. For preparing tracing cloth or glossy tracing paper so that it will take ink or water color readily it is unequaled.

The container is a substantial cardboard box of a unique but practical design, 4½ in. long, 1¾ in. wide and 1¼ in. deep. The top, covered with cloth, has an opening of ample size through which the powder is sifted lightly on the tracing cloth or tracing paper and then rubbed evenly over the surface with the cloth top and the surplus removed with the felt pad attached to the bottom of the box.

No. 144. Instanto Ink Remover. Unequaled for quickly and effectively removing **waterproof black drawing ink** from tracing cloth. It positively cannot injure the tracings as the ingredients of "Instanto" are absolutely harmless to tracing cloth.

In bottles, 1 oz. 4 oz. 8 oz. 16 oz.
Each, \$

For Tracing Cloths, see Nos. 128-140D.

See Price List in back of Catalog.



No. 146.

Transparento

No. 146. **Transparento.** For transparentizing drawings and tracings. Especially valuable to facilitate the printing of drawings made on bristol board or heavy white drawing paper. Also to increase the printing speed of Vandyke negatives, old or soiled tracings, or tracings of any kind. Does not affect ink or pencil marks, and will not cause paper to become brittle. It is not inflammable.

In cans,	4 oz.	½ Pt.	Pt.	Qt.	½ Gal.	Gal.
Each,	\$					

Stamp-o-graph Process

The Stamp-o-graph Process enables Lettering, Designs and Standard Details to be stamped permanently on either Tracing Cloth or Tracing Paper—supplying a much needed want.

It consists of making an impression with an ordinary rubber stamp inked from the Stamp-o-graph Ink Pad, and then applying Black and White Powders according to the directions furnished with each outfit. The Lettering, Designs or Standard Details produced are **jet black, gasoline proof, smear proof and ready for use, blue-printing perfectly.** The operation requires but a few moments and gives perfect results.

We do not believe that there is any other ink or system of lettering now on the market which combines all of the remarkable features of the Stamp-o-graph Process. Some of these features are: Impression dries immediately; ink does not injure the rubber stamps; the stamp pad does not become hard.

Standard Titles and Details

of all kinds can be made up on rubber stamps and stamped quicker and more effectively than the work can be done by hand.

No. 148.	Stamp-o-graph Outfit; complete with Ink Pad 2¾ × 4½ in., bottle of Pad Ink, bottle of Black Powder and bottle of White Powder,	Each, \$
148-1.	Like No. 148, but Ink Pad 3 × 6 in.,	"
148-2.	" " 148, " Ink Pad 4½ × 7½ in.,	"
148-3.	" " 148, " Ink Pad 4 × 9 in.,	"
148-4.	Pad Ink, in metal screw cap bottle,	"
148-5.	Bottle of Black Powder,	"
148-6.	" " White Powder,	"

See Price List in back of Catalog.

Tracing Papers in Rolls and Sheets



(Reduced print of our labels)

Careful attention has been given to the selection of our tracing papers, and we feel confident that the assortment as listed, will meet all requirements. Properties of our tracing papers are briefly and accurately set forth. However, we suggest wherever possible, selection be made from our sample book.

The trend now of standardizing drawings to the generally accepted uniform multiple sizes of 9 × 12, 12 × 18, 18 × 24, 24 × 36 inches, has opened the way for considerable economy in the drafting and reproduction departments by using ready cut sheets.

The saving of time and stock wasted in cutting, trimming and preparing roll papers and cloths, and the increased facility in handling, grouping, and filing uniform multiple size drawings has rapidly led to the now almost universal use of ready cut sheets in drawing, tracing and reproduction papers and cloths for standard size drawings.

We now list our most popular grades of tracing papers in sheets in those sizes most generally used. Samples of these papers will be found attached to the front cover of this catalog.

No. 161. Winston Detail Tracing Paper. Thin, unglazed, and of moderate transparency. This paper is not made for strength; however, it can be used for rough pencil sketching and drawing. It is very suitable for detail pencil drawing.

36 inches wide,		Roll of 50 yds., \$
42 " "		" " 50 "
57 " "		" " 50 "

162. Nelson Tracing and Transferring Paper. Extra thin, and for its weight, the most transparent and strongest tracing paper on the market. A pure white stock, natural unprepared tracing paper with a smooth, unglazed surface that will not turn color or become brittle. Admirably adapted for pencil sketches and fine details. Because of the high character of raw materials used in this paper, it will permit considerable handling and folding. It answers the modern demand for a paper which will give excellent reproductions from pencil drawings. Its strength and transparency permits of the speedy production Blue Prints and other reproductions. It is, beyond doubt, the most popular number among Architects and those reproducing from pencil drawings. (Sample in front of Catalog.)

18 inches wide,		Roll of 50 yds., \$
24 " "		" " 50 "
36 " "		" " 50 "
42 " "		" " 50 "
60 " "		" " 50 "

In Cut Sheets, in sizes most generally used.

12 × 18 inches,	500 sheets packed in carton,		\$
18 × 24 " "	250 " " " "		
24 × 36 " "	100 " " rolled on pasteboard tube,		

See Price List in back of Catalog.

Tracing Papers in Rolls and Sheets



(Reduced print of our labels)

- No. 163. Lupton Tracing Paper.** Extra thin. White, unglazed surface. Of exceptional strength. Good transparency. Suitable for pencil and ink. Especially adapted for drawings and sketches of permanent record. (Sample in front of Catalog).

36 inches wide,	Roll of 50 yds., \$	Roll of 20 yds., \$
42 " "	" " 50 "	" " 20 "

In Cut Sheets, in sizes most generally used.

12 × 18 inches, 500 sheets packed in carton,	\$
18 × 24 " " 250 "	" " "
24 × 36 " " 100 "	rolled on pasteboard tube,

- 166. Preston Tracing Paper.** Thin. White, strong and of good transparency. Slightly grained surface. Ideal for pencil drawing.

42 inches wide	Roll of 20 yds., \$
--------------------------	---------------------

- 167. Briston Bond Tracing Paper.** Medium Thick. White. Smooth but unglazed surface. Considerable tensile strength. High grade bond stock. Moderate transparency. Suitable for permanent records in pencil, ink, and color. Stands erasing exceedingly well. (Sample in front of Catalog).

36 inches wide,	Roll of 50 yds., \$	Roll of 20 yds., \$
42 " "	" " 50 "	" " 20 "

- 168. Clinton Bond Tracing Paper.** Medium thick. White. A strong white bond paper. Unglazed. Of medium transparency and suitable for ink, pencil, and color.

30 inches wide,	Roll of 50 yds., \$	Roll of 20 yds., \$
36 " "	" " 50 "	" " 20 "
42 " "	" " 50 "	" " 20 "

- 169. Pompton Tracing Paper.** Medium thick. White, with glazed surface. Strong and very transparent. Will stand erasing well. Excellent for speedy Blue Prints and other reproductions. Very suitable for Architects' and Engineers' specification sheets. It is well adapted for ink and fine pencil drawings.

42 inches wide,	Roll of 20 yds., \$
---------------------------	---------------------

Samples of Tracing Cloth and Papers mailed on request.

See Price List in back of Catalog.



Tracing Papers in Rolls and Sheets



(Reduced print of our labels)

No. 170. Trenton Tracing Paper. Light. Exceptionally strong considering weight. Good erasing quality and sufficiently transparent for blueprint copies. For both ink and pencil.

30 inches wide,	Roll of 50 yds., \$	Roll of 20 yds., \$
36 " "	" " 50 "	" " 20 "
42 " "	" " 50 "	" " 20 "

171. Clayton Tracing Paper. Medium thick. White, with smooth but unglazed surface, of unsurpassed quality. Very strong and of moderate transparency. Especially adapted for machine drawings and other work requiring considerable handling. Excellent erasing qualities. Will take pencil, ink, and color. (See sample in front of Catalog.)

36 inches wide,	Roll of 50 yds., \$	Roll of 20 yds., \$
42 " "	" " 50 "	" " 20 "

172A. Arion Tracing Paper. Medium Thick. White, with smooth but unglazed surface and great uniformity of texture. Good transparency and high strength. Adapted for both ink and pencil drawing.

30 inches wide,	Roll of 50 yds., \$
36 " "	" " 50 "
42 " "	" " 50 "
62 " "	" " 50 "

173. Milton Tracing Paper. Light weight. White, excellent detail sketch paper, of good transparency. It is tough and strong. Stands erasing by knife or rubber and is especially adapted for pencil, ink and color. Excellent Blue Prints and other reproductions can be made from it. The moderate price and excellent qualities make it a very desirable tracing paper for general use. (Sample in front of Catalog.)

36 inches wide,	Roll of 50 yds., \$
42 " "	" " 50 "

In Cut Sheets, in sizes most generally used.

12 × 18 inches, 500 sheets packed in carton,	\$
18 × 24 " 250 " " "	
24 × 36 " 100 " rolled on pasteboard tube,	

Samples of Tracing Cloth and Papers mailed on request.

See Price List in back of Catalog.

Tracing Vellums



(Reduced Print of Our Labels)

No. 192. **Vellon Tracing Vellum**, medium thick, unglazed surface, keeps its pure white color, very strong and transparent, stands considerable erasing and handling. This is an exceptionally fine vellum for pencil tracings, as it takes pencil readily, as well as ink or color, and permits the making of excellent reproductions from it.

30 inches wide,	Roll of 20 yds., \$
36 " "	" " 20 "
42 " "	" " 20 "

In Cut Sheets, in sizes most generally used.

12 × 18 inches, packed 500 sheets in carton,	Carton \$
18 × 24 " " 250 " " " " " " " " " "	
24 × 36 " " 100 " rolled on pasteboard tube,	

192T. **Vellon Tracing Vellum**, same as No. 192, but furnished in tubes.

30 inches wide,	Roll of 20 yds., \$
36 " "	" " 20 "
42 " "	" " 20 "

193. **Eton Tracing Vellum**. Medium thick. Unglazed surface. Exceptionally strong and transparent. Stands considerable erasing. Very fine for pencil, ink, and color work. (Sample in front of Catalog.)

36 inches wide,	Roll of 20 yds., \$
42 " "	" " 20 "

In Cut Sheets, in sizes most generally used.

12 × 18 inches, 500 sheets packed in carton,	Carton \$
18 × 24 " 250 " " " " " " " " " "	
24 × 36 " 100 " rolled on pasteboard tube,	

193T. **Eton Tracing Vellum**, same as No. 193, but furnished in tubes.

36 inches wide,	Roll of 20 yds., \$
42 " "	" " 20 "

See Price List in back of Catalog.

Tracing Vellums



(Reduced print of our labels)

- No. 195. Sterling Tracing Vellum.** Medium thick. Great strength and transparency. Adapted for pencil, ink and color work. Furnished in tubes. (Sample in front of Catalog.)

30 inches wide,	Roll of 20 yds., \$
36 " "	" " 20 "
42 " "	" " 20 "

- 195W. Velton Tracing Vellum.** Medium thick. Very strong and transparent. Well adapted for pencil, ink, and color work. Furnished in tubes.

30 inches wide,	Roll of 20 yds., \$
36 " "	" " 20 "
42 " "	" " 20 "

Tracing Paper Sheets in Tubes



No. 196.

- No. 196. Bolton Tracing Paper.** Medium thick. Strong. Unglazed surface. Very transparent. Erases well. Takes pencil and ink. Bluish tint permits of making excellent reproduction.

18 x 24 inches, 100 sheets packed in pasteboard tube,	\$
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Specification Papers

- No. 197A.** Specification Paper, size 8½x11 in., 500 sheets in a box, per box \$ Each,
197B. " " " 8½x13 in., 500 " " " " " "

These Specification Papers are of a high grade, light weight, typewriter bond paper, especially suited for Architects' specifications. This paper is sufficiently transparent to permit reproductions.

Bond Paper

- No. 198. Crane Bond Paper.**

	Thin No. 16	Medium No. 18	Thick No. 21
19 x 24 inches,	Quire, \$		
22 x 34 "	"		

See Price List in back of Catalog.



Printing Departments

At each of our various branches we operate large departments fully equipped for reproducing tracings and drawings by **Electric Printing**, or **Photostat Machines**, which enables Engineers, Architects and the general trade, located in any part of the country, to obtain, quickly and at a reasonable price, any number of prints by any of the processes described below.

We specialize on the following kinds of prints, made on both paper and cloth:

Blue Prints—White lines on blue background.

Positive Blue Prints (blue line prints)—Dark blue lines on white background.

Vandyke Negative Prints—White lines on dark brown background.

Vandyke Positive Prints—Dark brown lines on white background.

Ozalid (positive prints)—Dark red lines on cream background. (See pages 35-37.)

Directo (positive prints)—Black lines on white background. (See pages 38-40.)

EDCO Process Prints—Reproduction of original tracings on tracing cloth. (See pages 33-34.)

Lithoprints—Reproduction of original tracings on tracing cloth.

Photostat, Negative Prints (photographic)—White lines on black background.

Photostat, Positive Prints (photographic)—Black lines on white background.

Photostat prints can be made in reductions, enlargements and facsimile. They are an accurate means of producing rapidly exact reproductions of printed matter or drawings.

To overcome, as far as possible, the chance of prints fading when exposed to strong sunlight, all Blue or Vandyke prints made by us are thoroughly washed until all surplus chemicals are removed.

Tracings sent to us, with information regarding the kind of prints and number of copies desired, will be promptly reproduced and returned to sender.

We will submit, on request, samples and prices on any of above processes.

Printing Equipment

Perfect equipment for printing has been installed in our various branches. Both vertical and continuous Printing Machines and Photostat Machines of modern construction are used, and every improvement that facilitates printing by these processes has been adopted. **We are thus able to make prints rapidly and with perfect results.**

For sun printing, our departments are equipped with our improved Vacuum Frames, by which the finest lines of a drawing are reproduced sharply and distinctly.

Map Printing

Special attention is given to map printing and mounting. Large Vacuum Frames, designed to meet all the requirements of map printing, have been installed, and our map work is noted for its sharp, distinct lines, and clear unclouded backgrounds.

Maps, when desired, are mounted on muslin by our improved mounting process, and permanent, durable results are obtained. All of the joining edges of maps (when maps are in several sections) are accurately beveled, thus insuring strong, smooth, scarcely perceptible seams.

If ordered, maps will be attached to plain or spring rollers, at lowest prices.

Specification Sheet Printing

We also give special attention to specification sheet printing. We have built quite a reputation for printing quickly and at reasonable cost, specification sheets from Engineers' and Architects' typewritten data.

Great care is exercised in keeping these data sheets in proper order and trimmed to any size specified.

Blue Print Papers

Stock and Equipment

The sensitized Blue Print Papers listed on the following pages represent an assortment that will fulfill any requirement.

We pay particular attention to this part of our business, and as our coating methods are the result of improvements suggested by our many years of experience, we feel justified in saying that our departments for scientifically preparing sensitized papers are unequalled.

Only the purest chemicals are used, and the papers selected are those which extensive tests have proved to be the best adapted for the purpose. Expense has been entirely disregarded when it has been possible to utilize any device for the betterment of our product. By adhering to this policy; by taking advantage of improved processes; by keeping our machinery modernized in every respect—we have developed our present splendid equipment. That our efforts in this direction are fully appreciated by our trade is proved conclusively by the extraordinary success attained by our product.

Papers

"Hyperion" Blue Print Papers are made from a paper stock which is manufactured specially for us from the highest grade, chemically pure stock, unequalled in tensile strength, and uniformity in weight, and possessing a superior finish. These desirable paper qualities, combined with our famous sensitizing solution and processes, produce a blue print paper having printing and keeping qualities that defy comparison.

"Union" Blue Print Papers are of 100 per cent selected rag stock, and carefully sensitized to give very good printing and keeping qualities. These papers are produced to meet the demand for a moderate priced dependable paper, adequate for shop work and will be found to possess printing and keeping qualities equal, if not superior, to the many so called "highest grade papers."

"Excello" Blue Print Papers are a popular grade with high rag content. These papers are ideal for all commercial work and will stand up well under rough usage, having substantial folding endurance and tearing strength for their grade. They are sensitized with emulsions to produce excellent blue prints of sharp contrast in line and background.

Printing Speeds

Our Blue Print Papers are prepared for stock in different solutions, for different printing speeds as described below. However, when desired, we can sensitize them with any special solution which may be required to meet local conditions of sun or electric light.

Regular or Slow Printing—(Regular)—Requires an exposure of about four minutes in bright sunlight. Best adapted for use during the summer and for making Positive Blue Line Prints from Vandyke Negatives. Unsurpassed in keeping quality. The prints produced have a deep, rich color, and clear, sharp-defined lines.

Rapid Printing—(MR)—Requires an exposure of about one minute in bright sunlight. Papers coated with this solution are invaluable for use in cloudy weather and for making prints quickly. The keeping and printing qualities are excellent.

Extra Rapid Printing—(XR)—Requires an exposure of thirty to forty seconds in bright sunlight. Especially adapted for printing under adverse weather conditions. This speed of printing is the same as is now generally used on Electric Light Blue Print Machines.

Electric Rapid Printing—(XXR)—Requires an exposure of twenty to thirty seconds in bright sunlight. This solution is extremely sensitive and specially adapted for Electric Light Blue Print Machines. It is not recommended for use during the summer unless the printing is to be done by electric light, for which purpose it is specially adapted.

Double Electric Printing—(XXXR)—Requires an exposure of ten to twenty seconds in bright sunlight. This solution is the most sensitive of all and is not recommended for use during the summer. It will give excellent printing results when used in connection with Electric Blue Print Machines, where the printing speed is the all important factor.

For rich permanent color; for sharp distinct lines; for toughness and strength in water bath; and for superior keeping quality—our sensitized Blue Print Papers are unrivaled.

Service

We have extensive sensitizing departments at our various branches assuring our trade in any part of the country of obtaining at all times **freshly prepared** Blue Print Paper of excellent keeping quality.

Excello Blue Print Papers

Prepared Daily



(Reduced print of our labels)

Sensitized with our Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solutions.

No. 210. Excello Satin. Thick.	Width,	24 in.	30 in.	36 in.	42 in.	54 in.
	Roll of 50 yds., prepared, \$					
	" 10 "	"	"	"	"	"
213. Excello Satin. Medium.	Width,	24 in.	30 in.	36 in.	42 in.	
	Roll of 50 yds., prepared, \$					
	" 10 "	"	"	"	"	
214. Excello Parchment. Thin.	Width,	24 in.	30 in.	36 in.	42 in.	
	Roll of 50 yds., prepared, \$					
	" 10 "	"	"	"	"	

When ordering, always specify whether the Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solution is desired.

For description of papers and solutions, see page 26.

Photographic Blue Print Paper

For making prints of Furniture, Machinery, etc., where fine detail is required and glass negatives are used, we recommend our No. 220 **Hyperion Satin**, Regular or Rapid Printing solution, as this stock is well adapted for work of this kind.

Blue Print Frames and Electric Printing Machines listed under Nos. 4250-4339-2. Tubes for preserving paper listed under Nos. 4222A-4228C.

Samples of Blue Print Papers mailed on request.

See Price List in back of Catalog.

Union Blue Print Papers

Prepared Daily



(Reduced print of our labels)

Sensitized with our Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solutions.

No. 215. Union Satin. Medium Thick.

	Width,	24 in.	27 in.	30 in.	36 in.	42 in.
	Roll of 50 yds., prepared, \$					
	" 10 " "					

216. Union Satin. Thick.

	Width,	30 in.	36 in.	42 in.	54 in.
	Roll of 50 yds., prepared, \$				
	" 10 " "				

219. Union Parchment. Thin.

	Width,	24 in.	27 in.	30 in.	36 in.	42 in.
	Roll of 50 yds., prepared, \$					
	" 10 " "					

When ordering, always specify whether the Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solution is desired.

For description of papers and solutions, see page 26.

Our roll Blue Print Papers cut into any size sheets desired, at prices but little higher than for the roll stock.

Writing Fluids for making alterations on Blue Prints listed under Nos. 2700-2702.

Samples of Blue Print Papers mailed on request.

See Price List in back of Catalog.



Hyperion Blue Print Papers

Prepared Daily



(Reduced print of our labels)

Sensitized with our Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solutions.

No. 220.	Hyperion Satin.	Medium Thick.				
			Width,	30 in.	36 in.	42 in.
	Roll of 50 yds., prepared,			\$		
	" 10 " "					
222.	Hyperion Satin.	Thick.				
			Width,	30 in.	36 in.	42 in.
	Roll of 50 yds., prepared,			\$		
	" 10 " "					
223.	Hyperion Parchment.	Thin.				
			Width,	30 in.	36 in.	42 in.
	Roll of 50 yds., prepared,			\$		54 in.
	" 10 " "					

When ordering, always specify whether the Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solution is desired.

For description of papers and solutions, see page 26.

Our roll Blue Print Papers cut into any size sheets desired, at prices but slightly higher than for the roll stock.

Blue Print Cloth listed under Nos. 226-226T.

Economy Box for safeguarding sensitized papers listed under Nos. 4220A-4220C.

Samples of Blue Print Papers mailed on request.

See Price List in back of Catalog.

Hyperion Blue Print Cloths

Prepared Daily



(Reduced print of our labels)

Sensitized with our Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solutions.

No. 226. Hyperion Blue Print Cloth. Medium Thick.

	Width,	30 in.	36 in.	42 in.	54 in.
Roll of 50 yds., prepared,		\$			
" 10 " "					

226T. Hyperion Blue Print Cloth. Thin.

	Width,	30 in.	36 in.	42 in.
Roll of 50 yds., prepared,			\$	
" 10 " "				

When ordering, always specify whether the Regular, Rapid, Extra Rapid, Electric Rapid, or Double Electric Printing solution is desired.

Unprepared Blue Print Cloths

No. 206. Hyperion Blue Print Cloth. Medium Thick. Unprepared.

	Width,	30 in.	36 in.	42 in.	54 in.
Yard,		\$			

206T. Hyperion Blue Print Cloth. Thin. Unprepared.

	Width,	30 in.	36 in.	42 in.
Yard,			\$	

Tubes for preserving sensitized cloth listed under Nos. 4222A-4228C. Blue Print Frames and Electric Blue Print Machines listed under Nos. 4250-4339-2.

Samples of Blue Print Cloths mailed on request.

See Price List in back of Catalog.



Vandyke Solar Papers and Cloths

The Vandyke Solar Papers and Cloths are unsurpassed for making **Dark Brown Negative Prints**, **Positive Blue Prints**, and **Positive Dark Brown Prints** on both paper and cloth.

In addition to producing prints that are clear, distinct and permanent, they possess the following valuable and desirable qualities:

- | | |
|----------------------------|--|
| 1. Easily manipulated. | 4. Do not become brittle. |
| 2. Print rapidly. | 5. Keep exceptionally well. |
| 3. Save original tracings. | 6. Reproduce Patent Office drawings quickly. |

The **Vandyke Solar Paper**, introduced and perfected by us, still retains its title as the leading paper of its kind, regardless of the many imitations now on the market.

How to Use and Manner of Printing

Vandyke Negative Prints

(white lines on dark brown background.)

Made by printing on Vandyke Paper or Cloth, from the original tracing, or from Vandyke Positive Prints, with an exposure of about five minutes in bright sunlight. As the background of these prints is opaque, they can (when made on **thin** Vandyke Paper or Cloth) be used as negatives from which any quantity of Positive Prints of the original can be made. A negative, made in this way, takes the place of the original tracing, thereby preventing it from becoming worn or damaged. Where many prints are to be made from one tracing, a number of Vandyke Negative Prints on thin paper can be made and used as originals, from which many positive prints can be made.

Vandyke Positive Prints

(dark brown lines on a white background.)

Made by printing on Vandyke Paper or Cloth, from Vandyke Negative Print, with an exposure of about five minutes in bright sunlight. To save re-making **complete** new drawing where a number of drawings have the same foundation or base, differing only in internal arrangement, such as the floor plans of large buildings, or different cut away sections of a machine, the Vandyke Positive Print affords great economy of time, by using these positive prints of the foundation or base for making the complete drawings. The Vandyke Positive Prints may also be used to good advantage to save making original drawing where alteration or correction is necessary, by blanking out the part to be corrected or altered by inserting opaque paper between the negative prints while making the latter. The alteration or correction can then be made with ink, and the amended positive print used the same as a tracing.

Positive Blue Prints

(dark blue lines on a white background.)

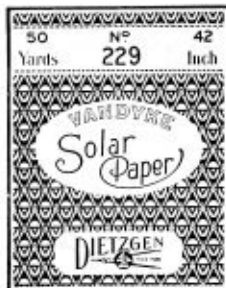
Made by printing on **regular** speed Blue Print Paper or Cloth from Vandyke Negative Prints, with an exposure of about seven minutes in bright sunlight, or on **rapid** speed Blue Print Paper or Cloth with an exposure of about two minutes in bright sunlight. These Prints offer same advantages as Vandyke Positive Prints.

If properly protected from both light and moisture, the Vandyke Papers and Cloths will retain their strength and their printing qualities for many months.

Samples of Sensitized Papers and Cloths mailed on request.

See Price List in back of Catalog.

Vandyke Solar Papers and Cloths



(Reduced print of our labels)

For Description and manner of using, see preceding page.

- No. 227. Vandyke Solar Paper. **Medium Thick.** For Positive Prints—brown lines on white background.
- | | | | | |
|------------------------------|--------|--------|--------|--------|
| Width, | 30 in. | 36 in. | 42 in. | 54 in. |
| Roll of 50 yds., prepared, . | \$ | | | |
| " 10 " " | | | | |
- No. 229. Vandyke Solar Paper. **Thin.** For Negative Prints—white line on dark brown background. Excellent for large or quantity mailing.
- | | | | | |
|------------------------------|--------|--------|--------|--------|
| Width, | 30 in. | 36 in. | 42 in. | 54 in. |
| Roll of 50 yds., prepared, . | \$ | | | |
| " 10 " " | | | | |
- No. 231. Vandyke Solar Cloth. **Medium Thick.**
- | | | | | |
|------------------------------|--------|--------|--------|--------|
| Width, | 30 in. | 36 in. | 42 in. | 54 in. |
| Roll of 50 yds., prepared, . | \$ | | | |
| " 10 " " | | | | |
- No. 232. Vandyke Solar Cloth. **Thin.**
- | | | | |
|------------------------------|--------|--------|--------|
| Width, | 30 in. | 36 in. | 42 in. |
| Roll of 50 yds., prepared, . | \$ | | |
| " 10 " " | | | |

Prints made on our Thin Vandyke Cloth No. 232 are invaluable for shop records when the articles manufactured are standardized, as they erase well and may be added to like original drawings.

Directions and Fixing Salt supplied with each roll.

Vandyke Fixing Salt

For intensifying and fixing Vandyke Prints.

- | | | | |
|---|-------|-------|--------|
| In cans, | 2 oz. | 4 oz. | Pound. |
| No. 233. Vandyke Fixing Salt, | \$ | | |

Bichromate of Potash

For intensifying and fixing Blue Prints.

- | | | |
|--|-----------|------------|
| In cans, | 5 Pounds. | 10 Pounds. |
| No. 234. Bichromate of Potash, | \$ | |

By immersing Blue Prints in a solution of $\frac{1}{2}$ oz. of Bichromate of Potash to 1 gallon of water, the blues become deeper and more permanent.

After immersing the prints in this solution they should again be washed in a bath of clear water.

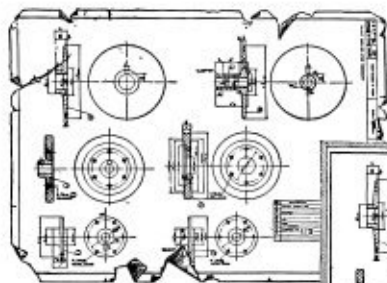
Writing Fluid for making alterations on Vandyke Prints listed under No. 2703. Automatic Print Hanger for drying Vandyke Prints and Blue Prints, listed under Nos. 4232A-4232E.

See Price List in back of Catalog.

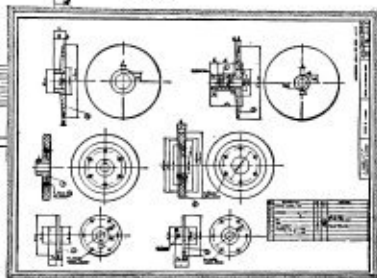
EDCO PROCESS

Reproduction of Original Tracings on Tracing Cloth

Below is illustrated the same tracing after an EDCO PROCESS reproduction is made of it. This is the best insurance known, for the duplicate may be filed away in a vault, or elsewhere, safe from loss or damage by fire. Several EDCO PROCESS Prints may be made of the original tracing and sent out to branch offices and large users.



The above original tracing may represent one of your most valuable and costly drawings which has become dog-eared and torn, as shown, after normal use in the drafting and reproduction departments.



EDCO PROCESS is the name given to the Dietzgen method of reproducing original tracings on tracing cloth or any other material.

The value of reproducing original tracings by the EDCO PROCESS, from the standpoint of serving as an insurance against loss by fire or damage of original tracings, is obvious.

EDCO PROCESS Cloth, which is the base of the EDCO PROCESS, is a waterproof, sensitized, high grade tracing cloth.

To make an EDCO PROCESS Print, a Vandyke negative is made of the original tracing. This Vandyke negative is then placed over the sensitized side of the EDCO PROCESS Cloth and exposed to light in the same manner as when making a blue print.

After the cloth is properly exposed, it is thoroughly rinsed with clear water, after which a special developing liquid is applied, and the cloth is again thoroughly rinsed. The original waterproofing prevents any damage being done to the tracing cloth by this rinsing. After the print is thus rinsed and developed, it is hung up to dry and is then ready for use.

See Printing Frames described on pages 302-303.

See Price List in back of Catalog.

EDCO PROCESS

Reproduction of Original Tracings on Tracing Cloth



(Reduced print of our label)

In Process Cloths on the market in the past, an objectionable feature has been the tendency of the basic underlying waterproofing lacquer to crack and peel from the surface of the cloth, thus destroying the overlying line or image of the reproduction, rendering it useless. This fault has been overcome in the EDCO PROCESS Cloth by what is termed "delacquering."

Delacquering is a special process by which a solvent is applied to the finished EDCO Print which removes all the basic underlying waterproofing and leaves the line and image undisturbed on the original cloth itself.

When the EDCO Print is thus delacquered, it has the appearance, feel and texture of the original with the consequent printing speed. It can be drawn on, altered, or corrected exactly the same as the original itself.

Likewise, because the basic waterproofing lacquer has been removed, there is no lacquer or substance remaining on the cloth to crack and peel, with the consequence that the life of the delacquered EDCO PROCESS Print is practically the same as that of the life of the original.

The finished EDCO PROCESS Print made by this method has the appearance and quality of the original, having intense carbon black lines, and costs no more than a few cents a square foot to make, which compared with the hundreds of dollars of draftsmen's time and the saving of valuable tracings, is insignificant.

Edco Process Cloth

No. 235. EDCO Process Cloth.

	Width,	30 in.	36 in.	42 in.
Roll of 20 yds., freshly prepared,		\$	\$	\$
" " 10 " " " " " " " "				

Edco Process Developing Powder

No. 236. EDCO Process Developing Powder.

In cans,		1 1/2 lb.	1 lb.
	\$		

Edco Process Delacquering Fluid

No. 238. EDCO Process Delacquering Fluid, Per Gallon, \$

See Price List in back of Catalog.

Direct Positive Prints

Reproduced from Drawings on Tracing Paper or Cloth

(Kalle Patents)



Ozalid
Registered

Ozalid Papers and Cloth, as listed on the following pages, are receiving universal attention because they produce **direct positive** prints, which are **permanent** and **true** to the scale of their originals. They are exposed to light with a tracing the same as blueprint paper, at about extra rapid speed, and are fixed, or developed **dry** with aqua ammonia vapor. *One of the special Developers for Ozalid prints is described in a separate booklet sent on request.*

Not being washed, there is no shrinkage of Ozalid Paper or Cloth prints, and ironing of the print is unnecessary. Furthermore, drying with excessive heat is eliminated, avoiding liability of making the paper brittle. Ozalid chemicals will not affect the tensile strength of paper.

Ozalid prints fulfill the demand for quick and inexpensive reproduction, with the advantages that they are direct positive prints—dark lines on white background—without the use of negatives and they will not fade nor become marred by lime or cement.

Advantages of Ozalid

A positive print is admittedly **easy to read at a glance**. Heretofore, white or positive prints have been possible only through more expensive and slower methods, as where negatives were used. Ozalid prints are **ideal for notations, alterations and additions**.

Architects, Engineers, Contractors, Builders, Manufacturers and others, are using Ozalid Prints extensively because of their obvious advantages—speeding up work, inducing efficiency, cutting time and cost.

Elevations, plans, drawings, maps, charts, estimates, installations and all manner of layouts are more effective by reason of Ozalid prints. In shops, these prints with their white background and intensified lines remain legible in spite of oil or dirt.

Ozalid developing requires less time than washing and drying. Only a small space is required for the developing apparatus.

Managers and Executives are utilizing Ozalid positive prints for sending out charts, letters, graphs, and detailed information to their salesmen and clients because of their remarkable display qualities.

Realtors and others interested in “dressed-up” prints for sales promotion find Ozalid ideal. Accountants adopt Ozalid to many useful forms such as inventory and departmental data. Schools and Colleges find Ozalid of great convenience for instruction sheets and reproductions for many purposes.

Ozalid Prints are easily made in your own establishment, or your local blue printer can make them. If, for any reason, you cannot obtain Ozalid Prints conveniently, send the tracing to our nearest branch.

Write for Ozalid Booklet which describes fully this new and far better reproduction process.

**Direct Positive Print Paper****Ozalid**

(Registered)

Positive Reproduction Paper

(Kalle Patents)



(Reduced print of Ozalid Labels)

Ozalid Papers are furnished in one speed only, which equals approximately that of our "Extra Rapid" Blue Print Paper running about 4 to 6 feet per minute on modern continuous blue print machines. Ozalid Cloth is somewhat slower.

When Ozalid cut sheets are used with standardized sizes of originals, the time and labor of trimming the prints, and the waste of unprinted stock is eliminated. Cut sheets also increase the facility of handling and filing.

The present trend of standardized drawings in uniform multiple sizes makes possible considerable economy in the Drafting as well as in the Reproduction Department through the use of cut sheets. The sizes $8\frac{1}{2} \times 11$, 9×12 , 12×18 , 18×24 , and 24×36 inches are in wide general use.

We list Ozalid in cut sheets in those sizes most generally used; also our most popular grades of drawing, tracing papers and cloths. Descriptions and samples of these papers are shown in this catalog. The selection offered meets any and all requirements.

No. 240. Ozalid, Medium Thick Paper.

	Width,	30 in.	36 in.	42 in.	54 in.
Rolls of 50 yds. prepared,					\$
" " 10 "					
In Sheets, in sizes most generally used.					
$8\frac{1}{2} \times 11$ inches, in packages of 250 sheets,					Package, \$
$8\frac{1}{2} \times 13$ " " " " " 250 "					"
9 " 12 " " " " 250 "					"
12 " 18 " " " " 250 "					"
18 " 24 " " " " 250 "					"
24 " 36 " " " " 250 "					"

242. Ozalid, Thin Paper.

	Width,	30 in.	36 in.	42 in.
Rolls of 50 yds. prepared,				\$
" " 10 "				
In Sheets, in sizes most generally used.				
$8\frac{1}{2} \times 11$ inches, in packages of 250 sheets,				Package, \$
$8\frac{1}{2} \times 13$ " " " " " 250 "				"
9 " 12 " " " " 250 "				"
12 " 18 " " " " 250 "				"
18 " 24 " " " " 250 "				"
24 " 36 " " " " 250 "				"

243. Ozalid, Transparent Paper. For procuring positive prints which, in turn, can be used as originals.

	Width,	30 in.	36 in.	42 in.
Rolls of 10 yds. prepared,				\$

See Price List in back of Catalog.

Direct Positive Print Cloth

Ozalid
(Registered)Positive Reproduction Cloth
(Kalle Patents)

(Reduced print of Ozalid Labels)

No. 246. **Ozalid Opaque Cloth.** A medium weight cloth recommended for permanent use or rough handling.

	Width,	30 in.	36 in.	42 in.
Rolls of 10 yds. prepared,		\$		

Ozalid being a dry developing process eliminates all distortion. The cloth prints are true in every way to the original, since they are not washed, nor do they have to be ironed.

No. 247. **Ozalid Tracing Cloth.** Transparent cloth for making positive prints to serve as permanent duplicates of original tracings.

	Width,	30 in.	36 in.	42 in.
Rolls of 10 yds. prepared,		\$		

Ozalid Tracing Cloth No. 247 will be found valuable in reproducing tracings on cloth, true to the scale of the original. These cloth positive prints cannot be equalled by any other method. Original tracings are thus protected against damage or loss, by making duplicate Ozalid tracings on No. 247 Tracing Cloth, which in turn may be used for making any additional prints that may be required.

Ozalid Erasing Fluid

No. 248. **Ozalid Erasing Fluid.** A two liquid erasing fluid for eradicating lines on Ozalid Prints. It is quick, positive, easily applied, dries readily, and does not impair the surface of the paper. Full directions on the carton, . . . Each, \$

Pencil for making alterations and corrections on Ozalid Paper Prints,
see Catalog No. 3264M.

See Price List in back of Catalog.

Directo Positive Prints

Reproduced from Drawings on Tracing Paper or Cloth

DIRECTO

(Registered)

DIRECTO, the copyrighted trade name given to the new Dietzgen direct printing paper and cloth, represents a genuine achievement in the making of positive reproductions (black lines on a white background) direct from original tracings without the aid or expense of negatives.

DIRECTO produces a print having black lines, which offer a brilliant contrast on a white background, unsurpassed by any other reproduction process.

Any tracing or drawing made on transparent paper or cloth may be reproduced by the DIRECTO process. DIRECTO paper is printed exactly the same as blue print paper, on any type printing machine, and is then developed with a developing solution either applied by hand or by a power driven machine.

The developing solution is odorless, hence, the prints after being developed carry no odor. The developing powder is furnished separately from the paper or cloth and is priced separately.

Advantages of Directo

One of the most advantageous features of DIRECTO prints is their minute legibility in comparison with the negative type, such as blue prints.

DIRECTO prints offer very definite advantages to architects, engineers, contractors, builders and manufacturers. Due to their finer legibility they increase efficiency and speed. Because of their white background they permit additions, alterations, memoranda and supplementary remarks or data to be written on the print, a most desirable feature in submitting the plan to the layman or worker.

An additional advantage is the quickness with which DIRECTO prints can be produced. Since no washing or drying is necessary, the prints may be made in small offices and schools as readily as in large industrial or commercial blue print plants.

DIRECTO positive prints efficiently reproduce drawings, tracings, maps, charts, elevations, estimates and all manner of lay-outs. Architects will find it especially suitable for specifications and plans. Realtors and those interested in "dressed up" prints for sales promotion, will find DIRECTO ideal.

DIRECTO prints are easily made in your own establishment, or by your local blueprinter. If, for any reason, you cannot obtain DIRECTO prints conveniently, send the tracing to our nearest branch reproduction department.

Directo Positive Print Paper

(Black Lines on White Background)



(Reduced print of our labels)

DIRECTO Positive Printing Papers have a printing speed of approximately the speed of our extra rapid blue print paper.

The keeping qualities of DIRECTO Paper are greater than that of blue print paper, and for this reason, it is excellently adapted for use in cut sheet form.

The present trend toward the use of standard sized drawings in the uniform multiple sizes— $8\frac{1}{2} \times 11$ ", 9×12 ", 12×18 ", 18×24 " and 24×36 "—enable reproduction departments having DIRECTO sheets in these sizes to effect considerable economy, by eliminating the necessity of trimming and the expense and waste of unprinted stock.

No. 250. Directo Positive Print Paper. Medium Thick.

	Width, 30 in.	36 in.	42 in.	54 in.
Roll of 50 yards,	\$	\$	\$	\$
" " 10 "				

In Sheets, in sizes most generally used.

		Package, \$
$8\frac{1}{2} \times 11$ inches, in packages of 250 sheets,	.	.
$8\frac{1}{2} \times 13$ " " " " 250 "	.	.
9 " $\times 12$ " " " " 250 "	.	.
12 " $\times 18$ " " " " 250 "	.	.
18 " $\times 24$ " " " " 250 "	.	.
24 " $\times 36$ " " " " 250 "	.	.

252. Directo Positive Print Paper. Thin.

	Width, 30 in.	36 in.	42 in.
Roll of 50 yards,	\$	\$	\$
" " 10 "			

In Sheets, in sizes most generally used.

		Package, \$
$8\frac{1}{2} \times 11$ inches, in packages of 250 sheets	.	.
$8\frac{1}{2} \times 13$ " " " " 250 "	.	.
9 " $\times 12$ " " " " 250 "	.	.
12 " $\times 18$ " " " " 250 "	.	.
18 " $\times 24$ " " " " 250 "	.	.
24 " $\times 36$ " " " " 250 "	.	.

See page 40 for the Developing Powder for the above.

See Price List in back of Catalog.

Directo Positive Print Paper and Cloth

(Black Lines on White Background)



(Reduced print of our labels)

DIRECTO Positive Printing Papers and Cloths have a printing speed of approximately the speed of our extra rapid blue print paper.

Directo Transparent Paper

No. 253. Directo Transparent Paper.

	Width, 30 in. 36 in. 42 in.
Roll of 10 yds.,	\$

Directo Opaque Cloth

255. Directo Cloth, Opaque. Medium Thick.

	Width, 30 in. 36 in. 42 in. 54 in.
Roll of 10 yds.,	\$

255T. Directo Cloth, Opaque. Thin.

	Width, 30 in. 36 in. 42 in. 54 in.
Roll of 10 yds.,	\$

Directo Developing Powder

Director Developer is furnished in powder form to be mixed with water. Twenty ounces of solution is sufficient to develop a 50 yd. roll 36 inches wide.

No. 259-1.	Quantity sufficient to develop a 50-yard roll, . . .	Each, \$
259-2.	“ “ “ make a half gallon of solution, . . .	“
259-3.	“ “ “ make a gallon of solution, . . .	“

See Price List in back of Catalog.



Federal Aid Sheets

As Recommended for Federal Aid Road Projects by U. S. Department of
Agriculture and Bureau of Public Roads

No. 262P.

No. 261P. Plate 1—Single Plan Profile B. P. R. Standard, printed in orange on **Tracing Paper**, size of sheet 23×36 in., size within border lines $21 \times 33\frac{1}{2}$ in., size of profile $10 \times 33\frac{1}{2}$ in. Profile is printed lengthwise to the half inch, and in height to one tenth of an inch. On left-hand side of sheet, outside of border line, are two titles for Profile and Plan, 100, \$; Quire, \$; Each, \$

261C. Like No. 261P, but printed on **Tracing Cloth**.
100, \$; Quire, \$; Each, \$

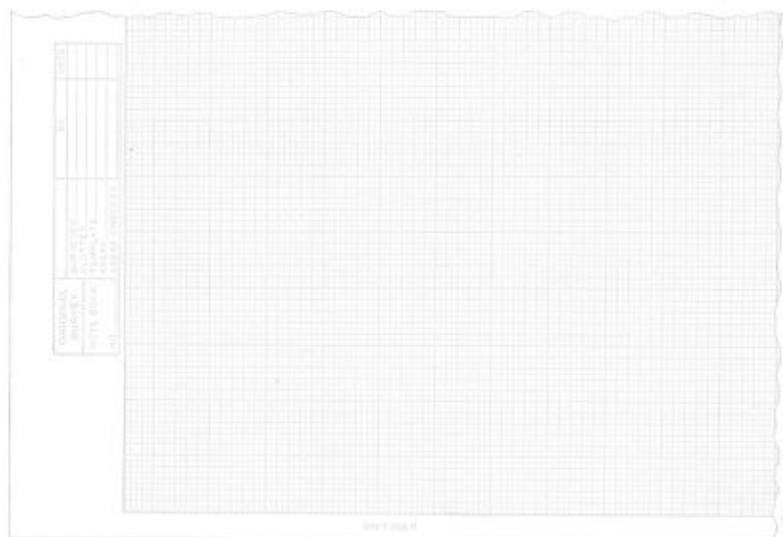
262P. Plate 2—Double Plan Profile B.P.R. Standard, for flat profiles, printed in orange on **Tracing Paper**. Dimensions of sheet, size within border lines, and titles are the same as No. 261P. Sheet is divided into four quarters: beginning at the bottom of sheet, the first quarter has the same ruling as No. 261P with profile of size 5×32 in.; the second quarter is blank; the third quarter is printed similar to the first quarter; and the fourth quarter is blank.
100, \$; Quire, \$; Each, \$

262C. Like No. 262P, but printed on **Tracing Cloth**.
100, \$; Quire, \$; Each, \$

See Price List in back of Catalog.

Federal Aid Sheets

As Recommended for Federal Aid Road Projects by U. S. Department of
Agriculture and Bureau of Public Roads.



No. 263P

No. 263P. Plate 3—Cross Section B.P.R. Standard, printed in orange on **Tracing Paper**, size of sheet 23 × 36 in., size within border lines 22 × 33½ in., size of cross-section 21 × 33½ in. Cross-section is printed 10 × 10 to the inch, with every tenth line heavy. On left-hand side of sheet, outside of border line, are two titles for Original Survey and Final Survey.

100, \$; Quire, \$; Each, \$

263C. Like No. 263P, but printed on **Tracing Cloth**.

100, \$; Quire, \$; Each, \$

See Price List in back of Catalog.

Perfect Profile Papers and Cloths

In Continuous Rolls



Plate A, 4 × 20 to one inch.

No.	Color.	Material.	Engraving.			Roll.	Yard.
			20 in. wide,	50 yd. rolls,	· \$	\$	
No. 270	Green.	On Drawing Paper,	20	50	·		
270	Orange.	" " "	20	50	·		
270 ¹ / ₂	Green.	" " "	10	50	·		
270 ¹ / ₂	Orange.	" " "	10	50	·		
271	Green.	Mounted on Muslin,	20	20	·		
271	Orange.	" " "	20	20	·		
272	Green.	On Hyperion Cloth,	20	20	·		
275	Orange.	" Tracing Paper,	20	50	·		
275 ¹ / ₂	Orange.	" " "	10	50	·		
276	Green.	" Tracing Cloth,	20	20	·		
276	Orange.	" " "	20	20	·		
276 ¹ / ₂	Orange.	" " "	10	20	·		

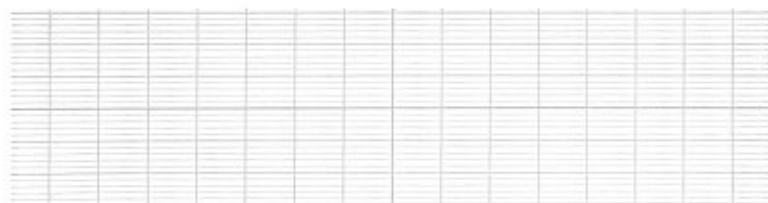


Plate B, 4 × 30 to one inch.

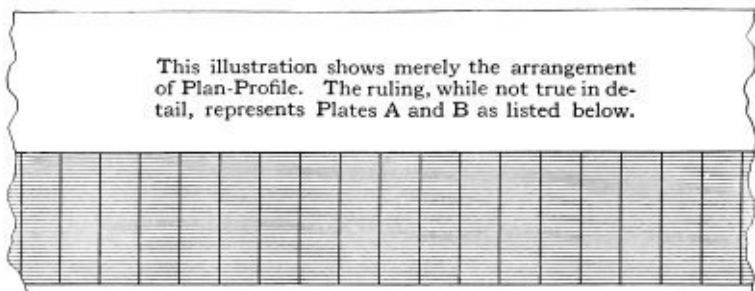
No.	Color.	Material.	Engraving.			Roll.	Yard.
			20 in. wide,	50 yd. rolls,	· \$	\$	
No. 280	Green.	On Drawing Paper,	20	50	·		
280	Orange.	" " "	20	50	·		
280 ¹ / ₂	Green.	" " "	9	50	·		
280 ¹ / ₂	Orange.	" " "	9	50	·		
281	Green.	Mounted on Muslin,	20	20	·		
281	Orange.	" " "	20	20	·		
282	Green.	On Hyperion Cloth,	20	20	·		
285	Orange.	" Tracing Paper,	20	50	·		
285 ¹ / ₂	Orange.	" " "	9	50	·		
286	Orange.	" Tracing Cloth,	20	20	·		

See Price List in back of Catalog.

Perfect Profile Papers and Cloths

In Continuous Rolls

Plan-Profile



Plan-Profile.

On Plan-Profile Papers and Cloths, the profile ruling with its lower margin occupies approximately one-half of the full width—which is 22 inches for paper and 24 inches for cloth—the blank other half being usable for memoranda, sketching, etc.



Plate A, 4 × 20 to one inch.

No.	Color.	Material.	Engraving.	Roll.	Yard.
No. 270P	Green.	On Drawing Paper,	10 in. wide, 50 yd. rolls,	\$	\$
270P	Orange.	" " "	10 " 50 "	.	.
275P	Orange.	" Tracing "	10 " 50 "	.	.
276P	Green.	" Tracing Cloth,	10 " 20 "	.	.
276P	Orange.	" " "	10 " 20 "	.	.



Plate B, 4 × 30 to one inch.

No.	Color.	Material.	Engraving.	Roll.	Yard.
No. 280P	Green.	On Drawing Paper,	9 in. wide, 50 yd. rolls,	\$	\$
280P	Orange.	" " "	9 " 50 "	.	.
285P	Orange.	" Tracing "	9 " 50 "	.	.
286P	Orange.	" " Cloth	9 " 20 "	.	.

Samples of Plan-Profile Papers and Cloths mailed on request.

See Price List in back of Catalog.



Perfect Cross Section Papers and Cloths

In Continuous Rolls



Nos. 300-306. Millimeter.

No.	Color	Material	Engraving.	50 cm. wide,	50 yd. rolls,	Roll.	Yard.
No. 300	Green.	On Drawing Paper,	50 cm. wide,	50 yd. rolls,	. . . \$		
300	Orange.	" " "	50 "	50 "	. . .		
305	Orange.	" Tracing "	50 "	50 "	. . .		
306	Orange.	" Tracing Cloth,	50 "	20 "	. . .		



Nos. 307-309 $\frac{1}{2}$. 10 X 10 to one inch.

No.	Color	Material	Engraving.	20 in. wide,	50 yd. rolls,	Roll.	Yard.
No. 307	Green.	On Drawing Paper,	20 in. wide,	50 yd. rolls,	. . . \$		
307	Orange.	" " "	20 "	50 "	. . .		
308	Green.	Mounted on Muslin,	20 "	20 "	. . .		
308	Orange.	" " "	20 "	20 "	. . .		
308 $\frac{1}{2}$	Green.	On Hyperion Cloth,	20 "	20 "	. . .		
309	Orange.	" Tracing Paper,	20 "	50 "	. . .		
309 $\frac{1}{2}$	Green.	" Tracing Cloth,	20 "	20 "	. . .		
309 $\frac{1}{2}$	Orange.	" " "	20 "	20 "	. . .		



Nos. 315-317. 16 X 16 to one inch. Every eighth line heavy.

No.	Color	Material	Engraving.	20 in. wide,	50 yd. rolls,	Roll.	Yard.
No. 315	Green.	On Drawing Paper,	20 in. wide,	50 yd. rolls,	. . . \$		
315	Orange.	" " "	20 "	50 "	. . .		
317	Orange.	" Tracing "	20 "	50 "	. . .		

See Price List in back of Catalog.

Perfect Cross Section Papers

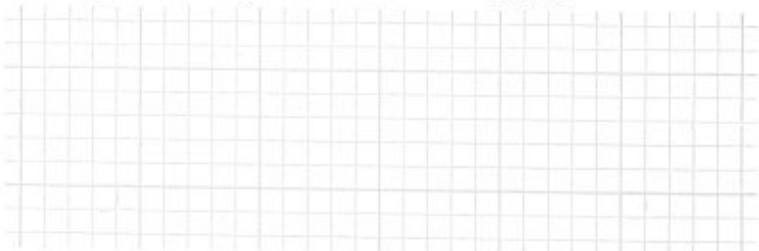
In Sheets



		Nos. 325-326. 10 × 10 to one inch.			
		Engraving.	Sheet size.	Quire.	Sheet.
No. 325	Green.	On Drawing Paper,	16 × 20 in.,	18 × 23 in.,	\$
325	Orange.	" " "	16 × 20 "	18 × 23 "	
326	Orange.	" Tracing "	16 × 20 "	18 × 23 "	



		Nos. 327-328. 16 × 16 to one inch. Every eighth line heavy.			
		Engraving.	Sheet size.	Quire.	Sheet.
No. 327	Green.	On Drawing Paper,	16 × 21 in.,	18 × 23 in.,	\$
327	Orange.	" " "	16 × 21 "	18 × 23 "	
328	Orange.	" Tracing "	16 × 21 "	18 × 23 "	



		Nos. 330-331. 8 × 8 to one inch. Every fifth line heavy.			
		Engraving.	Sheet size.	Quire.	Sheet.
No. 330	Green.	On Drawing Paper,	16 ¹ / ₄ × 21 ⁷ / ₈ in.,	18 × 23 in.,	\$
330	Orange.	" " "	16 ¹ / ₄ × 21 ⁷ / ₈ "	18 × 23 "	
331	Orange.	" Tracing "	16 ¹ / ₄ × 21 ⁷ / ₈ "	18 × 23 "	

Samples of Cross Section Papers mailed on request.

See Price List in back of Catalog.

Perfect Cross Section Papers

In Sheets



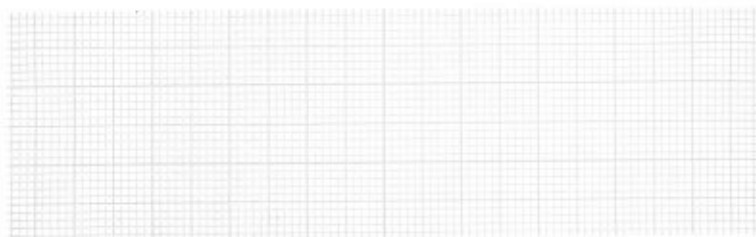
Nos. 332-333. 10 × 10 to one inch. Every fifth line heavy.

		Engraving.	Sheet size.	Quire.	Sheet.
No. 332 Green.	On Drawing Paper	16 × 20 in.,	18 × 23 in.,	\$	
332 Orange.	" " "	16 × 20 "	18 × 23 "		
333 Orange.	" Tracing "	16 × 20 "	18 × 23 "		



No. 335. 12 × 12 to one inch. Every sixth line heavy.

		Engraving	Sheet size.	Quire.	Sheet.
No. 335 Green.	On Drawing Paper,	16 × 20 in.,	18 × 23 in.,	\$	



Nos. 338-339. Millimeter. Half centimeter line heavy. Centimeter line extra heavy.

		Engraving.	Sheet size.	Quire.	Sheet.
No. 338 Green.	On Drawing Paper,	40 × 50 cm.,	18 × 23 in.,	\$	
338 Orange.	" " "	40 × 50 "	18 × 23 "		
339 Orange.	" Tracing "	40 × 50 "	18 × 23 "		

Samples of Cross Section Papers mailed on request.

See Price List in back of Catalog.

“EDCO Efficiency”

Loose Leaf Co-ordinate Papers

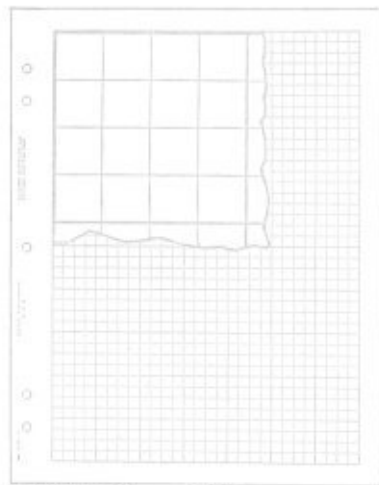
Letter Head Size $8\frac{1}{2} \times 11$ in.

“EDCO Efficiency” sheets are convenient, accurate, co-ordinate papers for statisticians, technical schools, laboratories, business graphs, drafting rooms, etc.

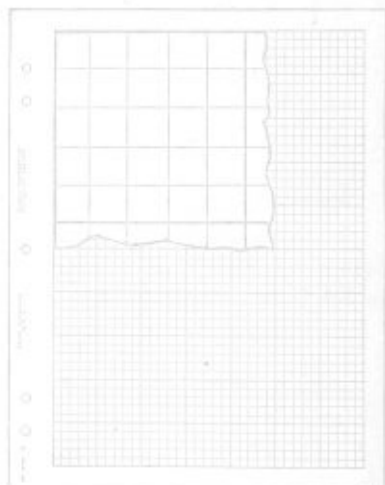
They are printed from accurate engravings in a neutral olive green tint which can be photographed or photo-printed. The paper used is a high grade, medium thick tracing paper of considerable strength and sufficiently transparent to permit the making of blue prints and other reproductions.

The illustrations below show the general layout of the sheets, the margins, punchings, etc. The insert in these illustrations shows a full size section of the upper left corner of the engraving, which is the manner in which most of the “EDCO Efficiency” papers are illustrated.

The overall size of the sheet is $8\frac{1}{2}$ by 11 in., with 7 by 10 in. engraving, and with margin to the left which is punched for portfolio binding. This punching consists of five holes $7\text{--}32$ in. in diameter, spaced $3\text{--}13\text{--}32$ in. and $4\frac{1}{4}$ in. respectively from the center of the center hole. They fit Dietzgen Binders Nos. 341, 342 and 343, or most standard 2 or 3 ring binders. These sheets can be had unpunched, or can be punched to order to fit any loose leaf ring binder.



No. 340-4. Neutral Tint, engraving
 7×10 in., 4×4 to the
 inch. Inch line extra heavy.
 1000 Sheets, \$
 100 Sheets, \$



No. 340-5. Neutral Tint, engraving
 7×10 in., 5×5 to the
 inch. Inch line extra heavy.
 1000 Sheets, \$
 100 Sheets, \$

Other rulings and designs of “EDCO Efficiency” Co-ordinate papers will be found on the five pages following. Dietzgen Binders shown under Nos. 341, 342, 343.

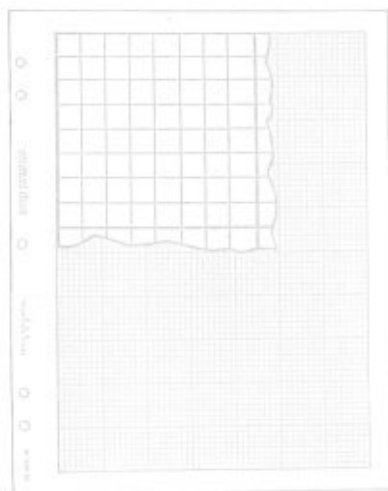
Sample of stock used on all “EDCO Efficiency” sheets shown in sample book in front of catalog.

Sample Sheets of Co-ordinate Papers sent on request.

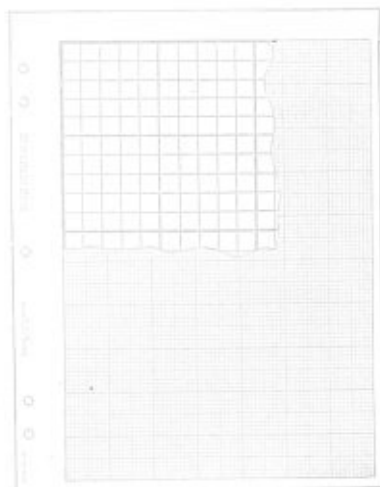
See Price List in back of Catalog.

**"EDCO Efficiency"**

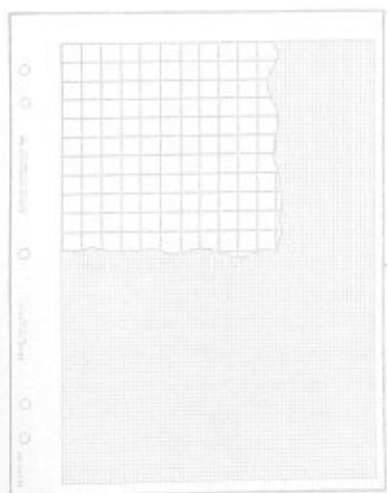
Loose Leaf Co-ordinate Papers



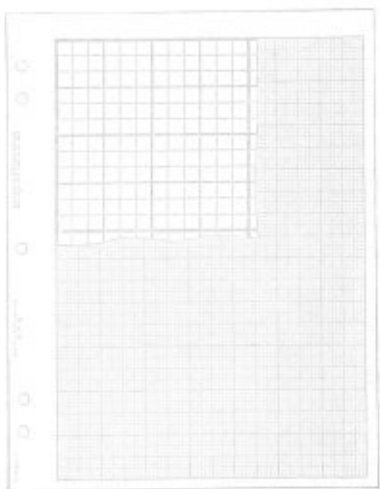
No. 340-8. Neutral Tint, engraving 7×10 in.,
8×8 to the inch. Inch line extra heavy.
1000 sheets, \$ 100 sheets, \$



No. 340-10. Neutral Tint, engraving 7×10 in.,
10×10 to the inch. Every fifth line
heavy. Inch line extra heavy.
1000 sheets, \$ 100 sheets, \$



No. 340-10P. Neutral Tint, engraving 7×10 in.,
10×10 to the inch. All lines equal
thickness.
1000 sheets, \$ 100 sheets, \$



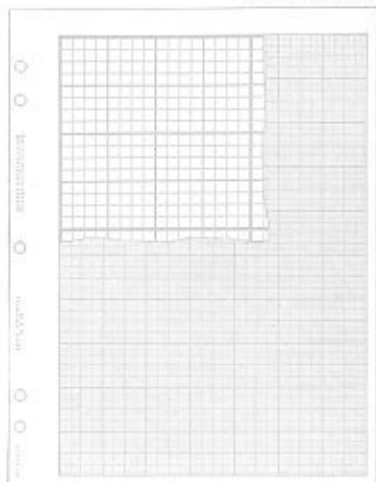
No. 340-12. Neutral Tint, engraving 7×10 in.,
12×12 to the inch. Every third and
sixth line heavy. Inch line extra heavy.
1000 sheets, \$ 100 sheets, \$

"EDCO Efficiency" Co-ordinate Papers are described at top of page 48.

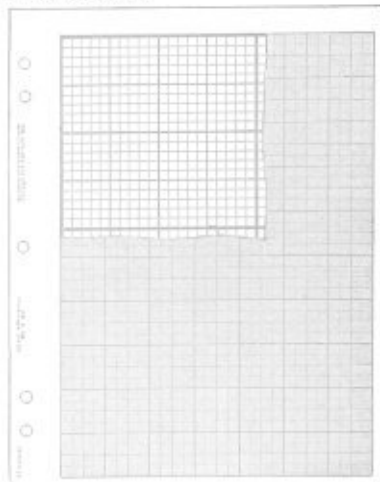
See Price List in back of Catalog.

“EDCO Efficiency”

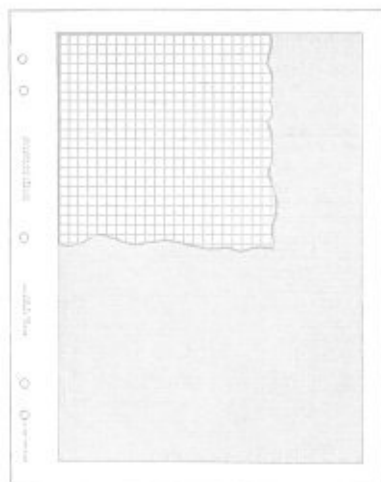
Loose Leaf Co-ordinate Papers



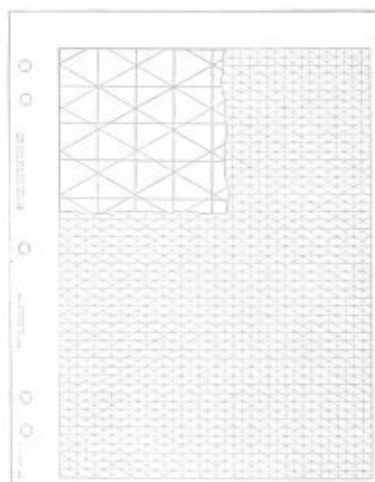
No. 340-16. Neutral Tint, engraving 7×10 in., 16×16 to the inch. Every fourth and eighth line heavy. Inch line extra heavy.
1000 sheets, \$ 100 sheets, \$



No. 340-20. Neutral Tint, engraving 7×10 in., 20×20 to the inch. Every fifth and tenth line heavy. Inch line extra heavy.
1000 sheets, \$ 100 sheets, \$



No. 340-20P. Neutral Tint, engraving 7×10 in., 20×20 to the inch. All lines equal thickness.
1000 sheets, \$ 100 sheets, \$



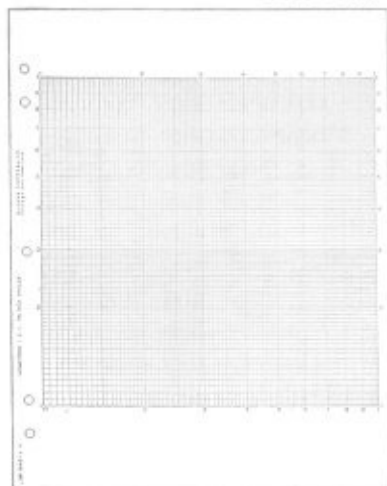
No. 340-I. Neutral Tint, engraving 7×10 in. Isometric cross section paper. Convenient in making orthographic projections and in showing isometric perspectives of objects.
1000 sheets, \$ 100 sheets, \$

“EDCO Efficiency” Co-ordinate Papers are described at top of page 48.

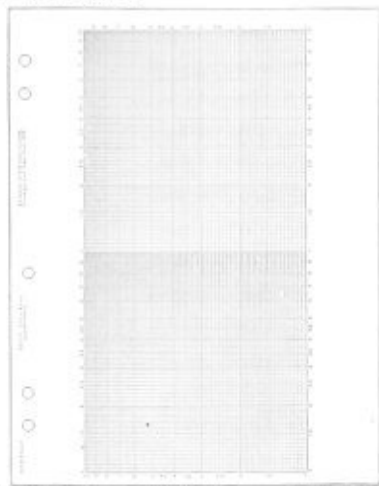
See Price List in back of Catalog.

**"EDCO Efficiency"**

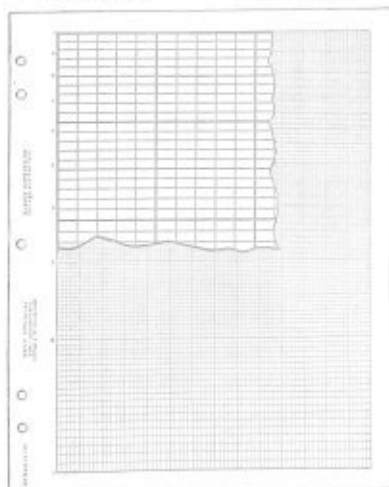
Loose Leaf Co-ordinate Papers



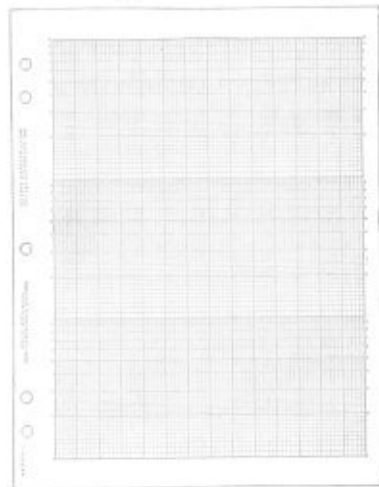
No. 340-L11. Neutral Tint, engraving $7\frac{1}{2} \times 7\frac{1}{2}$ in., Logarithmic divisions: $1 \times 17\frac{1}{2}$ -inch cycle. The major divisions are numbered in two directions and are slightly heavier than the subdividing lines.
1000 sheets, \$ 100 sheets, \$



No. 340-L21. Neutral Tint, engraving 5×10 in., Logarithmic divisions: 2×15 -in. cycles. The major divisions are numbered in two directions and are slightly heavier than the subdividing lines.
1000 sheets, \$ 100 sheets, \$



No. 340-L110. Neutral Tint, engraving 7×10 in., Semi-logarithmic, one 10-inch cycle vertically by 70 divisions horizontally.
1000 sheets, \$ 100 sheets, \$



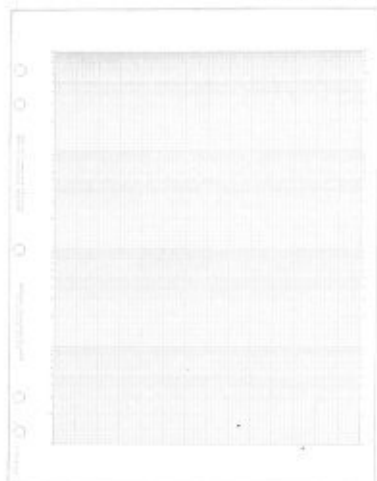
No. 340-L310. Neutral Tint, engraving $7 \times 9\frac{1}{2}$ in. Semi-logarithmic divisions in three cycles, 7 in. base. Major logarithmic divisions are numbered slightly and heavier than subdividing lines. 7-inch base is divided into 14 equal parts, and subdivided into $\frac{1}{10}$ of an inch.
1000 sheets, \$ 100 sheets, \$

"EDCO Efficiency" Co-ordinate Papers are described at top of page 48.

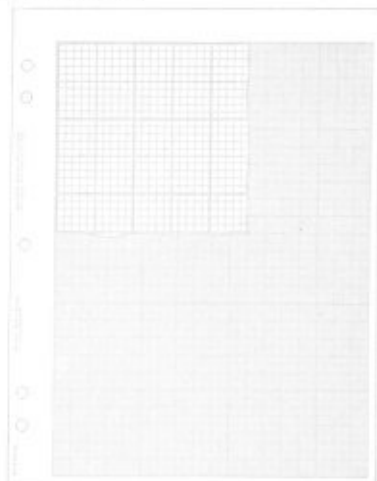
See Price List in back of Catalog.

"EDCO Efficiency"

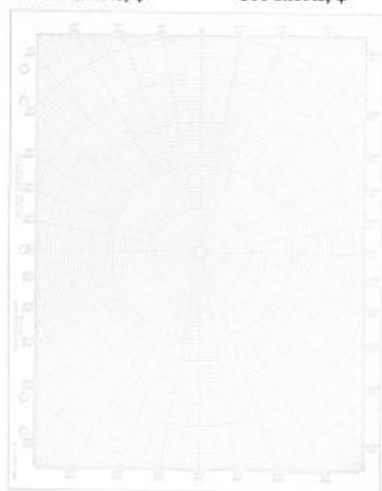
Loose Leaf Co-ordinate Papers



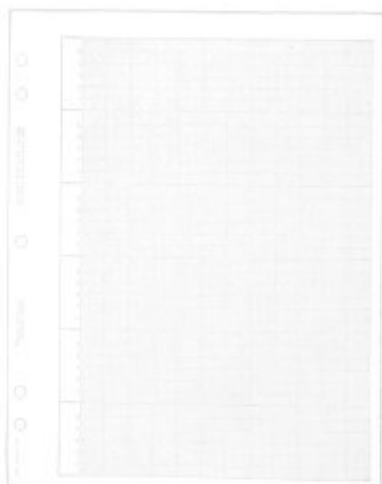
No. 340-L410. Like No. 340-L310, but with Semi-Logarithmic divisions in four cycles. These sheets, besides their regular use, can be used to advantage for yearly charts, as each space can represent one month, leaving two spare columns to be used for connecting the following and preceding month.
 1000 sheets, \$ 100 sheets, \$



No. 340-M. Neutral Tint, engraving 7×10 in. Millimeter divisions. Half centimeter and centimeter lines heavy. Five centimeter lines extra heavy.
 1000 sheets, \$ 100 sheets, \$



No. 340-P. Neutral Tint, engraving 7½×10 in., Polar Co-ordinate; concentric circles 1/10 in. apart, divided into 360 degrees, numbered at 10° intervals, both clockwise, and counter-clockwise.
 1000 sheets, \$ 100 sheets, \$

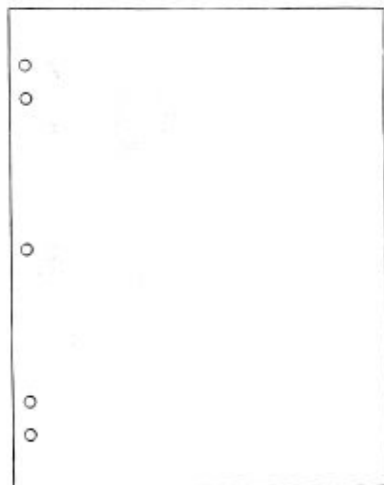


No. 340-R. Neutral Tint. Record Sheet, engraving 7×10 in. Base line divided into six major parts corresponding to 6 months, subdivided into 31 equal parts (days). Every fifth line numbered and heavy. Name of month can be inserted at top.
 100 sheets, \$ 1000 sheets, \$
 See also Nos. 353, 354 and 354N.

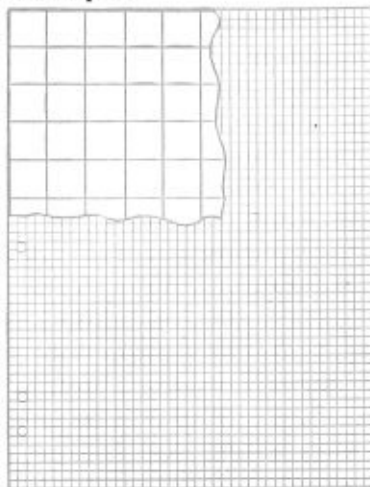
"EDCO Efficiency" Co-ordinate Papers are described at top of page 48.

**"EDCO Efficiency"**

Loose Leaf Co-ordinate Papers



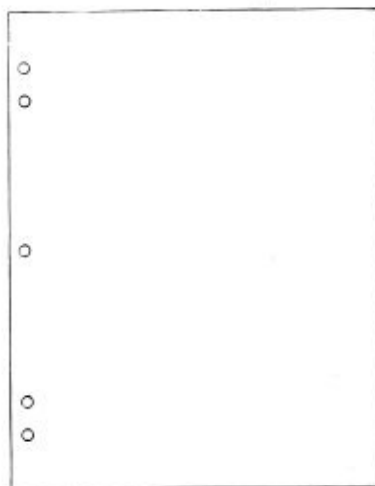
No. 340-W. Plain Writing Paper, blank, suitable for class work.
100 Fillers of 20 leaves, \$
Filler of 20 leaves, \$



No. 340-W5. Blue, Quadrille Ruled, on writing paper, the full area of the sheet both sides 5×5 to the inch. Adapted for use in mathematics, mechanics, physics, business graphs and reports, 100 Fillers of 20 leaves, \$
Filler of 20 leaves, \$



No. 340-WM Writing paper ruled with blue lines $\frac{3}{8}$ in. apart with a marginal red line $1\frac{1}{4}$ in. from left edge of sheet, 100 Fillers of 20 leaves, \$
Filler of 20 leaves, \$

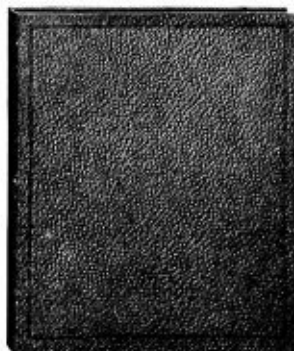
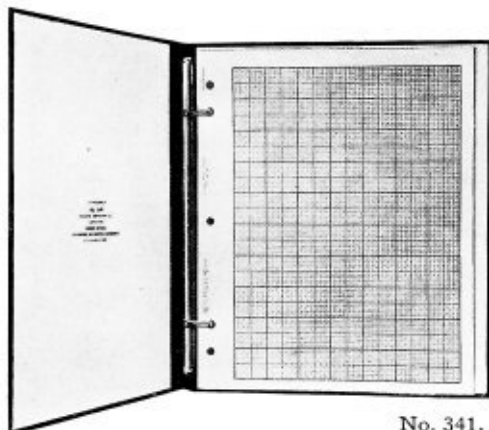


No. 340-X. Plain Drawing Paper, white, no ruling.
100 Fillers of 20 leaves, \$
Filler of 20 leaves, \$

"EDCO Efficiency" Co-ordinate Papers are described at top of page 48.

See Price List in back of Catalog.

Binders for Loose Leaf Sheets

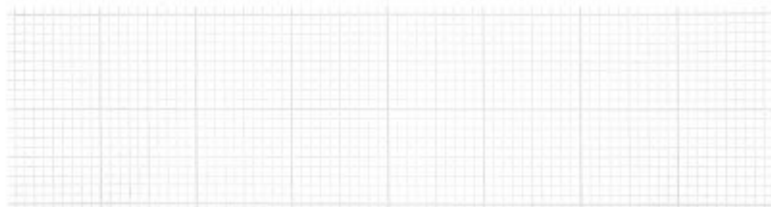


No. 341.

- No. 341. Binder for loose leaf sheets, $8\frac{1}{2} \times 11$ in., substantially made of stiff binder board, covered with durable black cloth; two $\frac{3}{4}$ in. snap-rings, Each, \$
342. Binder for loose leaf sheets, $8\frac{1}{2} \times 11$ in., semi-flexible, with black imitation leather cover; two $\frac{3}{4}$ in. snap-rings, Each, \$
343. Binder for loose leaf sheets, $8\frac{1}{2} \times 11$ in., semi-flexible, made of solid black Cowhide, Levant grain; three $\frac{3}{4}$ in. snap rings, Each, \$

Constructors Cross Section Sketch Paper

In sheets.



Nos. 345-346DX. 20×20 to the inch. Every fifth and tenth line heavy, tenth line heavier than the fifth.

No.	Color	Use	Engraving	Sheet size	100 Sheets
No. 345.	Green,	on Drawing Paper,	7×10 in.	$8\frac{1}{2} \times 11$ in.	\$
346.	Orange,	" Tracing "	7×10 "	$8\frac{1}{2} \times 11$ "	"
346A.	Green,	" Drawing "	$7\frac{1}{2} \times 10$ "	$8\frac{1}{2} \times 11$ "	"
346B.	Orange,	" Tracing "	$7\frac{1}{2} \times 10$ "	$8\frac{1}{2} \times 11$ "	"
346BX.	Neutral Tint,	" Tracing "	$7\frac{1}{2} \times 10$ "	$8\frac{1}{2} \times 11$ "	"
346C.	Green,	" Drawing "	10×15 "	$11\frac{1}{2} \times 17\frac{3}{4}$ "	"
346D.	Orange,	" Tracing "	10×15 "	$11\frac{1}{2} \times 17\frac{3}{4}$ "	"
346DX.	Neutral Tint,	" Tracing "	10×15 "	$11\frac{1}{2} \times 17\frac{3}{4}$ "	"

These papers are printed in colors which can be photographed or photo-printed, and the tracing papers permit making excellent reproductions. They are recommended for use of students and mechanical engineers.

See Price List in back of Catalog.

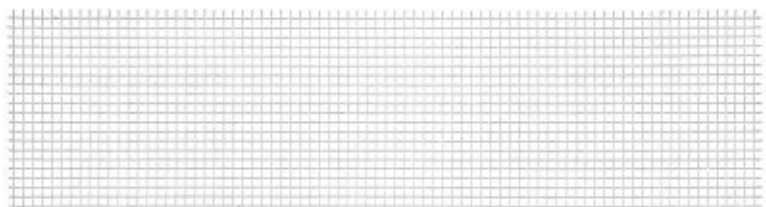


Constructors Cross Section Sketch Paper in Sheets



Nos. 349-350X. 20 × 20 to the inch. Every tenth line heavy.

No.	Color	on	Engraving	Sheet size	100 Sheets
No. 349.	Green,	on Drawing Paper,	7 × 10 in.	8½ × 11 in.	\$
350.	Orange,	" Tracing "	7 × 10 "	8½ × 11 "	
350X.	Neutral Tint,	" " "	7 × 10 "	8½ × 11 "	

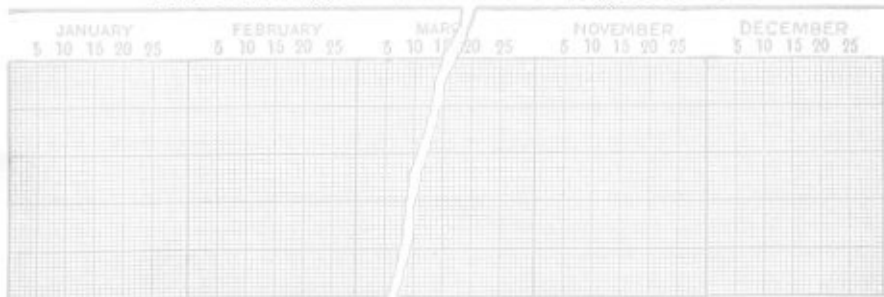


Nos. 351C-351DX. 20 × 20 to the inch. All lines equal thickness.

No.	Color	on	Engraving	Sheet size	100 Sheets
No. 351C.	Green,	on Drawing Paper,	10 × 15 in.	11½ × 17¾ in.	\$
351D.	Orange,	" Tracing "	10 × 15 "	11½ × 17¾ "	
351DX.	Neutral Tint,	" " "	10 × 15 "	11½ × 17¾ "	

Record Sheets

Statistical Diagrammatic Charts for Progress of Work



Nos. 353-354.

A convenient progress sheet for showing graphically the day by day progress of work, sales or other continuous data. The base line is divided into 366 equal parts, representing the number of days in the long year. Every fifth vertical line is numbered and is slightly heavier, with extra heavy line separating each of the twelve months. Of the 260 horizontal lines every tenth line is heavy. Each month is plainly indicated at top.

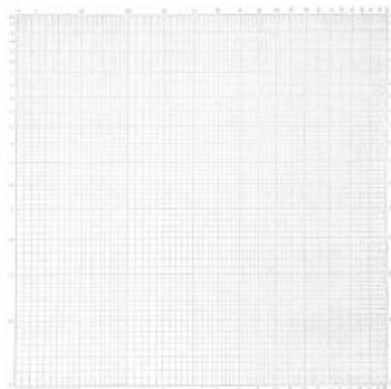
No.	Color	on	Engraving	Sheet size	100 Sheets
No. 353.	Green,	on Drawing Paper,	7 × 12 in.	8 × 14½ in.	\$
354.	Orange,	" Tracing "	7 × 12 "	8 × 14½ "	
354N.	Neutral Tint,	" " "	9 × 14 "	11 × 16½ "	

For Record Sheet size 8½ × 11 in., see No. 340-R.

See Price List in back of Catalog.

Logarithmic Paper

Logarithmic Paper is so ruled that the scales in each direction are logarithmic instead of uniform as on other cross section papers; the numbers and the divisions are placed at points which make their distances from the origin proportional to the logarithm of such numbers instead of to the numbers themselves. By means of this paper logarithmic operations are performed graphically, without reference to the logarithms themselves. Many hydraulic and other engineering computations are facilitated by its use, and various relationships (sizes of tie-bars, shafts, etc., in terms of varying load, or the inverse; circumferences and diameters of circles in terms of their radii or diameters, or the inverse; weights of the series of bodies of the same substance and form but of varying size, or the inverse, etc.) can be represented.

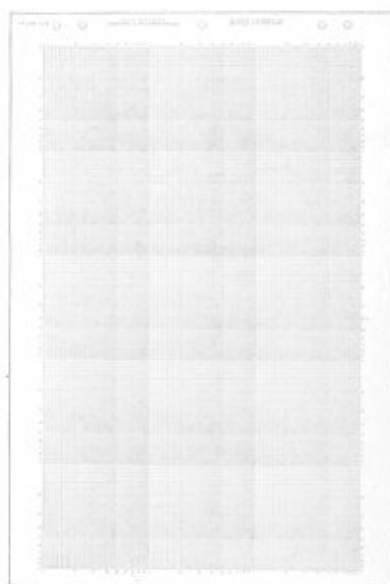


No. 355-L11.

No. 355-L11. Green, on Tracing Paper, 1×1 10-inch cycles 355-L22. " " " " 2×2 5 " "	Engraving Sheet size Quire 10×10 in. 11×12 in. \$ 10×10 " 11×12 "
--	---



No. 356-L23.



No. 356-L35.

No. 356-L23. Neutral Tint, on Tracing Paper, 3×2 5-inch cycles, engraving 10×15 in., sheet size 11×16½ in., 1000 Sheets, \$ 356-L35. Neutral Tint, on Tracing Paper, 5×3 3-inch cycles, engraving 9×15 in., sheet size 11×16½ in., 1000 Sheets, \$ 357-L23. Like No. 356-L23, but on Drawing Paper, " 357-L35. " " 356-L35, " " " " " "	100 Sheets, \$ 100 Sheets, \$ " "
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See Price List in back of Catalog.

Isometric Sketching Paper



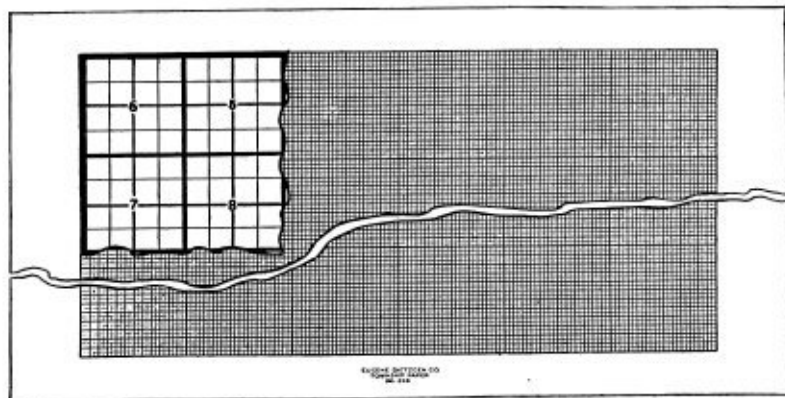
No. 358A/C.

Isometric cross section paper will be found convenient in making Orthographic projections of mechanical subjects and in making sketches in isometric perspective.

No. 358A. Green, on light weight drawing paper, engraving and sheet size
 12 × 18 in., Per 100 sheets, \$

358C. Green, on light weight drawing paper, engraving and sheet size
 9 × 12 in. In pads of 40 sheets, Each,

Township Paper



No. 359.

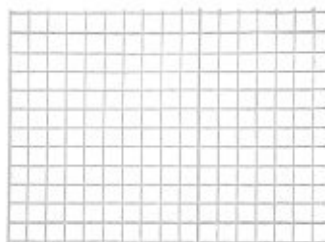
This paper is divided into 5 townships vertically and 6 horizontally, and is subdivided into sections and quarter-sections properly numbered.

	Engraving	Sheet size	100 Sheets
No. 359. Black, on Drawing Paper,	15 × 18 in.	18 × 23 in.	\$

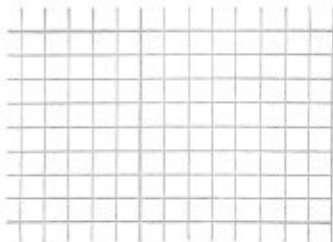
See Price List in back of Catalog.



Plate Printed Cross Section Papers



No. 360.



362.

- No. 360. Plate printed in blue, on Ledger paper, 10×10 to one inch, inch line heavy. Plate size 15×20 in.; Sheet size 16×21 in., Quire, \$
- 360P. Like No. 360 but plain, without heavy lines, Quire, \$
362. Plate printed in blue, on Ledger paper, 8×8 to one inch, inch line heavy. Plate size 15×20 in.; Sheet size 16×21 in., Quire, \$



No. 364.

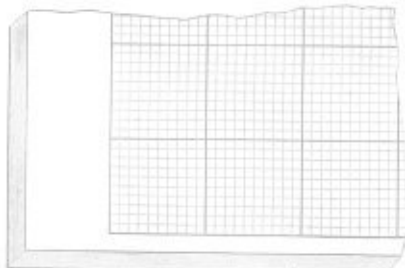


366.

- No. 364. Plate printed in blue, on Ledger paper, 5×5 to one inch, inch line heavy. Plate size 15×20 in.; Sheet size 16×21 in., Quire, \$
366. Topographical paper ruled in blue and red, 400 ft. to one inch, ruled full 16×21 in., Quire, \$

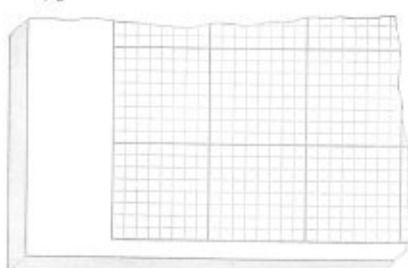
Pads of Cross Section Paper

Letter Head size 8½×11



No. 375.

Illustrations ½ size.



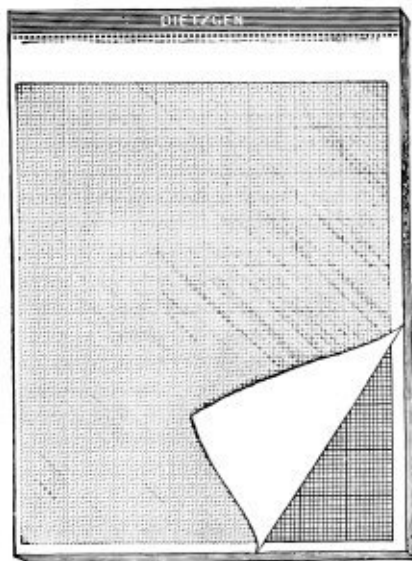
376.

- Cross section pads No. 375-377 are produced on Ledger paper by a plate printing process, insuring accuracy of divisions and uniformity of color; most suitable for technical sketching, and are reasonable in cost. They should not be confused with ordinary pads of quadrille-ruled paper lacking accuracy and uniformity.
- No. 375. Cross Section printed in blue, divisions 10×10 to the inch, 50 sheets of good quality ledger paper, Package of 12 pads, \$ Pad, \$
376. Cross Section, printed in blue, divisions 8×8 to the inch, 50 sheets of good quality ledger paper, Package of 12 pads, \$ Pad, \$
377. Cross Section, printed in blue, divisions 4×4 to the inch, 50 sheets of good quality ledger paper, Package of 12 pads, \$ Pads, \$
378. Cross Section Pad, quadrille ruled in blue, on writing paper the full area of the sheet, both sides, 5×5 to the inch, 50 sheets to pad, Pad, \$

See Price List in back of Catalog.



Sketching Pad of Tracing Paper



No. 374.

No. 374. Sketching Pad, provides a convenient medium for quick and accurate sketching in designing, drafting, engineering and architectural work. Also excellently adapted for layout work by artist and advertising men. They enable the student to attain facility in freehand drawing and lettering. The sketches can be reproduced by blue printing and all other reproduction processes, thus converting them into permanent records.

Each pad consists of 50 sheets of good quality unprinted tracing paper, our No. 183 sheet size $8\frac{1}{2} \times 11$ inches, and one sheet of Bristol Board printed on one side with cross section divisions 8×8 to the inch, and on the reverse side 10×10 to the inch. The sheet of Bristol Board when placed under the top sheet of tracing paper furnishes the guide lines for sketching (see illustration). Either the 8×8 or 10×10 ruling may be used as desired. Thus the single sheet of Bristol Board serves as a sketching guide for each of the 50 sheets of tracing paper and is retained until the last. Pad furnished in Kraft paper envelope. (See sample of paper No. 183 in sample book in front of Catalog.) Each, \$

374B. Sketching Pad like No. 374 but made up of a high quality unprinted bond tracing paper (see sample of No. 167 in sample book on front cover.) Each, \$

374L. Sketching Pad, containing 50 sheets of our No. 173 high grade tracing paper, sheet size 18×24 inches, and one cross section sheet ledger paper, with divisions on one side 8×8 to the inch, and on the other 10×10 to the inch, to be used as described under No. 374. Each Pad furnished in Kraft paper envelope. (See sample of paper No. 173 in sample book in front of catalog.) Each, \$

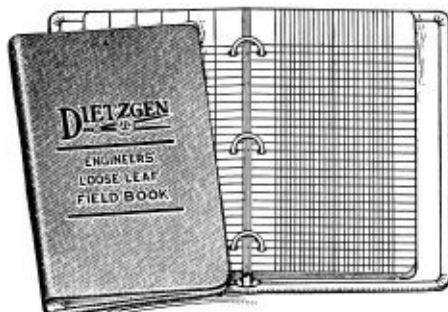


Pads of Cross Section Paper

375 to 378. See preceding page.

See Price List in back of Catalog.

Engineers' Loose Leaf Field Books



No. 386-3.

Our Engineers' Loose Leaf Field Books are designed to meet the requirements of engineers working in the field, enabling them to send any of their notes to the office daily or weekly, and at the same time to continue using the books. They also permit of filing the notes of any particular survey together, and of filing notes of each survey in alphabetical order according to the names of clients.

The covers, $4\frac{1}{8} \times 7$ inches, are of fifty leaf capacity, have round corners, and are furnished in three bindings: Sheepskin, Fabrikoid and Black Morocco. The improved mechanism is very light and strong, composed of a narrow metal back with three rings, so arranged that they can be opened by one operation, permitting the leaves to be inserted or removed rapidly. When the book is open the leaves lie perfectly flat, and as the covers are very stiff the book can be held firmly and notes quickly entered and sketches rapidly made. The leaves are of the same high grade paper, with waterproof rulings, as furnished in our regular Engineers' Field Books, described under Nos. 389-424.

No. 384.	Loose Leaf Cover only, Sheepskin binding,	Each, \$
384F.	" " " " Fabrikoid binding,	"
385.	" " " " Black Morocco binding,	"
386-1.	Loose Leaves, No. 389 ruling, 50 leaves in set, size $4\frac{1}{4} \times 6\frac{1}{2}$ in., Set,	
386-2.	" " " 401 " 50 " " " " " " " " " "	
386-3.	" " " 404 " 50 " " " " " " " " " "	
386-4.	" " " 405 " 50 " " " " " " " " " "	
386-5.	" " " 411 " 50 " " " " " " " " " "	
386-6.	" " " 422 " 50 " " " " " " " " " "	
386-7.	" " " 424 " 50 " " " " " " " " " "	
387.	Transfer Binder for loose leaves,	Each,
387E.	Muslir. Eyelets, gummed, for reinforcing the holes of loose leaves,	Box of 100,
388.	Field Book Tables, as described on next page; in pamphlet form, punched for loose leaf covers,	Each,
388A.	Alphabetical Index for loose leaf covers, good quality paper and leather tabs, 13 in set,	Set,

Engineers' Bound Field Books listed under Nos. 389-424.

See Price List in back of Catalog.



Engineers' Field Books

Dietzgen Engineers' Cross Section and Field Books are as fine in quality of paper, printing and binding as can be obtained. They are furnished in three types of binding: Impregnated Canvas, Genuine Sheepskin Leather, and Imitation Leather.

Impregnated Canvas Bound Books

We highly recommend this grade for its unusually fine wearing qualities. Sheepskin Binding, which has been the standard type of binding for Field Books for many years, is, while serviceable, not as wear-proof as Impregnated, Waterproofed Canvas used on our "C" line of books. Even the best grade of Sheepskin, after comparatively short use, will chafe, whereas Canvas will stand considerable abuse without showing signs of wear.

Canvas bound books are now used by many State Highway Departments, where they are giving utmost satisfaction.

PAPER. "C" line books contain paper made of 100% Rag Stock, having excellent erasing qualities, and a waterproof surface not affected by moisture or rain, to which it may be exposed in the field. This feature is highly desirable as it insures the safety and permanency of valuable records. In many other makes of books containing paper which does not resist moisture or rain, notations might easily rub off, and thus valuable records might be destroyed.

BINDING. Dietzgen Impregnated Canvas Bound Engineers' Field Books are substantially constructed with strong, bronze wire stitching. The backbone is of heavy cloth, thru which the wire stitching passes, making a strong but flexible back. It prevents the tearing out of pages, and also prevents the body of the book from separating from the cover. The book will lie perfectly flat when open, in fact, the covers may be folded against one another, back to back, without danger of breaking the binding.

ENGRAVING. All Dietzgen Engineers' Field Books are printed with Waterproof Ink, from engraved plates, much superior to ordinary ruled field books, because from engraved plates clear cut lines are produced with accurate spacing. The high grade Waterproof Ink used prevents records from becoming blurred and illegible, when touched with wet fingers or exposed to rain.

Leather Bound Books

Dietzgen Leather Bound Engineers' Field Books are durably bound in Genuine Sheepskin Leather, and the paper used is of a very high grade, having excellent erasing qualities and a waterproof surface. The printing, engraving and stitching are of the same high quality as described above.

Imitation Leather Bound Books

Dietzgen Imitation Leather Bound Engineers' Field Books are of very good quality. The paper used is excellent for the purpose, being strong, possessing good erasing qualities and a waterproof surface. The stitching, printing and engraving are of the same high standard as in our other grades of books.

TABLES. *Revised and valuable tables, with examples and explanations for their use, are contained in the different books, the complete tables being as follows:*

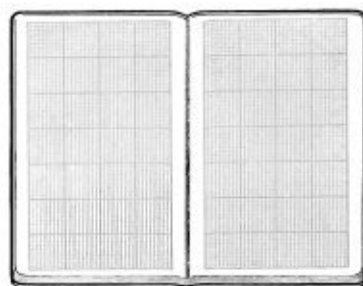
Excavations and Embankments; Minutes in decimals of a degree; Inches in decimals of a foot; Radii, Ordinates, and Deflections; Tangents and Externals to a 1° Curve; Corrections for Tangents and Externals; Corrections for Sub-Chords and Long Chords; Curve Formulas; Middle Ordinates for Rails in Feet; Slope Reductions; Natural Trigonometrical Functions (Sine, Cosine, Tangent, and Cotangent) for every 10' of arc; Trigonometrical Formulas; Calculation of Earthwork; also Diagram for obtaining Horizontal and Vertical Distances from Stadia Readings.

Engineers' Books of special size or design made to order in lots of not less than six dozen of a kind.

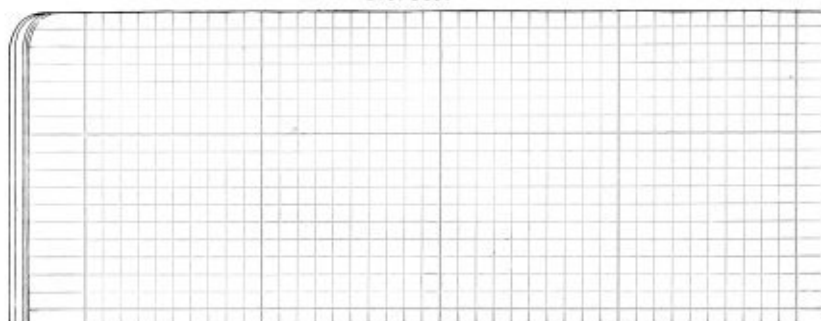
On the following pages we list our diversified line of Engineers' Field Books with illustrations in color.

Engineers' Loose Leaf Field Books listed under Nos. 384-388A.

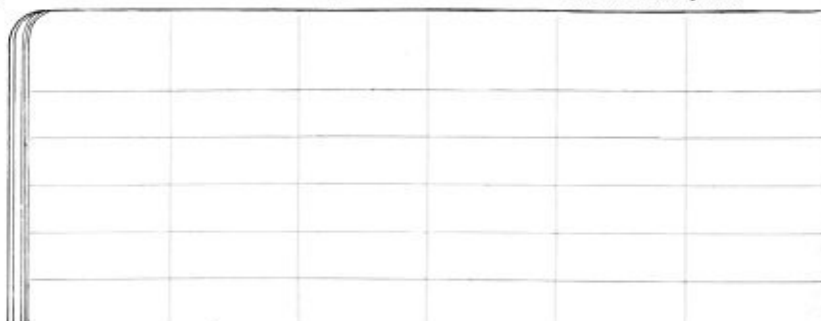
Engineers



No. 389.



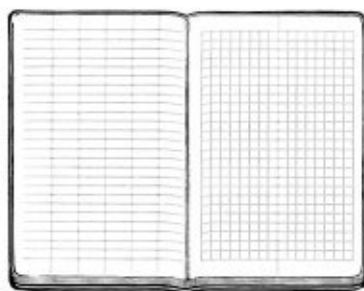
No.	Type	Binding
389.	Cross Section Book, ruled 10×10 to the inch	Genuine Sheepskin
389F.	" " " " 10×10 " " "	Imitation Leather
390.	" " " " 10×10 " " "	Genuine Sheepskin
391.	" " " " 10×10 " " "	Genuine Sheepskin



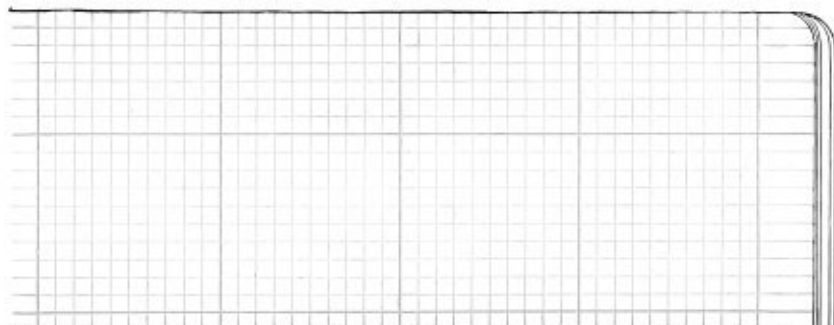
No.	Type	Binding
400C.	Field Book, right-hand page 4×4 to the inch	Impregnated Canvas
400.	" " " " 4×4 " " "	Genuine Sheepskin
400F.	" " " " 4×4 " " "	Imitation Leather
401.	" " " " 4×4 " " "	Genuine Sheepskin

*For Complete Description
Engineers Loose Leaf Field
See Price List in

Field Books



No. 400.



Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
$4\frac{1}{2} \times 7\frac{1}{4}$ in.	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$5\frac{1}{2} \times 7\frac{1}{2}$ "	80	"		
$6\frac{1}{2} \times 8\frac{1}{2}$ "	80	"		



Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
$4\frac{1}{2} \times 7\frac{1}{4}$ in.	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	60	"		

of Tables see Page 61.

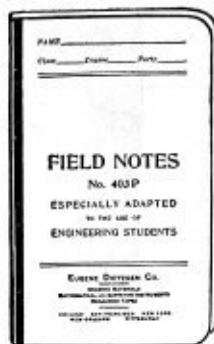
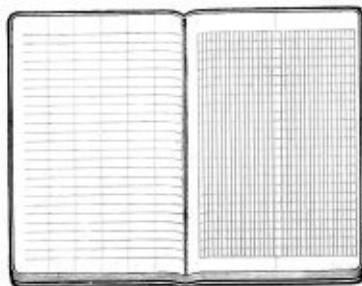
Books listed under Nos. 384-388A.
back of Catalog.



Engineers



No. 403.



No. 403P.

No.	Type	Binding
403C.	Field Book, right-hand page 8 vertical lines to inch	Impregnated Canvas
403.	" " " " " 8 " " " "	Genuine Sheepskin
403F.	" " " " " 8 " " " "	Imitation Leather
403P.	Students' Field Book, ruling like No. 403	Flexible Heavy Manila, Canvas Back
404C.	Field Book, right-hand page 8 vertical lines to inch	Impregnated Canvas
404.	" " " " " 8 " " " "	Genuine Sheepskin
404F.	" " " " " 8 " " " "	Imitation Leather

No.	Type
405.	Transit Book
405F.	" "

Binding
Genuine Sheepskin
Imitation Leather

*For Complete Description
Engineers Loose Leaf Field
See Price List in

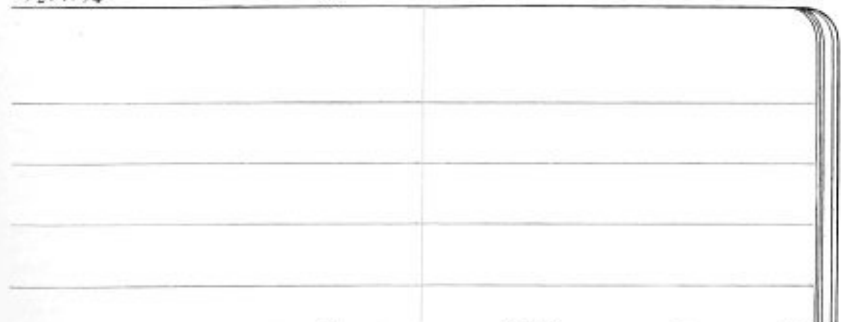
Field Books



No. 405.



Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
$4\frac{1}{2} \times 7\frac{1}{4}$ in.	80	Included		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	36	None		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	60	Included		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	60	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	60	"		



Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
$4\frac{1}{2} \times 7\frac{1}{4}$ in.	80	Included		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		

of Tables see Page 61.
 Books listed under Nos. 384-388A.
 back of Catalog.



Engineers



No. 410.



No.	Type							Binding
410C.	Level Book	.	.	.	.	.	.	Impregnated Canvas
410.	" "	.	.	.	.	.	.	Genuine Sheepskin
410F.	" "	.	.	.	.	.	.	Imitation Leather
411.	" "	.	.	.	.	.	.	Genuine Sheepskin
412C.	" "	.	.	.	.	.	.	Impregnated Canvas
412.	" "	.	.	.	.	.	.	Genuine Sheepskin
412F.	" "	.	.	.	.	.	.	Imitation Leather

SECTION						
STA.	ELEVA.	GRADE	CUT OR FILL			
			LEFT	C	RIGHT	

No.	Type							Binding
420.	Earthworks Field Book	.	.	.	.	.	.	Genuine Sheepskin

*For Complete Description
Engineers Loose Leaf Field
 See Price List in

Field Books



No. 420.

Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
4½ × 7¼ in.	80	"		
4½ × 7¼ "	80	"		
4½ × 7¼ "	80	"		
4½ × 7¼ "	60	"		
4 × 6½ "	80	"		
4 × 6½ "	80	"		
4 × 6½ "	80	"		

AREAS		CUBIC YARDS		REMARKS
EXCAVATION	EMBANKMENT	EXCAV.	EMBANK.	

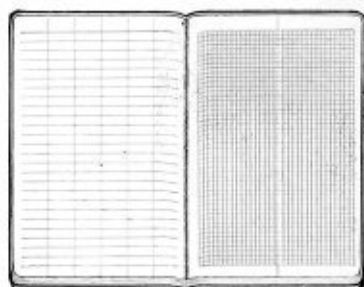
Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
5 × 7¾ in.	80			

of Tables see Page 61.

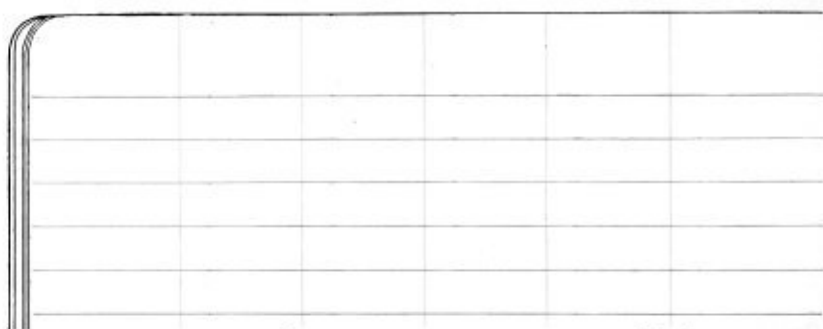
Books listed under Nos. 384-388A.

back of Catalog.

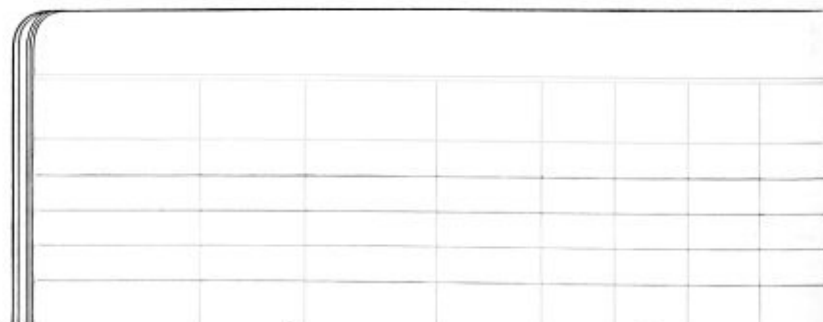
Engineers



No. 422.



No.	Type	Binding
422C.	Mining Transit Book, right-hand page 8×8 to the inch	Impregnated Canvas
422.	" " " " " " 8×8 " " "	Genuine Sheepskin
422F.	" " " " " " 8×8 " " "	Imitation Leather

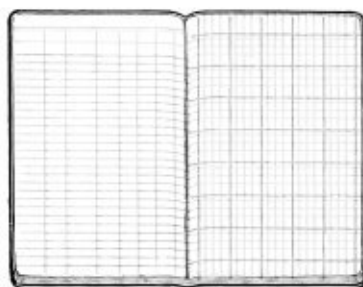


No.	Type	Binding
424.	Topographical Book, right-hand page 4×4 to the inch	Genuine Sheepskin

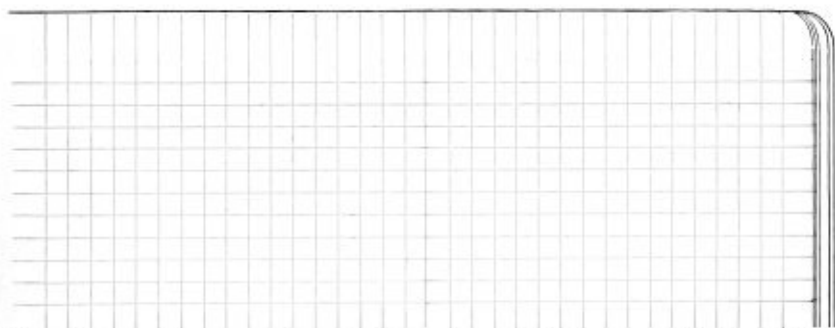
*For Complete Description
Engineers Loose Leaf Field

See Price List in

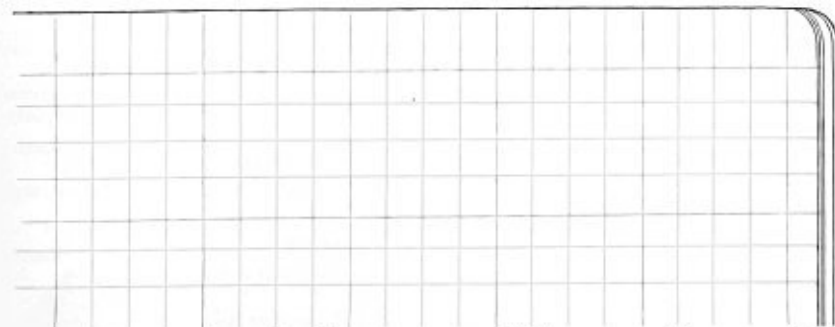
Field Books



No. 424.



Overall Size	No. of Leaves	*Tables Included	Dozen, \$	Each, \$
$4\frac{1}{2} \times 7\frac{1}{4}$ in.	80	"	\$	\$
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		
$4\frac{1}{2} \times 7\frac{1}{4}$ "	80	"		



Overall Size	No. of Leaves	*Tables	Dozen, \$	Each, \$
5×8 in.	80	None	\$	\$

of Tables see Page 61.

Books listed under Nos. 384-388A.

back of Catalog.



Standard Blank Forms for the Building Trades

Blank Form Specifications and Reminder

For Frame and Brick Buildings Costing From \$500 to \$15,000

The Standard Blank Forms of Specifications, consisting of 14 sheets containing the following blank forms, are furnished in a strong manila cover, on which is printed a useful Architects Reminder:

Preamble	Galvanized Iron	Plumbers, Gas Fitters, Sewers
Masons, Cut Stone	Iron (Structural)	Agreement between Owner
Plasterers	Heating, Steam or Hot Water	and Contractor (with Bond)
Carpenters	Heating, Furnace	Contractor's Statement
Painters, Glaziers	Electric Wiring	

No. 430.	Standard Specifications.		
	100 sets, \$	Dozen sets, \$	Set, \$
433.	Printed covers for Specifications, plain,	100,	Doz.,
436.	Building Contracts,	"	"
436½.	Building Contracts with Bond,	"	"

Standard Documents

The Standard Documents of the American Institute of Architects replace the old Uniform Contract, which is discontinued and **cannot be furnished.**

Please order by our Catalog Number.

No. 437-1.	Agreement (Form A-1), and General Conditions (Form A-2), in cover,	100, \$	Each, \$
437-2.	General Conditions (Form A-2),	"	"
437-2B.	Form of Agreement between Owner and Architect on the Percentage basis,	"	"
437-2C.	Form of Agreement between Owner and Architect on the Fee Plus Cost system,	"	"
437-2P.	Form of Agreement between Owner and Contractor (Cost Plus Fee basis),	"	"
437-2S.	Form of Agreement between Owner and Contractor (Stipulated Sum Basis of Payment), (Form A-1),	"	"
437-3.	Bond of Suretyship (Form B-1),	"	"
437-4.	Agreement between Contractor and Subcontractor (Form C-1),	"	"
437-5.	Letter of Acceptance of Subcontractor Proposal (Form D-1),	"	"
437-6.	Complete Set, in cover, consisting of one each Nos. 437-1, 3, 4 and 5 (Form E-1),	100 Sets	Set,

A heavy paper cover, on which valuable explanatory notes are printed, is given with each copy of the "Agreement and General Conditions" and with each "Complete Set of the Documents."

No. 441.	Architects Certificate Books. Board Cover; 100 blanks with stubs,	\$
No. 442-1 to 443A.	Architects Certificate Blanks and Binders. For description and illustrations see next page.	

Specification Papers

No. 465.	Specification Paper, size 8½ × 11 in., 500 sheets in a box, per box,	\$
466.	" " " " 8½ × 13 " 500 " " " " " " "	"

These Specification Papers are of a high grade, light weight, typewriter bond paper, especially suited for Architects' Specifications. This paper is sufficiently transparent to permit excellent reproductions.

Sundries

No. 470.	Black Oil Cloth, for covers for drawings, 48 in. wide,	Yard, \$
	See also Drawing Table Dust Covers Nos. 4481 A to S.	
480.	Gelatine or Glass Paper, in sheets 16½ × 20½ in., medium thick, Sheet,	
	See Price List in back of Catalog.	

Certificate Blanks and Binders In Loose Leaf Form

We are presenting a new assortment of loose leaf forms and binders to fit, superseding the customary stub forms. Loose leaf forms may be conveniently written in triplicate on the typewriter, thereby securing an original for the Contractor to present to the Owner, a duplicate to be sent by the Architect or Engineer to the Owner, as notice that payment has been authorized and a triplicate to be preserved by the Architect or Engineer. The triplicate may be filed alphabetically in the binder listed.

This illustration shows a sample set of—the original on non-alterable safety check paper—duplicate and triplicate on tough white bond. These blanks may be printed at small cost.

TRIPPLICATE
Certificate No. 4
Amount of this Certificate \$ 2,450.00
To State-Scott Building Corporation
B. D. Flatt Co.
Chicago, Ill.
Building Four
of the
Apartment Building
State-Scott

DUPLICATE
Certificate No. 4
Amount of this Certificate \$ 2,450.00
To State-Scott Building Corporation
B. D. Flatt Co.
Chicago, Ill.
Building Four
of the
Apartment Building
State-Scott

YOUR NAME AND ADDRESS HERE

Certificate No. 4
Amount of this Certificate \$ 2,450.00
To State-Scott Building Corporation
B. D. Flatt Co.
Chicago, Ill.
Building Four
of the
Apartment Building
State-Scott

This is to Certify that B. D. Flatt Co. contractor for the Masonry and Carpentry of your building at State and Scott Streets, Chicago is entitled to a Final Payment of Two Thousand Four Hundred and Fifty Dollars.

Amount of Contract	\$ 17,375.00	
Advance to date	\$ 1,120.00	
Total	\$ 18,095.00	
Deductions to date	\$ 75.00	
Net Total	\$ 18,020.00	
Am't of this Cert	\$ 2,450.00	
Previously authorized	\$ 6,480.00	
Total authorized to date	\$ 8,930.00	
Balance		

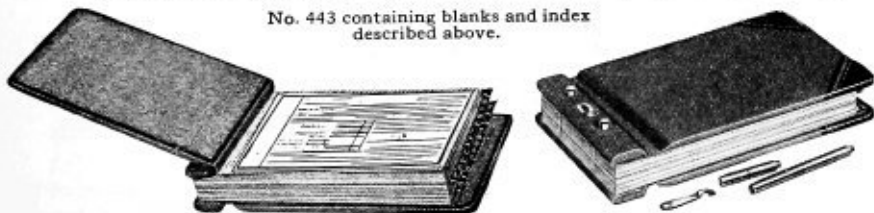
Received from State-Scott Building Corporation
Two Thousand Four Hundred and Fifty Dollars
as per above Certificate

C. O. Brown
Date: June 10, 1930

B. D. Flatt

- No. 442-1. Architects' Certificate Blanks, Originals, printed on safety check paper. Size 6 x 9 1/2", perforated to tear 6 x 8", punched for loose leaf binder. (The original is for the contractor to present to the owner.) 100 blanks, \$ 1000 blanks, \$
- 442-2. Architects' Certificate Blanks, Duplicates, printed on white Bond paper. Size 6 x 9 1/2", perforated to tear 6 x 8", punched for loose leaf binder. (These forms serve as notice to the Owner that Payment to the Contractor has been authorized by the Architect.) 100 blanks, \$ 1000 blanks, \$
- 442-3. Architects' Certificate Blanks, Triplicates, like No. 442-2, but not perforated. (These forms serve as file copies for the Architect's office.) 100 blanks, \$ 1000 blanks, \$
443. Sectional Post Binders, Canvas bound, with reinforced corners; automatic top lock and extension posts to fit Architects' Certificate Blanks Nos. 442-1 to 442-3. Each, \$
- 443A. Alphabetical Indexes, A to Z, for Sectional Post Binders No. 443, Canvas tabs with muslin shields over the tabs. Each, \$

No. 443 containing blanks and index described above.



See Price List in back of Catalog.



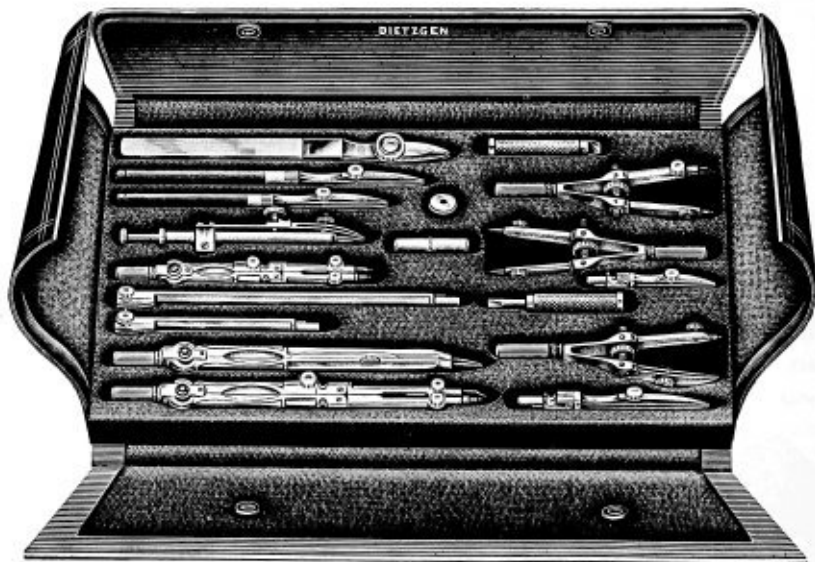
Drawing Instruments

The selection of Drawing Instruments should be carefully considered by the prospective purchaser. A proper choice, on the part of our patrons, of the grades of instruments that they may need, is quite as desirable to us as to them. For the benefit of those who are located where they cannot personally inspect the instruments that they might want, we deem it expedient to make sufficient explanation for the various grades manufactured by us to enable our patrons to make a satisfactory selection.

Standardization and Repair Parts

All Drawing Instruments listed by us are made in our own modern, well-equipped factory, by skilled artisans. By making our own instruments, instead of depending on other manufacturers, we have unusual advantages of maintaining uniform high quality **standard** instruments, whose component parts are perfectly fitted. This **standardization** is extremely important to users of Drawing Instruments, and even more so to large buyers, such as schools, because they can obtain at any time, either at our branches or large dealers, accurately fitting parts at very reasonable prices, to replace any parts lost or broken.

Our complete line comprises an assortment that fully meets all possible requirements of both the professional man and the beginner. On the pages following, the merits of each grade are explained in detail, and we leave a selection to the preference of the purchaser.

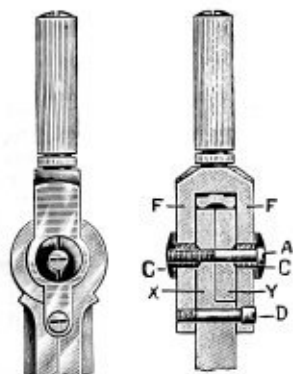


The above illustration shows the general arrangement and neat appearance of the green velvet lined pocket cases in which are placed our various assortments of drawing instrument sets.

Description of Grades

Gem Union Drawing Instruments

Made of cold rolled Nickel silver and the highest grade tool steel. The cold rolled Nickel silver is of the most select grade, and the instruments are cut (not cast or coined in die) from it, thus affording the greatest efficiency by combining strength, rigidity and lightness. The finish is remarkably fine, and so bright that the least flaw or fault in workmanship, form or quality of material would be evident.



Union Pivot Joint: The unique construction of the Union pivot joint makes it possible to reduce the weight of the Fork "F" because adjusting screw "A" passes completely through Fork and Legs, thus insuring exceptional rigidity combined with light weight. The pivots are formed by two screw bolts "CC" with cone shaped ends and lock nuts, all in one piece, which are securely set in the Fork "F." The motion of the instrument can be adjusted minutely by tightening or loosening the center screw "A" only. "D" indicates a bracing screw for stiffening the fork.

Straightening Device: All Gem Union Compasses and Dividers are equipped with our patented differential straightening device which keeps the fork centered in all positions, although it is completely separated from the pivots and adjusting screw. If desired, the action of the differential straightening device may be eliminated by a turn of screw "S," which releases the pressure upon stem "P" and consequently upon the cone shaped bearing "P." By increasing pressure of the differential straightening device the rigidity of the instrument may be greatly enhanced, if desired.



Shank and Clamp Socket: In the round form the feathered shanks fit into side clamping spring sockets. By this construction the interchangeable parts of the compasses are firmly locked twice. First, by the steel feather of the shank, and secondly, by the clamping sockets being drawn together with the screw.

Screw-Thread Needle Point: All Compasses, Bow Pencils and Bow Pens are fitted with our patented screw-thread needle points.

The screw-thread needle point possesses the obvious advantages of quick, minute and positive adjustment.

The portion "A" is threaded in the extremity of the leg.

The portion "B" is knurled, to be more easily turned with the fingers.

The thumb-screw "C" clamps the needle point rigidly.



Dividers: Gem Union Plain and Hairspring Dividers are equipped with adjustable and reversible needle points.

Ruling Pens: The Ruling Pen is used more than any other instrument and should be manufactured with the greatest care. We spare no effort to make our pens as nearly perfect as possible. The tool steel used in the Gem Union Pens is properly tempered, and the points, accurately ground, are shaped to obtain the best results under all conditions of use.

Bow Instruments: Gem Union Steel Spring Bow Instruments are made of one continuous piece of steel, carefully tempered and finished. The screws and handles are Nickel silver, and all threads are made with extreme care and uniformity. Bow Pens and Bow Pencils are equipped with micrometer screw-thread needle points.

Center Tack: All Gem Union case assortments contain a Center Tack.

The Center Tack is of advantage when drawing concentric circles as its use prevents large holes being made in the paper. It has a very fine point, and the top is notched at the center to receive the needle point of the Compasses.



Guarantee: Each Gem Union Instrument is guaranteed to satisfactorily perform the work for which it is intended, and to be absolutely perfect in every respect.

Every Gem Union Instrument bears our monogram, of which the following illustration is a facsimile:

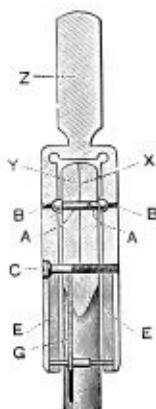


In addition, we stamp all Compasses, Dividers and Bow Instruments with their quality mark, "Gem Union."

Excello Drawing Instruments

Made of selected quality cold rolled Nickel silver and the highest grade tool steel For instruments of this form, the Excello stand superior to all others in workmanship, finish, and mechanical excellence, embodying special features of great practical value to draftsmen.

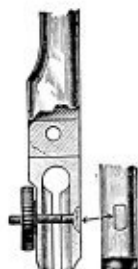
Joint: The mechanical working of the Excello joint is perfect. The principles employed in its construction insure easy, rapid and exact adjustment, and a smooth motion at all times.



As shown by illustrations, the joint is constructed by two concentric pivots, "A-A," having a hemispherical head at each end; these heads rest in the recesses "B-B," drilled on the inner surfaces of the forks "E," to receive the pivots. The adjustment of the joint is simply and effectively regulated by the screw "C," which can be tightened or loosened at will, and by means of which any wear in the joint can be effectually compensated.

The Straightening Device, "G-G," holds the handle "Z" always perpendicular to the drawing surface, irrespective of the spread of the legs "X" and "Y."

T-Bolt Clamps: The Pen, Pencil and Divider parts are held in their sockets by clamps of the "T-Bolt" pattern. The principle of the socket, while simple, is very effective; and as all spindles and nuts are interchangeable, parts can be interchanged, or lost parts can be replaced without trouble and at a slight expense. A tight joint is assured, and the threads seldom if ever strip.



Needle Point Leg: The needle point leg is provided with an adjustable and interchangeable steel point held firmly in place by a thumb nut and bolt. The swivel feature customary in instruments of this type has been abandoned for this more improved style needle point leg which is made with a joint to correspond to the other leg.



Center Tack and Metal Handle: All Excello case assortments contain a Center Tack and at least one Metal Handle holding reserve needle points.



The Center Tack is of advantage when drawing concentric circles, as its use prevents large holes being made in the paper. It has a very fine point, and the top is notched at the center to receive the needle point of the Compasses.

All needle points in both legs of dividers and compasses are adjustable and reversible. In case of damage to the points, new needle points can readily be inserted.



The Metal Handle fits the pen, pencil and divider parts of the Compasses, and any one of these parts can, in connection with the handle, be used as a separate instrument.

Ruling Pens: All Excello Ruling Pens are correctly tempered, and will hold their points exceptionally well under all conditions of use. They are made of high grade tool steel and are of the very finest workmanship.

Bow Instruments: Excello Bow Instruments are made of high grade steel and Nickel silver. All needle points are adjustable and reversible. In case of damage to the points, new needle points only are required.

The Circular Head style possesses a certain advantage by giving an absolutely even tension at any adjustment.

Guarantee: Each "Excello" Instrument is guaranteed to satisfactorily perform the work for which it is intended, and to be absolutely perfect in every respect.

Every "Excello" Instrument bears our monogram .


In addition we stamp all Compasses, Dividers, and Bow Instruments with their quality mark, "Excello."

Champion Drawing Instruments

The Champion Instruments, of a design similar to the Excello but not possessing certain exclusive characteristics of the latter, rank next in quality to the Gem Union and Excello grades. They are made of high grade rolled Nickel silver and tool steel. When compared with any Drawing Instruments of similar form, other than the Excello, they will be found superior in materials, workmanship, finish and general mechanical excellence.

The head joints of the Compasses and Dividers, like the Excello, insure easy, rapid and exact adjustment, and a smooth motion at all times. Pen, Pencil and Divider parts are held in their sockets by the very effective "T-Bolt" method. Adjustable and reversible needle points are furnished on the dividers, as well as on the needle point leg and the divider part of compasses, making replacement easy in case of damage. Bow Instruments have metal handles, and are of the Circular Head style, giving an absolutely even tension at any adjustment. All case assortments contain a Center Tack and at least one Metal Handle, as described on preceding page.

We guarantee these instruments to be high grade, and to satisfactorily perform the work for which they are intended.


All Compasses, Dividers, and Bow Instruments are stamped with their quality mark .

Federal Drawing Instruments

The Federal Instruments are made of rolled Nickel silver and steel. They are substantially constructed, carefully finished, and attractive in appearance. With proper care, they will give excellent service, and, prices considered, will be found unequalled in design, workmanship and finish.

Compasses and Dividers are equipped with our patented differential straightening device, and the Dividers have adjustable and reversible needle points. All case assortments contain a Center Tack as described on page 74.


Compasses and Bow Instruments are fitted with screw-thread needle points. Ruling Pens and pen part of Compasses are equipped with slide catch cleaning device. All Bow Instruments have metal handles.

Each instrument is stamped with its quality mark, .

Universal Drawing Instruments

The Universal Instruments are of the flat, round type and are made of a good quality Nickel silver, the removable needle points being of steel. Compasses and Dividers are equipped with straightening devices. Ruling Pens and pen part of Compasses are equipped with slide-catch cleaning device. Bow instruments have metal handles, and are of the Circular Head style, giving an absolutely even tension at any adjustment.

Their points of advantage make them specially adapted for use in Manual Training Schools, or schools teaching mechanical drawing, and their construction insures satisfactory service.

Each instrument stamped with its quality mark, .

Reliance Drawing Instruments

Reliance Instruments are made of rolled Nickel silver and steel, and are of the trigonal type. They are well adapted for Manual Training use and will render good service. Ruling Pens and pen parts of Compasses are equipped with slide-catch cleaning device.

All Dividers and Compasses have straightening devices and are of a remarkably satisfactory quality. This grade should not be confused with other makes which are cast and somewhat similar in appearance but inferior in quality.

Dependo Drawing Instruments

Dependo Instruments are made of Nickel silver with removable steel points. The Compasses and Dividers, cylindrical in form, have straightening devices, and are easy to handle, having a nice balance. They are durable, well-finished, and will give good service. They will be found very satisfactory for use in Manual Training Schools, schools teaching mechanical drawing, or for similar work.

Scholar Drawing Instruments

Scholar Drawing Instruments, a trigonal or American type instrument, are of rolled nickel silver and steel. They are of good construction, material and workmanship. The Compasses and Bow Pencils have adjustable and reversible needle points. Compasses and Dividers are equipped with straightening devices. Well adapted for apprentice schools and elementary drawing.

Prep Drawing Instruments

The Prep Drawing Instruments are of a flat round type, made of nickel silver and steel. They are of good material and workmanship. The Compasses and Dividers and Bow Instruments have reversible and replaceable needle points. The Compasses and Dividers have straightening devices. The Bow Instruments have the circular head, which gives an even tension at all adjustments. The Ruling Pens are equipped with cleaning devices. These Instruments are adapted for elementary school drawing.

Constructo Drawing Instruments

Constructo Drawing Instruments are of the flat, round type and are made of special processed hard brass, heavily nickel-plated, and steel. The ruling Pens and Pen Parts of the Compasses are equipped with cleaning devices. These sets are chiefly recommended because of their low prices.

Designo Drawing Instruments

Designo Drawing Instruments are of the flat, round type and are made of special processed hard brass, heavily nickel-plated, and steel. Compasses and Dividers in these sets are equipped with straightening devices. The Ruling Pens and Pen Parts have cleaning devices. These sets are low-priced and are adapted for elementary school drawing.

Ruling Pens



- No. 618. **Gem Union Ruling Pen**, 5 in., spring blade, having a broad front and nicely tapering in width from the point to where the blade meets the handle. Steel has an extra fine finish and the inside of the nibs is finished lengthwise to facilitate the flow of ink. Adjusting screw of the nibs has a large head and an extra strong thread. Handle is cone-shaped and made of unbreakable fibre. Pen has a very comfortable balance and is superior in every respect, Each, \$
- 618S. Like No. 618, but made of stainless non-rusting steel instead of regular steel, Each, \$
619. Like No. 618, but 5½ in., Each, \$
- 619S. Like No. 619, but made of stainless non-rusting steel instead of regular steel, Each, \$
622. **Gem Union Ruling Pen**, 5 in., stainless, non-rusting steel, jack-knife blade, polished ebony handle; as the upper blade of this pen can be completely opened, the blades can be easily cleaned or sharpened without disturbing the adjustment for width of lines. Each, \$
623. Like No. 622, but 5½ in., " \$

Gem Union grade described on pages 73-74.

See Price List in Back of Catalog.



Ruling Pens



No. 626.



627.



628.



632.



633.



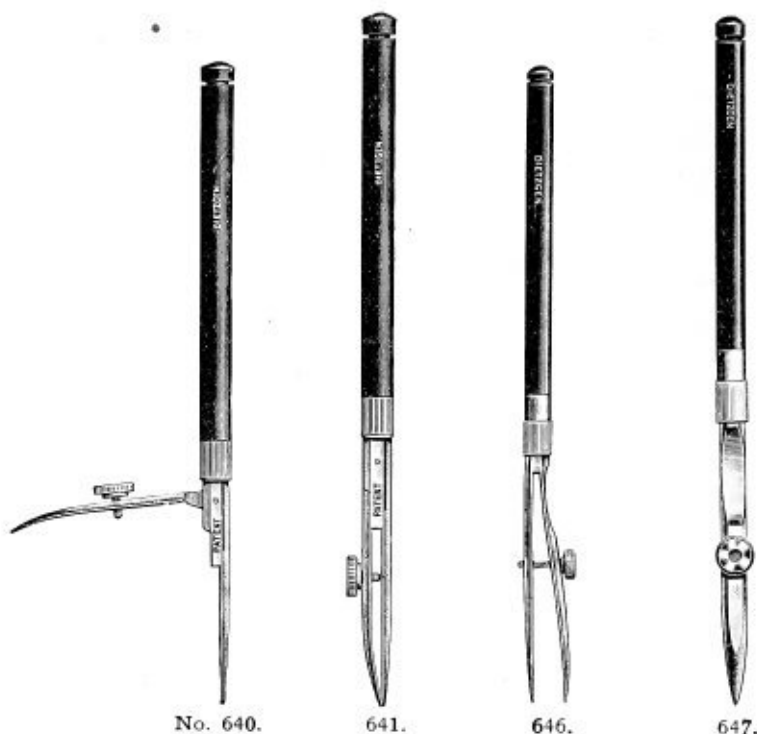
638.

- No. 626. **Gem Union Ruling Pen**, 5 in., hinge joint for cleaning, pricker pin, polished ebony handle, Each, \$
627. **Gem Union Ruling Pen**, 5 in., with hinge joint of improved construction for cleaning, pricker point, and polished ebony cone shaped handle, Each,
628. Like No. 627, but 5½ in., "
632. **Excello Ruling Pen**, 5 in., spring blade, aluminum handle, "
633. Like No. 632, but 5½ in., "
638. **Excello Ruling Pen**, 5½ in., taper blades, aluminum handle, adapted for fine line work, Each,

Above grades described on pages 73-76.

See Price List in back of Catalog.

Ruling Pens



No. 640.

641.

646.

647.

No. 640. Champion Ruling Pen, 5 in., jack knife blade, polished ebony handle. The patented arrangement of the opening of the upper blade enables it to be quickly opened and the pen easily cleaned without disturbing the adjustment of the width of line. This also facilitates the sharpening of the nibs. The pen is graceful, well-balanced, and of quality hard steel, Each, \$

641. Champion Ruling Pen, like No. 640, but 5 1/2 in., "

646. Champion Ruling Pen, 5 in., spring blade, polished ebony handle, Each,

647. Like No. 646, but 5 1/2 in., "

Champion grade described on page 76.

See Price List in back of Catalog.

Ruling Pens



No. 648.



649.



656.



657.

- No. 648. **Federal Ruling Pen**, 5 in., slide-catch spring blade, ebonized handle; the upper blade can be instantly opened by means of a slide-catch and the blades cleaned or sharpened without disturbing the adjustment for width of lines, Each, \$
649. Like No. 648, but 5½ in., "
654. **Universal Ruling Pen**, 5 in., slide-catch spring blade, ebonized handle; the upper blade can be instantly opened by means of a slide-catch and the blades cleaned or sharpened without disturbing the adjustment for width of lines, Each,
655. Like No. 654, but 5½ in., "
656. **Reliance Ruling Pen**, 5 in., slide-catch spring blade, ebonized handle, Each,
657. Like No. 656, but 5½ in., "
658. **Dependo Ruling Pen**, 5 in., slide-catch spring blade, ebonized handle, Each,
659. Like No. 658, but 5½ in., "

Above grades described on pages 76-77.

See Price List in Back of Catalog.

Ruling Pens



- | | | | | | | |
|-----------|--|--|--|--|--|--|
| No. 656A. | | | | | | |
| No. 657A. | | | | | | |
| 660. | | | | | | |
| 661A. | | | | | | |
| 661B. | | | | | | |
| 662A. | | | | | | |
| 662B. | | | | | | |
- | | | |
|-----------|---|----------|
| No. 656A. | Ruling Pen, 5 in., plain, spring blade, aluminum handle, | Each, \$ |
| 657A. | Like No. 656A but 5½ in., | " |
| 660. | Ruling Pen, 5 in., plain, spring blade, metal handle, | " |
| 661A. | Scholar Ruling Pen, 5 in., spring blade, ebonized handle, | Doz., |
| 661B. | Like No. 661A, but 5½ in., | " |
| 662A. | Prep Ruling Pen, 5 in., spring blade, with cleaning device, | " |
| 662B. | Like No. 662A, but 5½ in., | " |

Ruling Pen Display Cards

These Display Cards of Ruling Pens are neat, and attractive; made of heavy cardboard supported by an easel attachment. They may be stood up where they will attract attention.



The pens on these cards are well made and serviceable, and will meet the demand for a popular-priced ruling pen among accountants, statisticians, artists, and students.

- | | | |
|-----------|---|-----|
| No. 656C. | Display card, 12 pens, No. 656A, 5 in. Aluminum Handle, Card, | \$ |
| 660C. | " " 12 " No. 660, 5 " Metal | " " |

See Price List in back of Catalog.

Champion Patent Fountain Ruling Pen



No. 665. 665E.

The Champion Patent Fountain Ruling Pen is a well made and practical pen.

It can be used with any drawing ink, requires but one filling for a day's work, will neither leak nor clog, is simple in construction, and is not affected by ink acids.

Only the highest grade materials are used in its manufacture, and with proper care this pen will always operate satisfactorily and give excellent service.

The illustration shown at the right is an explanatory view: A is the metal top; B, the air escape; C, the cap; D, the pen socket; E, the plunger; F, the ink tube; G, the packing nut; H, the cap tension.

The barrel is filled by unscrewing the metal top and dropping the ink into the barrel by means of an ink dropper which is furnished with each instrument.

The ink is conveyed to the pen point by engaging the stud on the metal top in the longest slot in the cap and pressing the cap gently with the thumb or the forefinger. The intermediate slot is used when less ink is desired, and when the pen is not in use the stud is engaged in the smallest slot, thus preventing the cap from being pressed down accidentally.

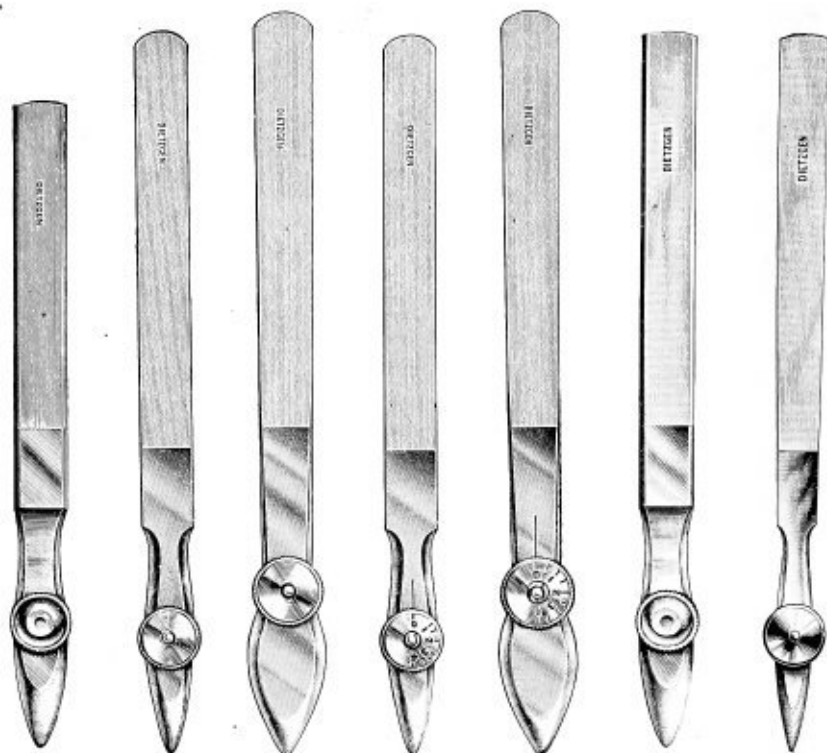


Explanatory View.

- No. 665. **Champion Patent Fountain Ruling Pen**, 5¼ in., with point protector and ink dropper, Each, \$
- 665E. **Extra Pen Part** for No. 665, with wide blades to hold sufficient ink for detail work, with point protector, Each,
- 665L. **Leather Case** for holding No. 665 when equipped with either the regular or the No. 665E pen part, Each,

See Price List in back of Catalog.

Detail Ruling Pens



No. 666 670. 671. 672. 673. 677. 680.

- No. 666. Gem Union Detail Ruling Pen, 5 in., spring blade, aluminum handle . . . Each, \$
 667. Like No. 666, but 6 in., "
 670. Excello Detail Ruling Pen, 6 in., spring blade, aluminum handle, . . . "
 671. Excello Detail Ruling Pen, 6 in., spring blade, aluminum handle, . . . "
 672. Excello Detail Ruling Pen, 6 in., spring blade, Miller graduated thumb-screw, aluminum handle, Each,
 673. Excello Detail Ruling Pen, 6 in., spring blade, Miller graduated thumb-screw, aluminum handle, Each,
 677. Federal Detail Ruling Pen, 6 in., spring blade, aluminum handle, . . . "
 680. Champion Detail Ruling Pen, 6 in., spring blade, aluminum handle, . . . "

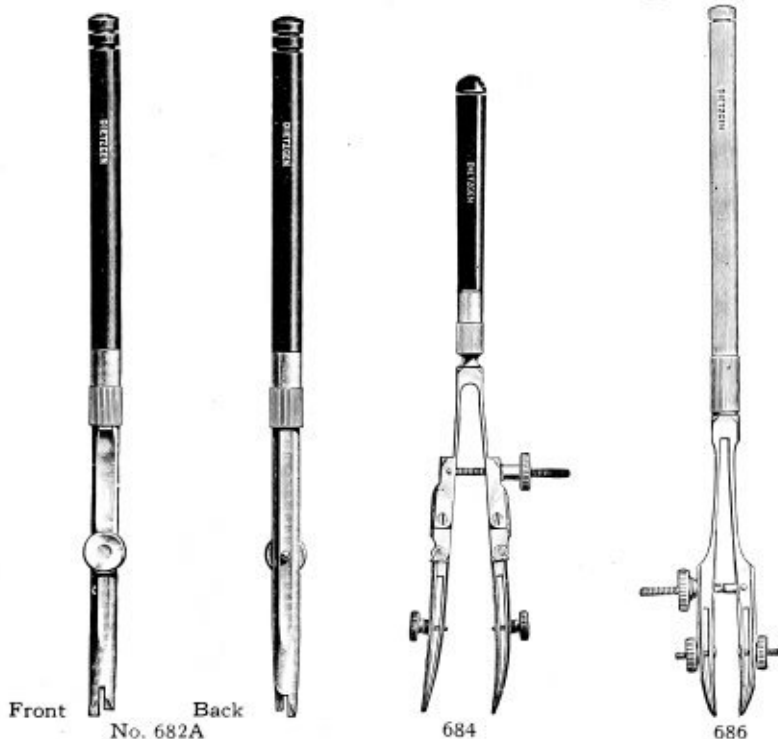
The Miller graduated thumb-screw on Nos. 672 and 673 Excello Detail Ruling Pens permits of drawing lines of similar width at different times, and will also be found of value in shading as lines can be uniformly graduated from the heaviest to the finest.

Detail Ruling Pens are especially adapted for drawing long or heavy lines, as they hold considerable ink.

Above grades described on pages 73-76.

See Price List in back of Catalog.

Broad Line and Railroad Ruling Pens



Broad Line Ruling Pens

This new type ruling pen has many advantages over the present style Swedish and Detail pens, now in use, for drawing long thick lines. The ink is better regulated and enables you to draw much longer lines of more uniform density.

The construction of this pen eliminates the possibility of blots that usually occur when using a heavily ink-loaded Swedish or Detail pen. These latter pens usually flow too freely at the beginning of a line and thin out towards the end when the pen becomes nearly empty. This disadvantage is overcome, as the width of line in this pen does not depend upon the spread of the nibs but upon the width of the prong.

It is of our GEM UNION quality and made of non-rusting steel. It draws a line an ideal width for border or title block lines. The guide prong keeps inking prong away from ruling guide and prevents ink from running under guide.



No. 682A.	Broad Line Ruling Pen (width of line 1 mm. or about .04 in.)	. . .	Each, \$
682B.	Broad Line Ruling Pen (width of line 1½ mm. or about .06 in.)	. . .	"
682C.	Broad Line Ruling Pen (width of line 2 mm. or about .08 in.)	. . .	"
682E.	Broad Line Ruling Pen (width of line 3 mm. or about .12 in.)	. . .	"

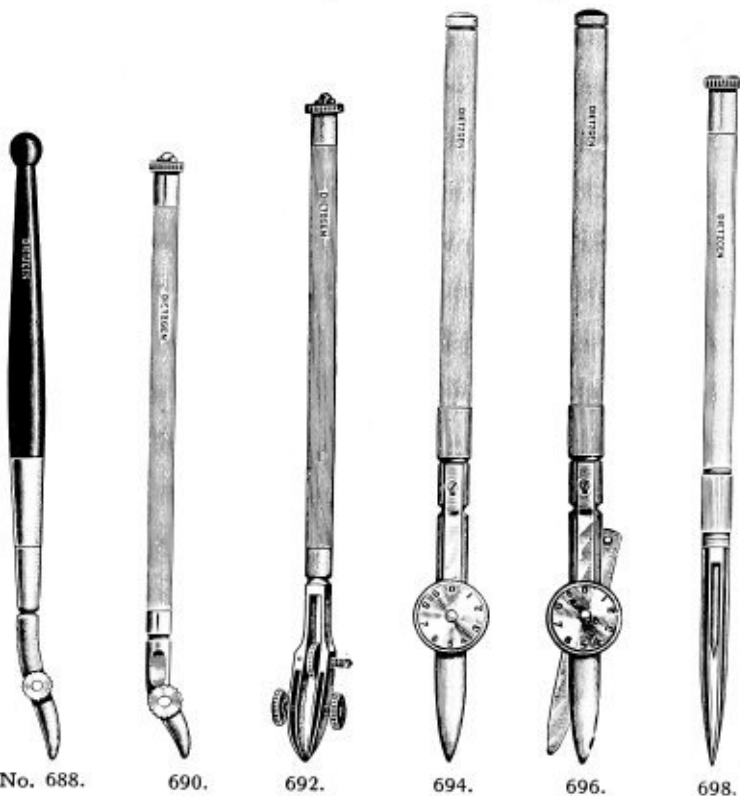
Railroad Ruling Pens

684.	Gem Union Railroad Pen, 5 in., polished ebony handle,	. . .	Each, \$
686.	Excello Railroad Pen, 5½ in., aluminum handle	. . .	

Nos. 684 and 686 Railroad Pens are, on account of their design, particularly valuable for use in railroad drafting rooms, or for similar work.

See Price List in back of Catalog.

Curve and Special Ruling Pens

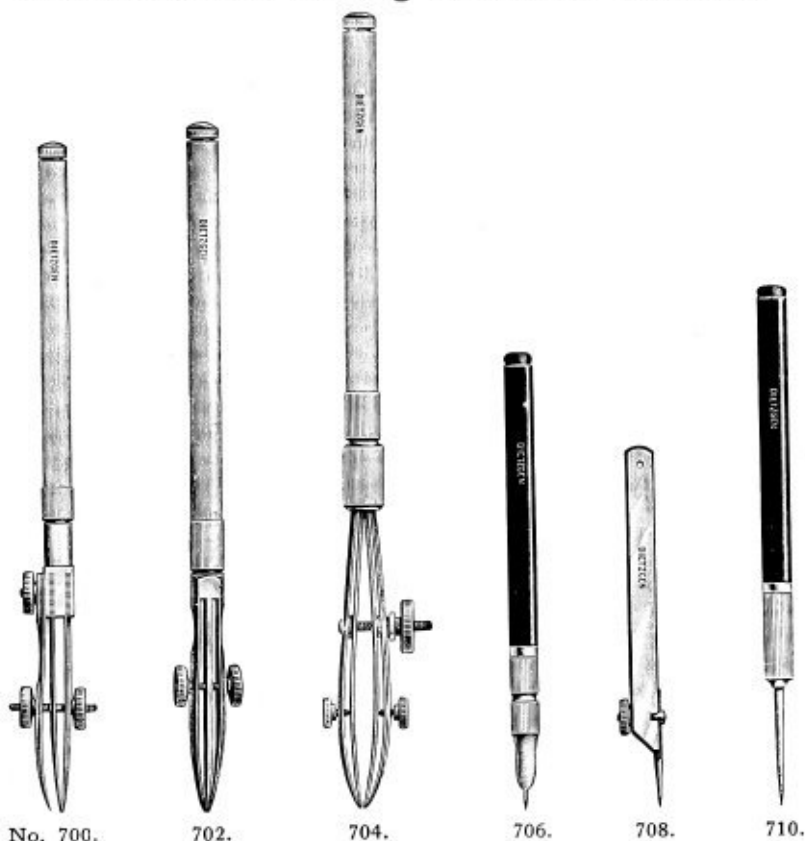


- No. 688. Gem Union Curve Pen, 5 in., polished black fiber handle; specially adapted for drawing curved lines, Each, \$
690. Excello Curve Pen, 4 $\frac{3}{4}$ in., aluminum handle; by a small nut at the upper end, the pen part can be adjusted loose for drawing curved lines or locked for straight line work, Each,
692. Like No. 690, but 5 $\frac{1}{2}$ in., and having two pair of blades, making it valuable for use in railroad drafting rooms or for similar work, Each,
694. Excello Ruling Pen, 5 $\frac{3}{4}$ in., graduated thumb-screw, aluminum handle; the graduated thumb-screw permits of drawing lines of similar width at different times, and will also be found of value in shading, as lines can be uniformly graduated from the heaviest to the finest, Each,
696. Like No. 694, but with cross-joint blade, making it easy to clean or sharpen the blades without disturbing the adjustment for width of lines, Each,
698. Excello Wedge Pen, 5 $\frac{1}{2}$ in., aluminum handle; blades opened or closed by thumb-screw at upper end of handle; specially adapted for delicate, fine line work, Each,

Above grades described on pages 73-76.

See Price List in back of Catalog.

Miscellaneous Ruling Pens and Prickers



- No. 700. **Excello Cross Hatching Pen**, 4 $\frac{3}{4}$ in., aluminum handle; excellently adapted for cross hatching, as the lines can be minutely regulated and the third blade can be used as a tracer for spacing the lines, . . . Each, \$
702. **Excello Border Pen**, 5 $\frac{1}{4}$ in., aluminum handle; specially designed for doing border or other heavy line work rapidly; will rule broad, heavy lines up to $\frac{3}{16}$ of an inch thick, Each, \$
704. **Excello Double Pen**, 6 $\frac{1}{4}$ in., aluminum handle; adapted for drawing either one broad line or two lines of equal or different thickness, thus being suitable both for border line work or for use in railroad drafting rooms, Each, \$
706. **Gem Union Pricker**, 3 $\frac{5}{8}$ in., polished ebony handle, "
708. **Excello Pricker**, 2 $\frac{3}{8}$ in., aluminum handle, "
710. **Gem Union Tracer**, 3 $\frac{3}{4}$ in., polished ebony handle, "

Above grades described on pages 73-76.

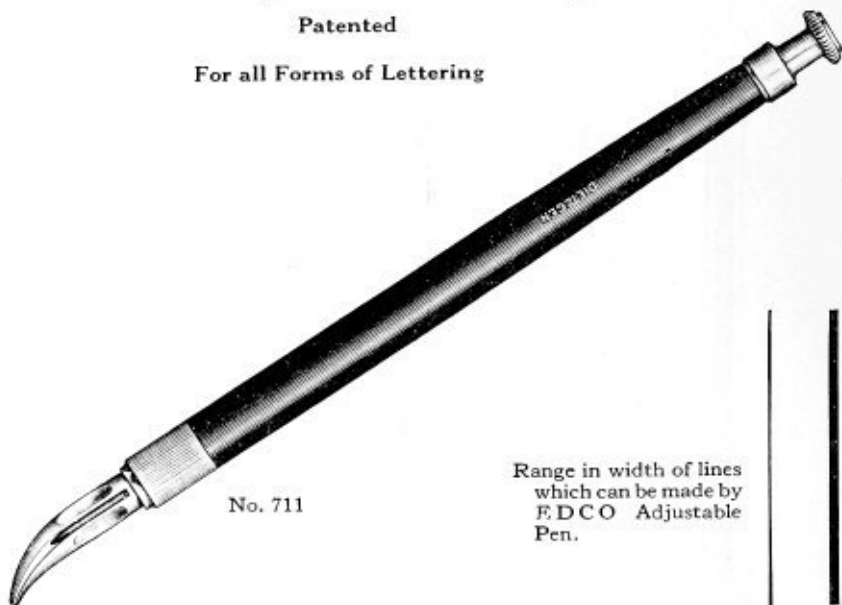
See also No. 3200 Pencil Point Protector and Pricker.

See Price List in back of Catalog.

EDCO Adjustable Lettering Pens

Patented

For all Forms of Lettering



No. 711

Range in width of lines
which can be made by
EDCO Adjustable
Pen.

No. 711. EDCO Adjustable Lettering Pen, tempered steel, Each, \$

The EDCO Adjustable Lettering and Ruling Pen affords an easy and certain means of making letters and lines in a large variety of widths and sizes, and does the work which previously required four to five pens of different sizes.

It is an invaluable addition to the equipment of every Architect, Engineer, Draftsman, Artist and Show Card Writer.

The EDCO Adjustable Pen is filled in the same manner as the usual ruling pen, and is held and used similar to an ordinary writing pen. It is simple in construction, and well balanced, making it a pleasure to execute a tedious job of lettering or ruling.

BLOCK *slanting*

Every width of line or weight of letter, as shown above, can be made with equal facility with the same uniformity and density, no matter in what direction the pen is moved on the paper. Novices and experts may use it with equal ease.

Much time can be saved with the EDCO Adjustable Pen because of the certainty and ease of perfect work—thereby eliminating much preliminary pencil sketching.

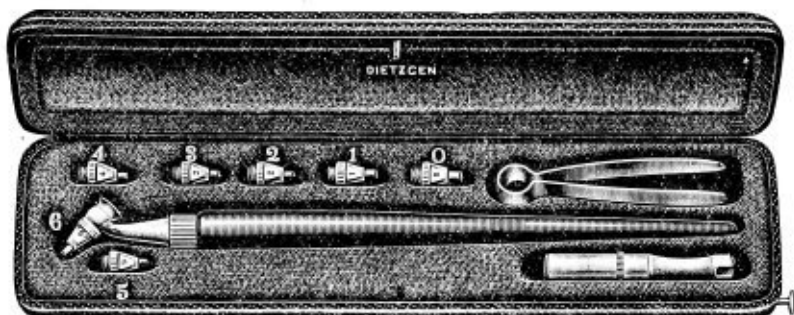
Construction—The pen part is of high grade tempered tool steel, having four nibs instead of the two, common to ordinary ruling pens. These nibs are regulated by a plunger which is controlled by a thumb screw in the top of the handle. The spread of the nibs regulates the width of the line desired. The handle is of black fibre and tapers toward the top, giving a graceful appearance combined with perfect balance.

For lettering, or any heavy line work, this pen is far superior to the usual pens. There are no delicate parts to get out of order and with ordinary care will last indefinitely.

See Price List in Back of Catalog.

EDCO-UNIVERSAL Lettering Set

For All Forms of Lettering



No. 712G

No. 712C. EDCO-UNIVERSAL Lettering Set, consisting of holder, 3 lettering nibs, as selected (See Nos. 713-0 to 713-6) combination wrench and replaceable cleaning needle, with tweezers, in case, . . . Each, \$

712G. Like No. 712C, but having 7 lettering nibs, (See Nos. 713-0 to 713-6) Each, \$



No. 713-0 713-1 713-2 713-3 713-4 713-5 713-6

No. 713-0.	EDCO-UNIVERSAL Lettering Nib, for weight of letter see character above.						Each, \$
713-1.	"	"	"	"	"	"	"
713-2.	"	"	"	"	"	"	"
713-3.	"	"	"	"	"	"	"
713-4.	"	"	"	"	"	"	"
713-5.	"	"	"	"	"	"	"
713-6.	"	"	"	"	"	"	"



713-3



713-H



713-T



713-W

No. 713H. Holder for EDCO-UNIVERSAL Lettering Pen, convenient to handle, with a nickel silver ferrule into which fit the 7 different sizes of lettering nibs, . . . Each, \$

713T. Tweezers, to facilitate handling of lettering nibs, "

713W. Combination Wrench and Replaceable Cleaning Needle for tightening and loosening the nibs and for removing dried up ink from same, Each, \$

Replacement Needles are furnished with all Cleaning Tools.

See Price List in back of Catalog.

Bow Instruments



No. 716A.



716B.



716C.

No. 716A.	Gem Union Bow Dividers, 3 $\frac{3}{4}$ in., side wheel,	Each, \$
716B.	" " Pencil, 3 $\frac{3}{4}$ " " " " " " " "	"
716C.	" " Pen, 3 $\frac{3}{4}$ " " " " " " " "	"

Stainless Steel Bow Instruments

No. 716AS.	Like No. 716A, but made of stainless non-rusting steel,	Each, \$
716BS.	" " 716B, " " " " " " " "	"
716CS.	" " 716C, " " " " " " " "	"



No. 722A.



722B.



722C.

No. 722A.	Federal Bow Dividers, 3 $\frac{1}{2}$ in., side wheel,	Each, \$
722B.	" " Pencil, 3 $\frac{1}{2}$ " " " " " " " "	"
722C.	" " Pen, 3 $\frac{1}{2}$ " " " " " " " "	"

Above grades described on pages 73-76.

See Price List in back of Catalog.

Bow Instruments



No. 724A.



724B.



724C.

No. 724A.	Reliance Bow	Dividers,	3 1/2 in.,	side wheel,	. . . . .	Each,	\$
724B.	" "	Pencil,	3 1/2 "	" "	. . . . .	"
724C.	" "	Pen,	3 1/2 "	" "	. . . . .	"

The Dependo and Scholar Bow Instruments are somewhat similar in appearance to the Reliance Instruments but differ in quality.

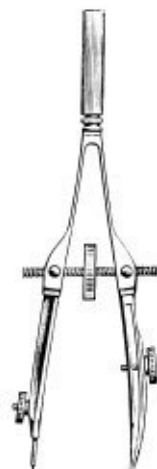
No. 726A.	Dependo Bow	Dividers,	3 1/2 in.,	side wheel,	. . . . .	Each,	\$
726B.	" "	Pencil,	3 1/2 "	" "	. . . . .	"
726C.	" "	Pen,	3 1/2 "	" "	. . . . .	"
No. 727A.	Scholar Bow	Dividers,	3 1/2 in.,	side wheel,	. . . . .	Dozen,	\$
727B.	" "	Pencil,	3 1/2 "	" "	. . . . .	"
727C.	" "	Pen,	3 1/2 "	" "	. . . . .	"



No. 730A.



730B.



730C.

No. 730A.	Gem Union Bow	Dividers,	3 3/4 in.,	center wheel,	. . . . .	Each,	\$
730B.	" "	Pencil,	3 3/4 "	" "	. . . . .	"
730C.	" "	Pen,	3 3/4 "	" "	. . . . .	"

See Price List in back of Catalog.

Bow Instruments



No. 736A.



736B.



736C.

No. 736A.	Federal Bow Dividers,	3½ in., center wheel,	. . . . .	Each, \$
736B.	" " Pencil,	3½ " " " "	. . . . .	"
736C.	" " Pen,	3½ " " " "	. . . . .	"



No. 744A.



744B.



744C.

No. 744A.	Universal Bow Dividers,	3¾ in., side wheel, circular head,	. . . . .	Each, \$
744B.	" " Pencil,	3¾ " " " " " " " "	. . . . .	"
744C.	" " Pen,	3¾ " " " " " " " "	. . . . .	"

Above grades described on pages 76-77.

See Price List in back of Catalog.

Bow Instruments



No. 748A



748B.



748C.

No. 748A.	Prep Bow Dividers,	3 ³ / ₄ in.,	side wheel,	Dozen, \$
748B.	" " Pencil,	3 ³ / ₄ " " " "	" " " "	"
748C.	" " Pen,	3 ³ / ₄ " " " "	" " " "	"



No. 752A.



752B.



752C.

No. 752A.	Excello Bow Dividers,	4 ¹ / ₄ in.,	center wheel,	circular head,	Each, \$
752B.	" " Pencil,	4 ¹ / ₄ " " " "	" " " "	" " " "	"
752C.	" " Pen,	4 ¹ / ₄ " " " "	" " " "	" " " "	"

Above grades described on pages 74-77.

See Price List in back of Catalog.

Bow Instruments



No. 754A.



754B.



754C.

No. 754A. **Champion Bow Dividers**, $4\frac{1}{4}$ in., center wheel, circular head, Each, \$

754B. " " **Pencil**, $4\frac{1}{4}$ " " " " " "

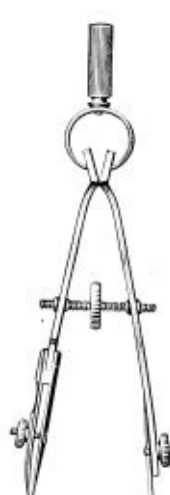
754C. " " **Pen**, $4\frac{1}{4}$ " " " " " "



No. 755A.



755B.



755C.

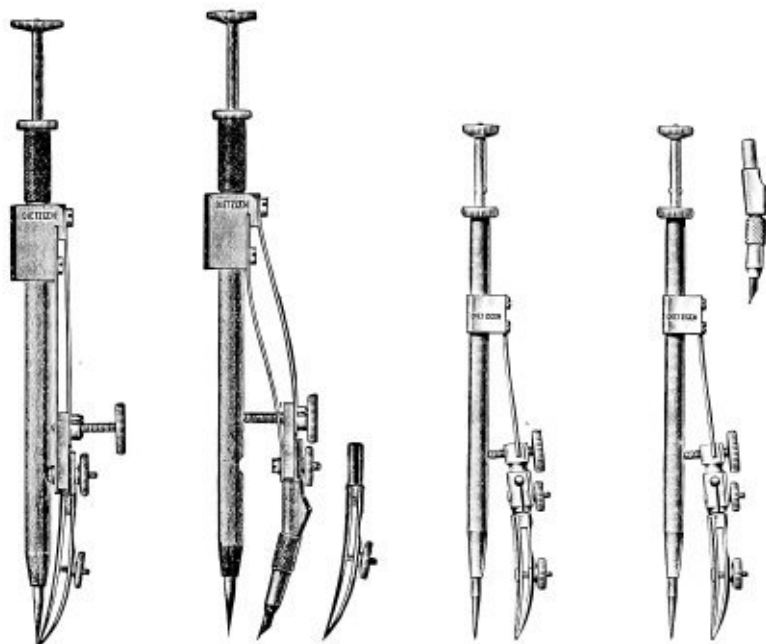
No. 755A. **Universal Bow Dividers**, $3\frac{3}{4}$ in., center wheel, circular head, Each, \$

755B. " " **Pencil**, $3\frac{3}{4}$ " " " " " "

755C. " " **Pen**, $3\frac{3}{4}$ " " " " " "

Above grades described on pages 76-77.
See Price List in back of Catalog.

Drop Spring Bow Instruments



No. 758.

759.

768.

769.

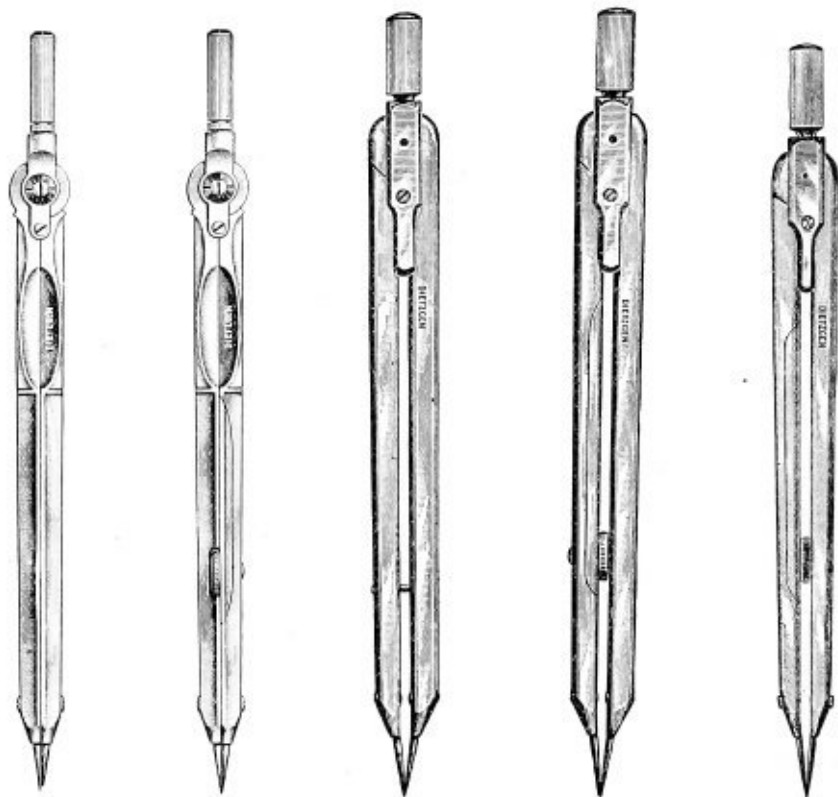
- | | | | |
|----------|---|-----------|----------|
| No. 758. | Excello Self-Adjusting Drop Spring Bow Pen, 4½ in., | | Each, \$ |
| 759. | " " " " " " " " with Pencil Part,
4½ in., | | Each, |
| 767. | Champion Self-Adjusting Drop Spring Bow Pen with Pencil Part,
4½ in. (like No. 759 in design), | | Each, |
| 768. | Federal Self-Adjusting, Drop Spring Bow Pen, 4 in., | | Each, |
| 769. | " " " " " " " " with Pencil Part,
4 in., | | Each, |

These Drop Spring Bow Instruments are unsurpassed for drawing small circles. The design of Nos. 758, 759 and 767 Self-Adjusting Spring Bows is, while unique, very practical. Two parallel springs hold the pen or pencil part in the same relative position regardless of the diameter of the circle to be drawn.

Above grades described on pages 74-76.

See Price List in back of Catalog.

Dividers



No. 773.

774.

777.

778.

786.

- No. 773. **Gem Union Plain Dividers**, 6 in., Union Pivot Joint, differential straightening device, adjustable and reversible needle points. Each, \$
774. **Gem Union Hairspring Dividers**, 6 in., Union Pivot Joint, differential straightening device, adjustable and reversible needle points. Each,
777. **Excello Plain Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,
778. **Excello Hairspring Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,
786. **Champion Hairspring Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,

Above grades described on pages 73-76.

See Price List in back of Catalog.

Dividers



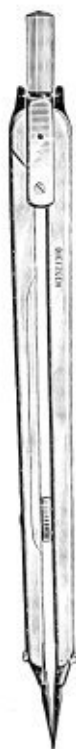
No. 790.



792.



796.



797.



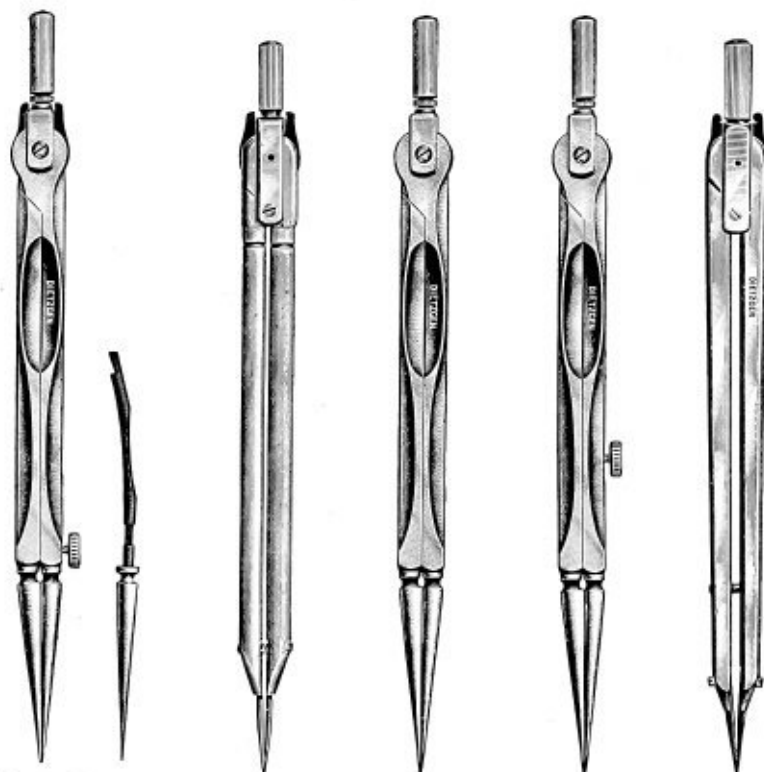
801R.

- No. 790. **Federal Plain Dividers**, 6 in., differential straightening device, adjustable and reversible needle points, Each, \$
792. **Federal Hairspring Dividers**, 6 in., differential straightening device, adjustable and reversible needle points, Each,
796. **Universal Plain Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,
797. **Universal Hairspring Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,
- 801R. **Reliance Plain Dividers**, 6 in., straightening device, "

Above grades described on pages 76-77.

See Price List in back of Catalog.

Dividers



No. 803R. * 806. 807. 808. 809.

No. 803R. **Reliance Hairspring Dividers**, 6 in., with straightening device and new type hairspring part which can be easily removed and replaced if point is damaged. Each, \$

* This illustration shows the new hairspring part for No. 803R which allows easy removal and replacement in case of damage to the point.

806. **Dependo Plain Dividers**, 6 in., adjustable and reversible needle points, straightening device, Each,

807. **Scholar Plain Dividers**, 6 in Doz.,

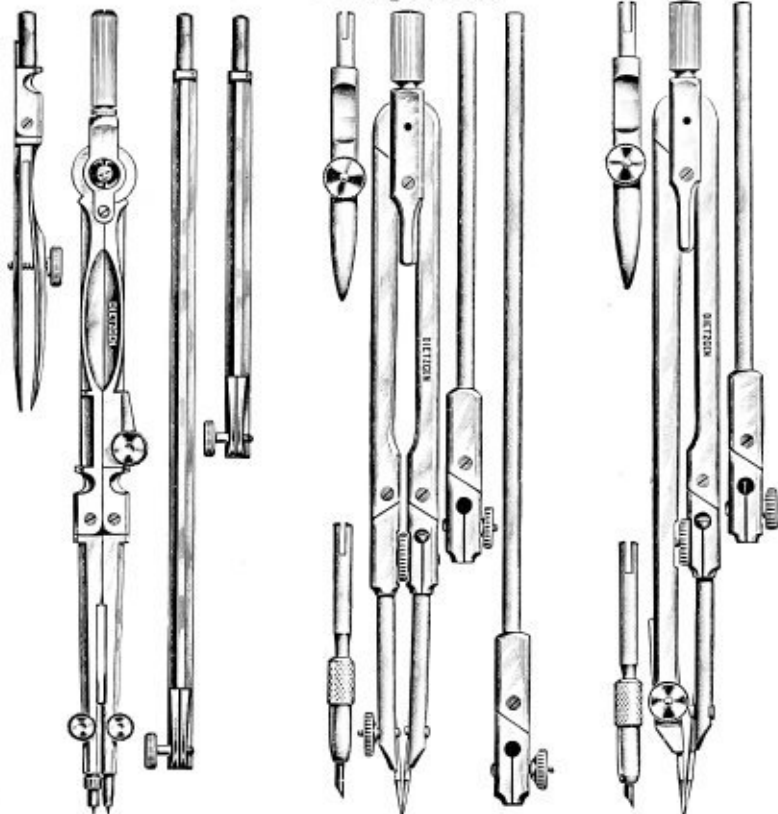
808. **Scholar Hairspring Dividers**, 6 in., "

809. **Prep Plain Dividers**, 6 in., adjustable and reversible needle points, straightening device, Doz.,

Above grades described on page 77.

See Price List in back of Catalog.

Compasses



No. 819.

823.

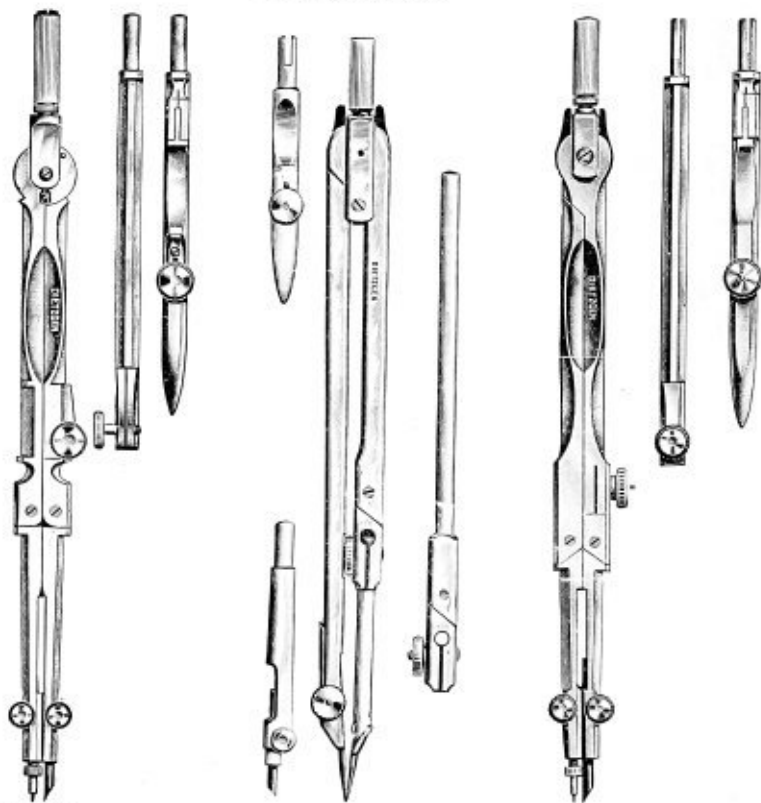
831.

- No. 819. **Gem Union Compasses**, 6 in. with Union pivot joint with differential straightening device; fixed needle point leg with a screw thread needle point; interchangeable pencil and pen part; 4 and 6 in. lengthening bars; combination needle box and key with extra needles; combination key and lead box with extra leads, complete. *All plates and screws in the joints are made of rust-resisting steel, assuring continual easy and perfect operation.* Each, \$
820. Like No. 819, but with hair spring adjustment, complete, Each, \$
823. **Excello Compasses**, 6 in. with perfected Excello straightening device; fixed needle point leg; interchangeable divider, pen, and pencil part; adjustable and reversible points; 4 and 6 in. lengthening bars; combination key and lead box with extra leads; center tack; metal handle for use with divider, pen, and pencil parts as separate instruments, complete. Each, \$
831. **Champion Compasses**, 6 in. with straightening device; fixed needle point leg; adjustable and reversible needle points; pen part, pencil part; 4 in. lengthening bar; combination key and lead box with extra leads; center tack; metal handle for use with divider, pen, and pencil parts as separate instruments, complete, Each, \$

Above grades described on pages 73-76.

See Price List in back of Catalog.

Compasses



No. 835.

839.

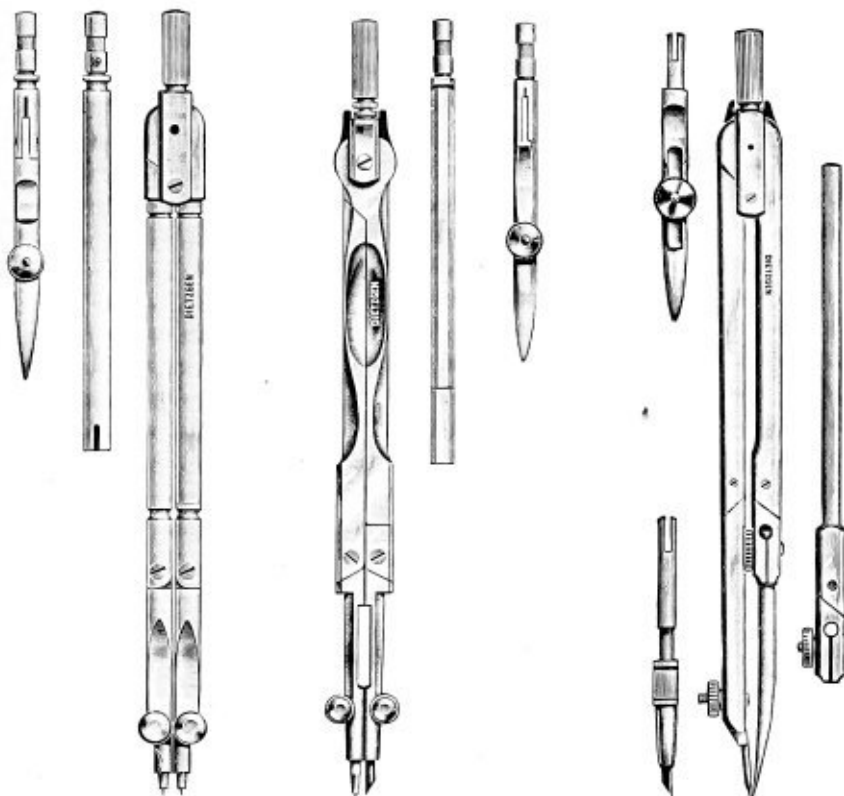
844R.

- No. 835. **Federal** Compasses, 6 in. with differential straightening device; fixed needle point leg with screw thread needle point; pencil part, pen part, with slide catch cleaning device; 4 in. lengthening bar; combination key and lead box with extra leads; metal needle box with extra needles, complete. *All plates and screws in the joints are made of rust-resisting steel, assuring continual easy and perfect operation.* Each, \$
839. **Universal** Compasses, 6 in. with straightening device; fixed needle point leg, divider part, with adjustable and reversible needle points; pencil part, pen part with slide catch cleaning device, 4 in. lengthening bar; combination key and lead box with extra leads, metal needle box with extra needles, metal handle for use with divider, pen, and pencil parts, as separate instruments, complete. Each, \$
- 844R. **Reliance** Compasses, 6 in. with straightening device; fixed needle point leg, screw-thread needle point, pen part, pencil part, lengthening bar. Each, \$

Above grades described on pages 76-77.

See Price List in Back of Catalog.

Compasses



No. 849.

853.

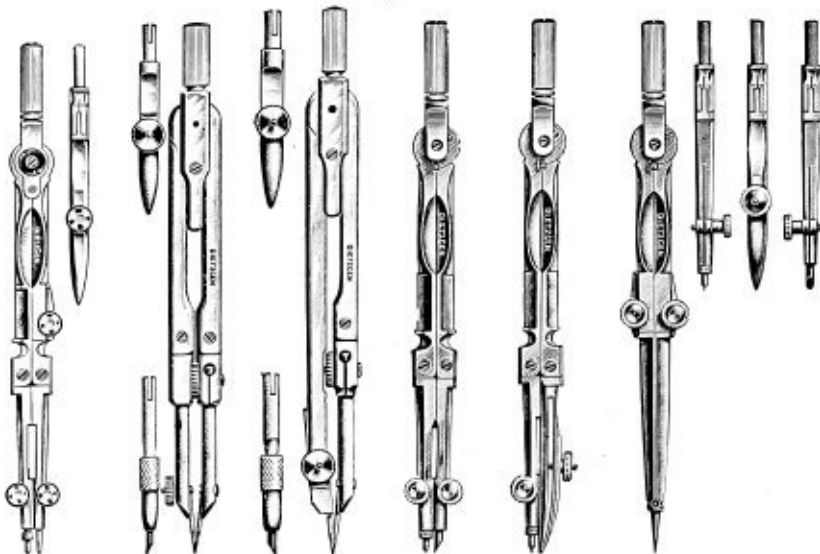
854.

- No. 849. **Dependo** Compasses, 6 in. with straightening device; fixed needle point leg, adjustable and reversible needle point, divider part, pen part, and pencil part; 4 in. lengthening bar; metal lead box with extra leads, and flat key, complete, Each, \$
853. **Scholar** Compasses, 6 in., fixed needle point leg, adjustable and reversible needle points, pen part, pencil part, lengthening bar, straightening device, Doz., \$
854. **Prep** Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle point, pen part with cleaning device, pencil part, lengthening bar, straightening device, . . . Doz., \$

Above grades described on page 77.

See Price List in back of Catalog.

Compasses



No. 861.

865.

867.

869.

870.

872.

- No. 861. **Gem Union** Compasses, $4\frac{1}{4}$ in. with Union pivot joint, and differential straightening device; fixed needle point leg, with screw thread needle point, interchangeable pen and pencil parts, combination screw driver and lead box with extra leads, combination screw driver and needle box with extra needles, complete, Each, \$
865. **Excello** Compasses, 4 in. with straightening device; fixed needle point leg, adjustable and reversible needle points; interchangeable divider, pen, and pencil parts; combination screw driver and lead box with extra leads; small handle for use with divider, pen and pencil parts as separate instruments, extra needles in end of handle, complete, Each,
867. **Champion** Compasses, 4 in. with straightening device, fixed needle point leg, adjustable and reversible needle points; interchangeable divider, pen and pencil parts; combination screw driver and lead box with extra leads; small handle for use with divider, pen and pencil parts as separate instruments, extra needles in end of handle, complete, Each,
869. **Federal Pencil** Compasses, $4\frac{1}{4}$ in. with differential straightening device; screw thread needle point; combination screw driver and lead box with extra leads, complete, Each,
870. **Federal Pen** Compasses, $4\frac{1}{4}$ in. with differential straightening device; screw thread needle point; combination screw driver and needle box with extra needles, complete, Each,
872. **Federal** Compasses, $4\frac{1}{4}$ in. with differential straightening device; two removable and interchangeable steel points; needle point part with screw thread needle point; pen and pencil part, complete, Each,

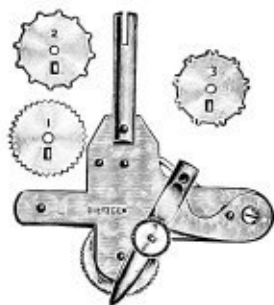
Above grades described on pages 73-76.

See Price List in back of Catalog.

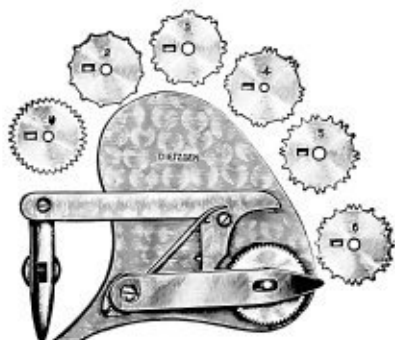
Dotting Pens and Instruments



No. 930.



No. 934.



932.

- No. 930. Gem Union "Knight" Dotting Pen, $4\frac{3}{4}$ in., 4 wheels, polished ebony handle, Each, \$
932. Excello Dotting Instrument, 6 wheels, in case; operated by rolling along the edge of a T Square or Straightedge; the change from one wheel to another can be made rapidly, . . . Each,
934. Excello Dotting Instrument, 3 wheels, in case; adapted for use with No. 970 Beam Compasses, Each,

Above grades described on pages 73-76.

See Price List in back of Catalog.

Beam Compasses

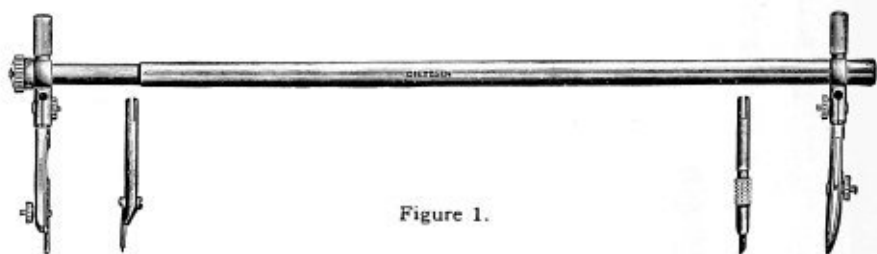


Figure 1.

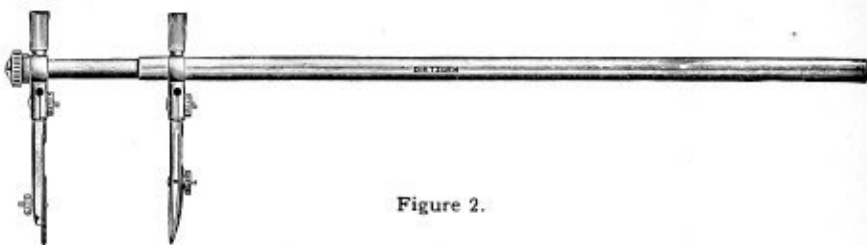


Figure 2.

No. 960.

No. 960. **Excello Tubular Beam Compasses**, 10½ in. overall, with sliding extension to 19½ in. overall, micrometer needle point leg, plain needle point leg, pen and pencil parts; in velvet lined case, Each, \$

These Beam Compasses, of excellent workmanship and finish, are simple in design, durable in construction, and have an exceptional range.

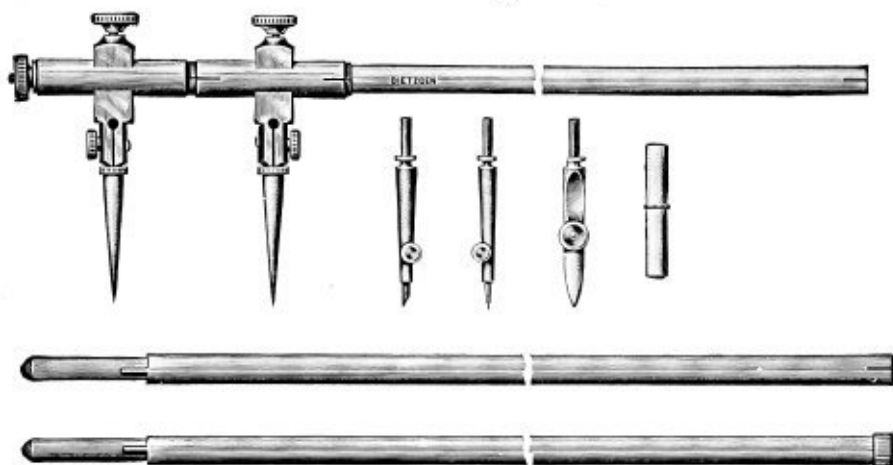
As shown by the illustrations, they are operated in two positions: when used in the position indicated by Figure 1, circles from 19½ to 37½ inches in diameter can be drawn; when used in the position indicated by Figure 2, circles from 1 to 19½ inches in diameter are obtainable.

The change from one position to the other can be rapidly made by simply removing the tubular bar from its sleeve and inserting into the other end of the sleeve. A very effective locking device, operated by a screw at one end of the tubular bar, permits of rigidly locking the compasses at any desired radius within the range of the instrument.

Excello grade described on pages 74-76.

See Price List in back of Catalog.

Beam Compasses



No. 962.

No. 962. Gem Union Beam Compasses, with three tubular bars, each bar being approximately 12 inches in length, thus making the instrument about 36 inches overall, micrometer adjustment, two steel points, pen, pencil and needle point parts, lead box; in velvet lined case, Each, \$



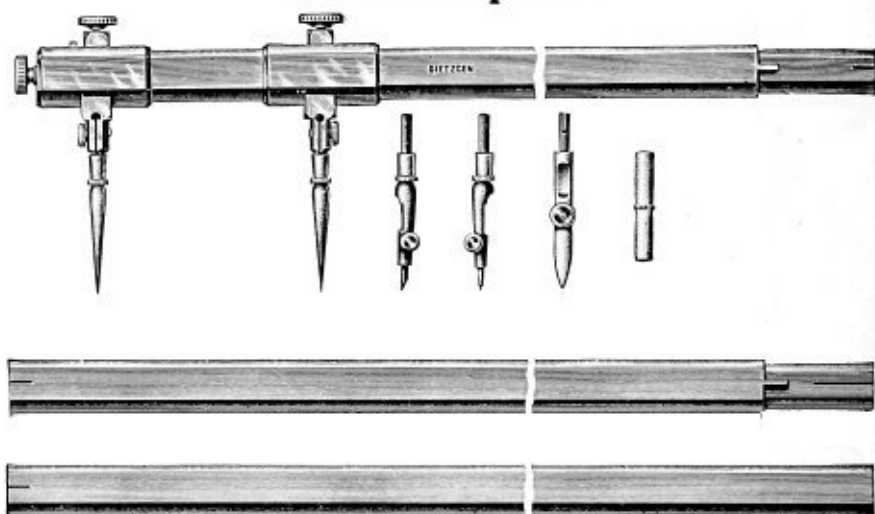
No. 963.

No. 963. Wheel Attachment for No. 962; in velvet lined case, Each, \$

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.

Beam Compasses



No. 966.

No. 966. Gem Union Beam Compasses, with three septagonal bars, each bar being approximately 22 inches in length, thus making the instrument about 66 inches overall, micrometer adjustment, two steel points, pen, pencil and needle point parts, lead box, wheel attachment; in velvet lined case, Each, \$



Wheel Attachment

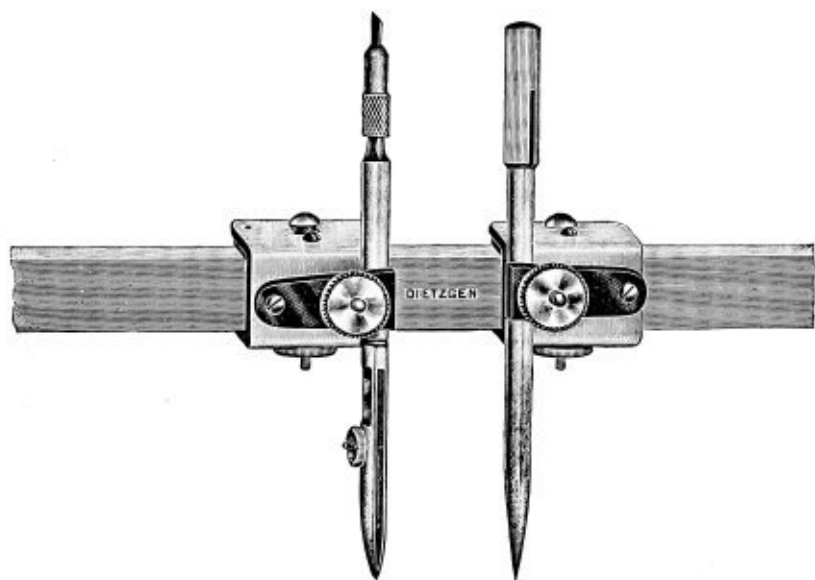
as furnished with No. 966 Gem Union Beam Compasses described above.

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.



Beam Compasses



No. 970.

No. 970. Excello Beam Compasses; in velvet lined case; without Bar, Each, \$

These Beam Compasses differ from and have the advantage over other forms of beam compasses due to the simplicity of design and ease of operation. No set screws, micrometer screws, etc., are required to set or adjust them.

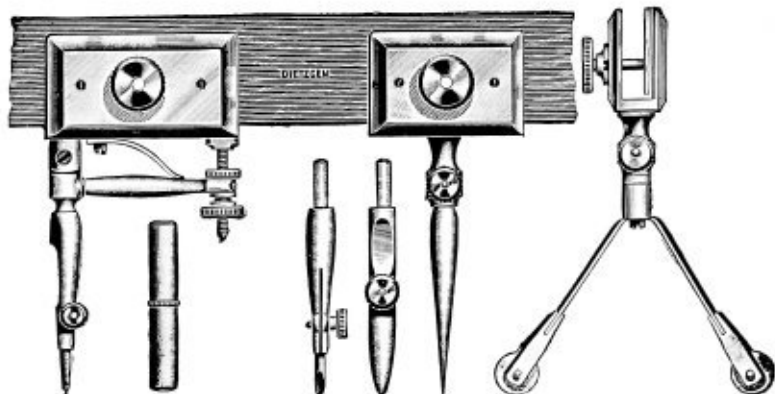
The part holding the combination pen and pencil part is adjusted by means of a milled roller, held in contact with the bar by a strong steel spring, and is brought into any desired position by operating the roller with the finger.

Bar listed separately under No. 980B.

Excello grade described on pages 74-76.

See Price List in back of Catalog.

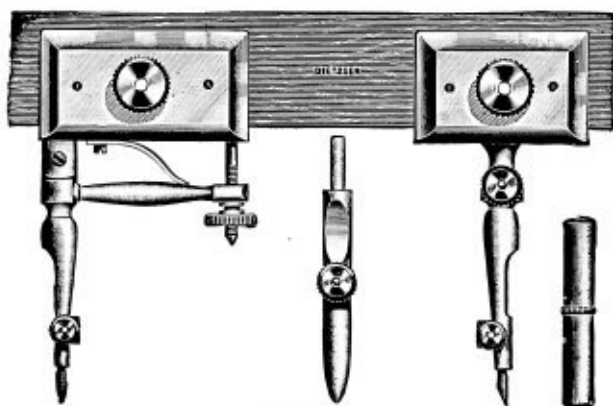
Beam Compasses



No. 972.

974.

- No. 972. Gem Union Beam Compasses, micrometer adjustment, one steel point, fixed needle point leg, pen and pencil parts, lead box, wheel attachment, in velvet lined case; fits any straight edge, . . . Each, \$
973. Like No. 972, but without Wheel Attachment; in velvet lined case, Each,
974. Wheel Attachment only for Nos. 972 and 973; in velvet lined case, Each,



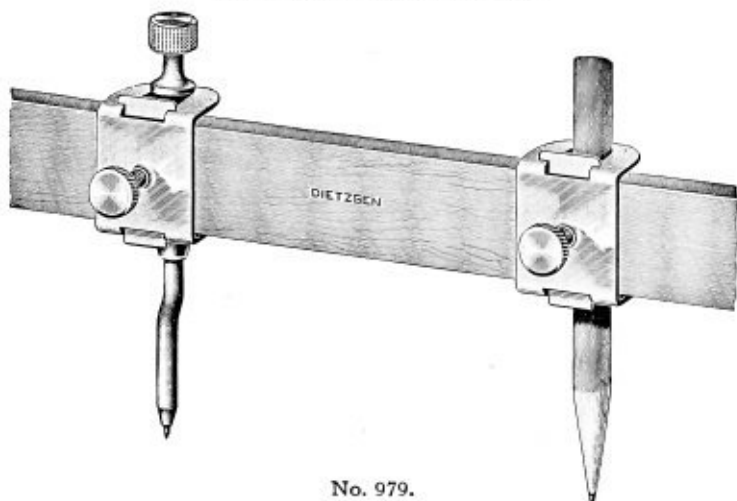
No. 978.

- No. 978. Federal Beam Compasses, micrometer adjustment, fixed needle point leg, pen and pencil parts, lead box, in velvet lined case; fits any straight edge, Each, \$

Nos. 972 to 978 are furnished without Bars.
 No. 980A or 980C Bars are adaptable for use with these instruments.

See Price List in back of Catalog.

Beam Compasses



No. 979.

No. 979. Simplicity Beam Compasses, Each, \$

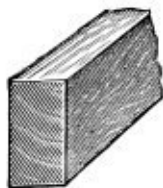
The Simplicity Beam Compasses, while low in price, will be found very practical. They are made of dull nickel-plated steel, and consist of a steel needle point part, a socket which holds the steel needle point part and a socket for holding an ordinary lead pencil or a pen part. The needle point part is off-set so that by turning the knurled knob, a micrometer adjustment of the point is effected.

No. 979 is furnished without bars. No. 980C is adapted for use with this instrument.

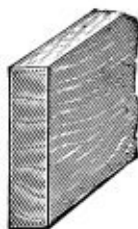
Hardwood Bars for Beam Compasses



No. 980A.
3/8 in. thick.



980B.
1/4 in. thick.



980C.
3/16 in. thick.

Size, 24 30 36 42 48 60 in.

- | | | |
|-----------|--|----------|
| No. 980A. | Hardwood Bars for Beam
Compasses, | Each, \$ |
| 980B. | Hardwood Bars for Beam
Compasses, | " |
| 980C. | Hardwood Bars for Beam
Compasses, | " |

See Price List in back of Catalog.



Proportional Dividers



No. 982.

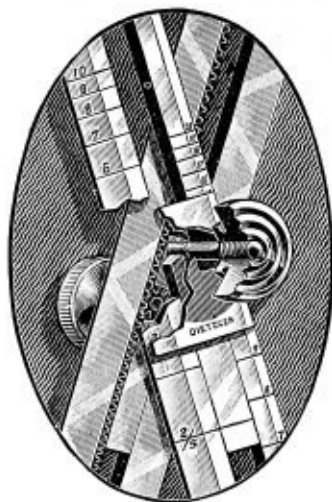


Illustration of
Rack Movement on No. 982.

Proportional Dividers greatly lessen the work of draftsmen when making copies of drawings to an enlarged or reduced scale.

They permit of reproducing lines of a drawing so that in the copy the lines are of a known ratio to the original lines; also of reproducing a drawing so that the contents of a solid or the area of a plane surface will be in proportion to the original.

These time-saving instruments are of such practical value that once used their meritable features will be taken advantage of constantly.

No. 982. Gem Union Proportional Dividers, Nickel silver, 10 in., **rack movement**, adjustable steel points, graduated for lines, circles, planes and solids; in velvet lined case, Each, \$
By means of the rack movement, rapid and accurate settings can be made.

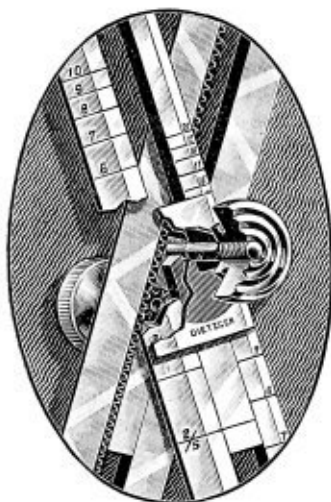
See Price List in back of Catalog.



Proportional Dividers



No. 986.

Illustration of
Rack Movement on No. 986.

- No. 986. Federal Proportional Dividers, Nickel silver, $7\frac{1}{4}$ in., **rack movement**, adjustable steel points, graduated for lines, circles, planes and solids; in velvet lined case, . Each, \$

By means of the rack movement, rapid and accurate settings can be made.

988. Like No. 986, but without rack movement, Each,
990. Federal Proportional Dividers, Nickel silver, $6\frac{1}{4}$ in., non-adjustable steel, round points, graduated for lines and circles; in velvet lined case, Each,
992. Like No. 990, but made of Brass, Each,

For general description of Proportional Dividers, see preceding page.



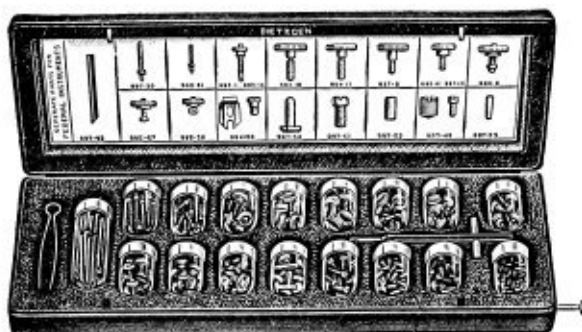
990.

See Price List in back of Catalog.

Repair Outfits

For Drawing Instruments

In Pocket Case Lined with Velvet



No. 993F.

No. 993F. Federal Drawing Instrument Repair Outfits complete in Pocket case, Each, \$

These outfits are found extremely useful and convenient in Institutions who use our Federal Drawing Instruments in quantities. Repairs can be made immediately, thus eliminating the inconvenience of having instruments lying around idle awaiting repairs.

The repair outfits consist of a case equipped with transparent containers, having a quantity of all small repair parts for Federal Drawing Instruments. In one of the containers there is an abundant supply of extra compass leads. There is also included in the outfit a screw driver and a tweezer to facilitate the making of repairs and the handling of small parts.



In the cover of the case is a chart with a cut of each of the parts with its number. The chart is laid out in sections corresponding to the arrangement of the containers, making it easy to locate the part.

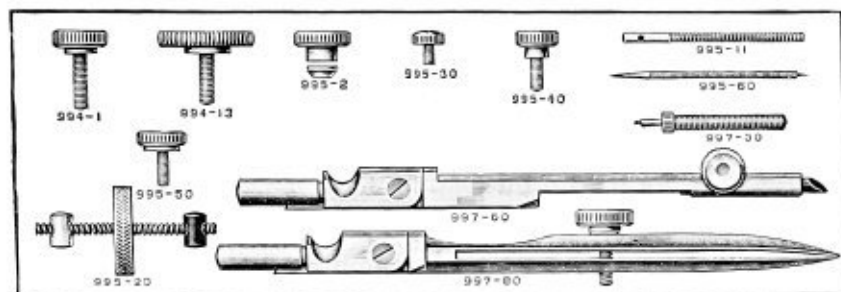
Type of case in which our Scholar, Prep, Constructo and Designo Repair Parts are furnished. Chart, with an illustration of each of the parts, with its number is on the cover.

- | | | | | | | | |
|-------|------|-----------|---------|--------------------------------|-------|-------|----|
| 993U. | Like | No. 993F, | but for | Universal Drawing Instruments, | . . . | Each, | \$ |
| 993R. | " " | 993F, | " " | Reliance | " " | " | " |
| 993D. | " " | 993F, | " " | Dependo | " " | " | " |
| 993S. | " " | 993F, | " " | Scholar | " " | " | " |
| 993P. | " " | 993F, | " " | Prep | " " | " | " |
| 993C. | " " | 993F, | " " | Constructo | " " | " | " |
| 993T. | " " | 993F, | " " | Designo | " " | " | " |

Individual Repair Parts listed under respective grades on following eight pages.

See Price List in back of Catalog.

Parts for Gem Union Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Gem Union Instrument parts are stocked in the service department of our principal branches.

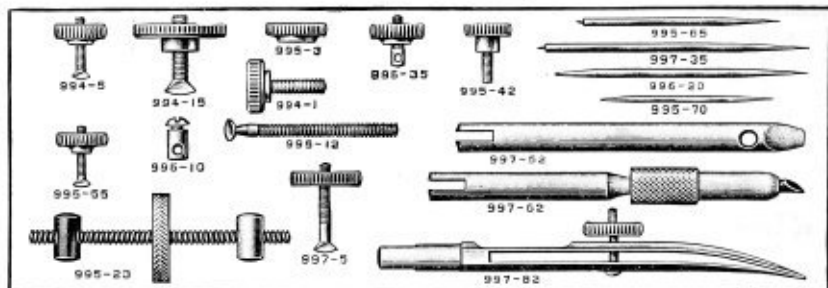
Screws, needle points and miscellaneous small parts are interchangeable and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we cannot otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part.	Instrument No	Each
Ruling Pens			
No. 994-1.	Pen adjusting screw,	No. 618, 626	\$
994-2.	" " " " " " " "	619	
994-3.	" " " " " " " "	622	
994-4.	" " " " " " " "	623	
994-13.	" " " " " " " "	666	
994-14.	" " " " " " " "	667	
994-20.	" " " " " " " "	664S	
994-70.	Handles with ferrules,	618	
994-71.	" " " " " " " "	619	
Bow Instruments			
995-2.	Adjusting nuts for side screw type,	No. 716A,B,C,	
995-11.	Spindles for side screw type,	716A,B,C,	
995-20.	Center wheel assemblies,	730A,B,C	
995-30.	Clamp screws for needle points,	716B,C: 730B,C	
995-40.	Clamp screws for pencil points,	716B: 730B	
995-50.	Adjusting screws for bow pens,	716C: 730C	
995-60.	Threaded needle points for bow instruments,	716B,C: 730B,C	
Dividers (Also See Compasses.)			
996-1.	Nut and bolt for hair spring adjustments,	No. 774	
Compasses			
997-1.	Clamp screws to hold pen or pencil parts,	No. 819, 820	
997-10.	Clamp screws for needle points,	819, 820	
997-20.	Adjusting screws for pen parts,	819, 820	
997-30.	Screw needle points,	819, 820	
997-31.	" " " " " " " "	861	
997-45.	Complete set of head screws,	819, 820	
997-50.	Differential cone for straightening device,	819, 820	
997-51.	Clamp screw for differential cone,	819, 820	
997-60.	Pencil part,	819, 820	
997-68.	" " " " " " " "	861	
997-80.	Pen part,	819, 820	
997-88.	" " " " " " " "	861	
997-93.	Compass leads, one inch long, chisel point, 4H degree,	819, 820	
997-94A	Lengthening bar, 4 inch,	819, 820	
997-94B	" " " " " " " "	819, 820	

See insert page 73 for straightening device.

See Price List in back of Catalog.

Parts for Excello and Champion Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Excello and Champion Instrument parts are stocked in the service department of our principal branches.

Screws, needle points and miscellaneous small parts are interchangeable and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we cannot otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part.	Ruling Pens	Instrument No.	Each
No. 994-1.	Pen adjusting screw,	.	No. 632, 646	\$
994-2.	"	"	633, 647	
994-5.	"	"	686	
994-6.	"	"	690	
994-15.	"	"	670, 671, 680	

Bow Instruments

995-3.	Adjusting nuts for side screw type,	No. 738A, B, C; 742A, B, C
995-12.	Spindles for side screw type,	738A, B, C; 742A, B, C
995-23.	Center wheel assemblies,	752A, B, C; 754A, B, C
995-35.	Clamp nuts and bolts for needle points,	738A, B, C; 742A, B, C
995-37.	"	752A, B, C; 754A, B, C
995-42.	Clamp screws for pencil points,	738B; 742B; 752B; 754B
995-55.	Adjusting nuts and bolts for bow pens,	738C; 742C; 752C; 754C; 758
995-65.	Plain needle point, with shoulder,	738B, C; 742B, C; 752B, C; 754B, C
995-70.	Plain needle points, without shoulder,	738A; 742A; 752A; 754A
995-80.	Ring for hoop bows,	738A, B, C; 742A, B, C; 744A, B, C

Dividers

996-3.	Nut and bolt for hair spring adjustments,	No. 778, 786
996-10.	Screw bolt to clamp needle points,	777, 778, 786
996-20.	Needle points,	777, 778, 786

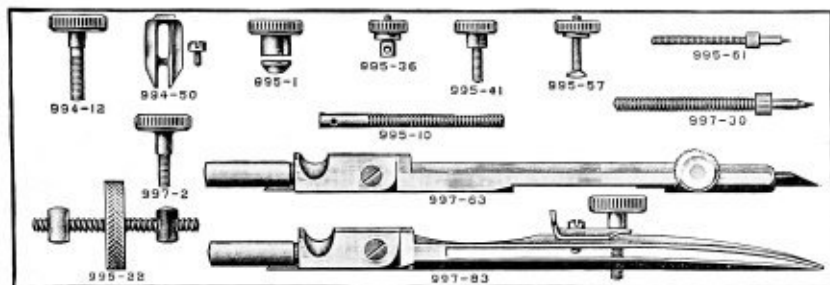
Compasses

997-5.	Clamping nuts and bolts to hold pen and pencil part,	No. 823, 831
997-8.	Clamping nuts and bolts to hold pen and pencil part,	865, 867
997-16.	Clamping nuts and bolts for needle points,	831
997-16A.	"	867
997-25.	Adjusting nuts and bolts for pen parts,	823, 831
997-27.	"	865, 867
997-35.	Needle points, with shoulder,	823, 831
997-37.	"	865, 867
997-38.	Plain needle points, without shoulder,	823, 831
997-40.	Screw bolts to hold needle points in place (See illustration of No. 996-10)	823, 831
997-52.	Divider part,	823, 831
997-62.	Pencil part,	823, 831
997-82.	Pen part,	823, 831, 960
997-93.	Compass lead, one inch long, chisel points, 4H degree,	
997-95A.	Lengthening bar, 4 inch,	823, 831
997-95B.	" 6 "	823

See Price List in back of Catalog.



Parts for Federal Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Federal Instrument parts are stocked in the service department of our principal branches.

Screws, needle points and miscellaneous small parts are interchangeable and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we cannot otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part	Ruling Pens	Instrument No.	Each
No. 994-11.	Pen adjusting screw,	. . . . .	No. 648	
994-12.		. . . . .	649	
994-50.	Slide catches including screws,	. . . . .	648, 649, 835	
994-63.	Handles with ferrules,	. . . . .	648	
994-64.		. . . . .	649	

Bow Instruments

995-1.	Adjusting nuts for side screw type,	. . . . .	No. 722A,B,C
995-10.	Spindles for side screw type,	. . . . .	722A,B,C
995-22.	Center wheel assemblies,	. . . . .	736A,B,C
995-36.	Clamp nuts and bolts for needle points	. . . . .	722B,C; 736B,C
995-41.	Clamp screws for pencil point,	. . . . .	722B
995-45.		. . . . .	736B
995-57.	Adjusting nuts and bolts for bow pens,	. . . . .	722C; 736C
995-61.	Threaded needle points for bow instruments,	. . . . .	722B,C; 736B,C

Dividers

(Also see Compasses)

996-2.	Nut and bolt for hair spring adjustments,	No. 792
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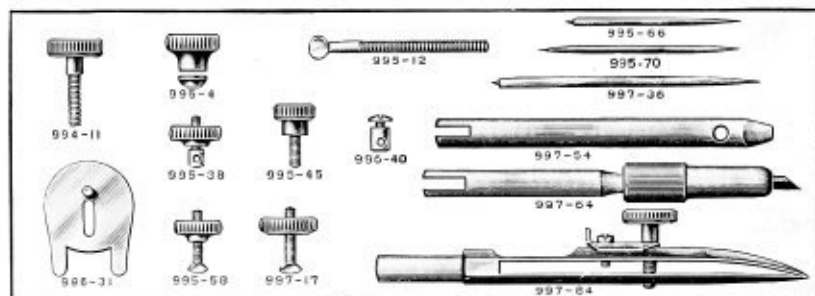
Compasses

997-2.	Clamp screws to hold pen or pencil parts,	No. 835
997-3.		872
997-10.	Clamp screws for needle or pencil points,	835
997-11.		. . . . .	869, 870, 872
997-22.	Adjusting nut for pen part,	. . . . .	835
997-30.	Screw needle points,	. . . . .	835
997-31.		. . . . .	869, 870, 872
997-49.	Head screws for large dividers and compasses,	. . . . .	790, 792, 835
997-50.	Differential cone for straightening device,	. . . . .	790, 792, 835
997-51.	Clamp screw for differential cone,	. . . . .	790, 792, 835
997-63.	Pencil part,	. . . . .	835
997-83.	Pen part,	. . . . .	835
997-93.	Compass lead, one inch long, chisel points, 4H degree,	. . . . .
997-96A	Lengthening bar,	. . . . .	835

See Price List in back of Catalog.



Parts for Universal Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Universal Instrument parts are stocked in the service department of our principal branches.

Screws, needle points and miscellaneous small parts are interchangeable and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we cannot otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part.	Instrument No.	Each
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Ruling Pens

No. 994-11.	Pen adjustment screw,	No. 654	\$
994-12.	" " " " " " " " " " " " " " " "	655	
994-50.	Slide catch including screws,	654, 655	
994-51.	Slide catches including screws,	839	
994-63.	Handles with ferrules,	654	
994-64.	" " " " " " " " " " " " " " " "	655	

Bow Instruments

995-4.	Adjusting nuts for side screw type,	No. 744A, B, C
995-12.	Spindles for side screw type,	744A, B, C,
995-24.	Center wheel assemblies,	755A, B, C
995-38.	Clamp nuts and bolts for needle points,	744A, B, C; 755A, B, C
995-45.	Clamp screws for pencil points,	744B; 755B
995-58.	Adjusting nuts and bolts for bow pens,	744C; 755C
995-66.	Plain needle points with shoulder,	744B, C; 755B, C
995-70.	Plain needle points without shoulder,	744A; 755A
995-80.	Ring for hoop bows,	744A, B, C; 755A, B, C
995-84.	Metal handles for bow instruments,	744A, B, C; 755A, B, C

Dividers

996-21.	Needle points,	No. 796, 797
996-31.	Steel inserts for straightening devices,	796, 797, 839

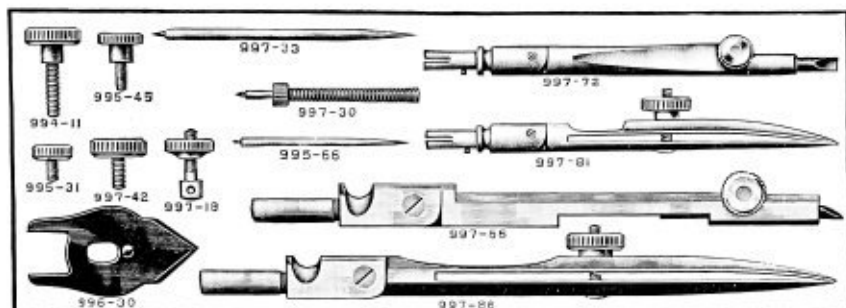
Compasses

997-6.	Clamping nuts and bolts to hold pen or pencil parts, No. 839	No. 839
997-17.	Clamping nuts and bolts for needle points,	839
997-23.	Adjusting screw for pen part,	839
997-36.	Needle points, with shoulder,	839
997-38A.	Plain needle point, without shoulder,	839
997-40.	Screw bolt to hold needle point in place,	839
997-47.	Headscrews for large dividers and compasses,	796, 797, 839
997-54.	Divider part,	839
997-64.	Pencil part,	839
997-84.	Pen part,	839
997-93.	Compass leads, one inch long, chisel point, 4H degree	
997-96B.	Lengthening bar,	839

See Price List in back of Catalog.



Parts for Reliance and Dependo Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Reliance and Dependo Instrument parts are stocked in the service department of our principal branches.

Screws, needle points and miscellaneous small parts are interchangeable and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we cannot otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part.	Instrument No.	Each \$
Ruling Pens			
No. 994-11.	Pen adjusting screw,	No. 656, 658	
994-12.	" "	657, 659	
994-50.	Slide catches including screws,	656, 657, 658, 659	
994-63.	Handles with ferrules,	656, 658	
994-64.	" " " "	657, 659	

Bow Instruments

995-1.	Adjusting nuts for side screw type,	No. 724A, B, C; 726A, B, C
995-10.	Spindles for side screw type,	724A, B, C; 726A, B, C
995-31.	Clamp screws for needle points,	724B, C; 726B, C
995-45.	Clamp screws for pencil points,	724B, 726B
995-57.	Adjusting nuts and bolts for bow pens,	724C, 726C
995-66.	Plain needle point, with shoulder,	724B, C; 726B, C

Dividers

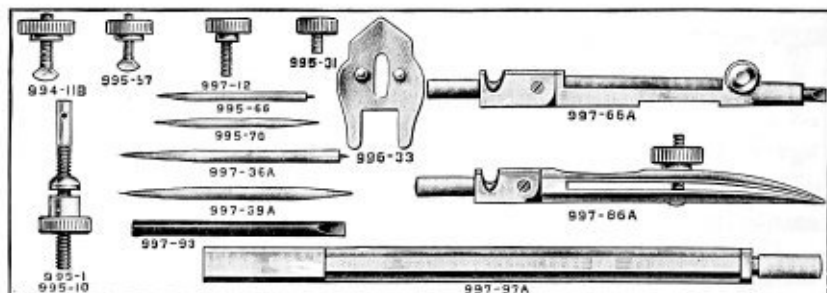
996-10.	Screw bolt for clamping needle point,	No. 806
996-22.	Needle points,	806
996-30.	Steel insert for straightening device,	801R; 803R; 844R
996-32.	" " " "	806, 849

Compasses

997-7.	Clamping nuts and bolts to hold pen and pencil parts,	No. 849
997-12.	Clamping screw for needle points,	844R
997-18.	Clamping nuts and bolts for needle points,	849
997-26.	Adjusting nuts and bolts for pen parts,	849
997-30.	Screw needle points,	844R
997-33.	Needle points, with shoulder,	849
997-42.	Clamping nuts and bolts to hold pen and pencil parts,	844R
997-46A.	Disc for straightening device,	849
997-46B.	Wire	849
997-47.	Headscrews for large dividers and compasses,	806, 849
997-49A.	" " " "	801R; 803R; 844R
997-66.	Pencil part,	844R
997-72.	" " " "	849
997-81.	Pen Part,	849
997-86.	" " " "	844R
997-93.	Compass leads, one inch long, chisel point, 4H degree,	844R
997-97.	Lengthening bar,	849
997-99.	" " " "	849

See Price List in back of Catalog.

Parts for Scholar Instruments



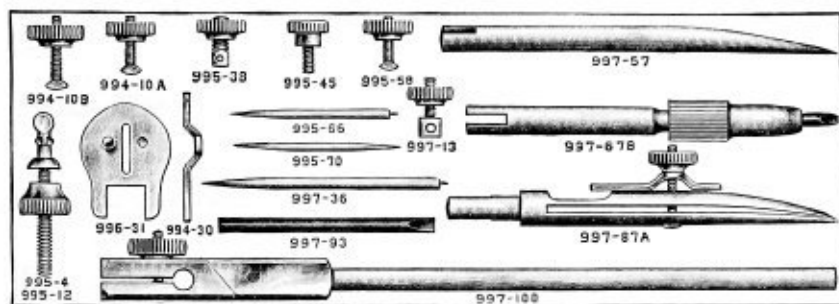
The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Scholar Instrument parts are stocked in the Service Departments of our principal branches.

Screws, needle points, and miscellaneous small parts are interchangeable, and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we can not otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part	Instrument No.	Each \$
RULING PENS			
No. 994-11B.	Pen adjusting screw,	661B	
BOW INSTRUMENTS			
995-1.	Adjusting nuts for side screw type,	727A, B, C,	
995-10.	Spindles for side screw type,	727A, B, C,	
995-31.	Clamp Screws for needle points,	727B, C,	
995-45.	Clamp Screws for pencil points,	727B,	
995-57.	Adjusting nuts and bolts for bow pens,	727C,	
995-66.	Plain needle points with shoulder,	727B, C,	
995-70.	Plain needle points without shoulder,	727B, C,	
995-84.	Metal handles for bow instruments,	727A, B, C,	
DIVIDERS			
996-33.	Steel insert for straightening device,	807	
COMPASSES			
997-12.	Clamp screws for needle points,	853,	
997-36A.	Needle points, with shoulder,	853,	
997-39A.	Needle points, without shoulder,	853,	
997-49A.	Screw for yoke of large compasses and dividers	853, 807,	
997-66A.	Pencil part,	853,	
997-86A.	Pen part,	853,	
997-93.	Compass and bow pencil leads, 1" long, chisel point, 4H degree,	853, 727B,	
997-97A.	Lengthening bar,	853,	

See Price List in back of Catalog.

Parts for Prep and Designo Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Prep and Designo Instrument parts are stocked in the Service Departments of our principal branches.

Screws, needle points, and miscellaneous small parts are interchangeable, and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we can not otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part	Instrument No.	Each
RULING PENS			
No. 994-10A.	Pen adjusting screw,	662A,	\$
994-10B.	" " " (large),	662B,	

BOW INSTRUMENTS

995-4.	Adjusting nuts for side screw type,	748A, B, C,
995-12.	Spindles for side screw type,	748A, B, C,
995-38.	Clamp nuts and bolts for needle points,	748A, B, C,
995-45.	Clamp screws for pencil point,	748B,
995-58.	Adjusting nuts and bolts for bow pens,	748C,
995-66.	Plain needle points, with shoulder,	748B, C,
995-70.	Plain needle points without shoulder,	748B, C,
995-80.	Ring for hoop bows,	748A, B, C,
995-84.	Metal handles for bow instruments,	748A, B, C,

DIVIDERS

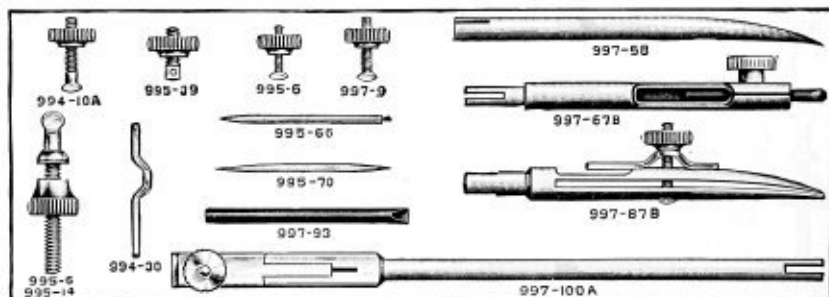
996-31.	Steel inserts for straightening device,	809 and Designo Instruments,
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COMPASSES

997-8A.	Clamp nuts and bolts to hold pen, pencil part,	854,
997-13.	Clamp screws for needle points,	854,
997-18.	Clamping nuts and bolts for needle points,	854,
997-26A.	Adjusting nuts and bolts for pen parts,	854,
997-36.	Needle points with shoulder,	854,
997-38A.	Needle points without shoulder,	854,
997-47.	Screws for yoke of large compasses and dividers,	854, 809,
997-57.	Divider part,	854,
997-67B.	Pencil part,	854,
997-87A.	Pen part,	854,
997-93.	Compass and bow pencil leads, 1" long, chisel point, 4H degree,	854, 748B,
997-100.	Lengthening bar,	854,

See Price List in back of Catalog.

Parts for Constructo Instruments



The users of Dietzgen Instruments have the advantage of securing repair and replacement service. Constructo Instrument parts are stocked in the Service Departments of our principal branches.

Screws, needle points, and miscellaneous small parts are interchangeable, and may be ordered from the list. However, if not sure of the correct number, or if pen or pencil legs, lengthening bars, or other parts are to be fitted, it is necessary to send us the instruments, as we can not otherwise guarantee that the correct part will be sent. Our list prices include the charge for such service.

Cat. No.	Name of Part	Each
RULING PENS		
No. 994-10A.	Pen Adjusting Screw,	\$
994-50.	Slide Catches, including screws,	

BOW INSTRUMENTS

995-6.	Adjusting nuts for side screw type,	
995-14.	Spindles for side screw type,	
995-39.	Clamping nuts and bolts for needle points,	
995-45.	Clamping Screws for pencil points,	
995-66.	Plain needle points with shoulder,	
995-70.	Plain needle points without shoulder,	
995-80.	Ring for hoop bows,	
995-84.	Metal handles for bow instruments,	

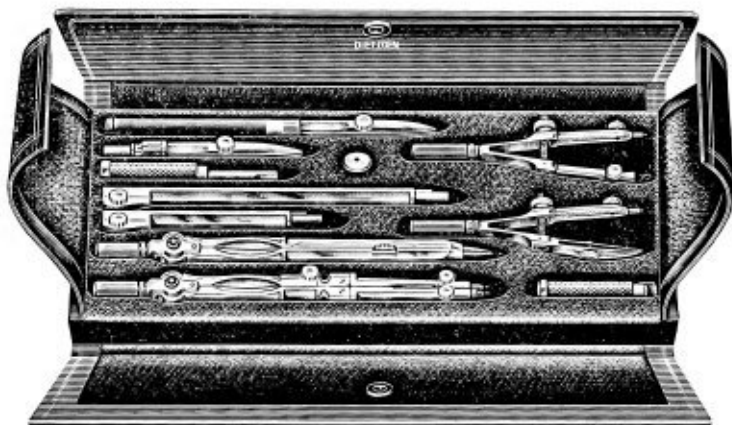
COMPASSES

997-9A.	Clamp nut and bolt for pen, pencil, divider part,	
997-26A.	Adjusting nuts and bolts for pen parts,	
997-37A.	Needle points with shoulder,	
997-38A.	Needle points without shoulder,	
997-48A.	Screws for yoke,	
997-58.	Divider part,	
997-67B.	Pencil Part,	
997-87B.	Pen Part,	
997-93.	Compass and bow pencil leads, 1" long, chisel point, 4H degree,	
997-100A.	Lengthening Bar,	

See Price List in back of Catalog.

Gem Union Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1005.

No. 1005. Pocket Book Case, containing:

- 619 Ruling Pen, $5\frac{1}{2}$ in., spring blade, polished ebony handle.
- 716B Bow Pencil, $3\frac{3}{4}$ in., side wheel adjustment.
- 716C " Pen, $3\frac{3}{4}$ " " " "
- 774 Hairspring Dividers, 6 in., Union Pivot Joint with differential straightening device, adjustable and reversible needle points.
- 819 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, pen part, two lengthening bars, Union Pivot Joint with differential straightening device.
- 2467 Center Tack.
- Combination Lead Box and Key.
- Combination Needle Point Box and Key with extra Needle Points.
- Wiping Cloth, Set, \$

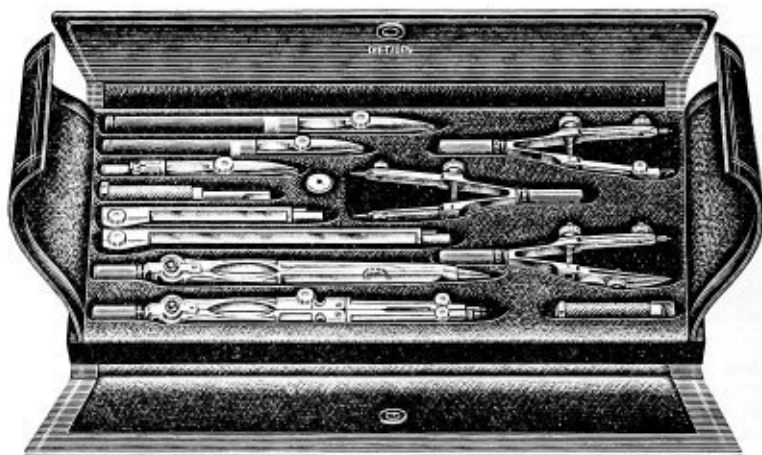
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.

Gem Union Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1007.

No. 1007. Pocket Book Case, containing:

- 618 Ruling Pen, 5 in., spring blade, polished ebony handle.
- 619 " " 5½ in., " " " " " "
- 716A Bow Dividers, 3¾ in., side wheel adjustment.
- 716B " Pencil, 3¾ " " " " "
- 716C " Pen, 3¾ " " " " "
- 774 Hairspring Dividers, 6 in., Union Pivot Joint with differential straightening device, adjustable and reversible needle points.
- 819 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, pen part, two lengthening bars, Union Pivot Joint with differential straightening device.
- 2467 Center Tack.
- Combination Lead Box and Key.
- Combination Needle Point Box and Key, with extra Needle Points.
- Wiping Cloth, Set, \$

Stainless Steel Drawing Instruments

No. 1007S. Same as No. 1007, but instruments are made of stainless, non-rusting steel, instead of regular steel, Set, \$

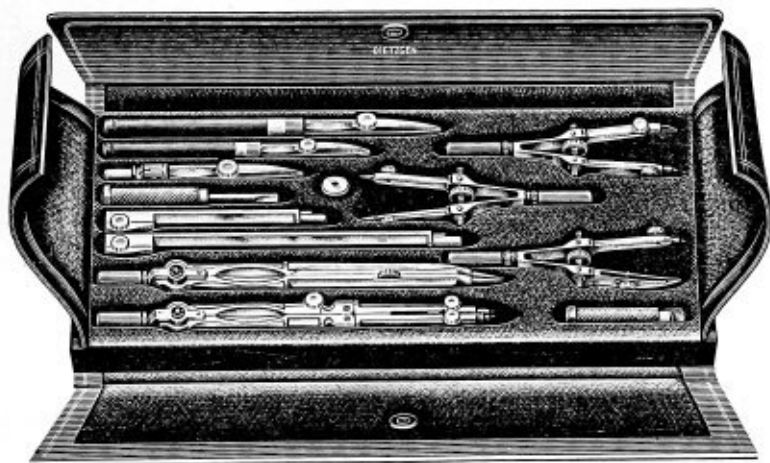
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.

Gem Union Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1007C.

No. 1007C. Pocket Book Case, containing:

- 618 Ruling Pen, 5 in., spring blade, polished ebony handle.
- 619 " " 5½ " " " " " " " "
- 730A Bow Dividers, 3¾ in., center wheel adjustment.
- 730B " Pencil, 3¾ " " " " " "
- 730C " Pen, 3¾ " " " " " "
- 774 Hairspring Dividers, 6 in., Union Pivot Joint with differential straightening device, adjustable and reversible needle points.
- 819 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, pen part, two lengthening bars, Union Pivot Joint with differential straightening device.
- 2467 Center Tack.
- Combination Lead Box and Key.
- Combination Needle Point Box and Key, with extra Needle Points.
- Wiping Cloth, Set, \$

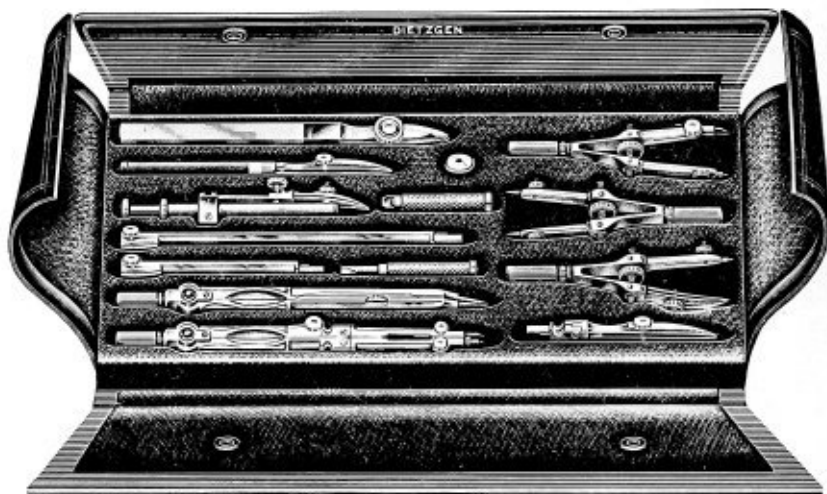
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.

Gem Union Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1008C

No. 1008C. Pocket Book Case, containing:

- 618 Ruling Pen, 5 in., spring blade, polished ebony handle.
- 667 Detail Pen, 6 in., spring blade, aluminum handle.
- 730A Bow Dividers, 3 3/4 in., center wheel adjustment.
- 730B " Pencil, 3 3/4 " " " "
- 730C " Pen, 3 3/4 " " " "
- 762 Drop Spring Bow Pen, 4 in., self-adjusting.
- 774 Hairspring Dividers, 6 in., Union Pivot Joint with differential straightening device, adjustable and reversible needle points.
- 819 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, pen part, two lengthening bars, Union Pivot Joint with differential straightening device.
- 2467 Center Tack.
Combination Lead Box and Key.
Combination Needle Box and Key, with extra needle points.
Wiping Cloth, Set, \$

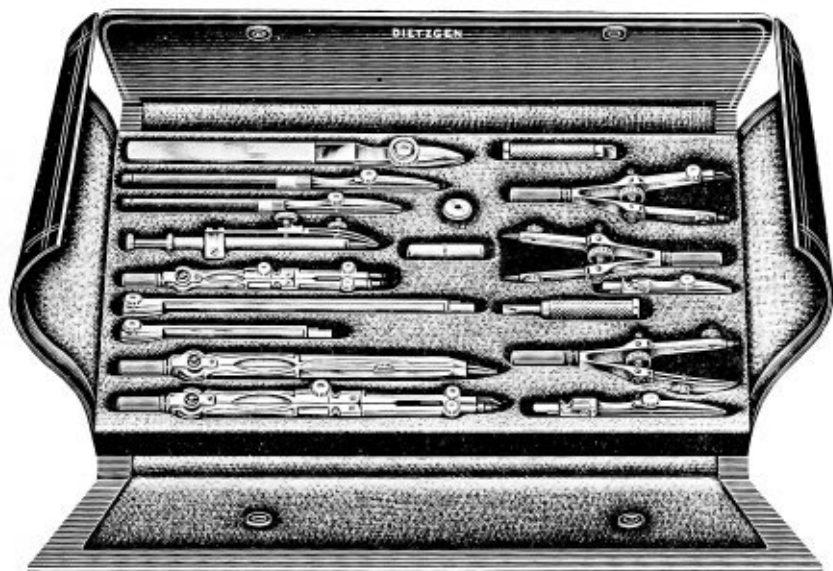
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Gem Union grade described on pages 73-74.

See Price List in back of Catalog.

Gem Union Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1010C.

No. 1010C. Pocket Book Case, containing:

- 618 Ruling Pen, 5 in., spring blade, polished ebony handle.
 619 " " 5½ " " " " " "
 667 Detail Pen, 6 " " " aluminum handle.
 730A Bow Dividers, 3¾ in., center wheel adjustment.
 730B " Pencil, 3¾ " " " "
 730C " Pen, 3¾ " " " "
 762 Drop Spring Bow Pen, 4 in., self-adjusting.
 774 Hairspring Dividers, 6 in., Union Pivot Joint with differential straightening device, adjustable and reversible needle point.
 819 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, pen part, two lengthening bars, Union Pivot Joint with differential straightening device.
 861 Compasses, 4¼ in., fixed needle point leg, screw-thread needle point, pencil part, pen part, Union Pivot Joint with differential straightening device.
 2467 Center Tack.
 Combination Lead Box and Key.
 Combination Needle Box and Key, with extra needle points.
 Wiping Cloth, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

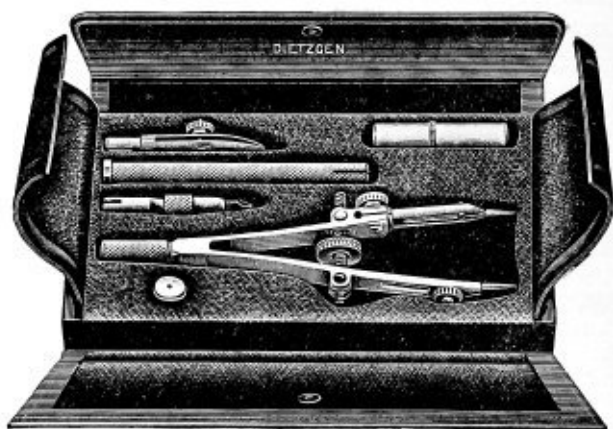
Gem Union grade described on pages 73-74.

See Price List in back of Catalog.



Excello Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1011.

No. 1011. Pocket Book Case, containing:

Combination Bow Compasses, $4\frac{1}{4}$ in., center wheel adjustment, fixed needle point leg, divider part, adjustable and reversible needle points, pen part, pencil part.

Center Tack.

Metal Handle with extra Needle Points; this handle fits the divider, pen and pencil parts, and any one of these parts can, in connection with the handle, be used as a separate instrument.

Lead Box.

Wiping Cloth, Set, \$

Bow Instruments with circular heads can be furnished with this set if desired, at the same price as No. 1011.

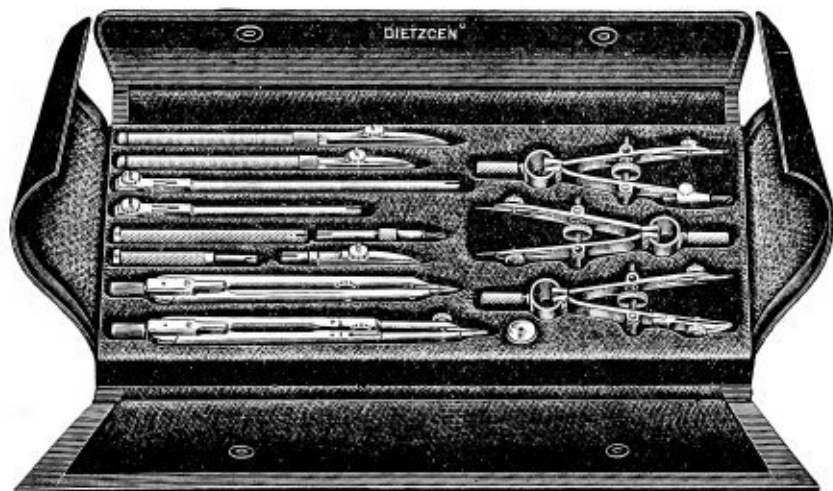
Excello grade described on pages 74-76.

See Price List in back of Catalog.



Excello Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1017C.

No. 1017C. Pocket Book Case, containing:

- | | |
|------|---|
| 632 | Ruling Pen, 5 in., spring blade, aluminum handle. |
| 633 | " " 5 1/2 " " " " " |
| 752A | Bow Dividers, 4 1/4 in., center wheel adjustment, circular head. |
| 752B | " Pencil, 4 1/4 " " " " " " |
| 752C | " Pen, 4 1/4 " " " " " " |
| 778 | Hairspring Dividers, 6 in., adjustable and reversible needle points, straightening device. |
| 823 | Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, pen part, pencil part, two lengthening bars, straightening device. |
| 2467 | Center Tack. |
| | Combination Lead Box and Key. |
| | Metal Handle with extra Needle Points. |
| | Wiping Cloth, Set, \$ |

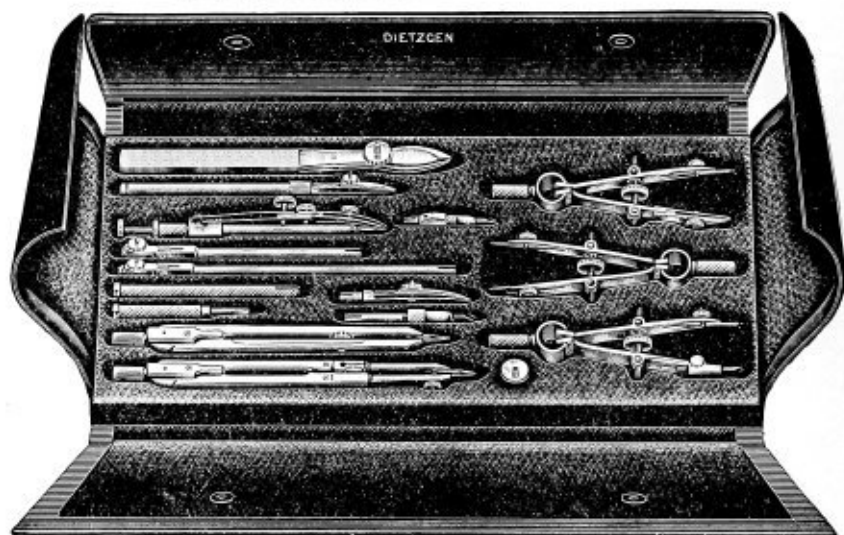
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Excello grade described on pages 74-76.

See Price List in back of Catalog.

**Excello Drawing Instruments**

In Pocket Book Cases Lined with Silk Velvet



No. 1018C.

No. 1018C. Pocket Book Case, containing:

- | | | | | |
|------|--|-----------------------------|--|--|
| 632 | Ruling Pen, | 5 in., | spring blade, | aluminum handle. |
| 671 | Detail Ruling Pen, | 6 " " " " " " | " " " " " " | " " " " " " |
| 752A | Bow Dividers, | 4 $\frac{1}{4}$ in., | center wheel adjustment, | circular head. |
| 752B | " Pencil, | 4 $\frac{1}{4}$ " " " " " " | " " " " " " | " " " " " " |
| 752C | " Pen, | 4 $\frac{1}{4}$ " " " " " " | " " " " " " | " " " " " " |
| 759 | Self-adjusting Drop Spring Bow Pen, | 4 $\frac{1}{2}$ in., | with pen and pencil part. | |
| 778 | Hairspring Dividers, | 6 in., | adjustable and reversible needle points, | straightening device. |
| 823 | Compasses, | 6 in., | fixed needle point leg, divider part, adjustable and reversible needle points, | pen part, pencil part, two lengthening bars, straightening device. |
| 2467 | Center Tack. | | | |
| | Combination Lead Box and Key. | | | |
| | Metal Handle with extra Needle Points. | | | |
| | Wiping Cloth | | | Set, \$ |

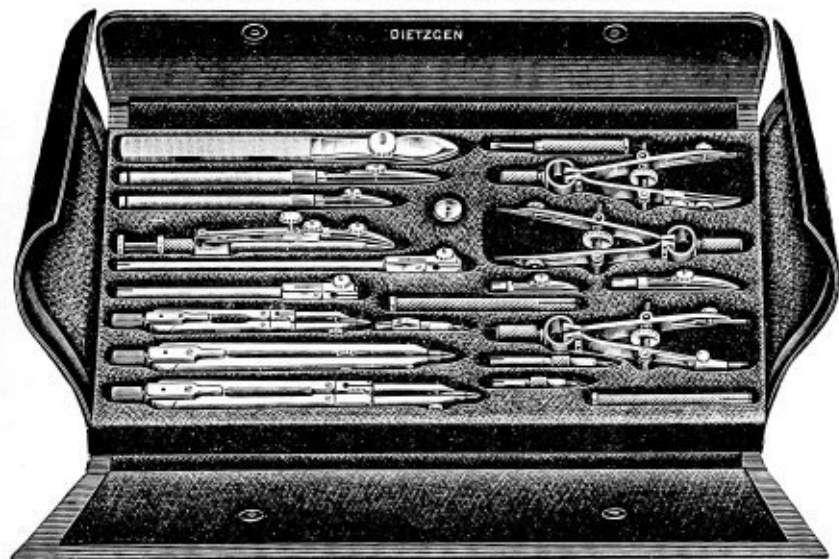
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Excello grade described on pages 74-76.

See Price List in back of Catalog.

Excello Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1020C.

No. 1020C. Pocket Book Case, containing:

632	Ruling Pen,	5 in.,	spring blade,	aluminum handle.
633	" "	5½ "	" " " "	" "
671	Detail Ruling Pen,	6 "	" " " "	" "
752A	Bow Dividers,	4¼ in.,	center wheel adjustment,	circular head.
752B	" Pencil,	4¼ "	" " " "	" "
752C	" Pen,	4¼ "	" " " "	" "
759	Self-Adjusting Drop Spring Bow Pen,	4½ in.,	with pen and pencil part.	
778	Hairspring Dividers,	6 in.,	adjustable and reversible needle points,	straightening device.
823	Compasses,	6 in.,	fixed needle point leg, divider part, adjustable and reversible needle points,	pen part, pencil part, two lengthening bars, straightening device.
865	Compasses,	4 in.,	fixed needle point leg, divider part, adjustable and reversible needle points,	pen part, pencil part, straightening device.
2467	Center Tack.			
	Combination Lead Box and Key.			
	Metal Handle with extra Needle Points.			
	Wiping Cloth,			Set, \$

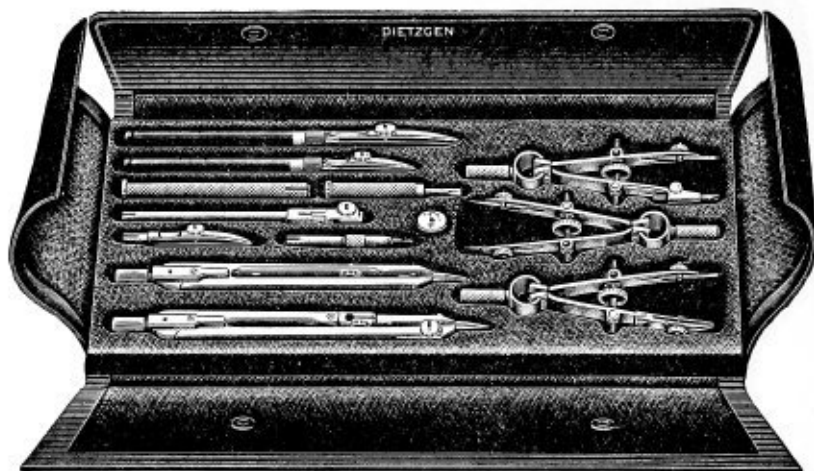
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Excello grade described on pages 74-76.

See Price List in back of Catalog.

Champion Drawing Instruments

In Pocket Book Cases Lined with Silk Velvet



No. 1037C.

No. 1037C Pocket Book Case, containing:

- 646 Ruling Pen, 5 in., spring blade, polished ebony handle.
- 647 Ruling Pen, 5½ in., spring blade, polished ebony handle.
- 754A Bow Dividers, 4¼ in., center wheel adjustment, circular head.
- 754B " Pencil, 4¼ " " " " " " "
- 754C " Pen, 4¼ " " " " " " "
- 786 Hairspring Dividers, 6 in., adjustable and reversible needle points, straightening device.
- 831 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, pen part, pencil part, lengthening bar, straightening device.
- 2467 Center Tack.
 Combination Lead Box and Key.
 Metal Handle with extra Needle Points
 Wiping Cloth, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

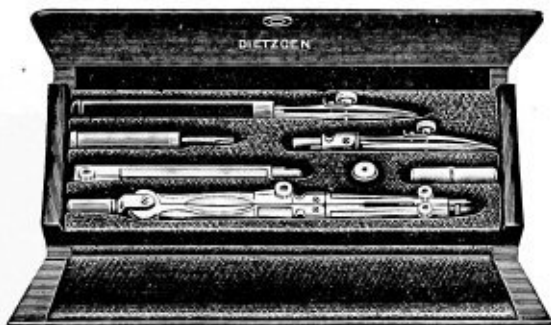
Champion grade described on page 76.

See Price List in back of Catalog.



Federal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1042.

No. 1042. Pocket Case, containing:

- 649 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
 835 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device. Combination Screw Driver and Lead Box. Center Tack. Box with extra Needle Points. Wiping Cloth, Set, \$



No. 1043.

No. 1043. Pocket Case, containing:

- 649 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
 722C Bow Pen, 3½ in., side wheel adjustment.
 835 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device. Combination Screw Driver and Lead Box. Center Tack. Box with extra Needle Points. Wiping Cloth, Set, \$

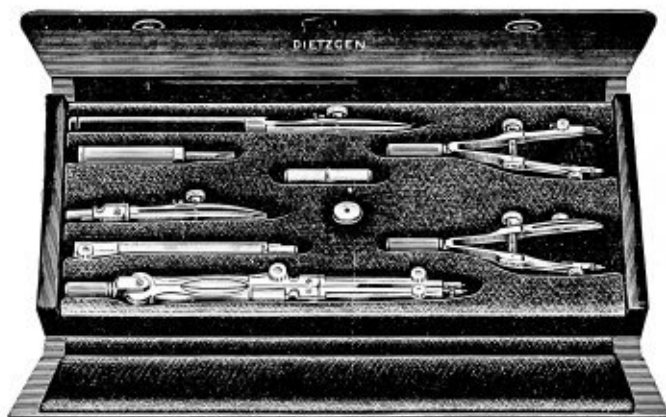
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Federal grade described on page 76.

See Price List in back of Catalog.

Federal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1044.

No. 1044. Pocket Case, containing:

- 649 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
 - 722B Bow Pencil, 3½ in., side wheel adjustment.
 - 722C " Pen, 3½ " " " "
 - 835 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device.
 - 2467 Center Tack.
- Combination Screw Driver and Lead Box.
 Box with extra Needle Points.
 Wiping Cloth, Set, \$

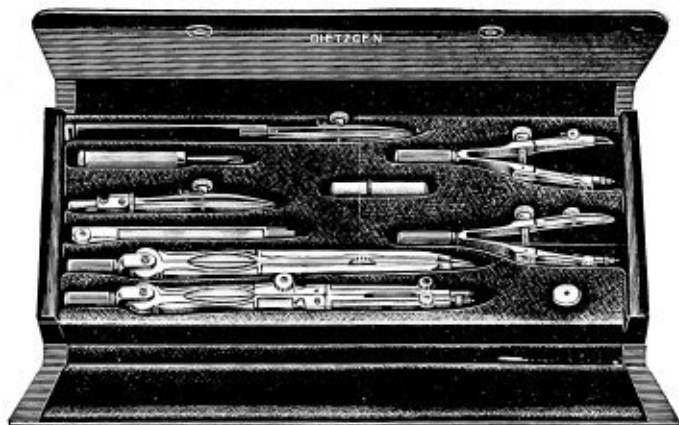
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Federal grade described on page 76.

See Price List in back of Catalog.

Federal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1045.

No. 1045. Pocket Case, containing:

649 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.

722B Bow Pencil, 3½ in., side wheel adjustment.

722C " Pen, 3½ " " " " "

792 Hairspring Dividers, 6 in., differential straightening device, adjustable and reversible needle points.

835 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device.

2467 Center Tack.

Combination Screw Driver and Lead Box.

Box with extra Needle Points.

Wiping Cloth Set, \$

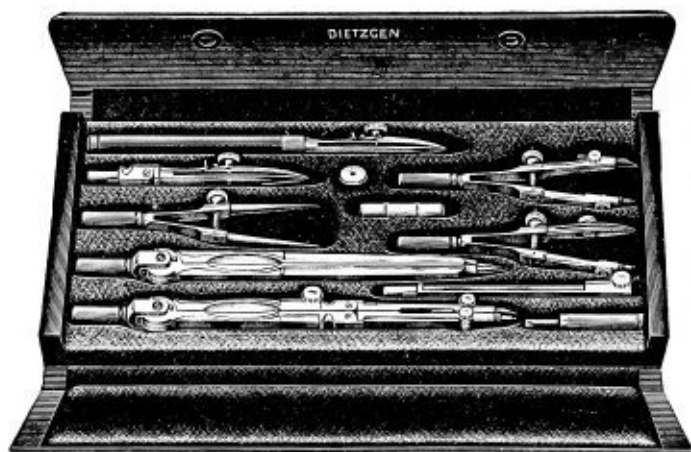
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Federal grade described on page 76.

See Price List in back of Catalog

Federal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1046.

No. 1046. Pocket Case, containing:

- 649 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
 - 722A Bow Dividers, 3½ in., side wheel adjustment.
 - 722B " Pencil, 3½ " " " "
 - 722C " Pen, 3½ " " " "
 - 790 Plain Dividers, 6 in., differential straightening device, adjustable and reversible needle points.
 - 835 Compasses, 6 in., fixed needle point legs, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device.
 - 2467 Center Tack.
- Combination Screw Driver and Lead Box.
- Box with extra Needle Points.
- Wiping Cloth, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

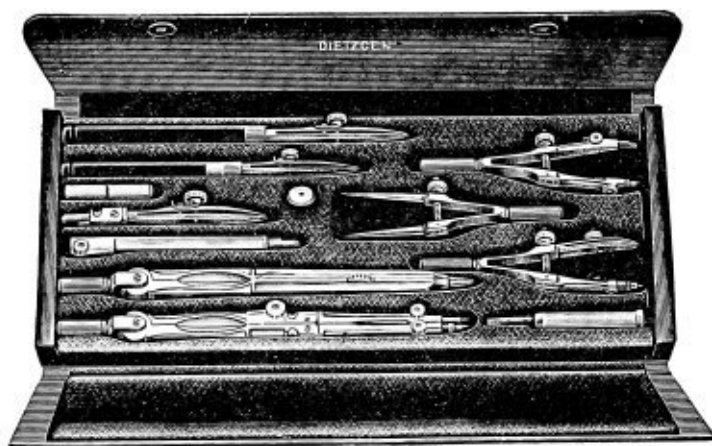
Federal grade described on page 76.

See Price List in back of Catalog.



Federal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1047.

No. 1047. Pocket Case, containing:

- 648 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.
- 649 " " 5½ " " " " " " " "
- 722A Bow Dividers, 3½ in., side wheel adjustment.
- 722B " Pencil, 3½ " " " " " " " "
- 722C " Pen, 3½ " " " " " " " "
- 792 Hairspring Dividers, 6 in., differential straightening device, adjustable and reversible needle points.
- 835 Compasses, 6 in., fixed needle point leg, screw-thread needle point, pencil part, slide-catch pen part, lengthening bar, differential straightening device.
- 2467 Center Tack.
- Combination Screw Driver and Lead Box.
- Box with extra Needle Points.
- Wiping Cloth, Set, \$

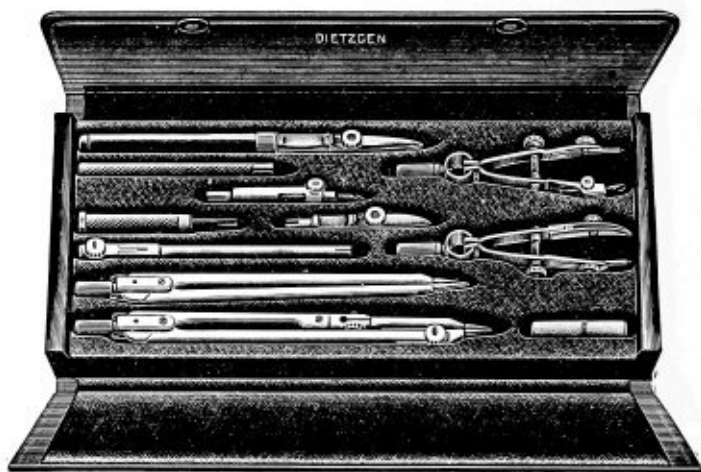
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Federal grade described on page 76.

See Price List in back of Catalog.

Universal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1055.

No. 1055. Pocket Case, containing:

655 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.

744B Bow Pencil, 3¾ in., side wheel adjustment, circular head.

744C " Pen, 3¾ " " " " " "

796 Plain Dividers, 6 in., adjustable and reversible needle points, straightening device.

839 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, slide-catch pen part, pencil part, lengthening bar, straightening device.

Combination Screw Driver and Lead Box.

Box with extra Needle Points.

Metal Handle for divider, pen and pencil parts, . . . Set, \$

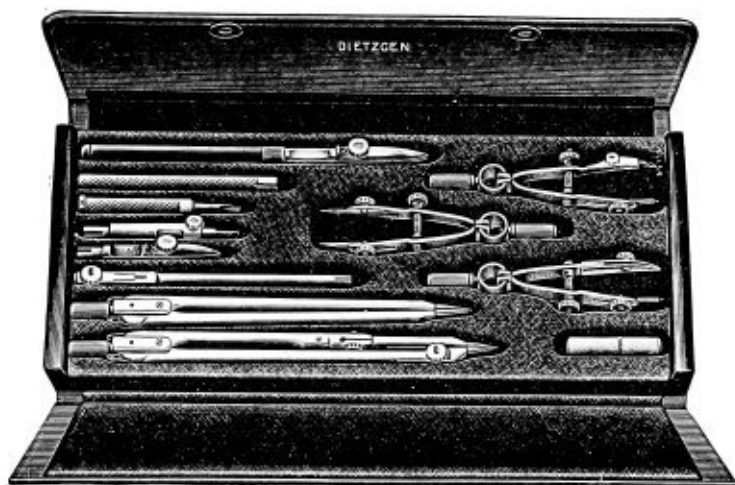
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Universal grade described on page 77.

See Price List in back of Catalog.

Universal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1056.

No. 1056. Pocket Case, containing:

655 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.

744A Bow Dividers, 3¾ in., side wheel adjustment, circular head.

744B " Pencil, 3¾ " " " " " "

744C " Pen, 3¾ " " " " " "

796 Plain Dividers, 6 in., adjustable and reversible needle point, straightening device.

839 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, slide-catch pen part, pencil part, lengthening bar, straightening device.

Combination Screw Driver and Lead Box.

Box with extra Needle Points.

Metal Handle for divider, pen and pencil parts, . . . Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

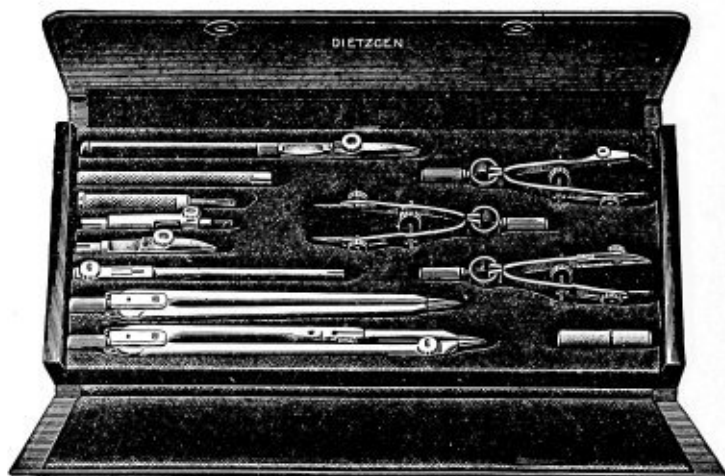
Universal grade described on page 77.

See Price List in back of Catalog.



Universal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1056C.

No. 1056C. Pocket Case, containing:

- 655 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 755A Bow Dividers, $3\frac{3}{4}$ in., center wheel adjustment, circular head.
- 755B " Pencil, $3\frac{3}{4}$ " " " " " "
- 755C " Pen, $3\frac{3}{4}$ " " " " " "
- 796 Plain Dividers, 6 in., adjustable and reversible needle points, straightening device.
- 839 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, slide-catch pen part, pencil part, lengthening bar, straightening device. Combination Screw Driver and Lead Box. Box with extra Needle Points. Metal Handle for divider, pen and pencil parts. . Set, \$

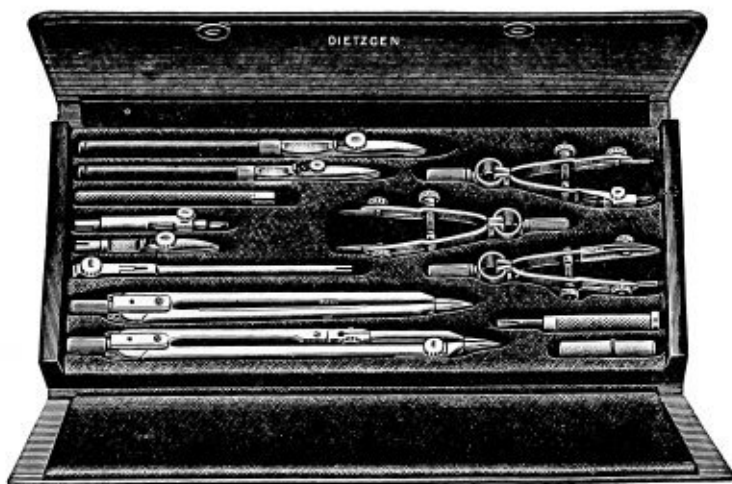
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Universal grade described on page 77.

See Price List in back of Catalog.

Universal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1057.

No. 1057. Pocket Case, containing:

654 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.

655 " " 5½ " " " " " " " "

744A Bow Dividers, 3¾ in., side wheel adjustment, circular head.

744B " Pencil, 3¾ " " " " " " "

744C " Pen, 3¾ " " " " " " "

797 Hairspring Dividers, 6 in., adjustable and reversible needle points, straightening device.

839 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, slide-catch pen part, pencil part, lengthening bar, straightening device.

Combination Screw Driver and Lead Box

Box with extra Needle Points.

Metal Handle for divider, pen and pencil parts, . . . Set, \$

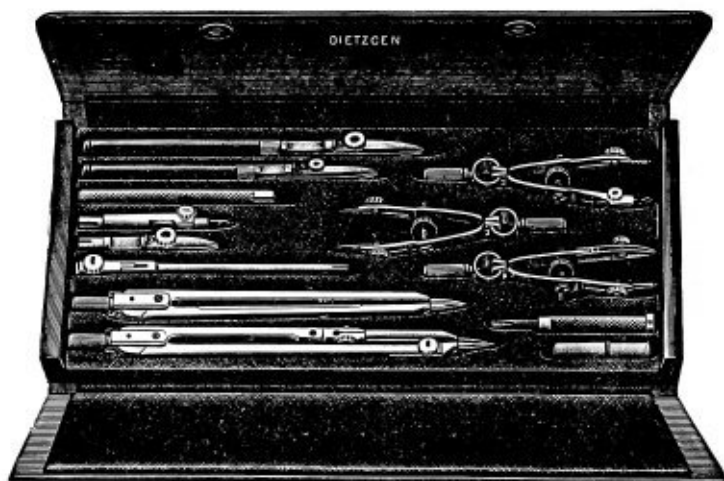
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Universal grade described on page 77.

See Price List in back of Catalog.

Universal Drawing Instruments

In Pocket Cases Lined with Silk Velvet



No. 1057C.

No. 1057C. Pocket Case, containing:

- 654 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.
 - 655 " " 5½ " " " " " " "
 - 755A Bow Dividers, 3¾ in. center wheel adjustment, circular head.
 - 755B " Pencil, 3¾ " " " " " " "
 - 755C " Pen, 3¾ " " " " " " "
 - 797 Hairspring Dividers, 6 in., adjustable and reversible needle points, straightening device.
 - 839 Compasses, 6 in., fixed needle point leg, divider part, adjustable and reversible needle points, slide-catch pen part, pencil part, lengthening bar, straightening device.
- Combination Screw Driver and Lead Box.
- Box with extra Needle Points.
- Metal Handle for divider, pen and pencil parts, . . . Set, \$

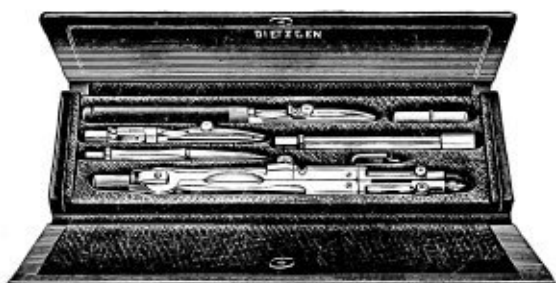
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Universal grade described on page 77.

See Price List in back of Catalog.

Reliance Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1062R.

No. 1062R. Pocket Case, containing:

- 657 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device. Extra steel divider point. Key, and Lead Box, Set, \$



No. 1063R.

No. 1063R. Pocket Case, containing:

- 657 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 724C Bow Pen, $3\frac{1}{2}$ in., side wheel adjustment.
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device. Extra steel divider point. Key, and Lead Box, Set, \$

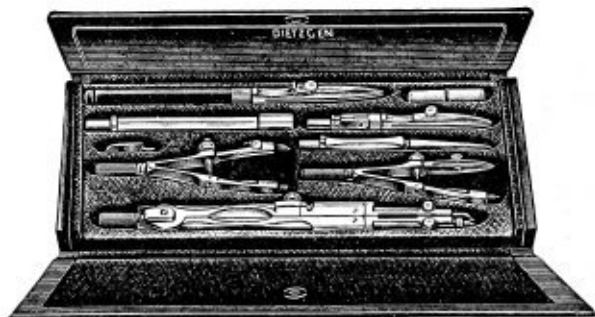
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Reliance grade described on page 77.

See Price List in back of Catalog.

Reliance Drawing Instruments

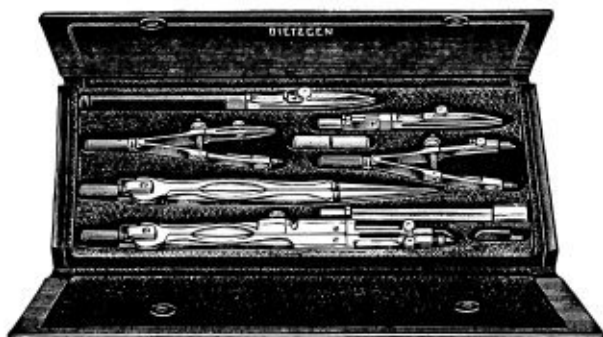
In Pocket Cases Lined with Velvet



No. 1064R.

No. 1064R. **Pocket Case, containing:**

- 657 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
- 724B Bow Pencil, 3½ " side wheel adjustment.
- 724C " Pen, 3½ " " " "
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device. Extra steel divider point. Key, and Lead Box, Set, \$



No. 1065R.

No. 1065R. **Pocket Case, containing:**

- 657 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
- 724B Bow Pencil, 3½ " side wheel adjustment.
- 724C " Pen, 3½ " " " "
- 801R Plain Dividers, 6 in., straightening device.
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device.

Key.

Lead Box, Set, \$

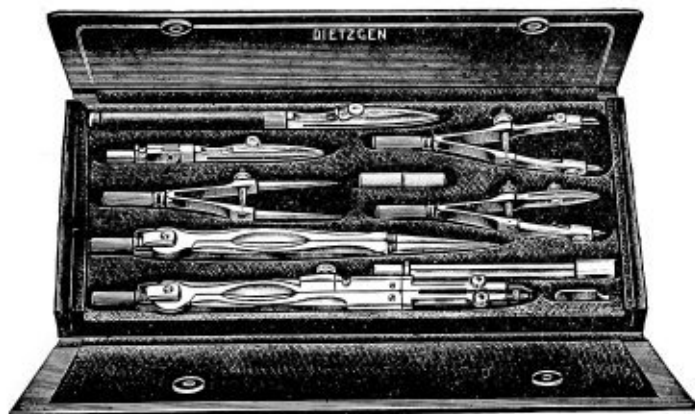
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Reliance grade described on page 77.

See Price List in back of Catalog.

Reliance Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1066R.

No. 1066R. Pocket Case, containing:

- 657 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 724A Bow Dividers, $3\frac{1}{2}$ in., side wheel adjustment.
- 724B " Pencil, $3\frac{1}{2}$ " " " "
- 724C " Pen, $3\frac{1}{2}$ " " " "
- 801R Plain Dividers, 6 in., straightening device.
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device.

Key.

Lead Box, Set, \$

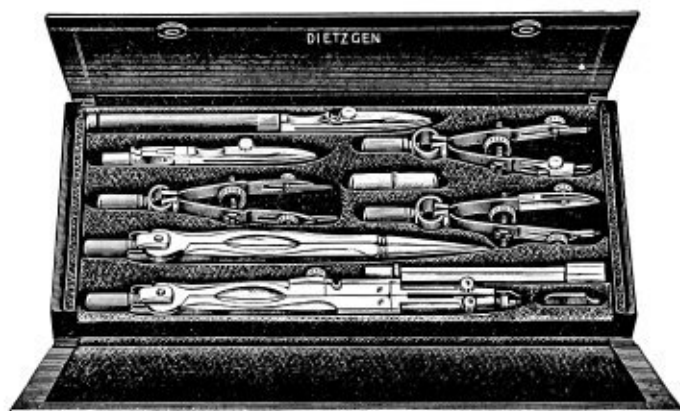
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Reliance grade described on page 77.

See Price List in back of Catalog.

Reliance Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1066RC.

No. 1066RC. **Pocket Case, containing:**

- 657 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.
 - 755A Bow Dividers, 3¾ in., center wheel adjustment, circular head.
 - 755B " Pencil, 3¾ " " " " " "
 - 755C " Pen, 3¾ " " " " " "
 - 801R Plain Dividers, 6 in., straightening device.
 - 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device.
- Key.
- Lead Box Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

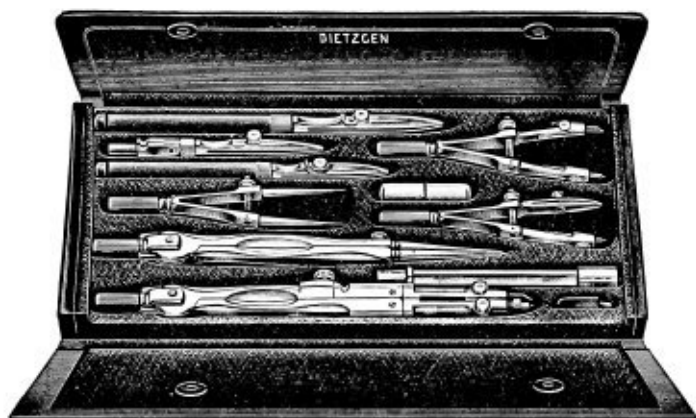
Reliance grade described on page 77.

See Price List in back of Catalog.



Reliance Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1067R.

No. 1067R. Pocket Case, containing:

- 656 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.
 657 " " 5½ " " " " " " " "
 724A Bow Dividers, 3½ in., side wheel adjustment.
 724B " Pencil, 3½ " " " "
 724C " Pen, 3½ " " " "
 803R Hairspring Dividers, 6 in., with straightening device and new type hairspring part which can be easily removed and replaced if point is damaged.
 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device.

Key.

Lead Box, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

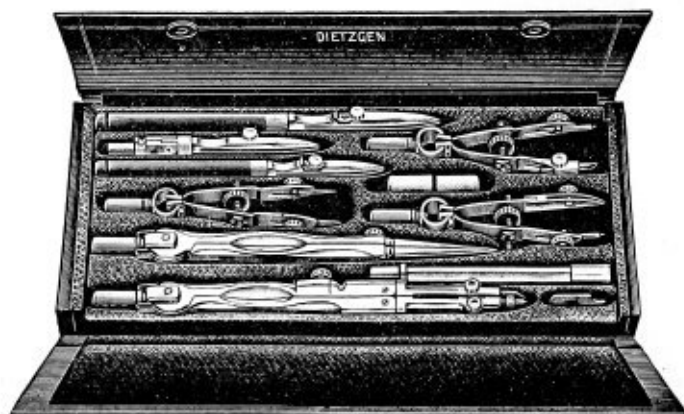
Reliance grade described on page 77.

See Price List in back of Catalog.



Reliance Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1067RC.

No. 1067RC. Pocket Case, containing:

- 656 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.
- 657 Like No. 656, but 5½ in.
- 755A Bow Dividers, 3¾ in., center wheel adjustment, circular head.
- 755B " Pencil, 3¾ " " " " " "
- 755C " Pen, 3¾ " " " " " "
- 803R Hairspring Dividers, 6 in., with straightening device, and new type hairspring part which can be easily removed and replaced if point is damaged.
- 844R Compasses, 6 in., fixed needle point leg, screw thread needle point, pen part, pencil part, lengthening bar, straightening device.

Key.

Lead Box, Set, \$

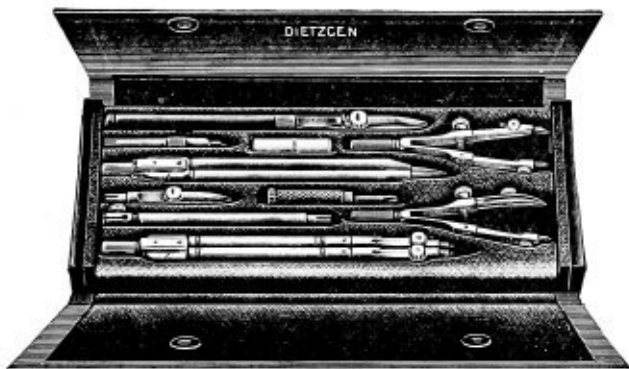
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Reliance grade described on page 77.

See Price List in back of Catalog.

Dependo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1065.

No. 1065. Pocket Case, containing:

- 659 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 726B Bow Pencil, $3\frac{1}{2}$ in., side wheel adjustment.
- 726C " Pen, $3\frac{1}{2}$ " " " " "
- 806 Plain Dividers, 6 in., adjustable and replaceable needle points, straightening device.
- 849 Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle point, divider part, pen part, pencil part, lengthening bar, straightening device.
- Screw Driver.
- Lead Box, with extra Leads, Set, \$

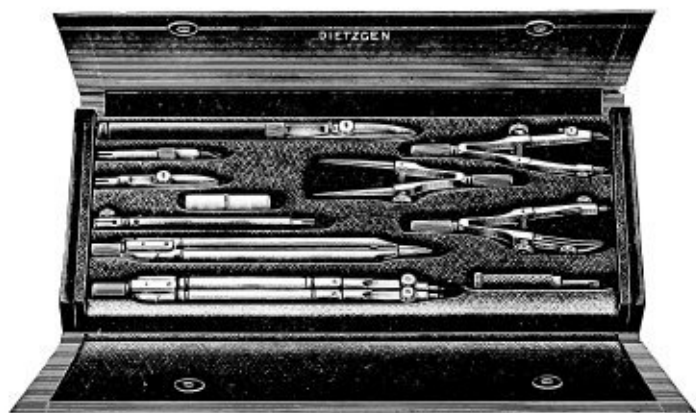
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Dependo grade described on page 77.

See Price List in back of Catalog.

Dependo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1066.

No. 1066. Pocket Case, containing:

659 Ruling Pen, 5½ in., slide-catch spring blade, ebonized handle.

726A Bow Dividers, 3½ in., side wheel adjustment.

726B " Pencil, 3½ " " " "

726C " Pcn, 3½ " " " "

806 Plain Dividers, 6 in., adjustable and replaceable needle points, straightening device.

849 Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle point, divider part, pen part, pencil part, lengthening bar, straightening device.

Screw Driver.

Lead Box, with extra leads, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

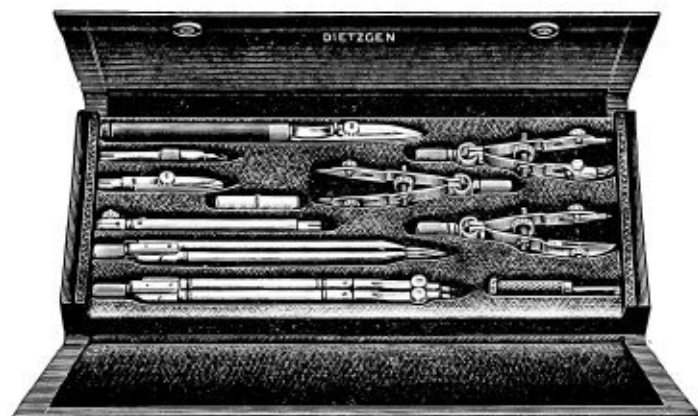
Dependo grade described on page 77.

See Price List in back of Catalog.



Dependo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1066C.

No. 1066C. Pocket Case, containing:

- 659 Ruling Pen, $5\frac{1}{2}$ in., slide-catch spring blade, ebonized handle.
- 755A Bow Dividers, $3\frac{3}{4}$ in., center wheel adjustment, circular head.
- 755B " Pencil, $3\frac{3}{4}$ " " " " " " "
- 755C " Pen, $3\frac{3}{4}$ " " " " " " "
- 806 Plain Dividers, 6 in., adjustable and replaceable needle points, straightening device.
- 849 Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle point, divider part, pen part, pencil part, lengthening bar, straightening device.
- Screw Driver.
- Lead Box, with extra Leads Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

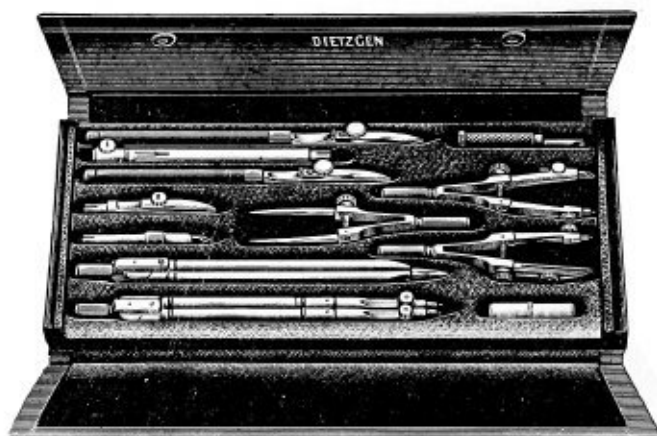
Dependo grade described on page 77.

See Price List in back of Catalog.



Dependo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1067.

No. 1067. Pocket Case, containing:

658 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.

659 Like No. 658, but $5\frac{1}{2}$ in.

726A Bow Dividers, $3\frac{1}{2}$ in., side wheel adjustment.

726B " Pencil, $3\frac{1}{2}$ " " " "

726C " Pen, $3\frac{1}{2}$ " " " "

806 Plain Dividers, 6 in., adjustable and replaceable needle points, straightening device.

849 Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle point, divider part, pen part, pencil part, lengthening bar, straightening device.

Screw Driver.

Lead Box, with extra Leads, Set, \$

For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

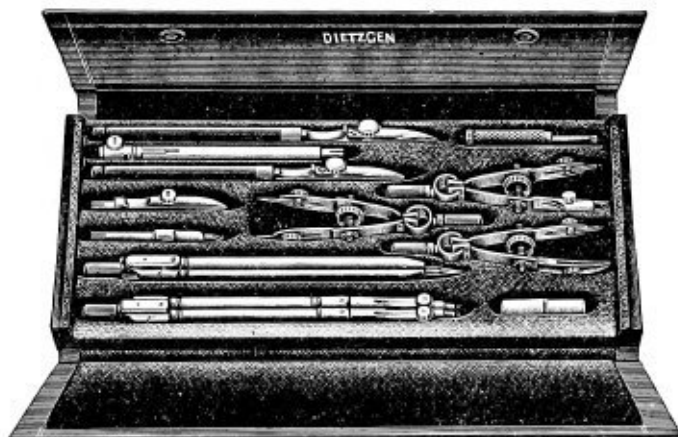
Dependo grade described on page 77.

See Price List in back of Catalog.



Dependo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1067C.

No. 1067C. Pocket Case, containing:

- 658 Ruling Pen, 5 in., slide-catch spring blade, ebonized handle.
 - 659 Like No. 658, but 5½ in.
 - 755A Bow Dividers, 3¾ in., center wheel adjustment, circular head.
 - 755B " Pencil, 3¾ " " " " " "
 - 755C " Pen, 3¾ " " " " " "
 - 806 Plain Dividers, 6 in., adjustable and replaceable needle points, straightening device.
 - 849 Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle point, divider part, pen part, pencil part, lengthening bar straightening device.
- Screw Driver.
- Lead Box, with extra Leads, Set, \$

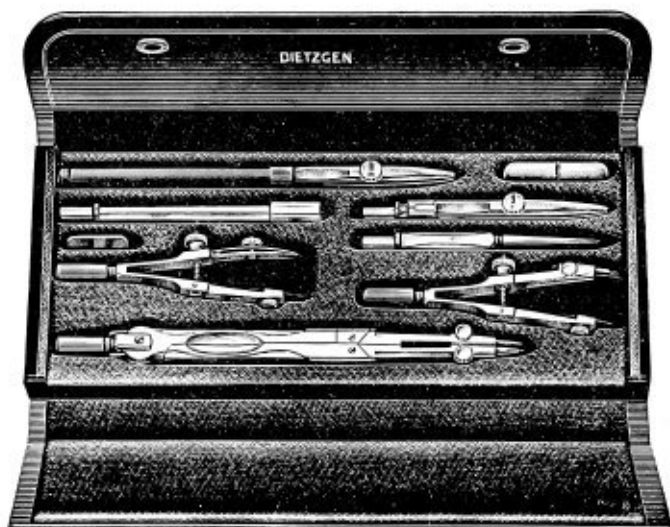
For larger illustrations of the various instruments contained in cases, refer to the respective numbers specified.

Dependo grade described on page 77.

See Price List in back of Catalog.

Scholar Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1074D.

No. 1074D. Pocket Case, containing:

Ruling Pen, 5½ in., spring blade, ebonized handle.

Bow Pencil, 3½ in., side wheel adjustment.

" Pen, 3½ in., side wheel "

Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle points, pen part, pencil part, divider part, lengthening bar, straightening device.

Extra steel divider point.

Key, and Lead Box with extra Leads, Set, \$

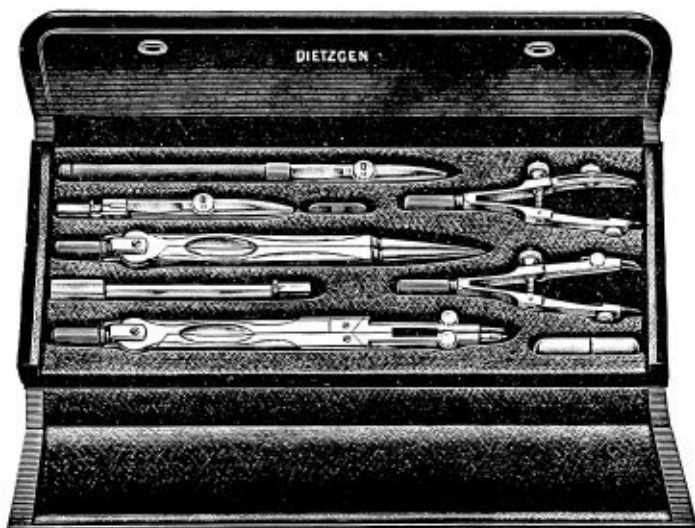
Scholar grade described on page 77.

See Price List in back of Catalog.



Scholar Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1075D.

No. 1075D. Pocket Case, containing:

Ruling Pen, 5½ in., spring blade, ebonized handle.

Bow Pencil, 3½ in., side wheel adjustment.

“ Pen, 3½ in., side wheel “

Plain Dividers, 6 in., with straightening device.

Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle points, pen part, pencil part, lengthening bar, straightening device.

Key.

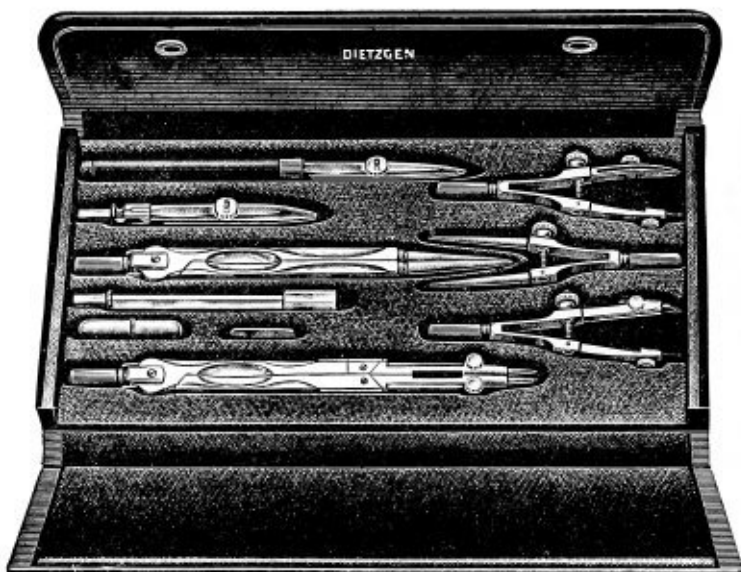
Lead Box with extra leads, Set, \$

Scholar grade described on page 77.

See Price List in back of Catalog.

Scholar Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1076D.

No. 1076D. Pocket Case, containing:

Ruling Pen, 5½ in., spring blade, ebonized handle.

Bow Dividers, 3½ in., side wheel adjustment.

“ Pencil, 3½ in., side wheel “

“ Pen, 3½ in., side wheel “

Plain Dividers, 6 in., with straightening device.

Compasses, 6 in. fixed needle point leg, adjustable and replaceable needle points, pen part, pencil part, lengthening bar, straightening device.

Key.

Lead Box with extra leads, Set, \$

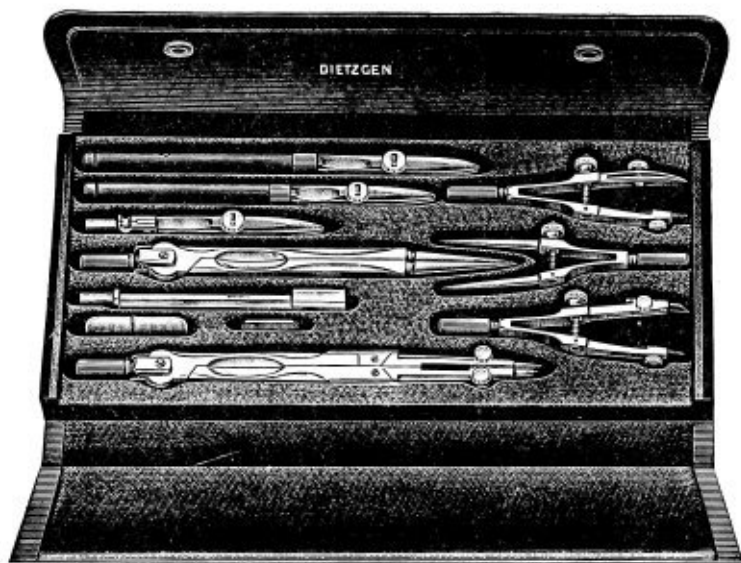
Scholar grade described on page 77.

See Price List in back of Catalog.



Scholar Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1077D.

No. 1077D. Pocket Case, containing:

Ruling Pen, 5 in., spring blade, ebonized handle.

" " 5½ " " " " "

Bow Dividers, 3½ in., side wheel adjustment.

" Pencil, 3½ in., side wheel "

" Pen, 3½ in., side wheel "

Plain Dividers, 6 in., with straightening device.

Compasses, 6 in., fixed needle point leg, adjustable and replaceable needle points, pen part, pencil part, lengthening bar, straightening device.

Key.

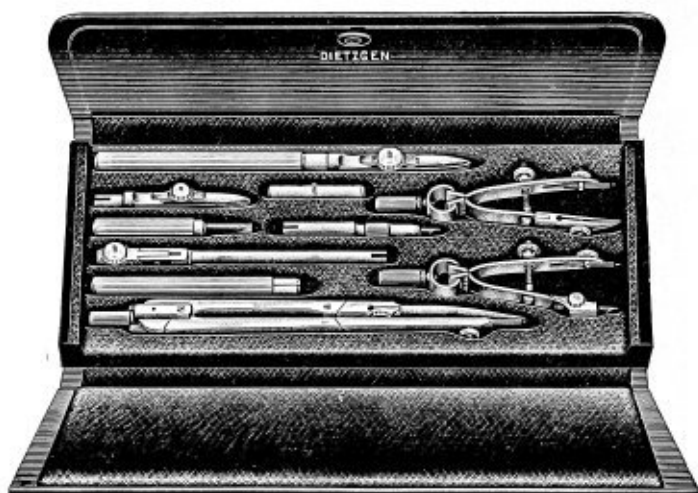
Lead Box with extra leads, Set, \$

Scholar grade described on page 77.

See Price List in back of Catalog.

Prep Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1084S.

No. 1084S. Pocket Case, containing:

Ruling Pen, 5½ in., slide-catch spring blade, fluted aluminum handle.

Bow Pencil, 3¾ in., side wheel adjustment

“ Pen, 3¾ in., side wheel

Compasses, 6 in., fixed needle point leg, adjustable and reversible needle point, divider part, pencil part, pen part with cleaning device, lengthening bar, straightening device.

Metal handle for use with divider, pencil, and pen parts, as separate instruments.

Screw Driver

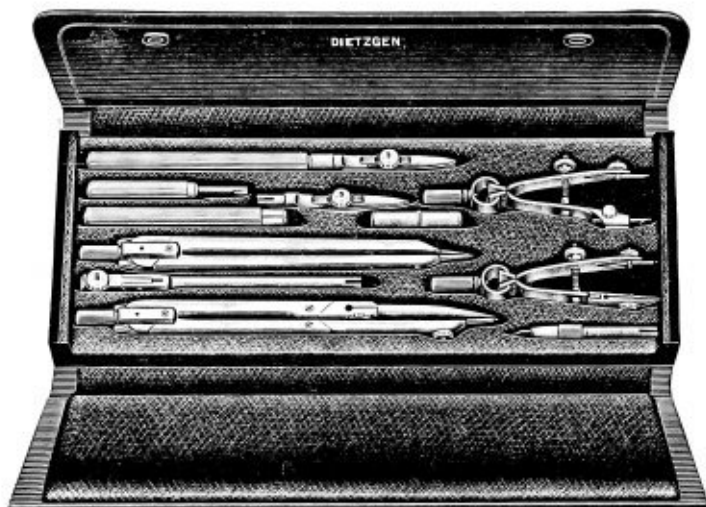
Lead Box with extra leads, Set, \$

Prep grade described on page 77.

See Price List in back of Catalog.

Prep Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1085S.

No. 1085S. Pocket Case, containing:

Ruling Pen, 5½ in., slide-catch spring blade, fluted aluminum handle.

Bow Pencil, 3¾ in., side wheel adjustment.

“ Pen, 3¾ “ “ “ “

Dividers, 6 in., adjustable and replaceable needle points, straightening device.

Compasses, 6 in., fixed needle point leg, adjustable and reversible needle point, divider part, pencil part, pen part with cleaning device, lengthening bar, straightening device.

Metal handle for use with divider, pencil, and pen parts, as separate instruments.

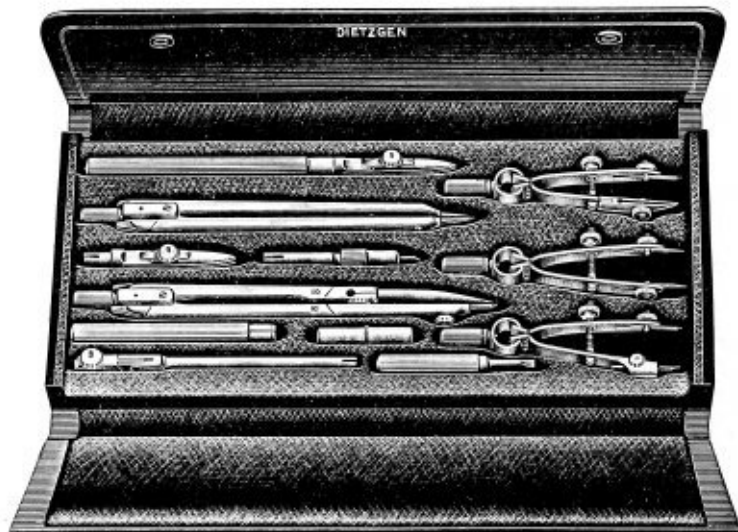
Screw Driver and Lead Box with extra leads, Set, \$

Prep grade described on page 77.

See Price List in back of Catalog.

Prep Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1086S.

No. 1086S. Pocket Case, containing:

Ruling Pen, 5½ in., slide-catch spring blade, fluted aluminum handle.

Bow Dividers, 3¾ in., side wheel adjustment.

“ Pencil, 3¾ in., side wheel “

“ Pen, 3¾ in., side wheel “

Dividers, 6 in., adjustable and replaceable needle points, straightening device.

Compasses, 6 in., fixed needle point leg, adjustable and reversible needle point, divider part, pencil part, pen part with cleaning device, lengthening bar, straightening device.

Metal handle for use with divider, pencil, and pen parts, as separate instrument.

Screw Driver and Lead Box with extra leads, . . . Set, \$

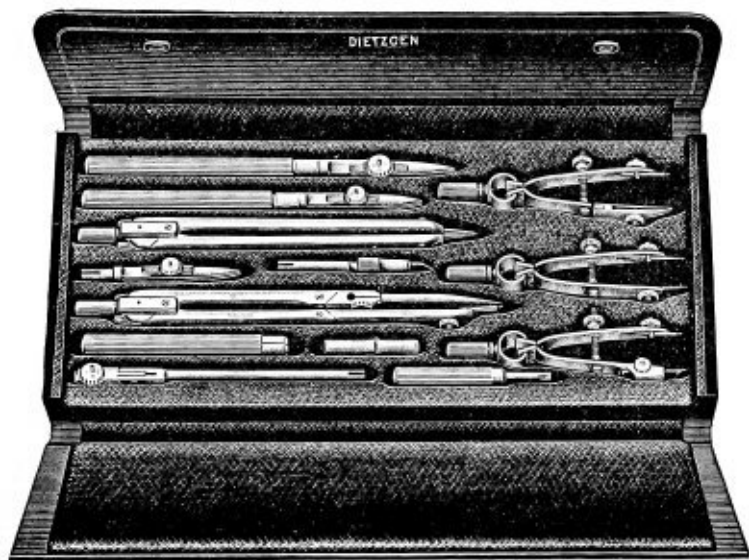
Prep grade described on page 77.

See Price List in back of Catalog.



Prep Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1087S.

No. 1087S. Pocket Case, containing:

Ruling Pen, 5 in., slide-catch spring blade, fluted aluminum handle.

" " 5½ " " " " " " "

Bow Dividers, 3¾ in., side wheel adjustment.

" Pencil, 3¾ in., side wheel "

" Pen, 3¾ in., side wheel "

Dividers, 6 in., adjustable and replaceable needle points, straightening device.

Compasses, 6 in., fixed needle point leg, adjustable and reversible needle point, divider part, pencil part, pen part with cleaning device, lengthening bar, straightening device.

Metal handle for use with divider, pencil and pen parts, as separate instrument.

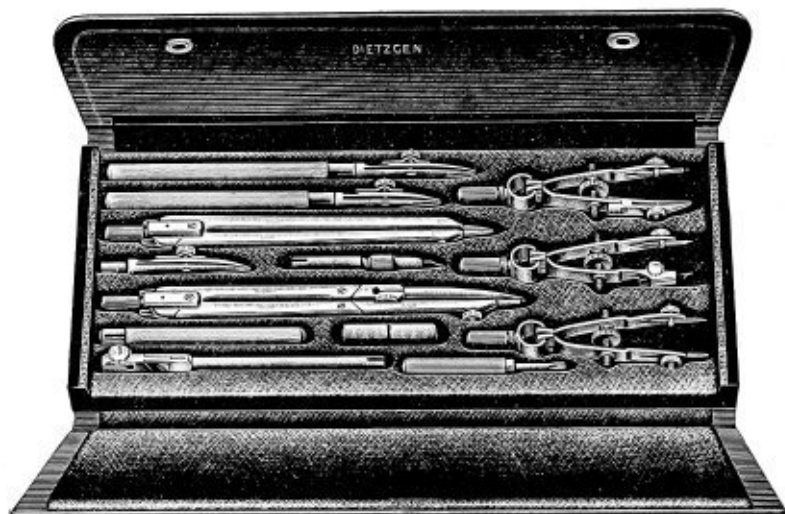
Screw Driver and Lead Box with extra leads, . . . Set, \$

Prep grade described on page 77.

See Price List in back of Catalog.

Prep Drawing Instruments

In Pocket Cases Lined with Green Velvet



No. 1087SC.

No. 1087SC. **Pocket Case, containing:**

Ruling Pen, 5 in., spring blade with cleaning device, aluminum handle.
 " " 5 1/2 " " " " " " " " " "

Bow Dividers, 3 3/4 in., circular head, center wheel adjustment.

" Pencil, 3 3/4 " " " " " " "

" Pen, 3 3/4 " " " " " " "

Plain Dividers, 6 " with straightening device, adjustable and reversible needle points.

Compasses, 6 in., with straightening device, fixed needle point leg, replaceable needle point, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

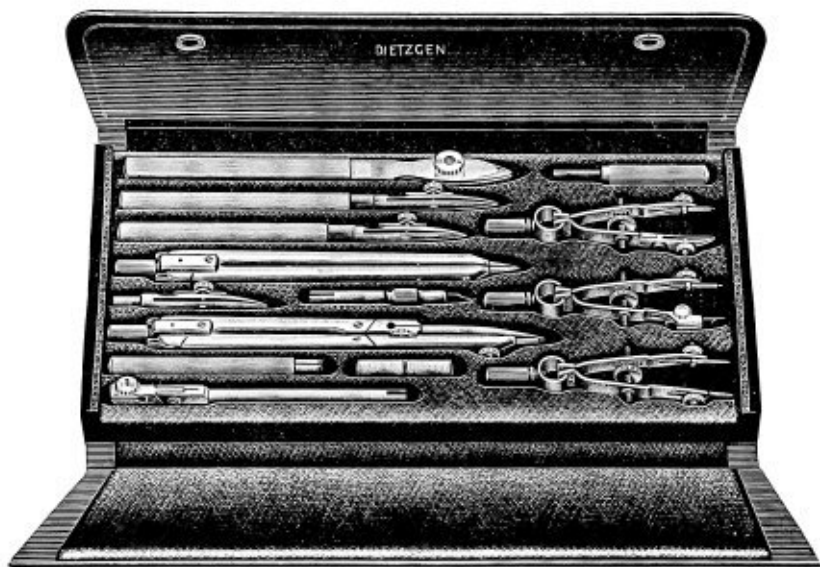
Screw Driver and Lead Box with extra Leads, . . . Set, \$

Prep grade described on page 77.

See Price List in back of Catalog.

Prep Drawing Instruments

In Pocket Cases Lined with Green Velvet



No. 1088SC.

No. 1088SC. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, aluminum handle.
 " " 5½ " " " " " " " "

Detail Ruling Pen, 6 in., spring blade with aluminum handle.

Bow Dividers, 3¾ in., circular head, center wheel adjustment.

" Pencil, 3¾ " " " " " "

" Pen, 3¾ " " " " " "

Plain Dividers, 6 " with straightening device, adjustable and reversible needle points.

Compasses, 6 in., with straightening device, fixed needle point leg, replaceable needle point, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

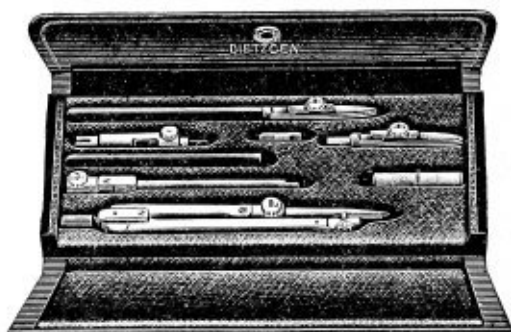
Screw Driver and Lead Box with extra Leads . . . Set, \$

Prep grade described on page 77.

See Price List in back of Catalog.

Constructo Drawing Instruments

In Pocket Cases Lined with Velvet



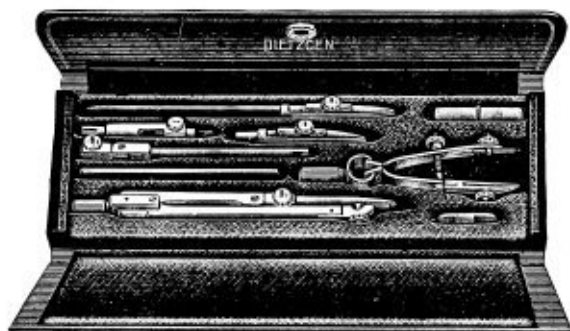
No. 1092.

No. 1092. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

Compasses, $5\frac{1}{4}$ in., fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device. Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

Key and Lead Box with extra Leads, Set, \$



No. 1093.

No. 1093. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

Bow " $3\frac{1}{2}$ " circular head, side wheel adjustment.

Compasses, $5\frac{1}{4}$ " fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

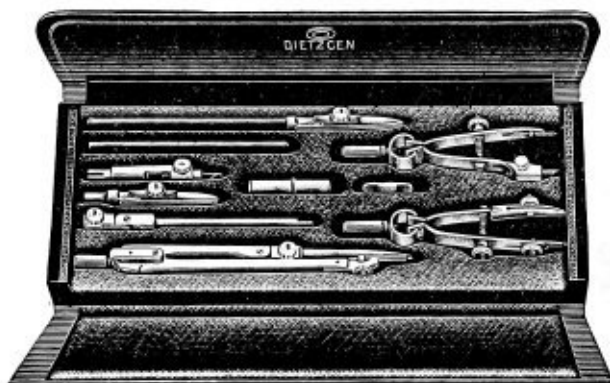
Key and Lead Box with extra Leads, Set, \$

Constructo grade described on page 77.

See Price List in back of Catalog.

Constructo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1094.

No. 1094. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

Bow Pencil, $3\frac{1}{2}$ " circular head, side wheel adjustment.

" Pen, $3\frac{1}{2}$ " " " " " " "

Compasses, $5\frac{1}{4}$ in., fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

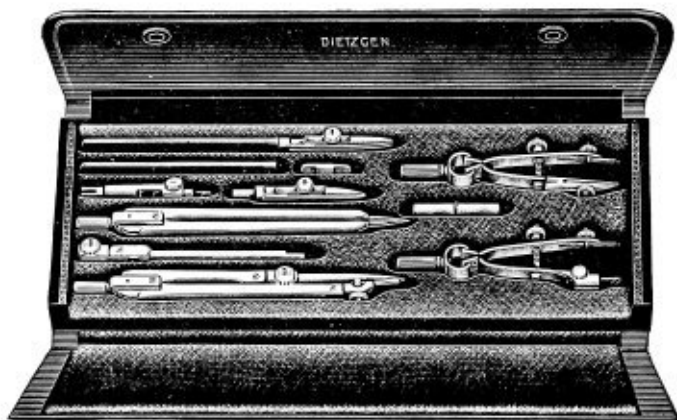
Key and Lead Box with extra Leads, Set, \$

Constructo grade described on page 77.

See Price List in back of Catalog.

Constructo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1095.

No. 1095. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

Bow Pencil, 3½ " circular head, side wheel adjustment.

" Pen, 3½ " " " " " "

Plain Dividers, 5¼ " replaceable needle points.

Compasses, 5¼ in., fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

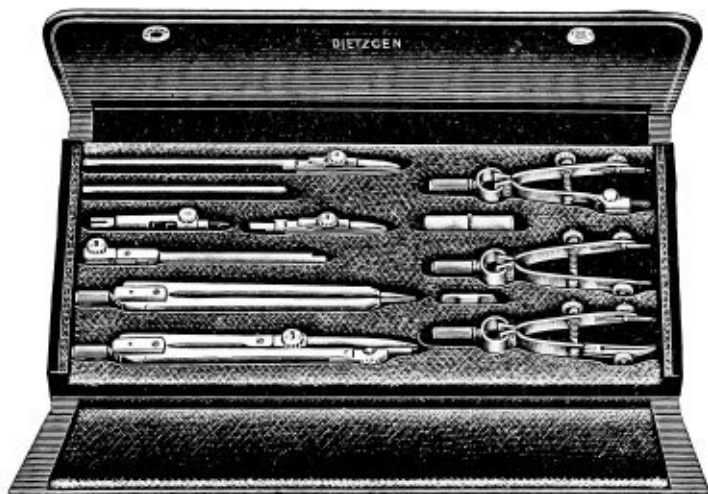
Key and Lead Box with extra Leads, Set, \$

Constructo grade described on page 77.

See Price List in back of Catalog.

Constructo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1096.

No. 1096. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

Bow Dividers, 3½ " circular head, side wheel adjustment.

" Pencil, 3½ " " " " " "

" Pen, 3½ " " " " " "

Plain Dividers, 5¼ " replaceable needle points.

Compasses, 5¼ in., fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

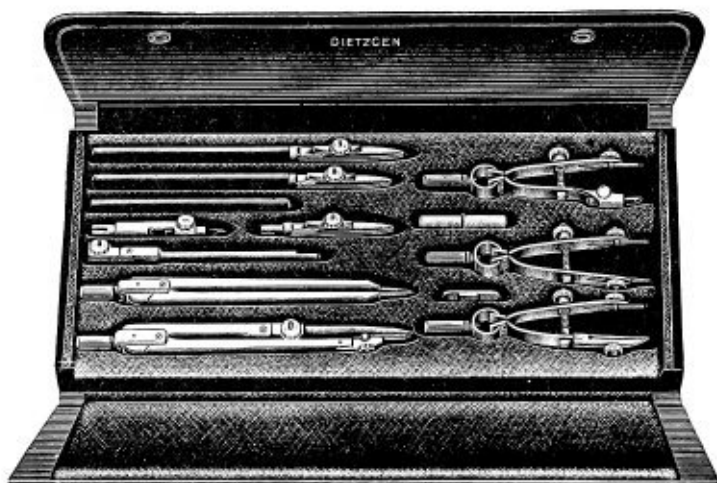
Key and Lead Box with extra Leads, Set, \$

Constructo grade described on page 77.

See Price List in back of Catalog.

Constructo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1097.

No. 1097. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, metal handle.

" " 5½ " " " " " " " "

Bow Dividers, 3½ " circular head, side wheel adjustment.

" Pencil, 3½ " " " " " "

" Pen, 3½ " " " " " "

Plain Dividers, 5¼ " replaceable needle points.

Compasses, 5¼ in., fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

Key and Lead Box with extra Leads, Set, \$

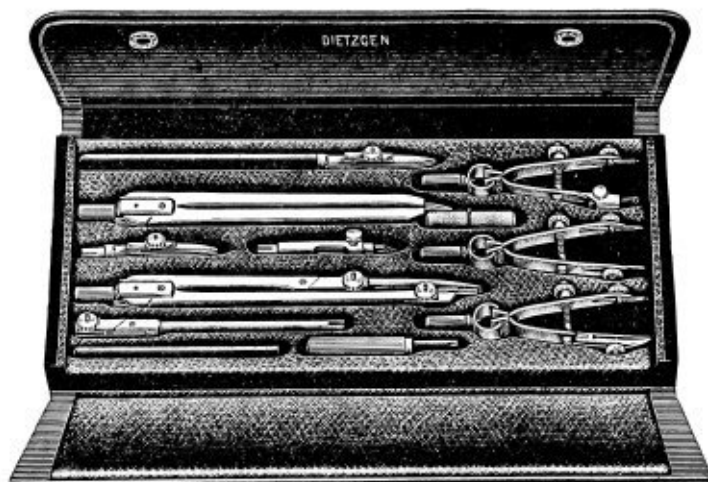
Constructo grade described on page 77.

See Price List in back of Catalog.



Designo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1096L.

*No. 1096L. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, aluminum handle.

Bow Dividers, $3\frac{3}{4}$ " circular head, side screw adjustment.

" Pencil, $3\frac{3}{4}$ " " " " " "

" Pen, $3\frac{3}{4}$ " " " " " "

Plain Dividers, 6 " with straightening device, replaceable needle points.

Compasses, 6 in., with straightening device, fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

Screw Driver and Lead Box with extra Leads, Set, \$

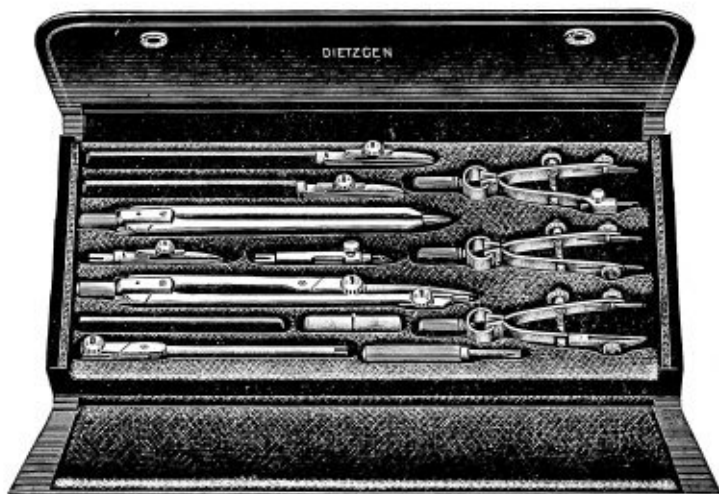
*1096LC. Same as No. 1096L, but bow instruments have center wheel adjustment,
 Set, \$

Designo grade described on page 77.

See Price List in back of Catalog.

Designo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1097L.

*No. 1097L. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, aluminum handle,
 " " 5 1/2 " " " " " " " " " "

Bow Dividers, 3 3/4 " circular head, side screw adjustment.

" Pencil, 3 3/4 " " " " " " "

" Pen, 3 3/4 " " " " " " "

Plain Dividers, 6 " with straightening device, replaceable needle points.

Compasses, 6 in., with straightening device, fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

Screw Driver and Lead Box with extra Leads, Set, \$

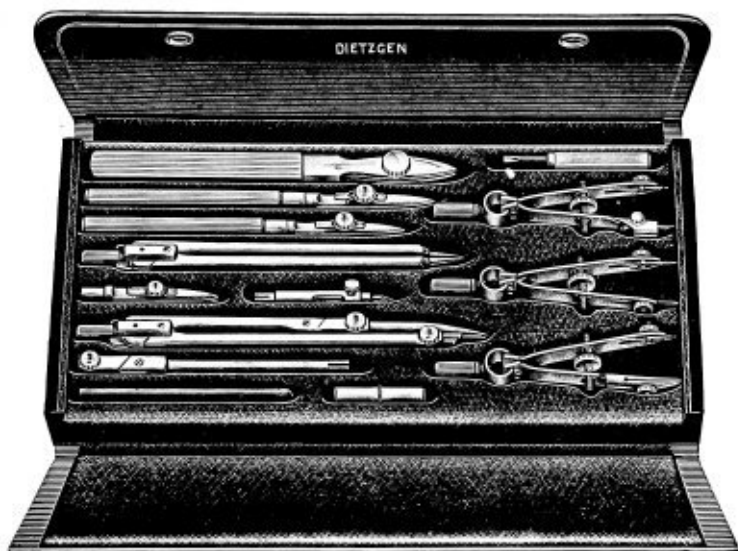
*1097LC. Same as No. 1097L, but bow instruments have center wheel adjustment,
 Set, \$

Designo grade described on page 77.

See Price List in back of Catalog.

Designo Drawing Instruments

In Pocket Cases Lined with Velvet



No. 1098LC.

No. 1098LC. Pocket Case, containing:

Ruling Pen, 5 in., spring blade with cleaning device, aluminum handle.

" " 5½ " " " " " " " "

Detail Ruling Pen, 6 in., spring blade with aluminum handle.

Bow Dividers, 3¾ in., circular head, center wheel adjustment.

" Pencil, 3¾ " " " " " " "

" Pen, 3¾ " " " " " " "

Plain Dividers, 6 in., with straightening device, replaceable needle points.

Compasses, 6 in., with straightening device, fixed needle point leg, lengthening bar, divider part, pencil part, and pen part with cleaning device.

Metal Handle for use with divider, pencil and pen parts of compasses as separate instruments.

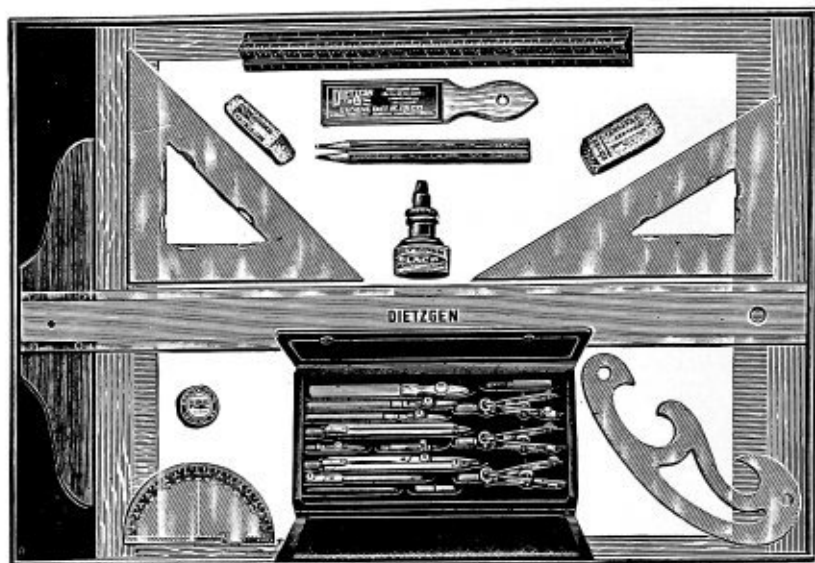
Screw Driver and Lead Box with extra Leads, . . . Set, \$

Designo grade described on page 77.

See Price List in back of Catalog.



Practical Drawing Outfits



No. 1100AN.

This outfit is specially adapted for use of students taking Engineering or Mechanical Drawing Courses of Preparatory, Apprentice, and Correspondence schools. The Instruments are of substantial construction and all materials are of dependable quality. It is also well adapted for the use of contractors and builders, in making and altering plans. The outfit will be found complete and will give excellent service.

Consists of the following:

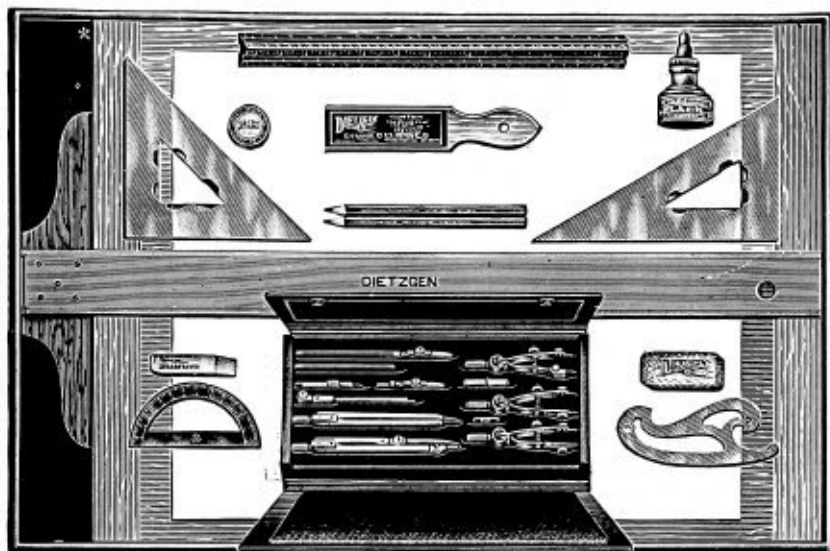
- 1 8-piece Drawing Instrument Set, No. 1098LC.
- 1 Drawing Board, 18x24 in., whitewood.
- 1 T-Square, 24 in., maple, transparent celluloid lined blade.
- 1 Scale, 12 in., triangular.
- 1 Protractor, 5 in., semicircular celluloid, engine divided to $\frac{1}{2}^\circ$.
- 1 Triangle, 30x60°, 10 in., transparent celluloid.
- 1 Triangle, 45°, 8 in., transparent celluloid.
- 1 Irregular Curve, No. 13, transparent celluloid.
- 1 Dozen Steel Thumb Tacks, $\frac{1}{16}$ in., in box.
- 2 Drawing Pencils, 2H and 4H.
- 1 Art Gum Eraser, 2x1x1 in.
- 1 Pencil Eraser.
- 1 Pencil Pointer, with handle, 12 sheets sand paper.
- 1 Bottle, $\frac{3}{4}$ ounce Waterproof, Black Drawing Ink.
- 6 Sheets Drawing Paper, 15x22 in.
- 1 Instruction Book, "Use and Care of Drawing Instruments."



No. 1100AN. Practical Drawing Outfit complete, in neat, heavy pasteboard box, Each, \$

See Price List in back of Catalog.

Practical Drawing Outfits



No. 1100BN.

This serviceable outfit meets all the requirements of students taking Engineering and Mechanical Drawing Courses of Apprentice or Correspondence schools. It is well adapted for the use of contractors and builders, in making and altering plans. All materials are of dependable quality and will be found very serviceable.

Consists of the following:

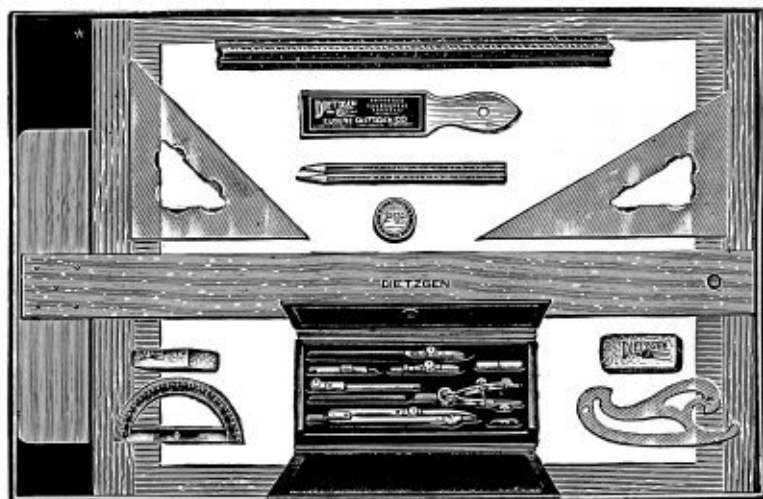
- 1 Drawing Instrument Set, No. 1096.
- 1 Drawing Board, 18 × 24 in., whitewood.
- 1 T Square, 24 in., ash, maple lined blade.
- 1 Scale, 12 in., triangular.
- 1 Protractor, 4¼ in., brass, semi-circular, div. to 1°.
- 1 Triangle, 30 × 60°, 8 in., transparent celluloid.
- 1 Triangle, 45°, 6 in., transparent celluloid.
- 1 Irregular curve, No. 6, transparent celluloid.
- 1 Dozen Steel Thumb Tacks, 7/16 in., in box.
- 2 Drawing Pencils, 3H and 4H.
- 1 Art Gum Eraser, 2 × 1 × 1 in.
- 1 Pencil Eraser.
- 1 Pencil Pointer, with handle, sand paper, 12 sheets.
- 1 Bottle ¾ ounce Waterproof, Black Drawing Ink.
- 6 Sheets Drawing Paper, 15 × 22 in.
- 1 Instruction Book, "Use and Care of Drawing Instruments."



No. 1100BN. Practical Drawing Outfit complete, in neat, heavy paste-board box, Each, \$

See Price List in back of Catalog.

Practical Drawing Outfits



No. 1100CN.

This outfit is adapted for use of students taking Elementary courses in Engineering or Mechanical Drawing. It can also be used by contractors and builders, in making and altering plans. All materials are of substantial quality and will give excellent service.

Consists of the following:

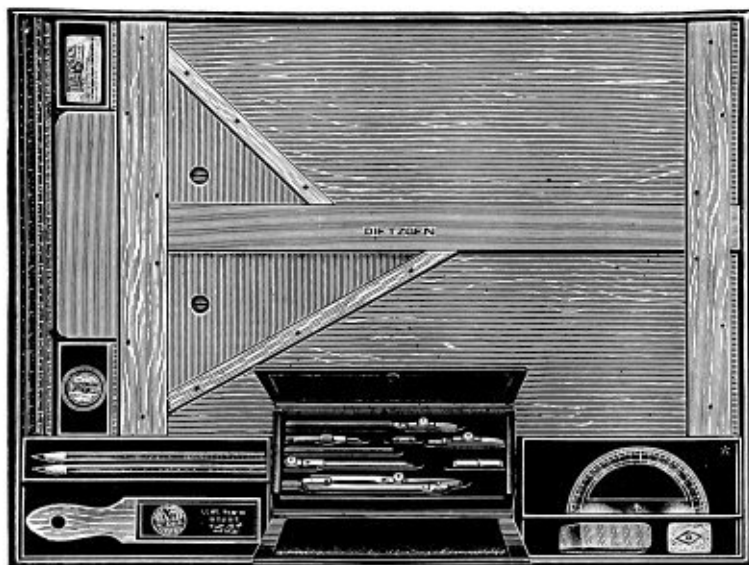
- 1 Drawing Instrument Set, hard brass, heavily nickel-plated, No. 1093.
- 1 Drawing Board, 16 × 22 in., whitewood.
- 1 T Square, 21 in., maple blade and head.
- 1 Scale, 12 in., triangular.
- 1 Protractor, 3½ in., brass, semi-circular. div. to 1°.
- 1 Triangle, 30 × 60°, 8 in., transparent celluloid.
- 1 Triangle, 45°, 6 in., transparent celluloid.
- 1 Irregular curve, No. 6, transparent celluloid.
- 1 Dozen Steel Thumb Tacks, ⅜ in., in box.
- 2 Drawing Pencils, 3H and 4H.
- 1 Ink Eraser.
- 1 Pencil Eraser.
- 1 Pencil Pointer with handle, sand paper, 12 sheets.
- 6 Sheets Drawing Paper, 15 × 22 in.
- 1 Instruction Book, "Use and Care of Drawing Instruments."



No. 1100CN. Practical Drawing Outfit, complete, in neat, heavy pasteboard box, Each, \$

See Price List in back of Catalog.

Practical Drawing Outfits



No. 1100D.

This outfit will be found very satisfactory for students and for anyone who desires to have a neat, compact drawing outfit for home use. The arrangement of the Drawing Board, T Square and Triangles will be found very handy. All materials are of dependable quality and very serviceable.

Consists of the following:

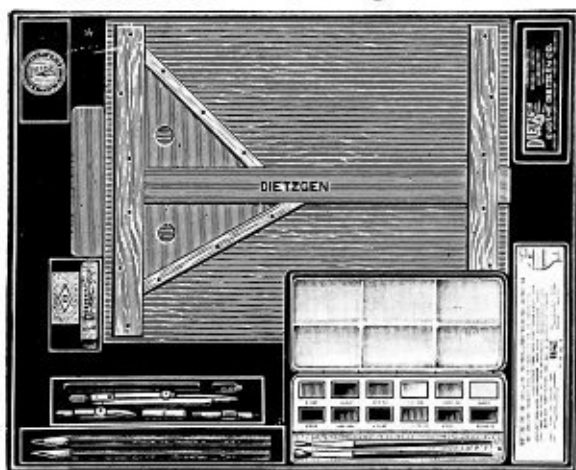
- 1 Drawing Instrument Set, No. 1092.
- 1 Drawing Board Outfit, consisting of a whitewood Drawing Board, 13 X 19 in., one maple T Square and two maple Triangles.
- 1 Scale, 12 in., triangular, hardwood.
- 1 Protractor, 3½ in., brass, semi-circular, div. to 1°.
- 1 Dozen Steel Thumb Tacks, ½ in., in box.
- 2 Drawing Pencils, Nos. 3 and 4.
- 1 Art Gum Eraser, 2 X 1 X 1 in.
- 1 Cleaning and Pencil Eraser.
- 1 Pencil Eraser.
- 1 Pencil Pointer with handle, sand paper, 12 sheets.
- 6 Sheets Drawing Paper, 12 X 18 in.,
- 1 Instruction Book, "Use and Care of Drawing Instruments."



No. 1100D. Practical Drawing Outfit complete, in neat, heavy pasteboard box, Each, \$

See Price List in back of Catalog.

Practical Drawing Outfits



No. 1100E.

This outfit will be found satisfactory for use of students and for anyone who desires a neat, compact drawing outfit for use about the home. On account of the water-colors and compass set it will be found handy for making sketches and other drawings in colors, and for this reason it is recommended to Advertising Men and Illustrators as a handy home outfit for preliminary layout work. The materials are of dependable quality and will be found very serviceable.

Consists of the following:

- 1 School Drawing Outfit, containing $4\frac{1}{4}$ in. compass with handle, hard brass, heavily nickel-plated, with divider part, pen part and pencil part; lead box and key; a metal handle for divider, pen and pencil part, so that any one of these parts can, in connection with the handle, be used as a separate instrument, No. 1102C.
- 1 Drawing Board Outfit, consists of a whitewood Drawing Board, 10×12 in., one maple T Square and two Maple Triangles.
- 1 Water-Color Box, japanned metal box, $6\frac{5}{8} \times 2\frac{3}{4}$ in., 12 moist colors in metal pans; two brushes.
- 1 Combination Scale and Parallel Rule Protractor, flexible transparent celluloid, 6 in., divided 8ths, 16ths, 32nds and Centimeters.
- 1 Dozen Steel Thumb Tacks, $\frac{7}{8}$ in., in box.
- 2 Drawing Pencils, Nos. 2 and 4.
- 1 Cleaning and Pencil Eraser.
- 1 Pencil Eraser.
- 1 Pencil Pointer, sand paper, 12 sheets.
- 6 Sheets Drawing Paper, $9\frac{1}{2} \times 12$ in.
- 1 Instruction Book, "Use and Care of Drawing Instruments."



No. 1100E. Practical Drawing Outfit complete, in neat, heavy pasteboard box, Each, \$

See Order Blank in back of Catalog.

School Compass Sets

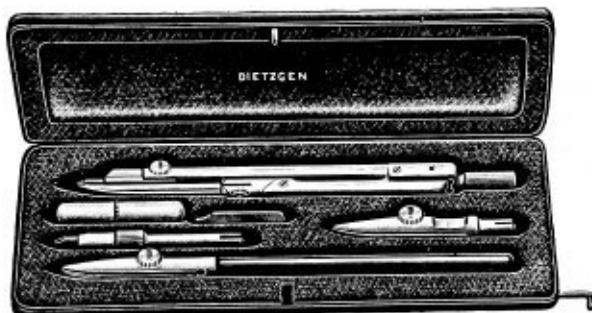
No. 1102A. The Draftset, a school compass set consisting of 4 1/4 in. compass with pen part, pencil part, lead box and key, and metal handle to be used with pen and pencil parts of compass as separate instruments, complete in pasteboard box having a velvet lined bottom, Doz. \$ Each, \$



No. 1102C.

This School Compass Set is very useful for elementary work in drawing and sketching. It consists of 4 1/4 in. nickel plated compasses with divider part, pen part, pencil part, lead box and key, and metal handle to be used as a separate instrument; this set is contained in a pasteboard box, having a velvet lined bottom.

No. 1102C. School Compass Set, Each, \$



No. 1102N.

This School Compass Set consists of a 5 in. metal handle ruling pen; 5 in. nickel-plated compasses with adjustable needle point leg, with steel divider part, pen part, and pencil part, lead box with extra leads and key, contained in a velvet-lined pocket, rod-style case. A compact compass set for making drawings and sketches. Ideal for preparatory schools for use in drawing or science classes.

No. 1102N. School Compass Set, Each, \$



No 1106.

No. 1105. School Compass Set containing 5 in. brass nickel-plated compasses with improved type reversible pen and pencil part, with adjustable and reversible needle point and lead box with extra leads and key contained in leather pocket case. This set will be found very useful and handy for use in school as well as for field use in making preliminary field drawings, Each, \$

1106. Like No. 1105, but including a 5 in. metal handle ruling pen, Each, \$

See Price List in back of Catalog

Student "Solid" Compasses



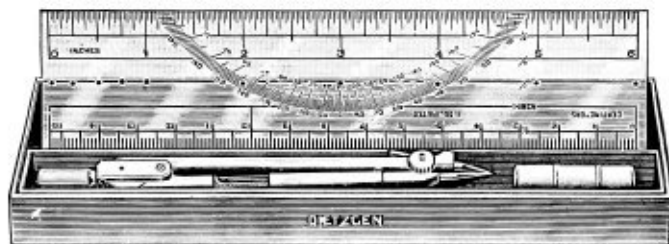
No. 1292.

The Student "Solid" Compasses are durable and well constructed, and specially adapted for preliminary drawing work in schools, etc. They are made of brass, nickel-plated, and are approximately 5 inches long. A unique feature is a sleeve on the needle point leg, which, when shifted, exposes a recess in which an extra lead is contained.

These Compasses have met with considerable favor for school use due to their utility and practical construction.

	Doz.	Each.
No. 1292. Compasses, loose, without lead box,	\$	\$
1292L. Lead box, loose,		
1292B. Compasses in individual sliding box, 12 boxes in pasteboard container,		
1292BL. Like No. 1292B but with lead boxes for compasses		
1292C. Compasses on display card, 12 display cards in pasteboard containers,		
1292CL. Like No. 1292C, but with lead boxes for compasses,		

EDCO-Geometry Set



No. 1292G.

This set will be found of great value as an aid to students studying Geometry and will be appreciated by teachers for that reason. It can also be used to advantage for elementary work in general drawing.

Consists of one No. 1925-12 Combination Scale and Parallel Ruler Protractor, 6 inches long, made of flexible transparent celluloid, by means of which lines can be drawn at any desired angle with or parallel to each other, and circles, $\frac{1}{4}$ inch to 6 inches, can be quickly made. Also No. 1292 Student "Solid" Compasses, with box of leads, this instrument, brass, nickel-plated, being durable and well-constructed.

No. 1292G. EDCO-Geometry Set, in substantial card-board box,	Doz.,	Each.
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See Price List in back of Catalog.

School Pencil Compasses



No. 1294C.

These School Pencil Compasses are of a practical design. They are equipped with a shoulder needle point, which will not disfigure the drawing, and by means of a clamp screw on the arm part, can be locked rigidly at the desired radius. Their substantial construction makes them desirable for the use of students taking up elementary drawing.

No. 1294C. School Pencil Compasses, with EDCO Junior Pencil, one dozen on a card, Card of one Doz., \$ Each, \$

1294L. School Pencil Compasses, without Pencil, one dozen in a box, Box of one Doz., \$ Each, \$

Wooden Blackboard Compasses



No. 1296.



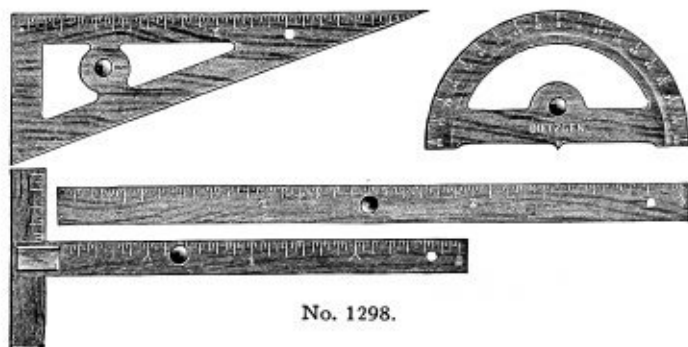
1297.

No. 1296. Blackboard Compasses, 18 in., Each, \$
 1297. " " 18 " with arc, "

School Drawing Board Outfits listed under Nos. 4400-4402.

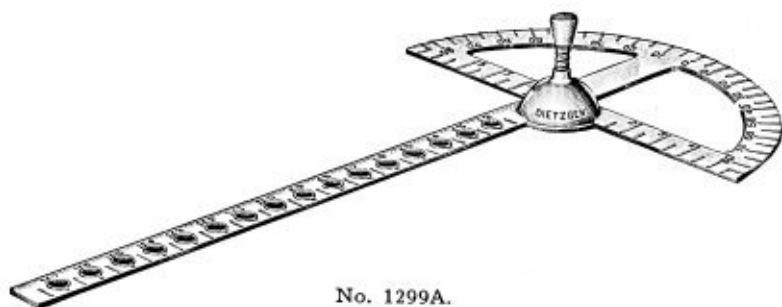
See Price List in Back of Catalog.

Blackboard Drawing Outfits



No. 1298.

- No. 1298. Wooden Blackboard Drawing Set, consisting of 24 in. T Square, 36 in. Straight Edge, 24 in. Triangle, all divided to inches, and 15½ in. Protractor, Set, \$
- | | | | |
|------------------------------------|-----------|-------|--|
| 1298A. T Square of above Set, | | Each, | |
| 1298B. Straight Edge " " | | " | |
| 1298C. Triangle of " " | | " | |
| 1298D. Protractor of " " | | " | |



No. 1299A.

The "Golden" Blackboard Outfit is an excellent help to teachers of mathematics, physics, geometry, mechanical engineering and allied courses where blackboard figures are used to demonstrate principles and problems of the subject being taught.

It is made of aluminum and is very light and easy to use. By means of a vacuum cup pivot point the instrument is held securely to the blackboard and at the same time permitted to revolve. It is easily released by simply pressing on the knob. Works perfectly on any blackboard having a reasonably smooth surface.

The Protractor is graduated to five degrees; the rule is 18 inches long and is scaled to half inches with holes every inch for the insertion of chalk to be used in describing circles.

- No. 1299A. "Golden" Blackboard Outfit, polished aluminum, complete in box, Each, \$

School Drawing Board Outfits listed under Nos. 4400-4402.

See Price List in Back of Catalog.

Dietzgen Scales

Boxwood and White Edge

U. S. Standard

Machine Divided

In manufacturing our scales special attention is given to carefully proportioning the dimensions of the different sizes: the perfect balance thus obtained not being equaled in any other make. The quality of the materials used; the accuracy in dividing; the clearness of numbering; and the superiority of finish,—cannot be excelled.

Each Scale stamped with our name.

We list scales graduated in two different styles:

“Open Divided” and “Full Divided or Chain Scales.”

Open Divided Scales are those on which the main units are numbered along the whole length of the edge, only the end units being subdivided,—as shown on Fig. 1, which represents an open divided scale with **four different divisions**, two on each edge. On this scale two of the divisions are numbered to read from right to left, and two from left to right.

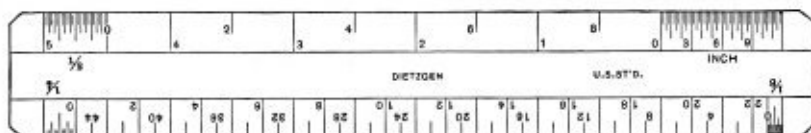


Fig. 1.

Full Divided or Chain Scales are those on which the main units are subdivided throughout the entire length of the edge,—as shown on Fig. 2, which represents a full divided or Chain Scale of 50 parts to the inch on one edge and 10 parts to the inch on the other edge, each division reading both ways, that is, from right to left and from left to right.

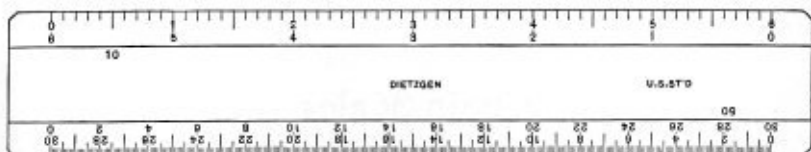


Fig. 2.

Special Scales

While our assortment of stock scales is exceptionally large, it quite frequently happens that special work requires scales of other sizes and of different division arrangement. We are prepared to promptly supply any special scales desired, provided a sketch is submitted which shows all of the necessary details,—length, divisions, numbering, shape, and whether scale is to be boxwood or boxwood with white edges.

Prices for Special Scales quoted on request.

See Price List in back of Catalog.

Flat Boxwood Scales

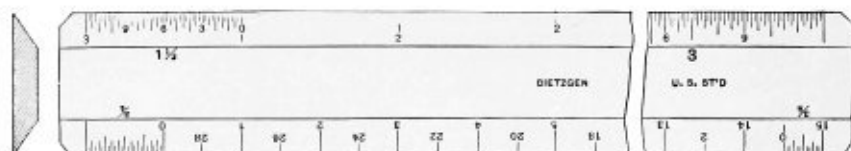
U. S. Standard

Machine Divided



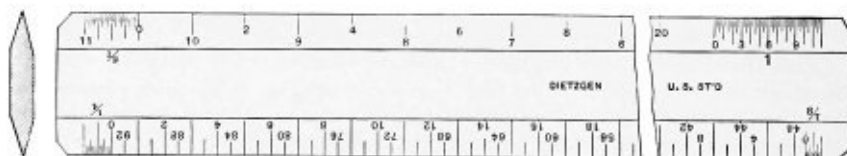
No. 1355. Open Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 inch to the foot.

- | | | | |
|-----------|----------------------------|-----------|----------|
| No. 1351. | Flat Boxwood Scale, 6 in., | * * * * * | Each, \$ |
| 1356. | " " " 12 " | * * * * * | " |
| 1366. | " " " 24 " | * * * * * | " |



No. 1376. Open Divided: $\frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$, 3 inches to the foot.

- | | | | |
|-----------|----------------------------|-----------|----------|
| No. 1371. | Flat Boxwood Scale, 6 in., | * * * * * | Each, \$ |
| 1376. | " " " 12 " | * * * * * | " |

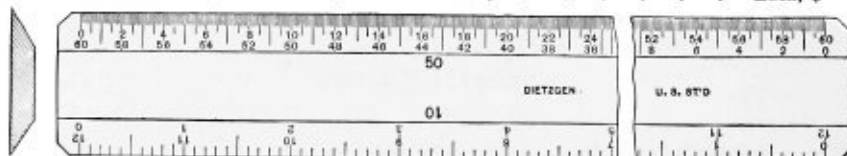


No. 1396. Open Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $1\frac{1}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$, 3 inches to the foot.

- | | | | |
|-----------|---|-----------|----------|
| No. 1394. | Flat Boxwood Scale, 6 in., both sides bev. and div., in leather sheath, | * * * * * | Each, \$ |
| 1396. | " " " 12 " | * * * * * | " |

Chain Scales

- | | | | |
|-----------|--|-----------|----------|
| No. 1416. | Flat Boxwood Chain Scale, 6 in., both sides beveled and divided, 10 × 40 and 30 × 50 parts to the in., one inch wide, in leather sheath, | * * * * * | Each, \$ |
|-----------|--|-----------|----------|



No. 1426.

- | | | | |
|-----------|--|-----------|----------|
| No. 1420. | Flat Boxwood Chain Scale, 6 in., div. 10 × 50 parts to the inch, | * * * * * | Each, \$ |
| 1421. | " " " " 6 " " 20 × 40 " " " " " " " " " " " " | * * * * * | " |
| 1422. | " " " " " 6 " " 30 × 60 " " " " " " " " " " " " | * * * * * | " |
| 1426. | " " " " " 12 " " 10 × 50 " " " " " " " " " " " " | * * * * * | " |
| 1427. | " " " " " 12 " " 20 × 40 " " " " " " " " " " " " | * * * * * | " |
| 1428. | " " " " " 12 " " 30 × 60 " " " " " " " " " " " " | * * * * * | " |

See Price List in back of Catalog.

Flat Boxwood Scales

U. S. Standard Machine Divided

One Edge Beveled, with but one Division on each Scale

These Scales, somewhat narrower than the regular flat scales, are so designed that each scale is beveled on one edge only and has but one division, the graduations reading from left to right. This simple and convenient arrangement will be found of advantage for rapid work.

They are made of thoroughly seasoned boxwood, and are manufactured as carefully and accurately as the more expensive scales.



No. 1439. 12 in. long, divided to $\frac{1}{16}$ in.

No. 1439.	Single Scale, 12 in., divided to $\frac{1}{16}$ in.,	Each, \$
1439A.	" " 12 " " " $\frac{1}{32}$ "	"
1439B.	" " 12 " " " $\frac{1}{10}$ "	"
1447A.	Single Scale, 12 in., like No. 1439, but with white beveled edge,	"

Two Edge Beveled, with but one Division on each edge



No. 1453. 12 in. long, divided 10×16 parts to the inch.

No. 1453.	Flat Boxwood Scale, 12 in., div. 10×16 parts to the inch,	Each, \$
1456.	" " " 12 " " 16×32 " " " " "	"
1457.	" " " 12 " " 16th inch \times mm.,	"

Special Scales, with divisions and numbering different from our regular stock scales, made to order; see page 179.

See Price List in back of Catalog.

Flat Boxwood Scales

U. S. Standard Machine Divided

Metric Scales

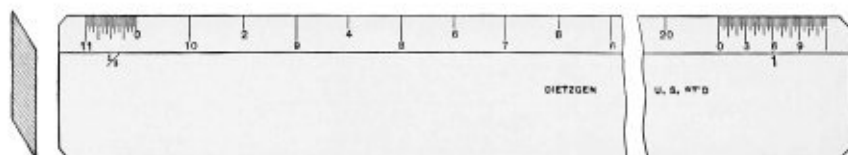


No. 1460. 10 cm. long, divided mm. \times half mm.

- | | |
|-----------|---|
| No. 1460. | Flat Boxwood Metric Scale, 10 cm., div. mm. \times half mm., Each, \$ |
| 1462. | " " " " 20 " " " " " " " |
| 1464. | " " " " 30 " " " " " " " |
| 1466. | " " " " 50 " " " " " " " |

Opposite Bevel Boxwood Scales

These Scales are an improvement over the regular flat shape, as they may be picked up more readily, and present but one graduated bevel when in use.



No. 1471.

Open Divided: $\frac{1}{8}$, $\frac{1}{4} \times \frac{1}{2}$, 1 inch to the foot.

- | | |
|-----------|---|
| No. 1470. | Opposite Bevel Boxwood Scale, 6 in., Each, \$ |
| 1471. | " " " " 12 " " |

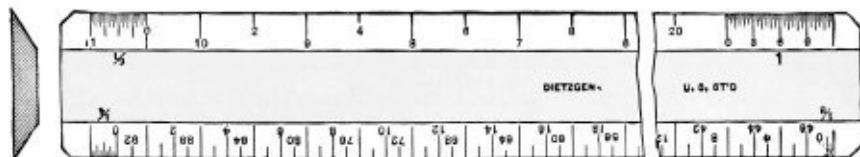
Special Scales, with divisions and numbering different from our regular stock scales, made to order; see page 179.

See Price List in back of Catalog.

Flat White Edge Scales

U. S. Standard Machine Divided

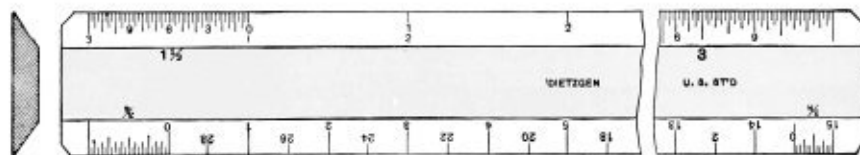
Our White Edge Scales are made of carefully selected, thoroughly seasoned box-wood, with inlaid celluloid facings upon which the divisions are machine-graduated. They are accurate and durable: the divisions are clear and sharp.



No. 1509.

Open Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 inch to the foot.

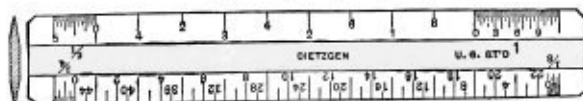
No. 1508.	Flat White Edge Scale, 6 in.,	Each, \$
1509.	" " " " 12 "	"
1513.	" " " " 24 "	"



No. 1517.

Open Divided: $\frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$, 3 inches to the foot.

No. 1516.	Flat White Edge Scale, 6 in.,	Each, \$
1517.	" " " " 12 "	"
1519.	" " " " 24 "	"



No. 1526.

Open Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $1 \times \frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$, 3 inches to the foot.

No. 1526.	Flat White Edge Scale, 6 in., both sides beveled and divided, in leather sheath, less than one inch wide; very convenient for the pocket,	Each, \$
1527.	Flat White Edge Scale, 12 in., both sides bev. and div.,	"
1529.	" " " " 24 " " " " " " " " " "	"

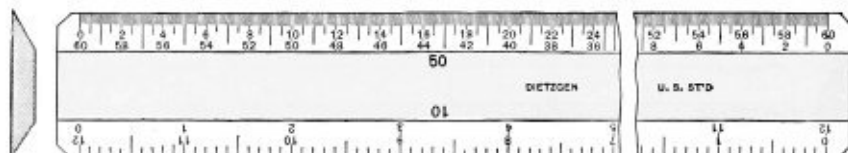
Special Scales, with divisions and numbering different from our regular stock scales, made to order; see page 179.

See Price List in back of Catalog.

Flat White Edge Scales

U. S. Standard Machine Divided

Chain Scales



No. 1546.

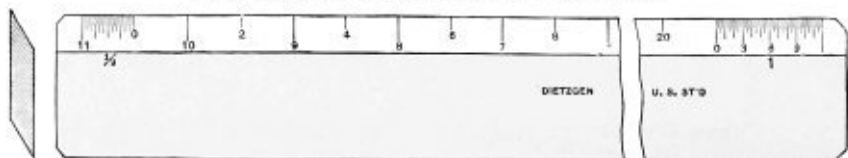
- | | | | | | | |
|-----------|------------------------------|--------|---------|------|---------------|----------|
| No. 1541. | Flat White Edge Chain Scale, | 6 in., | div. 10 | × 50 | parts to in., | Each, \$ |
| 1542. | " " | " " | 6 " | " " | 20 × 40 | " " |
| 1543. | " " | " " | 6 " | " " | 30 × 60 | " " |
| 1544. | " " | " " | 6 " | " " | 80 × 100 | " " |
| 1546. | " " | " " | 12 " | " " | 10 × 50 | " " |
| 1547. | " " | " " | 12 " | " " | 20 × 40 | " " |
| 1548. | " " | " " | 12 " | " " | 30 × 60 | " " |
| 1549. | " " | " " | 12 " | " " | 80 × 100 | " " |



1556

- No. 1556. Flat White Edge Chain Scale, 6 in., both sides beveled and divided, 10 × 40 and 30 × 50 parts to the in., one in. wide, in leather sheath, Each, \$
- 1556A. Like No. 1556, but divided 10 × 50 parts to the in., and $\frac{1}{4} \times \frac{1}{8}$ in. to the foot, Each,
- 1556B. Like No. 1556, but divided 10 × 20 and 30 × 50 parts to the in., "
- 1556C. " " 1556, " " 10 × 20 " 40 × 50 " " " " "

Opposite Bevel White Edge Scales



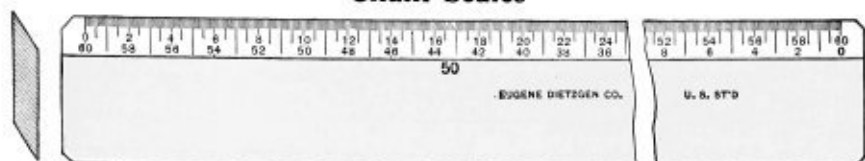
No. 1562.

Open Divided: $\frac{1}{8}$, $\frac{1}{4} \times \frac{1}{2}$, 1 inch to the foot.

- | | | | |
|---|----------------------------------|--------|----------|
| No. 1561. | Opposite Bevel White Edge Scale, | 6 in., | Each, \$ |
| 1562. | " " | 12 " | " " |
| Open Divided: $\frac{3}{8}$, $\frac{3}{4} \times 1\frac{1}{2}$, 3 inches to the foot. | | | |
| No. 1566. | Opposite Bevel White Edge Scale, | 6 in., | " |
| 1567. | " " | 12 " | " |

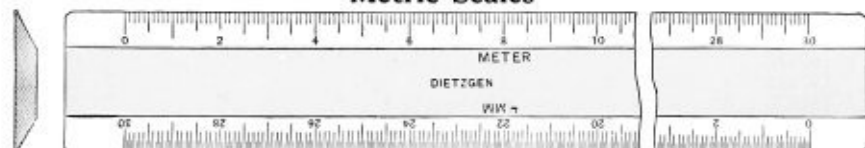
See Price List in back of Catalog.

Flat White Edge Scales U. S. Standard Machine Divided Chain Scales



		No. 1572A.	Each,
No. 1572A.	Opposite Bevel W.E. Chain Scale, 12 in., div. 10 × 50 parts to in.,	* * *	\$
1572B.	" " " " " 12 " " 20 × 40 " " " "	* * *	
1572C.	" " " " " 12 " " 30 × 60 " " " "	* * *	
1572D.	" " " " " 12 " " 80 × 100 " " " "	* * *	

Metric Scales

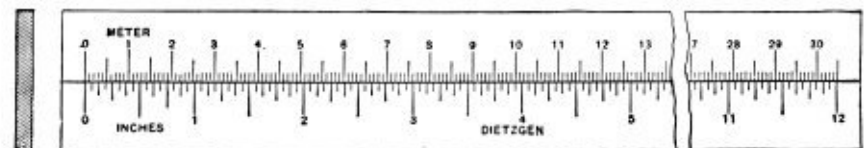


		No. 1574C.	Each,
No. 1574A.	Flat White Edge Metric Scale, 10 cm., div. mm. and half mm.,	* * *	\$
1574B.	" " " " " 20 " " " " " " " "	* * *	
1574C.	" " " " " 30 " " " " " " " "	* * *	
1574D.	" " " " " 50 " " " " " " " "	* * *	

Inch and Metric Scales

No. 1575A.	Flat White Edge Scale, 30 cm., div. $\frac{1}{16}$ in. × half mm.,	Each, \$
------------	--	----------

These scales are excellent for converting plans from one system to another.



		No. 1576A.	Each, \$
No. 1576A.	Flat Inch and Metric Comparing Scale, white facing (not beveled), 30 cm., divided mm. × 16th in.,	* * *	\$

Flexible Celluloid Scale

This scale because of its inexpensiveness, compactness, feather weight and flexibility, has found considerable favor in the school field. It contains the following scales: metric, inch, tenths, eights and fourths. These dimensions are printed on the celluloid, and while the rule is not as accurate as our engine divided boxwood and white edge scales, it is sufficiently accurate for elementary drawing work.

The rule has also found popularity among the profession as a pocket rule for obtaining approximate dimensions of drawings. Because of its size and weight, it recommends itself as being ideally suited for carrying in the vest pocket.



No. 1577 (Front)



No. 1577 (Back)

No. 1577.	Flexible Celluloid Scale, divided front; metric and inches; divided back: 10ths, 8ths, 4ths, sold in dozen lots only,	Doz., \$
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See Price List in back of Catalog.

Flat White Edge Scales

U. S. Standard Machine Divided

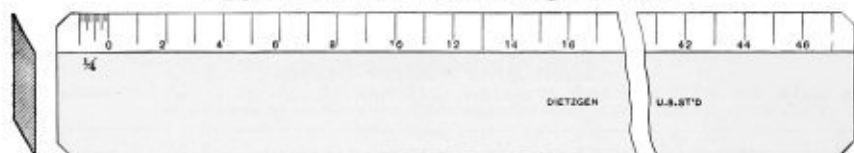


No. 1578A.

Nos. 1578A to 1578G are **open divided** and have the same scale on both edges: one edge is divided and numbered to read from left to right, and the other edge from right to left.

No. 1578A.	Flat White Edge Scale, 12 in., div. $\frac{1}{8}$ inch to the foot,	Each, \$
1578B.	" " " " 12 " " $\frac{1}{4}$ " " " " "	" "
1578C.	" " " " 12 " " $\frac{3}{8}$ " " " " "	" "
1578D.	" " " " 12 " " $\frac{1}{2}$ " " " " "	" "
1578E.	" " " " 12 " " $\frac{3}{4}$ " " " " "	" "
1578F.	" " " " 12 " " 1 " " " " "	" "
1578G.	" " " " 12 " " $1\frac{1}{2}$ " " " " "	" "

Opposite Bevel White Edge Scales



No. 1579B.

Nos. 1579A to 1579G are **open divided** and have the same scale on both edges: one edge is divided and numbered to read from left to right, and the other edge from right to left.

No. 1579A.	Opposite Bevel White Edge Scale, 12 in., div. $\frac{1}{8}$ in. to foot,	Each, \$
1579B.	" " " " 12 " " $\frac{1}{4}$ " " " " "	" "
1579C.	" " " " 12 " " $\frac{3}{8}$ " " " " "	" "
1579D.	" " " " 12 " " $\frac{1}{2}$ " " " " "	" "
1579E.	" " " " 12 " " $\frac{3}{4}$ " " " " "	" "
1579F.	" " " " 12 " " 1 " " " " "	" "
1579G.	" " " " 12 " " $1\frac{1}{2}$ " " " " "	" "



No. 1580M.

Nos. 1580K to 1580P are **full divided** and have the same scale on both edges: one edge is divided and numbered to read from left to right, and the other edge from right to left.

No. 1580K.	Opposite Bevel White Edge Scale, 12 in., div. $\frac{1}{8}$ in. to inch,	Each, \$
1580L.	" " " " 12 " " $\frac{1}{4}$ " " " " "	" "
1580M.	" " " " 12 " " $\frac{1}{2}$ " " " " "	" "
1580P.	" " " " 12 " " 1 " " " " "	" "

See Price List in back of Catalog.

Flat White Edge Scales

U. S. Standard Machine Divided

Opposite Bevel White Edge Scales



No. 1580R.

$\frac{1}{8}$ and $\frac{1}{4}$ size scale.

No. 1580R is full divided and has a different scale on each edge: both edges are divided and numbered to read from left to right.

- No. 1580R. Opposite Bevel White Edge Scale, 12 in., Each, \$
 1580RH. Like No. 1580R, but 6 in., "



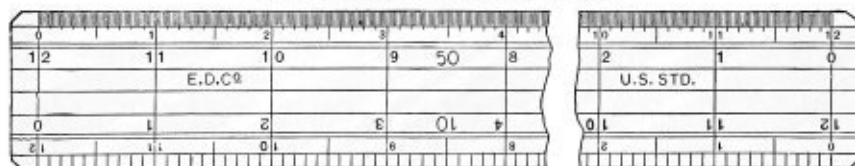
No. 1580S.

$\frac{1}{2}$ and full size scale.

No. 1580S is full divided and has a different scale on each edge: both edges are divided and numbered to read from left to right.

- No. 1580S. Opposite Bevel White Edge Scale, 12 in., Each, \$
 1580SH. Like No. 1580S, but 6 in., "

Underwriters' Scales



No. 1583B.

- No. 1583A. Underwriters' Scale, flat, transparent celluloid, 6 in., both edges beveled and divided 10 X 50 parts to the inch, Each, \$
 1583B. Like No. 1583A, but 12 inch, "

Miscellaneous Graduations

- | | | Each, |
|------------|--|-------|
| No. 1584A. | Flat Two-beveled W.E. Scale, 12 in., div. $\frac{1}{2} \times 1$ in. to the foot, | \$ |
| 1584B. | " " " " " " 12 " " $\frac{1}{4} \times \frac{1}{8}$ " " " " | " |
| 1584C. | " " " " " " 12 " " $\frac{1}{4} \times \frac{1}{8}$ " " " " $\frac{1}{8}$ in., | " |
| 1584D. | Opposite Bevel " " " " 12 " " $\frac{1}{4} \times 3$ " " " " $\frac{1}{8}$ in., | " |
| 1584DX. | " " " " " " 12 " " 16×32 parts to the inch, | " |
| 1584E. | Flat Two-beveled " " " " 12 " " 10×16 " " " " | " |
| 1584F. | " " " " " " 12 " " $\frac{1}{8}, \frac{1}{4} \times \frac{3}{8}, \frac{3}{4}$ in. to the foot, | " |
| 1584G. | " " " " " " 12 " " $\frac{1}{8}, \frac{1}{4} \times \frac{3}{4}, 1\frac{1}{2}$ " " " " | " |
| 1584H. | " " " " " " 12 " " 16×32 parts to the inch, | " |
| 1584J. | " " " " " " 12 " " 64×100 " " " " | " |

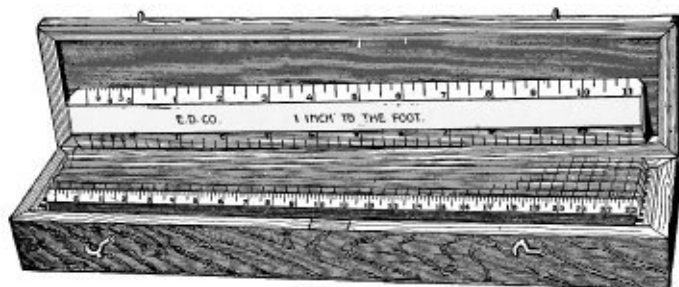
See Price List in back of Catalog.



Flat Scales in Sets

U. S. Standard

Machine Divided



No. 1596.

Nos. 1585B to 1597B are **open divided** and have the same scale on both edges: one edge is divided and numbered to read from left to right, and the other edge from right to left.

- No. 1585B. Set of 8 Boxwood Scales, 12 in. Flat two bevel scales.
Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 3 inches to the foot, . Set, \$
1595. Set of 4 White Edge Scales, 12 in. Flat two bevel scales.
Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 inch to the foot, Set,
- 1595B. Like No. 1595, but with 4 **Opposite Bevel White Edge Scales**,
12 in., Set,
1596. Set of 8 White Edge Scales, 12 in. Flat two bevel scales.
Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 3 inches to the foot, . Set,
- 1596B. Like No. 1596, but with 8 **Opposite Bevel White Edge Scales**,
12 in., Set,
1597. Set of 12 White Edge Scales, 12 in. Flat two bevel scales.
Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, 3, 4, 6 and 12 inches to
the foot, "
- 1597B. Like No. 1597, but with 12 **Opposite Bevel White Edge Scales**,
12 in., Set,

No. 1601 is **full divided** and has a different scale on each edge: each edge is numbered to read both ways.

- No. 1601. Set of 4 White Edge Scales, 12 in. Flat two bevel scales.
Divided: 10 and 50, 20 and 40, 30 and 60, 80 and 100 parts to
the inch, Set, \$

Nos. 1605 and 1606 are **full divided** and have the same scale on both edges: each edge is numbered to read both ways.

- No. 1605. Set of 6 White Edge Scales, 12 in. Flat two bevel scales.
Divided: 10, 20, 30, 40, 50, 60 parts to the inch, Set, \$
1606. Set of 8 White Edge Scales, 12 in. Flat two bevel scales.
Divided: 10, 20, 30, 40, 50, 60, 80, 100 parts to the inch, "

See Price List in back of Catalog.

Triangular Scales

U. S. Standard



Machine Divided

For explanation of "Regular Shape" Scales, see next page.

For Architects and Mechanical Engineers



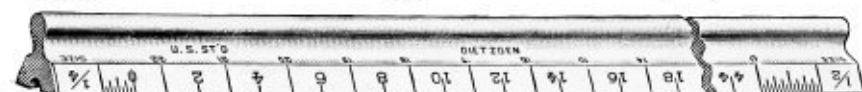
No. 1626.

Open Divided: $\frac{3}{32}, \frac{3}{16}, \frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 3$ in. to the foot, $\frac{1}{16}$ in.

- | | | |
|-----------|---|----------|
| No. 1625. | Triangular Boxwood Scale, 6 in., Regular Shape, | Each, \$ |
| 1626. | " " " " 12 " " " " " | " " |
| 31626. | " Hardwood Scale, 12 in., " " " " | Doz., |

Open Divided: $\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{2}, 2, 3, 4$ in. to the foot, $\frac{1}{16}$ in.

- | | | |
|-----------|--|----------|
| No. 1631. | Triangular Boxwood Scale, 12 in., Regular Shape, | Each, \$ |
| 1632. | " " " " 18 " " " " " | " " |

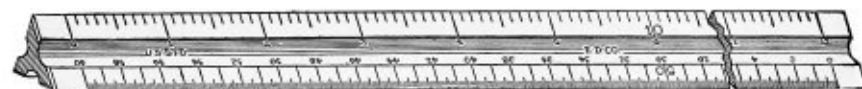


No. 41626.

Open Divided: $\frac{1}{8}, \frac{1}{4}, \frac{1}{2}, 1, \frac{3}{8}, \frac{3}{4}$ in. to the foot, $\frac{1}{16}$ in.

- | | | |
|------------|--|----------|
| No. 41626. | Triangular Boxwood Scale, 12 in., with one rounded edge, | Doz., \$ |
|------------|--|----------|

For Civil Engineers and Surveyors



No. 1636.

Divided: 10, 20, 30, 40, 50, 60 parts to the inch.

- | | | |
|-----------|---|----------|
| No. 1635. | Triangular Boxwood Chain Scale, 6 in., Regular Shape, | Each, \$ |
| 1636. | " " " " 12 " " " " " | " " |
| 31636. | " Hardwood Chain Scale, 12 in., " " " " | Doz., |
| 1637. | " Boxwood Chain Scale, 18 in., Regular Shape, | Each, |

Divided: 20, 30, 40, 50, 60, 80 parts to the inch.

- | | | |
|-----------|--|----------|
| No. 1640. | Triangular Boxwood Chain Scale, 12 in., Regular Shape, | Each, \$ |
| 1643. | " " " " 12 " divided: 100, 200, | " |
| | 300, 400, 500, 600 parts to the foot, Regular Shape, | " |

Triangular Boxwood Metric Scales

Divided: .01, .02, .03, .05, .025 and .0125.

- | | | |
|-----------|---|----------|
| No. 1647. | Triangular Boxwood Metric Scale, 20 cm., Regular Shape, | Each, \$ |
| 1648. | " " " " 30 " " " " " | " " |
| 1649. | " " " " 50 " " " " " | " " |

Special Scales, with divisions and numbering different from our regular stock scales, made to order; see page 179.

See Price List in back of Catalog.

Triangular White Edge Scales

U. S. Standard

Machine Divided



Regular



Full Sized Section



Relieved Facet

Our Triangular White Edge Scales are made in two styles: **Regular** and **Relieved Facet** shapes. The regular shape scales permit the full surface of both facets to be in contact with the drawing, giving a wide bearing surface and thus preventing the divisions on the edges from wearing off as quickly as on the Relieved Facet shape. The visual angle of the latter style, however, enables an easier reading of the scales. Each style, therefore, has its advantages, and we leave the selection to the preference of the purchaser.

For Architects and Mechanical Engineers



No. 1656

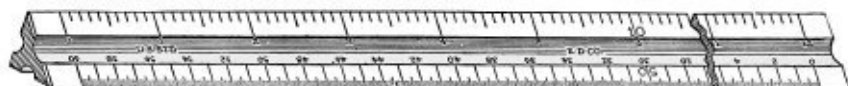
Open Divided: $\frac{3}{32}$, $\frac{3}{16}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 3 in. to the foot, $\frac{1}{2}$ in. Each,

- | | | | |
|-----------|-------------------------------------|-----------------------|----|
| No. 1655. | Triangular White Edge Scale, 6 in., | Regular Shape, | \$ |
| 1655B. | " " " " 6 " | Relieved Facet Shape, | |
| 1656. | " " " " 12 " | Regular Shape, | |
| 1656B. | " " " " 12 " | Relieved Facet Shape, | |

Open Divided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 2, 3, 4 in. to the foot, $\frac{1}{2}$ in.

- | | | | |
|-----------|--------------------------------------|-----------------------|--|
| No. 1661. | Triangular White Edge Scale, 12 in., | Regular Shape, | |
| 1661B. | " " " " 12 " | Relieved Facet Shape, | |
| 1663B. | " " " " 24 " | Relieved Facet Shape, | |

For Civil Engineers and Surveyors



No. 1667

Divided: 10, 20, 30, 40, 50, 60 parts to the inch. Each,

- | | | | |
|-----------|--|--|----------------|
| No. 1665. | Triangular White Edge Chain Scale, 6 in., | Regular Shape, | \$ |
| 1665B. | " " " " 6 " | Relieved Facet Shape, | |
| 1667. | " " " " 12 " | Regular Shape, | |
| 1667B. | " " " " 12 " | Relieved Facet Shape, | |
| 1669B. | " " " " 24 " | Relieved Facet Shape, | |
| 1681. | Triangular White Edge Chain Scale, 12 in., | divided: 20, 30, 40, 50, 60, 80 parts to the inch, | Regular Shape, |
| 1681B. | Like No. 1681, but | Relieved Facet Shape, | |
| 1682. | Triangular White Edge Chain Scale, 12 in., | divided: 100, 200, 300, 400, 500, 600 parts to the foot, | Regular Shape, |
| 1682B. | Like No. 1682, but | Relieved Facet Shape, | |

Triangular White Edge Metric Scales

- | | | | | |
|-----------|---|--|-----------------------|----------|
| No. 1683. | Triangular White Edge Metric Scale, 30 cm., | divided: .01, .02, .03, .05, .025 and .0125, | Relieved Facet Shape. | Each, \$ |
|-----------|---|--|-----------------------|----------|

See Price List in back of Catalog.

Metal Scales



No. 1689G.

- | | | | | |
|------------|----------------------|-----------------|--------------------|----------|
| No. 1689G. | Metal Scale, 12 in., | div. 16 × 32 | parts to the inch, | Each, \$ |
| 1689H. | " " " | 12 " " 32 × 64 | " " " " " | " " |
| 1689J. | " " " | 12 " " 64 × 100 | " " " " " | " " |

Triangular Scale Guard



No. 1692.

- No. 1692. Triangular Scale Guard, nickel-plated, Each, \$

Paper Scales

Printed on heavy Bristol Board



No. 1700.

- | | | |
|-----------|---|---------------------|
| No. 1700. | Paper Scales, 18 × 1 3/4 inches, full divided, 1/8, 1/4, 3/8, 1/2, 3/4, 1, 1 1/2, 3 inches to the foot, | Set of 8 scales, \$ |
| | Single Scales, | Each, |
| 1704. | Paper Scales, 18 × 1 3/4 inches, full divided, 10, 20, 30, 40, 50, 60 parts to the inch, | Set of 6 scales, |
| | Single Scales, | Each. |
| 1706. | Metric Paper Scales, 1/2 meter long, divided in mm., | " |
| 1708. | Metric and Inch Comparing Scale, 1/2 meter long, | " |
| 1710. | Scale of Proportional Inches, 12 in. long, div. 1/8, 1/4, 1/2, 1/1, | " |

See Price List in back of Catalog.

Map Measures



No. 1718.



1719A.



1719B.



1723.

No. 1718. Map Measure, $4\frac{3}{4}$ in., metal swivel handle, with lock nut, dial $1\frac{1}{8}$ in., registering inches up to 39 in., in $\frac{1}{2}$ inches, and centimeters up to 99 centimeters. Each, \$

1719A. Map Measure, nickel-plated, $1\frac{3}{16}$ in. diameter, registering 25 ft. in ft., inches and eighths inches on the dial, with nickel-plated tracing wheel divided in 32nds of inches, with long handle. "

1719B. Map Measure, graduated like No. 1719A, but 1 in. in diameter, with long handle "

1723. Map Measure, watch pattern, nickel-plated, $1\frac{3}{4}$ inch diameter; three dials registering 100 feet in feet, inches and eighth inches, with device for setting hands back to zero, "

To measure a line, first set the instrument to 0, then holding the instrument vertically, follow the line carefully in one direction with the small projecting tracer wheel. The length of the line in feet, inches and eighths will be indicated by the index hands on the dial.

See Price List in back of Catalog.

Slide Rules

The Slide Rule, an instrument for facilitating calculations, is an indispensable aid, not only to the engineer and scientist with their involved problems, but also to the accountant, statistician, manufacturer, merchant, importer, freight agent, or anyone who has calculations to solve.

A knowledge of the principles which underlie the workings of the Slide Rule is not necessary for its successful operation. We have, however, published and furnish gratis with each rule, an exhaustive though brief explanation of this subject specifically applicable to each of our rules. The booklets, "Mannheim Slide Rule," "Phillips Slide Rule," and the "Maniphase Slide Rule" are listed under Nos. 1786M, 1786P, and 1786S, respectively.

Dietzgen's Slide Rules are made of carefully selected well-seasoned mahogany, and accurately engine divided on white celluloid. The long seasoning process, excellent workmanship, scientific methods, and specially designed machines used in their manufacture account for the high quality and accuracy of our rules.

Mannheim Style Slide Rule

The Mannheim style Rule shown on Page 196 was perfected by Lieut. Mannheim, a French Artillery Officer. It has single logarithmic scales on the lower face of the slide and rule, and double scales on the upper. A sliding indicator, used for finding coinciding points on the scales, permits working out extensive calculations without taking intermediate readings.

Scales of Sines, Tangents, and of Equal Parts are on the under face of the slide. Index marks on the under face of the rule permit these scales to be used in conjunction with the scales on the upper face of the rule, giving a number of ratios and settings.

Maniphase Style Slide Rule

The Maniphase Rule is of a design and scale arrangement similar to the Mannheim but has in addition, a cube scale "K" above the double scale "A" on the face of the rule, and an inverted single reciprocal scale "CI" on the face of the slide, which is in reverse relation to the single scales "C" and "D."

With the Maniphase Rule, problems involving three factors, or fractional powers and roots and reciprocals can be solved with one setting of the slide.

Phillips Style Slide Rule

The Phillips Rule is like the Maniphase Rule except that it has an inverted double reciprocal scale "R" instead of the single scale on the face of the slide, which is in reverse relation to the double scales "A" and "B."

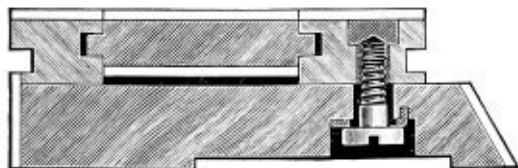
The Phillips Rule has the same advantages as the Maniphase. Its difference, a matter of individual preference, is the scales to which the reciprocal scale "R" is related.

Dividing and Numbering of Slide Rules

The subdivisions of the 5 inch rule range from 50 down to 10 between the prime numbers. The 8 inch rule is divided twice as close as the 5 inch, having subdivisions ranging from 100 down to 20 between the prime numbers. The 10 inch rule, considered standard, is subdivided the same as the 8 inch. The 20 inch rule is divided more closely than the 8 and 10 inch rules, having subdivisions ranging from 200 down to 50 between the prime numbers.

Great care is used in graduating and numbering our rules to make them as clear, distinct, legible and permanent as possible.

Dietzgen's Slide Adjustment



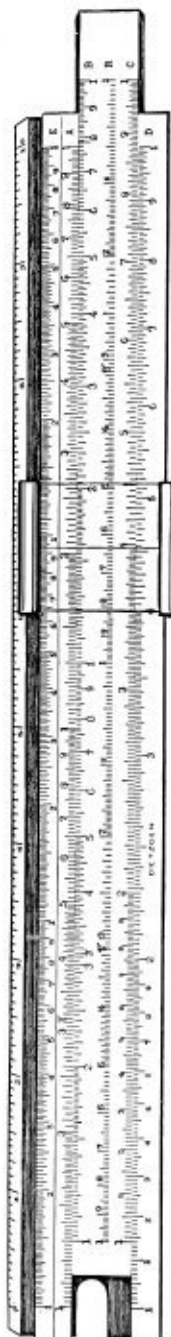
Screw Adjustment.

Climatic and atmospheric changes affect the materials of which the Slide Rule is made, notwithstanding the previous seasoning of the wood or treatment of the celluloid. To prevent the slide from binding or becoming loose, thus impairing the operation of the rule, the upper grooved guide is made adjustable for varying the friction of the slide.

In the Screw Slide Adjustment, set screws are placed in the guide which extend through oblong slots in the body of the rule. These screws hold the guide rigidly when the screws are tight; yet quick and accurate adjustments can be made, according to the friction desired when the screws are loosened.

See Price List in back of Catalog.

Phillips Slide Rule



The Phillips Slide Rule, of the Mannheim type, has in addition to the regular scales A, B, C, and D of the Mannheim, a cube scale "E" on the face of the rule above the "A" scale, and an inverted reciprocal scale "R" on the face of the slide.

The cube scale "E" consists of three consecutive logarithmic scales of one-third unit length of the "C-D" scales to which it is referred. Cubes and cube roots can be read directly on these scales.

The reciprocal scale "R" is an inverted, double logarithmic scale of the same unit length as the "A-B" scales to which it is referred. This scale permits rapid reading of divisions and inverse proportions, and enables three factors, such as $97 \times 98 \times 99$, to be taken without resetting the slide. It is a unique scale found only on the Phillips rule.

The back of the slide has a scale of sines, tangents and of equal parts which are indexed to be used with other scales. These scales, together with the sliding indicator, permit almost any combination of three factors involving cubes, squares, roots, and fractional powers or roots, together with trigonometrical or logarithmical functions to be solved without resetting the slide.

The beveled side is divided into inches and $\frac{1}{8}$ inches; the vertical side is divided into centimeters, thus permitting the rule to be used for measuring and ruling lines which is a material aid in calculations involving the construction of figures.

A table of settings for converting the English system of weights and measures to the Metric system, and also the conversion of many physical constants to other equivalent units is printed on the back of the rule.

8 inch Rule.

No. 1738P. Phillips Slide Rule, 8 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$

1738L. Like No. 1738P but in sewed leather case, Each,

The 8 in. rule is as closely divided as the ordinary 10 in. rule.

10 inch Rule.

1740P. Phillips Slide Rule, 10 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$

1740L. Like No. 1740P but in sewed leather case, Each,

1740M. Like No. 1740L in sewed leather case, with magnifier, Each,

20 inch Rule.

1742P. Phillips Slide Rule, 20 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$

1742L. Like No. 1742P but in sewed leather case, Each,

Rules Nos. 1742P and 1742L are divided more closely than the ordinary 10 in. rules. The subdivisions range from 200 down to 50 between prime numbers, whereas the 10 in. rules range from 100 down to 20. This permits closer reading on 20 in. rule than on 10 in. rule, to the extent often of one additional significant figure.

No. 1740P.

See Price List in back of Catalog.

Maniphase Slide Rule

The Maniphase Slide Rule, of the Mannheim type, has in addition to the regular scales A, B, C, and D of the Mannheim, a cube scale "K" on the face of the rule above the "A" scale, and an inverted single reciprocal scale "CI" on the face of the slide.

The cube scale "K" consists of three consecutive logarithmic scales of one-third unit length of the "C-D" scales to which it is referred. Cubes and cube roots can be read directly on these scales.

The reciprocal scale "CI" is an inverted, single logarithmic scale of the same unit length as the "C-D" scale to which it is referred. This scale permits closer reading, and being referred to the basic reference scale "D", minimizes setting in involved problems. It also enables three factors to be taken with one setting of the slide. Divisions can be rapidly executed and reciprocals read by means of the indicator.

The back of the slide has a scale of sines, tangents, and of equal parts which are indexed to be used with the other scales. These scales, together with the sliding indicator, permit almost any combination of three factors involving cubes, squares, roots, and fractional powers or roots, together with trigonometrical or logarithmical functions to be solved without resetting the slide.

The beveled side is divided into inches and $\frac{1}{4}$ inches; the vertical side is divided into centimeters, thus permitting the rule to be used for measuring and ruling lines which is a material aid in calculations involving the construction of figures.

A table of settings for converting the English system of weights and measures to the Metric system, and also the conversion of many physical constants to other equivalent units is printed on the back of the rule.

8 inch Rule.

- No. 1748P. Maniphase Slide Rule, 8 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1748L. Like No. 1748P but in sewed leather case, Each,

The 8 in. rule is as closely divided as the ordinary 10 in. rule.

10 inch Rule.

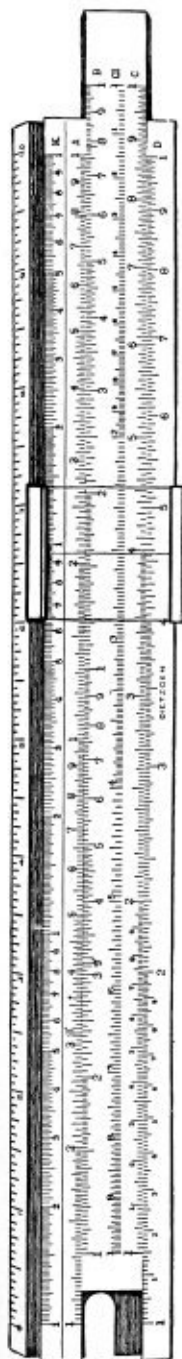
- No. 1750P. Maniphase Slide Rule, 10 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1750L. Like No. 1750P but in sewed leather case, Each,
- 1750M. Like No. 1750L in sewed leather case, with magnifier, Each,

20 inch Rule.

- No. 1752P. Maniphase Slide Rule, 20 in., screw adjustment, engine divided on white celluloid, with cube and reciprocal scale. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1752L. Like No. 1752P but in sewed leather case, Each,

Rules Nos. 1752P and 1752L are divided more closely than the ordinary 10 in. rules. The subdivisions range from 200 down to 50 between prime numbers, whereas the 10 in. rules range from 100 down to 20. This permits closer reading on 20 in. rule than on 10 in. rule to the extent often of one additional significant figure.

See Price List in back of Catalog.



No. 1750P.

Mannheim Slide Rule

The Mannheim Slide Rule is sturdily designed, having a range of use sufficient for all ordinary commercial and engineering work.

These rules are made of thoroughly seasoned mahogany, and accurately engine divided on white celluloid. The face of the rule and slide has four scales, referred to as A, B, C, and D. The A and B scales are double logarithmic scales. The C and D scales are single logarithmic.

The back of the slide has a sine, a logarithm and a tangent scale, which are indexed to be used with the scales on the face of the rule.

By means of these various scales and the use of the sliding indicator, problems involving squares and square roots and many higher powers and roots and also problems containing trigonometrical functions, or logarithms, can readily be solved.

The rule has a clear, open face, making it easy to read the graduations. The beveled side is divided into inches and $\frac{1}{16}$ inches; the vertical side is divided into centimeters, thus permitting the rule to be used for measuring and ruling lines which is a material aid in calculations involving the construction of figures.

A table of settings for converting the English system of weights and measures to the Metric system, and also the conversion of many physical constants to other equivalent units is printed on the back of the rule.

5 inch Rule.

- No. 1755P. Mannheim Slide Rule, 5 in., engine divided on white celluloid. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1755L. Like No. 1755P but in sewed leather case, Each,

The 5 in. rule divisions range from 50 down to 10 subdivisions between prime numbers, whereas ordinary 10 in. rules range from 100 down to 20.

8 inch Rule.

- No. 1758P. Mannheim Slide Rule, 8 in., engine divided on white celluloid. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1758L. Like No. 1758P but in sewed leather case, Each,

The 8 in. rule is as closely divided as the ordinary 10 in. rule.

10 inch Rule.

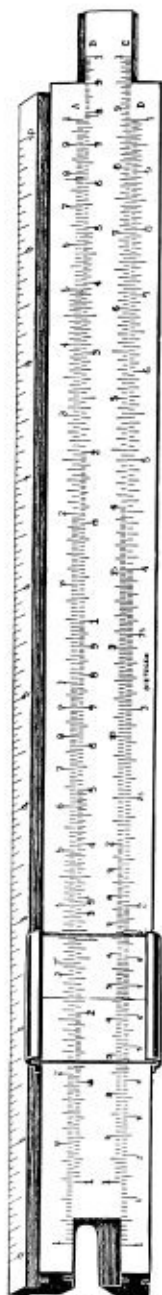
- No. 1760P. Mannheim Slide Rule, 10 in., engine divided on white celluloid. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1760L. Like No. 1760P but in sewed leather case, Each,
- 1760M. Like No. 1760L but in sewed leather case with magnifier, Each,

20 inch Rule.

- No. 1762P. Mannheim Slide Rule, 20 in., engine divided on white celluloid. Glass "frameless" indicator. In case, with book of instructions, Each, \$
- 1762L. Like No. 1762P but in sewed leather case, Each,

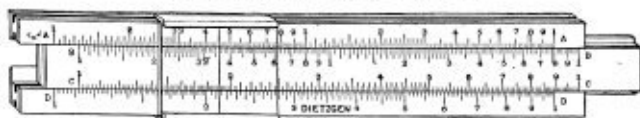
Rules Nos. 1762P and 1762L are divided more closely than the ordinary 10 in. rules. The subdivisions range from 200 down to 50 between prime numbers, whereas the 10 in. rules range from 100 down to 20. This permits closer reading on 20 in. rule than on 10 in. rule to the extent often of one additional significant figure.

See Price List in back of Catalog.



No. 1760P.

Union Slide Rule



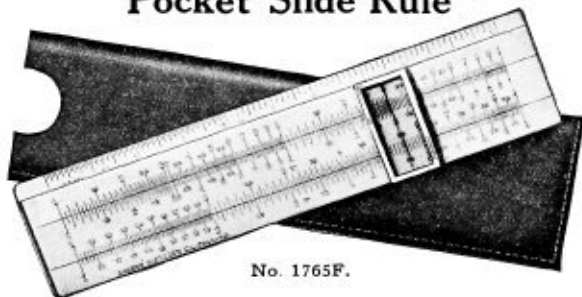
No. 1770P.

No. 1770P. Union Slide Rule, (Mannheim) 10 in., engine divided on white celluloid. Glass "frameless" indicator. In plain case, with book of instructions Each, \$

This rule has the "A" and "D" scales attached to a flexible back, substantially of the same white celluloid material as the face of the slide and scale. This construction permits a uniform expansion and contraction under atmospheric changes; the slide remains true and works smoothly at all times.

It is recommended to those who desire the convenience of a light compact rule having the accuracy and range of the heavier types.

Pocket Slide Rule



No. 1765F.

No. 1765F. Pocket Slide Rule, (Mannheim), made of thoroughly seasoned white celluloid, accurately divided, measures $1\frac{1}{8}$ wide, $\frac{1}{8}$ thick and $5\frac{1}{2}$ long, overall, with a 5" scale on the face. Furnished in soft leather sheath, Each, \$



Illustration shows actual thickness of rule.

Dietzgen celluloid pocket slide rule No. 1765F is especially adapted for carrying in the pocket; it is both compact in size and light in weight.



No. 1780-1.



No. 1780-4.

Glass Indicators for Slide Rules

- No. 1780-1.** Glass Frameless Indicator, all figures always visible, one hair line, for rules with $1\frac{1}{8}$ in. face—Phillips, Maniphase, and Mannheim Each, \$
- 1780-2.** Like No. 1780-1 but for rules with 1 in. face—Union, and former Mannheim, Nos. 1768, 1768L, and 1769 and Multiplex 1760A, 1760B and 1761B Each, \$
- 1780-4.** Glass Frameless Indicator, all figures always visible, one hair line, for rules with $1\frac{1}{8}$ in. face, with lip on side for cube index—Former Nos. 1759A, 1759B, 1759C and 1772P Each, \$
- 1780-5.** Like No. 1780-4 but for rules with 1 in. face Each, \$

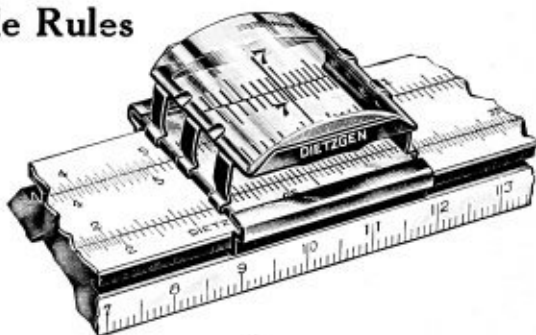
When ordering glass indicators, always specify our catalog numbers stamped on end of rule on which the indicator is to be used. For a rule with the cube scale on the side, or for any rule which you cannot identify, either of our or any other manufacture, it is advisable to send us the Slide Rule so that the frameless indicator can be fitted properly.

See Price List in back of Catalog.

Magnifier for Slide Rules



No. 1781.



This Magnifier is securely held by means of a metal frame which allows the hair line to be in focus at all times. The full area of the indicator is in focus and the magnification such as to permit easy reading of the finest graduations. The improved type construction of this magnifier allows it to be easily mounted or removed from the rule.

No. 1781. Magnifier for slide rules with 1 or 1½ in. face—Phillips, Maniphase and Mannheim, Each, \$

Sewed Leather Cases for Slide Rules



No. 1782-1.

Each,

- | | | | | |
|-------------|--------------------|--------------------------------------|-----------|----|
| No. 1782-1. | Sewed Leather Case | for 5 in. Mannheim, | | \$ |
| 1782-2. | " " " | " 8 " Phillips, Maniphase, Mannheim, | | \$ |
| 1782-3. | " " " | " 10 " " " " | | \$ |
| 1782-4. | " " " | " 20 " " " " | | \$ |

Sewed Leather Cases with Space for Magnifier



No. 1783-3.

- | | | | |
|-------------|--|-----------|----------|
| No. 1783-2. | Sewed Leather Case; magnifier space, for 8 in. Phillips, Maniphase, and Mannheim, | | Each, \$ |
| 1783-3. | Sewed Leather Case; magnifier space, for 10 in. Phillips, Maniphase, and Mannheim, | | Each, \$ |
| 1783-4. | Sewed Leather Case; magnifier space, for 20 in. Phillips, Maniphase, and Mannheim, | | Each, \$ |

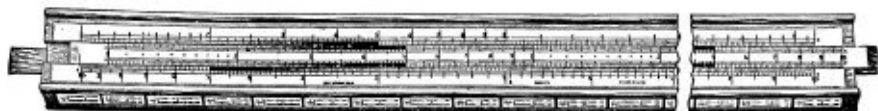
Books of Instructions for Slide Rules

- | | | | |
|------------|---|-----------|----------|
| No. 1786M. | "The Mannheim Slide Rule." A self teaching practical manual with numerous illustrations and problems, | | Each, \$ |
| 1786P. | "The Phillips Slide Rule." A self teaching practical manual with numerous illustrations and problems, | | Each, \$ |
| 1786S. | "The Maniphase Slide Rule." A self-teaching, practical manual with numerous illustrations and problems, | | Each, \$ |

See Price List in back of Catalog.



Engineers Slide Rule



No. 1792.

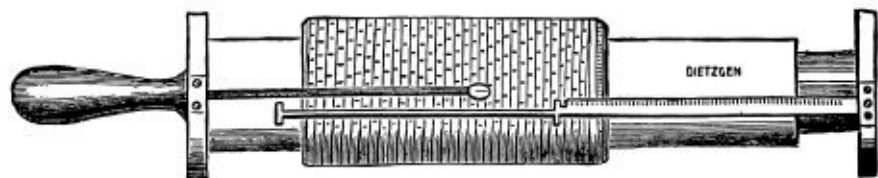
No. 1792. Engineers Slide Rule, 24 in., Hardwood, with directions, . Each, \$

This is an improved Slide Rule, arranged by Edwin Thacher and E. M. Scofield, Bridge Engineers, in order to combine a maximum of speed with a maximum of accuracy, It is 24 inches long and comprises two complete rules upon one stick.

It multiplies three numbers at one setting, gives powers and roots and has an accuracy equal to a 48 inch rule for ordinary work. No runner is required. Directions for using are engraved on each rule.

Fuller Slide Rule

Length of Scale—500 inches, 7,250 divisions



No. 1794.

No. 1794. Fuller Spiral Slide Rule, in mahogany box, with directions, . Each, \$

This form of Calculating Machine, which is the simplest yet made, greatly facilitates solving the numerous arithmetical calculations required in the office of the Engineer and Architect.

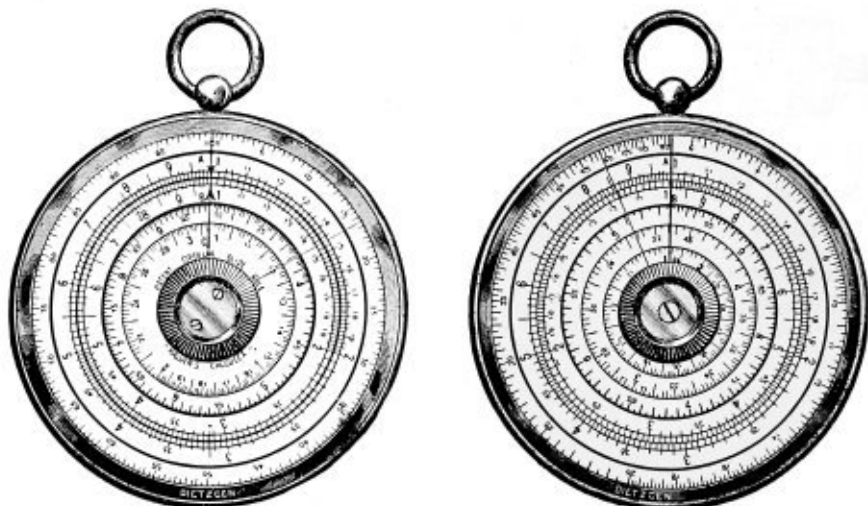
Its range is greater than that of most arithmetical machines. In addition to the operations of multiplication and division, which many instruments only can perform, results requiring the reciprocals, powers, roots, or logarithms of numbers, can be quickly and easily obtained by its use.

The Rule consists of a cylinder that can be moved up and down upon, and turned round, an axis. This axis is provided with a handle, so that the rule may be held in the hand or, if desired, the handle can be attached to the case and rule operated in this position. Upon the cylinder is wound in a spiral a single logarithmic scale. Fixed to the handle is an index. Two other indices, whose distance apart is the axial length of the complete spiral, are fixed to an inner cylinder. This inner cylinder slides inside the axis like a telescope tube, and thus enables the operator to place these indices in any required position relative to the logarithmic scale. Two stops are so fixed that when they are brought in contact the index points to the commencement of the scale.

The use of Slide Rules has been confined to roughly approximate calculations, as the length of scale hitherto made was sufficient only for about 160 divisions. On this rule the length of scale is 500 inches and the number of divisions 7,250, consequently the approximation obtained by its use is sufficient for most of the calculations required by Engineers and Architects.

See Price List in back of Catalog.

Halden Calculex



No. 1795A. Improved Halden Calculex, Watch Pattern, diameter $2\frac{3}{8}$ in., in leather wallet case, with leather bound instruction booklet, Each, \$

The Improved Halden Calculex is as convenient and handy as a Watch and is the most practical and durable circular slide rule manufactured.

The Calculex provides all the advantages of a slide rule and pocket calculator. It is $2\frac{3}{8}$ in. in diameter and about $\frac{3}{8}$ in. thick, fitting conveniently into the vest pocket. It consists of two concentric metal discs, graduated in a manner similar to the slide rule, having glass covers or cursors on both sides.

On one side there are two logarithmic scales, A and B, for multiplication, division, proportion, etc., which correspond to the A and B scales of an ordinary slide rule. Around the outer edge is a scale of logarithms, which is read with a cursor in the usual manner. The two inner circles contain a scale of square roots, which is likewise read by the cursor.

The other side contains scales A and B, but for inverse proportion, and since they are adjacent to each other, they may be set and read without the cursor, giving a great range of proportions for each setting. Around the outer edge is a scale of angles and the three inner circles contain a cube root scale which may be read directly from scale B on that side by the use of the cursor.

The simple construction makes it easy to use the instrument. The graduated metal discs cannot warp or shrink, nor lose the accuracy of the graduations. Atmospheric changes do not affect the smooth and easy working of the scales, because they are made of metal.

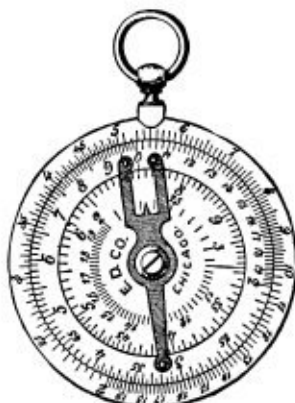
The back cursor is amber colored, distinguishing it from the front cursor which is made of clear glass. Errors in reading are thereby minimized, and the rapidity with which the instrument can be used is increased.

The Calculex comes packed in a handsome limp leather case with a leather covered booklet (vest pocket size) containing rules, tables, and formulae for its use.

See Price List in back of Catalog.

Charpentier Calculator

The Charpentier Calculator is a circular slide rule, $2\frac{3}{8}$ in. diameter, with a circular slide which is revolved and set by the handle. This instrument reads scale against scale like the ordinary slide rule, and being made of metal, is but slightly affected by atmospheric variations. Square roots, sines, and tangents, as well as logarithms, may be found with it, and as the circular scale is equivalent to a straight one $5\frac{7}{8}$ in. long, results may be read off with a fair degree of accuracy. The small dimensions and light weight of the instrument make it very suitable for pocket use.



No. 1796.

No. 1796. Charpentier Calculator, . . . Each, \$

Boucher Calculator



No. 1797.

The Boucher Calculator is made similar to an ordinary stem-winding watch, with glass covered dials back and front. Ratios are set off by means of pointers which, as well as the movable dial, are turned by means of the "stem-winder" key. It is $2\frac{1}{16}$ inches in diameter by $\frac{9}{16}$ inch thick, and does not take up more room in the pocket than an ordinary watch.

No. 1797. Boucher Calculator, enameled cardboard dials, Each, \$

1797 $\frac{1}{2}$. Like No. 1797, but silvered metal dials, "

See Price List in back of Catalog.



Planimeters

These ingeniously devised instruments rank high among the various modern mechanical aids to the calculations and computations necessary in the work of Mechanical, Civil and Naval Engineers.

The Planimeter affords the most simple and convenient method of measuring the area of plane surfaces on drawings and plans. The accuracy of the results which can be obtained, when the instrument is carefully made and properly used, is so great that the Planimeter is now an indispensable aid to a constantly increasing number of the most progressive members of the engineering profession. In cases of irregular figures, the results obtained by the Planimeter can not be equaled in accuracy by any compass and scale method of mensuration; and the time saved by using the instrument in such cases is very considerable. We carry in stock two types of Planimeters: the Polar Planimeter and the Rolling Planimeter.

The Polar Planimeter, as its name implies, revolves with its tracer arm around a pole, and is therefore limited in its application by the length of the two arms, so that larger areas have to be measured in sections. The Rolling Planimeter differs from the Polar Planimeter in that it moves on two broad rollers. As the travel of these rollers is not limited, areas of any length, but not exceeding in width the movement of the tracer arm, can be measured in one operation.

Contrary to the prevalent idea, Planimeters are not difficult to use, but are, in fact, very simple to operate. Complete directions are furnished with each instrument.



No. 1800.

- No. 1800. Polar Planimeter, tracer arm of fixed length, adjusted for vernier unit of .01 square inch, adjustable support for tracer arm. For measurements of areas up to 10 square inches, in square inches, 10ths and 100ths. Parts of square inches can be read by means of the vernier. Excellent for obtaining the area of Steam Engine indicator diagrams. In case with directions, . . . Each, \$



No. 1801.

- No. 1801. Polar Planimeter, tracer arm of fixed length, adjusted for vernier unit of .01 square inch, adjustable support for tracer arm. A horizontal disc engaging with the measuring wheel records its revolutions up to 10, so that areas up to 100 square inches, in square inches, 10ths and 100ths can be measured. Very suitable for drawings made to scales 1:1, 1:10, 1:100, etc. In case with directions, . . . Each, \$

See Price List in back of Catalog.

Planimeters



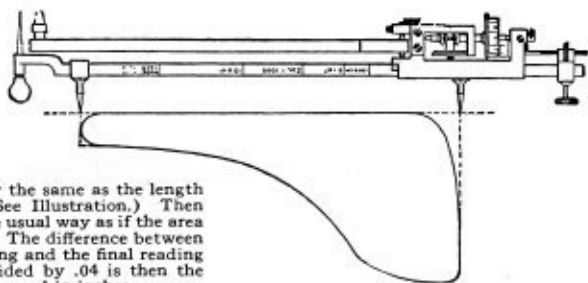
No. 1802C.

- No. 1802C. Polar Planimeter, improved design, nickel silver and brass, adjustable and fully divided tracer arm, effective length about 8 inches, with clamp screw vernier and micrometer adjustment, suitable for maps, etc., in various scales, with table of settings for ratios $1'' = 20'$ to $1'' = 200'$; value of vernier units ranging from 5 sq. ft. to 200 sq. ft., also for measurement in actual size, with vernier unit value of .005 to .016 sq. inch. One setting permits direct reading of area without computation, value of vernier unit being .01 sq. inch. In case, with directions, Each, \$
- No. 1802D. Like No. 1802C, but with steel points for quickly finding the mean height of indicator diagrams. (See description for use below.) One of these points is attached to the upper side of the tracer arm and the other to the surface of the carriage in which the arm slides. In case, with directions, Each, \$

Planimeters Nos. 1802C and 1802D are simple planimeters, not compensating planimeters, and cannot be crossed. A control rule in case is provided. The recording dial is mounted at an angle of approximately 45° , eliminating shadows from the pointer and allowing accurate, quick and convenient reading. The pole arm is mounted in a ball and socket joint, eliminating steel pivots, which thru wear and improper adjustment cause inaccuracies. They have an improved tracer point adjustment and wing arm for convenient and accurate tracing.

Device for Finding the Mean Height of Indicator Diagrams

This device consists of two fine steel points, one attached to the upper side of the tracer arm and the other to the upper surface of the carriage in which the arm slides. To find the mean height of the indicator diagram turn the instrument upside down and by sliding the tracer in the carriage, adjust the steel points so that the distance between them is exactly the same as the length of the base of the diagram. (See Illustration.) Then clamp the arm and proceed in the usual way as if the area of the diagram was being taken. The difference between the initial reading in the beginning and the final reading at the end of the operation divided by .04 is then the mean height of the diagram, expressed in inches.



Example:

Final reading 2.361
Initial reading —1.913

$0.448 \times 80 = 35.84$ ins. = mean height.

If in steam engines the indicator diagrams of the head end and the rod end are measured jointly divide by 0.8 instead of by 0.4.

Mean effective pressure = Mean height \times Scale of spring of indicator. Supposing the scale of the spring in the above examples is 1 in. = 80 lbs. per sq. in., then

0.448×80

Mean effective pressure = $\frac{0.448 \times 80}{0.4} = 89.6$ lbs. per sq. in.

The number of lbs. per inch of height being usually a multiple of 4, arithmetical work is thus extremely simple.

See Price List in back of Catalog.

Compensating Planimeters

The Compensating Planimeters Nos. 1803A, 1804A, 1804B, 1805, and 1806 consist of two parts: the tracing frame and the pole arm. The tracing frame rests on three points: the measuring wheel, the tracer point and the roller. The pole arm has a pivot post with a ball end, which rests in the socket in the carriage, forming a perfect and accurate ball and socket joint. This joint forms the axis of rotation of the tracer arm, and always allows the tracing frame to rest with its three points on the plan.

The pivot post raises the pole arm sufficiently to permit the full angular motion of the tracer arm of 180° in either direction, thereby increasing the range of the instrument over the usual type planimeter. Measuring the diagram with the pole arm on the left and then again with the pole arm on the right side of the tracer arm, and taking the mean of the readings, all instrumental errors are compensated.



No. 1803A.

- No. 1803A.** Compensating Planimeter, Nickel Silver and Brass, durably lacquered black; tracer arm adjusted for Vernier unit of .016 sq. inches on scale of 1:1, pole arm about $7\frac{1}{2}$ " , tracer arm about $6\frac{1}{4}$ ". The carriage rests on three points and can never tip, even when instrument is fully extended; improved pole weight, winged handle with adjustable support, in case with test rule and directions, and table of vernier values applicable to various scales, such as 1' equals 20', 25', 30', 40', 50', 60', 100', 200', Each, \$

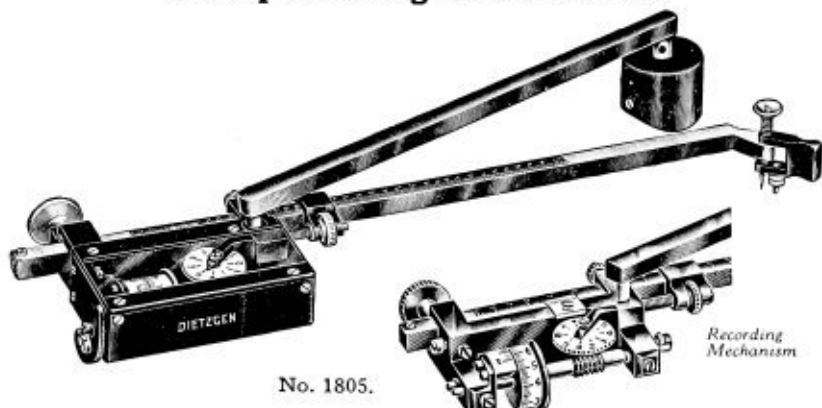


No. 1804A.

- No. 1804A.** Compensating Planimeter; Nickel Silver and Brass, tracer arm adjusted for vernier unit of .01 sq. inch on scale of 1:1. Table in lid of case of vernier unit values for measurements in scales of 1 in. = 10 ft., 1 in. = 20 ft., 1 in. = 50 ft., etc. Pole arm about $6\frac{3}{4}$ in., improved pole weight, winged handle with adjustable support. In case with testing rule and directions, Each, \$
- 1804B.** Like No. 1804A, but with larger roller and longer tracer arm. Adjusted for vernier unit of .02 square inch on scale of 1:1. In case with testing rule and directions, Each,

See Price List in back of Catalog.

Compensating Planimeters



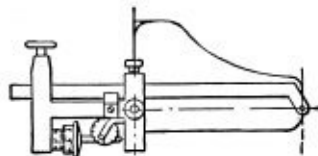
No. 1805.

- No. 1805. Compensating Planimeter, Nickel Silver and Brass, with protective glass top metal casing around recording mechanism, adjustable tracer arm fully graduated. By means of vernier and micrometer, accurate settings for any scale in U. S. Standard or any foreign measurement can be readily obtained. Allowance for shrinkage of drawings also can be made. Pole arm about $7\frac{1}{2}$ in., improved pole weight, winged handle with adjustable support. Table, in lid of case, of settings and vernier unit values for various scales. The case is so constructed that the instrument can be laid in while set to any proportion. In case, with directions, Each, \$



Adjustable Pole Arm for No. 1806.

- No. 1806. Like No. 1805, but with adjustable pole arm bearing index marks for the different settings furnished with the instrument; this pole arm can be adjusted so that when the instrument is used with the pole inside a figure the constant is a round number 20,000 for any setting. Very large or very small figures can be measured, due to the adjustable feature of the pole arm. In case, with directions, Each, \$



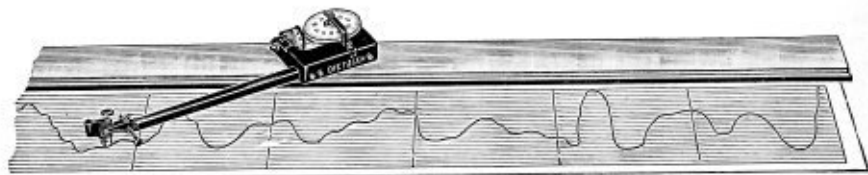
The Mean Height of indicator diagrams is also obtainable with these instruments, Nos. 1805 and 1806. This is accomplished by removing the pole arm, then adjusting the tracer arm to the length of the base of the diagram by placing the tracer point at the right hand end of the base and sliding the carriage on the tracer arm until the other end of the base becomes visible in the center of the small opening in the pole bearing. (See diagram.)

By this procedure the length of the tracer arm is made equal to the base line and after tracing the diagrams the readings must be multiplied with the factor .0024, to secure the mean height of the diagram in inches.

Compensating Planimeters described on preceding page.

See Price List in back of Catalog.

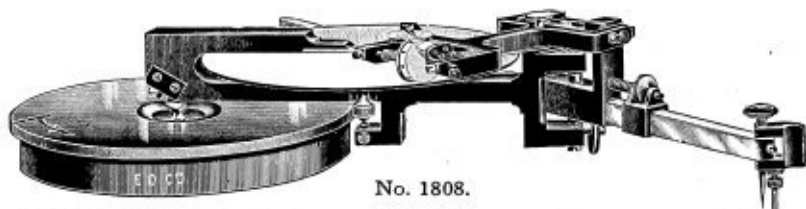
Rule Planimeter



No. 1807.

- No. 1807. Rule Planimeter, **Nickel Silver and Brass**, with tracer arm 13 inches long fixed for a value of vernier unit of .03 square inch. Counting wheel records up to 100 revolutions of the measuring roller. The measuring roller moves on a plane which is always level and possesses a uniform surface. The condition of the diagrams, even if they have been folded or creased, has, therefore, no effect on the accuracy of the measurements. Diagrams within the limits of the length of the rule can be measured in one operation. Attachment is provided on the tracing point to permit convenient tracing of the base line of the diagram. **This planimeter is specially arranged for measuring the area of long indicator curves.** Complete, with steel rule 60 inches long in wooden case, and instrument, with testing rule, in case, Each, \$

Precision Disc Planimeter

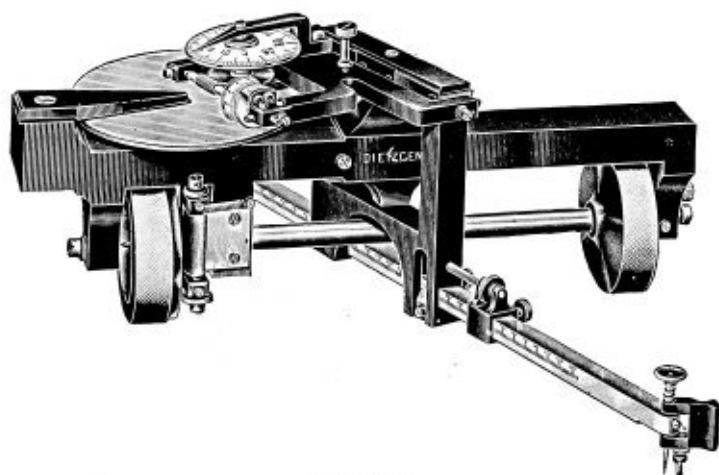


No. 1808.

- No. 1808. Precision Disc Planimeter, **Nickel Silver and Brass**, with $5\frac{1}{8}$ in. diameter aluminum paper-faced contact disc for the measuring wheel. The diameter of the pole disc, which is solid brass, is $5\frac{3}{4}$ in. Adjustable tracer arm is $13\frac{3}{4}$ in. long, fully graduated, and has an angular motion of about 90° . By means of vernier and micrometer, accurate settings for any scale in U. S. Standard can be obtained. The recording wheel is not affected by the condition of the paper on which the plan is drawn, as it comes in contact only with the revolving aluminum paper-faced disc, the surface of which is perfectly uniform and smooth. **This type of Planimeter is, therefore, adapted for very accurate and reliable work.** Complete with testing rule and directions, in case with lock and key, Each, \$

See Price List in back of Catalog.

Rolling Disc Planimeter



No. 1809.

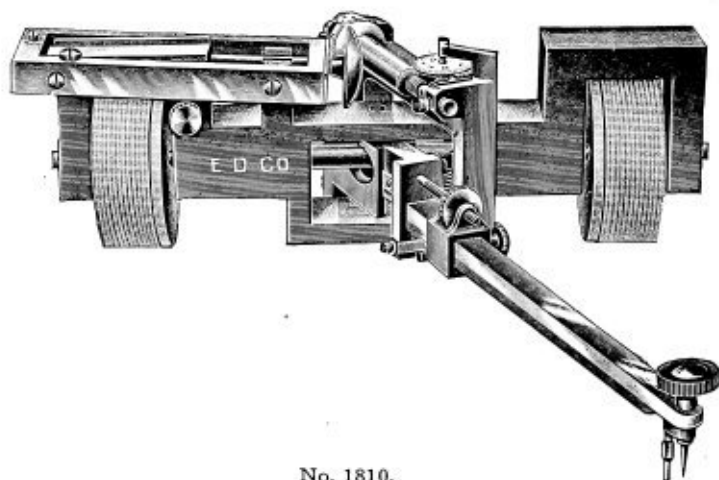
No. 1809. Rolling Disc Planimeter, **Nickel Silver and Brass**, adjustable tracer arm fully graduated, $11\frac{3}{4}$ inches long, with extension bar making the total length $19\frac{3}{4}$ inches. Distance between rollers of the carriage is $6\frac{3}{4}$ inches. The minimum value of vernier unit is 0.0005 square inches and the maximum value 0.0032 square inches. The aluminum disc is covered with paper and is mounted on a vertical axis which can be easily turned between two pivots. The small cog wheel mounted on the axis engages elastically in the gearing of the roller so that no obstruction or deviation from the direct linear travel of the carriage has any effect on the recording mechanism.

By means of a vernier and micrometer, accurate settings for any scale in United States standard measure can be obtained, with simple vernier unit values such as .001, .002 or .003 square inches. The angular motion of the tracer arm is about 30° left and right of the base. As the extent of the movement in the direction of the base is an unlimited area, any length and a width which is not greater than the length of the extended tracer arm, can be measured in one operation. Improved winged handle with an adjustable support. Table of settings and vernier unit values for various scales in lid of case.

Complete with testing rule and directions, in case with lock and key, Each, \$

See Price List in back of Catalog.

Rolling Sphere Planimeter

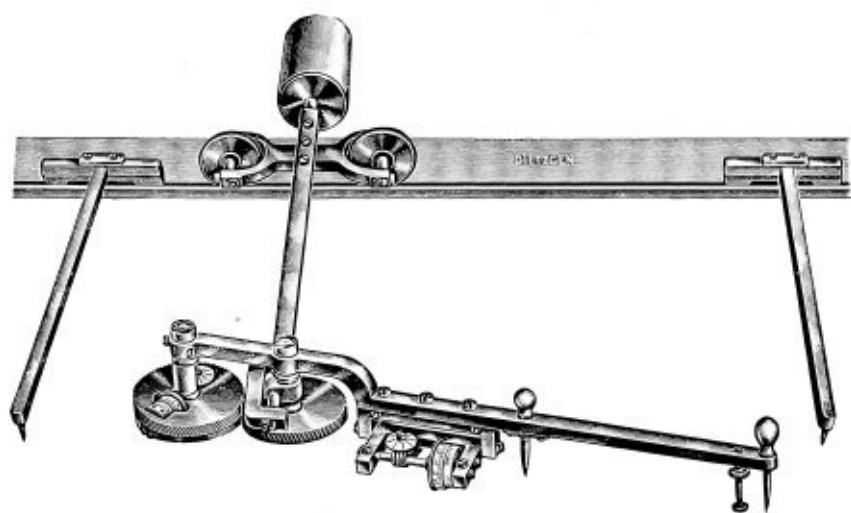


No. 1810.

No. 1810. Rolling Sphere Planimeter, Nickel Silver and Brass. The adjustable tracer arm, fully graduated, is $11\frac{3}{4}$ in. long, with an extension bar which makes the total length $19\frac{3}{4}$ in. By means of vernier and micrometer, accurate settings for any scale in U. S. Standard can be obtained. The angular motion of the tracer arm is about 30° left and right of the base. As the extent of the movement in the direction of the base is unlimited, areas of any length and of a width which is not greater than the length of the extended tracer arm, can be measured **in one operation**. Improved winged handle with adjustable support. Table of settings and vernier unit values for various scales in lid of case. Complete with testing rule and directions, in case with lock and key, Each, \$

See Price List in back of Catalog.

Amsler Mechanical Integrators



No. 1811A.

These Integrators can be used in Naval Architecture for measuring displacement, center of buoyancy, volume and center of holds, and for calculations of stability. Two tracing points are provided: one for small and one for large figures. Large figures are measured in sections, and the area and moment of any figure drawn to scale can be quickly obtained. In general work, these instruments are valuable for determining areas, moments, centers of gravity of diagrams, or volumes of solids of rotation. They are simple in construction, easily operated, and complete directions are furnished with each instrument.

No. 1811A. Amsler Integrator, **Nickel Silver**, with two independent recording devices, one giving the moment of figure and the other the area. Two tracing points, two gauges for fixing axis of moments, and grooved steel rail. In polished hardwood case with directions, Each, \$

1811B. Like No. 1811A, but made of **Brass**, "

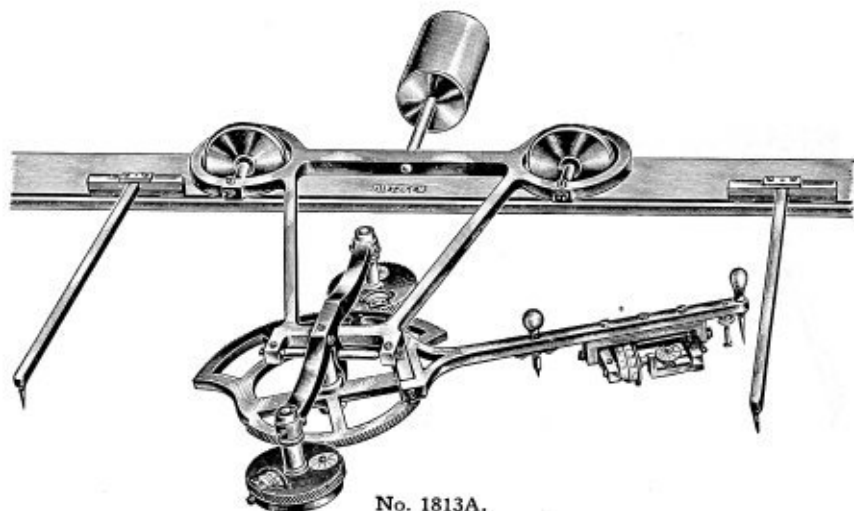
Dimensions:

Longitudinal range,	26 inches
Transverse range,	15 "
Length of Rail,	29 "
Distance from Rail to axis of moments,	7½ "

Grooved Steel Rails of other lengths furnished to order.

See Price List in back of Catalog.

Amsler Mechanical Integrators



No. 1813A.

These Integrators have three recording mechanisms, giving the **Area**, **Moment** and **Moment of Inertia**. They are provided with two tracing points and with two gauges for adjusting the instrument to axis of moments.

No. 1813A. Amsler Integrator, **Nickel Silver**, in polished hardwood case: grooved steel rail, 59 in. long, in separate case. Complete with directions, Each, \$

1813B. Like No. 1813A, but made of **Brass**, in hardwood case: grooved steel rail, 59 in. long, in separate case. Complete with directions, Each,

Dimensions:

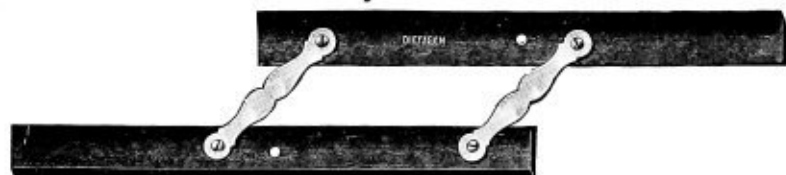
Longitudinal range,	50 inches
Transverse range,	13 "
Length of Rail,	59 "
Distance from Rail to axis of moments,	7½ "

Grooved Steel Rails of other lengths furnished to order.

See Price List in back of Catalog.



Folding Parallel Rules Adjustable



Nos. 1856A-1856E.

These Folding Parallel Rules are of the highest quality, and are substantially made of Ebonized Hardwood, nickel-plated bars, with an adjustment on one of the bars by means of which correct alignment is assured at all times. The studs are of sufficient size to enable the holding of the rule easily with the fingers.

No. 1856A.	Adjustable Parallel Rule, nickel-plated bars	6 in.	. . .	Each, \$
1856C.	" " " " " "	12 "	. . .	"
1856D.	" " " " " "	15 "	. . .	"
1856E.	" " " " " "	18 "	. . .	"

Rolling Parallel Rules

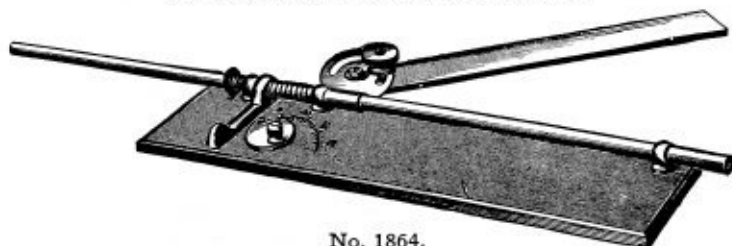
Our Brass Rolling Parallel Rules are of the finest quality and so constructed as to insure the greatest possible accuracy of motion. The metal guard over the axle serves as a convenient handle.



Nos. 1858C-1858F.

No. 1858C.	Rolling Parallel Rule, Brass, 12 in., weight about 32 oz.,	. . .	Each, \$
1858E.	" " " " 18 " " " 54 "	. . .	"
1858F.	" " " " 24 " " " 72 "	. . .	"

Practical Section Liner



No. 1864.

No. 1864.	Practical Section Liner, Hardwood, nickel-plated mountings, hardwood blade 8 inches long, in box,	Each, \$
1864½.	Like No. 1864, but Transparent Celluloid blade, one edge beveled, in box,	Each,

Strong, simple and durable. Great range of work, permits spacing from 1-100 to ½ inch, at any angle, without changing position.

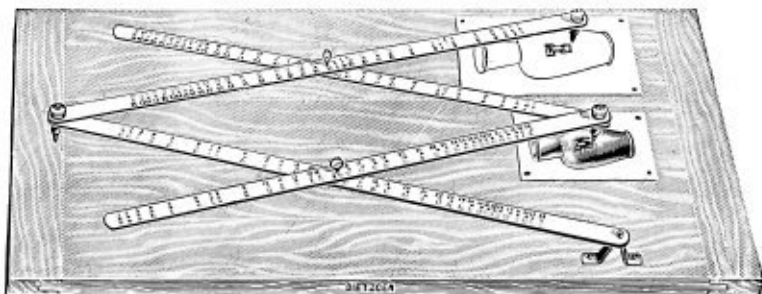
Retains its place on the board by means of pins in the bottom of base, without the aid of T Square, Straight Edge, hands or weights.

See Price List in back of Catalog.

Pantographs

For Enlarging and Reducing Drawings

All Metal Parts Are Nickel-Plated



No. 1879.

- No. 1875. Pantograph of Polished Hardwood bars, mahogany lined, 41 in. long with metal fulcrum; tracer and lead points interchangeable in adjustable tubular holders; joints formed by bolts and thumb nuts. For reducing and enlarging in 34 ratios, from 8:1 to $1\frac{1}{8}$:1 or vice versa. In wooden box with directions, Each, \$
1877. Pantograph of Polished Hardwood bars, mahogany lined, 21 in. long with metal fulcrum; tracer and lead points interchangeable in adjustable tubular holders. For reducing and enlarging in 34 ratios, from 8:1 to $1\frac{1}{8}$:1, or vice versa. In box with directions, Each,
1879. Pantograph of Polished Hardwood bars, 21 in. long with metal fulcrum; tracer and lead points interchangeable in adjustable tubular holders. For reducing and enlarging in 34 ratios, from 8:1 to $1\frac{1}{8}$:1 or vice versa. In box with directions, Each,
1880. Pantograph of Hardwood bars, 21 in. long with metal fulcrum; lead points carrier in adjustable tubular holder is interchangeable with the tracer point. For reducing or enlarging in 19 ratios. In box with directions, Each,
1881. Pantograph of Hardwood bars, 17 in. long with metal fulcrum; lead points carried in adjustable tubular holder. For quick and easy enlarging in 12 ratios. This instrument may be used for commercial purposes as well as an excellent means of familiarizing children with forms and proportions, and will greatly assist them in learning to draw from objects. With directions, Each,

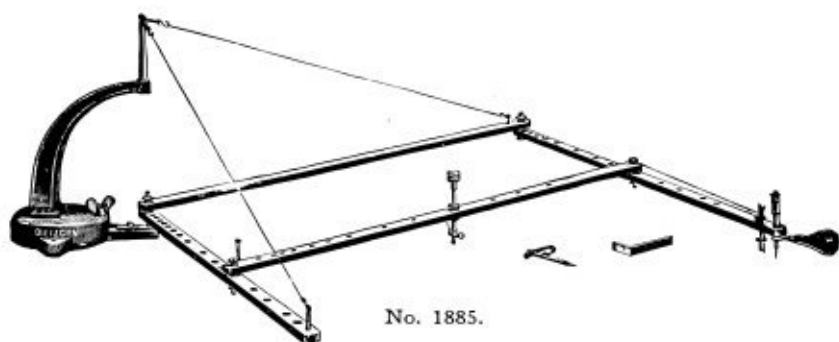
Complete directions furnished with each Pantograph.

See Price List in Back of Catalog.



Suspended Pantographs

With Wooden Bars



No. 1885.

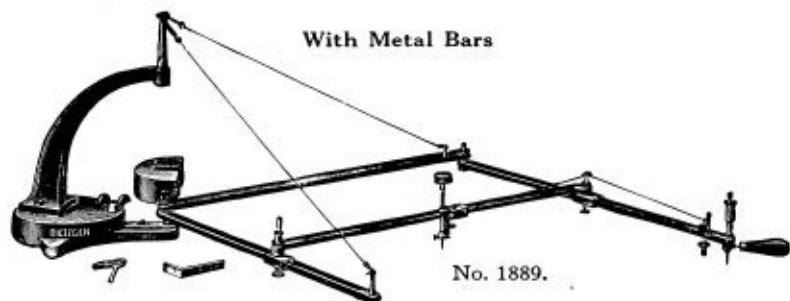
For Reducing and Enlarging in the following ratios:

5:4, 4:3, 3:2, 5:3, 2:1, 5:2, 3:1, 4:1, 5:1, 6:1, 8:1, 10:1, 12:1, 20:1, or vice versa.

Suspended Pantograph, made of well-seasoned pearwood bars connected by polished steel cone joints, with holes accurately drilled for the above ratios. Solid iron standard. Tracing and Pencil points are interchangeable. Instrument complete with adjustable tracing point, steel point, pencil point with 3 brass weights, adjusting angle and instructions for use. In wooden case with lock and key.

No. 1885.	Suspended Pantograph with wooden bars 28 in. long,	Each, \$
1887.	" " " " " 38 " " "	"

With Metal Bars



No. 1889.

For Reducing from 20:1 to 5:4 or Enlarging from 1:20 to 4:5 in all ratios.

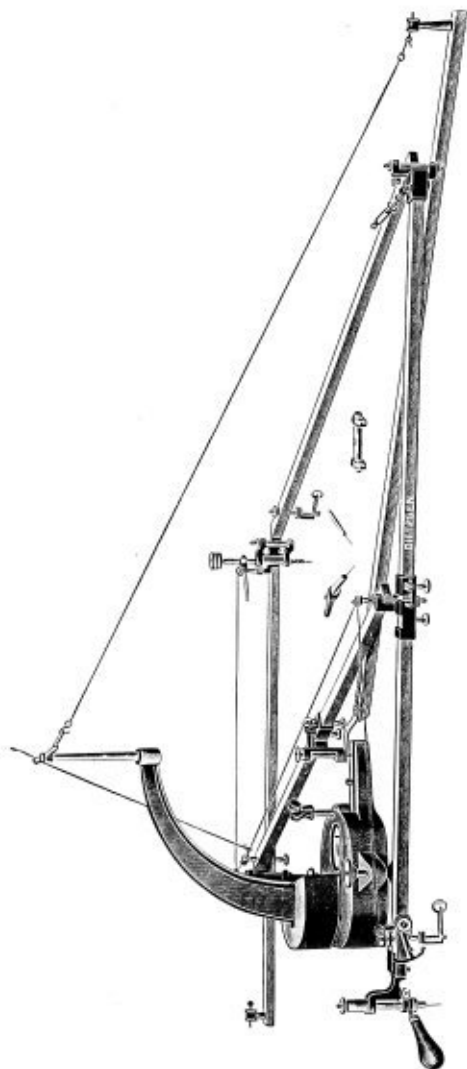
Suspended Pantograph, made of square hollow metal bars, fully divided and connected by cone joints, insuring an accurate and easy movement. The edges of the tubular slides are beveled to facilitate the reading of ratios. Solid iron standard with 1 extra weight. Tracing and Pencil points are interchangeable. Instrument complete with adjustable tracing point, steel point, pencil point with 3 brass weights, adjusting angle and instructions for use. In wooden case with lock and key.

No. 1889.	Suspended Pantograph with metal bars 28 in. long,	Each, \$
1891.	" " " " " 38 " " "	"

See Price List in back of Catalog.

Suspended Pantographs

Of Fine Mechanical Construction, Especially Adapted for Very Accurate Reproductions



No. 1893.

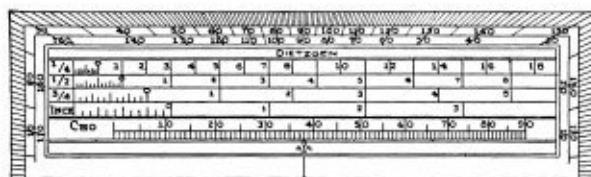
For Reducing from 20:1 to 1:1 or Enlarging from 1:1 to 1:20 in all ratios, or reproducing the original size.

Suspended Precision Pantograph, made of square hollow metal bars, connected by pivot joints. The bars are fully divided, with verniers on the tubular slides and micrometer movement for adjusting the proportions. Supporting bar and appliances for interchanging the pole with the pencil point to reproduce the original size. Convenient controlling arrangement for operating the pencil from the tracing point. Solid iron standard, with 1 extra weight, 2 leveling screws, and 2 spirit levels to adjust the instrument to a horizontal position. Instrument complete with adjustable tracing point, 2 steel points, pencil point with 3 brass weights, spirit level and instructions for use. In polished wooden case with lock and key.

No. 1893. Suspended Precision Pantograph, with metal bars 38 inches long. Each, \$
 1893½. Like No. 1893, but with reading glass, 4

See Price List in back of Catalog.

Boxwood Protractor



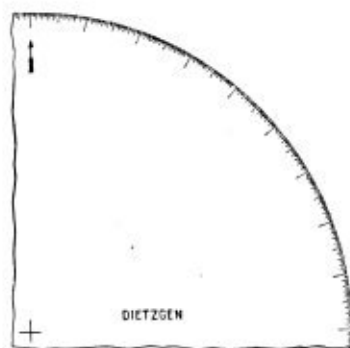
No. 1903.

No. 1903. Boxwood Protractor, oblong, 6 in. long, $1\frac{3}{4}$ in. wide, beveled edges, scales $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch to the foot. Scale of Chords. Diagonal scales, Each, \$

Paper Protractors



Imprint on No. 1911.



Imprint on No. 1911A.

Numbered 0-360

No. 1911.	Circular Protractor, on Bristol Board,	8 in. diam.,	$\frac{1}{2}^\circ$,	Each, \$
1912.	" " " " " "	14 " " "	$\frac{1}{4}^\circ$,	. . .

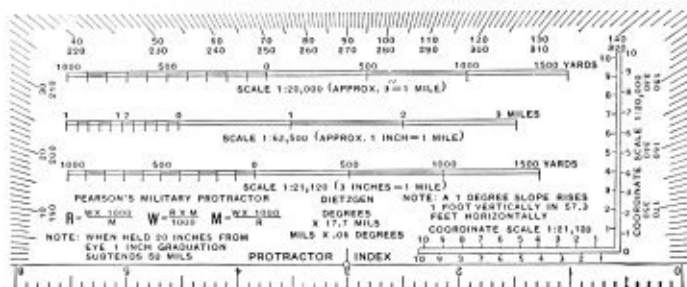
Unnumbered

No. 1911A.	Circular Protractor, on Bristol Board,	8 in. diam.,	$\frac{1}{2}^\circ$,	Each, \$
1912A.	" " " " " "	14 " " "	$\frac{1}{4}^\circ$,	. . .

See Price List in back of Catalog.

Pearson's Military Protractor

A compact combination Military Scale and Protractor for Officers in the Field.



No. 1917.

A complete map reading scale-protractor, embodying in one unit, a combination of several devices, essential in solving military problems in map reading. This combination supplants several devices formerly used, and with its new features, makes a very convenient and valuable field aid.

Protractor: Divided into degrees reading from 0° to 180° and 180° to 360° which may be converted to mils by formula stated on protractor.

Rule: 6 inch rule, graduated inches and in suitable tenths, and position for making measurement.

Musketry Rule: A new and useful feature for Fire Control. Placing a string in the hole (index point of protractor) and holding the protractor 20 inches from the eye, the inch graduation subtends 50 mils, each tenth of an inch 10 mils. This is a very useful measurement in the field, and eliminates an additional piece of equipment.

Co-ordinate Scale: A new feature used in locating points on military maps which also supplants an extra field instrument. The two principal maps are taken care of with this scale; that is, the Fire Control Map, R. F. of 1:20,000 and the Leavenworth Map of 1:21,120. Both scales being used by students in service schools.

Formulae: Necessary formulae for solving mils, percentage of slopes are stated.

Scales: The three scales cover every military scale used. The 1:20,000 applies to the Fire Control Map, and by doubling, can be used with a map the scale of 1:10,000. The scale, 1:62,500 applies to the U. S. Geological Survey Map, which is the type of map that will be used for future military operations in this country. By halving, it can be used on 1:125,000 which is also used by the U. S. G. S. The scale 1:21,120 applies to the Leavenworth Maps, and by doubling on maps, the scale of 6 inches equal a mile and by taking one-third of scales 1 inch equals 1 mile.

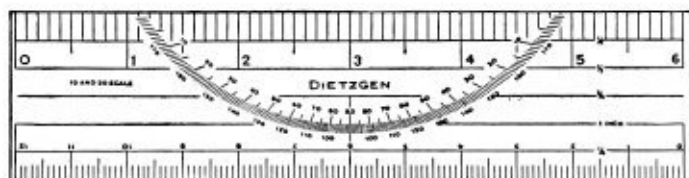
No. 1917. Pearson's Military Protractor - - - - - Each, \$

See Price List in back of Catalog.

Combination Protractor

Scale and Parallel Rule

Made of flexible transparent celluloid, 6 inches long. Combines Scale, Parallel Ruler, Compass, and Protractor advantages. Lines can be drawn at any desired angle with or parallel to each other. Circles, $\frac{1}{4}$ in. to 6 in., can be quickly made by merely inserting a pin (to act as a pivot point) in one of the holes which are punched in the protractor and a pencil point in that one of the other holes which gives the desired diameter.



No. 1925-2

No. 1925-1.	Combination Protractor,	10 × 16 scales,	. . . . .	Each, \$
1925-2.	"	"	10 × 20 "	"
1925-3.	"	"	10 × 20 " with zero in middle,	"
1925-4.	"	"	10 × 50 "	"
1925-9.	"	"	100 parts to foot; 32 parts to inch,	"
1925-10.	"	"	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$ and 1 inch scales,	"
1925-11.	"	"	$\frac{3}{4}$, $\frac{3}{8}$, $1\frac{1}{2}$ " 3 " " "	"
1925-12.	"	"	8ths, 16ths, 32nds and Centimeters,	"
1925-13.	1 inch to Mile, divided Yards; Metric scale, divided Centimeters; Mil Scale Protractor, divided 320 degrees,	. . . . .		"

Nos. 2, 3 and 4 are for use of Civil Engineers and Surveyors, the No. 3, on account of division arrangement, being valuable for stadia notes; Nos. 10 and 11 are for Architects and Mechanical Engineers; Nos. 1, 9 and 12 for general purposes; No. 13 for use of Military students.

Transparent Celluloid Protractor



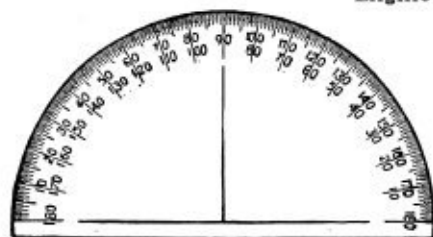
No. 1928

No. 1928. Semicircular Celluloid Protractor, 4 in., div. to 1° , Doz., \$

See Price List in back of Catalog.

Transparent Celluloid Protractors

Engine Divided



No. 1928A.



1928AP.

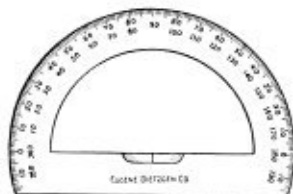
- | | | | |
|---|--------------------------------------|-------|----|
| No. 1928A. Semicircular Celluloid Protractor, | 5 in., div. to $\frac{1}{2}^\circ$, | Each, | \$ |
| 1928B. " " " " | 6 " " " $\frac{1}{2}^\circ$, | " | " |
| 11928B. (School Quality), | 6 " " " $\frac{1}{2}^\circ$, | Doz., | |
| 1928D. Semicircular Celluloid Protractor, | 8 in., div. to $\frac{1}{2}^\circ$, | Each, | |

Percentage Protractor

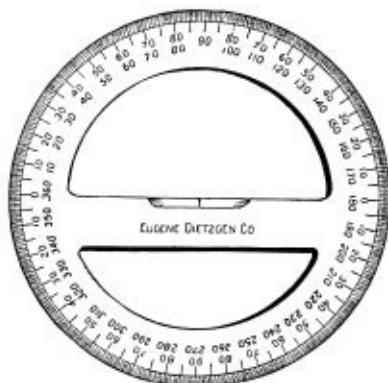
- No. 1928AP. Percentage Protractor, semicircular, celluloid, 4 in., divided into 50 equal parts reading both ways, and numbered every 5 parts, Each, \$

This is a valuable instrument for use in connection with drawing statistical graphs and other business charts.

With Beveled Edges



No. 1930A.



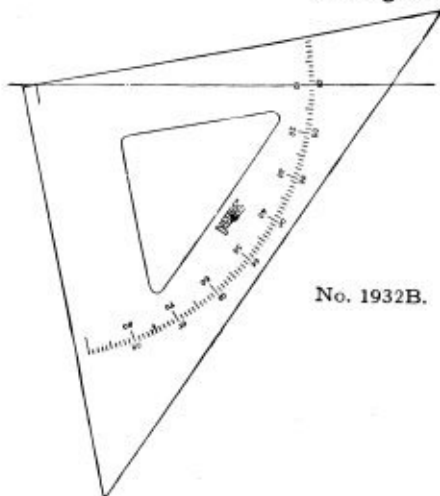
1931B.

- | | | | |
|------------|---|-------|----|
| No. 1930A. | Semicircular Celluloid Protractor, 6 in., beveled edge, engine divided, $\frac{1}{2}^\circ$, | Each, | \$ |
| 1930B. | Like No. 1930A, but 8 in., | " | " |
| 1930D. | Semicircular Celluloid Protractor, 6 in., beveled edge, deep-etched, $\frac{1}{2}^\circ$, | " | " |
| 1930E. | Like No. 1930D, but 8 in., | " | " |
| 1931A. | Circular Celluloid Protractor, 6 in., beveled edge, engine divided, $\frac{1}{2}^\circ$, | " | " |
| 1931B. | Like No. 1931A, but 8 in., | " | " |
| 1931C. | Like No. 1931A, but 10 in., | " | " |
| 1931D. | Circular Celluloid Protractor, 6 in., beveled edge, deep-etched, 1° , | " | " |
| 1931E. | Like No. 1931D, but 8 in., | " | " |
| 1931F. | Like No. 1931D, but 10 in., | " | " |

See Price List in back of Catalog.

Transparent Celluloid Protractors

Triangle Protractors

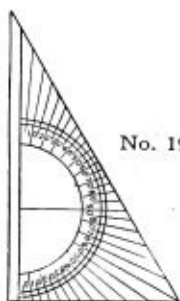


No. 1932B.

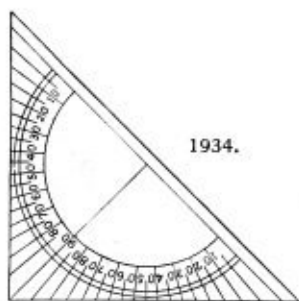
No. 1932B Triangle Protractor is an 8-inch, 45° Transparent Celluloid Triangle, with a quadrant graduated to degrees, which by interpolation can be read to half degrees.

The radius of the quadrant is 5¼ inches, hence the graduations have a value equal to a protractor having a diameter of 10½ inches. Angles in any quadrant of a circle can be quickly determined or drafted by reversing the position of the angle.

This instrument serves the purpose for use as a 45° Triangle, a 30 × 60° Triangle, and a Protractor, Each, \$



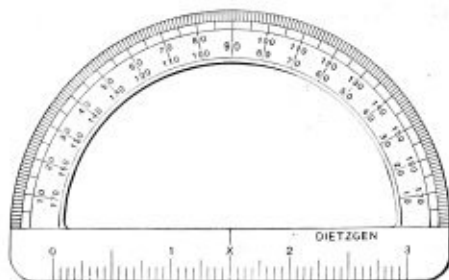
No. 1933.



1934.

No. 1933.	Triangle Protractor, 30° × 60°, 6 in., div. to 1°,	Each, \$
1934.	" " " 45° " " " 1°,	"

Enameled Metal Protractor



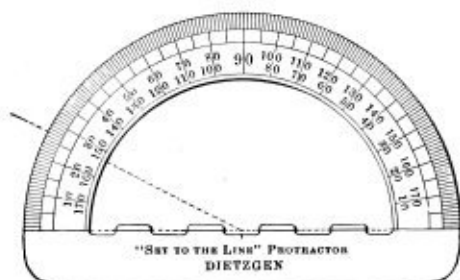
No. 1935A.

No. 1935A. Semicircular, Enameled Metal, 4 in., div. to 1°, . . . Each, \$

This protractor has a 3 in. scale on lower edge, making it handy for use in classroom for rapid work.

See Price List in back of Catalog.

Metal Protractor

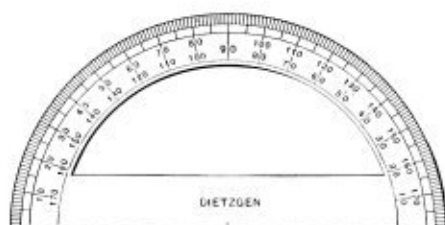


No. 1935D.

No. 1935D. Semicircular, Metal, 4 in., div. to 1°, Each, \$

The No. 1935D, or "Set to the Line" Protractor, embodies the well-known "broken line" principle, and permits of obtaining accurate and rapid results. To use, simply "Set to the Line."

Brass and Nickel Silver Protractors



No. 1936.

Brass

No. 1935 $\frac{1}{2}$.	Semicircular, Brass, 3 $\frac{1}{2}$ in., div. to	1°	. . . . .	Each, \$
11935 $\frac{1}{2}$.	" " 3 $\frac{1}{2}$ " " "	1°	(School Quality), Doz.,	
21935 $\frac{1}{2}$.	" " 3 $\frac{1}{2}$ " " "	1°	" " "	
1936.	" " 4 $\frac{1}{4}$ " " "	1°	. . . . .	Each,
11936.	" " 4 $\frac{1}{4}$ " " "	1°	(School Quality), Doz.,	
1937.	" " 5 $\frac{1}{2}$ " " "	$\frac{1}{2}$°	. . . . .	Each,

Nickel Silver

No. 1940.	Semicircular, Nickel Silver, 4 $\frac{1}{4}$ in., div. to	1°	. . . . .	Each, \$
1941.	" " " 5 $\frac{1}{2}$ " " "	$\frac{1}{2}$°	. . . . .	"
1942.	" " " 6 $\frac{3}{8}$ " " "	$\frac{1}{2}$°	. . . . .	"
1943.	" " " 7 $\frac{1}{2}$ " " "	$\frac{1}{2}$°	. . . . .	"

See Price List in back of Catalog.

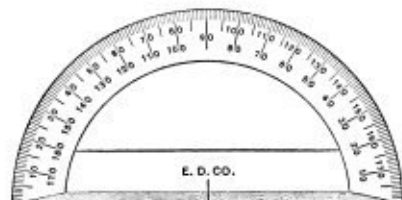


Gem Union Protractors

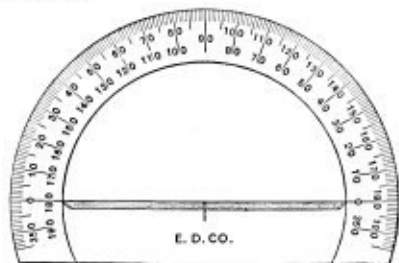
Nickel Silver

Gem Union Protractors, popular for mapping and topographical work, are of the highest quality. They are made of Nickel Silver, are accurately divided, and have clear, uniform graduations and engraved numbers.

Protractors with an arm are preferable, as they permit of great accuracy and can be operated rapidly. The Protractors listed on pages 222-223 are equipped with an arm and vernier, and are especially valuable for dependable results. While the larger sizes, which have a vernier reading of one minute, are intended for and better adapted to close work, it is possible, with practice, to set off single minutes when using the smaller sizes having a vernier reading of three minutes.



No. 1951.



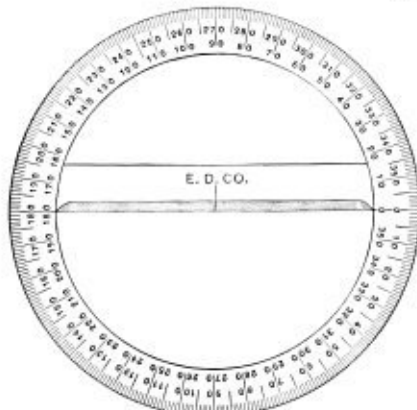
No. 1961.

Center on Outer Edge

- | | | | | |
|-----------|---|-------------------------|-------|----------|
| No. 1951. | Semicircular, Nickel Silver, 5 in., beveled edge, | $\frac{1}{2}^{\circ}$, | . . . | Each, \$ |
| 1953. | " " " 6 " " " | $\frac{1}{4}^{\circ}$, | . . . | " |
| 1955. | " " " 8 " " " | $\frac{1}{4}^{\circ}$, | . . . | " |

Center on Inner Edge

- | | | | | |
|-----------|---|-------------------------|-------|----------|
| No. 1961. | Semicircular, Nickel Silver, 5 in., beveled edge, | $\frac{1}{2}^{\circ}$, | . . . | Each, \$ |
| 1963. | " " " 6 " " " | $\frac{1}{4}^{\circ}$, | . . . | " |



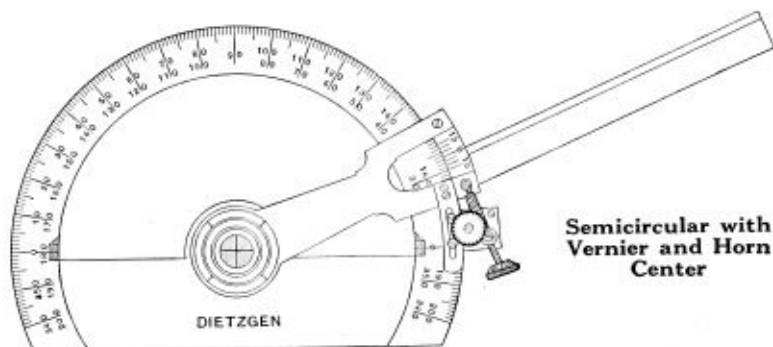
No. 1965.

- | | | | |
|-----------|---|-------------|----|
| No. 1965. | Circular, Nickel Silver, 5 in., beveled edge, div. to $\frac{1}{2}^{\circ}$, | Each, . . . | \$ |
|-----------|---|-------------|----|

See Price List in back of Catalog.

Gem Union Protractors

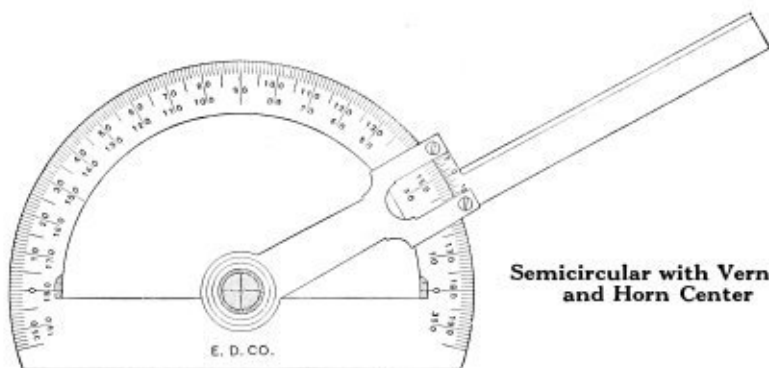
Nickel Silver



**Semicircular with
Vernier and Horn
Center**

No. 1977.

- No. 1975. Nickel Silver, 6 in., $\frac{1}{2}^\circ$, vernier reading to 3 minutes, in silk velvet-lined case, Each, \$
- No. 1976. Nickel Silver, 8 in., $\frac{1}{4}^\circ$, vernier reading to 1 minute, in silk velvet-lined case, Each, \$
- No. 1977. Nickel Silver, 8 in., $\frac{1}{4}^\circ$, vernier reading to 1 minute, with tangent screw, in silk velvet-lined case, Each, \$
- Length of arm beyond outer edge of Protractors: 1975, $5\frac{1}{2}$ in. 1976, 6 in. 1977, 6 in.



**Semicircular with Vernier
and Horn Center**

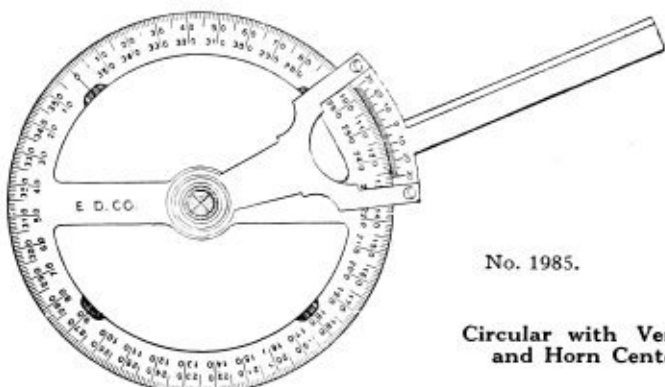
No. 1978.

- No. 1978. Nickel Silver, 8 in., $\frac{1}{2}^\circ$, vernier reading to 1 min., in silk velvet lined case, Each, \$
- No. 1979. Nickel Silver, 10 in., $\frac{1}{2}^\circ$, vernier reading to 1 min., in silk velvet lined case, Each, \$
- Length of arm beyond outer edge of Protractors: 1978, 6 in. 1979, $6\frac{1}{2}$ in.

See Price List in back of Catalog.

Gem Union Protractors

Nickel Silver



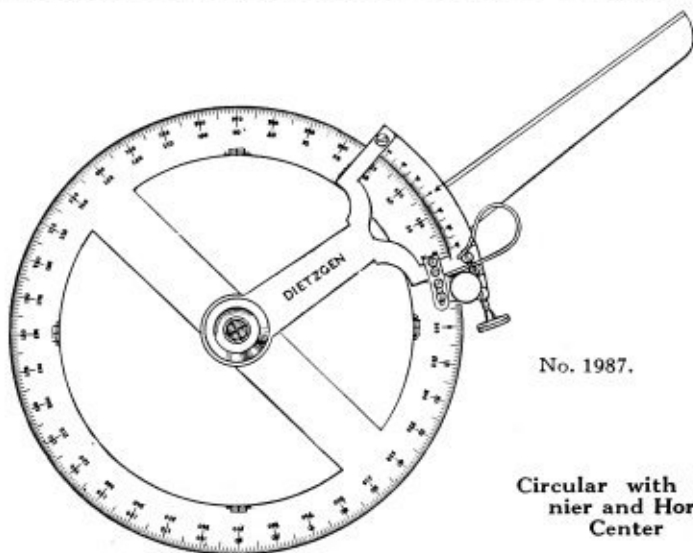
No. 1985.

**Circular with Vernier
and Horn Center**

No. 1985. Nickel Silver, 8 in., $\frac{1}{2}^{\circ}$, vernier reading to 1 min., in silk velvet lined case, Each, \$

1986. Nickel Silver, 10 in., $\frac{1}{2}^{\circ}$, vernier reading to 1 min., in silk velvet lined case, Each, \$

Length of arm beyond outer edge of Protractors: 1985, 6 in. 1986, $6\frac{1}{2}$ in.



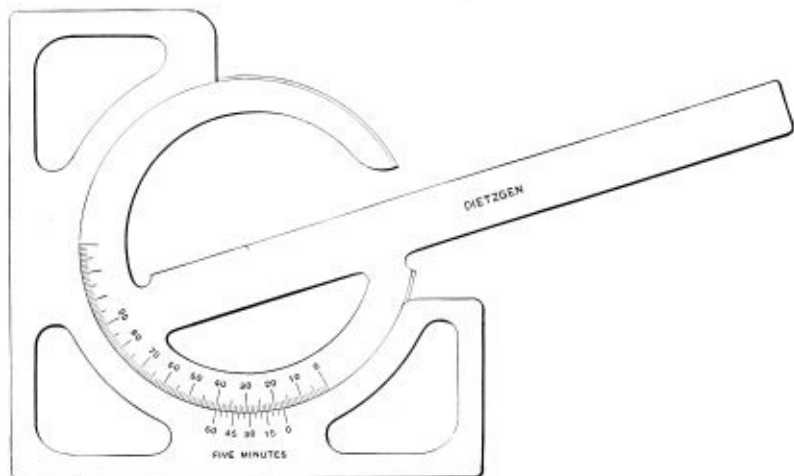
No. 1987.

**Circular with Vernier and Horn
Center**

No. 1987. Circular nickel silver protractor, 10 in., divided to $\frac{1}{2}^{\circ}$, vernier reading to 1 minute; with horned center and movable arm extending $6\frac{1}{2}$ in. beyond outer edge of protractor, with tangent screw, in silk velvet lined case. Each, \$

See Price List in back of Catalog.

Draftsmens Steel Protractors

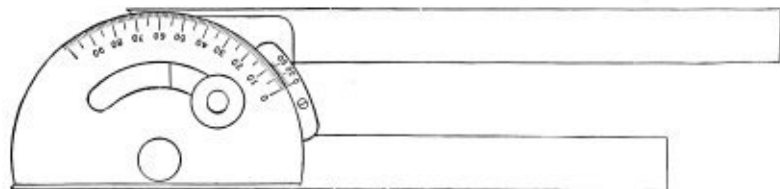


No. 1996A.

No. 1996A. Draftsmens Steel Protractor, with directions, Each, \$
 1996C. Like No. 1996A, but in velvet lined case, "

The No. 1996A Protractor is made of sheet steel. It has a blade $8\frac{1}{2}$ inches long, the graduations read to degrees, and the vernier reads to 5 minutes.

There are no projections on either face, and therefore it can be used on either edge of the blade or with either side up. This is an advantage when dividing circles, transferring angles, drawing oblique lines at right angles to each other, or laying off given angles each side of a vertical or a horizontal line without changing the setting.



No. 1997A.

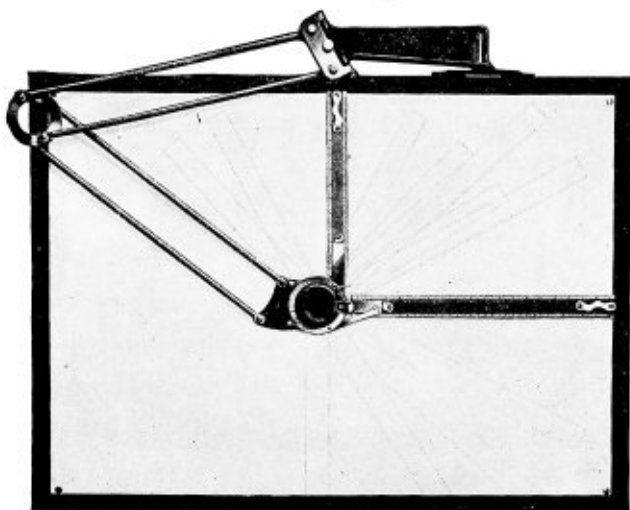
No. 1997A. Draftsmens Steel Protractor, Each, \$
 1997C. Like No. 1997A, but in mahogany case, "

The No. 1997A Protractor has spring-tempered blades about 9 inches long. The arc is four inches long, graduated to degrees, with vernier reading to 5 minutes. A clamping screw securely holds the blades at any angle and serves as a knob.

Either blade can be used in contact with a T Square, giving any angle and its complement from 0° to 90° , the instrument thus being usable as an adjustable triangle.

See Price List in back of Catalog.

Universal Drafting Machines



The Universal Drafting Machine makes drawing faster and easier by relieving the constant reaching for, handling, manipulating and aligning of T Square, triangles, scales, protractors, etc., just when the mind should be concentrated on the essentials. Free from this constant handling of tools it enables one to think more clearly, work more swiftly, and accomplish better results in a much shorter time, with less body and nerve fatigue. It saves from $\frac{1}{4}$ to $\frac{1}{2}$ the time ordinarily required in making drawings.

The machine consists of two parallelograms, a protractor and a square formed by two scales having graduated edges. The two parallelograms joined together constitute an arm which anchored to the board gives the scales a parallel motion about the drawing.

There are two general types: the mid anchor type, illustrated above, requires no clearance at the end of the board; the corner anchor type, illustrated on the next page, does require clearance at the end of the board, which limits its use to smaller drawings.

The 4 in. protractor, the controlling center, is divided into degrees, allowing the square to be set at any angle and in addition has automatic stops for the most frequently used angles, such as 30° , 45° , 60° and 90° . Special protractors for architectural and structural work, as well as for civil engineers can be furnished. Full information on request.

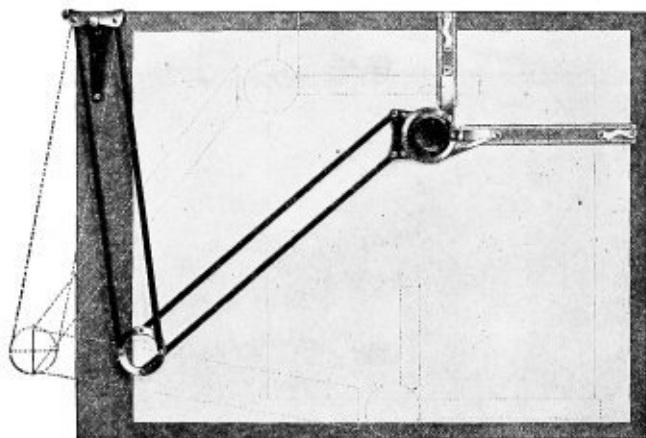
Special wide scales are used with numbering reading from the protractor out. These scales are described on the next page.

Mid Anchor Type, with Standard Protractor, without scales or straight edges.

No. 1998-1.	Hardened Joints, Solid Rods, for Drawings	24×36 in., Each, \$
1998-2.	" " " " " "	30×42 " "
1998-3.	" " " " " "	36×50 " "
1998-4.	Ball bearing Joints, Tubular Rods, for Drawings	24×36 in., Each, \$
1998-5.	" " " " " "	30×42 " "
1998-6.	" " " " " "	36×50 " "

See Price List in back of Catalog.

Universal Drafting Machines and Accessories



See description on preceding page.

Corner Anchor Type, with Standard Protractor, without scales or straight edges.

			Each.
No. 1999-1.	Hardened Joints, Solid Rods, for Drawings	18 × 24 in.,	\$
1999-2.	" " " " " " " "	24 × 36 "	
1999-3.	" " " " " " " "	30 × 42 "	
1999-4.	Ball bearing Joints, Tubular Rods, for Drawings	18 × 24 in.,	
1999-5.	" " " " " " " "	24 × 36 "	
1999-6.	" " " " " " " "	30 × 42 "	

Scales, Straight Edges, and Center Pull Tacks

			Each.
No. 2000A.	Flat White Edge Boxwood Scales, 6 in. (see Graduations below),	\$	
2000B.	" " " " " " 12 "	" " " " " "	
2000C.	" " " " " " 18 "	" " " " " "	
2000D.	" " " " " " 24 "	" " " " " "	
No. 1.	$\frac{3}{8}$, $\frac{3}{4}$, $1\frac{1}{2}$, 3 in. to ft.	4. 10 × 50 in. to ft.	8. $\frac{3}{8}$ × $\frac{3}{4}$ in. to ft.
2.	$\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1 " " "	5. 20 × 40 " " "	9. $\frac{1}{2}$ × 1 " " "
3.	Full and half size.	6. 30 × 60 " " "	10. $\frac{1}{4}$ × $\frac{1}{8}$ " " "

When ordering, specify catalog number of Scale and mention Scale Graduation desired,—No. 1, 2, 3, 4, 5, 6, 8, 9 or 10.

No. 2001A.	Straight Edges, Ebony or Maple lined, 12 in.,		Each, \$
2001B.	" " " " " " 18 "		
2001C.	" " " " " " 24 "		
2001D.	" " " " " " 36 "		

When ordering, specify catalog number of Straight Edge and mention lining desired,—Ebony or Maple.

No. 2002A.	Straight Edges, Transparent Celluloid lined, 12 in.,		Each, \$
2002B.	" " " " " " 18 "		
2002C.	" " " " " " 24 "		
2002D.	" " " " " " 36 "		
2004.	Center Pull Thumb Tacks,		Doz,

See Price List in back of Catalog.



Transparent Celluloid Triangles

Highly Polished

Our transparent triangles are made of a carefully seasoned material that is especially adapted for drawing equipment of this nature. They stand up better, retain their transparency and trueness, and will give greater satisfaction than those made from other materials generally employed for this purpose.

The size is determined by the length of the catheti, shown by the dotted lines in illustration of No. 2018. To obtain a $30^\circ \times 60^\circ$ Triangle and a 45° Triangle of even size of hypotenuse, order the 45° Triangle about two inches shorter than the $30^\circ \times 60^\circ$ Triangle.



No. 2014.

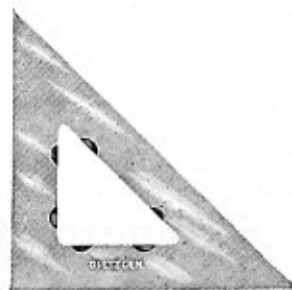


2015.

		30 × 60°, Plain.						
No. 2014.	Thickness, .060 in.	Size,	4	6	8	10	12 in.	
		Each,	\$					
12014.	Thickness, .060 in.	Size, (School Quality)	4	6	8	10	12 in.	
		Doz.	\$					
		45°, Plain.						
2015.	Thickness, .060 in.	Size,	3	4	6	8	10	12 in.
		Each,	\$					
12015.	Thickness, .060 in.	Size, (School Quality)	4	6	8	10	12 in.	
		Doz.	\$					



No. 2016A.



2017A.

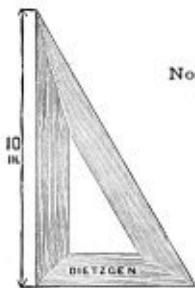
		30 × 60°, With Finger Lifts.								
No. 2016A.	Thickness, .060 in.	Size,	4	6	8	10	12 in.			
		Each, \$								
12016A.	Thickness, .060 in.	Size, (School Quality)	4	6	8	10	12 in.			
		Doz., \$								
2016B.	Thickness, .080 in.	Size,	4	6	8	10	12	14 in.		
		Each, \$								
2016C.	Thickness, .090 in.	Size,	4	6	8	10	12	14	16	18 in.
		Each, \$								
		45°, With Finger Lifts.								
2017A.	Thickness, .060 in.	Size,	3	4	6	8	10	12 in.		
		Each, \$								
12017A.	Thickness, .060 in.	Size, (School Quality)	4	6	8	10	12 in.			
		Doz., \$								
2017B.	Thickness, .080 in.	Size,	3	4	6	8	10	12 in.		
		Each, \$								
2017C.	Thickness, .090 in.	Size,	3	4	6	8	10	12	14	16 in.
		Each, \$								

See Price List in back of Catalog.

Wooden Triangles

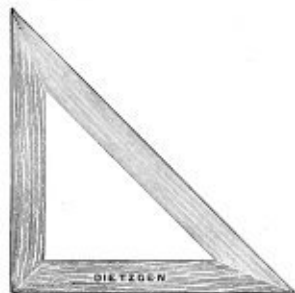
Our wooden Triangles are of the highest quality in workmanship and finish. They are made of specially selected, thoroughly seasoned stock, and have strongly mortised joints, insuring unusual durability and the maintenance of accuracy.

The size is determined by the length of the catheti, shown by the dotted lines in illustration below. To obtain a $30^{\circ} \times 60^{\circ}$ Triangle and a 45° Triangle of even size of hypotenuse, order the 45° Triangle about two inches shorter than the $30^{\circ} \times 60^{\circ}$ Triangle.



No. 2018.

- No. 2018. Maple Triangles, strong mortised joints, $30^{\circ} \times 60^{\circ}$.
 Size, . 8 10 12 in.
 Each, . \$
- No. 2019. Maple Triangles, strong mortised joints, 45° .
 Size, . 6 8 10 in.
 Each, . \$



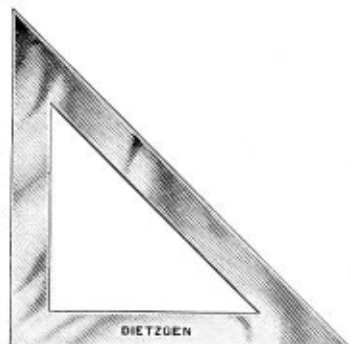
2019.

Steel Triangles



No. 2020.

- No. 2020. Steel Triangles, nickel-plated, $30^{\circ} \times 60^{\circ}$.
 Size, . 6 7 8 10 15 in.
 Each, . \$
- No. 2021. Steel Triangles, nickel-plated, 45° .
 Size, . 5 6 8 10 12 in.
 Each, . \$



2021.

Transparent Celluloid Triangles

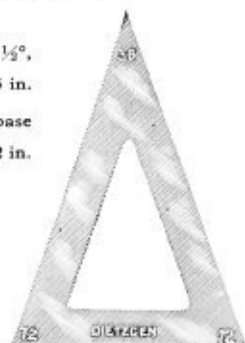
Highly Polished



No. 2022.

- No. 2022. Transparent Celluloid Triangles, $22\frac{1}{2}^{\circ} \times 67\frac{1}{2}^{\circ}$, with finger lifts.
 Size, . 4 6 8 10 12 14 16 in.
 Each, . \$
- No. 2023. Transparent Celluloid Triangles, isosceles, base angles 72° , vertex angle 36° .
 Size, . 4 6 8 10 12 in.
 Each, . \$

This Isosceles Triangle No. 2023 is of practical value for designers, as by its use new designs involving the pentagon will be suggested. In Manual Training School work it will aid in obtaining many new designs, without the solving of difficult problems.



2023.

See Price List in back of Catalog.



Lettering Angles

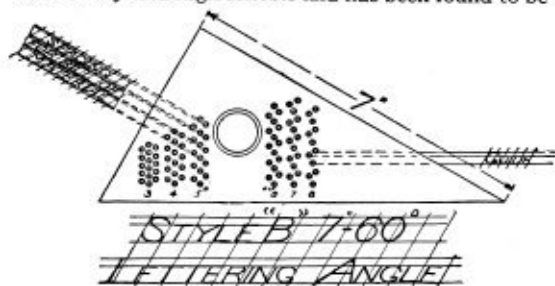
Transparent Celluloid

No. 2027-5. "EDCO" Lettering Angle, transparent Celluloid, 5 in. high with a 3 in. base, having a $67\frac{1}{2}^\circ$ slope; specially made for lettering in schools. . . Doz., \$

This is a convenient, inexpensive angle for use in constructing guide lines for lettering. It has gained considerable popularity in elementary and high schools and has been found to be very practical.



No. 2027-5



No. 2030B.



These Lettering Angles are designed to give a quick and easy method of making accurately spaced guide lines for lettering drawings, etc. Practically any desired spacing or guide lines may be obtained by inserting pencil point through the proper hole and sliding the angle along the T Square, then placing the point through another hole and sliding back.

All lettering angles except the 4 in., 45° and 5 in., 60° have a $67\frac{1}{2}^\circ$ slot which is useful in obtaining a uniform slope in lettering.

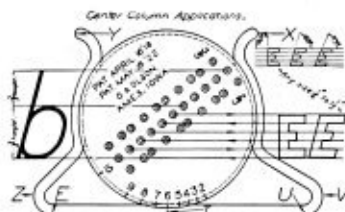
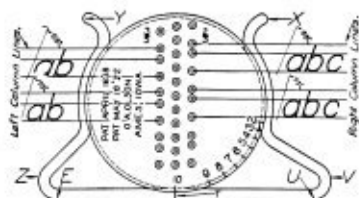
No. 2030B. Lettering Angle, transparent Celluloid, $30^\circ \times 60^\circ$, size 5 6 7 8 9 in. Each, . . . \$

2031B. Lettering Angle, transparent Celluloid, 45° , size 4 5 6 7 8 in. Each, . . . \$

2031C. Lettering Angle, transparent Celluloid, 45° , 8 in. This angle has a triangular center opening useful in drawing the slope of the flange of standard I-beams and channels. . . . Each, \$

The Ames Lettering Device

For Simple Legible Lettering



The Ames Lettering Device is one of the best articles of its kind ever put on the market as is proven by the testimonials of those who have used it. This is one article in which every instructor, student and draftsman will be interested.

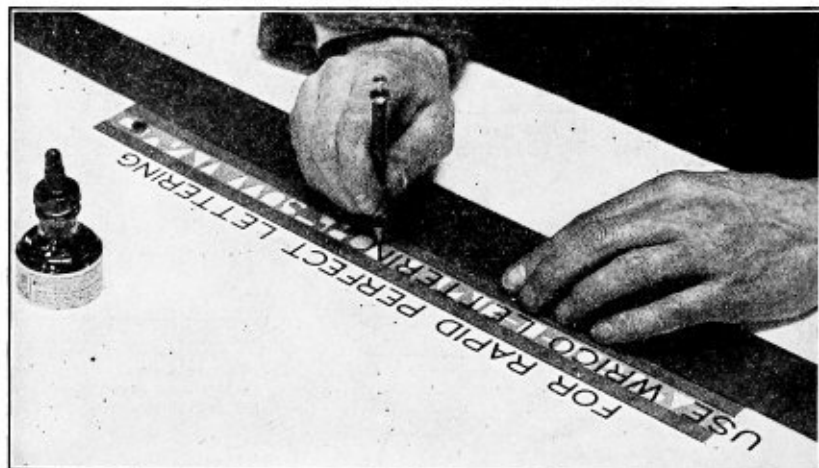
It is the only instrument of its kind that allows the user to vary the heights of lettering by adjustment of the dial or disc. Slope lines can be drawn without any adjustment of parts.

The improved Ames Lettering Device is now in daily use in Universities, Colleges, Normal Schools, High Schools, Grade Schools, Trade Schools, Commercial Drafting Rooms and Art Schools.

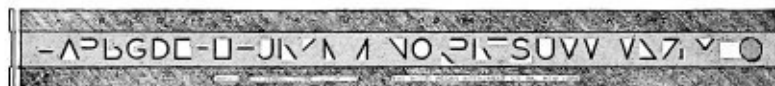
No. 2032. Ames Lettering Device, with instruction sheet, . . . Each, \$

See Price List in back of Catalog.

WRICO Lettering Guide



The Wrico Lettering Guides are practical and efficient aids for lettering drawings, maps, bulletins, price cards, etc. They enable the most inexperienced person to do neat lettering, either vertical or slanting, at a greater speed than can be obtained by "free hand."



The Guides consist of a strip of well seasoned, transparent pyralin, with openings for all letters and numbers. The Wrico pens, made special for this work, are moved in contact with the sides of the opening to form the letters. A shift button is inserted in one end to allow correct formation of the characters.

WRICO Vertical Lettering Guides

No.	WRICO Lettering Guide	Vertical Letters and Numerals	Height	Each.
2033A.	(VCN90)	" " " "	.090 in.	\$
2033B.	(VCN120)	" " " "	.120 "	
2033C.	(VCN140)	" " " "	.140 "	
2033D.	(VCN175)	" " " "	.175 "	
2033DV.	(VCN200)	" " " "	.200 "	
2033E.	(VN240)	" Numerals . . .	.240 "	
2033F.	(VC240)	" Letters . . .	.240 "	
2033G.	(VN290)	" Numerals . . .	.290 "	
2033H.	(VC290)	" Letters . . .	.290 "	
2033J.	(VN350)	" Numerals . . .	.350 "	
2033K.	(VC350)	" Letters . . .	.350 "	
2033L.	(VN500)	" Numerals . . .	.500 "	
2033M.	(VC500)	" Letters . . .	.500 "	

WRICO Vertical Condensed Lettering Guides

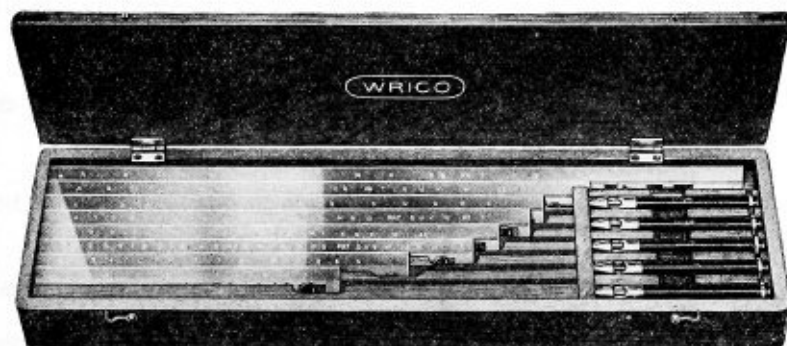
No.	WRICO Lettering Guide	Cond. Vertical Letters	Height	Each.
2033DL.	(CVC185)	" Lower Case Letters	.185 in.	\$
2033DN.	(CVL185)	" Numerals . . .	.185 "	
2033FC.	(CVN185)	" Letters . . .	.250 "	
2033FL.	(CVC250)	" Lower Case Letters	.250 "	
2033FN.	(CVL250)	" Numerals . . .	.250 "	
2033JN.	(CVN375)	" Numerals . . .	.375 "	
2033KC.	(CVC375)	" Letters . . .	.375 "	
2033LN.	(CVN500)	" Numerals . . .	.500 "	
2033MC.	(CVC500)	" Letters . . .	.500 "	
2033PN.	(CVN625)	" Numerals . . .	.625 "	
2033RC.	(CVC625)	" Letters . . .	.625 "	

See Sample of WRICO Lettering and Pen sizes on page 233.

See Price List in back of Catalog.



Wrico Vertical Lettering Sets



WRICO Vertical Lettering Set No. 2034A.

WRICO Lettering Sets are furnished in handsome solid mahogany cabinets with separate compartment provided for each Lettering guide and Pen, facilitating rapid selection and protecting the instruments against damage.

- No. 2034A. Wrico Lettering Set (No. M) complete, containing one each Nos. 2033C, D, E, F, J, K, L, and M, and one each Nos. 2037-2, -3, -4, -5, and -6, Each, \$
- 2034B. Wrico Lettering Set (No. A), containing one each Nos. 2033C, E, F, J, K, L, and M, and one each Nos. 2037-3, -4, -5, and -6, Each, \$
- 2034C. Wrico Lettering Set (No. B), containing one each Nos. 2033E, F, J, K, L, and M, and one each Nos. 2037-3, -4, and -5, Each, \$
- 2034D. Wrico Lettering Set (No. KV), containing one each Nos. 2033A and B, and No. 2037-7, Each, \$
- 2034E. Wrico Lettering Set (No. E), containing one each Nos. 2033C, D, and DV, and No. 2037-6, Each, \$

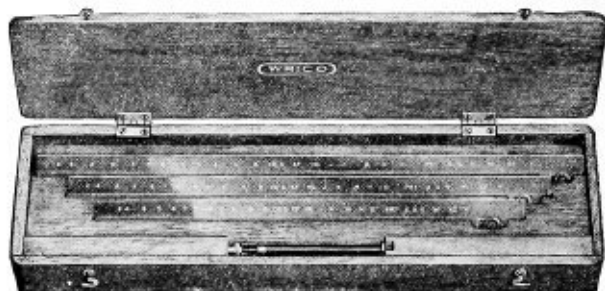
Condensed Vertical Lettering Sets

- No. 2034L. Wrico Lettering Set (No. D), containing one each Nos. 2033DN, DL, DC, FN, FL, and FC, and one No. 2037-6, Each, \$
- 2034M. Wrico Lettering Set (No. F), containing one each Nos. 2033JN, KC, LN, MC, PN, RC, and one each Nos. 2037-2, -3, -4, and -5, Each, \$

Wrico Slanting Lettering Guides

No.	WRICO Lettering Guide	(SCN90)	Slanting Letters and Numerals,	Height.	Each.
2035A.	"	"	"	.090 in.	\$
2035B.	"	"	"	.120 "	"
2035C.	"	"	"	.140 "	"
2035D.	"	"	"	.175 "	"
2035DS.	"	"	"	.200 "	"
2035E.	"	"	"	.240 "	"
2035F.	"	"	"	.240 "	"
2035J.	"	"	"	.350 "	"
2035K.	"	"	"	.350 "	"
2035L.	"	"	"	.500 "	"
2035M.	"	"	"	.500 "	"

WRICO Slanting Lettering Sets



WRICO Slanting Lettering Set No. 2036E.

WRICO Lettering Sets are furnished in handsome solid mahogany cabinets with separate compartment provided for each Lettering guide and Pen facilitating rapid selection and protecting the instruments against damage.

- No. 2036A. Wrigo Lettering Set (No. SM) complete, containing one each No. 2035C, D, E, F, J, K, L, and M, and one each No. 2037-2, -3, -4, -5, -6 Each, \$
- 2036B. Wrigo Lettering Set (No. SA), containing one each No. 2035C, E, F, J, K, L, and M, and one each No. 2037-3, -4, -5, -6 Each, \$
- 2036C. Wrigo Lettering Set (No. SB), containing one each No. 2035E, F, J, K, L, and M, and one each No. 2037-3, -4, and -5 Each, \$
- 2036D. Wrigo Lettering Set (No. KS), containing one each No. 2035A and B, and No. 2037-7 Each, \$
- 2036E. Wrigo Lettering Set (No. SE), containing one each No. 2035C, D, and DS, and one each No. 2037-6 Each, \$
- 2036G. Wrigo Lettering Set (No. KVS), containing one each No. 2033A, and B, and No. 2035A, and B, and one No. 2037-7, Each, \$

WRICO Lettering Pens

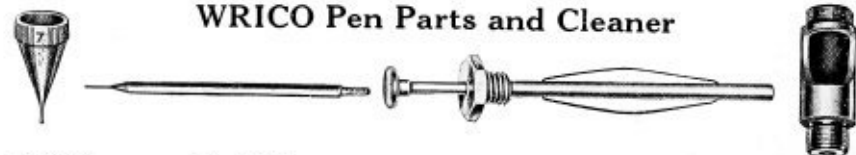


No. 2037-7.

WRICO Lettering Pens are especially designed for use with WRICO Lettering Guides. A tubular point insures ample strength and prevents ink from getting on the edge of the openings in the guides. Large capacity is provided for in the cone shaped reservoir. A spring tempered steel wire at the lower end of the plunger regulates the flow of ink and prevents the point from becoming clogged with dried ink.

No. 2037-2.	WRICO Lettering Pen. (See weight of letter made on next page)	Each.
2037-3.	" " " " " " " " " " " "	\$
2037-4.	" " " " " " " " " " " "	
2037-5.	" " " " " " " " " " " "	
2037-6.	" " " " " " " " " " " "	
2037-7.	" " " " " " " " " " " "	

WRICO Pen Parts and Cleaner



No. 2037P.	No. 2037N.	No. 2037S.	No. 2037T.
No. 2037N.	Needles, for Wrigo Lettering Pens (When ordering specify pen size),		Each.
2037P.	Points, " " " " " " " " " " " "		\$
2037S.	Plungers, " " " " " " " " " " " "		
2037T.	Ferrules, " " " " " " " " " " " "		
2037W.	Barrels, " " " " " " " " " " " "		
2037Y.	WRICO Pen Cleaner, in 1-ounce bottles,		

See Price List in back of Catalog.

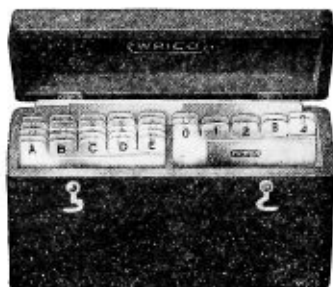


Samples of WRICO Lettering

Catalog No.	Pen 2037-2	Pen 2037-3	Pen 2037-4	Pen 2037-5	Pen 2037-6	Pen 2037-7
2033M	A	B	C	D	•	•
2033K	E	F	G	H	•	•
2033J	&	2	3	4	•	•
2033F	•	1	J	K	•	•
2033E	•	5	6	7	•	•
2033D	•	•	•	•	L 8	•
2033C	•	•	•	•	M 9	•
2033B	•	•	•	•	•	N 10
2033A	•	•	•	•	•	O 11
2035M	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	•	•
2035K	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	•	•
2035J	<i>&</i>	<i>2</i>	<i>3</i>	<i>4</i>	•	•
2035F	•	<i>1</i>	<i>J</i>	<i>K</i>	•	•
2035E	•	<i>5</i>	<i>6</i>	<i>7</i>	•	•
2035D	•	•	•	•	L 8	•
2035C	•	•	•	•	M 9	•
2035B	•	•	•	•	•	N 10
2035A	•	•	•	•	•	O 11

See description on preceding pages.

Wrico Sets for OUTLINE LETTERING

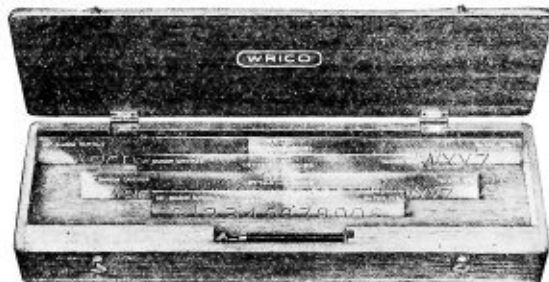


No. 2038.

- No. 2038. **Wrico Outline Lettering Set**, containing twenty-five $\frac{3}{4}$ in. Wrico Tab Guides for letters A to Z; eleven $\frac{3}{4}$ in. Wrico Tab Guides for numerals 0 to 9, and 1 Guide Holder, in solid mahogany cabinet, complete, Each, \$
2039. **Wrico Outline Lettering Set**, containing twenty-five 1 in. Wrico Tab Guides for letters A to Z; eleven 1 in. Wrico Tab Guides for numerals 0 to 9, and 1 Guide Holder, in solid mahogany cabinet, complete, Each, \$

Individual Tab Guides for Outline Lettering can be furnished in both sizes.

Wrico Sets for SHADOW LETTERING

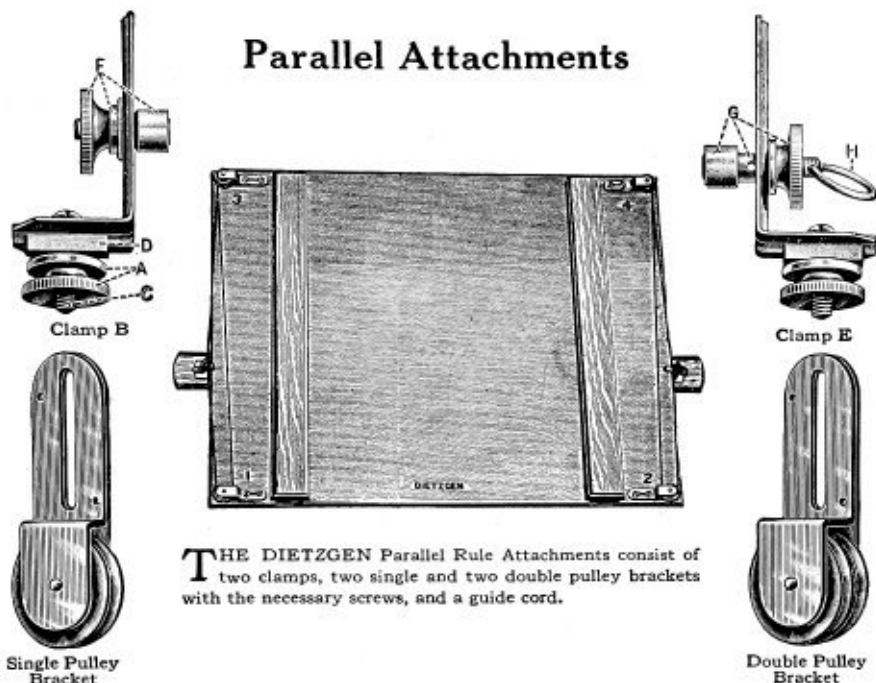


No. 2040.

- No. 2040. **Wrico Shadow Lettering Set**, (No. VH) containing one each Wrico Lettering Guide Nos. VHC 375, VHN 375, VHC 500, VHN 500, and 1 Lettering Pen No. 6 (See our No. 2037-6), in solid mahogany cabinet, complete Each, \$
- Individual Tab Guides for Shadow Lettering can be furnished.

See Price List in back of Catalog.

Parallel Attachments



THE DIETZGEN Parallel Rule Attachments consist of two clamps, two single and two double pulley brackets with the necessary screws, and a guide cord.

The parallel attachment used with the straight edge affords a very convenient means for neat, rapid drawings. It is also often indispensable when using large drawing boards and also boards of any size when continually used at a very steep angle. Dietzgen parallel attachments are unequalled for obtaining an absolute perfect parallel motion of the straight edge, whether set horizontal or at an angle. They are simple in design, neat in appearance and very durable, and can be quickly attached to any drawing board or table having projecting edges or available space underneath. The straight edge clamps are so designed as to allow quick setting or adjusting of the straight edge to the board and cord, and when so desired permits the straight edge to be quickly removed entirely, leaving the board unobstructed for use of a T Square.

Full instructions for attaching are furnished.

Attachments Only

No. 2043. Attachments only, nickel plated, for Drawing Boards, $\frac{1}{8}$ to $1\frac{1}{2}$ in. thick. Each, \$

Straight Edges

For Use with Parallel Attachments.



No. 2046L.

No. 2044.	Ash, Maple Lined, Straight Edge, for drawing boards.									
	31	43	49	55	61	73	85	97	109	121 in. long.
Each, \$										
2044L.	Same as No. 2044, but with Ledge for holding pencils, small tools, etc.									
	31	43	49	55	61	73	85	97	109	121 in. long.
Each, \$										
2046.	Maple, Transparent Celluloid Lined, Straight Edge, for drawing boards.									
	31	43	49	55	61	73	85	97	109	97 in. long.
Each, \$										
2046L.	Same as No. 2046, but with Ledge for holding pencils, small tools, etc.									
	31	43	49	55	61	73	85	97	109	97 in. long.
Each, \$										

The above Straight Edges may be used for boards, either 1 inch shorter or 1 inch longer than lengths listed.

When ordering Straight Edges, always specify exact length of board.

See Price List in back of Catalog.

Wooden Straight Edges

To insure the desirable qualities of trueness and durability, our Straight Edges are made of carefully selected, thoroughly seasoned materials, and are of unsurpassed workmanship.

Each Straight Edge stamped with our name and trade-mark.



No. 2051.

No. 2051. Ash, Maple Lined, square edges.

Size,	24	30	36	42	48 in.
Each,	\$				
Size,	60	72	84	96	120 in.
Each,	\$				



No. 2052.

No. 2052. Mahogany, Ebonized Boxwood Lined, highly finished, square edges.

Size,	24	30	36	42	48	54 in.
Each,	\$					



No. 2056.

No. 2056. Maple, Transparent Celluloid Lined, highly finished, tongued and grooved joints, square edges.

Size,	18	24	30	36	42	48	54	60 in
Each,	\$							

Steel Straight Edges



No. 2057.

No. 2057. Steel, nickel-plated, highest quality, one edge beveled.

Size,	15	18	24	30	36	42	48	54	60	72 in.
Width,	1 $\frac{3}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$
Thickness, . . . . .	.07	.07	.07	.08	.08	.09	.09	.09	.09	.10
Each,	\$									



No. 2058.

No. 2058. Steel, nickel-plated, highest quality, square edges.

Size,	24	30	36	42	48	60 in.
Width,	1 $\frac{1}{2}$	1 $\frac{3}{4}$	1 $\frac{3}{4}$	2	2	2 $\frac{1}{4}$
Thickness, . . . . .	.07	.08	.08	.09	.09	.09
Each,	\$					

Nos. 2057 and 2058 Steel Straight Edges can be furnished to order **divided inches and tenths or inches and sixteenths, numbered every inch, Each foot, \$**

See Price List in back of Catalog.



Wooden T Squares

Highest Quality

Realizing the importance of trueness and durability in T Squares, we use in their manufacture only the most carefully selected and thoroughly seasoned stock, the stock being seasoned by a special process. This fact, combined with perfect workmanship and finish, results in these articles being of acknowledged accuracy and of unsurpassed quality. As an additional strength and rigidity precaution, the size and thickness of the heads and width and thickness of the blades are greater than customary, while the nicety of balance and ease of handling are unequaled.

Each and every T Square is stamped with our name and trade-mark—a quality guarantee.



No. 2060



Maple Blade and Head; fixed Head.

No. 2060.	Size,	15	18	21	24	30	36	42	48 in.
	Each,	\$							
12060.	Size, (School Quality)			18	21	24	30	36 in.	
	Doz.,	\$							



No. 2063

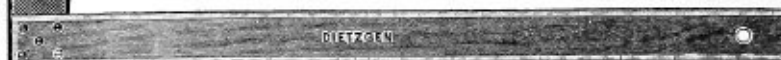


Maple Blade, Ebonized Head; fixed Head.

No. 2063.	Size,	.	.	.	.	.	.	24	30	36 in.
	Each,	.	.	.	.	.	.	\$



No. 2066.



Ash, Maple Lined Blade, Ebonized Head; fixed Head.

No. 2066.	Size,	.	24	30	36	42	48	60	72 in.	
	Each,	\$								
12066.	Size, (School Quality)	.	.	.	.	.	.	24	30 in.	
	Doz.,	\$								

See Price List in back of Catalog.

Wooden T Squares

Highest Quality



No. 2069



Mahogany, Ebonized Boxwood Lined Blade and Head, highly finished; fixed Head.

No. 2069.	Size,							
	Each,			24	30	36	42	48 in.
			\$					
12069.	Size, (School Quality)						24	30 in.
	Doz.,						\$	



No. 2069D.



Mahogany, Ebonized Boxwood Lined Blade and Head, highly finished; shifting double Head, with two nickeled brass knurled-head swivels.

No. 2069D.	Size,							
	Each,			24	30	36	42 in.	
			\$					



No. 2072.



Mahogany, Ebonized Boxwood Lined Blade and Head, highly finished; beveled edge, fixed Head. **Extra heavy.** The blade is tapered and very wide at the base, to prevent spring at the further end. The drawing edge is in line with the middle of the head.

No. 2072.	Size,							
	Each,			36	42	48	54 in.	
			\$					

See Price List in back of Catalog.

Transparent Celluloid Lined T Squares

The principal advantage of our improved construction using the tongue and groove feature is that the gluing surface has been almost doubled, thereby lessening the liability of the blade warping. The tongue and groove feature, combined with the fact that the two transparent celluloid edges are firmly connected at each end of the blade by a transparent celluloid "bridge," absolutely eliminates the possibility of the edges becoming detached from the blade.

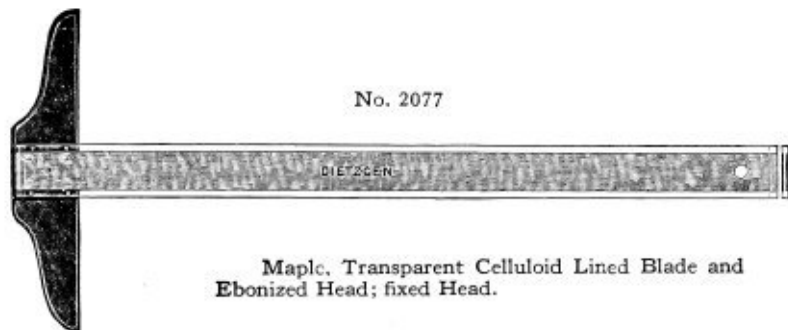
Highest Quality



Cross Section Through Blade Showing Tongue and Groove Feature



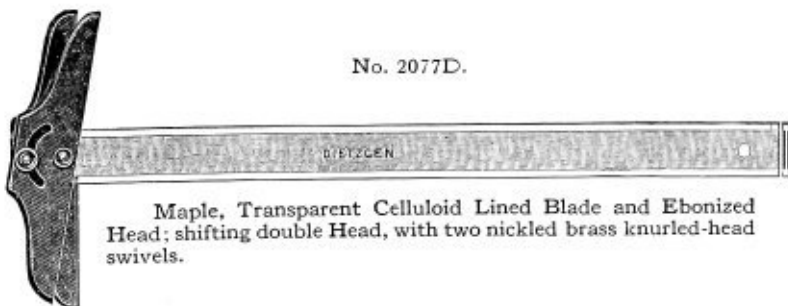
End View of Blade Showing Bridge at End of Blade Feature



No. 2077

Maple, Transparent Celluloid Lined Blade and Ebonized Head; fixed Head.

No. 2077.	Size,	. . .	18	24	30	36	42	48	54	60 in.
	Each,	. . .	\$							
12077.	Size,	(School Quality)	. . .	. . .	. . .	18	24	30	36	42 in.
	Each,	. . . . .	. . . . .	. . . . .	. . . . .	\$



No. 2077D.

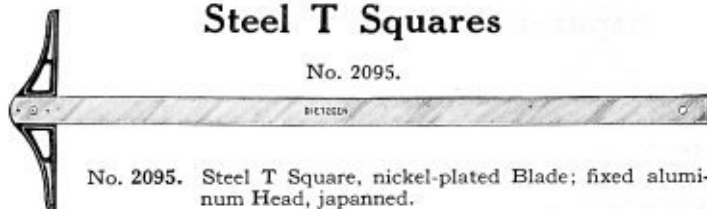
Maple, Transparent Celluloid Lined Blade and Ebonized Head; shifting double Head, with two nickled brass knurled-head swivels.

No. 2077D.	Size,	. . .	18	24	30	36	42	48	54	60 in.
	Each,	. . .	\$							

See Price List in back of Catalog.

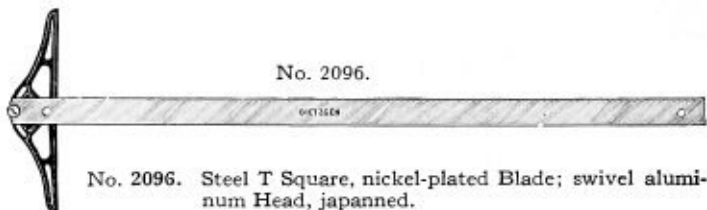
Steel T Squares

No. 2095.



No. 2095. Steel T Square, nickel-plated Blade; fixed aluminum Head, japanned.

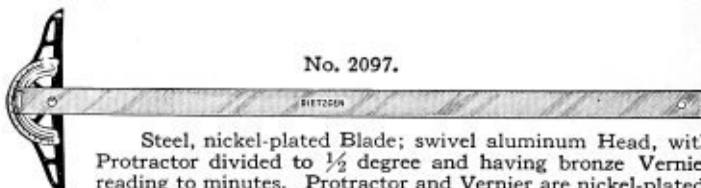
No. 2096.



No. 2096. Steel T Square, nickel-plated Blade; swivel aluminum Head, japanned.

Size,	18	24	30	36	42 in.
Width,	1 1/4	1 1/4	1 1/2	1 1/2	1 3/4
Thickness, . . . . .	.05	.05	.05	.05	.05
No. 2095. Each,	\$				
No. 2096. Each,	\$				

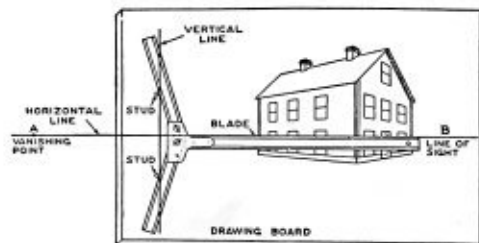
No. 2097.



Steel, nickel-plated Blade; swivel aluminum Head, with Protractor divided to 1/2 degree and having bronze Vernier reading to minutes. Protractor and Vernier are nickel-plated.

No. 2097. Size,	24	30	36	42 in.
Width,	1 1/4	1 1/2	1 1/2	1 3/4
Thickness, . . . . .	.05	.05	.05	.05
Each,	\$			

Perspective Lineads



No. 2105.

- No. 2105. Perspective Linead, Mahogany, Ebonized Boxwood Lined Blade and Arms; nickel-plated swivels; 24 in. blade, 10 in. arms; with two studs, Each, \$
2107. Like No. 2105, but 36 in. blade and 12 in. arms, "

Perspective Lineads are used to draw perspective lines of buildings, etc., whenever the vanishing point lies beyond the drawing board. The **vanishing point** is the point from which all lines of a perspective drawing radiate.

Complete directions furnished with each instrument.

See Price List in back of Catalog.



Transparent Celluloid Curves

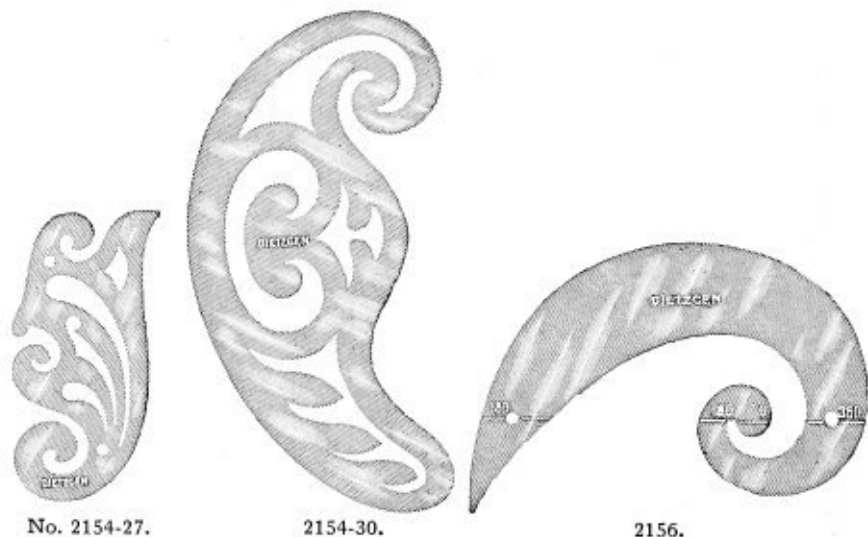
Illustrations $\frac{1}{5}$ to $\frac{1}{6}$ size

No. 2152.

No. 2152.	Transparent Celluloid Curves, highly polished.									
Nos.,	6	8	10	10B	13	14	15	16	17	
Each,	\$									
Nos.,	17B	18	18B	19	20	21	23	24	25	
Each,	\$									
12152.	Transparent Celluloid Curves (School Quality).									
Nos.,	6	8	13			15		16	18	
Doz.,	\$									

See Price List in back of Catalog.

Transparent Celluloid Curves



No. 2154-27.

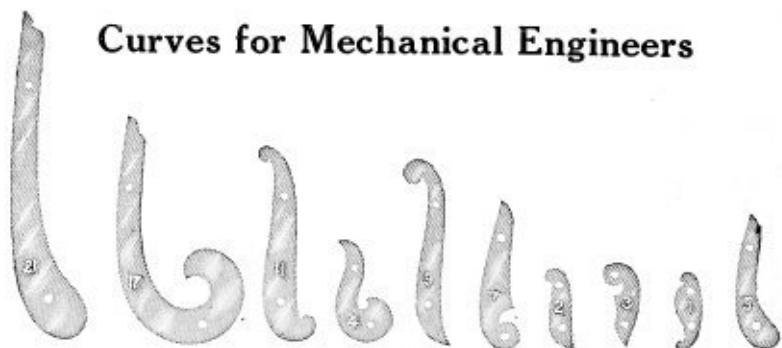
2154-30.

2156.

- No. 2154-27. Combination Curve, Transparent Celluloid, highly polished, Each, \$
 12154-27. " " " " (School Quality), Doz.,
 2154-30. " " " " highly polished, Each,
 2156. Logarithmic Spiral Curve, " " " " "

The No. 2156 Logarithmic Spiral Curve is mathematically constructed and contains every curve within limit of its size. If used according to the very complete directions furnished, the most difficult calculations can be solved.

Curves for Mechanical Engineers



No. 2158.

- No. 2158. Transparent Celluloid Curves, highly polished.
 Nos., 1 2 3 4 5 7 9 11 17 21
 Each, \$
 2158C. Set of 10 Curves, shown above, in polished wooden box, . Set, \$

See Price List in back of Catalog.

Celluloid Chemistry Stencil



No. 2159

This is an Excellent and Convenient Item for School Classes as well as Professional Chemists and Physicists.

- No. 2159. Celluloid Chemistry Stencil. A flexible, transparent, celluloid guide having cut-outs of flasks, beakers, bunsen burners, etc., so that by tracing the inside of these cut-outs with a pencil any of the articles illustrated may be reproduced. The outer edges of the stencil form angles which are of assistance when drawing bent delivery tubes. With millimeter scale on edge. Size, $7\frac{1}{2} \times 14\frac{1}{2}$ cm., . . . Each, \$

Adjustable Curve Rulers



No. 2160.



No. 2161.

- No. 2160. Adjustable Curve Ruler, $14\frac{1}{2}$ in. long, black rubber ruling edge, other parts nicked, highest grade, Each, \$
 2161. Adjustable Curve Ruler, 30 in. long, steel ruling edge, entire ruler of metal, nickel-plated, highest grade, Each,
 2161A. Same as No. 2161, but 15 inches long, Each,
 2162. Adjustable Curve Ruler, 12 in. long, white rubber ruling edge, other parts nicked, medium grade, Each,
 2163. Like No. 2162, but 24 in. long, "

These Adjustable Curve Rulers consist of a ruling edge of rubber combined with a soft bar of lead, except Nos. 2161 and 2161A, which have a steel ruling edge. They will hold any curve to which they are bent.



No. 2165.



- No. 2165. Adjustable Curve Ruler, Double Edge, 7 in. long, . . . Each, \$
 2166. " " " " " 15 " " . . . "
 2167. " " " " " 31 " " . . . "

The Nos. 2165-2167 Adjustable Curve Rulers can be instantly adjusted and retained to any form or curve. Both working edges are rounded, and by slightly inclining the pencil or the pen two or more parallel curves can be drawn without moving the ruler.

See Price List in back of Catalog.

Hyperbolas and Parabolas

Transparent Celluloid

Highly Polished



No. 2176.



2178.

- No. 2176. Hyperbolas, set of 8, height 2 to $5\frac{1}{2}$ inches (by $\frac{1}{2}$ in.) . . . Set, \$
 2178. Parabolas, " " 8, " $1\frac{1}{4}$ " $5\frac{5}{8}$ " ($\frac{5}{8}$ ") . . . "
 2179. " " 8, " $3\frac{1}{4}$ " $14\frac{1}{2}$ " ($1\frac{1}{2}$ ") . . . "

Ellipses

Transparent Celluloid

Highly Polished

- No. 2180. Ellipses, set of 10, major axis, $1\frac{1}{2}$ to 6 in. (by $\frac{1}{2}$ in.), . . . Set, \$



No. 2180.

Splines



No. 2189.

- No. 2189. Transparent Celluloid Splines.

Size,	24	30	36	42	48 in.
Each,	\$				

Weights for Splines



No. 2192.

- No. 2192. Weights for Splines, lead with finger, about $3\frac{1}{2}$ lbs., . . . Each, \$
 2193. " " " " " " 5 " . . . "

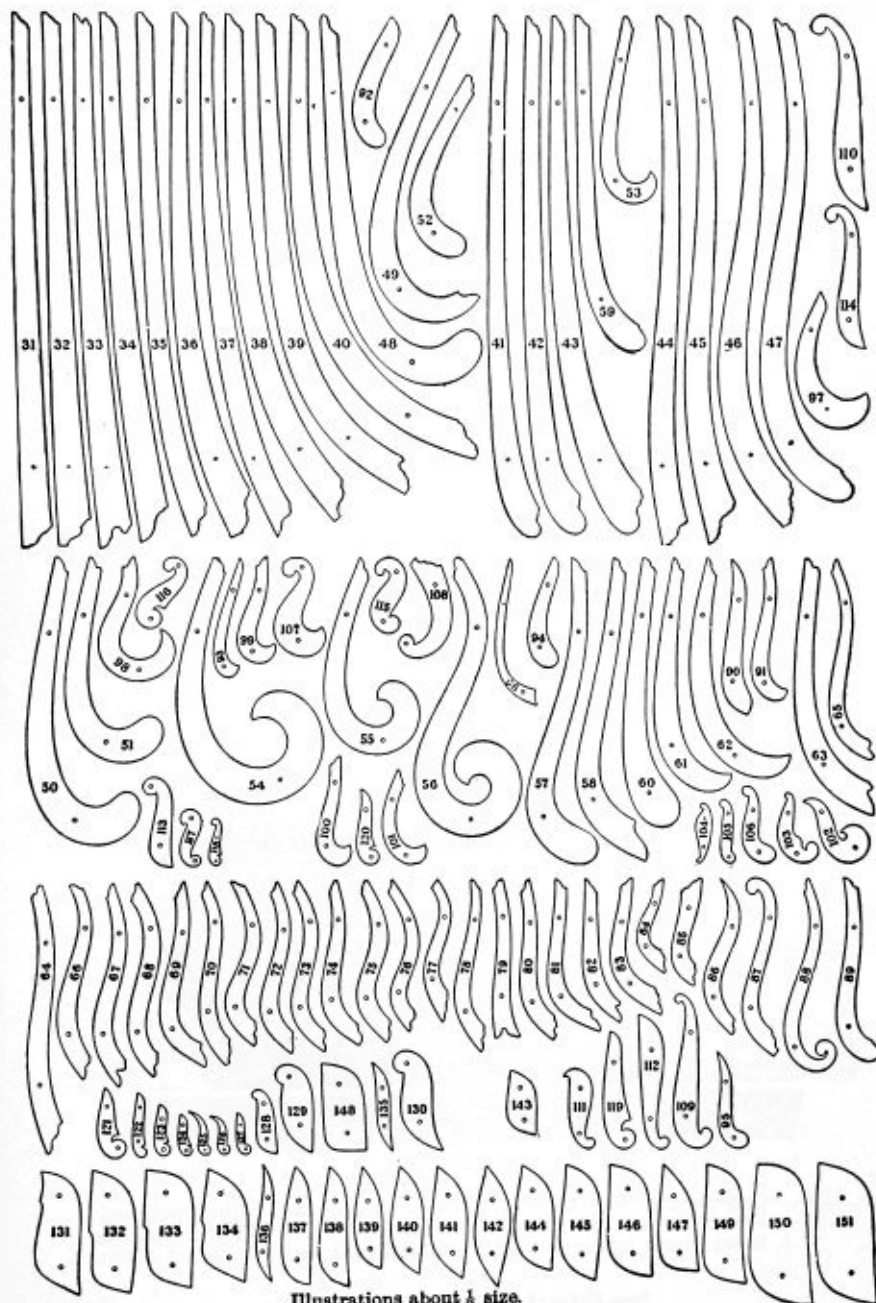
These weights have bottoms covered with felt to avoid scratching surface.

See Price List in back of Catalog.



Copenhagen Ship Curves

Transparent Celluloid

Illustrations about $\frac{1}{2}$ size.

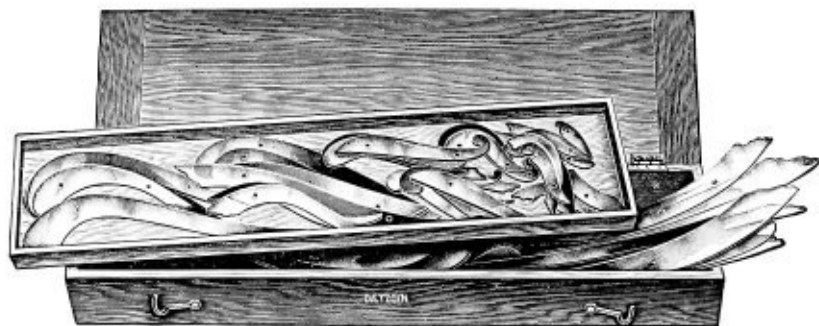


Copenhagen Ship Curves

No. 2217. Copenhagen Ship Curves, transparent celluloid, highly polished single curves, as listed below. (See illustrations on opposite page.)

Curve No.	Each, \$	Curve No.	Each, \$	Curve No.	Each, \$	Curve No.	Each, \$
31		62		92		122	
32		63		93		123	
33		64		94		124	
34		65		95		125	
35		66		96		126	
36		67		97		127	
37		68		98		128	
38		69		99		129	
39		70		100		130	
40		71		101		131	
41		72		102		132	
42		73		103		133	
43		74		104		134	
44		75		105		135	
45		76		106		136	
46		77		107		137	
47		78		108		138	
48		79		109		139	
49		80		110		140	
50		81		111		141	
51		82		112		142	
52		83		113		143	
53		84		114		144	
54		85		115		145	
55		86		116		146	
56		87		117		147	
57		88		118		148	
58		89		119		149	
59		90		120		150	
60		91		121		151	
61							

When ordering, please state curve number.



No. 2218.

No. 2218. Copenhagen Ship Curves, transparent celluloid, highly polished; complete set of 121 curves, numbers 31 to 151 inclusive, as listed above under No. 2217; in hardwood case, . . . Set, \$

See Price List in back of Catalog.



Railroad Curves



Nos. 2222-2224.

Wood

No. 2222. Wooden Railroad Curves, 17 in set, 12 to 60 inches radius, viz.: 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60 in., in wooden box, Set, \$

2224. Wooden Railroad Curves, 44 in set, 3 to 200 inches radius, viz.: 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 12, 14, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 42, 48, 54, 60, 66, 72, 78, 84, 90, 100, 110, 120, 130, 140, 160, 180, 200 inches, in wooden box, . . . Set,

Single Railroad Curves of Wood, Each,

Cardboard

No. 2227. Card Board Railroad Curves, 30 in set, viz.: 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 35, 40, 45, 50, 60 inches radius, in wooden box, Set, \$

2228. Card Board Railroad Curves, 50 in set, viz.: 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 10½, 11, 11½, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 110, 120 inches radius, in wooden box, Set,

2229. Card Board Railroad Curves, 100 in set, viz.: 1½, 2, 2½, 3, 3½, 4, 4½, 5, 5½, 6, 6½, 7, 7½, 8, 8½, 9, 9½, 10, 10½, 11, 11½, 12, 12½, 13, 13½, 14, 14½, 15, 15½, 16, 16½, 17, 17½, 18, 18½, 19, 19½, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 70, 75, 80, 85, 90, 95, 100, 110, 120, 130, 140, 150, 160, 180, 200, 220, 240 inches radius, in wooden box, Set,

See Price List in back of Catalog.

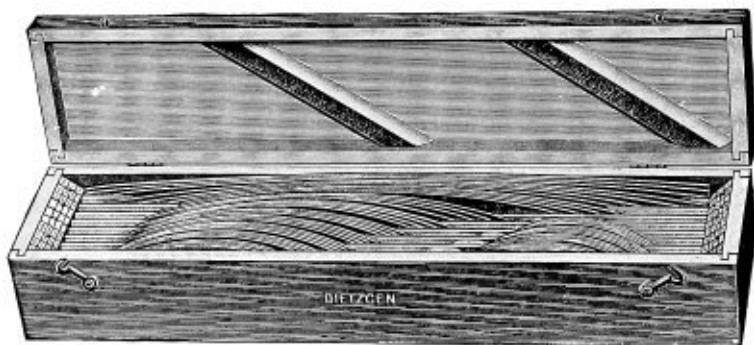
Railroad Curves

Metal



- No. 2230. Metal Railroad Curves, 10 in set, 12 to 120 in. radius, viz.: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120 in., Set, \$
2232. Metal Railroad Curves, 17 in set, 12 to 60 in. radius, viz.: 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60 in., Set,
- Single Railroad Curves of Metal, Each,
- Other sets containing up to 100 Curves, furnished to order.

Transparent Celluloid

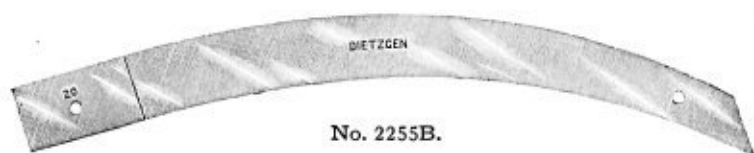


- No. 2252. Transparent Celluloid Railroad Curves, highly polished, 17 in set, 12 to 60 in. radius, viz.: 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60 in., in wooden box, Set, \$
2254. Transparent Celluloid Railroad Curves, highly polished, 30 in set, $1\frac{1}{2}$ to 60 in. radius, viz.: $1\frac{1}{2}$, 2, $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, $5\frac{1}{2}$, 6, 7, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 35, 40, 45, 50, 60 in., in wooden box with partitions, Set,
- 2255A. Transparent Celluloid Railroad Curves, highly polished, 50 in set, $1\frac{1}{4}$ to 120 in. radius, viz.: $1\frac{1}{4}$, 2, $2\frac{1}{4}$, 3, $3\frac{1}{4}$, 4, $4\frac{1}{4}$, 5, $5\frac{1}{4}$, 6, $6\frac{1}{4}$, 7, $7\frac{1}{4}$, 8, $8\frac{1}{4}$, 9, $9\frac{1}{4}$, 10, $10\frac{1}{4}$, 11, $11\frac{1}{4}$, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 110, 120 in., in wooden box with partitions, Set,
- Single Railroad Curves of Transparent Celluloid, highly polished, Each,

See Price List in back of Catalog.

Railroad Curves

Transparent Celluloid with Tangent



No. 2255B.

No. 2255B. Transparent Celluloid Railroad Curves, with Tangent, highly polished, 55 in set, 3 to 200 in. radius, viz.: 3, 3½, 4, 4½, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36, 38, 40, 45, 50, 55, 60, 65, 70, 75, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 in., in wooden box with partitions, Set, \$



Nos. 2256-2258.

No. 2256. Transparent Celluloid Railroad Curves, with Tangent, highly polished, 41 in set, marked in degrees and inches to 100 feet scale, viz.:

0°.30' = 114.59 in.	3°.30' = 16.37 in.	6°.00' = 9.55 in.	8°.30' = 6.75 in.
1°.00' = 57.30 "	3°.45' = 15.28 "	6°.15' = 9.17 "	8°.45' = 6.55 "
1°.15' = 45.84 "	4°.00' = 14.33 "	6°.30' = 8.82 "	9°.00' = 6.37 "
1°.30' = 38.20 "	4°.15' = 13.48 "	6°.45' = 8.49 "	9°.15' = 6.20 "
1°.45' = 32.74 "	4°.30' = 12.73 "	7°.00' = 8.19 "	9°.30' = 6.04 "
2°.00' = 28.65 "	4°.45' = 12.07 "	7°.15' = 7.91 "	9°.45' = 5.88 "
2°.15' = 25.47 "	5°.00' = 11.46 "	7°.30' = 7.64 "	10°.00' = 5.74 "
2°.30' = 22.92 "	5°.15' = 10.92 "	7°.45' = 7.40 "	10°.30' = 5.48 "
2°.45' = 20.84 "	5°.30' = 10.42 "	8°.00' = 7.17 "	11°.00' = 5.22 "
3°.00' = 19.10 "	5°.45' = 9.97 "	8°.15' = 6.95 "	11°.30' = 4.99 "
3°.15' = 17.63 "			

In wooden box with partitions, Set, \$

No. 2258. Transparent Celluloid Railroad Curves, with Tangent, highly polished, 55 in set, marked in degrees and inches to 100 feet scale, viz.:

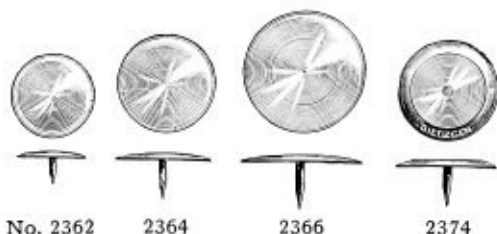
0°.15' = 229.18 in.	3°.45' = 15.28 in.	7°.15' = 7.91 in.	11°.30' = 4.99 in.
0°.30' = 114.59 "	4°.00' = 14.33 "	7°.30' = 7.64 "	12°.00' = 4.78 "
0°.45' = 76.39 "	4°.15' = 13.48 "	7°.45' = 7.40 "	12°.30' = 4.59 "
1°.00' = 57.30 "	4°.30' = 12.73 "	8°.00' = 7.17 "	13°.00' = 4.42 "
1°.15' = 45.84 "	4°.45' = 12.07 "	8°.15' = 6.95 "	13°.30' = 4.25 "
1°.30' = 38.20 "	5°.00' = 11.46 "	8°.30' = 6.75 "	14°.00' = 4.10 "
1°.45' = 32.74 "	5°.15' = 10.92 "	8°.45' = 6.55 "	14°.30' = 3.96 "
2°.00' = 28.65 "	5°.30' = 10.42 "	9°.00' = 6.37 "	15°.00' = 3.83 "
2°.15' = 25.47 "	5°.45' = 9.97 "	9°.15' = 6.20 "	16°.00' = 3.59 "
2°.30' = 22.92 "	6°.00' = 9.55 "	9°.30' = 6.04 "	17°.00' = 3.38 "
2°.45' = 20.84 "	6°.15' = 9.17 "	9°.45' = 5.88 "	18°.00' = 3.20 "
3°.00' = 19.10 "	6°.30' = 8.82 "	10°.00' = 5.74 "	19°.00' = 3.03 "
3°.15' = 17.63 "	6°.45' = 8.49 "	10°.30' = 5.48 "	20°.00' = 2.88 "
3°.30' = 16.37 "	7°.00' = 8.19 "	11°.00' = 5.22 "	

In wooden box with partitions, Set, \$
Single Railroad Curves of Transparent Celluloid, with Tangent, Each,

Wooden Box with partitions illustrated under No. 2255A.

See Price List in back of Catalog.

Gem Union Thumb Tacks



The Gem Union Thumb Tacks Nos. 2362-2374 are made of carefully selected material, special attention being given to the proper design of the pins, an important feature. The form of the pins is such that they will not bend or cause disfiguring holes in the board, and while the tacks grip firmly, they can be easily inserted or removed. The Nickel silver heads, into which the pins are screwed and riveted, have firm, thin edges, thereby offering no obstruction to T Square or Triangles.

Packed one dozen on a card.

No. 2362.	Nickel Silver, Round Heads, $\frac{3}{8}$ in. diam.,	.	.	.	.	.	.	.	.	Doz., \$
2364.	" " " " $\frac{3}{8}$ " "	.	.	.	.	.	.	.	.	"
2366.	" " " " $\frac{3}{8}$ " "	.	.	.	.	.	.	.	.	"
2374.	" " " " $\frac{3}{8}$ " "	.	.	.	.	.	.	.	.	"

Thumb Tacks with Riveted Steel Points



No. 2401-2405—Thumb Tacks, made of Nickel silver, highly finished, with steel point riveted in head in a manner which prevents them from being pushed through.

Packed one dozen on a card.

No. 2401.	Nickel Silver, Round Heads, $\frac{3}{8}$ in. diam.,	.	.	.	.	Gross, \$	Doz., \$
2403.	" " " " $\frac{3}{8}$ " "	.	.	.	.	"	"
2405.	" " " " $\frac{3}{8}$ " "	.	.	.	.	"	"
No. 2422.	Brass, Round Heads, $\frac{3}{8}$ in. diam.,	.	.	.	.	"	"
2424.	" " " " $\frac{3}{8}$ " "	.	.	.	.	"	"
2426.	" " " " $\frac{3}{8}$ " "	.	.	.	.	"	"

Simplex Brass Thumb Tacks



Packed one gross (loose) in cardboard box.

No. 2434.	Brass, Round Heads, $\frac{3}{8}$ in. diam.,	.	.	.	.	Box of one gross, \$
2435.	Brass, Round Heads, $\frac{1}{2}$ in. diam.,	.	.	.	.	" " " "
2436.	Brass, Round Heads, $\frac{3}{8}$ in. diam.,	.	.	.	.	" " " "

Twist Out Thumb Tacks

The twist out thumb tack is a time and labor saving tack which eliminates the use of a tack lifter. It has two arc slots for insertion of finger nails by which the tack is readily twisted out of the board. Made of nickel-plated steel of best quality with steel point riveted in a manner to prevent pushing through.

No. 2439.	Twist Out Thumb Tacks, $\frac{3}{8}$ in. diam.,	packed 1 doz. loose in box.
		Box of 1 Gross, \$
2439A.	Like No. 2439 but put up 4 on a cork, 6 corks in a pasteboard box.	Box of 1 Doz., \$
		Gross of Tacks, \$
		Doz of Tacks, \$



No. 2439.

See Price List in back of Catalog.

Stamped Steel Thumb Tacks

Counter Display Carton

This is an excellent stamped steel thumb tack, put up 36 in neat tin container, to retail at 10c per box. They are packed 36 boxes to a carton which is so designed that it makes a neat and effective counter display. It has a counter card which can be inserted in the back of the box as shown in the illustration.

No. 2441A. Stamped Steel Thumb Tacks, $\frac{7}{16}$ in., nickel-plated, 36 tacks in tin, packed 36 tins to carton.
Carton \$



No. 2441A.



No. 2440.



2441.



2442.

Our stamped Steel Thumb Tacks are made of one piece of nickel-plated hard steel, and are of the best quality. They have needle-finished points, and are unequaled as a low-priced substitute for the regular thumb tacks.

Packed 100 (loose) in cardboard box.

No. 2440.	Stamped Steel,	$\frac{3}{8}$ " diam.	. . . . .	Box of 100, \$
2441.	"	$\frac{7}{16}$ "	"	" " 100,
2442.	"	$\frac{9}{16}$ "	"	" " 100,
No. 2443-1.	"	$\frac{3}{8}$ " diam. (School Quality)	. . . . .	Per M, \$
2443-2.	"	$\frac{7}{16}$ "	" " "	" M,
2443-3.	"	$\frac{9}{16}$ "	" " "	" M,



No. 2445B.

Packed one dozen in round cardboard box.

No. 2445B.	Stamped Steel, Round Heads,	$\frac{3}{8}$ in. diam.,	Doz. Boxes, \$	Box, \$
2446B.	"	$\frac{7}{16}$ "	" " " "	"
2447B.	"	$\frac{9}{16}$ "	" " " "	"

See also Nos. 3222 and 3224.

See Price List in back of Catalog.

Commercial Steel Thumb Tacks



No. 2450.



2451.



2452.

The Commercial Steel Thumb Tacks are made very strong and heavy. They are very serviceable for a low-priced article.

Packed 100 (loose) in round wooden box.

No. 2450.	Round Heads, $\frac{3}{8}$ in. diam.,	. . . . .	Box of 100, \$
2451.	" " $\frac{7}{16}$ " " "	. . . . .	" " 100,
2452.	" " $\frac{1}{2}$ " " "	. . . . .	" " 100,

Tack Lifter



No. 2460.

Made of steel, nickel-plated. Very convenient for pushing in or for extracting tacks from Drawing Boards, without injuring the points. The handle can be used as a paper cutter, and is also serviceable for pressing down the edges when stretching paper or for removing sheets which have been gummed to the board.

No. 2460.	Tack Lifter, nickel-plated;	Each, \$
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Center Tacks



No. 2465.



2466.



2467.

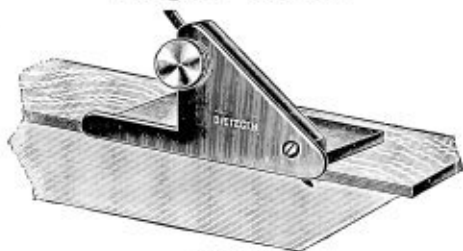
No. 2465.	Horn Center, plain, $\frac{1}{2}$ in. diam.,	Each, \$
2466.	" " Nickel silver rim, $\frac{5}{8}$ in. diam.,	"
2467.	Center tack, Nickel silver, $\frac{3}{8}$ in. diam.,	. . . . .	"

See also Nos. 3222 and 3224.

See Price List in back of Catalog.



Paper Cutter



No. 2471.

This instrument is used for cutting drawings from the board; also for cutting any kind of paper or bristol board. It slides along a T Square or a Straight Edge without injuring the edge, and has a thumb-screw adjustment which can be set so that the knife cuts only the thickness of the paper and does not mar the board.

No. 2471. Paper Cutter, nickel-plated, Each, \$

See also Nos. 4214-1 to 6 Ingento Paper Cutters

Paper Weights



No. 2480.



2486.

No. 2480. Iron Paper Weight, round, with opening in center to hold ink bottle, and with rubber inserts in bottom to avoid scratching surface; weight about 2 lbs., Each, \$

2486. Lead Paper Weight, covered with leather, bottom covered with felt, $4 \times 2\frac{1}{4} \times \frac{3}{4}$ in.; weight about $2\frac{3}{4}$ lbs., Each,



No. 2487.

This is a very practical paper weight, consisting of a soft, pliable leather bag filled with lead shot. It is small and compact and will not scratch or mar your desk or scuff your paper.

No. 2487. Paper Weight of shot in soft leather bag impervious to lead dust; round; weight about 3 lbs., Each, \$

See also Nos. 2740 and 2741.

See Price List in back of Catalog.

Dietzgen Liquid Drawing Ink

For Draftsmen and Artists

Flows Freely Dries Quickly
Positively Waterproof



Full Size



Showing Original Wrapper

Dietzgen Improved Liquid Waterproof Drawing Ink is made by new processes and formulae, the result of a long series of careful experiments. It is manufactured in our own laboratories where, under expert supervision, the most delicate chemical and physical tests are made. The specific gravity, viscosity, solubility, opacity, drying speed, etc., are determined with the utmost accuracy. Before placing the Ink on the market it is properly stored for a certain period, in order that a ripening or closer union of the ingredients may take place. The Dietzgen Ink has stood the most rigid tests, and will be found to possess all the desirable features required in a reliable Ink for general drafting. It is smooth-flowing, contains no chemicals injurious to instruments, and is kept at a fixed standard of density and quality.

The **Waterproof Black Ink** is made from the highest grade of pure carbon; is of unsurpassed density, flows freely, dries quickly, and even the finest lines produced by it are absolutely opaque. It is perfectly waterproof when dry, so that color washes can be used safely over it.

The **Colored Inks** are dense, true and brilliant. They can be used for lines or washes, are waterproof when dry, and may be thinned with distilled water, or mixed with each other to produce other shades.

See Nos. 2681 to 2691 on following page.



Dietzgen Liquid Drawing Inks

For Draftsmen and Artists

The absolute uniformity of Dietzgen Ink and its dense, smooth-flowing, quick and evenly drying qualities are appreciated by professional draftsmen and artists. Its popularity is gaining every day.

No.	Description	3/4 oz.	4 oz.	1/2 Pt.	Pt.	Qt.
No. 2681.	Dietzgen Waterproof Black Ink,	\$				
*12681.	" " " "					
2682.	" " Yellow					
2683.	" " Orange					
2684.	" " Scarlet					
2685.	" " Carmine					
2686.	" " Blue					
2687.	" " Green					
2688.	" " Brown					
2689.	" " Brick Red					
2690.	" " Vermilion					
2691.	" " Violet					

* Sold in Dozen Lots Only.

Empty Ink Bottles and Stoppers with Quills

No. 2692.	Empty Ink Bottles, 3/4 oz.,	Doz., \$
2693.	Stoppers with Quills,	"
2694.	Empty Ink Bottles, 3/4 oz., with Stoppers and Quills,	"

Blue Print and Brown Print Writing Fluids

For writing on and correcting Blue and Brown Prints.

No. 2700.	White Hyperion Blue Print Writing Fluid,	Each, \$
	3/4 oz.,	
2701.	Red Hyperion Blue Print Writing Fluid,	Each,
	3/4 oz.,	
2702.	Yellow Hyperion Blue Print Writing Fluid,	Each,
	3/4 oz.,	
2703.	White Vandyke Brown Print Writing Fluid,	Each,
	3/4 oz.,	



No. 2700.

Instanto Ink Remover listed under No. 144.

See Price List in back of Catalog.



Higgins' Liquid Drawing Inks



No. 2731.



2731B.



2735.

- | | | | | | | |
|-----------|--|-------------------|-------------------|-------------------|-----|-----|
| No. 2731. | Higgins' Waterproof Black Ink. | Each, \$ | $\frac{3}{4}$ oz. | $\frac{1}{2}$ Pt. | Pt. | Qt. |
| 2731B. | Higgins' Wrico Waterproof Black India Ink, made especially for use with Wrico Lettering Pens, supplied in $\frac{3}{4}$ oz. bottles with improved rubber dropper stopper, Each, \$ | $\frac{3}{4}$ oz. | $\frac{1}{2}$ Pt. | Pt. | Qt. | |
| 2732. | Higgins' Waterproof Colored Inks, Made in the following colors: | Each, \$ | | | | |
| | Blue, | Carmine, | Orange, | Violet, | | |
| | Brick Red, | Green, | Scarlet, | Yellow, | | |
| | Brown, | Indigo, | Vermilion, | White. | | |
- When ordering No. 2732, always specify color desired.
- No. 2733. Higgins' General Black Ink, which is soluble when dry, is best for India Ink tints, and washes, for tracings for patent offices, photo drawings and all fine line work, and also for artistic pen drawings and photo engravings.
In bottles of $\frac{3}{4}$ oz. $\frac{1}{2}$ Pt. Pt. Qt.
Each, \$
2735. Higgins' Eternal Ink. A permanent black ink, proof against age, air, sunshine, or chemicals; generally used for bank, legal and business writing, general correspondence, and state and county records; can be used in fountain pen if all trace of previously used ink is washed out.
In bottles of 2 oz. 4 oz. $\frac{1}{2}$ Pt. Pt. Qt.
Each, \$
2736. Higgins' Engrossing Ink. A dense, black indestructible ink, especially adapted for important writings, records and engrossing, and for fancy penmanship, card writing, etc. Waterproof when dry. Important documents or records intended to last undimmed by time should be written or signed with Engrossing ink.
In bottles of 2 oz. $\frac{1}{2}$ Pt. Pt. Qt.
Each, \$

Ink Bottle Tray



No. 2737.

- No. 2737. Ink Bottle Tray with pen and pencil trough without ink. A neat, wooden tray, nicely finished in brown. It will be found indispensable where a number of different color or kinds of ink are in use; adapted for Dietzgen or Higgins' $\frac{3}{4}$ oz. ink bottles, Each, \$

Ink Bottle Holders listed on following page.

See Price List in back of Catalog.



Ink Bottle Holders



No. 2742.



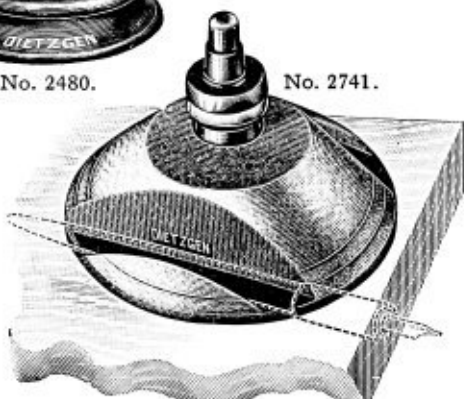
No. 2480.



2740.



No. 2744.



No. 2741.

- No. 2740. Iron Ink Bottle Holder and Paper Weight, threaded top, black enamel finish, weight about 12 oz., Each, \$
- 2741. EDCO-NOSLIP Ink Bottle Holder, made of molded rubber having considerable gripping qualities which enable it to be used on an inclined drawing board without danger of slipping; is also designed as a rest for pens, pencils, etc., Each, \$
- 2742. Clover Ink Bottle Holder, metal, black enamel finish, for 3 bottles, "
- 2744. Ink Bottle Holder, 2 bottles, stamped steel, black enamel finish, "

These Ink Bottle Holders, adapted for Dietzgen or Higgins' $\frac{3}{4}$ oz. ink bottles, will be found extremely useful in preventing ink from being upset. The two and three bottle holders are extremely advantageous in keeping bottles of different color ink together, convenient for ready use. They are neat and attractive and can also be used as a paper weight.

See also No. 2480. Iron Paper Weight, Page 253.

Handy Pen-Filling Ink Stand

Patented



No. 2746.

This Handy Pen-Filling Ink Stand is made to hold a $\frac{3}{4}$ oz. bottle of drawing ink. The arm which holds the dipper can be opened from any angle by a slight pressure of the finger upon the tipper bar. With the pen held as when ruling a line, the bar is depressed and the pen is brought directly under the dipper. The whole operation is easily performed with one hand. The automatic stopper fits closely over the mouth of the bottle and prevents evaporation. Handsomely enameled, strongly constructed and of sufficient weight to prevent tipping.



- No. 2746. Handy Pen-Filling Ink Stand, Each, \$

See Price List in back of Catalog.

W. & N. Liquids and Preparations
Johnston Snow White



No. 2770.



2778 1/2.

No. 2770.	Winsor & Newton	Chinese White,	Each, \$
2778 1/2.	"	Vermilion,	"
2779A.	"	Chinese White in tubes, small,	"
2779B.	"	" " " large,	"



No. 2779C.



2779D.



2779W.

No. 2779C.	Winsor & Newton	Albanine, a pure photographic white,	Each, \$
2779D.	"	Process Black, an opaque dead black,	"
2779W.	Johnston	Snow White, a water color product that is equally good with pens, brushes, air brushes, rubber stamps and on stamp pads; flows freely, will not rub off or powder,	"

See Price List in back of Catalog.

Higgins' Adhesives and Vegetable Glue



No. 2784.



2790.



2795.

No. 2783.	Higgins' Drawing Board and Library Paste, 5 oz., water well jar, Each,	\$		
2784.	" " " " " " " " " " " "	8	"	"
2790.	" Office Paste,	5	"	"
2791.	" " " " " " " " " " " "	8	"	"
2792.	" Taurine Mucilage,	2	"	"
2793.	" " " " " " " " " " " "	4	"	"
2794.	" " " " " " " " " " " "	8	"	"
2795.	" Vegetable Glue. In cans.	1 1/2 lb.		1 lb.
		Doz., \$		
		Each,		

A dense, strong, glue-like paste, cream colored; adapted for heavy work, such as making up packages, sticking paper or cloth together, or to wood, glass, metal or leather.

Carter's Photolibrary Paste

No. 2796.	Carter's Photolibrary Paste, in spreader tube, 1 1/2 oz.	Each, \$
2797.	" " " " " " " " " " " "	3

Weis Brush Tube Mucilage

No. 2798.	Weis Brush Tube Mucilage, medium size,	Each, \$
-----------	--	----------

Best-Test White Rubber Paper Cement

This Rubber Paper Cement has all the necessary features in the make-up of a perfect adhesive—smoothness, transparency, easy flow, tackiness and inoffensive odor. It forms a strong joint without wrinkling, curling, shrinking or penetrating the paper. It is used by artists, architects, lithographers, printers, bookbinders, manufacturers, and in offices, libraries, drafting rooms and households. Best-Test has a stubborn but flexible grip which can be either temporary or permanent, just as you choose.



No. 2799.

No. 2799.	In cans,	Gal.	Qt.	Pt.	1/2 Pt.	2-oz. Tubes
	Each,	\$				

See Price List in back of Catalog.

Winsor & Newton Water Colors



Whole Pan.



Half Pan.



Whole Tube.

- | | | |
|-----------------|-----------------------|-----------------|
| Antwerp Blue. | Emerald Green. | Olive Green. |
| Bistre. | Gamboge. | Payne's Grey. |
| Blue Black. | Flake White. | Permanent Blue. |
| Brown Ochre. | Hooker's Green No. 1. | Prussian Blue. |
| Burnt Sienna. | Hooker's Green No. 2. | Prussian Green. |
| Burnt Umber. | Indian Red. | Raw Sienna. |
| Charcoal Grey. | Ivory Black. | Raw Umber. |
| Chinese White. | Lamp Black. | Roman Ochre. |
| Chrome Lemon. | Light Red. | Sap Green. |
| Chrome Orange. | Mauve. | Terre Verte. |
| Chrome Yellow. | Naples Yellow. | Vandyke Brown. |
| Cologne Earth. | Neutral Tint. | Venetian Red. |
| Deep Chrome. | New Blue. | Yellow Ochre. |
| Dragon's Blood. | | |

No. 2800P. Whole Pans, Doz., \$. . . ; Half Pans, Doz., \$
 2800T. " Tubes (except Chinese White, see Nos. 2779A-B), " "

- | | | | |
|-------------------|---------------|-----------------|-----------------|
| Alizarin Carmine. | Brown Madder. | King's Yellow. | Ruben's Madder. |
| Alizarin Crimson. | Brown Pink. | Leitch's Blue. | Scarlet Lake. |
| Alizarin Green.* | Carmine Lake. | Mars Yellow. | Sepia. |
| Alizarin Orange.* | Crimson Lake. | Neutral Orange. | Warm Sepia. |
| Alizarin Scarlet. | Indigo. | Purple Lake. | Vermilion. |
| Alizarin Yellow.* | Italian Pink. | Roman Sepia. | Yellow Lake. |

No. 2801P. Whole Pans, Doz., \$. . . ; Half Pans, Doz., \$
 2801T. " Tubes, " "

- | | | | |
|-----------------------------|----------------------------|---------------------------------|-----------------------|
| Cadmium Orange. | Cerulean Blue. | Indian Yellow No. 2. | Oxide of Chromium. |
| Cadmium Yellow, Deep. | Cobalt Blue. | Intense Blue.* | Permanent Mauve.* |
| Cadmium Yellow, Extra Pale. | Cobalt Green. | Lemon Yellow. | Permanent Violet.* |
| Cadmium Yellow, Pale. | Emerald Oxide of Chromium. | Mars Orange. | Scarlet Vermilion. |
| | French Blue. | Orange Vermilion. | Ultramarine Ash-Grey. |
| | Indian Purple. | Oxide of Chromium, Transparent. | Viridian. |

No. 2802P. Whole Pans, Doz., \$. . . ; Half Pans, Doz., \$
 2802T. " Tubes, " "

- | | | | |
|----------------|---------------------------|--------------------|-----------------|
| Aureolin. | Field's Orange Vermilion. | Pink Madder.* | Rose Doree. |
| Aurora Yellow. | Gallstone. | Primrose Aureolin. | Rose Madder. |
| Burnt Carmine. | Madder Carmine. | Pure Scarlet.* | Yellow Carmine. |
| Carmine. | Madder Lake. | Purple Madder. | |
| | | Scarlet Madder. | |

No. 2803P. Whole Pans, Doz., \$. . . ; Half Pans, Doz., \$
 2803T. " Tubes, " "

No. 2804P. Whole Pans, Doz., \$. . . ; Half Pans, Doz., \$
 2804T. " Tubes, " "

Colors marked thus * are not prepared in Tubes.
 When ordering, specify catalog series number and color desired.

See Price List in back of Catalog.



Bourgeois French Water Colors



These Jars contain more than double the quantity sold in whole pans of other manufacturers at about the same price. The colors are in a moist state, in octagon crystal jar with cover forming saucer.

Brown Ochre.
Burnt Sienna.
Burnt Umber.
Chinese White.
Dragon's Blood.

Indian Red.
Ivory Black.
Lamp Black.
Light Red.
Prussian Blue.

Raw Sienna.
Raw Umber.
Vandyke Brown.
Venetian Red.
Yellow Ochre.

No. 2835. Bourgeois Colors, in Glass Jars, Doz., \$

Antwerp Blue.
Brilliant Yellow.
Brown Pink.
Brown Madder.
Chrome Green, Lt.
Chrome Green, Med.
Chrome Green, Dark.
Chrome Yellow, Lt.
Chrome Yellow, Dark.
Crimson Lake.

Dark Purple.
Emerald Green.
Gamboge.
Green Lake.
Indigo.
Italian Pink.
Lemon Yellow.
Naples Yellow.
Neutral Tint.
Olive Green.

Paynes Grey.
Rose Carthame, Lt.
Rose Carthame, Dark.
Sap Green.
Sepia.
Ultramarine Blue, Lt.
Ultramarine Blue, Dark.
Violet, Light, extra.
Violet, Dark, extra.
Warm Sepia.

No. 2836. Bourgeois Colors, in Glass Jars, Doz., \$

Cypress Green, Lt.
Cypress Green, Dark.
Geranium Rose.

Hooker's Green.
Indian Yellow.

Prussian Green.
Scarlet Lake.

No. 2837. Bourgeois Colors, in Glass Jars, Doz., \$

Cadmium Yellow, Deep.
Cadmium Yellow, Lt.
Cadmium Yellow, Lemon.
Carmine, Fine.

Celestial Blue.
Cerulean Blue.
Cobalt Blue.
Madder Lake, Lt.

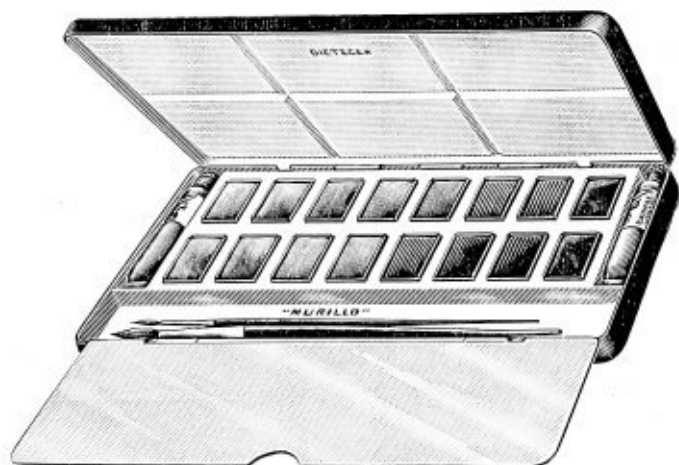
Madder Lake, Deep.
Vermilion, Light.
Vermilion, Dark.

No. 2838. Bourgeois Colors, in Glass Jars, Doz., \$

When ordering, specify catalog series number and color desired.

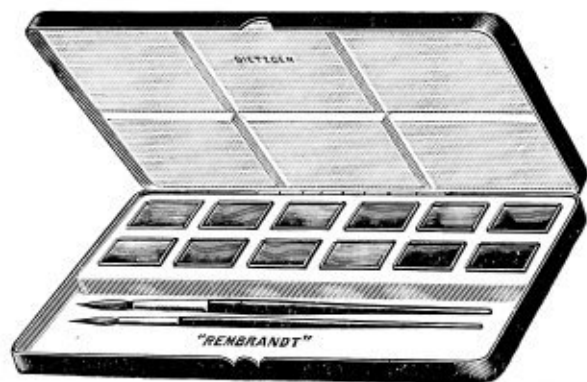
See Price List in back of Catalog.

Water Color Boxes



No. 2840.

- No. 2840. Murillo Water Color Box, large, japanned metal box, $8 \times 3\frac{3}{8}$ in., with inside lid, 16 moist colors in metal pans, 1 tube each Chinese White and Lamp Black, 3 brushes, Dozen, \$
2841. Murillo Water Color Box, small japanned metal box, $6\frac{5}{8} \times 3\frac{1}{2}$ in., 12 moist colors in metal pans, 1 tube each Chinese White and Lamp Black, 2 brushes, Dozen, \$



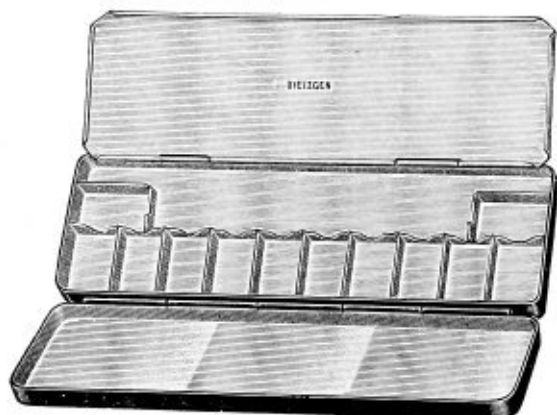
No. 2842.

- No. 2842. Rembrandt Water Color Box, japanned metal box, $6\frac{5}{8} \times 2\frac{3}{4}$ in., 12 moist colors in metal pans, 2 brushes, Dozen, \$

See Price List in back of Catalog.

Empty Japanned Metal Boxes

For Moist Colors in Pans



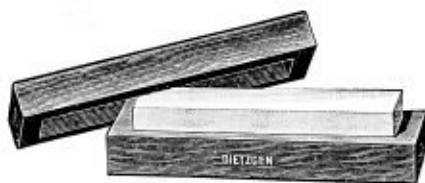
No. 2854.

No. 2850.	For	6 Whole or 12 Half Pans,								Each, \$
2854.	"	12	"	"	24	"	"	"	"	"
2857.	"	18	"	"	36	"	"	"	"	"

Carborundum and Oil Stones



No. 2894.



2895.

No. 2894.	Carborundum Stone, wedge shape slip,	$\frac{7}{8} \times 2\frac{1}{4}$ in.,					Each, \$
2895.	Oil Stone						"

No. 2894 and 2895 are excellent for sharpening ruling pen nibs, compass and divider points, and steel erasers.

Brushes listed on following page.

Water Colors in Pans listed under Nos. 2800P-2804P.

See Price List in back of Catalog.

Camel Hair Brushes

Extra Fine Quality

In
nickeled
ferrules,
natural
polished
cedar
handles.

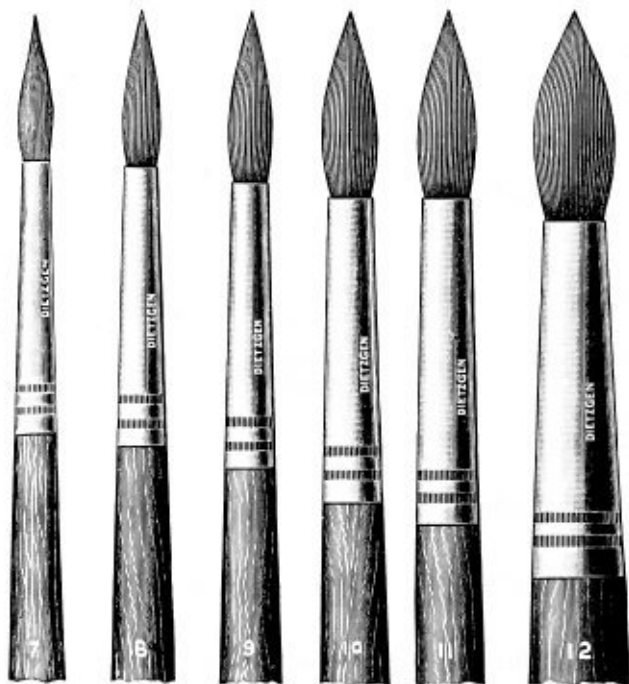


Illustrations
full size.

No. 2920. Camel Hair Brushes,

Nos. 1 2 3 4 5 6
Each, \$

In
nickeled
ferrules,
natural
polished
cedar
handles



Illustrations
full size.

No. 2920. Camel Hair Brushes,

Nos. 7 8 9 10 11 12
Each, \$

See Price List in back of Catalog.

Red Sable Brushes

Extra Fine Quality

Illustrations full size.

Finest selected imported hair. These Red Sable Brushes retain their fine points much longer than others, and remain smooth and flexible. The very best brush for artists, designers, illustrators and photo retouchers. Round, in Albata ferrules, black polished cedar handles.



No. 2940.

No. 2940. Red Sable Brushes, made of pure red sable hair in Albata ferrules, black polished cedar handles.

Nos.	.	.	1	2	3	4	5	6	7	8	9	10	11	12
Each,	.	.	\$											

We do not list Black Sable Brushes as they are more expensive and their points are not as firm as those of the Red Sable Brushes.

See Price List in back of Catalog.

Nests of Cabinet Saucers



No. 3010.

No. 3010.	Nest of Cabinet Saucers,	6 in set,	$2\frac{3}{8}$ in.,	. . . . .	Each, \$
3011.	" " "	6 " "	$2\frac{5}{8}$ "	. . . . .	"
3012.	" " "	6 " "	$3\frac{1}{8}$ "	. . . . .	"

A "Nest of 6" consists of 5 saucers and a cover. They offer a convenient means of preparing and handling colors, and when placed one on the other they form a self-cover to each other, thus preventing the mixed colors from drying up or becoming dirty while not in use.

Ink and Color Slabs



No. 3025.



3032.

No. 3025.	Color Slabs,	3 wells and 3 slopes,	$2\frac{1}{2} \times 4$ in.,	. . . . .	Each, \$
3026.	" " "	5 " " 5 "	$4 \times 7\frac{1}{2}$ "	. . . . .	"
3032.	Sloping Tiles,	5 divisions,	$3\frac{1}{8} \times 7\frac{3}{4}$ in.,	. . . . .	"
3033.	" " "	6 " "	$3\frac{1}{8} \times 7\frac{3}{4}$ "	. . . . .	"
3034.	" " "	8 " "	$6 \times 7\frac{5}{8}$ "	. . . . .	"

See Price List in back of Catalog.

Artists' Water Glass



No. 3050.

- | | | |
|-----------|---------------------------------|---------------------------|
| No. 3050. | Artists' Water Glass, | 2 $\frac{3}{8}$ in. diam. |
| | Each, | \$ |

Atomizer



No. 3060.

- | | | |
|-----------|--|----------|
| No. 3060. | Atomizer, japanned tin, folding, | Each, \$ |
|-----------|--|----------|

Fixatif



No. 3062.

- | | | |
|-----------|--|----------|
| No. 3062. | Colorless Fixatif, for Crayon or Charcoal, 2 oz. bottle, . . . | Each, \$ |
| 3063. | " " " " " " " " pint " . . . | Each, \$ |

Charcoal

- | | | |
|-----------|---|-----------------|
| No. 3070. | Dietzgen Raven Charcoal, 50 sticks in box, | Dozen boxes, \$ |
| 3072. | Venetian Charcoal, 50 sticks in box, | Dozen boxes, \$ |
| 3073. | Berville Venetian Charcoal, extra durable, firm, and does not crumble readily. First quality. Popular among Art Schools and Colleges. 50 sticks in box, | Dozen boxes, \$ |

See Price List in back of Catalog.

Pencils



No. 3091.

Dietzgen Excello Pencils are well adapted for exacting technical work, as the leads are exceptionally uniform and the specified grading maintained throughout their entire length. Only the purest graphite is used, the pencils being manufactured by a special process which insures lead perfection and remarkable lasting quality.

No. 3091. Excello Pencils, Hexagon, Yellow Polish, Gold Stamped. In degrees as follows: 2B, B, HB, F, H, 2H, 3H, 4H, 6H, . . . Doz., \$



No. 3093.

No. 3093. Eldorado Pencils, Hexagon, Yellow Polish, Gold Stamped. In degrees as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, . . . Doz., \$



No. 3096.

No. 3096. Vandyke Pencils, Hexagon, Yellow Polish, Gold Stamped. In degrees as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, . . . Doz., \$



No. 3102.

No. 3102. Venus Pencils, Hexagon, Dark Green Polish, Gold Stamped. In degrees as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, . . . Doz., \$



No. 3104.

No. 3104. Castell Pencils, Hexagon, Green Polish. In degrees as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H. Doz., \$

See Price List in back of Catalog.

Pencils



No. 3108.

- No. 3108. Koh-i-noor Pencils, Hexagon, Yellow Polish, Gold Stamped. In degrees as follows: 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, Doz., \$



No. 3119

- No. 3119. Koh-i-noor Copying Pencils, Violet, Round, Doz., \$



No. 3138.

Dietzgen Hyperion Pencils are of a superior quality, correctly and uniformly graded, contain no grit and will hold their points.

- No. 3138. Dietzgen Hyperion Pencils, Hexagon, Yellow Polish, Silver Stamped. In degrees as follows: 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, Doz., \$



No. 3140.

- No. 3140. Dietzgen "Senior" Pencils, Hexagon, Yellow Polish, Silver Stamped, with gilt metal ferrule and red rubber tip. Superior quality. In three degrees as follows Nos. 2, 2½ and 3 Doz., \$



No. 3142.

- No. 3142. Dietzgen "Junior" Pencils, Round, rubber tipped. Good quality. In one degree only, No. 2 Doz., \$

See Price List in back of Catalog.

Pencils



No. 3144.

- No. 3144. Dietzgen Detail Pencils, Hexagon. Good quality. In four degrees as follows: Nos. 1, 2, 3, 4, Doz., \$



No. 3146.

- No. 3146. Dixon Cabinet Pencils, Hexagon, rubber tipped. In two degrees as follows: Nos. 2, 3, Doz., \$



No. 3148.

- No. 3148. E. Faber Mongol Pencils, Hexagon, rubber tipped. In five degrees as follows: Nos. 1, 2, F, 3, 4, Doz., \$



No. 3150.

- No. 3150. Velvet, blue band, hexagon, with gilt tip and pink rubber. In four degrees as follows: Nos. 1, 2, 3, 4. Packed one dozen in telescopic box, and $\frac{1}{2}$ gross in a carton, Doz., \$



No. 3153.

- No. 3153. Ticonderoga, hexagon, with round edge, yellow finish, with gilt tip and red rubber. In five degrees as follows: Nos. 1, 2, $2\frac{6}{10}$, 3, 4. Packed one dozen in a telescopic box, and $\frac{1}{2}$ gross in a carton, Doz., \$

Colored Pencil Crayons listed on pages 278-280.

See Price List in back of Catalog.

Artist Pencils and Leads

Venus



No. 3154.

- No. 3154. Venus Artist Pencils, metal tip, single pointed, in degrees 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, with lead, Each, \$



No. 3156.

- No. 3156. Venus Leads for Artist Pencils, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, Box of 6 Leads, \$

Castell



No. 3158

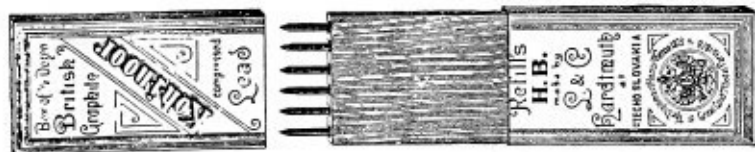
- No. 3158. Castell Artist Pencils, single pointed, in degrees 6B to 8H, with lead, Each, \$
3160. Castell Leads for Artist Pencils, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, Box of 6 Leads,

Koh-i-noor



No. 3162.

- No. 3162. Koh-i-noor Artist Pencils, single pointed, in degrees 6B to 9H, with lead, Each, \$
3163. Koh-i-noor Artist Pencil, double pointed, 6H and HB degree combination only, with lead, Each,



No. 3164.

- No. 3164. Koh-i-noor Leads for Artist Pencils, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, Box of 6 leads, \$

Price List in back of Catalog.



Scripto Pencils

The latest model Scripto propels—repels—expels. It loads from the tip with long lead without taking anything apart. The construction is simple, the mechanism fool-proof and will not clog.

The outside shell is wood, finished with durable black lacquer enamel. Scripto Pencils are also made in colors of Red, Blue, Green, Yellow and Purple Indelible, and furnished with correspondingly colored leads. They come in convenient sizes: the Desk Model, 6½ inches long, and the Pocket Model, 5½ inches long.

These Pencils, besides being widely used as a personal writing pencil, have been adopted by business houses as the standardized office pencil. They afford the comfort and ease of use of an ordinary wooden pencil and at the same time the advantages and economy of a mechanical pencil. In the office, drafting room, school, home or workshop, Scripto Pencils will satisfy the most exacting requirements.



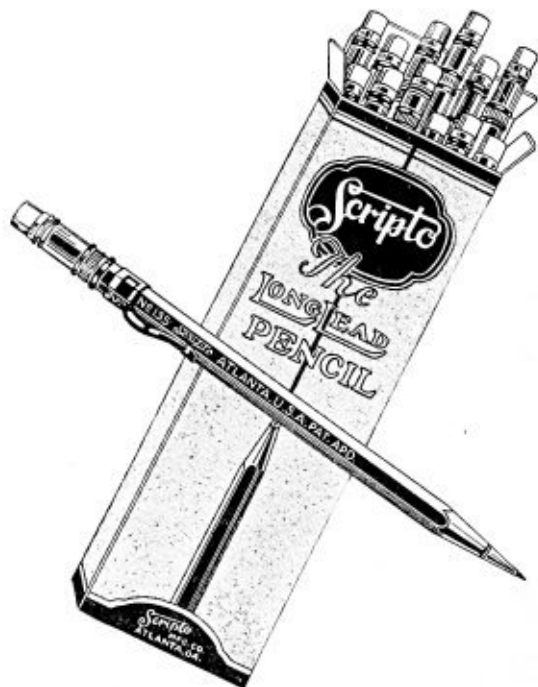
No. 3166.

Scripto Pencils are furnished in two lengths—6½ in. and 5½ in. long. Black lacquer finish with improved metal jacket eraser. The 5½ in. pencil is furnished with a gold-plated pocket clip.

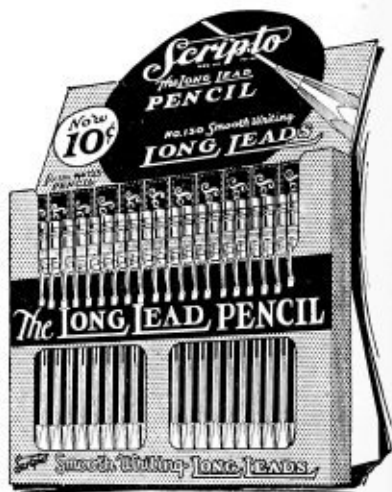
No. 3166. Scripto Pencil—the Desk Model—(New Style, Mfr's No. 5), 6½ in. long, black lacquer finish, with medium soft lead, Doz., Each,

3166A. Scripto Pencil—the Pocket Model—(New Style, Mfr's No. 4), 5½ in. long, black lacquer finish, with medium soft lead, Doz., Each,

Counter Displays



Carton of 1 Doz. of No. 3166A.



No. 3166F.

No. 3166F. Combination Counter Display. Contains 2 dozen No. 3166A Scripto Pocket Pencils assorted in red, blue, green and yellow finish; 1 dozen packs black Scripto Smooth Writing Long Leads of medium (HB) degree. Each, \$

See Price List in back of Catalog.

Scripto Smooth Writing Black Leads



No. 3167E.

Doz. Each.

- No. 3167C. Scripto Commercial pack of 72 only 5 in. black leads of one degree, \$ \$
 3167E. Scripto Efficiency pack of 6 only 5 in. black leads of one degree, . \$ \$
 3167F. Scripto Commercial Pack of 72 only 4 in. black leads of one degree, \$ \$
 Scripto Black Leads furnished in 10 degrees of lead: 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H. Specify degree wanted.

Scripto Colored Pencils



No. 3168A.

Scripto Colored Pencils furnished in two lengths—6½ in. long and 5½ in. long in the following colors: Red, Blue, Green, Yellow and Purple Indelible, with improved metal jacket eraser. Correspondingly colored leads are furnished with No. 3168. Only HB leads are furnished with No. 3168A. The 5½ in. pencil is furnished with a gold-plated pocket clip.

- | | | Doz. | Each, |
|-----------|---|------|-------|
| No. 3168. | Scripto Colored Pencil—the Desk Model—(New Style, Mfr's No. 5), 6½ in. long, | \$ | \$ |
| 3168A. | Scripto Colored Pencil—the Pocket Model—(New Style, Mfr's No. 4), 5½ in. long, with clip, | \$ | \$ |

Scripto Smooth Writing Colored Leads

- | | | Doz. | Each. |
|------------|--|------|-------|
| No. 3169C. | Scripto Commercial pack of 72 only 5 in. colored leads of one color, | \$ | \$ |
| 3169E. | Scripto Efficiency pack of 4 only 5 in. colored leads of one color, | | |
- Scripto Colored Leads furnished in colors of Red, Blue, Green, Yellow and Purple Indelible. Specify color wanted.



Erasers are mounted in metal jackets, easily removed and inserted into the pencil.

No. 3170E

Scripto Erasers and Clips

- | | | Doz. | Each, |
|------------|---|------|-------|
| No. 3170C. | Scripto Commercial pack of 72 erasers, with metal jacket, to fit Old Style Pencil (Mfr's Nos. 135 and 145), | \$ | \$ |
| 3170D. | Like No. 3170C, but to fit New Style Pencil (Mfr's Nos. 5 and 4), | \$ | \$ |
| 3170E. | Scripto Efficiency Pack of 6 erasers, with metal jacket, to fit Old Style Pencil (Mfr's Nos. 135 and 145), | \$ | \$ |
| 3170F. | Like No. 3170E, but to fit New Style Pencil (Mfr's Nos. 5 and 4), | \$ | \$ |

- No. 3170G. Scripto Hexagon Clip, made of high grade Spring Brass and will not lose its tension. Highly polished and lacquered gilt finish. It is hexagon shaped to fit all standard size hexagon wood pencils and all mechanical pencils of the same size as the ordinary wood pencil. Easily the best made and finest looking clip on the market. . . . Doz., \$ Each, \$

- 3170H. Scripto Hexagon Clip Easel. Size 9 x 11. Mounts 36 clips. . . . Doz., \$ Each, \$



No. 3170H

See Price List in back of Catalog.

Pencil Holders



No. 3192.

No. 3192. Dietzgen Pencil Holder, single end, Each, \$

Pencil Point Protectors



No. 3199.

No. 3199. Pencil Point Protector, metal, round, Each, \$



No. 3200.

This combination Pencil Point Protector and Pricker is a very convenient and useful instrument, the construction being such that the pricker point, when not in use, is protected from damage.

No. 3200. Pencil Point Protector and Pricker, 2 $\frac{3}{8}$ in., Each, \$



No. 3201.

No. 3201. Pencil Point Protector, metal, round, with rubber, Each, \$

Rubber Pencil Tips

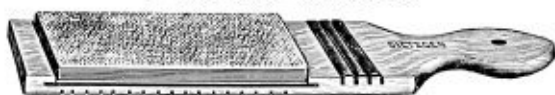


No. 3203.

No. 3203. Rubber Pencil Tips, wedge-shaped, red, Doz., \$

See Price List in back of Catalog.

Pencil Pointers



No. 3208.

No. 3208. Improved Pencil Pointer and Eraser Cleaner, with handle, emery paper pad $1\frac{1}{4} \times 3\frac{1}{4}$ in., 12 sheets, Each, \$

3208P. Extra Pads, emery paper, for No. 3208, "

This Pencil Pointer is a combination article. The pencil is pointed on the emery paper pad and the point smoothed by drawing through the velvet-lined slots shown in illustration. Slots on back are for cleaning rubber erasers rapidly and effectively. The emery pad is removable, and a new pad can be quickly inserted.



No. 3212.



3213 and 3220.

Sand Paper

No. 3212. Pencil Pointer, $1\frac{1}{4} \times 4$ in., 12 sheets Each, \$

3213. " " $1\frac{1}{4} \times 4$ " 12 " with handle, " "

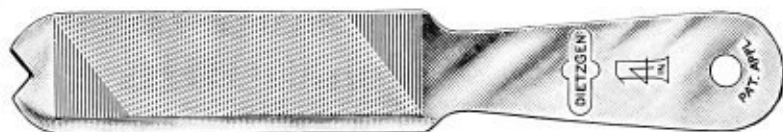
13213. " " $1\frac{1}{4} \times 4$ " 12 " " " (School Quality) Doz.,

Emery Paper

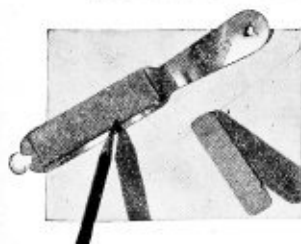
No. 3220. Pencil Pointer, $1\frac{1}{4} \times 4$ in., 12 sheets, with handle, Each, \$

13220. " " $1\frac{1}{4} \times 4$ " 12 " " " (School Quality) Doz.,

4 in 1 Multi-file



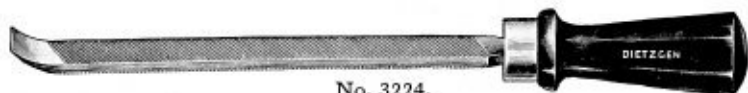
No. 3222.



This is a handy device which combines the facilities of four useful articles in one. It can be used as a pencil file, eraser cleaner, tack lifter and paper knife. The Multi-file is inexpensive, practical and indestructible.

No. 3222. Handy 4-in-1 Multi-file, 6-in. long, with handle, neatly finished . . . Each, \$

Pencil Pointer File



No. 3224.

No. 3224. Pencil Pointer File and Tack Lifter, $6\frac{1}{2}$ in., Each, \$

See Price List in back of Catalog.

Pencil Sharpeners



No. 3229.

The "Pencilaid" Pencil Sharpener is a durable, convenient sharpener selling at a very reasonable price.

It does not "chew" a pencil, but sharpens easily, quickly, and without waste. Made of the finest grade steel, it will give lasting service when used with any standard lead or indelible pencil.

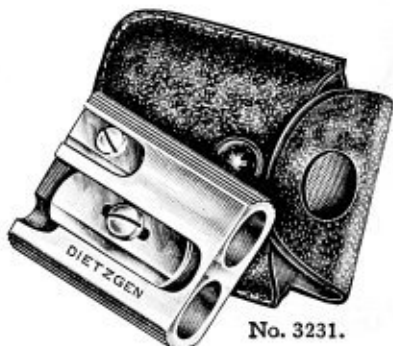
Makes point of any desired length; can be used with a full length pencil or the smallest stub; forms a firm grip for the fingers; always on pencil and always ready.

No. 3229. "Pencilaid" Pencil Sharpener, Each, \$

No. 3231. *Tutor-Jewel* Pencil Sharpener, of heavy brass, designed for draftsmen's use, having two adjustable blades. One blade cuts away the wood, the other points the lead. Perfect points are quickly formed; blades are adjustable for leads of different thickness and can be replaced. Comes furnished in convenient leather pouch,

Doz., \$ Each, \$

3231B. Extra Blades for No. 3231, . Set, \$



No. 3231.



No. 3242.

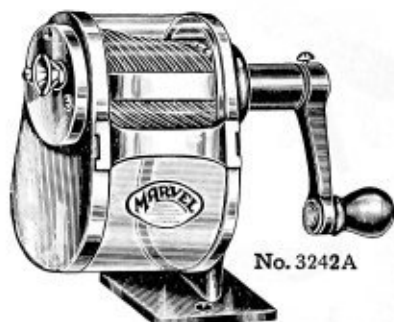
No. 3242. Chicago Giant Pencil Sharpener, twin milling cutters, . . . Each, \$
3242C. Extra Twin Milling Cutters for No. 3242, Pair, \$

The Chicago Giant Pencil Sharpener is reasonable in price and very practical, sharpening every pencil and crayon from smallest to largest. It is the ideal Sharpener for general use. Automatically stops cutting when point is produced. Will not break leads. The shaving receptacle, of highly polished celluloid, metal trimmed, can not fall off as it locks securely, although it can be quickly removed when desired.

No. 3242A. Marvel Draftsman's Pencil Sharpener, complete, with draftsman's special cutters, . . . Each, \$

3242D. Draftsman's special cutters, which remove the wood only from the pencil, leaving the graphite exposed so that it may be sharpened to suit the draftsman's preference Pair, \$

This Draftsman's Special Pencil Sharpener is easily a favorite because it combines quality, style and low price. An adjustable self-centering pencil guide holds the pencil in perfect alignment and permits sharpening of various sizes of pencils and crayons up to 15/32 of an inch in diameter. An attractive high-grade pencil sharpener which is considerably lower-priced than any other sharpener producing a similar point.



No. 3242A

Clamp for fastening Nos. 3242 and 3242A to table listed under No. 3249.

See Price List in back of Catalog.

Pencil Sharpeners



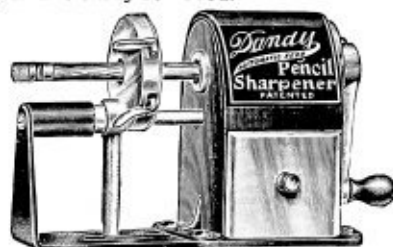
Point made by Nos. 3242D, 3245A and 3248A.



No. 3245.

- | | | |
|-----------|---|----------|
| No. 3245. | Dexter Pencil Sharpener complete, with regular cutters, | Each, \$ |
| 3245A. | " " " " " draftsman's special cutters, removing the wood only from the pencil, leaving the graphite exposed so that it may be sharpened to suit the draftsman's preference, | Each, |
| 3245C. | Spare cutters for 3245, | Pair, |
| 3245D. | " " " 3245A, | " |

The Dexter Pencil Sharpener is of excellent workmanship and finish. Sharpens both pencils and crayons, and prevents waste as the cutting stops when proper point is obtained. Produces any desired point from blunt to fine. Automatic lubrication of every working part. The shaving receptacle, of highly polished celluloid, metal trimmed, locks securely and is easily removed.



No. 3248.

- | | | |
|-----------|---|----------|
| No. 3248. | Dandy Pencil Sharpener complete, with regular cutters, | Each, \$ |
| 3248A. | " " " " " draftsman's special cutters, removing the wood only from the pencil, leaving the graphite exposed so that it may be sharpened to suit the draftsman's preference, | Each, |
| 3248C. | Spare cutters for 3248, | Pair, |
| 3248D. | " " " 3248A, | " |

The Dandy Pencil Sharpener produces any desired point from blunt to fine on both pencils and crayons. It stops cutting when proper point is obtained, and as it feeds **automatically**, perfect pencil pointing and pencil economy is insured. This Sharpener is of all steel construction, and on account of its durability is very popular for use in schools. Workmanship and finish are unsurpassed.



No. 3249.

- | | | |
|-----------|---|----------|
| No. 3249. | Clamp, for fastening Sharpeners Nos. 3242, 3242A, 3245 and 3248 to table, | Each, \$ |
|-----------|---|----------|

See Price List in back of Catalog.

Colored Crayons

A. W. Faber Polychromos Wax Crayons



No. 3259.

<p>White</p> <p>1. White</p> <p>Yellow</p> <p>2. Zinc Yellow</p> <p>4. Light Chrome</p> <p>5. Light Cadmium</p> <p>6. Dark Cadmium</p> <p>8. Dark Chrome</p> <p>9. Orange</p> <p>Green</p> <p>11. Olive Green</p> <p>14. Green Bice</p> <p>15. Sap Green</p> <p>16. Hooker's Green No. 1</p> <p>17. Hooker's Green No. 2</p>	<p>Blue</p> <p>21. Light Blue</p> <p>23. Cobalt Blue</p> <p>24. Ultramarine</p> <p>26. Prussian Blue</p> <p>27. Indigo</p> <p>Red</p> <p>32. Madder Carmine</p> <p>35. Carmine, extra fine</p> <p>36. Scarlet Lake</p> <p>38. Pale Vermilion</p> <p>39. Dark Vermilion</p>	<p>Brown</p> <p>41. Raw Sienna</p> <p>43. Burnt Yellow Ochre</p> <p>45. Burnt Sienna</p> <p>47. Brick Red</p> <p>48. Terra Cotta</p> <p>49. Indian Red</p> <p>53. Vandyke Brown</p> <p>55. Sepia</p> <p>Gray and Black</p> <p>57. Light Gray</p> <p>58. Neutral Tint</p> <p>59. Payne's Gray</p> <p>60. Ivory Black</p>
---	--	---

No. 3259. Faber Polychromos Wax Crayons, as listed above, . . . { Doz., \$
Gross,

3262-6. Faber Polychromos Wax Crayons, box of 6, containing: . . . Box,
Nos. 1, 5, 16, 27, 38, 53,

3262-12. Faber Polychromos Wax Crayons, box of 12, containing: . . . "
Nos. 1, 5, 9, 14, 16, 21, 27, 35, 38, 47, 53, 55,

3262-18. Faber Polychromos Wax Crayons, box of 18, containing: . . . "
Nos. 1, 3, 5, 9, 14, 16, 20, 21, 24, 27, 32, 35, 38, 42, 47, 53,
55, 60,

3262-24. Faber Polychromos Wax Crayons, box of 24, containing: . . . "
Nos. 1, 3, 5, 6, 9, 14, 15, 16, 20, 21, 23, 24, 27, 32, 35, 37, 38,
42, 45, 47, 48, 53, 55, 60,

Nos. 3 (Lemon Cadmium), 20 (Prussian Green), 37 (Saturn Red) and 42 (Gold Ochre), as listed in Nos. 3262-18 and 3262-24 Box Assortments, are not listed under No. 3259, altho they can be furnished singly if desired.

Colored Indelible Pencils



No. 3263.

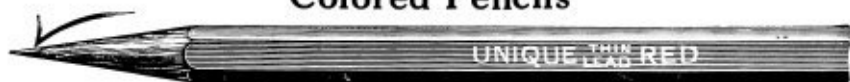
Eberhard Faber Mongol Colored Indelible Pencils have a very thin lead which is guaranteed not to break in normal use. They can be sharpened to the finest point in any pencil sharpener and hold that point indefinitely. Very suitable for continuous writing, checking, drawing, statistics, charts, the minutest figuring, etc., and for use by artists, schools, draftsmen and photographers instead of water-colors or colored inks. Sold only in assortments of 12 different colors as follows:—

Light Blue	Soft Green	Brown	Red
Purple	Black	Heliotrope	Yellow
Pink	Orange	Dark Blue	Dark Green

No. 3263. Eberhard Faber Mongol Colored Indelible Pencil Assortment of
12 colors, in handy box, Box, \$

See Price List in back of Catalog.

Colored Pencils



No. 3264B.

The Unique Colored Pencils have a thin diameter lead, the same as writing pencils, which makes them especially adapted for use in writing, checking, figuring, proof reading, marking blue prints, drawing fine and accurate colored lines, etc. Ideal for auditors, bookkeepers, draftsmen, executives, editors, teachers and students. The pencils are of high quality lead, handy hexagon shaped, light in weight, easy to sharpen, and can be erased readily.

No.	Color	Lead	Diameter	Shape	Gross, \$	Doz., \$
No. 3264B.	Unique, Red	thin	thin	Hexagon		
3264C.	Blue	"	"	"	"	"
3264D.	Yellow	"	"	"	"	"
3264E.	Green	"	"	"	"	"
3264F.	White	"	"	"	"	"
3264M.	Maroon	"	"	"	"	"



No. 3264-7



3264-12



3264-24

Unique Thin Lead Colored Pencils are available in handy assortments of seven, twelve and twenty-four colors. Packed in beautifully colored compact boxes that are convenient for the pocket or desk. The box is cleverly designed with an easel back for display purposes which adds to its sales possibilities.

- No. 3264-7. Unique Assortment, containing one each: Blue, Red, Green, Yellow, Brown, White and Violet Colored Pencils, . . . Box, \$
- 3264-12. Unique Assortment, containing one each: Blue, Red, Green, Yellow, Brown, White, Purple, Black, Orange, Light Blue, Pink, and Light Green Colored Pencils, "
- 3264-24. Unique Assortment, containing one each: Blue, Red, Green, Yellow, Brown, White, Purple, Black, Orange, Light Blue, Pink, Light Green, Vermilion, Ultramarine Blue, Chrome Yellow, Field Green, Sepia, Maroon, Ochre, Olive Green, Mauve, Violet, Grey and Dark Red Colored Pencils, including one Pencil Holder "



No. 3265.

- No. 3265. Combination Red and Blue Pencils, Hexagon, Red Polish, Gold Stamped, Gross, \$ Doz., \$

See Price List in back of Catalog.

Dixon Crayons



No. 3266.

- | | | |
|-----------------|-----------------|------------------|
| 1. Pink. | 6. Blue. | 11. Green. |
| 2. Red. | 7. Light Blue. | 12. Olive Green. |
| 3. Carmine Red. | 8. Indigo Blue. | 13. Brown. |
| 4. Lake Red. | 9. Yellow. | 14. Sepia. |
| 5. Terra Cotta. | 10. Orange. | 15. Violet. |

No. 3266. Dixon Best Colored Pencil Crayons, Doz., \$



No. 3272C.

- | | | | | | | |
|------------|---------------------------|---------|--------|--------|-----------|----------|
| No. 3272B. | Dixon Best Solid Crayons, | Red, | round, | 7 in., | | Doz., \$ |
| 3272C. | " " " " | Blue, | " " | 7 " | | " " |
| 3272D. | " " " " | Yellow, | " " | 7 " | | " " |



No. 3274.

No. 3274. Dixon Solid Crayon Holder, nickel-plated, 6½ in., for Crayons listed under Nos. 3272B, 3272C and 3272D, Doz., \$

Blaisdell Paper Crayons



No. 3277A.

- | | | | | | | |
|------------|--------------------------|---------|-----------|-----------|-----------|----------|
| No. 3277A. | Blaisdell Paper Crayons, | Black, | | | | Doz., \$ |
| 3277B. | " " " " | Red, | | | | " " |
| 3277C. | " " " " | Blue, | | | | " " |
| 3277D. | " " " " | Yellow, | | | | " " |
| 3277E. | " " " " | Green, | | | | " " |

No. 3277B is especially adapted for use in altering and correcting blue prints.

Blaisdell China Marking Crayons



No. 3278A.

These Crayons, paper covered, are especially adapted for marking on glass or chinaware. Packed one dozen in a box.

- | | | | | |
|------------|----------------------------------|--------|-----------|------------|
| No. 3278A. | Blaisdell China Marking Crayons, | Black, | Gross, \$ | ; Doz., \$ |
| 3278B. | " " " " | Red, | " " | " " |
| 3278C. | " " " " | Blue, | " " | " " |

Lumber Crayons listed on next page.

Colored Pencils listed under Nos. 3263-3265.

See Price List in back of Catalog.

Dietzgen Union Lumber Crayons

The Dietzgen Union Lumber Crayons are manufactured specially for the use of Surveyors and Engineers for making survey marks on wood, stone, metal, etc. Record marks made with these crayons will, under all weather conditions, outlast those made with any other crayons.



No. 3282C.

No. 3282A.	Union Lumber Crayons,	Black, hexagon,	$4\frac{3}{4} \times \frac{1}{2}$ in.,	Doz., \$
3282B.	" " "	Red, "	$4\frac{3}{4} \times \frac{1}{2}$ "	"
3282C.	" " "	Blue, "	$4\frac{3}{4} \times \frac{1}{2}$ "	"
3282D.	" " "	Yellow, "	$4\frac{3}{4} \times \frac{1}{2}$ "	"

Dixon Lumber Crayons



No. 3284C.

No. 3284A.	Dixon Lumber Crayons,	Black, hexagon,	. . .	Doz., \$
3284B.	" " "	Red, "	. . .	"
3284C.	" " "	Blue, "	. . .	"
3284D.	" " "	Yellow, "	. . .	"
3284E.	" " "	Green, "	. . .	"
3284F.	" " "	White, "	. . .	"

Soapstone Crayon



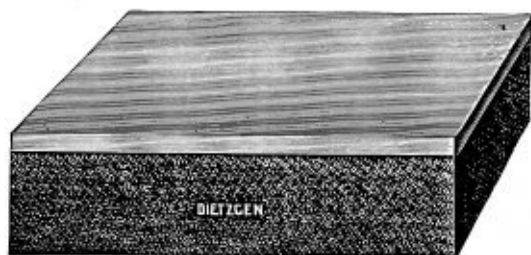
No. 3288.

Soapstone Crayons are used in burnishing tracings after erasing, and for marking on metal.

No. 3288.	Soapstone Crayon,	$5 \times \frac{1}{2} \times \frac{3}{16}$ in.,	Doz., \$
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See Price List in back of Catalog.

Sponge Rubber Art Gum



No. 3321.

No. 3321. Sponge Rubber, medium, rubber back, $2\frac{1}{2} \times 1\frac{3}{4} \times \frac{5}{8}$ in., . . . Each, \$



No. 3321B.

No. 3321A.	Sponge Rubber,	1 × 1 × 1 in.,	. . . . .	Each, \$
3321B.	" "	2 × 2 × 1 "	. . . . .	"
3322.	" "	4 × 2 × 1 "	. . . . .	"

The Nos. 3321 to 3322 Sponge Rubbers are specially adapted for cleaning drawings etc., without disturbing drawn lines or figures or the surface of the paper.



No. 3324B.

For cleaning engravings, drawings, paintings, books and papers. Is soft, friable and entirely free of grit. Wears away, but does not mar or scratch the surface on which it is used.

No. 3324A.	Art Gum,	1 $\frac{1}{8}$ × 1 $\frac{1}{8}$ × 1 $\frac{1}{8}$ in.,	. . . . .	Each, \$
3324B.	" "	2 × 1 × 1 "	. . . . .	"
3324C.	" "	2 $\frac{1}{4}$ × 1 $\frac{1}{8}$ × 1 $\frac{1}{8}$ "	. . . . .	"
3324D.	" "	3 × 2 × 1 "	. . . . .	"
3324E.	" "	3 × 3 × 2 "	. . . . .	"

See Price List in back of Catalog.

Rubber Pencil Erasers



No. 3332-24. (Actual Size)

No. 3332. Viridian Eraser, green, oblong, beveled, 3 sizes.

Pieces per box,	48	24	12
Over-all Sizes,	$(3 \times \frac{7}{16} \times \frac{5}{16})$	$(3\frac{1}{2} \times \frac{3}{8} \times \frac{3}{8})$	$(4 \times \frac{7}{8} \times \frac{1}{2})$
Box,	\$	\$	\$
Each,	\$	\$	\$



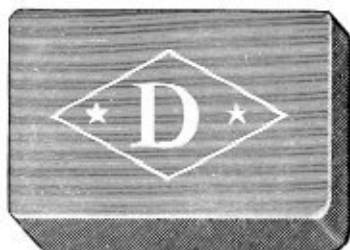
No. 3333-24. (Actual Size)

No. 3333. Maroon Eraser, red, oblong, beveled, 3 sizes.

Pieces per box,	48	24	12
Over-all Sizes,	$(3 \times \frac{7}{16} \times \frac{5}{16})$	$(3\frac{1}{2} \times \frac{3}{8} \times \frac{3}{8})$	$(4 \times \frac{7}{8} \times \frac{1}{2})$
Box,	\$	\$	\$
Each,	\$	\$	\$

The Nos. 3332 and 3333 Erasers are made of the finest quality erasive rubber. They are soft, flexible, and erase rapidly. Especially valuable for removing ink lines from Tracing Cloth, without injuring the surface in the slightest degree.

This is an excellent quality eraser, unequalled for erasing pencil lines on Tracing Paper or



other delicate stock, as its soft texture absolutely prevents injury to the surface.

No. 3335-30. (Actual Size)

No. 3335. Dietzgen Flexible Eraser, gray, flat, 6 sizes.

Pieces per box,	40	30	20
Over-all Sizes,	$(1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{8})$	$(1\frac{1}{2} \times \frac{7}{8} \times \frac{3}{8})$	$(1\frac{3}{4} \times 1\frac{1}{8} \times \frac{3}{8})$
Box,	\$	\$	\$
Each,	\$	\$	\$
Pieces per box,	12	8	4
Over-all Sizes,	$(2\frac{1}{4} \times 1\frac{1}{2} \times \frac{1}{2})$	$(2\frac{3}{8} \times 1\frac{5}{8} \times \frac{5}{8})$	$(3 \times 2 \times \frac{5}{8})$
Box,	\$	\$	\$
Each,	\$	\$	\$



No. 3337C. (Actual Size)

No. 3337B.	Dietzgen Pliable Eraser, pink, small, size $(2\frac{1}{4} \times \frac{3}{4} \times \frac{7}{16})$,	Doz.	Each.
3337C.	" " " " large, " $(2\frac{7}{8} \times \frac{7}{8} \times \frac{7}{16})$	\$	\$

Rubber Pencil Erasers



No. 3338. Dietzgen Verrine Eraser, green, oblong, beveled. Size ($2\frac{3}{4} \times \frac{1}{2} \times \frac{3}{8}$). . . Doz., \$

No. 3338. (Actual Size)

No. 3339. Dietzgen Rubric Eraser, red, oblong, beveled. Size ($2\frac{3}{4} \times \frac{1}{2} \times \frac{3}{8}$). . . Doz., \$



No. 3339. (Actual Size)



No. 3340B. Dixon "Eclipse" green, medium size ($2\frac{5}{8} \times \frac{1}{2} \times \frac{3}{8}$). Doz., \$

No. 3340B. (Actual Size)

No. 3341B. E. Faber Emerald Eraser, medium, size ($2\frac{5}{8} \times \frac{1}{2} \times \frac{3}{8}$). . . Doz., \$



No. 3341 B. (Actual Size)

3341C. E. Faber Emerald Eraser, large, size ($3\frac{1}{2} \times \frac{3}{8}$). Doz., \$



No. 3342B. Dixon "Eclipse", red, medium size ($2\frac{3}{4} \times \frac{1}{2} \times \frac{3}{8}$). . . Doz., \$

No. 3342B. (Actual Size)

3342C. Dixon "Eclipse", red, large size ($3\frac{1}{2} \times \frac{3}{8} \times \frac{3}{8}$). . . Doz., \$

No. 3343B. E. Faber Ruby Eraser, medium, size ($2\frac{5}{8} \times \frac{1}{2} \times \frac{3}{8}$). . . Doz., \$



No. 3343 B. (Actual Size)

3343C. E. Faber Ruby Eraser, large, size ($3\frac{1}{2} \times \frac{3}{8} \times \frac{3}{8}$). . . Doz., \$

No. 3344.



(Actual size)

No. 3344. E. Faber Kneaded Rubber, small, size ($1\frac{1}{4} \times \frac{3}{4} \times \frac{3}{8}$). Each, \$ Box of 36, \$

See Price List in back of Catalog.



Rubber Ink Erasers



No. 3352. (Actual Size)



No. 3355. (Actual Size)



No. 3359. (Actual Size)

- | | | |
|-----------|---|----------|
| No. 3352. | Dietzgen Circular Eraser, size $1\frac{5}{8}$ in. diam., | Doz., \$ |
| 3355. | " Typewriter Eraser, small, size $(2\frac{3}{4} \times \frac{1}{2} \times \frac{1}{4})$, | " |
| 3356. | " " large, " $(3\frac{3}{8} \times \frac{5}{8} \times \frac{3}{8})$, | " |
| 3359. | " Ink and Pencil Eraser, size $(2\frac{1}{2} \times \frac{1}{2} \times \frac{1}{4})$, | " |



No. 3360. (Actual Size)



No. 3364. (Actual Size)

- | | | | |
|--|---|---------------|-------|
| No. 3360. | Dietzgen Ink Eraser, small, size $(1\frac{1}{2} \times 1 \times \frac{3}{8})$, | Box of 50 \$ | Each. |
| 3361. | " " " large, " $(2 \times 1\frac{1}{4} \times \frac{1}{4})$, | Box of 25 \$ | \$ |
| Nos. 3360 and 3361 are Hard Ink Erasers and are excellent for general use. | | | |
| 3364. | Dietzgen Ink Eraser, extra large, $(2\frac{3}{4} \times 1\frac{1}{4} \times \frac{5}{8})$ | Box of 12, \$ | |

This is a soft ink eraser for general purposes and is specially valuable for erasing both pencil and ink lines on tracing vellums and tracing cloths, removing them cleanly and rapidly.



No. 3368. (Actual Size)

- | | | |
|-----------|---|----------|
| No. 3368. | E. Faber Vandyke Ink Eraser, size $(2\frac{3}{4} \times 1\frac{1}{4} \times \frac{5}{8})$, | Doz., \$ |
|-----------|---|----------|

See Price List in back of Catalog.

Steel Erasers



No. 3385.

No. 3385. Steel Eraser, coco handle, Each, \$

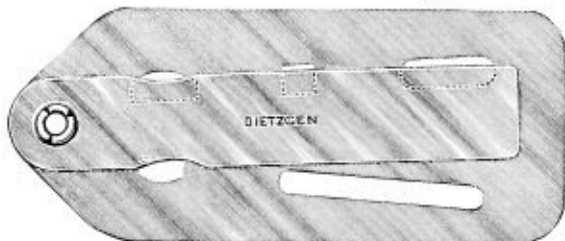


No. 3387.

No. 3387. Steel Eraser, coco handle, Each, \$
 3388. Like 3387, but white bone handle, \$

The white bone handle on No. 3388 not only makes a neat, well-balanced steel eraser but is used to good advantage in smoothing the surface of the paper, after erasing, by rubbing it with the end of the handle.

Erasing Shields



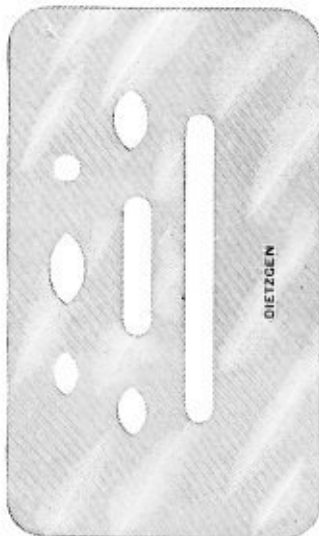
By moving the adjustable arm over any opening in the shield part, an aperture of any desired size may be obtained, so that a line closely surrounded by others may be removed, neatly and quickly, without affecting the adjacent lines.

No. 3390. (Patented)

No. 3390. Nickel Silver, highly polished, $1\frac{3}{8} \times 4\frac{1}{2}$ in., 5 openings, Each, \$



No. 3391 and 3392.

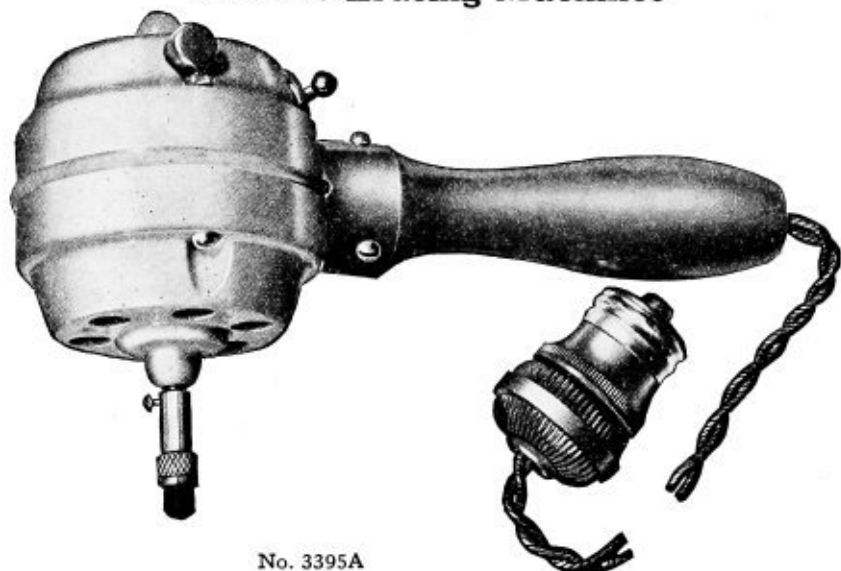


No. 3393.

No. 3391. Nickel Silver, highly polished, $2\frac{3}{4} \times 3\frac{3}{4}$ in., 14 openings, Each, \$
 3392. Safety Razor Steel, highest grade, $2\frac{3}{4} \times 3\frac{3}{4}$ in., 14 openings, Each, \$
 This Shield is very thin and durable. The material used insures exceptional service.
 3393. Transparent Celluloid, $2\frac{1}{2} \times 4\frac{1}{4}$ in., 7 openings, Each, \$

See Price List in back of Catalog.

Electric Erasing Machines



No. 3395A

The Dietzgen Electric Erasing Machine affords a convenient, fast, and positive means of erasing. This highly efficient modern method of erasing leaves the tracings or drawings clean without injuring the surface. A snap of the thumb switch—a gentle gliding of the revolving eraser over the spots or lines to be erased . . . in a moment you have a new clean surface to work on. It often saves the necessity of redrawing or retracing a drawing when it is necessary to eradicate a considerable part of same. A period may easily be removed without disturbing surrounding data.

The Dietzgen Electric Erasing Machine is light weight and so perfectly balanced, the operator can handle it efficiently after a moment's experimentation.

The weight of the eraser on the drawing and guiding hand is all that is required. The spinning of the armatures aids in balancing the machine somewhat on the same principle as a gyroscopic top.

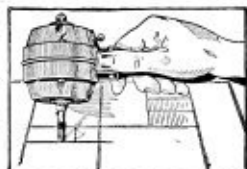
Though light in weight there is but little vibration and no overheating. It is sturdy and will give long satisfactory service.

Operates on either 110 volts or 220 volts A. C. or D. C., and weighs about 20 ounces.

Application of this highly efficient means of erasing is growing in popularity.

No. 3395A. Electric Erasing Machine 110 Volt,
A. C. or D. C. Each, \$

3395B. Like No. 3395A but operating on
220 Volt, A. C. or D. C., "



Erasers for Electric Erasing Machines

- | | | |
|-------------|--|-----------|
| No. 3397-7. | Soft Red Erasers, recommended for tracing cloth erasing, | Gross, \$ |
| 3397-8. | Green Erasers, " " " " " " | " |
| 3397-12. | Grey Abrasive Erasers, recommended for heavy abrasive erasing, | " |
| 3397-14. | Pink Pliable Erasers, recommended for use on soft drawing surfaces. Especially designed for pencil work, | " |

See Price List in back of Catalog.

Dietzgen Steel Pens

Dietzgen Drawing and Lettering Pens No. 3440 and Crow Quill Pens No. 3442 are designed specially for drawing and lettering on drawing paper. For this work they will be found superior to other makes, as they possess great elasticity, have longer nibs and not too sharp points, permitting rapid work without scratching or catching on the grain of the paper.



No. 3440.



3442.



No. 3441.



3443.

- | | | |
|------------------|--------------------------------------|-------------------------|
| No. 3440. | Dietzgen Drawing and Lettering Pens, | Box of 12, \$ |
| 3441. | " " " " " " | Card of 12 with holder, |
| 3442. | Dietzgen Crow Quill Pens, | Box of 12, \$ |
| 3443. | " " " " " " | Card of 12 with holder, |



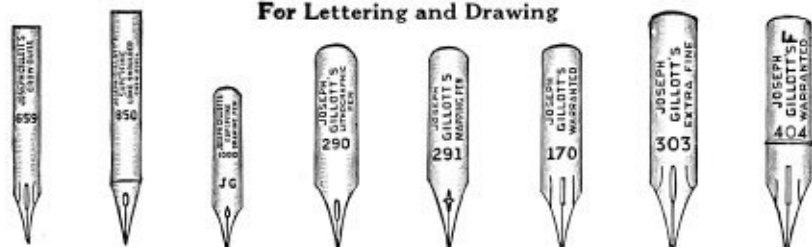
No. 3447.

- No. 3447.** Dietzgen Crow Quill Pens No. 3442, with improved holder having cork finger piece, Card of 10, \$; Each, \$

See Price List in back of Catalog.

Steel Pens

For Lettering and Drawing



No. 3450. 3451. 3452. 3453. 3454. 3455. 3456. 3457.

Gross. Doz.

No. 3450. Gillott Crow Quill Pens (659), doz. on card with holder, \$

3451. " " (850), long shoulder, doz. on card with holder, **Separate Penholder listed under No. 3470.**

3452. Gillott Drawing Pens (1000), superfine, doz. on card with holder, **Separate Penholder listed under No. 3468.**

3453. Gillott Lithographic Pens (290), doz. on card with holder,

3453 1/2. " " (290), loose,

3454. " Mapping " (291), doz. on card with holder,

3454 1/2. " " " (291), loose,

3455. " " " (170), "

3456. " " " (303), "

3457. " " " (404), "

Separate Penholders listed under Nos. 3472-3475.

3460. French Crow Quill Pens, doz. on card with holder to each pen,

Wooden Penholders



No. 3468. Thin, 5 in., brown enamel finish, for Nos. 3440, 3452, Each, \$



No. 3470. Thick, 5 1/2 in., brown enamel finish, for Nos. 3442, 3450, 3451, Each,



No. 3472. Thick, 6 in., olive green finish, for Nos. 3453-3457, . . Each,



No. 3473. Medium, 7 in., natural finish, for Nos. 3453-3457, . . Each,



No. 3474. Thin, 7 in., natural finish, rubber tip, for Nos. 3453-3457, . Each,

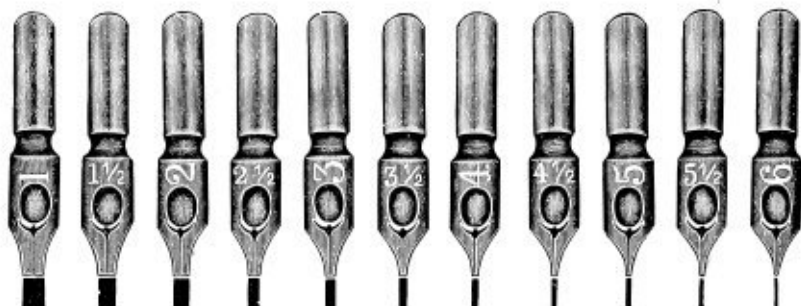


No. 3475. Thick, 7 in., natural finish, cork tip, for Nos. 3453-3457, . Each,

See Price List in back of Catalog.


Round Writing

This beautiful and practical style of writing can be easily and quickly acquired by self-instruction. As an appropriate writing for lettering plans, maps and other drawings, it is unequaled.



Nos. 1 1½ 2 2½ 3 3½ 4 4½ 5 5½ 6

Nos. 3509-3511.

- No. 3509. Single Pointed Pens, any one size, Box of ¼ gross, \$
 3510. " " " " " " " Gross,
 3511. " " " assortment of 11 on card, one each Nos. 1 to 6,
 plus 1 ink reservoir, Card,
 No. 3515. Inkholders for Single Pointed Pens, . . . Each,
 3516. " " " " " " Box of 12,
 3515-3516.

Double Penholder For Round Writing Pens



No. 3521.

- No. 3521. Double Penholder for Round Writing Pens, 4 in. long, without pens, Doz., \$; Each, \$

See Price List in back of Catalog.

Leonhardt Ball Pointed Pens



No. 3540.



3542.



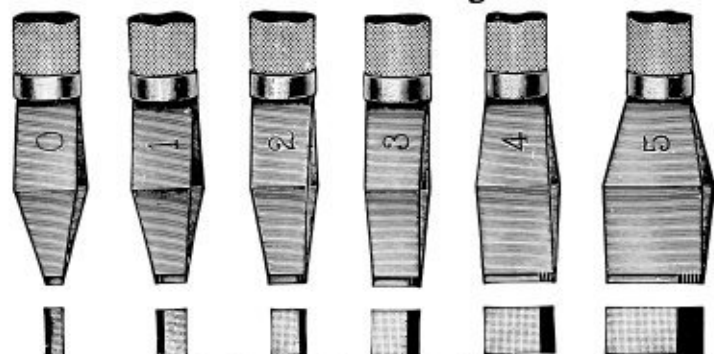
No. 3544.



3546.

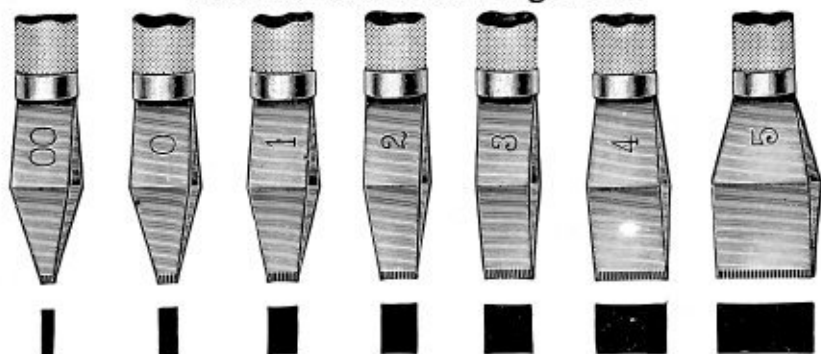
No. 3540.	Leonhardt Ball Pointed Pens,	506F,	.	.	.	.	Gross, \$
3542.	" " " " " "	506EF,	.	.	.	.	"
3544.	" " " " " "	516F,	.	.	.	.	"
3546.	" " " " " "	516EF,	.	.	.	.	"

Automatic Shading Pens



No. 3560.	Automatic Shading Pens,	0	1	2	3	4	5	
	Width of nib,	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$ in.,	Each, \$

Automatic Marking Pens



No. 3562.	Automatic Marking Pens,	00	0	1	2	3	4	5	
	Width of nib,	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$ in.,	Each, \$

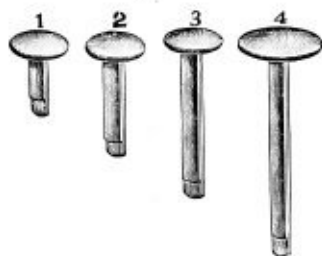
3565. Shading and Marking Pen Ink, 1 oz. bottles.

Black, Dark Blue, Green, Purple, Scarlet, Yellow, Orange,
Dark Brown, Each,

Books on Lettering, Alphabet Books, Etc., listed under Scientific Books.

See Price List in back of Catalog.

Paper Fasteners and Washers



	No. 3805.								
No. 3805.	Paper Fasteners, round heads.								
	Number,					1	2	3	4
	Length,					$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1 in.
	Box of 100,					\$			
	1000 (10 boxes of 100),								
No. 3806.	Washers for Paper Fasteners.								
	Box of 100,							Box,	\$
	1000 (10 boxes of 100),							Carton,	\$

Paper Clips

No. 3811.	Ezeon Clips, 100 in box,							Box,	\$
3814.	Gem Clips, 100 in box							"	\$

Tip Top Paper Fasteners

No. 3815

Illustrations full size.

No. 3815.	Tip Top Paper Fasteners.				
	Number,	0	1	2	
	Box of 100,	\$	\$	\$	
	Carton of 1000,				
	Bulk, 1000,				



Eyelet Punch and Eyelets



No. 3818.	Eyelet Punch and Fastener,							Each,	\$
3819.	Eyelets, 250 in box, for No. 3818.								
	Number,								
	Length,					$\frac{1}{4}$	$\frac{2}{8}$	$\frac{3}{4}$	in.
	Doz. boxes,					\$			

Rubber Bands



3820.	Width, $\frac{1}{16}$ in., length, $1\frac{1}{4}$, 2 or $2\frac{1}{2}$ in.,							Box of $\frac{1}{4}$ lb.,	\$
3822.	" $\frac{1}{8}$ " " 2 or 3 in.,							" $\frac{1}{4}$ "	\$
3824.	" $\frac{1}{4}$ " " $2\frac{1}{2}$ in.,							" $\frac{1}{4}$ "	\$
3830.	Assorted widths and lengths,							" $\frac{1}{4}$ "	\$

See Price List in back of Catalog.

Adhesive Tapes



No. 3836.

No. 3836. Styk-um-phast Cloth. A mounting and binding tape, 50 feet long, $\frac{3}{8}$ in. wide, made of cloth coated on one side with a strong adhesive glue compound. Contained in box specially designed to fully protect the tape from atmospheric and other deteriorating effects.

Dozen, \$
 Each,

No. 3838. Styk-um-phast Paper. A transparent paper, 50 feet long, 1 in. wide, gummed on one side. Contained in box specially designed to fully protect the paper.

Dozen, \$
 Each,

3840. Dennison Adhesive Transparent Cloth Tape. A strip of cloth 30 feet long, $\frac{3}{4}$ in. wide, gummed on one side. On spool, and contained in special box which protects the tape from deteriorating.

Dozen, \$
 Each,



No. 3840.

Scotch Holdfast Drafting Tape

A Most Efficient Means of Holding Paper or Tracing Cloth to the Drawing Board

Scotch Holdfast Drafting Tape permits the sliding of T-Squares and Triangles over the drawing board without interference. It holds down all edges securely, preventing torn paper and curled edges. It requires no moistening and is easily and quickly applied and removed. It possesses unusual adhesive qualities and can be used over and over again, never leaving any stain or residue.



No. 3842C.



No. 3842H.

Scotch Holdfast Drafting Tape is especially made for drafting purposes and consists of a one-inch strip of prepared paper tape with a special adhesive, put up in cartons of 10 and 72 yard rolls. Descriptive circular with directions for use in each carton.

No. 3842C. Scotch Holdfast Drafting Tape,
 1-inch wide, 10 yards in carton, . Each, \$

3842H. Scotch Holdfast Drafting Tape,
 1-inch wide, 72 yards in carton, . Each,

See Price List in back of Catalog.

Dusting Brushes

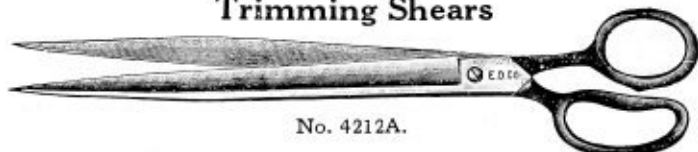
For removing crumbs of Rubber, etc., from Drawings and Boards.



No. 4211A.

- No. 4209. Dusting Brush, staple set in hardwood, $8\frac{1}{2}$ in. brush, bristles 2 in., handle 6 in., Each, \$
- 4211A. Dusting Brush, finest quality, $2\frac{1}{2}$ inch white bristle, staple set in hardwood, with 5 inch handle, 13 inches over-all in length. It is of a flat beveled style which allows the brush to lay flat or to be placed in a drawer or in a pigeon hole, Each, \$

Trimming Shears



No. 4212A.

Specially adapted for trimming drawings, tracings, blue prints, etc. Of perfected design, improves with use, has long thin blades of perfect temper and true cutting edges. Japanned handles, nicked blades. Fully warranted to remain sharp longer, cut easier and outwear any other make.

- No. 4212A. Trimming Shears, 14 in. long; cutting edge $8\frac{1}{2}$ in. long, Each, \$
- 4212B. " " " " 16 " " " " $10\frac{1}{4}$ " " " " " " " "

Ingento Cutters For Card and Paper Cutting



No. 4214-5.



The bed is seasoned birch, as wide as it is long. The supporting cleats are mitred into the bed to prevent warping. The bed is subdivided into half-inch squares (except Nos. 5 $\frac{1}{2}$ and 6) and is finished perfectly and highly polished. Across the top of the bed and set at right angle to the cutting edge is a rule with one-eighth inch graduations. The blades are of high grade tool steel, properly tempered to insure a perfect cutting edge.

Sizes No. 5, 5 $\frac{1}{2}$ and 6 have a metal frame to which the lower blade is attached. This frame is part of the joint casting, making it impossible for the relative position of the blades to change. These three numbers also have springs which hold the handle at any desired height. This is an important improvement for the large size.

Handles and metal bases are finished in black enamel, baked on. The spring joint is so constructed that the movable blade and board blade come together at the point of cutting as do shears. This results in clean-cut edges every time.

- | | | | | |
|------------------------|-----------------------|---------------------------|-----------|----------|
| No. 4214-1. | Ingento Paper Cutter, | $6\frac{1}{2}$ in. blade, | | Each, \$ |
| 4214-2. | " " " " | $8\frac{1}{2}$ " " " | | " |
| 4214-3. | " " " " | $10\frac{1}{2}$ " " " | | " |
| 4214-4. | " " " " | $12\frac{1}{2}$ " " " | | " |
| 4214-5. | " " " " | 15 " " " | | " |
| 4214-5 $\frac{1}{2}$. | " " " " | 18 " " " | | " |
| 4214-6. | " " " " | 24 " " " | | " |

See Price List in back of Catalog.

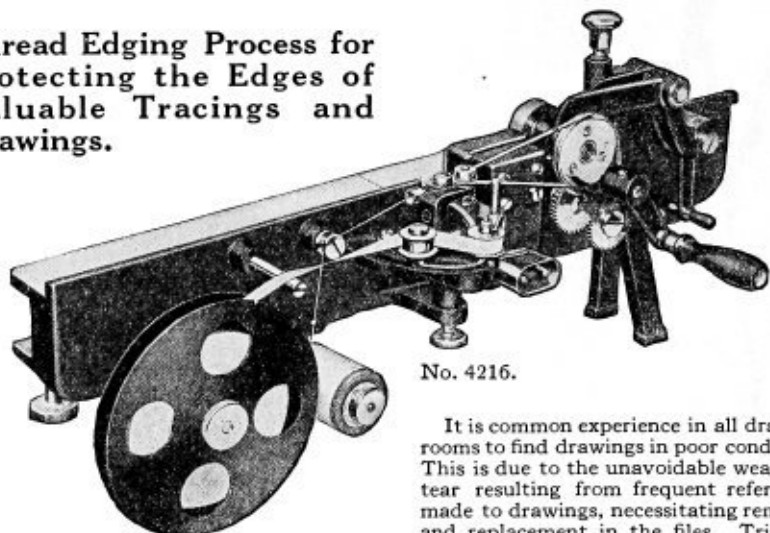


Section of Woodworking Department—Factory



Prakma

**Thread Edging Process for
Protecting the Edges of
Valuable Tracings and
Drawings.**



No. 4216.

It is common experience in all drafting rooms to find drawings in poor condition. This is due to the unavoidable wear and tear resulting from frequent references made to drawings, necessitating removal and replacement in the files. Trips to

and from the Blue Print Department and handling during reproduction also result in wear and tear.

Consequently, the edges of your valuable tracings are often torn. Attempts to repair them with adhesive tape frequently result in the tracings becoming partially undecipherable. This necessitates replacement of tracings by entirely new ones, which procedure, because it involves elements of error in tracing, often leads to still greater expenditure.

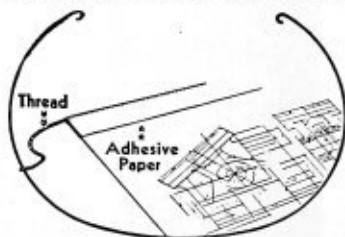
The Prakma Thread Edging Process solves these problems. It furnishes the only practical means of protecting valuable original drawings and tracings against destruction. Prakma Thread Edging can be applied on original drawings, shop drawings or signs—in fact any sheet subject to wear and tear.

The Prakma Machine through the simple turning of a crank, automatically places lasting and efficient protection on all edges. From the roll of stout adhesive tape material shown in the illustration, it takes the tape combining it with a double strength linen thread. This thread is especially prepared and is of the finest quality—even with the severest handling any tracing receives, it will never tear. The $\frac{1}{16}$ inch band does not interfere in any manner with reproduction on blue print machine.

Prakma Machines are equipped with a heating element, operating on 110 volts, A.C. or D.C. current. This feature permits the efficient and satisfactory use of the process on all materials, including all kinds of prepared tracing papers. The machines are quickly attached or detached to any drafting or filing table by means of winged thumb nuts.

We are prepared to do edging for those whose requirements would not warrant the purchase of the equipment and have installed machines to do such work in all of our Reproduction Departments. For rates kindly apply to nearest branch office.

Write for descriptive Prakma circular.

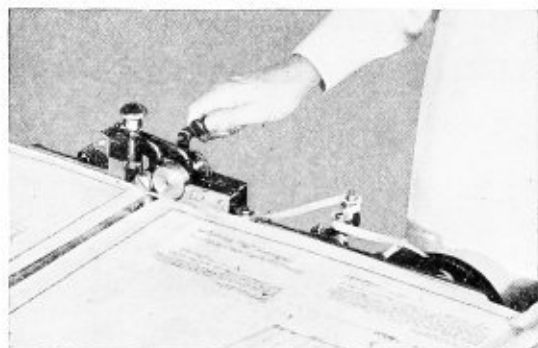


See Price List in back of Catalog.



Prakma

Thread Edging Process



Prakma Machine in action.

- No. 4216. Prakma Thread Edging Machine, complete with electrical heating element for use on 110 Volt A.C. or D.C. current, . . . Each, \$
- 4216P. Prakma Thread Edging Paper, especially prepared for use with Prakma Machines, in rolls of about 110 yards . Doz., \$ Each, \$
- 4216T. Prakma Linen Thread, especially prepared for use with Prakma Machines, in spools of about 650 yards, . . . Doz., \$ Each, \$

See Illustrations and Description on Preceding Page.

Stapling Machine



No. 4218.



Section of 4218A.

The No. 4218 Stapling Machine is made entirely of steel and has a "never-clog" sleeve and a revolving cutting die. The cutting die can be turned when it becomes dull, and by a revolution of $\frac{1}{6}$ a new cutting edge brought into play; one cutting die thus doing the service of six before it requires replacing, which can be done at a small cost.

It will staple perfectly two to twenty-five sheets of ordinary paper, and as the staples are made of sheet metal they hold more securely than the customary wire staples.

- No. 4218. Stapling Machine, excellent for binding blue prints, tracings, etc., holds 25 staples, . . . Each, \$
- 4218A. Staples, $\frac{3}{8}$ in., sheet metal, 25 in section, for No. 4218, Box of 500, . . .

See Price List in back of Catalog.

Dietzgen Economy Box

(Patented)



No. 4220A.

No. 4220A.	Dietzgen Economy Box, 32 inches long.	Each, \$
4220B.	" " " 38 " " "	"
4220C.	" " " 44 " " "	"

The Economy Box is unequalled for economically and effectively protecting Blue Print and Reproduction Papers, Cloths, etc., from light and moisture. It prevents waste, as any length of paper can be drawn from the roll contained in the box, the desired length being accurately measured by a spring tape attachment and quickly detached by means of a cutting edge which is part of the container.

Each box holds rolls of 50 yards or less, and is substantially made of heavy sheet metal, finished with black lacquer. Can be fastened to wall or table, and for simplicity, durability and general usefulness greatly surpasses the ordinary tin tube container. It is also adapted for holding rolls of Drawing and Tracing Papers, Tracing Cloth, Etc., not over 3¼ inches in diameter.

Air-Tight Metal Tubes



No. 4222A.

These tubes are made of tin with air tight covers. Excellent for keeping rolls of prepared papers and cloths dry and dark. Besides being valuable as storage tubes, they are excellently adapted for filing purposes. The handles are slotted to receive an index card furnished with each tube as shown. The compactness, convenience, flexibility and protective value of such a file, and the fact that it can be easily set up or changed to any convenient place, has made this filing system very popular in the drafting room.

No. 4222A.	31 inches long, 4 in. diam., for 50-yd. rolls,	Each, \$
4222B.	37 " " 4 " " " 50 " " "	"
4222C.	43 " " 4 " " " 50 " " "	"
4222D.	55 " " 4 " " " 50 " " "	"
4224A.	31 " " 2¼ " " " 10 " " "	"
4224B.	37 " " 2¼ " " " 10 " " "	"
4224C.	43 " " 2¼ " " " 10 " " "	"
4224D.	55 " " 2¼ " " " 10 " " "	"

Prepared Blue Print Papers and Cloths listed on pages 25-40.

See Price List in back of Catalog.

Heavy Pasteboard Tubes



No. 4226A.

Made of extra-heavy pasteboard, with metal screw-cap at each end. Dust proof, moist proof, light proof, and very durable. Excellent for shipping and filing drawings, tracings, etc.

No. 4226A.	32 inches long,	3 1/2 in. inside diameter,	.	.	.	Each, \$
4226B.	37 " "	3 1/2 " " "	.	.	.	"
4226C.	43 " "	3 1/2 " " "	.	.	.	"

Light Pasteboard Tubes

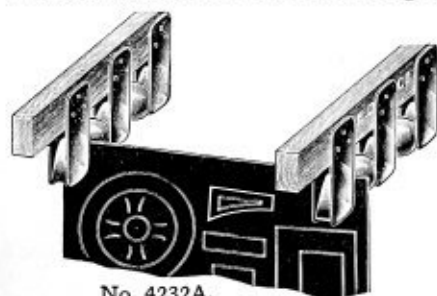


No. 4228A.

Well made, with pasteboard close-fitting cap at one end and pasteboard fixed-cap at the other end. Used for preserving rolls of prepared papers and cloths; also for the purpose of shipping and filing drawings, etc.

No. 4228A.	31 inches long,	2 in. inside diameter,	.	.	.	Each, \$
4228B.	37 " "	2 " " "	.	.	.	"
4228C.	43 " "	2 " " "	.	.	.	"

Automatic Print Hanger



No. 4232A.

No. 4232A.	Automatic Print Hanger, bar with 10 holders, 31 in. long,	Each bar, \$
4232B.	" " " " " 20 " 52 " " " "	"
4232C.	" " " " " 25 " 63 " " " "	"
4232D.	" " " " " 30 " 74 " " " "	"
4232E.	" " " " " 35 " 85 " " " "	"

This Print Hanger consists of rustless metal holders attached to a rigid wooden bar, each holder containing a ball. Print is slipped between edge of holder and ball, and when released is firmly held by weight of ball, being quickly removed by raising ball with the finger. Spacing of holders permits air to circulate freely, insuring rapid drying. For small or medium size prints, one or two bars should be used, but for large prints additional bars will be necessary to prevent prints from sagging.

No. 4234.	Spring Clips, for clamping prints when drying,	Doz., \$
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4234.

See Price List in back of Catalog.

Solar Printing Frames

Superior Quality

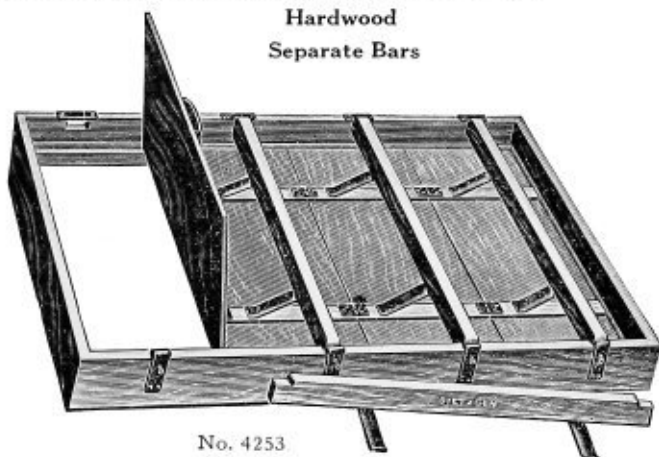
These Printing Frames are built with the greatest care and are of unusually fine workmanship. They are of a substantial design and made of carefully selected, thoroughly seasoned hardwood, which, unlike frames of cheaper construction, practically eliminates the possibility of warping or shrinking, thus lessening the liability of breaking the glass. They are neatly finished, and made to withstand exposure to weather incident to their use.

The springs are of a substantial rust proof metal and sufficiently strong and properly arranged to insure perfect contact.

The spring catches which lock the bars in place are made with a protecting lug which prevents them from becoming sprung out of position.

We recommend the polished Plate Glass on account of its strength, and also because of its greater transparency, it will make better prints.

**Hardwood
Separate Bars**



No. 4253

No.	Printing Surface.	Each, \$	Frame Only.	With Cotton Pad.	With Cotton Pad and Double Thick Glass.	With Cotton Pad and Polished Plate Glass.	Approx. Ship'g Wgt. Frame	Approx. Ship'g Wgt. Glass.
No. 4250.	20 × 24 in.						35	30 lbs
4251.	24 × 30 "	"					40	40 "
4252.	24 × 36 "	"					50	45 "
4253.	30 × 42 "	"					70	60 "
4254.	36 × 48 "	"					85	80 "
4255.	36 × 60 "	"					120	100 "
4256.	42 × 60 "	"					140	120 "
4257.	42 × 72 "	"					170	140 "

Other sizes made to order.

When ordering Frames, always specify exactly what is desired, that is, Frame only, etc.

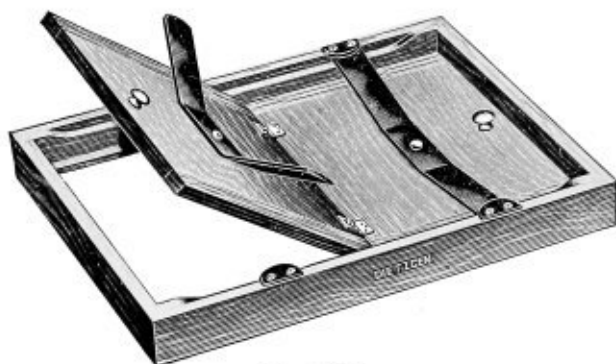
The Glass is carefully packed by a competent packer, but we are not responsible for breakage of glass in transit.

Cotton and Felt Pads listed under Nos. 4282C-4284K.

See Price List in back of Catalog.

Solar Printing Frames

For Patent Office, School and Home Use



No. 4261.

These frames are of a light, strong design, made of selected seasoned hardwood. The strong rust proof springs, which insure a perfect contact, are attached to the folding back, making it handy to load and unload the frame. These frames will be found very practical and convenient for use in patent offices, schools and homes.

No. 4260.	11 × 16 in.,	hardwood,	double thick glass,	felt pad,	\$	Each.	Approx.
4261.	16 × 21 "	"	"	"	"	"	Ship'g Wgt.
							15 lbs.
							22 "

Pads for Solar Printing Frames

Cotton

No. 4282C.	Pad, for frames with printing surface	20 × 24 in.,	$\frac{3}{8}$ in. thick,	Each, \$
4282D.	" " " " " "	24 × 30 "	$\frac{3}{8}$ "	" "
4282E.	" " " " " "	24 × 36 "	$\frac{3}{8}$ "	" "
4282F.	" " " " " "	30 × 42 "	$\frac{3}{8}$ "	" "
4282G.	" " " " " "	36 × 48 "	$\frac{3}{8}$ "	" "
4282H.	" " " " " "	36 × 60 "	$\frac{3}{8}$ "	" "
4282J.	" " " " " "	42 × 60 "	$\frac{3}{8}$ "	" "
4282K.	" " " " " "	42 × 72 "	$\frac{3}{8}$ "	" "

Felt

No. 4284A.	Pad, for frames with printing surface	11 × 16 in.,	$\frac{1}{8}$ in. thick,	Each, \$
4284B.	" " " " " "	16 × 21 "	$\frac{1}{8}$ "	" "
4284C.	" " " " " "	20 × 24 "	$\frac{3}{8}$ "	" "
4284D.	" " " " " "	24 × 30 "	$\frac{3}{8}$ "	" "
4284E.	" " " " " "	24 × 36 "	$\frac{3}{8}$ "	" "
4284F.	" " " " " "	30 × 42 "	$\frac{3}{8}$ "	" "
4284G.	" " " " " "	36 × 48 "	$\frac{3}{8}$ "	" "
4284H.	" " " " " "	36 × 60 "	$\frac{3}{8}$ "	" "
4284J.	" " " " " "	42 × 60 "	$\frac{3}{8}$ "	" "
4284K.	" " " " " "	42 × 72 "	$\frac{3}{8}$ "	" "

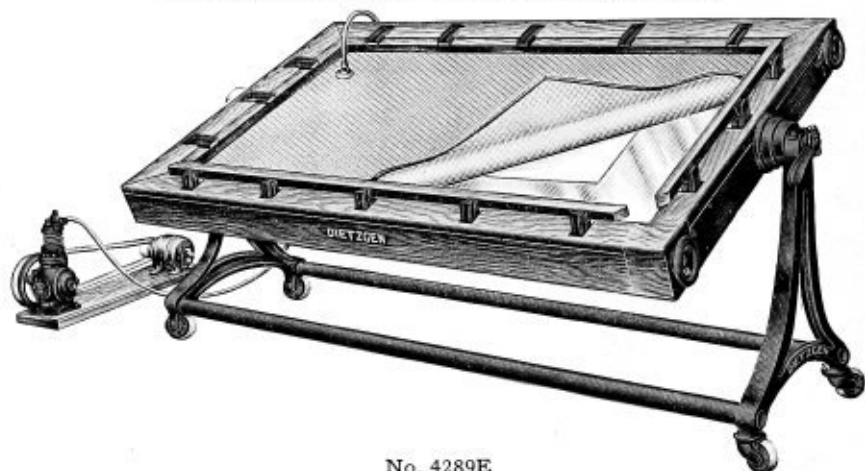
No. 4286. Felt for Solar Printing Frames, 72 in. wide, $\frac{3}{8}$ in. thick, Sq. yd., \$

See Price List in back of Catalog.



Dietzgen Rapid Action Vacuum Print Frame

All Clamps Open or Close Simultaneously



No. 4289E

The Dietzgen Rapid Action Vacuum Print Frame is of the latest design in printing frames, and is adapted for both electric and sun printing. Its quick, easy operation permits of greater production and speed in handling of work.

One of the features of this modern designed frame is the dual control of the blanket holddown clamps, whereby one end and one side of the clamp may be opened and a corner of the blanket thrown back, permitting an inspection of the print as to whether it is of correct exposure. If the print is found to be of insufficient exposure, the blanket can be replaced, the clamp closed, and the print exposed again until properly printed. *This whole examination can be completed without in the least disturbing the relative position of the print and tracing.* The above cut illustrates this procedure which will be found advantageous when exact exposure is imperative.

There are no cross bars or springs to be inserted, or no extra frame to be lifted out. The frame may be loaded or unloaded by simply whirling the wheels which automatically open the clamp, and the blanket rolled back, thereby resulting in a large saving of time to the operator, and greatly facilitating his work. The frame itself is very well-balanced. A simple, efficient locking device holds it firmly in any desired position for loading or unloading, and when released, allows the frame to be rotated with a slight effort.

The vacuum contact is accomplished by means of a vacuum pump, connected by a hose to the especially-constructed rubber blanket. The pump exhausts the air from between the blanket and the glass between which the sensitized material and the tracing have been placed. The vacuum thus produced insures perfect contact between the tracing and the sensitized material. The action is quick and positive.

The Dietzgen Rapid Action Vacuum Print Frame is manufactured in our own Factory of thoroughly seasoned hardwood. Extreme attention is given to all details in its construction to make it sturdy, durable and easy to operate.

DIETZGEN Rapid Action VACUUM PRINT FRAME WITHOUT CARRIAGE

	Printing Surface	Inside Dimensions of Frame	Frame Only	Frame with Rubber Blanket and Hose	Frame with Rubber Blanket, Hose and Polished Plate Glass
No. 4287C.	44" × 62"	47" × 65"	\$	\$	\$
4287D.	44" × 74"	47" × 77"			
4287E.	56" × 86"	60" × 90"			
4287F.	56" × 100"	60" × 104"			
4287G.	56" × 122"	60" × 126"			

DIETZGEN Rapid Action VACUUM PRINT FRAME WITH CARRIAGE

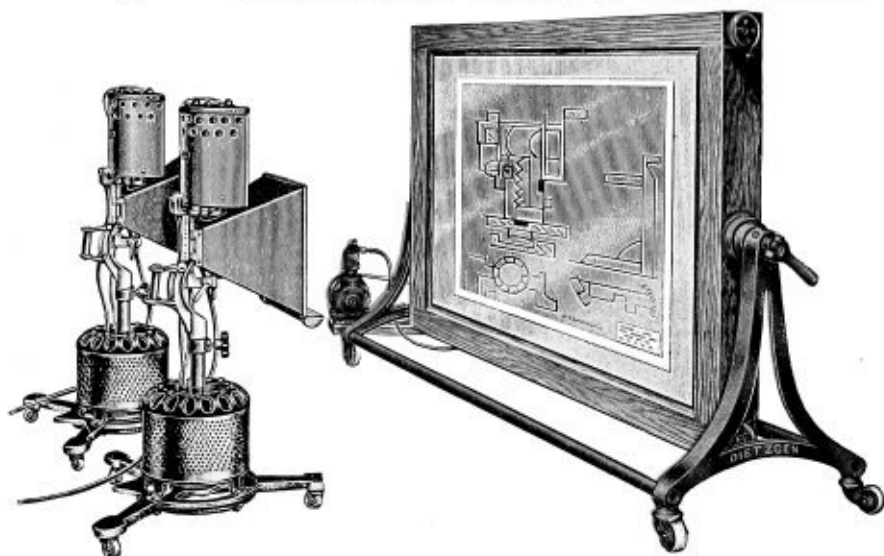
No. 4289C.	44" × 62"	47" × 65"	\$	\$	\$
4289D.	44" × 74"	47" × 77"			
4289E.	56" × 86"	60" × 90"			
4289F.	56" × 100"	60" × 104"			
4289G.	56" × 122"	60" × 126"			

Other sizes made to order. Prices quoted on request.

See Price List in back of Catalog.



Dietzgen *Rapid Action* Vacuum Print Frame



Printing Frame in the Process of Printing

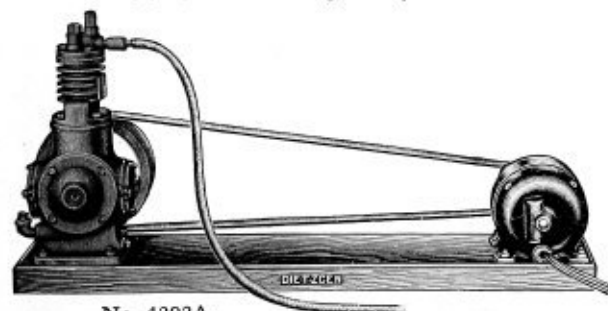
The above illustration shows a complete **Rapid Action** Printing Unit, consisting of a Dietzgen **Rapid Action** Vacuum Print Frame No. 4289E; Vacuum Pump Outfit No. 4292B; and two Hi-Power Arc Lamps No. 4344-1, set up for operation.

This Unit is especially adapted for printing where perfect contact is desired, such as in the making of Vandykes, and is particularly suitable for making tracing cloth reproductions by the EDCO Reproduction Process (See Catalog Nos. 235, 236, 238). It will be found to be very efficient and of moderate cost.

We show here an exposure being made with two Hi-Power single arc lamps which are extra powerful and, consequently, rapid printing. The lamps are separately mounted on caster bases, permitting them to be moved individually to or from the frame, as desired, or to be used singly where only a medium-sized print is being made. They are also adjustable in height, permitting them to be raised or lowered to a suitable position.

Vacuum Outfit

For Use On Dietzgen *Rapid Action* Vacuum Print Frame



No. 4292A.

When ordering, state voltage, and also cycles, if alternating current motor is wanted.

No. 4292A. Vacuum Outfit, consisting of $\frac{3}{4}$ H. P., 110 or 220 Volt, D. C. or 60 cycle A. C. Motor, and highly efficient Vacuum Pump, mounted on a common sub-base, with a capacity for frames having a printing surface 44×74 ", or smaller,.....Each, \$

No. 4292B. Like No. 4292A, but with $\frac{1}{2}$ H. P., 110 or 220 Volt, D. C., or 60 cycle A. C. Motor, with a capacity for frames having a printing surface greater than 44×74 ",.....Each, \$

See Price List in back of Catalog.

Galvanized Iron Bath Trays



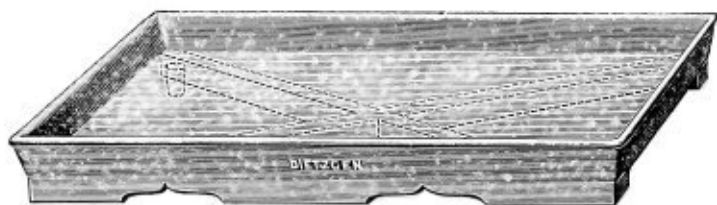
No. 4300.

The Frames of these trays are made of carefully selected, thoroughly seasoned hardwood, and are lined with heavy galvanized iron.

Each tray is provided with a drain pipe.

				Each.	Approx. Ship'g Wgt.
No. 4300.	Bath Tray,	36 × 60 × 8 inches,	. . .	\$	115 lbs.
4301.	" "	42 × 60 × 8 "	. . .		135 "
4302.	" "	45 × 75 × 10 "	. . .		180 "
4303.	" "	56 × 98 × 10 "	. . .		250 "

Other sizes made to order.



No. 4308.

These Trays, of galvanized iron and equipped with a drain pipe, are exceptionally well made. They have a strong wired-rim, and are rigidly braced by wooden cross-bars.

				Each.	Approx. Ship'g Wgt.
No. 4306.	Bath Tray,	20 × 24 × 6 inches,	. . .	\$	25 lbs.
4307.	" "	24 × 30 × 6 "	. . .		40 "
4308.	" "	30 × 42 × 6 "	. . .		60 "

Other sizes made to order.

See Price List in back of Catalog.



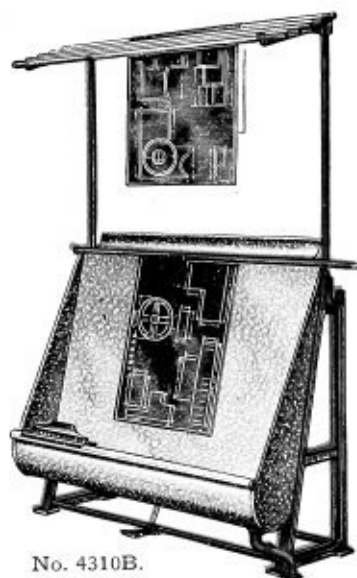
Dietzgen Sheet Washers

The Dietzgen Sheet Washer is an effective and efficient means of thoroughly washing and developing blue prints and negative prints in sheets. It is especially recommended for use in connection with the Dietzgen Junior or Senior Vertical Electric Printing Machines, or with printing frames.

The prints are washed by running water, thus avoiding the use of flat tanks. The tray has a clamping device at the top, operated by a foot treadle, which permits the prints to be clamped in position while being washed. A water spray, which is connected to the main water system by means of a hose, is of a design that permits the spray to be directed so as to flow in a large volume over the top of the print. If the print is extra large, it can be folded over one of the drying rods provided and held under the water spray so that the water flows over both sides of the folded print.

The drain pipe is equipped with a reversible strainer-plug, permitting the forming of a pool of water at the bottom of the trough, which may be used as a bath tray, if desired. This is of special advantage where a number of small size sheets are being washed at one time.

The chemical tray and brush as shown in the illustration are furnished with both Junior and Senior Washers for carrying and applying bichromate of potash to blue prints, and for fixing solution for negative prints while the print remains on the washer. After this operation, the prints are again washed and hung on the drying rack provided.



No. 4310B.



No. 4310A.

No. 4310A. Dietzgen Junior Sheet Washer for prints 24x36", or smaller; floor space 24x32", with tray 28" wide, complete with chemical tray and brush, Each, \$

4310B. Dietzgen Senior Sheet Washer for prints 42x72", or smaller; floor space 4½x2 ft., with tray 48" wide, complete with chemical tray and brush, Each, \$

ACCESSORIES

for

DIETZGEN SHEET WASHERS

No. 4311A. Chemical Tray for bichromate of potash, negative or fixing solution, for use with Junior or Senior Sheet Washer Each, \$

4312A. Brush, 10" long, for use with Chemical Tray, No. 4311A Each, \$

See Price List in back of Catalog.

Wheel Carriages



No. 4318 with No. 4255.

These Wheel Carriages, made of iron, are of a practical and substantial design. They have one pair of fixed wheels and a pair of swivel wheels, which make them easy to handle and move about wherever desired.

The frame revolves between the standards and being nicely balanced permits the prints to be removed or placed in the frame with the greatest ease. The special locking device at the side readily clamps the frame in any position for convenience of loading or to be set at the proper angle to receive the direct rays of the sun during exposure.

Either our regular type Solar Frames Nos. 4252-4257, or our Vacuum Printing Frames Nos. 4287C-4287G, may be mounted on a carriage, and when mounted, make a practical and convenient arrangement for an excellent Solar Printing Apparatus that is very easy to handle.

Note: When ordering, always specify type of frame and size for which the carriage is to be used.

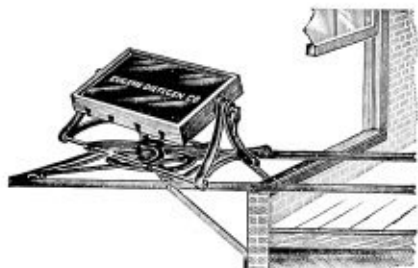
No.	Description	Each,	Approx. Ship'g Wgt.
No. 4315.	Carriage only, for frames with printing surface 24 X 36 in.,	\$	115 lbs.
4316.	Carriage only, for frames with printing surface 30 X 42 in.,		120 "
4317.	Carriage only, for frames with printing surface 36 X 48 in.,		130 "
4318.	Carriage only, for frames with printing surface 36 X 60 in.,		140 "
4319.	Carriage only, for frames with printing surface 42 X 60 in.,		150 "
4320.	Carriage only, for frames with printing surface 42 X 72 in.,		160 "
4321C.	Carriage only, for Vacuum frames with printing surface 44 X 62 in.,		155 "
4321D.	Carriage only, for Vacuum frames with printing surface 44 X 74 in.,		165 "
4321E.	Carriage only, for Vacuum frames with printing surface 56 X 86 in.,		180 "
4321F.	Carriage only, for Vacuum frames with printing surface 56 X 100 in.,		190 "
4321G.	Carriage only, for Vacuum frames with printing surface 56 X 122 in.,		200 "

Other sizes made to order.

Turntable Carriages listed under Nos. 4322-4325. Angle Iron Tracks with Supports described on following page.

See Price List in back of Catalog.

Turntable Carriages



These Turntable Carriages, when used with tracks as described below, are a practical and convenient means of exposing prints outside of the window.

The carriage is mounted on an iron turntable which is on four wheels. The frame which revolves between the standards of the carriage can be rolled outside of the window and turned to face the direct rays of the sun.

Either our regular type Solar Printing Frames Nos. 4252-4257, or our Vacuum Printing Frames, described under Nos. 4287C-4287G, may be used with a carriage.

Note: When ordering, always specify type of frame and size for which the carriage is to be used.

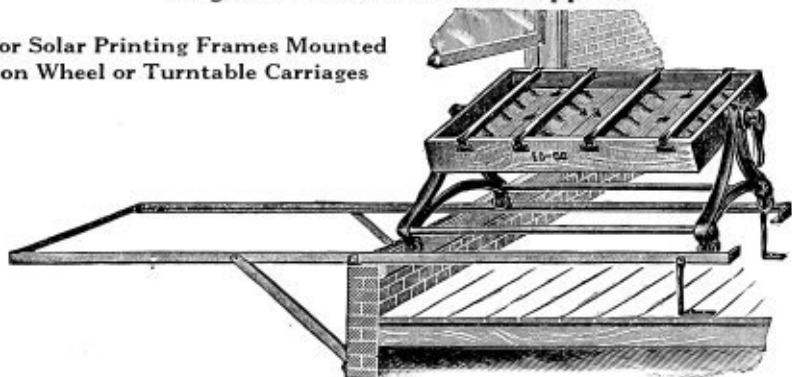
No. 4324 with No. 4318 and Iron Tracks and Supports.

No.	Description	Each.	Ship'g Wgt.
No. 4322.	Turntable Carriage only, for frames with printing surface 30 × 42 in.,	\$	140 lbs.
4323.	Turntable Carriage only, for frames with printing surface 36 × 48 in.,		155 "
4324.	Turntable Carriage only, for frames with printing surface 36 × 60 in.,		170 "
4325.	Turntable Carriage only, for frames with printing surface 42 × 72 in.,		195 "

Other sizes made to order.

Angle Iron Tracks with Supports

For Solar Printing Frames Mounted on Wheel or Turntable Carriages



Iron Tracks and Supports with Wheel Carriage and Frame.

Our Angle Iron Tracks with Supports, used for carrying Solar Printing Frames through and outside of a window, are simple in design, well made and practical.

They are specially adapted for use with either our regular type Solar Printing Frames Nos. 4252-4257, or our Vacuum Printing Frames Nos. 4287C to 4287G, when these frames are mounted on our Wheel Carriages Nos. 4315-4321G or on our Turntable Carriages Nos. 4322-4325.

Prices for Tracks and Supports quoted on request.

When requesting prices, always give the following information:

1. Width and height of open window.
2. Width of window sill.
3. Height of window sill from floor.
4. Thickness of wall.
5. Width of Printing Frame.
6. Length of Carriage over all.
7. Width of Carriage outside of wheels.

See Price List in back of Catalog.



Dietzgen Junior Vertical Electric Printing Machine

The Dietzgen Junior Vertical Electric Printing Machine is of the same sturdy construction as the Senior Machine, and is equipped with the same Speed Regulator and Automatic Cut-off. Both of these features are fully described under the Senior Machine.

The Junior Machine will print clear, sharp, distinct prints at a fast rate of speed, and has greater economy than any other equipment of the same size or type. *The length of travel of the lamp is such as to give the same printing qualities to the prints at the extreme top and bottom as at the center; thus, on the maximum size prints which can be printed on it, the print is uniformly exposed over this full area.*

The Junior Machine consists of a half cylinder of glass having an open printing surface of 24x36 inches. This glass is held in a felt-lined metal frame which is enameled in an attractive brown color that is very popular as applicable to office and school furniture and which harmonizes with any office fixtures.

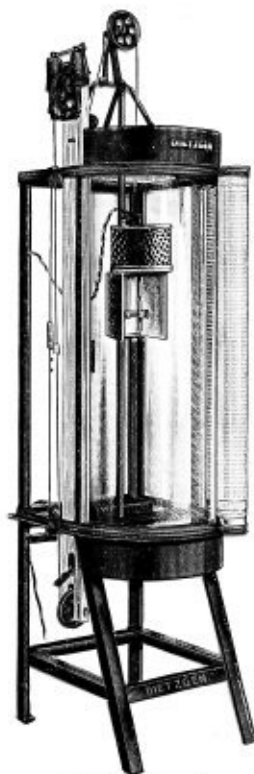


Illustration of Junior Vertical Electric Printing Machine equipped with Hi-Power Single Arc Lamp.

Roller Curtain

The tracing and sensitized paper are held in place by Roller Curtains. The rollers are particularly noteworthy in that their design and construction are such as to cause the curtain to maintain its initial uniform tautness over the entire surface of the glass, irrespective of the number or arrangement of tracings or prints, thus securing a uniform perfect contact over the complete surface of the glass.

The roller curtain is very simple in construction and accurate in operation, enabling the most inexperienced boy to operate it to its greatest efficiency.

Hi-Power Arc Lamp

The Hi-Power Arc Lamp used in the Junior Vertical Electric Printing Machine is of a design especially made for this machine, and is extremely efficient, giving off an intense light, rich in printing qualities. The lamp consumes 15 amperes on 110 or 220 volts, direct or alternating current. It is provided with a satin-finished aluminum reflector of such shape as to give the best possible distribution of light.

Speed Regulator

The Dietzgen Junior Vertical Electric Printing Machine is equipped with the improved pneumatic Speed Regulator found on the Senior Machine. This regulator is of an original pattern and insures uniform

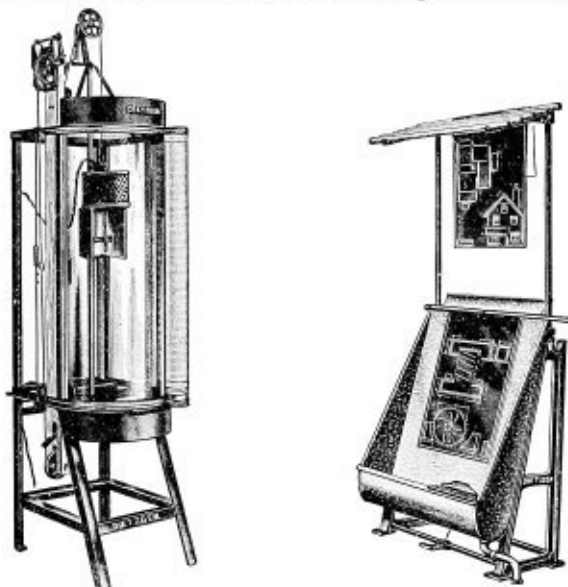
speed in the descent of the arc lamp. It is noiseless in operation and absolute in its regulation. Because of its unique construction it provides for a wide range of speed.

Automatic Cut-Off

With the Dietzgen Automatic Cut-off, the light is automatically extinguished at any desired point by means of a tripping device. This device permits the machine to be loaded, set in operation and left unattended, without any possibility of the print becoming over-exposed through the continued burning of the light.

See Nos. 4348-1 and 4348-2 Hi-Power Arc Lamps.

Dietzgen Junior Vertical Electric Printing Machine



The above illustration shows an ideal, efficient, junior size printing unit, consisting of the Dietzgen Junior Vertical Electric Printing Machine No. 4334-1, and Dietzgen Junior Sheet Washer No. 4310A.

The Dietzgen Junior Vertical Electric Printing Machine is designed especially for use in drafting rooms where a limited quantity of prints is required, or where emergency prints are wanted. It will also be found particularly valuable for use in vocational, high or preparatory schools.

The Junior Machine occupies a floor space of only 18x22 inches and has an overall height of 83 inches. It is recommended for use in connection with the Dietzgen Junior Sheet Washer, No. 4310A, illustrated and described under this number, and makes an ideal, moderate capacity printing unit for Architects, Engineers, Industrial Drafting Rooms and Schools.

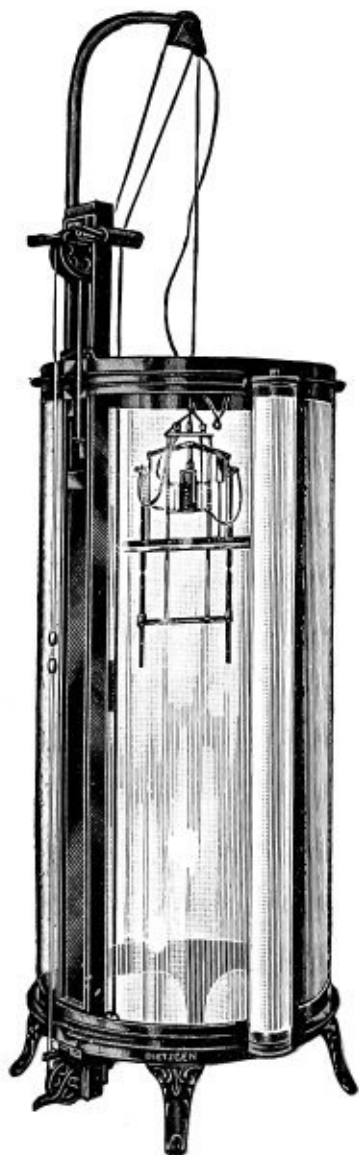
- No. 4334-1. Dietzgen Junior Vertical Electric Printing Machine, with a printing surface for sheets 24x36 inches or smaller, complete with lamp No. 4348-1 for 110 Volt, D. C. or 60 cycle, A. C., . . . Each, \$
- 4334-2. Like No. 4334-1, but with lamp No. 4348-2 for 220 Volt, D. C. or 60 cycle A. C., Each,

When ordering, state voltage, and also cycles, if alternating current lamp is wanted.

Our terms are f. o. b. shipping point; therefore, the title passes to the consignee upon our obtaining a clear receipt from the transportation company. In case of damage claim must be made by consignee.

See Price List in back of Catalog.

DIETZGEN SENIOR Vertical Electric Printing Machines



The Dietzgen Senior Vertical Electrical Printing Machine will print clear, sharp, distinct prints at a faster rate of speed than any other equipment of the same type. Perfect prints can be made at any time of the day or night, regardless of weather conditions. The machines are extremely simple and substantial in construction, and very easy and economical to operate. They are made in two types: Type W, cylindrical, and Type X, semi-cylindrical, both types made to be used with direct or alternating current.

Illustration shows Dietzgen Senior Printing Machine equipped with Hi-Power Twin Arc Lamp.

See Price List in back of catalog.



DIETZGEN SENIOR Vertical Electric Printing Machines

Description (Type "W")

Cylindrical

This type consists of two sections of curved plate glass joined to form a cylinder and rigidly held in a vertical position by a well-finished and substantial combination metal and wooden frame.

Roller Curtain

The tracing and sensitized paper are held in place by roller curtains. The rollers are particularly noteworthy in that their design and construction are such as to cause the curtain to maintain its initial uniform tautness over the entire surface of the glass, irrespective of the number or arrangement of tracings or prints, thus securing a uniform perfect contact over the complete surface of the glass.

This perfect contact of the curtain and the glass allows the curtain to be partly rolled back and the prints examined **without in any way disturbing the position of either the tracings or the prints**. This is advantageous in allowing for the examination of prints, particularly those from old or soiled tracings.

The roller curtain is very simple and accurate in operation, enabling the most inexperienced boy to operate it to its greatest efficiency. When loading or unloading the machine, the rollers can be readily moved by the knee, leaving the hands of the operator free to adjust the tracings and paper.

Twin Arc Lamp

The Twin Arc Lamp used on both Type "W" and Type "X" is especially suitable for electric printing machines. It produces two distinct arcs of high intensity, giving a better light distribution, resulting in a more uniform exposure. Because of its particular construction, with no globes to cloud or dirty, and because of the Twin Arcs, it prints at two to three times the speed of an enclosed single arc lamp.

It has no complicated parts to get out of order; no globes to break or to be constantly cleaned.

An inexperienced boy can operate and trim this lamp.

New carbons can be inserted without disturbing the lower carbons, or vice versa.

The very small cost of the carbons and current is practically the entire cost of operation. See illustration and description of this lamp under Nos. 4349-1 and 4349-2.

Voltage, Etc.

The Hi-Power Twin Arc Lamp used with the machine can be furnished to operate on 110 volts, 25 amps., D. C. or A. C., or it can be furnished to operate on 220 volts, 25 amps., D. C. or A. C., 60 cycles.

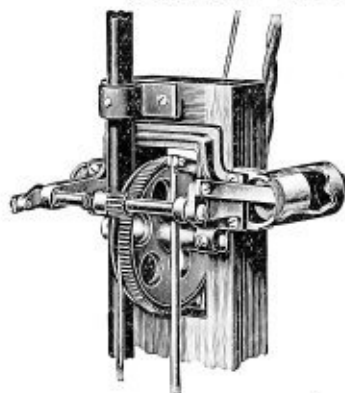
The Rheostats are built for variation of voltage, giving various intensity of light to suit the immediate requirements.

We can furnish special cycle Hi-Power Lamps at an extra charge.

See Price List in back of Catalog.

Dietzgen Senior Vertical Electric Printing Machines

Speed Regulator



The Dietzgen improved pneumatic speed regulator, of an original pattern, insures an unusually positive uniform speed in the descent of the arc lamp. It is noiseless in operation, and absolute in its regulation. Because of its unique construction it provides for a wide range of speed. By simply turning a rod, which governs the regulations, any desired speed in the descent of the lamp can be obtained.

This pneumatic speed regulator is a marked advance over the old oil and dash pot regulator, which, at its best, is bothersome, in that the oil evaporates, the valves become clogged, the pistons sticky and other annoying irregularities, which cause a variation in speed with a consequent over and under exposure of different parts of the prints.

Automatic Cut-Off

The Electric current is automatically cut off and the light extinguished at any desired point by means of a tripping device.

This feature is advantageous in offices where a regular blueprinter is not employed, as any member of the office can load the machine, start the lamp on its downward course, and then take up his regular duties, there being no possibility of the prints becoming overexposed while he is away.

As the paper is well protected from outside light, it does not require immediate removal.

Description (Type "X")

This type is similar in design and construction to Type "W" except that it has only one plate glass section. It is of the same substantial construction and has the same advantageous features as described under Type "W."

It is particularly adapted for the use in offices where the reproduction work is more or less limited.

Floor Space and Height

Type "W" and Type "X"

The Type "W" and Type "X" Machines occupy a floor space only three feet square and have an over-all height of 9 ft. As the mechanism is not dependent upon side walls or ceiling fixtures of any kind, the machines can be placed wherever desired.

They are securely packed and shipped completely assembled, with instructions for setting up and operating. It is only necessary to unpack, hang the lamp in place, connect the feed wires and it is ready to operate.

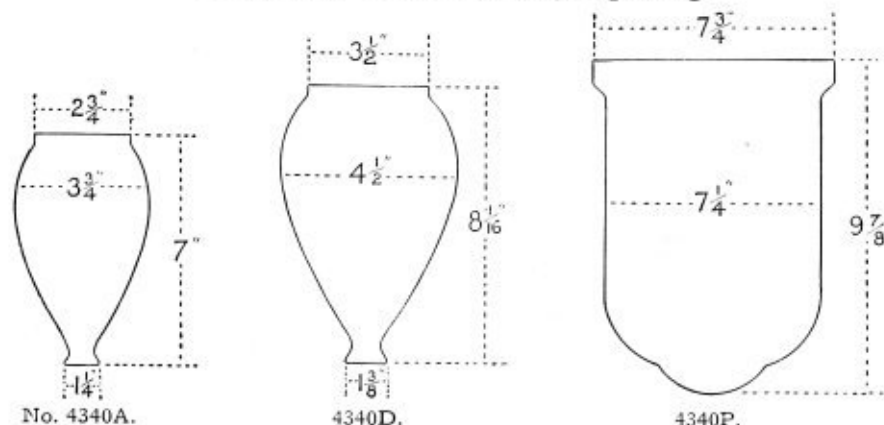
- | | | |
|-------------|---|----------|
| No. 4336-1. | Dietzgen Senior Vertical Electric Printing Machine, Type "W," | |
| | two printing surfaces, each 42 × 60 in.; complete with Hi-Power | |
| | Twin Arc Lamp for 110 volt D. C. or 60 cycle A. C.; Approx- | |
| | imate shipping weight 680 lbs., | Each, \$ |
| 4336-2. | Like No. 4336-1, but with lamp for 220 volt D. C. or 60 cycle | |
| | A. C., | Each, |
| 4339-1. | Dietzgen Senior Vertical Electric Printing Machine, Type "X," | |
| | one printing surface, 42 × 60 in.; complete with Hi-Power Twin | |
| | Arc lamp for 110 volt D. C. or 60 cycle A. C.; Approximate | |
| | shipping weight 630 lbs., | Each, |
| 4339-2. | Like No. 4339-1, but with lamp for 220 volt D. C. or 60 cycle | |
| | A. C., | Each, |

When ordering, state voltage, also cycles, if alternating current lamp is wanted.

Our terms are f. o. b. shipping point; therefore, the title passes to the consignee upon our obtaining a clear receipt from the transportation company. In case of damage claim must be made by consignee.

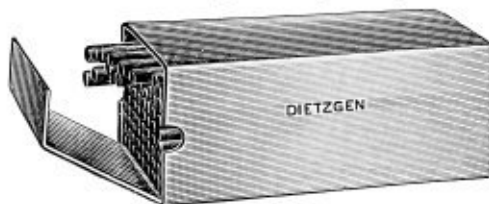
See Price List in back of Catalog.

Heat Resisting Globes for Lamps Used for Blue Printing and Photographing



- No. 4340A.** Globes, clear heat resisting glass, $2\frac{3}{4}$ in. at top, $1\frac{1}{4}$ in. at bottom, 7 in. high, Each, \$
- 4340D.** Globes, clear heat resisting glass, $3\frac{1}{2}$ in. at top, $1\frac{3}{8}$ in. at bottom, $8\frac{1}{16}$ in. high, Each, \$
- 4340P.** Globes, clear heat resisting glass, $7\frac{3}{4}$ in. at top, $9\frac{7}{8}$ in. high, " "

Carbons Highest Quality



No. 4342C-12.

- | | Per 25 | Per 100 |
|--|--------|---------|
| | \$ | \$ |
| No. 4342A-9. Carbons, cored, $\frac{1}{2} \times 9$ in., for A.C. lamps, | | |
| 4342A-12. " " $\frac{1}{2} \times 12$ in., " " " " " | | |
| 4342A-16. " " $\frac{1}{2} \times 16$ in., " " " " " | | |
| 4342B-9. Carbons, solid, $\frac{1}{2} \times 9$ in., " " and D.C. lamps, | | |
| 4342B-12. " " $\frac{1}{2} \times 12$ in., " " " " " " | | |
| 4342B-16. " " $\frac{1}{2} \times 16$ in., " " " " " " | | |
| 4342C-12. White Flame Carbons, cored, chemically treated, $\frac{1}{2} \times 12$ in. Made specially for open arc lamps either A.C. or D.C. (solid carbon is not used on open arc lamps), | | |

Note: One cored carbon and one solid carbon are best for use with alternating current lamps; two solid carbons give the best results with direct current lamps.

See Price List in back of Catalog.



Hi-Power Arc Lamps

for use with

Vacuum Printing Frames

The Hi-Power Printing Arc Lamps are of strong, rugged construction, and are simple in operation. They throw an intense light, rich in printing qualities, and are rapid and accurate in focusing. Either direct or alternating current may be used.



No. 4344-1.

The Hi-Power twin arc lamps, efficient and simple in operation, are sometimes preferred for use with large printing frames. Twin arc lamps pick up the full printing power very quickly and are more uniform and steadier burning than other types. The double arc provides speed and ample penetration and is recommended for use on frames that are too large for a single arc lamp and where the size of the print is not sufficient to require the use of two single arc lamps.

The reflector is 16 × 28 inches and the range of adjustment from the floor to the arc at the lowest position is 27 inches from the frame, and at the highest, 44 inches.

No. 4345-1. Hi-Power Twin Arc Lamp, approximately 30 amps., for 110 Volt, D.C. or 60 cycle A.C., . . . Each, \$

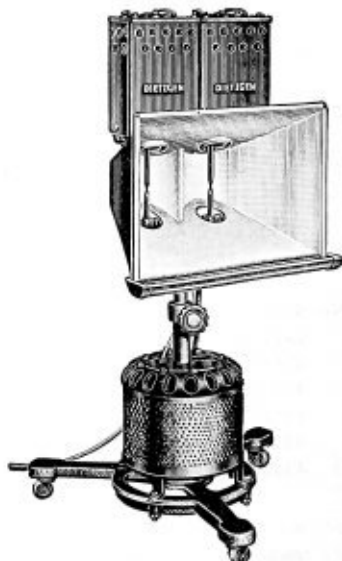
4345-2. Like No. 4345-1, but for 220 Volt, D.C. or 60 cycle A.C., Each, \$

The single arc lamps are ideal lamps for use with printing frames. One single arc lamp will cover up to 36 × 48 inches efficiently. On frames having a printing surface above this size, we recommend the use of two single arc lamps, as illustrated on page 303.

The lamps have a reflector 16 × 16 inches and the range of adjustment from the floor to the arc at the lowest position is 27 in., and at the highest position, 44 in.

No. 4344-1. Hi-Power Single Arc Lamp, approximately 30 amps., for 110 Volt, D.C. or 60 cycle A.C., Each, \$

4344-2. Like No. 4344-1, but for 220 Volt, D.C. or 60 cycle A.C., Each, \$



No. 4345-1.

See Price List in back of Catalog.



Hi-Power Arc Lamps

Single Arc Lamps for use with Dietzgen Junior Vertical Electric Printing Machines

The Hi-Power Single Arc Printing Lamps No. 4348-1 and 4348-2 are especially designed for use with the Dietzgen Junior Vertical Electric Printing Machines, described under catalog Nos. 4334-1 and 4334-2.

These lamps give off the maximum amount of light and have great penetrating power with a uniform distribution. They are equipped with satin-finished aluminum reflectors which serve to intensify the light and enhance the speed of printing.

The lamps consume 15 amperes on 110 or 220 Volts, direct or alternating current. They are extremely simple in construction, with few moving parts; upper carbons can be inserted without disturbing the lower carbons, or vice versa. They can be operated by an inexperienced boy.

- No. 4348-1. Hi-Power Single Arc Lamp, for 110 Volt, D. C. or 60 cycle A. C., complete with rheostat, Each, \$
 4348-2. Like No. 4348-1, but for 220 Volt, D. C. or 60 cycle A. C., Each, \$



No. 4348-1.

Twin Arc Lamps for use with Dietzgen Senior Vertical Electric Printing Machines

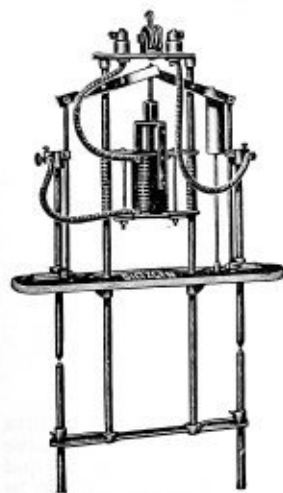
The Nos. 4349-1 and 4349-2 Hi-Power Twin Arc Lamps are furnished with our Senior Electric Vertical Printing Machines, described under No. 4336-1 to 4339-2.

They print at two to three times the speed of enclosed single arc lamps and as they produce two distinct arcs of high intensity, a better light distribution with more uniform exposure is obtained. They have an added advantage in that there are no complicated parts to get out of order, and **no globes to break**; new upper carbons can be inserted without disturbing the lower carbons or vice versa. They can be operated by an inexperienced boy.

The Hi-Power Twin Arc Lamp, in addition to being an exceptional lamp for use in all types of Vertical Printing Machines, is unequalled by test for Portrait, Moving Picture and Commercial Photography, Proof-Printing, Enlarging, Copy Printing, and all processes of Photo Engraving and Dye Fading.

The Hi-Power Twin Arc Lamp is built to operate on 25 amperes, 110 volts, D.C. or 60 cycles A.C.; also it can be furnished to operate on 25 amperes, 220 volts, D.C. or 60 cycles A.C.

The lamp of 110 voltage can be used on A.C. or D.C., but is not interchangeable for the lamp of the 220 volts A.C. or D.C., or vice versa. These lamps will be furnished according to the current specified.



No. 4349-1

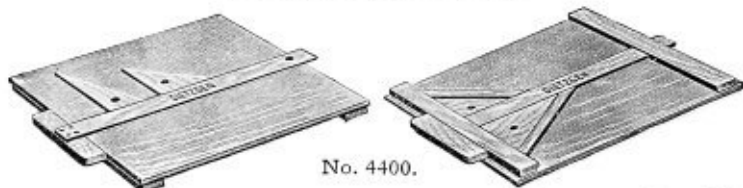
- No. 4349-1. Hi-Power Twin Arc Lamp, for 110 volt, D. C. or 60 cycle A. C.; complete with Rheostat, Each, \$
 4349-2. Like No. 4349-1, but for 220 volt, D. C. or 60 cycle A. C., "

Although our lamps are built to operate on 60 cycles alternation when used with A.C., a special lamp can be furnished at an extra charge to operate on any cycles specified.

When ordering, state voltage and whether current is direct or alternating.

See Price List in back of Catalog.

Drawing Boards



No. 4400.

These Drawing Outfits consist of a well-made Board, T Square, and two Triangles; the board is so constructed that when the T Square and Triangles are not in use they are held firmly to the under side of the board. They are compact, inexpensive and durable, and are excellent for school, home, or traveling use.

No.	Description	Doz., \$	Each, \$
No. 4400.	Drawing Outfit, size 10 × 12 in.,		
4401.	" " " 13 × 19 "		
4402.	" " " 17 × 22 "		



No. 4406-3.

No.	Board, size,	in.,	Doz., \$	Each, \$
No. 4406-1.	12 × 17			
4406-2.	" " 16 × 22			
4406-2 ¹ / ₂ .	" " 18 × 24			
4406-3.	" " 20 × 24 ¹ / ₂			
4406-4.	" " 20 × 26			
4406-5.	" " 23 × 31			
4406-6.	" " 31 × 42			

No.	Board, size,	in., (School Quality)	Doz., \$	Each, \$
No. 14406-1.	12 × 17			
14406-2.	" " 16 × 22			
14406-2 ¹ / ₂ .	" " 18 × 24			
14406-3.	" " 20 × 24 ¹ / ₂			
14406-4.	" " 20 × 26			
14406-5.	" " 23 × 31			
14406-6.	" " 31 × 42			



No. 4410-3.

These Drawing Boards are made of narrow strips of selected well seasoned white pinewood, joined together by tongue and groove. The two end cleats, of the same material, prevent warping and are fastened in a manner to allow contraction and expansion. These boards have two drawing surfaces; both ends are true and can be used for working edges.

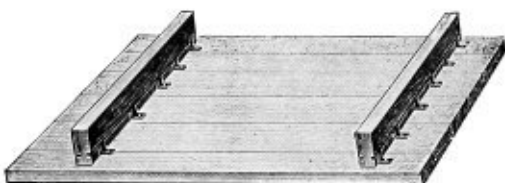
No.	Board, size,	in.,	Doz., \$	Each, \$
No. 4410-1.	12 × 17			
4410-2.	" " 16 × 22			
4410-2 ¹ / ₂ .	" " 18 × 24			
4410-3.	" " 20 × 24 ¹ / ₂			
4410-4.	" " 20 × 26			
4410-5.	" " 23 × 31			
4410-6.	" " 31 × 43			

Larger Drawing Boards of any size made to order.

See Price List in back of Catalog.



Drawing Boards

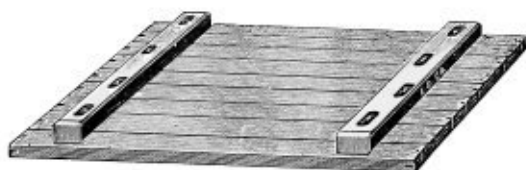


No. 4414-5.

Drawing Board of narrow strips of **selected well seasoned white pinewood**, joined together by tongue and groove. The board has two hardwood ledges attached to the under side by special adjustable metal clamps, allowing contraction and expansion.

The boards are of fine workmanship, the edges are true and the surfaces are smooth. They have a protective covering of clear shellac.

No.	Size.	Each.	Ship'g Wgt.	No.	Size.	Each.	Ship'g Wgt.
No. 4414-5.	23 × 31 in.,	\$	20 lbs.	No. 4414-9.	37 × 61 in.,	\$	80 lbs.
4414-6.	31 × 43 "		55 "	4414-10.	43 × 61 "		100 "
4414-7.	37 × 49 "		65 "	4414-11.	37 × 73 "		110 "
4414-8.	37 × 55 "		70 "	4414-12.	49 × 73 "		120 "



No. 4420-6.

These Drawing Boards are of extra fine quality and workmanship. They are made of narrow strips of **selected well seasoned white pinewood**, joined together by tongue and groove. Two hardwood ledges are attached with screws placed through oblong slots with metal bushings. These bushings fit snugly under the head of the screws, and yet allow the screws to move freely during expansion and contraction of the board.

The under surfaces of the boards are grooved so as to allow greater freedom in the movement of the strips during expansion and contraction. To make the working edge perfectly smooth a strip of hardwood is let into the edge of the board, allowing an easy and accurate movement of the T Square. They have a protective covering of clear shellac.

No.	Size.	Each.	Ship'g Wgt.	No.	Size.	Each.	Ship'g Wgt.
No. 4420-5.	23 × 31 in.,	\$	25 lbs.	No. 4420-10.	43 × 61 in.,	\$	105 lbs.
4420-6.	31 × 43 "		60 "	4420-11.	37 × 73 "		115 "
4420-7.	37 × 49 "		70 "	4420-12.	49 × 73 "		125 "
4420-8.	37 × 55 "		85 "	4420-13.	49 × 85 "		150 "
4420-9.	37 × 61 "		95 "				

Larger Drawing Board of any size made to order.

See Price List in back of Catalog.

Horses for Drawing Boards

Best Workmanship



No. 4425.



4426.

		Approx. Pair. Ship'g Wgt.
No. 4424.	Wooden Horses, 37 in. high, 35 in. long, light construction, \$	30 lbs.
4425.	Like No. 4424, but heavy construction, nicely finished, fine quality,	35 "
4426.	Wooden Horses 37 in. high, 35 in. long, heavy construction, sloping top ledges, nicely finished, fine quality,	50 "



No. 4428.

No. 4428.	Adjustable Wooden Horses, 35 in. long, adjustable to different slopes or can be used level. Heavy construction. Height adjustments range from 37 to 47 in. Rigidity is assured at all heights because of the special clamps which connect the fixed and movable parts. Fine quality, \$	Approx. Pair. Ship'g Wgt. 50 lbs.
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To reduce transportation charges, all wooden horses are shipped "knocked-down." The assembling is very simple.

See Price List in back of Catalog.



Utility Folding Drawing Stands



No. 4430.

The Utility Folding Stand is made of hardwood. It is adapted for use of students and by builders to be used on the job.

It is a convenient general utility table used wherever space is limited. It has a height adjustment of $28\frac{1}{2}$, $32\frac{1}{2}$, and $36\frac{1}{2}$ inches with an incline of $1\frac{1}{2}$ to 2 inches at the rear. The stand when folded occupies a space of 40 inches high, 6 inches deep, 25 inches wide, making it convenient to be folded and placed in the corner out of the way when not in use.

This stand when used with the drawing board makes a light, serviceable, inexpensive drawing table.

		Each.	Approx. Ship'g Wgt.
No. 4430.	Utility Folding Stand,	\$	15 lbs.
4430-3.	" " " with board No. 4406-3, size 20 X $24\frac{1}{2}$ in.,		20 "
4430-4.	Utility Folding Stand, with board No. 4406-4, size 20 X 26 in.,		21 "
4430-5.	Utility Folding Stand, with board No. 4406-5, size 23 X 31 in.,		24 "

The above stand can be furnished, if desired, with a type No. 4410 board at a slightly higher price.

See Price List in back of Catalog.

Simplicity Folding Drawing Stand



No. 4432.

The Simplicity Folding Stand is a strong, sturdy, nicely finished hardwood Drawing stand, adapted for use in apprentice schools, homes, small offices, studios and wherever space is limited. It may also be used as an auxiliary table for any office.

It has a height adjustment of 31, 34 and 37 inches, with an incline of 2 to 2½ inches at the rear. When not in use it can be folded to occupy a space 42 inches high, 7 inches deep and 25 inches wide.

This stand makes a very serviceable and practical drawing table when used with the drawing board and will prove satisfactory to those desiring a strong stand, from which to make a moderate price drawing table.

No.	Description	Each.	Approx. Ship'g Wgt.
No. 4432.	Simplicity Folding Stand,	\$	30 lbs.
4432-3.	Simplicity Folding Stand, with board No. 4410-3, size 20 × 24½ in.,		36 "
4432-4.	Simplicity Folding Stand, with board No. 4410-4, size 20 × 26 in.,		38 "
4432-5.	Simplicity Folding Stand, with board No. 4410-5, size 23 × 31 in.,		40 "
4432-6.	Simplicity Folding Stand, with board No. 4410-6, size 31 × 43 in.,		42 "

The above stand also furnished, if desired, with type No. 4406 Board
in sizes mentioned.

See Price List in back of Catalog.

Sheffield Drawing Tables



No. 4435-7.

The Sheffield Drawing Tables are rigid and durable, and well adapted for drafting rooms in technical schools. They are substantially built of seasoned hardwood, and nicely finished.

The tables are 38 in. high, and have a selected well seasoned white pinewood top, in sizes given below. Each table, except No. 4434-6, has a drawer size 37 in. wide, 25 in. long, and 2 in. deep inside, and is furnished with lock and key.

No.	Description	Each.	Approx. Ship'g Wgt.
No. 4434-6.	Sheffield Drawing Table, with drawer $10\frac{1}{2} \times 25 \times 3\frac{3}{4}$ in. inside, with board No. 4414-6, size 31×43 in., \$		125 lbs.
4435-7.	Sheffield Drawing Table, with drawer $37 \times 25 \times 2$ in. inside, with board No. 4414-7, size 37×49 in.,		135 "
4435-8.	Like No. 4435-7 but with board No. 4414-8, size 37×55 in.,		140 "
4435-9.	Like No. 4435-7 but with board No. 4414-9, size 37×61 in.,		150 "

The above tables, except No. 4434-6, can be furnished with two drawers, size $10\frac{1}{2} \times 25 \times 3\frac{3}{4}$ in. inside, if desired.

Sheffield Tables can be furnished with board type No. 4420, in sizes mentioned, at slightly higher prices.

We will promptly furnish quotations for other sizes or modifications in design of these tables.

See Price List in back of Catalog.



Ideal Drawing Tables



No. 4440-6.

The Ideal Drawing Tables are strong, durable and rigid. They are made of hardwood, with well seasoned pinewood drawing board tops, provided with hardwood ledges, attached so as to allow for contraction and expansion. These tables are especially adapted for use in schools.

By means of the semi-circular arc support arrangement, the top can be tilted to any angle from a horizontal to a vertical position, and securely fastened by a small wheel which locks both arcs at the same time.

The height adjustment is from 32 to 40 inches. The standards which are slotted for this adjustment straddle the cross bar through which passes a metal rod, which joins the legs. The entire table can be made exceptionally rigid by simply tightening the small handwheel. A pencil ledge is attached to front edge of board to hold pencils and small tools.

		Each.	Approx. Ship'g Wgt.
No. 4440-6.	Ideal Drawing Table, with board No. 4414-6, size 31 X 43 in.,	\$	85 lbs.
4441-7.	Ideal Drawing Table, with board No. 4414-7, size 37 X 49 in.,		100 "
4441-8.	Ideal Drawing Table, with board No. 4414-8, size 37 X 55 in.,		115 "
4441-9.	Ideal Drawing Table, with board No. 4414-9, size 37 X 61 in.,		125 "
4441-10.	Ideal Drawing Table, with board No. 4414-10, size 43 X 61 in.,		140 "

Accessories.

Hardwood Box, for roll papers, etc. (see Nos. 4456A-4456C),	Each, \$
Folding Arm, with plain shelf (see No. 4456E),	"

See Price List in back of Catalog.



Economy Folding Tables



No. 4444-6.

The Economy Folding Tables, practical in design and of firm construction, have an exceptional range of adjustment. They can be adjusted from 31 to 41 inches for height and from horizontal to 45 degrees for slant of top.

On account of their unique design, they occupy but very little space when folded, and for this reason they are specially well adapted for general use in small offices and homes, or wherever space is limited.

They are made of well-seasoned hardwood, with **fine quality** pinewood Drawing Board tops, which are provided with hardwood ledges, attached so as to allow contraction and expansion.

	Each.	Approx. Ship'g Wgt.
No. 4444-6. Economy Drawing Table, with board No. 4414-6, size 31 × 43 in.,	\$	75 lbs.
4445-7. Economy Drawing Table, with board No. 4414-7, size 37 × 49 in.,		85 "
4445-8. Economy Drawing Table, with board No. 4414-8, size 37 × 55 in.,		90 "
4445-9. Economy Drawing Table, with board No. 4414-9, size 37 × 61 in.,		100 "
4445-10. Economy Drawing Table, with board No. 4414-10, size 43 × 61 in.,		120 "

See Price List in back of Catalog.



Madison Drawing Tables



No. 4450.

4448.

The Madison Drawing Tables are designed to meet all the requirements of an efficient and durable table for the class room. They are of solid iron construction, with hardwood top, neatly finished, and are so arranged that they may be used, alternately, by two students; each table having two drawers with locks, for storing tools, and a shelf for holding drawing boards.

When the tables are not used for school work, the top can be reversed from position shown in illustration, thus enabling the drawing board shelf to be used as a foot rest, with ample knee room when the draftsman is sitting on a stool.

The hardwood top is permanently fixed at a convenient slant, but is adjustable to heights of 37, 39 and 41 inches by means of strong bolts which insure perfect rigidity at any height.

	Each.	Approx. Ship'g Wgt.
No. 4448. Madison Drawing Stand (stand only), . . .	\$	65 lbs.
4450. " " " with hardwood top, 25 × 32 in., with shelf and two drawers with locks, . . .		125 "

The stand only can be used to advantage with a soft wood drawing board in sizes 23 × 31 in. to 37 × 49 in.

See Price List in back of Catalog.



Eureka Adjustable Drawing Tables



No. 4454-6
with 4456A and 4456E.

The Eureka Adjustable Drawing Table has a thoroughly seasoned hardwood frame, iron legs, and a fine quality pinewood drawing board top, which is provided with hardwood ledges, attached so as to allow for contraction and expansion. This is an excellent table for drafting room use.

By means of the unique arrangement of the semi-circular metal arc support the top can be tilted to any desired angle and rigidly locked by the small wheel.

The height adjustment is from 32 to 40 inches. The standards, which are slotted for these adjustments, straddle the cross bar through which passes a metal rod which joins the legs. The entire table can be made exceptionally rigid by simply tightening this rod by means of a small handwheel. A pencil ledge is attached to front edge of board to hold pencils and small tools.

No.	Description	Price	Ship'g Wgt.
No. 4454-6.	Eureka Drawing Table, with board No. 4414-6, size 31 × 43 in.,	Each, \$	Approx. 120 lbs.
4455-7.	Eureka Drawing Table, with board No. 4414-7, size 37 × 49 in.,		135 "
4455-8.	Eureka Drawing Table, with board No. 4414-8, size 37 × 55 in.,		145 "
4455-9.	Eureka Drawing Table, with board No. 4414-9, size 37 × 61 in.,		155 "
4455-10.	Eureka Drawing Table, with board No. 4414-10, size 43 × 61 in.,		180 "

Accessories

No.	Description	Each, \$
No. 4456A.	Hardwood Box for holding roll paper for tables of type Nos. 4440 and 4454,	"
4456C.	Hardwood Box like No. 4456A but for tables of type Nos. 4441 and 4455,	"
4456E.	Folding-Arm with shelf, for tables of type Nos. 4440, 4441, 4454 and 4455,	"

See Price List in back of Catalog.



Shamrock Adjustable Drawing Tables



No. 4460-7.

The Shamrock Adjustable Drawing Table is well designed and substantially constructed of hardwood with a neat finish. It is adjustable in heights from 32 to 42 inches by closing or spreading the legs and is firmly held at any height by means of clamping bolts.

The top, which consists of a fine quality pinewood drawing board, provided with hardwood ledges attached to allow for contraction and expansion, can be tilted and securely held at various angles by means of a slotted arm support.

These tables fold compactly and occupy comparatively small space when closed. Each table is furnished with a drawer $10\frac{1}{2} \times 25 \times 3\frac{3}{4}$ in., with lock and key.

No.	Description	Each.	Approx. Ship'g Wgt.
No. 4460-7.	Shamrock Drawing Table, with board No. 4414-7, size 37 x 49 in.,	\$	140 lbs.
4460-8.	Shamrock Drawing Table, with board No. 4414-8, size 37 x 55 in.,		150 "
4460-9.	Shamrock Drawing Table, with board No. 4414-9, size 37 x 61 in.,		160 "
4460-10.	Shamrock Drawing Table, with board No. 4414-10, size 43 x 61 in.,		185 "
4461-11.	Shamrock Drawing Table, with board No. 4414-11, size 37 x 73 in.,		195 "
4461-12.	Shamrock Drawing Table, with board No. 4414-12, size 49 x 73 in.,		210 "

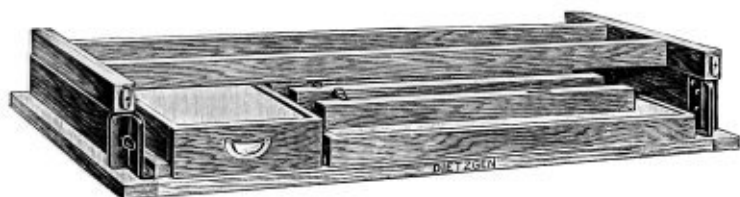
See Price List in back of Catalog.



Sturdy Drawing Tables

The high standard maintained in all Dietzgen merchandise is carried out in every detail in the Sturdy 4-Post Drawing Tables listed and described on the following pages. They are the highest type of drafting tables on the market today, designed to meet the demand for a strong, sturdy, comparatively inexpensive drawing table for general use in drafting rooms and schools, and by Architects, Engineers and Designers.

The Tables are made of thoroughly seasoned oak and hardwood, and are well-finished in a light shade of golden oak. They are strongly braced and well-deserving of their name "Sturdy." The tops are made of selected white pine with hardwood end cleats, and are so constructed as to allow for contraction and expansion of the board. They are coated with shellac on both sides to prevent absorption of moisture, and the top surface is sanded smooth.



Sturdy Table "Knocked-Down" for Shipment

These tables, despite their rigidity when set up, can be quickly "knocked down" and compactly crated for transportation at a reduced rate. Simple instructions for assembling and dismantling are furnished with each table.

Each leg is fastened to the upper frame by a long, heavy bolt that passes through a steel corner plate of special design. A bracing frame to which each leg is tongued, and also screw-bolted, insures, together with the steel corner plates, absolute rigidity when set up. Should the table at any time become slightly loose, all that is necessary is to tighten the bolts. The tables with adjustable tops are equipped with an efficient tilting device which cannot slip after being tightened.

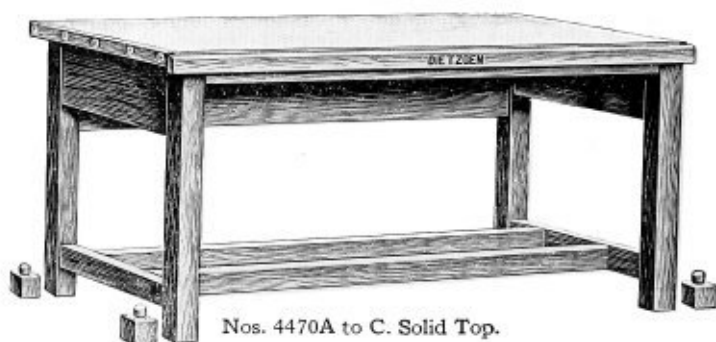
The tables are 34 inches high and can be increased to 37 inches by means of 3 inch raising blocks.

The five following pages contain illustrations showing the many ways in which these tables are equipped. The plain table without any drawers can be purchased, and later if desired, the drawers can be added. All of the tables except those listed without drawers, are equipped with a Tool Tray which is arranged for accommodating the various small tools of the draftsman.

All Tables can be equipped to advantage with our Drawing Table Dust Covers, illustrated and listed under catalog Nos. 4481A to S.

See Price List in back of Catalog.

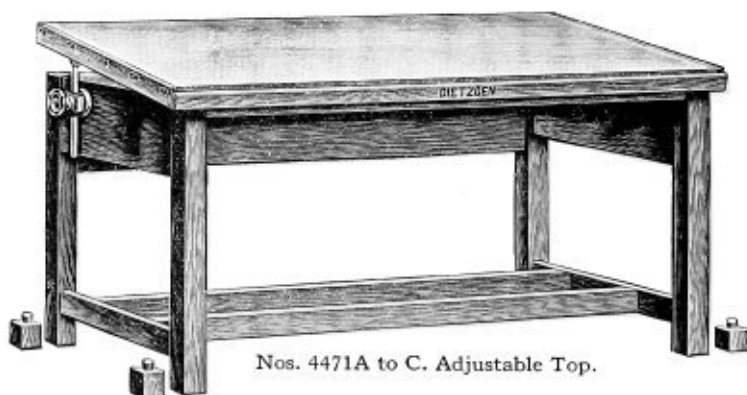
Sturdy Drawing Tables



Nos. 4470A to C. Solid Top.

Solid Tops

	Each,	Approx. Ship'g Wgt.
No. 4470A. Sturdy Drawing Table, Solid Top 36 × 60 in. with 3 in. raising blocks,	\$	175 lbs.
4470B. Like No. 4470A but with top 36 × 72 in.,		200 "
4470C. " " 4470A " " " 42 × 72 "		225 "



Nos. 4471A to C. Adjustable Top.

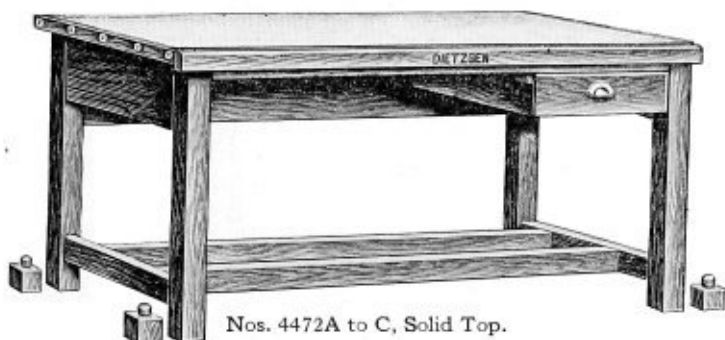
Adjustable Tops

	Each,	Approx. Ship'g Wgt.
No. 4471A. Sturdy Drawing Table, Adjustable Top 36 × 60 in. with 3 in. raising blocks,	\$	175 lbs.
4471B. Like No. 4471A but with top 36 × 72 in.,		200 "
4471C. " " 4471A " " " 42 × 72 "		225 "

See description of Sturdy Drawing Tables on page 327.

See Price List in back of Catalog.

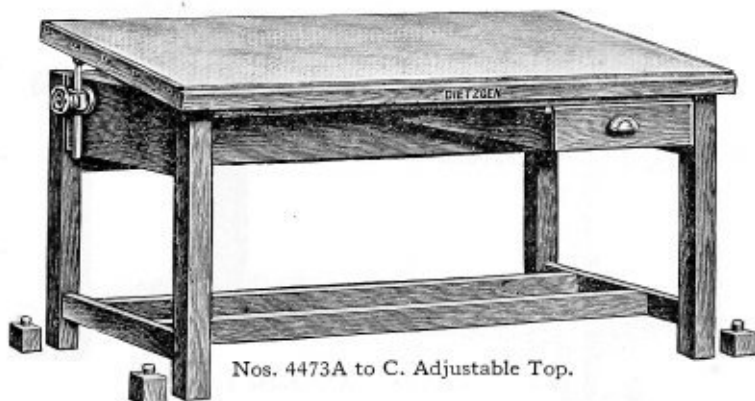
Sturdy Drawing Tables



Nos. 4472A to C, Solid Top.

Solid Tops

		Each,	Approx. Ship'g Wgt.
No. 4472A.	Sturdy Drawing Table, Solid Top 36×60 in., with 1 tool drawer 10½×25×3¾ in., and 3 in. raising blocks,	\$	185 lbs.
4472B.	Like No. 4472A but with solid top 36×72 in., . . .		215 "
4472C.	" " 4472A " " " " 42×72 " . . .		235 "



Nos. 4473A to C, Adjustable Top.

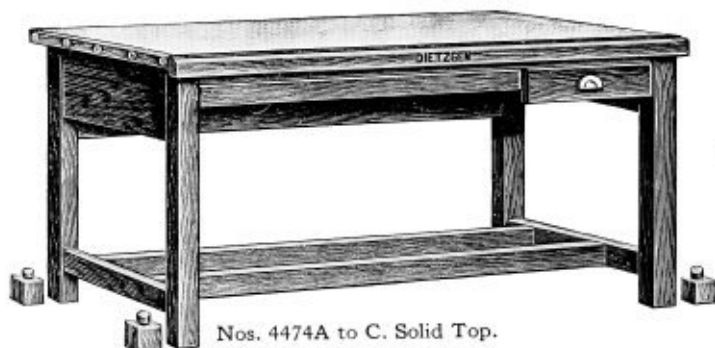
Adjustable Tops

		Each,	Approx. Ship'g Wgt.
No. 4473A.	Sturdy Drawing Table, Adjustable Top 36×60 in., with 1 tool drawer 10½×25×3¾ in. and 3 in. raising blocks,	\$	185 lbs
4473B.	Like No. 4473A but with top 36×72 in., . . .		215 "
4473C.	" " 4473A " " " " 42×72 " . . .		235 "

See description of Sturdy Drawing Tables on page 327.

See Price List in back of Catalog.

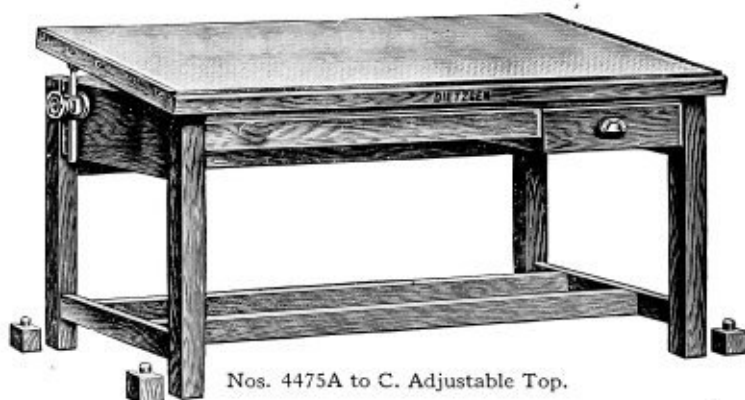
Sturdy Drawing Tables



Nos. 4474A to C. Solid Top.

Solid Tops

	Each,	Approx. Ship'g Wgt.
No. 4474A. Sturdy Drawing Table, Solid Top 36×60 in., with 1 file drawer, 37×25×2 in. and 1 tool drawer 10 ¹ / ₂ ×25×3 ³ / ₄ in. with 3 in. raising blocks, . . \$		200 lbs.
4474B. Like No. 4474A but with solid top 36×72 in., . . .		225 "
4474C. " " 4474A " " " " 42×72 " . . .		250 "



Nos. 4475A to C. Adjustable Top.

Adjustable Tops

	Each,	Approx. Ship'g Wgt.
No. 4475A. Sturdy Drawing Table, Adjustable Top 36×60 in., with 1 file drawer 37×25×2 in. and 1 tool drawer 10 ¹ / ₂ ×25×3 ³ / ₄ in. with 3 in. raising blocks, . . \$		200 lbs.
4475B. Like No. 4475A but with top 36×72 in. . . .		225 "
4475C. " " 4475A " " " " 42×72 " . . .		250 "

See description of Sturdy Drawing Tables on Page 327.

See Price List in back of Catalog.

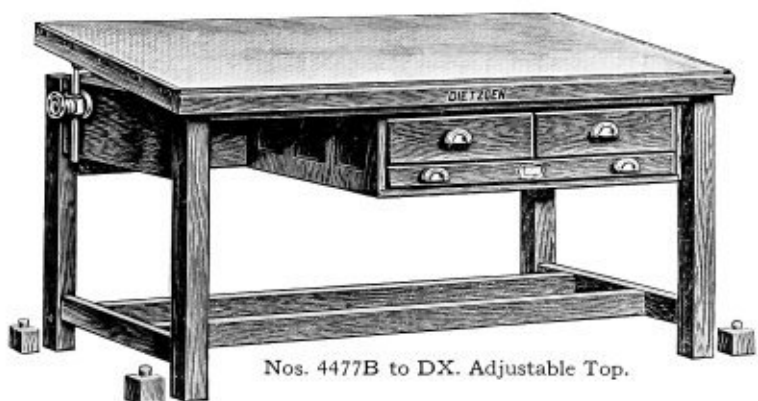
Sturdy Drawing Tables



Nos. 4476D to DX. Solid Top.

Solid Tops

	Each,	Approx. Ship'g Wgt.
No. 4476D. Sturdy Drawing Table, Solid Top 42×84 in., with 1 file drawer, 37 $\frac{5}{8}$ ×25×2 in. and 2 tool drawers 17 $\frac{5}{8}$ ×25×3 $\frac{3}{8}$ in. with 3 in. raising blocks, . . . \$		285 lbs.
4476DX. Sturdy Drawing Table, Solid Top 42×84 in., with 1 file drawer, 42 $\frac{3}{8}$ ×32×2 in. and 2 tool drawers 20×32×3 $\frac{3}{8}$ in. with 3 in. raising blocks, . . .		315 "



Nos. 4477B to DX. Adjustable Top.

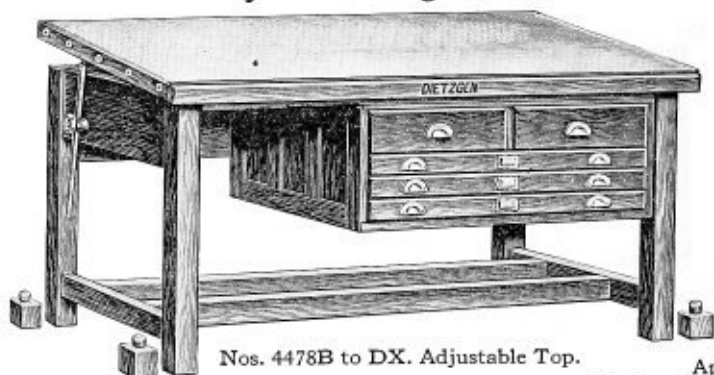
Adjustable Tops

	Each,	Approx. Ship'g Wgt.
No. 4477B. Sturdy Drawing Table. Adjustable Top 36×72 in. with 1 file drawer, 37 $\frac{5}{8}$ ×25×2 in. and 2 tool drawers 17 $\frac{5}{8}$ ×25×3 $\frac{3}{8}$ in. with 3 in. raising blocks, \$		285 lbs.
4477D. Like No. 4477B but with adjustable top 42×84 in.,		315 "
4477DX. Sturdy Drawing Table, Adjustable Top 42×84 in., with 1 file drawer, 42 $\frac{3}{8}$ ×32×2 in. and 2 tool drawers 20×32×3 $\frac{3}{8}$ in. with 3 in. raising blocks,		315 "

See description of Sturdy Drawing Tables on page 327.

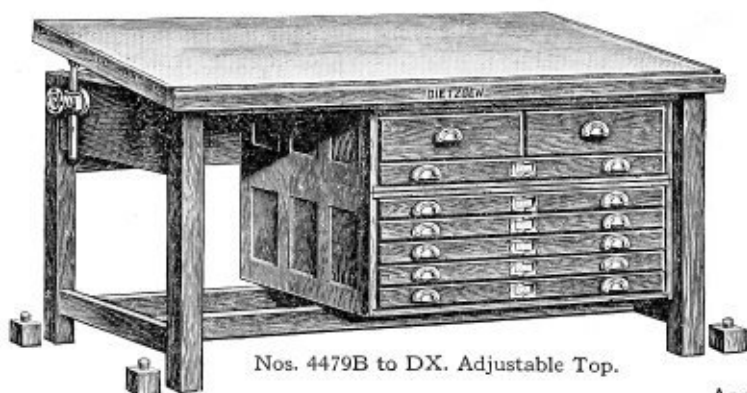
See Price List in back of Catalog.

Sturdy Drawing Tables



Nos. 4478B to DX. Adjustable Top.

- | | | Each, | Approx.
Ship'g Wgt. |
|------------|--|-------|------------------------|
| No. 4478B. | Sturdy Drawing Table, Adjustable Top 36×72 in., with 3 file drawers 37 ⁵ / ₈ ×25×2 in. and 2 tool drawers 17 ⁵ / ₈ ×25×3 ⁷ / ₈ in., with 3 in. raising blocks, | \$ | 320 lbs. |
| 4478D. | Like No. 4478B but with Adjustable Top 42×84 in., | | 365 " |
| 4478DX. | Sturdy Drawing Table, Adjustable Top 42×84 in., with 3 file drawers 42 ³ / ₈ ×32×2 in. and 2 tool drawers 20×32×3 ⁷ / ₈ in. with 3 in. raising blocks, | | 375 " |



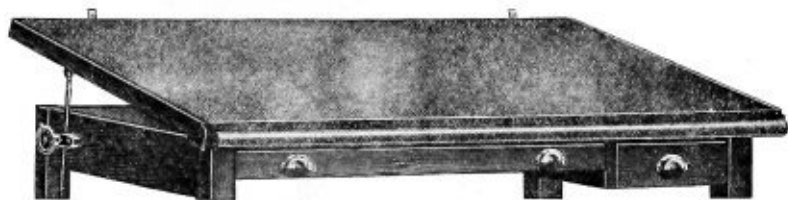
Nos. 4479B to DX. Adjustable Top.

- | | | Each, | Approx.
Ship'g Wgt. |
|------------|---|-------|------------------------|
| No. 4479B. | Sturdy Drawing Table, Adjustable Top 36×72 in. with 6 file drawers 37 ⁵ / ₈ ×25×2 in. and 2 tool drawers 17 ⁵ / ₈ ×25×3 ⁷ / ₈ in., with 3 in. raising blocks, | \$ | 415 lbs. |
| 4479D. | Like No. 4479B but with adjustable top 42×84 in., | | 470 " |
| 4479DX. | Sturdy Drawing Table, Adjustable Top 42×84 in., with 6 file drawers 42 ³ / ₈ ×32×2 in. and 2 tool drawers 20×32×3 ⁷ / ₈ in. with 3 in. raising blocks, | | 470 " |

See description of Sturdy Drawing Tables on page 327.

See Price List in back of Catalog.

Dust Covers for Drawing Tables

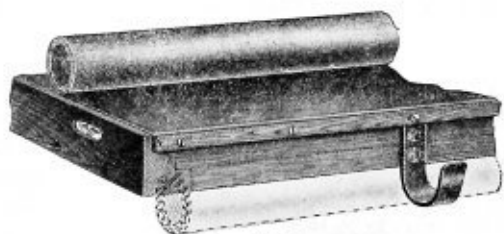


No. 4481G. Showing Dust Cover in use on Drawing Table

Dietzen Dust Covers for all our drawings boards and tables have proved invaluable for protecting drawings, tracings, maps, etc., in work.

The Dust Cover is simple, but efficient. It consists of a long roller on which is rolled the black waterproof cloth. When not in use, the roller and cloth is rolled to the back of the table or board, where it rests in brackets provided for that purpose, as shown in the smaller illustration on this page.

This device makes it unnecessary for a draftsman or artist to thoroughly dust his table each morning or after an absence—the table top is fully protected from any dust which might settle thereon.



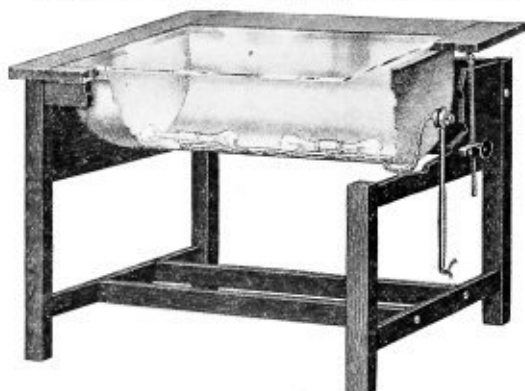
Rear View.

No.	Drawing Table Dust Cover for Board size	24 × 32 in.	31 × 42	36 × 48	36 × 54	36 × 60	36 × 72	42 × 60	42 × 72	42 × 84	48 × 72	48 × 84	48 × 96	48 × 108	48 × 120	Each, \$
4481A.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481B.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481D.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481E.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481F.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481G.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481H.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481K.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481L.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481M.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481N.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481P.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481R.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
4481S.	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"

See also No. 470. Oil Cloth for Dust Covers.

See Price List in back of Catalog.

“Shadowless” Tracing Table



No. 4482.

- No. 4482. Shadowless Tracing Table, Adjustable Top 36 × 48 in., with 24 × 36 in. plate glass in center. Height, 34 in., can be increased to 37 in. by means of 3 inch raising blocks. Designed to overcome difficulty in tracing over soiled blue prints or old drawings, and enables accurate and speedy work. Body of table is made of oak; frame of top is of selected basswood with smooth finish. Send for descriptive circular Each, \$

Tracing and Photo Retouching Table



No. 4482A.

- No. 4482A. Junior Tracing and Photo Retouching Table, designed for the use of the negative retoucher in the modern photo engraving shops or as an illuminated table for draftsmen. Adjustable to any reasonable working height from 23 $\frac{1}{2}$ " to 42", at any slant or angle desired. Top of table is 32 × 31 in. with 22 × 24 in. plate glass in center. Table is made of birch; frame of top is of selected basswood. Send for descriptive circular Each, \$

See Price List in back of Catalog

National Adjustable Drawing Tables



No. 4485-10.

The National Adjustable Drawing Table is very substantially constructed of iron, with a nice japanned finish. The white pine top can be securely clamped at any desired angle and readily raised or lowered in heights from 35 to 45 inches, by means of a rack and pinion, conveniently controlled by a handwheel at the side.

These tables are fitted with either type No. 4414 or 4420 board, which are of selected white pinewood with hardwood ledges, so attached to provide for contraction and expansion.

The tables are adapted for drafting rooms and will be found very practical and serviceable.

No.	Description	Each.	Approx. Ship'g Wgt
No. 4484.	National Stand (without board), distance between centers of brackets, 38½ in.,	\$	120 lbs
4484-6.	National Table, with board No. 4414-6, size 31 × 43 in.,		185 "
4484-7.	" " " " " 4414-7, " 37 × 49 "		195 "
4484-8.	" " " " " 4414-8, " 37 × 55 "		210 "
4485.	National Stand (without board), distance between centers of brackets, 50½ in.,		145 "
4485-9.	National Stand, with board No. 4414-9, size 37 × 61 in.,		240 "
4485-10.	" " " " " 4414-10, " 43 × 61 "		260 "
4485-11.	" " " " " 4414-11, " 37 × 73 "		270 "
4485-12.	" " " " " 4414-12, " 49 × 73 "		280 "
4487-6.	Same as No. 4484-6, but with board 4420-6, size 31 × 43 in.,		190 "
4487-7.	" " " 4484-7, " " " 4420-7, " 37 × 49 "		200 "
4487-8.	" " " 4484-8, " " " 4420-8, " 37 × 55 "		225 "
4488-9.	Same as No. 4485-9, but with board 4420-9, size 37 × 61 in.,		265 "
4488-10.	" " " 4485-10, " " " 4420-10, " 43 × 61 "		285 "
4488-11.	" " " 4485-11, " " " 4420-11, " 37 × 73 "		290 "
4488-12.	" " " 4485-12, " " " 4420-12, " 49 × 73 "		295 "

Parallel Attachments and Straight Edges for use with Drawing Tables listed under Nos. 2043-2047.

See Price List in back of Catalog.



Columbia Adjustable Drawing Tables



No. 4491-10
with Nos. 4496B and 4496D.

The Columbia Adjustable Drawing Tables, of a very rigid and durable construction, are made of iron with a nice japanned finish. The top, which can be tilted and securely clamped at any desired angle, is raised and lowered in height from 33 to 46 inches, by means of rack and pinion, controlled by a handwheel at the side, which permits easy and quick adjustment.

The table is fitted with either type Nos. 4414 or 4420 board, which are of selected white pinewood with hardwood ledges, attached so as to allow for contraction and expansion.

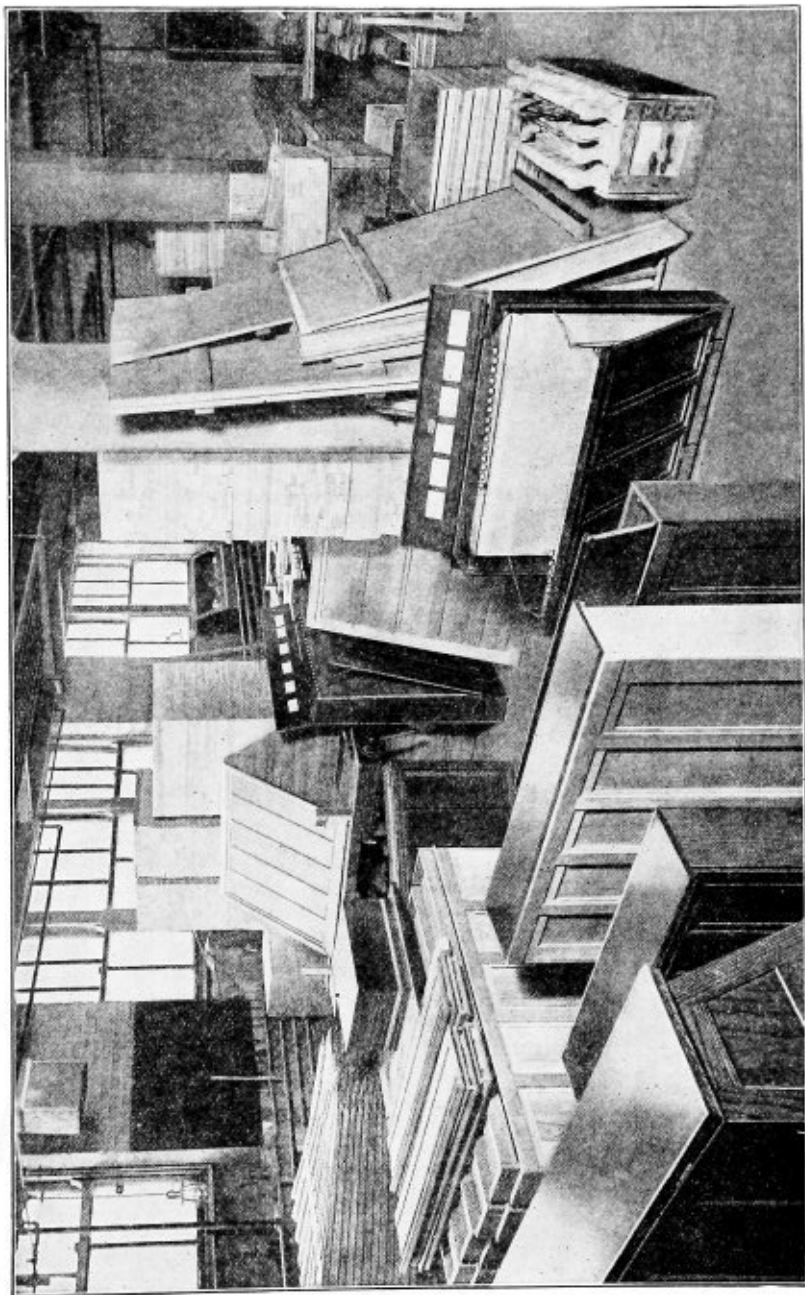
The table is well adapted for drafting rooms. Besides being of a very rigid construction it is of a neat and practical design, and makes a very serviceable and neat appearing table.

No.	Description	Each.	Approx. Ship'g Wgt.
No. 4490.	Columbia Adjustable Drawing Table Stand (without board), distance between centers of brackets, 25 in.,	\$	150 lbs.
4490-6.	Columbia Table, with board No. 4414-6, size 31 × 43 in.,		195 "
4490-7.	" " " " " 4414-7, " 37 × 49 "		210 "
4490-8.	" " " " " 4414-8, " 37 × 55 "		225 "
4491.	Columbia Adjustable Drawing Table Stand (without board), distance between centers of brackets, 36 in.,		165 "
4491-9.	Columbia Table, with board No. 4414-9, size 37 × 61 in.,		260 "
4491-10.	" " " " " 4414-10, " 43 × 61 "		280 "
4491-11.	" " " " " 4414-11, " 37 × 73 "		290 "
4491-12.	" " " " " 4414-12, " 49 × 73 "		300 "
4493-6.	Same as No. 4490-6, but with board No. 4420-6, size 31 × 43 in.,		200 "
4493-7.	" " " 4490-7, " " " 4420-7, " 37 × 49 "		215 "
4493-8.	" " " 4490-8, " " " 4420-8, " 37 × 55 "		240 "
4494-9.	Same as No. 4491-9, but with board No. 4420-9, size 37 × 61 in.,		285 "
4494-10.	" " " 4491-10, " " " 4420-10, " 43 × 61 "		290 "
4494-11.	" " " 4491-11, " " " 4420-11, " 37 × 73 "		300 "
4494-12.	" " " 4491-12, " " " 4420-12, " 49 × 73 "		310 "

Accessories

No.	Description	Each.	\$
No. 4496.	Hardwood Footrest for No. 4490,		
4496A.	" " " " " 4491,		
4496B.	Folding-Arm with plain shelf,		
4496C.	" " " " " large " and drawer with lock,		
4496D.	Bracket with cabinet having two drawers with locks,		

See Price List in back of Catalog.



Section of Cabinet Department — Factory



Draftsmen's Stools

Wooden



No. 4500A.



4502A.

		Each.	Ship'g Wgt.
No. 4500.	Draftsman's Stool, golden elm, wood seat, height 30 in.,	\$	20 lbs.
4500A.	Like No. 4500, but height 33 inches,		20 "
4502A.	Draftsman's Stool, golden elm, wood seat, height adjustable from 26 to 30 inches,		30 "
4502C.	Like No. 4502A, but cane seat,		30 "

No. 4504A.	Draftsman's Stool, golden elm, wood seat, height adjustable from 31 to 35 inches,	\$	32 lbs.
4504B.	Like No. 4504A, but with back,		34 "



No. 4504B.



4504A.

See Price List in back of Catalog.

Draftsmen's Stools

Steel

Ever-hold Automatic Extension Stool

The Ever-hold Automatic Extension Stool can be raised or lowered in a moment's time within a range of 25 to 35 inches, **without the use of tools**. There are no ratchets, catches or springs to bother with, simply lift the seat to the desired height and it automatically locks in position. A built-in indestructible locking device holds the seat at any desired height.



No. 4507D.

The frame work is of steel, with all joints welded, making a very substantial stool to withstand hard use. On account of it having only three legs, the stool will stand on any floor without rocking. It is neatly finished in olive green enamel. The seat is 14 in. in diameter, made of hardwood and finished in light oak.

The back rest, of the same finish as the frame, can be attached in a few minutes. It is sold separately or with the stool.

	Each.	Approx. Ship'g Wgt.
No. 4507A. Ever-hold Automatic Extension Stool, with foot rest, \$		25 lbs.
4507B. Steel back rest, olive green finish, . . .		10 "
4507C. Leather cover for back rest,		
4507D. Complete stool with back rest, and leather cover, . . .		35 "

Indestructo Steel Stool

These Indestructo Steel Stools made of angle steel and finished in olive green, baked enamel, are light, rigid, durable, comfortable and attractive. They are securely braced and specially reinforced with extra cross-supports and are furnished with a turned out foot rest. The feet are rounded and smooth. The seat is 14½ inches in diameter, made of hardwood, neatly finished.

	Each.	Approx. Ship'g Wgt.
No. 4508A. Indestructo Stools, with foot rest, 28 in. high. \$		45 lbs.
4508B. Indestructo Stools, with foot rest, 30 in. high.		45 "
4508E. Indestructo Stools, with foot rest, 32 in. high.		47 "



No. 4508A.

See Price List in back of Catalog.



Multum Drawing Tables



No. 4510R.

No. 4511-5.
Equipped with No. 4510R.

The Multum Drawing Tables are substantially constructed of iron, with a neat japanned finish. These tables are very rigid and are adjustable in height from 30 to 46 inches.

The top, which is a selected white pine drawing board, can be readily tilted to any angle and revolved to any position and securely held therein. These tables are well adapted for use of Architects, Artists and Draftsmen who desire a drawing Table which can be readily adjusted, at their desire, to any convenient position.

	Each.	Approx. Ship'g Wgt.
No. 4510. Multum Drawing Stand (without ring or board),	\$	26 lbs.
4510-3. Multum Drawing Stand (without ring) with board No. 4410-3, size 20 × 24½ ins.,		31 "
4510-4. Like No. 4510-3, but with board No. 4410-4, size 20 × 26 in.,		32 "
4510-5. Like No. 4510-3, but with board No. 4410-5, size 23 × 31 in.,		33 "
4511-5. Like No. 4510-3, but with board No. 4414-5, size 23 × 31 in.,		34 "

These tables can also be furnished with an attaching ring as shown in the illustration, which permits several boards to be used interchangeably on the same stand. This is accomplished by attaching the special ring to each board. It is then a simple matter to quickly change the boards to suit your immediate requirements, or in case there is an unfinished drawing on the board, the board can be removed without disturbing the drawing and another board readily placed on the stand.

No. 4510R. Attaching Ring for board, Each, \$

See Price List in back of Catalog.

Standard Drawing Tables

These Tables can be adjusted to any height between 30 and 44 inches, thus being adapted either for sitting or for standing use. By loosening the screw at the right, the top can be rotated and either side brought to the front. The shelf or ledge is attached to the reverse side of the table, and is always level, regardless of the inclination of the table top. This is very convenient for pencils, ink bottles, etc. When the table top is in a nearly vertical position it forms a perfect easel, and the table occupies but little space.

The tripod, hollow standard and sliding spindle, neatly painted and bronzed, are made of cast iron. The working parts are well finished and very easily operated. The stand is sufficiently firm to hold a large drawing board. Simplicity of design and rigidity of construction result in these tables being exceptionally well adapted for the use of students in class rooms of Schools and Colleges; also for general use in offices and homes.



No. 4520.



4520A.



No. 4521A.

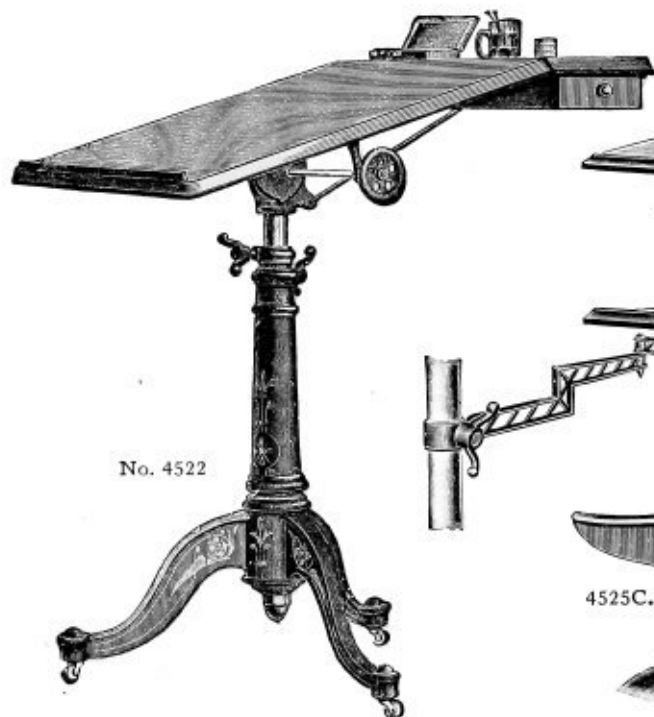


4523.

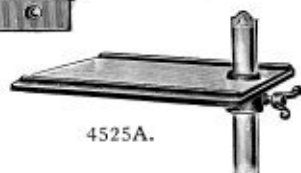
For Dimensions of Tops, see following page.

See Price List in back of Catalog.

Standard Drawing Tables



No. 4522



4525A.



4525B.



4525C.

No.	Description	Each.	Approx. Ship'g Wgt
No. 4520.	Ash Top, 22 × 24 in.,	\$	65 lbs.
4520A.	" " 22 × 24 " ; with top shelf,		65 "
4521.	Quar. Oak Top, 22 × 26 " ; " " " "		65 "
4521A.	" " " 22 × 26 " ; " " " " with two drawers; on casters,		70 "
4521B.	Mahogany Top; otherwise like 4521A,		70 "
4522.	Quar. Oak Top, 22 × 26 in.; with top shelf with two drawers; long set screw; on casters,		70 "
4522A.	Mahogany Top; otherwise like 4522,		70 "
4523.	Clay Modeling Stand, Ash Top, 22 × 24 in.; with cups,		65 "

Accessories

No.	Description	Each, \$
No. 4525A.	Adjustable Shelf, plain,	
4525B.	Swinging Arm with Shelf,	"
4525C.	Foot Rest,	"
4525D.	Casters, to fit any of above Tables,	"

For Illustrations of Nos. 4520, 4520A, 4521A and 4523, see preceding page.

See Price List in back of Catalog.



Oak Sectional Filing Cases For Filing Drawings Flat



The drafting room, the art department, and the engineering department of all modern business offices will find increasing need for our Oak Sectional Filing Cases for the protection and filing of valuable drawings, blue prints, tracings, negative prints, specifications, maps and photographs.

Our filing cases are made on the plan of the well-known sectional bookcase, which permits additional sections to be added when needed. They are listed in three sizes, namely, for drawings of a maximum size 24×36 inches, 30×42 inches and 36×48 inches. The sections are always made uniform in size and finish so that any number of additional units, procured at different times, will fit perfectly.

The tops, bases, and sections are made of well-seasoned and thoroughly kiln-dried oak, finished in a golden oak stain and filler. Three coats of varnish, rubbed and finished in a uniform color, contribute to the attractiveness of the exterior. Oxidized drawer pulls and label holders are used on all drawers.

The Drawers slide in grooves. All joints are dovetailed and well glued, the glue blocks being used at frequent intervals, thus making the cases firm and durable. The back of each drawer is covered for a space of 4 inches with a thin strip to prevent drawings from curling, and finger holes are in the bottom of each drawer to facilitate removing contents. When desired, drawers can be made to order subdivided into two, four, six or eight compartments, as illustrated and described on page 346.

All Tops, Bases, and Sections illustrated on page 344. Complete dimensions and General Description of individual sections listed on page 345.

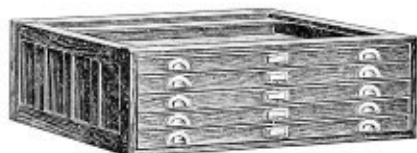
Steel Sectional Filing Cases described on pages 347 to 350.

See Price List in back of Catalog.



Oak Sectional Filing Cases

Sections



Nos. 4535A, 4536A, 4537A.



Nos. 4535M, 4536M.



Nos. 4535B, 4536B, 4537B.



Nos. 4535N, 4536N.



Nos. 4535E, 4536E.



Nos. 4535P, 4536P, 4537P.



Nos. 4535F, 4536F.



Nos. 4535R, 4536R.



Nos. 4535G, 4536G.



Nos. 4535S, 4536S, 4537S.



Nos. 4535K, 4536K, 4537K.



Nos. 4535T, 4536T.

Sections No. 4535 are for Drawings of a Maximum Size 24×36"
 Sections No. 4536 are for Drawings of a Maximum Size 30×42"
 Sections No. 4537 are for Drawings of a Maximum Size 36×48"

Detailed description on following page.

See Price List in back of Catalog.

Oak Sectional Filing Cases

Sections

No.	For Drawings of a Maximum Size 24x36"	Drawer Inside Dimensions			Section Outside Dimensions			Sh'p'g. Wt.
		Length	Width	Depth	Length	Width	Height	Lbs.
4535A	5-Drawer Section.....	37 ⁵ / ₈	25	2	40 ³ / ₄	27 ³ / ₈	14 ¹ / ₂	125
4535B	5-Drawer Section with Oak Cap attached.....	37 ⁵ / ₈	25	2	40 ⁷ / ₈	27 ³ / ₄	15 ¹ / ₄	145
4535E	3-Drawer Section.....	37 ⁵ / ₈	25	2	40 ³ / ₄	27 ³ / ₈	9 ³ / ₈	92
4535F	3-Drawer Section.....	37 ⁵ / ₈	25	3 ⁵ / ₈	40 ³ / ₄	27 ³ / ₈	14 ¹ / ₂	112
4535G	1-Drawer Section.....	37 ⁵ / ₈	25	7 ¹ / ₈	40 ³ / ₄	27 ³ / ₈	9 ³ / ₈	70
4535K	Oak Cap.....				40 ³ / ₄	28	3	48
4535M	3-Drawer Section—2 Drawers with Tool Tray and 1 File Drawer....	17 ⁵ / ₈ 37 ⁵ / ₈	25	3 ⁷ / ₈ 2	40 ³ / ₄	27 ³ / ₈	9 ³ / ₈	90
4535N	5-Drawer Section—2 Drawers with Tool Tray and 3 File Drawers....	17 ⁵ / ₈ 37 ⁵ / ₈	25	3 ⁷ / ₈ 2	40 ³ / ₄	27 ³ / ₈	14 ¹ / ₂	110
4535P	Plain Base.....				40 ³ / ₄	27 ³ / ₈	4	30
4535R	Base with Drawer.....	37 ⁵ / ₈	25	5	40 ³ / ₄	27 ³ / ₈	9 ¹ / ₂	70
4535S	Low Sanitary Base.....				40 ³ / ₄	27 ³ / ₈	5 ³ / ₄	34
4535T	High Sanitary Base.....				40 ³ / ₄	27 ³ / ₈	22 ³ / ₄	58
	For Drawings of a Maximum Size 30x42"							
4536A	5-Drawer Section.....	42 ¹ / ₄	32	2	45 ¹ / ₂	34 ³ / ₈	14 ¹ / ₂	148
4536B	5-Drawer Section with Oak Cap attached.....	42 ¹ / ₄	32	2	45 ⁵ / ₈	34 ⁷ / ₈	15 ¹ / ₄	183
4536E	3-Drawer Section.....	42 ¹ / ₄	32	2	45 ¹ / ₂	34 ³ / ₈	9 ³ / ₈	112
4536F	3-Drawer Section.....	42 ¹ / ₄	32	3 ⁵ / ₈	45 ¹ / ₂	34 ³ / ₈	14 ¹ / ₂	128
4536G	1-Drawer Section.....	42 ¹ / ₄	32	7 ¹ / ₈	45 ¹ / ₂	34 ³ / ₈	9 ³ / ₈	78
4536K	Oak Cap.....				45 ¹ / ₂	35	3	68
4536M	3-Drawer Section—2 Drawers with Tool Tray and 1 File Drawer....	20 42 ¹ / ₄	32	3 ⁷ / ₈ 2	45 ¹ / ₂	34 ³ / ₈	9 ³ / ₈	112
4536N	5-Drawer Section—2 Drawers with Tool Tray and 3 File Drawers....	20 42 ¹ / ₄	32	3 ⁷ / ₈ 2	45 ¹ / ₂	34 ³ / ₈	14 ¹ / ₂	148
4536P	Plain Base.....				45 ¹ / ₂	34 ⁷ / ₈	4	32
4536R	Base with Drawer.....	42 ¹ / ₄	32	5	45 ¹ / ₂	34 ³ / ₈	9 ¹ / ₂	88
4536S	Low Sanitary Base.....				45 ¹ / ₂	34 ³ / ₈	5 ³ / ₄	40
4536T	High Sanitary Base.....				45 ¹ / ₂	34 ³ / ₈	22 ³ / ₄	58
	For Drawings of a Maximum Size 36x48"							
4537A	5-Drawer Section.....	50	38	2 ¹ / ₄	53 ³ / ₈	40 ³ / ₈	16	238
4537B	5-Drawer Section with Oak Cap attached.....	50	38	2 ¹ / ₄	53 ¹ / ₂	40 ⁷ / ₈	16 ⁷ / ₈	285
4537K	Oak Cap.....				53 ³ / ₈	41	3	75
4537P	Plain Base.....				53 ³ / ₈	41	4	58
4537S	Low Sanitary Base.....				53 ³ / ₈	40 ³ / ₈	5 ³ / ₄	45

See Price List in back of Catalog.

Oak Sectional Filing Cases

Hold Down Wires and Drawer Styles



Style A Drawer with No. 4536H.

No. 4536H. Hold Down Wires, for securely holding down the contents of drawers (furnished extra on order), Each, \$

All Sections are furnished with Style A Drawers unless otherwise specified.

The Style A Drawers are used for filing large drawings, and Styles B, C, D and E are for smaller sizes.

These Drawers are well constructed of thoroughly kiln-dried oak having a light golden oak finish. All joints are well glued. The sides are paneled and they are made throughout in a first class manner. The bottoms are made in two panels resting in grooves in a center support giving extra rigidity and durability. The back of each drawer is covered with a 4-inch strip to prevent the drawings from curling, and the subdivided drawers also have this thin strip protecting each division.



Style B Drawer.



Style D Drawer.



Style C Drawer.



Style E Drawer.

Subdivided Drawers, as per illustrations, will be furnished to order on new sections. Prices quoted on request.

A Locking Device, by means of which all drawers of a section can be locked as a unit, will be furnished to order on new sections. Price quoted on request.

See Price List in back of Catalog.

Steel Sectional Filing Cases For Filing Drawings Flat



Modern filing demands more than just a place to file drawings, tracings, blue prints, etc.; it demands that the material so filed will receive a minimum of crumpling, tearing and curling, with added protection from the cause of fire and from dust.

Valuable tracings placed in our steel cabinets are protected against destruction by fire, and the injurious effects of moisture and dust, besides being easy of access.

The Steel Sectional Filing Cases listed by us are made of cold rolled furniture steel, and have welded corners which eliminate joints.

As they are built entirely of steel, they are practically indestructible and are a protection against destruction by fire. The cabinets are so strongly and rigidly built that sections can be stacked to any height desired without danger of sagging. The angle runs insure ease of operation regardless of the weight of the contents, or of changes due to atmospheric conditions.

Steel Sectional Filing Cases are always made uniform in size and finish so that any number of sections, procured at different times, will fit perfectly. They are listed in three sizes, namely, for drawings of a maximum size 24x36 inches, 30x42 inches and 36x48 inches.

The use of Tracing Folders, described on page 350, increases the capacity of the drawers and simplifies the handling and reference of the contents.

The finish is olive green baked enamel, having a hard, smooth surface with a rich, dull effect, produced after applying successive coats of baked enamel.

Illustrations of the individual sections shown on page 348.

Complete dimensions and general description listed on page 349.

Oak Sectional Filing Cases described on pages 343 to 346.

See Price List in back of Catalog.



Steel Sectional Filing Cases

Sections



Nos. 4541A, 4542A, 4543A



Nos. 4541L, 4542L



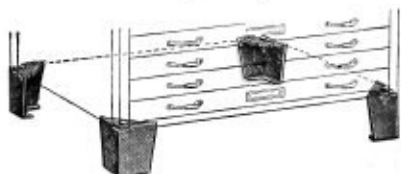
Nos. 4541B, 4542B



Nos. 4541P, 4542P, 4543P



Nos. 4541E, 4542E



Nos. 4541S, 4542S, 4543S



Nos. 4541F, 4542F



Nos. 4541W, 4542W, 4543W



Nos. 4541G, 4542G



Nos. 4541X, 4542X



Nos. 4541K, 4542K, 4543K

Sections No. 4541 are for Drawings of a Maximum Size 24x36".
Sections No. 4542 are for Drawings of a Maximum Size 30x42".
Sections No. 4543 are for Drawings of a Maximum Size 36x48".

Detailed description on following page.

See Price List in back of Catalog.

Steel Sectional Filing Cases

No.	For Drawings of a Maximum Size 24x36"	Drawer Inside Dimensions			Section Outside Dimensions			Sh'p'g Wt.
		Length	Width	Depth	Length	Width	Height	Lbs.
4541A	5-Drawer Section.....	37	25	2	40 $\frac{7}{8}$	28 $\frac{1}{2}$	15 $\frac{3}{8}$	215
4541B	5-Drawer Section with Steel Cap.....	37	25	2	40 $\frac{7}{8}$	28 $\frac{1}{2}$	16 $\frac{1}{4}$	237
4541E	3-Drawer Section.....	37	25	2	40 $\frac{7}{8}$	28 $\frac{1}{2}$	9 $\frac{7}{8}$	180
4541F	3-Drawer Section.....	37	25	3 $\frac{3}{4}$	40 $\frac{7}{8}$	28 $\frac{1}{2}$	15 $\frac{3}{8}$	175
4541G	1-Drawer Section.....	37	25	7 $\frac{1}{2}$	40 $\frac{7}{8}$	28 $\frac{1}{2}$	9 $\frac{7}{8}$	140
4541K	Steel Cap.....				40 $\frac{7}{8}$	29 $\frac{1}{4}$	$\frac{7}{8}$	45
4541L	6-Drawer Section.....	37	25	2 $\frac{1}{4}$	40 $\frac{7}{8}$	28 $\frac{1}{2}$	20	265
4541P	Flush Base.....				40 $\frac{7}{8}$	28 $\frac{1}{2}$	4	45
4541S	Sanitary Base.....						6	24
4541T	Sanitary Base.....				40 $\frac{7}{8}$	28 $\frac{1}{2}$	22 $\frac{7}{8}$	80
4541W	Sanitary Base.....				40 $\frac{7}{8}$	28 $\frac{1}{2}$	12	48
4541X	5-Drawer Section with 12" Sanitary Base.....	37	25	2	40 $\frac{7}{8}$	28 $\frac{1}{2}$	27 $\frac{3}{8}$	312
For Drawings of a Maximum Size 30x42"								
4542A	5-Drawer Section.....	43 $\frac{7}{8}$	32	2	46 $\frac{7}{8}$	35 $\frac{1}{2}$	15 $\frac{3}{8}$	275
4542B	5-Drawer Section with Steel Cap.....	43 $\frac{7}{8}$	32	2	46 $\frac{7}{8}$	35 $\frac{1}{2}$	16 $\frac{1}{4}$	365
4542E	3-Drawer Section.....	43 $\frac{7}{8}$	32	2	46 $\frac{7}{8}$	35 $\frac{1}{2}$	9 $\frac{7}{8}$	224
4542F	3-Drawer Section.....	43 $\frac{7}{8}$	32	3 $\frac{3}{4}$	46 $\frac{7}{8}$	35 $\frac{1}{2}$	15 $\frac{3}{8}$	238
4542G	1-Drawer Section.....	43 $\frac{7}{8}$	32	7 $\frac{1}{2}$	46 $\frac{7}{8}$	35 $\frac{1}{2}$	9 $\frac{7}{8}$	135
4542K	Steel Cap.....				46 $\frac{7}{8}$	36 $\frac{1}{4}$	$\frac{7}{8}$	54
4542L	6-Drawer Section.....	43 $\frac{7}{8}$	32	2 $\frac{1}{4}$	46 $\frac{7}{8}$	35 $\frac{1}{2}$	20	322
4542P	Flush Base.....				46 $\frac{7}{8}$	35 $\frac{1}{2}$	4	48
4542S	Sanitary Base.....						6	24
4542T	Sanitary Base.....				46 $\frac{7}{8}$	35 $\frac{1}{2}$	22 $\frac{7}{8}$	85
4542W	Sanitary Base.....				46 $\frac{7}{8}$	35 $\frac{1}{2}$	12	65
4542X	5-Drawer Section with 12" Base.....	43 $\frac{7}{8}$	32	2	46 $\frac{7}{8}$	35 $\frac{1}{2}$	27 $\frac{3}{8}$	330
For Drawings of a Maximum Size 36x48"								
4543A	5-Drawer Section.....	50	38	2	53 $\frac{7}{8}$	41 $\frac{1}{2}$	15 $\frac{3}{8}$	378
4543K	Steel Cap.....				53 $\frac{7}{8}$	42 $\frac{1}{4}$	$\frac{7}{8}$	64
4543P	Flush Base.....				53 $\frac{7}{8}$	41 $\frac{1}{2}$	4	75
4543S	Sanitary Base.....						6	24
4543W	Sanitary Base.....				53 $\frac{7}{8}$	41 $\frac{1}{2}$	12	105

Steel Sections illustrated on page 348.

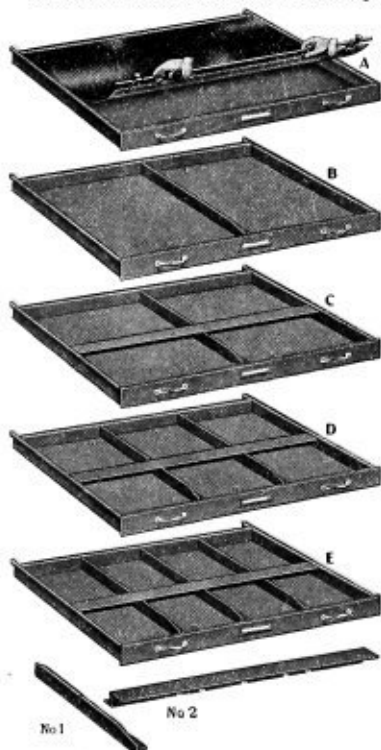
See Price List in back of Catalog.

Steel Sectional Filing Cases

Drawer Styles and Tracing Folders
Dividers for 2-inch Drawers

All Sections are furnished with Style A Drawers but these can be subdivided into two compartments (Style B), four compartments (Style C), six compartments (Style D), or eight compartments (Style E), by means of **Drawer Dividers** as shown in illustrations Nos. 1 and 2.

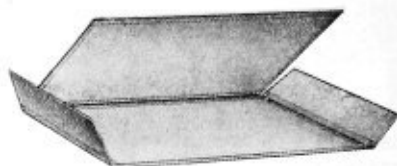
These Dividers must be ordered separately, or in sets for Style B, C, D, or E Drawers. They are made for drawers 2 inches deep.



Divider No. 1 is to extend from front to back of drawer. Divider No. 2 is to extend from left to right in center, and has a hood to prevent contents in front part of drawer from slipping into the back part, or vice versa.

The Drawers are well constructed of heavy gauge material and the runs that they slide on are made of heavy angle irons, strongly fastened to the cabinet frame.

The **Drawing Protector**, shown below, is a perfected device for protecting plans in a steel file drawer. It is made of black coated canvas, and is securely fastened at the back of the drawer. It keeps the dust out, and holds the contents flat even when the drawer is loaded to its maximum capacity. All Sections except Nos. 4541G and 4542G are equipped with this device.



The **Tracing Folder**, shown opposite, is a device which simplifies filing and storage of semi-active and inactive tracings. Four folders with about 100 tracings each, can be filed in a 2-inch drawer. These folders are made in sizes to fit our regular steel file drawers, and are listed as follows:

No.	Tracing Folder for	Style	Drawers,	Each,	\$
4541YA.	24x36"	"	A	"	"
4541YB.	18x24"	"	B	"	"
4542YA.	30x42"	"	A	"	"
4542YB.	21x30"	"	B	"	"
4543YA.	36x48"	"	A	"	"

A **Locking Device**, by means of which all drawers of a section can be locked as a unit, will be furnished to order on **new sections**. Price quoted on request.

See Price List in back of Catalog.



Steel Vertical Files



Ready for use.



Removing Plans.



Inserting Plans.

Steel Vertical Filing is the modern, efficient, labor-saving method of handling large drawings, tracings, blue prints, plans, maps, charts, etc. It solves the difficult problem of filing large sheets and assures ease of reference. Formerly, it was necessary to roll these large drawings and place them in pigeon holes or on top of filing cases and other unprotected places, where they soon became mutilated and were not easily accessible.

Our Steel Vertical File will take a maximum size sheet of 48×70 inches and has a capacity of 2600 to 3000 sheets. It is compact in construction, occupying a floor depth of only 18 inches. Like our Steel Sectional Filing Cases, the Vertical File is built entirely of steel, making it practically indestructible and fire-resisting. It is finished in olive green baked enamel, and has the appearance of a large safe-cabinet.

The top illustration shows the file rack pulled out for use, for the removal or replacement of binders which hold the sheets. No punching or binding of sheets is necessary. There are 26 binders, and each binder will take 100 or more sheets securely without danger of slipping. The rack is closed by pushing downward on the lower end. The rack then moves back and upward into the cabinet and stands nearly vertical.

When making reference to a particular drawing or set of plans, the correct binder is easily selected by the label holder and lifted from the rack as illustrated in the center view.

The method of replacing the binders, as shown in the lower photograph, is fully described on the following page.

Style of Racks and General Specifications given on page 353.

See Price List in back of Catalog.



Steel Vertical Files



The Binder: The illustration at the left shows a detail of the binder which holds the sheets in the Steel Vertical File. The key shown is furnished with each cabinet and fits the four screws with which they are tightened. It is made so that it will not easily slip off the screw head. The jaws of the binder spring apart as the screws are loosened, to permit removal or insertion of sheets.

Replacing Binders in Cabinets: The method of replacing plans in the cabinets is as follows: First; grasp binder in center with right hand and lay sheets on rack so binder is above proper opening, as in figure 1. Second: with left hand push the sheets into the opening and lower the binder with right hand, see figure 2. Third: set binder in place and grasp sheets by the lower edges, figure 3. Push sheets forward, they will drop automatically in place, and will hang straight in position without becoming curled or crumpled.



Fig. 1

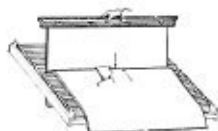


Fig. 2



Fig. 3

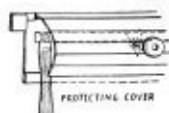
Locking up Binders: When contents are placed in binders, screws should be turned by hand until reasonably tight, then tighten screws one turn with key.

Fastening Cabinets: Screw holes are provided in rear corners for fastening cabinets to floor.

Protecting Old Prints, Drawings and Tracings



A folder of heavy wrapping paper or oil cloth, shaped like an inverted U can be used to excellent advantage for protecting old prints, drawings and tracings that have become worn. Take a sheet of heavy durable paper or oil cloth the same width as the binder. The length should be about 10 inches more than twice the length of the longest drawing. Fold the sheet once the short way making a cover that is open on the bottom and sides, closed at the top. The top is then cut out with 1x1 inch V-shaped notches corresponding to the position of screw centers on binder. Then a 1/4 inch wooden dowel that is furnished with each binder is pushed through the top loop of cover so as to rest on the screws of the binder. The cover then cannot drop off as it is supported by the dowel resting on the screws. The contents are then placed in cover and screws are tightened.



PROTECTING COVER

See Catalog No. 470. black Oil Cloth.

Steel Vertical Files

Style of Racks: The rack which holds the binders in the cabinet is made in three styles, namely: Plain, Style A and Style B.



Plain Rack



Style A Rack



Style B Rack

The Plain rack is for full-width binders, which take sheets the maximum size possible in the cabinet. They are furnished in cabinets Nos. 4545A, 4545D, 4545G, 4545L and 4545P, and have a capacity of 26 binders. The Style A rack is for half-size binders and will take 52 half-size binders. It is furnished in cabinets Nos. 4545B, 4545E, 4545H, 4545M and 4545R. The Style B rack will take 13 full-size binders at the back and 24 half-size binders at the front, and is supplied in cabinets Nos. 4545C, 4545F, 4545K, 4545N and 4545S.

Specifications for Steel Vertical Files

No.	Maximum Filing Size	Style of Rack	Outside Dimensions	Floor Space Required	Shipping Weight
4545A	24"×70"	Plain	32 ³ / ₄ "×18"×72"	18"×32 ³ / ₄ "	456 lbs.
4545B	11"×70"	Style A	32 ³ / ₄ "×18"×72"	18"×32 ³ / ₄ "	456 "
4545C	24"×70"	Style B	32 ³ / ₄ "×18"×72"	18"×32 ³ / ₄ "	456 "
4545D	30"×70"	Plain	38 ³ / ₄ "×18"×72"	18"×38 ³ / ₄ "	498 "
4545E	14"×70"	Style A	38 ³ / ₄ "×18"×72"	18"×38 ³ / ₄ "	498 "
4545F	30"×70"	Style B	38 ³ / ₄ "×18"×72"	18"×38 ³ / ₄ "	498 "
4545G	36"×70"	Plain	44 ³ / ₄ "×18"×72"	18"×44 ³ / ₄ "	548 "
4545H	17"×70"	Style A	44 ³ / ₄ "×18"×72"	18"×44 ³ / ₄ "	548 "
4545K	36"×70"	Style B	44 ³ / ₄ "×18"×72"	18"×44 ³ / ₄ "	548 "
4545L	42"×70"	Plain	50 ³ / ₄ "×18"×72"	18"×50 ³ / ₄ "	630 "
4545M	20"×70"	Style A	50 ³ / ₄ "×18"×72"	18"×50 ³ / ₄ "	630 "
4545N	42"×70"	Style B	50 ³ / ₄ "×18"×72"	18"×50 ³ / ₄ "	630 "
4545P	48"×70"	Plain	56 ³ / ₄ "×18"×72"	18"×56 ³ / ₄ "	705 "
4545R	23"×70"	Style A	56 ³ / ₄ "×18"×72"	18"×56 ³ / ₄ "	705 "
4545S	48"×70"	Style B	56 ³ / ₄ "×18"×72"	18"×56 ³ / ₄ "	705 "

Any of the above cabinets will take sheets from letter size (8¹/₂"×11") up to and including the maximum size listed.

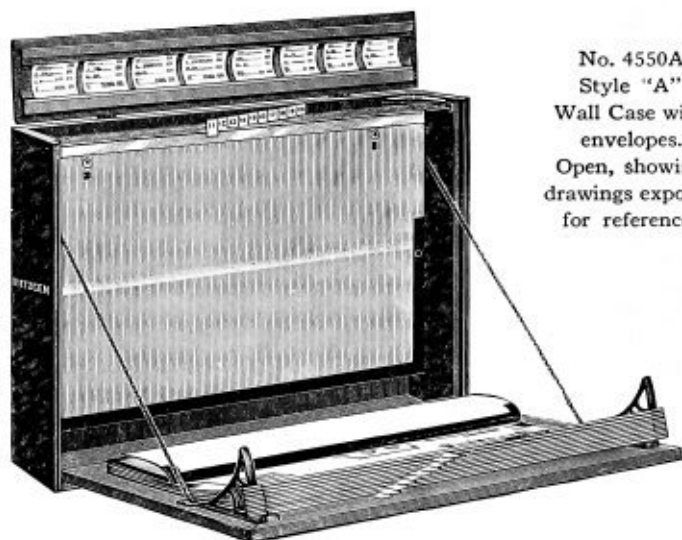
See Price List in back of Catalog.



Beck Vertical Files

(Patented)

For Drawings, Tracings, Blue Prints, Etc.



No. 4550A
Style "A"
Wall Case with
envelopes.
Open, showing
drawings exposed
for reference.

Practical Advantages

Files drawings flat, vertically, saving floor space.
Keeps drawings clean and protected from injury and wear.
Prevents drawings from slipping down and crumpling.
Files drawings of different sizes systematically in one case.
Exposes drawings instantly for inspection.
Unequaled for use in vaults and filing rooms.
Economical in cost.

The Beck Vertical Files are designed for wall use. The Wall Cases are vertical cases having an inside depth of about six inches, and a carrying capacity of either 20 envelopes or 15 file rods, each envelope and file rod being equipped with a numbered index tab. The top is hinged, and has grooves on the inside to hold a series of cards for a classified index of the contents. The front, hinged at the bottom, can be dropped to form a horizontal reference desk for inspecting the drawings, etc.

The envelopes are made of a heavy, tough and durable paper, the lower section being bound at the edges with cloth, forming a pocket that **absolutely prevents** the drawings, etc., from slipping down and crumpling. The upper section is a flap which opens for the insertion and extraction of drawings, and when closed is fastened to the back by means of clamps, making the envelopes practically **dust proof**. The file rods are steel bars, each one, according to its length, being equipped with two to four sliding clamps for holding the drawings.

See Price List in back of Catalog.

Beck Vertical Files

Wall Cases



No. 4550B, Wall Case, closed.

These Cases are designed for fastening to the wall.

For wall use, two wooden strips are supplied. These are fastened to the wall and the back of the case secured to them. When cases are attached to the wall, the index tabs should be about level with the eyes, as this height is suitable to form a reference desk of the front when it is dropped to a horizontal position.

The capacity of each Case, when equipped with envelopes or with file rods, is approximately five hundred drawings or tracings. Each case is furnished with twenty envelopes or with fifteen file rods, as desired. All cases are of uniform depth, about six inches inside and eight inches outside. The outside size is approximately five inches higher and six inches wider than the size of the envelope or the file rod, i. e., if the envelopes or the file rods are for drawings 30 × 42 inches, the outside dimensions of the case are 35 × 48 × 8 inches. They are made of Plain Oak with dark or light finish.

Prices for Cases made of other woods or with different finishes, quoted on request.

Cases, equipped with 20 Envelopes.

No.	For Drawings	Size	Material	Each, \$	Approx. Ship'g Wgt.
4550A.	22 × 30 in.,	Plain Oak,	Each, \$	100 lbs.	
4550B.	24 × 36 "	" "	" "	125 "	
4550C.	30 × 42 "	" "	" "	160 "	
4550D.	36 × 42 "	" "	" "	185 "	

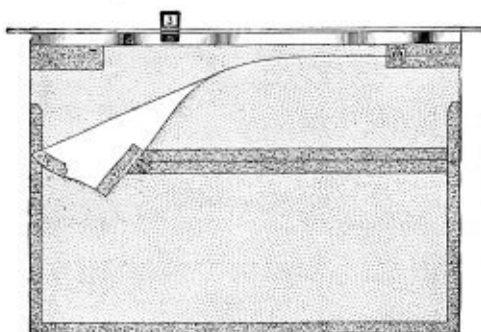
Cases, equipped with 15 File Rods.

No.	For Drawings	Size	Material	Each, \$	Approx. Ship'g Wgt.
4552A.	22 × 30 in.,	Plain Oak,	Each, \$	100 lbs.	
4552B.	24 × 36 "	" "	" "	125 "	
4552C.	30 × 42 "	" "	" "	160 "	
4552D.	36 × 42 "	" "	" "	185 "	

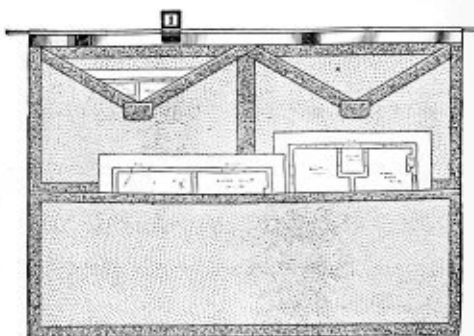
See Price List in back of Catalog.

Beck Vertical Files

Extra Envelopes, File Rods, Clamps and Index Tabs



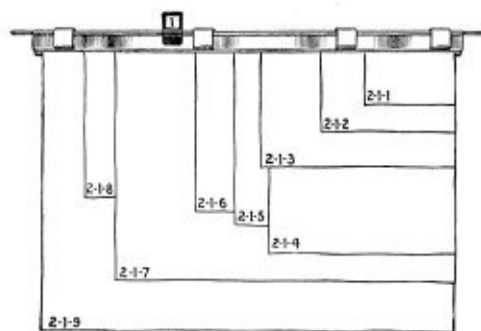
No. 4572A.



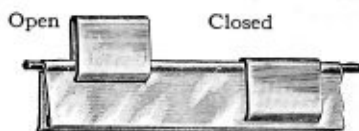
Subdivided Envelope.

No. 4572A.	Envelope, with Index Tab, for Drawings 22 × 30 in.,	Each, \$
4572B.	“ “ “ “ “ “ 24 × 36 “	“
4572C.	“ “ “ “ “ “ 30 × 42 “	“
4572D.	“ “ “ “ “ “ 36 × 42 “	“

Subdivided envelopes, as per illustration, will be furnished at additional charges to the list prices of the regular envelopes Nos. 4572A-4572D: with two pockets,—cents per envelope; with three or four pockets,—cents per envelope; with five to eight pockets,—cents per envelope.



No. 4574C.



4576R.



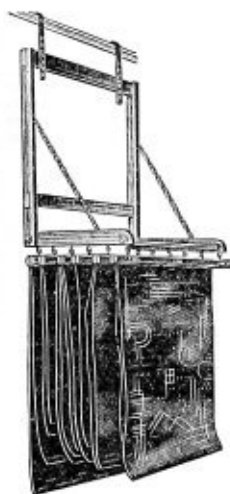
4578T.

No. 4574A.	File Rod, 30 in., with Index Tab and 3 Clamps,	Each, \$
4574B.	“ “ 36 “ “ “ “ 3 “	“
4574C.	“ “ 42 “ “ “ “ 4 “	“
4576R.	Clamps, for File Rods,	“
4578T.	Index Tabs, for Envelopes or File Rods,	“

See Price List in back of Catalog.



National Folding Wall Rack and Presto Blue Print and Drawing Holder



No. 4580 and
6 No. 4581C.

This Filing Device is made of oak wood, varnished, with nickeled metal parts. Dimensions of the Wall Rack frame (see illustration, which shows Wall Rack and six Presto Holders with capacity of 500 drawings or prints) are 24 in. wide, 20 in. deep and 30 in. high. It can be adjusted to a desired height from the floor, and when not in use can be folded into dimensions of 30 x 4 x 24 inches. It is furnished with adjustable hooks for suspending from a wall moulding or it can be fastened to the wall.

Each Presto Holder consists of two pieces of varnished oak; the lower piece containing three studs; and the upper piece containing three locking devices.

So as to permit of binding narrow drawings and prints, two of the studs and two of the locking devices are placed close together. On each holder there are also two hooks, spaced to hang from the supporting hooks on the wall rack. An index card for showing the contents is also attached to each holder.

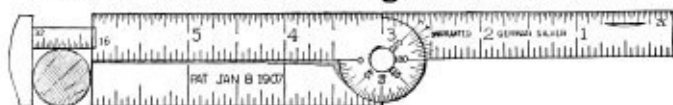
Practical Advantages

1. Any of the six Presto Holders can be taken from the Wall Rack without disturbing the other Presto Holders.
2. A complete file of drawings or prints can be examined while bound together in one Presto Holder or a single drawing or print can be removed or added easily and quickly.
3. An Index Card shows the contents of each Presto Holder, so that drawings or prints, while held in neat binder form, are always classified by subjects.
4. Can be placed conveniently for quick reference in any part of the drawing room or the office, as it takes up but little space.

No.	Description	Each, \$
No. 4580.	National Folding Wall Rack, made in one size only,	.
4581A.	Presto Holder, 28 inches long,	.
4581B.	" " 30 " "	"
4581C.	" " 36 " "	"
4581D.	" " 42 " "	"

See Price List in back of Catalog.

Combination Folding Pocket Rules



No. 4854.

The Combination Folding Pocket Rules can be used as a Caliper Gauge, Protractor, Triangle or Try Square. They are made of spring Nickel silver, accurately and distinctly graduated, are adjustable to any angle, and the construction of the center joint is such that the arms will not move except when pressed. The upper edge and the caliper arm are graduated to 32nds, and the lower edge to 16ths. The Protractor is graduated to five degrees and the vernier reads to half-degrees.

No. 4854. Combination Folding Pocket Rule, 6 in., 2 fold, in Chamois Sheath, Each, \$ 4855.

Folding Pocket Rules



Nos. 4864 and 4904.

These Folding Rules are accurate and have rivets which act as strike plates. As the rule is opened and closed the plates rather than the wood, take the friction. This eliminates the usual wearing away of lines and figures. The ends are protected by metal tips. The black graduations and figures are clear and sharp.

The construction of the friction joints is such that practically no wood is cut away from the rule to attach the joints. This feature, combined with the fact that the joints are made of heavy, rust proof metal and firmly anchored at four points, give an exceptional durability.

Joints will not slip or pull from the rule, and even when the rule is opened full length, hold it firmly in position.

Yellow Enamel Finish

No. 4864.	Pocket Rule, 4 feet, 8 fold, div. $\frac{1}{8} \times \frac{1}{8}$ in.,	Doz., \$	Each, \$
4865.	" " 5 " 10 " " $\frac{1}{8} \times \frac{1}{8}$ " "	" "	" "
4866.	" " 6 " 12 " " $\frac{1}{8} \times \frac{1}{8}$ " "	" "	" "
4864T.	" " 4 " 8 " " $\frac{1}{8} \times \frac{1}{100}$ ft.,	" "	" "
4866T.	" " 6 " 12 " " $\frac{1}{8} \times \frac{1}{100}$ " "	" "	" "

White Enamel Finish

The White Enamel Rules are similar in workmanship and construction to the Yellow Enamel Rule. The white coating is very durable, resists heat and moisture, can be cleaned with water, oil or alcohol, thus preserving the neat appearance. The black graduations and figures, clear and distinct, are exceptionally legible against the white background.

No. 4904.	Pocket Rule, 4 feet, 8 fold, div. $\frac{1}{8} \times \frac{1}{8}$ in.,	Doz., \$	Each, \$
4905.	" " 5 " 10 " " $\frac{1}{8} \times \frac{1}{8}$ " "	" "	" "
4906.	" " 6 " 12 " " $\frac{1}{8} \times \frac{1}{8}$ " "	" "	" "
4908.	" " 8 " 16 " " $\frac{1}{8} \times \frac{1}{8}$ " "	" "	" "
4904M.	" " 4 " 8 " " $\frac{1}{8} \times$ mm.,	" "	" "
4904T.	" " 4 " 8 " " $\frac{1}{8} \times \frac{1}{100}$ ft.,	" "	" "
4906T.	" " 6 " 12 " " $\frac{1}{8} \times \frac{1}{100}$ " "	" "	" "

See Price List in back of Catalog.

Folding Pocket Rules



No. 4942.

Vest Pocket Size, Divided $\frac{1}{16} \times \frac{1}{16}$.

		Yellow Enamel Finish.	Doz.	Each,
No. 4942.	Rule, 2 ft., 6 fold,	.	\$	\$
4943.	" 3 " 9 "	.	.	.
		White Enamel Finish.	Doz.	Each,
No. 4962.	Rule, 2 ft., 6 fold,	.	\$	\$
4963.	" 3 " 9 "	.	.	.

Master Sliding Extension Rule



No. 4974.

The Master Sliding Extension Rule is a scientific combination of two rules in one—the ordinary rule, and a direct reading inside caliper extension rule. It is made up of sliding sections, each section being locked together with an interlocking device. The first section when pulled out releases the second section and so on, and when the rule is fully extended it is held perfectly rigid in every joint.

The side of the rule used for taking inside measurements is marked "Inside Measure." The reverse side, used like any ordinary rule, is marked "Outside Measure."

The Master Sliding Extension Rule is exceedingly useful for taking inside measurements of doors, windows, boilers, furnaces, etc. It is handy to carry around and opens instantly.

		Doz.	Each,
No. 4974.	Master Sliding Extension Rule, 4 ft. 8 slide $\frac{1}{16} \times \frac{1}{16}$.	\$	\$
4975.	" " " " 5 " 10 " $\frac{1}{16} \times \frac{1}{16}$.	.	.
4976.	" " " " 6 " 12 " $\frac{1}{16} \times \frac{1}{16}$.	.	.
4978.	" " " " 8 " 16 " $\frac{1}{16} \times \frac{1}{16}$.	.	.

See Price List in back of Catalog.

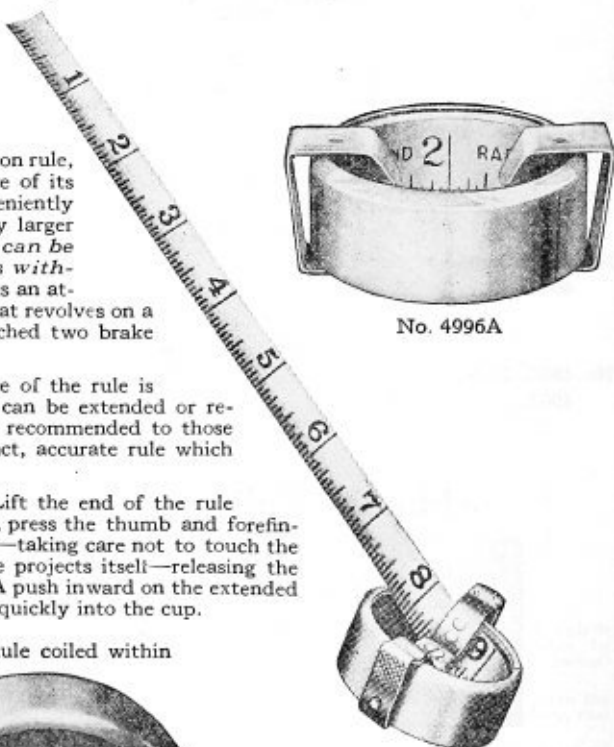
Farrand Rapid Rule

(Perfect Pocket Rule)

The Farrand Rapid Rule consists of a single strip of stiff, slightly concave steel with an electro-plated surface. It supports its own weight when extended, making a straight extension rule, and because of the nature of its construction can be conveniently coiled in a case scarcely larger than a man's watch. *It can be twisted in odd shapes without injury.* The case is an attractively finished cup that revolves on a pivot to which are attached two brake handles.

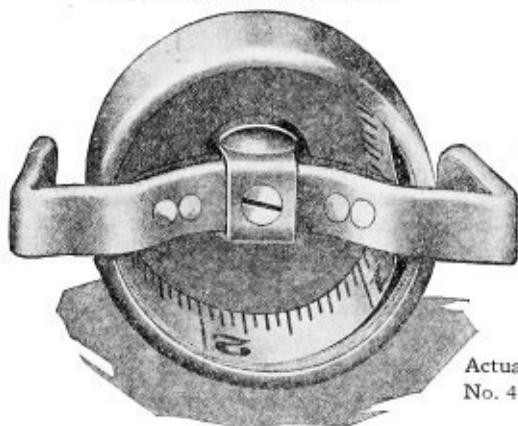
The outstanding feature of the rule is the speed with which it can be extended or retracted. It is strongly recommended to those who desire a neat, compact, accurate rule which will last indefinitely.

To operate the rule: Lift the end of the rule over the brim of the cup, press the thumb and forefinger on the brake handles—taking care not to touch the cup. Instantly the rule projects itself—releasing the pressure stops the rule. A push inward on the extended portion, returns the rule quickly into the cup.



No. 4996A

Cup with Rule coiled within



Actual Size
No. 4996B.

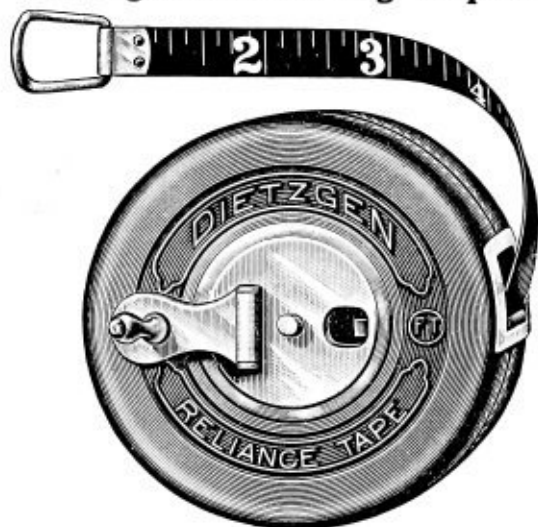
Brake

The two Brake-Pieces rise by means of finger pressure. This allows the cup to spin and the rule strip to eject itself

- | | | |
|------------|--|----------|
| No. 4996A. | Farrand Rule, 6 ft., div. inches to $\frac{1}{16}$ in. nickel-plated case . . . | Each, \$ |
| 4996B. | Farrand Rule, 6 ft., div. inches to $\frac{1}{16}$ inch, brass case | " |
| 4996BT. | Farrand Rule, 6 " " 10ths and 100ths of ft., brass case. | " |
| 4996BM. | Farrand Rule, 2m. " meters and centimeters, brass case. | " |
| 4998N. | Farrand Rule, 8 ft., " inches to $\frac{1}{16}$ inch, nickel-plated case | " |

See Price List in back of Catalog.

Dietzgen Measuring Tapes



Accuracy

All Steel Measuring Tapes of our manufacture are graduated according to the U. S. Standard of the National Bureau of Standards at Washington, D. C.

Tension and Temperature

Steel Tapes are graduated under a tension of 10 pounds up to 100 feet and 20 pounds if longer. When supported their entire length, they are accurate according to the U. S. Standard—68° Fahrenheit for the customary English units (feet, inches, etc.), and 20° Centigrade for Metric units. The coefficient of expansion of steel tapes as determined by the United States Bureau of Standards is 0.00000645 per degree Fahrenheit. A 100 foot tape will expand or contract 0.00774 inch per degree of temperature.

Numbering—Simplified-Reading



From above illustration the simplicity and advantage of our **Simplified-Reading** is evident. At each foot the figures are not only **large** but are placed at a slant most convenient for quick reading, while at each inch the **foot marks** are repeated with smaller figures having the same slant. The inch marks are vertical, and thus easily distinguished from the foot marks.

By this improved arrangement, total reading is seen at a glance without referring backward or forward.

Finish

A special black finish is applied to all of our Steel Tape ribbons having etched divisions and numbers. This finish is designated by the word **Black**.

The **Black Finish** not only increases the legibility of the bright etched divisions and numbers, but also is a safeguard against rusting, overcomes the necessity of protecting the ribbon by oiling, and greatly aids in maintaining its appearance.

See Price List in back of Catalog.



Subdivisions

English and Metric

Steel Tapes in **10ths** have the foot divided to 10 parts and each $\frac{1}{10}$ again to 10 parts, making the unit division $\frac{1}{100}$ foot.

Steel Tapes in **12ths** have the foot divided to inches ($\frac{1}{12}$ foot) and each inch to eighths, making the unit division $\frac{1}{8}$ inch, except the Reliance Junior, Admiral Junior and Pocket Tapes, which are divided to $\frac{1}{16}$ inch.

Steel Tapes in **Metric** are divided to half-centimeters, the first decimeter to millimeters.

Spring Winding Pocket Tapes in **10ths** have the foot divided to 10 parts and each $\frac{1}{10}$ again to 10 parts, making the unit division $\frac{1}{100}$ foot.

Spring Winding Pocket Tapes in **12ths** have the foot divided to inches in 16ths, the entire length of ribbon.

Spring Winding Pocket Tapes in **Metric** are divided to millimeters, the entire length of ribbon.

On all Steel Measuring Tapes in Metric except the Monarch, Argus and Monitor, the divisions begin—"on the line."

Certificate of Comparison

We can furnish any of the **Dietzgen Steel Tapes**, the graduations of which begin on the line, with Certificate of Comparison of the National Bureau of Standards at Washington. The fees of the Bureau of Standards for comparisons are given below; to this must be added the transportation charges to and from Washington, D. C.

For determining the correction to the total length of the tape when supported throughout at standard temperature and tension, for each 150 feet or 50 meters, or smaller, \$1.50

For determining the correction to the total length of the tape when supported throughout at any temperature and tension other than standard, for each 150 feet or 50 meters, or smaller (**tension desired must be specified**),50

For determining the correction to the total length when supported at ends only (**standard tension and temperature will be used unless otherwise specified**),50

For determining the correction to the total length when supported at ends and at intermediate points, for each 150 feet or 50 meters, or smaller (**standard tension and temperature will be used unless otherwise specified**),50

For determining the tension to the nearest 0.5 pound or 0.25 kilogram at which the correction to the length of an interval is most nearly zero, under a specified condition of support, for each 150 feet or 50 meters, or smaller,50

For tapes not sent on a reel there will be an additional charge for each 150 feet or 50 meters, or fraction thereof,25

The Bureau of Standards Certificate is given only to tapes with graduations beginning on the line, where these graduations are etched on the tape. Tapes with graduations beginning at the **outside end of the ring** and those having the **terminal mark on the tension handle** will be accepted for test, and a report given containing practically the same data furnished in the certificate but **without official certification**.

The Bureau of Standards Certificate states the temperature at which the comparison was made, method of support, the tension used in making comparison, and the length corrected for the standard temperature.



Numeral and Letter Suffixes

In connection with the **catalog numbers** of certain Tapes, we use numeral and letter suffixes, explanation of which is given below:

When numbers end with numeral	"0"	ribbons are divided one side only, 10ths of feet.
" " " " " "	"2"	" " " " " " 12ths " "
" " " " " "	"5"	" " " " " " Metric.
" " " " " "	"7"	" " " " " " Metric and 12ths of feet.
" " " " " "	letter "A"	" " " 25 feet in length.
" " " " " "	"B"	" " " 33 " " "
" " " " " "	"C"	" " " 50 " " "
" " " " " "	"D"	" " " 66 " " "
" " " " " "	"E"	" " " 75 " " "
" " " " " "	"F"	" " " 100 " " "
" " " " " "	"G"	" " " 150 " " "
" " " " " "	"H"	" " " 200 " " "
" " " " " "	"R"	" " " 10 meters "
" " " " " "	"S"	" " " 15 " " "
" " " " " "	"T"	" " " 20 " " "
" " " " " "	"W"	" " " 25 " " "
" " " " " "	"X"	" " " 30 " " "
" " " " " "	"Y"	" " " 50 " " "

Nickel-Plating Steel Ribbons

We are prepared to furnish our Steel Tape ribbons nickel-plated (for protection against rust) at the following **extra charge**:

		Steel Measuring Tapes						
Length in feet,		25	33	50	66	75	100	
Extra charge,	\$							
		Steel Chain Tapes						
Length in feet,				100	200	300	500	
Extra charge,	\$							
		Steel Pocket Tapes						
Length in feet,					5	6	8	
Extra charge,	\$							

Repairs

At our establishments in **Chicago, New York, San Francisco, New Orleans, Los Angeles, Pittsburgh, and Philadelphia**, we have the best facilities for making repairs of any nature on Steel Measuring Tapes.

This work is given careful and prompt attention and the charges will be found moderate consistent with high-class workmanship.

See Price List in back of Catalog.

Monarch Steel Tapes

Leather Cases

Ribbons $\frac{1}{4}$ inch



No. 5000C.

Ribbon—Heavy steel, black finish, $\frac{1}{4}$ inch wide, simplified-reading, easily removed from case, two detachable end rings for ribbon.

Divisions—Begin at end of line.

Case—Strong leather, hand sewed, steel lining.

Handles—Flush folding, long leverage, opened by pressing handle pin from opposite side of case.

Mountings—Nickel-plated.

Graduated feet, 10ths and 100ths of feet. One side only.		
10ths of ft.	Length.	Each,
No. 5000C.	50 Feet.	\$
5000F.	100 "	
Tape Lines Only		
No. 5000LC.	Tape Line only for 5000C.	\$
5000LF.	" " " 5000F.	
Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm. One side only.		
Metric.	Length.	Each,
No. 5005S.	15 Meters.	\$
5005W.	25 "	
5005X.	30 "	

Graduated feet, inches and 8ths of inch. One side only.		
12ths of ft.	Length.	Each,
No. 5002C.	50 Feet.	\$
5002F.	100 "	
Tape Lines Only		
No. 5002LC.	Tape Line only for 5002C.	\$
5002LF.	" " " 5002F.	
Graduated Metric and English. Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm. English: Feet, inches and 8ths of inch.		
Metric and 12ths.	Length.	Each,
No. 5007S.	15 Meters. 50 Feet.	\$
5007W.	25 " 82 $\frac{1}{2}$ "	
5007X.	30 " 100 "	

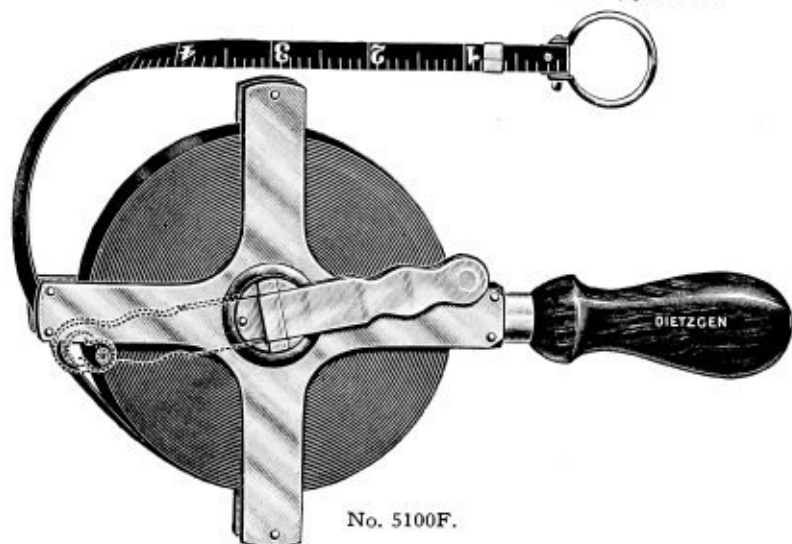
Detachable end rings for Steel Tapes listed under Nos. 5597A-5597B.

Tapes of other widths, lengths or divisions made to order.

See Price List in back of Catalog.

Argus Steel Tapes

Lock Handle Steel Frames Ribbons $\frac{1}{4}$ inch



Ribbon—Heavy steel, black finish, $\frac{1}{4}$ inch wide, **simplified-reading**, easily removed from frame, two detachable end rings for ribbon.

Divisions—Begin at end of line.

Frame (Reel)—Steel, four arms, with polished hardwood handle.

Handle—Lock, extra long leverage.

Mountings and Frame—Nickel-plated.

Graduated feet, 10ths and 100ths of feet.
One side only.

10ths of ft.	Length.	Each,
No. 5100C.	50 Feet.	\$
5100F.	100 "	
5100G.	150 "	
5100H.	200 "	

Tape Lines Only		Each,
No. 5100LC.	Tape Line only for 5100C.	\$
5100LF.	" " " " 5100F.	
5100LG.	" " " " 5100G.	
5100LH.	" " " " 5100H.	

Graduated Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.

Metric.	Length.	Each,
No. 5105S.	15 Meters.	\$
5105X.	30 "	
5105Y.	50 "	

Graduated feet, inches and 8ths of inch.
One side only.

12ths of ft.	Length.	Each,
No. 5102C.	50 Feet.	\$
5102F.	100 "	
5102G.	150 "	
5102H.	200 "	

Tape Lines Only		Each,
No. 5102LC.	Tape Line only for 5102C.	\$
5102LF.	" " " " 5102F.	
5102LG.	" " " " 5102G.	
5102LH.	" " " " 5102H.	

Graduated Metric and English
Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

Metric and 12ths.	Length.	Each,
No. 5107S.	15 Meters. 50 Feet.	\$
5107X.	30 " 100 "	
5107Y.	50 " 165 "	

A **two arm** (instead of **four arm**) frame is furnished with the **Argus Tapes** when ribbons are less than 100 feet or 30 meters in length.

The **Lock Handle** form of frame has in place of the usual handle one of unique design by means of which the Tape can be locked at any desired length. This special handle gives, on account of its length, powerful winding leverage with resultant ease in winding the Tape rapidly.

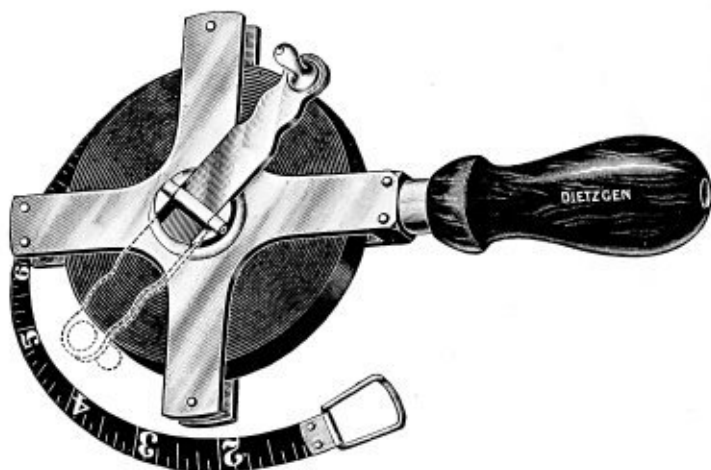
Detachable end rings for Steel Tapes listed under Nos. 5597A-5597B.

See Price List in back of Catalog.

Regal Steel Tapes

Lock Handle Steel Frames

Ribbons $\frac{3}{8}$ inch



No. 5152F.

Ribbon—Steel, black finish, $\frac{3}{8}$ inch wide, simplified reading.

Divisions—Begin at outside end of ring.

Frame (Reel)—Steel, four arms, with polished hardwood handle.

Handle—Lock, extra long leverage.

Mountings and Frame—Nickel-plated.

Graduated feet, 10ths and 100ths of feet.		
One side only.		
10ths of ft.	Length.	Each,
No. 5150C.	50 Feet.	\$
5150F.	100 "	
5150G.	150 "	
5150H.	200 "	
Tape Lines Only		Each,
No. 5150LC.	Tape Line only for 5150C.	\$
5150LF.	" " " 5150F.	
5150LG.	" " " 5150G.	
5150LH.	" " " 5150H.	

Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm.

One side only.		
Metric.	Length.	Each,
No. 5155S.	15 Meters.	\$
5155X.	30 "	
5155Y.	50 "	

Graduated feet, inches and 8ths of inch.		
One side only.		
12ths of ft.	Length.	Each,
No. 5152C.	50 Feet.	\$
5152F.	100 "	
5152G.	150 "	
5152H.	200 "	
Tape Lines Only		Each,
No. 5152LC.	Tape Line only for 5152C.	\$
5152LF.	" " " 5152F.	
5152LG.	" " " 5152G.	
5152LH.	" " " 5152H.	

Graduated Metric and English
Metric: Meters, decimeters and centimeters;
first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

Metric and 12ths.		
Metric.	Length.	Each,
No. 5157S.	15 Meters.	50 Feet. \$
5157X.	30 "	100 "
5157Y.	50 "	165 "

A two arm (instead of four arm) frame is furnished with Regal Tapes when ribbons are less than 100 feet or 30 meters in length.

The Lock Handle form of frame has in place of the usual handle one of unique design by means of which the Tape can be locked at any desired length. This special handle gives, on account of its length, powerful winding leverage with resultant ease in winding the Tape rapidly.

Tapes of other widths, lengths or divisions made to order.

See Price List in back of Catalog.



Regal Steel Tapes

Lock Handle Steel Frames

Ribbons $\frac{3}{8}$ inch wide

For Oil Gaugers' Use



No. 5162C.



Bob for No. 5172B and C.

Regal Steel Tapes for Oil Gaugers' use are widely used throughout the oil industry for tank gauging. They are graduated in feet, inches and eighths, and of a similar construction as described on preceding page but are furnished with a detachable steel plumb bob the length of which is included in the measurement of the tape.

Nos. 5162B and 5162C have a detachable 16 oz. bob, $\frac{3}{4}$ in. diameter, and $6\frac{1}{2}$ in. long, which is included in the measurement of the tape. This bob is used in measuring the heavier oils.

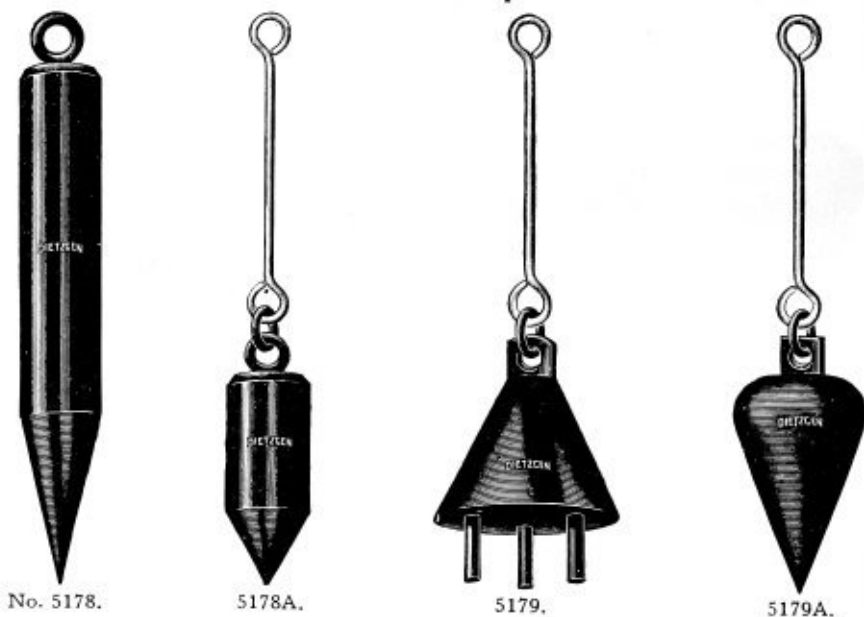
Nos. 5172B and 5172C have a detachable 6 oz. bob, $\frac{3}{4}$ in. diameter, and $2\frac{3}{4}$ in. long. These bobs are furnished with a connecting link, $3\frac{3}{4}$ in. long, which makes the length of this bob $6\frac{1}{2}$ in., the same length as the 16 oz. bob, therefore, it is interchangeable with it, and is included in the measurement of the tape. This light (6 oz.) bob is used in measuring the lighter oils.

- No. 5162B. Oil Gaugers' Tape as described above, length 33 ft., with 16 oz. steel plumb bob, $\frac{3}{4}$ in. in diameter and $6\frac{1}{2}$ in. long, . . . Each, \$
- 5162C. Like No. 5162B, but 50 ft., . . . " "
- 5172B. Oil Gaugers' Tape as described above, length 33 ft., but with 6 oz. steel plumb bob, $\frac{3}{4}$ in. in diameter, and $2\frac{3}{4}$ in. long, . . . " "
- 5172C. Like No. 5172B, but 50 ft., . . . " "

Other shapes and weights of plumb bob attachments for Oil Gaugers' Tapes or tapes with measurements beginning at end of ring, are listed under Nos. 5178 to 5179A on following page.

See Price List in back of Catalog.

Plumb Bob Attachments For Steel Tapes



These Plumb Bob Attachments for steel tapes afford a practical and efficient means for measuring oil in tanks and are widely used throughout the oil industry.

Bob No. 5178 is attached directly to Oil Gaugers' Tapes Nos. 5162B and 5162C, and its length is included in the measurement of the tape.

Bobs Nos. 5178A, 5179 and 5179A are furnished with a connecting link to be used with the Oil Gaugers' Tapes Nos. 5172B and 5172C. The length of the bob and link is included in the measurement of the tape.

- No. 5178. Plumb Bob Attachment, 16 ounces, length $6\frac{1}{2}$ in., diameter $\frac{3}{4}$ in.
For use with Oil Gaugers' Tapes Nos. 5162B and 5162C, . . . Each, \$
- 5178A. Plumb Bob Attachment, 6 ounces, length $2\frac{3}{4}$ in., diameter $\frac{3}{4}$ in.
Furnished with a connecting link $3\frac{3}{4}$ in. long; for use with Oil Gaugers' Tapes Nos. 5172B and 5172C, . . . Each,
5179. Plumb Bob Attachment, 14 ounces, length $2\frac{3}{4}$ in., diameter 2 in.
Furnished with connecting link $3\frac{3}{4}$ in. long; for use with Oil Gaugers' Tapes Nos. 5172B and 5172C, . . . Each,
- 5179A. Plumb Bob Attachment, 7 ounces, length $2\frac{3}{4}$ in., diameter $1\frac{1}{4}$ in.
Furnished with connecting link $3\frac{3}{4}$ in. long; for use with Oil Gaugers' Tapes Nos. 5172B and 5172C, . . . Each,

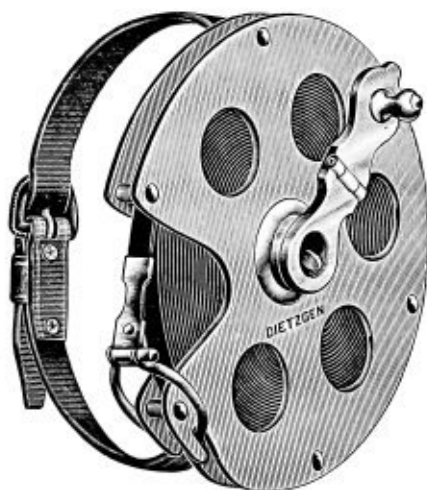
Bobs Nos. 5178A, 5179 and 5179A can also be furnished with an extra piece of tape with snap hooks, which length plus the length of the bob measures 1 foot over all. With this arrangement these bobs can be used with any tape which measurements begin at end of ring, it only being necessary to add 1 foot to the reading of the tape to obtain the correct measurement.

See Price List in Back of Catalog.

Monitor Steel Tapes

Steel Reels

Ribbons $\frac{1}{4}$ inch



No. 5180C.

Ribbon—Heavy steel, black finish, $\frac{1}{4}$ inch wide, simplified-reading, easily removed from reel, two detachable end rings for ribbon.

Divisions—Begin at end of line.

Reel—Steel, with adjustable leather strap for holding firmly while winding.

Handle—Folding, long leverage.

Mountings and Reel—Nickel-plated.

Graduated feet, 10ths and 100ths of feet. One side only.			
10ths of ft.	Length.	Each,	
No. 5180C.	50 Feet	\$	
5180F.	100 *		
5180H.	200 *		
Tape Lines Only			Each,
No. 5180LC.	Tape Line only for 5180C.		\$
5180LF.	" " " "	5180F.	
5180LH.	" " " "	5180H.	

Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm.

One side only.			
Metric.	Length.	Each,	
No. 5185S.	15 Meters.	\$	
5185X.	30 *		

Graduated feet, inches and 8ths of inch. One side only.			
12ths of ft.	Length.	Each,	
No. 5182C.	50 Feet.	\$	
5182F.	100 "		
5182H.	200 "		
Tape Lines Only			Each,
No. 5182LC.	Tape Line only for 5182C.		\$
5182LF.	" " " "	5182F.	
5182LH.	" " " "	5182H.	

Graduated Metric and English.
Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

Metric and 12ths.			
Metric and 12ths.	Length.	Each,	
No. 5187S.	15 Meters. 50 Feet.	\$	
5187X.	30 * 100 *		

Detachable end rings for Steel Tapes listed under Nos. 5597A-5597B.

Tapes of other widths, lengths or divisions made to order.

See Price List in back of Catalog.

Reliance Steel Tapes

Leather Cases

Ribbon
3/8 inch



The excellence of this tape recommends it where only the best is demanded

Furnished with Dietzgen End-Fastener described and illustrated on page 374

No. 5202C.

Ribbon—Steel, black finish, or stainless steel, 3/8 inch wide, simplified-reading.

Divisions—Begin at outside end of ring.

Case—Strong, hand sewed leather cover; steel lining. Roller bearing ribbon guide.

Handle—Folding, long leverage, opened by pressing button which acts directly on handle from opposite side of case.

Mountings—Nickel-plated.

Black Finish Ribbon

Graduated feet, 10ths and 100ths of feet.

One side only.		
10ths of ft.	Length.	Each,
No. 5200A.	25 Feet.	\$
5200C.	50 "	
5200E.	75 "	
5200F.	100 "	

Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm.

One side only.		
Metric.	Length.	Each,
No. 5205R.	10 Meters.	\$
5205S.	15 "	
5205T.	20 "	
5205W.	25 "	
5205X.	30 "	

Graduated feet, inches and 8ths of inch.

One side only.		
12ths of ft.	Length.	Each,
No. 5202A.	25 Feet.	\$
5202C.	50 "	
5202E.	75 "	
5202F.	100 "	

Graduated Metric and English
Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

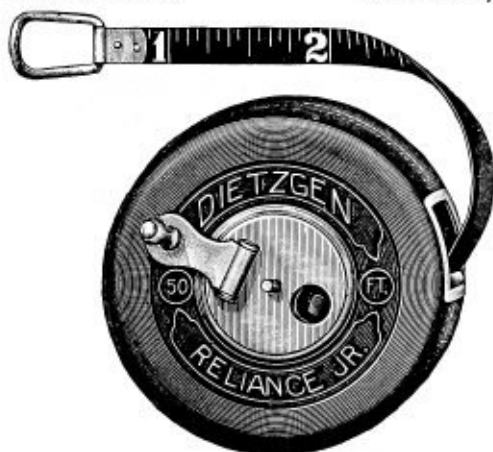
Metric and 12ths.			
Metric.	Length.	Each,	
No. 5207R.	10 Meters.	33 Feet.	\$
5207S.	15 "	50 "	
5207T.	20 "	66 "	
5207W.	25 "	82 1/2 "	
5207X.	30 "	100 "	

See Price List in back of Catalog.

Reliance Junior Steel Tapes

Leather Cases

Ribbons $\frac{1}{4}$ inch



No. 5222C.

Ribbon—Steel, black finish, $\frac{1}{4}$ inch wide, simplified-reading.

Divisions—Begin at outside end of ring.

Case—Strong, hand sewed leather cover; steel lining. Roller bearing ribbon guide.

Handle—Folding, long leverage, opened by pressing button which acts directly on handle from opposite side of case.

Mountings—Nickel-plated.

The Reliance Junior Tapes, while of the same excellent workmanship, are about one-half the weight and size of the popular Reliance, embodying, in addition to the meritable features of the latter, lightness and compactness, convenient for carrying in the pocket. With proper care, they will last as long as any ordinary Tape, for they are very durable.

Length in feet,	25	50	75	100
Dimensions in inches,	$2\frac{1}{4} \times \frac{1}{2}$	$2\frac{3}{4} \times \frac{1}{2}$	$3\frac{1}{4} \times \frac{1}{2}$	$3\frac{3}{4} \times \frac{1}{2}$
Weight in ounces,	$4\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{1}{2}$	$12\frac{1}{2}$

Graduated feet, 10ths and 100ths of feet.

One side only.		
10ths of ft.	Length.	Each,
No. 5220A.	25 Feet	\$
5220C.	50 "	
5220E.	75 "	
5220F.	100 "	

Graduated feet, inches and 16ths of inch.

One side only.		
12ths of ft.	Length.	Each,
No. 5222A.	25 Feet	\$
5222C.	50 "	
5222E.	75 "	
5222F.	100 "	

Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm.

One side only.		
Metric	Length.	Each,
No. 5225R.	10 Meters.	\$
5225S.	15 "	
5225T.	20 "	
5225W.	25 "	
5225X.	30 "	

Graduated Metric and English
Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

Metric and 12ths.			Length.		
No.	Metric.	Length.	No.	Metric.	Length.
No. 5227R.	10 Meters.	33 Feet.	\$		
5227S.	15 "	50 "			
5227T.	20 "	66 "			
5227W.	25 "	82 $\frac{1}{2}$ "			
5227X.	30 "	100 "			

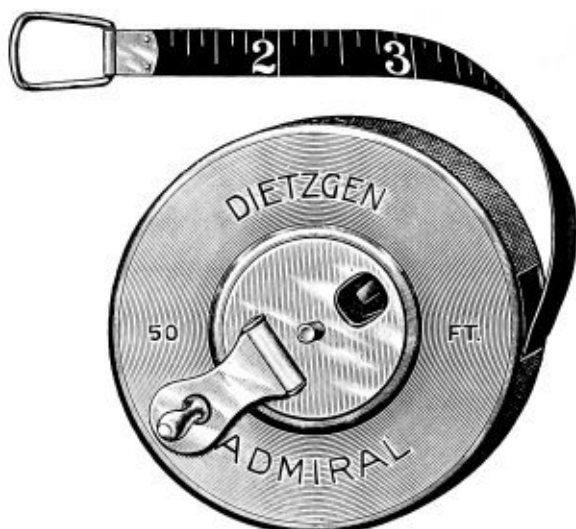
For Nickel-Plating Steel Tape Ribbons, see page 363.

See Price List in back of Catalog.

Admiral Steel Tapes

Steel Cases

Ribbons $\frac{3}{8}$ inch



No. 5242C.

Ribbon—Steel, black finish, $\frac{3}{8}$ inch wide, simplified-reading.

Divisions—Begin at outside end of ring.

Case—Heavy steel, with knurled band which insures firm grip while winding the tape.

Handle—Folding, long leverage, opened by pressing button which acts directly on handle from opposite side of case.

Mountings and Case—Nickel-plated.

Graduated feet, 10ths and 100ths of feet. One side only.		
10ths of ft.	Length.	Each.
No. 5240A.	25 Feet.	\$
5240C.	50 "	
5240E.	75 "	
5240F.	100 "	

Graduated Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.

One side only.		
Metric.	Length.	Each.
No. 5245R.	10 Meters.	\$
5245S.	15 "	
5245T.	20 "	
5245W.	25 "	
5245X.	30 "	

Graduated feet, inches and 8ths of inch. One side only.		
12ths of ft.	Length.	Each.
No. 5242A.	25 Feet.	\$
5242C.	50 "	
5242E.	75 "	
5242F.	100 "	

Graduated Metric and English
Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm.
English: Feet, inches and 8ths of inch.

Metric and 12ths.		
Metric.	Length.	Each.
No. 5247R.	10 Meters. 33 Feet.	\$
5247S.	15 " 50 "	
5247T.	20 " 66 "	
5247W.	25 " 82 $\frac{1}{2}$ "	
5247X.	30 " 100 "	

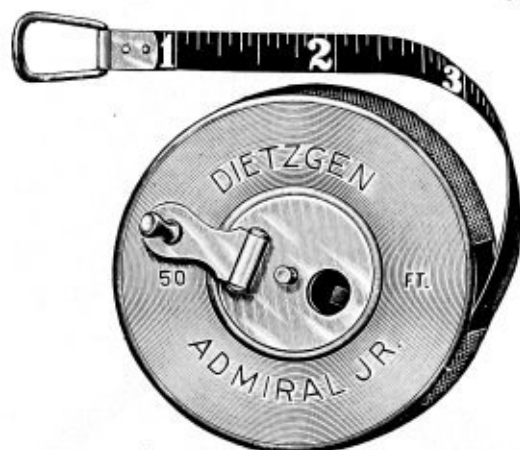
Tapes of other widths, lengths or divisions made to order.

See Price List in back of Catalog.

Admiral Junior Steel Tapes

Steel Cases

Ribbons $\frac{1}{4}$ inch



No. 5262C.

Ribbon—Steel, black finish, $\frac{1}{4}$ inch wide, simplified-reading.

Divisions—Begin at outside end of ring.

Case—Heavy steel, with knurled band which insures firm grip while winding the tape.

Handle—Folding, long leverage, opened by pressing button which acts direct on handle from opposite side of case.

Mountings and Case—Nickel-plated.

The Admiral Junior Tapes, while of the same excellent workmanship, are about one-half of the weight and size of the **Admiral**, embodying, in addition to the meritable features of the latter, lightness and compactness. With proper care, they will last as long as any ordinary Tape, for they are very durable. The dimensions are shown.

Length in feet,	25	50	75	100
Dimensions in inches,	$2\frac{1}{4} \times \frac{1}{2}$	$2\frac{1}{4} \times \frac{1}{2}$	$3\frac{1}{4} \times \frac{1}{2}$	$3\frac{1}{4} \times \frac{1}{2}$
Weight in ounces,	$4\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{1}{2}$	$12\frac{1}{2}$

Graduated feet, 10ths and 100ths of feet.

10ths of ft.	One side only.	
	Length.	Each.
No. 5260A.	25 Feet	\$
5260C.	50 "	
5260E.	75 "	
5260F.	100 "	

Graduated feet, inches and 16ths of inch.

12ths of ft.	One side only.	
	Length.	Each.
No. 5262A.	25 Feet	\$
5262C.	50 "	
5262E.	75 "	
5262F.	100 "	

Graduated Metric: Meters, decimeters, and centimeters; first decimeter in mm., balance of length in cm.

Metric.	One side only.	
	Length.	Each.
No. 5265R.	10 Meters.	\$
5265S.	15 "	
5265T.	20 "	
5265W.	25 "	
5265X.	30 "	

Graduated Metric and English. Metric: Meters, decimeters and centimeters; first decimeter in mm., balance of length in cm. English: Feet, inches and 8ths of inch.

Metric and 12ths.	Length.		Each.
	10 Meters.	33 Feet.	
No. 5267R.	10 Meters.	33 Feet.	\$
5267S.	15 "	50 "	
5267T.	20 "	66 "	
5267W.	25 "	$82\frac{1}{2}$ "	
5267X.	30 "	100 "	

See Price List in back of Catalog.

One Man Tape End-Fastener

(Patented)

The RELIANCE Tapes, listed on Page 370 and the STURDY Tapes, listed on Page 375, are furnished with DIETZGEN'S Patented One-Man-Tape End Fastener as shown.

The DIETZGEN One-Man-Tape End Fastener permits the use of a measuring tape by one person.

It is a great convenience and time saver. The End Fastener is an integral part of the end ring to which it is secured. It is easily swung out of the way when not in use, and it offers no obstruction to the use of the tape in the ordinary manner.

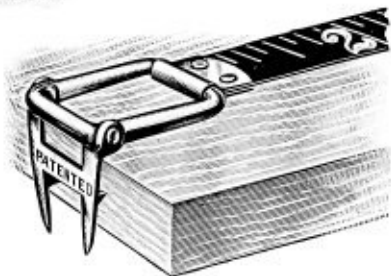
The material and design of the End Fastener is such as to prevent it from bending, and permits it to be either pressed into soft wood or to be driven into hard wood by a hammer without damage. When the Fastener is driven into the wood, the anchor spurs act as a brace to prevent the prongs from being pulled from the wood by the lateral pull on the tape.

Having two prongs instead of one prevents the Fastener from working loose by the side sway of the tape. The illustrations plainly show the various positions of use of this highly efficient and convenient patented End Fastener.



Two prongs which give a positive grip prevent loosening by the side sway of the tape.

The two anchoring spurs prevent slipping when fastener is thrown over end of board, sheet metal, pipes, etc.—a builder and mechanics' tape combined.



When closed it lies flat against ring—cannot catch on objects. The ring can then be used in the usual manner to slip over nail, etc.



See Reliance and Sturdy Steel Tapes

Sturdy Steel Tapes

(Patented)

Leather Cases

Ribbon $\frac{3}{8}$ inch

Furnished with or without the Dietzgen End-Fastener.

End-Fastener described and illustrated on preceding page.

No. 5274C.

The Sturdy Tape is a handsome steel tape with all the fine qualities you would expect in a high-priced article. It is recommended for all kinds of general measuring and is especially popular for construction and all similar work. It is furnished with or without *DIETZGEN* One-Man-Tape End Fastener, described on the preceding page, which is a great convenience and time saver and eliminates a helper in measuring.

Ribbon—Steel, black finish, $\frac{3}{8}$ inch wide, simplified reading.

Divisions—Begin at outside end of ring.

Case—Solid leather cover, cemented to heavy steel dust-proof case. Patented center drum—turns smoothly—no adjustments necessary, roller bearing ribbon guide makes winding easy.

Handle—Folding, long leverage, opened by pressing button which acts directly on handle from opposite side of case.

Mountings—Nickel-plated.

Without End-Fastener

Graduated feet, inches and 8ths of inch.

12ths of feet. No. 5272A.	One side only.		Each, \$
	Length.		
5272C.	25 Feet.		
5272E.	50 "		
5272F.	75 "		
	100 "		

With End-Fastener

Graduated feet, inches and 8ths of inch.

12ths of feet. No. 5274A.	One side only.		Each, \$
	Length.		
5274C.	25 Feet		
5274E.	50 "		
5274F.	75 "		
	100 "		

See Price List in back of Catalog.



Ideal Steel Pocket Tapes

Nickel-Plated Cases Ribbons $\frac{1}{4}$ inch
Spring Winding



Nos. 5290-3 to 5297-5.

Ideal Steel Pocket Tapes, black finish ribbons $\frac{1}{4}$ in. wide, nickel-plated brass cases, spring winding, with stop at center.

No. 5290-3.	Divided inches to 16ths (one side), 36 in. long,	Each, \$
5290-5.	" " " 16ths " " 60 " "	"
5290-6.	" " " 16ths " " 72 " "	"
5290-8.	" " " 16ths " " 96 " "	"
No. 5291-8.	Divided feet, inches and 16ths (one side), 8 ft. long,	Each,
No. 5292-3.	Divided feet to 100ths (one side), 3 feet long,	Each,
5292-5.	" " " 100ths " " 5 " "	"
5292-6.	" " " 100ths " " 6 " "	"
5292-8.	" " " 100ths " " 8 " "	"
No. 5293-3.	Divided feet, inches, 16ths, other side ft. to 100ths, 3 ft. long,	Each,
5293-5.	" " " 16ths, " " " 100ths, 5 " " "	"
5293-6.	" " " 16ths, " " " 100ths, 6 " " "	"
5293-8.	" " " 16ths, " " " 100ths, 8 " " "	"
No. 5294A.	Divided inches to 16ths, 36 in. long, other side millimeters, 1 meter long,	Each
5294B.	Divided inches to 16ths, 60 in. long, other side millimeters, $1\frac{1}{2}$ meters long,	"
5294C.	Divided inches to 16ths, 72 in. long, other side millimeters, 2 meters long,	"
5294D.	Divided inches to 16ths, 96 in. long, other side millimeters, $2\frac{1}{2}$ meters long,	"
No. 5295-5.	Divided inches to 16ths, other side Scale $\frac{1}{4}$ in. to the foot, 60 inches long,	Each,
5296-5.	Divided inches to 16ths, other side Scale $\frac{1}{8}$ in. to the foot, 60 inches long,	"
5297-5.	Divided Scale $\frac{1}{4}$ in. to the foot, other side Scale $\frac{1}{8}$ in. to the foot, 60 inches long,	"

The Nos. 5291-8, 5292-3 to 8 and 5293-3 to 8 have **simplified-reading**.

Nos. 5295-5, 5296-5 and 5297-5 Tapes will be found especially convenient for Architects' and Contractors' use. Distances on large drawings made to $\frac{1}{4}$ in. or $\frac{1}{8}$ in. scales can be laid off or measured in one operation, thus saving time and avoiding errors, which may result from the shifting of the ordinary short scales. These Tapes are subdivided their entire length on both sides.

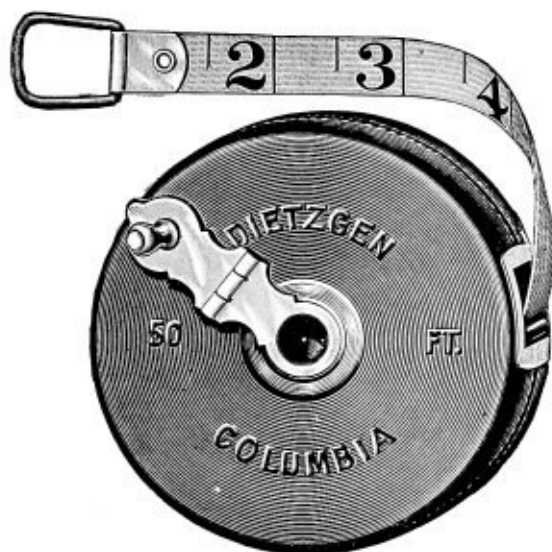
The **Ideal Pocket Tapes**, while moderate in price, are both reliable and durable. In workmanship they present a nicely finished appearance.

See Price List in back of Catalog.

Columbia Metallic Tapes

Leather Cases

Ribbons $\frac{5}{8}$ inch



No. 5362C

Ribbon—Linen, interwoven with metal, $\frac{5}{8}$ inch wide, leather re-enforced end.

Divisions—Begin at outside end of ring.

Case—Strong leather, hand sewed.

Handle—Folding, long leverage.

Mountings—Brass.

Graduated feet, 10ths and half 10ths of feet.
One side only.

10ths of ft.	Length.	Each,
No. 5360A.	25 Feet.	\$
5360C.	50 "	
5360E.	75 "	
5360F.	100 "	

Graduated feet, inches and half inches.
One side only.

12ths of ft.	Length.	Each,
No. 5362A.	25 Feet.	\$
5362C.	50 "	
5362E.	75 "	
5362F.	100 "	

Columbia Metallic Tapes, Without Case.

Graduated feet, 10ths and half 10ths of feet.
One side only.

10ths of ft.	Length.	Each,
No. 5370A.	25 Feet.	\$
5370C.	50 "	
5370E.	75 "	
5370F.	100 "	

Graduated feet, inches and half inches.
One side only.

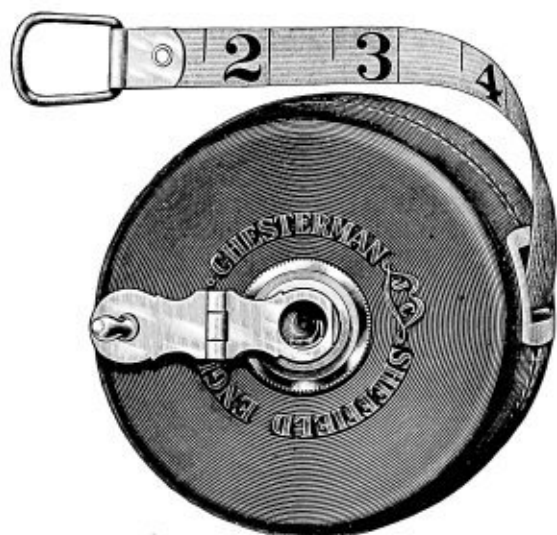
12ths of ft.	Length.	Each,
No. 5372A.	25 Feet.	\$
5372C.	50 "	
5372E.	75 "	
5372F.	100 "	

See Price List in back of Catalog.

Chesterman Metallic Tapes

Leather Cases

Ribbons $\frac{5}{8}$ inch



No. 5382C.

Ribbon—Linen, interwoven with metal, $\frac{5}{8}$ inch wide, leather re-enforced end.

Divisions—Begin at outside end of ring.

Case—Strong leather, hand sewed.

Handle—Folding, long leverage.

Mountings—Brass.

Graduated feet, 10ths and half 10ths of feet.
One side only.

10ths of ft.	Length.	Each,
No. 5380A.	25 Feet.	\$
5380C.	50 "	
5380E.	75 "	
5380F.	100 "	

Graduated feet, inches and half inches.
One side only.

12ths of ft.	Length.	Each,
No. 5382A.	25 Feet.	\$
5382C.	50 "	
5382E.	75 "	
5382F.	100 "	

Chesterman Metallic Tapes, Without Case.

Graduated feet, 10ths and half 10ths of feet.
One side only.

10ths of ft.	Length.	Each,
No. 5390A.	25 Feet.	\$
5390C.	50 "	
5390E.	75 "	
5390F.	100 "	

Graduated feet, inches and half inches.
One side only.

12ths of ft.	Length.	Each,
No. 5392A.	25 Feet.	\$
5392C.	50 "	
5392E.	75 "	
5392F.	100 "	

See Price List in back of Catalog.



Dietzgen Flat Steel Wire Tapes

For City, Bridge, Mine and Railroad Engineering

These Tapes are $\frac{1}{8}$ inch wide, manufactured from the finest quality of flexible steel ribbon, specially prepared durable steel, plain, brightly polished, and carefully tempered to prevent kinking or breaking. The ends of the bands are beveled to prevent their catching on obstructions, or on each other when winding or unwinding the ribbon. Divisions begin about 6 inches from ends of ribbon. Made regularly from 100 feet up to 500 feet in length, but can be furnished up to 1000 feet if desired. Also made to order graduated in Links, Varas, or other measures.

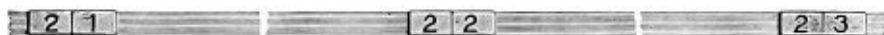
They are graduated according to the U. S. Standard, and are correct at 68° Fahrenheit for English units (feet, inches, etc.) and 20° Centigrade for Metric units.

Reels are listed separately (see Nos. 5594A-5596), and are not included in the prices of the Tapes.

Each Tape is provided with two No. 5524 Detachable Handles, brass, nickel-plated, but if desired a pair of No. 5526 Rawhide Thongs will be furnished.

Ribbons $\frac{1}{8}$ Inch Wide, with Brass Bands

Divided and numbered on brass bands (sleeves) which are securely clamped to the ribbon.



Divided and numbered every foot, each end foot divided by short bands to 10ths of a foot.

No. 5402A.	100 feet, Flat Steel Wire Tape, without reel,	. . .	Each, \$
5402C.	200 " " " " " " " " " "	. . .	"
5402E.	300 " " " " " " " " " "	. . .	"
5402G.	500 " " " " " " " " " "	. . .	"

Divided every foot by short bands, divided and numbered every 5 feet, each end foot divided by short bands to 10ths of a foot.

No. 5403A.	100 feet, Flat Steel Wire Tape, without reel,	. . .	Each, \$
5403C.	200 " " " " " " " " " "	. . .	"
5403E.	300 " " " " " " " " " "	. . .	"
5403G.	500 " " " " " " " " " "	. . .	"

Divided and numbered every 5 feet, first and last 5 feet divided and numbered every foot, each end foot divided by short bands to 10ths of a foot.

No. 5408A.	100 feet, Flat Steel Wire Tape, without reel,	. . .	Each, \$
5408C.	200 " " " " " " " " " "	. . .	"
5408E.	300 " " " " " " " " " "	. . .	"
5408G.	500 " " " " " " " " " "	. . .	"

Divided and numbered every 10 feet, first and last 10 feet divided and numbered every foot, each end foot divided by short bands to 10ths of a foot.

No. 5409A.	100 feet, Flat Steel Wire Tape, without reel,	. . .	Each, \$
5409C.	200 " " " " " " " " " "	. . .	"
5409E.	300 " " " " " " " " " "	. . .	"
5409G.	500 " " " " " " " " " "	. . .	"

See Price List in back of Catalog.

Premier Steel Chain Tapes

Ribbons $\frac{1}{4}$ inch



No. 5524.



Nos. 5511R
and 5522R.

Premier Steel Chain Tapes, steel ribbon $\frac{1}{4}$ inch wide, specially prepared durable steel, plain, brightly polished. Divided and numbered on hard Nickel silver bands (sleeves) which are securely clamped and soldered, thus preventing corrosion, as moisture cannot enter between the bands and ribbon. The ends of the bands are beveled to prevent their catching on under-brush, etc., or on each other when winding or unwinding the ribbon. Divisions begin about 6 inches from ends of ribbon. Each Tape is provided with a pair of No. 5526 Rawhide Thongs, but if desired two No. 5524 Detachable End Handles, brass, nickel-plated, will be furnished.

Reel No. 5528 is of steel, nickel-plated, with polished hardwood handle. Large center with long folding handle.



Divisions and numbers on Nickel silver bands.

Divided every foot by brass rivets, divided and numbered every 5 feet on Nickel silver bands, each end foot divided by brass rivets to 10ths of a foot.

No. 5511N.	100 feet long, without reel,	Each, \$
5511R.	100 " " with reel No. 5528, as shown in illustration,	"
5517N.	200 " " without reel,	"
5517R.	200 " " with folding metal reel No. 5588G,	"
5519N.	300 " " without reel,	"
5519R.	300 " " with folding metal reel No. 5588H,	"

Nos. 5511N to 5519R will be furnished to order with ribbons divided and numbered every foot on Nickel silver bands, each end foot divided by brass rivets to 10ths of a foot. Prices quoted on request.

Above Tapes furnished to order, without extra charge, with one extra subdivided foot before zero.

Divided every 20 centimeters by brass rivets, every meter divided and numbered on Nickel silver bands, each end meter divided by brass rivets to decimeters.

No. 5522N.	30 meters long, without reel,	Each, \$
5522R.	30 " " with reel No. 5528, as shown in illustration,	"
5523N.	50 " " without reel,	"
5523R.	50 " " with folding metal reel No. 5588G,	"
5524.	Detachable End Handles, brass, nickel-plated,	Pair,
5526.	Rawhide Thongs,	"
5528.	Reel only, shown above, for 100 foot or 30 meter tapes,	Each,

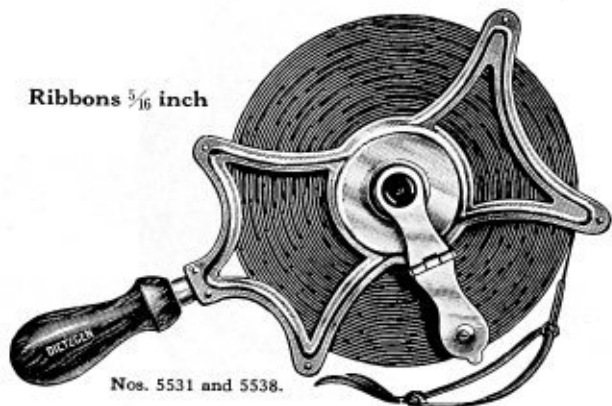
Reels only, Nos. 5588G-5588H, described on page 386.

See Price List in back of Catalog.



Indestructible Steel Chain Tapes

Ribbons $\frac{5}{16}$ inch



Nos. 5531 and 5538.

Indestructible Steel Chain Tapes, steel ribbon $\frac{5}{16}$ inch wide, specially prepared durable steel, plain, bright polished. Divided and numbered every foot on Babbitt metal, each end foot divided to 10ths of a foot. In Metric, they are divided every 20 centimeters, divided and numbered every meter, each end meter divided to decimeters. Divisions begin about 6 inches from ends of ribbon. Each tape is provided with a 6" scale, divided and numbered, one side to 10ths and 100ths of a foot, the other side to 10ths and 16ths of an inch. A pair of No. 5526 Rawhide Thongs is provided with each tape, but if desired two No. 5524 Detachable End Handles, brass, nickel-plated, will be furnished.

The ribbon is somewhat heavier than the ordinary Chain Tape, and being exceptionally tough and strong, will withstand the most severe usage. The divisions and numbers are less liable to injury than rivets or plates.

Reel No. 5543 is made of steel, nickel-plated, with polished hardwood handle, the No. 5544 being of same design as No. 5543 but of heavier construction and has an aluminum grip handle. Ribbed construction insures lightness and strength. Large center with long folding handle. The No. 5543 Reel can be conveniently carried in the pocket, after the ribbon has been removed.

GUARANTEE

If any Dietzgen Indestructible Steel Chain Tape breaks—due to defects in the material or workmanship, or if it is defective in graduations or numbering, we invite you to return the tape to us and we will replace same with a new tape free of charge, paying transportation costs both ways.

If the tape breaks for any reason other than because of inherent defects in the steel, and no parts need be replaced, we will be glad to repair it free of charge and make it completely serviceable, but cannot pay the transportation costs either way. Or if desired, we will mail you free of charge a Repair Sleeve. If the tape is broken in a manner that necessitates a part being inserted, we make a charge of 25c for the repair and 10c a foot, or fraction thereof, for steel used. We will re-mark and re-number any of our Indestructible Steel Chain Tapes for \$2.00 net for tapes up to 100 ft.; for longer tapes, charges in proportion.



Divisions and numbers on Babbitt metal.

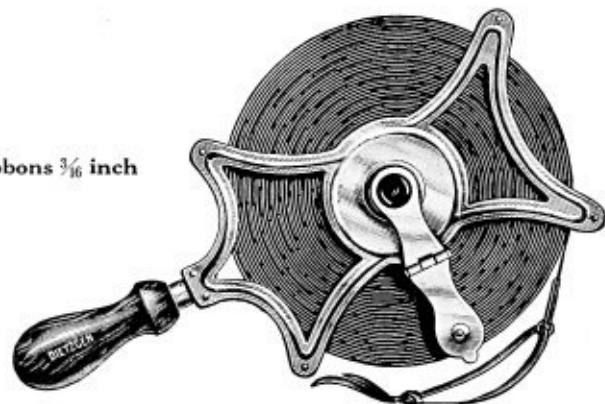
No.	Description	Each, \$
No. 5530.	100 feet long, without reel,	
5531.	100 " " with reel No. 5543, as shown in illustration,	
5532.	200 " " without reel,	
5533.	200 " " with reel No. 5544,	
5534.	300 " " without reel,	
5535.	300 " " with folding metal reel No. 5588H,	
5537.	30 meters long, without reel,	
5538.	30 " " with reel No. 5543, as shown in illustration,	
5539.	50 " " without reel,	
5540.	50 " " with folding metal reel No. 5588G,	
5543.	Reel only, hardwood handle, for 100 foot or 30 meter tapes,	
5544.	" " aluminum grip handle, for 200 foot tape,	

Indestructible Steel Chain Tapes will be furnished to order, with no extra charge, as follows: ("G") With gauge mark 2 ft., $4\frac{1}{4}$ in. from zero, representing one-half standard gauge of railroad track; ("S") With metal shoulder at zero point for quickly locating zero; ("E") With divisions beginning at end of ribbon (outer end of clip); ("X") With extra foot, first end to 10ths, numbered from right to left.

Reels only, Nos. 5588G-5588H, described on page 386.

See Price List in back of Catalog.

Indestructible Steel Chain Tapes

Ribbons $\frac{3}{16}$ inch

Nos. 5531A and 5538A.

Indestructible Steel Chain Tapes, steel ribbon $\frac{3}{16}$ inch wide, specially prepared durable steel, plain, bright polished. Divided and numbered every foot on Babbitt metal, each end foot divided to 10ths of a foot. In Metric, they are divided every 20 centimeters, divided and numbered every meter, each end meter divided to decimeters. Divisions begin about 6 inches from ends of ribbon. Each tape is provided with a 6" scale divided and numbered, one side to 10ths and 100ths of a foot, the other side to 10ths and 16ths of an inch. A pair of No. 5526 Rawhide Thongs is provided with each tape, but if desired two No. 5524 Detachable End Handles, brass, nickel-plated, will be furnished.

The ribbon is somewhat heavier than the ordinary Chain Tape, and being exceptionally tough and strong, will withstand the most severe usage. The divisions and numbers are less liable to injury than rivets or plates.

Reel No. 5543A is made of steel, nickel-plated, with polished hardwood handle, the No. 5544A being of same design as No. 5543A but of heavier construction and has an aluminum grip handle. Ribbed construction insures lightness and strength. Large center with long folding handle. The No. 5543A Reel can be conveniently carried in the pocket, after the ribbon has been removed.

GUARANTEE

If any Dietzgen Indestructible Steel Chain Tape breaks—due to defects in the material or workmanship, or if it is defective in graduations or numbering, we invite you to return the tape to us and we will replace same with a new tape free of charge, paying transportation costs both ways.

If the tape breaks for any reason other than because of inherent defects in the steel, and no parts need be replaced, we will be glad to repair it free of charge and make it completely serviceable, but cannot pay the transportation costs either way. Or if desired, we will mail you free of charge a Repair Sleeve. If the tape is broken in a manner that necessitates a part being inserted, we make a charge of 25c for the repair and 10c a foot, or fraction thereof, for steel used. We will re-mark and re-number any of our Indestructible Steel Chain Tapes for \$2.00 net for tapes up to 100 ft.; for longer tapes, charges in proportion.



Divisions and numbers on Babbitt metal.

No. 5530A.	100 feet long, without reel,	Each, \$
5531A.	100 " " with reel No. 5543 A, as shown in illustration	"
5532A.	200 " " without reel,	"
5533A.	200 " " with reel No. 5544A,	"
5534A.	300 " " without reel,	"
5535A.	300 " " with folding metal reel No. 5588P,	"
5537A.	30 meters long, without reel,	"
5538A.	30 " " with reel No. 5543A, as shown in illustration,	"
5539A.	50 " " without reel,	"
5540A.	50 " " with folding metal reel No. 5588N,	"
5543A.	Reel only, hardwood handle, for 100 foot or 30 meter tapes,	"
5544A.	" aluminum grip handle, for 200 foot tape,	"

Indestructible Steel Chain Tapes will be furnished to order, with no extra charge, as follows: ("G") With gauge mark 2 ft., $4\frac{1}{4}$ in. from zero, representing one-half standard gauge of railroad track; ("S") With metal shoulder at zero point for quickly locating zero; ("E") With divisions beginning at end of ribbon (outer end of clip); ("X") With extra foot, first end to 10ths, numbered from right to left.

Reels only, Nos. 5588N-5588P, described on page 386.

See Price List in back of Catalog.



Chain Tapes with Extra Foot Before Zero

Indestructible and Empire Tapes

The Indestructible Steel Chain Tapes and Empire Steel Chain Tapes may be had with an extra foot before the zero, as shown in the illustrations, with etched graduations to 100ths of a foot, reading from right to left. With this closely divided extra foot arranged as indicated, the chain tape can now be used for more accurate work than before, and without the use of an auxiliary rule. This method of graduation has found considerable favor among engineers. It is especially useful in closing in curves, laying out bridge abutments, centering piers, etc.



Graduations of the extra subdivided foot before the zero on the Indestructible Chain Tape



Graduations of the extra subdivided foot before the zero on the Empire Chain Tape



The convenience of a chain tape with the accuracy and usefulness of a fully graduated etched tape.

1/100ths of a foot accuracy with a chain tape.

Suppose the measurement is 457.63. Measure off the 400 feet in the ordinary manner; then let the rear chainman hold the tape at the 57 foot mark, and the head chainman at the .63 foot mark on the extra etched foot before the zero. This gives a reading of 57.63. This is the same principle as that used on the open divided triangular engineers and architects' boxwood scale.

The extra foot has a black background in a contrast to the polished steel background of the rest of the tape for easy identification.

Another feature of these chain tapes is that the last foot is graduated to 1/10 of a foot between the 99 and 100 foot marks. This increases the use of the tape for more rapid measuring.



Indestructible Steel Chain Tape

(Described on pages 381-382)

No.	Like No.	5530, but with extra foot before the zero,	Each, \$
5530-1	"	"	"
5531-1	"	"	"
5532-1	"	"	"
5533-1	"	"	"
5534-1	"	"	"
5535-1	"	"	"

Empire Steel Chain Tape

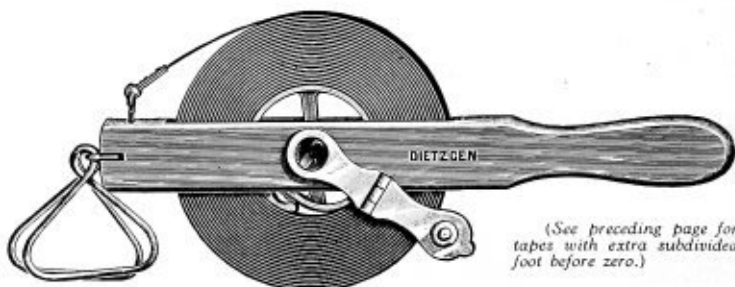
(Described on following page)

No.	Like No.	5560, but with extra foot before the zero,	Each, \$
5560-1	"	"	"
5561-1	"	"	"
5562-1	"	"	"
5563-1	"	"	"
5564-1	"	"	"
5565-1	"	"	"
5566-1	"	"	"
5567-1	"	"	"
5568-1	"	"	"

See Price List in back of Catalog.

Empire Steel Chain Tapes

Ribbons $\frac{1}{4}$ inch



Nos. 5561 and 5564.

Empire Steel Chain Tapes, steel ribbon $\frac{1}{4}$ inch wide, black finish with etched divisions and numbers. Where divided and numbered the ribbon has a bright raised surface, which greatly increases the legibility of the black divisions and numbers. **Divided and numbered every foot**, each end foot divided to 100ths of a foot and numbered to 10ths of a foot. Divisions begin about 6 inches from ends of ribbon. Each Tape is provided with two No. 5524 Detachable End Handles, brass, nickel-plated.

Reels Nos. 5574 and 5575 are made of hardwood with steel nickel-plated mountings. Large center with extra-long folding handle for winding ribbon.



Divisions and numbers etched on ribbon.

No.	Description	Each, \$
No. 5560.	100 feet long, without reel,	
5561.	100 " " with reel No. 5574, as shown in illustration,	"
5562.	100 " " " folding metal reel No. 5588A,	"
5563.	200 " " without reel,	"
5564.	200 " " with reel No. 5575, as shown in illustration,	"
5565.	200 " " " folding metal reel No. 5588B,	"
5566.	300 " " without reel,	"
5567.	300 " " with folding metal reel No. 5588C,	"
5568.	500 " " without reel,	"
5574.	Reel only, for 100 foot tape,	"
5575.	" " " 200 " "	"

Empire Steel Chain Tapes will be furnished to order, with no extra charge, as follows: ("G") With gauge mark 2 ft., $4\frac{1}{4}$ in. from zero, representing one-half standard gauge of railroad track; ("S") With metal shoulder at zero point for quickly locating zero; ("E") With end foot marked inches and 8ths; ("X") With extra foot, first end to 100ths, numbered from right to left.

Reels only, Nos. 5588A-5588C, described on page 386.

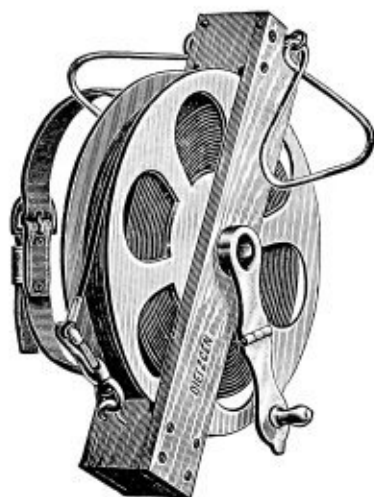
Tape Grip and Clamping Handle listed under Nos. 5598-5599.

See Price List in back of Catalog.



Dominion Steel Chain Tapes

Ribbons $\frac{1}{8}$ inch



No. 5580B.

Dominion Steel Chain Tapes, steel ribbon $\frac{1}{8}$ inch wide, black finish with etched divisions and numbers. Where divided and numbered the ribbon has a bright raised surface, which greatly increases the legibility of the black divisions and numbers. **Divided and numbered every foot**, each end foot divided to 100ths of a foot and numbered to 10ths of a foot. Divisions begin about 6 inches from ends of ribbon. Each Tape is provided with two No. 5524 Detachable End Handles, brass nickel-plated.



Divisions and numbers etched on ribbon.

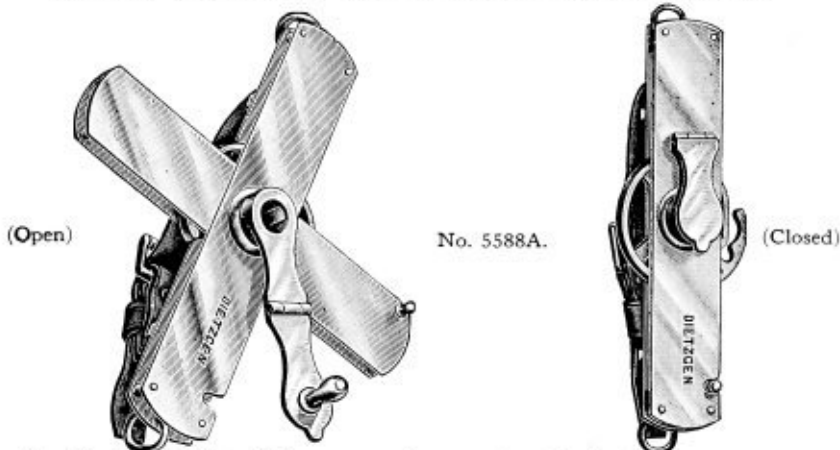
No.	Length	Description	Each, \$
No. 5580A.	100 feet long,	without reel,	Each, \$
5580B.	100 "	with reel No. 5594A,	"
5581A.	200 "	without reel,	"
5581B.	200 "	with reel No. 5594A,	"
5582A.	300 "	without reel,	"
5582B.	300 "	with reel No. 5594B,	"
5583A.	500 "	without reel,	"
5583B.	500 "	with reel No. 5594C,	"
5583C.	650 "	without reel,	"
5583D.	650 "	with reel No. 5594C,	"
5583E.	660 "	without reel,	"
5583F.	660 "	with reel No. 5594C,	"

Dominion Steel Chain Tapes will be furnished to order, with no extra charge, as follows: With extra foot, first end to 100ths, numbered from right to left.

Reels only, Nos. 5594A-5594C, described on page 387.

See Price List in back of Catalog.

Reels for Flat Wire and Chain Tapes



Steel Reel, nickel-plated, four arms. Strong adjustable leather loop for holding reel. Large center and extra-long folding handle for winding ribbon. When ribbon is in use and removed from reel, the cross arms of the reel can be folded, so that even the large sizes may be conveniently carried in the pocket. This Reel is made in eight sizes, for different styles and lengths of $\frac{5}{8}$, $\frac{1}{4}$ and $\frac{3}{16}$ inch ribbons.

No. 5588A.	For Tapes, 100 ft. long, No. 5560,	Each, \$
5588B.	" " 200 " " " 5563,	"
5588C.	" " 300 " " " 5566,	"
5588F.	" " 100 " " Nos. 5511N, 5522N, 5530, 5537,	"
5588G.	" " 200 " or 50 meters long, Nos. 5517N, 5523N,	"
	5532, 5539,	"
5588H.	" Tapes, 300 ft. long, Nos. 5519N, 5534,	"
5588N.	" Indestructible Chain Tapes, $\frac{3}{16}$ in. wide, 200 ft. or 50 meters long, Nos. 5532A, 5539A,	"
5588P.	For Indestructible Chain Tapes, $\frac{3}{8}$ in. wide, 300 ft. long, No. 5534A,	"

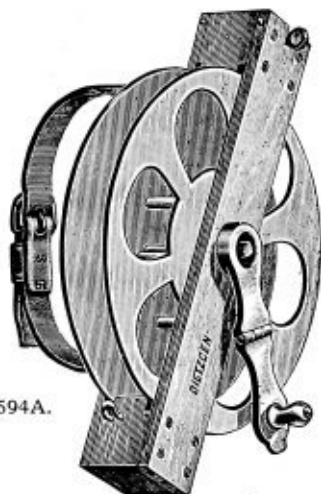


No. 5590.

No. 5590. Metal Reel, for $\frac{1}{4}$ in. Chain Tapes, 300 to 500 ft. long. Each, \$
 Substantially built, and as it is exceptionally strong, is very serviceable for long Tapes and for hard usage. The arrangement of the eight metal arms permits winding of the ribbon without kinking and allows free circulation of air for rapid drying and cleaning.

See Price List in back of Catalog.

Reels for Flat Wire and Chain Tapes



No. 5594A.

Steel Reel, nickel-plated, open style, with our improved type hardwood frame, having guide rollers (not visible) which straddle the periphery of the reel making the reel more substantial and considerably easier to wind. There is a strong, adjustable leather strap attached to one side for holding. Large center and extra long folding handle for winding ribbon. Made in three sizes, for different styles and lengths of $\frac{1}{8}$ inch ribbons.

- No. 5594A. For Dominion Chain Tapes, 100 or 200 ft. long; also Flat Wire Tapes, 100 or 200 ft., and 25 or 50 meters long, . . . Each, \$
- 5594B. For Dominion Chain Tape, 300 feet long; also for Wire Tapes, 300 feet, or 50 to 100 meters long, . . . Each, \$
- 5594C. For Dominion Chain Tapes, 500, 650 or 660 ft. long; also Flat Wire Tapes, 400 or 500 ft., or 100 meters long, . . . Each, \$



No. 5596.

- No. 5596. Aluminum Reel, for $\frac{1}{8}$ inch Flat Wire and Chain Tapes, 300 to 500 ft. long, . . . Made to order only

This Reel is exceedingly strong and will withstand very rough usage. It has a large grip handle and a leather strap to fit around arm of chainman. Friction brake and stop to hold Tape at any point. Large center and long handle gives powerful winding leverage.

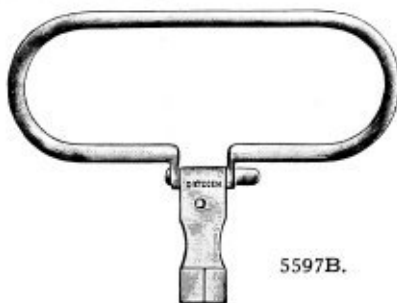
See Price List in back of Catalog.

End Handles for Steel Tapes

Detachable Handles



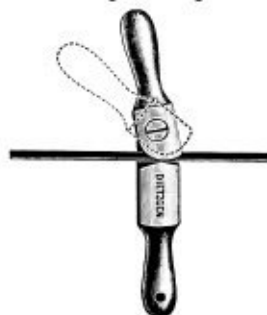
No. 5597A.



5597B.

- No. 5597A. Detachable Ring, brass, nickel-plated, 1 in., round, for $\frac{1}{4}$ in. Tapes, Pair, \$
 5597B. Detachable Ring Handles, brass, nickel-plated, 3 in., oval, for $\frac{1}{4}$ in. Tapes, Pair, \$

Tape Grip



No. 5598.

Clamping Handle



5599.

- No. 5598. Tape Grip, brass, nickel-plated. For use with Steel Tapes, especially Flat Steel Wire and Chain Tapes. Construction is very substantial and the design enables instant and positive grip to any part of ribbon, regardless of width or thickness, Each, \$
 5599. Clamping Handle, brass, nickel-plated. For use with Steel Tapes, especially Flat Steel Wire and Chain Tapes. Easily clamped to any part of ribbon, Each, \$

Tension Handle

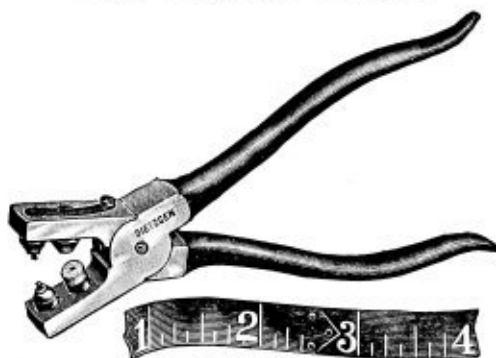


No. 5604.

- No. 5604. Tension Handle, brass, nickel-plated, for use with Steel Tapes, indicating tension up to 20 pounds, reading to half pounds, Each, \$

See Price List in back of Catalog.

Tape Repair Outfits



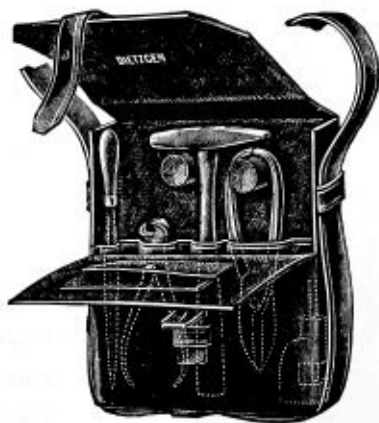
No. 5605.

- No. 5605. Punch and Eyeletting Outfits with one package each of eyelets Nos. 5605A and 5605B, Each, \$
- 5605A. Extra eyelets, short, in packages of 500, for repairing light weight steel tape lines, "
- 5605B. Extra eyelets, long, in packages of 500, for repairing heavy weight steel tape lines, such as our Argus, etc., "



No. 5606.

- No. 5606. Tape repair outfits, consisting of block and punch, rivets and a piece of steel ribbon, for repairing indestructible steel chain tapes, "
- 5606A. Extra rivets for Nos. 5606 or 5607, in packages of 500, "



No. 5607.

- No. 5607. Tape Repair Outfit, consists of block and punch, hammer, cutting nippers, taper file, shears, and piece of steel ribbon. In sewed leather case which has shoulder strap and pocket containing rivets and metal sleeves for Indestructible Steel Chain Tapes, Each, \$

See Price List in back of Catalog.

Tape Splices

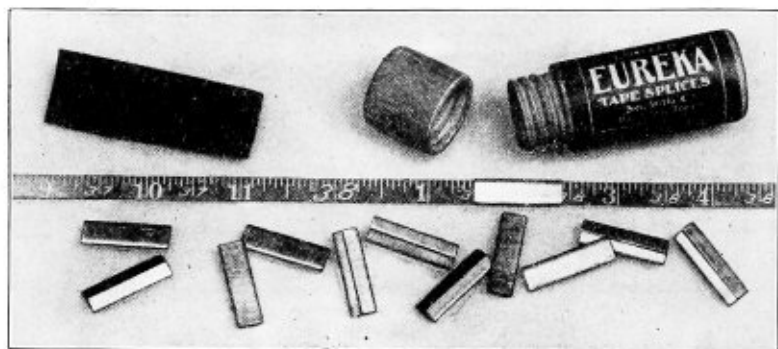


No. 5614.



No. 5614. Little Giant Tape Splice, for $\frac{1}{10}$, $\frac{1}{8}$, $\frac{3}{16}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ in. Tapes, Each, \$

To repair breaks, insert broken ends; adjust by sight hole and turn down screws. Will not catch on obstruction and will withstand the strongest pull. When ordering, specify width desired.



No. 5616C.

No. 5615. Eureka Tape Splice, for various size tapes, Box of 1 Doz., \$
 5616C. Eureka Tape Splice for $\frac{1}{4}$ in. heavy weight tapes, Box of 1 Doz., \$
 5616D. Eureka Tape Splice for $\frac{5}{16}$ in. heavy weight tapes, Box of 1 Doz., \$

This Splice consists of thin sheet metal folded in the shape of a sleeve and coated with a combination of solder and flux so sensitive that the heat from a lighted match will make a perfect adhesion between sleeve and tape. Furnished one dozen in wooden box, with directions for use.

Measuring Chains

Steel and Iron **U. S. Standard**
 W. G. 12, brazed links and rings, brass handles.

- | | | |
|------------|--|----|
| No. 5634A. | Steel, 33 feet; consists of 50 surveyors' links, | \$ |
| No. 5634B. | Steel, 50 feet; consists of 50 units of one foot each, | \$ |
| No. 5634C. | Steel, 66 feet; consists of 100 surveyors' links, | \$ |
| No. 5634D. | Steel, 100 feet; consists of 100 units of one foot each, | \$ |

Each,



No. 5634D.

Metric Steel Chains

- | | | |
|------------|--|----|
| No. 5652A. | 10 meter, W. G. 12, brazed links and rings, brass handles, | \$ |
| No. 5652B. | 15 meter, W. G. 12, brazed links and rings, brass handles | \$ |
| No. 5652C. | 20 meter, W. G. 12, brazed links and rings, brass handles | \$ |
| No. 5652D. | 25 meter, W. G. 12, brazed links and rings, brass handles | \$ |

Each,

See Price List in back of Catalog.

Arrows or Marking Pins



No. 5670.

5671.

5672.

5673.

- No. 5670. Steel Arrows, extra heavy, $\frac{1}{4}$ in. diam., 15 in. long, **red enameled**. Made of high grade tempered tool steel, for use in rocky or hard ground. They have hardened points, valuable for scratching marks on pavement, rocks, etc. 11 in set, Set, \$
5671. Steel Arrows, like No. 5670, but **with red cloth flag**, attached to eye to facilitate finding pin in grass, etc. 11 in set, Set,
5672. Steel Arrows, $\frac{1}{8}$ in. diam., 14 in. long, **painted alternately red and white**. 11 in set, Set,
5673. Steel Arrows, like No. 5672, but **with red cloth flag**, to facilitate finding pin in grass, etc. 11 in set, Set,

Carrying Ring and Quiver for Arrows



No. 5677.



5678.

- No. 5677. Spring Steel nickel-plated Carrying Ring, 6 in. diameter, . . . Each, \$
5678. Sewed Leather Quiver, with adjustable strap and belt loop, for set of 11 arrows, Each,

See Price List in back of Catalog.



Plumb Bobs



No. 5720-8. 5720P.

5722-8.

5722P.

5724-8.

5728-10

Each,

No. 5720-6. Brass Plumb Bob, 6 oz., screw cap, "removable" hardened steel point, \$

5720-8. " " " 8 " " " " " " " " " "

5720-10. " " " 10 " " " " " " " " " "

5720-12. " " " 12 " " " " " " " " " "

5720-14. " " " 14 " " " " " " " " " "

5720-18. " " " 18 " " " " " " " " " "

5720-24. " " " 24 " " " " " " " " " "

5720-32. " " " 32 " " " " " " " " " "

5720P. Extra Steel Point, for Nos. 5720-6 to 5720-32, and 5724-6 to 5724-18.

The above Plumb Bobs are of extra fine quality, accurately centered and true. They have a highly buffed finish and a protective coat of lacquer.

No. 5722-6. Brass Plumb Bob, 6 oz., screw cap, "reversible" hardened steel point, \$

5722-8. " " " 8 " " " " " " " " " "

5722-10. " " " 10 " " " " " " " " " "

5722-12. " " " 12 " " " " " " " " " "

5722-14. " " " 14 " " " " " " " " " "

5722-18. " " " 18 " " " " " " " " " "

5722P. Extra Steel Points, for Brass Plumb Bobs Nos. 5722-6 to 5722-18, \$

The point on Plumb Bobs Nos. 5722-6 to 5722-18 is easily unscrewed and reversed for protection, insuring always a perfect accurate point and making it easy and safe to carry about in the pocket or tool box. They are accurate, true and nicely finished.

Each,

No. 5724-6. Brass Plumb Bob, 6 oz., screw cap, "removable" hardened steel point, \$

5724-8. " " " 8 " " " " " " " " " "

5724-10. " " " 10 " " " " " " " " " "

5724-12. " " " 12 " " " " " " " " " "

5724-14. " " " 14 " " " " " " " " " "

5724-18. " " " 18 " " " " " " " " " "

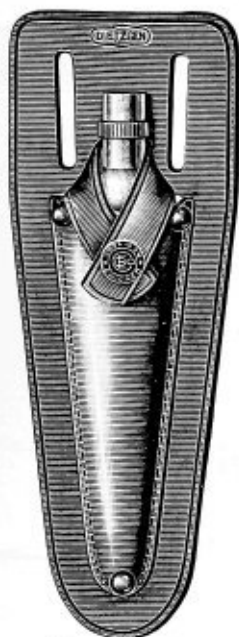
For Extra Steel Point for Nos. 5724-6 to 5724-18 see No. 5720P.

Iron Plumb Bobs

No. 5728-10. Iron Plumb Bob, 10 oz., black enamel, Each, \$

See Price List in back of Catalog.

Plumb Bobs and Sheaths



No. 5730-10.

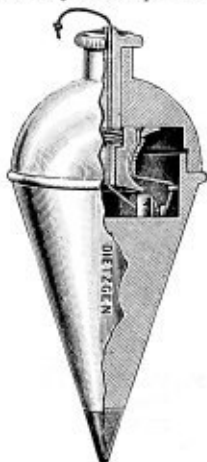
No. 5730-10. Sewed leather sheath for plumb bobs weighing 6, 8 and 10 ounces, Each, \$

5730-14. Sewed leather sheath for plumb bobs weighing 12 and 14 ounces, Each,

This plumb bob sheath made of strong sewed leather is of a design that conforms with the bending of the body, making it comfortable to use. This sheath is a very convenient means of carrying the plumb bob and is constructed so that the bob can be readily removed or replaced, and can be thoroughly secured by a strap with snap button.

No. 5735. Adjustable brass plumb bob, 10 ounces, . Each, \$

This adjustable plumb bob has a concealed reel by which the line is wound and held by friction at any point of its length. It is of a rugged and sturdy design and very practical and is advantageous for making quick set ups.



No. 5735.

Plumb Bob Cord

No.	Plumb Bob Cord, best linen, thick.	Size,	Yard, \$
5740-3.	" " " " " medium.	" . . .	"
5740-4.	" " " " " thin.	" . . .	"
5740-5.	" " " " " braided silk.	" . . .	"



No. 5743.

Autoset Plummet Adjuster

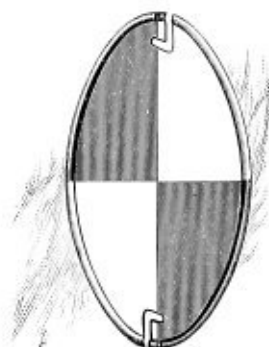
No. 5743. Autoset Plummet Adjuster. Makes setting up easy.

By pressing the sides of the adjuster and moving it up or down, the proper length of the string and the plummet height is quickly secured **with one hand**, the other hand being free to shift the transit head to position over the tack or center. The adjuster grips instantly when the pressure is released. No tying and untying of knotted strings. Saves time, trouble and tiresome stooping, Each, \$

For Brass and Iron Plumb Bobs, see preceding page.

See Price List in back of Catalog.

Plumb Bob String Target



No. 5744.

No. 5744. Plumb Bob String Target, made of light metal, 2x4" in diameter, weight approximately one ounce; excellent for mine and tunnel work and can be conveniently carried in vest pocket. Instructions for use with each target.
 Each \$



Stake Tacks



No. 5745.

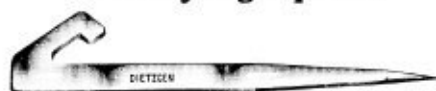
No. 5745. Stake Tacks, hot-dipped, galvanized, $\frac{3}{4}$ in. long, 4 oz. in flat tin box (approx. 350) Box, \$
 5746. " " " " " " $\frac{3}{4}$ " " 1 lb. " " (" 1400) " "
 5747. " " " " " " $\frac{3}{4}$ " " 5 lbs. bulk or over (" 1400 to lb.),
 Lb. \$

These stake tacks have an indentation in the head. They are very convenient for obtaining a quick and accurate setting of a Plumb Bob.

No. 5748L. Surveying Spads, plated steel, $2\frac{1}{4}$ in. long, hook head, . flat tin box of 50, \$
 5748M. " " " " " " $2\frac{1}{4}$ " " " " " " " " bulk lot of 1000,
 5750L. Like No. 5748L but $1\frac{5}{8}$ in. long, in flat tin box of 50, \$
 5750M. " " 5748M " $1\frac{5}{8}$ " " bulk lot of 1000,

The surveying spads No. 5748L to 5750M are made of high grade steel, heavily plated. They are used for suspending plumb bobs from timbers in mines, tunnels, etc.

Surveying Spads



No. 5748L.

Timber Scribe



No. 5754.

No. 5754. Timber Scribe, or Tree Marker, $6\frac{1}{2}$ in. long, Each, \$

See Price List in back of Catalog.

Surveyors Stake Hatchet



No. 5760.

- No. 5760. Surveyors Stake Hatchet, weight about 2 lbs., blade 5 in. long, strong wooden handle 12 in. long from blade, . . . Each, \$

Surveyors Bush Hook



No. 5762.

- No. 5762. Surveyors Bush Hook, weight about 3½ lbs., blade about 11 in. long, strong wooden handle about 30 in. long from blade, . . . Each, \$

Surveyors Bush Knife



No. 5764.

- No. 5764. Surveyors Bush Knife or Machete, weight about 1¼ lbs., blade 22 in. long, strong horn handle 5 in. long, . . . Each, \$
 5764S. Sewed Leather Sheath, 22 in. long, with belt loop, for blade of No. 5764, . . . Each, \$

Surveyors Field Book Bag



No. 5774.



5776.

- No. 5774. Surveyors Field Book Bag, 14 in. long, 3 in. wide, 10 in. high, selected pebble leather, carefully sewed. One large and one small pocket, handy for carrying small field accessories as well as field books, Each, \$
 5776. Like No. 5774, but 6 in. across top, 6½ in. across bottom, 7½ in. high and 2 in. wide from front to back, . . . Each, \$

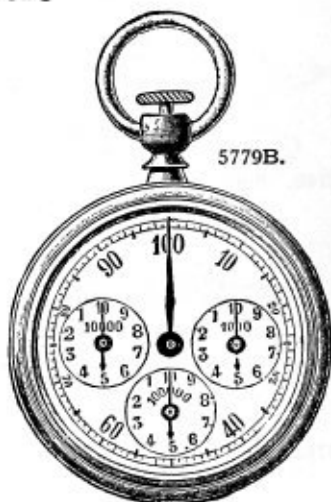
See Price List in back of Catalog.

Pedometers

No. 5778.



5779B.



- No. 5778. Pedometer, watch pattern, nickel case, registering distance walked to 100 miles, Each, \$
- 5779A. Passometer, watch pattern, nickel case, with 3 hands, registering 25,000 steps, Each,
- 5779B. Passometer, watch pattern, nickel case, with 4 hands, registering 100,000 steps, Each,

Tallying Machines



No. 5782.



5784.

- No. 5782. Tallying Machine, nickel-plated, for keeping count by pressing on a lever; registers to 999, Each, \$
- No. 5784. Set Back Hand Tally Counter, black finish, registers to 9,999, Each,

This Counter can be quickly set to zero by one turn of the knob, and the finger ring is so located that the counter can be used with either hand.

See Price List in back of Catalog.

Time Study Watches

60 Second Timers

Registering seconds by 5ths of a second, up to 30 minutes.



No. 5786.



5787.

- No. 5786. Adapted to all kinds of timing where a "Take out time" feature is not required. A pressure upon the knob starts it, a second pressure stops it. The third pressure sets both hands back to zero. Each, \$
5787. Same as No. 5786, but with "Take out time" feature. This watch is equipped with a side-slide which starts and stops the movement without bringing the hands back to zero, thus permitting the taking out of time, where there is non-productive effort, lost motion, etc., to secure cumulative time-total of effective effort. Another feature of this watch permits the bringing back of the hands to zero and to cause them to start again instantaneously. This is accomplished by a pressure upon the knob, Each, \$

Decimal Timers

Registering minutes by 100ths of a minute, up to 30 minutes



No. 5790.

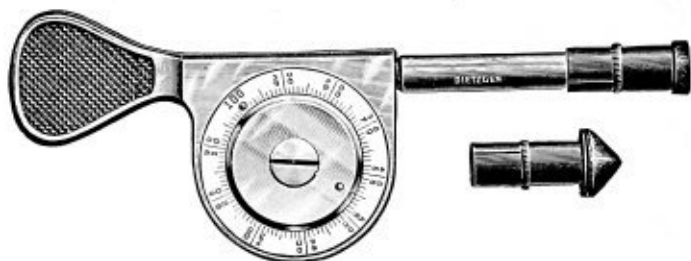


5791.

- No. 5790. Adapted to all kinds of timing where, for convenient figuring, it is desired to take readings in decimals of a minute. With "Take out time" feature and instantaneous fly back (see description of No. 5787), Each, \$
5791. Like No. 5790, with "Take out time" feature, and instantaneous fly back feature (see description of No. 5787). In addition, this watch permits direct readings on the dial of production per hour, for observations up to 1 minute. The most efficient instrument for time-study work. The figures on the dial indicate, without computation of any kind, hourly production for any individual operation consuming 1 minute or less. For ordinary timing of operations consuming more than 1 minute, the small hand registers time up to 30 minutes, Each, \$

Speed Counters

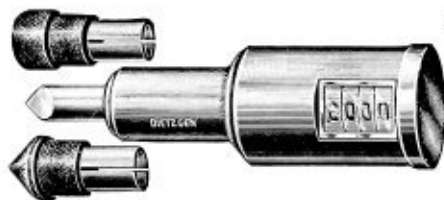
For finding the revolutions per minute made by a shaft, fly wheel, or any other revolving part.



No. 5800.

No. 5800. High Speed Counter, nickel-plated, 5 in. long, working parts encased, dial plate has two rows of figures, reading right or left, as the shaft may run; with directions, and two rubber tips, for pointed and hollow centers, Each, \$

This Speed Counter is especially suitable for high speed, as it is constructed with a frictionless bearing. It can be quickly set to zero by turning the center dial until the two raised knobs are in line.



No. 5804.

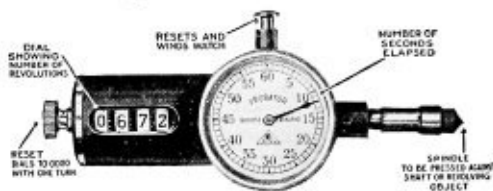
No. 5804. Direct Speed Counter with Clutch, nickel-plated, 3 in. long, working parts encased; with directions, and two rubber tips, for pointed and hollow centers, . . . Each, \$

The No. 5804 Speed Counter is one of the best instruments manufactured for the intended purpose. Speeds as high as 5,000 R. P. M. can be safely measured.

Very accurate results are obtainable, as the tip of the counter will, when resting against the center of the shaft or against the fly wheel, run idle until pressure is brought against it, when immediately the counting mechanism becomes engaged and at the instant the pressure is released stops its operation.

See Price List in back of Catalog.

Speed Indicator



No. 5806.

- No. 5806. Speed Indicator having antimagnetic stop watch. This new extremely handy Speed Indicator consists of a counter and stop watch, enclosed in a substantial housing, both simultaneously actuated by a spindle when pressed against a revolving object. The number of revolutions indicated on the counter is the number produced by a revolving shaft in the time indicated on the stop watch. Since the operation of the counter and the stop watch is absolutely simultaneous, the average speed of the revolving shaft can be obtained over any period of time, the instrument itself automatically adding the revolutions and the time.

The stop watch counter combination with positive drive insures correct and reliable results and in many cases replaces the expensive hand tachometer. The instrument will work in both directions; is not affected by external forces, and will directly indicate R.P.M. from 0 to 6000. Complete in velvet lined leatherette case with necessary accessories, Each, \$

Hand Tachometer



No. 5808.

- No. 5808. Hand Tachometer, which indicates instantaneously the revolutions per minute of a shaft, fly wheel or other revolving part. Construction is on same principle and design as the Corbin Speedometer, which is so well regarded for accuracy and dependability that it is used by over 97% of municipal and state departments throughout the country. The Tachometer utilizes the centrifugal principle, which affords a much more powerful, uniform action than obtainable with other principles such as magnetic, air flow, or air friction. It is neither influenced by changes nor climatic conditions, no matter how severe. The construction is exceedingly substantial, eliminating hair springs or other delicate parts, consequently making it absolutely safe in the hands of inexperienced users. Complete in mahogany finished, plush-lined case, with necessary accessories, . . . Each, \$

See Price List in back of Catalog.

Dietzgen

Engineering and Surveying Instruments

The Transits and Levels that are illustrated and described on the following pages embody all the latest improvements. The materials employed in their manufacture are the best obtainable, and the workmanship is of the highest order. The increased demand for our instruments is very gratifying to us, signifying, as it does, that our ideas of design and construction have met with the approval of the engineering profession.

The illustrations show the design of our regular stock instruments, but we are prepared to make such alterations, as far as practicable, which the experience of our professional friends may demand.

Following will be found a general description of the most essential parts; and complete specifications, fully explaining the details, are given after each instrument, thus aiding our patrons in a selection best suited for their purposes.

Telescopes

The optical and mechanical parts of our telescopes represent a thorough study, covering many years of experience; and, as it is necessary, in each particular instrument, that these parts be in perfect harmony with all other factors, great care is taken in adapting the proper combination of lenses and in securing the most perfect mechanical construction.

To obtain the highest degree of perfection the achromatic object glass is of extra large diameter and of increased focal length. The lenses for the terrestrial eye-piece are ground to special formulae by the most eminent opticians. With these features, we gain for our telescopes a high magnifying power, increased illumination and a large, flat and well-defined field. The lenses are mounted in the best possible manner, accurately centered and need no further adjustment with regard to the axis of the telescope.

The telescope slide is skillfully fitted directly into the main tube by an improved method, thus obtaining a perfectly true and smooth working slide, which is absolutely necessary to make the line of collimation true for all distances and to obtain permanent alignment. To further preserve this accuracy all of our telescopes are provided with dust and rain protectors. The motion of the slide for precise focusing is controlled by a rack and pinion, and the eye-piece is focused by simply turning the cap covering the eye-end to right or left, about one-sixth of a revolution, thus obtaining a true and even motion.

The telescopes are all balanced when focused for infinity, are reversible at both ends and provided with a center point for overhead centering.

To insure uniformity in quality, every telescope is tested, compared with and must conform to, a standard of excellent properties.

Magnifying Power

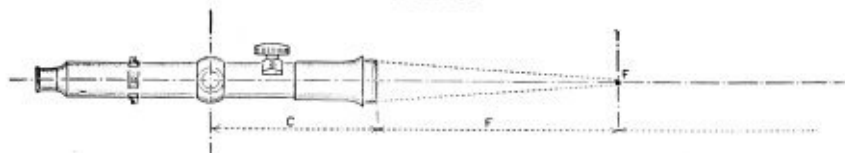
The power selected for each of the many styles of telescopes is the one where the slightest motion of vernier or levels can be easily observed in the field of view. A higher power is needless and would only proportionately decrease the illumination. To obtain the best results, the magnifying power of a telescope should not be greater than its intended purposes demand in order to maintain a large, flat field with ample light and good defining qualities.

While telescopes may vary in the construction of the eye-piece, they are all subject to the same fundamental rules of optics with regard to magnifying power, field and light. Therefore, a set of lenses can be at its maximum efficiency only at one point.

In the terrestrial (erecting) telescopes of our Transits the power ranges from 16 to 26 diameters; and in the telescopes of our Y Levels, with increased focal length and larger object glasses, a power of 26 to 42 diameters is attained. These same ratios are adhered to with telescopes having astronomical or inverting eye-pieces.

See Price List in back of Catalog.

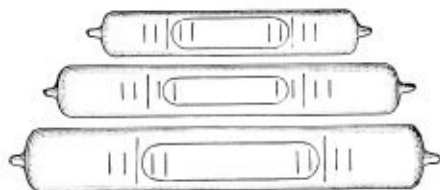
Stadia



The Stadia is a device for measuring distances, and consists essentially of two extra parallel hairs in addition to the ordinary cross hairs of the telescope of a transit or a level. The stadia hairs may be adjustable or they may be fixed permanently on the diaphragm.

In our Transit and Level telescopes the fixed stadia hairs are so set that they will intercept one foot on a rod at a distance of 100 feet. Since the image of the cross hairs is projected to a point beyond the telescope objective equal to its focal length, the rays of light converge at that point and measurements must begin from there; therefore, a constant is to be added to all stadia readings equal to the focal length of the object glass plus the distance from the face of objective to the center of the instrument. This constant is termed "F + C", and for transit telescopes is equal to about one foot. The stadia hairs are superior to any other appliances for measuring distances. As the telescopes furnished with our instruments possess all of the best optical and mechanical qualities that can be produced, we feel justified in warranting good results.

Spirit Levels



Our level vials are all accurately ground to a true curve by special automatic machinery; thereby securing more uniform and reliable results than generally obtained. They are absolutely symmetrical, and are tested and selected as to their sensibility in accordance with the use of the instrument for which they are intended. Their sensitiveness is such that any slight change of adjustment is quickly indicated, thus insuring accurate and reliable work. For this reason they are far superior to bubbles that are sluggish in action, and which, being unresponsive, seemingly indicate perfect adjustment quicker; but with results that are uncertain and unreliable. Great care is exercised to avoid all strain when mounting them in their respective tubes. They are graduated on the glass, as this affords the best and most satisfactory means of centering and reading the bubble.

The liquid with which they are filled is a compound that has the smallest degree of expansion and contraction. It is quick-acting and adaptable to all climates.

In addition to our regular grades we can also furnish, for Precise Levels and Astronomical Instruments, vials which have a sensitiveness of one second or finer.

Graduations

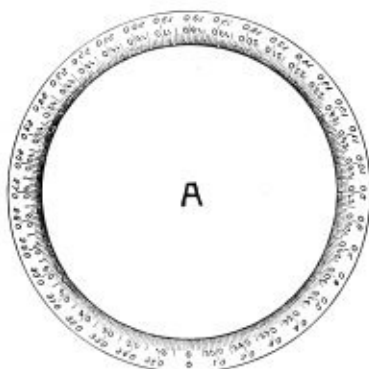
This very important feature of Transits and Triangulation Instruments receives, on our make, minute attention. With the aid of modern automatic dividing machines of the highest quality, we are able to produce graduations which, for all practical purposes, are perfect.

See Price List in back of Catalog.

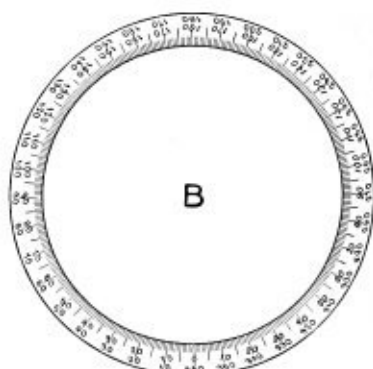


Numbering of Circles and Compass Rings

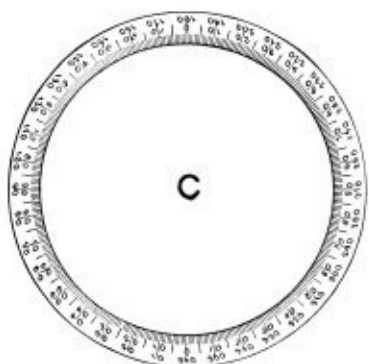
The lines of our graduations are exceptionally legible, absolutely straight, smooth, uniform in thickness and thoroughly black throughout their entire length. All numbers are machine engraved, and inclined in the direction they are to be read.



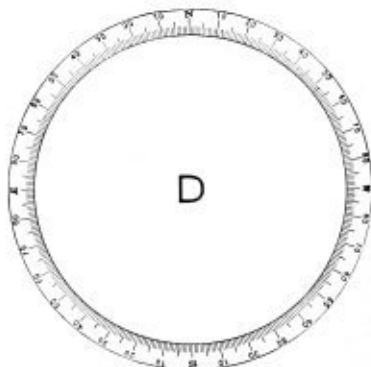
Horizontal Circle, numbered
0-360 and 360-0.



Horizontal Circle, numbered
0-180 and 0-360.



Horizontal Circle, numbered
in quadrants and 0-360.



Compass Ring, number in
quadrants.

The usual methods of numbering the graduations of the horizontal circles, as well as of the compass rings, are shown in the above illustrations.

All of our Transits are furnished with the horizontal circle numbered from 0 to 360 and 360 to 0, like figure A; the compass ring numbered in quadrants, like figure D; and the vertical circle numbered in quadrants. Other styles made to order.

The graduations of the verniers and of the horizontal and vertical circles are made on **sterling silver**, the surface of which is specially adapted for fine graduations. These parts are fitted so accurately and true that no space is visible between them; and, as the surfaces are exactly on the same plane, parallax is avoided.

See Price List in back of Catalog.



Verniers

The verniers of our various styles of Transits are made to read to single minutes, 30 seconds, 20 seconds or 10 seconds, as shown in the accompanying illustrations.

In the following formulae: M = the number of spaces of vernier which correspond to the spaces of the circle; a = value of one division of the circle; a' = value of one division of vernier; $a - a'$ = the least count of vernier, or the smallest reading of the circle.

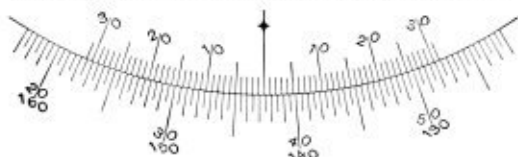


Fig. 1.

Fig. 1. Circle divided to half-degrees, vernier reading to single minutes.

$$M = \frac{a}{a - a'} \text{ then } M = \frac{30' \quad 30 \times 60''}{1' \quad 60''} = 30$$

therefore 30 spaces of the vernier must equal 29 spaces ($M-1$) of the circle.

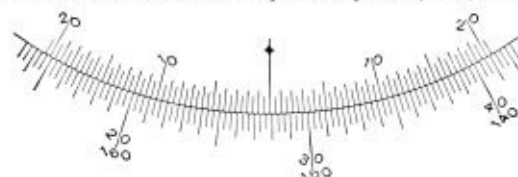


Fig. 2.

Fig. 2. Circle divided to 20 minute spaces, vernier reading to 30".

$$M = \frac{20 \times 60''}{30''} = 40$$

therefore 40 spaces of the vernier must equal 39 spaces ($M-1$) of the circle.



Fig. 3.

Fig. 3. Circle divided to 20 minute spaces, vernier reading to 20".

$$M = \frac{20 \times 60''}{20''} = 60$$

therefore 60 spaces of the vernier must equal 59 spaces ($M-1$) of the circle.



Fig. 4.

Fig. 4. Circle divided to 10 minute spaces, vernier reading to 10".

$$M = \frac{10 \times 60''}{10''} = 60$$

therefore 60 spaces of the vernier must equal 59 spaces ($M-1$) of the circle.

The above described verniers are the ones commonly furnished with our instruments; but we are prepared to make to order any other style specified.

See Price List in back of Catalog.

Compass

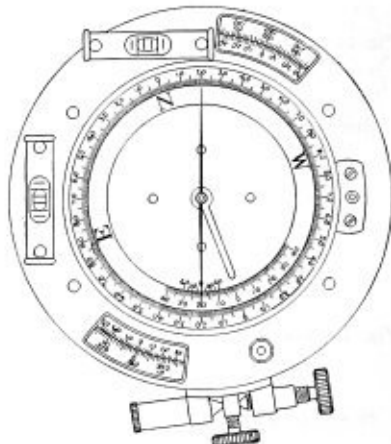
Our compass circles are numbered in quadrants and graduated to half-degrees. The magnetic needles have the greatest area in the vertical direction and taper from the center outward to a thin edge, as long experience has proved this form to be the best.

Great care is used in the selection of the steel of which they are made and in being certain that the arms of the needle bars are in line with their structural grain. The center of each needle is a highly polished and correctly formed jeweled bearing, resting on a hardened steel pin. The South end of each needle, in the Northern hemisphere, is provided with a coil of fine wire which can be shifted to equalize the difference of attraction.



Compass Box and Variation Plate
Engineering Transit.

Fig. 1



Compass Box and Variation Plate
Surveying Transit.

Fig. 2

Variation Plate—The Compass box of all our Transits is provided with a variation plate so that the magnetic declination may be set off accurately; and in order to prevent errors in reading the compass when the magnetic declination is set off, the cardinal points shift with the graduated circle. This is an exclusive feature of DIETZGEN Transits, and is appreciated by surveyors when using a transit to trace old lines or for making rough surveys with a compass needle.

Standards

The standards of our Transits have been designed with the same care as all of the other parts, with the object of manufacturing instruments that are harmonious in all details. They are cast of hard bronze and are strongly ribbed, thus combining lightness with the greatest lateral strength. Enlarged bases and well-fitted screws secure them firmly to the horizontal plate.

The bearings for the telescope axis are conical in form and carefully fitted. One of the standards has an adjusting device near the top, consisting of a small box, which, by means of a screw underneath, can be raised or lowered and the telescope axis thus brought in a truly horizontal position.

See Price List in back of Catalog.

U-Shaped Standards

The Transits illustrated and described on pages 418 to 427 have U-Shaped Standards which are cast in one piece. They are of compact, graceful design, embodying the greatest lateral strength and rigidity.

Clamp and Tangent Screws

As our clamp and tangent screws act entirely on the centers, both plates are free from any strain and can be clamped without affecting the levels. This construction permits the plates to be fitted so close that dust or grit cannot enter between them.

The tangent screw consists of a single screw made of hard bronze or of Nickel silver, with an opposing spiral spring to take up the counter motion. The motion produced by the action of the tangent screw is perfectly smooth and will not be destroyed even if the screw should become injured.



Both the clamp and tangent screws are accessible and well protected. The tangent screw on our Levels is attached to the cross bar, and the clamp revolves with it and is always in the same relative position.

Centers

The centers are of great importance, as accurate working and final results are dependent upon them. Consequently, their manufacture demands the selection of suitable metals, the use of special machinery, and the workmanship of skilled men.

Hardest bell metal is used by us for the inner center, and gun metal and hard bronze for the outer centers. The form of the centers is that which our experience has proved to be the most serviceable; and they are extra large, perfectly tapered, and fitted to obtain great accuracy. They are made in one piece, with strong, substantial flanges.

As we use only the most improved machinery, we are confident that our centers are truly conical and accurately fitted throughout their entire length.

All of our Transits and Theodolites, both with three and four leveling screws, have a shifting head, or shifting center, by means of which they can be precisely centered over a given point after they have been set approximately by the tripod legs. The range of shift varies from seven-sixteenths to seven-eighths inches, according to the size of the instrument.

See Price List in back of Catalog.

Leveling Base



This part, to which the leveling screws are fitted, is of ribbed design, strongly braced, and of extra height, thus giving a long bearing surface for the leveling screws.

The leveling screws, subject to constant wear, are cut in a special way that insures deep threads and a uniformity of pitch, with a resultant smooth motion and great durability.

They are made of hard bronze or of Nickel silver, the lower ends being spherical in form and provided with suitable cups. The milled finger heads of the screws are large and can be manipulated easily.

Y and Dumpy Levels

The preceding general description covering optics, centers, leveling base, etc., applies equally to both our Y and Dumpy Levels.

On all of our Levels the cross bars are long and heavily ribbed, and the wye clips are provided with an improved and efficient locking device.

Finish

Our Instruments are generally finished dark in color, the finish being exceedingly durable and not affected by spirits, acids, or atmospheric conditions. All smaller parts are finished bright, and the appearance of both our Transits and Levels is exceptionally pleasing.

Tripods

For use with our instruments, we have adopted a split-leg type of tripod, made of carefully selected and thoroughly seasoned hardwood, of a grade which experience has proved to give the best results in field service.

The shoe is made of iron, and has a long taper to insure a permanent and rigid fastening. At the top and on the outside a suitable spur is provided, to permit, by foot pressure, of giving the tripod a firm bearing and setting it securely into the ground.

The metal head, which receives the instrument and to which the tripod legs are attached, is made of bronze. The lugs are cast hollow and a long bearing is provided for the bolts which fasten the legs. The thread portion of the head is protected by a metal cap.

All metal parts have a durable black finish, and the parts made of wood are filled and varnished, thus making them impervious to moisture.

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

General Construction

In conclusion, we wish to call attention to our method of construction, by means of which, while attaining great rigidity, we are able to eliminate all unnecessary weight in the various parts of the instrument.

By referring to the cross-sectional cuts of our Transit and our Y Level, shown on pages 460 and 462, it will be seen that all we claim for our instruments has been accomplished in a perfected mechanical manner, and that the protection and accessibility of all the vital parts is a particular feature.

We use selected and exceptionally hard bell metal for the centers, Y Level telescope bearings and telescope axis; hard bronze for the outer center; and hard composition metal for the leveling base. By the use of these metals, expansion and contraction is reduced to a minimum, and the liability of injury and fretting of the moving parts — which constantly exists when softer metals are used — is practically overcome, thus enabling more reliable and permanent adjustments to be made.

Aluminum alloys in the manufacture of our instruments are, owing to their inferior wearing properties, used only for those parts that are not subject to friction and wear. The injudicious use of aluminum in surveying instruments would, while obtaining lightness, sacrifice strength and stability.

Care of Instruments

With proper care the usefulness of an instrument can be preserved for many years, and we feel that it would not be amiss to mention, for the benefit of our friends and patrons, a few points regarding the care of instruments.

The lenses of the telescope, particularly the object glass, should not be removed, as this will disturb the adjustment. If necessary to clean them, great care should be taken and only soft, clean linen should be used.

To retain the sensibility of the compass needle, the delicate point on which it swings must be carefully guarded, and the instrument should not be carried without the needle being locked. When the needle is lowered it should be brought gently upon the center pin.

The object slide seldom needs to be removed; but when removing is necessary, the slide should be carefully protected from dust. Do not grease or oil the slide too freely, as only a thin film is necessary. Any surplus of oil should be removed with a clean wiper.

The centers, subject to considerable wear, require more frequent lubrication. After thoroughly cleaning, they should be carefully oiled with a fine watch oil.

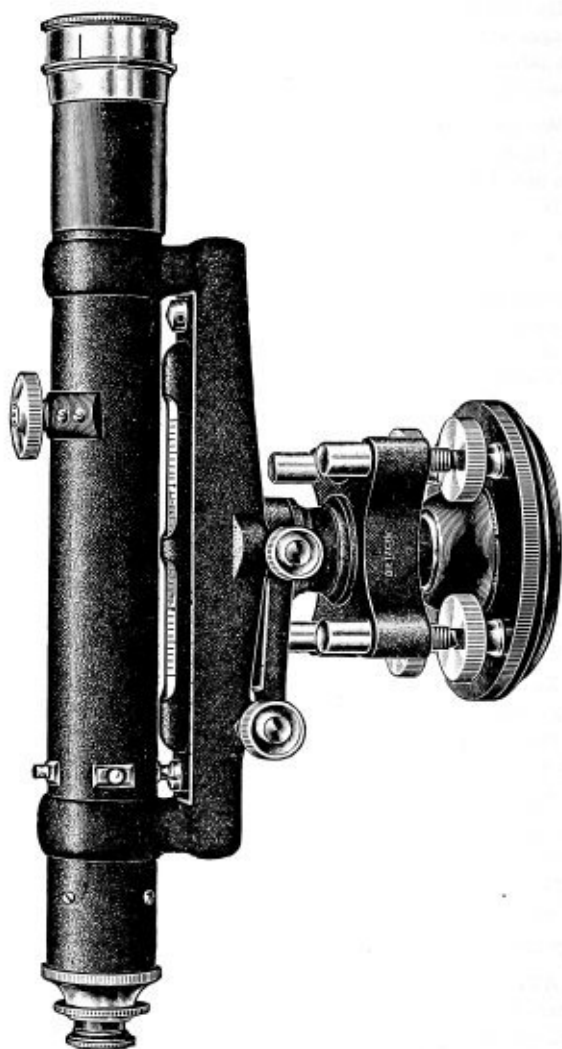
All of the adjusting screws should be brought to a firm bearing; but should never be tightened to such a degree that a strain is applied to the different parts, as, if this is done, the adjustment will be very unreliable.

When the instrument is carried on the tripod all clamps should be tightened to prevent unnecessary wear on the centers.

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

Engineering Dumpy Levels



Nos. 6000-6002.

For complete specifications, see next page.

Engineering Dumpy Levels

Specifications of No. 6000

Telescope — Length, 15 inches; magnifying power, 24 to 28 diameters; achromatic terrestrial, powerful and of best definition.

Object Glass — Diameter, $1\frac{3}{8}$ inches, used to full value.

Eye-Piece — Erecting, giving a large clear flat field; with improved style focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Cross Bar — Length, $9\frac{1}{4}$ inches; hard bronze; designed to combine lightness with strength; provided with clamp and tangent screw.

Level to Cross Bar — Length, $7\frac{3}{4}$ inches; 25 seconds sensibility; $\frac{1}{10}$ inch division; well protected.

Center — Bell metal, long tapered, strong and unyielding, extending from cross bar to bottom of leveling base, giving greater accuracy, strength and increased stability.

Leveling Screw Base — Bronze, extra large diameter, ribbed for strength and lightness, enabling the use of a more sensitive bubble than is generally used.

Leveling Screws — Four, nickel silver, with accurately cut threads, dust caps and ball and socket cups.

Finish — Dark morocco, very durable, not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 9 lbs., 6 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, mahogany box with lock, key and strap.

No. 6000. Engineering Dumpy Level; complete, Each, \$

Specifications of No. 6002

Telescope — Length, 18 inches; magnifying power, 30 to 32 diameters; achromatic terrestrial, powerful and of best definition.

Object Glass — Diameter, $1\frac{3}{8}$ inches, used to full value.

Eye-Piece — Erecting, giving a large clear flat field; with improved style focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Cross Bar — Length, $10\frac{1}{2}$ inches; hard bronze; designed to combine lightness with strength; provided with clamp and tangent screw.

Level to Cross Bar — Length, $7\frac{3}{4}$ inches; 20 seconds sensibility; $\frac{1}{10}$ inch division; well protected.

Center — Bell metal, long tapered, strong and unyielding, extending from cross bar to bottom of leveling base, giving greater accuracy, strength and increased stability.

Leveling Screw Base — Bronze, extra large diameter, ribbed for strength and lightness, enabling the use of a more sensitive bubble than is generally used.

Leveling Screws — Four, nickel silver, with accurately cut threads, dust caps and ball and socket cups.

Finish — Dark morocco, very durable, not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 10 lbs.; tripod, about 10 lbs.

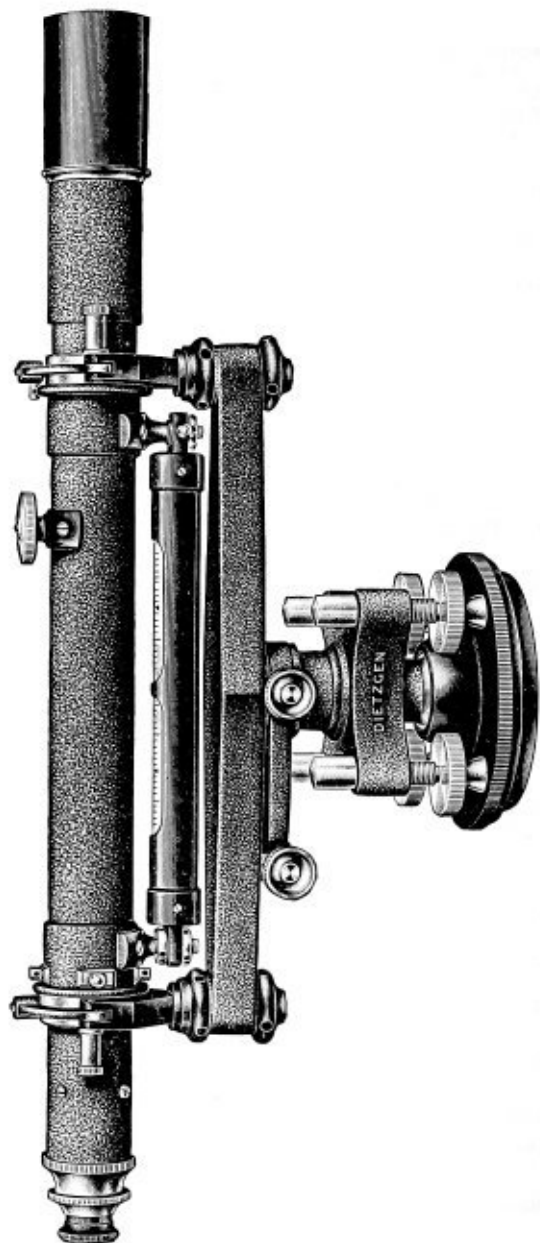
Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, mahogany box with lock, key and strap.

No. 6002. Engineering Dumpy Level; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

Engineering Y Levels



Nos. 6008, 6012.

For complete specifications, see next page.



Engineering Y Levels

Specifications of No. 6008

Telescope — Length, 18 inches; magnifying power, 30 to 32 diameters; achromatic terrestrial, powerful and of best definition.

Object Glass — Diameter, $1\frac{3}{8}$ inches, used to full value.

Eye-Piece — Erecting, giving large clear flat field; with improved style focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Telescope Level — Length, $7\frac{3}{4}$ inches; 20 seconds sensibility; $\frac{1}{10}$ inch division; adjustable horizontally and vertically.

Cross-Bar — Length, $11\frac{1}{2}$ inches; hard bronze; designed to combine strength with lightness; improved patented Y clip latch.

Center — Hard bell metal; long tapered, strong and unyielding, extending from cross-bar to bottom of leveling base, giving accuracy, strength and stability.

Leveling Screw Base — Bronze; extra large diameter; ribbed for strength and lightness; enables the use of a more sensitive bubble than is generally used.

Leveling Screws — Four, nickel silver, with accurately cut threads; dust caps; ball and socket cups.

Finish — Dark morocco, very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 5 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, mahogany box with lock, key and strap.

No. 6008. Engineering Y Level; complete, Each, \$

Specifications of No. 6012

Telescope — Length, 21 inches; magnifying power, 37 to 40 diameters; achromatic terrestrial, powerful and of best definition.

Object Glass — Diameter, $1\frac{1}{2}$ inches, used to full value.

Eye-Piece — Erecting, giving large clear flat field; with improved style focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Telescope Level — Length, $9\frac{1}{4}$ inches, 20 seconds sensibility; $\frac{1}{10}$ inch division, adjustable horizontally and vertically.

Cross-Bar — Length, 13 inches, hard bronze; designed to combine strength with lightness; with improved patented Y clip latch.

Center — Hard bell metal; long tapered, strong and unyielding, extending from cross-bar to bottom of leveling base, giving accuracy, strength and stability.

Leveling Screw Base — Bronze; extra large diameter; ribbed for strength and lightness; enables the use of a more sensitive bubble than is generally used.

Leveling Screws — Four, nickel silver, with accurately cut threads; dust caps; ball and socket cups.

Finish — Dark morocco, very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 12 lbs., 10 oz.; tripod, 10 lbs.

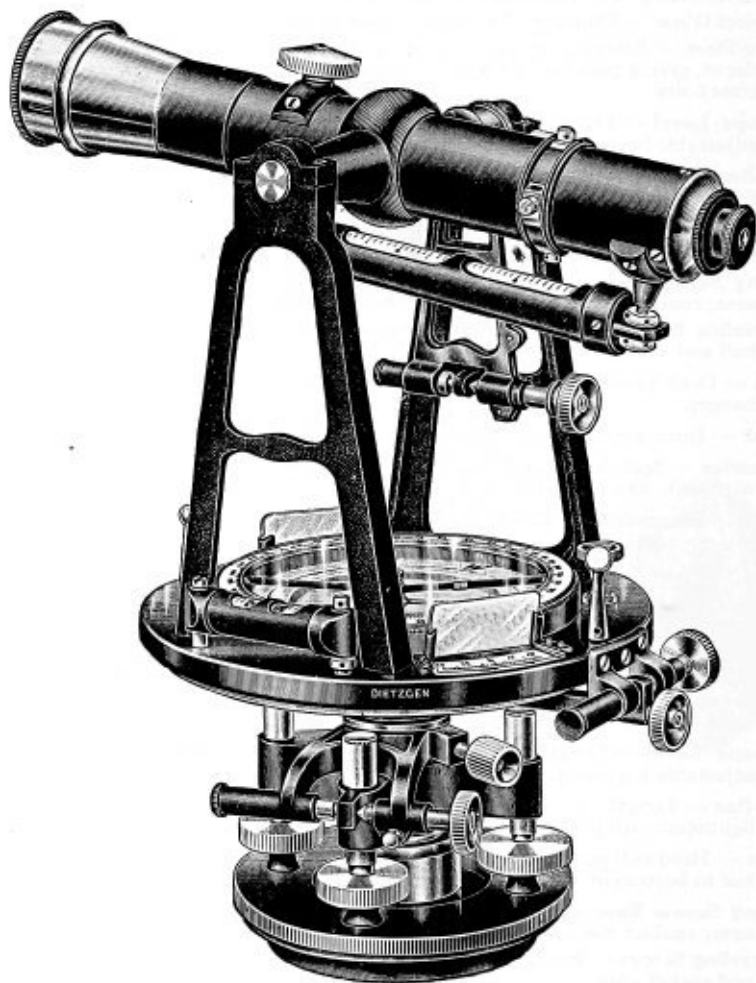
Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, mahogany box with lock, key and strap.

No. 6012. Engineering Y Level; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in Back of Catalog.

Engineering Transits



Nos. 6022A-6022C.

Two plate levels, see Fig. I, page 404.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6022A

Horizontal Circle—Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels—Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope—Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{1}{16}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Telescope Level—Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Compass—Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers—Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center—Range, $\frac{3}{8}$ inch.

Finish—Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight—Instrument, about 15 lbs., 14 oz.; tripod, about 10 lbs.

Accessories—Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6022A. Engineering Transit; complete, Each, \$

Specifications of No. 6022C

Horizontal Circle—Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels—Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope—Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.

Telescope Level—Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Compass—Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers—Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center—Range, $\frac{5}{8}$ inch.

Finish—Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight—Instrument, about 11 lbs., 11 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories—Split-leg Tripod No. 6494, sunshade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6022C. Engineering Transit; complete, Each, \$

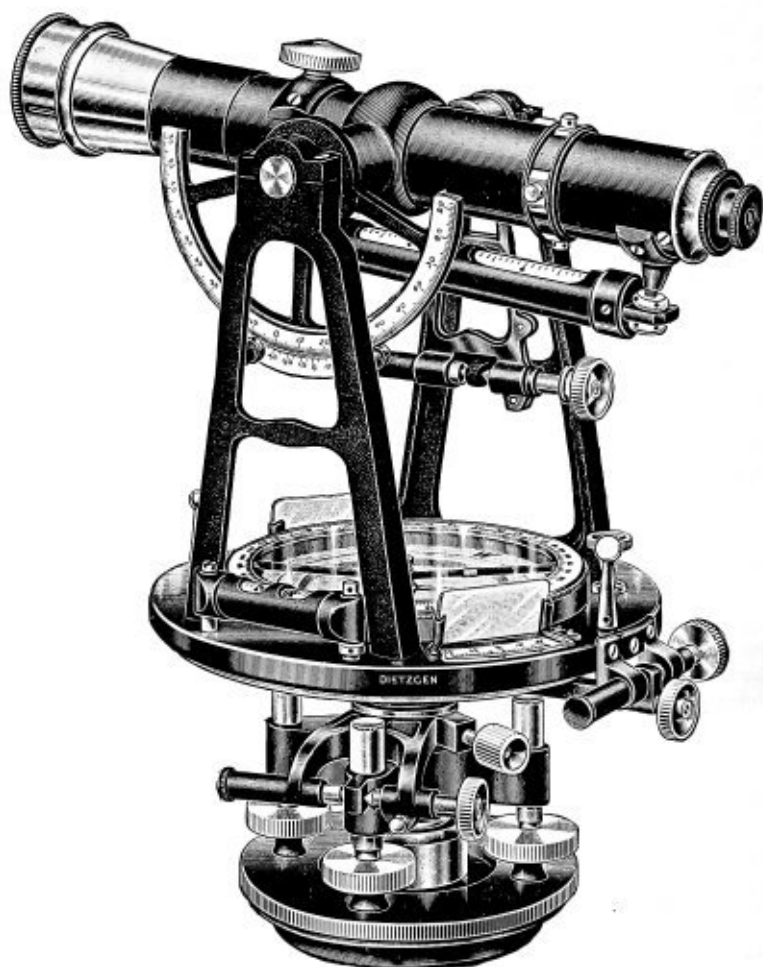
Accessories, Modifications, Etc., listed on pages 461-465.

Surveying Transits listed under Nos. 6322A-6324A.

See Price List in back of Catalog.



Engineering Transits



Nos. 6023A-6023C.

Two plate levels, see Fig. 1, page 404.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6023A

- Horizontal Circle** — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.
- Plate Levels** — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.
- Telescope** — Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{7}{16}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.
- Telescope Level** — Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.
- Vertical Arc** — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.
- Compass** — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.
- Centers** — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.
- Shifting Center** — Range, $\frac{7}{8}$ inch.
- Finish** — Dark; very durable; not affected by spirits, acids or atmospheric changes.
- Weight** — Instrument, about 16 lbs., 2 oz.; tripod, about 10 lbs.
- Accessories** — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screwdriver, magnifying glass, mahogany box with lock, key and strap.
- No. 6023A. Engineering Transit; complete, Each, \$

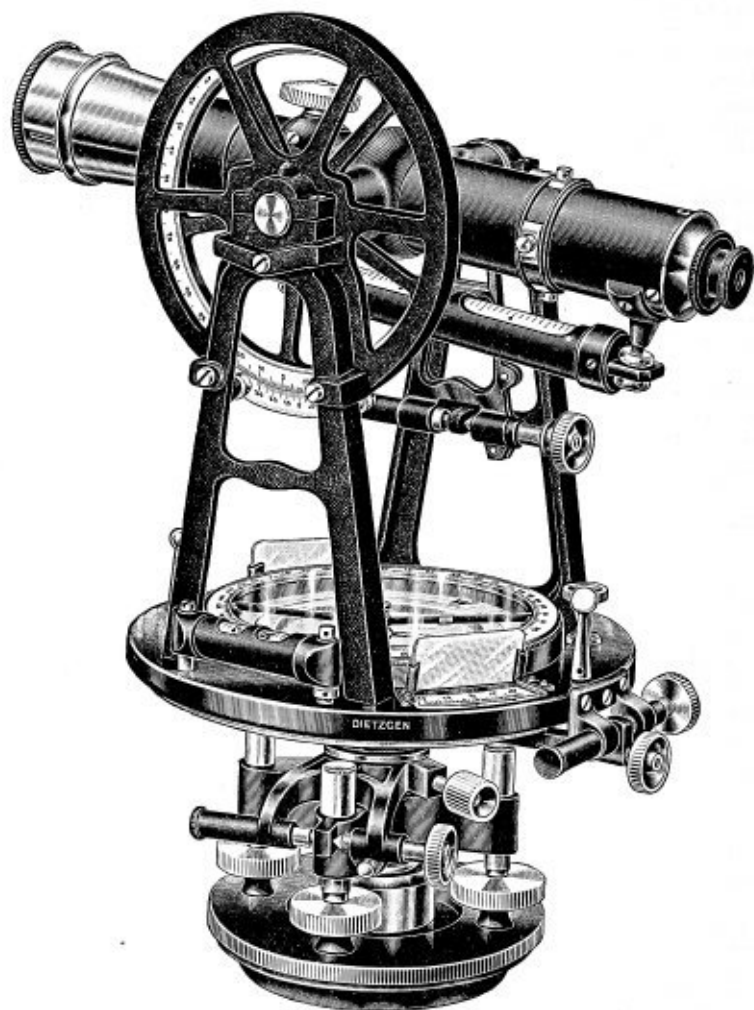
Specifications of No. 6023C

- Horizontal Circle** — Diameter, $5\frac{3}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.
- Plate Levels** — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.
- Telescope** — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve, giving parallel (not spiral) movement to eye-piece for precise focusing of cross hairs.
- Telescope Level** — Length, $4\frac{3}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.
- Vertical Arc** — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.
- Compass** — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.
- Centers** — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.
- Shifting Center** — Range, $\frac{5}{8}$ inch.
- Finish** — Dark; very durable; not affected by spirits, acids or atmospheric changes.
- Weight** — Instrument, about 11 lbs., 15 oz.; tripod, about $8\frac{3}{4}$ lbs.
- Accessories** — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screwdriver, magnifying glass, mahogany box with lock, key and strap.
- No. 6023C. Engineering Transit; complete, Each, \$

Surveying Transits listed under Nos. 6322A-6324A.

See Price List in back of Catalog.

Engineering Transits



Nos. 6024A-6024C-6024E.

Two plate levels, see Fig. I, page 404.

For complete specifications, see next page.

Engineering Transits

Specifications of No. 6024A

Horizontal Circle—Diameter, $6\frac{1}{4}$ inches; numbered 0 to 360 both ways; two opposite verniers to 30 seconds; circle and verniers graduated on sterling silver.

Plate Levels—Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope—Length, 11 in.; power, 24 to 26 diam.; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level—Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle—Diam., 5 in.; vernier to 1 minute; graduated on sterling silver.

Compass—Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; cardinal points shift with the graduated circle.

Centers—Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center—Range, $\frac{7}{8}$ inch.

Finish—Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight—Instrument, about 16 lbs., 6 oz.; tripod, about 10 lbs.

Accessories—Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6024A. Engineering Transit; complete, Each, \$

Specifications of No. 6024C

Horizontal Circle—Diameter, $5\frac{1}{4}$ inches; numbered 0 to 360 both ways; two opposite verniers to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels—Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope—Length, $9\frac{1}{2}$ in.; power, 18 to 20 diam.; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level—Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle—Diam., 5 in.; vernier to 1 minute; graduated on sterling silver.

Compass—Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; cardinal points shift with the graduated circle.

Centers—Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center—Range, $\frac{5}{8}$ inch.

Finish—Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight—Instrument, about 12 lbs., 7 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories—Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6024C. Engineering Transit; complete, Each, \$

Specifications of No. 6024E

Horizontal Circle—Diameter, $4\frac{1}{2}$ inches; numbered 0 to 360 both ways; two opposite verniers to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels—Two; length, $1\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope—Length, 8 in.; power, 16 to 18 diam.; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level—Length, $3\frac{1}{2}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle—Diam., $4\frac{1}{2}$ in.; vernier to 1 minute; graduated on sterling silver.

Compass—Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; cardinal points shift with the graduated circle.

Centers—Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center—Range, $\frac{7}{16}$ inch.

Finish—Dark; very durable; not affected by spirits, acids or atmospheric changes.

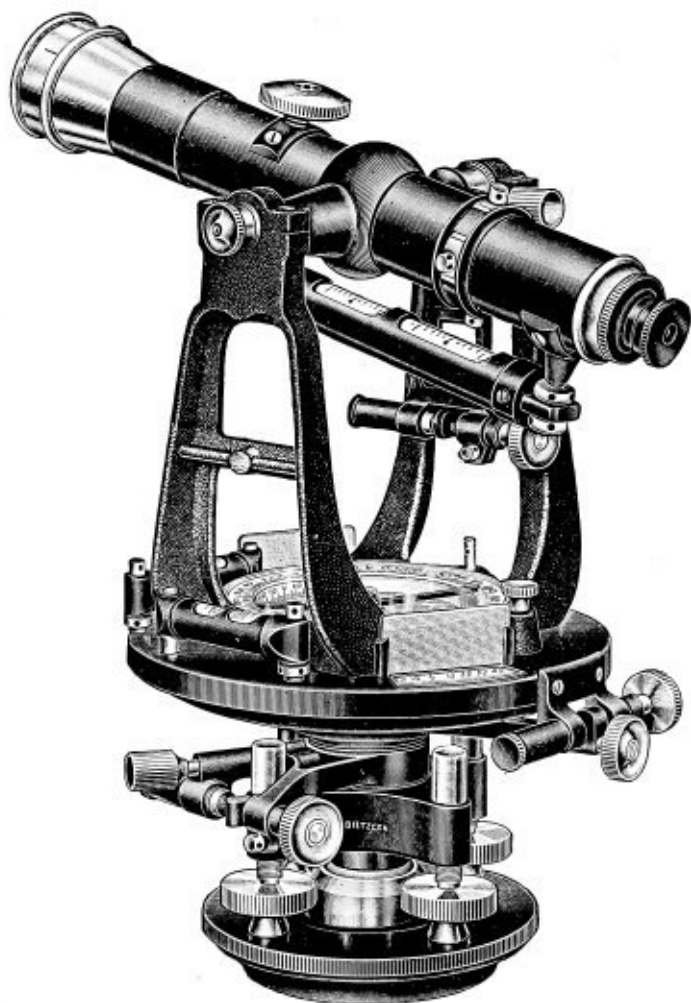
Weight—Instrument, about 7 lbs., 8 oz.; tripod, about 8 lbs.,

Accessories—Extension Tripod No. 6496, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6024E. Engineering Transit; complete, Each, \$

See Price List in back of Catalog.

Engineering Transits



Nos. 6042A-6042C.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6042A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{1}{16}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{3}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 15 lbs., 14 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6042A. Engineering Transit; complete, Each, \$

Specifications of No. 6042C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 15 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

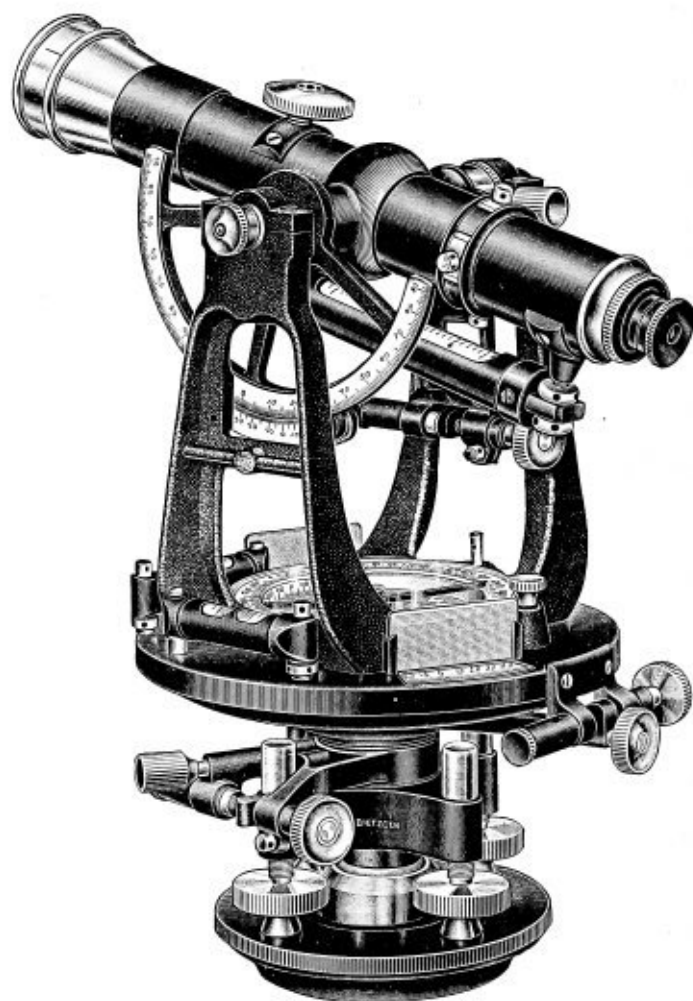
*No. 6042C. Engineering Transit; complete, Each, \$

*Made to order only.

Surveying Transits listed under Nos. 6322A-6324A.

See Price List in back of Catalog.

Engineering Transits



Nos. 6043A-6043C.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6043A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{1}{16}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Arc — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{7}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 16 lbs., 2 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6043A. Engineering Transit; complete, Each, \$

Specifications of No. 6043C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Arc — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; variation plate with vernier reading to 5 min.; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 12 oz.; tripod, about $8\frac{3}{4}$ lbs.

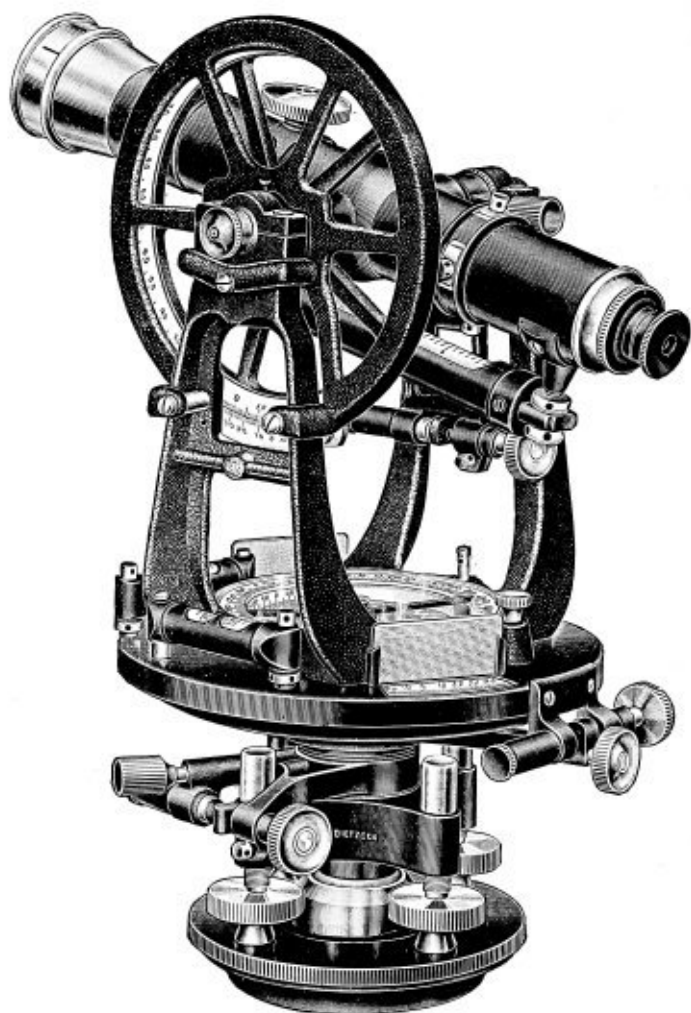
Accessories — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6043C. Engineering Transit; complete, Each, \$

*Made to order only.

See Price List in back of Catalog.

Engineering Transits



Nos. 6054A, 6054C, 6054E.

For complete specifications, see next page.

Engineering Transits

Specifications of No. 6054A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches; numbered 0 to 360 both ways; two opposite verniers to 30 seconds; circle and verniers graduated on sterling silver.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 in.; power, 24 to 26 diam.; erecting eye-piece; fixed stadia hairs.

Telescope Level — Length, 5 inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diam., 5 in.; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; cardinal points shift with the graduated circle.

Centers — Compound; inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{7}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 16 lbs., 6 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

No. 6054A. Engineering Transit; complete, Each, \$

Specifications of No. 6054C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches; numbered 0 to 360 both ways; two opposite verniers to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ in.; power, 18 to 20 diam.; erecting eye-piece; fixed stadia hairs.

Telescope Level — Length, $4\frac{1}{4}$ in.; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diam., 5 in.; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; cardinal points shift with the graduated circle.

Centers — Compound; inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 12 lbs., 7 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6054C. Engineering Transit; complete, Each, \$

Specifications of No. 6054E

Horizontal Circle — Diameter, $4\frac{1}{2}$ inches; numbered 0 to 360 both ways; two opposite verniers to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels — Two; length, $1\frac{1}{2}$ in.; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 8 in.; power, 16 to 18 diam.; erecting eye-piece; fixed stadia hairs.

Telescope Level — Length, $3\frac{1}{2}$ in.; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diam., $4\frac{1}{2}$ in.; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; cardinal points shift with the graduated circle.

Centers — Compound; inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{7}{16}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 7 lbs., 8 oz.; tripod, about 8 lbs.

Accessories — Extension Tripod No. 6496, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6054E. Engineering Transit; complete, Each, \$

*Made to order only.

See Price List in back of Catalog.

Engineering Transits



Nos. 6062A-6062C.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6062A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{1}{16}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Standards — U-Shaped; cast in one piece; compact and graceful.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{7}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 15 lbs., 14 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6062A. Engineering Transit; complete, Each, \$

Specifications of No. 6062C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Standards — U-Shaped; cast in one piece; compact and graceful.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 10 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screw driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6062C. Engineering Transit; complete, Each, \$

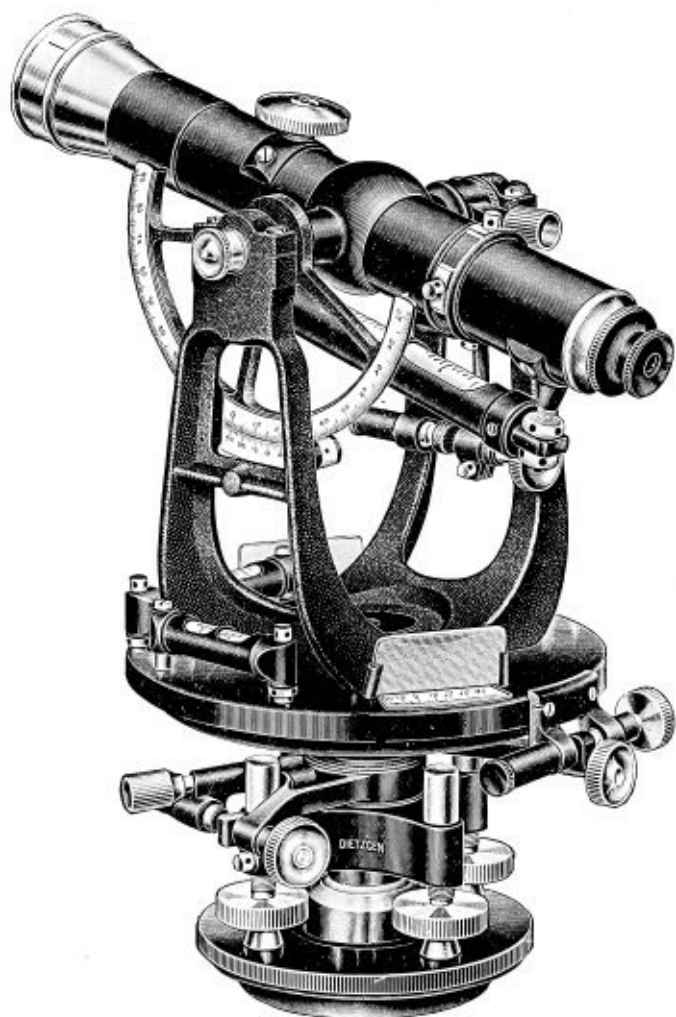
*Made to order only.

Accessories, Modifications, Etc., listed on pages 461-465.

Surveying Transits listed under Nos. 6322A-6324A.

See Price List in back of Catalog.

Engineering Transits



Nos. 6063A-6063C.

For complete specifications, see next page.



Engineering Transits

Specifications of No. 6063A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to 30 seconds; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; objective $1\frac{7}{8}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, 5 inches; 20 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Arc — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{7}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 16 lbs., 2 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6063A. Engineering Transit; complete, Each, \$

Specifications of No. 6063C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; two verniers, double and exactly opposite, reading to one minute; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece, with focusing sleeve for precise focusing of cross hairs.

Telescope Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Arc — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Standards — U-Shaped; cast in one piece; compact and graceful.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 14 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories — Split-leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6063C. Engineering Transit; complete, Each, \$

*Made to order only.

Accessories, Modifications, Etc., listed on pages 461-465.

Surveying Transits listed under Nos. 6322A-6324A.

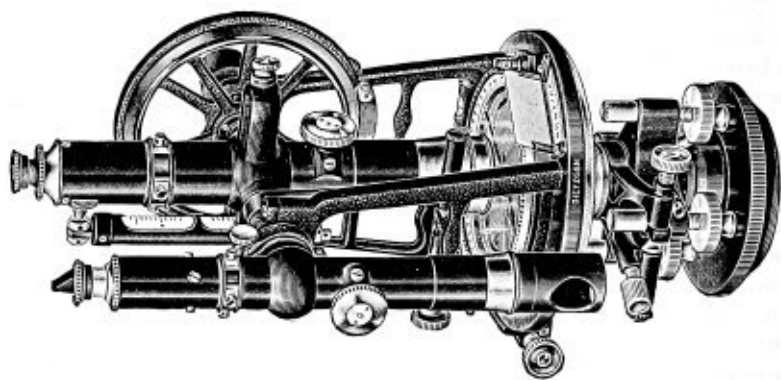
See Price List in back of Catalog.



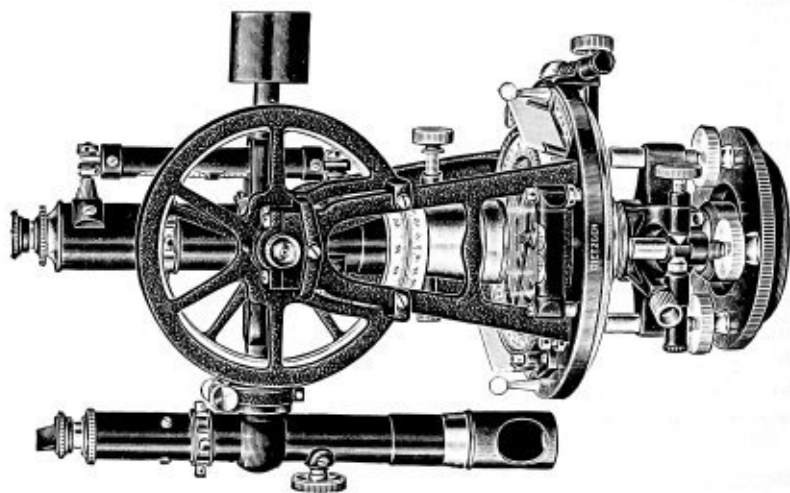
EUGENE DIETZGEN CO.



Mining Transits



Nos. 6074C-6074E.



For complete specifications, see next page.



Mining Transits

Specifications of No. 6074C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduations; marked with two rows of figures, reading 0 to 360 both ways; two verniers, double and exactly opposite, reading to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs; reflector.

Auxiliary Telescope (after Berger) — Attachable to either top of main telescope or end of axis of same; with counterpoise, plain prism with colored glass, and reflector.

Telescope Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, 5 in.; vernier to 1 minute; graduated on sterling silver.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 12 lbs., 7 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories—Extension tripod No. 6497, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6074C. Mining Transit; complete, Each, \$

Specifications of No. 6074E

Horizontal Circle — Diameter, $4\frac{1}{2}$ inches to edge of graduations; marked with two rows of figures, reading 0 to 360 both ways; two verniers, double and exactly opposite, reading to 1 minute; circle and verniers graduated on sterling silver.

Plate Levels — Two; length, $1\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 8 inches; magnifying power, 16 to 18 diameters; objective $1\frac{1}{8}$ inches, used to full value; fixed stadia hairs; erecting eye-piece with focusing sleeve for precise focusing of cross hairs; reflector.

Auxiliary Telescope (after Berger) — Attachable to either top of main telescope or end of axis of same; with counterpoise, plain prism with colored glass, and reflector.

Telescope Level — Length, $3\frac{1}{2}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, $4\frac{1}{2}$ in.; vernier to 1 minute; graduated on sterling silver.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, 3 inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 10 lbs., 7 oz.; tripod, about 8 lbs.

Accessories—Extension Tripod No. 6496, sun shade, adjusting pins, plumb bob, screw-driver, magnifying glass, mahogany box with lock, key and strap.

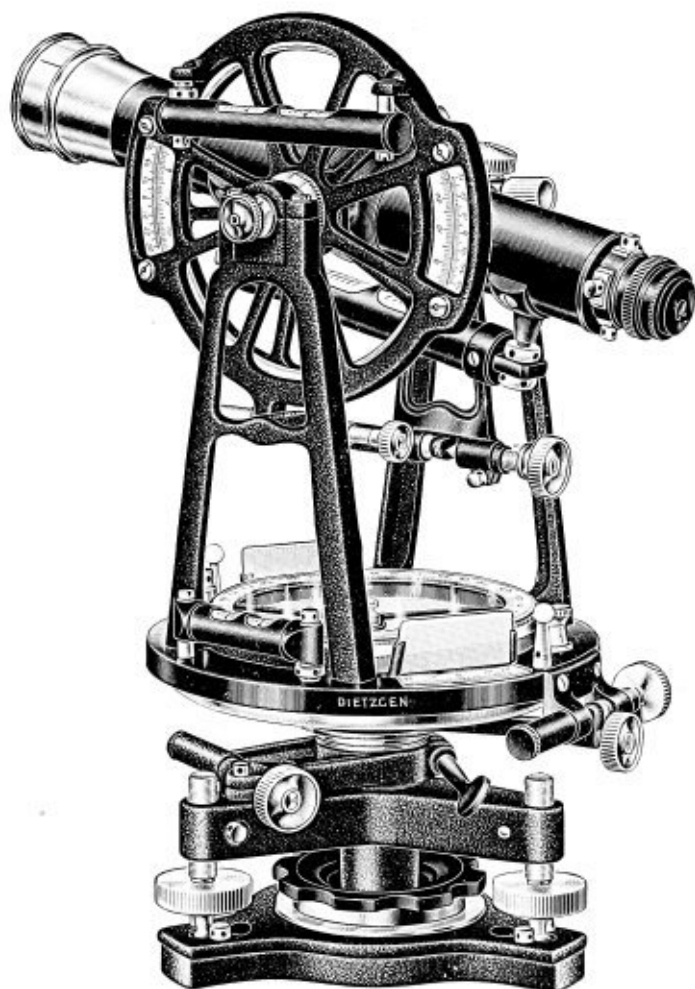
No. 6074E. Mining Transit; complete, Each, \$

*Made to order only.

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

Stadia Topography Transit



No. 6084C.

Two plate levels, see Fig. 1, page 404.

For complete specifications, see next page.

Stadia Topography Transit

Specifications of No. 6084C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduations; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Verniers — Two, double and exactly opposite, reading to 1 minute.

Plate Levels — Two; length, $2\frac{1}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $10\frac{1}{4}$ inches; magnifying power, 22 to 24 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{3}{16}$ inches, used to full value.

Eye-Piece — Inverting; improved style, giving greatly increased illumination with a large, flat field.

Level — Length, $4\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, 5 inches; verniers, two, double and exactly opposite, reading to 1 minute; graduated on sterling silver; provided with tangent screw and fine spirit level of 60 seconds sensibility and $\frac{1}{10}$ inch division.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound: inner one, bell metal; intermediate, gun metal; outer, bronze.

Shifting Center — Range, $\frac{5}{8}$ inch; of improved design, simple and practical.

Leveling Base — Extra large diameter; three leveling screws, nickel silver, with accurately cut threads.

Tangent Screws — Nickel silver; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 12 lbs.; tripod, about $9\frac{1}{4}$ lbs.

Accessories — Special Split-leg Tripod, sun shade, adjusting pins, plumb bob, screw driver, magnifying glass, mahogany box with lock, key and strap.

*No. 6084C. Stadia Topography Transit; complete. Each, \$

*Made to order only.

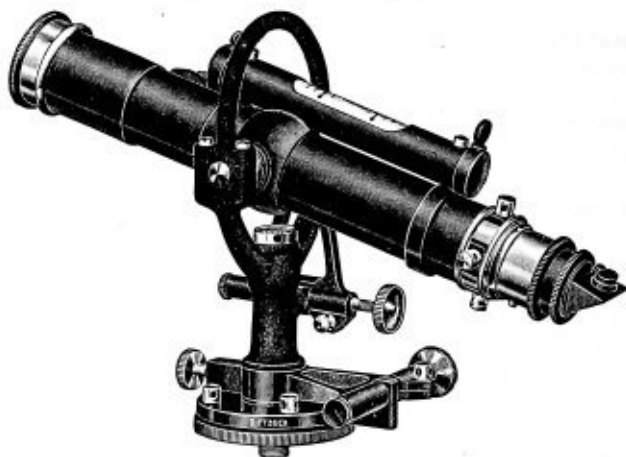
Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.



Improved Solar Attachment

(After Saegmuller)



No. 6098.

The above illustration represents the improved Solar Attachment as now made. It consists essentially of a small telescope and level, the telescope being mounted in standards, in which it can be elevated or depressed. The standard revolves around an axis, called the polar axis, which is fastened to the telescope axis of the transit instrument. The telescope called the "Solar Telescope" can thus be moved in altitude and azimuth. Two pointers attached to the telescope to approximately set the instrument are so adjusted that when the shadow of the one is thrown on the other the sun will appear in the field of view.

Adjustment

1. The Transit must be in perfect adjustment, especially the levels on the telescope and the plates; the cross axis of the telescope should be exactly horizontal, and the index error of the vertical circle carefully determined.

2. The polar axis must be at right angles to the line of collimation and horizontal axis of main telescope.

To effect this, level the instrument carefully and bring the bubble of each telescope level to the middle of its scale. Revolve the Solar around its polar axis, and if the bubble remains central the adjustment is complete. If not, correct half the movement by the adjusting screws at the base of the polar axis, and the other half by moving the solar telescope on its horizontal axis.

3. The line of collimation of the solar telescope and the axis of its level must be parallel.

To effect this, bring both telescopes in the same vertical plane and both bubbles to the middle of their scales. Observe a mark through the transit telescope, and note whether the solar telescope points to a mark above this, equal to the distance between the horizontal axes of the two telescopes. If it does not bisect this mark, move the cross wires by means of the screws until it does. Generally the small level has no adjustments and the parallelism is effected only by moving the cross hairs.

The adjustments of the Transit and the Solar should be frequently examined, and kept as nearly perfect as possible.

Directions for Using

First. Take the declination of the sun as given in the Nautical Almanac for the given day, and correct it for refraction and hourly change. Incline the transit telescope until this amount is indicated by its vertical arc. If the declination of the sun is north, depress it; if south, elevate it. Without disturbing the position of the transit telescope, bring the solar telescope into the vertical plane of the large telescope and to a horizontal position by means of its level. The two telescopes will then form an angle which equals the amount of the declination, and the inclination of the solar telescope to its polar axis will be equal to the polar distance of the sun.

Second. Without disturbing the relative positions of the two telescopes, incline them and set the vernier to the co-latitude of the place.

By moving the transit and the "Solar Attachment" around their respective vertical axes, the image of the sun will be brought into the field of the solar telescope, and after accurately bisecting it the transit telescope must be in the meridian, and the compass-needle indicates its deviation at that place. The vertical axis of the "Solar Attachment" will then point to the pole, the apparatus being, in fact, a small equatorial.

No. 6098. Improved Solar Attachment, Each, \$

See Price List in back of Catalog.



Traverse Plane Table



Drawing Board and Compass



Solid Leg Tripod



Alidade

No. 6102.

Specifications of No. 6102

Alidade — Length, 10 inches; brass, durable black finish, with beveled edge graduated to 40 parts to the inch **unless otherwise ordered**; in leather case.

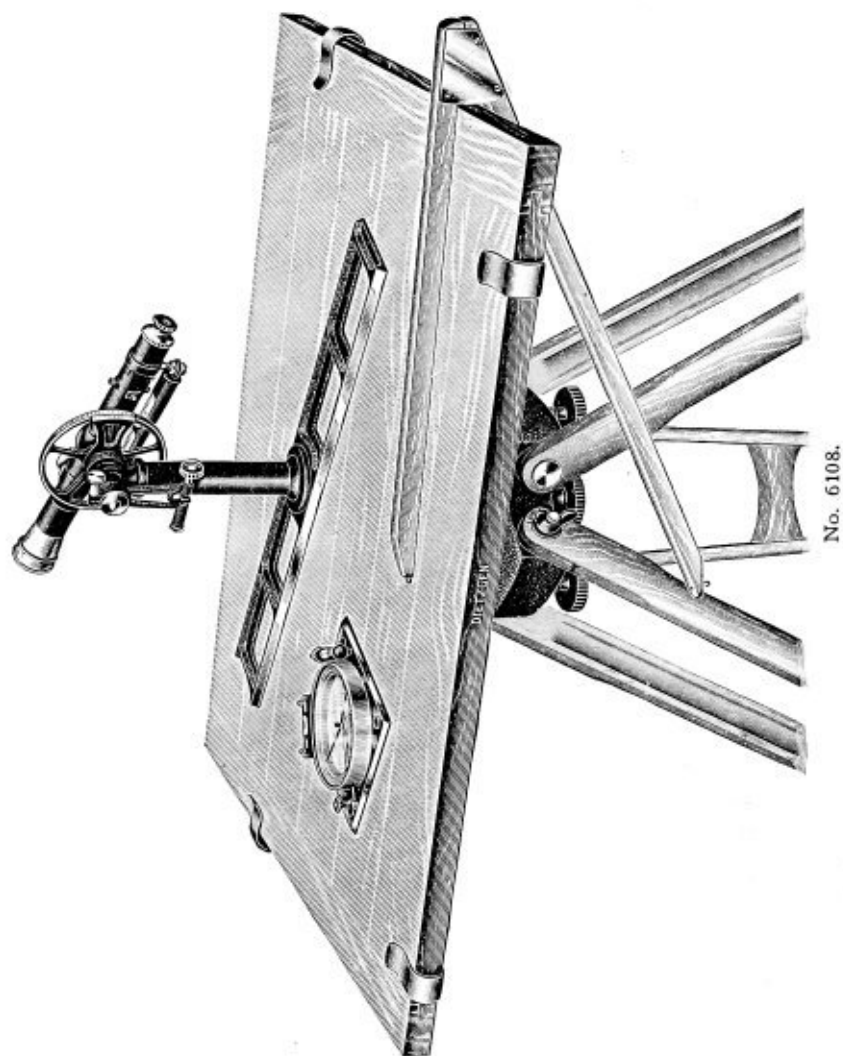
Compass — Trough; set into one edge of the drawing board; 4 inch needle, jewel center, with stop.

Drawing Board — Square; 15×15 inches; selected pinewood, thoroughly seasoned; at each corner of the board are small clamp screws with sockets for holding the paper.

No. 6102.	Traverse Plane Table; with solid-leg Tripod,	Each, \$
6103.	Like No. 6102, but with extension Tripod,	"
6104.	Alidade only, as described above, in sewed leather case,	"

See Price List in back of Catalog.

Plane Tables



No. 6108.

For complete specifications, see next page.



Plane Tables

Specifications of No. 6108

Alidade:

Telescope — Length, 11 inches; achromatic terrestrial (erecting); dust cap and sunshade; magnifying power, 24 diameters; objective, $1\frac{1}{4}$ inches; eye-piece with spiral focusing arrangement; fixed stadia hairs, ratio 1:100.

Telescope Level — Length, 5 inches; graduated on the glass; 30 seconds sensibility.

Vertical Circle — Diameter, $4\frac{1}{2}$ inches; double direct vernier, reading to 1 minute; graduated on sterling silver.

Straight Edge — Length, $21\frac{3}{4}$ inches; width, $3\frac{1}{4}$ inches.

Compass: Square; base, 4×4 inches; graduated on raised ring to half-degrees; $3\frac{1}{2}$ inch needle, with stop; equipped with two fine spirit levels graduated on the glass.

Drawing Board: 24×31 inches; selected pinewood, thoroughly seasoned.

Leveling Head and Tripod: No. 6140, illustrated and described on page 438.

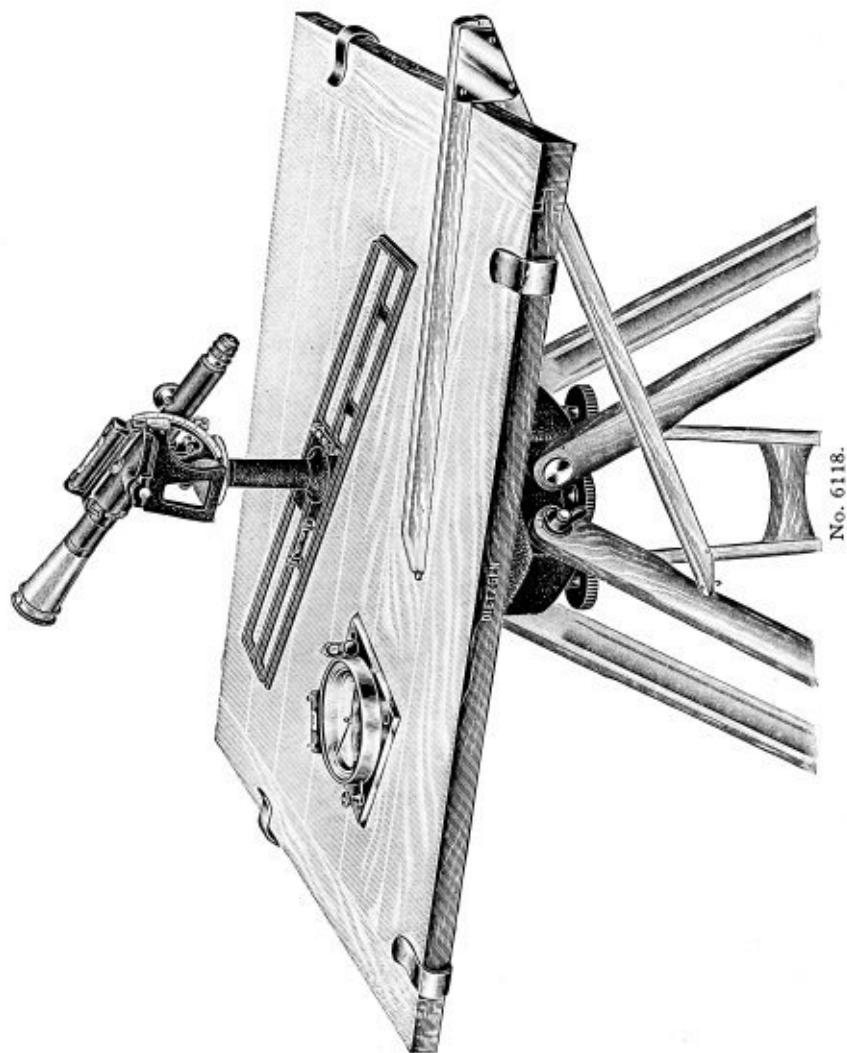
Alidade, Compass, Spring Clamps for holding paper, Plumb Bob, Magnifying Glass, Screwdriver and Adjusting Pins contained in a hardwood box; Drawing Board and Plumbing Arm contained in a separate canvas-covered wooden box.

No. 6108.	Plane Table, complete,	. . . . .	Each, \$
6109.	Like No. 6108, but with Leveling Head and Tripod No. 6142,	. . . . .	"
6110.	" " 6108, " " 18 \times 24 inch Drawing Board,	. . . . .	"
6111.	" " 6110, " " Leveling Head and Tripod No. 6142,	. . . . .	"
6112.	Alidade only, as described above,	. . . . .	"
6113.	Compass " " " " " " " " " " " "	. . . . .	"
6114.	Plumbing Arm,	. . . . .	"

Leveling Head and Tripod No. 6142 illustrated and described on page 439.

See Price List in back of Catalog.

Plane Tables



For complete specifications, see next page.



Plane Tables

Specifications of No. 6118

Alidade:

Telescope — Length, 16 inches; achromatic astronomical (inverting); dust cap and sunshade; magnifying power, 40 diameters; objective, $1\frac{1}{2}$ inches; eye-piece with spiral focusing arrangement; fixed stadia hairs, ratio 1:100; telescope is mounted in a sleeve and can be turned about its horizontal axis to bring the cross hairs into their optical axis.

Telescope Level — Length, $4\frac{1}{2}$ inches; graduated on the glass; 30 seconds sensibility.

Vertical Arc — Diameter, 6 inches; double direct vernier, reading to 1 minute; graduated on sterling silver.

Straight Edge — Length, 22 inches; width, $3\frac{1}{2}$ inches.

Straight Edge Levels — Two; length, 2 inches; graduated on the glass; 60 seconds sensibility.

Compass: Square; base, 4×4 inches; graduated on raised ring to half-degrees; $3\frac{1}{2}$ inch needle, with stop; equipped with two fine spirit levels graduated on the glass.

Drawing Board: 24×31 inches; selected pinewood, thoroughly seasoned.

Leveling Head and Tripod: No. 6140, illustrated and described on following page.

Alidade, Compass, Spring Clamps for holding paper, Plumb Bob, Magnifying Glass, Screwdriver and Adjusting Pins contained in a hardwood box; Drawing Board and Plumbing Arm contained in a separate canvas-covered wooden box.

No. 6118.	Plane Table; complete,	Each, \$
6119.	Like No. 6118, but with Leveling Head and Tripod No. 6142,	"
6120.	" " 6118, " " 18 \times 24 inch Drawing Board,	"
6121.	" " 6120, " " Leveling Head and Tripod No. 6142,	"
6122.	Alidade only, as described above,	"
6123.	Compass " " " "	"
6124.	Plumbing Arm,	"

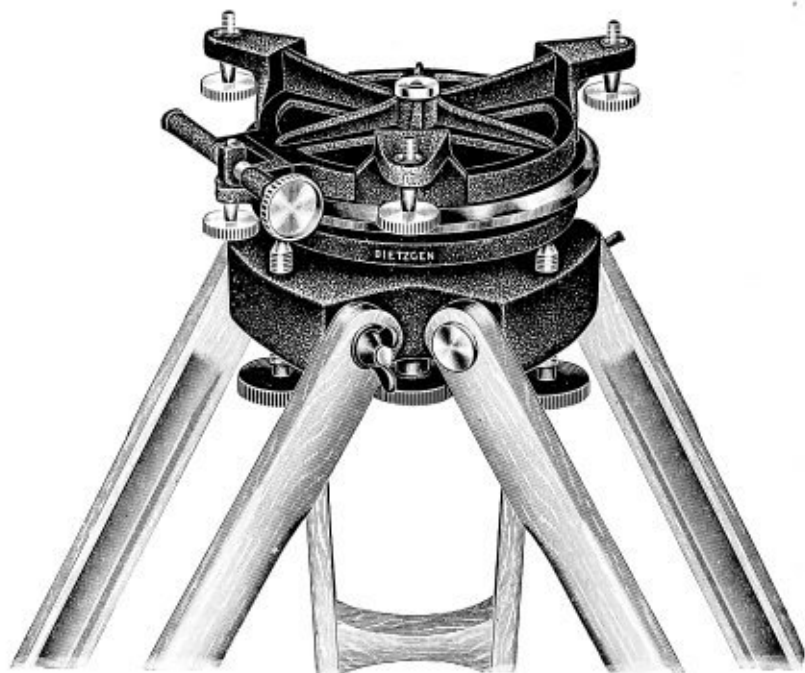
Leveling Head and Tripod No. 6142 illustrated and described on page 439.

See Price List in back of Catalog.



Leveling Head and Tripod

(Dietzgen Design)



No. 6140.

The Leveling Head and Tripod (Dietzgen design), illustrated above, is very light and rigid, and is adapted for use with the Plane Tables described on pages 435 to 437.

It has three leveling screws, widely separated so as to hold the drawing board firmly. The part that carries the drawing board revolves in a metal socket having a broad, substantial bearing surface, and is provided with a clamp and tangent screw.

All metal parts, with the exception of the leveling screws, are made of aluminum. The complete weight is about 15 pounds, and the general design permits of very accurate and secure adjustments being made.

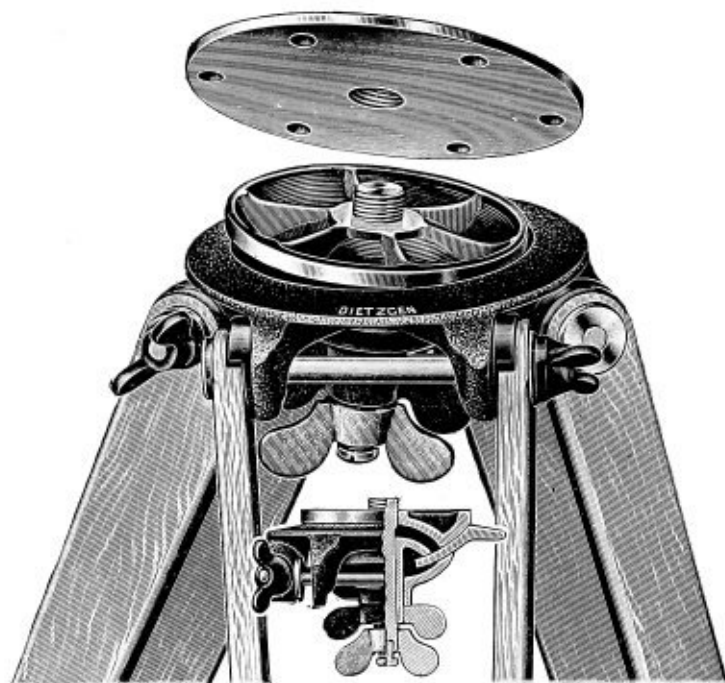
No. 6140. Leveling Head and Tripod; complete, Each, \$

See Price List in back of Catalog.



Leveling Head and Tripod

(Johnson Design)



No. 6142.

The Leveling Head and Tripod (Johnson design), illustrated above, is adapted for use with our Plane Tables as described on pages 435 to 437. It is simple to operate, light in weight, and exceptionally rigid.

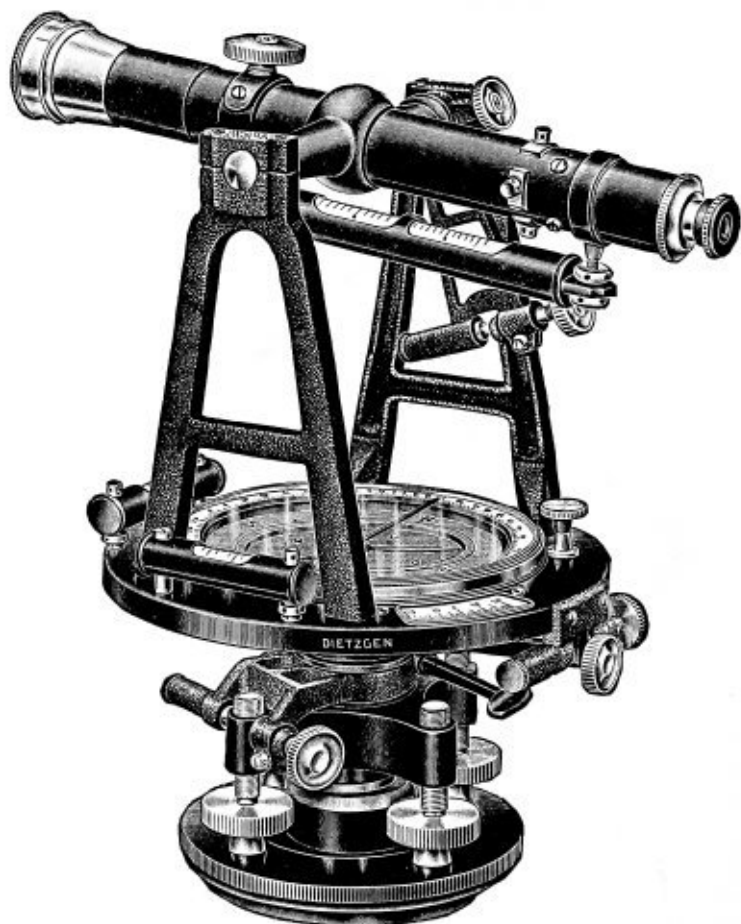
The design of the Leveling Head permits of rapidly orienting, leveling and clamping the drawing board. It consists of two movable sphere-segments, one placed within the other. Two wing nuts are provided: one for holding the segments in position, and the other for clamping them.

While the weight complete is only about 9 pounds, the general construction insures accuracy and the withstanding of hard usage.

No. 6142. Leveling Head and Tripod; complete, Each, \$

See Price List in back of Catalog.

Surveying Transit



No. 6322A.

For complete specifications, see next page.



Surveying Transit

Specifications of No. 6322A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and verniers graduated on sterling silver, the lines being very legible and uniform in thickness.

Verniers — Two, double and exactly opposite, reading to 1 minute.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{1}{4}$ inches, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, 5 inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center — Range, $\frac{1}{8}$ inch.

Leveling Base — Large diameter; four leveling screws, nickel silver, with accurately cut threads and ball and socket cups.

Tangent Screws — Nickel silver; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 14 lbs., 9 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

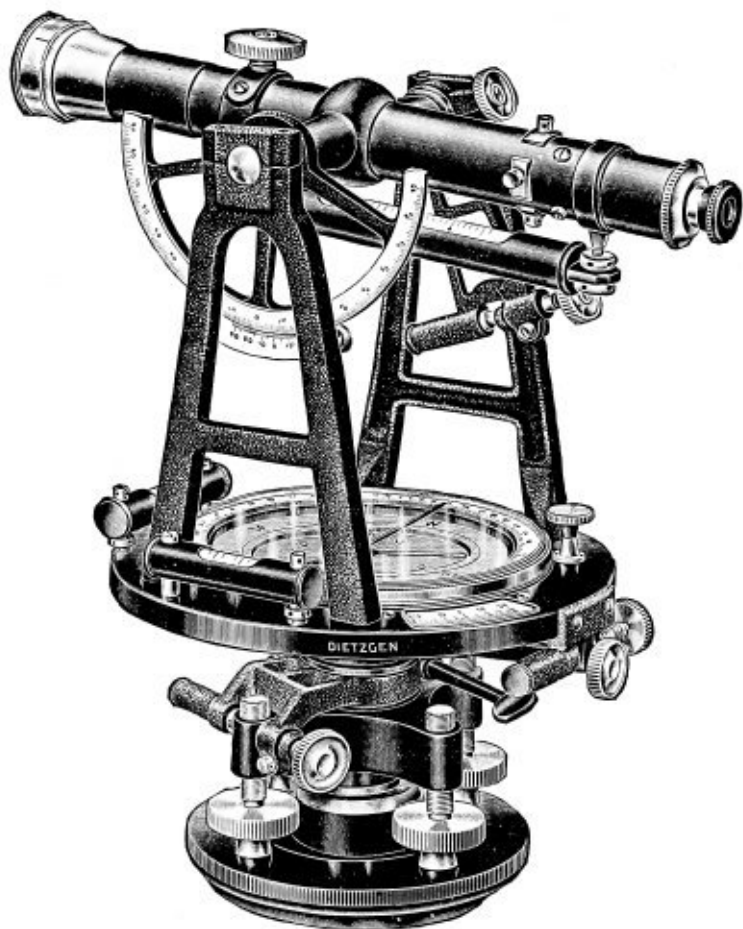
No. 6322A. Surveying Transit; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

Engineering Transits listed under Nos. 6022A-6084C.

See Price List in back of Catalog.

Surveying Transit



No. 6323A.

For complete specifications, see next page.



Surveying Transit

Specifications of No. 6323A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and verniers graduated on sterling silver, the lines being very legible and uniform in thickness.

Verniers — Two, double and exactly opposite, reading to 1 minute.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{1}{4}$ inches, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, 5 inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Arc — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center — Range, $\frac{7}{8}$ inch.

Leveling Base — Large diameter; four leveling screws, nickel silver, with accurately cut threads and ball and socket cups.

Tangent Screws — Nickel silver; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 14 lbs., 14 oz.; tripod, about 10 lbs.

Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6323A. Surveying Transit; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

Engineering Transits listed under Nos. 6022A-6034C.

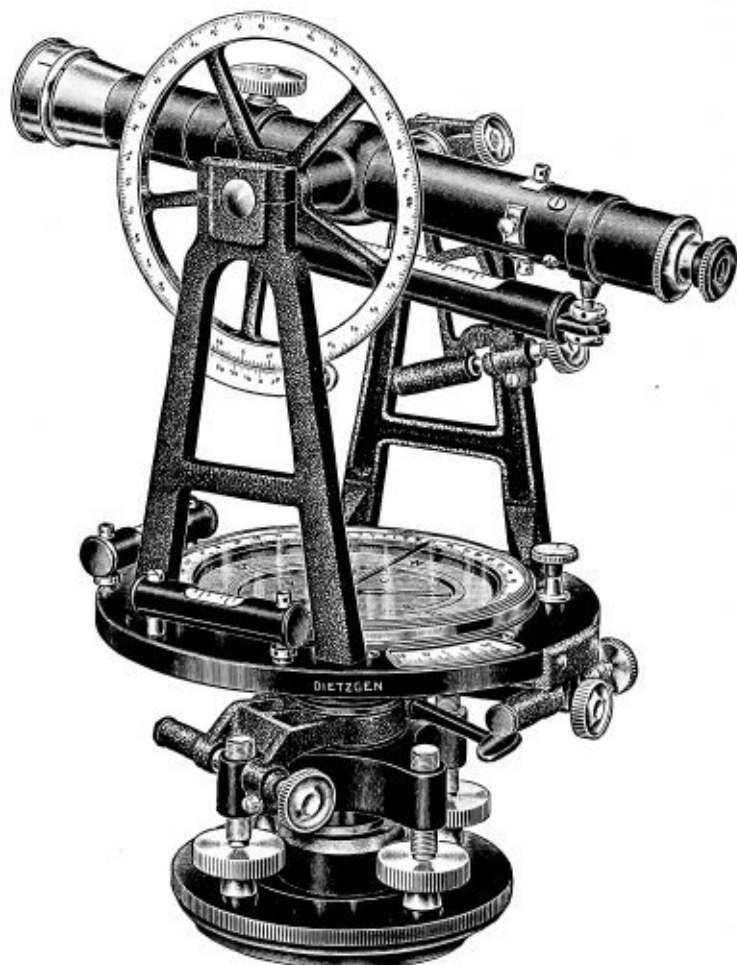
See Price List in back of Catalog.



EUGENE DIETZGEN CO.



Surveying Transit



No. 6324A.

For complete specifications, see next page.



Surveying Transit

Specifications of No. 6324A

Horizontal Circle — Diameter, $6\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and verniers graduated on sterling silver, the lines being very legible and uniform in thickness.

Verniers — Two, double and exactly opposite, reading to 1 minute.

Plate Levels — Two; length, $2\frac{1}{2}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, 11 inches; magnifying power, 24 to 26 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{1}{4}$ inches, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, 5 inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, 5 inches; vernier to 1 minute; graduated on sterling silver.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $4\frac{1}{2}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center — Range, $\frac{7}{8}$ inch.

Leveling Base — Large diameter; four leveling screws, nickel silver, with accurately cut threads and ball and socket cups.

Tangent Screws — Nickel silver; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 15 lbs.; tripod, about 10 lbs.

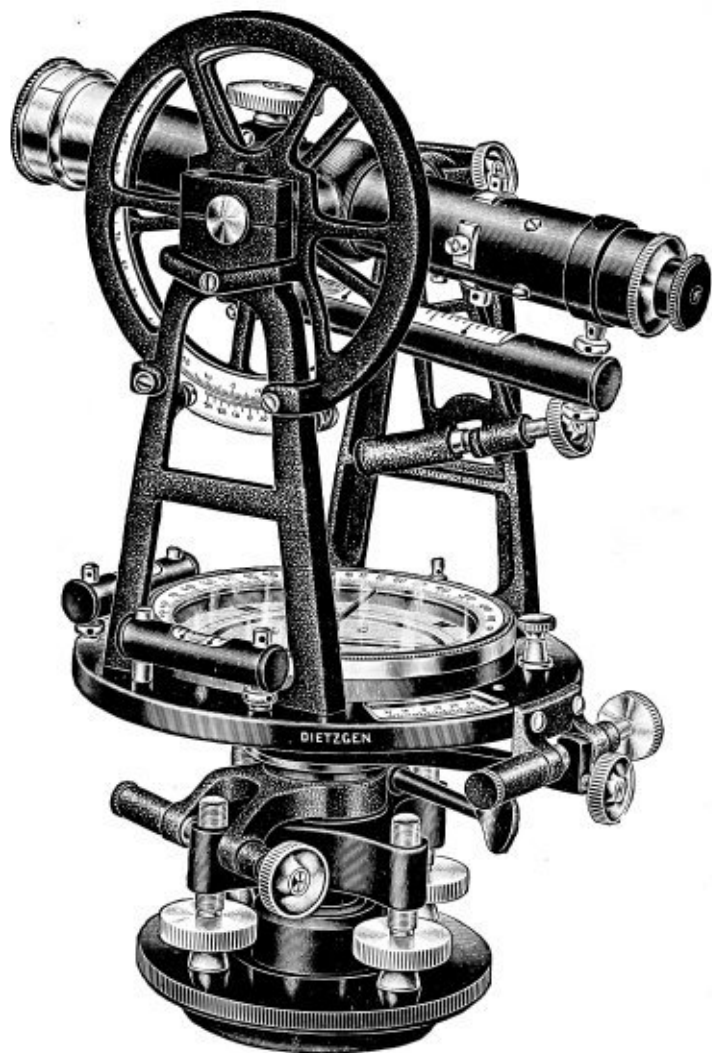
Accessories — Split-leg Tripod No. 6495, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6324A. Surveying Transit; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

Highway Transit



No. 6334C.

For complete specifications, see next page



Highway Transit

Specifications of No. 6334C

Horizontal Circle — Diameter, $5\frac{1}{4}$ inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and verniers graduated on sterling silver, the lines being exceptionally legible and uniform in thickness.

Verniers — Two; double and exactly opposite, reading to 1 minute.

Plate Levels — Two; length, 2 inches; 90 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{1}{4}$ inches, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, $5\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, $4\frac{1}{2}$ inches; vernier to 1 minute; graduated on sterling silver; protected by guard.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{4}$ inches; variation plate with vernier reading to 5 minutes; cardinal points shift with the graduated circle.

Centers — Compound anti-friction: inner one, bell metal; intermediate, gun metal; outer, bronze; extra long tapered, precisely fitted; strong, unyielding, and accurate.

Shifting Center — Range, $\frac{5}{8}$ inch.

Leveling Base — Large diameter; four leveling screws, nickel silver, with accurately cut threads and ball and socket cups.

Tangent Screws — Phosphor bronze; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 11 lbs., 15 oz.; tripod, about $8\frac{3}{4}$ lbs.

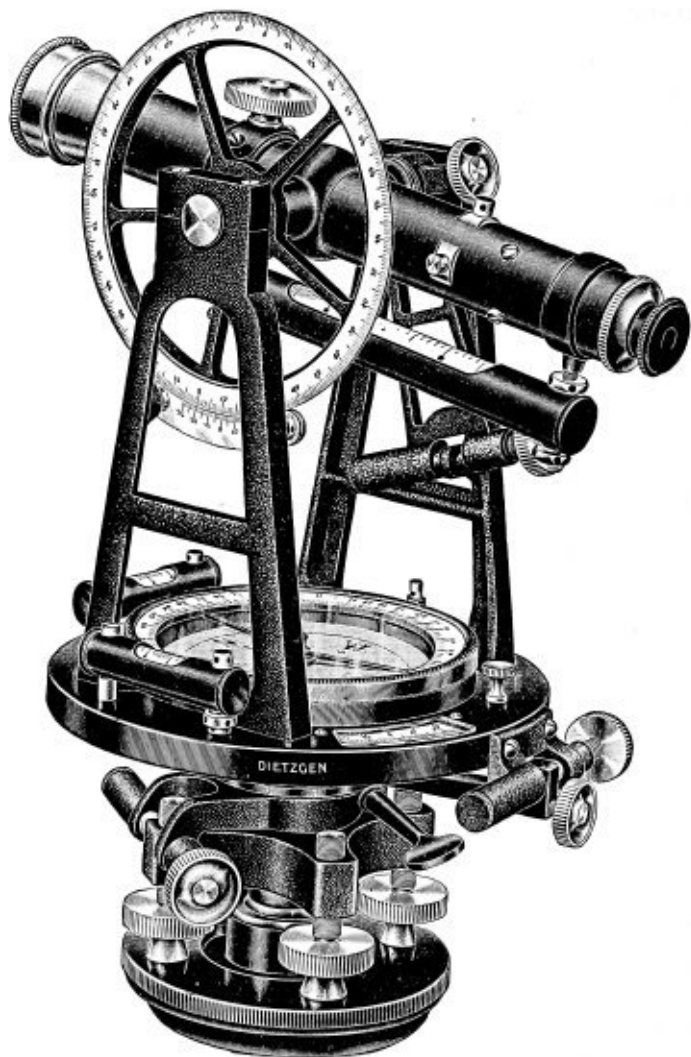
Accessories — Extension tripod No. 6497, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6334C. Highway Transit; complete, Each, \$

Accessories, Modifications, Etc., listed on pages 461-465.

See Price List in back of Catalog.

Reconnaissance Transit



No. 6344C.

For complete specifications, see next page.



Reconnaissance Transit

Specifications of No. 6344C

Horizontal Circle — Diameter, 5 inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and vernier graduated on sterling silver, the lines being very legible and uniform in thickness.

Vernier — One, reading to 1 minute.

Plate Levels — Two; length, 2 inches; 90 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $9\frac{1}{2}$ inches; magnifying power, 18 to 20 diameters; fixed stadia hairs.

Object Glass — Diameter, $1\frac{1}{8}$ inches, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, $5\frac{1}{4}$ inches; 30 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, $4\frac{1}{2}$ inches; vernier to 1 minute; graduated on sterling silver.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{8}$ inches; variation plate cardinal points shift with the graduated circle.

Centers — Accurate and substantial; of a design in harmony with the general construction and quality of the instrument.

Shifting Center — Range, $\frac{1}{2}$ inch.

Leveling Base — Large diameter; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Tangent Screws — Phosphor bronze; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 10 lbs., 3 oz.; tripod, about $8\frac{3}{4}$ lbs.

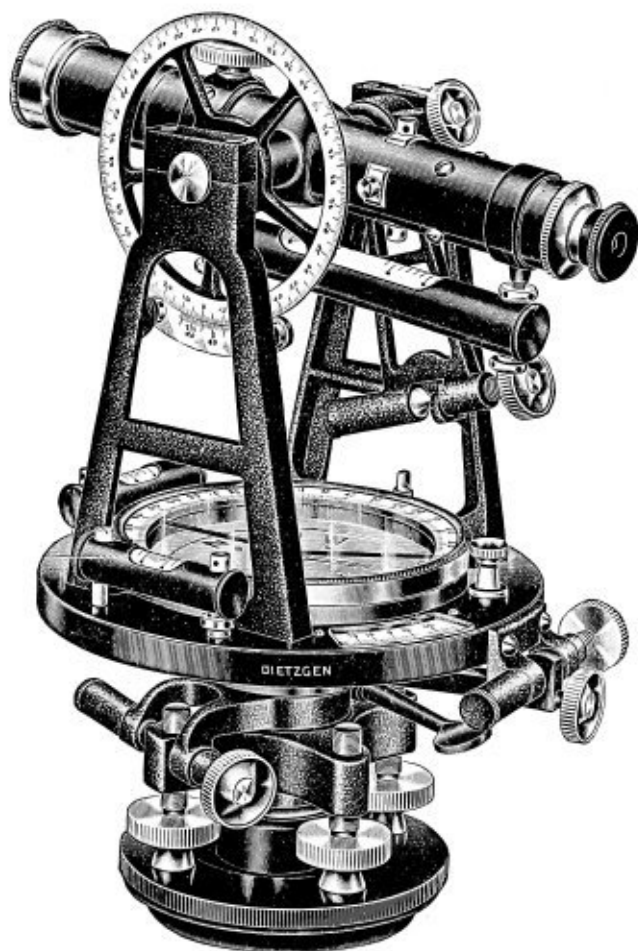
Accessories — Extension tripod No. 6497, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6344C. Reconnaissance Transit; complete, Each, \$

Higher Grade Transit of about the same dimensions listed under No. 6334C.

See Price List in back of Catalog.

Light Reconnaissance Transit



No. 6354C.

For complete specifications, see next page.



Light Reconnaissance Transit

Specifications of No. 6354C

Horizontal Circle — Diameter, 5 inches to edge of graduation; marked with two rows of figures, reading 0 to 360 both ways; figures inclined in the direction they are to be read; circle and vernier graduated on sterling silver, the lines being very legible and uniform in thickness.

Vernier — One, reading to 1 minute.

Plate Levels — Two; length, 2 inches; 90 seconds sensibility; $\frac{1}{10}$ inch division.

Telescope — Length, $8\frac{1}{4}$ inches; magnifying power, 16 to 18 diameters; fixed stadia hairs

Object Glass — Diameter, 1 inch, used to full value.

Eye-Piece — Erecting; improved style, giving a large, flat field.

Level — Length, $4\frac{3}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Vertical Circle — Diameter, $3\frac{1}{2}$ inches; vernier to 2 minutes; graduated on composition metal.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{8}$ inches; variation plate cardinal points shift with the graduated circle.

Centers — Accurate and substantial; of a design in harmony with the general construction and quality of the instrument.

Shifting Center — Range, $\frac{1}{2}$ inch.

Leveling Base — Large diameter; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Tangent Screws — Phosphor bronze; improved form, with opposing spiral spring; accessible and well protected.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 9 lbs., 3 oz.; tripod, about $8\frac{3}{4}$ lbs.

Accessories — Extension Tripod No. 6497 or Split Leg Tripod No. 6494, sun shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6354C. Light Reconnaissance Transit with Split-leg Tripod No. 6494;
complete Each, \$

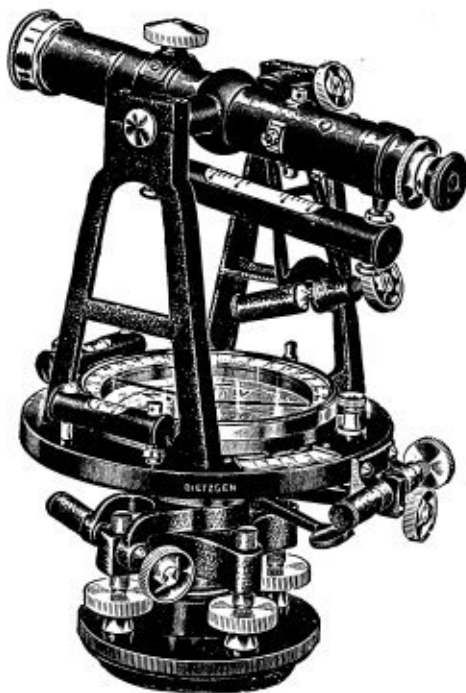
6354CE. Like No. 6354C, but with Extension Tripod No. 6497 "

Reconnaissance Transit with more powerful telescope and of larger dimensions listed under No. 6344C.

See Price List in back of Catalog.



Builders Transit



No. 6362C

This Builders Transit has been designed to meet the demand for a low-priced and reliable instrument that can be used by builders as either a Transit or a Level.

Specifications of No. 6362C

Horizontal Circle — Diameter, 5 inches; marked with two rows of figures reading 0 to 360 both ways; graduated on sterling silver; vernier reading to 1 minute.

Telescope — Length, $8\frac{1}{4}$ inches; magnifying power, 16 to 18 diameters; objective, 1 inch; erecting eye-piece; fixed stadia hairs.

Telescope Level — Length, $4\frac{3}{4}$ inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Compass — Numbered in quadrants; graduated to half-degrees; silvered; magnetic needle, $3\frac{3}{8}$ inches.

Centers — Accurate and substantial; range of shifting center, $\frac{1}{2}$ inch.

Leveling Base — Large diameter; four leveling screws, phosphor bronze.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

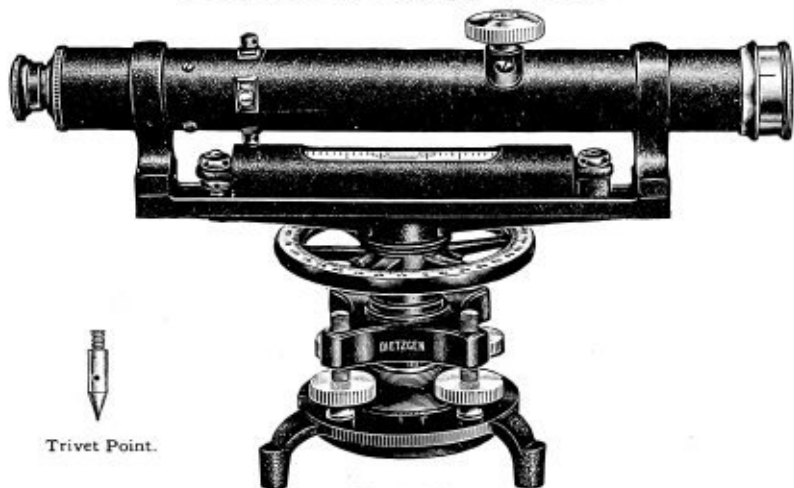
Weight — Instrument, about 8 lbs.; solid-leg tripod, $7\frac{3}{4}$ lbs.; extension tripod, $8\frac{3}{4}$ lbs.

Accessories — Solid-leg Tripod No. 6492 or Extension Tripod No. 6497, sun-shade, adjusting pins, plumb bob, magnifying glass, mahogany box with lock, key and strap.

No. 6362C. Builders Transit with solid leg Tripod No. 6492; complete, Each, \$
6362CE. Like No. 6362C, but with Extension Tripod No. 6497, "

See Price List in back of Catalog.

Builders Dumpy Level



Trivet Point.

No. 6370.

This Instrument, while low in price, is exceptionally well made and very reliable. It meets all the requirements of the Builder, Contractor, Architect and Millwright for reading angles; for laying out buildings; for leveling walls, foundations, floors, shafting, and bases of machinery, and for grading streets, curbing, ditches and draining. It is simple to operate, does not get out of adjustment easily, and requires less careful handling than a Y Level.

The telescope of a Dumpy Level cannot be reversed as it is permanently fixed to the collars of the cross bar; on account of this construction the method of adjustment is different than that of a Y Level, the telescope of which is reversible in the wyes.

Specifications of No. 6370

Telescope — Length, 12 inches; magnifying power, 18 to 20 diameters; objective, $1\frac{1}{8}$ inches, used to full value; erecting eye-piece.

Cross Bar — Length, 8 inches; bell metal; designed to increase stability and decrease weight.

Level to Cross Bar — Length, 5 inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Horizontal Circle — Diameter, $3\frac{1}{4}$ inches; silvered; graduated every degree, numbered every 10 degrees, in quadrants; vernier reading to 5 minutes.

Center — Bell metal; center and cross bar cast in one piece.

Shifting Center — Range, $\frac{7}{16}$ inch.

Leveling Base — Large diameter; with Trivet, which with the trivet points furnished, is used for setting Level where use of tripod is difficult; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 5 lbs.; solid-leg tripod, $6\frac{1}{2}$ lbs.; extension tripod, 8 lbs.

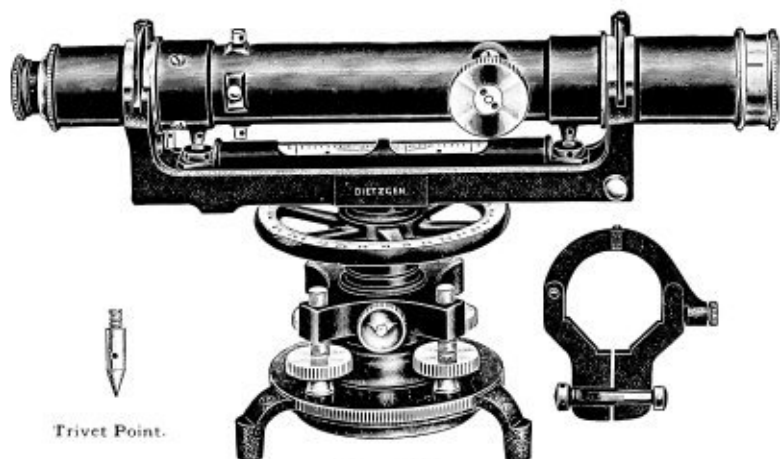
Accessories — Solid-leg Tripod No. 6491 or Extension Tripod No. 6496, sun shade, plumb bob, adjusting pins, box made of ash, natural finish, with lock, key and strap.

No. 6370. Builders Dumpy Level with Solid-leg Tripod No. 6491; complete, Each, \$

6370E. Like No. 6370, but with Extension Tripod No. 6496, " "

See Price List in back of Catalog.

Builders Y Levels



No. 6374.

These Instruments, of excellent quality and accurate workmanship, are adapted for reading angles; for laying out buildings; for leveling walls, foundations, floors, streets, curbing and bases of machinery, shafting, etc.; and for ditching and draining.

They are very simple to operate, easy to adjust, and of great value to Builders, Contractors, Architects, Landscape Gardeners, Etc.

Specifications of No. 6374

Telescope — Length, 12 inches; magnifying power, 18 to 20 diameters; objective, $1\frac{3}{8}$ inches, used to full value; erecting eye-piece.

Telescope Level — Length, 5 inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Cross Bar — Length, $7\frac{1}{2}$ inches; bell metal; simple wye adjustment and effective wye locking device.

Horizontal Circle — Diameter, $3\frac{1}{4}$ inches; silvered; graduated every degree, numbered every 10 degrees, in quadrants; vernier reading to 5 minutes.

Center — Bell metal; center, cross bar and wyes cast in one piece.

Shifting Center — Range, $\frac{7}{16}$ inch.

Leveling Base — Large diameter; with Trivet, which with the trivet points furnished, is used for setting Level where use of tripod is difficult; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

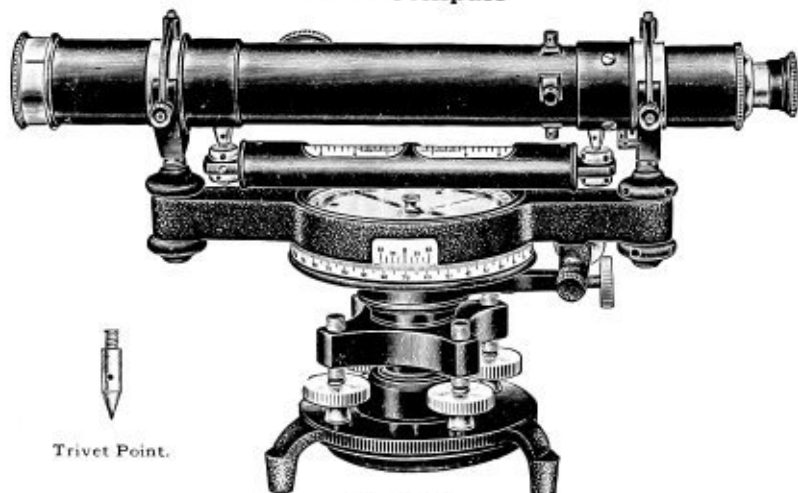
Weight — Instrument, about 5 lbs., 15 oz.; solid-leg tripod, $6\frac{1}{2}$ lbs.; extension tripod, 8 lbs.

Accessories — Solid-leg Tripod No. 6491 or Extension Tripod No. 6496, sunshade, plumb bob, adjusting pins, box made of ash, natural finish, with lock, key and strap.

- | | |
|-----------|---|
| No. 6374. | Builders Y Level with Solid-leg Tripod No. 6491; complete, Each, \$ |
| 6374E. | Like No. 6374, but with Extension Tripod No. 6496, " |
| 6376. | Like No. 6374, but with Tangent Screw; complete, " |
| 6376E. | Like No. 6376, but with Extension Tripod No. 6496, " |

See Price List in back of Catalog.

Builders' Y Level With Compass



Trivet Point.

No. 6378.

This Instrument, of the same accurate workmanship as our No. 6374 Builders Level, is fitted with a **compass** which, while increasing the weight and size of the instrument but very little, affords a ready means of determining the bearing of lines and of measuring angles by the needle.

Specifications of No. 6378

Telescope — Length, 12 inches; magnifying power, 18 to 20 diameters; objective $1\frac{1}{4}$ inches, used to full value; erecting eye-piece.

Telescope Level — Length, 5 inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Cross Bar — Length, $7\frac{1}{2}$ inches; bell metal; effective wye locking device.

Compass — Numbered in quadrants; graduated to one degree; silvered; magnetic needle, 3 inches.

Horizontal Circle — Diameter, $3\frac{1}{4}$ inches; silvered; graduated every degree, numbered every 10 degrees, in quadrants; vernier reading to 5 minutes.

Center — Bell metal; center and cross bar cast in one piece.

Shifting Center — Range, $\frac{1}{8}$ inch.

Leveling Base — Large diameter; with Trivet, which with the trivet points furnished, is used for setting Level where use of tripod is difficult; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 6 lbs., 4 oz.; solid-leg tripod, $6\frac{1}{2}$ lbs.; extension tripod, 8 lbs.

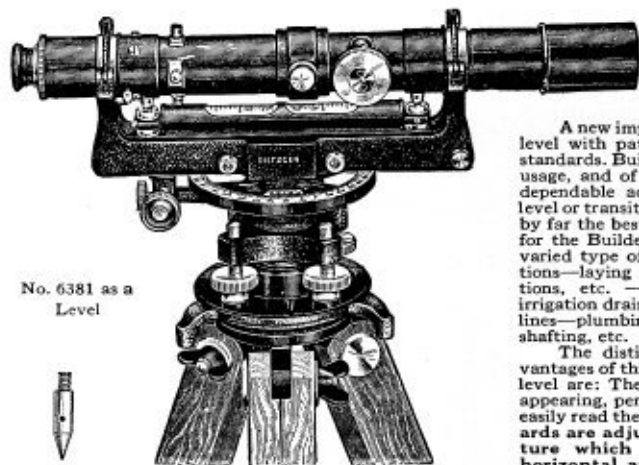
Accessories — Solid-leg Tripod No. 6491 or Extension Tripod No. 6496, sun shade, plumb bob, adjusting pin, box made of ash, natural finish, with lock, key and strap.

No. 6378.	Builders' Y Level, with Compass and Tangent Screw with Solid-leg Tripod No. 6491; complete,	Each, \$
6378E.	Like No. 6378, but with Extension Tripod No. 6496,	"

See Price List in back of Catalog.



Builders' Convertible Y Level

No. 6381 as a
Level

Trivet Point

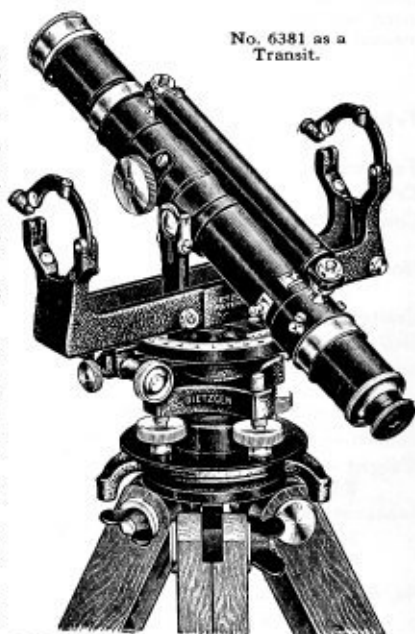
may be rotated in the wyes about 315° which is necessary when making line of collimation of adjustment; the angle of elevation or depression is greater than many other instruments; the conversion from level to transit and vice-versa is very simple—simply lift the telescope from the wyes, lift the standards until they snap into position, then place the telescope in the standards and the instrument is ready for vertical sighting

Specifications of No. 6381

- Telescope**—Length, 12 inches; magnifying power, 20 to 25 diameters; objective, $1\frac{1}{8}$ inches, used to full value; erecting eye-piece.
- Telescope Level**—Length, 5 inches; 60 seconds sensibility; $\frac{1}{16}$ inches division.
- Cross Bar**—Length, 8 inches; bell metal; simple wye adjustment and effective wye locking device.
- Disappearing Transit Standards**—Hard bronze—spring locked—adjustable.
- Horizontal Circle**—Diameter, $3\frac{1}{4}$ inches, silvered; graduated every degree, numbered every 10 degrees in quadrants; vernier reading to five minutes.
- Center**—Bell metal; center, cross bar and wyes cast in one piece.
- Shifting Center**—Range, $\frac{1}{16}$ inch.
- Leveling Base**—Large diameter; with combination leveling screw plate and Trivet, which with trivet points furnished, is used for setting instrument where use of tripod is difficult; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.
- Finish**—Dark; very durable; not affected by spirits, acids or atmospheric changes.
- Weight**—Instrument, about 6 lbs., 13 oz., solid-leg tripod, $6\frac{1}{2}$ lbs.; extension tripod, 8 lbs.
- Accessories**—Solid-leg Tripod No. 6491 or Extension Tripod No. 6496, sun shade, plumb bob, adjusting pins, box made of ash, natural finish, with lock, key and strap.
- No. 6381.** Builders' Convertible Y Level, with Tangent Screw, with Solid-leg Tripod No. 6491, Complete, . Each, \$
- 6381E.** Like No. 6381, but with Extension Tripod No. 6496, Each, \$

A new improved precision convertible level with patented disappearing transit standards. Built unusually strong for hard usage, and of excellent workmanship for dependable accurate results either as a level or transit. It is a superior instrument, by far the best of its type. Built specially for the Builder and Contractor for their varied type of work—determining elevations—laying out and leveling foundations, etc.—grading streets, sewers, irrigation drainage, etc.—running straight lines—plumbing buildings, etc.—lining up shafting, etc.

The distinct new features and advantages of this new improved convertible level are: The transit standards are disappearing, permitting the level vial being easily read the whole length; both standards are adjustable, an exclusive feature which permits adjusting the horizontal axis, a positive means of always having an accurate transit; telescope is free of dangling devices and

No. 6381 as a
Transit.

See Price List in back of Catalog.

Builders' Convertible Y Level With Compass



Trivet Point.

No. 6382.

This instrument, due to its convertible features, is used for obtaining vertical lines and for sighting objects above or below the horizontal plane. It is fitted with a compass which affords a ready means of determining the bearing of lines and of measuring angles by means of a needle. The illustration shows the position for sighting vertical lines. To use as a level, that is, for sighting a horizontal line, the trunnions—shown in the illustration as screwed in the bearing piece at the middle of the telescope—are removed, and the telescope placed in the wyes.

Specifications of No. 6382

Telescope — Length, 12 inches; magnifying power, 18 to 20 diameters; objective, $1\frac{1}{8}$ inches, used to full value; erecting eye-piece.

Telescope Level — Length, 5 inches; 60 seconds sensibility; $\frac{1}{10}$ inch division.

Cross Bar — Length, $7\frac{1}{2}$ inches; bell metal; effective wye locking device.

Compass — Numbered, in quadrants; graduated to one degree; silvered; magnetic needle, 3 inches.

Horizontal Circle — Diameter, $3\frac{1}{4}$ inches; silvered; graduated every degree, numbered every 10 degrees, in quadrants; vernier reading to 5 minutes.

Center — Bell metal; center and cross bar cast in one piece.

Shifting Center — Range, $\frac{7}{16}$ inch.

Leveling Base — Large diameter; with Trivet, which with the trivet points furnished, is used for setting up instrument where use of tripod is difficult; four leveling screws, phosphor bronze, with accurately cut threads and ball and socket cups.

Finish — Dark; very durable; not affected by spirits, acids or atmospheric changes.

Weight — Instrument, about 6 lbs., 13 oz.; solid-leg tripod, $6\frac{1}{2}$ lbs.; extension tripod, 8 lbs.

Accessories — Solid-leg Tripod No. 6491 or Extension Tripod No. 6496, sun shade, plumb bob, adjusting pins, box made of ash, natural finish, with lock, key and strap.

No. 6382. Builders' Convertible Y Level, with Compass and Tangent Screw;
with Solid-leg Tripod No. 6491; complete, Each, \$

6382E. Like No. 6382, but with Extension Tripod No. 6496, " "

See Price List in back of Catalog.

Bostrom Builders Levels

For Builders, Carpenters and Stone Masons



No. 6396.

The Bostrom Builders Levels are specially adapted for the use of Builders, Carpenters and Stone Masons. They can be used for any kind of foundation work and for obtaining angles, are simple in construction, easily understood, and can be operated by any one. They are made of brass, oxidized, and have a silvered circle graduated to degrees, an achromatic telescope of serviceable power, and a sensitive ground level vial. A plumb bob, a tripod, and a graduated rod, 5½ feet, extending to 9½ feet, are furnished with each instrument, the rod being equipped with a target.

No. 6396. Bostrom Builders Level, with plumb bob, tripod and graduated rod with target, Each, \$

Bostrom Farm Level

Particularly adapted for Farm use

This Instrument is valuable for terracing, ditching, irrigation and drainage work. It has a circle graduated to degrees, and possesses all improvements that are essential for obtaining satisfactory results. Strongly and accurately made of iron, black enameled, with sliding telescope and spirit level tubes made of lacquered brass, polished.

No. 6398. Bostrom Farm Level, with plumb bob, tripod and graduated rod with target, Each, \$

See Price List in back of Catalog.



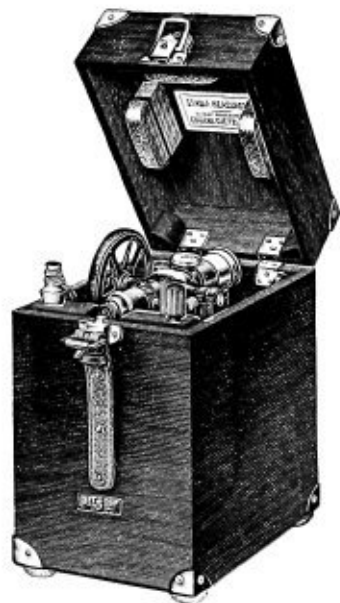
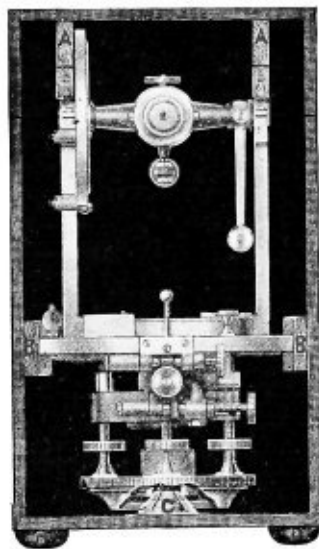
The Dietzgen Modern Transit Box

Keeps Transit in Adjustment
While in any Carrying Position

The Dietzgen top-opening box is designed to insure the protection of Dietzgen instruments while in transit. The severe jolts and shocks that occur to instruments when being conveyed in modern vehicles have made it necessary to provide facilities for transporting the instruments into the field without disturbing the adjustment.

In the Dietzgen top-opening box, the transit rests on a cone in the bottom of the box, and is supported on all sides and top. A spring buffer in the top of the box bears upon the standards so that no part of the transit is free to move. The construction of the box and the method of protecting the instrument prevent the need of any part being clamped. Therefore, no wear or damage to the bearing parts can occur.

In addition to the protection provided by the Dietzgen modern transit box, it affords speed in removing or replacing the instrument. The transit is inserted into the box with the same hold on the instrument as when lifted on the tripod, or vice versa; thus, is a real factor in time-saving as well as a convenience and protection.



AA Self-adjustable felt-lined spring buffer which presses on top of the standards.

BB Felt-lined packing block cradle for transit plate.

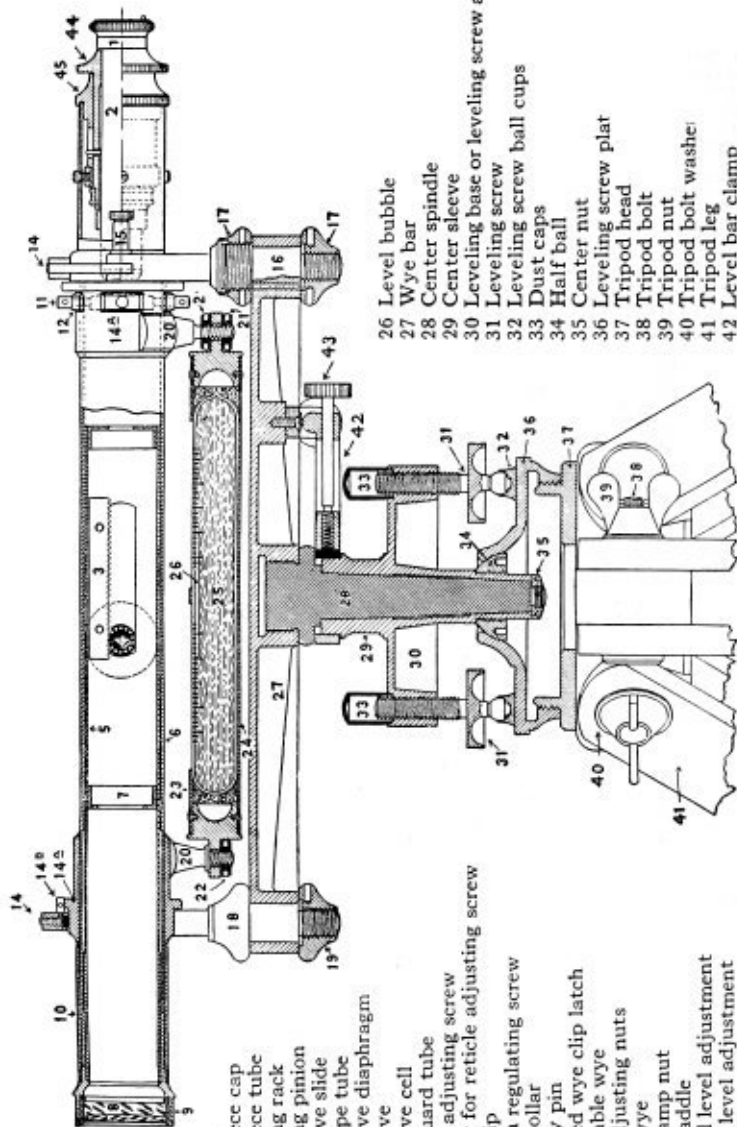
C Metal cone rest for support of end of centers; rigidly holds bottom of transit from any side-sway.

DD Large hollow rubber bumpers which absorb all shocks and vibration.



All Dietzgen surveying instruments are packed in a scientifically constructed box. The boxes are strong with the corners protected by heavy brass plates, and are equipped with an extra heavy carrying strap. They are neat appearing and are fitted on the inside and outside in keeping with the high quality of Dietzgen instruments.

Cross Section of Dietzgen Wye Level



- 1 Eye-piece cap
- 2 Eye-piece tube
- 3 Focusing rack
- 4 Focusing pinion
- 5 Objective slide
- 6 Telescope tube
- 7 Objective diaphragm
- 8 Objective
- 9 Objective cell
- 10 Dust guard tube
- 11 Reticle adjusting screw
- 12 Washer for reticle adjusting screw
- 13 Wye clip
- 14 Tension regulating screw
- 14a Wye collar
- 14b Steady pin
- 15 Patented wye clip latch
- 16 Adjustable wye
- 17 Wye adjusting nuts
- 18 Fixed wye
- 19 Wye clamp nut
- 20 Level saddle
- 21 Vertical level adjustment
- 22 Lateral level adjustment
- 23 Level ends
- 24 Level tubing
- 25 Level vial

- 26 Level bubble
- 27 Wye bar
- 28 Center spindle
- 29 Center sleeve
- 30 Leveling base or leveling screw arms
- 31 Leveling screw
- 32 Leveling screw ball cups
- 33 Dust caps
- 34 Half ball
- 35 Center nut
- 36 Leveling screw plat
- 37 Tripod head
- 38 Tripod bolt
- 39 Tripod nut
- 40 Tripod bolt washer
- 41 Tripod leg
- 42 Level bar clamp
- 43 Level bar clamp screw
- 44 Focusing sleeve
- 45 Eye-piece collar



Accessories and Parts

When ordering Accessories and Parts, always specify the serial or the catalog number of the Instrument.

The prices given apply only to Accessories and Parts for Instruments of our manufacture. Prices for Accessories and Parts to Instruments of other makes quoted on request.

No. 6400E.	Adjusting Pin, steel, with eye, for attaching to key ring.	Each, \$
6400L.	" " " large,	"
6400S.	" " " small,	"
6400W.	" " " a set including Nos. 6400L and 6400S,	"
	in leather sheath,	"
6400Y.	Center Key, to remove center nut,	"
6401.	Cap for object glass,	"
6402.	" " eye-piece,	"
6403.	Box, wood, for engineering and mining transits,	"
6403S.	Strap, carrying, with buckle, for No. 6403,	"
6404.	Box, wood, for surveying, highway and builders transits,	"
6404S.	Strap, carrying, with buckle, for No. 6404,	"
6405.	Box, wood, for engineering levels,	"
6405S.	Strap, carrying, with buckle, for No. 6405,	"
6406.	Box, wood, for builders levels,	"
6406S.	Strap, carrying, with buckle, for No. 6406,	"
6407.	Box, wood, for surveyors compasses,	"
6408.	Glass Cover for compass box, ground beveled edge,	"
6409.	" " " " plain edge,	"
6410.	" " colored, dark, attachment for eyepiece,	"
6411.	" " light,	"
6412.	" " objective,	"
6413.	" " prism with colored glass, for eyepiece,	"
6414.	Screw, clamp, for upper plate of transits,	"
6415.	" " " lower " " "	"
6415A.	" " " levels,	"
6415B.	" " " gradienter,	"
6416.	" " leveling, " engineers and surveyors transits or levels,	"
6416A.	" " " highway and builders transits or levels,	"
6417.	" " tangent, " telescope of engineers and surveyors transits,	"
6418A.	" " " upper plate of engineers and surveyors transits,	"
6418B.	" " " lower plate of engineers and surveyors transits,	"
6419.	" " " telescope of highway and builders transits,	"
6420A.	" " " upper plate of " " " "	"
6420B.	" " " lower " " " "	"
6421.	" " " engineers level,	"
6422.	" " " builders level,	"
6422A.	Trivet, for Transit and Level, 3 in.,	"
6422B.	" " " " 6 " " "	"
6422L.	Leg, 3 in., for No. 6422B.,	"
6423.	Sunshade, plain,	"
6424.	" " improved, with reflector for illuminating cross and stadia hairs,	"

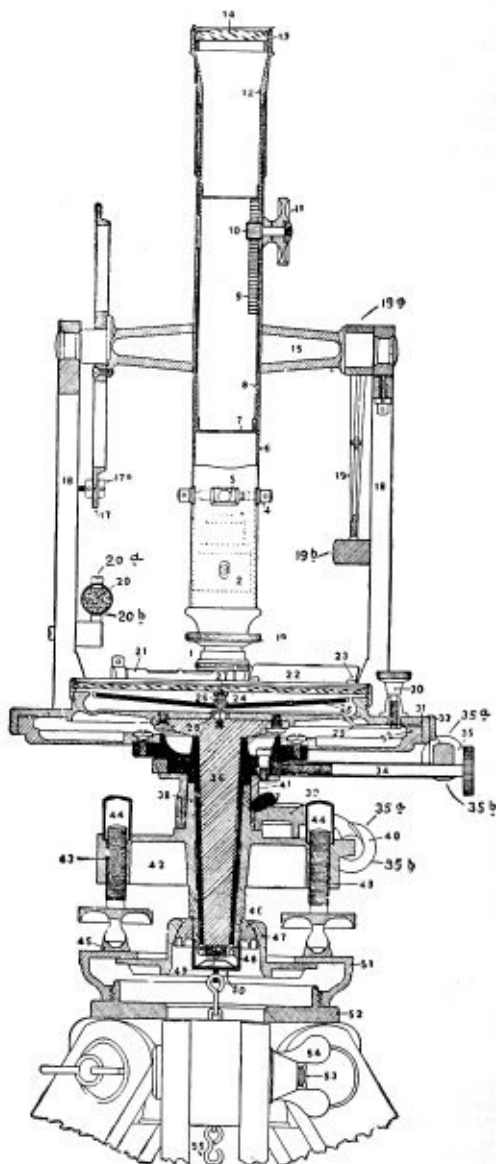
The improved Sunshade, No. 6424, consists of a reflecting mirror rigidly mounted on a short tube. This tube is placed within the tube that forms the sunshade, and is held in position by a stop. If desired, the sunshade can be used without the reflector by taking out the short tube to which the mirror is attached and turning the sunshade so as to bring the opening away from the sun.

No. 6425.	Waterproof Cover for Transits with 11 inch telescope,	Each, \$
6426.	" " " " " 9 1/2 " " "	"
6427.	" " " " " 8 " " "	"
6428.	Waterproof Cover for Levels with 21-22 inch telescope,	"
6429.	" " " " " 20-18 " " "	"
6430.	" " " " " 15-12 " " "	"

See Price List in back of Catalog.

Cross Section of Dietzgen Transit

- 1 Eye-piece Cap
- 2 " Tube
- 3 Cross Hair Reticle
- 4 Reticle Adjusting Screw
- 5 Washer for Reticle Adjusting Screw
- 6 Telescope Main Tube
- 7 Diaphragm for Objective Tube
- 8 Objective Slide
- 9 Focusing Rack
- 10 " Pinion
- 11 " Nut
- 12 Objective Head
- 13 " Cell
- 14 Objective
- 15 Telescope Axis
- 16 Vertical Circle
- 17 " Vernier
- 17a " Adjusting Nut
- 18 Standards
- 19 Telescope Axis Clamp
- 19a Clamp Screw for Telescope Axis
- 19b Tangent Screw for " "
- 20 Standard Level
- 20a Post for Plate Level
- 20b Adjusting Nut for Plate Level
- 21 Plate Level
- 22 Vernier Shade Glass
- 23 " " Frame
- 24 Compass Glass Cover
- 25 " Needle
- 26 Needle Center
- 27 Center Jewel
- 28 Needle Pivot
- 29 " Lifter
- 30 " " Screw
- 31 Upper Plate with horizontal vernier
- 32 Lower Plate or Horizontal Limb
- 33 Tangent Hanger
- 34 Clamp Screw for upper vernier plate
- 35 Plate Tangent Screw
- 35a Cap for Spring Box of either upper or lower motion
- 35b Spring for Spring Box
- 36 Inner Center of hardest Bell Metal
- 37 Intermediate Center of Gun Metal
- 38 Outer Center of Phosphor Bronze
- 39 Clamp for lower or limb plate
- 40 Tangent Screw for lower or limb plate
- 41 Clamping Collar
- 42 Leveling Base or Leveling Screw Arms
- 43 Leveling Screws
- 44 Dust Caps
- 45 Leveling Screw Cups
- 46 Half Ball Nut
- 47 Shifting Plate
- 48 Center Nut
- 49 Center Nut Spring
- 50 Dust Cap and Plumb Bob Support
- 51 Leveling Screw Plate
- 52 Tripod Head
- 53 Tripod Bolt
- 54 Wing Nut for Tripod Bolt
- 55 Plumb Bob Chain and Hook





Attachments and Modifications

The prices given for the following represent the increase in cost of a new instrument of our manufacture when made to order with the attachments and modifications as listed below.

To apply these attachments and modifications to completed instruments of our manufacture it will be necessary to quote the cost of same on request.

	Extra, \$
No. 6438. Guard to vertical circle,	"
6439. Vertical Circle with opposite verniers and guard, in place of regular vertical circle,	"
6440. Vertical Circle and vernier graduated on the edge or rim, for Nos. 6108 to 6112, inc.,	"
6443. Tangent screw with gradienter,	"

For Solar Attachment, see No. 6098.

Graduations

No. 6449. Graduating horizontal circle to read by vernier to single minutes,	\$
6450. " " " " " " " " " " 30 seconds,	
6451. " " " " " " " " " " 20 "	
6453. Graduating vertical circle to read by vernier to single minutes,	
6454. " " " " " " " " " " 30 seconds,	
6455. " " " " " " " " " " 20 "	

Cross and Stadia Hairs



Cross hair arrangement for our Standard Levels



Stadia hair arrangement for our Standard Transits



Special Stadia hair arrangement for triangulation work, furnished special on our instruments, or can be supplied separately



Any arrangement of hairs can be supplied "as special" with any of our instruments.

The prices given on the listings below apply for furnishing the cross or stadia hairs separate from the instrument. When instrument is sent to our factory there will be an additional charge for inserting and adjusting the hairs.

No. 6462. Disappearing stadia hairs and diaphragm,	\$
6463. Fixed stadia and cross hairs and diaphragm,	
6464. Plain cross hairs and diaphragm,	
6465. Replacing cross hairs on diaphragm,	
6466. " stadia and cross hairs on diaphragm,	

See Price List in back of Catalog.

Separate Parts for Tripods

When ordering Parts, always specify the serial or the catalog number of the Instrument.

No. 6471.	Tripod shoe, without spur, for No. 6491,	Each, \$
6471A.	" " with " " " 6492,	"
6471B.	" " " " " 6494, 6495,	"
6471C.	" " without " " " 6496, 6497, 6498,	"
6472.	Bolt, complete with washer and thumb nut, for Nos. 6491, 6492,	"
6472A.	Bolt, complete with washer and thumb nut, for Nos. 6494 to 6498,	"
6472B.	Wing nut and washer, for bolt No. 6472,	"
6472C.	" " " " " 6472A,	"
6472D.	Extension Leg Clamp with thumb screw, brass, for No. 6496,	"
6472E.	" " " " " " Nos. 6497, 6498,	"
6473A.	Tripod head, without bolts or cap, for Nos. 6491, 6492,	"
6473C.	" " " " " 6494, 6495,	"
6474A.	6496, 6497, 6498,	"
6474B.	Metal Cap for protecting tripod threads, for Nos. 6491, 6492,	"
	" " " " " 6494, 6495,	"
	6496, 6497, 6498,	"
6475.	Leg, solid, for No. 6491,	"
6476.	" " " " 6492,	"
6478.	" split, " " 6494,	"
6479.	" " " " 6495,	"
6480.	" extension, complete, for No. 6496,	"
6480A.	" " center stick only for No. 6496,	"
6480B.	" " side only (washer and wing nut side), for No. 6496,	"
6480C.	Leg extension, side only (bolt head side), for No. 6496,	"
6481.	" " complete, for No. 6497,	"
6481A.	" " center stick only for No. 6497,	"
6481B.	" " side only (washer and wing nut side), for No. 6497,	"
6481C.	Leg extension, side only (bolt head side), for No. 6497,	"
6482.	" " complete, for No. 6498,	"
6482A.	" " center stick only for No. 6498,	"
6482B.	" " Side only (washer and wing nut side), for No. 6498,	"
6482C.	Leg Extension, side only (bolt head side), for No. 6498,	"

Level Vials

Prices for level vials are quoted on request. Owing to the fluctuation in cost and the variation in the length, diameter and sensibility of our different vials, it is felt inadvisable to establish standard prices for the different vials used with our instruments.

When requesting prices on vials, always mention the serial number of the instrument, if it is of our manufacture, and also specify whether the vial is for the plates or the telescope. If the instrument is of other manufacture, either send us the metal level vial tube, or case, or give the length, diameter and sensibility of the vial desired.

Repairs

Our Surveying Instrument repair departments in Chicago, New York, San Francisco, New Orleans and Pittsburgh are thoroughly modern and fully equipped to handle all standard makes of Instruments. We have the best facilities for promptly making repairs of any nature, and the prices charged are the lowest consistent with perfect workmanship. All instruments after repair are subjected to an exact adjustment test and our work will be found of unsurpassed excellence.

When forwarding Instruments for repair they should be carefully packed to eliminate the possibility of damage while in transit.

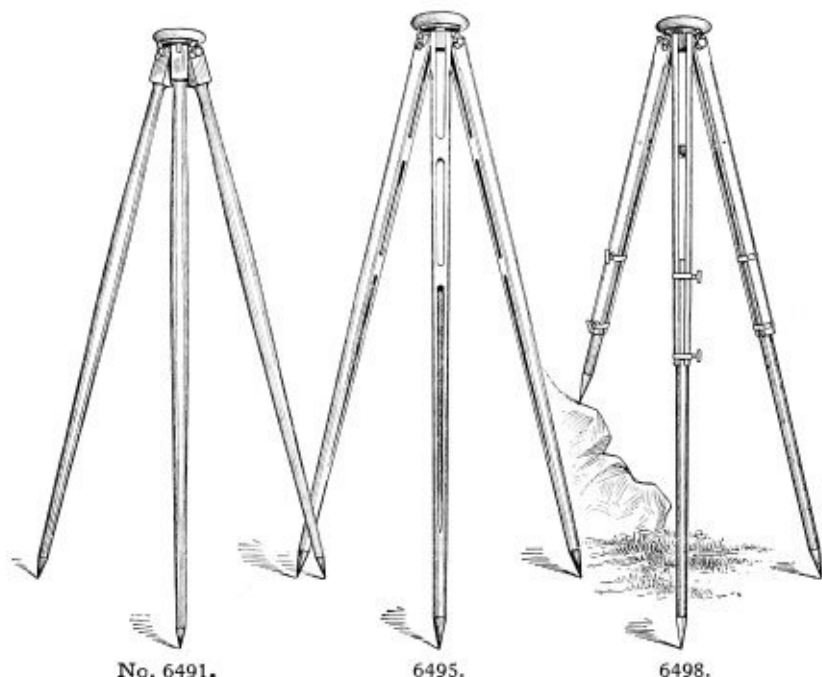
Estimates of cost of repairs furnished on request.

See Price List in back of Catalog.



Tripods

For Levels and Transits



No. 6491.

6495.

6498.

- No. 6491. Solid-leg Tripod, ash, natural finish, round cornered square section, weight about $6\frac{1}{2}$ lbs.; for Instruments Nos. 6370-6382, . . . Each, \$
6492. Solid-leg Tripod, ash, natural finish, round cornered square section, weight about $7\frac{3}{4}$ lbs.; for Instruments Nos. 6354C and 6362C, Each,
6494. Split-leg Tripod, hardwood, weight about $8\frac{3}{4}$ lbs.; for Instruments Nos. 6022C, 6023C, 6024C, 6042C, 6043C, 6054C, 6062C, 6063C, 6074C, 6334C, 6344C, 6354C and 6362C, . . . Each,
6495. Split-leg Tripod, hardwood, weight about 10 lbs.; for Instruments Nos. 6000-6012, 6022A, 6023A, 6024A, 6042A, 6043A, 6054A, 6062A, 6063A and 6322A-6324A, . . . Each,
6496. Extension Tripod, hardwood, weight about 8 lbs.; for Instruments Nos. 6024E, 6054E and 6074E, . . . Each,
6497. Extension Tripod, hardwood, weight about $8\frac{3}{4}$ lbs.; for Instruments Nos. 6022C, 6023C, 6024C, 6042C, 6043C, 6054C, 6062C, 6063C, 6074C, 6334C, 6344C and 6354C, 6362C, . . . Each,
6498. Extension Tripod, hardwood, weight about 10 lbs.; for Instruments Nos. 6000-6012, 6022A, 6023A, 6024A, 6042A, 6043A, 6054A, 6062A, 6063A and 6322A-6324A, . . . Each,

For Separate Parts of Tripods, see preceding page.

See Price List in back of Catalog.



Dietzgen Rods

The leveling rod is a very important part of surveying equipment. It should, therefore, be selected with discriminating care, bearing in mind that a good rod should have accurate graduations, retain its straightness, never bind, stand the hard knocks of field use, be easy to read and should retain these qualities with considerable use.

Dietzgen Rods possess, to such a high degree, the qualities of accuracy, utility, durability and convenience in handling, as to make them much preferred where the finest rod is required. Doubtless, there are places where the requirement is not so great, but more often on every job you will have need for the best rod, and since Dietzgen's cost no more than ordinary rods, naturally it is to your advantage to use a Dietzgen Rod at all times.

Material, Graduating, and Finishing

Dietzgen leveling rods are made of selected, well-seasoned straight grain maple, treated to withstand varying climatic conditions. The fittings are strong and the clamp screw head is deep notched, making it easy to grip with a gloved hand. The stadia rods, on account of their size, are made of seasoned pine to secure lightness and are hinged in the middle, and folded for convenience in transporting.

The faces of the rods are recessed to protect the graduations, which are impressed into the white enameled face, giving them a bold, sharp, permanent contrast. The minor figures and graduations are black with the major figures in red.

The rods are well painted and have a number of coats of preservative varnish. They are beautifully finished and possess unequaled wearing qualities. Whenever possible, the exterior corners are rounded, making the handling or carrying agreeable.

Target

The targets are of metal and have a raised rim or perimeter which increases the strength and protects the face. They are well reinforced and have a protecting lug which prevents the bending of the clamp screw. The targets have a tough enameled face of red and white in alternating quadrants.

Classes, Types, and Styles

There are two general classes of leveling rods, **Self-reading** and **Target Rods**. Of the various types the one most generally used is the **Philadelphia**, which, depending on the method of recording notes and the accuracy desired, is made in a number of styles or graduations as described below.

The **Self-reading Rod** is designed to be read by the instrument man, hence a target is **not required**. Only one face of the rod need be graduated, and in a style depending upon the method of recording as:

- (a) Civil Engineers — Feet, 10ths and 100ths.
- (b) " " " Feet, 10ths and half 10ths.
- (c) Architects and Builders — Feet, inches and $\frac{1}{8}$ inches.
- (d) Civil Engineers and Architects — Meters, decimeters and centimeters.

The **Target Rod** is designed to be read by the Rodman. It may, however, as in the case of some styles of the Philadelphia type, be used as a self-reading Rod, as the front face of both sections of this type rod is figured continuously. Since a target is used, it is necessary on rods of two sliding sections to have the **back of the top section graduated**. The graduations are of a style depending upon the method of recording as:

- (a) Civil Engineers — Feet, 10ths and 100ths, with vernier reading to 1000ths of a foot.
- (b) " " " Feet, 10ths and half 10ths, with scale reading to 200ths of a foot.
- (c) Architects and Builders — Feet, inches and $\frac{1}{8}$ ths, with vernier reading to $\frac{1}{16}$ ths inch.
- (d) Civil Engineers and Architects — Meters, decimeters and centimeters, with vernier reading to millimeters.

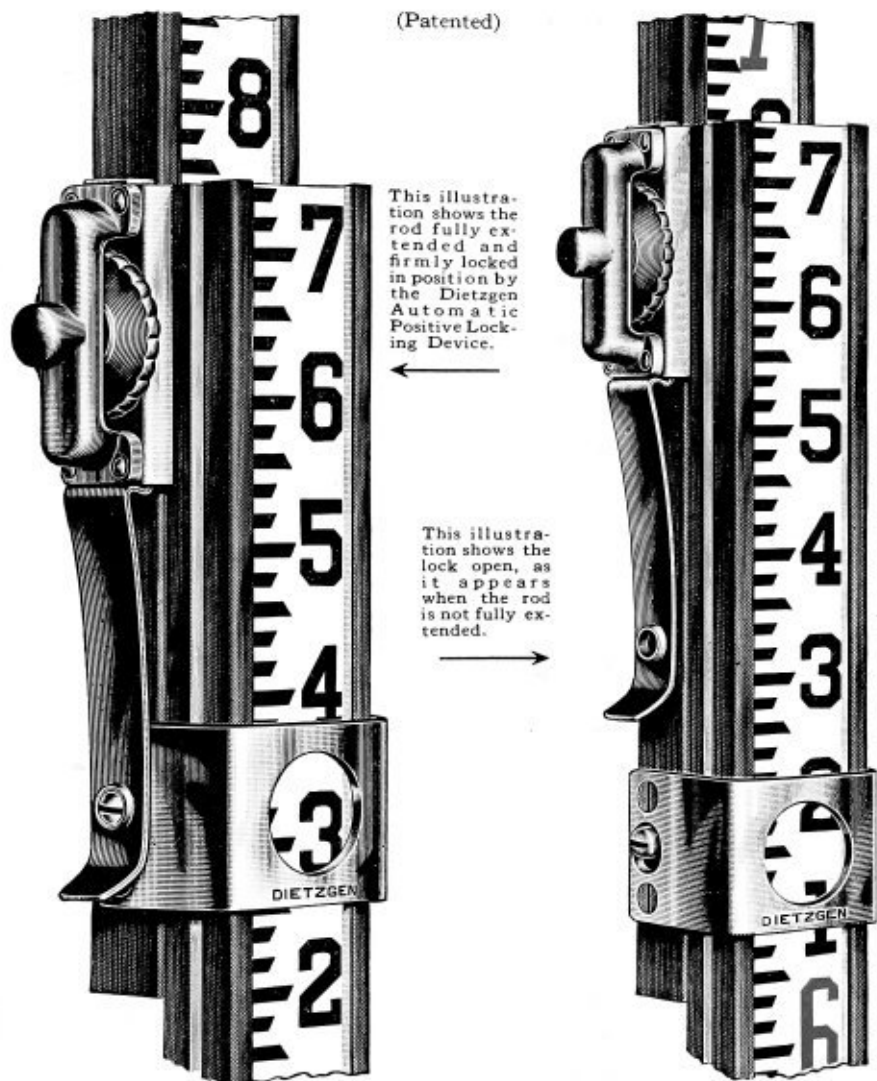
Special Rods

Special Rods of different design or graduations from those listed will be made to order. We will submit estimate of cost upon receipt of sketch and all essential details showing what is required.

Automatic Positive Locking Device

Standard on Dietzgen Philadelphia and California Type Rods

(Patented)



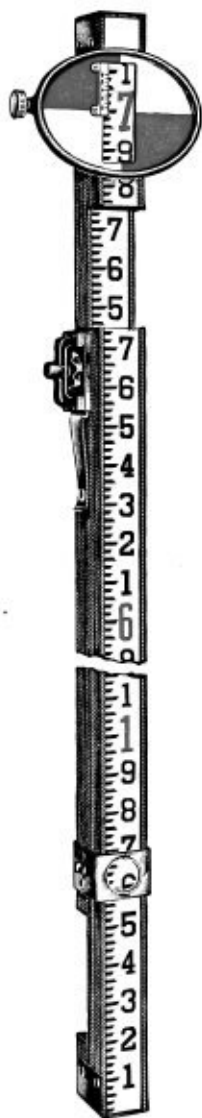
This illustration shows the rod fully extended and firmly locked in position by the Dietzgen Automatic Positive Locking Device.

This illustration shows the lock open, as it appears when the rod is not fully extended.

The Dietzgen patented positive locking device is a distinct advantage in that it positively assures the rod remaining in its correct position when the rod is fully extended; thus preventing any possible slipping or creeping of the rod caused by the jawing and pounding that the instrument is subjected to in field use, or when being pushed down through muck. It is more positive when attempting to clamp a fully extended rod than by means of the screw clamp alone—a difficult act, especially in cold weather. The lock is made of copper plated spring steel and is automatic and positive in operation.

This device can be removed, replaced or adjusted with slight effort. Its ruggedness and accuracy have been tested for years by hard field usage and its popularity and practicability are attested by its wide use and rapid adoption by experienced field engineers.

Leveling Rods



No. 6500.



6510.



6520.



6526.

See Automatic Positive Locking Device, illustrated and described on page 467.

For Description of above Rods, see opposite page.

Leveling Rods

With Target

Two Sliding Sections

Self-reading Rods with target. Two sliding sections graduated on white enamel to feet, 10ths and 100ths with verniers reading to 1000ths of a foot.

- No. 6500. Philadelphia Rod. White maple, two sliding sections, reading 7.0 feet closed, sliding out to 13 feet; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device**; in addition, it has the usual clamping screw and spring. Oval target and vernier (See illustration on opposite page), Each, \$
6502. Like No. 6500, but reading to 6.5 feet closed, sliding out to 12 ft., Each,
6504. Like No. 6500, but reading to 5.7 feet closed, sliding out to 10.5 ft., Each,
6506. Like No. 6500, but reading to 5.0 feet closed, sliding out to 9 feet. If desired for use in mines, please specify target with slit (See catalog No. 6609), Each,
6507. Like No. 6500, but reading to 3.0 feet closed, sliding out to 5 feet. This rod is designed for use in mines, and is furnished with a target having a slit (See catalog No. 6609), Each,

Rods Nos. 6500, 6502, 6504, and 6506 can be furnished with micrometer angle targets as listed under No. 6600 at slightly higher price.

Without Target

Two Sliding Sections

Self-reading Rods without targets. Graduated one side only on white enamel to feet, 10ths and 100ths of a foot.

- No. 6510. Philadelphia Rod. White maple, two sliding sections, reading to 7.3 feet closed, sliding out to 13.8 feet; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device**; in addition, it has the usual clamping screw and spring (See illustration on opposite page), Each, \$
6514. Like No. 6510, but reading to 6.0 feet closed, sliding out to 11.2 feet, Each,

Three Sliding Sections

6520. California Rod. White maple, three sliding sections, reading 4.5 feet closed, sliding out to 12 feet; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device**; in addition, it has the usual clamping screw and spring (See illustration on opposite page), Each,
6522. Like No. 6520, but reading to 5.5 feet closed, sliding out to 15 feet, Each,

Three Sections

6526. Chicago Rod. White maple, in three sections of 4.5 feet each, total length 12.5 feet with telescopic rigid joints, furnished with canvas case (See illustration on opposite page), Each,

Four Sections

6528. Like No. 6526 but in four sections of 4.5 feet each, total length 16.5 feet, furnished with canvas case, Each,

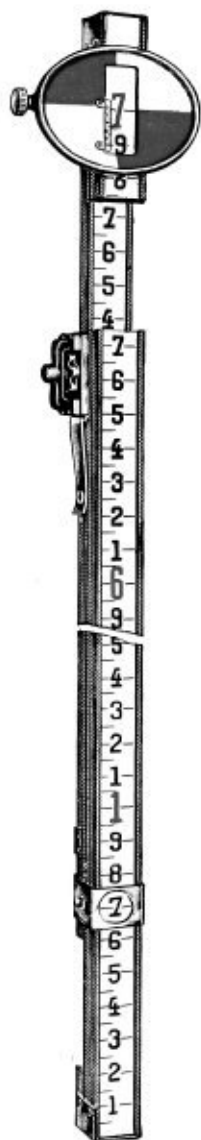
Chicago Type Rods are primarily self-reading rods but can be furnished with target if desired (see No. 6606A). They are often used with two targets for stadia work enabling the taking of accurate and long shots. The targets, which have screw clamps to hold them at fixed points, will easily slide up and down on the rod and can be readily slipped off.

Targets Illustrated Under No. 6600 to 6610

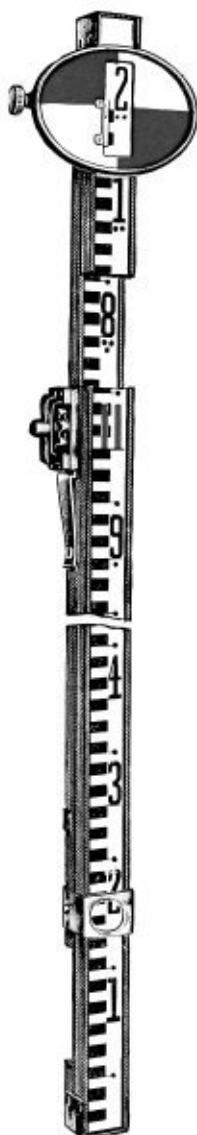
Round targets for Rods Nos. 6500 to 6507, inclusive, will be furnished if specified. When ordering extra targets for our Rods, please furnish sketch showing exact cross sections of rods they are to be used with.

See Price List in back of Catalog.

Leveling Rods



No. 6530.



6540.



6546.



6552.



6556.

See Automatic Positive Locking Device, illustrated and described on page 467.

For Description of above Rods, see opposite page.

Leveling Rods With Target

Two Sliding Sections

Open Face Rods with target. Two sliding sections, graduated on white enamel to feet, 10ths and half 10ths, with scales reading to 200ths of a foot.

- No. 6530. Philadelphia Rod. White maple, two sliding sections, reading to 7.0 feet closed, sliding out to 13 feet; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device**; in addition, it has the usual clamping screw and spring. Oval target and vernier. (See illustration on opposite page.) Each, \$
6532. Like No. 6530, but reading to 6.5 feet closed, sliding out to 12 feet. Each, \$
6536. Like No. 6530, but reading to 5.0 feet closed, sliding out to 9 feet. If desired for use in mines, please specify target with slit. (See catalog No. 6610.) Each, \$
6537. Like No. 6530, but reading to 3.0 feet closed, sliding out to 5 feet, and with slit in target for use in mines. (For target see No. 6610.) Each, \$
- Rods Nos. 6530, 6532, and 6536 can be furnished with micrometer angle targets as listed under No. 6601 at slightly higher price.

Metric Rods

Two Sliding Sections

- No. 6540. Metric Rod (Philadelphia Type), white maple, two sliding sections, reading 2.2 meters closed, sliding out to 4 meters; graduated on white enamel to meters, decimeters, and centimeters with screw clamp oval target with vernier reading to millimeters; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device** and in addition, it has the usual clamping screw and spring. (See illustration on opposite page.) Each, \$
6542. Like No. 6540, but reading to 1.2 meters closed, sliding out to 2.1 meters. Each, \$

Three Sections

6546. Metric Rod (Chicago Type). White maple, in three sections of 1.46 meters each, total length 4 meters, with telescopic rigid joints, graduated on white enamel to meters, decimeters, and centimeters, furnished with canvas case. (See illustration on opposite page.) Each, \$

Chicago Type Rods are primarily self-reading rods, but can be furnished with target if desired (see No. 6606B). They are often used with two targets for stadia work enabling the taking of accurate and long shots. The targets, which have screw clamps to hold them at fixed points, will easily slide up and down on the rod and can be readily slipped off.

Architects' and Builders' Rods

Two Sliding Sections

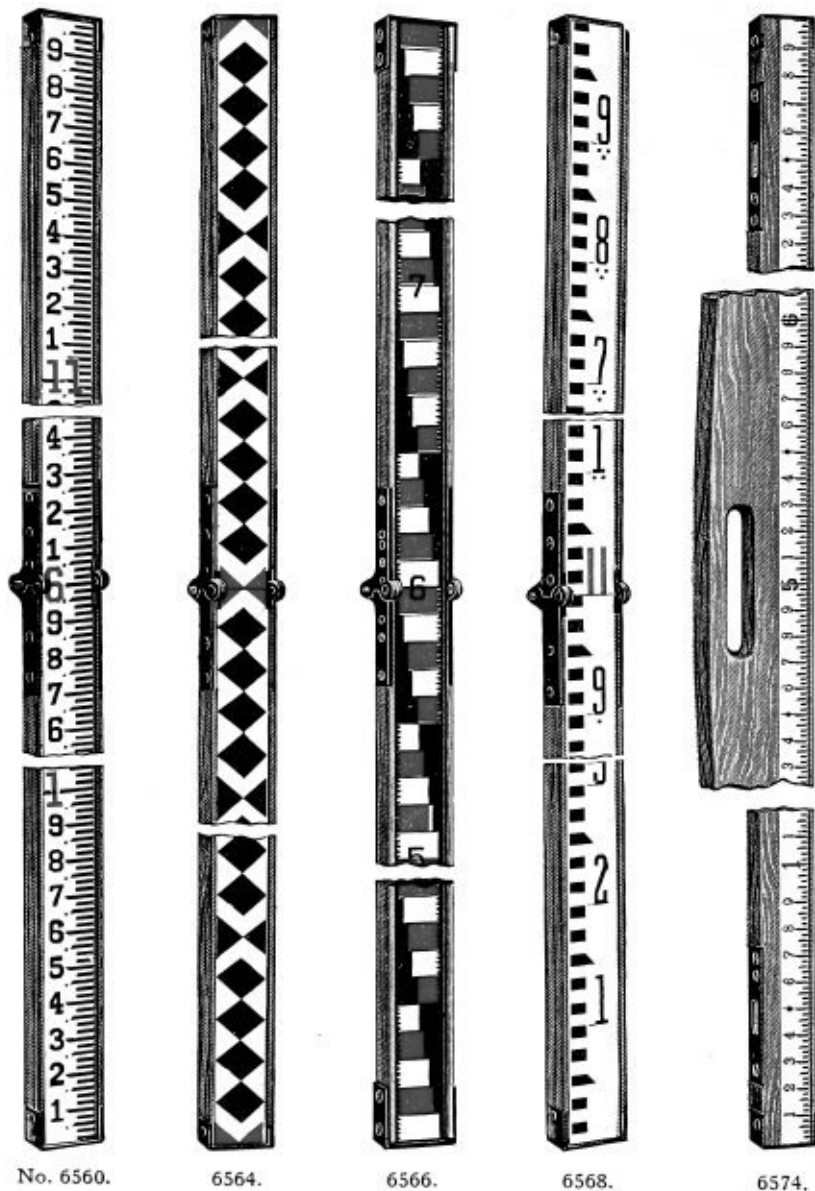
- No. 6552. Architect's Rod (Philadelphia Type). White maple, two sliding sections, reading to 5 feet 3 inches closed, sliding out to 9 feet, 8 inches; graduated on white enamel to feet, inches and $\frac{1}{8}$ ths; when fully extended is firmly locked together against slipping or jarring by our **automatic positive locking device**; in addition, it has the usual clamping screw and spring. (See illustration on opposite page.) Each, \$
6556. Architect's Rod. White maple, two sliding sections, reading to 5 feet, 5 inches closed, sliding out to 10 feet, engine divided to feet, inches and $\frac{1}{8}$ ths. Round target screw clamp and vernier reading to $\frac{1}{4}$ th of an inch. (See illustration on opposite page.) Each, \$
6558. Like No. 6556, but divided to feet, 10ths and 100ths; vernier reading to 1000ths of a foot. Each, \$

Targets Illustrated Under Nos. 6600 to 6610

Round Targets for Rods Nos. 6530 to 6537, inclusive, will be furnished if specified. When ordering extra targets for our Rods, please furnish sketch showing exact cross sections of rods they are to be used with.

See Price List in back of Catalog.

Stadia and Cross Section Rods



For Description of above Rods, see opposite page.



Stadia and Cross Section Rods

Stadia

The increasing demand for rods especially adapted for stadia measurements, and appreciation of the importance of these measurements in modern engineering practice, has caused us to carefully design and construct rods for this purpose. The rods described herein will be found both practical and satisfactory and possessing the features which experience has proved to be essential in obtaining rapid and accurate results.

Dietzgen Stadia Rods are substantially built and have a broad, recessed face, affording protection to the designs, as well as permitting them to be arranged with a sharp contrast which makes them easy to read at long distances. The rods are hinged at the middle and fold so as to make them convenient to carry or transport. When in use they are opened and held firmly in line by a rigid locking arrangement.

While any of our self-reading rods can be used for stadia measurements the following stadia rods are especially designed for reading greater distances than are possible with the Philadelphia self-reading rods.

- | | Each. |
|--|-------|
| No. 6560. Stadia Rod. Pinewood (Philadelphia style graduations), | \$ |
| Length — 12 feet when open, folding to 6 feet with strong metal hinge and with reinforced metal brace on back to insure rigidity. | |
| Divided—On white enamel to feet, 10ths, and 100ths. | |
| 6564. Stadia Rod. Pinewood (black diamond-shaped characters), | |
| Length — 12 feet when open, folding to 6 feet with strong metal hinge and with reinforced metal brace on back to insure rigidity. | |
| Divided—On white enamel to feet and 10ths. | |
| 6566. Florida Rod. Pinewood. The unique color arrangement of the Florida Rod is a distinct advantage for rapid reading at long distances, | |
| Length — 12 feet when open, folding to 6 feet with strong metal hinge and with reinforced metal brace on back to insure rigidity. | |
| Divided—On white enamel to feet, 10ths, and 100ths. | |
| 6568. Metric Stadia Rod. Pinewood, | |
| Length — 4 meters when open, folding to 2 meters with strong metal hinge and with reinforced metal brace on back to insure rigidity. | |
| Divided—On white enamel to meters, decimeters, and centimeters. | |

Cross Section

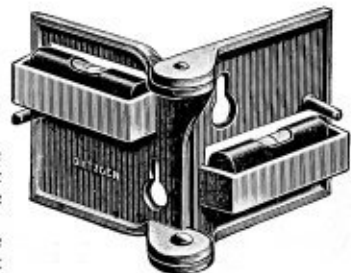
- | | Each. |
|--|-------|
| No. 6574. Cross Section Rod. Pinewood, | \$ |
| Length — 10 feet, in one piece; adjustable spirit level at each end, and open hand-grip at the middle. | |
| Divided — On White enamel to feet, 10ths and 100ths; self-reading. | |

Rod Level

- No. 6576. Rod Level, Brass, nickel plated,**
two level vials, Each, \$

An excellent Rod Level for the more accurate plumbing of leveling rods and ranging poles. It can be secured to the rod or pole, or held in the hand, as desired.

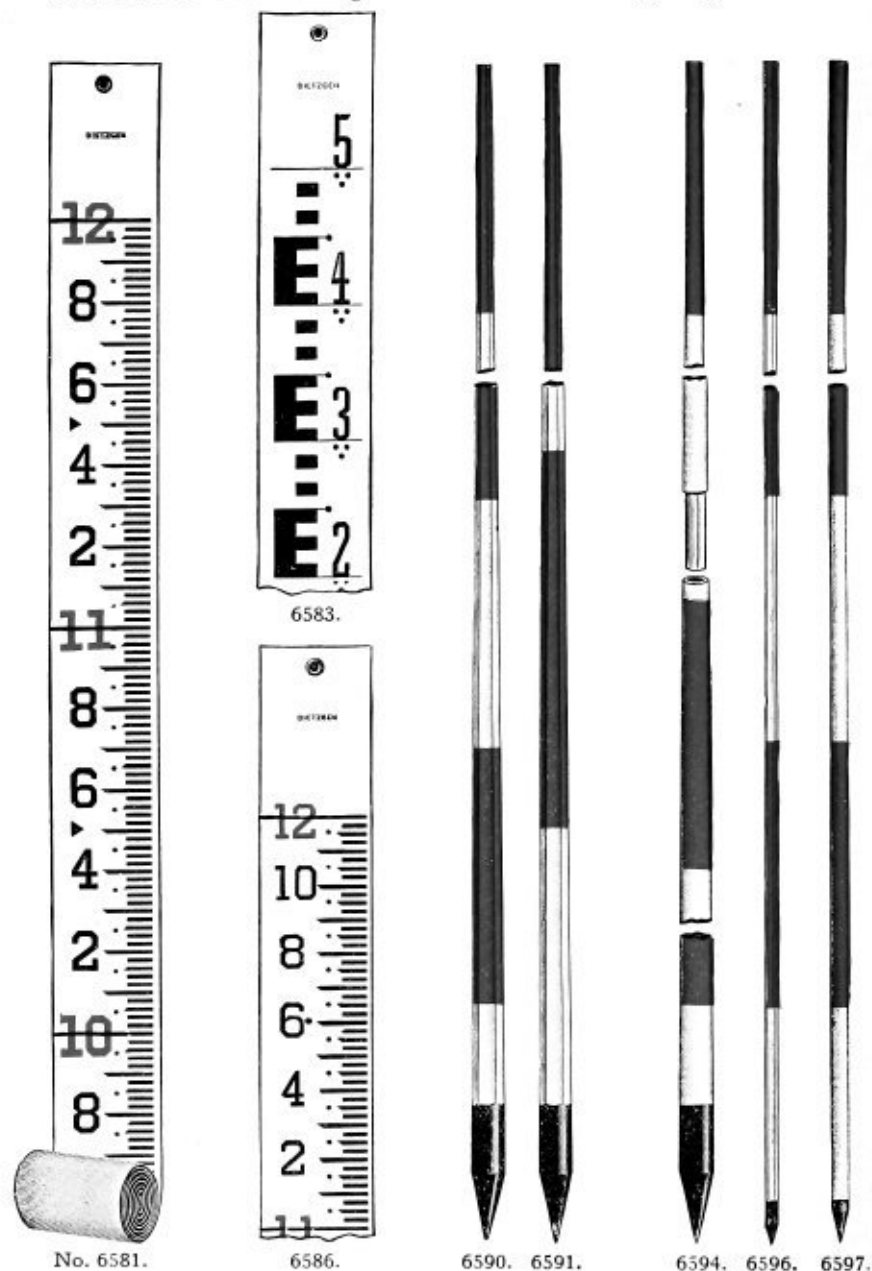
When not in use, it can be folded, with the level vials protected, and easily carried in the vest pocket.



No. 6576.

See Price List in back of Catalog.

Flexible Leveling Rods and Ranging Poles



For Description of above Rods and Poles, see opposite page.



Leveling Rods

Flexible

Our Flexible Leveling Rods, divided like self-reading rods, are made of a strong, pliable, specially prepared moisture proof fabric. They are of a cream color with the divisions and minor numbers in black, and the major numbers in bright red, making an extreme contrast in colors, permitting them to be easily read at a long distance. Every precaution is taken to insure their accuracy.

They are used by fastening to a straight board by means of thumb tacks. When not in use they can be rolled compactly and readily carried in the pocket. These rods will be found very convenient and perfectly satisfactory.

- No. 6581. Flexible Pocket Rod, 12 feet long, 3 in. wide, divided into feet, 10ths and 100ths; in neat tin box, Each, \$
(See Illustration on opposite page)
6583. Flexible Pocket Rod, 3½ meters long, 3 in. wide, divided into centimeters; in neat tin box, Each,
(See Illustration on opposite page)
6584. Flexible Pocket Rod, 10 feet long, 1½ in. wide, divided into feet, 10ths and 100ths; in strong pasteboard box, Each,
6585. Like No. 6584, but 12 feet long; in strong pasteboard box, Each,
6586. Flexible Pocket Rod, 12 feet long, 1½ in. wide, divided into feet, inches and ⅛th inches; in strong pasteboard box, Each,
(See Illustration on opposite page)

Ranging Poles

Wooden

(See Illustration on opposite page)

- No. 6590. Ranging Poles, octagonal, **tapered** from shoe to top, best seasoned wood, red and white alternately every foot.
Length, 6 8 10 feet.
Each, \$
6591. Ranging Poles, **metric**, octagonal, **tapered** from shoe to top, best seasoned wood, red and white alternately every half-meter.
Length, 2 2½ 3 meters.
Each, \$
6594. Ranging Poles, round, **tapered** from shoe to top, sectional, in two sections, best seasoned wood, red and white alternately every foot.
Length, 8 10 feet.
Each, \$

Steel and Iron

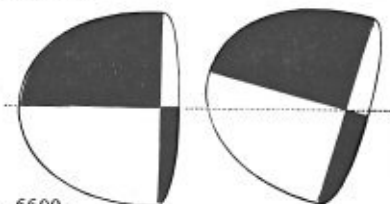
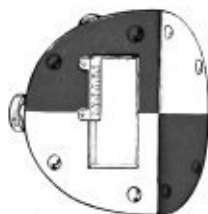
(See Illustration on opposite page)

6596. Ranging Poles, octagonal, steel, solid, ½ in. diameter, turned and hardened points, red and white alternately every foot.
Length, 6 8 feet.
Each, \$
6597. Ranging Poles, round, iron, tubular, ⅞ in. diameter, forged point, red and white alternately every foot.
Length, 6 8 10 feet.
Each, \$

See Price List in back of Catalog.



Targets

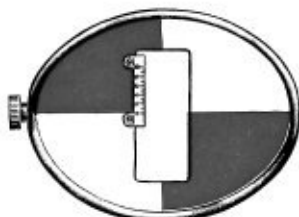


No. 6600.

- No. 6600. Micrometer Angular Target gives the instrument man full control of the position of the rod, and an efficient check on the rod man. The faces of the target are in two planes at right angles to each other, thus showing a continuous and unbroken horizontal dividing line only when the target is held in the vertical position. A slight deviation from the vertical either way, will cause the horizontal dividing line to appear broken,

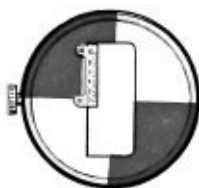
The micrometer arrangement is actuated by a large roller bearing which permits setting the target for very close reading. It is quick in action, and offers no obstruction to the reading of the target. The Vernier reading is to 1000ths of a foot for rods, Nos. 6500, 6502, 6504, and 6506. Each . \$

- No. 6601. Like No. 6600 but with scale reading to 200ths of a foot, for rods Nos. 6530, 6532, and 6536. Each, \$

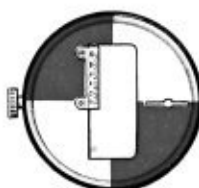


No. 6603.

- No. 6603. Oval Target with vernier reading to 1000ths of a foot for Rods Nos. 6500, 6502, 6504, 6506 and 6507. Each, \$
 6604. Like No. 6603, but with scale reading to 200ths of a foot, for Rods Nos. 6530, 6532, 6536 and 6537. Each, \$
 6605. Like No. 6603, but with vernier reading to millimeters for Rods Nos. 6540 and 6542. Each, \$



No. 6606



6609.

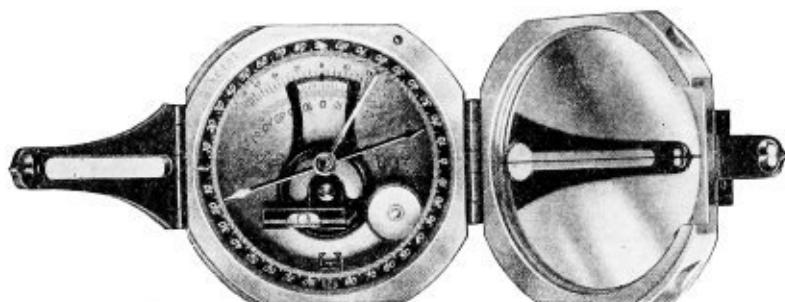
- No. 6606. Round Target with vernier reading to 1000ths of a foot for Rods Nos. 6500, 6502, 6504 and 6506. Each, \$
 6606A. Like No. 6606, but for Chicago Rods Nos. 6526 and 6528. Each, \$
 6606B. " " 6606, " with vernier reading to millimeters for Chicago Rod No. 6546. Each, \$
 6607. Like No. 6606, but with scale reading to 200ths of a foot for Rods Nos. 6530, 6532, 6536 and 6537. Each, \$
 6607A. Round Target with vernier reading to millimeters for rods Nos. 6540 and 6542. Each, \$
 6608. Round Target with vernier reading to $\frac{1}{4}$ th inch, for Architect's Rod No. 6556. Each, \$
 6608A. Round Target with vernier reading to 1000ths of a foot for Architect's Rod No. 6558. Each, \$
 6609. Round Target with slit for use in mines and tunnels with vernier reading to 1000ths of a foot for Rods Nos. 6506 and 6507. Each, \$
 6610. Like No. 6609, but with scale reading to 200ths of a foot for Rods Nos. 6536 and 6537. Each, \$

See Price List in back of Catalog.



Dietzgen Pocket Transits

(Brunton Design)



No. 6618.

The Dietzgen Pocket Transits, Brunton design, are extensively used for preliminary surveying, on the surface or underground, in topography, reconnaissance, and geological field work.

They are also exceptionally well adapted for obtaining horizontal angles, vertical angles and courses, and also are used as a plumb, hand level, clinometer and prismatic compass. The latest design has a percent grade scale graduation from which grades may be read directly from the clinometer vernier in percent rise or fall from the horizontal without compensation, and table of natural tangents on cover for ready reference.

These instruments are accurate and reliable and of the more improved form. The sighting apertures of improved shape afford a better field of vision, enabling the centering of the image more accurately, and the enlarged opening through the mirror bisected by a hair line makes for increased speed and accuracy in field work. They have round level vial on the vernier, permitting the leveling of the instrument in both directions when reading horizontal angles or courses.

Each instrument, while strongly made, weighs but 8 ounces, and is completely enclosed in a nicely finished aluminum case measuring $2\frac{1}{4} \times 2\frac{1}{4} \times 1\frac{1}{8}$ inches, thus being easily carried in the vest pocket, although leather cases may be used if desired. Write for descriptive circular.

- No. 6618. Dietzgen Pocket Transit, compass sling ring divided every degree, numbered every 10 degrees, in quadrants, Each, \$
6620. Like No. 6618, but compass ring 0 to 360 degrees, counterclockwise, Each,
6621. Sewed Leather Sling Case for Nos. 6618 and 6620, "

Yoke with Ball Joint and Socket

For use with Dietzgen Pocket Transits

This Yoke with Ball Joint and Socket enables the Dietzgen Pocket Transits to be used with a tripod or a staff, an advantage when the work requires greater accuracy than it is possible to obtain by holding the instrument in the hand.

- No. 6622. Yoke with Ball Joint and Socket for use with Pocket Transits Nos. 6618 and 6620, Each, \$



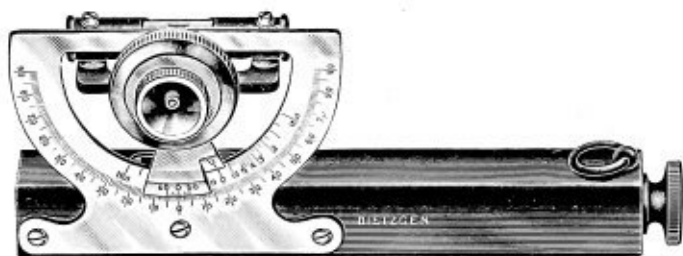
No. 6622.

6624. Tripod. Telescoping. Metal. Weight about $2\frac{1}{8}$ lbs., for use only with yoke with ball joint and socket No. 6622, for instruments No. 6618 and 6620.

For Jacob Staff and Tripods, see page 485.

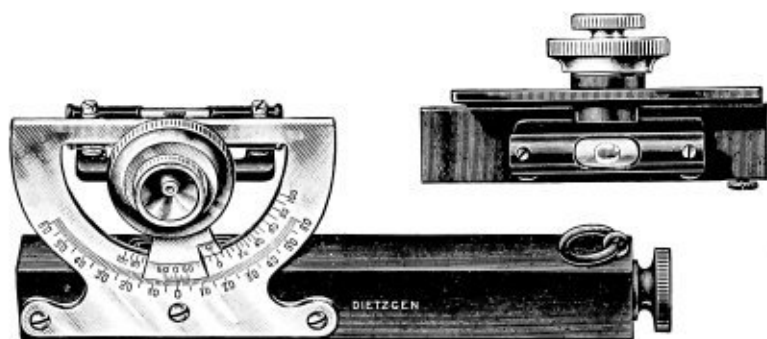
See Price List in back of Catalog.

Abney Reflecting Levels



No. 6644.

- No. 6644. Abney Reflecting Level or Pocket Altimeter, 5 in., brass, durable black finish, square sighting tube, nickel silvered arc, divided in degrees, numbered every tenth degree to 90° each side of 0, vernier reading to 10 minutes; gradients 1:1 to 1:10 in both directions. Because of the flat bottom, this level can be used as a contact level, Each, \$
- 6644P. Like No. 6644 but with plain case with belt loop, . . . Each,
- 6644S. Like No. 6644 but in sewed leather case with shoulder strap, Each,

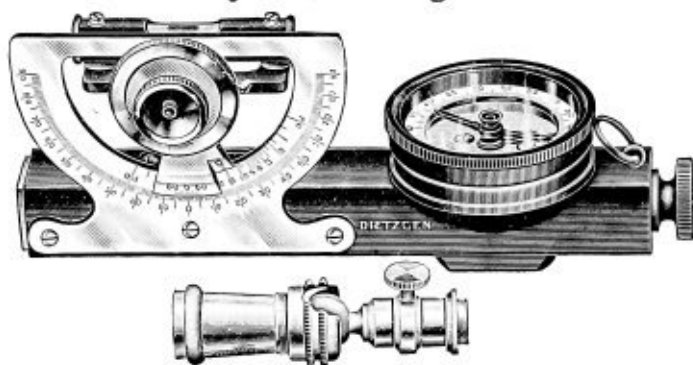


No. 6645.

- No. 6645. Abney Reflecting Level or Pocket Altimeter, 5 in., brass, durable black finish, square sighting tube, nickel silvered arc, divided in degrees, numbered every tenth degree to 60° each side of 0, vernier reading to 10 minutes; also per cent of angle reading to 5% from 0 to 100% in both directions. Because of the flat bottom, this level can also be used as a contact level, Each, \$
- 6645P. Like No. 6645 but in plain case with belt loop, . . . Each,
- 6645S. Like No. 6645 but in sewed leather case with shoulder strap, Each,

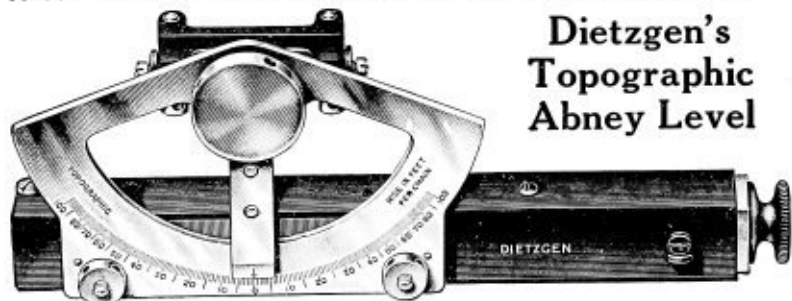
See Price List in back of Catalog.

Abney Reflecting Levels



No. 6646.

- No. 6646. Abney Reflecting Level or Pocket Altimeter, 5 in., brass, durable black finish, square sighting tube, nickel silvered arc, divided every degree, numbered every tenth degree to 90° each side of 0, vernier reading to 10 minutes, gradients 1:1 to 1:10 in both directions; compass 1 $\frac{3}{8}$ in., divided every 2 degrees, numbered every 20 degrees, in quadrants, 1 inch needle with jeweled center and stop, ball joint and socket, Each, \$
- 6646P. Like No. 6646 but in plain case with belt loop, Each,
- 6646S. Like No. 6646 but in sewed leather case with shoulder strap, Each,



Dietzgen's Topographic Abney Level

No. 6648T.

Dietzgen's Topographic Abney Level is an improved form of the Abney Level and larger in size. It was first made by us for the U. S. Forest Survey, and the U. S. Geodetic Surveys.

The Topographic Abney Level is 6 $\frac{3}{8}$ in. long, extending to 7 $\frac{1}{2}$ inches, brass, durable black finish, square sighting tube, nickel silvered arc, divided as indicated below.

- | | | |
|------------|---|----------|
| No. 6648C. | Topographic Abney Level, chainage correction arc, | Each, \$ |
| 6648D. | " " " arc in degrees, | " |
| 6648P. | " " " arc in per cent of grade, | " |
| 6648T. | " " " topographic arc, | " |
| | Extra limbs with graduations, | " |
| | " " " any two graduations to order only, | " |
| 6649. | Plain leather case with belt loop for Nos. 6648C to 6648T, | " |
| 6650. | Sewed leather case with shoulder strap for Nos. 6648C to 6648T, | Each, |

See Price List in back of Catalog.

Stadia Hand Level



- No. 6652. Stadia Hand Level, telescope 10 in., object glass 1 in., adjustable eye-piece, stadia hairs reading 1:100, ball joint and socket, in sewed leather sling case, Each, \$

This Instrument will be found very useful for preliminary surveys, etc. Weighs about 1½ lbs., and is easily carried.

For Jacob Staff and Tripods, see page 485.

Leveling Attachment



- No. 6654. Leveling Attachment for Nos. 6646, 6652, 6684 and 6686, bronze metal black finished in sewed leather case, Each, \$

Locke Hand Levels



- No. 6655. Locke Hand Level, 5 in. nickel silver, with draw eye-piece and magnifying lens at the end of the draw for the bubble, with stadia hairs reading 1:20, in sewed leather pouch with belt loop. The stadia feature of this level is to be found very useful for preliminary surveys, cross-sectioning, railroad construction work, exploration of streams for water power, etc., Each, \$
6656. Locke Hand Level. Like No. 6655, nickel silver, but without the stadia hairs, in sewed leather pouch with belt loop, Each, \$
6657. Locke Hand Level. Like No. 6655 but of brass, durable black finish, in sewed leather pouch with belt loop, Each, \$
6658. Locke Hand Level. Like No. 6656 but of brass, durable black finish, in sewed leather pouch with belt loop, Each, \$



- No. 6660. Locke Hand Level, 5 in., brass, durable black finish, fixed eye-piece, in sewed leather pouch, with belt loop, Each, \$

See Price List in back of Catalog.

Dietzgen's Hand Level

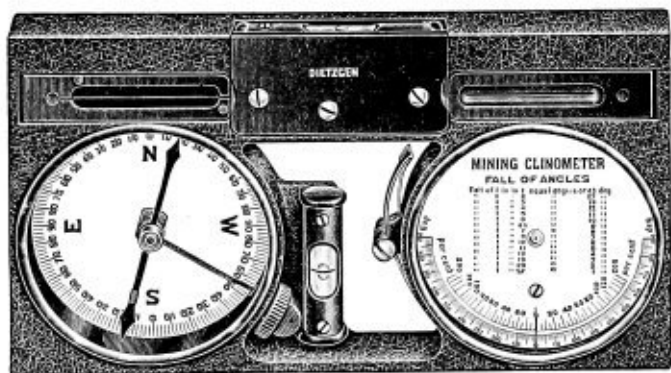


No. 6662.

No. 6662. Dietzgen's Hand Level, 5 in., brass, durable black finish, fixed eyepiece, in sewed leather pouch, with belt loop, Each, \$

Lower surface of sighting tube is flat and parallel with the bubble, thus enabling this instrument to be used also as a contact level.

Dietzgen Pocket Omnimeter



No. 6666.

No. 6666. Dietzgen Pocket Omnimeter, with folding sights, in sewed leather case, Each, \$

The Dietzgen Pocket Omnimeter combines a Compass, Clinometer, Hand Level, Plumb, Alidade and Contact Level. It will indicate magnetic bearings, azimuth angles, altitudes, levels and slopes; is also provided with folding sights for indicating azimuth angles of objects not in a horizontal plane.

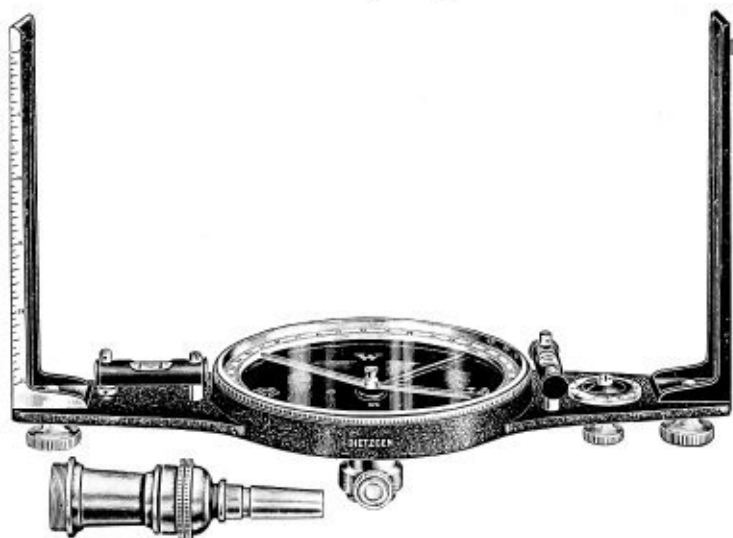
Frame, aluminum alloy, is rectangular, $5\frac{3}{8} \times 3 \times \frac{5}{8}$ inches, and serves as a fiducial edge. Compass is 2 inches in diameter, divided every 2 degrees, numbered every 10 degrees, in quadrants, can be adjusted for magnetic declination, $1\frac{7}{8}$ inch needle with jeweled center and stop. Gravity Clinometer is 2 inches in diameter, divided every degree and numbered every 10 degrees to 90° each side of zero and to slopes in feet per 100 feet horizontal or centimeters per meter. Spirit level is as sensitive as is permissible in a hand level. Weight about 6 ounces.

See Price List in back of Catalog.



Surveying Compasses

Fine Quality



No. 6676.

Specifications of No. 6676

- Circle** — Silvered; divided every half-degree, numbered every 10 degrees, in quadrants, variation arc with vernier reading to single minutes; made water-tight by beveled plate glass cover.
- Needle** — Improved pattern; jeweled center with stop controlled by screw under the main plate.
- Levels** — Two; mounted on the arms at right angles to each other, thus enabling the plate to be leveled while in any position.
- Outkeeper** — A small dial used for keeping record when chaining; numbered from 1 to 16; the index is turned by a milled head screw under the plate.
- Sights** — Two; detachable; each sight is made with a fine slit extending one-half its length, the slit having circular openings at top and bottom to facilitate finding the object sighted.
- Angle Scale** — The North sight is graduated to half-degrees on left and right edges so that angles of elevation and depression can be obtained by sighting through a peep hole in the South sight.
- Ball Joint and Socket** — A ball joint and socket is provided to facilitate leveling the compass.

No. 6676.	Surveying Compass, 4 in. needle, complete, in mahogany box, Each, \$
6680.	Like No. 6676, but 6 in. needle, "
6682.	Tripod, solid leg, hardwood, for use with Nos. 6676-6680, "
6683.	" extension, " " " " " 6676-6680, "

See Price List in back of Catalog.



Surveying Compasses

Fine Quality



No. 6684.

These Surveying Compasses are substantially made, and are specially adapted for reconnoissance and preliminary surveying. The magnetic variation is set by means of a capstan-head pinion, readily accessible to either hand.

- No. 6684. Surveying Compass, $3\frac{1}{2}$ in. needle with jeweled center and stop, divided every degree on raised ring, numbered every 10 degrees, in quadrants, variation ring reads to 5 minutes, silvered, made water-tight by beveled plate glass cover, folding fore and back sights, two levels, ball joint and socket, in mahogany case, . . . Each, \$
6685. Like No. 6684, but in sewed leather case, "
6686. Surveying Compass, $4\frac{1}{2}$ in. needle with jeweled center and stop, divided every half-degree on raised ring, numbered every 10 degrees, in quadrants, variation ring reads to 5 minutes, silvered, made water-tight by beveled plate glass cover, folding fore and back sights, two levels, ball joint and socket, in mahogany case, Each,
6687. Like No. 6686, but in sewed leather case, "

For Jacob Staff and Tripods, see page 485.

See Price List in back of Catalog.

Surveying Compasses



No. 6691.

- No. 6691. Surveying Compass, 2 in., jewel centered needle with stop, divided every two degrees on raised ring, numbered every 20 degrees, silvered compass box, $2\frac{1}{2}$ in. diameter, folding sights ending in hooks, in case, Each, \$
6692. Surveying Compass, 3 in., jewel centered needle with stop, divided every two degrees on raised ring, numbered every 10 degrees, silvered compass box, $3\frac{7}{8}$ in. diameter, ball joint and socket, folding sights ending in hooks, in case, Each,
6693. Like No. 6692, but with level vials in compass box, Each,

For Jacob Staff and Tripods, see page 485. If a Jacob Staff or Tripod is desired for No. 6692 or No. 6693 (not usable with No. 6691), always specify, when ordering, with which Instrument (No. 6692 or 6693) the Staff or Tripod is to be used.

See Price List in back of Catalog.

Jacob Staff and Tripods



No. 6712.

6714.

6716.

6718.

6720.

- No. 6712. Jacob Staff, hardwood tapered head, metal shoe, weight about $1\frac{3}{4}$ lbs., for instruments Nos. 6646, 6652, 6684 to 6687, 6692 and 6693, Each, \$
6714. Tripod, hardwood, tapered head, metal shoe, weight about $4\frac{3}{4}$ lbs., for instruments Nos. 6646, 6652, 6684 to 6687, 6692 and 6693, Each,
6716. Tripod, hardwood, metal staff head, metal shoes, weight about $3\frac{3}{4}$ lbs., for instruments Nos. 6646, 6652, 6654, 6684 to 6687, Each,
6718. Tripod, extension, hardwood, metal staff head, metal shoes, weight about 5 lbs., for instruments Nos. 6646, 6652, 6654, 6684 to 6687, Each,
6720. Tripod, telescoping, metal, metal staff head, weight about $2\frac{1}{8}$ lbs., for instruments Nos. 6646, 6652, 6684 to 6687, 6692 and 6693, Each,

When ordering, always specify catalog number of the Instrument with which the Staff or the Tripod is to be used.

See Price List in back of Catalog.

Miners Lamps and Compasses



No. 6730.



6737.

- No. 6730. One Plummet Lamp, metal, 2 in. diameter, $6\frac{1}{4}$ in. long, steel point, weight about 20 oz., mounted in gimbal with 15 in. suspending chain, in mahogany box with carrying strap, Each, \$
6731. Two Plummet Lamps, like No. 6730, both in a mahogany box with carrying strap, Each,
6737. Boxfinder (Dipping Needle). This instrument has been developed for use in locating accurately and quickly iron box covers and pipe-lines (water, gas, etc.), which are buried out of sight. In cloth bag. Weight about 9 ounces, Each,

The point at which the needle assumes the greatest angle of declination from the horizontal would indicate closely the location of the box or pipe-lines.

As a Dipping Needle, or Miner's Compass, this instrument is also a guide in the discovery and location of magnetic ore only. When used for this purpose the observer should take into consideration the local magnetic dip, as well as the general geological formation. This should aid him in telling the approximate depth and mass of the iron being traced.

It has a strong, dull-black metal case with "Pull-off" cover, accurately divided white metal dial with black figures; magnetic needle poised in jeweled bearings with stop to prevent needle from swinging when not in use, eliminating breakage.

See Price List in back of Catalog.

Prismatic Compass

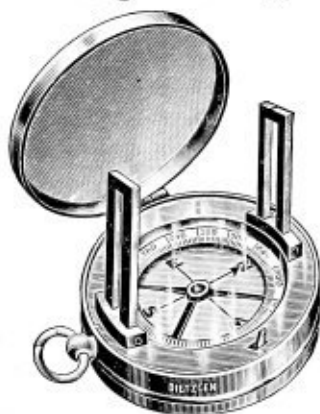
This useful Instrument, valuable for taking the bearings of objects nearly in the same horizontal plane, contains a magnetic needle attached to an aluminum floating jeweled dial, graduated in degrees numbered every 20 degrees from 0 to 360, which revolves on a fixed center point. On one end of the case is a hinged sight having a fine metal thread, while directly opposite to this sight and in line with the center of the magnetic needle, is a hinged slit-sight, below which is a rectangular prism, used for reading the compass bearings when a distance object is being sighted.



No. 6742.

- No. 6742.** Hutchinson Prismatic Compass, 3 in. diameter, brass, black enameled, improved pattern, with opening in top, floating jeweled dial, 2 in., in sole leather case with carrying strap, . . . Each, \$

Pocket Sight Compasses



No. 6764A.

- No. 6764A.** Pocket Sight Compass, nickel-plated, 2 in., folding sights, stop to needle, Each, \$
- 6764B.** Like No. 6764A, but $2\frac{3}{8}$ in., "
- 6764C.** " " 6764A, " $2\frac{3}{4}$ " "

See Price List in back of Catalog.

Magnetic Pocket Compasses



No. 6781.



6783.



6784.

- No. 6781. Pocket Compass, $1\frac{3}{4}$ in., brass, watch pattern, paper dial, divided into degrees, numbered every 10 degrees in quadrants, Each, \$
6782. Pocket Compass, $1\frac{3}{4}$ in., brass, watch pattern, metal dial, divided into degrees, numbered every 10 degrees, from 0-360°, Each,
6783. Pocket Compass, like No. 6782, but with stop to needle, "
6784. Pocket Compass, black bronzed case, $1\frac{3}{8}$ in., watch pattern, heavy enameled card fixed dial, divided every 5 degrees, numbered every 10 degrees, in quadrants, agate center, Each,



No. 6785.



6786.



6787.

- No. 6785. Pocket Compass, white metal case, $1\frac{3}{4}$ in., watch pattern, silvered metal fixed dial, divided every two degrees, numbered every 10 degrees, in quadrants, jeweled center, stop to needle, Each, \$
6786. Pocket Compass, white metal case, $1\frac{3}{4}$ in., watch pattern, silvered metal floating dial, divided every 5 degrees, numbered every 15 degrees, 0 to 360°, North and South points permanently luminous and can be seen plainly in the dark, jeweled center with stop to jewel and point, Each,
6787. Pocket Compass, white metal Hunter case strongly hinged, $1\frac{3}{4}$ in., watch pattern, silvered metal fixed dial, divided every 2 degrees, numbered every 10 degrees, in quadrants, jeweled center, self-acting stop to needle, Each,

See Price List in back of Catalog.

Magnetic Pocket Compasses



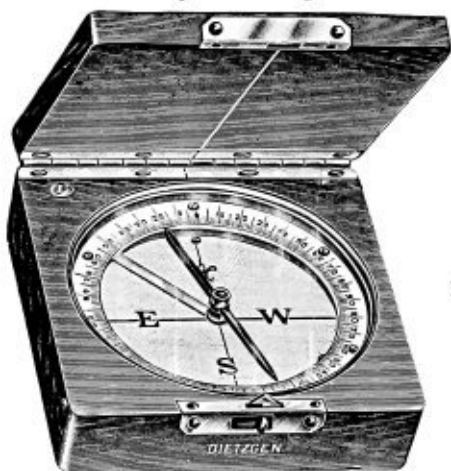
No. 6788



6789.

- No. 6788. Pocket Compass, white metal Hunter case strongly hinged, $1\frac{3}{4}$ in., watch pattern, silvered metal floating dial, divided every 5 degrees, numbered every 15 degrees, 0 to 360°, North and South points permanently luminous and can be seen plainly in the dark, jeweled center with self-acting stop to jewel and point, Each, \$
6789. Like No. 6788, but silvered metal fixed dial, divided every 2 degrees, numbered every 10 degrees, in quadrants, each cardinal point and each end of the needle is permanently luminous and can be seen plainly in the dark, jeweled center, self-acting stop to needle, Each,

Military Compasses



No. 6813.

- No. 6812. Military Compass, 3×3 in., silvered metal dial, divided every degree on raised silvered metal ring, numbered every 10 degrees, 0 to 360°, 2 inch bar needle with jeweled center and automatic stop, in mahogany box, sighting line on lid, Each, \$
6813. Like No. 6812, but in quadrants, " " " "
6814. " " 6812, " $3\frac{3}{4} \times 3\frac{3}{4}$ in., 0 to 360°, $2\frac{1}{2}$ inch needle, " " " "
6815. " " 6814, " in quadrants, " " " "

See Price List in back of Catalog.

Clinometers

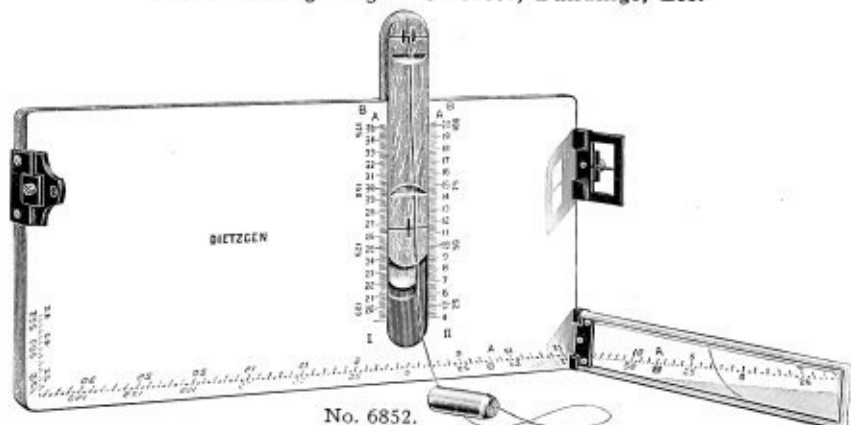


No. 6825.

- No. 6825. Military Clinometer, for measuring angles of elevation or depression, bronzed case $2\frac{3}{4}$ in. diam., arc scale is held clamped and is released to swing freely by pressing on a knob. Scale of arc is graduated from 0 to 45° in each direction; the red scale denotes elevation, the black scale depression. In leather sling case, Each, \$
6827. Same as, No. 6825, but $3\frac{1}{8}$ in. diam., " "

Hypsometers

For Measuring Heights of Trees, Buildings, Etc.



No. 6852.

- No. 6852. Mirror Reading Hypsometer (after Faustmann), $7 \times 3\frac{1}{4}$ in., Hardwood, improved construction, graduations on white composition with protective coating, folding sights and hinged mirror, scale of heights on base of instrument and scales of distances on either side of groove in which the slide moves; slide to which the plumb bob cord is fastened is provided with two reading lines to correspond with the two scales of distances; in pocket with cover flap, with directions, Each, \$
6853. Like No. 6852, but of Brass, graduations on silvered surface, folding sights and hinged mirror, in pocket with cover flap, with directions, Each,

See Price List in back of Catalog.

Angle Prisms



No. 6866.



6869.

These convenient instruments are specially valuable for laying off 90 degree angles. Their compactness is one cause of their popularity. Easily carried in the pocket, they are instantly usable for preliminary survey work. On account of the large and clear immovable field which they offer, very satisfactory results can be obtained with them in lining up ranging poles, etc.

No. 6866. Angle Prism, for angles of 90 degrees. Very large field. Size of prism: $\frac{7}{8}$ in. catheti, $\frac{5}{16}$ in. high. Casing of brass, gun metal finish.
 In case, Each, \$

6869. Angle Prism, folding, for angles of 90 degrees. Easily carried in vest pocket. Size of prism: $\frac{7}{8}$ in. catheti, $\frac{5}{16}$ in. high. Casing of brass, gun metal finish. A semicircular metal rim protects the prism from injury when closed. Each,

See Price List in back of Catalog.

Aneroid Barometers

Watch size, 1 $\frac{3}{4}$ in. diameter

For measuring heights and atmospheric pressure



No. 6898.



6900

Aneroid Barometers are popular with engineers, prospectors, geologists, tourists and all those to whom information on Altitude is of interest and value. The movements of these instruments are carefully compensated to offset the effect of changing temperature and they are so constructed that they do not easily get out of order.

No. 6898. Diameter 1 $\frac{3}{4}$ in., gold plated case, silvered metal dial, altitude scale of 8,000 feet in 100 feet divisions, compensated for temperature, in soft leather case, Each, \$

6898E. Like No. 6898, except reading to 12,000 ft. in 100 ft. divisions, "

Best Quality Aneroid Barometers

Watch size, 1 $\frac{3}{4}$ in. diameter

6900. Diameter 1 $\frac{3}{4}$ in., gold plated case, with highest grade movement, silvered metal dial, movement so arranged that it will not become strained if taken beyond the altitude as engraved on the dial. Altitude scale of 8,000 feet in 50 feet divisions, compensated for temperature, in soft leather case, Each, \$

6900E. Like No. 6900, except altitude scale reading to 12,000 feet in 50 feet divisions, Each,

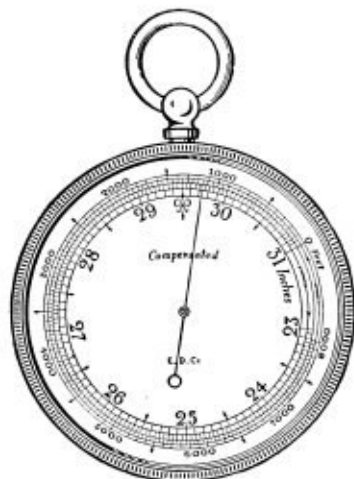
6900F. Like No. 6900, except altitude scale reading to 16,000 feet in 100 feet divisions, Each,

See Price List in back of Catalog.

Aneroid Barometers

Pocket Size, 2 $\frac{3}{4}$ In. Diameter

These Barometers are the size preferred by engineers, on account of their being larger and easier to read than the "Watch Size." They are in use at the U. S. Forest Service, U. S. Bureau of Mines, U. S. Bureau of Plant Industry, U. S. Signal Corps, etc.



No. 6906.



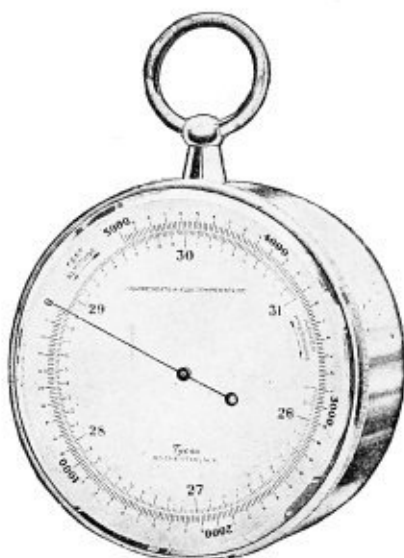
6909.

- No. 6906. Diameter 2 $\frac{3}{4}$ in., gold plated case, with highest grade movement, silvered metal dial. Movement so arranged that it will not become strained if taken beyond the altitude engraved on the dial. Altitude scale of 8,000 feet in 50 feet divisions, compensated for temperature, in soft leather case, Each, \$
- 6906B. Like No. 6906, except altitude scale reading to 3,000 feet in 10 feet divisions, Each,
- 6906E. Like No. 6906, except altitude scale reading to 12,000 feet in 50 feet divisions, Each,
6909. Like No. 6906, except altitude scale reading to 5,000 feet in 5 feet divisions in a double circle. The outer scale is divided to 10 feet, while the scale directly beneath it sub-divides it to 5 feet divisions. No vernier or magnifier required. With certificate of comparison with Standard Mercurial Barometer. In soft leather case, Each,

See Price List in back of Catalog.

Altitude Aneroid Barometers

For the Use of Engineers, Tourists, Travellers and Motorists.



No. 6911C.

The Altitude Barometer enables anyone to readily determine the altitude of hills or mountains over which he may travel, and will prove an interesting and instructive companion.

It possesses a distinct and valuable advantage over other forms, as the altitude scale, instead of being graduated in unequal divisions as on other barometers, is divided equally and revolves around the barometer pressure dial. This means that the zero on the altitude scale can always be set to the point of the hand, without error, so that in travelling the hand will always point to the true elevation of the instrument from its starting point, without any deduction or addition.

Of American manufacture throughout, with a duplication of the altitude and barometer scales as designed by our Government and having a very thorough mechanical compensation for temperature, these instruments will be found accurate, sensitive, and dependable.

- No. 6911C. Watch pattern, $2\frac{3}{4}$ in. diameter, and about $1\frac{1}{4}$ in. deep, grained aluminum case and silvered metal dial with equal altitude scale of revolving type reading to 5,000 feet in 20 feet divisions, in stitched leather sling carrying case, Each, \$
- 6911D. Like No. 6911C, but altitude scale 10,000 feet in 50 feet divisions, Each,

Livingstone Travelling Set

This set includes 3 instruments indispensable to the engineer, traveller, tourist, etc. It consists of an Aneroid Barometer, finest quality Watch pattern, $1\frac{3}{4}$ in. diameter, altitude scale of 8,000 feet in 50 feet divisions, compensated for temperature, Pocket Compass, gilt case, with floating aluminum dial; Ivory Scale Thermometer $2\frac{1}{2}$ in. with Fahrenheit and centigrade scales in best quality Blue Soft Skiver case with easel back, as illustrated.



No. 6914.

- No. 6914. Livingstone Travelling Set, Each, \$

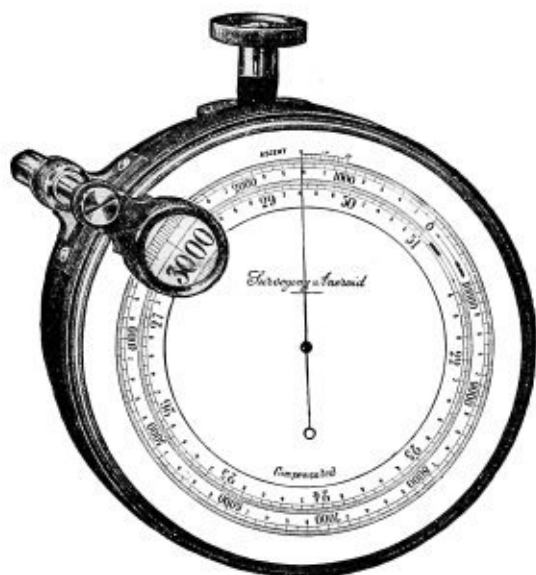
See Price List in back of Catalog.

Surveying Aneroid Barometers

For Engineering Purposes

These instruments are specially designed to ascertain variations of gradients, levels, etc. For approximate surveys and leveling of roads, railways, canals, water courses and mines they are invaluable, as their readings are so easily and rapidly taken. They are in great demand by geologists in the oil regions for checking up differences in elevation.

The action has been arranged to give accurate readings on a regular scale of altitudes. The barometer scale of inches has been made progressive, to afford the correct relative readings with the scale of altitudes, but this arrangement in no way interferes with their use as an ordinary barometer.



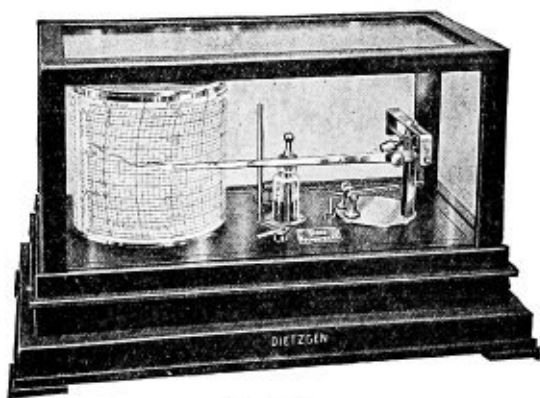
No. 6920D.

- No. 6916. Surveying Aneroid Barometer, aluminum case, 3 in. diameter, silvered metal dial, with revolving altitude scale and device for locking same. This permits revolving the zero of the altitude scale to coincide with needle and then permits locking same. Reading lens arranged to traverse the entire circle. Movement compensated for temperature, altitude scale 6,000 feet reading by vernier to 2 feet of elevation, in solid leather sling case, weight about 38 oz., Each, \$
6920. Like No. 6916, except 5 in. diameter, weight about 49½ oz., Each,
- 6920D. Like No. 6920, except altitude scale reading to 10,000 feet and by vernier to 2 feet of elevation, Each,
- 6920F. Like No. 6920, except altitude scale reading to 16,000 feet and by vernier to 2 feet of elevation, Each,

See Price List in back of Catalog.



Barograph



No. 6934.

This Instrument is constructed to record upon a chart changes in atmospheric pressure for a period of one week, as the clock revolves once in that time. As the top of the chart is divided into seven spaces, and subdivided into spaces representing two hours each, it is possible to tell at what time of day atmospheric conditions undergo a change. Charts universally used show a pressure from 28 in. to 31 in., the value of each division being .05 inches.

When ordering, the town or the altitude of the station where the instrument is to be used should be given.

No. 6934. Barograph. Simplified Form. The movement of the recording pen is controlled by a large vacuum chamber concealed in the base of the instrument. Clock and charts are identical to those of higher priced instruments. Complete with ink and a year's supply of charts, in case having mahogany frame-work, . . . Each, \$

Pocket Thermometer



No. 6956.

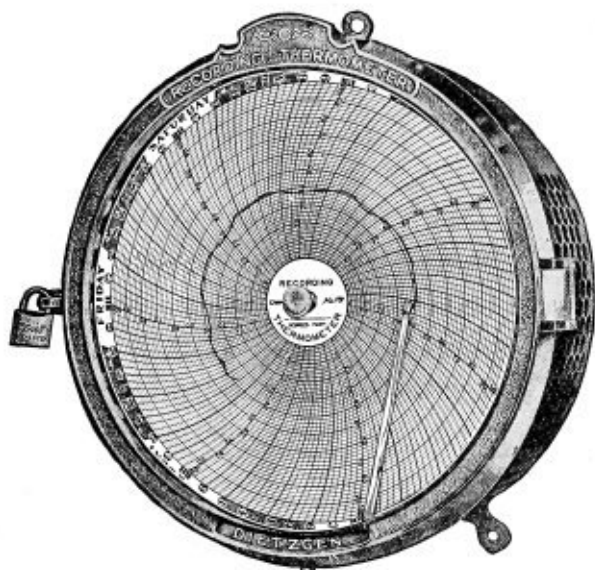
No. 6956. Pocket Thermometer, 5 in., in aluminum case. Approximate range of scale, minus 30° to plus 120° Fahrenheit, in 2° graduations, Each, \$

See Price List in back of Catalog.



Recording Thermometer

Self Contained



No. 6960.

This Self Contained Recording Thermometer, very sensitive and durably constructed, is especially adapted for industrial purposes and for recording temperatures in public buildings, homes, greenhouses, sun parlors, gardens, etc.

The case, 12 inches overall and equipped with lock and key, is finished in a weather-resisting instrument black which, contrasting with the polished bronze front, gives an exceptionally attractive appearance.

No. 6960. Recording Thermometer, self contained, with bottle of Recorder ink and 100 of any one of the charts described below, Each, \$

Charts.	Range.	Divisions.	Timing
No. 6962A.	10° to 120° F.	2°	1 day
6962B.	0° " 100° F.	2°	1 "
6962C.	0° " 100° F.	2°	7 "
6962D.	10° " 120° F.	2°	7 "
6962E.	0° " 130° F.	2°	7 "
6962F.	-20° " 50° C.	1°	7 "

The above charts and temperature ranges are specially adapted for use with this Recording Thermometer. When ordering, always specify catalog number of the chart desired.

Prices for additional charts in quantities of 100 or 500 quoted on request.

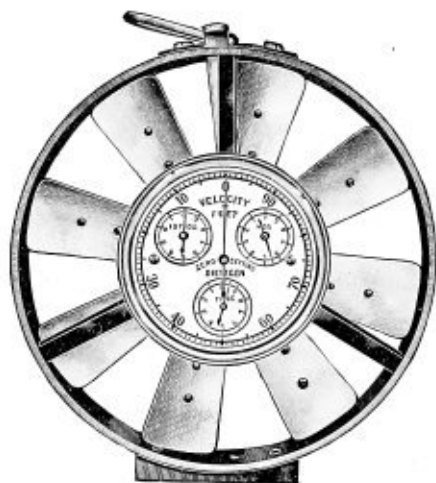
See Price List in back of Catalog.



Anemometers

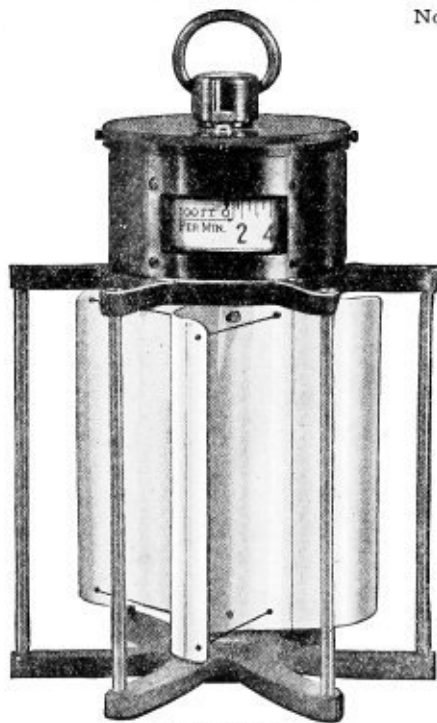
These Instruments are for the measurement of air currents through mines, tunnels and sewers; and the ventilation of hospitals, public buildings, etc.

Velocities of air currents are obtained by means of a delicately poised fan wheel, the recording being commenced by the long hand, which traverses the extreme outer circumference of the main dial for the passage of 100 feet of air. The enumeration is continued by a series of smaller dials. Our Anemometers are made by the latest American machine precision methods and all parts are made to positive standards. The 4 inch Anemometers have a *zero setting arrangement*, by which all of the hands can be set back to zero, or starting point; the sum of the reading, for any single observation, thus being instantly seen without regard to previous tests. A *disconnecter* throws the mechanism out of gear and arrests its action when required. All Instruments are carefully tested and furnished with a table of corrections.



No. 6994D.

Instruments will stand a pressure of 3,000 ft. per minute.



No. 6999D.

No. 6993D. Biram type Anemometer, with *disconnecter*, 3 in. diameter, 2 dials reading to 1,000 ft., in leather case, Each, \$

6994D. Biram type Anemometer with *disconnecter* and *zero setting arrangement*, 4 in. diam., 4 dials reading 100,000 ft., in *sewed leather case*, . . . Each, \$

6998D. Biram type Anemometer, *High Speed*, with *disconnecter* and *zero setting arrangement*, 4 in. diameter, 4 dials reading to 100,000 ft., capable of registering strong blast currents up to 3,000 feet per minute, in leather case, Each, \$

6999D. Direct-Reading Anemometer, measures air velocities like a speedometer indicates speed; weight 14 ozs. When held in a vertical position, indicates all air currents it comes in contact with, irrespective of the angle of direction; measures and indicates (without the use of a watch) direct velocities from 100 to 3200 lineal feet per minute; has *automatic zero setting* when inoperative, . . . Each, \$

6999DC. Leather carrying case with shoulder strap, for No. 6999D, Each, \$

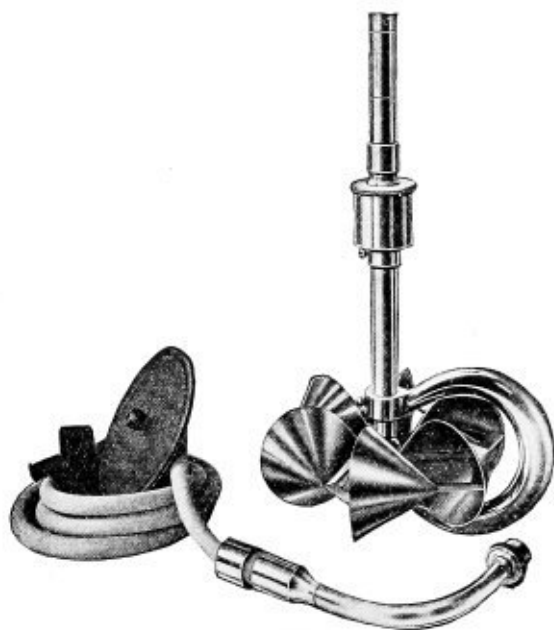
We have the best facilities for testing and repairing Anemometers.

See Price List in back of Catalog.

Current Meter

The increased demand for a high grade Current Meter, especially designed for use in irrigation work to measure the speed of flowing water, has led us to list the following Acoustic Meter, which is superior to other makes on account of its accuracy and simplicity of construction. It is very compact and portable, and possesses the desirable advantages of having no exposed mechanism; no delicate parts to get out of order; continuous reliability in action; and rigidity combined with lightness.

The revolutions of the bucket wheel are indicated by the sound of a hammer striking against a diaphragm, one blow for every 10 revolutions. The indicating mechanism is enclosed and is absolutely protected from injury. The meter is held by a jointed rod which screws into the frame and, in connection with a rubber tube that has an ear piece attached, forms a passage through which the sound of the hammer stroke is transmitted to the ear of the observer, thus enabling him to count the number of revolutions of the wheel in any given space of time, and then by means of the reduction table to ascertain the velocity of flow. As the ear piece attachment is fastened to the observer's head, both hands are free for manipulating the meter.



No. 7050.

- | | | |
|-----------|---|----------|
| No. 7050. | Acoustic Current Meter, including two lengths of graduated brass tube to measure four feet from plane of bucket wheel, tool accessories and extra pivot bearing, in wooden box with lock and strap, | Each, \$ |
| 7051. | Extra Graduated Brass Tube, 2 feet long, | " |
| 7052. | Canvas Case, for 2, 3 or 4 lengths of tube, | " |

See Price List in back of Catalog.

Pocket Magnifying Glasses



No. 7150.



7152.

No. 7150.	Mounted in rubber, 1 lens, 1	in. diam., mag. power	4	times,	Each, \$
7151.	" " " " 2 " 1	" " " " 1 1/2	" " " " 3	" " " "	" " " "
7152.	" " " " 2 " 1	" " " " 1 1/2	" " " " 4 to 8	" " " "	" " " "
7153.	" " " " 2 " 1	" " " " 1 1/2	" " " " 3 to 6	" " " "	" " " "

Magnifying Glasses



No. 7230.



7251.



7261.

No. 7230.	Coddington Lens, metal folding frame, nickel-plated, 1/2 in. diameter, magnifying power 15 times,	Each, \$
7232.	Like No. 7230, but 1 in. diameter, mag. power 10 times,	" " "
7234.	" " 7230, " 1 1/2 " " " " 7 1/2 " " " "	" " "
7250.	Thread Counter, metal folding frame, 1/4 in. field,	" " "
7251.	Like No. 7250, but 1/2 in. field,	" " "
7252.	" " 7250, " 1 " " " " " " " "	" " "
7261.	Magnifier, on 3 legs, brass, screw adjustment, 1 in. diameter,	" " "

Reading and Reducing Glasses

Best Quality Nickel-Plated Frames
Polished Wooden Handles



No. 7286.

No. 7280.	Reading Glasses, plain, no scale.	Size,	2 1/2	3 1/2	4 in.
Each,	" " " "	" " " "	" " " "	" " " "	" " " "
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Price List No. 15

Applying to the

DIETZGEN

DRAFTING AND SURVEYING SUPPLIES

General Catalog

The prices noted herein are for shipments made
from our Factory and our Branches East
of the Rocky Mountains



September, 1931



EUGENE DIETZGEN CO.

Enduring worth at reasonable cost

Chicago New York
New Orleans Pittsburgh
San Francisco



Philadelphia Washington
Milwaukee Los Angeles
Factory at Chicago

Manufacturers of Drafting and Surveying Supplies.

NOTICE

NO LIST PRICES are shown in our General Edition Catalog. Therefore, kindly preserve this Price List by inserting into the pocket that is attached to the inside of the back cover of the General Edition Catalog.

We try to keep our customers informed of any changes in list prices, but as conditions beyond our control will not always permit of so doing we will invoice goods at the prices prevailing when shipments are made.

Question of Ownership of Goods in Transit

The consignor's (seller's) responsibility for delivery of or damage to goods sold on an f. o. b. shipping point basis ends when a receipt is obtained from the Transportation Companies by the consignor, the title passing to the consignee (buyer) when the goods are shipped.

As non-delivery rests with the Transportation Companies, against whom claims **must be made by the consignee**, the goods should therefore, in justice to the consignor, be paid for according to the agreed terms, even if not delivered.

The period within which claims must be made, this period **dating from the date of shipment**, is limited to **four months** by the Express Companies and to **six months** by the Railroad Companies. A notice to the Transportation Company of non-delivery, and a request that tracer be issued, does not extend the claim limits.

We will, if requested, supply documents necessary for making claims.

Important

THIS supplementary price list contains net prices applying to items shipped from our branches east of the Rocky Mountains, and are subject to change without notice. We issue a separate price list for our branches in Los Angeles and San Francisco.

Ordering

When ordering, always give the catalog number of each article desired and, on certain articles, like Papers, "T" Squares, Triangles, Drawing Boards, Colors, etc., state the size, thickness, color, etc. An omission of any of these important particulars often causes a delay of several days, as it is necessary, before we can fill the order correctly, to write for this information. If you have had the goods before and wish to order them again, specify on your order the description as given on our bill, or give the date of the bill.

Shipping Directions

State whether you wish the goods sent by parcel post, express or freight; if by freight, designate the route preferred. Small packages or parcels weighing less than 50 to 60 pounds can be forwarded more safely, more expeditiously and, in most instances, equally as cheap by express as by freight.

Parcel Post: Parcel Post packages will be forwarded at purchaser's risk, and cost of postage added to the invoice; if requested, these packages will be insured, and fee added to the invoice.

Parcel Post matter may be sent C. O. D. on payment of a fee of 12 cents for \$10.00 or less, 15 cents for a collection of from \$10.00 to \$50.00, and of 25 cents for a collection of from \$50.00 to \$100.00, in addition to the postage. The amount collected from the addressee includes the fee for the post-office money order by means of which remittance is made. The C. O. D. fee also covers insurance.

Express: Express shipments will, if requested, be forwarded prepaid, and charges added to the invoice.

Freight Freight shipments usually require packing boxes; these will be billed at cost.

When no shipping directions are given, we send goods according to our best judgment.

As we exercise the greatest care in preparing shipments and in forwarding as directed, we are not responsible for goods damaged or lost in transit. Every assistance will, however, be given in tracing shipments which have not been delivered promptly.

Remittances

Remittances may be made either by bank draft payable to our order, or by post-office money order, or by cash sent by any of the express companies. If cash is forwarded by mail, the letter should be registered. When goods are ordered by express, C. O. D., a remittance to cover packing and express charges both ways must accompany the order, and express charges for collection will be added to the invoice. Collection charges will be saved and goods delivered quicker by remitting in full with order.

Accounts

If you have never had an account with us and wish to order goods, either send a remittance with the order or give satisfactory references. Failure to remit or to give references compels us to make inquiry as to the responsibility of the party ordering, thus delaying the shipment until we receive satisfactory information.

Guarantee

All our goods are guaranteed to be exactly as described, and if any article is found to be otherwise it may be returned for replacement or for money refund.

We ask co-operation to the extent that if any cause for complaint arises that we be notified immediately.

		Ream	Quire	Sheet			Ream	Quire	
No. 1.	13x17 in.	\$ 21.00	\$ 1.15	\$ 0.06	No. 9A.	17x22 in.	\$14.00	\$ 0.80	
	15x20 "	35.00	1.95	.10		19x24 "	20.00	1.10	
	17x22 "	47.60	2.60	.13		22x30 "	31.00	1.75	
	19x24 "	61.60	3.40	.17		27x40 "	60.00	3.30	
	19x27 "	72.80	4.00	.20		No. 10.	14x17 in.	\$ 5.85	\$ 0.35
	22x30 "	100.80	5.55	.28			15x20 "	8.10	.45
	27x40 "	186.20	10.25	.51			17x22 "	10.65	.60
No. 2.	19x24 in.	\$ 61.60	\$ 3.40	\$ 0.17	19x24 "		13.75	.75	
	22x30 "	100.80	5.55	.28	22x30 "		19.40	1.05	
	27x40 "	186.20	10.25	.51	27x40 "	39.10	2.15		
	No. 3.	22x30 in.	\$196.00	\$10.80	\$ 0.54	No. 11.	9x12 in.	\$ 4.60	\$ 0.25
		27x40 "	294.00	16.20	.80		12x18 "	9.15	.50
							18x24 "	18.25	1.00
	No. 5.	19x24 in.		Ream	Quire		19x24 "	19.25	1.05
22x30 "			\$38.00	\$ 2.20	22x30 "		28.00	1.50	
27x40 "			55.00	3.20	24x36 "	36.50	2.00		
			90.00	5.20	27x40 "	45.00	2.50		
No. 7A.	9x12 in.		Ream	\$ 1.80	No. 11A.	9x12 in.	\$ 4.90	\$ 0.30	
	11x15 "		3.45			12x18 "	9.80	.55	
	12x18 "		3.60			18x24 "	19.60	1.10	
	15x20 "		6.15			19x24 "	21.00	1.15	
	18x24 "		7.20			22x30 "	29.70	1.65	
	22x30 "		13.50		24x36 "	39.15	2.10		
	24x36 "		14.40		27x40 "	48.60	2.70		
No. 7B.	9x12 in.		\$ 2.40	No. 11B.	9x12 in.	\$ 4.60	\$ 0.25		
	11x15 "		4.35			12x18 "	9.15	.50	
	12x18 "		4.80			18x24 "	18.25	1.00	
	15x20 "		7.95			19x24 "	19.25	1.05	
	18x24 "		9.45			22x30 "	28.00	1.50	
	22x30 "		17.40		24x36 "	36.50	2.00		
	24x36 "		18.90		27x40 "	45.00	2.50		
No. 8A.	9x12 in.		\$ 1.95	No. 11T.	9x12 in.	\$ 4.50	\$ 0.25		
	11x15 "		3.60			12x18 "	9.00	.50	
	12x18 "		3.90			18x24 "	18.00	1.00	
	15x20 "		6.30			19x24 "	18.50	1.05	
	18x24 "		7.80			22x30 "	26.00	1.45	
	22x30 "		13.95		24x36 "	42.00	2.30		
	24x36 "		15.60		27x40 "	50.40	2.75		
No. 8B.	9x12 in.		\$ 2.45	No. 12.	9x12 in.	\$ 6.15	\$ 0.35		
	11x15 "		4.65			12x18 "	12.25	.70	
	12x18 "		4.95			18x24 "	24.50	1.35	
	15x20 "		8.40			19x24 "	26.50	1.55	
	18x24 "		9.90			22x30 "	38.00	2.20	
	22x30 "		18.30		24x36 "	49.00	2.80		
	24x36 "		19.80		27x40 "	62.00	3.50		
No. 9.	14x17 in.		Ream	Quire	100 sheets				
	15x20 "		\$ 8.75	\$ 0.50	No. 13.	23 x29 in.	\$11.80		
	17x22 "		10.00	.60		13B.	23 x29 "	11.80	
	19x24 "		14.00	.80		14.	23 x29 "	23.60	
	22x30 "		20.00	1.10		15.	23 x29 "	23.60	
	27x40 "		31.00	1.75		16.	23 x29 "	35.40	
			60.00	3.30		16B.	23 x29 "	35.40	
				16C.		22½x28½ "	58.25		
					30 x40 "	104.00			

All Numbers Not Shown Have Been Discontinued

		100 Sheets				Doz. Each	
No. 16D.	22 x30 "		\$42.65	No. 35.	5x 7 in.	\$ 7.50	\$ 0.75
16E.	22½x28½ in.		58.25	C. P.	7x10 "	12.00	1.20
	30x40 in.		104.00	Surface	9x12 "	19.50	1.95
16H.	22x30 "		42.65		10x14 "	24.50	2.45
No. 17A.	30x40 in.		61.00		14x20 "	47.00	4.70
17B.	30x40 "		61.00	No. 36.	5x 7 in.	\$12.50	\$1.25
17C.	30x40 "		53.50		7x10 "	16.00	1.60
		Ream	Quire		9x12 "	20.00	2.00
No. 19.	19 x25 in.	\$22.40	\$ 1.15		10x14 "	24.00	2.40
No. 19B.	19 x25 in.	\$36.00	\$ 2.00		14x20 "	35.00	3.50
			Doz.	No. 37.	5x 7 in.	\$16.50	\$ 1.65
No. 20-2	10x15 in., 2 Ply.		\$ 0.50	C. P.	7x10 "	22.50	2.25
	15x20 " " "		1.00	Surface	9x12 "	32.00	3.20
No. 20-3	10x15 in., 3 Ply.		\$.75		10x14 "	39.00	3.90
	15x20 " " "		1.50		14x20 "	58.50	5.85
No. 21-2	10x15 in., 2 Ply.		\$ 0.70	No. 38.	12x16 in.		\$ 0.75
No. 21-3	10x15 " 3 "		.95		14x18 "		0.85
No. 24.	22½x28½ in.		\$3.35		17x22 "		1.00
		Gross	Doz.		20x26 "		1.40
No. 26.	8 x13 in., 2 ply.	\$13.90	\$ 1.30		23x31 "		1.90
	10 x15 " "	13.90	1.30	No. 39.	12x16 in.		\$ 1.50
	12½x15½ " "	14.75	1.40	(With	14x18 "		1.80
	14½x18½ " "	21.30	2.00	three	17x22 "		2.25
	16½x20½ " "	30.60	2.85	flaps)	20x26 "		2.65
	18½x22½ " "	36.00	3.35		23x31 "		3.75
	21½x28½ " "	65.60	6.05	No. 50.	{ Wgts. 36 in.—125 lbs.		Pound
	8 x13 " 3 ply.	20.50	1.95		{ 40 " —140 "		\$0.19
	10 x15 " "	20.50	1.95		{ 48 " —185 "		Pound
	12½x15½ " "	21.70	2.05	No. 51B.	{ 36 in. (Rolls		Pound
	14½x18½ " "	32.00	2.95		{ Wgts. 42 " about		\$0.17
	16½x20½ " "	45.00	4.20		{ 48 " 60 lbs.)		Pound
	18½x22½ " "	54.00	5.00	Nos. 53A, B and C.	Rolls about		Pound
	21½x28½ " "	98.40	9.05		100-120 lbs.	\$ 0.21	
	12½x15½ " 4 ply.	28.80	2.75			100 Yds. 50 Yds.	
	14½x18½ " "	42.00	3.95	No. 53A.	36 in.	\$ 5.25	\$ 2.90
	16½x20½ " "	61.00	5.65		42 "	6.30	3.45
	18½x22½ " "	72.00	6.65	No. 53B.	36 in.	\$ 6.80	\$ 3.75
	21½x28½ " "	131.20	12.05		42 "	7.85	4.30
No. 27.	8x13 in., 2 ply.	\$16.90	\$1.55		48 "	9.20	5.00
	10x15 " "	16.90	1.55	No. 53C.	36 in.	\$ 8.90	\$ 4.90
	8x13 " 3 ply.	24.00	2.20		42 "	10.50	5.75
	10x15 " "	24.00	2.20				Pound
		Doz.	Each	Nos. 54A, B and C.	Rolls about		Pound
No. 31.		\$ 5.00	\$ 0.50		100-120 lbs.	\$ 0.22	
32.		6.50	.65			100 yds. 50 yds.	
33.			.20	No. 54A.	36 in.	\$ 5.50	\$ 3.00
No. 34.	5x 7 in.	\$ 5.00	\$ 0.50		42 "	6.60	3.60
	7x10 "	7.70	.75				
	9x12 "	11.00	1.10				
	10x14 "	14.00	1.40				
	14x20 "	24.00	2.40				

No. 54B.	36 in.....	100 yds.	50 yds.		
	42 ".....	\$ 7.15	\$ 3.90		
	48 ".....	8.25	4.50		
	54 ".....	9.60	5.30		
No. 54C.	36 in.....	\$ 9.35	\$ 5.10		
	42 ".....	11.00	6.00		
	Pound				
	No. 55.	Rolls about 40-45 lbs....	\$ 0.36		
	30 in.....	50 yds.	10 yds.		
	36 ".....	\$ 5.55	\$ 1.35		
	42 ".....	6.60	1.50		
	42 ".....	7.80	1.80		
No. 56.	Rolls about 40-45 lbs....	\$ 0.36			
	36 in.....	50 yds.	10 yds.		
	42 ".....	\$ 3.90	\$ 0.90		
	42 ".....	4.50	1.05		
No. 58.	Rolls about 40-45 lbs....	\$ 0.36			
	36 in.....	50 yds.	10 yds.		
	42 ".....	\$ 6.15	\$ 1.50		
	42 ".....	7.20	1.65		
No. 59.	Rolls about 40-45 lbs....	\$ 0.30			
	30 in.....	50 yds.	10 yds.		
	36 ".....	\$ 5.10	\$ 1.10		
	42 ".....	6.00	1.40		
No. 59B.	Rolls about 40-45 lbs....	\$ 0.31			
	30 in.....	100 yds.	50 yds.	10 yds.	
	36 ".....	\$ 9.45	\$ 5.55	\$ 1.20	
	42 ".....	11.10	6.30	1.50	
	42 ".....	13.05	7.50	1.80	
	54 ".....	16.80	9.60	2.25	
	62 ".....	19.05	10.05	2.55	
	No. 60.	Rolls about 40-45 lbs....	\$ 0.37		
30 in.....		50 yds.	10 yds.		
36 ".....		\$ 7.00	\$ 1.65		
42 ".....		8.20	1.95		
	42 ".....	9.40	2.25		
	54 ".....	14.00	3.00		
	62 ".....	16.00	3.40		
	No. 61.	Rolls about 40-45 lbs....	\$ 0.30		
30 in.....		50 yds.	10 yds.		
36 ".....		\$ 5.10	\$ 1.10		
42 ".....		6.00	1.40		
	42 ".....	7.20	1.70		
	62 ".....	10.15	2.45		
	No. 65.	Rolls about 40-45 lbs....	\$ 0.42		
		36 in...	50 yds.	10 yds.	Yard
42 ".....		\$ 9.20	\$ 2.10	\$ 0.30	
42 ".....		10.85	2.55	.35	
	62 " ..	16.20	3.75	.50	
No. 70.	Rolls about 40-45 lbs....	\$ 0.65			
	36 in.....	10 yds.	Yard		
	42 ".....	\$ 3.45	\$ 0.40		
	63 ".....	4.10	.50		
	63 ".....	6.00	.75		
	72 ".....	6.90	.85		
Nos. 80 and 81	(100% Rag Stock).....	\$ 0.75			
	36 in.....	10 yds.	Yard		
No. 80.	36 in.....	\$ 4.60	\$ 0.55		
	42 ".....	5.50	.65		
	58 ".....	7.50	.90		
No. 81.	58 in.....	\$ 9.40	\$ 1.15		
No. 96.	(Old No. 125.)	Sheet			
	22x30 in.....	\$0.90			
	27x40 ".....	1.60			
No. 97.	(Old No. 126.)				
	22x30 in.....	1.80			
	27x40 ".....	2.90			
No. 99.	(No. 60 Mounted)				
	36 in.....	\$11.50	\$ 1.40		
	42 ".....	13.30	1.60		
	54 ".....	19.00	2.40		
	62 ".....	21.00	2.65		
No. 99B.	(No. 61 Mounted)				
	36 in.....	\$11.50	\$ 1.40		
	42 ".....	13.30	1.60		
	62 ".....	21.00	2.65		
No. 101.	(No. 65 Mounted)				
	36 in.....	\$11.50	\$ 1.40		
	42 ".....	13.30	1.60		
	62 ".....	21.00	2.65		
No. 105.	(No. 70 Mounted)				
	36 in.....	\$12.50	1.50		
	42 ".....	15.00	1.80		
	63 ".....	23.00	2.90		
	72 ".....	31.50	4.00		
No. 115.	(No. 80 Mounted)—100% Rag Stock.				
	36 in.....	\$14.10	\$ 1.70		
	42 ".....	16.20	2.00		
	58 ".....	23.50	3.00		
No. 116.	(No. 81 Mounted)—100% Rag Stock.				
	58 in.....	\$26.00	\$ 3.25		
No. 118.	(Old No. 206.)	Yard			
	30 in.....	\$0.50			
	36 ".....	.55			
	42 ".....	.70			
	54 ".....	1.30			

No. 118T. (Old No. 206T.)	Yard				
30 in.	\$0.70				
36 "	.75				
42 "	.90				
No. 120.	Yard				
38 in.	\$1.20				
No. 121. (Old No. 138.)	Roll				
36 to 38 in.	\$15.50				
	24 yds.				
No. 123.	30 in.	\$19.25			
	36 "	21.25			
	42 "	26.25			
	24 yds.				
No. 124.	30 in.	\$19.25			
	36 "	21.25			
	42 "	26.25			
No. 125.	22x30 in.	\$ 0.90			
	27x40 "	1.60			
No. 125A. (Old No. 140D.)	Roll				
30 in.	\$21.50				
36 "	24.75				
42 "	29.50				
No. 126.	22x30 in.	\$ 1.80			
	27x40 "	2.90			
No. 128.	30 in.	\$14.00			
	36 "	15.50			
	42 "	19.75			
No. 129.	30 in.	\$14.00			
	36 "	15.50			
	42 "	19.75			
No. 130.	30 in.	\$24.00	\$ 1.20		
	36 "	27.50	1.40		
	42 "	32.50	1.60		
No. 131.	30 in.	\$19.25			
	36 "	21.25			
	42 "	26.25			
No. 132.	30 in.	\$17.50			
	36 "	19.25			
	42 "	23.75			
	9x12 pkg., 250 shts.	\$17.00			
	12x18 " 250 "	34.00			
	18x24 " 250 "	67.95			
	24x36 " 250 "	135.90			
No. 135.	24 in.	\$20.70	\$ 1.10		
	30 "	21.50	1.15		
	36 "	24.75	1.25		
	38 "	27.00	1.40		
	42 "	29.50	1.60		
	48 "	37.75	2.10		
	54 "	46.75	2.60		
No. 137.	30 in.	\$24.00	\$ 1.20		
	36 "	27.50	1.40		
	42 "	32.50	1.60		
No. 138.	36 to 38 in.	\$15.50			
No. 140D.	30 in.	\$21.50			
	36 "	24.75			
	42 "	29.50			
No. 141.		\$ 1.00			
No. 142.		\$ 2.80	\$ 0.25		
No. 143.		\$ 3.00	\$ 0.30		
No. 144.	1 oz.	\$ 0.35			
	4 "	1.15			
	8 "	1.95			
	16 "	3.35			
No. 146.	4 oz.	\$ 0.30			
	½ pt.	.50			
	Pt.	.90			
	Qt.	1.50			
	½ gal.	2.60			
	Gal.	5.20			
No. 148.		\$ 6.25			
	148-1	6.75			
	148-2	8.25			
	148-3	8.50			
	148-4	2.75			
	148-5	2.00			
	148-6	.60			
No. 161.	36 in.	50 yds.	\$ 2.70		
	42 "		2.90		
	57 "		3.80		
No. 162.	18 in.	50 yds.	\$ 1.65		
	24 "		2.20		
	36 "		3.30		
	42 "		3.85		
	60 "		5.50		
	12x18 in., pkg., 500 shts.	Carton	\$ 6.20		
	18x24 " " 250 "		6.40		
	24x36 " " 100 "		4.85		
No. 163.	36 in.	50 yds.	\$ 3.30	20 yds.	\$ 1.70
	42 "		3.60		1.85
	12x18 in., pkg., 500 shts.	Carton	\$ 7.55		
	18x24 " " 250 "		7.80		
	24x36 " " 100 "		5.90		

All Numbers Not Shown Have Been Discontinued

		50 yds.	20 yds.						Carton
No. 164.	42 in.	\$5.25	\$ 2.25	No. 218A	12x18 in., crt., 500 shts.	\$7.55			
	57 in.	6.75	2.85		18x24 " " 250 "	7.80			
No. 166.	42 in.		2.00		24x36 " " 100 "	5.90			
No. 167.	36 in.	5.00	2.00	No. 177½.	36 in.	4.35	1.95		
	42 "	5.75	2.30		42 "	5.00	2.50		
No. 167A.	30 in.	5.55	2.50	No. 178.	57 in.	4.15	1.75		
	36 "	6.60	2.95						20 yds.
	42 "	7.65	3.40	No. 181.	42 in.		2.85		
No. 168.	30 in.	4.30	2.15	No. 182.	42 "		1.50		
	36 "	5.15	2.60	No. 183.	36 in.		2.25		
	42 "	6.00	3.35		42 "		2.55		
No. 169.	42 in.		2.60		58 "		3.40		
									Carton
		50 yds.	20 yds.		8½x11 in., crt., 500 shts.	\$ 2.85			
No. 170.	30 "	\$4.20	\$1.90		8½x13 " " 500 "	3.40			
	36 "	5.10	2.25		12x18 " " 500 "	10.85			
	42 "	6.00	2.60		18x24 " " 250 "	11.60			
No. 171.	36 in.	4.35	1.95		24x36 " " 100 "	8.65			
	42 "	5.00	2.50	No. 184.	42 in.		1.90		
				No. 185.	42 "		3.60		
									20 yds.
		50 yds.	20 yds.	No. 185A.	36 in.	\$3.60			
No. 172A.	30 in.	\$3.80	\$1.60		42 "	4.00			
	36 "	4.55	1.85						Carton
	42 "	5.25	2.20		12x18 in., crt., 500 shts.	\$16.60			
	62 "	7.70	3.15		18x24 " " 250 "	16.85			
No. 173.	36 in.		\$3.50		24x36 " " 100 "	13.20			
	42 "		3.90						20 yds.
					No. 185C.	42 in.	3.00		
					No. 186.	42 in.	2.60		
No. 173.	12x18 in., pkg., 500 shts.		\$ 6.50		No. 187.	42 in.	2.85		
	18x24 " " 250 "		6.70						20 yds.
	24x36 " " 100 "		5.55		No. 188.	36 in.	\$4.00		
						42 "	4.50		
No. 174.	42 in.		\$1.50		No. 188A.	42 "	4.25		
					No. 189.	42 "	1.90		
					No. 190.	42 "	3.00		
No. 176.	36 in.		\$2.25		No. 191.	42 "	3.60		
	42 "		2.55						50 yds.
	58 "		3.40						20 yds.
					No. 192.	30 in.	\$ 8.40	\$3.35	
						36 "	9.50	3.75	
						42 "	10.40	4.15	
									Carton
					12x18 in., crt., 500 shts.	\$17.30			
					18x24 " " 250 "	17.60			
					24x36 " " 100 "	13.75			
No. 176A.	30 in.	3.30							20 yds.
	36 "	3.90		No. 192T.	30 in. (No. 192 in tubes)	\$ 3.50			
	42 "	4.50			36 " (" 192 " ")	3.90			
	62 "	6.00			42 " (" 192 " ")	4.30			
No. 176B.	30 in.	2.75							50 yds.
	36 "	3.50		No. 193.	36 in.	\$ 9.00	\$3.60		
	42 "	3.90			42 "	10.00	4.00		
	62 "	5.50							Carton
177.	42 in.		2.00		12x18 in., crt., 500 shts.	\$16.60			
177B.	36 in.		2.00		18x24 " " 250 "	16.85			
	42 "		5.75		24x36 " " 100 "	13.20			
No. 177C.	36 in.	\$3.30	\$1.70						
	42 "	3.60	1.85						

		20 yds.		50 Yds. 10 Yds.				
No. 193T.	36 in. (No. 193 in tubes)	\$ 3.75		No. 218B.	30 in.	\$ 6.90	\$ 1.80	
	42 " (" 193 " ")	4.15			36 "	8.10	2.10	
No. 195.	30 in.	3.00		42 "	9.30	2.40		
	36 "	4.00		No. 219.	24 in.	\$ 3.30	\$ 0.80	
	42 "	4.50			27 "	3.60	.90	
No. 195W.	30 "	4.00			30 "	3.90	1.00	
	36 "	4.60			36 "	4.65	1.15	
	42 "	5.00		42 "	5.40	1.35		
No. 196.	18x24	\$ 0.90	\$ 3.30	54 "	6.75	1.75		
	Packed in pasteboard tubes of 100 sheets.				No. 220.	30 in.	\$ 5.40	\$ 1.35
No. 197A.	8½x11 in., crt., 500 shts.	\$2.85		36 "		6.45	1.65	
	197B. 8½x13 " " 500 " 3.40			42 "		7.50	1.95	
No. 198.	19x24 in.	\$1.35	\$1.45	\$1.65	No. 222.	30 in.	\$ 6.90	\$ 1.80
	22x34 " "	2.25	2.00	2.95		36 "	8.10	2.10
						42 "	9.30	2.40
						No. 223.	30 in.	\$ 4.50	$ 1.20
No. 206.	30 in.	\$ 0.50		36 "	5.40		1.35	
	36 " .....	.55		42 "	6.30		1.65
	42 " .....	.70		54 "	7.80		1.95
	54 "	1.30		No. 226.	30 in.	\$22.30	\$ 5.50	
No. 206T.	30 in.	\$ 0.70			36 "	24.10	6.00	
	36 " .....	.75			42 "	29.60	7.40
	42 " .....	.90		54 "	56.80	14.20	
				No. 226T.	30 in.	\$32.50	\$ 8.15	
No. 210.	24 in.	\$ 3.05	\$ 0.75		36 "	33.50	8.40	
	27 "	3.15	.80		42 "	40.00	10.00	
	30 "	3.30	.85	No. 227.	30 in.	\$ 8.40	\$ 2.10	
	36 "	3.90	1.00		36 "	9.75	2.40	
42 "	4.50	1.10	42 "		11.10	2.85		
54 "	6.60	1.65	54 "	18.00	4.50			
No. 213.	24 in.	\$ 2.85	\$ 0.70	No. 229.	30 in.	\$ 7.65	\$ 1.95	
	27 "	2.95	.75		36 "	9.00	2.25	
	30 "	3.10	.80		42 "	10.50	2.70	
	36 "	3.75	.95		54 "	15.90	3.90	
42 "	4.35	1.05	No. 231.	30 in.	\$27.50	\$ 6.90		
No. 214.	24 in.	\$ 2.75		\$ 0.65	36 "	29.75	7.45	
	27 "	2.85		.70	42 "	36.10	9.00	
	30 "	3.00		.75	54 "	65.50	16.35	
	36 "	3.45	.90	No. 232.	30 in.	\$35.50	\$ 8.90	
42 "	3.90	1.00	36 "		37.50	9.40		
			42 "		44.50	11.15		
No. 215.	24 in.	\$ 4.05	\$ 1.00	No. 233.	2 oz. Can.		Each	
	27 "	4.35	1.10		4 " "		\$ 0.10	
	30 "	4.65	1.15		Pound " .....		.15
	36 "	5.55	1.40			.35		
42 "	6.45	1.60	No. 234.	1 lb. Can.		\$ 0.35		
No. 216.	30 in.	\$ 6.00		\$ 1.50	5 " "		1.45	
	36 "	7.05		1.75	10 " "		2.40	
	42 "	8.10	2.00					
	54 "	10.35	2.60					
No. 218A.	30 in.	\$ 5.40	\$ 1.35		25 lbs.		Pound	
	36 "	6.45	1.65		100 lbs.		\$0.17	
	42 "	7.50	1.95				.14	
No. 235.	30 in.	\$62.00	\$34.10				20 yds. 10 yds.	
	36 "	70.00	38.50					
	42 "	83.00	46.75					

		½ lb.	1 lb.		
No. 236.		\$1.25	\$2.00		
		Gallon			
No. 238.		\$1.00			
		50 yds.	10 yds.		
No. 240.	30 in.	\$ 3.90	\$ 1.00		
	36 "	4.60	1.15		
	42 "	5.30	1.30		
	54 "	7.80	1.95		
		250 sheets			
	8½x11 "	\$ 2.00			
	8½x13 "	2.40			
	9 x12 "	2.20			
	12x18 "	4.40			
	18x24 "	8.80			
	24x36 "	17.60			
		50 yds.	10 yds.		
No. 242.	30 in.	\$ 3.40	\$ 0.85		
	36 "	4.05	1.00		
	42 "	4.70	1.15		
		250 sheets			
	8½x11 "	\$ 1.75			
	8½x13 "	2.10			
	9 x12 "	1.95			
	12x18 "	3.90			
	18x24 "	7.80			
	24x36 "	15.60			
		10 yds.			
No. 243.	30 in.	\$ 2.00			
	36 "	2.30			
	42 "	2.70			
No. 246.	30 in.	\$10.15			
	36 "	12.15			
	42 "	14.20			
No. 247.	30 in.	\$16.00			
	36 "	19.20			
	42 "	22.35			
		Each			
No. 248.		\$ 0.35			
		50 yds.	10 yds.		
No. 250.	30 in.	\$ 3.90	\$ 1.00		
	36 "	4.60	1.15		
	42 "	5.30	1.30		
	54 "	7.80	1.95		
		250 sheets			
	8½x11 in.	\$ 2.00			
	8½x13 "	2.40			
	9x12 "	2.20			
	12x18 "	4.40			
	18x24 "	8.80			
	24x36 "	17.60			
		50 yds.	10 yds.		
No. 252.	30 in.	\$ 3.90	\$ 1.00		
	36 "	4.60	1.15		
	42 "	5.30	1.30		
		250 sheets			
No. 252.	8½x11 in.	\$ 2.00		250 sheets	
	8½x13 "	2.40		2.40	
	9x12 "	2.20		2.20	
	12x18 "	4.40		4.40	
	18x24 "	8.80		8.80	
	24x36 "	17.60		17.60	
		10 yds.			
No. 253.	30 in.	On Request			
	36 "	"			
	42 "	"			
255.	30 "	"			
	36 "	"			
	42 "	"			
	54 "	"			
255T.	30 "	"			
	36 "	"			
	42 "	"			
	54 "	"			
		Each			
No. 258.		\$0.35			
	259-1	0.50			
	259-2	1.00			
	259-3	2.00			
		100 sheets	Quire	Each	
		\$ 8.50	\$ 3.00	\$ 0.15	
		100 sheets	Quire	Each	
		\$77.00	\$20.30	\$ 0.85	
		Roll		Yard	
No. 270	Green	\$ 6.45	\$ 0.20		
	Orange	6.45	.20		
	270½ Green	4.00	.15		
	270½ Orange	4.00	.15		
	271 Green	20.50	1.30		
No. 271	Orange	20.50	1.30		
	272 Green	20.00	1.20		
	275 Orange	5.75	.15		
No. 275½	Orange	4.50	.10		
	276 Green	23.50	1.35		
	276 Orange	23.50	1.35		
	276½ Green	18.00	1.10		
	276½ Orange	18.00	1.10		
		Roll		Yard	
No. 280	Green	\$ 6.45	\$ 0.20		
	Orange	6.45	.20		
	280½ Green	4.00	.15		
	280½ Orange	4.00	.15		
	281 Green	20.50	1.30		
	281 Orange	20.50	1.30		
	282 Green	20.00	1.20		
	285 Orange	5.75	.15		
No. 285½	Orange	\$ 4.50	\$.10		
	286 Green	23.50	1.35		
	286 Orange	23.50	1.35		
	286½ Green	18.00	1.10		
	286½ Orange	18.00	1.10		

	Roll	Yard			Each
No. 270P Green.....	\$ 6.45	\$ 0.20			\$0.80
270P Orange.....	6.45	.20			1.25
275P Orange.....	5.75	.15			3.65
276P Green.....	23.50	1.35			
276P Orange.....	23.50	1.35			100 sheets
No. 280P Green.....	\$ 6.45	\$ 0.20			Nos. 346 to 346..... \$1.60
280P Orange.....	6.45	.20			346A to 346BX..... 1.70
285P Orange.....	5.75	.15			346C to 346DX..... 3.40
286P Green.....	23.50	1.35			349 to 350X..... 1.60
286P Orange.....	23.50	1.35			351C to DX..... 3.40
No. 300 Green.....	\$ 6.45	\$ 0.20			No. 353..... 3.85
300 Orange.....	6.45	.20			354..... 3.00
305 Orange.....	5.75	.15			354N..... 3.65
306 Orange.....	23.50	1.35			
No. 307 Green.....	\$ 6.45	\$ 0.20			Nos. 355-L11 and 355-L22..... \$ 1.25
307 Orange.....	6.45	.20			1000 Sheets 100 Sheets
308 Green.....	20.50	1.30			No. 356-L23..... \$32.75 \$3.65
308 Orange.....	20.50	1.30			356-L35..... 32.75 3.65
308½ Green.....	20.00	1.20			357-L23..... 31.50 3.50
309 Orange.....	5.75	.15			357-L35..... 31.50 3.50
309½ Green.....	23.50	1.35			
309½ Orange.....	23.50	1.35			No. 368A..... \$0.60 \$ 4.10
No. 315 Green.....	\$ 6.45	\$ 0.20			
315 Orange.....	6.45	.20			No. 368C..... 1.00
317 Orange.....	5.75	.15			Each Doz. 100 Sheets
					No. 359..... \$0.25 \$2.40 \$20.00
No. 325 Green.....	\$ 3.75	\$ 0.20			Nos. 360 to 366..... Ream Quire
325 Orange.....	3.75	.20			\$27.00 \$ 1.60
326 Orange.....	3.75	.20			
No. 327 Green.....	\$ 3.75	\$ 0.20			Pkgs. of
327 Orange.....	3.75	.20			12 Pads Pad
328 Orange.....	3.75	.20			No. 374..... \$ 0.60
No. 330 Green.....	\$ 3.75	\$ 0.20			374B..... .75
330 Orange.....	3.75	.20			374L..... 2.10
331 Orange.....	3.75	.20			Nos. 375 to 377..... \$5.40 .45
No. 332 Green.....	\$ 3.75	\$ 0.20			No. 378..... .25
332 Orange.....	3.75	.20			Nos. 378A and 378B (See New Nos.
333 Orange.....	3.75	.20			355-L22 and 355-L11)
No. 335 Green.....	\$ 3.75	\$ 0.20			
					No. 384..... Each
					384F..... \$ 1.80
					385..... 1.35
No. 338 Green.....	\$ 3.75	\$ 0.20			Nos. 386-1 to 386-7..... \$ 0.50
338 Orange.....	3.75	.20			
339 Orange.....	3.75	.20			No. 387..... Each
					\$ 0.80
No. 340-4 to 340-20P.....	\$11.15	\$ 1.35			Box of
					100
No. 340-I to 340-R.....	11.15	1.35			No. 387E..... \$ 0.15
	100 Fillers	Filler			No. 388..... Each
	20 leaves	of 20			\$ 0.20
	each	leaves			
No. 340-W to 340-WM.....	\$14.50	\$0.15			No. 388A..... Set
					\$ 0.90
	100 Fillers	Filler			
	12 leaves	of 12			No. 389..... Doz. Each
	each	leaves			\$13.85 \$ 1.25
No. 340-X.....	\$18.00	\$ 0.20			389F..... 10.25 .90
					390..... 17.00 1.50
					391..... 20.15 1.75

All Numbers Not Shown Have Been Discontinued

No.	Doz.	Each	Yard
No. 400	\$13.85	\$1.25	
400C	13.85	1.25	
400F	10.25	.90	500
401	12.60	1.10	Sheets
403	13.85	1.25	
403C	13.85	1.25	
403F	10.25	.90	Sheet
403P	2.75	.30	\$ 0.45
404	12.60	1.10	
404C	12.60	1.10	Each
404F	8.90	.80	\$ 2.50
405	13.85	1.25	618S
405F	10.25	.90	619
410	13.85	1.25	619S
410C	13.85	1.25	622
410F	9.55	.85	623
411	12.00	1.05	626
412	12.00	1.05	627
412C	12.00	1.05	628
412F	8.60	.75	
420	17.00	1.50	No. 632
422	13.85	1.25	633
422C	13.85	1.25	
422F	10.25	.90	No. 638
424	20.15	1.75	640
	100 sets	Doz. sets	Set
No. 430	\$48.00	\$ 6.00	\$ 0.60
		100	Doz.
No. 433		\$12.00	\$ 1.50
436		3.00	.40
436½		4.10	.60
		100	Each
No. 437-1		\$25.00	\$ 0.25
437-2		18.00	.18
437-2A		10.00	.10
437-2B		5.00	.05
437-2C		5.00	.05
437-2P		10.00	.10
437-2S		7.00	.07
437-3		5.00	.05
437-4		5.00	.05
437-5		5.00	.05
		100 Sets	Set
No. 437-6		\$40.00	\$ 0.40
			Each
No. 441			\$ 0.75
No. 442-1		\$1.00	\$ 8.50
442-2		.80	6.60
442-3		.75	6.15
No. 443			\$ 2.70
443A			1.10
Rates for imprinting forms No. 442-1, 2, 3			
—1000 or less (minimum charge) \$ 2.50			
More than 1000—up to 2000 3.60			
More than 2000—up to 3000 4.80			
More than 3000—up to 4000 6.00			
More than 4000—up to 5000 7.50			
No. 465	8½x11 in., box, 500 shts.	\$2.85	
466	8½x13 " " 500 "	3.40	
No. 470			\$ 1.15
			500
			Sheets
No. 475	8½x11 in.	\$ 2.85	
476	8½x13 "	3.40	
			Sheet
No. 480			\$ 0.45
			Each
No. 618			\$ 2.50
618S			3.00
619			2.75
619S			3.25
622			4.50
623			4.75
626			3.40
627			3.40
628			3.40
No. 632			\$ 2.50
633			2.70
No. 638			\$ 1.80
640			2.00
641			2.00
No. 646			\$ 2.00
647			2.00
No. 648			\$ 0.80
649			.90
654			.80
655			.80
No. 656			\$ 0.80
656A			.65
656C (Cd. of 12)			7.50
657			0.80
657A			.65
658			.80
659			.80
660			.40
660C (Cd. of 12)			4.50
			Doz.
*No. 661A			\$ 5.40
* 661B			5.40
* 662A			4.80
* 662B			4.80
*Sold in Doz. Lots only.			
No. 663	(See new No. 711)		Each
No. 664			\$2.25
664S			2.25
665			4.50
665E			1.25
665L			.75
No. 666			\$ 3.00
667			3.25
670			2.25
671			2.50
672			3.00
673			3.25

	Each		Each
No. 677	\$ 2.00	No. 736A	\$ 2.00
680	1.75	736B	2.40
682A	2.00	736C	2.60
682B	2.00	No. 738A	\$ 1.95
682C	2.00	738B	2.15
682E	2.00	738C	2.45
684	5.65	No. 742A	\$ 1.85
686	4.00	742B	2.00
688	2.75	742C	2.25
No. 690	\$ 2.50	No. 744A. Size 3 $\frac{3}{4}$ in	\$.90
692	5.60	744B. Size 3 $\frac{3}{4}$ in	1.10
694	2.80	744C. Size 3 $\frac{3}{4}$ in	1.30
696	3.70	No. 746A. (See new No. 744A.)	
698	2.70	746B. (See new No. 744B.)	
No. 700	\$ 3.30	746C. (See new No. 744C.)	
702	3.00		Doz.
704	5.00	*No. 748A	\$ 7.20
706	.75	* 748B	9.60
708	.75	* 748C	10.80
710	.85	*Sold in Doz. Lots only.	
No. 711	\$ 3.25		Each
712C	2.60	No. 752A	\$ 2.60
712G	5.00	752B	2.90
No. 713-0	\$.60	752C	3.60
713-1	.60	No. 754A	\$ 2.00
713-2	.60	754B	2.40
713-3	.60	754C	2.60
713-4	.60	No. 755A. Size 3 $\frac{3}{4}$ in	\$ 1.00
713-5	.60	755B. Size 3 $\frac{3}{4}$ in	1.30
713-6	.60	755C. Size 3 $\frac{3}{4}$ in	1.50
No. 713H	\$.50	No. 757A. (See new No. 755A.)	
713T	.10	757B. (See new No. 755B.)	
713W	.25	757C. (See new No. 755C.)	
No. 716A	\$ 3.00	No. 758	\$ 3.45
716B	3.75	759	3.65
716C	4.00	762. (See new No. 768.)	
No. 716AS	\$ 3.60	763. (See new No. 769.)	
716BS	4.35	767	3.15
716CS	4.60	768	2.50
No. 722A	\$ 1.25	769	2.80
722B	1.70	No. 773	\$ 5.50
722C	1.80	774	6.50
No. 724A	\$ 0.90	777	3.20
724B	1.15	778	4.00
724C	1.35	No. 786	\$ 3.00
No. 726A	\$ 0.90	790	2.30
726B	1.15	No. 792	\$ 2.80
726C	1.35	796	1.70
	Doz.	797	2.00
*No. 727A	\$ 9.60	801R	1.50
* 727B	12.00	803R	2.15
* 727C	13.20	806	1.10
*Sold in Doz. Lots only.			Doz.
No. 730A	\$ 4.00	*No. 807	\$11.40
730B	4.75	* 808	14.40
730C	5.00	* 809	10.80
		*Sold in Doz. Lots only.	

	Each		Each
No. 819	\$11.50	No. 982	\$25.20
820	13.50	986	16.00
823	6.40	988	12.00
831	5.50	990	5.00
No. 835	\$ 5.00	992	4.60
839	3.40	No. 993F	\$10.00
844R	3.75	993U	7.00
849	2.65	993R	9.45
	Doz.	993D	6.15
*No. 853	28.80	No. 993S	\$ 4.90
* 854	26.40	993P	6.00
*Sold in Doz. Lots only.		993C	5.40
	Each	993T	6.00
No. 861	\$ 9.50	No. 994-1	\$ 0.25
865	5.00	994-2	.25
867	4.30	994-3	.25
869	4.85	994-4	.25
870	5.30	994-5	.25
872	8.60	994-6	.25
No. 886S	\$ 9.25	994-10A	.15
889S	26.75	994-10B	.20
No. 896S	\$ 8.10	994-11	.20
897S	7.30	994-11B	.20
No. 900S	\$ 1.80	994-12	.20
No. 930	\$12.85	994-13	.35
No. 930S	\$12.85	994-14	.35
No. 932	\$ 5.15	994-15	.35
932S	5.15	994-50	.10
No. 934	\$ 4.60	994-51	.10
934S	4.60	994-60	.30
No. 951S	\$16.00	994-61	.30
No. 953S	\$ 4.60	994-63	.30
955S	5.00	994-64	.30
No. 960	\$ 9.25	994-70	.45
962	26.75	994-71	.45
963	7.90	No. 995-1	\$ 0.15
966	31.00	995-2	.20
970	7.30	995-3	.15
No. 972	\$16.75	995-4	.15
973	12.50	995-6	.15
974	4.50	995-10	.15
978	8.10	995-11	.15
979	1.80	995-12	.15
No. 980-A. 24 in.	\$ 0.70	995-14	.10
30 "	.80	995-20	.60
36 "	.90	995-22	.60
42 "	1.20	995-23	.60
48 "	1.50	995-24	.50
60 "	1.95	995-30	.10
No. 980-B and C 24 in.	\$ 0.55	995-31	.10
30 "	.60	995-35	.20
36 "	.65	995-36	.20
42 "	.70	995-37	.20
48 "	.90	995-38	.20
60 "	1.20	995-39	.20
		995-40	.25
		995-41	.25
		995-42	.25

All Numbers Not Shown Have Been Discontinued

No.	Each	No.	Each
No. 995-45	\$.20	No. 997-38	\$.15
995-50	.25	997-38A	.15
995-55	.25	997-39A	.15
995-57	.20	997-40	.15
995-58	.15	997-42	.25
995-60	\$ 0.30	997-45	.25
995-61	.30	997-46A	.20
995-65	.15	997-46B	.15
995-66	.10	997-47	.10
995-70	.15	997-48A	.10
995-71	.10	997-49	.10
995-80	.35	997-49A	.10
995-82	.15	997-50	.10
995-83	.15	997-51	.10
995-84	.15	997-52	.75
No. 996-1	\$ 0.30	997-54	.60
996-2	.30	No. 997-55	\$0.60
996-3	.30	997-57	.25
996-10	.15	997-58	.25
996-20	.15	997-59	.75
996-21	.15	997-60	1.80
996-22	.15	997-62	.75
996-30	.10	No. 997-63	\$ 1.50
996-31	.10	997-64	.60
996-32	.10	997-65	.60
996-33	.15	997-66	.60
No. 997-1	\$ 0.30	997-66A	.60
997-2	.25	997-67B	.40
997-3	.20	997-68	1.50
997-5	.30	997-72	.75
997-6	.25	997-80	2.75
997-7	.20	997-81	.90
997-8	.25	997-82	1.75
997-8A	.25	997-83	2.25
997-9A	.15	997-84	1.25
997-10	.25	997-85	1.00
997-11	.25	997-86	1.25
997-12	.10	997-86A	1.00
997-13	.15	997-87	.60
997-16	.25	997-87A	.90
997-16A	.15	997-87B	.75
997-17	.25	997-88	2.50
997-18	.25	997-93	(Gross) 1.25
No. 997-20	\$ 0.25	997-94A	2.00
997-21	.25	997-94B	3.00
997-22	.20	997-95A	1.50
997-23	.20	997-95B	2.75
997-25	.25	997-96A	1.80
997-26	.25	997-96B	1.20
997-26A	.15	997-97	1.20
997-27	.25	997-97A	.80
997-30	.35	997-98	.90
997-31	.35	997-99	.75
997-33	.15	997-100	.90
997-35	.15	997-100A	.75
997-36	.15		
997-36A	.15		
997-37	.15		
997-37A	.15		

All Numbers Not Shown Have Been Discontinued

No. 1005	Set	\$32.00	No. 1084S	Set	\$ 5.00
1007		37.00	1035S		6.00
1007S		40.00	1086S		6.50
1007C		40.00	1087S		6.90
1008C		44.00	1087M		9.75
1010C		58.00	No. 1087SC		8.10
No. 1011	\$ 6.75		1088SC		9.20
1015		21.00	No. 1092		2.10
No. 1017	\$23.55		1093		2.80
1017C		27.00	1094		3.60
1018C		31.50	1095		4.20
1020C		40.50	1096		4.60
1027		22.80	1097		4.80
No. 1032	\$ 7.35		1096L		5.70
1033		9.60	1096LC		6.00
1034		10.95	1097L		6.20
1035		14.40	1097LC		6.40
1037		16.35	1098LC		7.80
1037C		21.00	No. 1100A (See New No. 1100AN)		
1038C		22.50	No. 1100AN		\$15.00
1038G		25.00	1100B (See New No. 1100BN)		
1038H		25.50	1100BN		10.00
No. 1042	\$ 7.80		1100C (See New No. 1100CN)		
1043		9.80	1100CN		7.50
1044		11.40	1100D		5.00
1045		14.70	1100E		3.00
1046		14.90			
1047		16.60	No. 1102A	Doz. Each	\$ 5.50 \$.55
1055		8.00	1102C		6.00 .60
No. 1056	\$ 9.10		1102N		.90
1056C		9.70	1105		.60
1057		10.30	1106		1.00
1057C		10.90			Card
No. 1062R	\$ 5.60		No. 1110		\$ 4.50
1063R		7.00	1110A		7.50
1064R		8.30			Doz. Each
1065R		8.90	No. 1292	\$ 4.80 \$ 0.45	
1066R		9.90	1292L		.50 .05
1066RC		10.00	1292B		5.60 .50
1067R		10.90	1292BL		6.10 .55
1067RC		11.20	1292C		5.00 .45
No. 1065	\$7.60		1292CL		5.50 .50
1066		8.70	1292G		8.45 .75
1066C		9.10			Card of
1067		9.40	No. 1294C	One Doz. Each	\$ 3.75 \$ 0.40
1067C		9.80		Box of	
No. 1074S See New No. 1074D			1294L	One Doz. Each	\$ 2.40 \$ 0.25
1075S " " " 1075D				Each	
1076S " " " 1076D			No. 1296		\$.75
1077S " " " 1077D			1297		1.50
No. 1074D	\$5.50				Set
1075D		6.00	No. 1298		\$ 5.70
1076D		7.00			Each
1077D		7.80	No. 1298A		\$ 1.35
No. 1084 See New No. 1084S			1298B		1.20
1085 " " " 1085S			1298C		1.70
1086 " " " 1086S			1298D		1.95
1087 " " " 1087S			1299A		5.00

All Numbers Not Shown Have Been Discontinued

	Each		Each
No. 1351.....	\$ 0.75	No. 1575A.....	\$ 1.85
1356.....	1.10	No. 1576A.....	\$ 2.20
1366.....	2.85		Doz.
No. 1371.....	\$ 0.75	No. 1577. (Sold in Doz. Lots only)	\$ 1.20
1376.....	1.10		Each
No. 1394.....	\$ 1.10	Nos. 1578A to 1578G.....	\$ 1.85
1396.....	1.80	Nos. 1579A to 1579G.....	\$ 1.85
No. 1416.....	1.10	Nos. 1580K to 1580P.....	\$ 1.85
1420.....	.75	No. 1580R.....	\$ 1.85
1421.....	.75	1580RH.....	1.10
1422.....	.75	No. 1580S.....	\$ 1.85
1426.....	1.10	1580SH.....	1.10
1427.....	1.10	No. 1583A.....	\$ 2.70
1428.....	1.10	1583B.....	3.50
No. 1439.....	\$ 0.50	Nos. 1584A to 1584H.....	\$ 1.85
1439A.....	.50	No. 1584J.....	\$ 2.20
1439B.....	.50		Set
1447A.....	1.05	No. 1585B.....	\$13.20
No. 1453.....	\$ 1.10	No. 1595.....	\$11.50
1456.....	1.10	1595B.....	11.50
1457.....	1.10	1596.....	19.25
No. 1460.....	\$ 0.75	1596B.....	19.25
1462.....	1.00	1597.....	27.00
1464.....	1.10	1597B.....	27.00
1466.....	2.20	No. 1601.....	\$12.00
No. 1470.....	\$ 0.65	No. 1605.....	\$16.00
1471.....	1.05	1606.....	20.00
No. 1508.....	\$ 1.10		Each
1509.....	1.85	No. 1625.....	\$ 0.90
1513.....	4.50	1626.....	1.20
No. 1516.....	\$ 1.10		Gross Doz.
1517.....	1.85	*No. 31626.....	\$60.00 \$ 6.00
1519.....	4.50	* 41626.....	60.00 6.00
No. 1526.....	\$ 2.00	*Sold in Lots of Dozen or more only.	
1527.....	3.00	No. 1631.....	Each
1529.....	7.00	1632.....	\$ 1.20
No. 1541.....	\$ 1.10	1636.....	1.20
1542.....	1.10		Gross Doz.
1543.....	1.10	*No. 31636.....	\$60.00 \$ 6.00
1544.....	1.55	*Sold in Lots of Dozen or more only.	
No. 1546.....	\$ 1.85	1637.....	Each
1547.....	1.85	1640.....	\$ 1.65
1548.....	1.85	1643.....	2.45
1549.....	2.20	No. 1647.....	\$ 1.30
Nos. 1556 to 1556C.....	\$ 2.00	1648.....	1.65
No. 1561.....	\$ 1.10	1649.....	4.50
1562.....	1.85		
No. 1566.....	\$ 1.10		
1567.....	1.85		
No. 1572A.....	\$ 1.85		
1572B.....	1.85		
1572C.....	1.85		
1572D.....	2.20		
No. 1574A.....	\$ 1.10		
1574B.....	1.55		
1574C.....	1.85		
1574D.....	3.30		

All Numbers Not Shown Have Been Discontinued

		Each			Each
No. 1655		\$ 2.10		No. 1748P	\$ 6.20
1655B		2.50		1748L	6.95
1666		3.30		1750P	6.25
1666B		3.60		1750L	7.10
No. 1661		\$ 3.30		1750M	11.10
1661B		3.60		1752P	16.00
1663B		9.50		1752L	17.50
No. 1665		\$ 2.10		No. 1754	\$ 2.35
1665B		2.50		1754J	3.50
1667		3.30		1755P	4.90
				1755L	5.50
No. 1667B		\$ 3.60	Set	1758P	5.45
1669B		9.50		1758L	6.20
1681		3.60		1760P	5.50
1681B		4.20		1760L	6.35
1682		3.40		1760M	10.35
1682B		3.75		1762P	14.00
No. 1683		\$ 4.20		1762L	15.50
Nos. 1689G, H, J		\$ 2.00		1765F	2.70
1692		.15		1768	5.50
				1768B	4.90
No. 1700		\$ 1.50	Set Each	1768L	6.20
1704		1.10		1768LB	5.45
1706		.20		1769	5.50
1708		.30		1769L	6.35
1710		.20		1770	14.00
				1770P	4.00
No. 1718		\$ 4.60	Each	1772B	4.00
1719A		3.00		1773-1	1.20
1719B		3.60		1773-2	1.00
1723		6.60		1773-5	1.00
1738P		6.20		1775-1	1.35
1738L		6.95		1775-2	1.50
1740P		6.25		1775-3	2.75
1740L		7.10		1775-4	1.15
1740M		11.10		1775-5	1.35
1742P		16.00		1775-6	1.50
1742L		17.50		1776-1	2.75
				No. 1776-2	\$ 3.00
No. 1741-4	Doz.	\$ 3.80	Each	1776-3	4.25
1741-5		4.45		1776-4	2.50
1741-6		5.15		1776-5	2.75
1741T-4		3.80	.40	1776-6	3.00
1741T-6		5.15	.55		
1743-2		4.00	.40	No. 1777M	\$ 0.75
1743-3		6.00	.60	1777P	.75
1744-2		4.30	.45	1780-1	1.20
1744-3		6.40	.65	1780-2	1.00
1745-4		4.20	.40	1780-4	1.20
1745-5		4.95	.50	1780-5	1.00
1745-6		5.70	.65	1781	2.25
1745-8		8.00	.85	1782-1	1.15
1745M		4.20	.40	1782-2	1.35
1745T-4		4.20	.40	1782-3	1.50
1745T-6		5.70	.65	1782-4	2.75
				1783-2	2.75

All Numbers Not Shown Have Been Discontinued

	Each		Each
No. 1783-3	\$ 3.00	No. 1875	\$ 7.50
1783-4	4.25	1875½	7.50
1786M	.75	1877	3.00
1786P	.75	1879	2.00
1786S	.75	1880	1.60
No. 1787	\$ 7.00	1881 (For enlarging only.)	1.00
1792	7.00	1885	61.00
1794	38.00	1887	68.00
1795A	9.00	No. 1889	\$127.50
1796	5.00	1891	145.00
1797	10.00	1893	225.00
1797½	11.25	1893½	Special.
No. 1800	\$17.75	No. 1903	\$ 0.60
1801	20.50	No. 1911	\$ 0.20
1802C	33.00	1912	.40
1802D	40.00	1911A	.20
1803A	19.50	1912A	.40
1804A	30.00		Each
1804B	34.50	No. 1917	\$ 0.75
1805	44.50	Nos. 1925-1 to 1925-4	\$ 0.25
1806	53.50	Nos. 1925-9 to 1925-13	\$ 0.25
1807	100.00		Doz.
1808	147.00	No. 1928 (Sold in Doz. Lots only)	\$ 3.60
1809	176.00		Each
1810	143.00	No. 1928A	\$ 0.45
1811A	235.00	1928AP	.60
1811B	205.00	1928B	.50
1812	17.75		Doz.
1813A	265.00	No. 11928B. Sold in Doz. Lots only	\$ 5.10
1813B	232.00		Each
1814	20.50	No. 1928D	\$ 1.10
No. 1816	\$30.00	1930A	2.50
1817	34.50	1930B	3.40
1826	44.50	1930D	1.50
1827	53.50	1930E	2.50
1829	100.00	1931A	4.50
No. 1830	\$147.00	1931B	6.00
1831	176.00	1931C	8.00
1832	143.00	1931D	3.00
1838A	235.00	1931E	3.90
1838B	205.00	1931F	6.00
1840A	265.00	No. 1932B. 8 in.	\$1.30
1840B	232.00	No. 1933-6	\$ 0.60
No. 1866A	\$ 1.25	1934-6	.90
1866C	1.75	No. 1935A	\$ 0.06
1866D, 15 in.	1.90	1935D	.15
1866E	2.75	1935½	.14
No. 1868C	\$15.00	1936	.40
1868E	20.00		Doz.
1868F	26.50	*No. 11935½	\$ 1.80
No. 1864	\$ 3.00	* 21935½	.90
1864½	3.50	* 11936	2.40

*Sold in Doz. Lots only.

No. 1937	Each	\$.75	No. 2009.	6 in.	Each	\$ 0.40	
1940		.50	8 "			.50	
No. 1941		\$ 0.85	10 "			.70	
1942		1.15	No. 2014.	4 in.	Thickness .060 in.	\$ 0.25	
1943		1.25	6 "				.35
No. 1951		\$ 2.40	8 "				.45
1953		3.60	10 "				.70
1955 (8 in. diam., 1/4° divisions)		5.25	12 "		.85		
1961		3.10	*No. 12014	4 in.	Thickness .060 in.	Doz. \$ 2.10	
1963		4.80	6 "				2.90
1965		7.50	8 "				3.75
No. 1975. (In Case)		\$21.00	10 "				5.35
1976. (In Case)		26.75	12 "		6.65		
1977. (In Case)		29.50	No. 2015.	3 in.	Thickness .060 in.	Each \$ 0.20	
1978. (In Case)		26.75	4 "				.25
1979. (In Case)		30.50	6 "				.40
No. 1985. (In Case)		\$28.50	8 "				.60
1986. (In Case)		34.00	10 "		.85		
1987. (In Case)		37.50	12 "		1.25		
No. 1996A		\$10.00	*No. 12015	4 in.	Thickness .060 in.	Doz. \$2.40	
1996C		12.50	6 "				3.25
No. 1997A		\$10.00	8 "				5.10
1997C		11.50	10 "				7.00
No. 1998A		\$62.50	12 "		10.20		
1998B		77.50	No. 2016A.	4 in.	Thickness .060 in.	Each \$ 0.30	
1999A		60.00	6 "				.40
1999B		75.00	8 "				.50
Nos. 1998-1 to 1998-3		\$62.50	10 "				.75
1998-4 to 1998-6		77.50	12 "		.95		
1999-1 to 1999-3		60.00	*No. 12016A	4 in.	Thickness .060 in.	Doz. \$ 2.80	
1999-4 to 1999-6		75.00	6 "				3.70
No. 2000A		\$ 2.00	8 "				4.70
2000B		2.50	10 "				7.00
2000C		3.50	12 "		9.00		
2000D		4.25	No. 2016B.	4 in.	Thickness .080 in.	Each \$ 0.35	
No. 2001A		\$ 1.50	6 "				.50
2001B		1.75	8 "				.60
2001C		2.00	10 "				.85
2001D		2.50	12 "		1.05		
No. 2002A		\$ 2.25	14 "		1.60		
2002B		2.50	No. 2016C.	4 in.	Thickness .090 in.	\$ 0.50	
2002C		2.75	6 "				.60
2002D		3.50	8 "				.70
No. 2004		\$ 8.40	10 "				1.05
No. 2008.			12 "				1.25
8 in.		\$ 0.40	14 "				1.70
10 "		.50	16 "		2.40		
12 "		.70	18 "		2.90		

*Sold in Doz. Lots only.

All Numbers Not Shown Have Been Discontinued

No. 2017A. 3 in.	Thickness .060 in.	Each	No. 2023B. 4 in.	Each	
4 "		\$ 0.30	6 "	\$ 0.50	
6 "		.35	8 "	.60	
8 "		.45	10 "	.70	
10 "		.65	12 "	.90	
12 "	.95	14 "	1.10		
		1.35	16 "	1.45	
		Doz.		1.80	
*No. 12017A. 4 in.	Thickness .060 in.	\$3.10	No. 2023J. 4 in.	\$ 0.55	
6 "		4.10	6 "	.65	
8 "		6.40	8 "	1.00	
10 "		8.90	10 "	1.30	
12 "		14.40	12 "	1.70	
No. 2017B. 3 in.	Thickness .080 in.	\$ 0.35	No. 2024. 6 in.	\$ 6.50	
4 "		.40	7 "	7.00	
6 "		.50	8 "	7.75	
8 "		.85	10 "	8.75	
10 "		1.20	15 "	13.25	
12 "	1.70				
		Each	No. 2025. 5 in.	\$ 6.50	
No. 2017C. 3 in.	Thickness .090 in.	\$ 0.45	6 "	7.00	
4 "		.55	8 "	8.75	
6 "		.60	10 "	11.50	
8 "		1.05	12 "	13.25	
10 "		1.50			
12 "		2.00	No. 2027-5. Sold in Doz. Lots only.	Doz.	\$ 3.75
14 "		2.55			
16 "	3.40				
*Sold in Doz. Lots only.					
No. 2018. 8 in.		\$ 0.40	No. 2030B. 5 in.	Each	
10 "		.50	6 "	\$ 0.70	
12 "		.70	7 "	.75	
No. 2019. 6 in.		\$ 0.40	8 "	.80	
8 "		.50	9 "	.80	
10 "		.70		1.00	
No. 2020. 6 in.		\$ 6.50	No. 2031B. 4 in.	\$ 0.70	
7 "		7.00	5 "	.75	
8 "		7.75	6 "	.75	
10 "		8.75	7 "	.90	
15 "		13.25	8 "	1.00	
No. 2021. 5 in.		\$ 6.50	No. 2031C. 8 in.	\$ 0.90	
6 "		7.00	2032	1.00	
8 "		8.75	No. 2033A.	\$ 4.00	
10 "		11.50	2033B.	4.00	
12 "		13.25	2033C.	4.00	
No. 2022. 4 in.		\$ 0.55	2033D.	4.00	
6 "		.60	2033DC.	3.00	
8 "		.70	2033DL.	3.00	
10 "		.90	2033DN.	2.25	
12 "		1.10	2033DV.	4.25	
14 "		1.45	2033E.	2.75	
16 "		1.80	2033F.	3.25	
No. 2023. 4 in.		\$ 0.55	2033FC.	3.25	
6 "		.65	2033FL.	3.25	
8 "		1.00	2033FN.	2.50	
10 "		1.30	2033G.	3.00	
12 "		1.70	2033H.	3.50	

All Numbers Not Shown Have Been Discontinued

		Each			Each
No. 2033J		\$ 3.25	No. 2043		\$ 3.00
2033JN		2.75	No. 2044	31 in.	1.10
2033K		3.75		43 "	1.75
2033KC		3.25		49 "	2.25
2033L		3.75		55 "	2.50
2033LN		3.25		61 "	3.25
2033M		4.25		73 "	4.00
2033MC		3.75		85 "	4.90
2033PN		3.75		97 "	6.00
2033RC		4.25		109 "	6.90
No. 2034A		\$39.00		121 "	8.50
2034B		33.00	No. 2044L	31 in.	\$ 1.75
2034C		27.00		43 "	2.60
2034D		10.00		49 "	3.25
2034E		14.25		55 "	3.75
2034G		19.25		61 "	4.50
2034L		19.25		73 "	5.50
2034M		29.00		85 "	6.50
No. 2035A		\$ 4.00		97 "	8.00
2035B		4.00		109 "	9.25
2035C		4.00		121 "	11.00
2035D		4.00	No. 2046	31 in.	\$ 2.75
2035DS		4.25		43 "	4.50
2035E		2.75		49 "	5.50
2035F		3.25		55 "	8.00
2035J		3.25		61 "	8.70
2035K		3.75		73 "	10.90
2035L		3.75		85 "	14.40
2035M		4.25		97 "	19.00
No. 2036A		\$39.00	No. 2046L	31 in.	\$ 3.25
2036B		33.00		43 "	5.15
2036C		27.00		49 "	6.25
2036D		10.00		55 "	8.75
2036E		14.25		61 "	9.70
2036G		18.00		73 "	12.25
No. 2037-2		\$ 2.00		85 "	16.00
2037-3		2.00		97 "	21.00
2037-4		2.00	No. 2051	24 in.	\$ 0.50
2037-5		2.00		30 "	.65
2037-6		2.00		36 "	.85
2037-7		2.00		42 "	1.25
No. 2037B (Size 2)		\$ 2.00		48 "	2.00
2037C	" 3	2.00		60 "	2.75
2037D	" 4	2.00		72 "	3.75
2037E	" 5	2.00		84 "	5.00
2037F	" 6	2.00		96 "	6.75
2037G	" 7	2.00		120 "	8.75
No. 2037N		\$ 0.25	No. 2052	24 in.	\$ 1.00
2037P		.75		30 "	1.20
2037S		.35		36 "	1.50
2037T		.40		42 "	1.80
2037W		.25		48 "	2.30
No. 2037Y	Doz. Each	\$ 3.00 \$.35		54 "	3.00
No. 2038		\$15.60			
2039		15.60			
2040		14.00			

All Numbers Not Shown Have Been Discontinued

No. 2056.	18 in.....	Each	*No. 12069.	24 in.....	Doz.	
	24 ".....	\$ 1.40		30 ".....	\$12.80	
	30 ".....	1.90		*Sold in Doz. Lots only.		
	36 ".....	2.40		No. 2069D.	24 in.....	Each
	42 ".....	2.80			30 ".....	\$ 2.90
	48 ".....	3.60			36 ".....	3.25
	54 ".....	4.20			42 ".....	3.65
No. 2057.	60 ".....	5.00	No. 2072.	36 in.....	Doz.	
	15 in.....	6.20		42 ".....	\$ 3.30	
	18 ".....	\$ 3.75		48 ".....	3.50	
	24 ".....	4.20		54 ".....	3.90	
	30 ".....	6.00	No. 2077.	18 in.....	\$ 2.10	
	36 ".....	8.25		24 ".....	2.50	
	42 ".....	10.00		30 ".....	2.90	
	48 ".....	14.00		36 ".....	3.20	
No. 2058.	54 ".....	16.00	42 ".....	3.80		
	60 ".....	18.75	48 ".....	4.50		
	72 ".....	22.50	54 ".....	6.00		
	24 ".....	30.00	60 ".....	7.70		
	30 ".....	5.20	No. 12077.	18 in.....	\$ 1.75	
	36 ".....	6.60		24 ".....	2.00	
	42 ".....	8.00		30 ".....	2.60	
	48 ".....	9.80		36 ".....	3.00	
No. 2060.	54 ".....	12.00	42 ".....	3.60		
	60 ".....	15.00	No. 2077D.	18 in.....	\$ 3.25	
	15 in.....	\$ 0.60		24 ".....	3.90	
	18 ".....	.65		30 ".....	4.35	
	21 ".....	.70		36 ".....	4.80	
	24 ".....	.80		42 ".....	5.40	
	30 ".....	.95		48 ".....	6.30	
	36 ".....	1.15		54 ".....	7.80	
42 ".....	1.40	60 ".....		9.50		
*No. 12030.	48 ".....	1.70	No. 2095.	18 in.....	\$ 8.00	
	Doz.			24 ".....	9.00	
	18 in.....	\$ 3.90		30 ".....	10.75	
	21 ".....	4.50		36 ".....	12.50	
	24 ".....	5.20		42 ".....	14.50	
*Sold in Doz. Lots only.			No. 2096.	18 in.....	\$10.00	
No. 2063.	30 ".....	6.50		24 ".....	11.00	
	36 ".....	8.40		30 ".....	12.75	
	Each			36 ".....	15.00	
	24 in.....	\$ 1.20		42 ".....	18.00	
	30 ".....	1.50	No. 2097.	24 in.....	\$15.50	
	36 ".....	1.80		30 ".....	17.50	
	No. 2066.	24 in.....		\$ 1.45	36 ".....	19.50
30 ".....		1.70		42 ".....	22.00	
36 ".....		2.00		No. 2105.	24 in.....	\$ 5.40
42 ".....		2.45	2107.....		7.25	
48 ".....		2.90	No. 2119A.		24 in.....	\$ 0.70
60 ".....	4.50	30 ".....		.80		
72 ".....	5.90	36 ".....		.90		
Doz.		42 ".....		1.20		
*No. 12066.	24 in.....	\$ 9.30		48 ".....	1.50	
*Sold in Doz. Lots only.		30 ".....	60 ".....	1.95		
No. 2069.	Each					
	24 in.....	\$ 1.50				
	30 ".....	1.90				
	36 ".....	2.20				
	42 ".....	2.50				
	48 ".....	3.00				

All Numbers Not Shown Have Been Discontinued

No. 2119B and C.	24 in.....	\$ 0.55	Each	No. 2162	\$ 1.95	Each
	30 ".....	.60		2163	2.65	
	36 ".....	.65		No. 2165	\$ 0.45	
	42 ".....	.70		2166 .....	.98	
	48 ".....	.90		2167	1.87	
	60 ".....	1.20				Set
No. 2152.	Style 6.....	\$ 0.55		No. 2176	\$ 4.15	
	" 8.....	.55		2178	4.15	
	" 10.....	.50		2179	8.90	
	" 10B.....	.55		2180	5.35	
	" 13.....	.70				Each
	" 14.....	.65		No. 2189.	24 ".....	\$ 0.70
	" 15.....	.75			30 ".....	.80
	" 16.....	.70			36 ".....	.85
	" 17.....	.70			42 ".....	.90
	" 17B.....	.70			48 ".....	1.10
	" 18.....	.70		No. 2192	\$ 2.25	
	" 18B.....	.70		2193	2.50	
	" 19.....	.85		No. 2210B.....	\$ 0.55	
	" 20.....	1.10		2212B.....	.65	
	" 21.....	.70		2214B.....	.85	
	" 23.....	1.20		2216B.....	1.50	
	" 24.....	1.20				Each
	" 25.....	1.85		No. 2217-31.....	\$ 1.50	
				32.....	1.50	
*No. 12152.	Style 6.....	\$ 4.00	Doz.	33.....	1.50	
	" 8.....	4.80		34.....	1.50	
	" 13.....	7.00		35.....	1.50	
	" 15.....	7.70		36.....	1.50	
	" 16.....	7.20		37.....	1.50	
	" 18.....	6.20		38.....	1.50	
			Each	39.....	1.50	
No. 2154-27.....		\$ 1.50		40.....	1.50	
			Doz.	41.....	1.50	
*No. 12154-27.....		\$10.80		42.....	1.50	
*Sold in Doz. Lots only.				43.....	1.50	
			Each	44.....	1.50	
No. 2154-30.....		2.20		45.....	1.50	
2156.....		2.40		46.....	1.50	
No. 2158.	No. 1.....	\$ 0.50		47.....	1.50	
	" 2.....	.50		48.....	1.20	
	" 3.....	.50		49.....	.90	
	" 4.....	.50		50.....	.90	
	" 5.....	.60		51.....	.90	
	" 7.....	.60		52.....	.80	
	" 9.....	.55		53.....	.80	
	" 11.....	.80		54.....	1.20	
	" 17.....	.80		55.....	.80	
	" 21.....	.80		56.....	1.50	
			Set	57.....	.90	
No. 2158C.....		\$ 9.50		58.....	.90	
			Doz.	59.....	.90	
No. 2159.....		\$ 2.60	Each	60.....	.80	
No. 2160.....		\$ 2.25		61.....	.90	
2161.....		3.75		62.....	.90	
2161A.....		2.65		63.....	.90	
				64.....	.90	
				65.....	.90	

All Numbers Not Shown Have Been Discontinued

No. 2217-66	Each	No. 2217-121	Each
67	\$ 0 65	122	\$ 0 50
68	.65	123	.50
69	.65	124	.40
70	.65	125	.40
71	.65	126	.40
72	.65	127	.40
73	.65	128	.50
74	.65	129	.65
75	.65	130	.65
76	.65	131	.65
77	.65	132	.65
78	.65	133	.65
79	.65	134	.65
80	.65	135	.65
81	.65	136	.60
82	.65	137	.50
83	.65	138	.65
84	.65	139	.65
85	.65	140	.65
86	.65	141	.65
87	.80	142	.65
88	.90	143	.60
89	.90	144	.65
90	.80	145	.65
91	.80	146	.65
92	.65	147	.65
93	.65	148	.65
94	.60	149	.65
95	.65	150	.65
96	.65	151	.65
97	.65		Set
98	.75	No. 2218	\$84.00
99	.65	2218B	84.00
100	.65	2222	15.00
101	.65	2224	36.00
102	.50		Each
103	.55	Single Railroad Curves, Wood	\$ 0.70
104	.50		Set
105	.55	No. 2227	\$ 9.70
106	.65	2228	16.20
107	.65	2229	28.80
108	.65	2230. Without case	9.75
109	.80	2232. Without case	16.25
110	.90	Single Railroad Curves, Metal. Special	
111	.65		Set
112	.80	No. 2252	\$18.20
113	.65	2254	32.00
114	.55	2255A	52.50
115	.65		Each
116	.65	Single Railroad Curves, Transparent	
117	.60	Celluloid	\$ 1.40
118	.40		
119	.60		
120	.60		

All Numbers Not Shown Have Been Discontinued

		Set			Each																			
No. 2255B		\$64.00			No. 2471	\$ 0.65																		
2256		50.50			2480	.60																		
2258		64.00			2486	1.65																		
		Each			2487	1.80																		
Single Railroad Curves, Transparent Celluloid, with Tangent		\$ 1.75			Nos. 2681 to 2691	<table border="0"> <tr> <td rowspan="4">}</td> <td>3 oz.</td> <td>\$ 0.25</td> </tr> <tr> <td>4 "</td> <td>1.10</td> </tr> <tr> <td>1 pt.</td> <td>2.00</td> </tr> <tr> <td>Pint.</td> <td>3.75</td> </tr> <tr> <td></td> <td>Quart.</td> <td>7.00</td> </tr> </table>	}	3 oz.	\$ 0.25	4 "	1.10	1 pt.	2.00	Pint.	3.75		Quart.	7.00						
}	3 oz.	\$ 0.25																						
	4 "	1.10																						
	1 pt.	2.00																						
	Pint.	3.75																						
	Quart.	7.00																						
		Doz.			Gross Doz.																			
No. 2362		\$ 0.85			*No. 12681	<table border="0"> <tr> <td rowspan="3">}</td> <td>3 oz.</td> <td>\$26.40</td> <td>\$ 2.70</td> </tr> <tr> <td>8 oz.</td> <td></td> <td>Each</td> </tr> <tr> <td>16 "</td> <td></td> <td>\$ 1.15</td> </tr> <tr> <td></td> <td>32 "</td> <td></td> <td>2.50</td> </tr> <tr> <td></td> <td></td> <td></td> <td>4.55</td> </tr> </table>	}	3 oz.	\$26.40	\$ 2.70	8 oz.		Each	16 "		\$ 1.15		32 "		2.50				4.55
}	3 oz.	\$26.40	\$ 2.70																					
	8 oz.		Each																					
	16 "		\$ 1.15																					
	32 "		2.50																					
			4.55																					
No. 2364		1.00			*Sold in lots of Doz. or more only.																			
2366		1.20			Doz.																			
2374		1.00			No. 2692	\$ 0.60																		
		Gross Doz.			2693	.60																		
No. 2401	\$ 3.60	\$ 0.35			2694	1.20																		
2403	4.25	.45			Each																			
2405	4.75	.50			Nos. 2700 to 2703	3/4 oz. \$ 0.20																		
2422	.90	.10			No. 2730	\$ 0.25																		
2424	1.10	.12			Nos. 2731 to 2733	<table border="0"> <tr> <td rowspan="4">}</td> <td>3 oz.</td> <td>\$ 0.25</td> </tr> <tr> <td>1 pt.</td> <td>2.00</td> </tr> <tr> <td>Pint.</td> <td>3.75</td> </tr> <tr> <td>Quart.</td> <td>7.00</td> </tr> </table>	}	3 oz.	\$ 0.25	1 pt.	2.00	Pint.	3.75	Quart.	7.00									
}	3 oz.	\$ 0.25																						
	1 pt.	2.00																						
	Pint.	3.75																						
	Quart.	7.00																						
2426	1.35	.15			No. 2731B	3/4 oz. \$ 0.25																		
		Box of 1 Gross			No. 2735	<table border="0"> <tr> <td rowspan="4">}</td> <td>2 oz.</td> <td>\$ 0.10</td> </tr> <tr> <td>4 oz.</td> <td>.20</td> </tr> <tr> <td>1 pt.</td> <td>.40</td> </tr> <tr> <td>Pint.</td> <td>.75</td> </tr> <tr> <td></td> <td>Quart.</td> <td>1.35</td> </tr> </table>	}	2 oz.	\$ 0.10	4 oz.	.20	1 pt.	.40	Pint.	.75		Quart.	1.35						
}	2 oz.	\$ 0.10																						
	4 oz.	.20																						
	1 pt.	.40																						
	Pint.	.75																						
	Quart.	1.35																						
No. 2434		\$ 0.40			No. 2736	<table border="0"> <tr> <td rowspan="4">}</td> <td>2 oz.</td> <td>\$ 0.25</td> </tr> <tr> <td>1 pt.</td> <td>.75</td> </tr> <tr> <td>Pint.</td> <td>1.25</td> </tr> <tr> <td>Quart.</td> <td>2.00</td> </tr> </table>	}	2 oz.	\$ 0.25	1 pt.	.75	Pint.	1.25	Quart.	2.00									
}	2 oz.	\$ 0.25																						
	1 pt.	.75																						
	Pint.	1.25																						
	Quart.	2.00																						
2435		.55			Each																			
2436		.65			No. 2737	\$ 0.45																		
		Gross Doz.			2740	Finished in black enamel .75																		
No. 2439	\$ 2.40	\$ 0.20			Dozen Each																			
2439A	3.00	.25			2741	\$ 7.20 \$ 0.65																		
		Box of 100			2742	1.00																		
No. 2440		\$ 0.35			2744	.20																		
2441		.40			2746	1.50																		
2442		.50			Each Doz.																			
		Carton			No. 2770	\$ 0.50 \$ 6.00																		
No. 2441A		\$ 3.30			No. 2778 1/2	\$ 0.45 \$ 5.40																		
No. 2440B. (See new No. 2445B.)					2779A	.30 3.60																		
2441B. (See new No. 2446B.)					2779B	.45 5.40																		
2442B. (See new No. 2447B.)					2779C	.45 5.40																		
		Per M			2779D	.45 5.40																		
No. 2443-1		\$ 1.00			2779W	.30 3.00																		
2443-2		1.10			2783	.35																		
2443-3		1.40			2784	.55																		
		Doz. Boxes Box																						
2445B	\$ 0.60	\$ 0.05																						
2446B	.65	.06																						
2447B	.70	.07																						
		Box of 100																						
No. 2450		\$ 0.30																						
2451		.35																						
2452		.40																						
		Each																						
No. 2460		\$ 0.30																						
2465		.15																						
2466		.60																						
2467		.15																						

No. 2790.....	Each	\$ 0.30	No. 2850.....	Each	\$ 1.50
2791.....	50		2854.....	2.00	
2792.....	15		2857.....	2.50	
2793.....	25		2894.....	.45	
2794.....	50		2895.....	1.10	
	Doz.	Each	No. 2920. No. 1.....	\$ 0.09	
No. 2795. 1/2 lb.....	\$ 3.00	\$ 0.25	" 2.....	.10	
1 ".....	5.40	.45	" 3.....	.11	
No. 2796.....	\$ 0.15		" 4.....	.12	
2797.....	.20		" 5.....	.12	
2798.....	.15		" 6.....	.14	
2799. Tubes.....	15		" 7.....	.15	
1/2 Pt.....	35		" 8.....	.18	
Pt.....	65		" 9.....	.20	
Qt.....	1.25		" 10.....	.25	
Gal.....	3.50		" 11.....	.30	
No. 2799D. 1/2 Pt.....	\$ 1.50		" 12.....	.35	
Pt.....	2.00		No. 2940. No. 1.....	\$ 0.15	
2799E.....	.35		" 2.....	.18	
	Each	Doz.	" 3.....	.20	
No. 2800P.* Half Pans.....	\$ 0.30	\$ 3.60	" 4.....	.30	
2800P.* Whole ".....	.40	4.80	" 5.....	.40	
2800T.* " Tubes.....	.40	4.80	" 6.....	.55	
			" 7.....	.75	
			" 8.....	.95	
			" 9.....	1.10	
			" 10.....	1.35	
			" 11.....	1.90	
			" 12.....	2.40	
			No. 3010.....	\$ 1.15	
			3011.....	1.20	
			3012.....	1.55	
			No. 3025.....	\$ 0.30	
			3026.....	.70	
			3032.....	.55	
			3033.....	.75	
			3034.....	.85	
			No. 3050.....	\$ 0.25	
			3060.....	.15	
				Doz.	
			3062.....	\$ 2.40	\$ 0.25
			3063.....		.80
				Doz.	
				Boxes	
			No. 3070.....	\$ 9.00	
			3072.....	12.00	
			3073.....	15.60	
				Gross	Doz.
			No. 3091.....	\$ 9.00	\$ 0.90
				Doz.	Each
			3093.....	\$ 1.00	\$ 0.10
No. 2840.....	Each	\$23.40			
2841.....		18.90			
2842.....		12.30			

All Numbers Not Shown Have Been Discontinued

No.	Gross	Doz.	Each
No. 3096	\$10.00	\$ 1.00	
3102	10.00	1.00	
3104	12.65	1.25	
3108	12.65	1.25	
3119	12.65	1.25	
3138	7.10	.60	
3140	5.00	0.50	
3142	4.50	.45	
3144	4.40	.40	
3146	6.50	.55	
3148	6.75	.60	
3150	6.75	.60	
3153	6.75	.60	
		Each	
No. 3154. (4B and 5B Discontinued.)		\$ 0.30	
		Box of	
		6 Leads	
No. 3156. 5B to 9H		\$ 0.45	
		Each	
No. 3158		\$ 0.40	
		Box of	
		6 Leads	
3160		\$ 0.60	
		Each	
No. 3162		\$ 0.40	
3163		.55	
		Box of	
		6 Leads	
No. 3164		\$ 0.60	
		Doz.	Each
No. 3166	\$ 1.80	\$ 0.15	
3166A	1.20	.10	
3166F		3.60	
3167C	15.00	1.25	
3167E	1.80	.15	
3167F		.90	
3168	1.80	.15	
3168A	1.20	.10	
3169C	20.40	1.70	
3169E	1.80	.15	
3170C	12.00	1.00	
3170D	12.00	1.00	
3170E	1.20	.10	
3170F	1.20	.10	
	Gross	Doz.	Each
3170G	\$ 3.60	.30	.03
3170H			.90
	Gross	Doz.	
No. 3186	\$13.70	\$ 1.40	
3188B to 3188F	10.00	1.00	
No. 3192	\$ 1.00	\$ 0.10	
3199	.60	.05	
3200	2.40	.20	
3201	.50	.05	
	Gross	Doz.	
No. 3203	\$ 1.80	\$ 0.20	
	Doz.	Each	
No. 3208	\$ 3.60	\$ 0.30	
3208P	1.20	.10	
3212	1.10	.10	
3213	1.65	.15	
* 13213	1.20		
3220	2.20	.20	
* 13220	1.60		
3222		.30	
3224		.50	
*Sold in Doz. Lots only.			
	Doz.	Each	
3229	\$ 1.20	\$.12	
3231	5.40	.50	
		Set	
No. 3231B		\$ 0.15	
		Each	
3242		1.50	
3242A		3.00	
		Pair	
3242C		\$ 0.75	
3242D		1.60	
		Each	
No. 3245		\$ 5.00	
3245A		5.50	
		Pair	
3245C		\$ 1.25	
3245D		1.75	
		Each	
No. 3248		\$ 6.00	
3248A		6.50	
		Pair	
3248C		\$ 1.25	
3248D		1.75	
		Each	
No. 3249		\$ 0.25	
	Gross	Doz.	
No. 3259	\$16.20	\$ 1.60	
		Box	
No. 3262- 6		\$ 0.90	
-12		1.75	
-18		2.55	
-24		3.35	
No. 3263		1.00	

All Numbers Not Shown Have Been Discontinued

	Gross	Doz.		Gross	Doz.
Nos. 3264B to 3264M.....	\$10.00	\$ 1.00	No. 3338.....	\$ 4.65	\$ 0.45
		Box	3339.....	4.65	.45
No. 3264-7.....		\$ 0.60	3340B.....	5.40	.55
3264-12.....		1.00	3341B.....	5.40	.55
3264-24.....		2.00	3341C.....	9.70	.95
		Gross	3342B.....	5.40	.55
No. 3265.....	\$13.70	\$ 1.40	3342C.....	9.70	.95
No. 3266.....	10.00	1.00	3343B.....	5.40	.55
No. 3272B.....		1.00	3343C.....	9.70	.95
3272C.....		1.00		Box of 36	Each
3272D.....		1.00	No. 3344.....	\$ 1.30	\$ 0.05
No. 3274.....		1.25		Doz.	Doz.
		Gross	No. 3352.....		\$ 0.50
Nos. 3277A to 3277E.....	\$13.00	\$ 1.20	3355.....		.45
No. 3278A.....	\$16.80	\$ 1.40	3356.....		.80
3278B to C.....	19.20	1.60	3359.....		.50
No. 3282A. 4 $\frac{3}{4}$ x1 $\frac{1}{2}$ in.....		.80		Box of 50	Each
Nos. 3282B to D. 6x1 $\frac{1}{2}$ in.....		1.10	No. 3360.....	\$ 2.80	\$ 0.06
No. 3284A.....		.90		Box of 25	Each
Nos. 3284B to 3284F.....		1.25	3361.....	\$ 2.50	\$ 0.10
No. 3288.....		.50		Doz.	Doz.
		Each	3364.....		\$ 1.00
No. 3321.....		\$ 0.30	3368.....		1.00
3321A.....		.15		Each	Each
3321B.....		.35	No. 3369.....		\$ 0.50
3322.....		.80	3373.....		.60
		Doz.	3374.....		.85
No. 3324A.....		\$ 0.50	3378 $\frac{1}{2}$.....		.15
3324B.....		.70	3379.....		.35
3324C.....		.95	3380.....		.25
3324D.....		1.90	3381.....		.20
		Each	3385.....		.50
No. 3324E.....		\$ 0.45	3387.....		.60
		Box	3388.....		.85
No. 3332-48.....	\$ 1.25	\$ 0.05	3390.....		.35
3332-24.....	1.25	.08	3391.....		.15
3332-12.....	1.25	.15	3392.....		.25
3333-48.....	1.25	.05	3393.....		.20
3333-24.....	1.25	.08	3395A.....		7.50
3333-12.....	1.25	.15	3395B.....		17.50
No. 3335-40.....	\$ 1.60	\$ 0.05		Gross	Gross
30.....	1.60	.07	No. 3397-7.....		\$ 0.75
20.....	1.60	.10	-8.....		.75
12.....	1.60	.17	-12.....		.75
8.....	1.60	.25	-14.....		.75
4.....	1.60	.50		Box of 12	Box of 12
		Doz.	No. 3440.....		\$ 0.55
No. 3337B.....	\$ 0.45	\$ 0.05		Card of 12	Card of 12
3337C.....	.75	.10	3441.....		\$ 0.75
		Each		Box of 12	Box of 12
		Each	3442.....		\$ 0.55
		Card		Card of 12	Card of 12
		Each	3443.....		\$ 0.75
		Card		Card	Each
		Each	No. 3447.....	\$ 1.00	\$ 0.10

All Numbers Not Shown Have Been Discontinued

No.	Each	Each
No. 4292A	.....	\$125.00
4292B	.....	150.00
No. 4300	.....	\$31.50
4301	.....	36.00
4302	.....	54.50
4303	.....	71.00
No. 4306	.....	\$10.00
4307	.....	12.40
4308	.....	18.40
No. 4310A	.....	\$60.00
4310B	.....	75.00
4311A	.....	7.00
4312A	.....	2.00
No. 4315	.....	\$63.00
4316	.....	65.25
4317	.....	67.50
4318	.....	69.25
4319	.....	\$69.25
4320	.....	72.00
4321C. Print. surface	44x62 in.	90.00
4321D. " " "	44x74 " "	95.00
4321E. " " "	56x86 " "	100.00
4321F. " " "	56x100 " "	105.00
4321G. " " "	56x122 " "	110.00

No.	Each	Each
No. 4322	\$ 91.75
4323	95.75
4324	98.00
4325	101.00
4334-1	200.00
4334-2	200.00
*4336 { 110 volts.....		\$400.00
{ 220 "		400.00
*4336-1	400.00
*4336-2	400.00
*4339 { 110 volts.....		350.00
{ 220 "		350.00
*4339-1	\$350.00
*4339-2	350.00

*Terms f. o. b. Chicago. We are not responsible for breakage of glass while the machine is in transit. If you desire to have this machine insured we can handle this matter for you on the following basis:

DOMESTIC SHIPMENT

Nos. 4336, 4336-1 and 4336-2.	Add \$15.00 to the price listed above.
Nos. 4339, 4339-1 and 4339-2.	Add \$10.00 to the price listed above.

EXPORT SHIPMENT

Nos. 4336, 4336-1 and 4336-2.	Add \$30.00 to the price listed above.
Nos. 4339, 4339-1 and 4339-2.	Add \$20.00 to the price listed above.

No.	Doz.	Each
No. 4340A. (Old No. 4342)	\$12.00	\$ 1.20
4340D. (" " 4343)	12.00	1.20
4340P. (" " 4344)	24.00	2.40
	100	25
No. 4342A-9	\$ 9.00	\$3.00
4342A-12 (Old No. 4345)	10.20	3.50
4342A-16 (" " 4345A)	14.10	4.50
4342B-9	7.10	2.50
4342B-12 (" " 4346)	9.00	3.00
4342B-16 (" " 4346A)	11.70	4.00
4342C-12 (" " 4347)	12.60	4.25
No. 4344-1	.....	Each \$107.00
4344-2	.....	100.00
4345-1	.....	165.00
4345-2	.....	156.00
4348-1	.....	On Request
4348-2	.....	" "

No. 4349 { Style A, 110 volt.....		\$90.00
{ " " A, 220 "		90.00
4349-1	.....	90.00
4349-2	.....	90.00
No. 4400	.....	Doz. \$ 7.70
4401	.....	11.00
4402	.....	18.70
No. 4406	.....	Each \$ 0.85

12x17 in.	.....	\$ 0.85
16x22 " "	.....	1.15
18x24 " "	.....	1.50
20x24½ " "	.....	1.65
20x26 " "	.....	1.70
23x31 " "	.....	2.50
31x42 " "	.....	4.50

No. 4406-1	12x17 in.	.....	\$ 0.85
4406-2	16x22 " "	.....	1.15
4406-2½	18x24 " "	.....	1.50
4406-3	20x24½ " "	.....	1.65
4406-4	20x26 " "	.....	1.70
4406-5	23x31 " "	.....	2.50
4406-6	31x42 " "	.....	4.50

No. 14406-1	12x17 in.	.....	\$ 0.65
14406-2	16x22 " "	.....	1.00
14406-2½	18x24 " "	.....	1.30
14406-3	20x24½ " "	.....	1.50
14406-4	20x26 " "	.....	1.60
14406-5	23x31 " "	.....	2.15
14406-6	31x42 " "	.....	3.50

	Each		Each	
No. 4410.	12x17 in.	\$ 0 90	No. 4432	\$ 7 35
	16x22 "	1 25	4432A	9 15
	18x24 "	1 65	4432B	10 10
	20x24½ "	1 80	4432-3	9 15
	20x26 "	1 85	4432-4	9 20
	23x31 "	2 75	4432-5	10 10
	31x42 "	5 00	4432-6	12 35
No. 4410-1	12x17 in.	\$ 0 90	No. 4434-6 (Drawer 10½x25x3¾ in.)	\$16 20
4410-2	16x22 "	1 25	4435-7 (Drawer 37x25x2 in.)	24 70
4410-2½	18x24 "	1 65	4435-8	" " " " 26 20
4410-3	20x24½ "	1 80	4435-9	" " " " 28 20
4410-4	20x26 "	1 85	No. 4440C. Board 31x43 in.	\$16 00
4410-5	23x31 "	2 75	4440E.	" 37x55 " 21 35
4410-6	31x42 "	5 00	4440-6	16 00
No. 4414.	23x31 in.	\$ 4 50	4441-7	20 00
	31x42 "	6 50	4441-8	21 35
	37x49 "	12 50	4441-9	22 00
	37x55 "	14 00	4441-10	27 00
	37x61 "	16 00	No. 4444C.	\$18 00
	43x61 "	19 00	4444E.	23 50
	37x73 "	18 50	4444-6	18 00
	49x73 "	25 00	4445-7	22 00
No. 4414-5	23x31 in.	\$ 4 50	4445-8	23 50
4414-6	31x42 "	6 50	4445-9	25 00
4414-7	37x49 "	12 50	4445-10	29 00
4414-8	37x55 "	14 00	No. 4448.	\$18 50
4414-9	37x61 in.	16 00	4450.	41 00
4414-10	43x61 "	19 00	No. 4454C.	\$22 50
4414-11	37x73 "	18 50	4454E.	27 50
4414-12	49x73 "	25 00	4454F.	35 00
No. 4420.	23x31 in.	\$ 5 00	4454-6	22 50
	31x43 "	9 00	4455-7	25 00
	37x49 "	13 00	4455-8	27 50
	37x55 "	15 00	4455-9	30 00
	37x61 "	17 00	4455-10	35 00
	43x61 "	20 00	No. 4456A.	\$ 4 30
	37x73 "	19 00	4456B.	3 00
	49x73 "	26 00	4456C.	4 30
	49x85 "	30 00	4456E.	3 00
No. 4420-5	23x31 in.	\$ 5 00	No. 4460D.	\$28 35
4420-6	31x43 "	9 00	4460F.	34 85
4420-7	37x49 "	13 00	4460G.	41 75
4420-8	37x55 "	15 00	4460-7.	28 35
4420-9	37x61 "	17 00	4460-8.	29 85
No. 4420-10	43x61 "	\$20 00	4460-9.	31 85
4420-11	37x73 "	19 00	4460-10.	34 85
4420-12	49x73 "	26 00	4461-11.	35 25
4420-13	49x85 "	30 00	4461-12.	41 75
No. 4424	Pair	\$ 8 40	No. 4464A to 4479DX furnished with 3-inch raising blocks only.	
4425		12 60		
4426		14 00		
4428		16 00		
No. 4430	Each	\$ 4 50	No. 4464.	Board 36x60 in. \$37 00
4430-3		6 50	4465.	" 42x72 " 46 00
4430-4		6 70	4468.	" 36x60 " 40 00
4430-5		7 35	4469.	" 42x72 " 49 00

All Numbers Not Shown Have Been Discontinued

	Each		Each
No. 4470A. Board 36x60 in.....	\$37.00	No. 4484.....	\$56.65
4470B. " 36x72 ".....	41.00	4484C.....	43.15
4470C. " 42x72 ".....	46.00	4484E.....	50.65
4471A. " 36x60 ".....	40.00	4484F.....	57.35
4471B. " 36x72 ".....	44.00	4484G.....	63.35
4471C. " 42x72 ".....	49.00	4484-6.....	43.15
4472. " 36x60 ".....	43.00	4484-7.....	49.15
No. 4472A. Board 36x60 in.....	\$40.00	4484-8.....	50.65
4472B. " 36x72 ".....	44.00	4485.....	38.35
4472C. " 42x72 ".....	49.00	4485-9.....	54.35
4473. " 42x72 ".....	52.00	4485-10.....	57.35
No. 4473A. Board 36x60 in.....	\$43.00	4485-11.....	56.85
4473B. " 36x72 ".....	47.00	4485-12.....	63.35
4473C. " 42x72 ".....	52.00	No. 4486B.....	\$36.65
4474A. " 36x60 ".....	43.00	4486C.....	38.35
4474B. " 36x72 ".....	47.00	4487-6.....	45.35
4474C. " 42x72 ".....	52.00	4487-7.....	49.70
4475A. " 36x60 ".....	46.00	4487-8.....	51.70
4475B. " 36x72 ".....	50.00	4488-9.....	55.35
4475C. " 42x72 ".....	55.00	4488-10.....	58.35
No. 4476A. Board 36x60 in.....	\$40.00	4488-11.....	57.35
4476B. " 42x72 ".....	49.00	4488-12.....	64.35
No. 4476D. Board 42x84 in.....	\$79.00	No. 4490.....	\$47.90
4476DX. " 42x84 ".....	82.00	4490C.....	54.45
4477B. " 36x72 ".....	70.00	4490E.....	61.95
4477D. " 42x84 ".....	82.00	4490F.....	68.60
4477DX. " 42x84 ".....	85.00	4490G.....	74.60
4478B. " 36x72 ".....	77.00	4490-6.....	51.45
4478D. " 42x84 ".....	88.00	4490-7.....	60.45
4478DX. " 42x84 ".....	90.00	4490-8.....	61.95
No. 4479B. Board 36x72 in.....	\$97.00	4491.....	49.60
4479D. " 42x84 ".....	108.00	4491-9.....	65.60
4479DX. " 42x84 ".....	114.00	4491-10.....	68.60
4480A. See New No. 4475A.....		4491-11.....	68.10
4480B. See New No. 4475C.....		4491-12.....	74.60
No. 4481A.....	\$ 4.00	No. 4492A.....	\$ 4.00
4481B.....	4.25	4492B.....	6.00
4481D.....	5.00	4492C.....	8.00
4481E.....	5.25	4492D.....	12.50
4481F.....	6.00	No. 4493-6.....	\$56.95
4481G.....	6.25	4493-7.....	60.95
4481H.....	6.25	4493-8.....	62.95
4481K.....	6.50	4494-9.....	66.60
4481L.....	8.00	4494-10.....	69.60
4481M.....	7.50	4494-11.....	68.60
4481N.....	8.50	4494-12.....	75.60
4481P.....	9.75	No. 4496.....	\$ 4.00
4481R.....	11.00	4496A.....	4.00
4481S.....	12.00	4496B.....	6.00
No. 4482.....	\$95.00	4496C.....	8.00
4482A.....	65.00	4496D.....	12.50
		No. 4500.....	\$ 3.60
		4500A.....	4.40
		4502A.....	9.00
		4502C.....	9.50

All Numbers Not Shown Have Been Discontinued

No.	Description	Each
No. 4550A.	Plain Oak	\$62.25
4550B.	" "	65.25
4550C.	" "	75.50
4550D.	" "	78.80
No. 4552A.	Plain Oak	\$62.25
4552B.	" "	65.25
4552C.	" "	75.50
4552D.	" "	78.80

Any Beck Files which we have discontinued will be manufactured specially on order. Prices on request.

No.	Each
No. 4572A	\$ 1.45
4572B	1.55
4572C	1.65
4572D	1.75

For subdividing Envelopes into two pockets, add 50 cents to LIST PRICE of regular Envelope; for three or four pockets, add 70 cents each Envelope; for five to eight pockets, add \$1.05 each Envelope.

No.	Each
No. 4574A	\$ 1.45
4574B	1.50
4574C	1.65
4576R	.35
4578T	.40

No.	Each
No. 4580	\$ 9.00
4581A	1.75
4581B	1.75
4581C	2.00
4581D	2.25

No.	(In Chamois Sheath)	Each
No. 4854.	" "	\$ 2.35
4855	" "	3.50

No.	(Rivet Joints)	Doz.	Each
No. 4864	" "	\$ 3.80	\$0.40
4865	" "	4.45	.45
4866	" "	5.15	.55
4864T	" "	3.80	.40
4866T	" "	5.15	.55

No.	(Rivet Joints)	Doz.	Each
4904	" "	\$ 4.20	\$ 0.40
4905	" "	4.95	.50
4906	" "	5.70	.65
4908	" "	8.00	.85
4904M	" "	4.20	.40
4904T	" "	4.20	.40
4906T	" "	5.70	.65

No.	Each
No. 4942	\$ 4.00
4943	6.00
4962	4.30
4963	6.40

No.	Each
No. 4974	\$ 1.00
4975	1.25
4976	1.50
4978	2.00

No.	Each
No. 4996A	\$ 3.00
4996B	3.75
4996BT	3.75
4996BM	4.00
4998N	5.00

NICKEL-PLATING STEEL RIBBONS

Steel Measuring Tapes

	Each
25 feet	\$ 1.10
33 "	1.25
50 "	1.75
66 "	2.00
75 "	2.00
100 "	2.25

Steel Chain Tapes

100 feet	\$ 2.30
200 "	3.50
300 "	4.60
500 "	7.50

Steel Pocket Tapes

3 feet	\$ 0.35
5 "	.40
6 "	.45
8 "	.50

No. 5000C	\$ 8.75
5000F	15.60

No. 5000LC (Line only of 5000C)	\$ 6.80
5000LF (" " " 5000F)	12.70

No. 5002C	\$ 8.75
5002F	15.60

No. 5002LC (Line only of 5002C)	\$ 6.80
5002LF (" " " 5002F)	12.70

No. 5005S	\$ 8.75
5005W	13.20
5005X	15.60
5007S	9.75
5007W	14.85
5007X	17.60

No. 5100C	\$ 7.90
5100F	13.50
5100G	20.40
5100H	26.40

No. 5100LC (Line only of 5100C)	\$ 6.80
5100LF (" " " 5100F)	12.70
5100LG (" " " 5100G)	18.60
5100LH (" " " 5100H)	24.50

No. 5102C	\$ 7.90
5102F	13.50
5102G	20.40
5102H	26.40

No. 5102LC (Line only of 5102C)	\$ 6.80
5102LF (" " " 5102F)	12.70
5102LG (" " " 5102G)	18.60
5102LH (" " " 5102H)	24.50

	Each		Each
No. 5105S.....	\$ 7.90	No. 5202A.....	\$ 4.90
5105X.....	13.50	5202C.....	6.00
5105Y.....	22.00	5202E.....	7.80
No. 5107S.....	\$ 8.90	5202F.....	10.20
5107X.....	15.50	No. 5206R.....	\$ 5.30
5107Y.....	25.00	5206S.....	6.00
No. 5150C.....	\$ 6.80	5206T.....	7.50
5150F.....	11.65	5206W.....	8.50
5150G.....	19.00	5206X.....	10.20
5150H.....	23.50	No. 5207R.....	\$ 6.00
No. 5150LC (Line only of 5150C)..	\$ 4.50	5207S.....	7.00
5150LF (" " " 5150F)..	7.80	5207T.....	8.80
5150LG (" " " 5150G)..	13.50	5207W.....	10.15
5150LH (" " " 5150H)..	18.00	5207X.....	12.20
No. 5152C.....	\$ 6.80	No. 5220A.....	\$ 4.70
5152F.....	11.65	5220C.....	5.70
5152G.....	19.00	5220E.....	7.50
5152H.....	23.50	5220F.....	9.60
No. 5152LC (Line only of 5152C)..	\$ 4.50	No. 5222A.....	\$ 4.70
5152LF (" " " 5152F)..	7.80	5222C.....	5.70
5152LG (" " " 5152G)..	13.50	5222E.....	7.50
5152LH (" " " 5152H)..	18.00	5222F.....	9.60
No. 5155S.....	\$ 6.80	No. 5225R.....	\$ 5.00
5155X.....	11.65	5225S.....	5.70
5155Y.....	20.00	5225T.....	7.10
No. 5157S.....	\$ 7.80	5225W.....	8.20
5157X.....	13.65	5225X.....	9.60
5157Y.....	23.40	No. 5227R.....	\$ 5.60
No. 5162B.....	\$ 9.30	5227S.....	6.70
5162C.....	10.90	5227T.....	8.40
5172B.....	8.10	5227W.....	9.80
5172C.....	9.70	5227X.....	11.60
5178.....	3.40	No. 5240A.....	\$ 4.45
5178A.....	2.20	5240C.....	5.40
5179.....	2.25	5240E.....	7.20
5179A.....	1.60	5240F.....	9.25
No. 5180C.....	\$10.50	No. 5242A.....	\$ 4.45
5180F.....	18.00	5242C.....	5.40
5180H.....	37.00	5242E.....	7.20
No. 5180LC (Line only of 5180C)..	\$ 6.80	5242F.....	9.25
5180LF (" " " 5180F)..	12.70	No. 5245R.....	\$ 4.80
5180LH (" " " 5180H)..	24.50	5245S.....	5.40
5182C.....	10.50	5245T.....	6.85
5182F.....	18.00	5245W.....	7.90
5182H.....	37.00	5245X.....	9.25
No. 5182LC (Line only of 5182C)..	\$ 6.80	No. 5247R.....	\$ 5.45
5182LF (" " " 5182F)..	12.70	5247S.....	6.40
5182LH (" " " 5182H)..	24.50	5247T.....	8.20
5185S.....	10.50	5247W.....	9.50
5185X.....	18.00	5247X.....	11.25
5187S.....	11.50	No. 5260A.....	\$ 4.20
5187X.....	20.00	5260C.....	5.15
No. 5200A.....	\$ 4.90	5260E.....	6.85
5200C.....	6.00	5260F.....	8.75
5200E.....	7.80		
5200F.....	10.20		

All Numbers Not Shown Have Been Discontinued

		Each			Each
No. 5262A		\$ 4.20	No. 5370A	} Without Links on back.	\$ 1.45
5262C	5.15	5370C	2.50		
5262E	6.85	5370E	3.25		
5262F	8.75	5370F	4.70		
No. 5265R	\$ 4.60	No. 5372A	} Without Links on back.	\$ 1.45	
5265S	5.15	5372C		2.50	
5265T	6.50	5372E		3.25	
5265W	7.60	5372F		4.70	
5265X	8.75				
No. 5267R	\$ 5.25	No. 5380A.	(Grad. feet only.)	\$ 3.45	
5267S	6.15	5380C.	(Grad. feet only.)	4.90	
5267T	7.80	5380E.	(Grad. feet only.)	6.15	
5267W	9.25	5380F.	(Grad. feet only.)	7.75	
5267X	10.75				
No. 5272A	\$ 2.35	No. 5382A.	(Grad. feet only.)	\$ 3.45	
5272C	2.60	5382C.	(Grad. feet only.)	4.90	
5272E	3.55	5382E.	(Grad. feet only.)	6.15	
5272F	4.50	5382F.	(Grad. feet only.)	7.75	
No. 5274A	\$ 2.55	No. 5390A.	(Grad. feet only.)	\$ 1.45	
5274A-7	.35	5390C.	(Grad. feet only.)	2.60	
5274C	2.80	5390E.	(Grad. feet only.)	3.40	
5274E	3.75	5390F.	(Grad. feet only.)	4.90	
5274F	4.70	No. 5392A.	(Grad. feet only.)	\$ 1.45	
No. 5290-3	\$ 0.75	No. 5392C		\$ 2.60	
5290-5	.95	5392E		3.40	
5290-6	1.00	5392F		4.90	
5290-8	1.50				
No. 5291-8	\$ 1.50	No. 5402A		\$12.60	
		5402C		23.40	
No. 5292-3	\$ 0.75	5402E		34.20	
5292-5	.95	5402G		55.80	
5292-6	1.00	No. 5403A		\$10.80	
5292-8	1.50	5403C		19.80	
No. 5293-3	\$ 0.80	5403E		28.80	
5293-5	1.05	5403G		46.80	
5293-6	1.25	No. 5408A		\$ 7.70	
5293-8	1.75	5408C		13.50	
No. 5294A	\$ 0.80	5408E		19.40	
5294B	1.05	5408G		31.10	
5294C	1.25	No. 5409A		\$ 6.30	
5294D	1.75	5409C		10.80	
No. 5295-5	\$ 1.05	5409E		15.30	
5295-5	1.05	5409G		24.30	
5297-5	1.05	No. 5414A		\$ 7.70	
		5414C		14.40	
5299G	\$18.50	5414E		27.00	
No. 5360A	} Without Links on back.	\$ 3.10	No. 5511N	\$10.50	
5360C		4.50	5511R	14.30	
5360E		5.60	5517N	19.50	
5360F		7.00	5517R	24.90	
No. 5362A	} Without Links on back.	\$ 3.10	5519N	28.50	
5362C		4.50	5519R	33.90	
5362E		5.60			
5362F		7.00			

All Numbers Not Shown Have Been Discontinued

No. 5522N	Each	\$10.50	No. 5574	Each	3.00
5522R		14.40	5575		3.00
5523N		19.50	No. 5580A		\$ 6.00
5523R		24.90	5580B		12.00
	Pair		5581A		10.50
5524		\$ 0.80	5581B		16.50
5526		.50	5582A		15.80
	Each		5582B		21.80
5528		\$ 3.90	5583A		27.00
No. 5530		\$ 6.00	5583B		33.00
5531		9.00	5583C		37.20
5532		10.50	5583D		43.20
5533		14.10	5583E		37.50
5534		15.90	5583F		43.50
5535		21.40	Nos. 5588A to 5588H		\$ 6.00
5537		6.90	5588N to 5588P		6.00
5538		9.90	No. 5590		\$18.00
5539		11.40	5594A		6.00
5540		16.50	5594B		6.00
5543		3.00	5594C		6.00
5544		6.00	5596		21.00
No. 5530A		\$ 6.00		Pair	
5531A		9.00	No. 5597A		\$ 1.00
5532A		10.50	5597B		1.80
5533A		14.10		Each	
5534A		15.90	No. 5598		\$ 2.00
5535A		21.40	5599		1.15
5537A		6.90	No. 5604. Tension up to 20 lbs.		\$ 4.00
5538A		9.90	No. 5605		\$ 5.00
5539A		11.40		Package	
5540A		16.50	No. 5605A		\$ 0.65
5543A		3.00	5605B		.65
5544A		6.00		Each	
No. 5530-1		\$ 6.00	No. 5606		\$ 3.50
5531-1		9.00		500	
5532-1		10.50	No. 5606A. Rivets		\$ 0.65
5533-1		14.10		Each	
5534-1		15.90	No. 5607		\$20.00
5535-1		21.40	5614		.50
No. 5560		\$ 6.00		Box of	
5561		9.00	No. 5615		\$ 0.60
5562		12.00	5616C		.60
5563		10.50	5616D		.60
5564		13.50		Each	
5565		16.50	No. 5634A		\$11.00
5566		15.80	5634B		13.50
5567		21.80	5634C		20.00
5568		27.00	5634D		22.00
5560-1		6.00		Each	
5561-1		9.00			
5562-1		12.00			
5563-1		10.50			
5564-1		13.50			
5565-1		16.50			
5566-1		15.80			
5567-1		21.80			
5568-1		27.00			

All Numbers Not Shown Have Been Discontinued

No. 5652A	Each	\$11.00	No. 5730-10	Each	\$ 0.65
5652B		15.00	5730-14		.95
5652C		20.00	No. 5735		\$ 4.00
5652D		25.00	5737		2.25
	Set		5739		1.60
5661		\$ 2.00		Yard	
5662		2.60	No. 5740A		\$ 0.04
5663		4.25	5740B		.04
	Each		5740C		.04
No. 5667		\$ 0.30	No. 5740-3		\$ 0.04
5668A		3.60	5740-4		.04
	Set		5740-5		.04
No. 5670		\$ 4.25	5741		.06
5671		4.85		Each	
5672		2.00	No. 5743		\$ 0.90
5673		2.60	5744		.60
	Each			4-oz.	
5677		\$ 0.30		Box	
5678		3.60	No. 5745		\$ 0.20
No. 5707		\$ 1.45		Pound	
5708		1.70		Box	
5709		1.90	No. 5746		\$ 0.40
5709A		2.00		Pound	
5710		2.30	No. 5747		\$ 0.35
5710B		3.10		Lot of	
5711		4.50		1000	
5712		6.00	No. 5748		\$ 0.80
5713P		.30	5748L		.80
5714B		.50	5748M	\$14.40	
No. 5720-6		\$ 1.45	5749	14.40	
5720-8		1.70	5750L		.80
5720-10		1.90	5750M	14.40	
5720-12		2.00		Each	
5720-14		2.30	No. 5754		\$ 1.40
5720-18		3.10	No. 5760		\$ 1.60
5720-24		4.50	5762		1.90
5720-32		6.00	5764		2.10
5720P		.30	5764S		1.50
No. 5722-6		\$ 1.00	No. 5774		\$ 7.50
5722-8		1.10	5776		4.50
5722-10		1.30	No. 5778		\$ 2.70
5722-12		1.45	5779A		6.25
5722-14		1.80	5779B		6.65
5722-18		2.60	No. 5782		\$ 5.00
5722P		.35	5784		5.00
No. 5724-6		\$ 0.90		Each	
5724-8		1.00	No. 5786		\$16.00
5724-10		1.20	5787		17.00
5724-12		1.35	5790		17.00
5724-14		1.70	5791		17.00
5724-18		2.50			
No. 5728-10		\$ 0.50			
No. 5730A		\$ 0.65			
5730B		.95			
5730C		.95			

All Numbers Not Shown Have Been Discontinued

	Each		Each
No. 5792B	\$ 2.70	No. 5961. 6 feet	\$ 3.60
5794A	6.25	8 "	4.20
5794B	6.65	10 "	5.20
5800	1.75	No. 5962. 2 meters	\$ 4.00
No. 5804	4.20	2½ "	4.50
5806	18.00	3 "	5.30
5808	30.00	No. 5966. 8 feet	\$ 7.00
No. 5901	\$16.50	10 "	8.50
5901A	16.50	No. 5967. 6 feet	\$ 3.25
5901R	19.50	8 "	4.00
No. 5902	\$15.00	No. 5968. 6 feet	\$ 3.25
5902A	15.00	8 "	4.00
5902R	18.00	10 "	5.00
No. 5904	\$16.50	Nos. 5972A to 5980A	\$ 5.00
5904A	16.50	5981A to 5984A	7.00
5904R	19.50	No. 5994	\$ 5.00
5904W	11.50	No. 6000	\$165.00
No. 5905	\$15.00	6002	175.00
5905A	15.00	No. 6008	\$200.00
5905R	18.00	6012	215.00
5905W	10.00	No. 6022A	\$340.00
No. 5907	\$14.50	6022C	340.00
No. 5908	\$19.00	6023A	365.00
(Like No. 5904, but di- vided feet to inches and ¼ inches; target reading to ⅛ in.)		6023C	365.00
No. 5909	\$12.50	6024A	375.00
5910	13.50	6024C	340.00
5912	12.50	6024E	340.00
5913	13.50	No. 6042A. Compass Needle, 4½"	\$345.00
5914	15.00	6042C	345.00
5915	20.00	6043A. Compass Needle, 4 "	365.00
No. 5920	\$14.50	6043C	365.00
No. 5924	\$14.50	6054A. Compass Needle, 4½"	380.00
5926	14.50	6054C	380.00
No. 5932	\$19.00	6054E	370.00
5932A	16.50	No. 6062A	\$330.00
5932R	21.00	6062C	330.00
No. 5934	\$17.50	6063A	355.00
5934A	12.50	6063C	355.00
5934R	19.50	No. 6074C	\$445.00
5935	15.00	6074E	422.50
No. 5937	\$10.50	No. 6084C	\$365.00
5943	10.50	No. 6098	\$ 75.00
No. 5947	\$19.50	No. 6102. 4-inch needle	\$ 38.50
No. 5951	\$5.00	6103	48.50
5953	5.00	6104. In sewed leather sheath	13.25
5954	2.00		
5955	2.50		
5956	2.50		

All Numbers Not Shown Have Been Discontinued

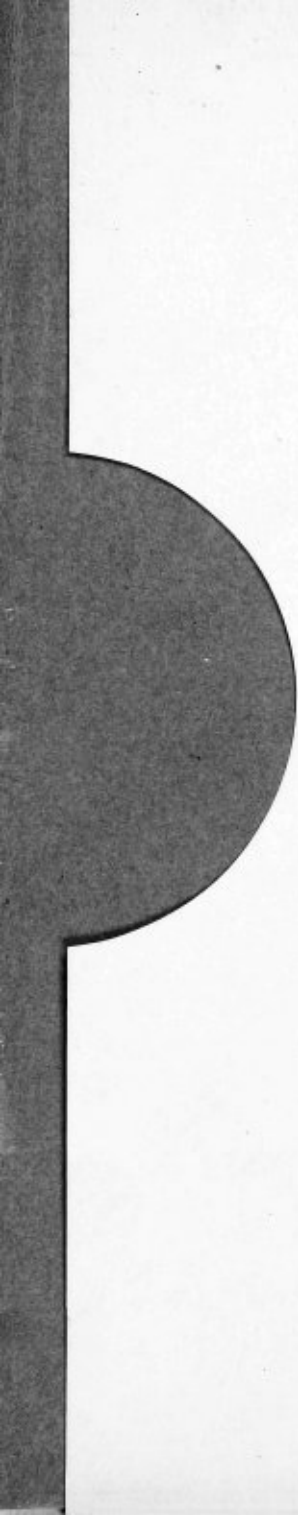
	Each		Each	
No. 6108	\$275.00	No. 6405	\$22.00	
6109	227.00	6405S	6.00	
6110	237.50	6406	19.00	
6111	232.50	6406S	3.00	
6112	165.00	6407	16.00	
6113	30.00	6408	1.25	
6114	7.50	6409	.50	
No. 6118	\$410.00	6410	3.50	
6119	390.00	6411	3.50	
6120	407.50	6412	8.00	
6121	387.50		to	
6122	280.00	6413	8.50	
6123	30.00	6414	1.00	
6124	7.50	6415	1.00	
No. 6140	\$ 65.00	6415A. Screw clamp for levels	1.00	
6142	45.00	6415B	10.00	
No. 6322A	\$272.50	6416	1.75	
6323A	295.00	6416A	1.50	
6324A	305.00	No. 6417	\$ 1.50	
No. 6334C	\$290.00	6417A {Tangent Screw with	} 6.00	
6344C	265.00	Gradienter		
No. 6354C. With Sp.L. Tripod	6494.220.00	6418	1.50	
6354CE. " Ext. "	6497.225.00	6418A	1.50	
No. 6362C " So.L. "	6492.184.00	6418B	1.50	
6362CE. " Ext. "	6497.196.00	6419	1.50	
No. 6370. " So.L. "	6491.65.00	6420	1.50	
6370E. " Ext. "	6496.78.00	6420A	1.50	
No. 6374. " So.L. "	6491.75.00	6420B	1.50	
6374E. " Ext. "	6496.88.00	No. 6421	\$ 1.50	
No. 6376. " So.L. "	6491.77.50	6422	1.50	
6376E. " Ext. "	6496.90.50	6422A. Trivet, Metal	3.50	
No. 6378. " So.L. "	6491.100.00	6422B	On Request	
6378E. " Ext. "	6496.113.00	6422L	" "	
No. 6381. " So.L. "	6491.90.00	6423	.90	
6381E. " Ext. "	6496.103.00	6424	4.50	
No. 6382. " So.L. "	6491.115.00	6425	1.25	
6382E. " Ext. "	6496.128.00	6426	1.25	
NOTE: So. L.—Solid Leg		6427	1.25	
Sp. L.—Split Leg		6428	1.25	
Ext.—Extension		6429	1.25	
No. 6396	\$ 30.00	6430	1.25	
6398	20.00			
No. 6400	\$ 0.10			
6400E. Adj. pin with eye	.20		Extra	
6400L. Adj. pin, large	.10	No. 6438	6.00	
6400S. " " small	.10	6439	25.00	
6400W. " pins 6400L and		6440. For Nos. 6108 to 6112	20.00	
6400S in leather			Each	
sheath	.25	6443	7.50	
6400Y. Center Key	.50	6449	10.00	
6401	1.25	6450	12.00	
6402	1.00	6451	15.00	
6403	24.00	6453	} Read by one vernier... { 9.00	
6403S	6.00	6454		} 10.00
6404	24.00	6455			15.00
6404S	4.50			

No.	Each	No.	Each
No. 6462	\$ 6.50	No. 6530	\$16.50
6463	3.50	6532	15.00
6464	2.25	6536	13.50
6465	1.75	6537	12.50
6466	3.25	No. 6540	\$16.50
No. 6471. Tripod Shoe, 6491	\$ 0.50	6542	12.50
6471A. " " 6492	.70	6546	15.00
6471B. " " 6494, 5	.70	No. 6552	\$13.50
6471C. " " 6496, 7, 8	.70	6556	10.50
6472. Bolt Complete 6491, 2	1.25	6558	10.50
6472A. " " 6494-S	2.00	No. 6560	\$14.50
6472B. Wing Nut and washer for 6472	.65	6564	14.50
6472C. Wing Nut and washer for 6472A	.65	6566	14.50
6472D. Ext. Leg Clamp for 6496	1.20	6568	14.50
6472E. " " " 6497, 8	1.20	6574	19.50
6473A	6.00	6576	5.00
6473C	7.00	No. 6581	\$ 5.00
6474A	2.00	6583	5.00
6474B	2.00	6584	2.00
No. 6475	\$ 3.00	6585	2.50
6476	3.00	6586	2.50
6478	5.00	No. 6590. 6 feet	\$ 3.25
6479	5.00	8 "	3.75
6480	6.50	10 "	4.65
6480A	1.35	No. 6591. 2 meters	\$ 4.00
6480B	1.00	2½ "	4.50
6480C	1.00	3 "	5.30
6481	7.00	No. 6594. 8 feet	\$ 7.00
6481A	1.35	10 "	8.50
6481B	1.00	No. 6596. 6 feet	\$ 3.25
6481C	1.00	8 "	4.00
6482	7.50	No. 6597. 6 feet	\$ 3.25
6482A	1.35	8 "	4.00
6482B	1.00	10 "	5.00
6482C	1.00	No. 6600	\$ 7.00
No. 6491	\$15.00	6601	7.00
6492	16.00	6603	4.00
6494	22.50	6604	4.00
6495	25.00	6605	4.00
6496	28.00	6606	4.00
6497	30.00	6606A	3.00
6498	30.00	6606B	4.00
No. 6500	\$16.50	6607	4.00
6502	15.00	6607A	4.00
6503	3.50	No. 6608	\$ 4.00
6504	14.50	6608A	4.00
6506	13.50	6609	4.00
6507	12.50	6610	4.00
No. 6510	\$ 8.50	No. 6618	\$30.00
6514	8.00	6619	30.00
6520	17.50	6620	30.00
6522	20.50	6621	3.50
6526	15.00	6622	7.50
6528	20.00	6624	8.00

All Numbers Not Shown Have Been Discontinued

No. 6644.	Without case.....	Each \$17.50	No. 6781.....	Each \$ 0.45
6644P.	Plain case.....	19.50	6782.....	.75
6644S.	Sewed leather case...	21.50	6783.....	1.00
No. 6645.	Without case.....	\$17.50	No. 6784.....	\$ 0.75
6645P.	Plain case.....	19.50	6785.....	1.25
6645S.	Sewed leather case...	21.50	6786.....	2.00
No. 6646.	Without case.....	\$23.50	6787.....	3.50
6646P.	Plain case.....	25.50	6788.....	4.50
6646S.	Sewed leather case...	27.50	6789.....	4.50
No. 6648C.....		\$23.00	No. 6812.....	\$ 4.50
6648D.....		23.00	6813.....	4.50
6648P.....		23.00	6814.....	5.50
6648T.....		23.00	6815.....	5.50
Extra limb with one graduation...		\$ 6.50	6825, 2 $\frac{3}{4}$ in.....	23.00
Extra limb with any two graduations.....		9.25	6827, 3 $\frac{5}{8}$ in.....	25.00
No. 6649.....		\$2.00	No. 6852.....	\$12.00
6650.....		4.00	6853.....	25.00
6652.....		39.00	No. 6862.....	\$15.00
6654.....		5.00	6863.....	7.80
6655.....		9.25	No. 6866.....	\$ 6.00
6656.....		9.00	6869.....	7.00
6657.....		7.50	683 ²	25.00
6658.....		7.25	6898E.....	27.00
6660.....		6.00	No. 6900.....	\$37.50
6662.....		4.50	6900E.....	41.00
6666.....		20.00	6900F.....	45.00
No. 6676.....		\$52.00	6906.....	50.00
6680.....		68.00	6906B.....	53.00
6682.....		7.00	No. 6906E.....	\$53.00
6683.....		9.00	6909.....	70.00
No. 6684.....		\$32.00	6911C.....	42.00
6685.....		36.50	6911D.....	43.00
6686.....		46.00		Set
6687.....		52.00	No. 6914.....	\$ 60.00
No. 6691.....		\$10.90		Each
6692.....		18.90	No. 6916.....	\$102.00
6693.....		21.15	6920.....	117.00
No. 6712.....		\$ 2.50	6920D.....	122.00
6714.....		4.00	6920F.....	128.00
6716.....		7.50	No. 6934.....	\$75.00
6718.....		9.00	6956.....	2.70
6720.....		20.00	No. 6960.....	\$63.00
No. 6730.....		\$20.00		100
6731.....		36.00	Nos. 6962A to F.....	\$ 3.60
6737.....		12.00		Each
No. 6742	(With 3-inch needle and in sole leather case with shoulder strap.)	\$25.00	No. 6980.....	\$66.00
6764A.....		8.10	6984.....	66.00
6764B.....		8.35	6993.....	60.75
6764C.....		9.00	6993D.....	28.70
			6994.....	49.90
			6994D.....	32.60

No.	Each	No.	Each
No. 6994C	\$45.00	No. 9255	\$ 0.25
6994L	49.90	9258	.75
6998	85.50	9262	.25
6998D	32.60	9264	1.00
6999D	60.00	9265-1	.35
6999DC	10.00	9265-2	.35
7000	85.50	9270	.60
7050	66.00	9272	1.25
7051	3.50		
7052	4.50		
No. 7150	\$ 1.00	No. 9306	1 Vol. ed. in real leather. \$7.00
7151	1.50	1 " " " atholeather	6.00
7152	1.80	2 " " " real leather.	8.00
7153	2.40	9308	7.00
		9324	5.00
No. 7230	\$ 2.70	No. 9336	\$ 2.50
7232	3.45	9338	2.50
7234	4.00	9340	4.00
7250	.45	9344	2.50
7251	.45	9354	6.00
7252	2.10	9358	1.50
7261	.75	9360	4.50
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3½ " 2.75		9364	4.50
4 " 3.00		9366	Vol. 1, 5th Edition. 8.00
No. 7285	3 in. \$ 3.00	9370	Vol. 2, 5th Edition. 10.00
7286	3 " 7.50	9374	{ Vol. 1. 2.50
No. 9000	\$ 6.00		{ " 2. 2.50
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No. 9078	\$ 6.00	9376	2.00
		9380	9th Edition. 4.50
No. 9105 Complete	\$ 6.00	9382	7.00
9106 Part II only	4.00	No. 9466	\$ 1.75
9132	3.00	9482	4.00
9136	2.00	9488	4.00
9161	8.50	No. 9500	\$ 5.00
9162	5.00	9504	7.50
No. 9182	\$ 5.00	9508	2.00
9184	6.00	9544	7.00
		9548	8th Edition. 6.00



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