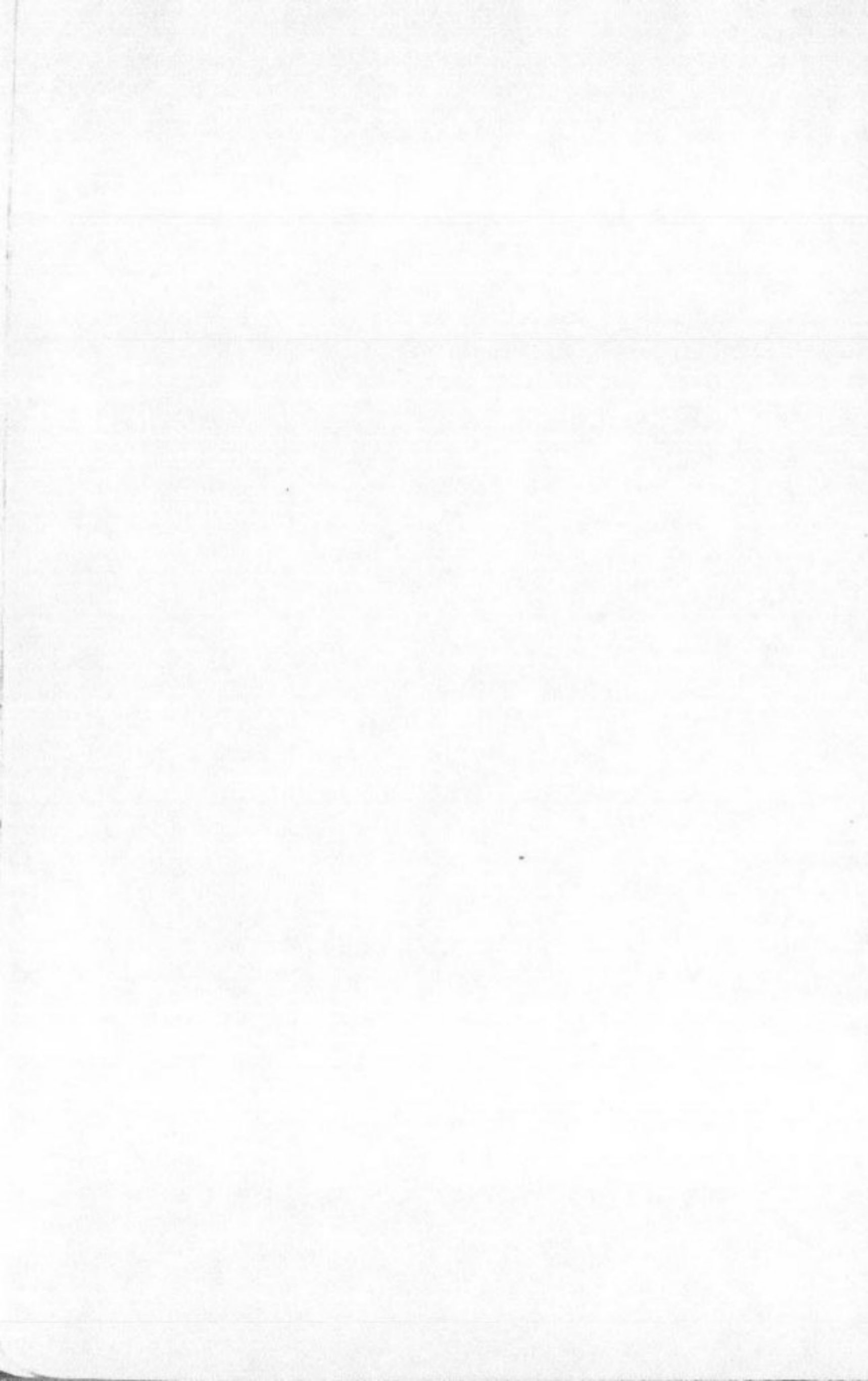


CATALOGUE  
OF

*L. D. Fox*  
*London*

ENGINEERS, SURVEYORS  
& ARCHITECTS SUPPLIES



ESTABLISHED 1870.

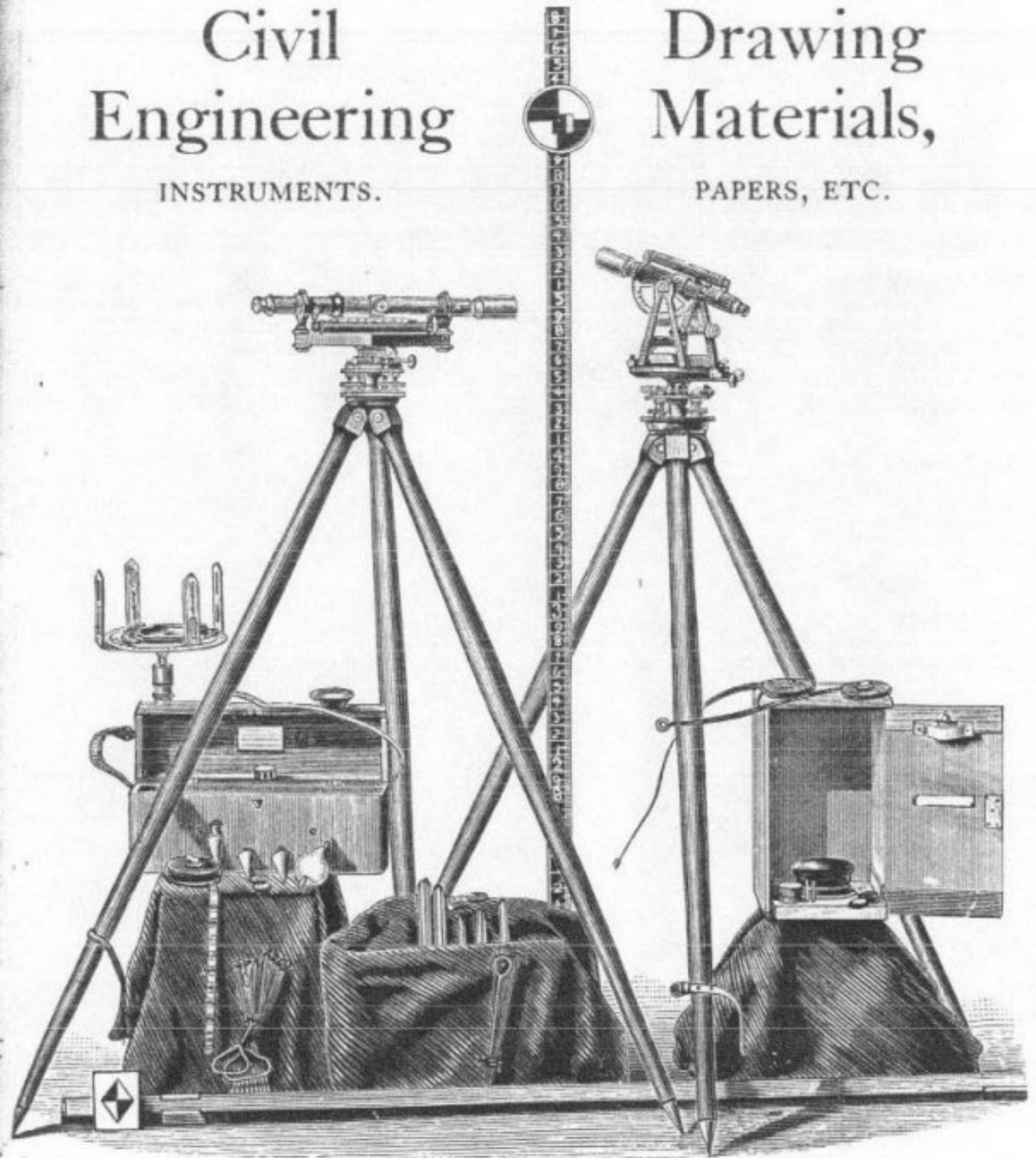
# Catalogue and Illustrated Price List

## Civil Engineering

INSTRUMENTS.

## Drawing Materials,

PAPERS, ETC.



IMPORTED AND MANUFACTURED BY

# L. M. PRINCE,

No. 108 West Fourth Street,

CINCINNATI, OHIO.

*Please do not* mutilate this Catalogue for the sake of getting a cut to order by.

## ORDER BY NUMBERS

and your orders will be perfectly understood.

### SPECIAL NOTICE.

Owing to the large number of additional articles listed in this Catalogue we have found it necessary to change some of the old numbers.

We would therefore kindly request our patrons to order only according to the new edition so as to avoid confusion or delay in executing orders.

## ... TERMS ...

### CASH, OR COLLECT ON DELIVERY.

Persons unknown to us will remit part of the estimated amount of bill with order, remainder to be sent C. O. D.

Orders for shipment per freight lines must be accompanied with the amount of invoice.

*We pack with the utmost care,* but we can not be accountable for breakage in transportation.

## Drawing Papers In Sheets.

### WHATMAN'S HAND MADE.

The "WHATMAN'S" Papers are made with three different styles of surface, as follows:

**HP.** signifies "Hot-Pressed," and has a smooth surface, mostly used for pen and very fine line-drawings.

**N.** signifies "Cold-Pressed," and has a finely grained surface, used for general purposes and water-color drawing.

**R.** signifies "Rough," and has a coarsely grained surface, used for very bold drawing and water-color painting.

In ordering, please specify which surface is wanted, **HP.**, **N.**, or **R.**

#### No. 1. "WHATMAN'S" Drawing Paper.

	Size.	Per Sheet	Per Quire
Cap . . . . .	13 x 17 inch . . . . .	\$0 04	\$ 0 85
Demy . . . . .	15 x 20 " . . . . .	05	95
Medium . . . . .	17 x 22 " . . . . .	08	1 35
Royal . . . . .	19 x 24 " . . . . .	10	1 70
Super Royal . . . . .	19 x 27 " . . . . .	12	2 00
Imperial . . . . .	22 x 30 " . . . . .	15	2 75
Double Elephant . . . . .	27 x 40 " . . . . .	25	5 00
Antiquarian . . . . .	31 x 53 " . . . . .	1 50	27 00

#### No. 2. "WHATMAN'S" Drawing Paper, With R. surface (Torchon Paper).

Imperial . . . . .	22 x 30 inches . . . . .	Per quire, \$2 75
Double Elephant . . . . .	27 x 40 " . . . . .	" " 5 00

#### No. 3. "WHATMAN'S" Drawing Paper. Extra heavy, with surface as below:

		Per Quire	Per Sheet
Imperial . . . . .	22 x 30 inches, H.P. or C.P. . . . .	\$ 6 70	\$0 35
Double Elephant . . . . .	27 x 40 " H.P. or C.P. . . . .	10 00	60

SAMPLES OF PAPERS SENT ON APPLICATION.

## Drawing Papers in Sheets—Continued.

No. 4. **Prince's "Standard" Drawing Paper.** A white paper with medium surface, excellent erasing properties. Takes ink and color and is especially adapted for college and school work.

IN SHEETS.		Per quire
Cap . . . . .	14 x 17 . . . . .	\$0 30
Demy . . . . .	15 x 20 . . . . .	45
Medium . . . . .	17 x 22 . . . . .	65
Royal . . . . .	19 x 24 . . . . .	80
S. Royal . . . . .	19 x 27 . . . . .	90
Imperial . . . . .	22 x 30 . . . . .	1 20
Double Elephant, 27 x 40 . . . . .		2 25

No. 5. **Prince's "Super Super Eggshell" Drawing Paper.** For description see No. 32.

Royal . . . . .	19 x 24 inch. Thin, rough . . . . .	Per quire, \$1 95
Imperial . . . . .	22 x 30 inch. Thin, rough . . . . .	" 3 00
Double Elephant, 27 x 40 inch. Medium, rough . . . . .		" 5 40

No. 6. **Prince's "Cream" Drawing Paper.** For description see No. 27.

Double Elephant, 27 x 40 inch . . . . .	Per quire, \$2 60
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## Bristol Boards, Etc.

This Bristol Board possesses 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.

No. 20. <b>Patent Office Bristol Board. Plain.</b>		Per gross	Per doz
10 x 15 inch . . . . .		\$ 6 00	\$0 60
15 x 20 inch . . . . .		12 00	1 20
No. 21. <b>Patent Office Bristol Board. Printed with border, etc.</b>		Per gross	Per doz
10 x 15 inch . . . . .		\$8 00	\$0 80
No. 22. <b>Reynolds' White Bristol Board. Smooth surface.</b>		2 sheets	3 sheets
Cap . . . . .	12½ x 15¼ inches. Per doz . . . . .	\$0 60	\$0 90
Demy . . . . .	14⅝ x 18¼ " " . . . . .	90	1 35
Medium . . . . .	16½ x 20¾ " " . . . . .	1 20	1 80
Royal . . . . .	18¾ x 22¾ " " . . . . .	1 50	2 40
Imperial . . . . .	21½ x 28¾ " " . . . . .	. . . . .	4 70
		. . . . .	6 00

## Drawing Papers in Rolls.

No. 23. **Prince's "Standard" Detail Paper** is made especially for us by one of the most expert manufacturers, and it possesses the qualities of a Drawing Paper as far as can be expected. Especial attention has been paid to the erasing qualities, and we can recommend it as a considerable improvement over the common Manilla Paper.

	50-yd. roll	100-yd. roll
36 inches wide . . . . .	\$2 00	\$3 50
42 " " . . . . .	2 25	3 75
48 " " . . . . .	2 50	4 50
In rolls of about 100-120 lbs . . . . .	Per pound, \$0 10	

No. 24. **Prince's "Gauze B."** A good, light detail paper. Excellent surface, with good erasing qualities far superior to most detail papers.

40 inches wide, 50 yards . . . . . \$1 75

No. 25. **Prince's "Hectograph" Copying Paper.** A superior, tough and highly calendered paper made especially for copying prints from pads, stones, etc. Will stand a great deal of rough handling, and the surface does not crack as easily as other similar papers.

In rolls 36 and 40 inches wide, 100 to 150 lbs. . . . . Per pound, \$0 10

No. 26. **Prince's "Orion" Detail Paper.** The Orion detail papers have long enjoyed the reputation of being the standard detail paper for general drafting purposes. It has a uniform, finely grained surface; excellent erasing properties, takes ink and color perfectly.

	50-yd. roll
36 inches wide . . . . .	\$3 40
42 " " . . . . .	3 75
54 " " . . . . .	4 25
In rolls of about 100-120 lbs. . . . .	Per pound, \$0 15

No. 27. **Prince's "Cream" Drawing Paper.** Is the finest paper in the market for preliminary and general drawings and sketching, and the *cheapest* that meets all requirements of a good drawing paper. It will stand erasing perfectly, and take ink, pencil and water color well. Unlike other papers of similar kind, it will not break in folding. Its cream tint is agreeable to the eye, and will admit of much handling without soiling.

In rolls of about 35-40 lbs., 36, 42, 63 inches wide . . . . Per pound, \$0 33

	Per 100 yds.	Per 50 yds.	Per 25 yds.	Per 10 yds.	Per yard
36 inches wide . . . . .	\$12 00	\$6 30	\$3 30	\$1 35	\$0 15
42 " " . . . . .	15 45	7 80	4 20	1 80	20
63 " " . . . . .	21 00	10 80	5 70	2 40	30

SAMPLES OF PAPERS SENT ON APPLICATION.

## Drawing Papers in Rolls—Continued.

No. 28. **Prince's "B"** Sketching. A semi-transparent paper, similar to bond paper. Blue prints can be made from drawings made on this paper.

	Per 10 yds.	Per 50 yds.
30 inches wide . . . . .	\$0 90	\$3 50
36 " " . . . . .	1 00	4 00

No. 29. **Prince's "C"** Sketching. A similar paper to "B" Sketching, but somewhat heavier. An excellent article for drawings that will have to stand rough handling.

36 inches wide . . . . .	50 yard rolls, \$4 50
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No. 30. **Prince's "Standard"** Drawing Paper. An almost pure white paper, of good quality, with slightly grained surface, suitable for work in ink, color, pencil or crayon. It is used for general office work, preliminary drawings, and to a great extent for school purposes. Similar paper, generally offered under the name of "German Drawing Paper," can not be confounded with our "Standard."

	Per pound, \$0 36			
	Per 50 yds.	Per 25 yds.	Per 10 yds.	Per yard
36 inches wide . . . . .	\$ 7 20	\$ 3 90	\$ 1 65	\$0 20
42 " " . . . . .	9 00	4 80	2 10	24
63 " " . . . . .	12 60	7 00	3 00	35

No. 31. **Prince's "Double Force"** Drawing Paper. Is the toughest paper made. Its surface is cold pressed, but somewhat smooth. Can be folded without breaking, and is very suitable for map work or drawings subjected to rough handling in the machine shop or outdoors.

	Per pound, \$0 48		
	Per 25 yds.	Per 10 yds.	Per yard
36 inches wide . . . . .	\$5 25	\$2 10	\$0 25
42 " " . . . . .	6 75	2 70	30
63 " " . . . . .	9 75	3 90	45

No. 32. **Prince's "Super Super Eggshell"** Drawing Paper is made of the best linen stock. Owing to its peculiarly pebbled surface, drawings made on it show up most effectively. Unsurpassed for perspective drawing and water-color work.

	Per pound, \$0 54		
	Per 25 yds.	Per 10 yds.	Per yard
36 inches wide . . . . .	\$ 7 20	\$3 00	\$0 33
42 " " . . . . .	8 40	3 60	36
58 " " . . . . .	10 80	4 50	47

No. 33. **Prince's "Super Super Cold Pressed"** Drawing Paper. Is made of the same stock as No. 32, and differs from it only in the surface, which is cold pressed, or medium smooth.

	Per pound, \$0 54		
	Per 25 yds.	Per 10 yds.	Per yard
36 inches wide . . . . .	\$ 7 20	\$3 00	\$0 33
42 " " . . . . .	8 40	3 60	36
58 " " . . . . .	10 80	4 50	47

SAMPLES OF PAPERS SENT ON APPLICATION.



## Mounted Drawing Papers.

### MOUNTED ON MUSLIN, IN ROLLS OF 10 YARDS.

For maps and other valuable drawings made to last, that should not tear or break by much handling or folding, papers mounted on muslin will be best adapted.

Our papers in rolls as well as sheets are carefully and smoothly mounted on muslin of the best quality, and are air-dried.

No. 35. **Prince's "Cream" Drawing Paper. Mounted.** The same paper as described under No. 27.

	Per 10 yards	Per yard
36 inches wide . . . . .	\$ 5 40	\$0 70
42 " " . . . . .	6 75	80
63 " " . . . . .	10 00	1 20

No. 36. **Prince's "Standard" Drawing Paper. Mounted.** The same paper as described under No. 30.

	Per 10 yards	Per yard
36 inches wide . . . . .	\$ 5 40	\$0 70
42 " " . . . . .	6 75	80
63 " " . . . . .	10 00	1 20

No. 37. **Prince's "Double Force" Drawing Paper. Mounted.** The same paper as described under No. 31.

	Per 10 yards	Per yard
36 inches wide . . . . .	\$ 7 00	\$0 85
42 " " . . . . .	8 00	1 00
63 " " . . . . .	12 60	1 50

No. 38. **Prince's "Super Super Eggshell" Drawing Paper. Mounted.** The same paper as described under No. 32.

	Per 10 yards	Per yard
36 inches wide . . . . .	\$ 7 50	\$1 00
42 " " . . . . .	8 70	1 10
58 " " . . . . .	11 40	1 40

No. 39. **Prince's "Super Super Cold Pressed" Drawing Paper. Mounted.** The same paper as described under No. 33.

	Per 10 yards	Per yard
36 inches wide . . . . .	\$ 7 50	\$1 00
42 " " . . . . .	8 70	1 10
58 " " . . . . .	11 40	1 40

No. 40. **Prince's Indestructible Paper Cloth. Smooth.** An article made of muslin, to which the paper pulp is applied. It is pliable and very strong, takes pencil and ink well and stands erasing to a serviceable extent. In rolls of 30-40 yards.

38 inches wide. . . . . Per yard, \$0 42

SAMPLES OF PAPERS SENT ON APPLICATION.

## Mounted Drawing Papers—Continued.

### MOUNTED ON MUSLIN.

For maps and other valuable drawings made to last, that should not tear or break by much handling or folding, the following papers mounted on muslin will be best adapted.

#### IN SHEETS.

Either furnished with the muslin standing 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.

Sheets of any size, for city, county or State maps, mounted to order on short notice.

No. 42. **“Whatman’s Mounted.”** (Specify whether hot or cold pressed surface.)

Royal . . . . .	18 x 24 inch . . . . .		Per sheet, \$0 39
Imperial . . . . .	22 x 30 “ . . . . .	“ . . . . .	48
Double Elephant . . . . .	27 x 40 “ . . . . .	“ . . . . .	75
Antiquarian . . . . .	31 x 53 “ . . . . .	“ . . . . .	1 80

No. 43. **“Whatman’s 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 inch . . . . .		Per sheet, \$0 81
Double Elephant . . . . .	27 x 40 “ . . . . .	“ . . . . .	1 20

No. 44. **Prince’s “Super Super Eggshell,”** same as No. 32, Mounted.

Royal . . . . .	19 x 24 inch . . . . .		Per sheet, \$0 30
Imperial . . . . .	22 x 30 “ . . . . .	“ . . . . .	45
Double Elephant . . . . .	27 x 40 “ . . . . .	“ . . . . .	78
Antiquarian . . . . .	31 x 53 “ . . . . .	“ . . . . .	1 20

No. 45. **Prince’s “Super Super Eggshell,”** Double Mounted. For Atlas work. Or if desired S. S. Cold Pressed, double mounted, please specify. One sheet double mounted consists of two sheets of paper with muslin in the middle.

Imperial . . . . .	22 x 30 inch . . . . .		Per sheet, \$0 84
Double Elephant . . . . .	27 x 40 “ . . . . .	“ . . . . .	1 20

SAMPLES OF PAPERS SENT ON APPLICATION.

## Tracing Cloth.

"KOH-I-NOOR" TRACING CLOTH.



No. 100. In Rolls of 24 yards 30 36 and 42 inches wide

## Special Notice

On and after July 10, 1907, Imperial Tracing Cloth will be sold at the following prices:

Inches wide . . . . .	30	36	42	54
Per roll of 24 yards . .	\$8.10	9.00	12.10	17.00
Per yard . . . . .	.40	.45	.60	.85

(Discount of 15% allowed on full rolls only.)

## Kohinoor Tracing Cloth.

Inches Wide . . . . .	30	36	42
Per roll of 24 yards . .	6.50 net	7.20 net	9.50 net
Per yard . . . . .	.35	.40	.50

These Kohinoor prices are net subject to no further discount. Please insert this notice in our catalogue.

**L. M. PRINCE,**

108 W. Fourth St.,

CINCINNATI, O.

waste, chamois, or similar material. Thoroughly remove the pounce before applying the ink.

## Mounted Drawing Papers—Continued.

### MOUNTED ON MUSLIN.

For maps and other valuable drawings made to last, that should not tear or break by much handling or folding, the following papers mounted on muslin will be best adapted.

### IN SHEETS.

Either furnished with the muslin standing 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.

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SAMPLES OF PAPERS SENT ON APPLICATION.

## Tracing Cloth.

### "KOH-I-NOOR" TRACING CLOTH.



No. 100. In Rolls of 24 yards. 30, 36 and 42 inches wide.

One side glazed, the other dull.

	Per roll of 24 yds.	Per yard
30 inches wide . . . . .	\$ 6 90	\$0 35
36 " " . . . . .	7 60	40
42 " " . . . . .	10 50	50

### "IMPERIAL" TRACING CLOTH.



No. 102. In Rolls of 24 yards. 30, 36, 42 and 54 inches wide.

One side glazed, the other dull.

	Per roll of 24 yds.	Per yard
30 inches wide . . . . .	\$ 6 90	\$0 35
36 " " . . . . .	7 60	40
42 " " . . . . .	10 50	50
54 " " . . . . .	15 00	75

### POUNCE FOR TRACING CLOTH.

No. 104. Pounce for tracing cloth, in tin shakers, each . . . . . \$0 15

When tracing cloth will not take ink readily apply a small quantity of the pounce to the surface of the cloth and distribute it evenly with a piece of cotton waste, chamois, or similar material. Thoroughly remove the pounce before applying the ink.

## Tracing Papers.

### CONTINUOUS IN ROLLS.

- No. 180. **Gauze A.** The Gauze A Detail Drawing and Tracing Paper, as will be observed, is thin, transparent and very strong; it will stand erasing and will receive washes of India Ink or Water Colors perfectly; the surface for drawing or tracing is excellent.  
40 inches wide, 100 yard rolls . . . . . \$2 50
- No. 180-a. **Parchment.** A very transparent paper, with good ink surface.  
40 inches wide, in rolls of 20 yards . . . . . \$1 50
- No. 183. **Parchment.** Medium Thick. A very superior article. Will stand water-color washing without shrinking.  
40 inches wide, in rolls of 20 yards . . . . . \$3.75
- No. 181. **Tracing Paper.** Natural finish. Excellent for pencil and good ink surface.  
40 inches wide, in rolls of 20 yards . . . . . \$2 00
- No. 182. **Thin Bond.** A very tough, transparent white paper. Will stand erasing, and is a thoroughly reliable paper. Now used in most machine shops in place of tracing linen.  
42 inches wide, in rolls of 20 yards . . . . . \$2 25  
42 " " " 50 " . . . . . 5 00
- No. 184. **Natural Tracing Paper.** Unglazed. This is the best paper for detail tracings. Owing to its white color the pencil marks will show up as distinctly as on white drawing paper. It is tough and its slight grain on the surface will readily take lead pencil lines.  
57 inches wide, in rolls of 22 yards . . . . . \$2 25  
57 " " " 44 " . . . . . 3 90
- No. 185. **"Natural Sketching" and Tracing Paper.** This low-priced paper is intended for full size tracings and sketchings. It is strong and stands erasing like a drawing paper. It takes pencil, ink and color well. Sun prints can be easily made from drawings made on this paper.  
31 inches wide, in rolls of 50 yards . . . . . \$2 00  
36 " " " 50 " . . . . . 2 40  
62 " " " 50 " . . . . . 3 90

## Tracing Papers.

### IN SHEETS.

- No. 186. **Irish Linen Tracing Paper.** A pure white paper, strong and tough. It takes pencil, ink and color well.  
In rolls of 25 sheets, 21 x 31. . . . . Per roll, \$2 50

SAMPLES OF PAPERS SENT ON APPLICATION.

## Unprepared Blue-Print Papers.

No. 190. <b>Johannat. Medium thick.</b> (No. 217 is the same paper prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 50 yards,	\$3 00	\$3 50	\$4 00
No. 191. <b>Johannat. Thick.</b> (No. 218 is the same paper prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 50 yards,	\$3 50	\$4 50	\$5 00.
No. 192. <b>Johannat Mailing Parchment. Extra thin.</b> (No. 219 is the same paper prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 50 yards,	\$2 50	\$3 00	\$3 50
No. 193. <b>Johannat Cloth.</b> (No. 220 is the same cloth prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 10 yards,	\$2 70	\$3 00	\$4 20
No. 194. <b>Anchor. Medium thick.</b> (No. 225 is the same paper prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 50 yards,	\$2 00	\$2 50	\$3 00
No. 195. <b>Anchor Parchment. Extra thin.</b> (No. 226 is the same paper prepared.)	Width—30 in.	36 in.	42 in.
Unprepared . . . . . Per roll of 50 yards,	\$2 00	\$2 50	\$2 75

Special prices per pound will be quoted upon application for Unprepared Papers in Original Rolls.

## Drawer Cabinet for Filing Drawings.



No. 196.

We make many cabinets from our own designs and from designs furnished us, and are prepared to submit prices on any special cabinet.

The above cabinet is generally carried in stock, in plain and quartered oak. This cabinet has six drawers, 28 x 43 inches, inside measurement; five of which are 3½ inches deep, and the bottom drawer 5½ inches deep.

No. 196. <b>Drawer Cabinet.</b> Quartered oak, polished finish . . . . .	\$30 00
No. 196a. " " Plain oak, polished finish . . . . .	25 00

## Prince's Prepared Blue-Print Papers.

PREPARED FRESH DAILY.

"Johannat" stands for the highest grade as to stock and keeping quality. Prepared with either our **Regular** or **Rapid Printing** solution.

The usual coating of our blue-print papers requires an exposure from four to six minutes in bright sunlight. When so ordered, we furnish any of the following blue-print papers also with the

### QUICK-PRINTING PREPARATION,

the exposure of which is completed in from one to two minutes, but unless the quick is specified, we send paper with the usual coating. While the quick-printing paper is of advantage in poor light, it is difficult to handle on bright days, on account of its great sensitiveness.

**No. 217. Johannat. Medium thick.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$0 87	\$1 00	\$1 15
"    "    50 " . . . . .	4 10	4 70	5 30

**No. 218. Johannat. Thick.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$1 00	\$1 15	\$1 30
"    "    50 " . . . . .	4 75	5 50	6 25

**No. 219. Johannat Mailing Parchment. Extra thin.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$0 84	\$1 00	\$1 08
"    "    50 " . . . . .	3 60	4 20	4 80

**No. 220. Johannat Blue-print Cloth.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$3 30	\$3 60	\$4 80

Owing to the increased demand for low-priced blue-print paper, we can recommend our "**Anchor**" brand of blue-print papers, which will be found equal, if not superior to a great many of the so-called high grade papers.

**No. 225. Anchor. Medium.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$0 70	\$0 80	\$0 90
"    "    50 " . . . . .	3 00	3 50	4 00

**No. 226. Anchor Parchment. Extra thin.**

	Width—30 in.	36 in.	42 in.
Prepared, per roll of 10 yards . . . . .	\$0 60	\$0 70	\$0 80
"    "    50 " . . . . .	2 50	3 00	3 50

All sensitized or prepared papers we offer are perfectly coated, and each roll is tested and carefully examined before delivery or shipment.

Our facilities for doing blue printing and black printing are unexcelled. All orders executed with promptness and prints will be made and shipped the day tracings are received, if the weather permits.

In ordering, please specify whether the **REGULAR** or **RAPID PRINTING** solution is desired.



## “Vandyke” Solar Paper.

From the original tracing a negative copy is made on Vandyke Paper with white transparent lines on an opaque dark-brown background. This copy is used in place of the original tracing to produce Positive Copies, as many as are required, either:

**Dark Blue lines on white background** by using ordinary blue-print paper, or  
**Black lines on white background** by using Vandyke Solar Paper.

	Width—30 in.	36 in.	42 in.
No. 227. Vandyke Solar Paper, Medium, 10 yard rolls . . .	\$1 80	\$2 10	\$2 40
No. 229. Vandyke Solar Paper, Thin (for mailing and for negatives), 10 yard rolls . . . . .	1 80	2 10	2 40
No. 230. Vandyke Solar Cloth, 10 yard rolls . . . . .	4 20	4 80	6 00

Fixing Salt and full directions furnished with every roll.

	Per 4 oz. box.	Per 1-lb. box
No. 231. Vandyke Salt. For intensifying and fixing prints . . .	\$0 15	\$0 40

The thin and most transparent No. 229 Vandyke Solar Print Paper is, of course, the most suitable to make negative copies on.

## Progress Black-Print Paper.

BLACK LINES ON WHITE GROUND.

**Positive Prints. New Process. Water Bath Only. Used the same as Blue-Print Paper.**

We desire to call your attention to our “Progress” Direct Black Process Paper, which fills a long felt want. This paper is the only one made that requires no developing bath, as in other papers of this kind, and is used precisely as blue-print paper. The results obtained from this paper are better than any other, and the “Progress” Black-print Paper never becomes brittle, before or after printing, as other black-print papers do. The lines will come out more distinct, and even the finest mark or shade will show on the print with a wonderful distinctness.

No. 232. In rolls of 10 yards, 36 inches wide . . . . .	\$2 50
“ “ 10 “ 42 “ . . . . .	3 00

Our facilities for making blue and black prints are superior to any in America, at prices beyond competition.

Send us your Tracings; we will guarantee satisfaction.

## Helios Erasing Fluid.

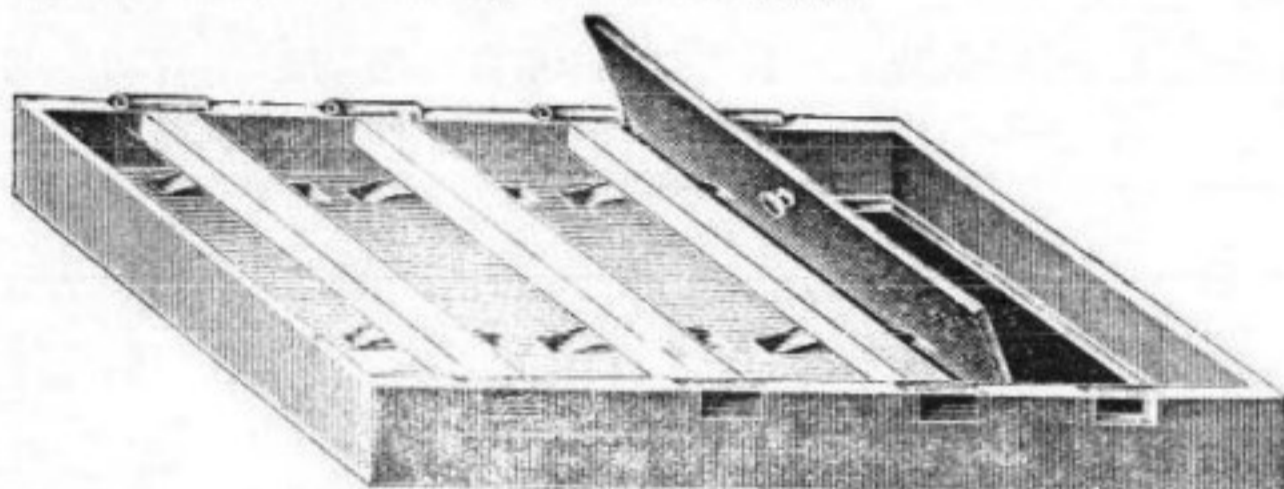


No. 233.

No. 233. Helios Erasing Fluid, for making alterations in blue-prints, per bottle \$0 25

## Blue-Print Frames.

The Blue-print Frames of our manufacture are made of carefully selected, thoroughly seasoned hardwood and of perfect workmanship, and combine all the latest improvements in blue-print frames. They are made to stand exposure to the weather incidental to their use, and are less liable to warp and shrink, and thereby break the glass than any other frame made.

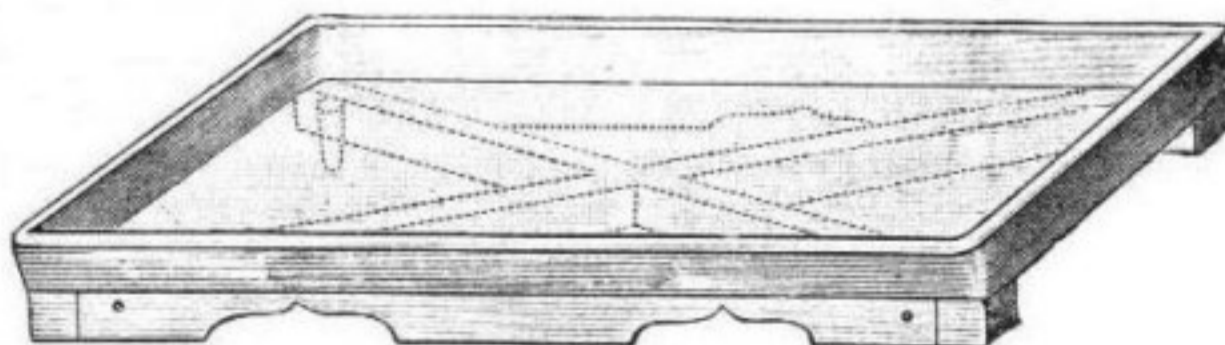


Print Frames made of hardwood, finely finished, with brass mountings, complete with carpet cushion.

			Frame complete with Polished Plate Glass.	Frame complete with Double Thick Glass.	Frames only.
No. 242.	20 x 24 inches	Each,	\$10 75	\$ 8 00	\$ 6 75
No. 243.	24 x 30 "	"	13 50	10 50	9 00
No. 244.	30 x 42 "	"	24 00	.. .	13 75
No. 245.	36 x 60 "	"	45 00	.. .	22 00

Packing of Print Frames will be charged at cost, but we will not be responsible for breakage of glass.

## Galvanized Iron Bath Trays.

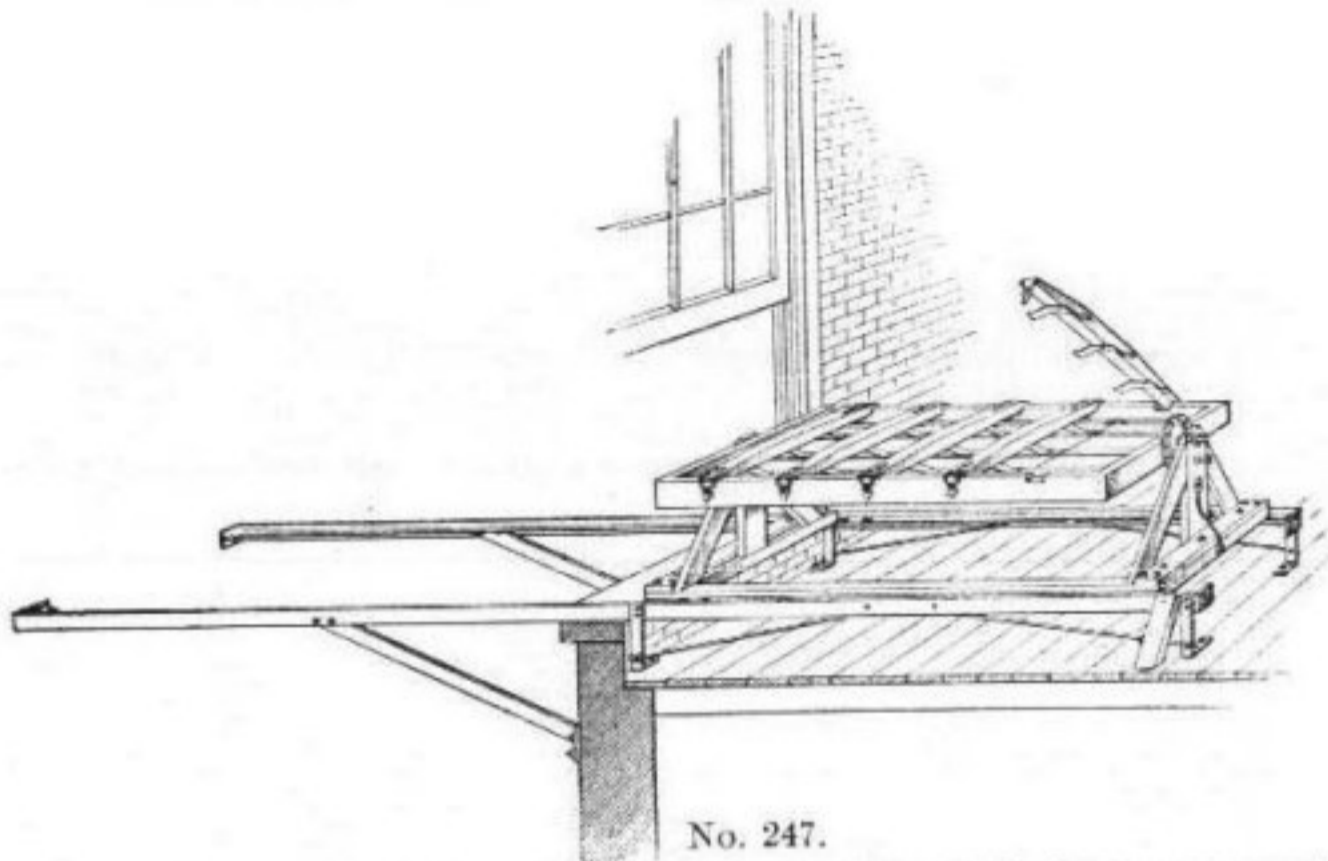


No. 246.

With Drain Pipe, strong Rim and Wooden Braces.

No. 246.	20 x 24 inches	Each,	\$4 50
No. 246a.	24 x 30 "	"	4 80
No. 246b.	30 x 42 "	"	6 75
No. 246c.	36 x 60 "	"	9 00

## Frames on Carriages and Rails.



No. 247.

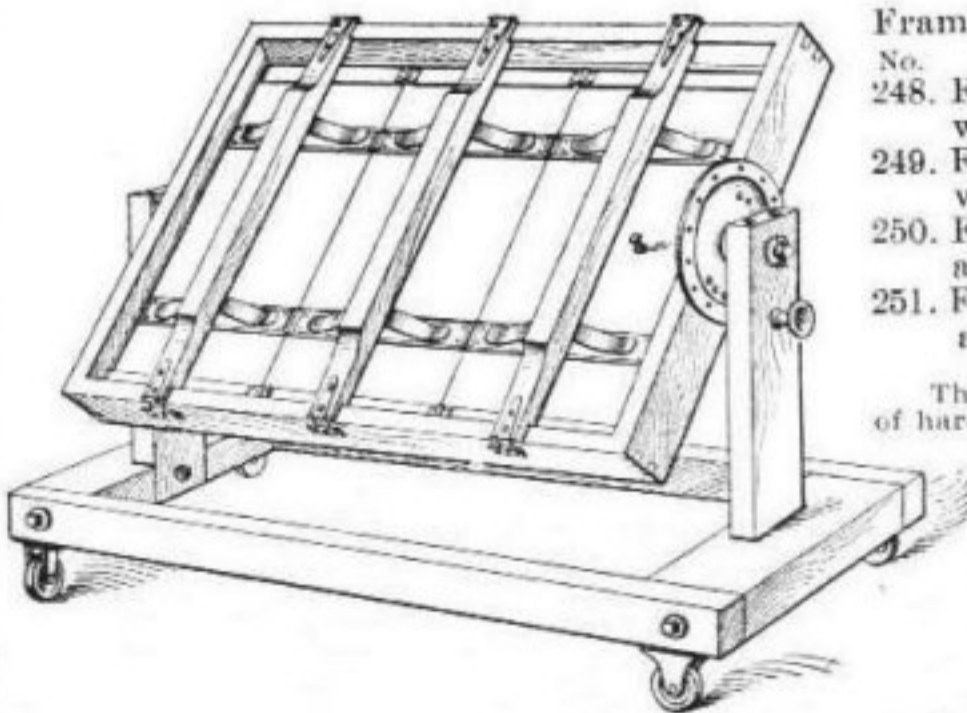
This is a very practical track arrangement upon which frames on carriages may be run out of a window for exposure. The carriage is built in a very solid manner and runs on iron wheels. The rails are made of angle iron. The frame is so constructed that it can be tilted at any angle and clamped in any position; can also be turned over for the removal or insertion of print paper or tracings.

Frame on Carriage, complete, with iron rails:

No. 247.	Frame 30 x 42 in., with cushion, without glass	Each, \$35 00
No. 247a.	" 36 x 60 " " " " "	" 47 00
No. 247b.	" 30 x 42 " " " and plate glass	" 45 00
No. 247c.	" 36 x 60 " " " " "	" 70 00

In ordering, please state clear aperture of window, width of window sill, height of window sill from floor, and thickness of wall.

## Frames on Wheel Carriages.



Frame on Carriage complete:

No.	Each
248. Frame 30x42 in., with cushion, without glass	\$32 00
249. Frame 36x60 in., with cushion, without glass	\$44 00
250. Frame 30x42 in., with cushion, and plate glass	\$42 00
251. Frame 36x60 in., with cushion, and plate glass	\$68 00

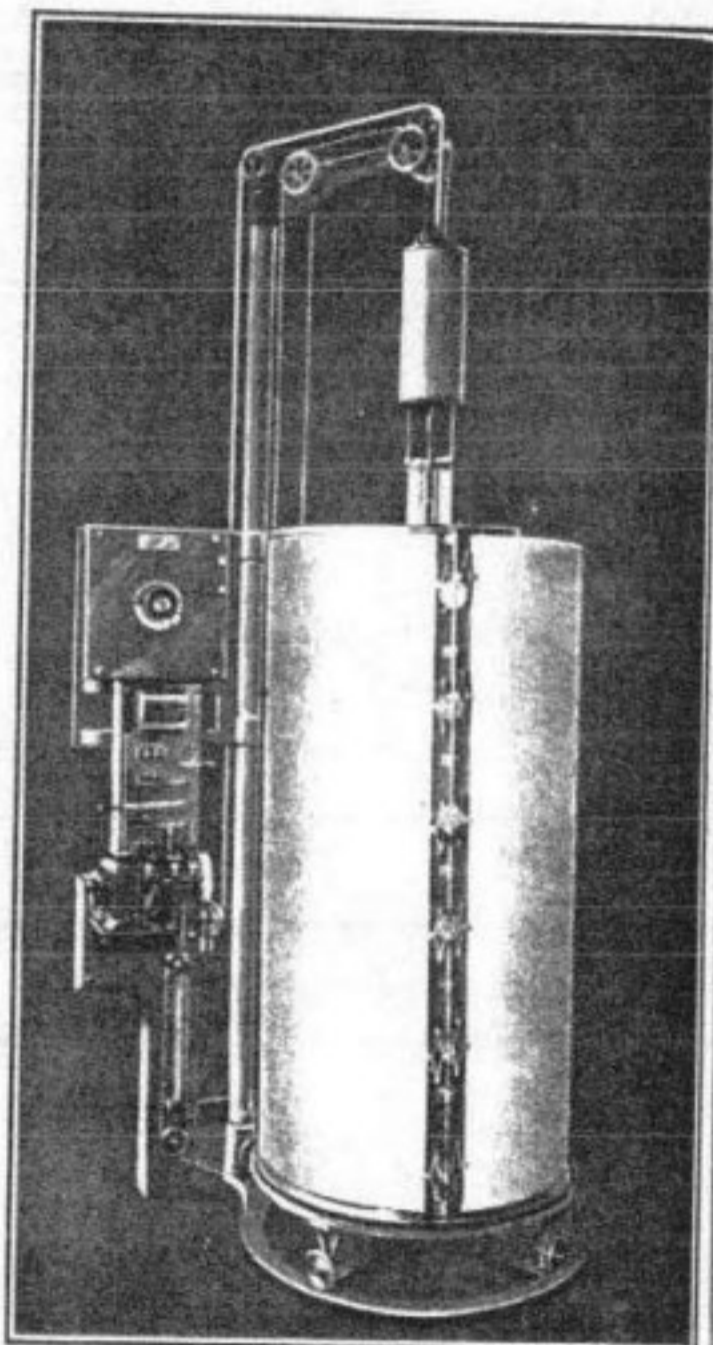
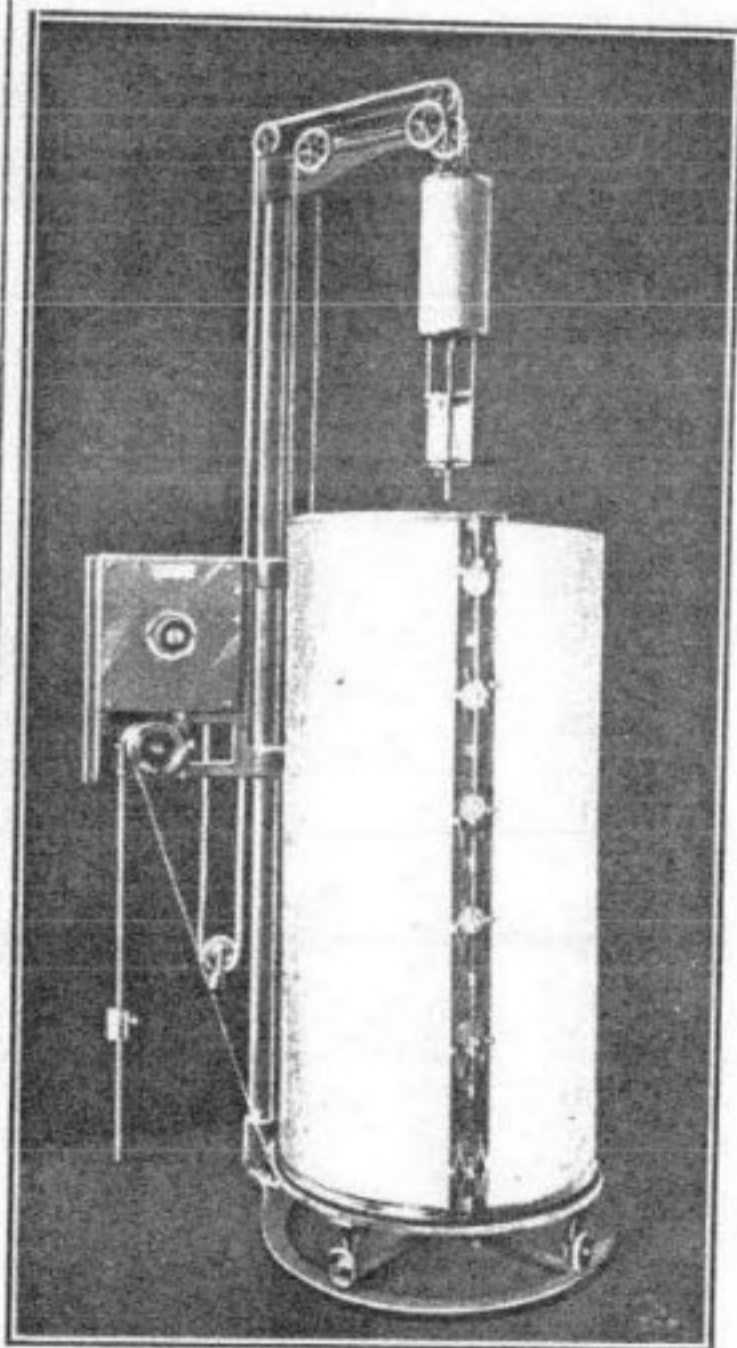
These Carriages and Frames are made of hardwood in a very substantial manner. The frame is made to revolve and tilt at any angle, to receive the direct rays of the sun; can be clamped in any position, and may be turned over for the removal or insertion of print paper or tracings.

## Cylindrical Blue-Print Machine.

FOR PRINTING BY ELECTRIC LIGHT.

**Self Contained Machine,  
Hand Raising.**

**Self Contained Automatic  
Machine.**



These machines can be furnished in any of the following types: Standard Upright, Wall or Self Contained with hand or automatic lamp controller, tilting cylinder, Wall or Self Contained with hand or automatic lamp controller.

No. 1.	Capacity, two prints each,	30 x 42 . . . . .	\$300 00
No. 2.	" " " "	36 x 60 . . . . .	360 00
No. 3.	" " " "	42 x 60 . . . . .	375 00
No. 4.	" " " "	42 x 76 . . . . .	400 00
No. 5.	" " " "	42 x 84 . . . . .	500 00

Special sizes to order. Supplies furnished.

## “Patent Cylindrical Electrical Copier.”

**T**HERE are very few engineers or architects who have not been greatly inconvenienced by their inability to obtain blue-prints in dark cloudy weather, and for this reason all will readily appreciate the great value of this apparatus for making blue-prints by the electric light.

**Construction.** In design and construction, the above machine is simpler and more durable than any other machine on the market. The cylinder consists of two semi-cylindrical sheets of heavy plate glass, which, in the Upright machine, are held rigidly together by brass bands, top and bottom. Wooden strips, front and back, separate the half cylinders and afford supports for attaching the canvas cover which holds the drawings and paper in place on the outside of the cylinder. Proper tension is given to the canvas covers by the springs shown on front of the cylinder. In the tilting machine, the semi-cylinders are held in a frame consisting of cast iron end rings and channel side bars. The cylinder revolves on trunions which are supported by side frames made of angles and pipe with suitable drop forged connecting pieces.

The lamp used is specially designed and built for this work and is very rich in actinic or printing rays. The lamp can be adjusted for any voltage either direct or alternating current.

Automatic Lamp Controller consists of a small electric motor, suitably geared and connected to regulate the speed of the lamp lowering and raising. With this device, the entire operation, including lighting and extinguishing of the lamp, is automatic.

Hand-raising controller consists of a drum and pendulum and escapement regulator. The pendulum weight is set at the proper point to give correct exposure and by disengaging drum from escapement wheel, lamp is raised by hand.

### Advantages:

- 1st. Absolute independence of weather condition.
- 2nd. Prints can be made cheaper than by sun process.
- 3rd. More prints can be made per day than by any other frame, either sun or electric.
- 4th. Glasses used are absolutely perfect, insuring better contact than can be obtained on any other blue-printer.
- 5th. Spring clip curtain fasteners are simpler in construction and more easily operated than any other type of fastener, and automatically take up any unequal stretching of canvas cover.
- 6th. Arc lamp is more economical of current and more powerful than any other lamp on the market.
- 7th. Lowering mechanism, both hand and automatic, is simple in construction and very durable.
- 8th. No oil or other liquid used about machine, and no valves, pistons, etc., to be kept free from leakage.
- 9th. Machine requires less floor space than any other.

## Air-Tight Metal Tubes.



For keeping cut rolls of prepared blue-print paper dry and dark, and also well adapted for the safe-keeping of valuable plans and tracings.

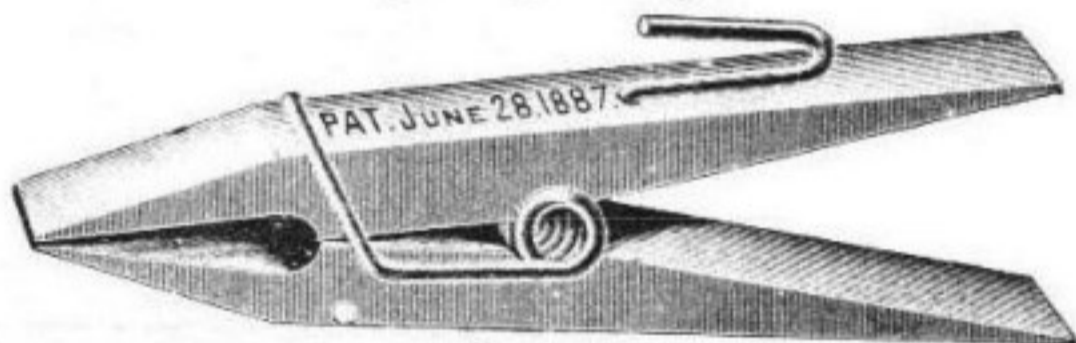
No. 249.	31 inches long.	4 inches in diam.	.....	\$1 35
No. 250.	37 " " "	4 " "	.....	1 50
No. 251.	43 " " "	4 " "	.....	1 65

## Elastic Felt Cushion for Blue-Print Frames.

No. 252. The best Felt Cushion for blue-print frames ever put upon the market. Every frame should have one, for with it you can get good results in printing. Perfect *contact* is obtained and wrinkles are avoided. Any size frame fitted to order. Can be furnished up to 72 inches wide and of any length. Per square foot. . . . . \$0 30

SAMPLE WILL BE SENT ON APPLICATION.

## Spring Clips.



No. 253.

- No. 253. **Strong Clips**, for clamping prints when drying . . . . . Per doz. 0.25  
 No. 254. **Black Oil Cloth**, for covers for drawings, 48 inches wide, 12 or 50 yard rolls. Per yard . . . . . \$0 40

## Crowell Adhesive Tape.

Consists of a strip of good quality cloth, coated on one side with an adhesive glue compound. It is unequalled for stretching drawing paper, holding tracing sheets, and for binding and mending drawings, blue-prints, etc.

Put up in a novel box, so constructed as to preserve it from atmospheric and other deteriorating effects.

- No. 255. Crowell Adhesive Tape,  $\frac{3}{4}$  inch wide.  
 Per box of 50 feet. . . . . \$0 25



No. 255

## “Perfect” Profile Papers and Cloths.

Our “Perfect” Profile and Cross Section Papers are printed on a superior quality of paper made expressly for this purpose, and being printed from engraved rollers are unexcelled for distinctness, accuracy and uniformity.

A fine blue-print copy can be made from the original on our Transparent Profile Paper or Profile Cloth within four to seven minutes of exposure in sunlight.

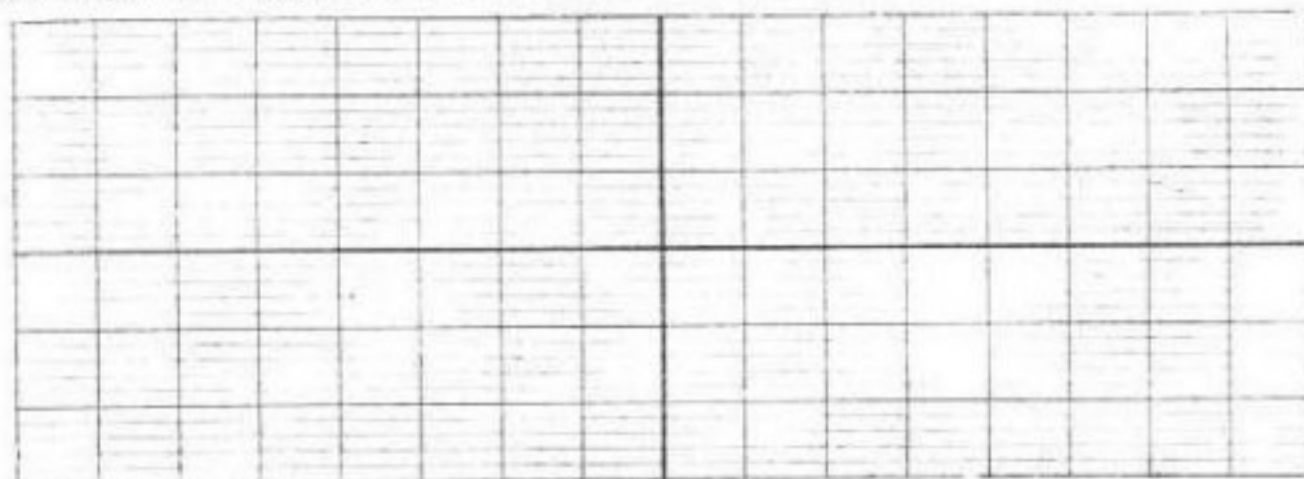


Plate A, 4 x 20 to one inch.

- |          |   |          |
|----------|---|----------|
| No. 260. | Perfect Profile Paper, Plate A.                                     | Per yard |
|          | Printed orange or green, 20 inches wide, in rolls of 50 yards . . . | \$0 24   |
| No. 261. | Perfect Profile Paper, Plate A. Mounted on muslin.                  |          |
|          | Printed orange or green, 20 inches wide, in rolls of 20 yards . . . | 65       |
| No. 262. | Perfect Profile Cloth, Plate A. Not transparent.                    |          |
|          | Printed orange or green, 20 inches wide, in rolls of 20 yards . . . | 60       |
| No. 263. | Perfect Transparent Profile Paper, Plate A.                         |          |
|          | Printed in orange only, 20 inches wide, in rolls of 50 yards . . .  | 24       |
| No. 264. | Perfect Transparent Profile Cloth, Plate A.                         |          |
|          | printed in orange only, 20 inches wide, in rolls of 20 yards . . .  | 80       |

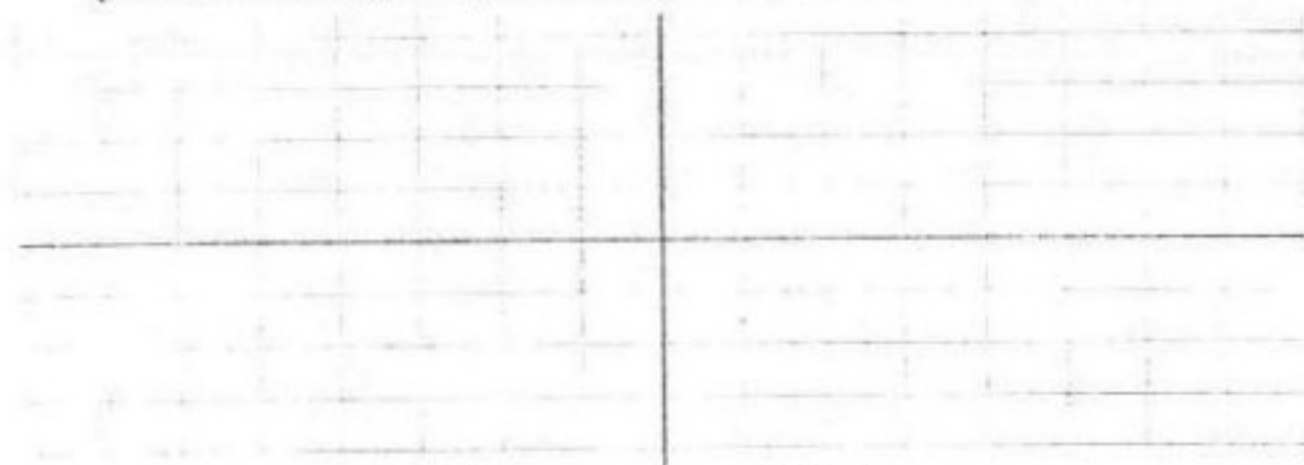


Plate B, 4 x 30 to one inch.

- |          |   |          |
|----------|---|----------|
| No. 265. | Perfect Profile Paper, Plate B.                                     | Per yard |
|          | Printed orange or green, 20 inches wide, in rolls of 50 yards . . . | \$0 24   |
| No. 266. | Perfect Profile Paper, Plate B. Mounted on muslin.                  |          |
|          | Printed orange or green, 20 inches wide, in rolls of 20 yards . . . | 65       |
| No. 267. | Perfect Profile Cloth, Plate B. Not transparent.                    |          |
|          | Printed orange or green, 20 inches wide, in rolls of 20 yards . . . | 60       |
| No. 268. | Perfect Transparent Profile Paper, Plate B.                         |          |
|          | Printed in orange only, 20 inches wide, in rolls of 50 yards . . .  | 24       |
| No. 269. | Perfect Transparent Profile Cloth, Plate B.                         |          |
|          | Printed in orange only, 20 inches wide, in rolls of 20 yards . . .  | 80       |

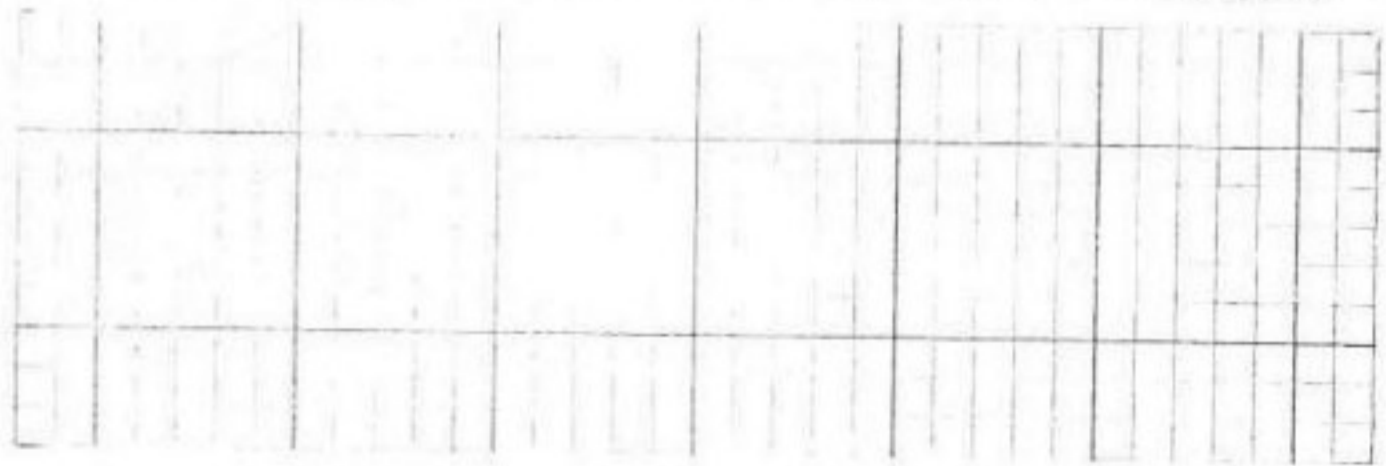
**WHEN ORDERING, PLEASE STATE COLOR.**

## "Perfect" Cross-Section Papers and Cloths.



No. 270-275. 10 x 10 to one inch.

- No. 270. **In Sheets**, 16 x 20 in., green or orange. Per quire, \$3 50; per sheet, \$0 20
- No. 271. **In Sheets**, 16 x 20 inches, on **Tracing Paper**, orange only.  
Per quire, \$3 50; per sheet, 20
- No. 272. **Continuous**, 20 inches wide, in rolls of 50 yards . . . . . Per yard, 24
- No. 273. **Continuous**, 20 inches wide, mounted on muslin in rolls of 20 yards . . . . . Per yard, 65
- No. 273<sup>1</sup>/<sub>2</sub>. **Continuous**, **Cross-section Cloth**, printed in orange or green, 20 inches wide, in rolls of 20 yards . . . . . Per yard, 60
- No. 274. **Continuous**, 20 inches wide, on **Transparent Paper**, printed in orange only, in rolls of 50 yards. . . . . Per yard, 24
- No. 275. In rolls of 20 yards, 20 inches wide, on **Transparent Cloth**, printed in orange only . . . . . Per yard, 80



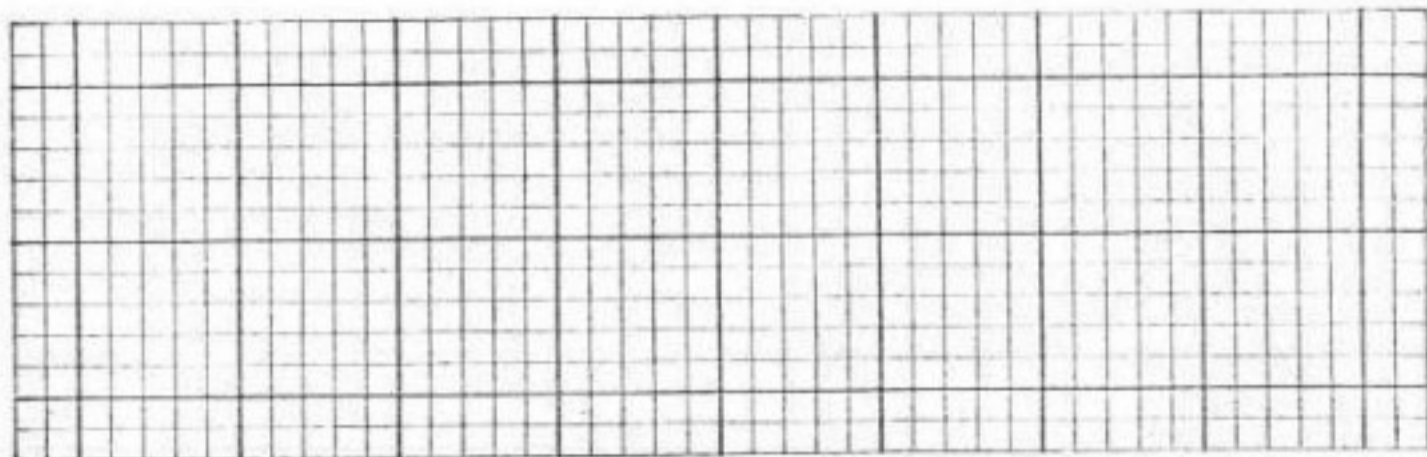
Nos. 276-277. 8 x 8 to one inch.

- No. 276. **In Sheets**, 16 x 20 in., 8 x 8 to one inch. Per quire, \$3 50; per sheet, \$0 20
- No. 277. **In Sheets**, 16 x 20 inches, 8 x 8 to one inch, on **Tracing Paper**, orange only . . . . . Per quire, \$3 50; per sheet, 20
- No. 278. **In Sheets**, 16x20 in., 16x16 to one inch. Per quire, \$3 50; per sheet, 20
- No. 279. **In Sheets**, 16x20 in., 16x16 to one inch, on **Tracing Paper**, orange only . . . . . Per quire, \$3 50; per sheet, 20

**WHEN ORDERING, PLEASE STATE COLOR.**



## “Perfect” Cross-Section Papers—Continued.

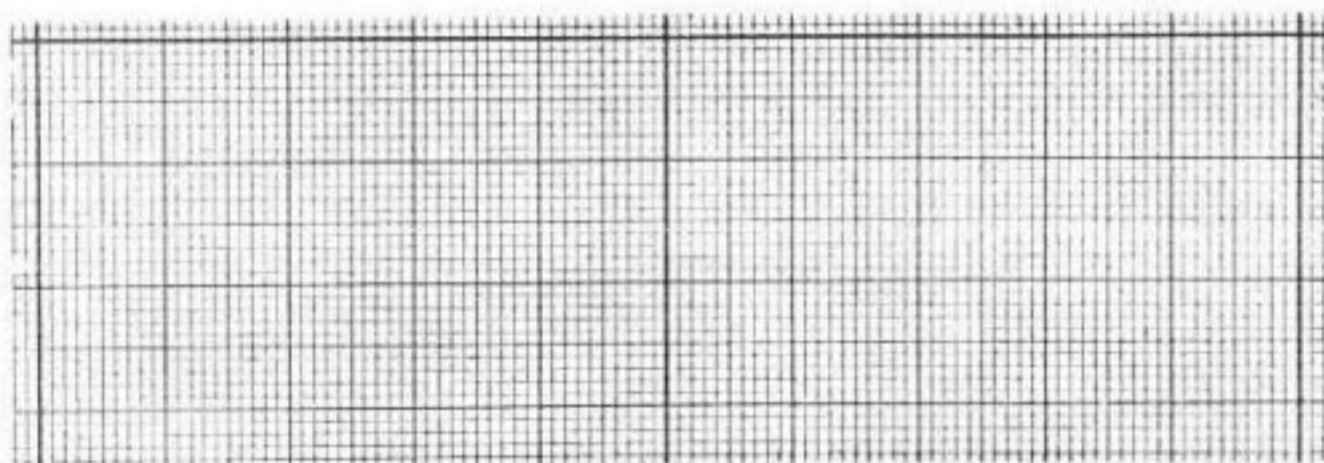


Nos. 280-281. 5 x 5 to  $\frac{1}{2}$  inch.

No. 280. In Sheets, 18 x 20 in., orange or green. Per quire, \$3 50; per sheet, \$0 20

No. 281. In Sheets, 18 x 20 in., on **Tracing Paper**, orange only.  
Per quire, \$3 50; per sheet, 20

All our printed cross-section papers bear the trade-mark “Perfect” along their edge.



No. 282. Millimeter.

No. 282. Millimeter, in rolls of 50 yards, 50 cm. wide, printed in orange or green . . . . . Per yard, \$0 24

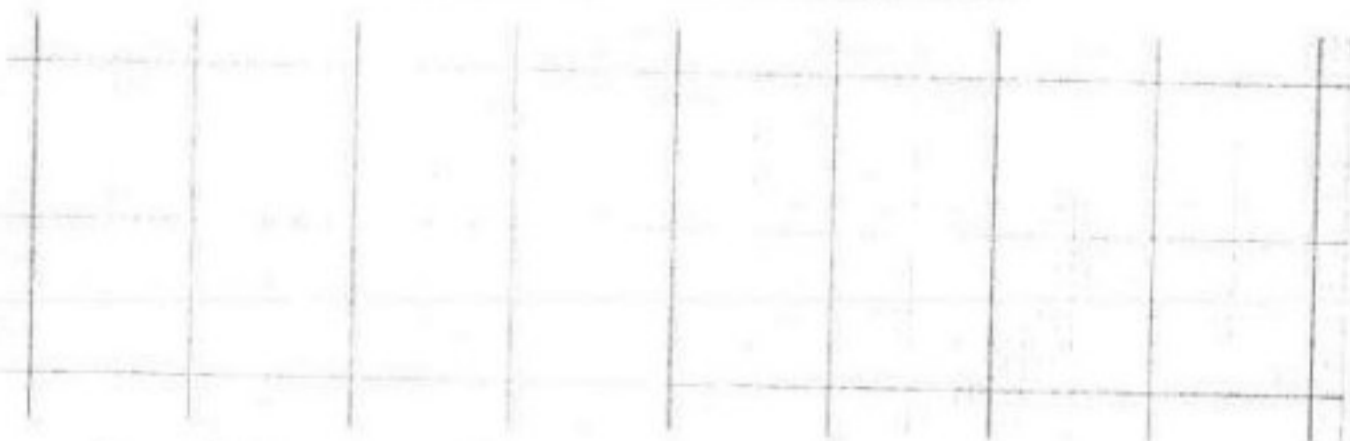
No. 283. Millimeter, in rolls of 20 yards, 50 cm. wide, mounted on muslin, printed in orange or green . . . . . Per yard, 65

No. 284. Millimeter, in rolls of 50 yards, 50 cm. wide, on **Transparent Paper**, printed in orange only . . . . . Per yard, 24

**WHEN ORDERING, PLEASE STATE COLOR.**

## "Perfect" Cross Section Papers—Continued.

IN SMALL SHEETS, FOR USE OF STUDENTS,  
MECHANICAL ENGINEERS, ETC.



Nos. 285-286a. 10 x 10 to one-half inch. Every fifth line heavy.

						Per 100 sheets.	Per quire
No. 285.	Imprint,	5 x 7 inches,	on drawing paper,	green only	.	\$0 90	\$0 25
No. 285a.	"	5 x 7	"	" tracing	" orange "	90	25
No. 286.	"	7 x 10	"	" drawing	" green "	1 50	40
No. 286a.	"	7 x 10	"	" tracing	" orange "	1 50	40



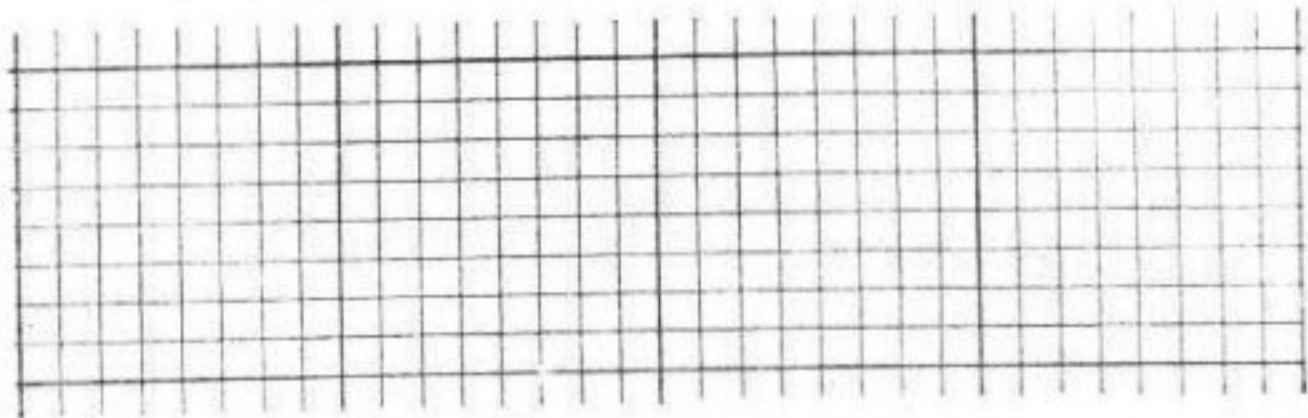
Nos. 287-288a. 20 x 20 to one inch. Every tenth line heavy.

						Per 100 sheets.	Per quire
No. 287.	Imprint,	5 x 7 inches,	on drawing paper,	green only	.	\$0 90	\$0 25
No. 287a.	"	5 x 7	"	" tracing	" orange "	90	25
No. 288.	"	7 x 10	"	" drawing	" green "	1 50	40
No. 288a.	"	7 x 10	"	" tracing	" orange "	1 50	40

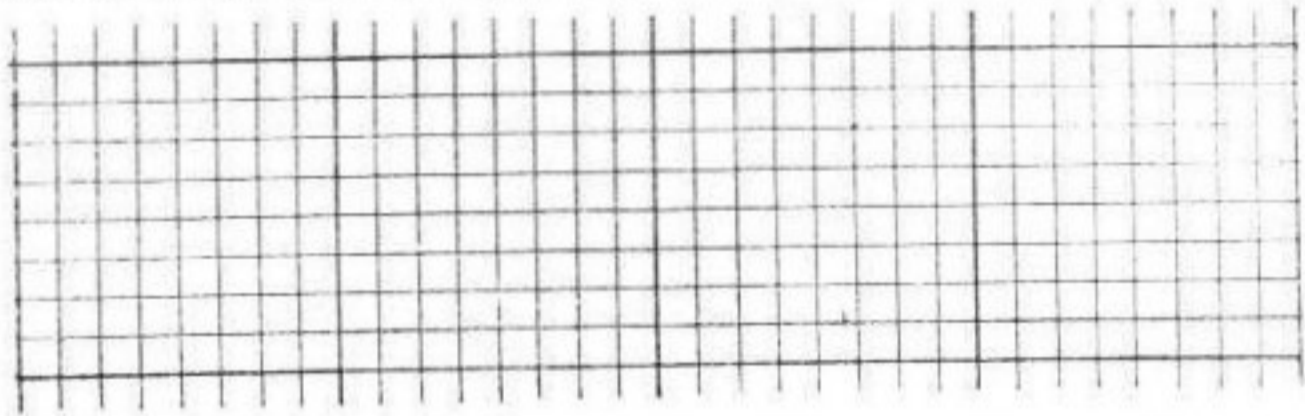
The printed cross section papers are more reliable and accurate than the ruled cross section papers and of a better stock of paper.

SAMPLES OF CROSS SECTION PAPERS MAILED ON APPLICATION.

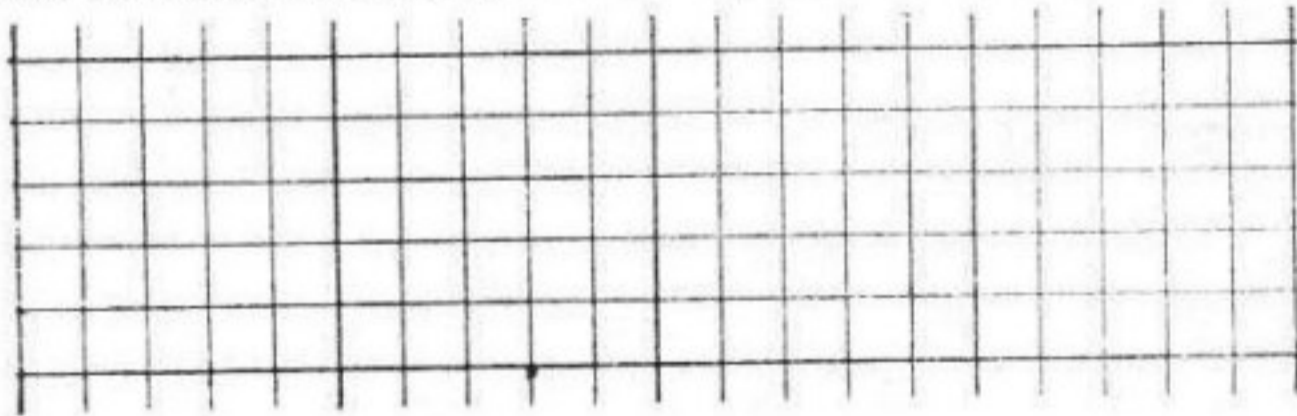
## Ruled Cross Section Papers.



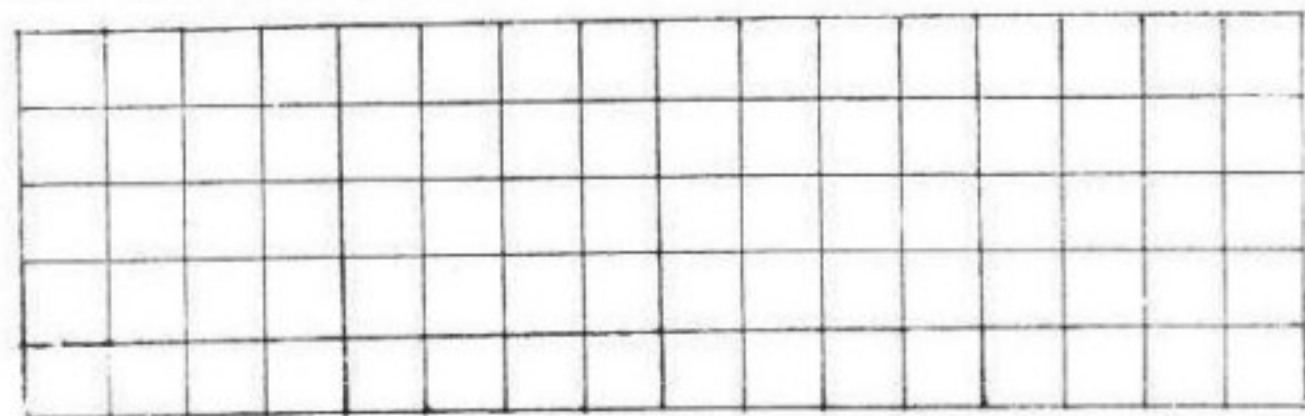
No. 288b. In sheets, 16x21 inches, ruled in blue, 10x10 to one inch. Per quire, \$1 00



No. 288c. In sheets, 16x21 inches, ruled in blue, 8x8 to one inch. Per quire, \$1 00

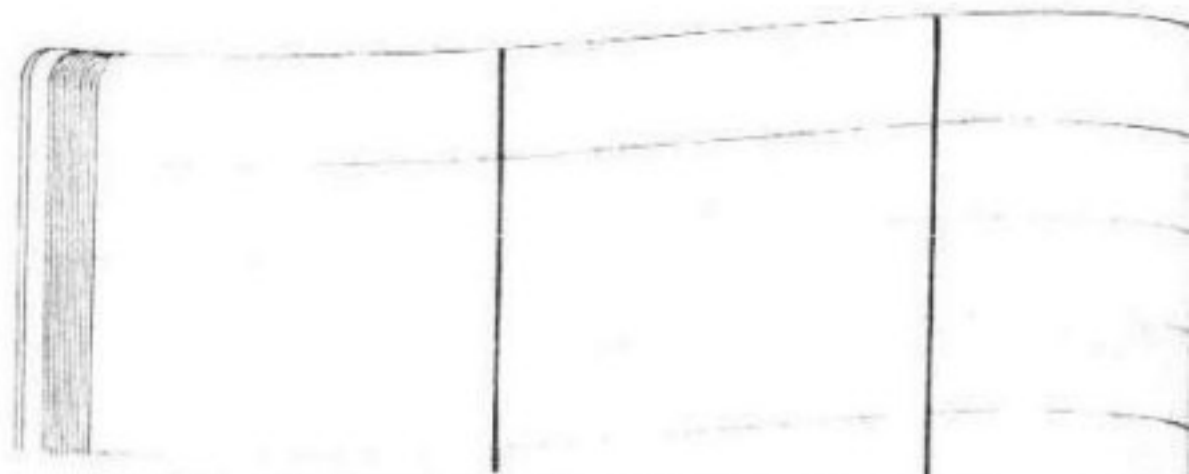


No. 288d. In sheets, 16x21 inches, ruled in blue, 5x5 to one inch. Per quire, \$1 00

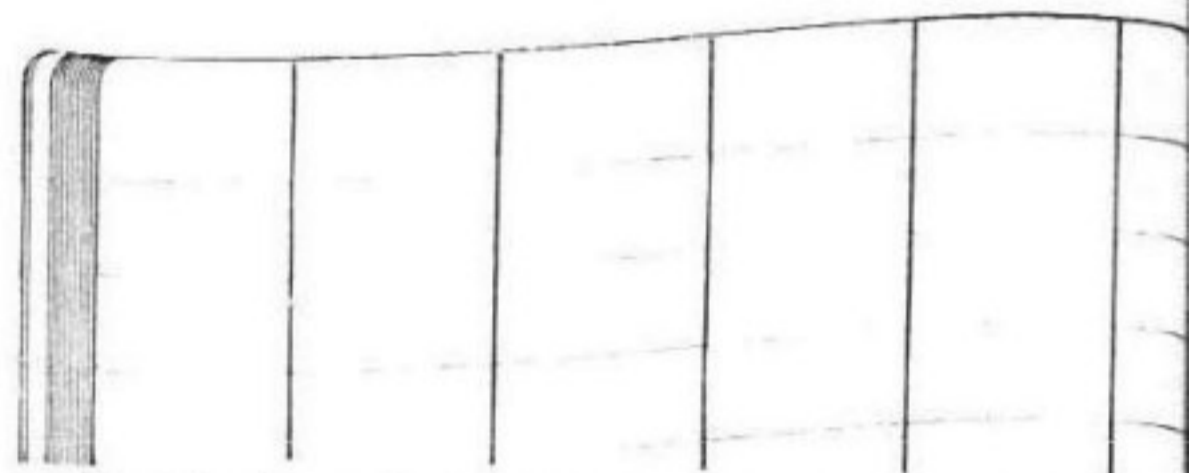


No. 289. Topographical Paper, 16x21 inches, 400 feet to one inch, ruled in blue and red. Per quire . . . . . \$1 00

ENGINEER



No. 290. Transit Book,  $4\frac{1}{2} \times 7\frac{1}{2}$  in., 80 leaves, bound in leather  
 No. 291. " "  $4\frac{1}{4} \times 7$  " 60 " " "



No. 292. Level Book,  $4\frac{1}{2} \times 7\frac{1}{2}$  in., 80 leaves, bound in leather  
 No. 293. " "  $4\frac{1}{4} \times 7$  " 60 " " "

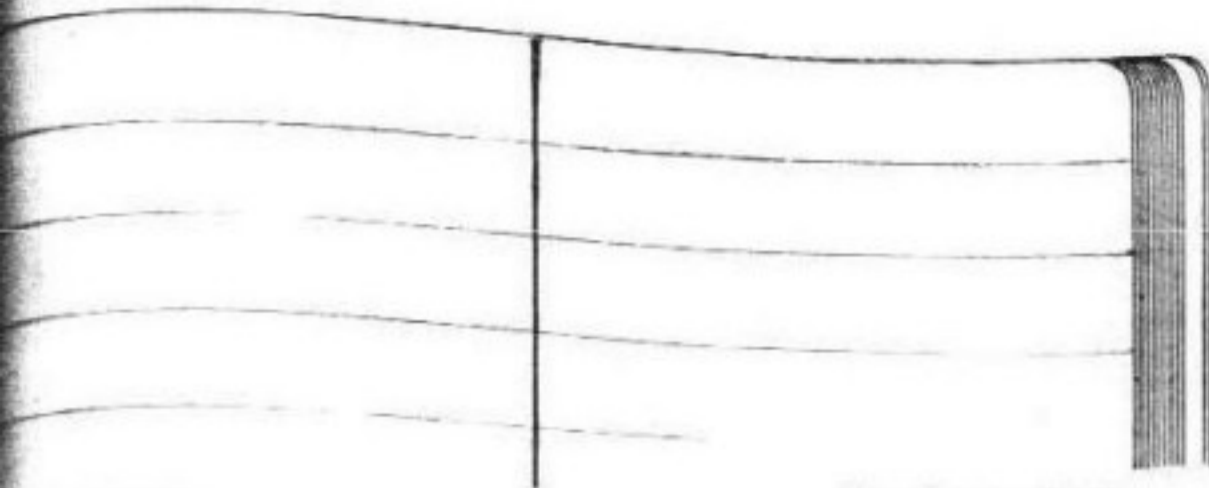


No. 294. Field Book,  $4\frac{1}{2} \times 7\frac{1}{2}$  in., 80 leaves, bound in leather  
 No. 295. " "  $4\frac{1}{4} \times 7$  " 60 " " "

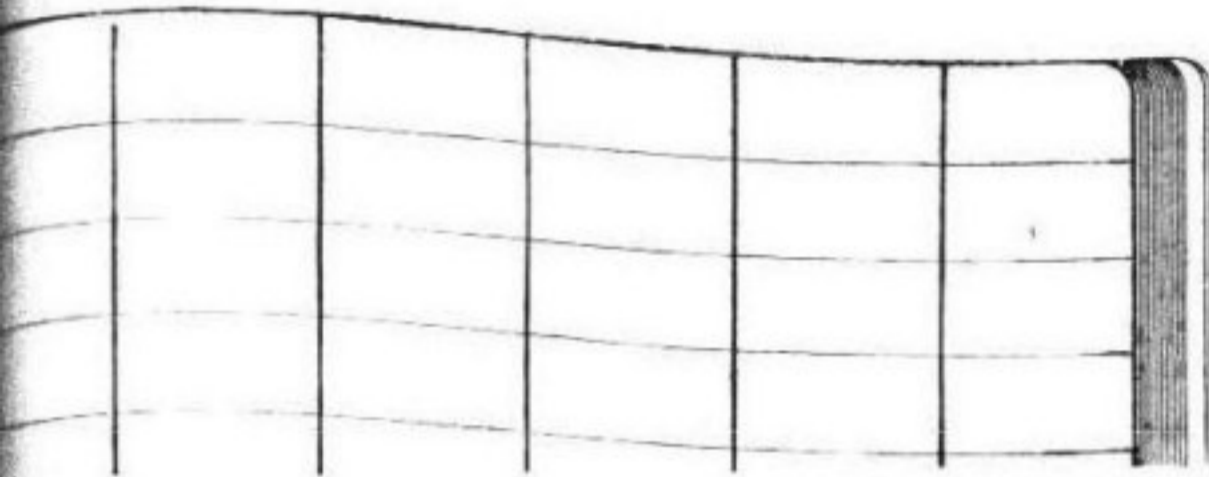
CROSS-SECTION

No. 296. Cross-section Books,  $5\frac{1}{2} \times 7\frac{1}{2}$  in., 80 leaves, ruled 10 lines  
 No. 297. " " "  $6\frac{1}{2} \times 8\frac{1}{2}$  " 80 " " 10 lines

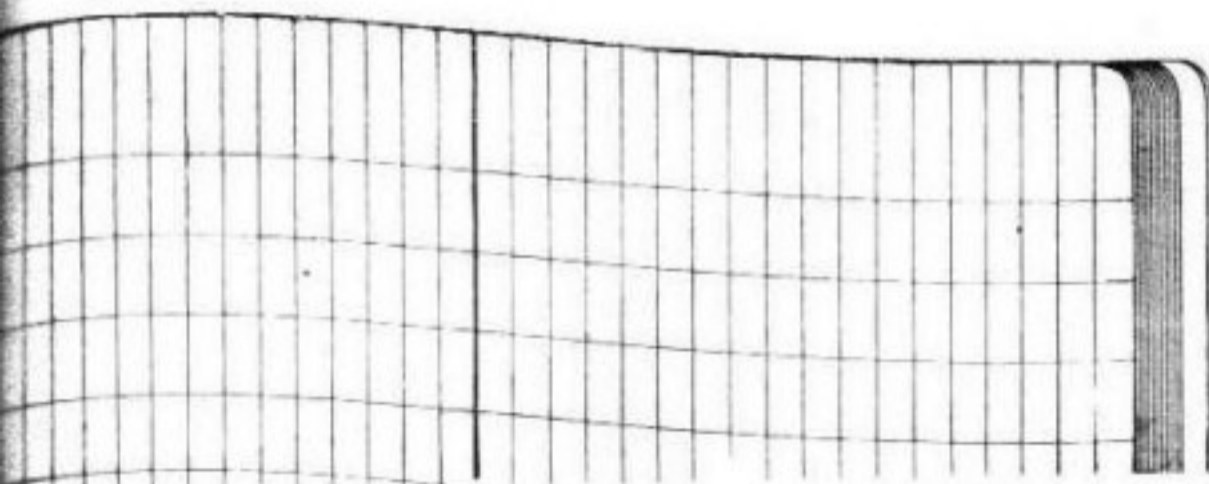
FIELD BOOKS.



and corners . . . . .	Per dozen, \$5 50
“ “ . . . . .	“ 4 50



and corners . . . . .	Per dozen, \$5 50
“ “ . . . . .	“ 4 50



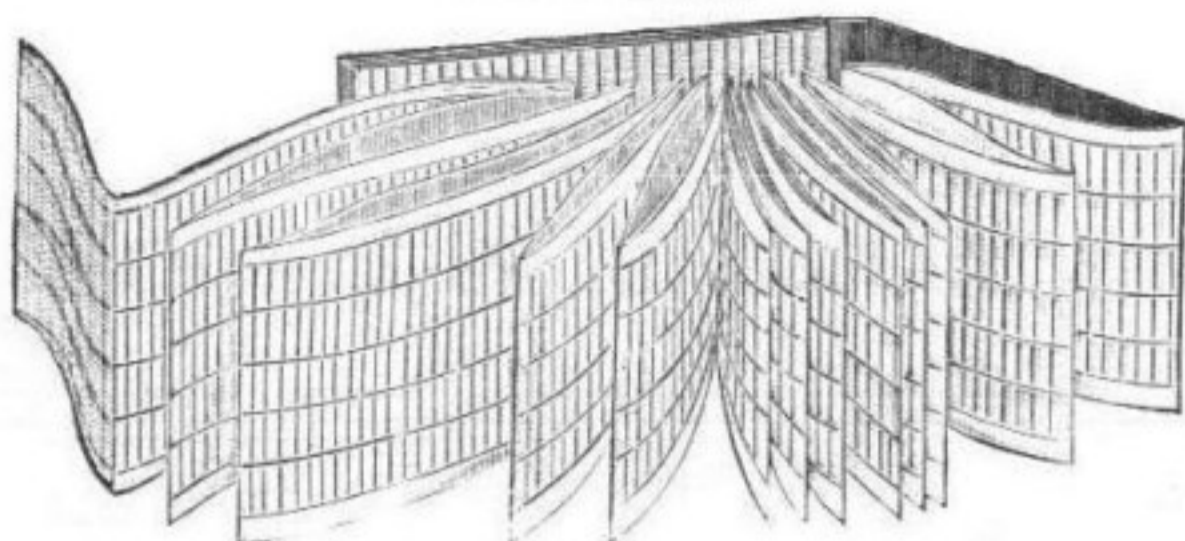
and corners . . . . .	Per dozen, \$6 00
“ “ . . . . .	“ 5 50

BOOKS.

one inch, bound in leather, round corners . . .	Per dozen, \$8 60
“ “ “ “ “ . . . . .	“ 9 60

## Profile Books.

CONTINUOUS.



No. 302.

Bound in Flexible Morocco Covers.

These books are folded like a map to replace the continuous rolls of profile paper and the pages are mounted on muslin.

Each leaf, or two pages facing, contain six thousand feet—a "Section" as generally laid out for the construction of a road. The paper is smooth and is of extra fine quality.

The books of "Plate A" show a profile of 100 feet in width on a horizontal scale of 4 and vertical of 20 to an inch; size of book is  $5\frac{1}{2} \times 8$  inches.

The books of "Plate B" show a profile of 125 feet in width, on a horizontal scale of 4 and vertical of 30 to an inch; size of book is  $4\frac{3}{4} \times 8$  inches.

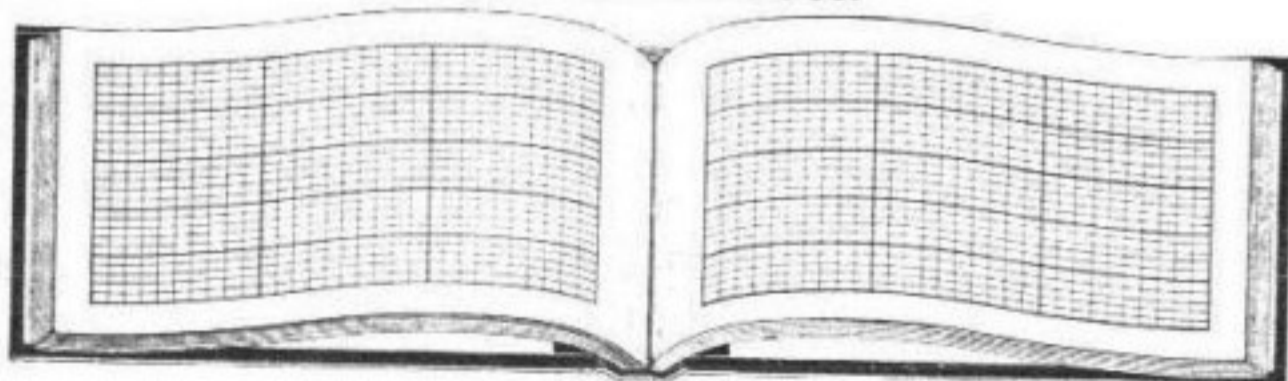
No. 300. Plate A. Four horizontal, 20 vertical lines to an inch;  $5\frac{1}{2} \times 8$  in.; printed in green.

	12	25	50	100 miles.
Each,	\$2 00	\$3 20	\$5 40	\$9 60

No. 302. Plate B. Four horizontal, 30 vertical lines to an inch;  $4\frac{3}{4} \times 8$  in.; printed in green.

	12	25	50	100 miles.
Each,	\$2 00	\$3 20	\$5 40	\$9 60

NOT CONTINUOUS.



No. 306.

Stiff Morocco Covers.

No. 304. Plate A. Size of book,  $7 \times 10\frac{1}{8}$  inches; printed in green.

	25	50	100 leaves.
Bound in Morocco . . . . .	Each, \$2 00	\$2 50	\$3 50

No. 306. Plate B. Size of book,  $5\frac{1}{2} \times 10\frac{1}{8}$  inches; printed in green.

	25	50	100 leaves.
Bound in Morocco . . . . .	Each, \$2 00	\$2 50	\$3 50

## Office and Draughtsman Supplies.



### DRAWING INSTRUMENTS, OF AMERICAN, FRENCH, GERMAN AND SWISS MAKE.

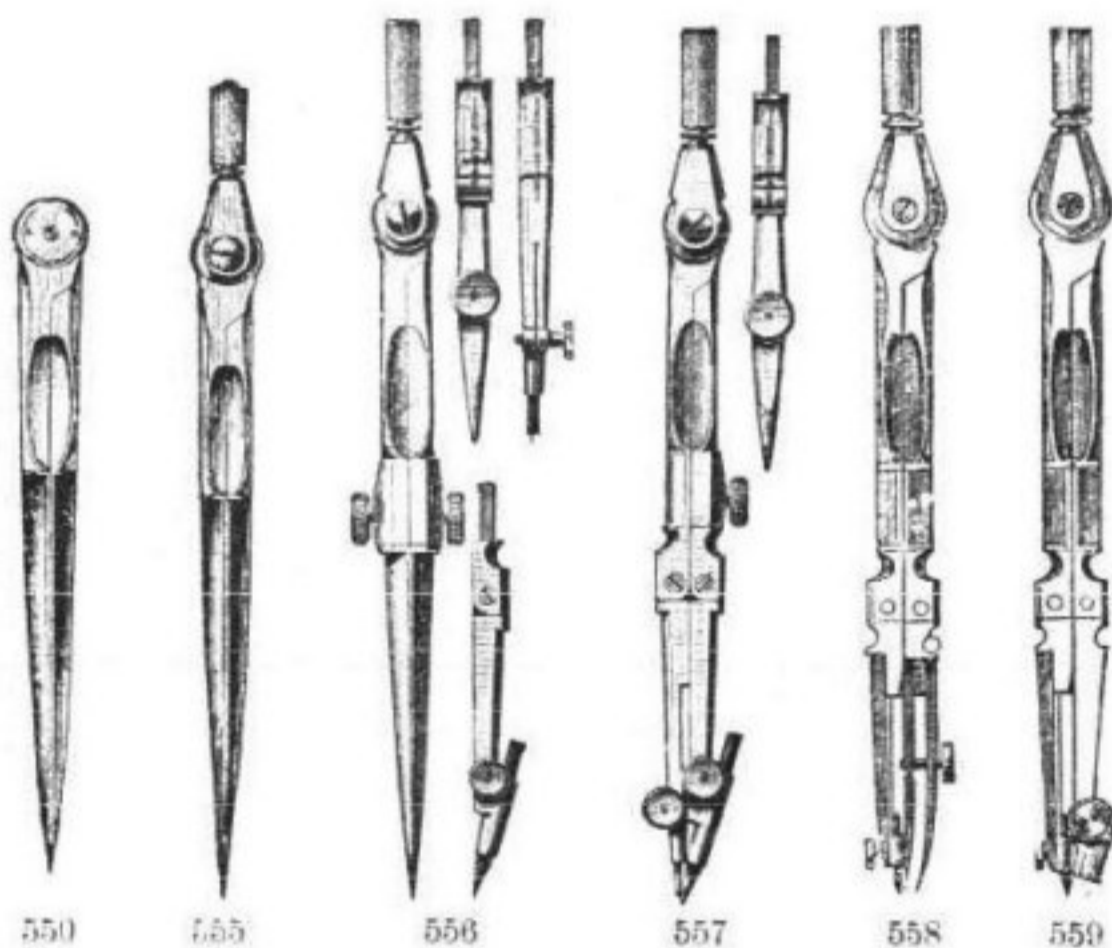
Drawing Paper in Sheet or Roll, Profile and Cross-section Paper, Tracing Linen, Scales, Angles, Colors, Brushes, Etc.

This Catalogue fully describes the most complete and reliable assortment of Drawing Instruments that has ever been introduced into this country. We have these goods of superior Swiss manufacture made by celebrated and well-known makers. The reputation of these instruments is world-renowned, and none better and so well-known, so that it is unnecessary to go into a detailed description of them. We also import an exact counterpart, which we call Extra Fine German, and can recommend them as next in quality, but not so high priced, and a first-class article.

## Superior Swiss Instruments.

Made of selected German silver and best English steel. Are of a very graceful form, light in weight, and all hand made.

ALL PENCIL POINTS ARE ARRANGED TO HOLD FABER'S LEADS.

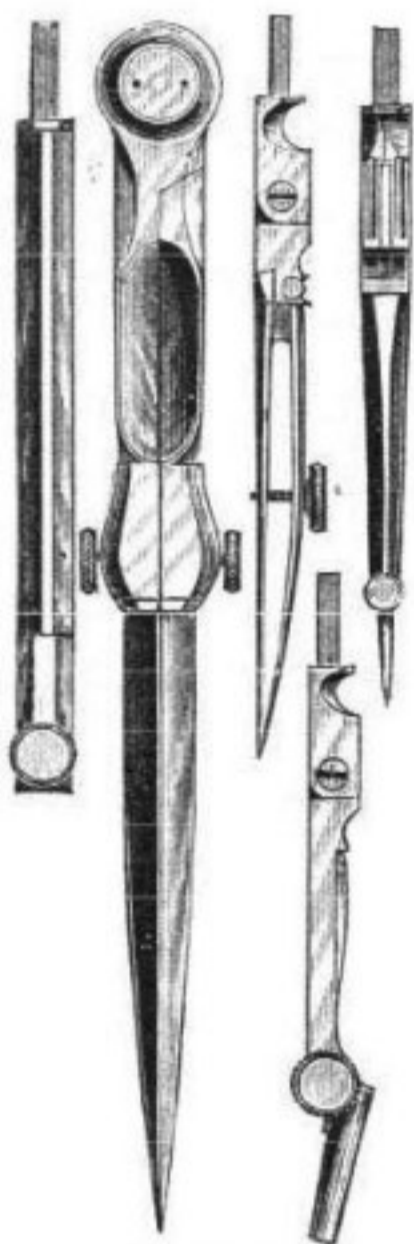


No.	Each
550. Plain Dividers, 3½ inch . . . . .	\$1 75
551. Plain Dividers, 5 inch . . . . .	2 20
552. Plain Dividers, 6 inch . . . . .	2 50
553. Hairspring Dividers, 5 inch . . . . .	3 00
554. Hairspring Dividers, 6 inch . . . . .	3 30
555. Plain Dividers, 3½ inch, with handle . . . . .	1 50
556. Dividers, 3½ inch, with pen, pencil and needle point . . . . .	5 50
557. Dividers, 3½ inch, with fixed needle point, pen and pencil point . . . . .	5 00
558. Dividers, 3½ inch, with fixed needle and pen point . . . . .	3 50
559. Dividers, 3½ inch, with fixed needle and pencil point . . . . .	3 50



## Superior Swiss Instruments—Continued.

ALL PENCIL POINTS ARE ARRANGED TO HOLD FABER'S LEADS.



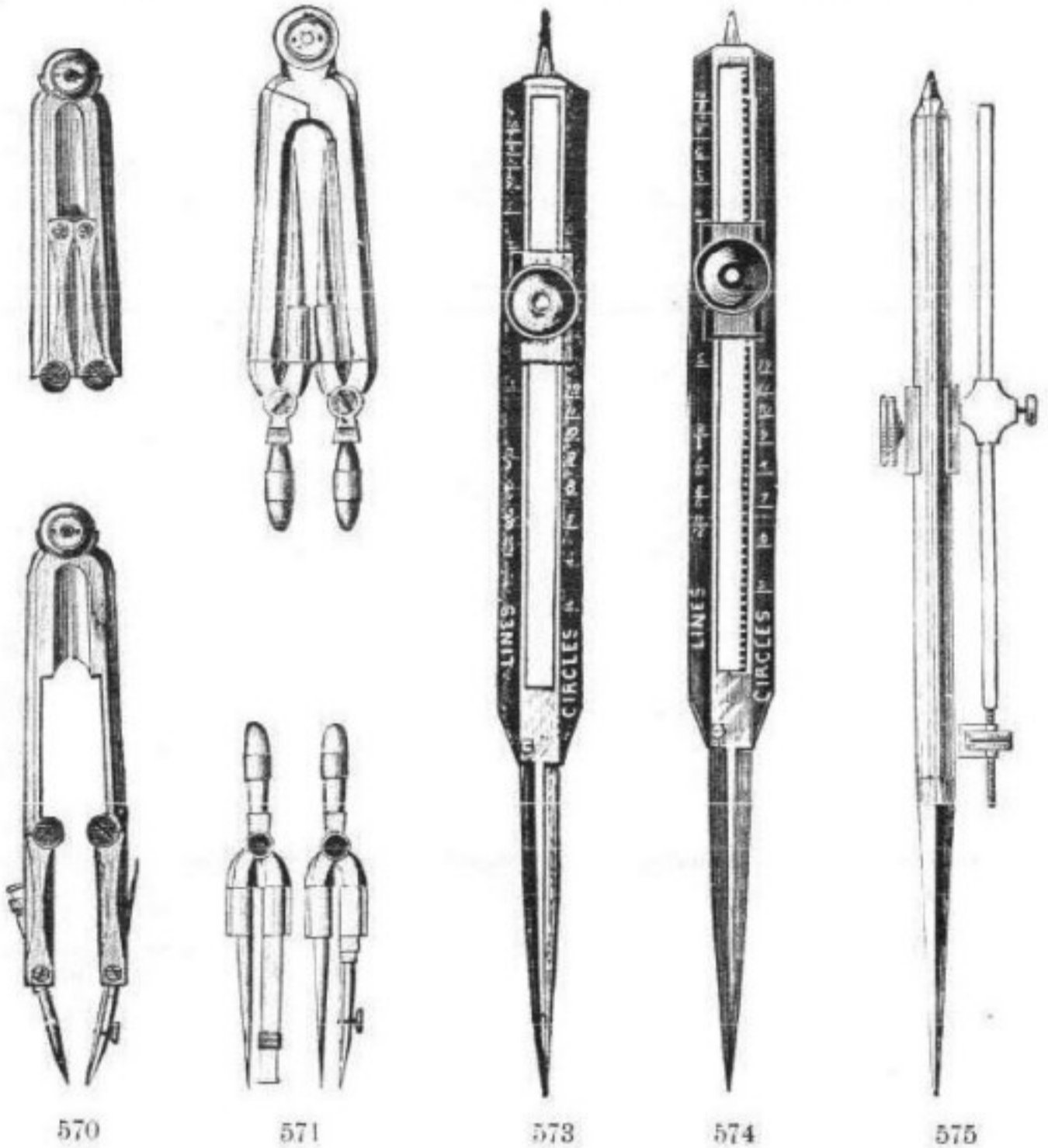
No. 560.



No. 562.

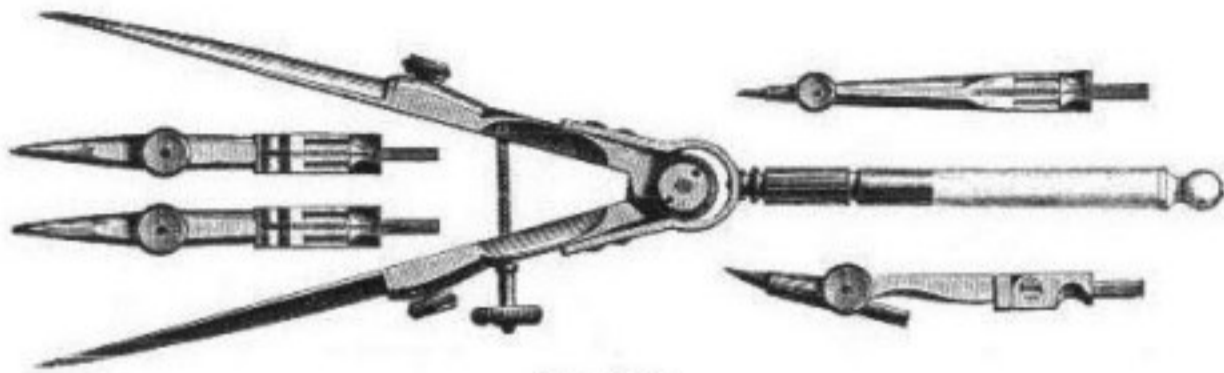
No.		Each
560.	Compasses, 6 inch, with pen, pencil, needle point and lengthening bar,	\$8 00
561.	Compasses, 6½ inch, with joint in each leg, pen, pencil, needle point and lengthening bar . . . . .	9 25
562.	Compasses, 7 inch, with joint in each leg, pen, pencil, needle point, lengthening bar and dotting pen . . . . .	10 75

## Superior Swiss Instruments—Continued.



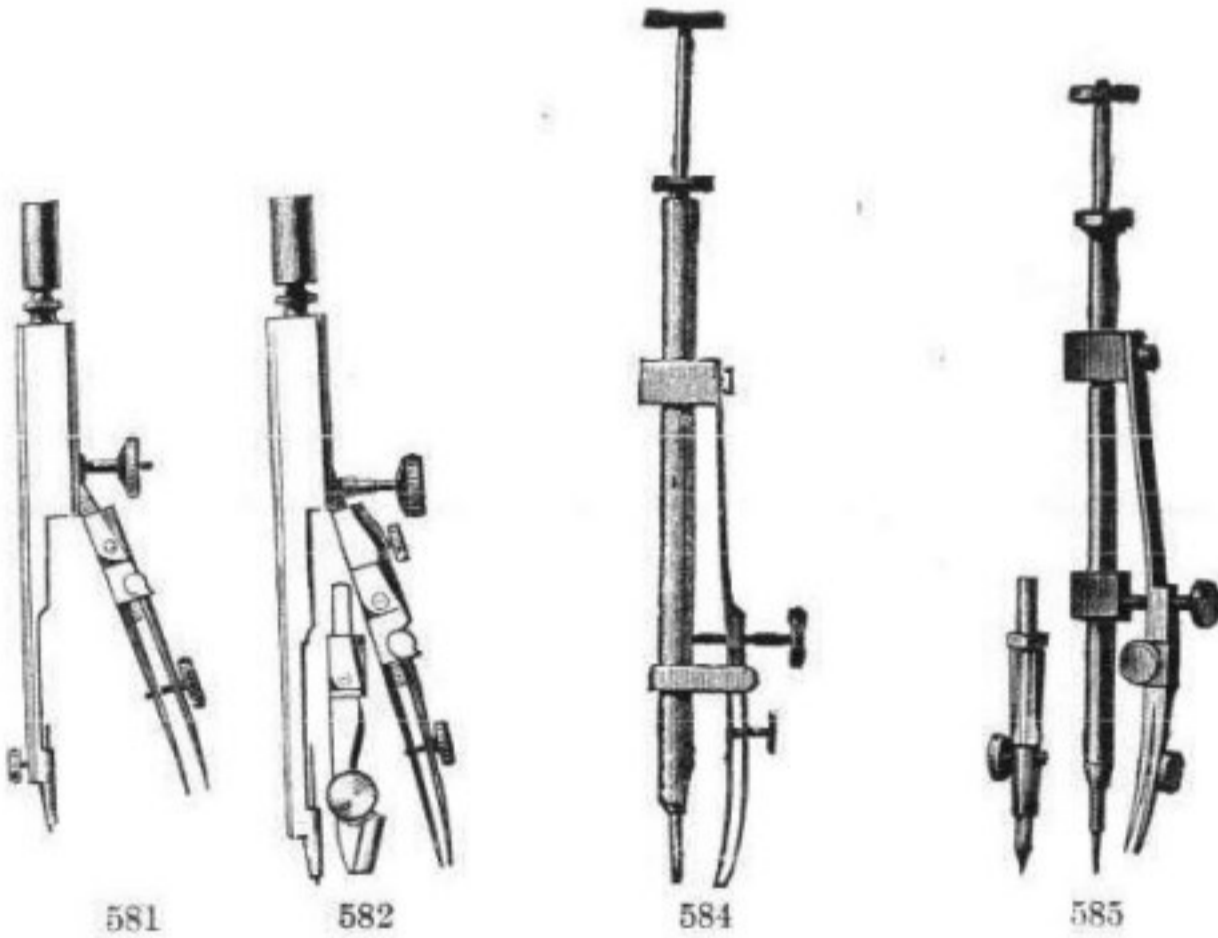
No.	Each
570. Pocket Compasses, with folding points . . . . .	\$ 7 50
571. Pillar Compasses, with handles, two needle points, pen and pencil point, which can be withdrawn from the compass and used as small bow-pen and pencil respectively . . . . .	8 00
572. Whole and Half Dividers, 7 $\frac{1}{4}$ inch . . . . .	4 00
573. Proportional Dividers, finely divided for lines and circles, 7 $\frac{1}{2}$ inch . . . . .	10 00
574. Proportional Dividers, finely divided for lines and circles, 8 $\frac{1}{2}$ inch, with rack movement. . . . .	12 50
575. Proportional Dividers, finely divided for lines, circles, planes and solids, 9 inch, with micrometer adjustment. . . . .	18 50

## Superior Swiss Instruments—Continued.



No. 580.

	Each
No. 580. Spring Bow Compass, with long ivory handle, two pen points, pencil and needle point . . . . .	\$8 25



No.	Each
581. Bow Pen, with spring and adjusting screw . . . . .	\$2 50
582. Bow Pen, with spring and adjusting screw and pencil point. . . . .	3 50
583. Spring Bow Pen, with self-adjusting point, for very small circles . . . . .	4 00
584. Spring Bow Pen, for very small circles . . . . .	3 75
585. Spring Bow Pen and Pencil, for very small circles. . . . .	5 00

Nos. 583, 584 and 585 are different from other bows and are the most excellent instruments for drawing small circles. A small rod passes through the entire instrument, serving as handle and needle point. In Nos. 584 and 585 this center rod remains stationary while the instrument is turned and the pen or pencil drawn by their own weight, avoiding the slipping of the needle or scratching of the pen.

## Superior Swiss Instruments—Continued.



590

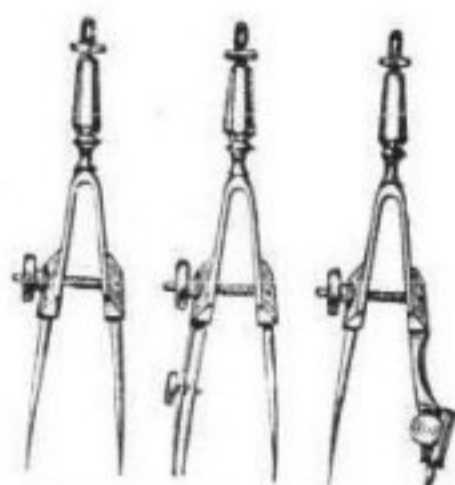


591



592

No.		Each
590.	Steel Spring Bow Dividers, 3½ inch, metal handle . . . . .	\$2 10
591.	" " " Pencil, 3½ " " " . . . . .	2 70
592.	" " " Pen, 3½ " " " . . . . .	2 70
593.	Set of Bows, Nos. 590, 591 and 592, in case . . . . .	8 70



594

595

596

No.		Each
594.	Minute Steel Spring Bow Dividers, 2½ inch, metal handle . . . . .	\$1 80
595.	" " " " Pen, 2½ " " " . . . . .	2 40
596.	" " " " Pencil, 2½ " " " . . . . .	2 40
597.	Set of Bows, Nos. 594, 595 and 596, in case . . . . .	8 40

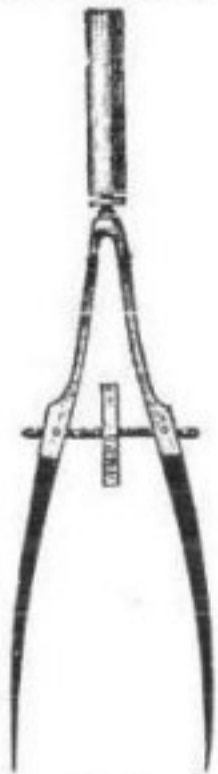


598. Flat Box with four Patent Leads for instruments . . . . .	\$0 15
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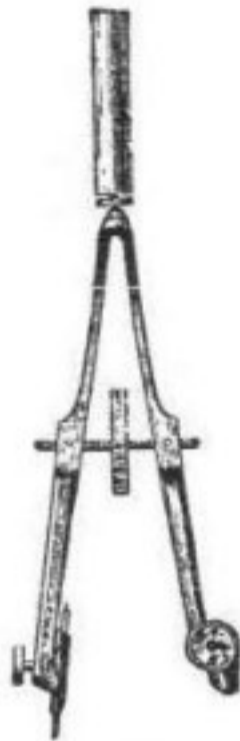
## Superior Swiss Instruments—Continued.

THE HIGHEST GRADE OF INSTRUMENTS.

Made of German Silver and best English Steel.—Illustrations  $\frac{2}{3}$  Size.



600



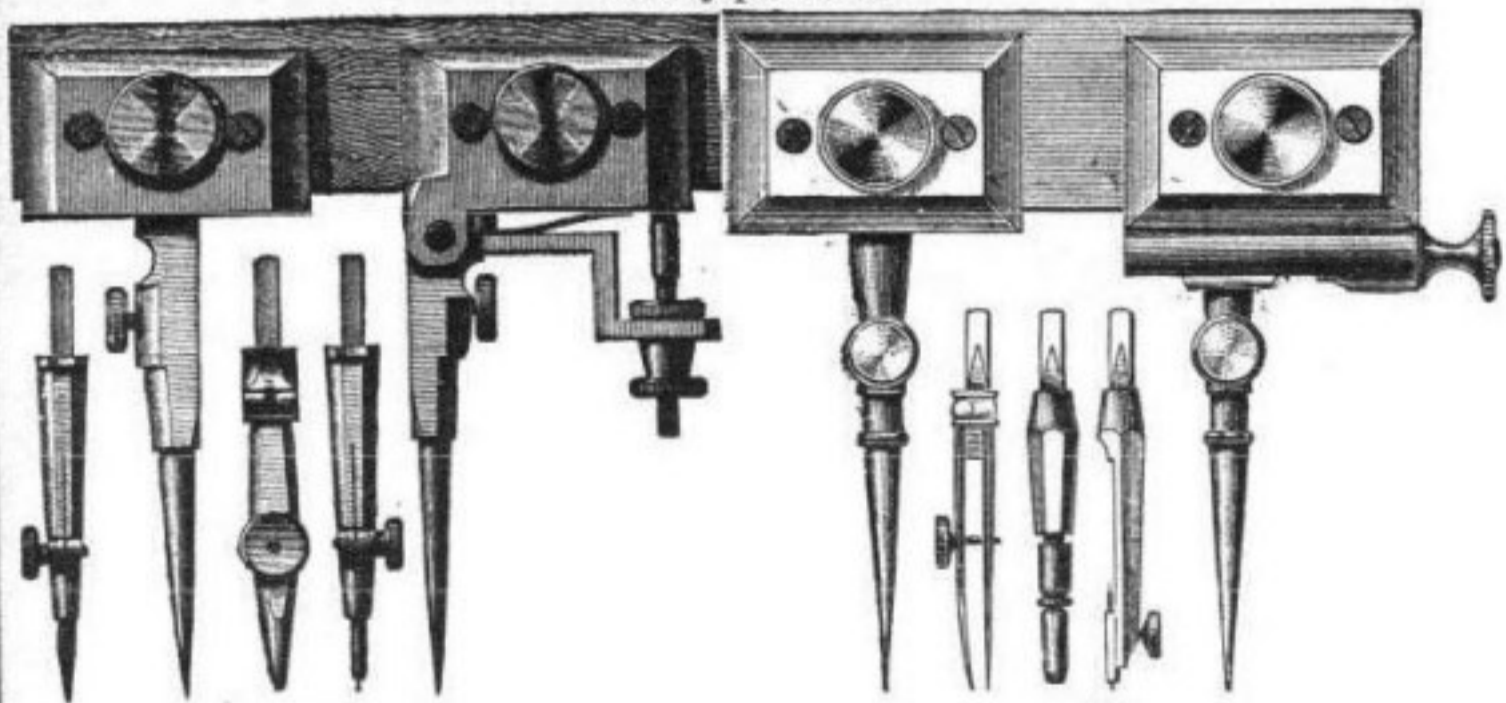
601



602

- |          |   |                                  |                        |       |        |
|----------|---|----------------------------------|------------------------|-------|--------|
| No. 600. | Steel Spring Bow Dividers,                            | $3\frac{1}{2}$ inch,             | metal handle . . . . . | Each, | \$2 40 |
| No. 601. | " " " Pencil,   | $3\frac{1}{2}$ " " " " . . . . . | " " " "                | "     | 3 00   |
| No. 602. | " " " Pen,  | $3\frac{1}{2}$ " " " " . . . . . | " " " "                | "     | 3 00   |
| No. 603. | Set of Bows, Nos. 600, 601 and 602, in case . . . . . |                                  |                        | "     | 9 60   |

These Bows have a screw on a right and left thread, which holds the points firmly in any position.

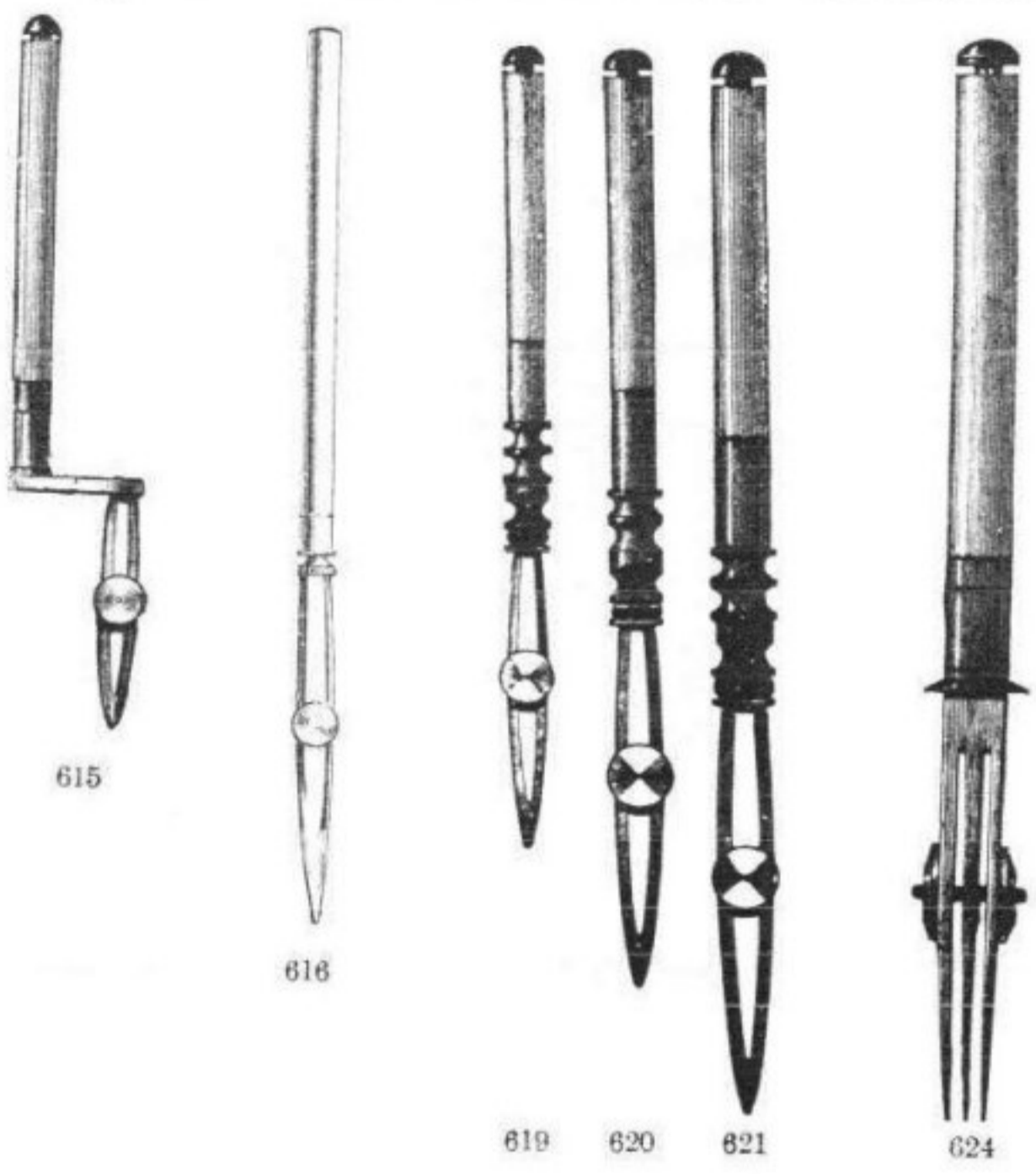


610

612

- |          |  |       |         |
|----------|--|-------|---------|
| No. 610. | Beam Compass, improved pattern, with tangent attachment, pen, pencil, needle and two round points, in case . . . . .         | Each, | \$10 00 |
| No. 612. | Beam Compass, to fit on any straight edge, with two plain points, one needle point, pen and pencil in leather case . . . . . | Each, | 8 00    |
| No. 613. | Wheel attachment . . . . .   | "     | 2 00    |

## Superior Swiss Instruments—Continued.



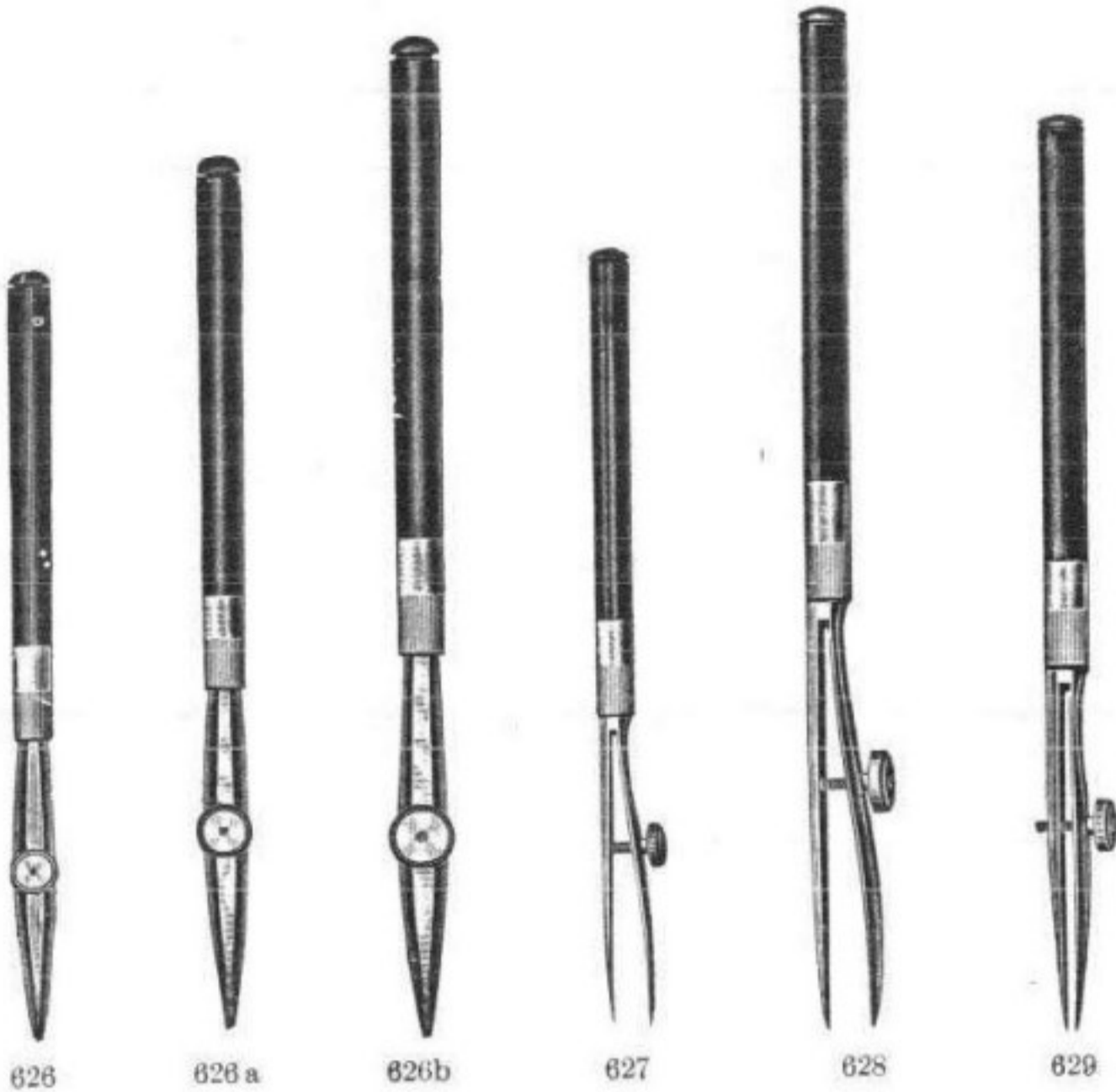
No.		Each
615.	Curve Pin, 4½ inch, ivory handle . . . . .	\$1 25
616.	Drawing Pen, 4½ inch, no hinge, ebony handle . . . . .	1 00
617.	" " 5 inch, no hinge, ebony handle . . . . .	1 10
618.	" " 4 inch, with hinge, no pin, ivory handle . . . . .	1 40
619.	" " 4½ inch, with hinge and pin, ivory handle . . . . .	1 50
620.	" " 4¾ " " " " " " " " " " . . . . .	1 80
621.	" " 5½ " " " " " " " " " " . . . . .	1 80
622.	" " 6¼ " " " " " " " " " " . . . . .	2 00
623.	" " 4¾ " " " " " " " " " " G. S. blades . . . . .	1 80
624.	Border Pen, for heavy lines, 6½ inch, ivory handle . . . . .	3 00
625.	Border Pen, improved, for heavy lines, 6½ inch, ivory handle; can also be used as a railroad pen . . . . .	3 50

# Superior Swiss Instruments—Continued.

THE HIGHEST GRADE OF INSTRUMENTS.

Made of Rolled German Silver and Best English Steel.

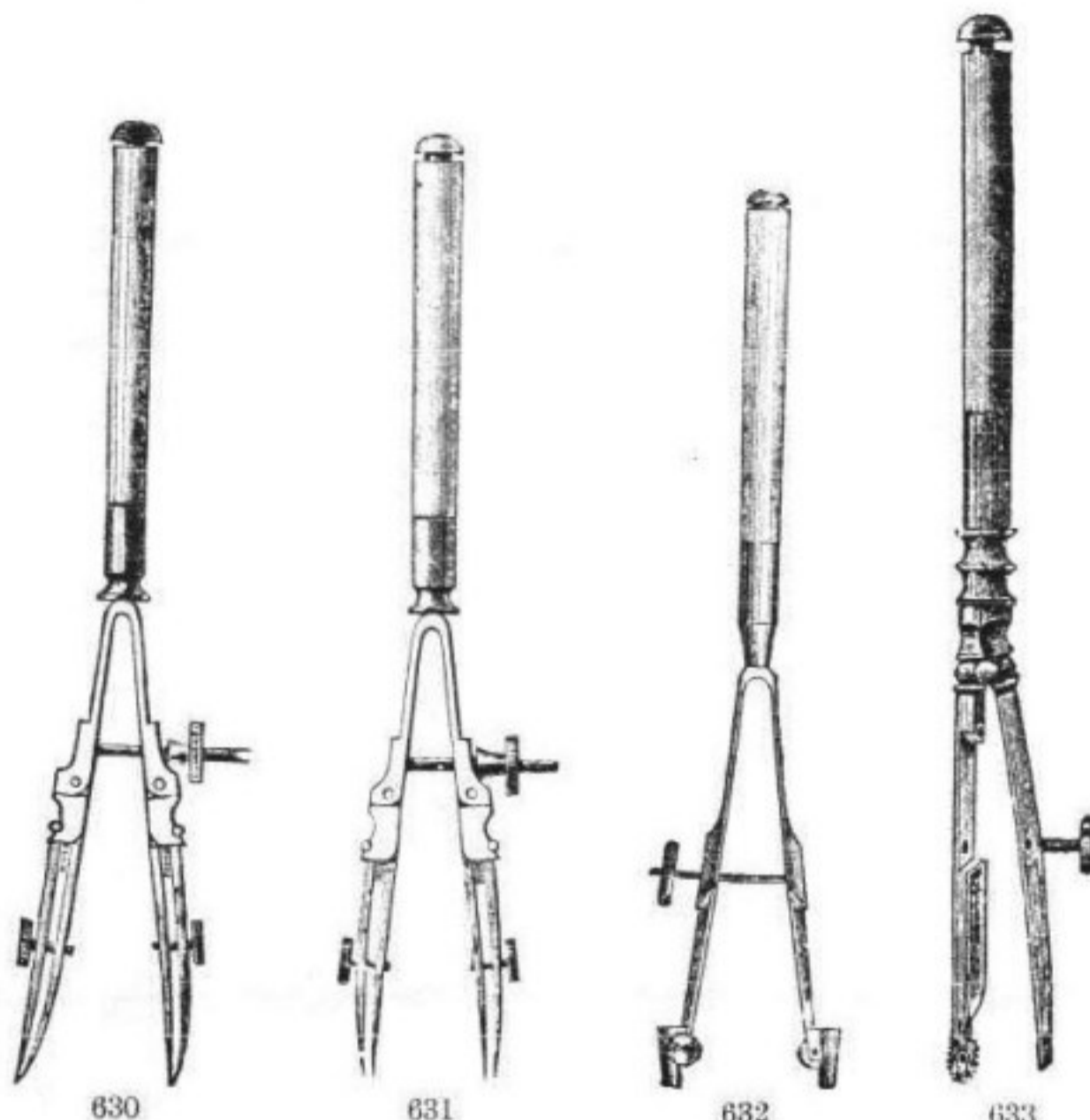
Illustrations,  $\frac{2}{3}$  size.



No. 626.	Ruling Pen, $4\frac{1}{4}$ in.,	ebony handle	. . . . .	Each, \$0 90
No. 626a.	" "	5 "	" "	" 1 00
No. 626b.	" "	$5\frac{1}{2}$ "	" "	" 1 20
No. 627.	" "	$4\frac{1}{4}$ "	" "	upper blade with spring . " 1 10
No. 628.	" "	5 "	" "	" " " " . " 1 20
No. 629.	" "	$5\frac{1}{2}$ "	" "	" " " " . " 1 35

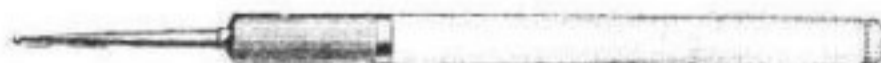
Pens carefully dressed and sharpened, 20 to 25 cents.

## Superior Swiss Instruments—Continued.



No.	630	631	632	633	Each
630.	Railroad Pen, improved, 5½ inch, ivory handle, both blades face the same way. The inside blade can be pressed closely to the T square triangle, etc. . . . .				\$3 75
631.	Railroad Pen, 5½ inch, ivory handle . . . . .				3 50
632.	Railroad Pencil, 5 inch, ivory handle . . . . .				3 25
633.	Dotting Pen, new style, with six wheels, ivory handle, 6 inch . . . . .				4 25

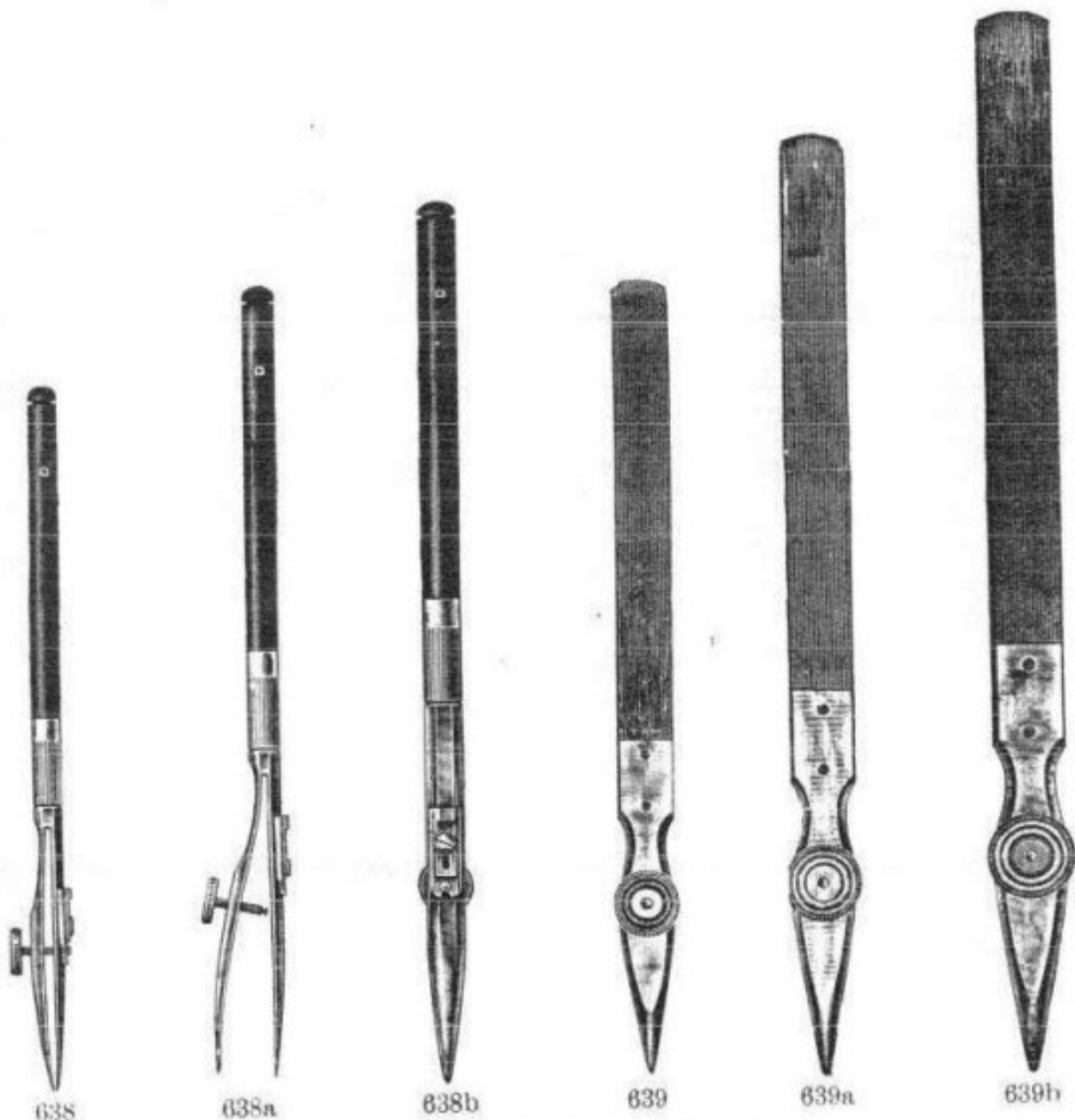
The lower portion of the pen forms a metal case which is closed by screwing down the upper hinged blade. The case is filled with ink which is carried to the paper by the revolving wheel.



No.	636	637	Each
636.	Pricker, 5 inch, ivory handle . . . . .		\$1 75
637.	Tracer, 5 inch, ivory handle . . . . .		1 35



## Superior Swiss Instruments—Continued.



### Advantages over all other Ruling Pens.

- 1—Simplicity of mechanical construction.
- 2—Slide-catch, as well as the adjusting screw, can be operated with the one hand holding pen.
- 3—No interference with adjusting screw in cleaning or sharpening.
- 4—Large center wheel set screw allows of quick adjustment of blades.
- 5—No hinge or lever to work loose.
- 6—Durability of Pen.

	Each
638 Slide-Catch Ruling Pen, 4 $\frac{1}{4}$ inch, ebony handle . . . . .	\$1 95
638 a. " " " " 5 " " " " . . . . .	2 10
638 b. " " " " 5 $\frac{1}{2}$ " " " " . . . . .	2 25
639. Swedish Detail Ruling Pen, for long lines, 5 inch . . . . .	1 50
639 a. " " " " " " " " 6 " . . . . .	1 65
639 b. " " " " " " " " 7 " . . . . .	1 80

## Improved Drawing Pens.

SUPERIOR QUALITY.



No. 640.

No. 640. Curve Pen, Improved . . . . . Each, \$2 00

By loosening the screw at the end of handle, the bar running through the hollow center acts as a pivot for the pen, which will follow any curve readily without blotting the edges of the curve ruler.

If the upper screw is fastened, it can be used as a drawing pen, and is useful for ruling into corners and for fine work.



No. 641.

No. 641. Railroad Pen, Improved, same construction as No. 640 . . . Each, \$5 00



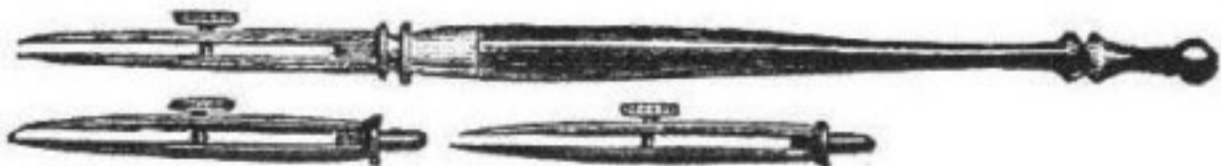
No. 642.

No. 642. Drawing Pen, Improved, without set screw . . . . . Each, \$1 75

This pen opens and closes by turning a thumb screw at the upper end of handle, making the screw through the blades unnecessary, and a displacement of the nibs sideways impossible; as there is neither an obstruction to the sight in working, this pen is preferable for fine work.

No. 643. Ruling Pen, with knife blade . . . . . Each, \$1 65

Convenient for ruling into corners or for drawing heavy and light lines without adjusting the screw, by pressing more or less of the beveled edge on the paper.



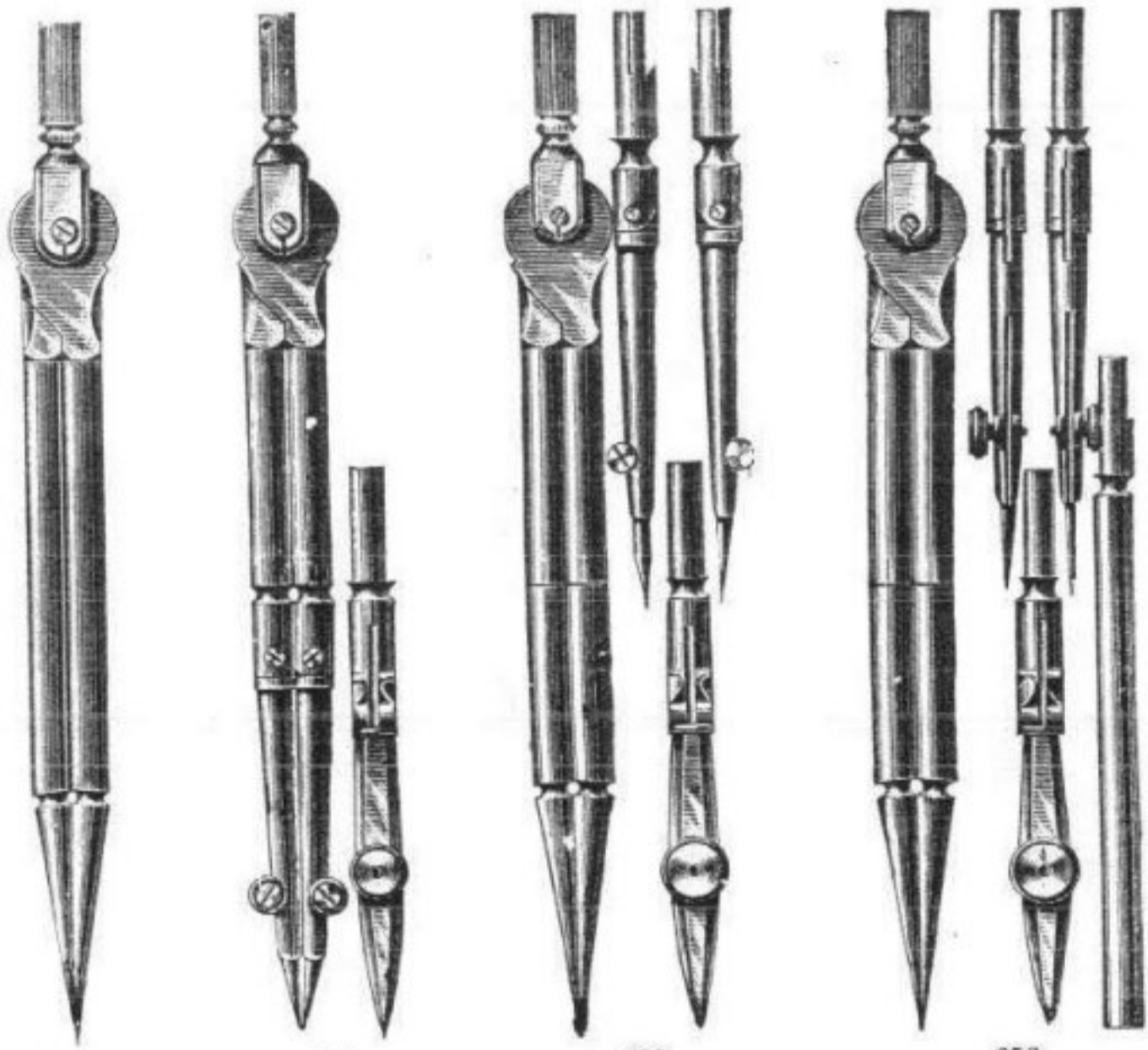
No. 643.

No. 644. Cluster Hatching Pen, extra fine, 8-inch, ebony handle, push screw, \$1 25

No. 645. Cluster Hatching Pen, extra fine, 6-inch, ebony handle, push screw, with 3 blades . . . . . 3 00

Riefler's Patent Instruments.

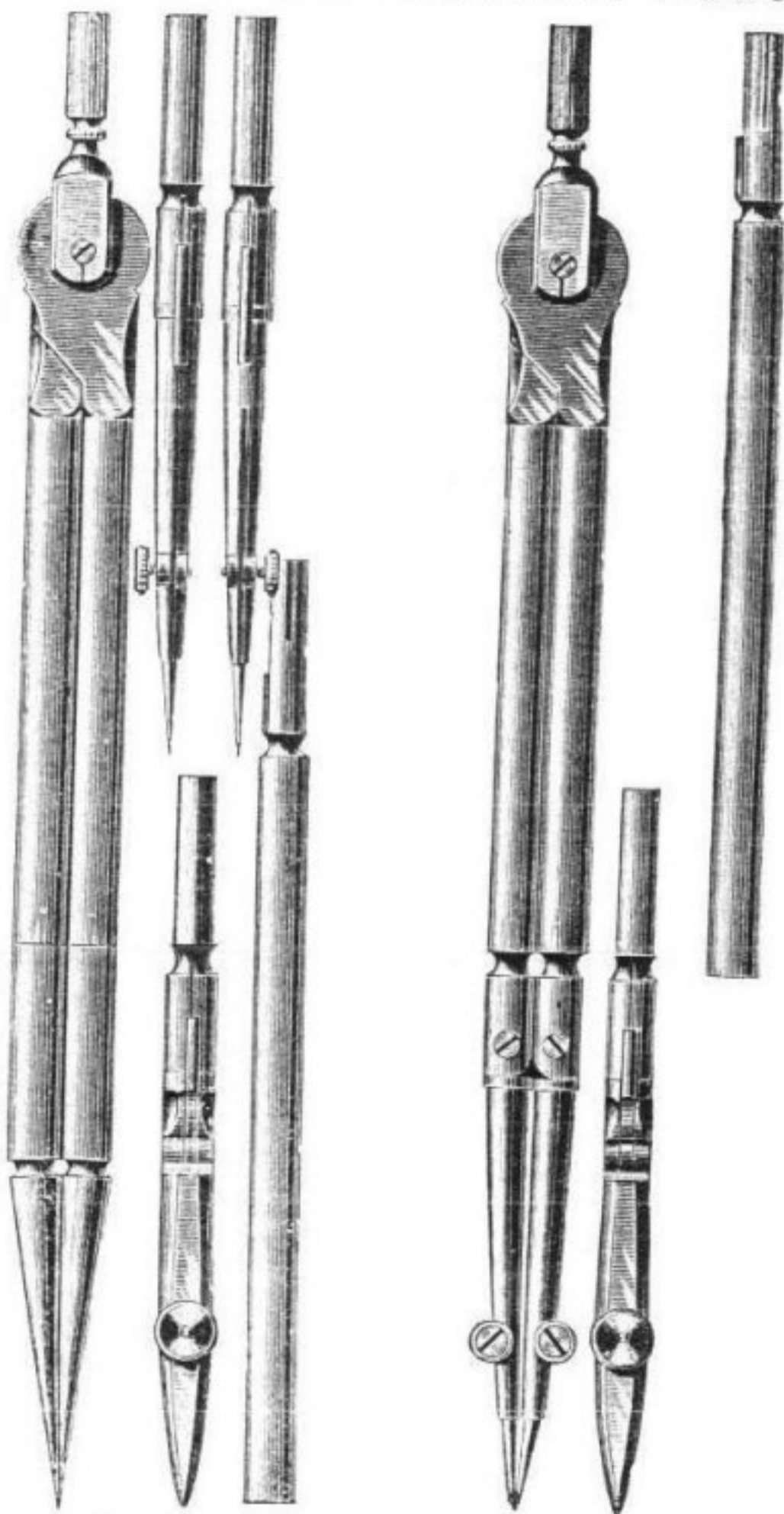
GERMAN SILVER INSTRUMENTS.



650                      654                      655                      656

No.											Each.	
650.	Divider,	3½	inches,	plain,	round	points	.	.	.	.	\$1 80	
651.	"	5	"	"	"	"	.	.	.	.	2 10	
652.	"	5½	"	"	"	"	.	.	.	.	2 40	
653.	Hair Divider,	5	inches	.	.	.	.	.	.	.	3 00	
654.	Divider,	3½	inches,	with	fixed	needle	points,	pen	and	pencil	parts	4 80
655.	"	3½	"	"	"	pen,	pencil	and	needle	point	parts	5 40
656.	"	3½	"	"	"	"	"	"	"	"	and	
	lengthening	bar	.	.	.	.	.	.	.	.	.	8 00

## Riefler's Patent German Silver Instruments.



No. 660.

No. 661.

- |   |              |
|---|--------------|
| No. 660. Divider, $5\frac{1}{2}$ inches, with pen, pencil and needle point parts and lengthening bar . . . . .    | Each, \$7 20 |
| No. 661. Divider, $5\frac{1}{2}$ inches, with pen, pencil parts, fixed needle point and lengthening bar . . . . . | Each, 6 30   |

## Superior Pivot Joint Instruments.

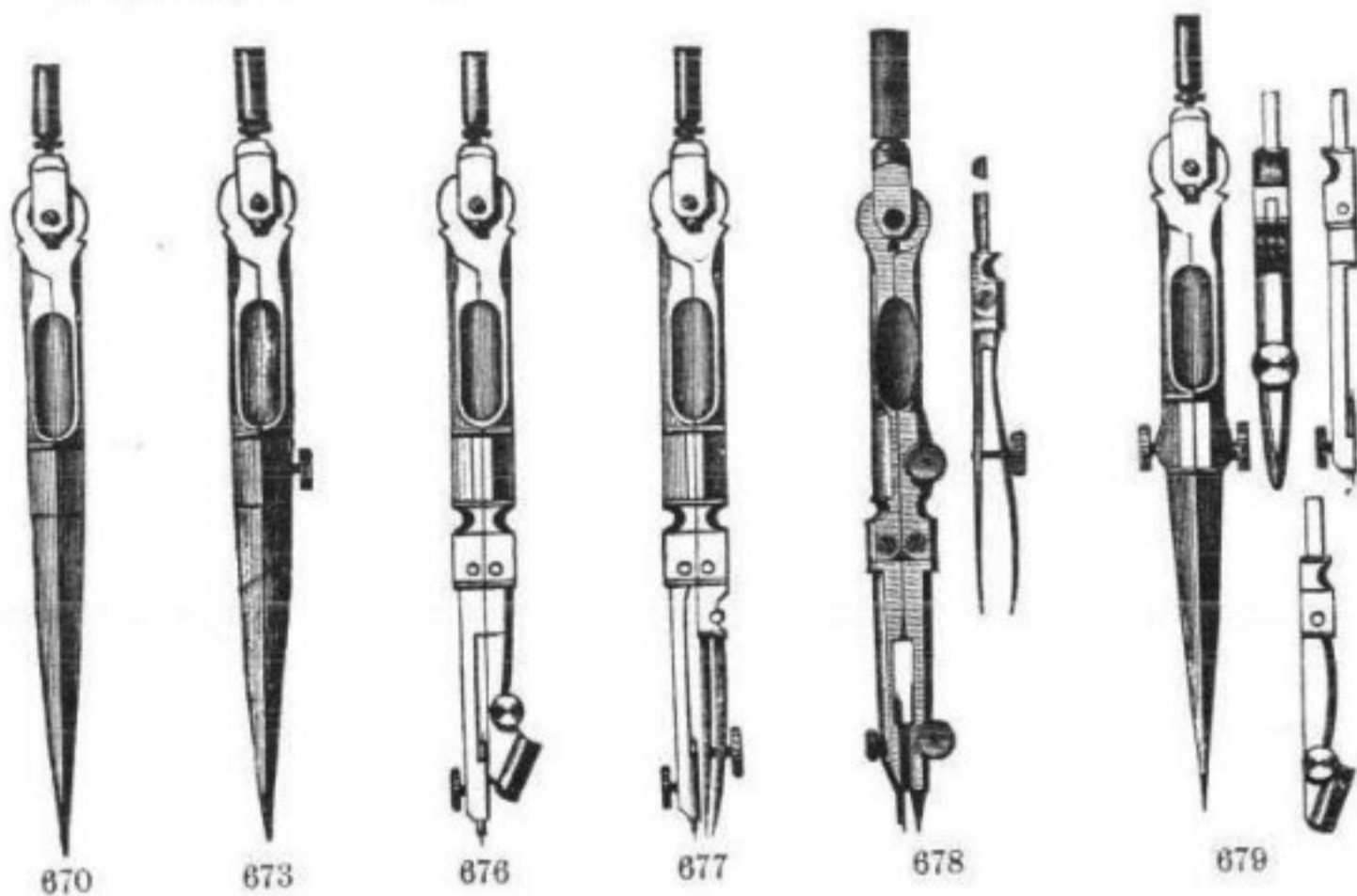
SWISS PATTERN, WITH PIVOT JOINT.

SUPERFINE QUALITY.

Made of selected German silver and best English steel.

The excellence of these instruments consists in the joints of the dividers, being so constructed as to prevent any irregular motion when the legs are opened or closed.

All pencil points arranged to hold Faber's Artist's Leads.

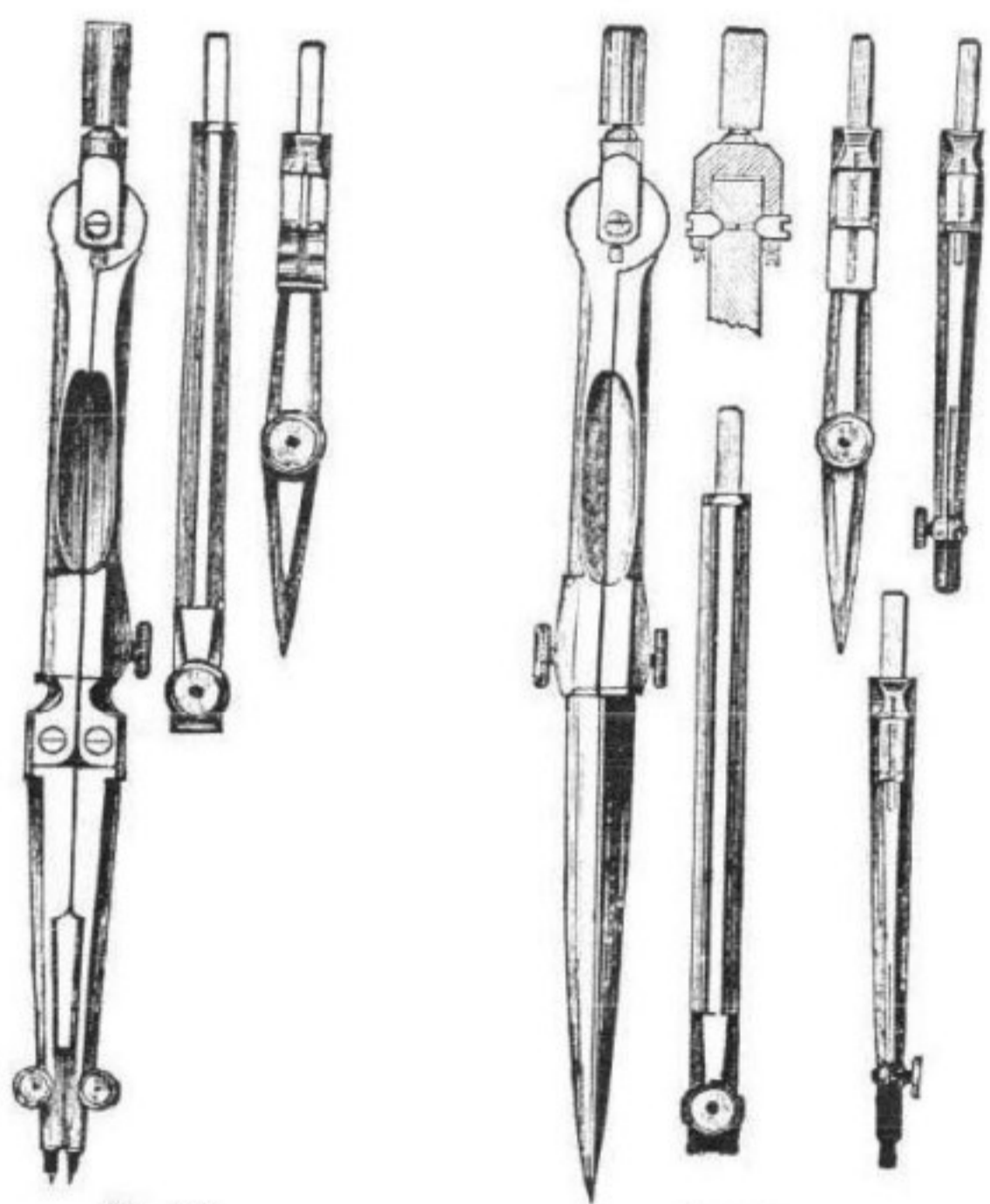


No.		Each.
670.	Plain Dividers, 3½ inches . . . . .	\$1 50
671.	" " 5 " . . . . .	1 75
672.	" " 6 " . . . . .	2 25
673.	Hair Spring Dividers, 3½ inches . . . . .	2 25
674.	" " " 5 " . . . . .	2 75
675.	" " " 6 " . . . . .	3 25
676.	Dividers, 3½ inches, with fixed needle and pencil point . . . . .	3 50
677.	" 3½ " " " " " pen " . . . . .	3 50
678.	" 3½ " " " " " point, pen and pencil point. . . . .	5 00
679.	" 3½ " with pen, pencil and needle point . . . . .	5 50

## Superior Pivot Joint Instruments—Continued.

SWISS PATTERN, WITH PIVOT JOINT.

SUPERFINE QUALITY.



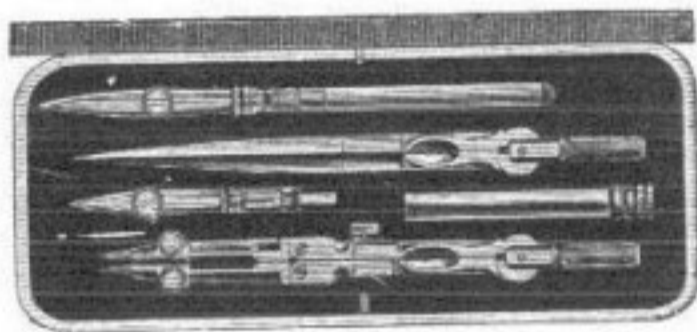
No. 680.

No. 681.

- |          |   |              |
|----------|---|--------------|
| No. 680. | Compasses, 6 inch, with fixed needle point, pen, pencil point and lengthening bar . . . . . | Each, \$6 00 |
| No. 681. | Compasses, 6 inch, with pen, pencil, needle point and lengthening bar . . . . .             | \$ 7 50      |

## Perfect Pivot Joint Instruments.

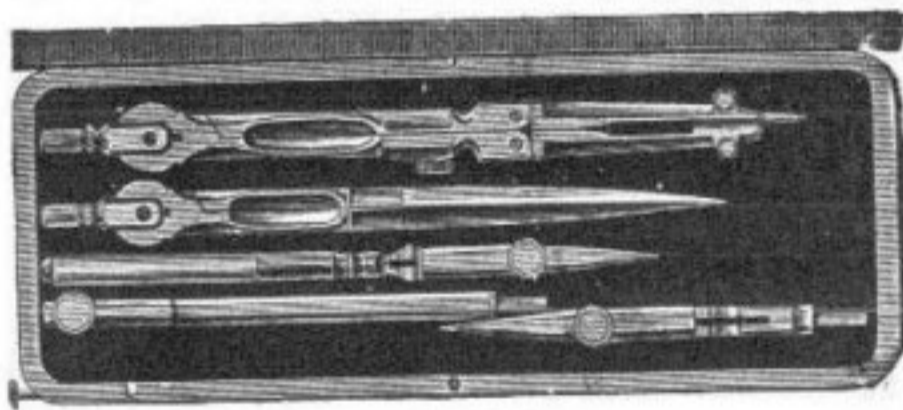
VERY BEST QUALITY. IN MOROCCO POCKET CASES.



No. 690.

No. 690. Morocco Case, containing—

- 1 pair Perfect Joint Dividers,  $3\frac{1}{2}$  inches long, with fixed needle point, pen and pencil point.
- 1 pair Plain Dividers, perfect joint,  $3\frac{1}{2}$  inches.
- 1 Drawing Pen,  $4\frac{1}{2}$  inches.
- 1 Box Leads . . . . . \$8 00

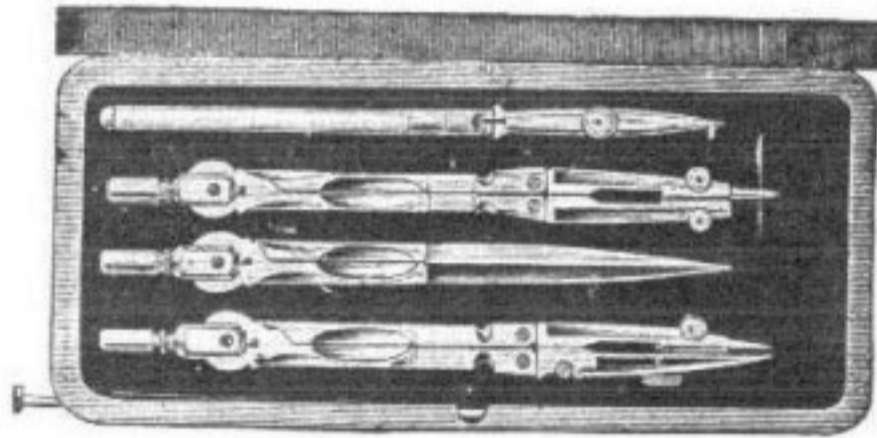


No. 691.

No. 691. Morocco Case, containing—

- 1 pair Perfect Joint Dividers, 8 inches long, with pen, pencil point and lengthening bar.
- 1 pair Perfect Joint Plain Dividers, 5 inches long.
- 1 Drawing Pen,  $5\frac{1}{2}$  inches.
- 1 Box Leads . . . . . \$9 50

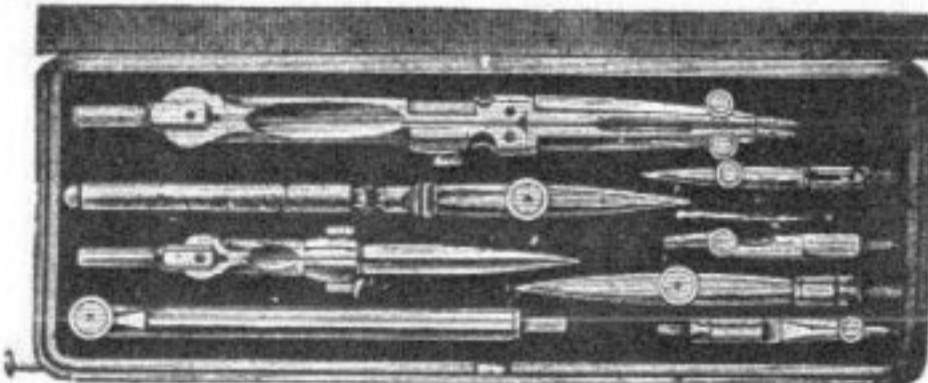
## Perfect Pivot Joint Instruments—Continued.



No. 692.

No. 692. Morocco Case, containing—

- 1 pair Perfect Joint Needle Point Dividers,  $3\frac{1}{2}$  inches long, with pencil point.
- 1 pair Perfect Joint Needle Point Dividers,  $3\frac{1}{2}$  inches long, with pen point.
- 1 pair Perfect Joint Plain Dividers,  $3\frac{1}{2}$  inches.
- 1 Drawing Pen.
- 1 Box Leads . . . . . \$10 50



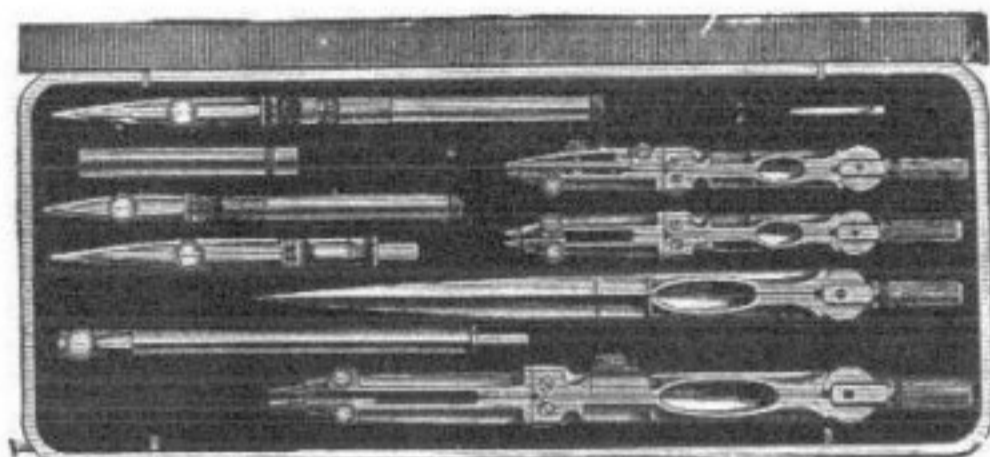
No. 693.

No. 693. Morocco Case, containing—

- 1 pair Perfect Joint Dividers,  $3\frac{1}{2}$  inches long, with pen, pencil and needle point.
- 1 pair Perfect Joint Dividers, 6 inches long, with pen and pencil point and lengthening bar.
- 1 Drawing Pen,  $5\frac{1}{2}$  inches.
- 1 Box Leads . . . . . \$13 00



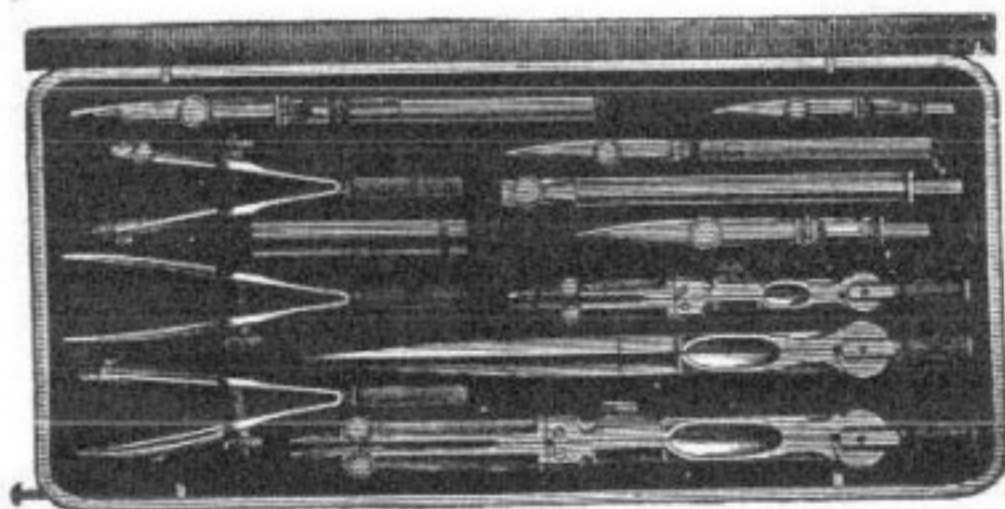
Perfect Pivot Joint Instruments—Continued.



No. 694.

No. 694. Morocco Case, containing—

- 1 pair Perfect Joint Needle Point Dividers, 3½ inches, with pencil point.
- 1 pair Perfect Joint Needle Point Dividers, 3½ inches, with pen point.
- 1 pair Perfect Joint Dividers, 6 inches long, with pen and pencil point and lengthening bar.
- 1 pair Perfect Joint Plain Dividers, 5 inches.
- 1 Drawing Pen, 4½ inches.
- 1 Drawing Pen, 5½ inches.
- 1 Box Leads . . . . . \$18 00

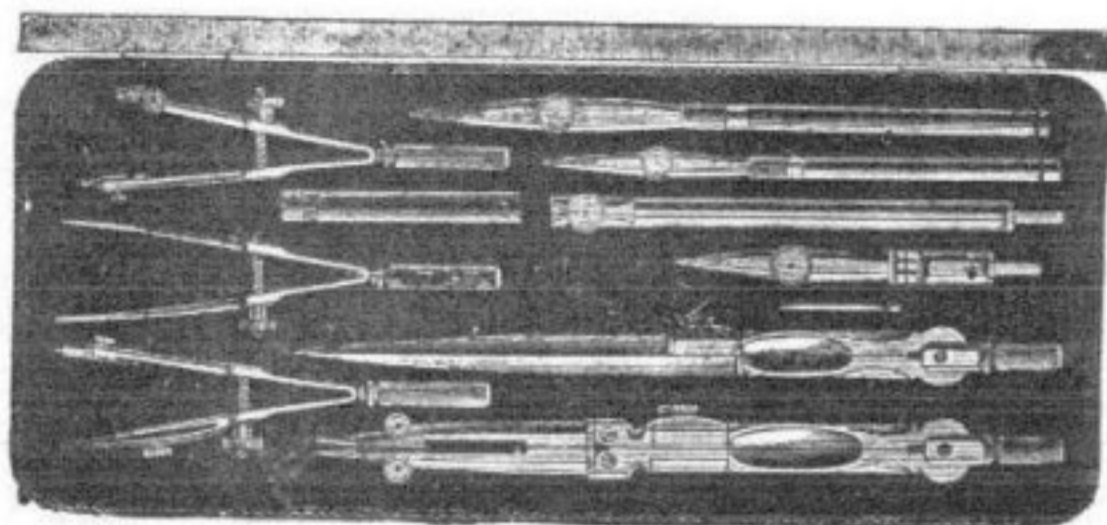


No. 695.

No. 695. Morocco Case, containing—

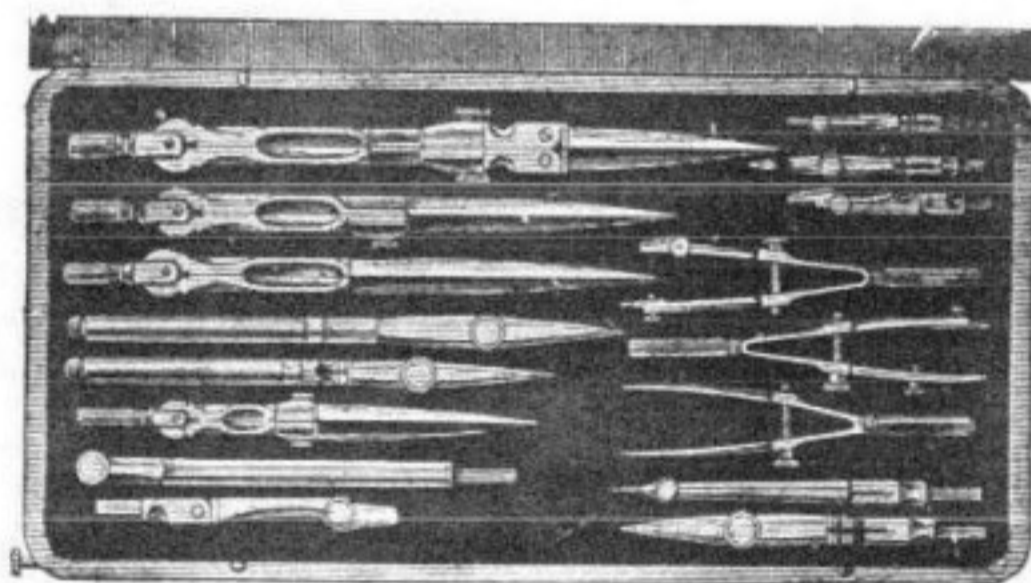
- 1 pair Perfect Joint Dividers, 6 inches long, with pen and pencil points and lengthening bar.
- 1 pair Perfect Joint Dividers, 3½ inches long, with fixed needle point and pen and pencil.
- 1 pair Perfect Joint Plain Dividers, 5 inches long.
- 1 Steel Spacing Dividers, 3 inches.
- 1 Steel Bow Pen, 3 inches.
- 1 Steel Bow Pencil, 3 inches.
- 1 Drawing Pen, 4½ inches.
- 1 Drawing Pen, 5½ inches.
- 1 Box Leads . . . . . \$18 50

## Perfect Pivot Joint Instruments—Continued.



No. 696.

- No. 696. Morocco Case, containing—
- 1 pair Perfect Joint Dividers, 6 inches long, with pen and pencil point and lengthening bar.
  - 1 pair Perfect Joint Hair-Spring Dividers, 6 inches long.
  - 1 Steel Spacing Divider, 3 inches.
  - 1 Steel Bow Pen, 3 inches, needle point.
  - 1 Steel Bow Pencil, 3 inches, needle point.
  - 1 Drawing Pen, 5½ inches.
  - 1 Drawing Pen, 4½ inches.
  - 1 Box Leads . . . . . \$14 50



No. 697.

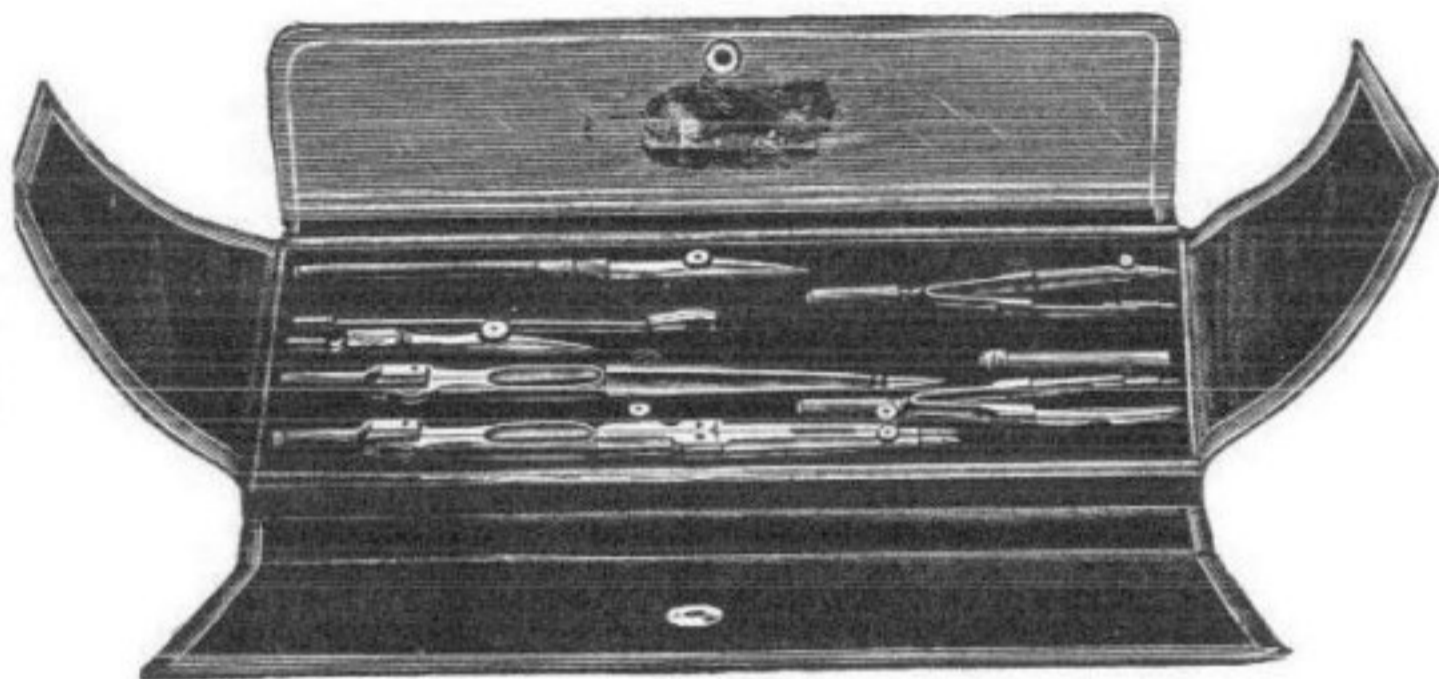
- No. 697. Morocco Case, containing—
- 1 pair Perfect Joint Dividers, 6 inches long, with pen, pencil, needle points and lengthening bar.
  - 1 pair Perfect Joint Dividers, 3½ inches long, with pen, pencil and needle point.
  - 1 pair Perfect Joint Hair-Spring Dividers, 6 inches long.
  - 1 pair Perfect Joint Plain Dividers, 5 inches long.
  - 1 Steel Spacing Divider, 3 inches.
  - 1 Steel Bow Pen, 3 inches, needle point.
  - 1 Steel Bow pencil, 3 inches, needle point.
  - 1 Drawing Pen, 4½ inches.
  - 1 Drawing Pen, 5½ inches.
  - 1 Box Leads . . . . . \$20 00

## Perfect Pivot Joint Instruments - Continued.

BEST SWISS MAKE.

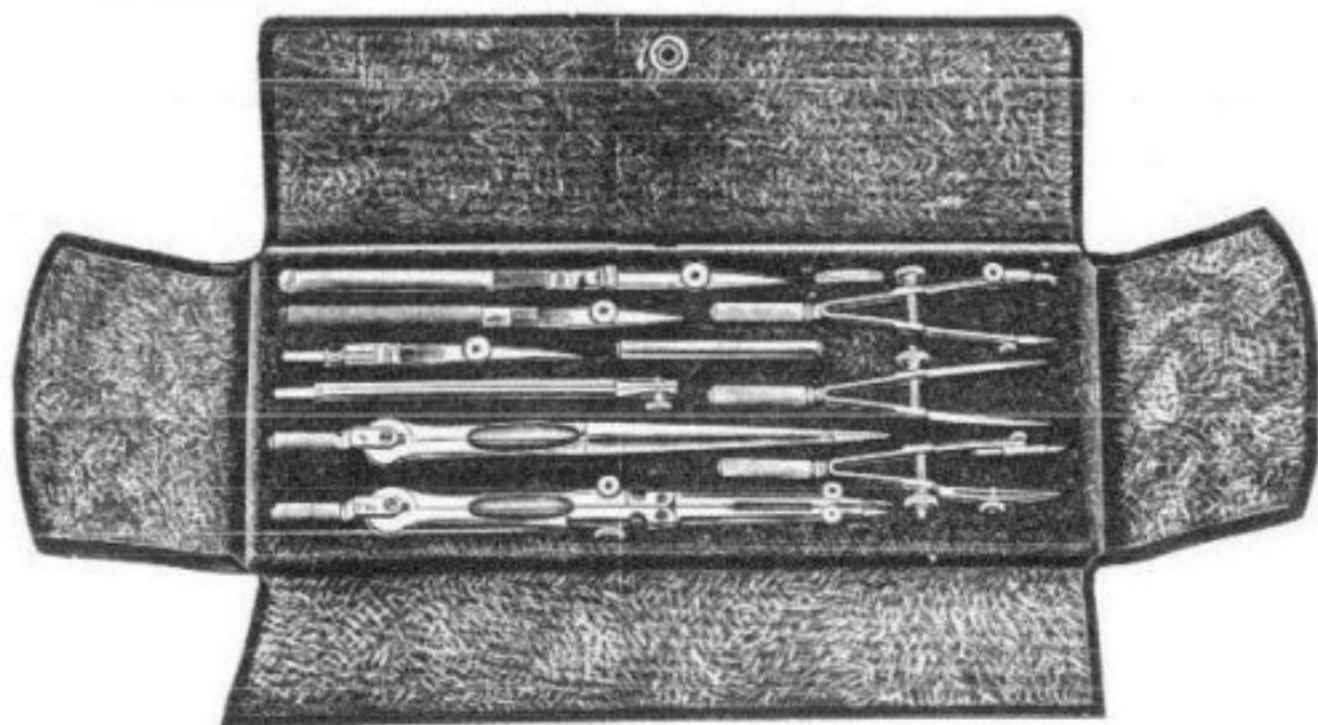
IN POCKET BOOK STYLE CASES, LINED WITH SILK VELVET.

THE HIGHEST GRADE OF INSTRUMENTS.



No. 698.

No. 698. Containing Ruling Pen,  $5\frac{1}{2}$  inches, with spring and ebony handle; Steel Spring Bow Pencil,  $3\frac{1}{2}$  inches, metal handle; Steel Spring Bow Pen,  $3\frac{1}{2}$  inches, metal handle; Hair-spring Divider, 6 inches, pivot joint; Compasses, 6 inches, with fixed needle point, pencil and pen points, and lengthening bar, pivot joint; Box with Leads. Complete, each . \$21 00



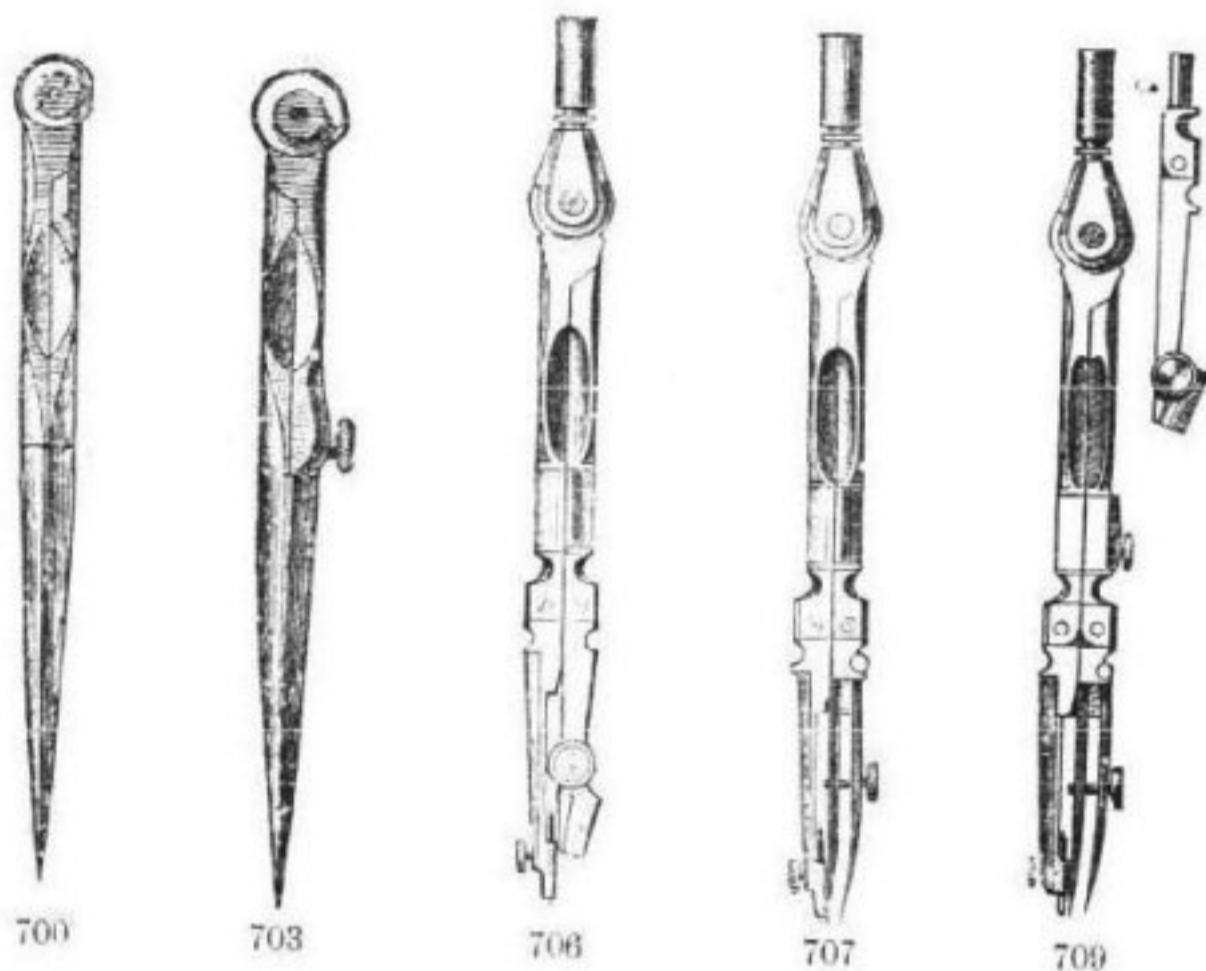
No. 699.

No. 699. Containing 1 Ruling Pen,  $4\frac{1}{4}$  inches, with spring and ebony handle; 1 Ruling Pen,  $5\frac{1}{2}$  inches, with pen and joint and ivory handle; 1 Steel Spring Bow Divider,  $3\frac{1}{2}$  inches, metal handle; 1 Steel Spring Bow Pencil,  $3\frac{1}{2}$  inches, metal handle; 1 Steel Spring Bow Pen,  $3\frac{1}{2}$  inches, metal handle; 1 Hair-spring Divider, 6-inch *pivot joint*; 1 Compass, 6 inches, with fixed needle point, pencil and pen points, and lengthening bar, *pivot joint*; 1 Box with Leads. Complete, each . . . . . \$24 00

## Extra Fine German Instruments.

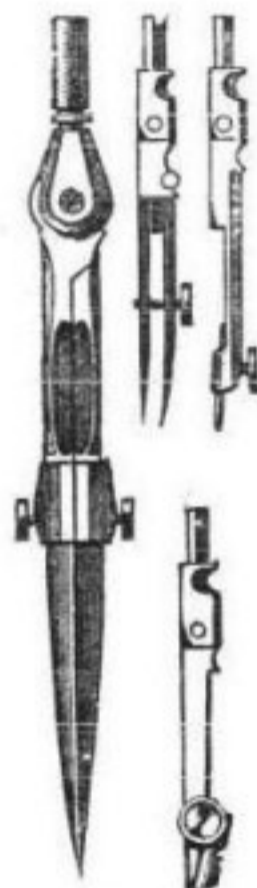
MADE OF SUPERIOR GERMAN SILVER AND STEEL.

All Pencil Points are arranged to hold Faber's Leads.

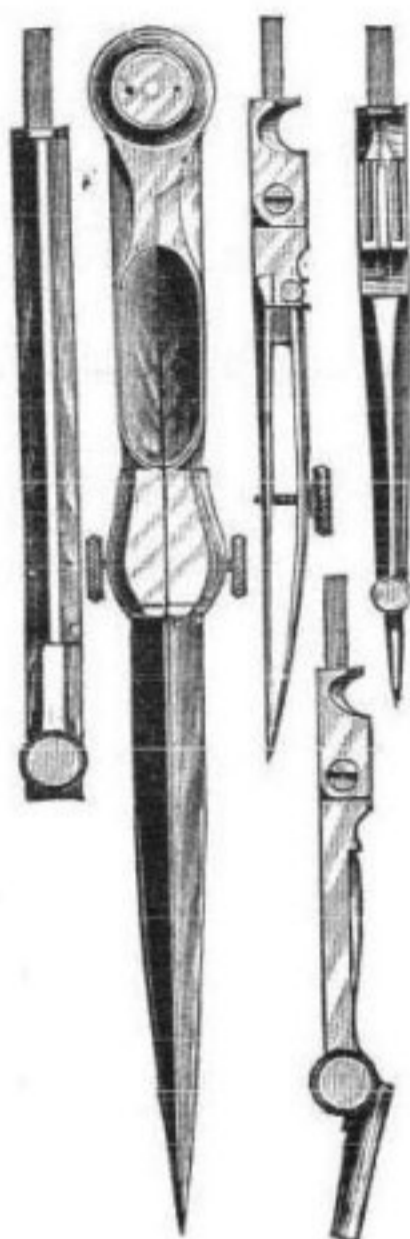


No.		Each
700.	Dividers, 4 inches . . . . .	\$ 90
701.	" 5 " . . . . .	1 00
702.	" 6 " . . . . .	1 10
703.	Hair-spring Dividers, 4 inches. . . . .	1 75
704.	" " 5 " . . . . .	1 90
705.	" " 6 " . . . . .	2 10
706.	Bow Pen Pencil, 3 1/2 inches, with handle and fixed needle point. . . . .	2 20
707.	" " " 3 1/2 " " " " " " " " " " . . . . .	2 20
708.	" Dividers, 3 1/2 inches with handle . . . . .	1 00
709.	" Compass, 3 1/2 " " " " pen, pencil and fixed needle point. . . . .	2 65

## Extra Fine German Instruments—Continued.

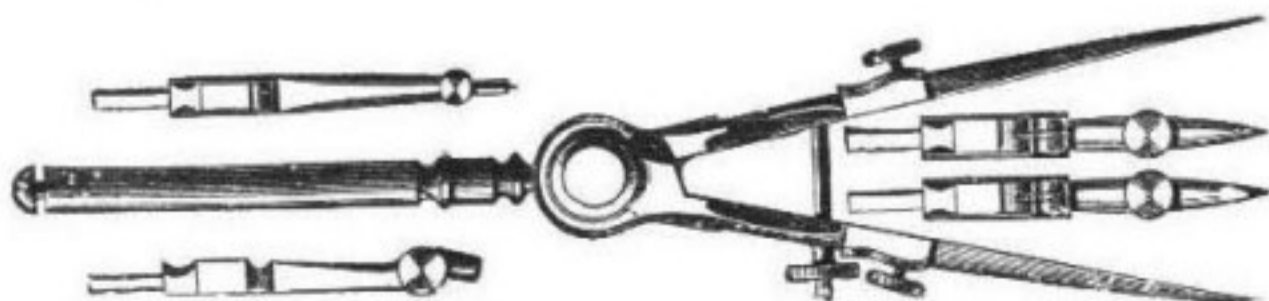


No. 712.



No. 713.

No.		Each
712.	Bow Compasses, $3\frac{1}{2}$ inches, with handle, pen, pencil, needle and divider points . . . . .	\$3 00
713.	Compasses, $5\frac{1}{2}$ inches, with pen, pencil, lengthening bar, needle and divider points . . . . .	4 00
714.	Compasses, $5\frac{3}{4}$ inches, with joints in each leg, pen pencil, needle point and lengthening bar . . . . .	5 50



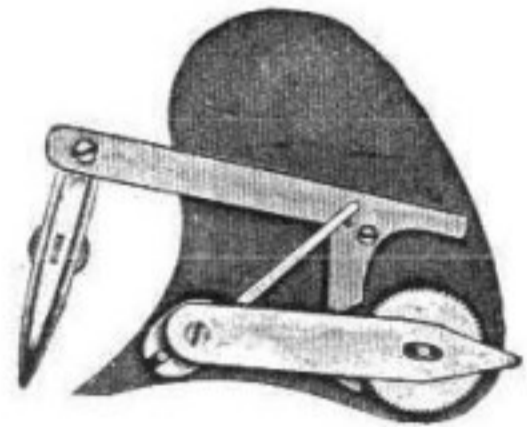
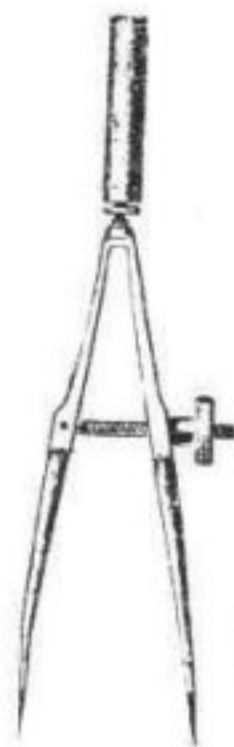
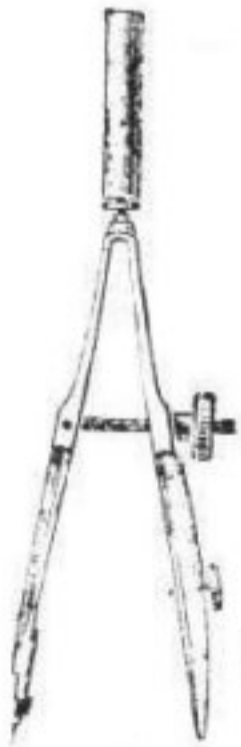
No. 715.

No.		Each
715.	Spring Bow Compasses, with detachable long ivory handle, two pen points, pencil, needle and divider points . . . . .	\$4 75

## Extra Fine German Instruments—Continued.

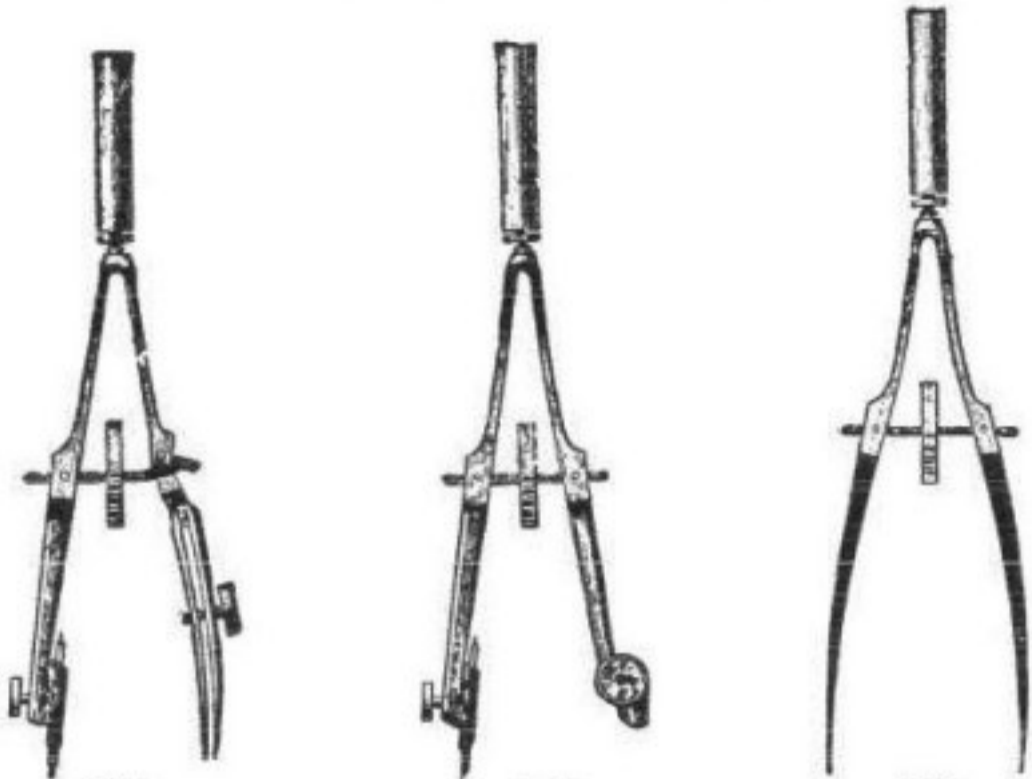


	No. 720.		No. 721.		
No.	720.	Steel Spring Bow Pen,	3 1/2 inches, needle point, white handle.	No. 722.	Each
	721.	" " Pencil,	" " " "		\$1 25
	722.	" " Divider,	3 1/2 " round " "		1 00
	723.	One set in case.			4 00



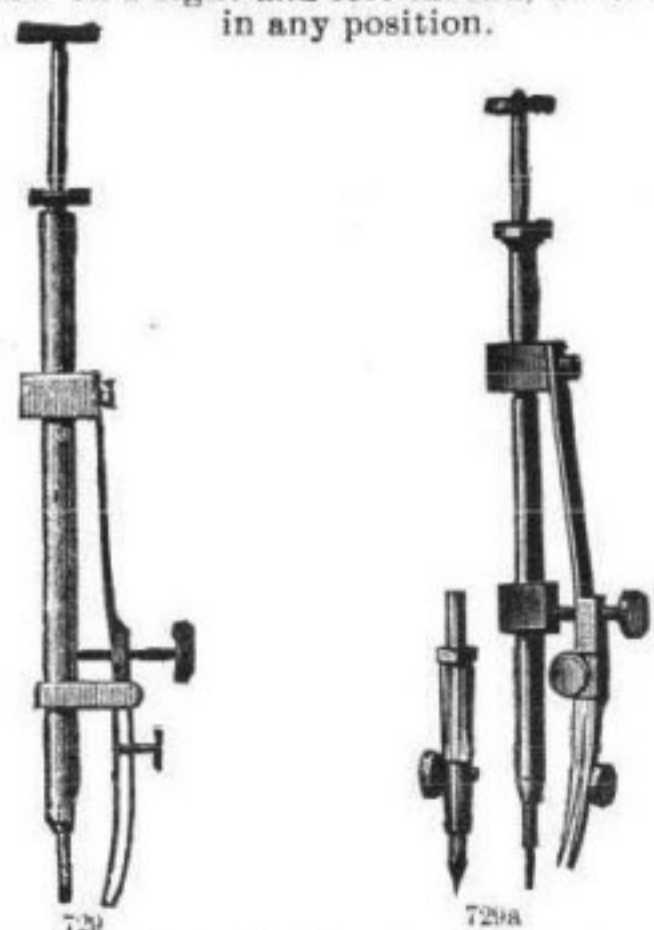
	724		725		
No.	724.	Steel Spring Bow Pen,	3 1/2 inches, needle point, metal handle.	No.	728.
	725.	" " Pencil,	" " " "		Each
	726.	" " Divider,	3 1/2 " round " "		\$1 50
	727.	One set in case.			1 00
	728.	Dotting Pen, with six Wheels, in case.			5 00
					3 75

## Extra Fine German Instruments—Continued.



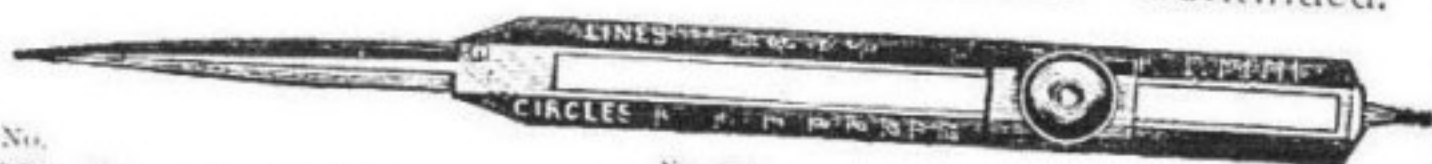
No.	724a	725a	726a	Each
724a.	Steel Spring Bow Pen, 3½ inches, metal handle . . . . .			\$2 25
725a.	" " " Pencil 3½ " " " " . . . . .			2 25
726a.	" " " Dividers, 3½ inches, metal handle . . . . .			1 75
727a.	" " Bows, 3 in set, in morocco case lined with velvet . . . . .			5 50

These Bows have a screw on a right and left thread, which holds the points firmly in any position.



No.	729	729a	Each	
729.	Bow Pen, adjustable pivot center . . . . .		\$ 3 00	
729a.	" " " " " with pencil point . . . . .		3 50	
729½.	Dividers 7 inches long, for engravers, with two steel points, pen and pencil points, and micrometer adjustment for regulating spaces, and wrench (all packed in neat case) . . . . .			12 50

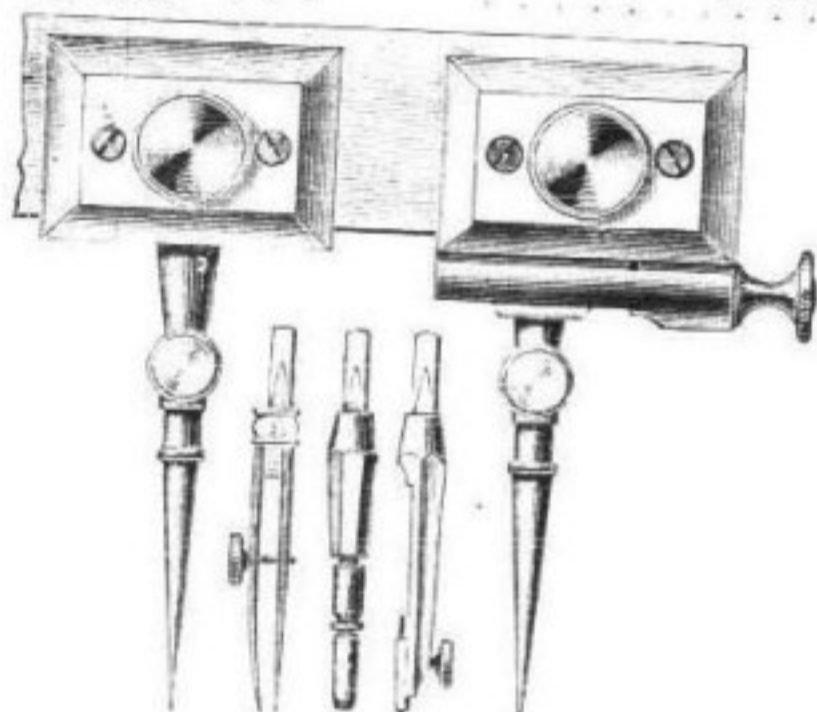
## Extra Fine German Instruments—Continued.



- |      |   |          |              |
|------|---|----------|--------------|
| No.  |   | No. 730. |              |
| 730. | Proportional Dividers, 7 inches, graduated for lines and circles, in leather case |          | Each \$ 7 00 |
| 731. | Proportional Dividers, 8 inches, graduated for lines and circles, in leather case |          | 8 00         |



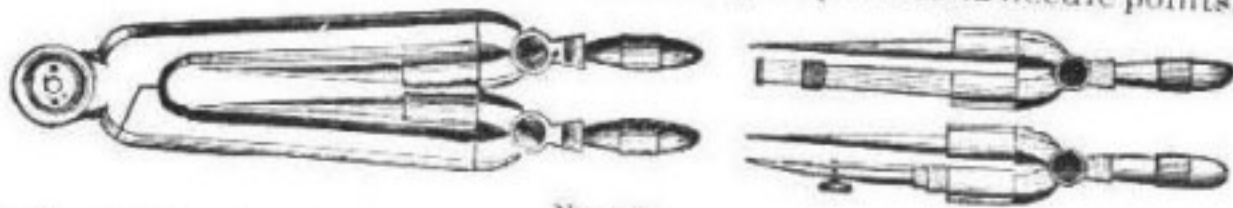
- |      |   |          |         |
|------|---|----------|---------|
| No.  |   | No. 732. |         |
| 732. | Proportional Dividers, 8 inches, with rack movements for lines, circles, solids and planes, in case |          | \$10 00 |
| 733. | Proportional Dividers, 9 inches, with micrometer adjustment for lines and circles, in case          |          | 11 00   |



- |      |  |          |              |
|------|--|----------|--------------|
| No.  |  | No. 734. |              |
| 734. | Beam Compasses, to fit a straight edge or bar, with pen, pencil, needle and round points |          | Each \$ 6 50 |
| 735. | Morocco Case for same  |          | 1 00         |



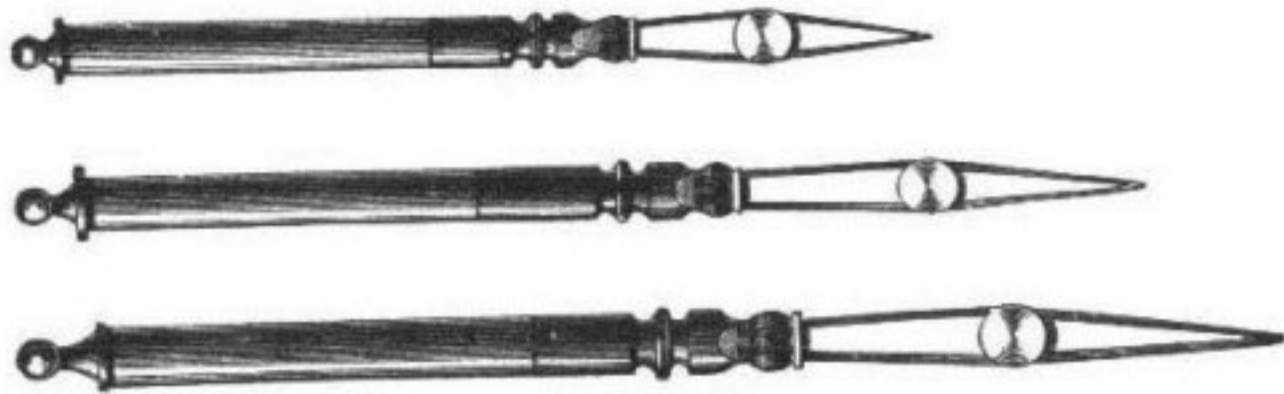
- |      |  |          |             |
|------|--|----------|-------------|
| No.  |  | No. 736. |             |
| 736. | Pocket Folding Compasses, with reversible pen, pencil and needle points, |          | Each \$5 50 |



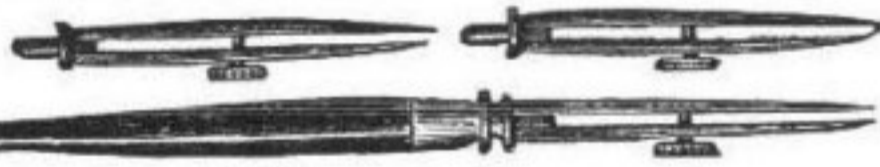
- |      |   |          |             |
|------|---|----------|-------------|
| No.  |   | No. 737. |             |
| 737. | Pocket Pillar Compasses, with handles, pen and pencil points, to draw out, and can be used as small bow instruments |          | Each \$8 00 |



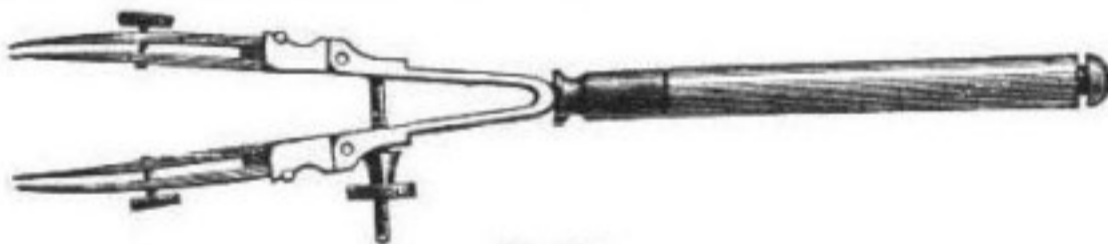
Extra Fine German Instruments—Continued.



No.	Nos. 740 to 743.		Each
740.	Drawing Pen,	4 $\frac{1}{2}$ inches long, with joints and needle point . . . . .	\$1 00
741.	" "	5 $\frac{1}{2}$ " " " " " " " " . . . . .	1 25
742.	" "	6 $\frac{1}{2}$ " " " " " " " " . . . . .	1 50
743.	Ruling Pen, German silver blades, for colored inks, with hinge, white handle, 5 inches . . . . .		1 12



No.	No. 750		Each
750.	Cluster Hatching Pen, 6 inches, ivory handle, 3 blades, pushing screws, in leather case . . . . .		\$2 25
751.	Cluster Hatching Pen, 6 inches, ebony handle, 3 blades, pushing screws, in leather case . . . . .		1 75
752.	Cluster Hatching Pen, 6 inches, ebony handle, pushing screw . . . . .		85



No.	No. 753.		Each
753.	Railroad Pen, 5 $\frac{1}{2}$ inches, white handle . . . . .		\$2 75

English Instruments.



Nos. 754 to 756.

The square handle prevents the pen from rolling off the drawing table.

No.			Each
754.	Ruling Pen, with hinge, square ivory handle, 6 $\frac{1}{2}$ inches . . . . .		\$2 25
755.	" " " " " " " " 5 $\frac{1}{2}$ " . . . . .		2 00
756.	" " " " " " " " 4 $\frac{1}{2}$ " . . . . .		1 75

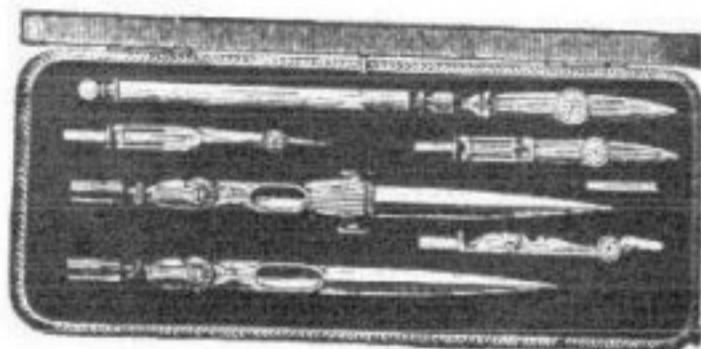
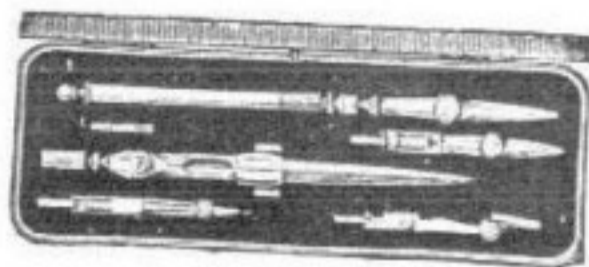


Nos. 757 to 759.

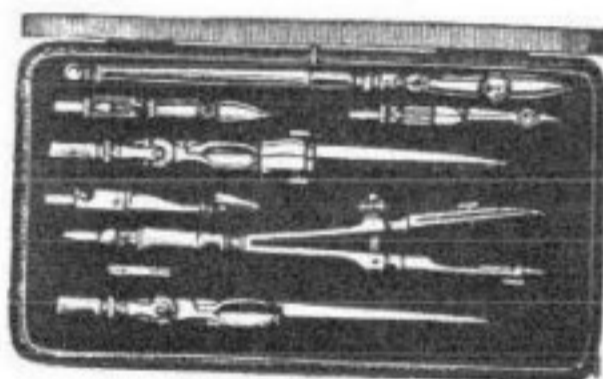
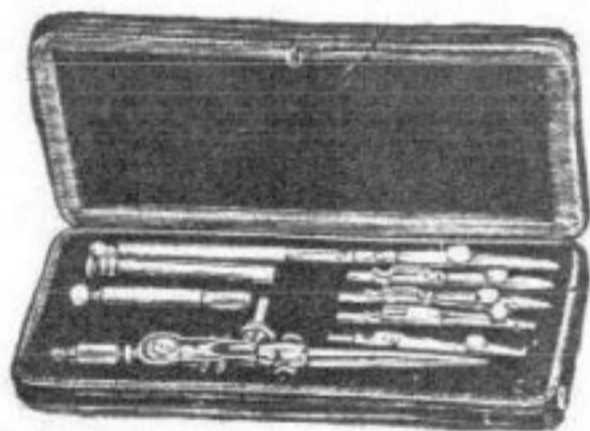
No.			Each
757.	Ruling Pen, with hinge, ivory handle, 6 $\frac{1}{2}$ inches . . . . .		\$2 00
758.	" " " " " " " " 5 $\frac{1}{2}$ " . . . . .		1 75
759.	" " " " " " " " 4 $\frac{1}{2}$ " . . . . .		1 50

## Extra Fine German Instruments—Continued.

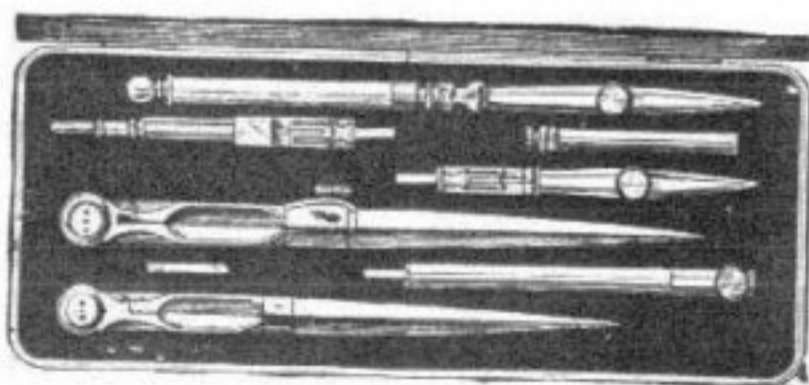
IN POCKET MOROCCO CASES.



- | No.  | 810   | 811 | Each   |
|------|---|-----|--------|
| 810. | Contents: 3 $\frac{1}{2}$ -inch Bow Compasses with handle, pen, pencil and needle points; 4-inch Ruling Pen, Lead Case and Key . . . . .  |     | \$4 50 |
| 811. | Contents: 3 $\frac{1}{2}$ -inch Bow Compasses with handle, pen, pencil and needle points; 3 $\frac{1}{2}$ -inch Dividers, with handle; 4-inch Ruling Pen, Lead Case and Key . . . . . |     | 5 00   |
| 812. | Contents: 3 $\frac{1}{2}$ -inch Bow Compasses with handle, pen pencil and needle point; 3-inch Spring Bow Pen, needle point; 4-inch Ruling Pen, Pin, Lead Case and Key . . . . .      |     | 6 00   |



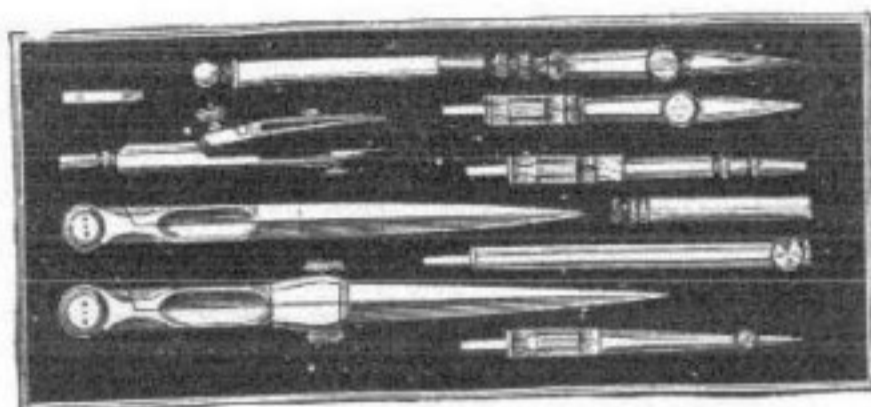
- | No.  | 813  | 814 | Each   |
|------|--|-----|--------|
| 813. | Contents: 3 $\frac{1}{2}$ -inch Spring Bow Compasses, with long detachable white handle; 2 Pen Points, Pencil and Needle Points; 4-inch Ruling Pen, Lead Case and Key . . . . .                                  |     | \$6 00 |
| 814. | Contents: 3 $\frac{1}{2}$ -inch Bow Compasses with handle, pen, pencil and needle point; 3 $\frac{1}{2}$ -inch Dividers with handle; 3-inch Steel Spring Bow Pen; 4-inch Ruling Pen, Lead Case and Key . . . . . |     | 7 00   |



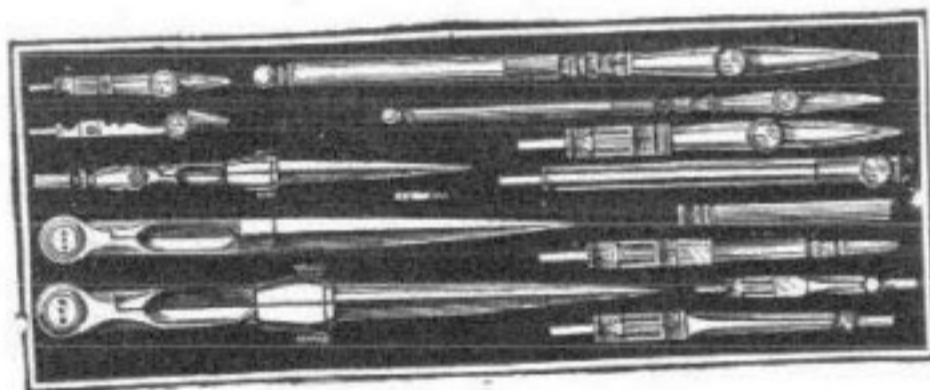
- | No.  | 815  | Each   |
|------|--|--------|
| 815. | Contents: 5 $\frac{1}{2}$ -in. Compasses, with pen, pencil, needle points and lengthening bar; 5 $\frac{1}{2}$ -in. Ruling Pen with Hinge and Pin, Lead Case and Key . . . . .                   | \$6 00 |
| 816. | Contents: 5 $\frac{1}{2}$ -in. Compasses with pen, pencil, needle points and lengthening bar; 5-inch Dividers; 5 $\frac{1}{2}$ -inch Ruling Pen, with Hinge and Pin, Lead Case and Key . . . . . | 7 00   |

# Extra Fine German Instruments—Continued.

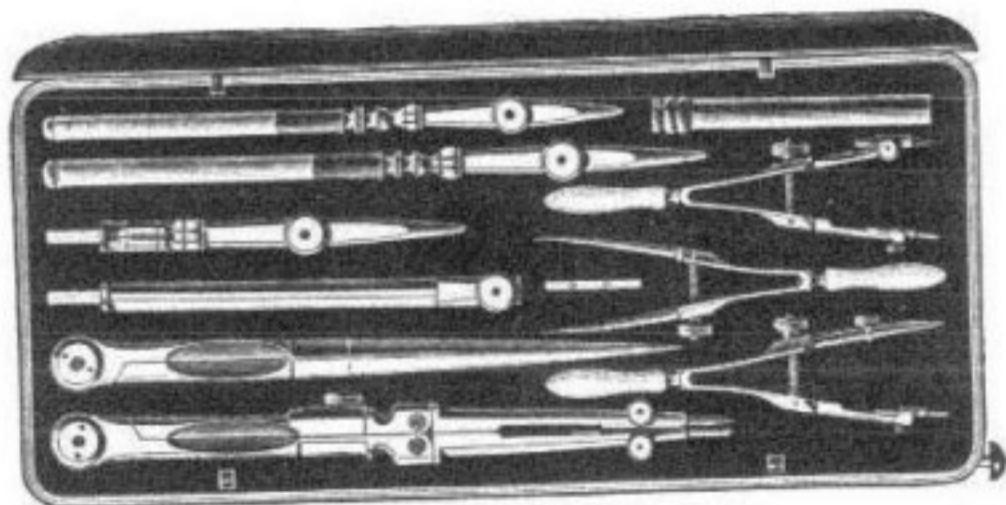
IN POCKET MOROCCO CASES.



- No. 820. Contents: 5½-inch Compasses with pen, pencil, needle points and lengthening bar; 5-inch Dividers; 3-inch Steel Spring Bow Pen, 5½-in. Ruling Pen with Hinge and Pin, Lead Case and Key . . . . . Each \$8 00



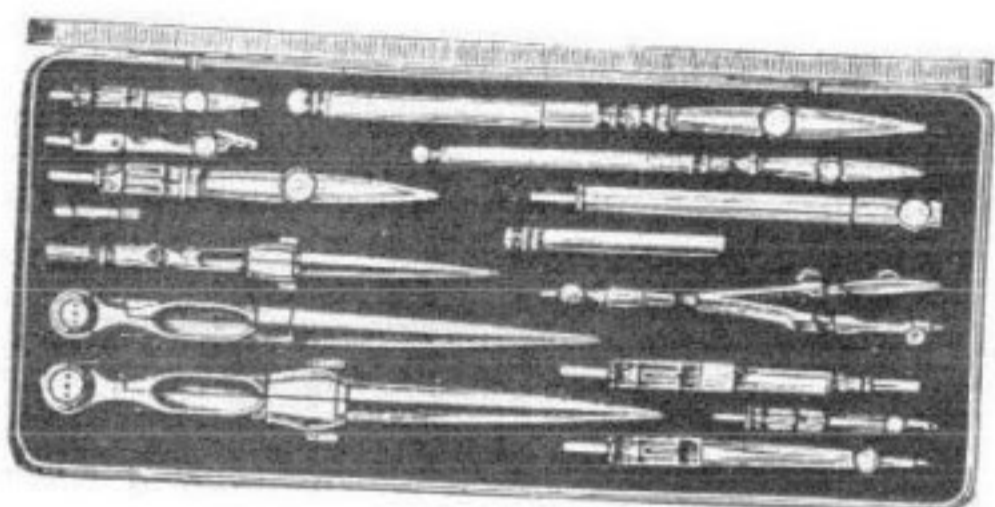
- No. 821. Contents: 5½-inch Compasses with pen, pencil, needle points and lengthening bar; 5-inch Dividers; 3½-inch Bow Compasses with pen, pencil and needle points; 5½-inch Ruling Pen with hinge and pin; 4-inch Ruling Pen, Lead Case and Key . . . . . Each \$11 00



- No. 822. Contents: 5½-inch Compasses with pen, pencil, needle points and lengthening bar; 5-inch Dividers; 3-inch Spring Bow Pen; 3-inch Spring Bow Pencil; 3-inch Spring Bow Dividers; 5½-inch Ruling Pen with hinge and pin; 4-inch Ruling Pen, Lead Case and Key . . . . . Each \$12 00

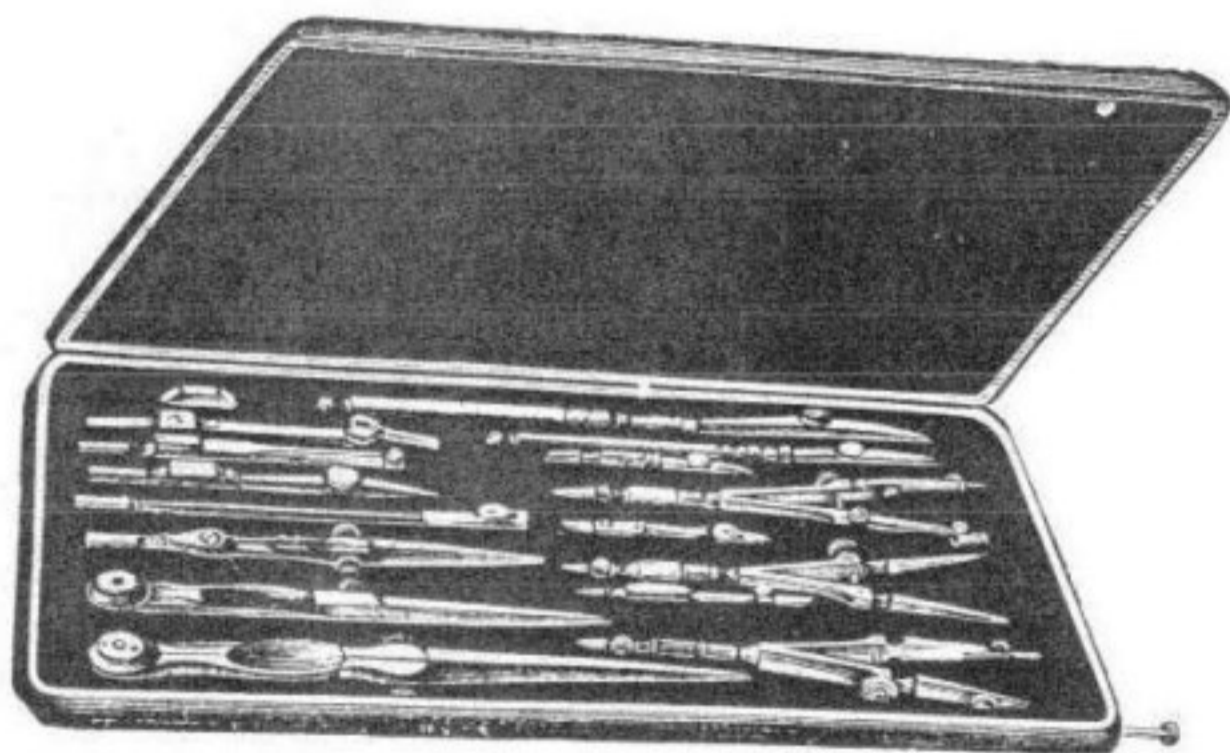
## Extra Fine German Instruments - Continued.

IN POCKET MOROCCO CASES.



No. 825.

No. 825. Contents: 5½-inch Compasses, with pen, pencil, needle points and lengthening bar; 5-inch Dividers; 3½-inch Bow Compasses, with pen, pencil and needle points; 3-inch Steel Spring Bow Pen; 5½-inch Ruling Pen, with hinge and pin; 4-inch Ruling Pen; Lead Case and Key . . . . . \$13 50



No. 826.

No. 826. Contents: 5½-inch Compasses, with pen, pencil, needle points and lengthening bar; 5-inch Plain Dividers; 3½-inch Bow Compasses, with pen, pencil and needle points; 3-inch Steel Spring Bow Pen; 3-inch Spring Bow Pencil; 3-inch Spring Bow Dividers; 5½-inch Ruling Pen, with hinge and pin; 4-inch Ruling Pen; Lead Case and Key . . . . . \$15 00

# Extra Fine German Drawing Instruments.

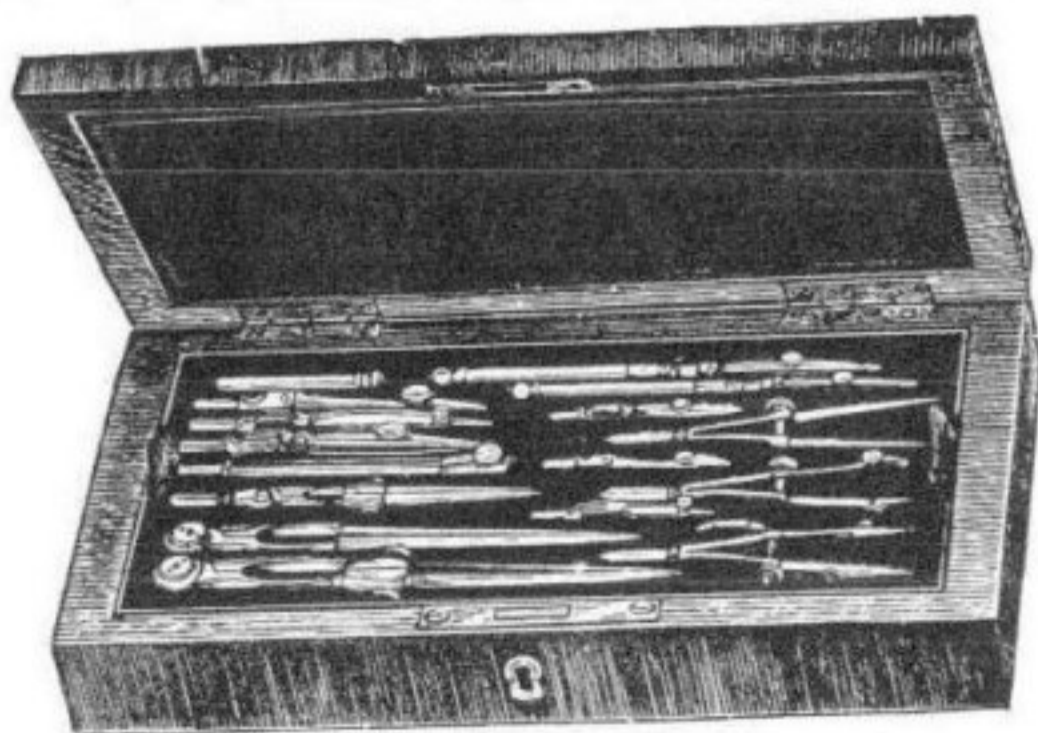
POLISHED WALNUT CASES.

No. 830.



No. 830. Polished Walnut Case, with tray, lock and key. Each  
 Contents: 5½-inch Compasses, with pen, pencil, needle points and lengthening bar;  
 5-inch Dividers; 3½-inch Bow Compasses, with pen, pencil and needle points; 3-inch  
 Steel Spring Bow Pen; 5½-inch Ruling Pen, with hinge and pin; 4-inch Ruling Pen;  
 Lead Case; Key; 6-inch Ivory Scale . . . . . \$16 50

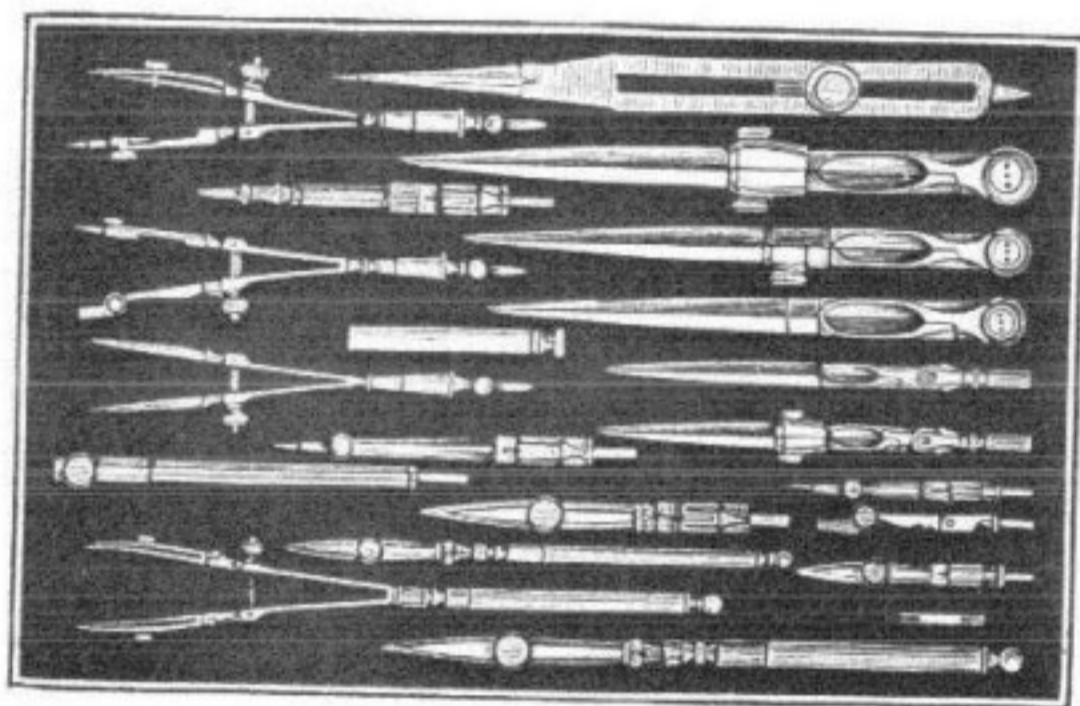
No. 831.



No. 831. Polished Walnut Case, with tray, lock and key. Each  
 Contents: 5½-inch Compasses, with pen, pencil, needle points and lengthening bar;  
 5-inch Dividers; 3½-inch Bow Compasses, with pen, pencil and needle points; 3-inch  
 Steel Spring Bow Pen; 3-inch Spring Bow Pencil; 3-inch Spring Bow Dividers; 5½-inch  
 Ruling Pen, with hinge and pin; 4-in. Ruling Pen; Lead Case; Key; 6 in. Ivory Scale, \$19 50

## Extra Fine German Drawing Instruments. (Continued.)

IN POLISHED WALNUT CASES.



No. 835.

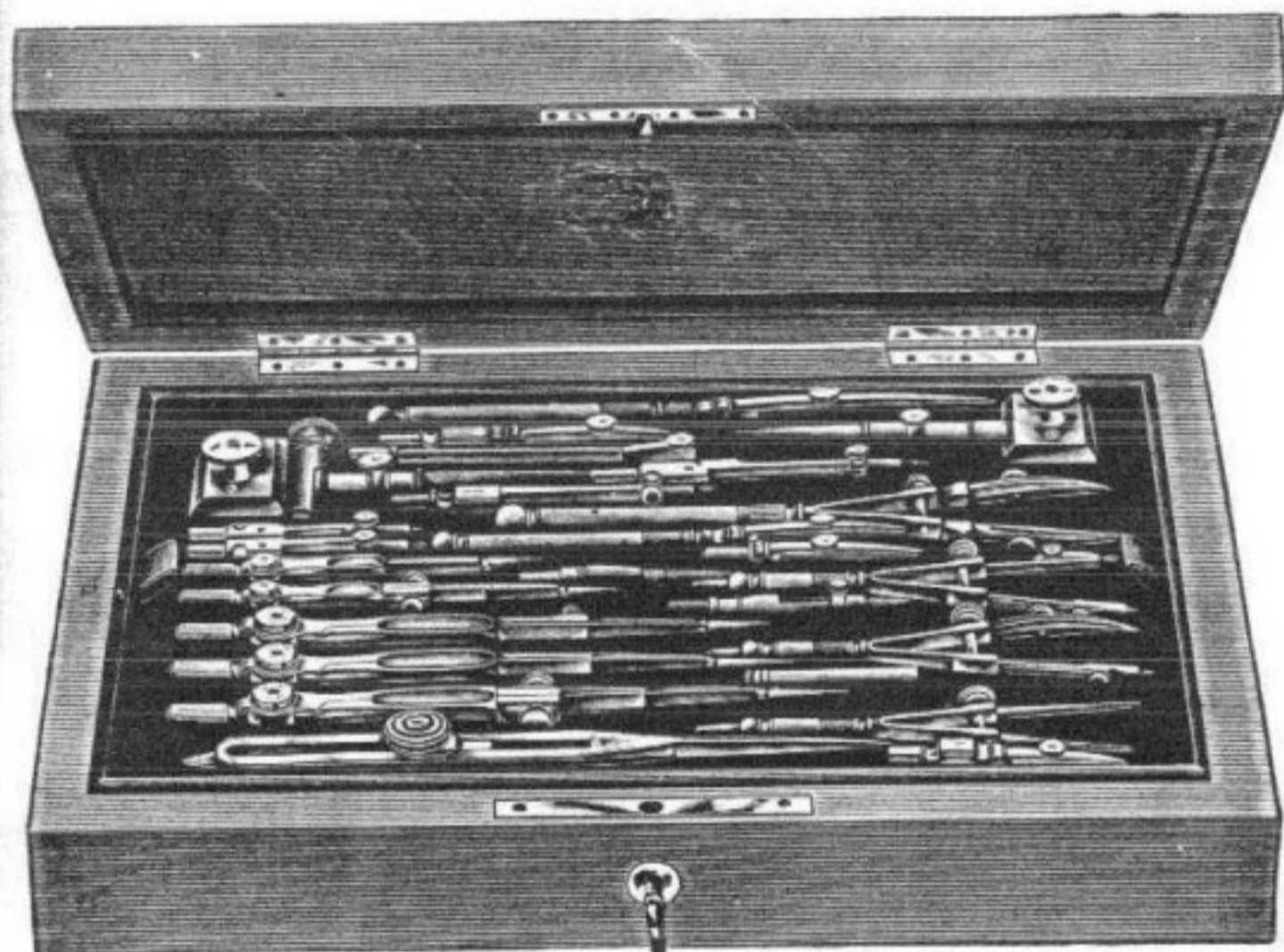
No. 835. Polished Walnut Case, with tray, lock and key.  
 Contents: 6½-inch Proportional Dividers; 5½-inch Compasses, with pen, pencil, needle points and lengthening bar; 5-inch Hair-Spring Dividers; 5-inch Dividers; 3½-inch Bow Compasses, with pen, pencil and needle points; 3½-inch Dividers, with handle; 3-inch Steel Spring Bow Pen; 3-inch Spring Bow Pencil; 3-inch Spring Bow Dividers; Railroad Pen; 5½-inch Ruling Pen, with hinge and pin; 4-inch Ruling Pen; Key; Lead Case; 1 dozen Tacks; 6-inch Ivory Scale; Rubber Triangle; Metal Protractor and Wooden Curve . . . . . Each, \$30 00

No. 836. Polished Walnut Case, with tray, lock and key.  
 Contents: 6½-inch Proportional Dividers; 5½-inch Compasses, with pen, pencil, needle point and lengthening bar; 5-inch Plain Dividers; 3½-inch Bow Compasses, with pen, pencil, needle points; 3-inch Steel Spring Dividers; 3-inch Steel Spring Bow Pencil, needle point; 3-inch Steel Spring Bow Pen, needle point; 5½-inch Ruling Pen, hinge and pin; 4-inch Ruling Pen, hinge and pin; Lead Case; Key; 1 dozen Tacks; 6-inch Ivory Scale; Rubber Triangle; Metal Protractor and Wooden Curve . . . . . 28 00

No. 837. Polished Walnut Case.  
 Same contents as No. 835, with addition of beam compass . . . Each, 35 00

# Extra Fine German Drawing Instruments

(Continued.)



No. 842.

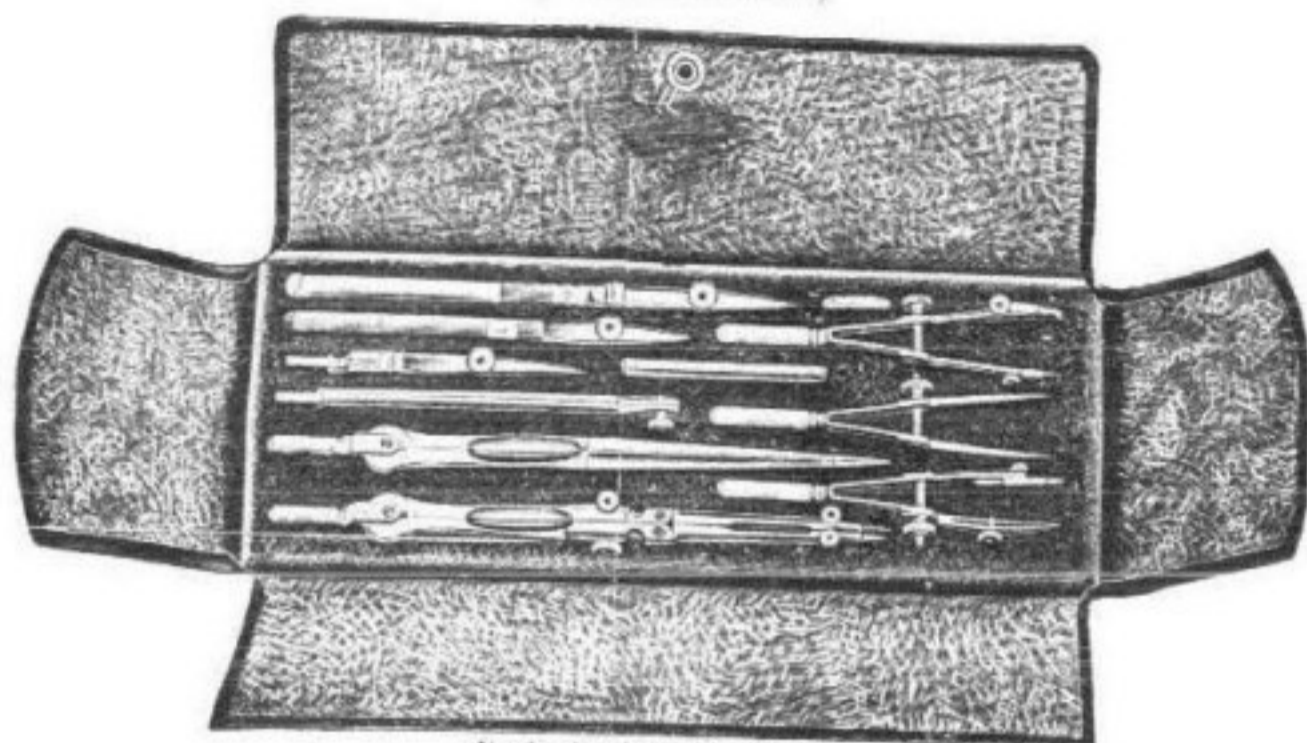
No. 840. In Fine Polished Black Walnut Case, with Lock and Tray.

**With Perfect Pivot Jointed Heads.**

Containing Ruling Pen, 4 inches, with joint; Ruling Pen, 5½ inches, with joint and pin; Railroad Pen, 5½ inches; Steel Spring Bow Divider, 4 inches; Steel Spring Bow Pencil, 4 inches; Steel Spring Bow Pen, 4 inches; Plain Divider, 3½ inches, with handle; Plain Divider, 5 inches, with handle; Hair-spring Divider, 5 inches; Compasses, 3½ inches, with pencil, pen and needle points; Compasses, 5½ inches, with pencil, pen and needle points and lengthening bar; Proportional Divider, 7¼ inches; Box with Leads and Key . . . . . Each, \$31 50

No. 842. Containing the same as No. 840, with addition of Beam Compasses . . . . . Each, 39 00

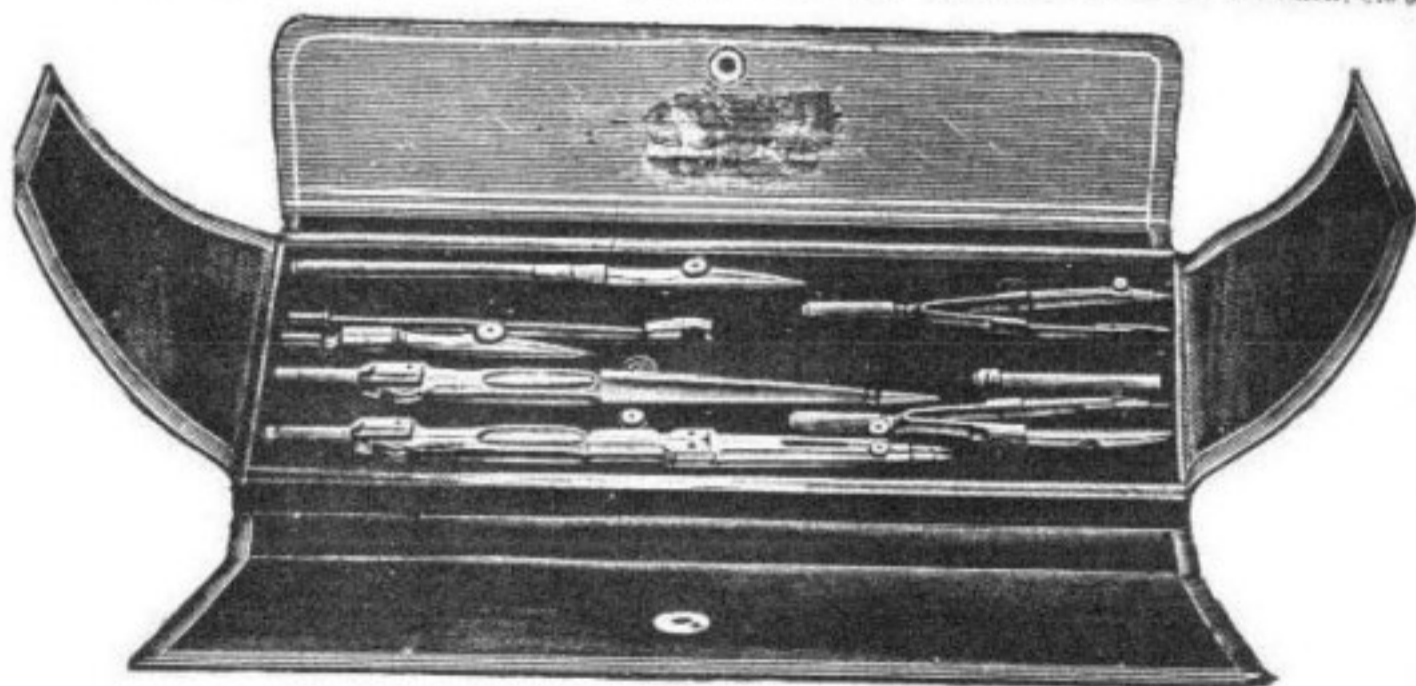
## Extra Fine German Drawing Instruments (Continued.)



Pocketbook style—No. 844.

This Set is a special one, gotten up for use in Colleges, where good quality and lasting instruments are essential. They are of superior German grade and are the best instruments made in Germany and next in quality only to the Swiss. They are not infrequently sold by unscrupulous Dealers as superior Swiss. Put up in a pocket case they make a desirable set.

No. 844. Containing 1 Ruling Pen, 4 $\frac{1}{4}$  inches, with spring and ebony handle; 1 Ruling Pen, 5 $\frac{1}{2}$  inches, with pen and joint and ivory handle; 1 Steel Spring Bow Divider, 3 $\frac{1}{2}$  in., metal handle; 1 Steel Spring Bow Pencil, 3 $\frac{1}{2}$  inches, metal handle; 1 Steel Spring Bow Pen, 3 $\frac{1}{2}$  inches, metal handle; 1 Hair Spring Divider, 6-inch *pivot joint*; 1 Compass, 6 inches, with fixed needle point, pencil and pen points, and lengthening bar, *pivot joint*; 1 Box with Leads. Complete . . . . . Each, \$12 50



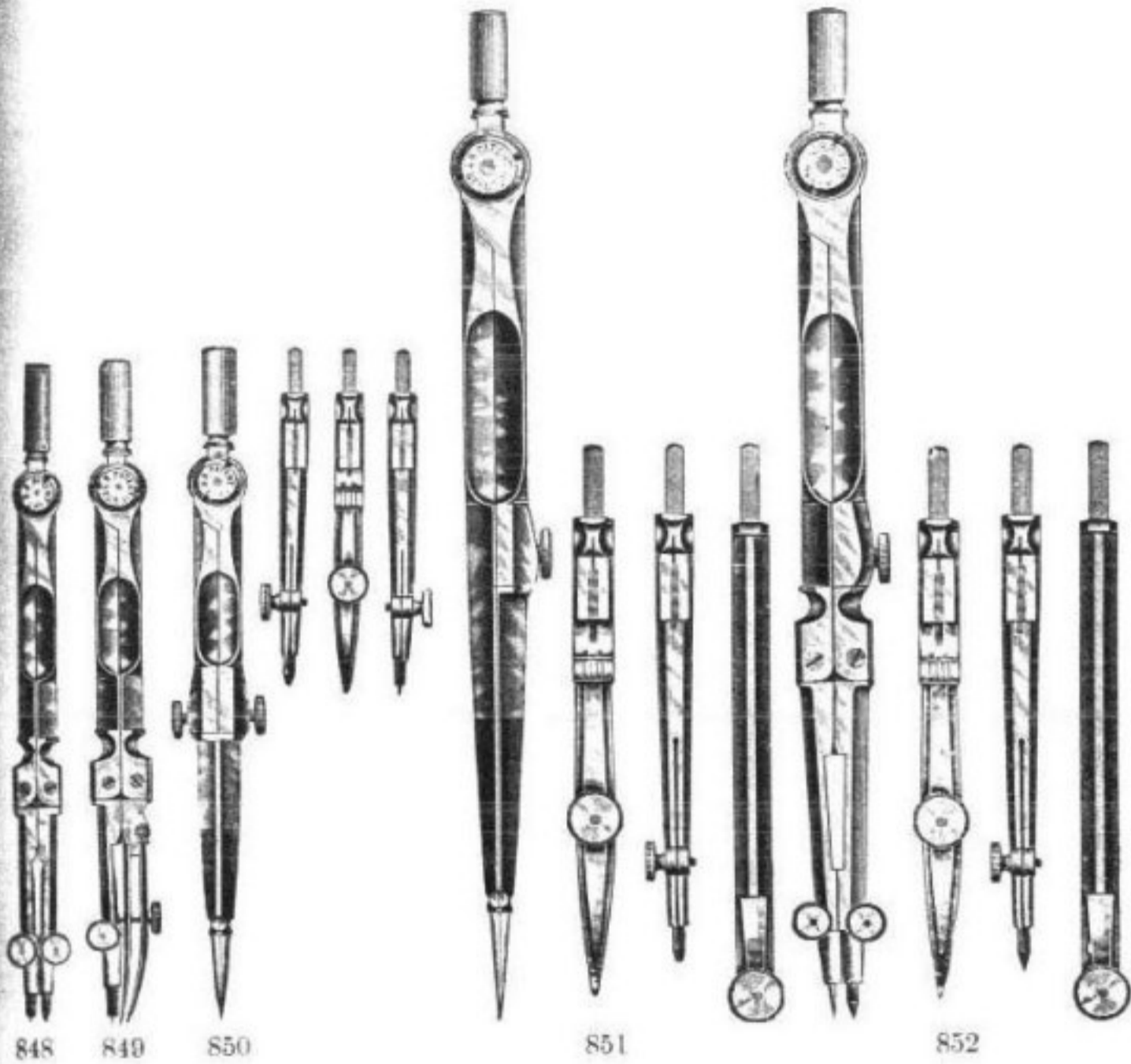
No. 846.

No. 846. Containing Ruling Pen, 5 $\frac{1}{2}$  inches, with spring and ebony handle; Steel Spring Bow Pencil, 3 $\frac{1}{2}$  inches, metal handle; Steel Spring Bow Pen, 3 $\frac{1}{2}$  inches, metal handle; Hair-spring Divider, 6 inches, *pivot joint*; Compasses, 6 inches, with fixed needle point, pencil and pen points, and lengthening bar, *pivot joint*; Box with Leads. Complete, each, \$11 70



# Fine German Drawing Instruments.

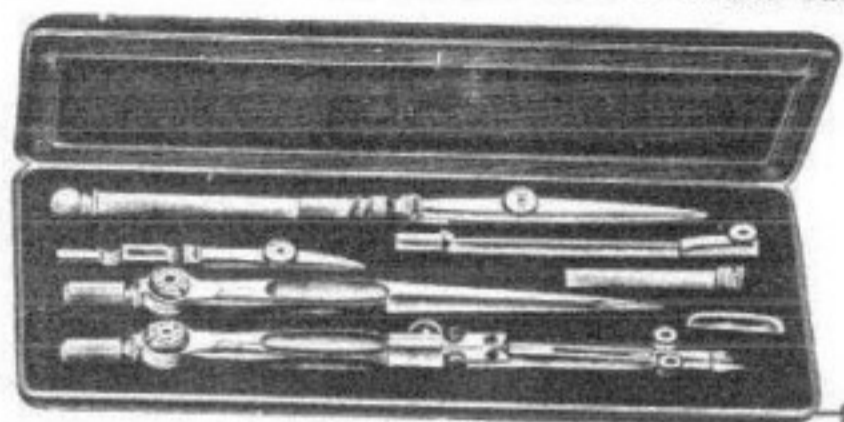
OF GERMAN SILVER AND STEEL POINTS.



No.	Each
848. Compasses, 3½ inches, with fixed needle and pencil point. . . . .	\$2 10
849. " " 3½ " " " " " " pen " . . . . .	2 10
850. " " 3½ " " " two steel points, pen, pencil and needle points . . . . .	3 00
851. Compasses, 8 inches, with steel point, pen, pencil point and lengthening bar . . . . .	2 10
852. Compasses, 6 inches, with fixed needle point, pen, pencil point and lengthening bar . . . . .	2 40

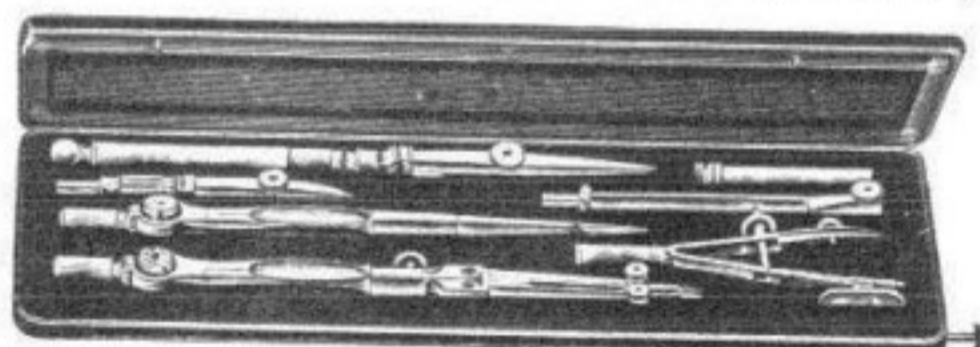
## Fine German Instruments.

OF GERMAN SILVER WITH STEEL POINTS FOR SCHOOLS, ETC.



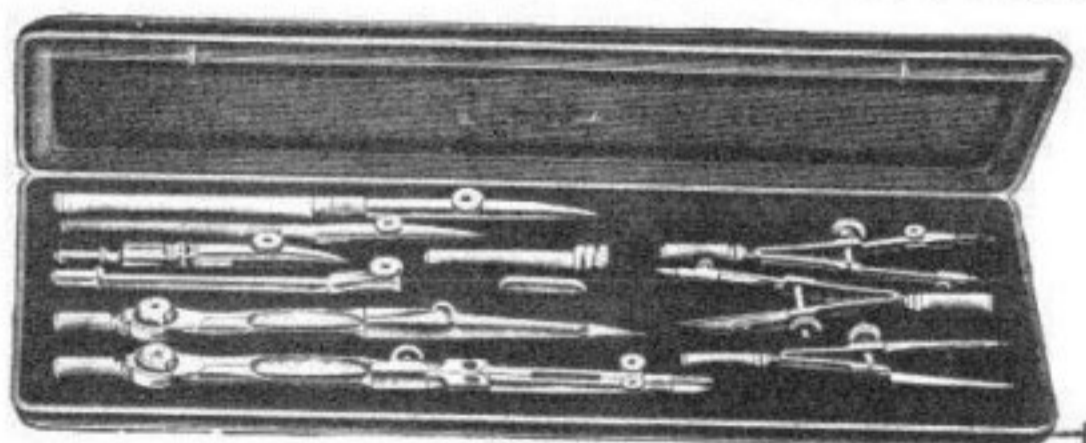
No. 870.

No. 870. Containing 1 Ruling Pen, 5 $\frac{1}{2}$  inches, with joint; 1 Plain Divider, 5 inches; 1 Compass, 5 $\frac{1}{2}$  inches, with fixed needle point, pencil, and pen points and lengthening bar; 1 Box with Leads and Key. Each . . . . . \$4 20



No. 872.

No. 872. Containing 1 Ruling Pen, 5 $\frac{1}{2}$  inches, with joint and pin; 1 Plain Divider, 5 inches; Steel Spring Bow Pen, 3 $\frac{1}{2}$  inches, Metal Handle; 1 Compass, 5 $\frac{1}{2}$  inches, with fixed needle point, pencil, and pen points and lengthening bar; 1 Box with Leads and Key. Each . . . . . \$5 80



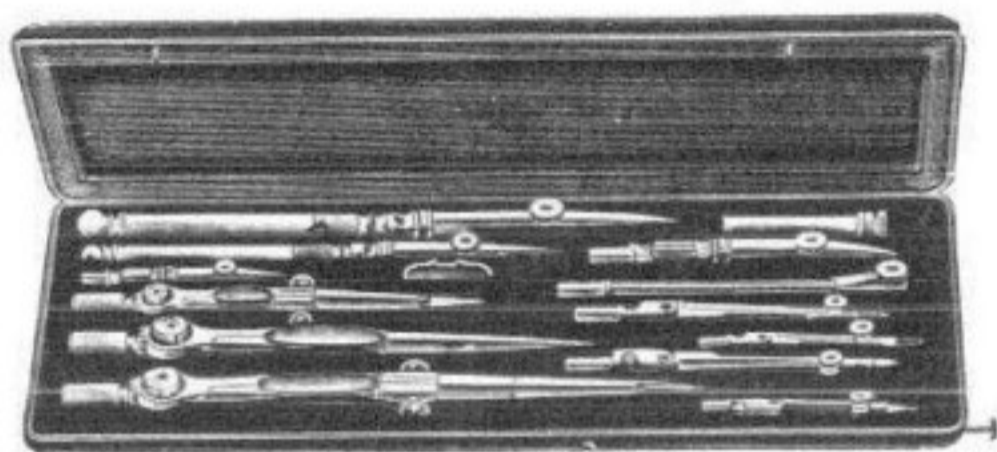
No. 874.

No. 874. Containing 1 Ruling Pen, 4 inches, with joint; 1 Ruling Pen, 5 $\frac{1}{2}$  inches, with joint and pin; 1 Steel Spring Bow Divider, 3 $\frac{1}{2}$  inches, metal handle; 1 Steel Spring Bow Pencil, 3 $\frac{1}{2}$  inches, metal handle; 1 Steel Spring Bow Pen, 3 $\frac{1}{2}$  inches, metal handle; 1 Hairspring Divider, 5 inches; 1 Compass, 5 $\frac{1}{2}$  inches, with fixed needle point, pencil, and pen points and lengthening bar; 1 Box with Leads and Key. Each . . . . . \$9 00

Drawing Pens, carefully set and sharpened . . . . . Each, 20c. to 25c.

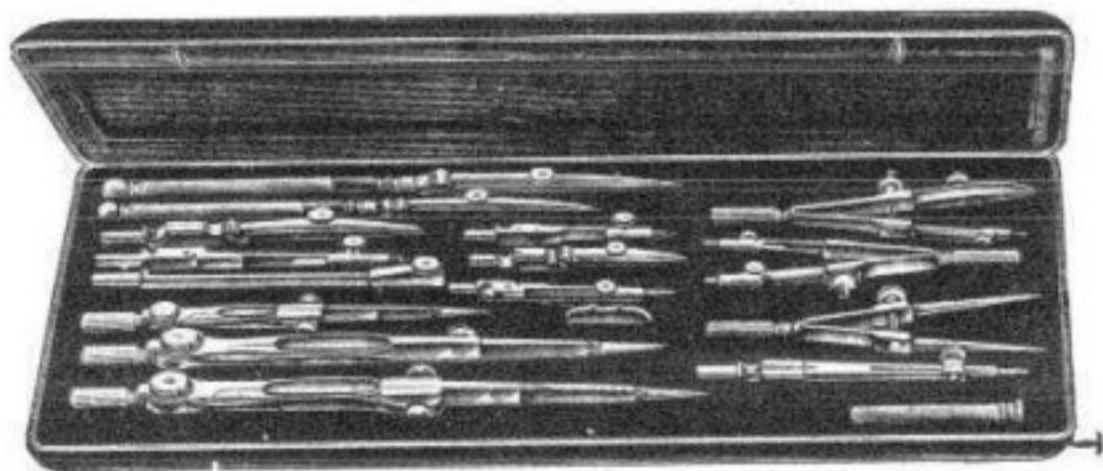
## Fine German Instruments.

OF GERMAN SILVER WITH STEEL POINTS FOR SCHOOLS, ETC.



No. 876.

No. 876. Containing 1 Ruling Pen, 4 inches, with joint; 1 Ruling Pen, 5½ inches, with joint and pin; 1 Plain Divider, 5 inches, 1 Compass, 3½ inches, with pen, pencil and needle points; 1 Compass, 5½ inches, with pen, pencil and needle points, and lengthening bar; 1 Box, with Leads and Key. Each. . . . . \$8 50



No. 878.

No. 878. Containing 1 Ruling Pen, 4 inches, with joint; 1 Ruling Pen, 5½ inches, with joint and pin; 1 Steel Spring Bow Divider, 3½ inches, metal handle; 1 Steel Spring Bow Pencil, 3½ inches, metal handle; 1 Steel Spring Bow Pen, 3½ inches, metal handle; 1 Hair-spring Divider, 5 inches; 1 Compass, 3½ inches, with pencil, pen and needle points; 1 Compass, 5½ inches, with pencil, pen and needle points and lengthening bar; 1 Box, with Leads and Key. Each. \$12 60

Drawing Pens carefully set and sharpened. . . . . Each, 20c. to 25c.

## German Silver Instruments.

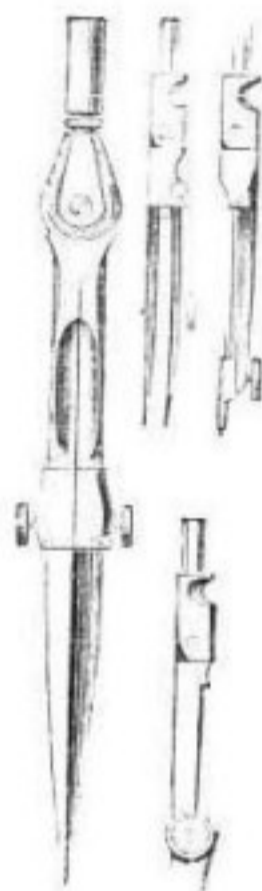
These goods are of good quality and very moderate in price.



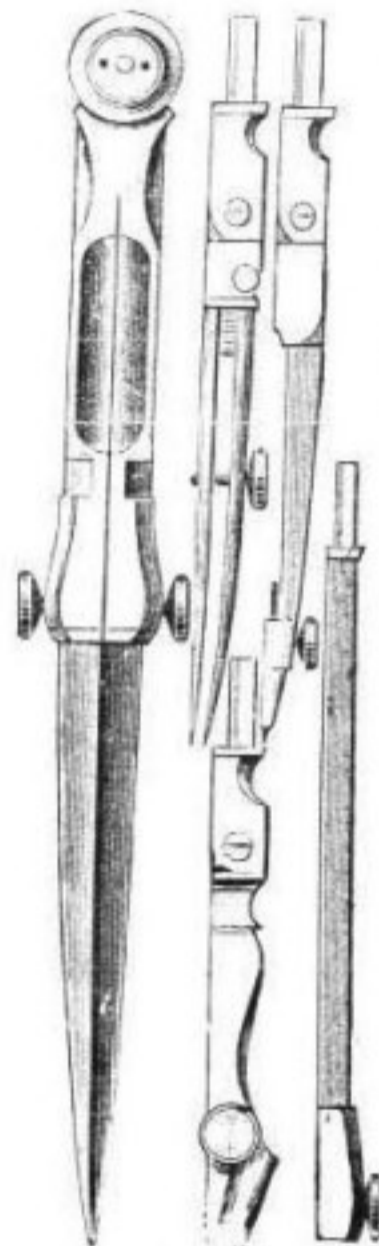
No. 900.



No. 903.



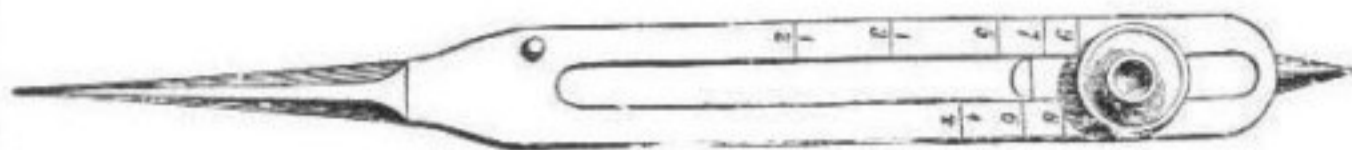
No. 906.



No. 907.

No.		Each
900.	Plain Dividers, 4 inches long . . . . .	\$0 70
901.	" " 5 " " . . . . .	80
902.	" " 6 " " . . . . .	1 00
903.	Hair-spring Dividers, 4 inches long . . . . .	1 25
904.	" " 5 " " . . . . .	1 80
905.	" " 6 " " . . . . .	2 50
906.	Dividers, 3½ inches long, with pen, pencil and needle point . . . . .	2 50
907.	" 5½ " " with pen, pencil, needle point and lengthening bar . . . . .	3 00

## German Silver Instruments—Continued.



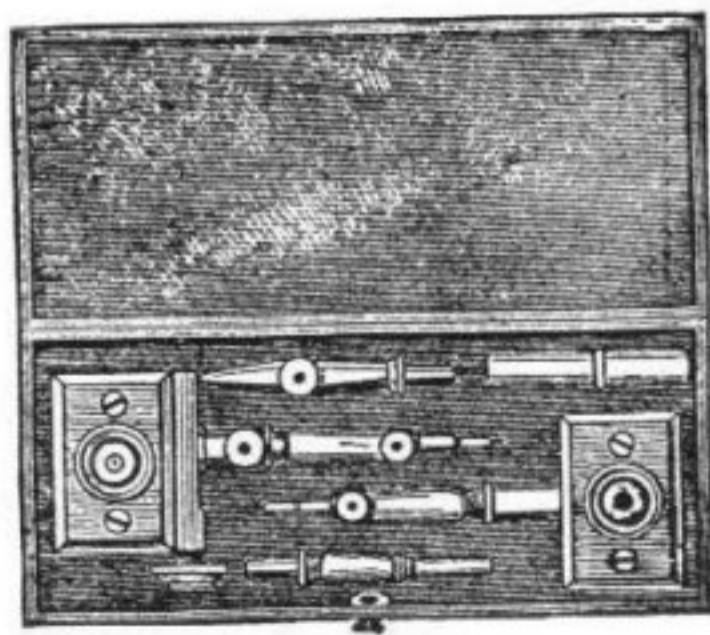
No. 910.

No.		Each
910.	Proportional Dividers, German silver, 6 $\frac{1}{4}$ inches, in case . . . . .	\$3 00
911.	“ “ “ “ 7 “ with rack movement: graduated for lines and circles, in case . . . . .	6 00
912.	Proportional Dividers, German silver, 7 inches, with rectangular bent points; graduated for lines and circles, in case . . . . .	7 00



No. 913.

No.		Each
913.	Drawing Pen, 4 inches long, hinged, ivory handle . . . . .	\$0 50
914.	“ “ 5 “ “ “ “ “ . . . . .	60
915.	“ “ 6 “ “ “ “ “ . . . . .	75
916.	“ “ 4 “ “ “ and pin, ivory handle, . . . . .	70
917.	“ “ 5 “ “ “ “ “ “ “ . . . . .	90
918.	“ “ 6 “ “ “ “ “ “ “ . . . . .	1 00



No. 920.

No.		Each
920.	German Silver Beam Compass, in case . . . . .	\$7 70

## Nickel-Plated Instruments.

FOR ELEMENTARY SCHOOL GRADES.

This line of low-priced instruments is a great improvement over the French brass instruments, and being nickel-plated they will not rust or tarnish.



No.		Each
950.	Ruling Pen, 5 in., ebony handle . . . . .	\$0 25
951.	" " 5 1/2 " white bone handle and pin . . . . .	35
952.	Dividers, 4 1/2 " nickel plated . . . . .	25
953.	" " 5 1/2 " " . . . . .	40
954.	Compasses, 5 1/2 " with pencil point, nickel plated . . . . .	55
955.	" " 5 1/2 " with pen and pencil point, nickel plated . . . . .	75
956.	" " 5 1/2 " with pen, pencil point and lengthening bar, nickel plated . . . . .	1 00

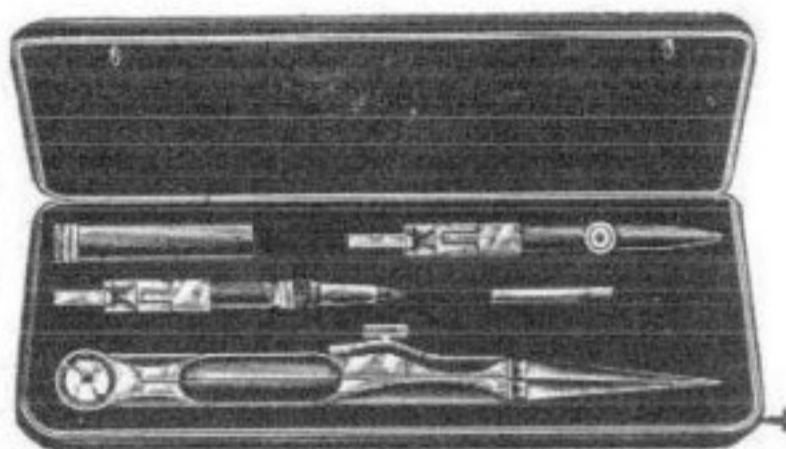
## Nickel-Plated Instruments.

### FOR SCHOOL USE.

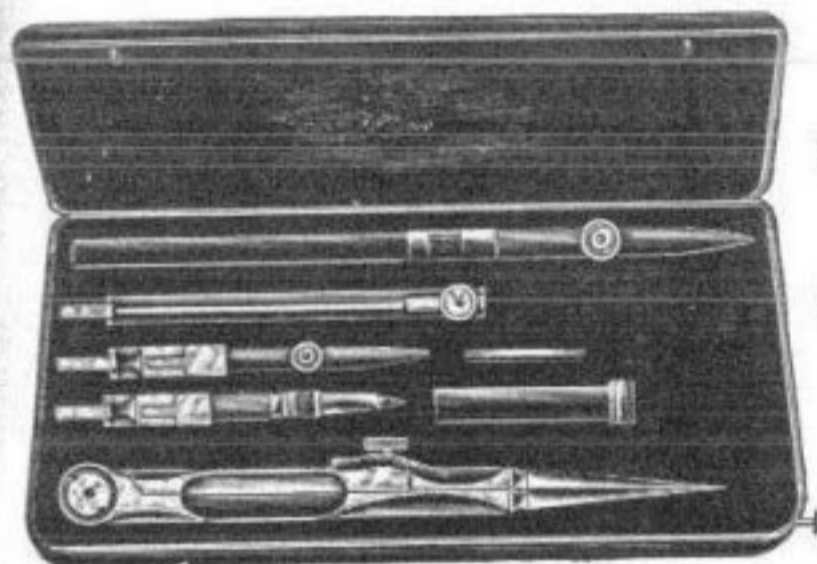
Leatherette Cases, lined with black velvet.

All pencil points are arranged to hold Fabers's leads.

Box of leads in each case.



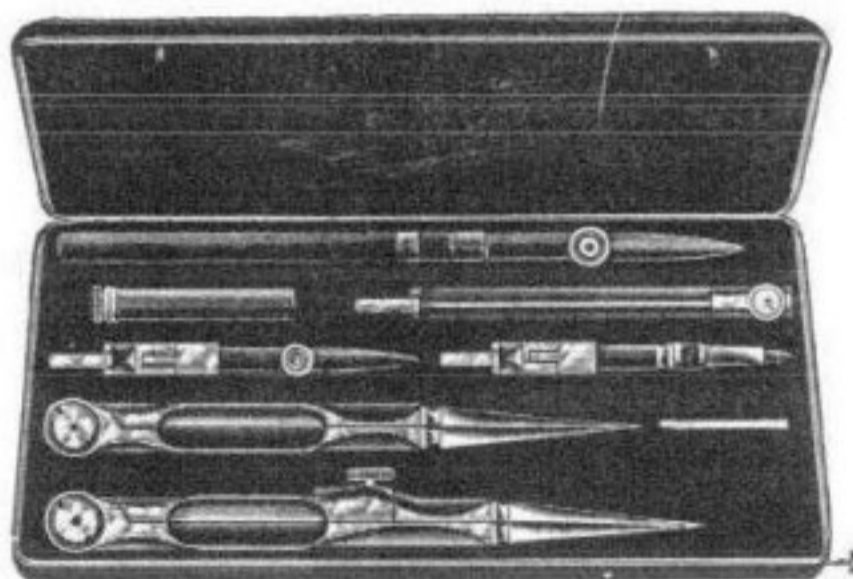
No. 960.



No. 961.

No. 960. Containing 4 3/4-in. Divider, with pen and pencil points, rule . . . . . Each, \$0 65

No. 961. Containing 4 3/4-in. Divider, with pen and pencil points, Ruling Pen; Metal Protractor and Rule . . . . . Each, \$1 00



No. 962.

- | No.  | Each   |
|--|--------|
| 962. Containing 4 3/4-inch Divider, with pen, pencil point, lengthening bar; Plain Divider; Ruling Pen; Metal Protractor and Rule . . . . .  | \$1 25 |
| 963. Containing 4 3/4-inch Divider, with pen, pencil point, lengthening bar; 2 1/2-inch Divider, fixed needle point, pen and pencil points; Plain Divider; Ruling Pen, Metal Protractor and Rule . . . . . | 1 75   |

## Wooden Blackboard Dividers.



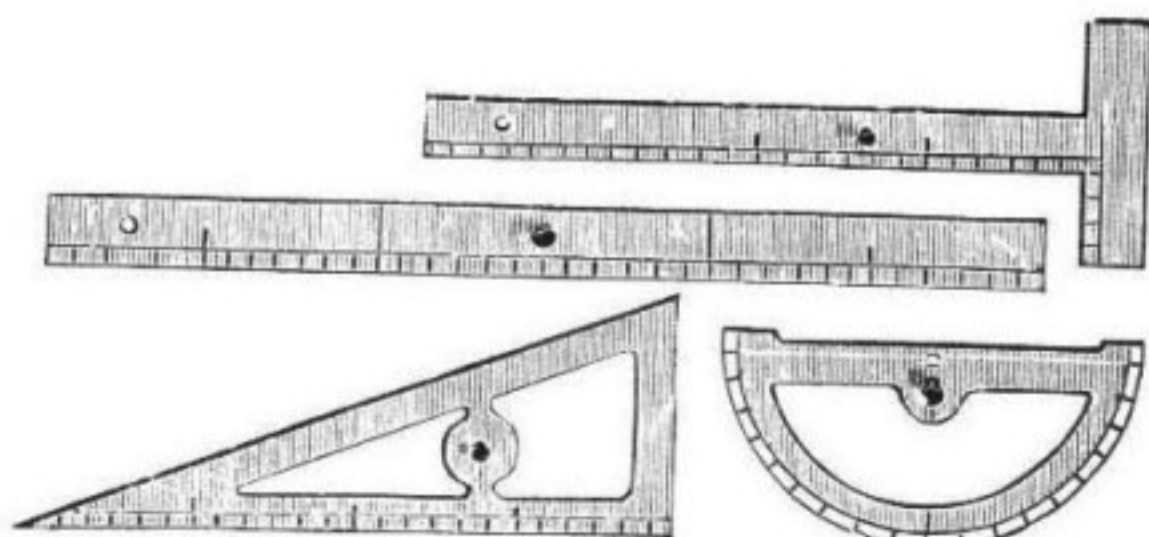
No. 964.



No. 965.

No. 964.	Wooden Blackboard Dividers, 15 inches . . . . .	Each, \$1 25
No. 965.	" " " 18 " with arc . . . . .	" 2 00

## Wooden Blackboard Drawing Set.



No. 966.

No. 966. Wooden Blackboard Drawing Set, consisting of 24-inch T Square; 36-inch Straight Edge; 24-inch Triangle, all divided to inches, and 15½-inch Protractor . . . . . Per set, \$5 00



## Drawing Pins or Thumb Tacks.



No. 990.

Thumb Tacks, No. 990, are made by hand, with great care. They have best hardened steel pins judiciously proportioned in thickness and length so as not to bend, which are screwed and riveted into German silver heads, with fine thin edges, offering no obstruction to T-square or Triangle to slide over. Packed one dozen on a card.

No.	Round Heads,	inch diameter	Per Doz.
990.		$\frac{7}{16}$	\$0 65
990a.		$\frac{1}{2}$	75
990b.		$\frac{5}{8}$	80
990c.		$\frac{5}{8}$	90

## German Silver Tacks.

STEEL POINTS, RIVETED. ONE DOZEN ON A CARD.

No.	Round Head,	inch	Doz.	No.	Round Head,	inch	Doz.
991.		$\frac{5}{16}$	\$0 25	991c.		$\frac{1}{2}$	\$0 35
991a.		$\frac{3}{8}$	28	991d.		$\frac{5}{8}$	45
991b.		$\frac{7}{8}$	30	991e.		$\frac{5}{8}$	55

## Brass Tacks.

STEEL POINTS, RIVETED. NOT MOUNTED.

No.	Round Head,	inch	Gross.	Doz.	No.	Round Head,	inch	Gross.	Doz.
992.		$\frac{1}{4}$	\$0 80	\$0 10	992d.		$\frac{1}{2}$	\$2 40	\$0 30
992a.		$\frac{5}{8}$	95	12	992e.		$\frac{7}{8}$	3 00	35
992b.		$\frac{3}{8}$	1 60	20	992f.		$\frac{5}{8}$	3 80	40
992c.		$\frac{7}{8}$	2 20	25					

## Steel Stamped Thumb Tacks.



993.

993a.

993b.

Our Steel Stamped Thumb Tacks are made of one piece of hard steel, and are of the best quality. They have needle-finished points, and make an excellent substitute for the regular thumb tack when a lower-priced article is desired.

No. 993.	Round Heads,	$\frac{5}{8}$ in. diam.	Per box of 100,	\$0 55	Per doz.,	\$0 10
No. 993a.	"	$\frac{3}{8}$ "	"	65	"	15
No. 993b.	"	$\frac{1}{2}$ "	"	75	"	20

## Tack Lifter.

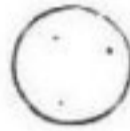


No. 995.

A handy and simple instrument to extract thumb tacks. The end of the lifter is placed under the head of the tack and takes it out without bending the point or wrenching off the head, as is done by using a knife. The handle of this instrument is a Paper-Knife, useful for removing drawings which have been glued to the board, etc.

No. 995. Tacklifter and Paper Knife, brass, nickel-plated, 5 $\frac{3}{4}$  in. . . Each, \$0 20

## Horn Centres.



No. 996.

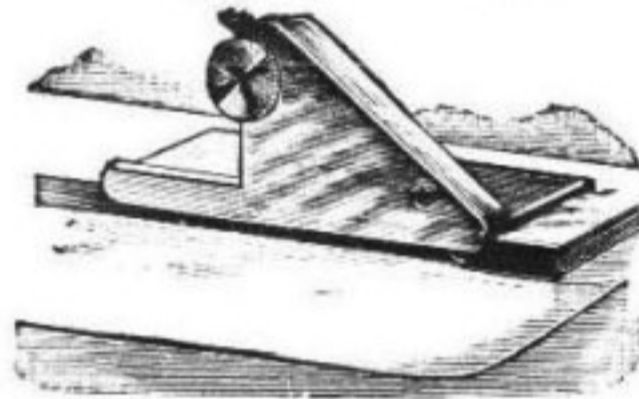


No. 997.



No. 996. Horn centre, plain,  $\frac{1}{2}$  inches diameter . . . . . Each, \$0 15  
 No. 997. " with German silver rim,  $\frac{3}{4}$  inches diameter . . . . . " 50

## Paper Cutters.

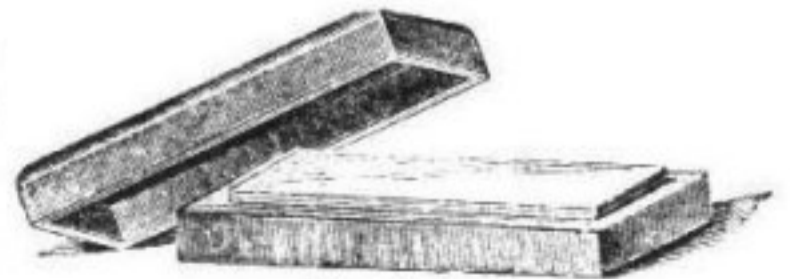


No. 998.

No. 998. Paper Cutter, brass . . . . . Each, \$0 50  
 No. 999. " " nickel-plated . . . . . " 65

These instruments are used for cutting drawings from the board, also for cutting any kind of paper or bristol board. They can be slid along T-square or straight edge without injuring its edge, and have a thumb-screw adjustment which may be set so as to cut only the thickness of the paper, without marking the drawing board.

## Arkansas Oil Stones.



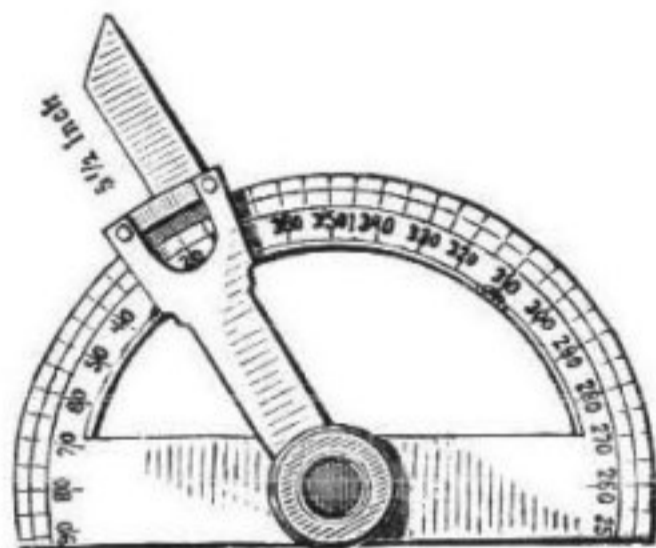
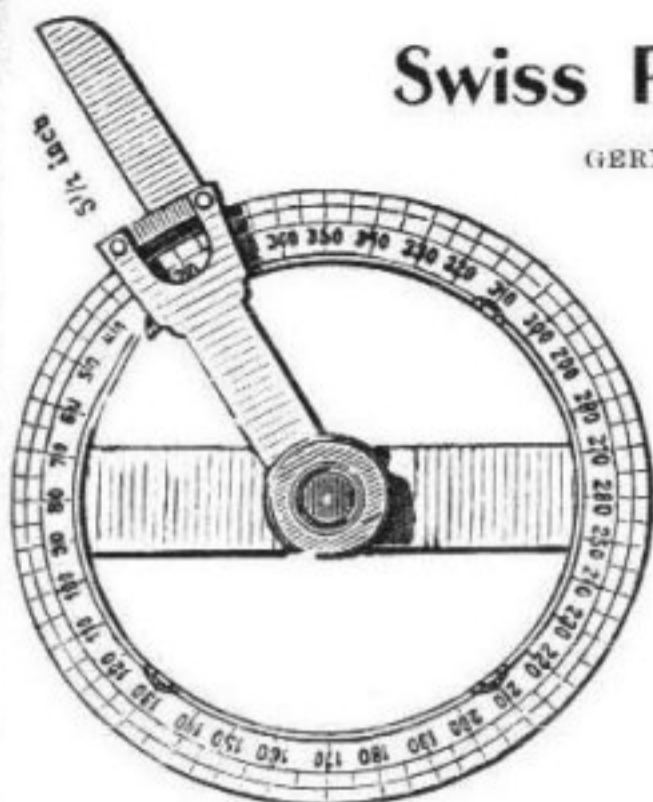
No. 1000.

No. 1003.

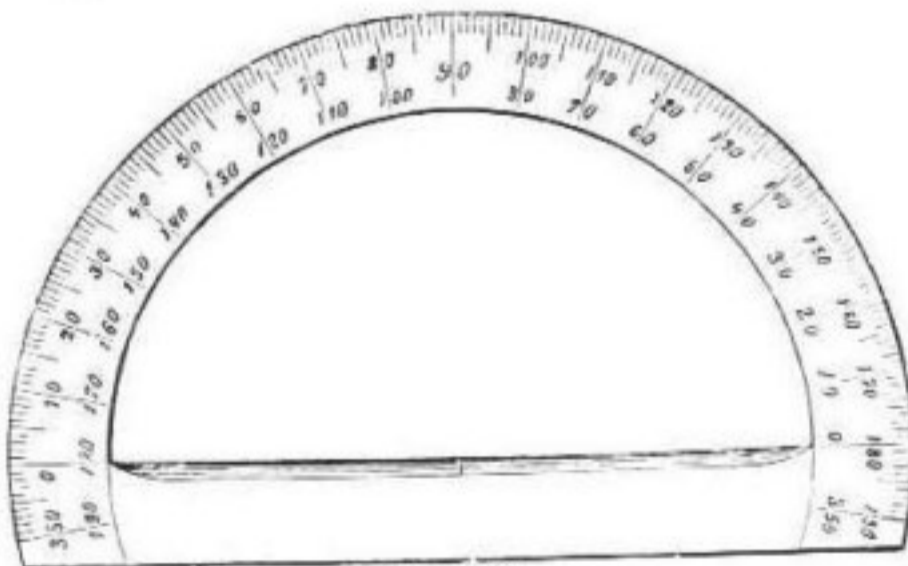
No.	Description	Each
1000.	Arkansas Oil Stone, wedge shape slip	\$0 50
1001.	" " " " about 1 $\frac{1}{4}$ x 3 in.	75
1002.	" " " " " 1 $\frac{1}{4}$ x 4 $\frac{5}{8}$ in.	80
1003.	" " " " in case, with cover, 3 in.	1 00
1004.	" " " " " " 5 in.	2 50

# Swiss Protractors.

GERMAN SILVER.

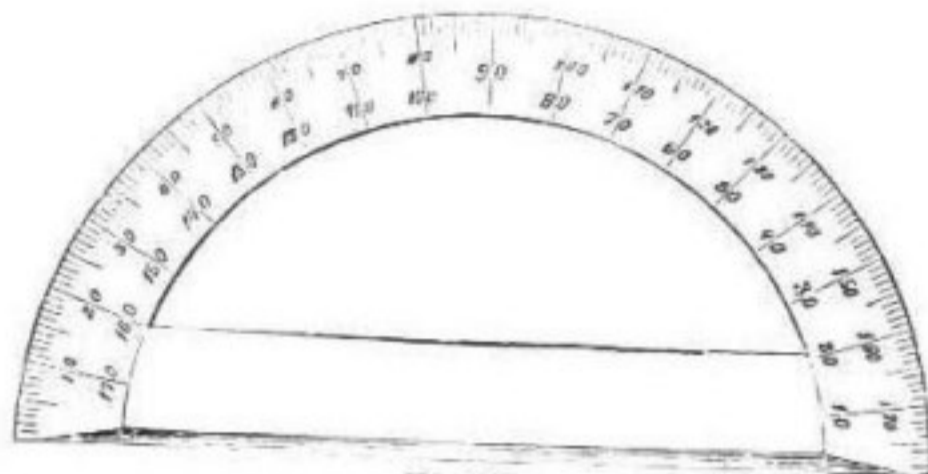


No.	No. 1100.							Each
1100.	Swiss Full Circle Vernier Protractor, with horn centre and movable arm.							
	10	inches,	$\frac{1}{4}$	degrees,	reading to 1	minute	\$20 00	
	8	"	$\frac{1}{2}$	"	"	3 "	16 25	
	5 $\frac{1}{2}$	"	$\frac{1}{2}$	"	"	3 "	14 50	
1101.	Swiss Half Circle Vernier Protractor, with horn centre and movable arm.							
	10	inches,	$\frac{1}{4}$	degrees,	reading to 1	minute	18 00	
	8	"	$\frac{1}{2}$	"	"	3 "	14 50	
	5 $\frac{1}{2}$	"	$\frac{1}{2}$	"	"	3 "	11 00	



No.	No. 1102.							Each
1102.	Swiss Half Circle Protractor—							
						German silver, centre on inner edge, 6 inches,	$\frac{1}{4}$ degrees	\$4 25
						" " " " " " 6 "	$\frac{1}{2}$ "	3 50
						" " " " " " 5 "	$\frac{1}{2}$ "	3 00
						" " " " " " 4 "	1 "	2 35
1103.	Swiss Half Circle Protractor—							
						German silver, center on outer edge, 6 inches,	$\frac{1}{4}$ degrees	3 50
						" " " " " " 6 "	$\frac{1}{2}$ "	2 75
						" " " " " " 5 "	$\frac{1}{2}$ "	2 25
						" " " " " " 4 "	1 "	1 60

## Protractors—Continued.



No.	No. 1104.	Each
1104.	Half Circle German Silver Protractor, 5½ in., beveled edge, ½ degrees,	\$1 50
"	" " " " " 6½ " " " ½ " "	2 00
"	" " " " " 7½ " " " ½ " "	2 75
1105.	Half Circle German Silver Protractor, 4½ " 1 degree	70
"	" " " " " 5½ " ½ " "	1 00
"	" " " " " 6½ " ½ " "	1 10
"	" " " " " 7½ " ½ " "	1 35
"	" " " " " 8½ " ½ " "	1 75
1106.	Half Circle Brass Protractor, 3¾ in., 1 degree	10
"	" " " " " 4½ " 1 " "	25
"	" " " " " 5½ " ½ " "	50
"	" " " " " 6½ " ½ " "	75
1107.	Half Circle Horn Protractor, 4½ " 1 " "	15
"	" " " " " 5½ " ½ " "	25
"	" " " " " 6½ " ½ " "	30
"	" " " " " 7 " ½ " "	45
"	" " " " " 8 " ½ " "	65

### Transparent Celluloid Protractors.

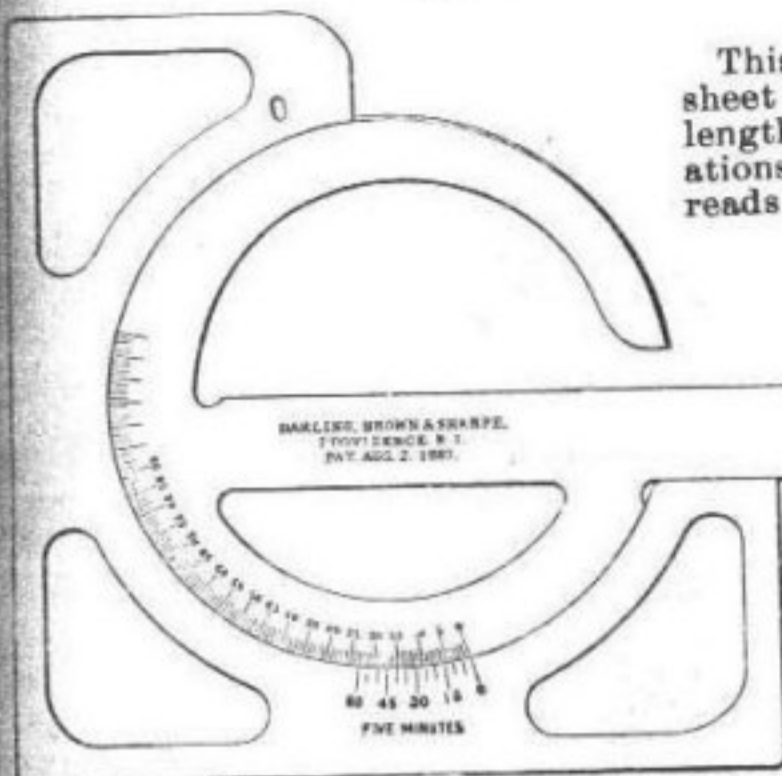
1108.	Semi-circular Celluloid Protractor, 5 in., ½ degree	50
"	" " " " 6 " ½ " "	75
"	" " " " 8 " ½ " "	1 25
1109.	Railroad Curve Protractor, horn, 8 inches, ½ degree with circular curves from ½ degree to 8 degrees, scale 400 feet to the inch	1 65

### Paper Protractors.

1110.	Circular Protractor on Vegetable Tracing Paper, 14 in., diam. ¼ degree,	30
1112.	" " " Drawing Paper, 14 inch, diam. ¼ degree	30
1113.	" " " Bristol Board, 14 " " ¼ " "	40
1114.	" " " " " 8 " " ¼ " "	25

# Draughtsmen's Protractors.

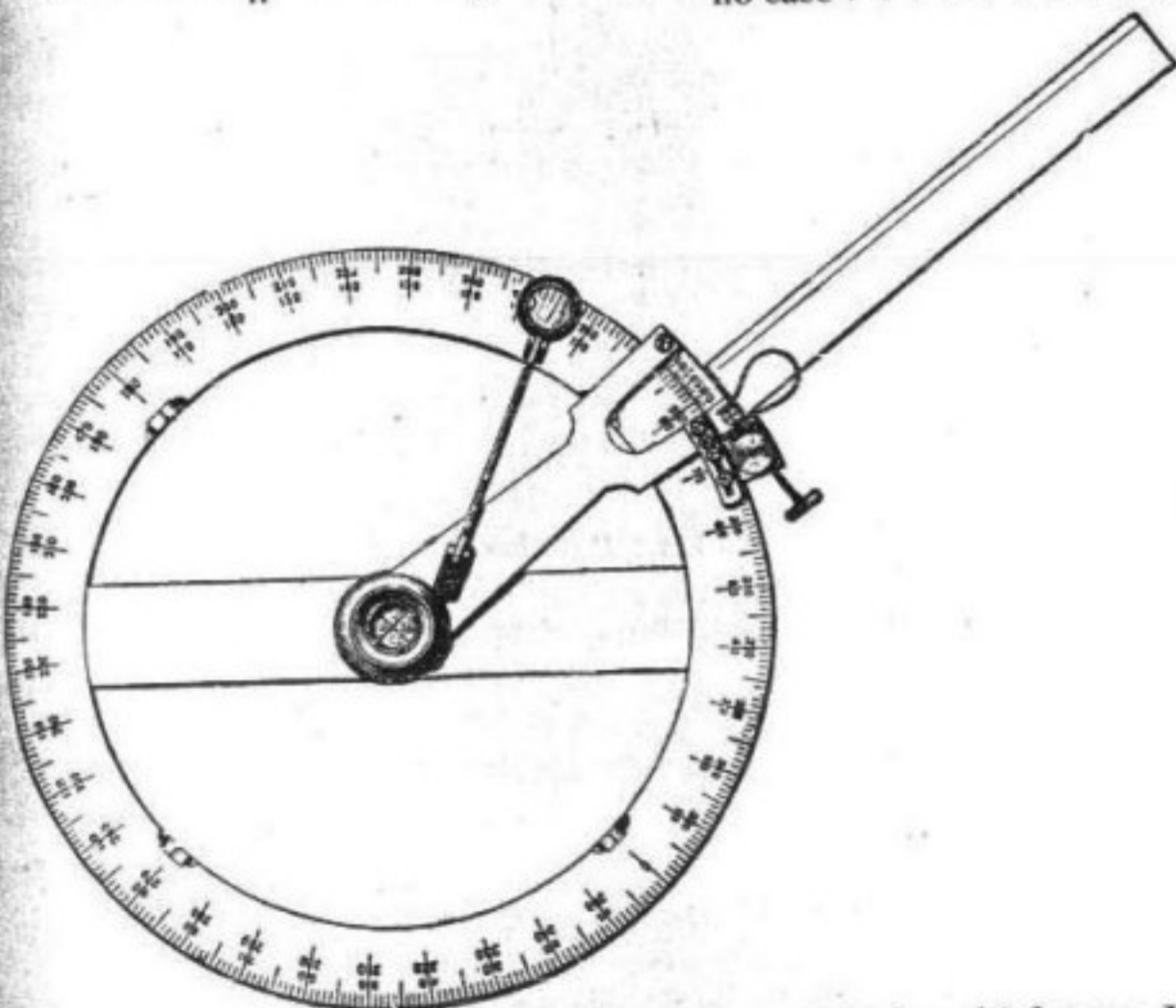
This Protractor is made from  $\frac{1}{8}$ -inch sheet steel, and is light and durable. The length of blade is  $8\frac{1}{2}$  inches. The graduations read to degrees, and the vernier reads to two minutes.



1020.

This Protractor can be quickly set to any angle. It can be used either side up and on either of the two straight edges, and it is of advantage in dividing a circle, transferring angles, or laying off a given angle, without resetting, on either side of a line. It forms a convenient extension to a T-square, and frequently takes the place of 45 degrees and 60 degrees triangle.

No. 1020. Draughtsmen's Protractor, price, in Morocco Case, velvet lined . . \$7 75  
no case . . . . . 6 50



1021.

No. 1021. Circular Protractor, German silver, 8 inches,  $\frac{1}{4}$  degree, Vernier reading to 1 minute, with clamp screw, micrometer adjusting screw to vernier and magnifying lens . . . . . Each, \$23 50  
Morocco leather case, silk velvet lined . . . . . " 5 00

## Boxwood and Ivory Protractors.



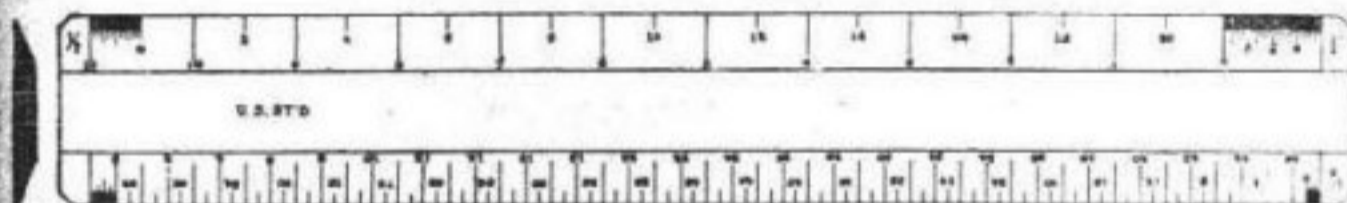
No. 1118.

No.		Each
1118.	Boxwood Protractors, 6 inches long, 1 3/4 inch wide; Scales of 1/4, 1/2, 3/4, 1 inch to the foot; Scale of Chord; Diagonal Scales . . . . .	\$ 0 50
1119.	Square Ivory Protractor, 6 inches long, 1 3/4 inch wide, divided: whole degrees 1/4, 1/2, 3/4, 1-inch Scale; Scale of Chords; Diagonal Scale; Scale of 25, 30, 35, 40, 45 parts per inch . . . . .	1 60
1120.	Square Ivory Protractor, 6 inches long, 1 3/4 inch wide, divided: whole degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1-inch Scales; Scale of Chords; Diagonal Scale; Scales of 30, 35, 40, 45, 50, 60 parts per inch . . . . .	2 00
1121.	Square Ivory Protractor, 6 inches long, 2 inches wide, divided: whole degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2-inch Scales; Scale of Chords; Diagonal Scale; Scales of 30, 35, 40, 45, 50, 60 parts per inch . . . . .	4 35
1122.	Square Ivory Protractor, 6 inches long, 2 1/2 inches wide, divided: half degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2, 1 3/4-inch Scales; Scale of Chords, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60 parts per inch, and Diagonal Scale; Scale of 40 on lower edge . . . . .	4 50
1123.	Square Ivory Protractor, 6 inches long, 2 inches wide, divided: whole degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2-inch Scales; Scale of Chords; Diagonal Scale; Scales of 30, 35, 40, 45, 50, 60 parts per inch; Scale of 40 on lower edge . . . . .	3 75
1124.	Square Ivory Protractor, 8 x 2 1/2 inches, divided: half degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2, 1 3/4-inch Scales; Scale of Chords; Diagonal Scale; Scales of 10, 15, 20, 25, 30, 35, 40, 45, 50, 60 parts per inch; Scale of 40 on lower edge . . . . .	7 00
1125.	Square Ivory Protractor, 12 x 2 1/2 inches, divided: half degrees, 1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 7/8, 1, 1 1/8, 1 1/4, 1 1/2, 1 3/4-inch Scales; Scale of Chords; Diagonal Scale; Scales of 10, 15, 20, 25, 30, 35, 40, 45, 50, 60 parts per inch; Scale of 40 on lower edge . . . . .	11 50

## Flat Boxwood Scales.

U. S. STANDARD. MACHINE DIVIDED.

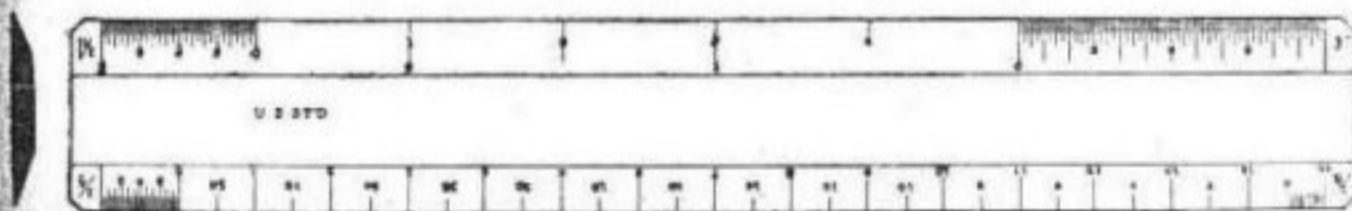
Our Scales are made of the best seasoned boxwood. The graduations are sharp and distinct, machine divided to accurate U. S. standard measurements. Flat Scales last longer, because the divided surface does not come in contact with the drawing.



No. 1131.

Divided:  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 inch to the foot.

No.	Flat Boxwood Scale,	6 inches	Each
1130.	"	"	\$0 50
1131.	"	12 "	75
1132.	"	18 "	1 50
1133.	"	24 "	2 00



No. 1135.

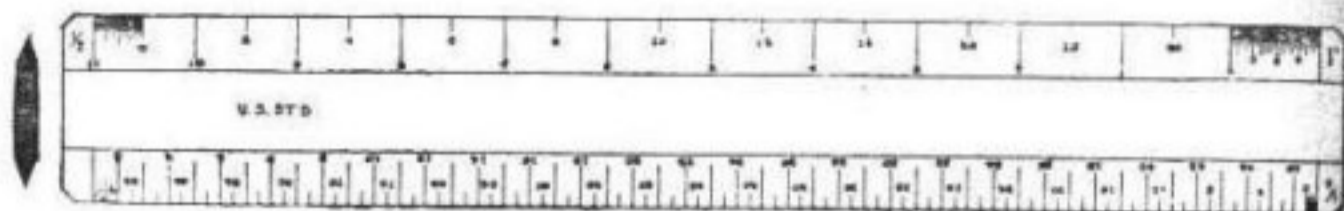
Divided:  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $1\frac{1}{2}$ , 3 inches to the foot.

No.	Flat Boxwood Scale,	6 inches	Each
1134.	"	"	\$0 50
1135.	"	12 "	75
1136.	"	18 "	1 50
1137.	"	24 "	2 00

If Special Scales are ordered, a sketch showing divisions and numbering is required, and a remittance covering entire cost, figured at double list price of regular Scales of the same kind.

## Flat Boxwood Scales—Continued.

U. S. STANDARD, MACHINE DIVIDED.

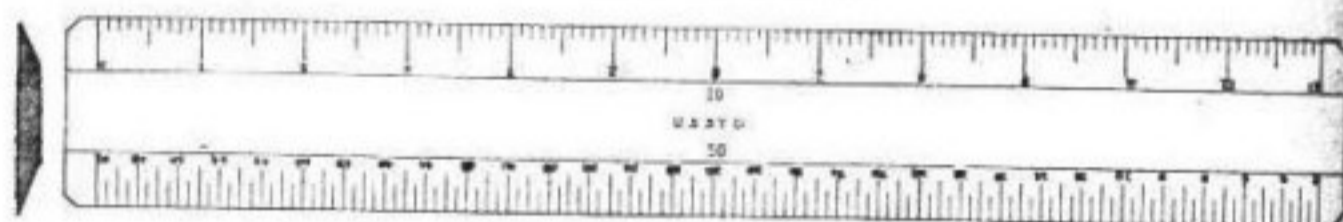


No. 1139.

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.	Description	Each
1138.	Flat Boxwood Scale, 6 inches, both sides beveled and divided . . . . .	\$0 80
1139.	" " " 12 " " " " " " " " " " . . . . .	1 10
1140.	" " " 18 " " " " " " " " " " . . . . .	2 25
1141.	" " " 24 " " " " " " " " " " . . . . .	3 00

## Chain Scales.



No. 1146.

No.	Description	Each
1142.	Flat Boxwood Chain Scale, 6 in., divided, 10 x 50 parts to the inch . . . . .	\$0 50
1143.	" " " " 6 " " " 20 x 40 " " " " . . . . .	50
1144.	" " " " 6 " " " 30 x 60 " " " " . . . . .	50
1145.	" " " " 6 " " " 80 x 100 " " " " . . . . .	75
1146.	" " " " 12 " " " 10 x 50 " " " " . . . . .	75
1147.	" " " " 12 " " " 20 x 40 " " " " . . . . .	75
1148.	" " " " 12 " " " 30 x 60 " " " " . . . . .	75
1149.	" " " " 12 " " " 80 x 100 " " " " . . . . .	1 25

## Flat Metric Scales.

No.	Description	Each
1150.	Flat Boxwood Scale, 10 cm. div. mm. and half mm. . . . .	\$0 50
1151.	" " " 20 " " " . . . . .	60
1152.	" " " 30 " " " . . . . .	75
1153.	" " " 50 " " " . . . . .	1 50

If Special Scales are ordered, a sketch showing divisions and numbering is required, and a remittance covering entire cost, figured at double list price of regular Scales of the same kind.



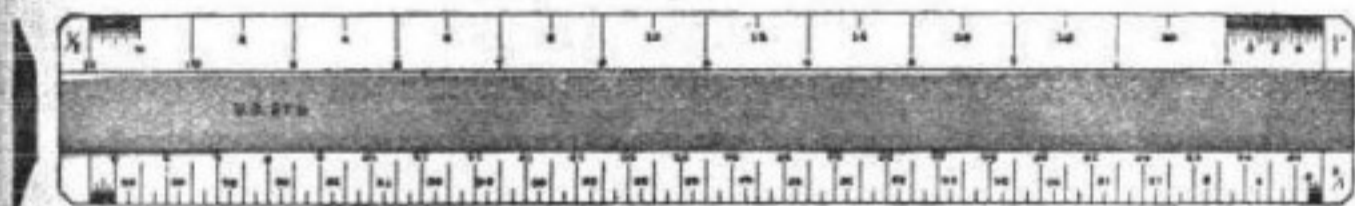
## Flat White Edge Scales.

U. S. STANDARD. MACHINE DIVIDED.

### Draughtsmen's "Ideal" Scales.

These Scales are made of the best seasoned boxwood, the bevels are lined with a material resembling Ivory, which will permanently remain White, and will not shrink.

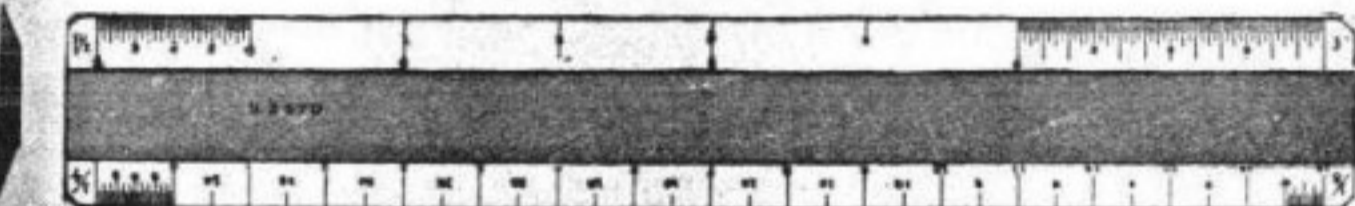
The "Ideal" Drafting Scales are a great and decided improvement over all other Scales now in use. They combine durability and distinctiveness, and will not tire or injure the eye, because they are even more distinct and legible than Ivory Scales.



No. 1161.

Divided:  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 inch to the foot.

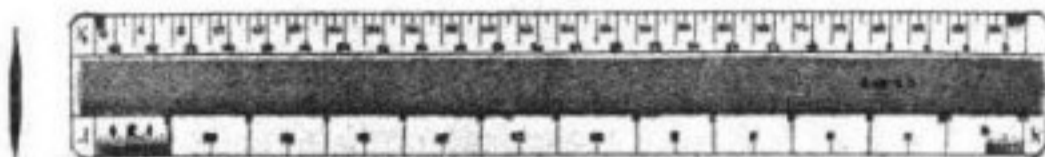
No.		Each
1160.	Flat White Edge Scale, 6 inches . . . . .	\$0 85
1161.	" " " " 12 " . . . . .	1 25
1162.	" " " " 12 $\frac{1}{2}$ " . . . . .	1 50
1163.	" " " " 18 " . . . . .	2 25
1164.	" " " " 24 " . . . . .	3 00



No. 1166.

Divided:  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $1\frac{1}{2}$ , 3 inches to the foot.

No.		Each
1165.	Flat White Edge Scale, 6 inches . . . . .	\$0 85
1166.	" " " " 12 " . . . . .	1 25
1166a.	" " " " 18 " . . . . .	2 25
1166b.	" " " " 24 " . . . . .	3 00



No. 1167.

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.		Each
1167.	Flat White Edge Scale, 6 inches, both sides beveled and divided, in leather sheath, less than 1 inch wide; very convenient for the pocket, . . . . .	\$1 35
1168.	Flat White Edge Scale, 12 inches, both sides bev. and div. . . . .	2 00
1169.	" " " " 18 " " " " " " " " " " . . . . .	3 40
1170.	" " " " 24 " " " " " " " " " " . . . . .	4 60

## Flat White Edge Scales.

U. S. STANDARD. MACHINE DIVIDED.

### Draughtsmen's "Ideal" Scales.

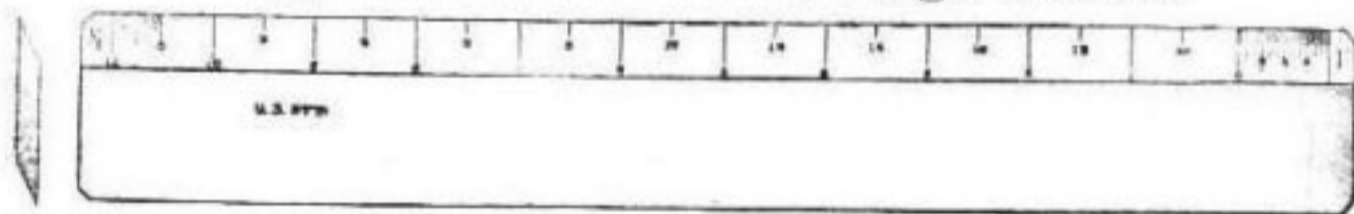
These Scales are made of the best seasoned boxwood, the bevels are lined with a material resembling Ivory, which will permanently remain White, and will not shrink.

The "Ideal" Drafting Scales are a great and decided improvement over all other Scales now in use. They combine durability and distinctiveness, and will not tire or injure the eye, because they are even more distinct and legible than Ivory Scales.

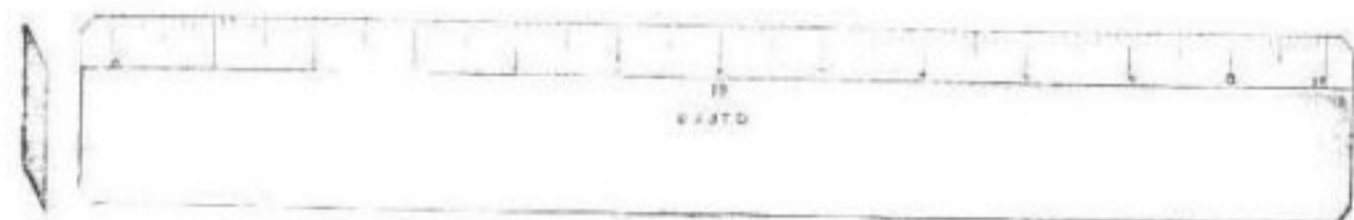


No.	No. 1172.		Each
1171.	Flat White Edge Chain Scale,	6 in., divided 10 x 50 parts to inch . . .	\$0 85
1171a.	" " " " " "	6 " " " 20 x 40 " " " "	85
1171b.	" " " " " "	6 " " " 30 x 60 " " " "	85
1171c.	" " " " " "	6 " " " 80 x 100 " " " "	1 00
1172.	" " " " " "	12 " " " 10 x 50 " " " "	1 25
1172a.	" " " " " "	12 " " " 20 x 40 " " " "	1 25
1172b.	" " " " " "	12 " " " 30 x 60 " " " "	1 25
1172c.	" " " " " "	12 " " " 80 x 100 " " " "	1 50

### Opposite Bevel White Edge Scales.



No.	No. 1174.		Each
	Divided: $\frac{1}{4}$ x $\frac{1}{2}$ , 1 inch to the foot.		
1173.	Opposite Bevel White Edge Scale,	6 inches . . . . .	\$0 75
1174.	" " " " " "	12 " " " " " "	1 25
	Divided: $\frac{2}{3}$ x $1\frac{1}{2}$ , 3 inches to the foot.		
1175.	Opposite Bevel White Edge Scale,	6 inches . . . . .	75
1176.	" " " " " "	12 " " " " " "	1 25



No.	No. 1178.		Each
	<b>Chain Scale.</b> - Divided: 10 x 50 parts to the inch.		
1177.	Opposite Bevel White Edge Chain Scale,	6 inches . . . . .	\$0 75
1178.	" " " " " "	12 " " " " " "	1 25

Sets of any number of Scales, put up in nicely finished wooden boxes, with any kind of graduation made to order.

If Special Scales are ordered, a sketch showing divisions and numbering is required, and a remittance covering entire cost, figured at double list price of regular Scales of the same kind.

# Triangular Boxwood Scales.

For Architects and Mechanical Engineers.

U. S. STANDARD. MACHINE DIVIDED.



No. 1180.

Divided:  $\frac{3}{16}$ ,  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ , 3 in. to the foot,  $\frac{1}{16}$  in.

No.	Description	Each
1179.	Triangular Boxwood Scale, 6 inches . . . . .	\$0 75
1180.	" " " 12 " . . . . .	1 00
1181.	" " " 18 " . . . . .	2 50
1182.	" " " 24 " . . . . .	4 25

Divided:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ , 2, 3, 4 in. to the foot,  $\frac{1}{16}$  in.

1183.	Triangular Boxwood Scale, 12 inches . . . . .	1 00
1184.	" " " 18 " . . . . .	2 50
1185.	" " " 24 " . . . . .	4 25

For Civil Engineers and Surveyors.



No. 1187.

Divided: 10, 20, 30, 40, 50, 60 parts to the inch.

No.	Description	Each
1186.	Triangular Boxwood Chain Scale, 6 inches . . . . .	\$0 75
1187.	" " " " 12 " . . . . .	1 00
1188.	" " " " 18 " . . . . .	2 50
1189.	" " " " 24 " . . . . .	4 25

Divided: 20, 30, 40, 50, 60, 80 parts to the inch.

1190.	Triangular Boxwood Chain Scale, 12 inches . . . . .	\$1 00
1191.	" " " " 18 " . . . . .	2 50
1192.	" " " " 24 " . . . . .	4 25
1193.	" " " " 12 " divided: 100, 200, 300, 400, 500, 600 parts to the foot . . . . .	1 50

## Triangular Boxwood Metric Scales.

No.	Description	Each
1194.	Triangular Boxwood Scale, 20 cm., div. to mm. and $\frac{1}{2}$ mm. . . . .	\$1 25
1195.	" " " 30 " " " " $\frac{1}{2}$ " . . . . .	1 50
1196.	" " " 50 " " " " $\frac{1}{2}$ " . . . . .	2 75

## Triangular White Edge Scales.

For Architects and Mechanical Engineers.

U. S. STANDARD. MACHINE DIVIDED.

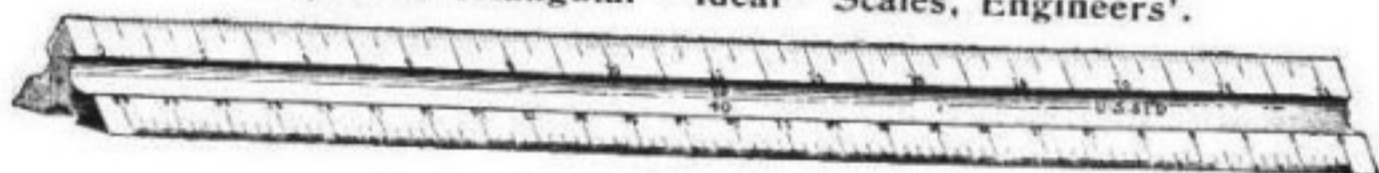
### Improved Triangular "Ideal" Scales, Architects'.



No. 1201.

No.	Divided: $\frac{1}{16}$ , $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{2}$ , 3 in. to the foot, $\frac{1}{16}$ in.	Each
1200.	Triangular White Edge Scale, 6 inches . . . . .	\$1 50
1201.	" " " " 12 " . . . . .	2 50
1202.	" " " " 18 " . . . . .	4 50
1203.	" " " " 24 " . . . . .	6 50
Divided: $\frac{1}{4}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{2}$ , 2, 3, 4, in. to the foot, $\frac{1}{16}$ in.		
1204.	Triangular White Edge Scale, 12 inches . . . . .	2 50
1205.	" " " " 18 " . . . . .	4 50
1206.	" " " " 24 " . . . . .	6 50

### Improved Triangular "Ideal" Scales, Engineers'.



No. 1208.

No.	Divided: 10, 20, 30, 40, 50, 60 parts to the inch.	Each
1207.	Triangular White Edge Chain Scale, 6 inches . . . . .	\$1 50
1208.	" " " " 12 " . . . . .	2 50
1209.	" " " " 18 " . . . . .	4 50
1210.	" " " " 24 " . . . . .	6 50
1211.	" " " " 12 " . . . . . divided: 20, 30, 40, 50, 60, 80 parts to the inch . . . . .	2 50
1212.	Triangular White Edge Chain Scale, 12 inches, divided: 100, 200, 300, 400, 500, 600 parts to the foot . . . . .	3 00

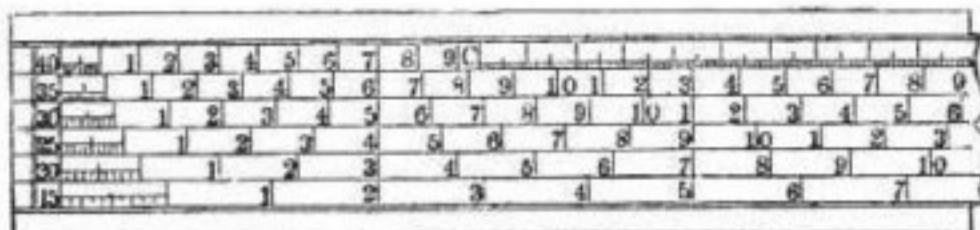
## Metallic Triangular Scales.



No. 1214.

No.	Divided like No. 1180	Each
1214.	Metallic Triangular Scale, Architects', 12 inches. . . . .	\$2 50
1215.	Metallic Triangular Chain Scale, Engineers', 12 inches, . . . . .	2 50
	Divided like No. 1187 . . . . .	2 50

## Plotting Scales.

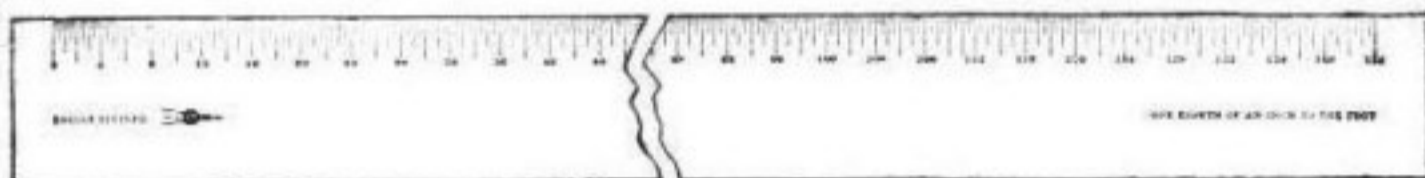


No. 1216.

- No. 1216. Boxwood Plotting Scale, 6 inches . . . . . Each, \$0 15  
 No. 1217. Ivory Plotting Scale, 6 inches . . . . . " 90

## Paper Scales.

PRINTED ON BRISTOL BOARD. ENGINE DIVIDED.



No. 1218.

- No. 1218. Card-board Scales, 18 in. long, full divided in  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2,  $2\frac{1}{4}$ ,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{4}$ ,  $3\frac{1}{2}$ ,  $3\frac{3}{4}$ , 4,  $4\frac{1}{4}$ ,  $4\frac{1}{2}$ ,  $4\frac{3}{4}$ , 5,  $5\frac{1}{4}$ ,  $5\frac{1}{2}$ ,  $5\frac{3}{4}$ , 6,  $6\frac{1}{4}$ ,  $6\frac{1}{2}$ ,  $6\frac{3}{4}$ , 7,  $7\frac{1}{4}$ ,  $7\frac{1}{2}$ ,  $7\frac{3}{4}$ , 8,  $8\frac{1}{4}$ ,  $8\frac{1}{2}$ ,  $8\frac{3}{4}$ , 9,  $9\frac{1}{4}$ ,  $9\frac{1}{2}$ ,  $9\frac{3}{4}$ , 10,  $10\frac{1}{4}$ ,  $10\frac{1}{2}$ ,  $10\frac{3}{4}$ , 11,  $11\frac{1}{4}$ ,  $11\frac{1}{2}$ ,  $11\frac{3}{4}$ , 12,  $12\frac{1}{4}$ ,  $12\frac{1}{2}$ ,  $12\frac{3}{4}$ , 13,  $13\frac{1}{4}$ ,  $13\frac{1}{2}$ ,  $13\frac{3}{4}$ , 14,  $14\frac{1}{4}$ ,  $14\frac{1}{2}$ ,  $14\frac{3}{4}$ , 15,  $15\frac{1}{4}$ ,  $15\frac{1}{2}$ ,  $15\frac{3}{4}$ , 16,  $16\frac{1}{4}$ ,  $16\frac{1}{2}$ ,  $16\frac{3}{4}$ , 17,  $17\frac{1}{4}$ ,  $17\frac{1}{2}$ ,  $17\frac{3}{4}$ , 18. Per set of these 8 scales, \$1 50  
 Single Scales . . . . . Each, 20  
 No. 1219. Card-board Scales, 18 in. long, full divided in 10, 20, 30, 40, 50, 60 parts to the inch . . . . . Per set of these 8 scales, 1 10  
 Single Scales . . . . . Each, 20  
 No. 1220. Metric Paper Scales,  $\frac{1}{2}$  meter long, divided in mm. . . . . " 20

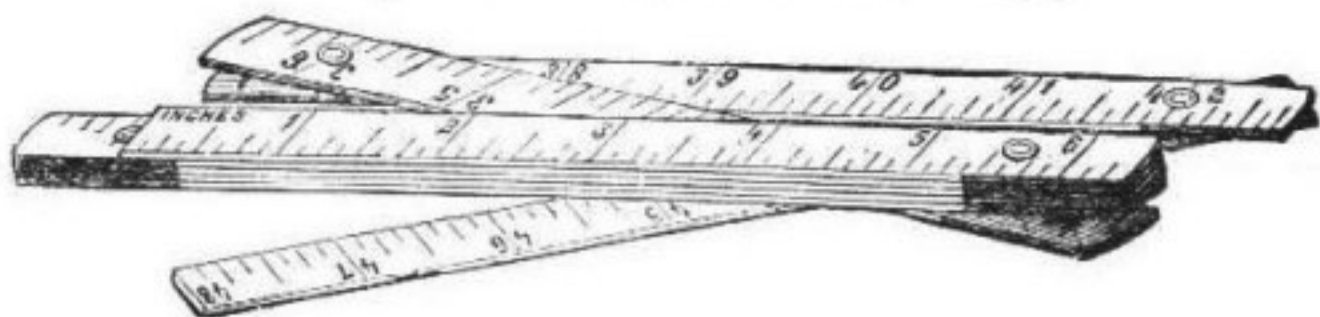
## Triangular Scale Guards.



No. 1221.

- No. 1221. Triangular Scale Guard or Holder . . . . . Each, \$0 25  
 This appliance is made of plated metal. It can be attached to any part of the scale, and overcomes the necessity of searching for the scale in use.

## Engineers' Pocket Rules.



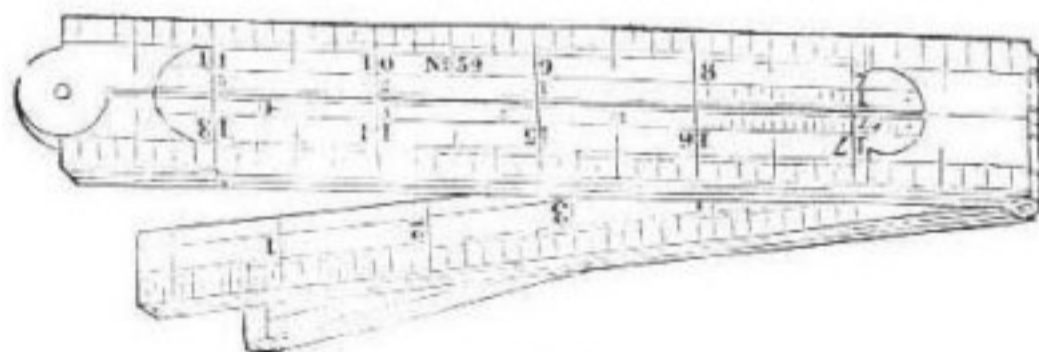
No. 1223.

These pocket rules are thin and light, and therefore more convenient than the common joint rules. By a peculiar preparation of the wood, shrinkage is entirely prevented. They are accurate, and are provided with ingenious springs which hold the Rule in a straight line when open for easy measurement of vertical and horizontal distances.

No rivets visible on the surface that disturb the reading of the scale. The ends are provided with brass tips.

No.											Each
1222.	Pocket Rule, 2 feet, 4 fold, div.,	$\frac{1}{16}$	X	$\frac{1}{16}$	in., with springs . . . . .						\$0 35
1223.	"	4	"	8	"	$\frac{1}{16}$	X	$\frac{1}{16}$	"	"	50
1224.	"	5	"	10	"	$\frac{1}{16}$	X	$\frac{1}{16}$	"	"	60
1225.	"	6	"	12	"	$\frac{1}{16}$	X	$\frac{1}{16}$	"	"	75
1226.	"	8	"	16	"	$\frac{1}{16}$	X	$\frac{1}{16}$	"	"	1 00
1227.	"	4	"	8	"	$\frac{1}{16}$	X	mm.,	"	"	50

## Scale Rules.



No. 1228.

No.											Each			
1228.	Ivory Joint Rule, 2 feet, 4 fold, German silver mounted, divided	$\frac{1}{16}$	, $\frac{1}{16}$	, $\frac{1}{16}$	, in.; outside edge foot in 100ths. The inside edges are beveled and divided	$\frac{1}{16}$	, $\frac{1}{8}$	, $\frac{3}{16}$	, $\frac{1}{2}$	, $\frac{3}{4}$	, $\frac{1}{2}$	, $\frac{3}{4}$	, 1, $1\frac{1}{2}$ inches to the foot. The main joint is graduated to 5 degrees, for setting off angles . . . . .	\$7 80
1229.	Boxwood Joint Rule, 2 feet, 4 fold, German silver mounted, divided like No. 1228 . . . . .													2 10
1230.	Boxwood Joint Rule, 2 feet, 4 fold, brass mounted, with scales on beveled edges of	$\frac{1}{16}$	, $\frac{1}{8}$	, $\frac{1}{16}$	, $\frac{1}{2}$	, $\frac{3}{4}$	, 1 inch to the foot. The main joint is graduated at 45, 60 and 90 degrees . . . . .							1 35

## The Rotameter.

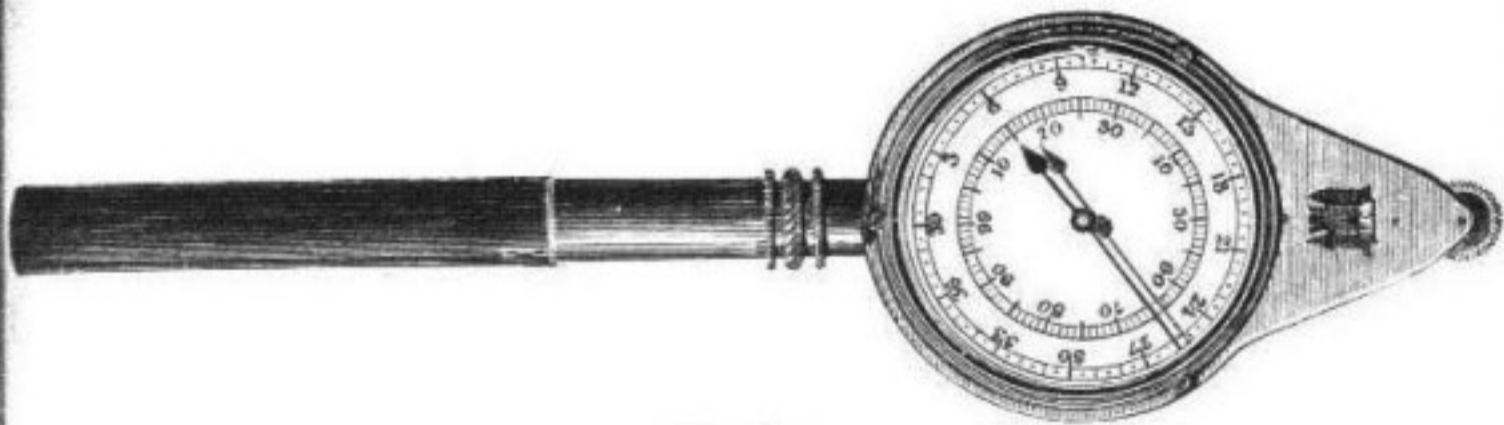
(MAP MEASURES.)



No. 1231.

An ingenious little instrument for measuring surfaces by simply running the projecting wheel any distance up to 25 feet—the large hand traversing outer dial reading to 12 inches divided into  $\frac{1}{8}$  inches, and the inner dial registering feet. Invaluable as a Surface Speed Indicator in machine lathe work for steel castings and forgings, etc., etc.

No. 1231. Nickel-Plated, 1-inch dial in inches and feet . . . . . \$2 00



No. 1231a.

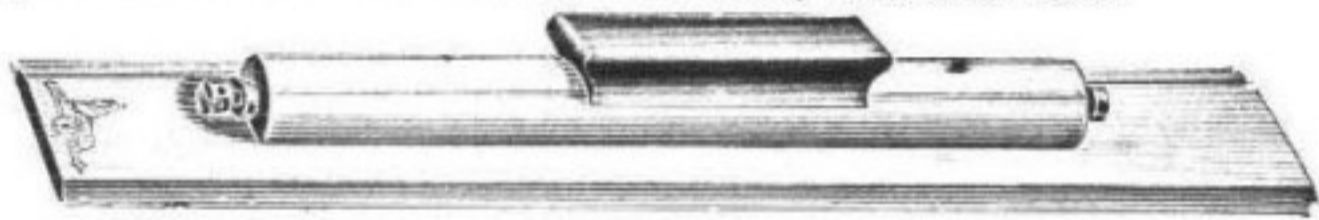
No. 1231a. Universal Map Measure, with handle. The index hand registers inches to miles, or centimeters to kilometers . . . . . Each, \$3 00

## Rolling Parallel Rules.

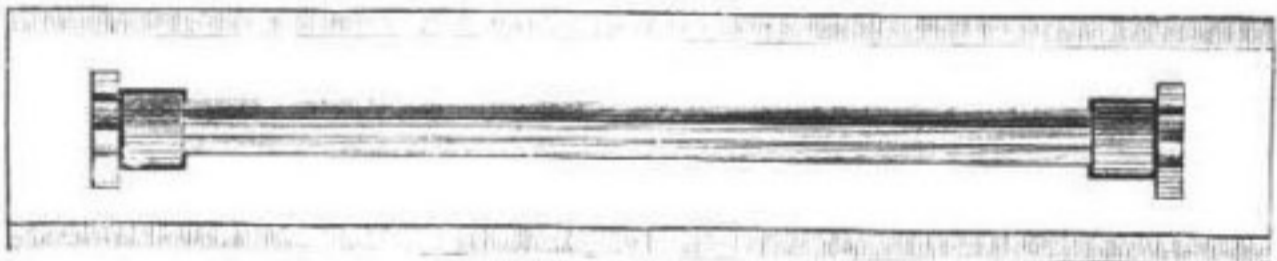
STANDARD QUALITY.

The Metal Rolling Parallel Rules made by us are heavier than those generally offered. They are made by special machinery and mounted according to a system which insures the greatest possible accuracy.

We claim these to be the best standard parallel rules in the States. The body of the rule is made of bronze, and is nearly as hard as steel.

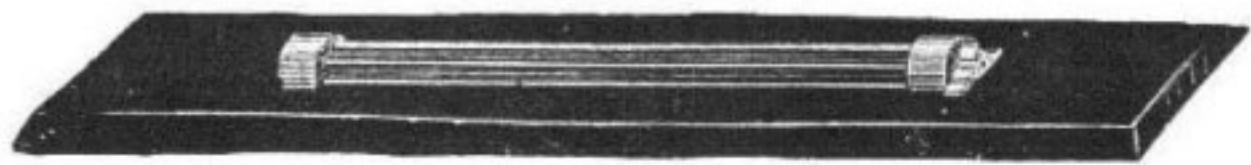


No.	No. 1232.	Each
1232.	12-inch, in case . . . . .	\$10 00
1232a.	15 " " . . . . .	14 00
1232b.	18 " " . . . . .	16 00
1232c.	21 " " . . . . .	20 00
1232d.	24 " " . . . . .	24 00



No.	No. 1233-1234d.	Each
1233.	Solid Brass, fine finish, Rolling Parallel Rule, 9 inches . . . . .	\$ 7 25
1233a.	" " " " " " " " 12 " . . . . .	8 50
1233b.	" " " " " " " " 15 " . . . . .	10 00
1233c.	" " " " " " " " 18 " . . . . .	12 00
1233d.	" " " " " " " " 24 " . . . . .	18 00
1234.	Solid German Silver Rolling Parallel Rule, 9 " . . . . .	8 50
1234a.	" " " " " " " " 12 " . . . . .	10 00
1234b.	" " " " " " " " 15 " . . . . .	12 00
1234c.	" " " " " " " " 18 " . . . . .	15 00
1234d.	" " " " " " " " 24 " . . . . .	20 00

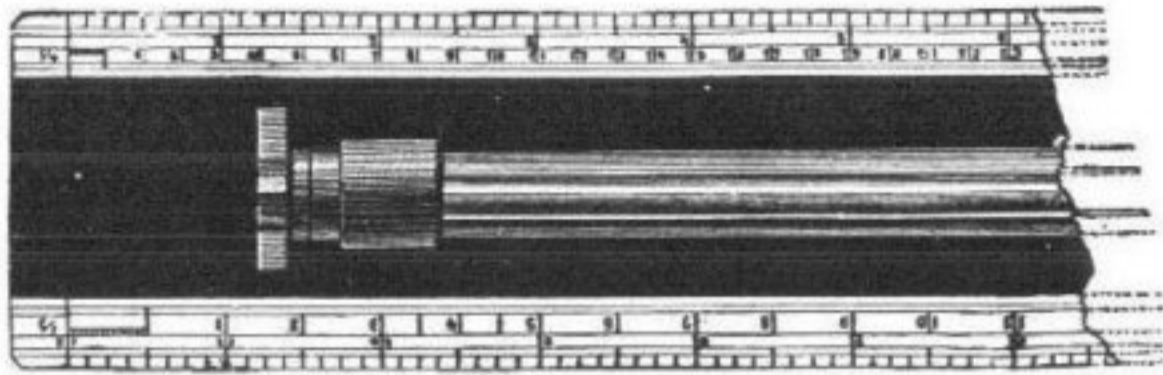
## Rolling Parallel Rules, Ebony.



No.	No. 1235.	Each
1235.	Ebony Rolling Parallel Rule, 9-inch, brass mountings . . . . .	\$2 75
1235a.	" " " " " " 12 " " " " . . . . .	3 25
1235b.	" " " " " " 15 " " " " . . . . .	4 00
1235c.	" " " " " " 18 " " " " . . . . .	5 00



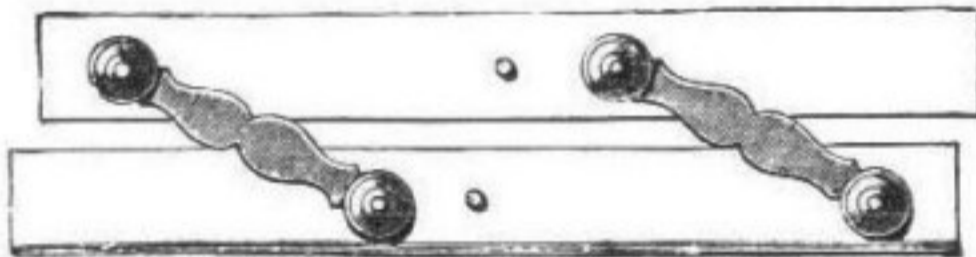
## Rolling Parallel Rules.



No. 1236.

No.		Each
1236.	Ebony Rolling Parallel Rule, brass mountings, edges divided on Ivory $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{1}{2}$ , 1 inch to the foot, 12 inch . . . . .	\$5 00
1236a.	Same as No. 1236, 15 inch . . . . .	6 50
1236b.	Same as No. 1236, 18 inch . . . . .	7 50

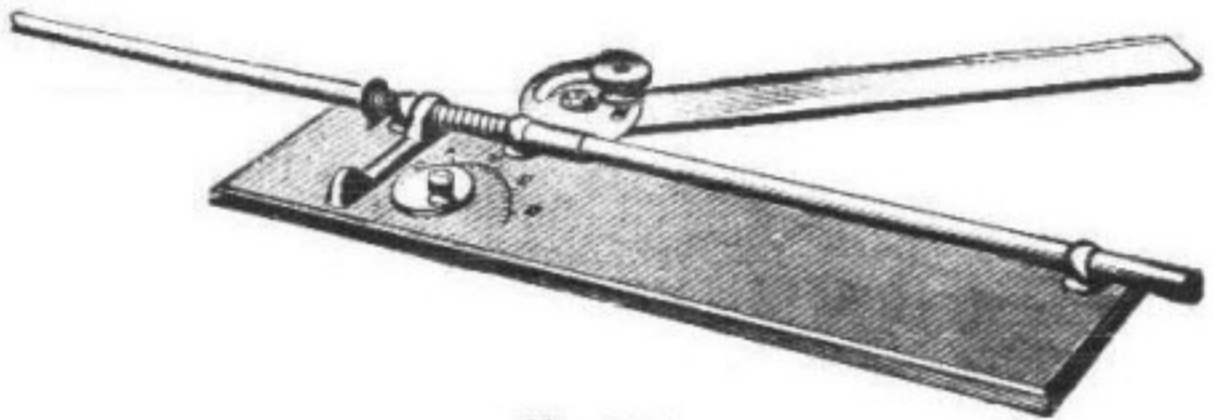
## Folding Parallel Rules.



No. 1237-1247 $\frac{1}{2}$ .

No.		Each
1237.	Ebony Parallel Rules, brass bars, 6 in., best quality . . . . .	\$0 25
1238.	" " " " " 9 " " " " . . . . .	50
1239.	" " " " " 12 " " " " . . . . .	75
1240.	" " " " " 15 " " " " . . . . .	1 00
1241.	" " " " " 18 " " " " . . . . .	1 25
1242.	" " " " " 24 " " " " . . . . .	2 00
1243.	Rubber Parallel Rules, nickel-plated bars, 6 in., best quality . . .	\$0 75
1244.	" " " " " " 9 " " " " . . . . .	1 00
1245.	" " " " " " 12 " " " " . . . . .	1 25
1246.	" " " " " " 15 " " " " . . . . .	1 50
1247.	" " " " " " 18 " " " " . . . . .	1 80
1247 $\frac{1}{2}$ .	" " " " " " 24 " " " " . . . . .	2 50

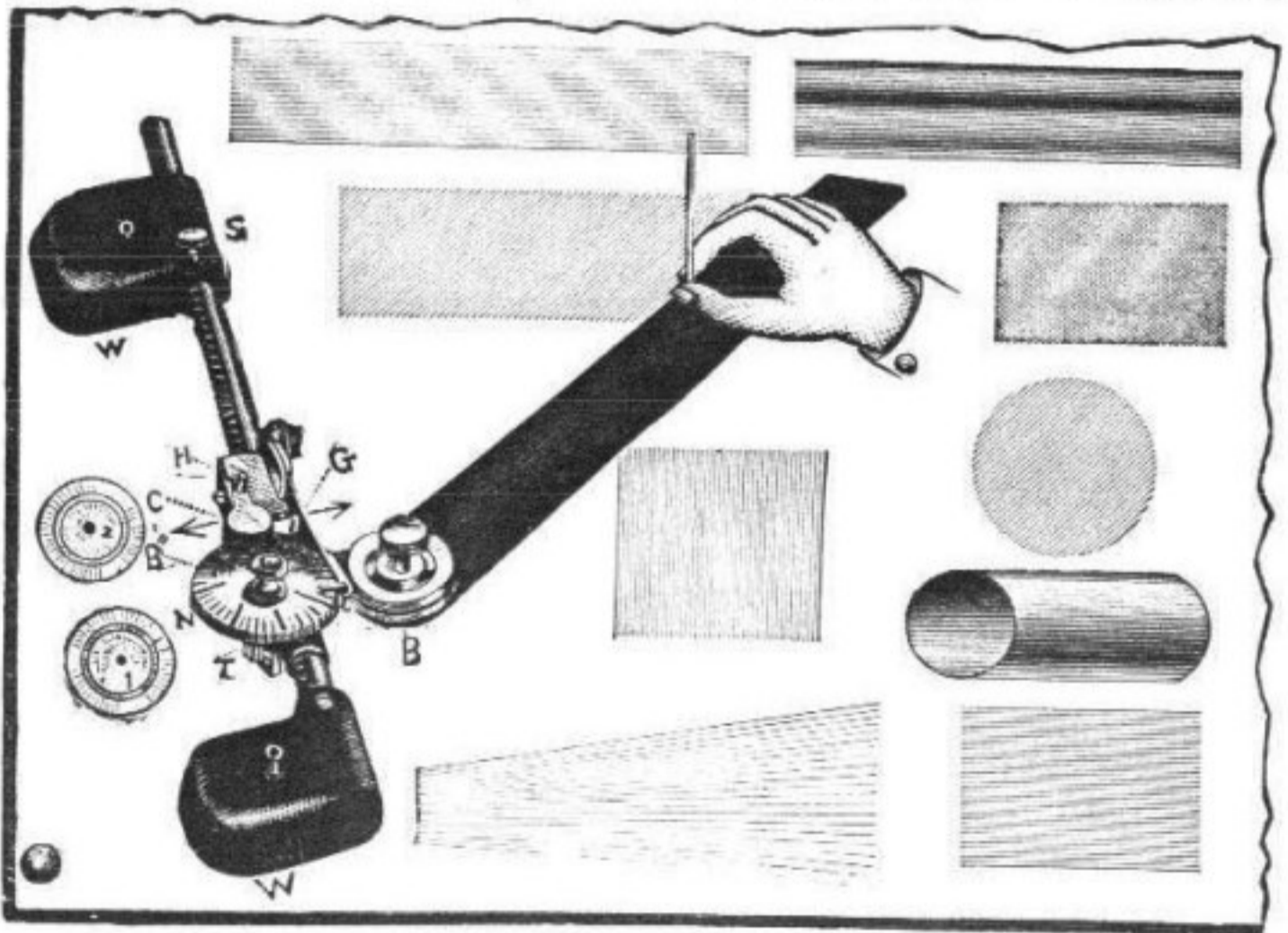
## Improved Standard Section Liner.



No. 1248.

This is the cheapest good section liner on the market, being accurate, neat and simple. Lines may be drawn in any direction and at any distance apart, from  $\frac{1}{16}$  of an inch to about  $1\frac{1}{2}$  inches, as well as at any angle. Put up in a neat covered box.

No. 1248. Standard Section Liner, of hardwood with nickel-plated mountings, in case . . . . . Each, \$1 50



No. 1249.

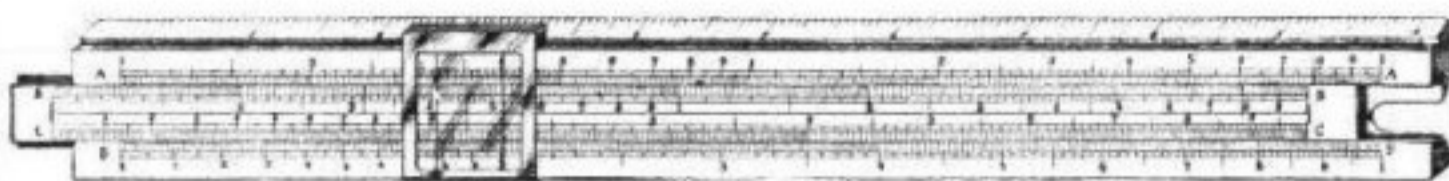
No. 1249. Section Liner, blade 12 inches long . . . . . Each, \$8 50

No. 1249a. " " like No. 1249, blade 14 inches long . . . . . " 7 50

Full description furnished with every instrument.

## Mannheim Slide Rules.

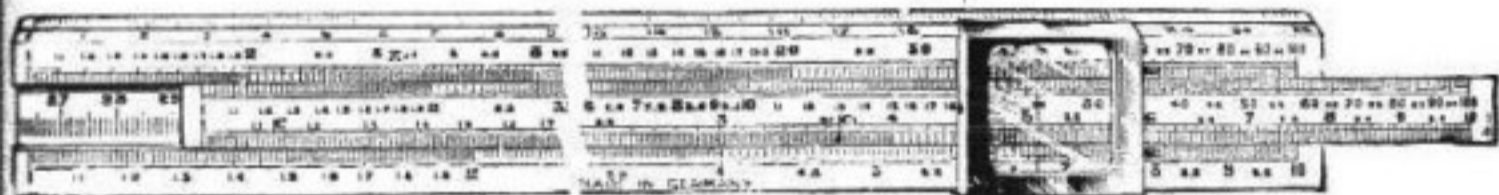
IMPROVED SLIDE RULES.



No. 1250.

No.	Each
1250. Improved Engineers' Slide Rule (Mannheim), 10-inch, divided on white celluloid, aluminum framed glass indicator. Directions with rule . . . . .	\$4 50
1251. Improved Engineers' Slide Rule (Mannheim), 20-inch, divided on white celluloid, aluminum framed glass indicator. Directions with rule . . . . .	17 50

## A. W. Faber's Improved Calculating Scale.



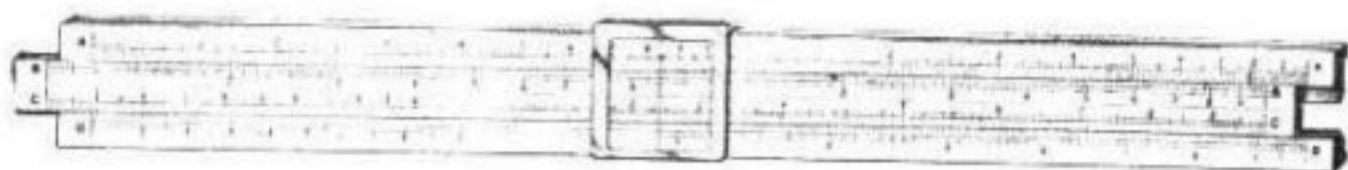
No. 1252.

REDUCED SIZE.

Calculating scales or mathematical rules have been in existence for many years, but A. W. Faber has carried out some important improvements upon those hitherto made, and those who are experienced in the use of this interesting contrivance will not be long in recognizing its merits. The number of mathematical and technical problems that can be worked out with its aid is almost endless. The rule is made of boxwood and the traversing slide of nickel metal; the figuring has been done with the utmost care and distinctness so as to insure the greatest accuracy.

No.	Each
1252. Faber's Slide Rule, divided on celluloid, with book of instructions . . . . .	\$ 3 60
1252a. Faber's Slide Rule has received a further improvement by the insertion into its body, lateral to the slide, of a boxwood adjuster, which acts upon the slide like a spring and insures to its movement an even and adequate friction, safeguarded against becoming either excessively tight or excessively loose under changes of temperature and atmospheric humidity. Faber's Slide Rule, improved, divided on celluloid, with book of instructions . . . . .	4 00
1252b. The Faber's Improved Slide Rule, 20-inch, hardwood, divisions on white ivory with glass indicator. Printed instructions with rule . . . . .	16 50

## College Slide Rule.



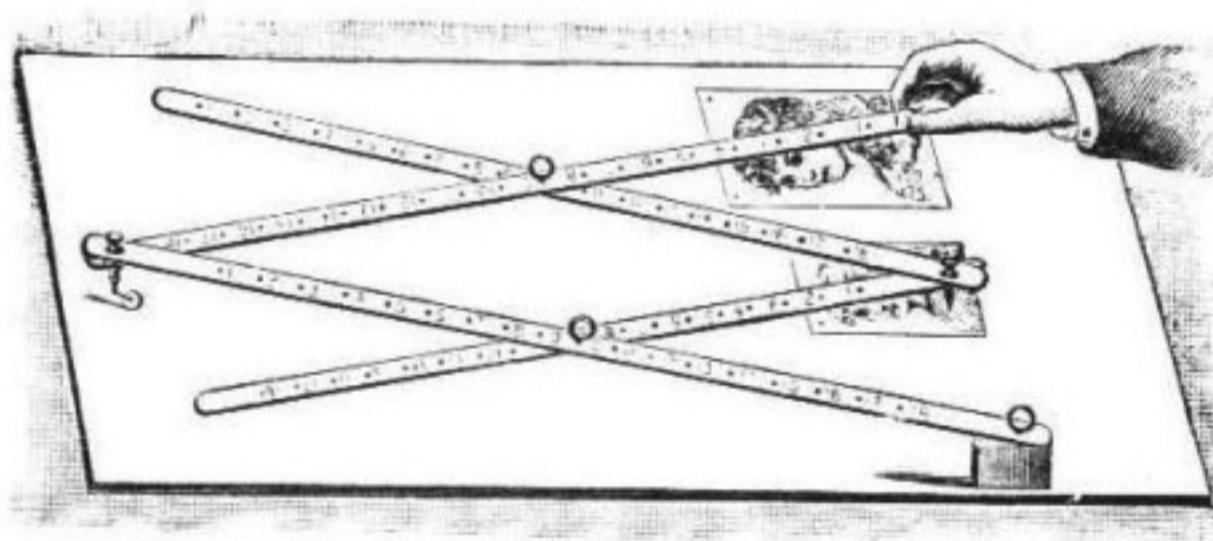
No. 1253.

No.	1253. College Slide Rule (Mannheim), 10-inch, hardwood, divisions on white paper, with glass indicator and directions	Each
		\$1 25

The College Slide Rule is similar in graduations to the Mannheim Slide Rule and is intended for the use of students, enabling them to become familiar with the latter at no great expense.

## Pantographs.

FOR ENLARGING AND REDUCING DRAWINGS.



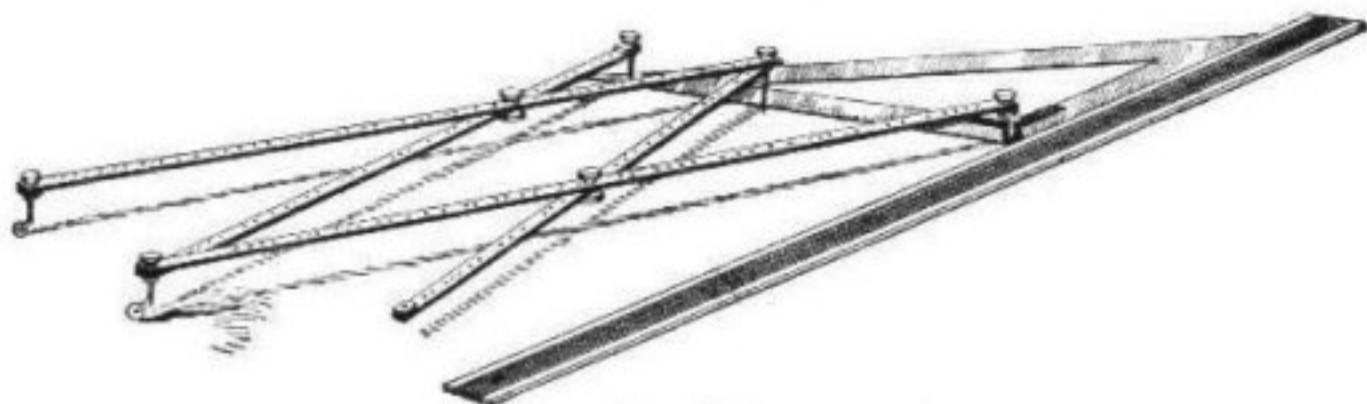
No. 1254.

No.	1254. Heavily mounted, with nickel-plated elbow joint wheel, pencil holder and exchangeable point; finely polished, black figures, in neat box, 21 inches long	Each
		\$2 50
	1255. Brass mounted, with brass elbow joint wheel, pencil holder and movable point; polished, black figures, in box	2 00
	1256. Brass mounted, same as No. 1255, in every respect, except that it is not polished, in box	1 50
	1257. Is a smaller instrument. It is recommended by teachers as an excellent means of familiarizing children with form and proportion, and greatly assisting them in acquiring a knowledge of the rudiments of drawing by sight from original objects	25

Complete directions furnished with each pantograph.

# The Boston Universal Pantograph.

PATENT PENDING.



No. 1259.

No. 1259. Boston Universal Pantograph, of German silver, with 18-inch Transparent Ambro Triangle, in box, with directions . . . Each, \$45 00

The Boston Universal Pantograph has been designed in order to combine, at a reasonable cost, the accuracy of very expensive and intricate instruments with the simplicity and handiness of cheap ones. The expectations have been more than fulfilled, inasmuch as the Boston Universal, besides combining the good qualities of former constructions, possesses some new ones of its own, and furthermore, in reducing and enlarging, covers a field never before attempted.

It is of the most simple construction, made of German silver throughout, with the minutest care, and in principle somewhat similar to the ordinary wooden pantograph, and requires, therefore, only a moment to be set to the desired proportion, ready for use.

The pivotal point is mounted on a celluloid triangle which may be placed anywhere on the most delicate drawing without injuring it, and a few weights will secure its position as well as will the commonly used screws or claws.

The center of the pivot is placed exactly over the right-angled corner of the triangle and can, therefore, easily be marked on the plan, making it possible—

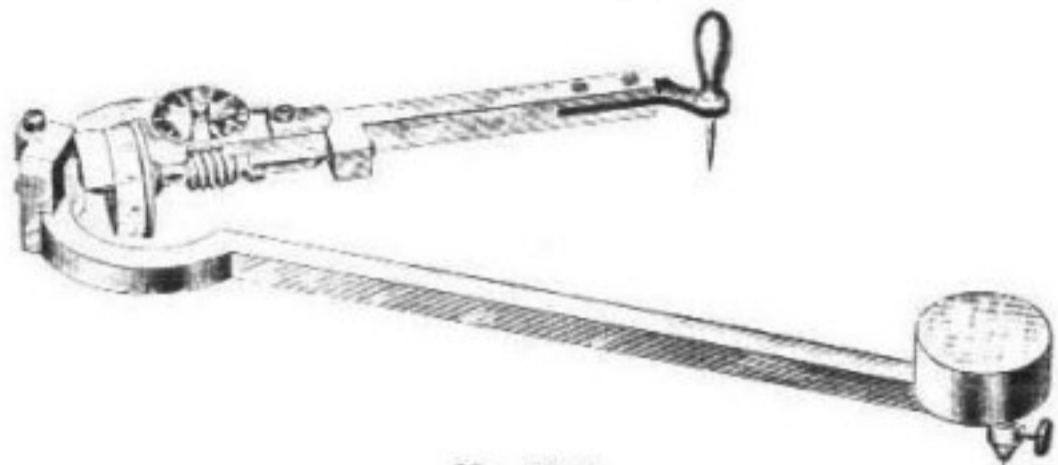
FIRST.—To remove the Pantograph entirely and replace it as often as desired.

SECOND.—To change the position of the triangle and still keep the same pivotal point, thus gaining access to that part of the drawing which the triangle may have covered at first, and obtaining a copy of the entire drawing within the sweep of the Pantograph (a circle 8 feet in diameter) without leaving any "bald spots" to be covered separately.

THIRD.—To move the pivotal point from place to place on the plan in the systematic manner and thus reduce or enlarge plans of unlimited size and still get the copy in one piece.

In addition to its use for plain reducing and enlarging, the Boston Universal Pantograph covers a new field in being able to give a copy of a drawing distorted in a systematic manner, making the Pantograph adapted to a variety of purposes more readily imagined than enumerated. These results are obtained by sliding the triangle on which the pivot is mounted along a straight edge, keeping one side of the triangle against the tracer and consequently against the pencil. In this way the scale parallel to the straight edge is retained and the scale at right angles (or 45 degrees) thereto is changed. An easily acquired familiarity with the Pantograph will suggest a wide range of possibilities.

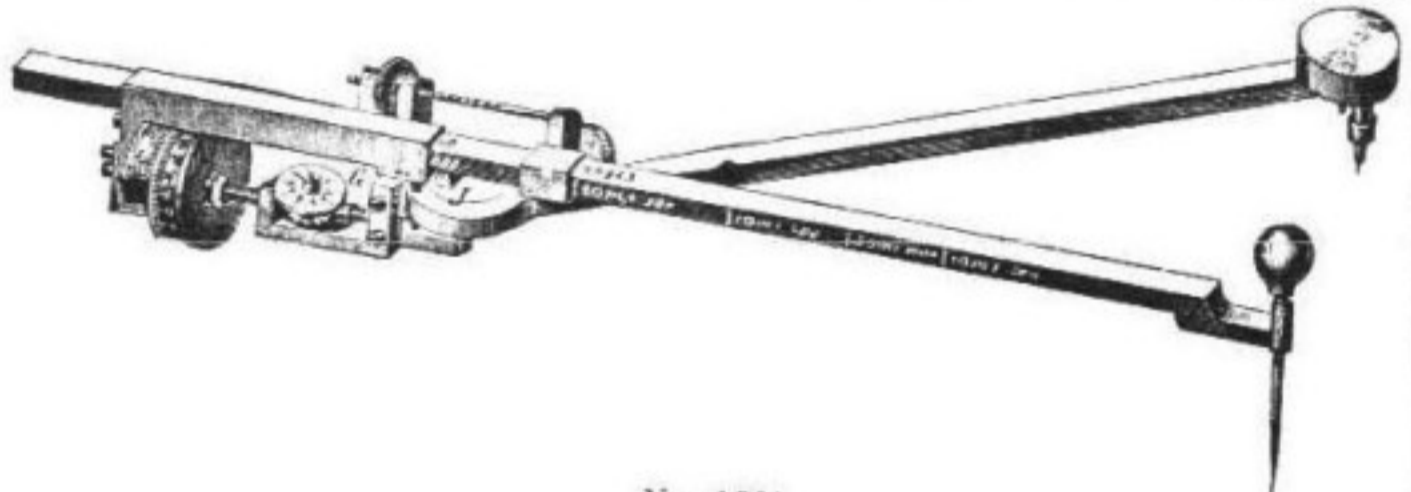
## Planimeters.



No. 1260.

ILLUSTRATED  $\frac{1}{2}$  SIZE.

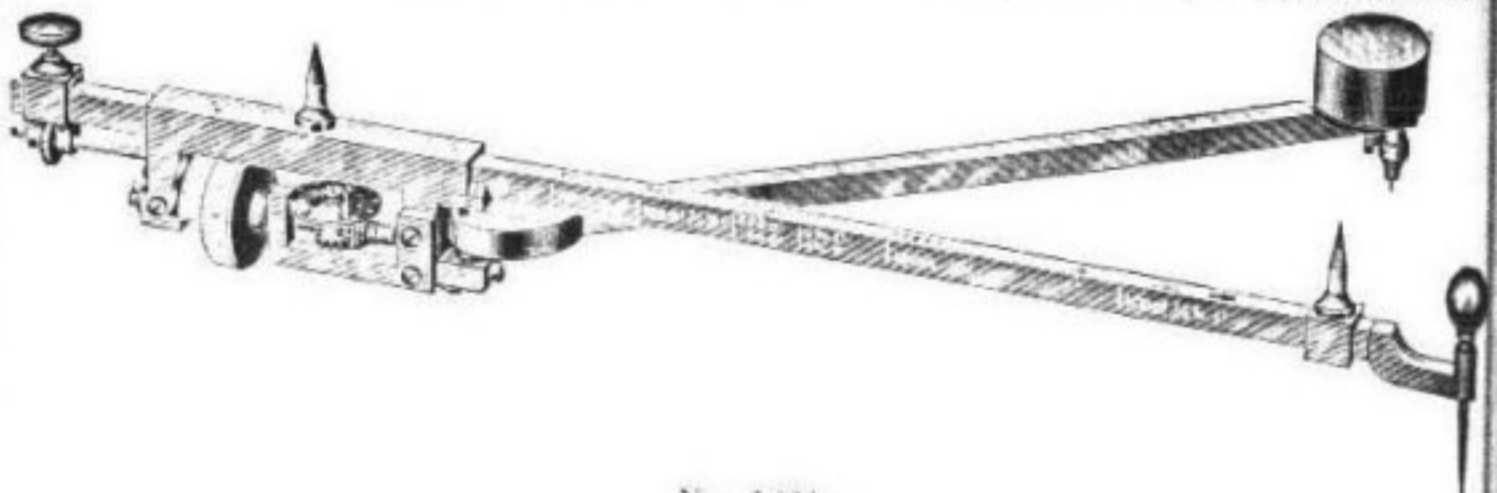
No. 1260. Polar Planimeter, German silver, arranged for measurement of areas in square inches, viz., 10, 1,  $\frac{1}{10}$ ,  $\frac{1}{100}$  square inches, with directions, in case . . . . . Each, \$19 00



No. 1261.

ILLUSTRATED  $\frac{1}{2}$  SIZE.

No. 1261. Polar Planimeter, German silver, for every kind of measurement, with directions, in case . . . . . Each, \$28 50



No. 1261a.

ILLUSTRATED  $\frac{1}{3}$  SIZE.

No. 1261a. Polar Planimeter, German silver, for every kind of measurement, with special arrangement for finding rapidly the mean height of indicator diagrams, with directions, in case . . . . . Each, \$33 00

These Polar Planimeters are used for computing with rapidity and accuracy the area of any figure, how irregular it ever may be, such as railroad profiles, indicator diagrams, plots of ground, etc., etc., and is of great value to engineers and others on account of its saving in time and labor.

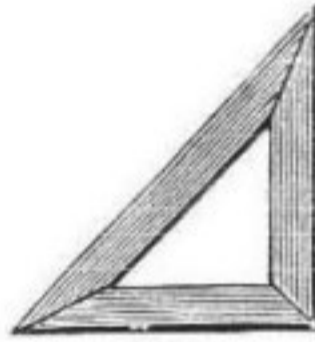
## Wooden Triangles.

These Triangles are made of thoroughly seasoned material. The workmanship is of the best, and with our improved machinery, perfect accuracy is assured.

The size of all Triangles is determined by the length of the catheti indicated by the dotted lines. In order to secure a 30° x 60° and a 45° Triangle of even size of hypotenuse, order the 45° Triangle about 2 inches shorter than the 30° x 60° Triangle.



1262.



1263.

No. 1262. Pearwood Triangles, framed 30° x 60°.

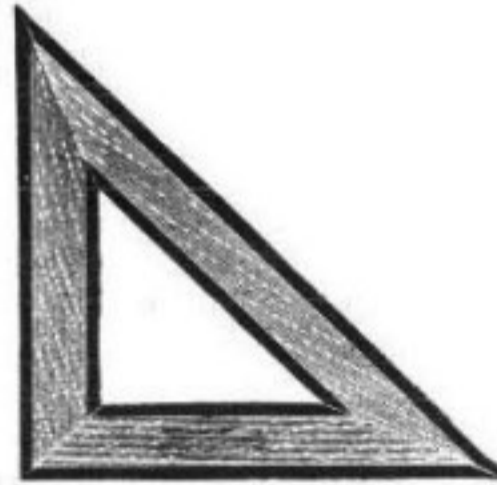
Size . . . . .	7	9	12	14 in.
Each . . . . .	\$0 20	25	30	40

No. 1263. Pearwood Triangles, 45°.

Size . . . . .	8	10	12 in.
Each . . . . .	\$0 25	30	40



1264.



1265.

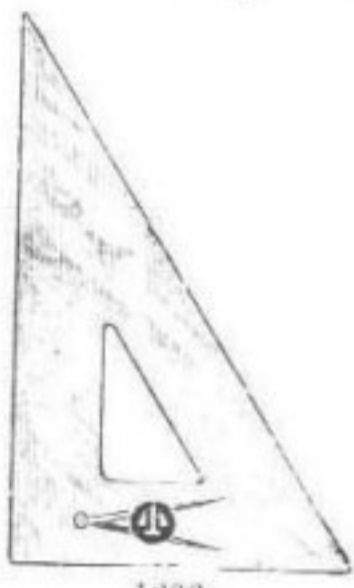
No. 1264. Mahogany, Ebony Lined Triangles, mortised joints, 30° x 60°.

Size . . . . .	8	10	12	14	17	20 in.
Each . . . . .	\$0 35	40	55	75	1 20	1 50

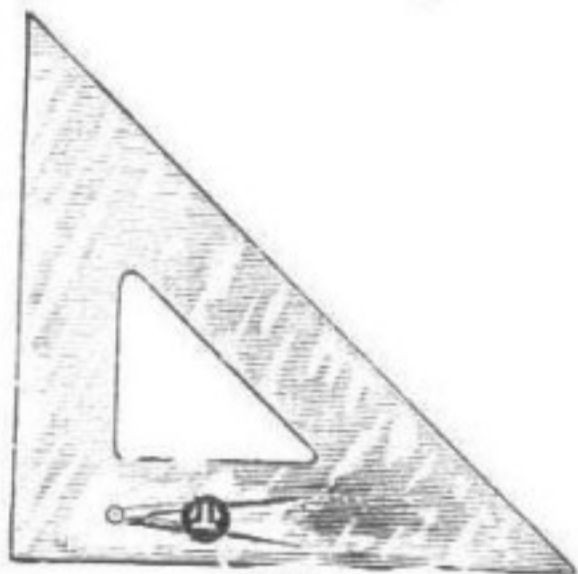
No. 1265. Mahogany, Ebony Lined Triangles, mortised joints, 45°.

Size . . . . .	6	8	10	12	14	17 in.
Each . . . . .	\$0 35	40	55	75	1 20	1 50

## Transparent Amber Triangles.



1266.



1267.

No. 1266. Transparent Amber Triangles, open center, 30° x 60°.

Size,	4	5	6	7	8	9	10	11	12	14	16	18 in.
Each, \$0	25	35	40	45	55	65	75	85	1 00	1 65	2 40	3 25

No. 1267. Transparent Amber Triangles, open center, 45°.

Size,	3	4	5	6	7	8	9	10	12	14	16	18 in.
Each, \$0	35	35	45	55	65	75	95	1 10	1 65	2 20	3 15	4 25

## Hard Rubber Triangles.



30 x 60

1268.



45 x 45

1269.

No. 1268. Hard Rubber Triangles, 30° x 60°.

Size . . . . .	4	5	6	7	8	9	10	12	14	16	18 in.
Each . . . \$0	15	20	25	30	35	40	45	60	1 00	1 50	2 00

No. 1269. Hard Rubber Triangles, 45°.

Size . . . . .	3	4	5	6	7	8	9	10	12	14	16 in.
Each . . . \$0	15	25	30	35	40	45	55	60	1 00	1 50	2 20

## Steel Triangles.

No. 1270. Steel Triangles, nickel-plated, 30° x 60°.

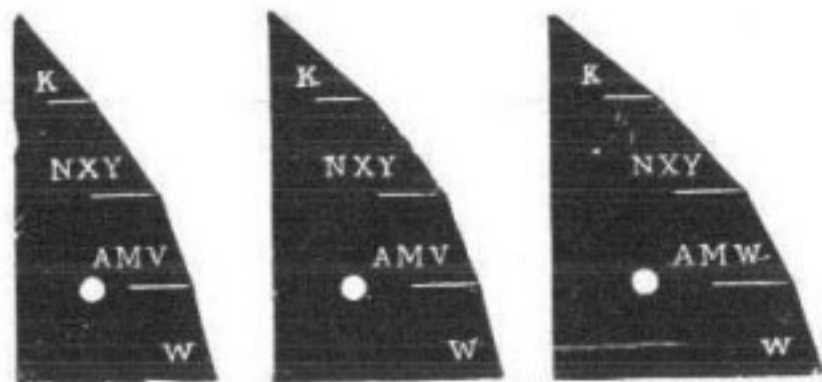
Size . . . . .	6	7	8	10½	15 in.
Each . . . . .	\$3 20	3 50	3 85	4 25	6 50

No. 1271. Steel Triangles, nickel-plated, 45°.

Size . . . . .	5	6½	8	10	12 in.
Each . . . . .	\$3 20	3 50	4 25	5 50	6 50



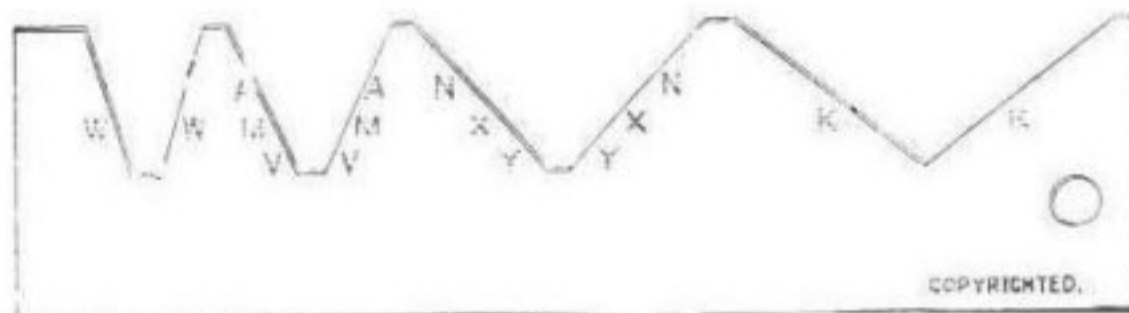
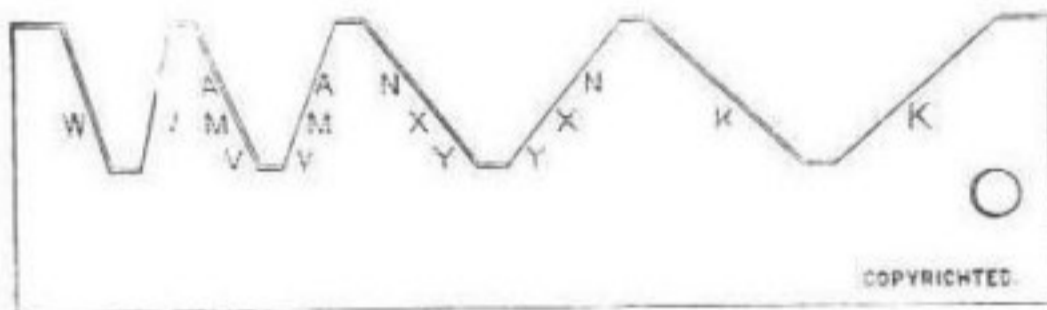
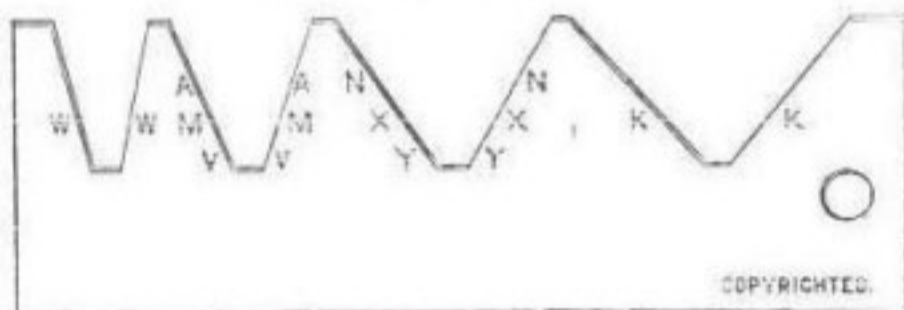
## Lettering Triangles.



- No. 1273. Hard Rubber Lettering Triangles, 3 in set, 3½ inch. . . . Per set, \$1 25  
 No. 1274. Transparent "Amber" Lettering Triangles, 3 in set, 3½ in., " . . . 1 75

## New Lettering Triangles.

(ILLUSTRATED ½ SIZE.)



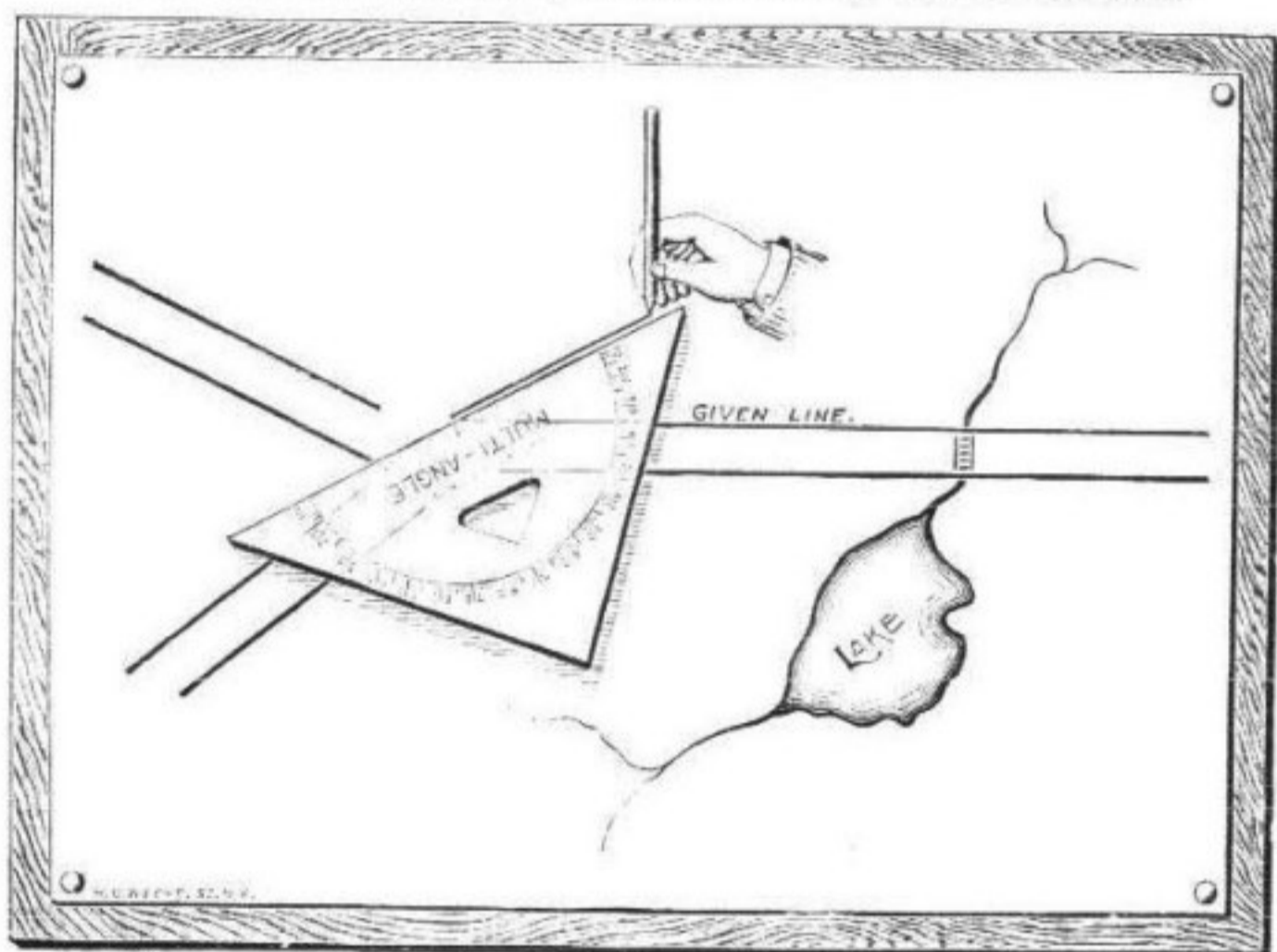
- No. 1275. New Style of Lettering Angles, made of "Transparent Ambro."  
 Per set of above 3 pieces . . . . . \$2 00

Our New Style Lettering Angles facilitate *rapid* and *accurate* lettering because all slopes are in one horizontal line and in equal distance from the T-square or Straight Edge along which they slide. The old style required constant moving up and down to accomplish the desired slope. Our new style has the further advantage that it permits of inking the letters without risk of blurring the lines.

## The Multi-Angle.

PATENT APPLIED FOR.

**A Simple and Ingeniously Combined Triangle and Protractor.**



A ruling edge of this triangle may be placed at once exactly at any required angle to a given line, it likewise facilitates the measuring of angles.

No. 1278. Angles  $45^\circ$ , divided in  $\frac{1}{2}^\circ$  from 7'' upwards.

	6	7	8	9	10	12	14 in.
Each . . . . .	\$1 00	1 25	1 50	1 75	2 00	2 50	3 00

### DESCRIPTION.

It is a transparent triangle having a graduated arc with its centre in one of the ruling edges marked off on one side, and having the numbers designating the graduation marks on the opposite side.

#### It Insures Quickness and Accuracy.

To draw a line at any required angle to a given line by means of the Multi-Angle, it is only necessary to place the triangle so that the centre of the graduated arc and the graduation mark designating the size of the required angle, are directly over the given line; thereby the ruling edge containing the centre of the arc, is placed in exact position to draw the line.

The obtainment of surpassing accuracy is made evident by the graduation marks being on the under side of the triangle when in use next to the drawing, permitting the graduation marks to be placed exactly over the given line without parallax or approximation.

## Irregular Curves.



1280. Cherry Wood Curves, pattern A, first quality.													
No.	1	2	3	4	5	6	7	8	9	10	11	12	
Each, \$0.15	20	20	25	25	25	25	25	25	25	30	25	20	
No.	13	14	15	16	17	18	19	20	21	22	23	24	25
Each, \$0.30	30	30	30	35	40	40	40	40	40	40	45	45	50
1281. Hard Rubber Curves, pattern A.													
No.	1	2	3	4	5	6	7	8	9	10	11	12	
Each, \$0.30	40	40	40	40	40	40	50	50	50	50	50	40	
No.	13	14	15	16	17	18	19	20	21	22	23	24	25
Each, \$0.50	85	50	50	85	75	75	65	75	75	75	1.00	1.00	1.25
1281a. Celluloid Curves, pattern A.													
No.	1	2	3	4	5	6	7	8	9	10	11	12	
Each, \$0.30	40	45	45	45	50	50	50	55	60	55	45		
No.	13	14	15	16	17	18	19	20	21	22	23	24	25
Each, \$0.70	80	95	95	1 15	1 15	1 10	1 15	1 10	1 20	1 30	1 30	2 00	



## Adjustable Curve Rulers.



No. 1285.

This Rule consists of a band of thin, flexible steel,  $\frac{3}{4}$  of an inch wide; this is attached to a bar of soft lead, which is covered by a long spiral spring.

The Rule is bent to the required position, and the soft leaden bar prevents any springing back.

*This size is nickel-plated, and is adapted for railroad and ship-building, and for long curves in general.*

No. 1285. Adjustable Curve Ruler, large. Entire length and Ruling edge, 30 inches . . . . . Each, \$2 87

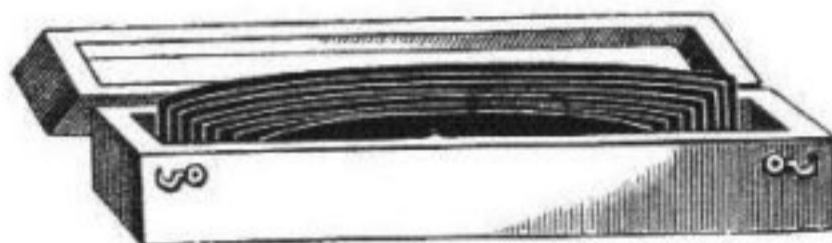


No. 1286.

The basis of this Ruler is a bar of soft lead, which can easily be bent, and remains so. To improve the working of it, the lead is lined with two thin bands of steel, and the drawing edge covered with rubber, which is held in place by the small ribs.

No. 1286. Adjustable Curve Ruler, small. Entire length, 14 $\frac{1}{2}$  inches; ruling edge, 10 inches . . . . . Each, \$1 87

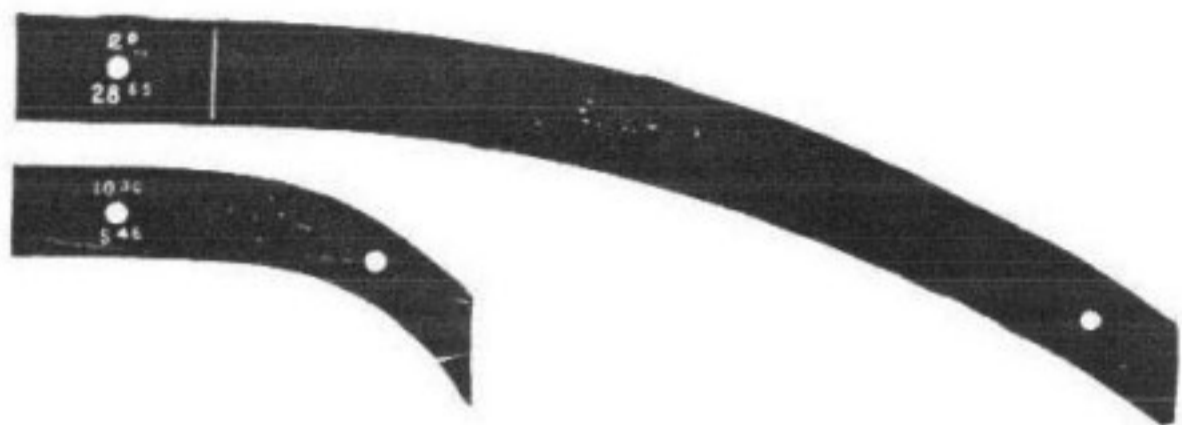
## Railroad Curves.



No. 1290.

No.		Each.
1289.	Pearwood Railroad Curves, 10 in set, 12 to 120-inch radius, viz.: 12, 24, 36, 48, 60, 72, 84, 96, 108, 120-inch, in wooden boxes . . . . .	\$3 50
1290.	Hard Rubber Set, same as No. 1289 . . . . .	7 75
1291.	Cardboard " " " " 1289 . . . . .	3 00
1292.	Pearwood Railroad Curves, 17 in set, 12 to 60-inch radius, viz.: 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60-inch, in wooden box, . . . . .	6 00
1293.	Hard Rubber Set, same as No. 1292 . . . . .	13 25
1294.	Cardboard " " " " 1292 . . . . .	5 00
1295.	Pearwood Railroad Curves, 43 in set, 3 to 200-inch radius, viz.: 3, 3 $\frac{1}{2}$ , 4, 4 $\frac{1}{2}$ , 5, 5 $\frac{1}{2}$ , 6, 6 $\frac{1}{2}$ , 7, 7 $\frac{1}{2}$ , 8, 8 $\frac{1}{2}$ , 9, 9 $\frac{1}{2}$ , 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-inch, in wooden box . . . . .	12 00
1296.	Hard Rubber Set, same as No. 1295 . . . . .	28 00
1297.	Single Pearwood Curves of any desired radius . . . . .	45
1298.	" Hard Rubber " " " " " . . . . .	80

## Rubber Railroad Curves with Tangent.



No. 1300. **Hard Rubber Railroad Curves**, with tangent, marked in degrees and inches, to scale 100 feet=1 inch, 41 in set, viz.:

0° 30' = 114.59 ins.	3° 30' = 16.37 ins.	6° = 9.55 ins.	8° 30' = 6.75 ins.
1° = 57.30 ins.	3° 45' = 15.28 ins.	6° 15' = 9.17 ins.	8° 54' = 6.55 ins.
1° 15' = 45.84 ins.	4° = 14.33 ins.	6° 30' = 8.82 ins.	9° = 6.37 ins.
1° 30' = 38.20 ins.	4° 15' = 13.48 ins.	6° 45' = 8.49 ins.	9° 15' = 6.20 ins.
1° 54' = 32.74 ins.	4° 30' = 12.73 ins.	7° = 8.19 ins.	9° 30' = 6.04 ins.
2° = 28.65 ins.	4° 45' = 12.07 ins.	7° 15' = 7.91 ins.	9° 45' = 5.88 ins.
2° 15' = 25.47 ins.	5° = 11.46 ins.	7° 30' = 7.64 ins.	10° = 5.74 ins.
2° 30' = 22.92 ins.	5° 15' = 10.92 ins.	7° 45' = 7.40 ins.	10° 30' = 5.48 ins.
2° 45' = 20.84 ins.	5° 30' = 10.42 ins.	8° = 7.17 ins.	11° = 5.22 ins.
3° = 19.10 ins.	5° 45' = 9.97 ins.	8° 15' = 6.95 ins.	11° 30' = 4.99 ins.
3° 15' = 17.63 ins.			
		In wooden box, set . . . . .	\$30 00

These Hard Rubber Railroad Curves are made to correct radii from the formula  $\text{radius} = \frac{1}{2} \text{ chord} \div \sin \frac{1}{2} \text{ angle} = 50 \div \sin \frac{1}{2} \text{ angle}$ , and to a scale of 1 inch=100 feet, both edges having the same radius. The short tangents are very useful, as they enable the beginning of the curve to be correctly located on the drawing by means of the radial line separating the tangent from the curve.

No. 1300a. **Hard Rubber Railroad Curves**, with tangent, 55 in set, 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-inch radius in wooden box . . . . . \$40 00

Railroad Curves of any desired scale cut to order.  
 Single Railroad Curves of hard rubber, with tangent . . . . . Each, 1 00

# Standard Metallic Railroad Curves.

Pat. Nov. 21, 1893.

## STANDARD SET No. 1.

No. 1310. 100 Curves Stamped with Radius in INCHES as follows:

2	4½	7	9½	12	16½	21½	28	38	70
2¼	4¾	7¼	9¾	12¼	17	22	29	40	80
2½	5	7½	10	12½	17½	22½	30	42	90
2¾	5¼	7¾	10¼	13	18	23	31	44	100
3	5½	8	10½	13½	18½	23½	32	46	120
3¼	5¾	8¼	10¾	14	19	24	33	48	140
3½	6	8½	11	14½	19½	24½	34	50	160
3¾	6¼	8¾	11¼	15	20	25	35	55	200
4	6½	9	11½	15½	20½	26	36	60	240
4¼	6¾	9¼	11¾	16	21	27	37	65	300

100 Curves, Full Standard Set No. 1 . . . . .	Price, net	\$23 00
75 " selected "ad lib" from Standard Set No. 1 . . . . .	" "	18 75
50 " " " " " " " " . . . . .	" "	14 00
25 " " " " " " " " . . . . .	" "	8 00

## STANDARD SET No. 2.

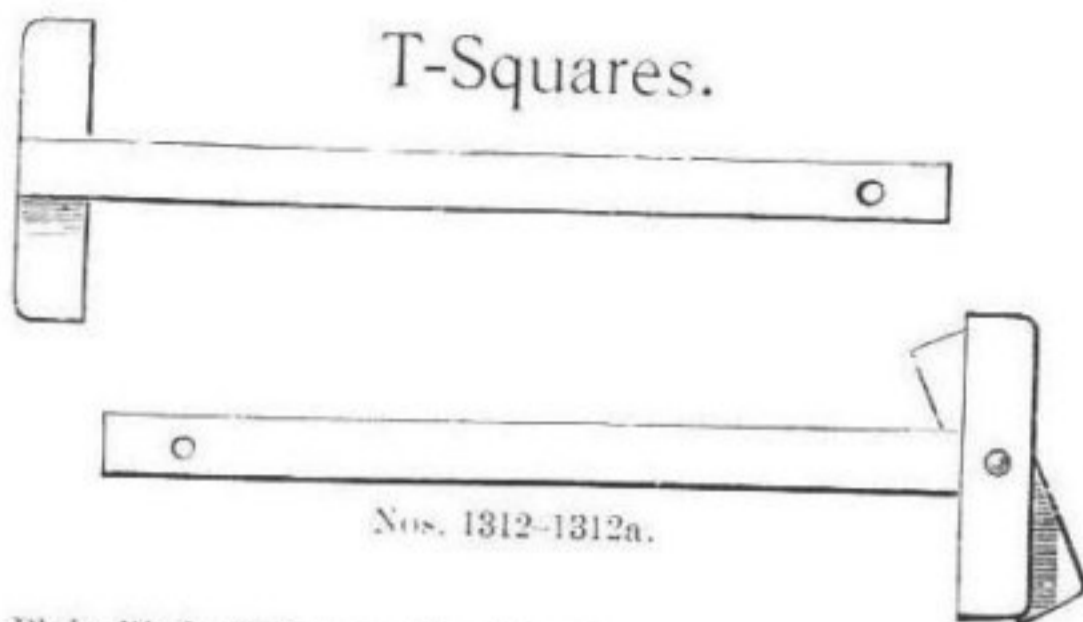
No. 1311. 94 Curves Stamped in DEGREES and INCHES to 100 foot scale as follows:

0° 15' = 229.18	2° 10' = 26.45	4° 50' = 11.86	8° 45' = 6.55	12° 45' = 4.50	18° 30' = 3.11
0° 20' = 171.89	2° 20' = 24.58	5° = 11.46	9° = 6.37	13° = 4.42	19° = 3.03
0° 25' = 137.51	2° 30' = 22.92	5° 15' = 10.92	9° 15' = 6.20	13° 15' = 4.33	19° 30' = 2.95
0° 30' = 114.59	2° 40' = 21.49	5° 30' = 10.42	9° 30' = 6.04	13° 30' = 4.25	20° = 2.88
0° 35' = 98.22	2° 50' = 20.22	5° 45' = 9.97	9° 45' = 5.88	13° 45' = 4.18	21° = 2.74
0° 40' = 85.94	3° = 19.10	6° = 9.55	10° = 5.74	14° = 4.10	22° = 2.62
0° 45' = 76.39	3° 10' = 18.10	6° 15' = 9.17	10° 15' = 5.60	14° 15' = 4.03	23° = 2.51
0° 50' = 68.78	3° 20' = 17.19	6° 30' = 8.82	10° 30' = 5.45	14° 30' = 3.96	24° = 2.40
0° 55' = 62.60	3° 30' = 16.37	6° 45' = 8.49	10° 45' = 5.34	14° 45' = 3.90	25° = 2.31
1° = 57.30	3° 40' = 15.63	7° = 8.19	11° = 5.22	15° = 3.83	26° = 2.22
1° 10' = 49.11	3° 50' = 14.95	7° 15' = 7.91	11° 15' = 5.10	15° 30' = 3.71	27° = 2.14
1° 20' = 42.97	4° = 14.33	7° 30' = 7.64	11° 30' = 4.99	16° = 3.59	28° = 2.07
1° 30' = 38.20	4° 10' = 13.75	7° 45' = 7.40	11° 45' = 4.88	16° 30' = 3.48	29° = 2.00
1° 40' = 34.38	4° 20' = 13.23	8° = 7.17	12° = 4.78	17° = 3.38	30° = 1.93
1° 50' = 31.25	4° 30' = 12.74	8° 15' = 6.95	12° 15' = 4.69	17° 30' = 3.29	
2° = 28.65	4° 40' = 12.28	8° 30' = 6.75	12° 30' = 4.59	18° = 3.20	

94 Curves, Full Standard Set No. 2 . . . . .	Price, net	\$23 50
75 " selected "ad lib" from Standard Set No. 2 . . . . .	" "	20 25
50 " " " " " " " " . . . . .	" "	15 00
25 " " " " " " " " . . . . .	" "	8 75

Special templets of any other sizes than above enumerated can only be furnished subject to delay and at greatly increased cost.

## T-Squares.



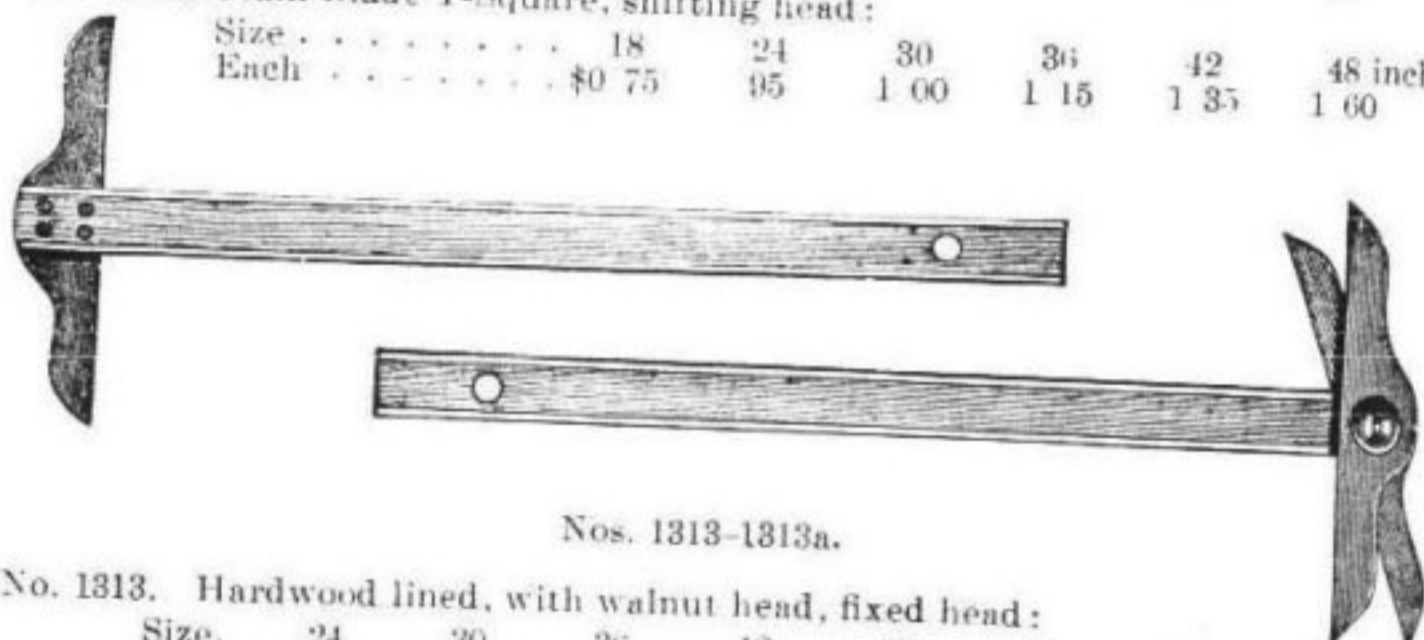
Nos. 1312-1312a.

No. 1312. Plain Blade T-Square, fixed head:

Size . . . . .	15	18	24	30	36	42	48 inch.
Each . . . . .	\$0 30	30	35	45	55	65	90

No. 1312a. Plain Blade T-Square, shifting head:

Size . . . . .	18	24	30	36	42	48 inch.
Each . . . . .	\$0 75	95	1 00	1 15	1 35	1 60



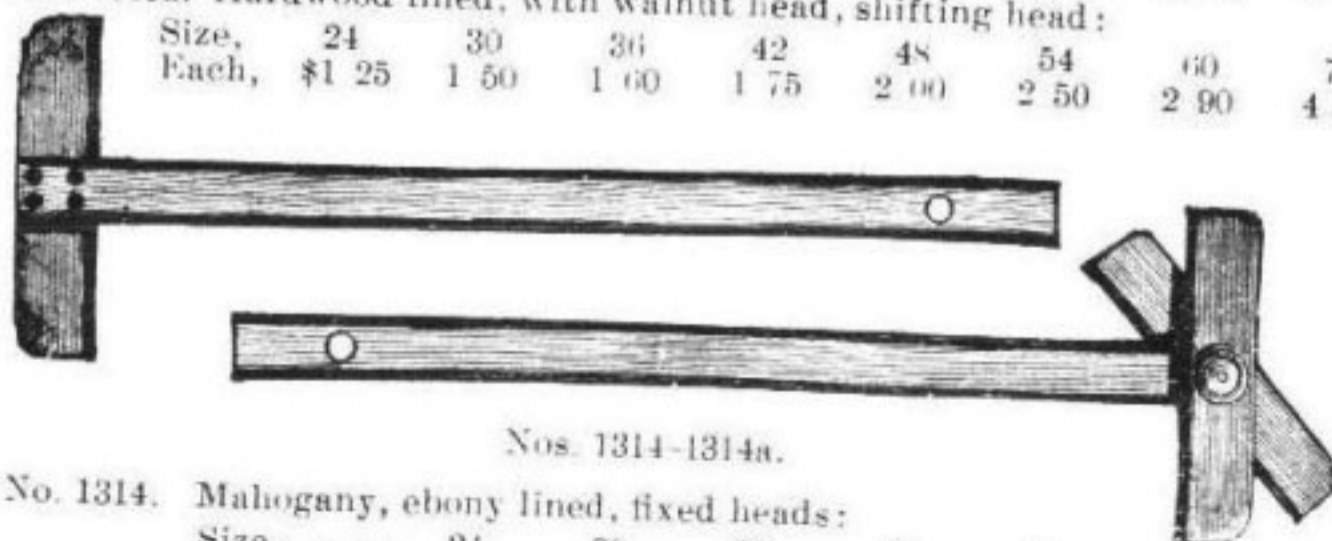
Nos. 1313-1313a.

No. 1313. Hardwood lined, with walnut head, fixed head:

Size, . . . . .	24	30	36	42	48	54	60	72 inch.
Each, \$0 75	90	1 00	1 15	1 25	1 60	2 25	3 00	

No. 1313a. Hardwood lined, with walnut head, shifting head:

Size, . . . . .	24	30	36	42	48	54	60	72 inch.
Each, \$1 25	1 50	1 60	1 75	2 00	2 50	2 90	4 00	



Nos. 1314-1314a.

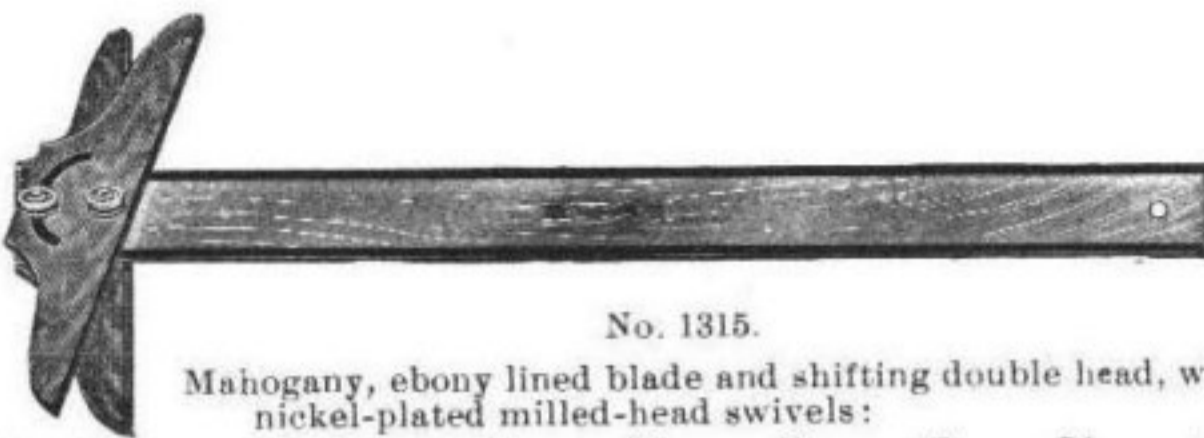
No. 1314. Mahogany, ebony lined, fixed heads:

Size . . . . .	24	30	36	42	48	54	60 inch.
Each . . . . .	\$0 90	1 10	1 30	1 50	1 75	2 10	2 60

No. 1314a. Mahogany, ebony lined, shifting head:

Size . . . . .	24	30	36	42	48	60 inch.
Each . . . . .	\$1 75	2 00	2 35	2 50	2 80	3 75





No. 1315.

Mahogany, ebony lined blade and shifting double head, with two nickel-plated milled-head swivels:

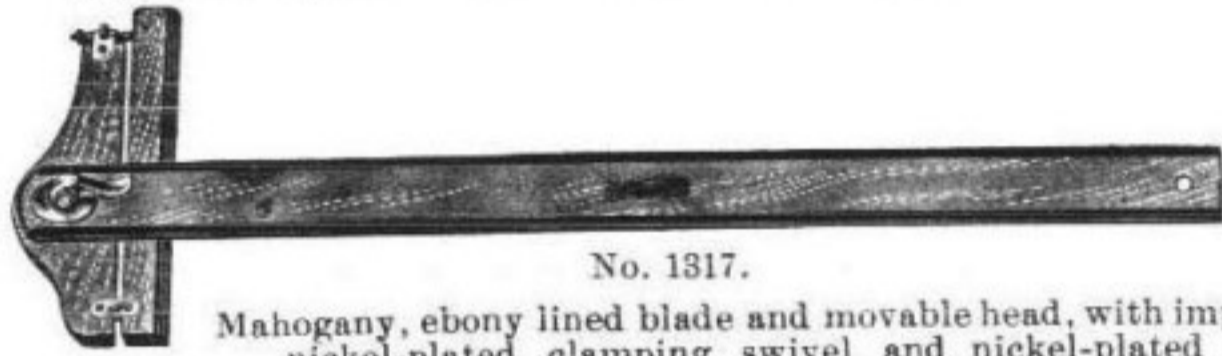
No. 1315.	Size . . . . .	24	30	36	42	48	54	60 inch.
	Each . . . . .	\$1 75	2 00	2 25	2 50	2 80	3 25	3 90



No. 1316.

Mahogany, ebony lined blade and head, with nickel-plated patent micrometer adjustment:

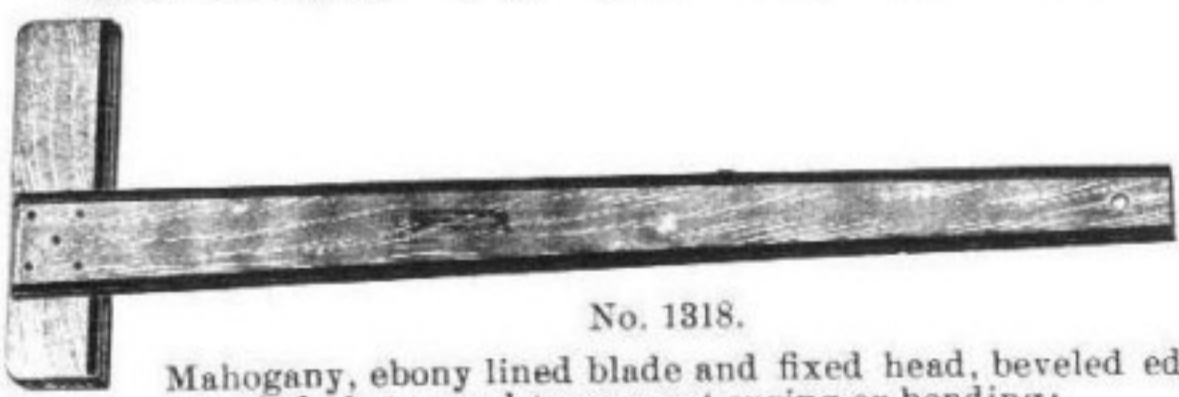
No. 1316.	Size . . . . .	24	30	36	42	48	54	60 inch.
	Each . . . . .	\$1 65	1 90	2 15	2 40	2 65	3 15	3 65



No. 1317.

Mahogany, ebony lined blade and movable head, with improved nickel-plated clamping swivel and nickel-plated patent micrometer adjustment:

No. 1317.	Size . . . . .	24	30	36	42	48	54	60 inch.
	Each . . . . .	\$2 50	2 65	2 90	3 15	3 40	3 90	4 40



No. 1318.

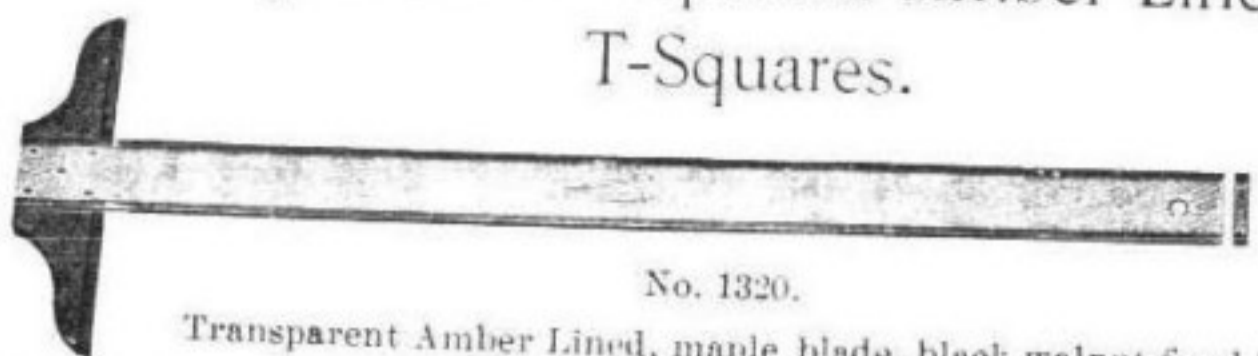
Mahogany, ebony lined blade and fixed head, beveled edge. The blade is tapered to prevent spring or bending:

No. 1318.	Size . . . . .	30	36	42	48	54 inch.
	Each . . . . .	\$1 20	1 40	1 60	1 85	2 25

No. 1319.	Hardwood Blade, tapered, black walnut fixed head:					
	Size . . . . .	24	30	36	42	48 inch.
	Each . . . . .	\$1 00	1 20	1 50	1 75	2 00

The blade is tapered and very wide at the base, to prevent spring at the further (free) end. The drawing edge is in line with the middle of the head.

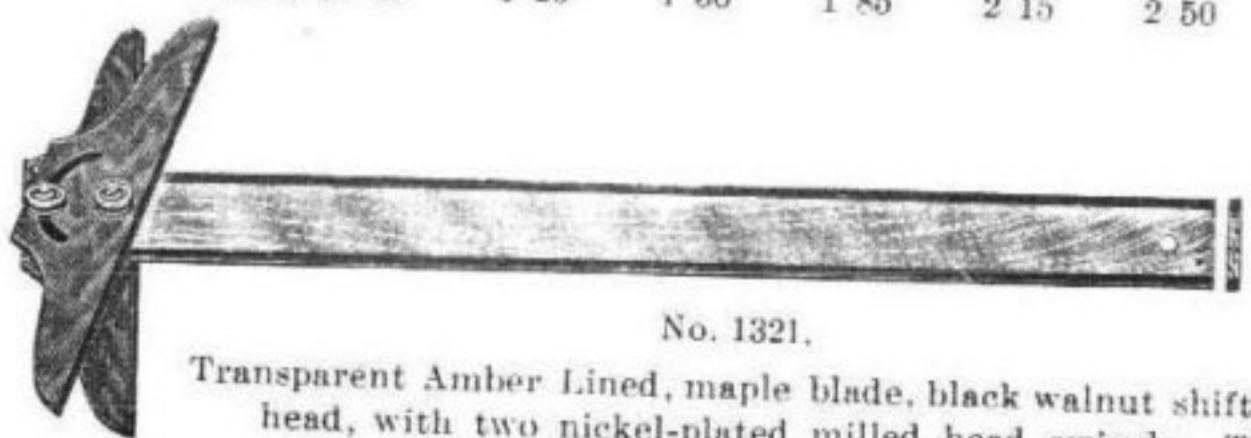
## Improved Transparent Amber Lined T-Squares.



No. 1320.

Transparent Amber Lined, maple blade, black walnut fixed head.

No. 1320.	Size,	12	18	24	30	36	42	48 inch
	Each,	\$1 00	1 25	1 50	1 85	2 15	2 50	3 00



No. 1321.

Transparent Amber Lined, maple blade, black walnut shifting double head, with two nickel-plated milled head swivels. The 18-inch squares have one swivel.

No. 1321.	Size . . . . .	18	24	30	36	42	48 inch.
	Each . . . . .	\$1 90	2 45	2 80	3 20	3 60	4 20



No. 1322.

Transparent Amber Lined, maple blade, movable head, with improved nickel-plated clamping swivel and nickel-plated patent micrometer adjustment.

No. 1322.	Size . . . . .	24	30	36	42	48 inch.
	Each . . . . .	\$3 15	3 50	3 90	4 35	5 00

## Beam Compass Bars.

No.	Beam Compass Bars, made of hard wood, 24 inch . . . . .	Each.
1324.	Beam Compass Bars, made of hard wood, 24 inch . . . . .	\$0 35
1324a.	" " " " " " 30 " . . . . .	40
1324b.	" " " " " " 36 " . . . . .	45
1324c.	" " " " " " 42 " . . . . .	55
1324d.	" " " " " " 48 " . . . . .	65
1324e.	" " " " " " 60 " . . . . .	75

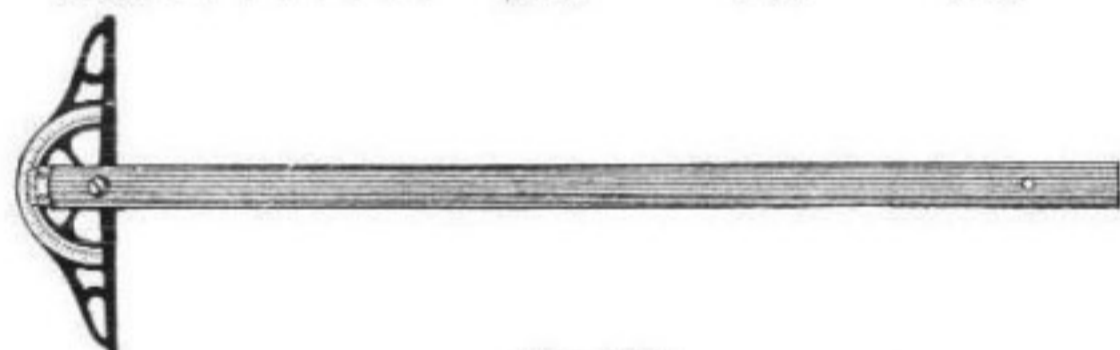
## Steel Blade T-Squares.



No. 1340.

Steel Blade, nickel-plated, fixed joggled iron head.

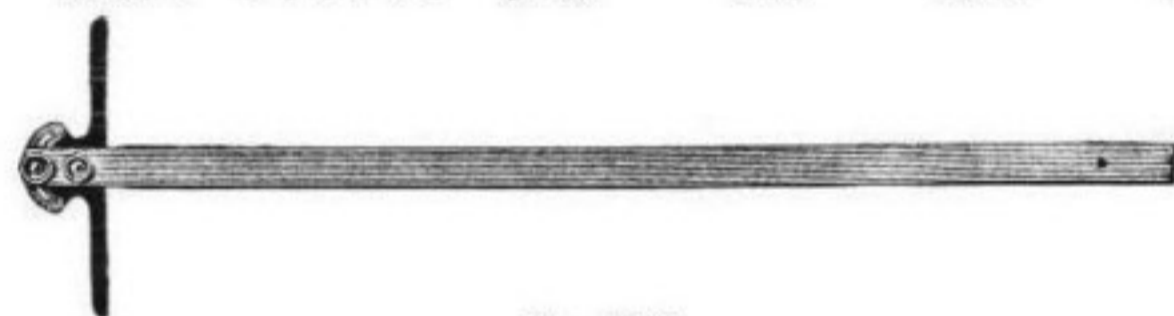
No. 1340.	Size . . . . .	24	30	36	42 inch.
	Each . . . . .	\$3 50	4 50	5 50	6 50



No. 1341.

Protractor T-Square, steel blade, nickel-plated, shifting head, with Protractor divided to half degrees, Vernier on end of blade reading to minutes.

No. 1341.	Size . . . . .	24	30	36	42 inch.
	Each . . . . .	\$8 50	9 50	10 50	11 50



No. 1342.

Steel Blade, nickel-plated, movable joggled iron head.

No. 1342.	Size . . . . .	24	30	36	42 inch.
	Each . . . . .	\$5 00	5 70	6 70	7 70

## Engravers' T-Squares.



No. 1343.



No. 1344.

No. 1343.	Engravers' T-Square, steel blade, fixed head.				
	Size . . . . .	6	8	10	12 inch.
	Each . . . . .	\$1 25	1 50	2 00	2 50
No. 1344.	Engravers' T-Square, steel blade, shifting head, with swivel.				
	Size . . . . .	6	8	10	12 inch.
	Each . . . . .	\$1 50	1 75	2 25	2 75

## Straight Edges.



No. 1345. Cherry or Maple, one edge beveled.

Size . . . . .	18	24	30	36	42 inch.
Each . . . . .	\$0 20	25	30	40	50



No. 1346. Hardwood Lined, square edges.

Size,	24	30	36	42	48	54	60	72 inch.
Each,	\$0 35	45	60	75	1 00	1 20	1 50	2 00



No. 1347. Mahogany, Ebony Lined, beveled edges.

Size . . . . .	24	30	36	42	48	54	60 inch.
Each . . . . .	\$0 50	70	1 00	1 25	1 60	2 00	2 35



Patent applied for.

No. 1348. Transparent Amber Lined, square edges, grooved joint.

Size . . . . .	18	24	30	36	42	48 inch.
Each . . . . .	\$0 75	1 00	1 25	1 50	1 80	2 20



No. 1349. Steel Straight Edges, nickel-plated, one edge beveled.

Size,	15	18	24	30	36	42	48	60	72 inch.
Each,	\$1 75	2 00	3 00	4 00	5 00	6 50	8 00	11 00	15 00

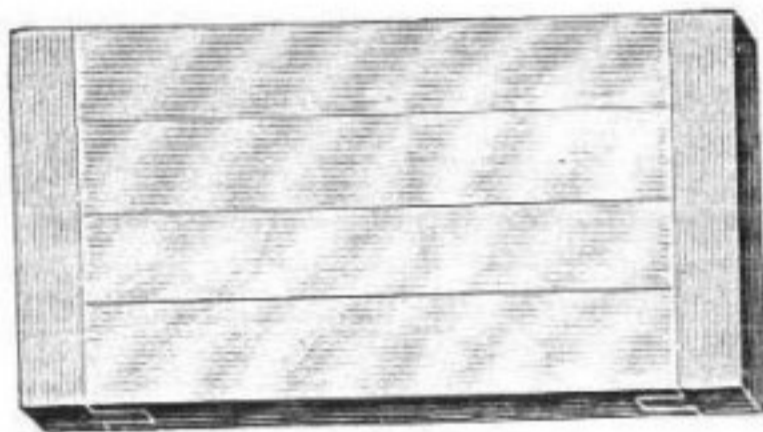


No. 1350. Steel Straight Edges, nickel-plated, square edges.

Size,	15	18	24	30	36	42	48	60	72 inch.
Each,	\$1 25	1 50	2 00	3 00	4 00	5 00	6 00	8 50	12 00

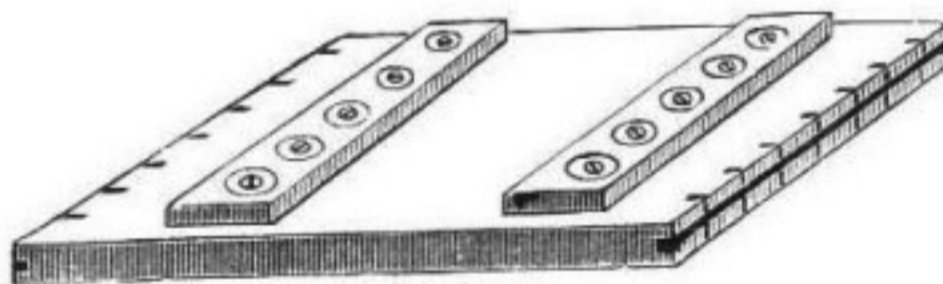
## Drawing Boards.

MADE WITH THE UTMOST CARE, OF SELECTED NARROW AND THOROUGHLY SEASONED STRIPS.



No. 1360.

No. 1360.	Pinewood, with two drawing surfaces and side ledges:		
Inches . . . . .		18 x 24	23 x 31
Each . . . . .		\$1 15	1 50
No. 1361.	Pinewood, with hardwood ledges dovetailed into the board to allow contraction and expansion:		
Inches . . . . .		20 x 25	23 x 31
Each . . . . .		\$2 00	2 50
			31 x 42
			4 00



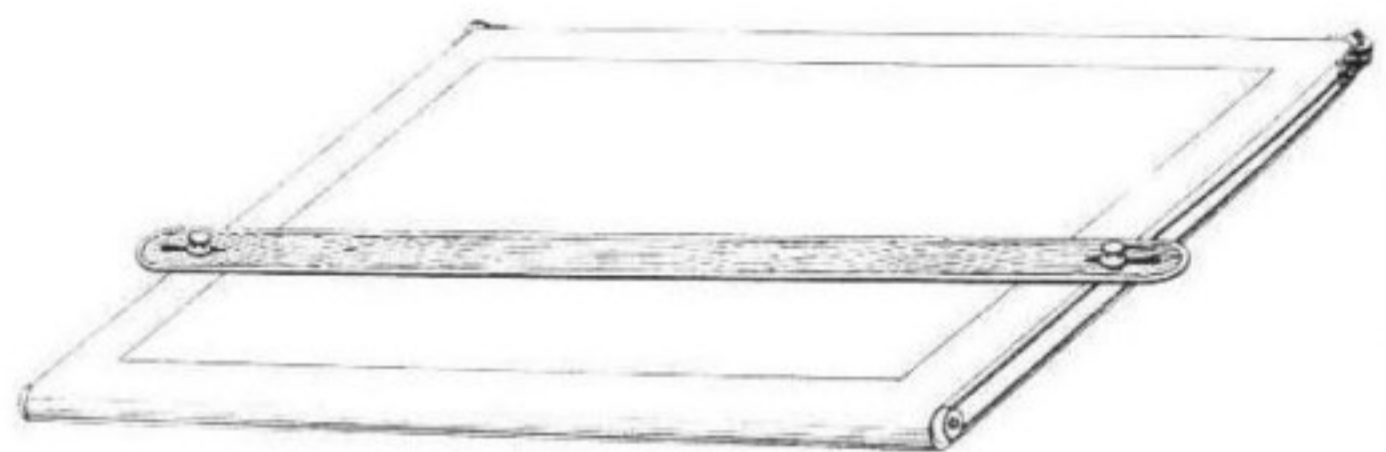
No. 1362.

No. 1362. Pinewood, with hardwood ledges screwed to the back; the screws pass through the ledges in oblong slots with metal bushings, which fit closely under the heads and yet allow the screws to move freely when drawn by the contraction of the board. A series of grooves is sunk in half the thickness of the board over the entire back. To make the working edge perfectly smooth, allowing an easy movement with the square, a slip of hardwood is let into the end of the board. The slip is sawed apart at about every inch to permit contraction.

Inches . . . . .		23 x 31	31 x 42	33 x 55
Each . . . . .		\$4 00	6 00	9 75

Larger Drawing Boards of any size and style made to order.

## Parallel Ruling Attachments.



No. 1361.

Our Attachments are of simple construction, neat in appearance, consisting of perfectly constructed nickel-plated brass wheels, mounted on plates, with best quality braided line. They are easily attached to any drawing board.

We furnish the Attachments with or without Straight Edge.

### Attachments Only.

No. 1363. Attachments . . . . . Each, \$4 00

### Straight Edges and Attachments.

	For Drawing Boards . . . .	24	31	42	54	60 inch.
No. 1363a.	Attachments with hardwood, Lined Straight Edge. Each,	\$4 50	4 90	5 40	6 10	6 75
No. 1363b.	Attachments with mahogany, Ebony Lined St. Edge, Each,	4 75	5 15	5 75	6 70	7 25
No. 1364.	Parallel Ruler Frame and Board, with straight edge, 30 x 42 . .	\$10 00				
No. 1364a.	" " " " " " " " " " 36 x 48 . .	12 00				

In ordering Attachments, please state thickness of board, and in ordering Straight Edges state exact length of board.

## Prince's Nonpareil Drawing Table.

COMPLETE WITH BRACKET AND TOOL BOX.



No. 1365.

These Tables excel all others in the following essential points:

**1. Ease of adjustment of board to any angle on either side from vertical to horizontal position and of stand to any suitable height for sitting or standing posture.** After the clamp is loosened only a slight pressure on either handle is required to lower or raise the table, because all weight is counterbalanced by spiral springs shown in cut. Both clamps are operated on the same side.

**2. Perfect rigidity and firmness in any position after the clamps (which have cone bearings) are tightened, which can be easily done with one hand.**

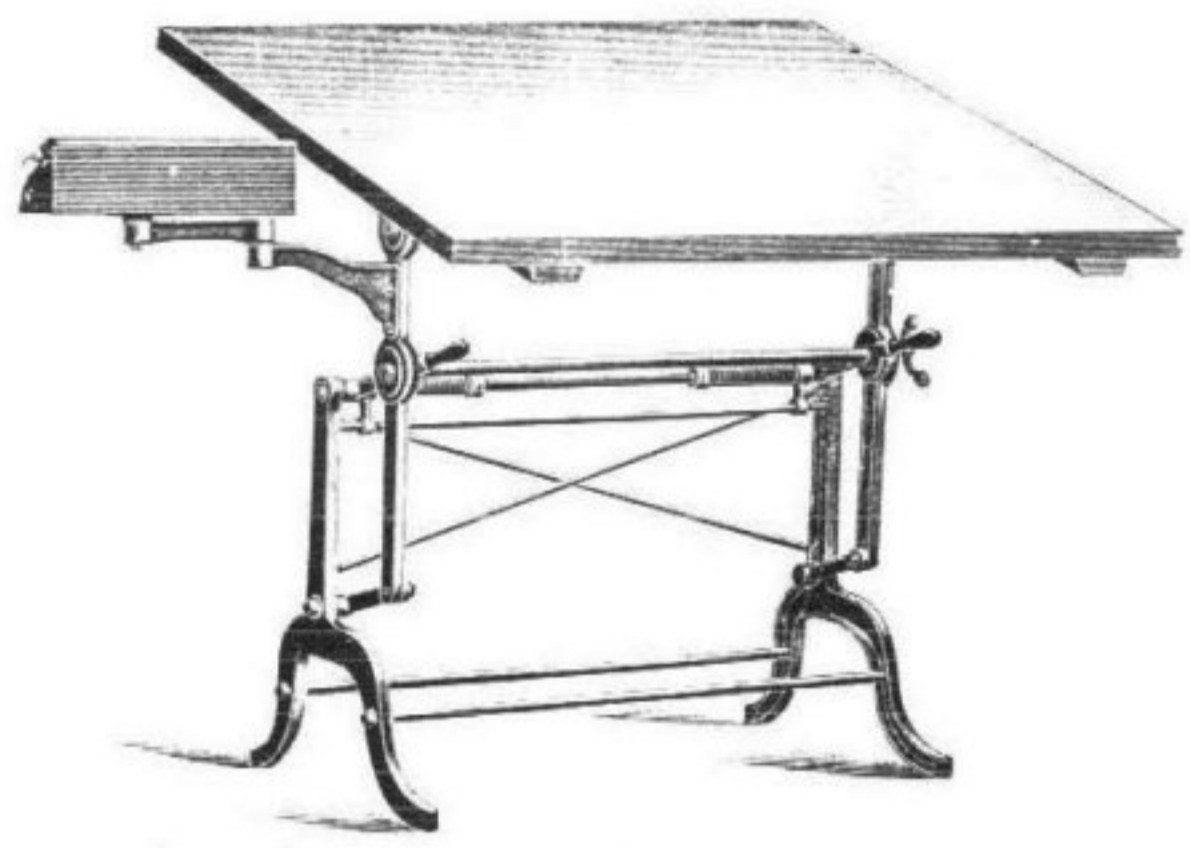
**3. Neatness of appearance and quality of material.**—The stand is nicely painted and of substantial iron construction. The drawing boards are first-class in every respect, finished with shellac and made out of narrow strips of pine with hardwood ledges underneath, which are slotted to allow for expansion or contraction.

**4. The prices are the most reasonable, and considerably below those of any other adjustable table.** Comfort, health and saving of time and labor in drafting, are the advantages chiefly considered and achieved in the construction of the above Nonpareil Adjustable Drawing Tables. These tables can be used sitting or standing, and obviate all turning and unhealthy work in a strained and stooping position.

**5. They occupy but little space if board is adjusted to a vertical position and placed against the wall.**

**6. Having bracket with tool box attachment, large enough to hold 12-inch scale, colors, etc.**

## Prince's Nonpareil Drawing Table.



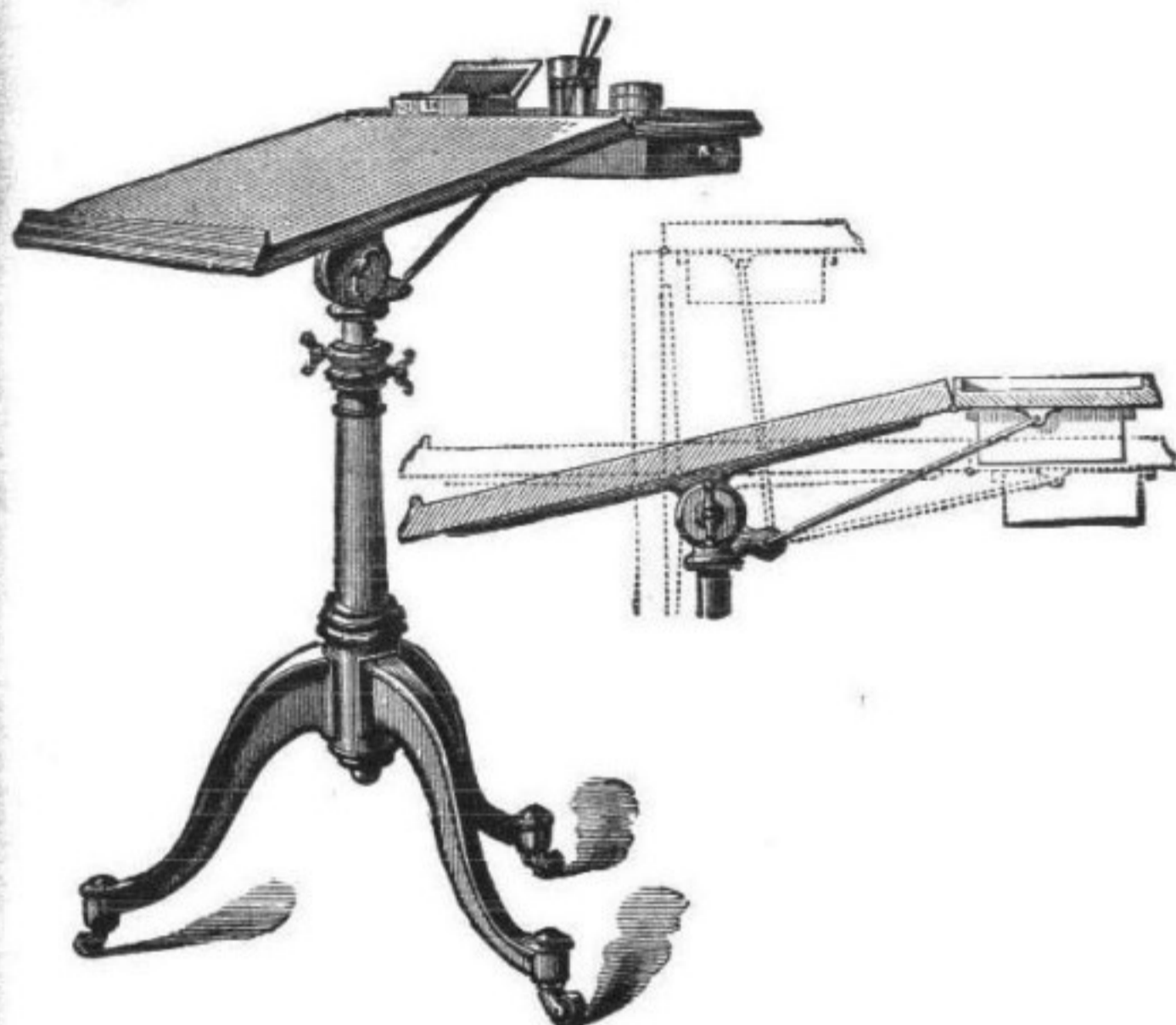
No. 1365a.

Showing Table Complete with Bracket and Tool Box.

No.						Each.
1365a.	Nonpareil Table Stand, with Board	30x42	.	.	.	\$20 00
1365b.	"	"	"	"	"	36x48 . . . . . 25 00
1365c.	"	"	"	"	"	40x60 . . . . . 35 00
1365d.	"	"	"	"	"	42x72 . . . . . 40 00
1366.	Stand only	.	.	.	for "	30x42 . . . . . 17 50
1366a.	"	.	.	.	"	36x48 . . . . . 20 00
1366b.	"	.	.	.	"	40x60 . . . . . 30 00



## Adjustable and Portable Drawing Tables.



No. 1368b.

This Table can be fixed at any *required height*, so one can use it either sitting or standing, and by turning back the screw at the right, it is allowed to rotate, bringing *either side in front*. The shelf or ledge for instruments is attached to the reverse side of the table, so that it is *always level*, whatever inclination is given to the desk. This is very convenient for the water cups, ink stands, etc. The second figure shows the table fixed at a slight inclination, the dotted lines showing it horizontal or vertical. When the table is nearly vertical the whole occupies but little space and forms a perfect easel.

Under the instrument shelf are provided two drawers, one on each side, for working materials.

Cast iron is used for the tripod, hollow standard and sliding spindle, which are neatly painted and bronzed. The working parts are well finished and very easily operated. The stand is sufficiently firm to hold a large drawing board.

It can be raised to a level of 44 inches and lowered to 30 inches.

No.		Each.
1367.	Plain Ash Top, 21½x24 inches . . . . .	\$8 75
1367½.	" " " 21½x24 " with shelf . . . . .	10 00
1368.	Oak Top, 22x25 inches, with shelf . . . . .	11 00
1368½	" " 22x25½ " " and drawers, on casters . . . . .	13 25
1368a.	Like No. 1368½, but with long set screw . . . . .	14 50
1368b.	Like No. 1368a, finely ornamented . . . . .	16 50

## Anchor Adjustable Drawing Table.



No. 1369.

Made in three sizes and of very simple and durable construction. Board stands 40 inches above floor, and by means of simple device shown in illustration can be tilted and securely clamped at any angle desired.

A hardwood-lined Parallel Ruler is furnished with each table, thus making use of an extra T-square unnecessary. Each table is also furnished with adjustable tray.

The box attached to trestle will be found very convenient for holding roll drawing papers, tracing cloth, etc.

No.	Each.
1369. Anchor Drawing Table, with Board 31x42 inches . . . . .	\$15 00
1369a. " " " " " 36x55 " . . . . .	20 00
1369b. " " " " " 42x60 " . . . . .	24 00

Above Tables without Parallel Ruler, \$4.00 less.

# Winsor & Newton's Water Colors.

IN CAKES AND PANS.



FULL CAKE.



FULL PAN.



HALF CAKE.



HALF PAN.

**No. 1370. Full Cake or Pan, 25c. Half Cake or Pan, 15c.**

1 Antwerp Blue	11 Chrome Yellow	24 Ivory Black	35 Prussian Green
2 Bistre	12 Cologne Earth	*25 King's Yellow	36 Raw Sienna
3 Blue Black	14 Deep Chrome	26 Lamp Black	37 Raw Umber
4 British Ink	15 Dragon's Blood	27 Light Red	40 Roman Ochre
5 Brown Ochre	16 Emerald Green	28 Naples Yellow	41 Sap Green
6 Brown Pink	*17 Flake White	29 Neutral Tint	42 Terre Verte
7 Bronze	18 Gamboge	30 New Blue	43 Vandyke Brown
8 Burnt Sienna	19 Hooker's Green No. 1	31 Olive Green	44 Venetian Red
9 Burnt Umber	20 Hooker's Green No. 2	32 Orange Chrome	45 Vermillion
9½ Charcoal Grey	21 Indigo	33 Payne's Grey	47 Yellow Lake
10 Chinese White	22 Indian Red	34 Prussian Blue	48 Yellow Ochre
10½ Chrome Lemon	23 Italian Pink		

**No. 1371. Full Cake or Pan, 45c. Half Cake or Pan, 25c.**

48½ Alazarin Crimson	51½ Cerulean Blue	55½ Orange Vermillion	59 Scarlet Lake
49 Black Lead	52 Crimson Lake	56 Purple Lake	60 Scarlet Vermillion
50 Brown Madder	52½ Indian Yellow	57 Roman Sepia	61 Sepia
50½ Carmine Lake	54 Mars Yellow	58 Ruben's Madder	62 Warm Sepia
51 Constant White	55 Neutral Orange		

**No. 1372. Full Cake or Pan, 65c. Half Cake or Pan, 35c.**

60 Cadmium Orange	71 French Blue	87 Mars Orange	77½ Permanent Yellow
68 Cadmium Yellow	74 Indian Purple	73 Oxide of Chromium	79 Pure Scarlet
68 Cobalt Blue	75 Intense Blue	73½ Permanent Mauve	65 Violet Carmine
68½ Cobalt Green	76 Lemon Yellow	77 Pale Cadm'm Y'll'w	81 Viridian

**No. 1373. Full Cake or Pan, 90c. Half Cake or Pan, 45c.**

66 Aureolin	70 Carmine	78 Pink Madder	90 Scarlet Madder
61 Aurora Yellow	85 Field's Orange	92 Primrose Aureolin	80 Rose Madder
67 Burnt Carmine	Vermillion	82 Purple Madder	93 Yellow Carmine
	86 Madder Carmine		

**No. 1374. Full Cake or Pan, \$1.40. Half Cake or Pan, 70c.**

83 Smalt	84 Ultramarine Ash-Blue
----------	-------------------------

**No. 1375. ¼ Cake, Each, \$2.25.**

88 Genuine Ultramarine

Colors marked\* are NOT made in full and half PANS, but ONLY in full and half CAKES.

The following colors are generally used by Architects and Civil and Mechanical Engineers:

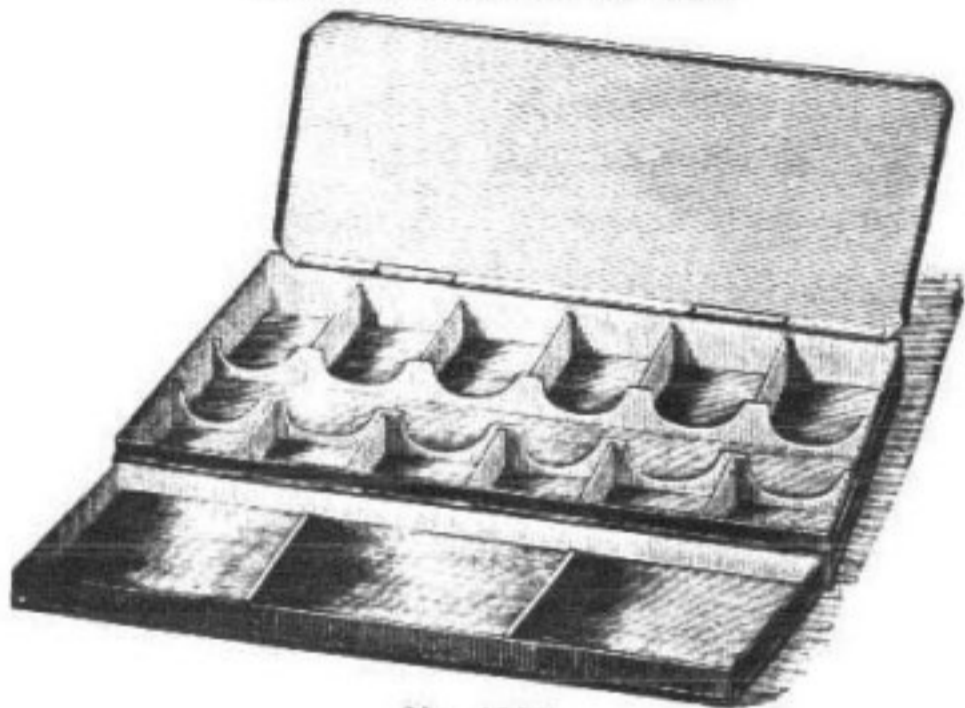
Burnt Umber to represent Earth.	Prussian Blue to represent Wrought Iron.
Burnt Sienna to represent Wood.	Payne's Grey to represent Cast Iron.
Light Red to represent Brick.	Gamboge to represent Brass.
Sepia and Yellow Ochre to represent Stone.	Gamboge and Carmine to represent Copper.
Prussian Blue and Carmine to represent Steel.	

In Topography the following colors are generally used:

- Hooker's Green, No. 2. to represent Grass.
- Burnt Sienna to represent Cultivated Ground.
- Burnt Sienna and Hooker's Green to represent Uncultivated Ground.
- Indigo and Hooker's Green to represent Swamp.
- Gamboge and Hooker's Green to represent Trees.
- Yellow Ochre to represent Roads and Streets.
- Indigo to represent Water.
- Carmine to represent Buildings, Bridges and Masonry.
- Sepia to represent Hills.
- Sepia to represent Shade Lines and Shadows.

## Empty Japanned Tin Boxes

FOR MOIST COLORS IN PANS.

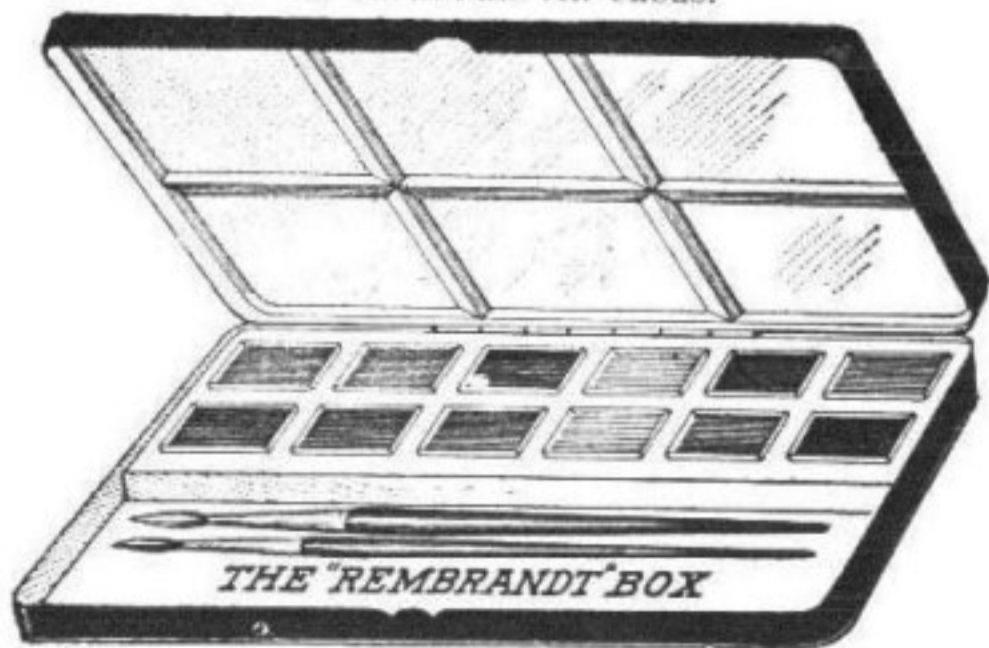


No. 1380.

No.	For	full	or	half	pan	Each	
1376.	For 8	full	or	12	half	pan	\$0 80
1377.	" 8	"	"	16	"	"	90
1378.	" 9	"	"	18	"	"	1 00
1379.	" 10	"	"	20	"	"	1 05
1380.	" 12	"	"	24	"	"	1 15
1381.	" 16	"	"	32	"	"	1 25
1382.	" 18	"	"	36	"	"	1 35
1383.	" 20	"	"	40	"	"	1 45
1384.	" 24	"	"	48	"	"	1 60

## The "Murillo" French Moist Colors.

IN JAPANNED TIN CASES.



No. 1387.

No.	Description	Each
1385.	Small "Murillo," with 12 pans and 2 tubes moist colors	\$0 75
1386.	Large "Murillo," with 16 pans of superior moist colors, tube of Chinese white and sepia, 4 camel-hair pencils	1 00
1387.	Rembrandt, 12 pans	50

## Winsor & Newton's Water Color Liquids.



No. 1388.



No. 1388a.

No.			Per Bottle.
1388.	Winsor & Newton's	Chinese White . . . . .	\$0 30
1388a.	"	India Ink . . . . .	30
1388b.	"	Blue . . . . .	30
1388c.	"	Carminé . . . . .	30
1388d.	"	Indelible Brown Ink . . . . .	30
1388e.	"	Prout's Brown . . . . .	30
1388f.	"	Sepia . . . . .	30
1388g.	"	Gold Ink. . . . .	30
1388h.	"	Oxgall . . . . .	30



No. 1390a.

## Higgins' Drawing-Board Mucilage.

A very tenacious glue-like paste of great strength and body, and of very light color, specially adapted for use in libraries and draughting rooms, for repairing and labeling books, mounting paper on the drawing-board, etc. An extra strong and choice article for all particular work, and having great holding power on absorbent or fibrous material.

No.		Each
1390.	8 ounce jar . . . . .	\$0 25
1390a.	14 " " . . . . .	50
1390b.	½ gallon . . . . .	2 00
1390c.	1 " " . . . . .	3 50

## Higgins' Liquid Drawing Inks.



No. 1391e.



No. 1392.

No.		Each.
1391.	Higgins' General Black Ink . . . . .	\$0 25
1391a.	"    Waterproof Violet Ink . . . . .	25
1391b.	"    "    Indigo Ink . . . . .	25
1391c.	"    "    Vermilion Ink . . . . .	25
1391d.	"    "    Brick Red Ink . . . . .	25
1391e.	"    "    Black Ink . . . . .	25
1391f.	"    "    Scarlet Ink . . . . .	25
1391g.	"    "    Orange Ink . . . . .	25
1391h.	"    "    Carmine Ink . . . . .	25
1391i.	"    "    Green Ink . . . . .	25
1391j.	"    "    Yellow Ink . . . . .	25
1391k.	"    "    Blue Ink . . . . .	25
1391l.	"    "    Brown Ink . . . . .	25
	Any of the above Inks in $\frac{1}{2}$ -pint bottles . . . . .	2 00
	"    "    "    1-pint " . . . . .	3 75
	"    "    "    1-quart " . . . . .	7 00

## Ink Bottle Holder and Paper Weight.

No.		Each.
1392.	Ink Bottle Holder and Paper Weight . . . . .	\$0 25

The bottle is slipped in from below and is clamped by a plate and two screws under the bottom. The neck of the bottle projects so that it is just as handy for moving, cleaning or filling as if not in the holder. When used on a slanting board a thumb tack may be thrust through the little hole in the recess at the side.

Bourgeois' Celebrated French Indelible Liquid  
Drawing Inks.



No. 1394.



No. 1395.

These Inks are well recommended and have no superior. Lines drawn with this ink will not blur when washed over with water-color or water. Illustrations are full-sized bottles.

No.	Each.
1394. Large Size Black . . . . .	\$0 50
1395. Medium Size Black . . . . .	25

# Chinese or Indian Inks.

IMPORTED BY US DIRECT FROM CHINA.



We offer only fine and extra fine India Inks, we do not sell the imitation; our Inks are adapted for use of pen or brush.

No.	Description	Length	Each
1450.	First Quality Lion Head,	$2\frac{3}{8}$ inches long	\$0 15
1451.	" " " "	$3\frac{1}{4}$ " "	25
1452.	Square Black Gilt Figures,	$2\frac{1}{8}$ " "	40
1453.	" " " " Super Super,	$2\frac{7}{8}$ " "	50
1454.	" " " " " "	$3\frac{5}{8}$ " "	1 00
1455.	Oblong Gilt,	3 " "	1 25
1456.	Red Chinese Ink,	$2\frac{3}{4}$ " "	50
1457.	Blue " "	$2\frac{3}{4}$ " "	50
1458.	Yellow " "	$2\frac{3}{4}$ " "	50



## Chinese or Indian Inks—Continued.

OUR OWN DIRECT IMPORTATION.  
ILLUSTRATIONS FULL SIZE.

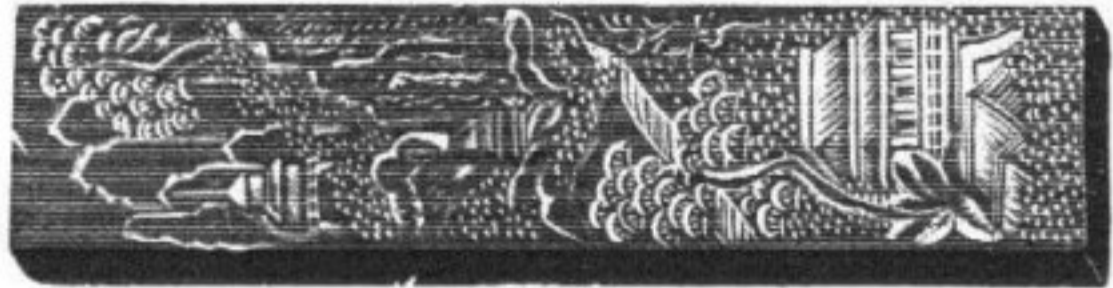


No. 1461.

No. 1462.

No. 1460.	Oblong Gilt,	$3\frac{5}{8}$	inches long		Each, \$1 50
No. 1461.	" "	$3\frac{5}{8}$	" "	extra fine quality	" 2 70
No. 1462.	" "	$2\frac{7}{8}$	" "	" "	" 2 40

## Japanese Inks.



No. 1472.

The Japanese Inks are not always made of the same patterns, which are varied from time to time by the makers.

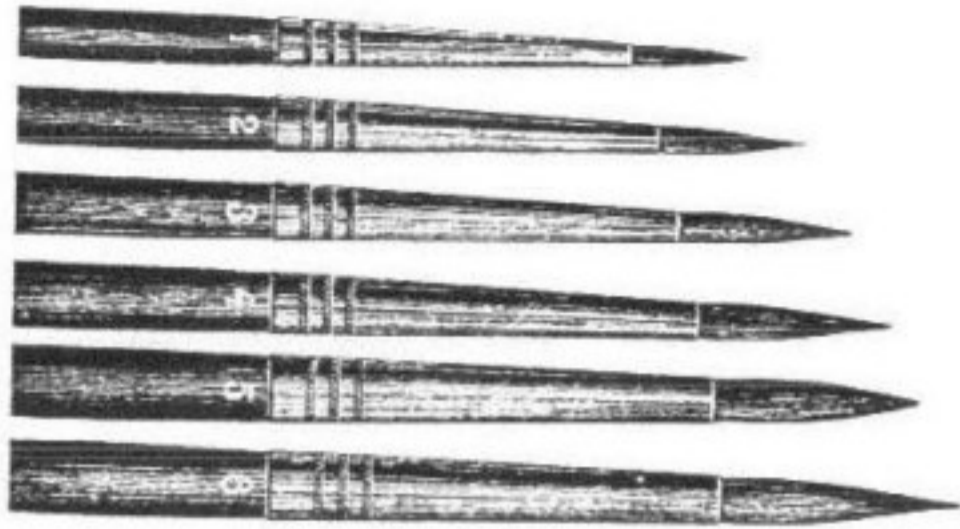
Japanese Inks are harder than the Chinese. For this reason a line drawn with it can be washed over with color without blurring.

No. 1472.	Oblong Black,	best quality,	large		Each, \$3 00
No. 1473.	" "	" "	medium		" 2 00
No. 1474.	" "	" "	small		" 1 00

Many other grades kept in stock.

## Camel Hair Brushes.

IN TIN WITH HANDLE. ILLUSTRATIONS FULL SIZE.

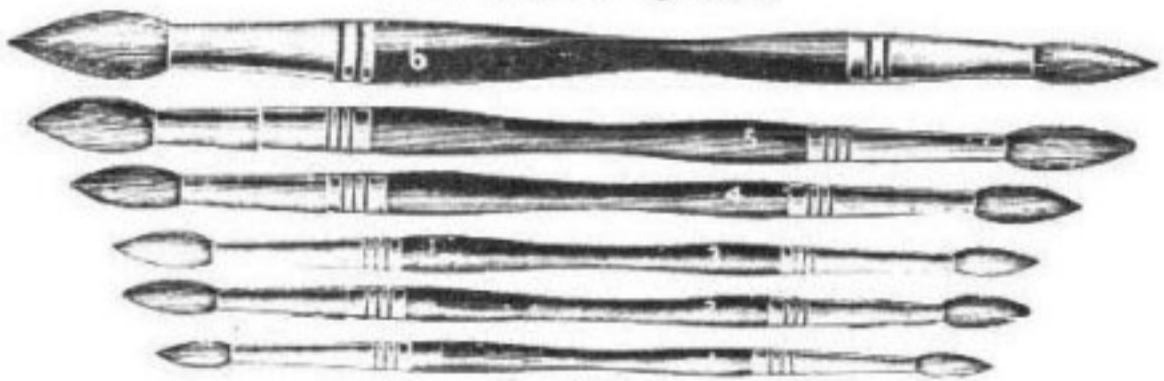


No. 1480.

	Nos.	1	2	3	4	5	6
No. 1480. Camel Hair Brushes . . . . .	Each,	\$0 10	10	10	12	15	15

## Double-Pointed Brushes.

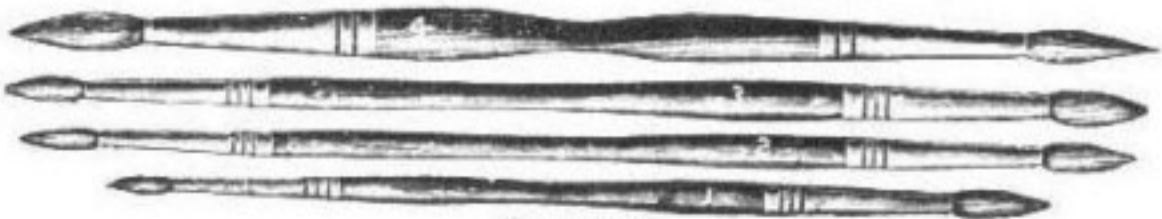
OF CAMEL HAIR AND RED SABLE.  
ILLUSTRATIONS  $\frac{1}{2}$  SIZE.



No. 1481.

No. 1481. Double-pointed Camel Hair Brushes, in tin.							
	Nos.	1	2	3	4	5	6
Each . . . . .	\$0	25	30	35	45	55	60

ILLUSTRATIONS LESS THAN  $\frac{1}{2}$  SIZE.



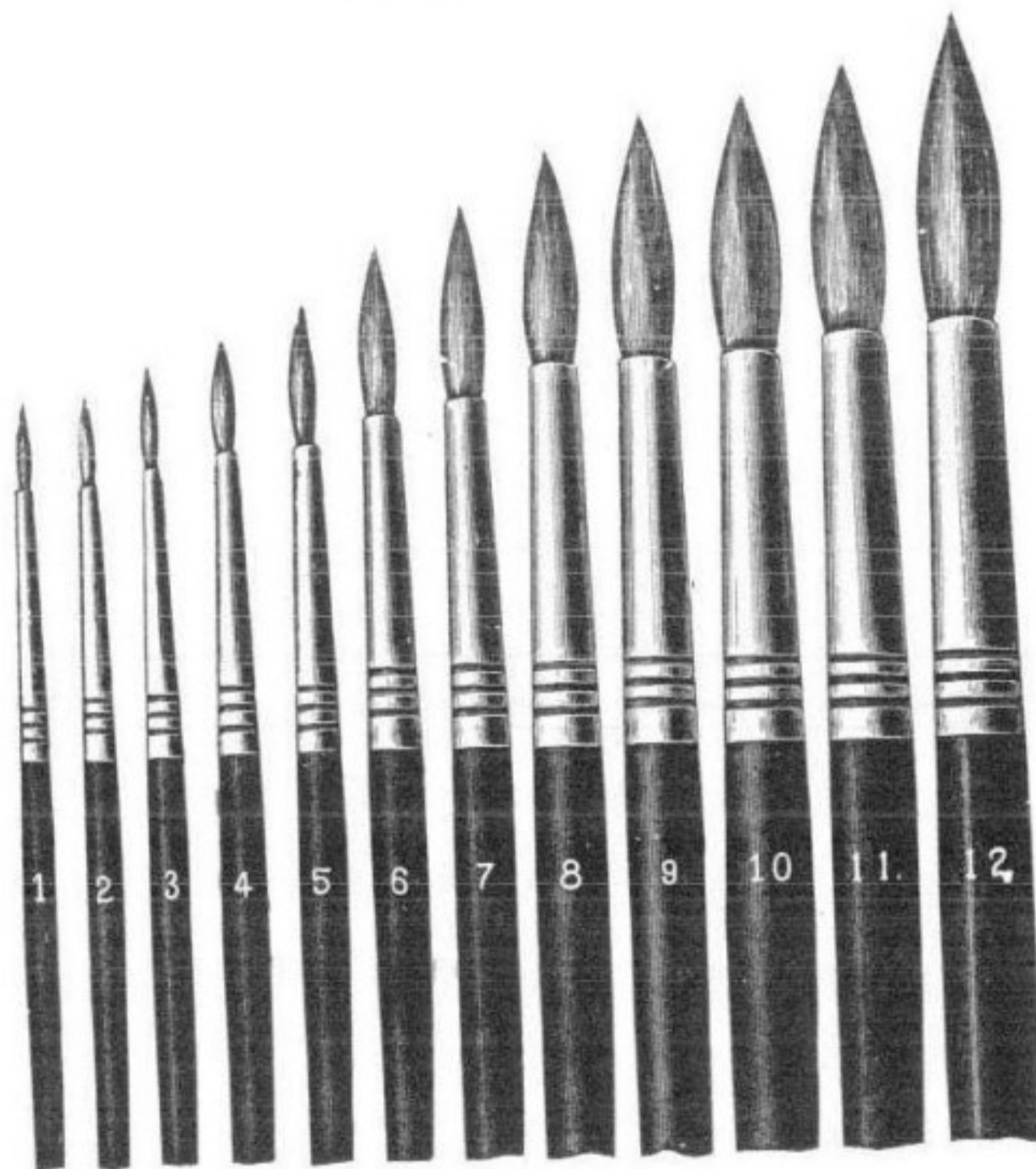
No. 1482.

No. 1482. Double-pointed Red Sable Brushes, in albatra.					
	Nos.	1	2	3	4
Each . . . . .	\$0	75	1 25	1 50	2 50

# Red Sable Brushes.

IN ALBATA, WITH HANDLE.

ILLUSTRATIONS FULL SIZE.

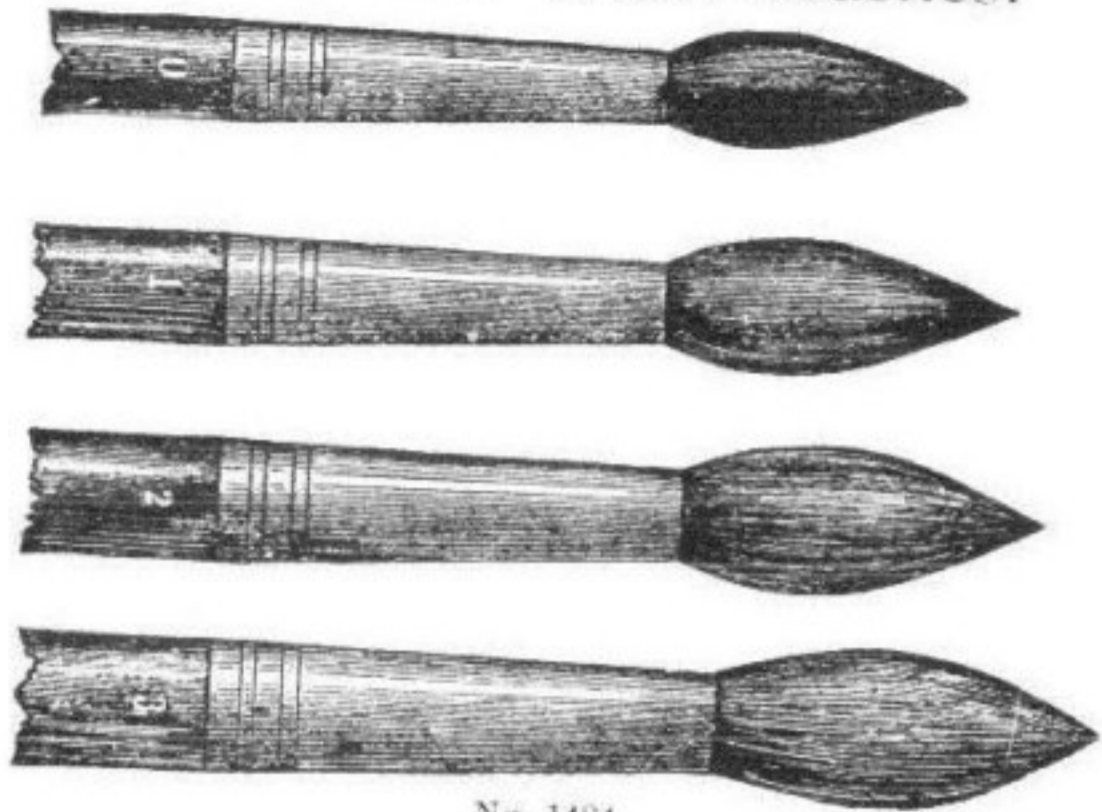


No. 1483.

No. 1483. Red Sable Brushes, in albata, with handle.

Nos.	1	2	3	4	5	6	7	8	9	10	11	12
Each	\$0 15	20	25	30	40	55	70	90	1 20	1 50	2 00	2 50

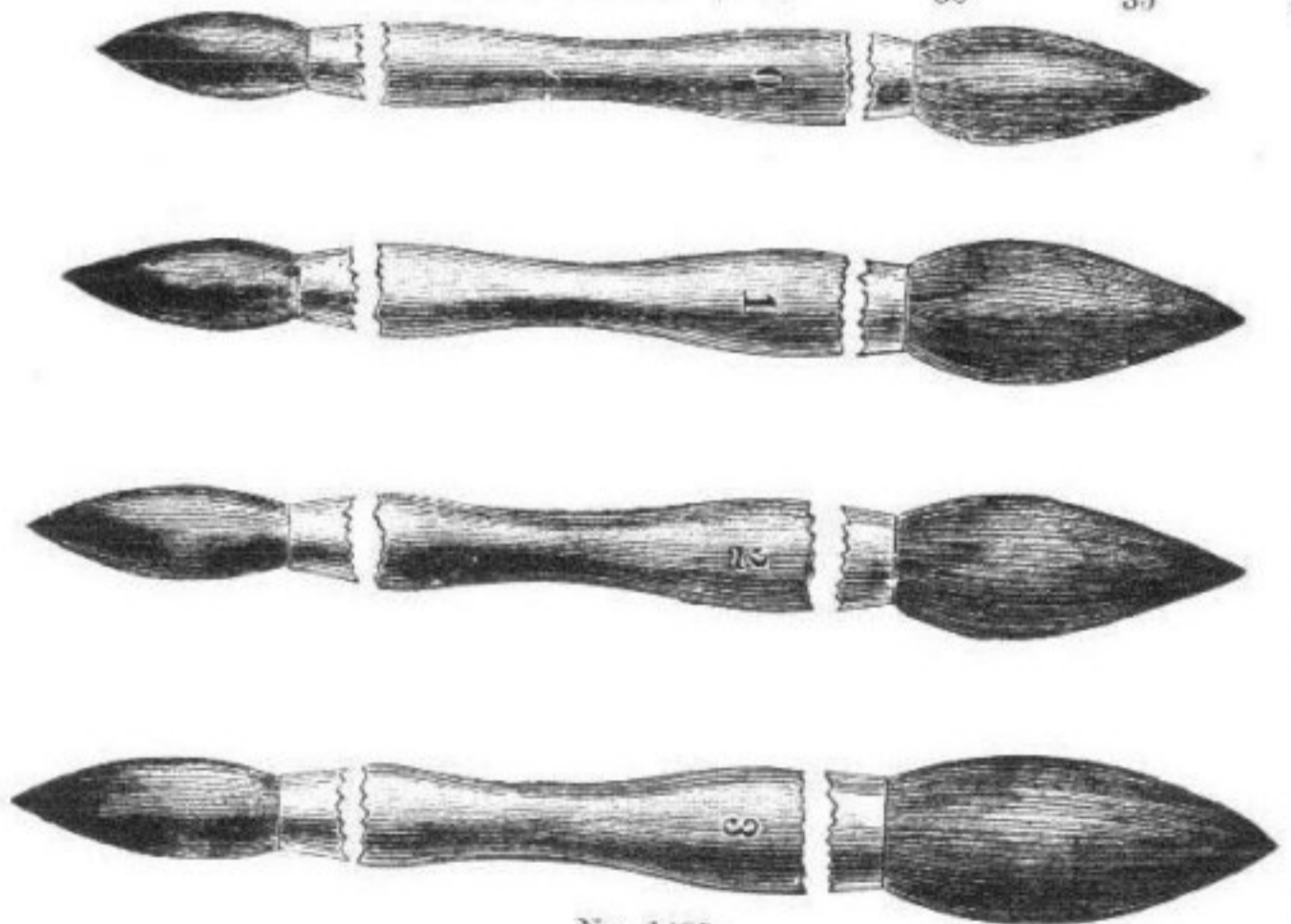
## Camel Hair Wash Brushes.



No. 1484.

No. 1484. Camel Hair Sky or Wash Brush, in tin, with polished black handle.

Nos . . . . .	0	1	2	3
Each . . . . .	\$0 25	30	35	40

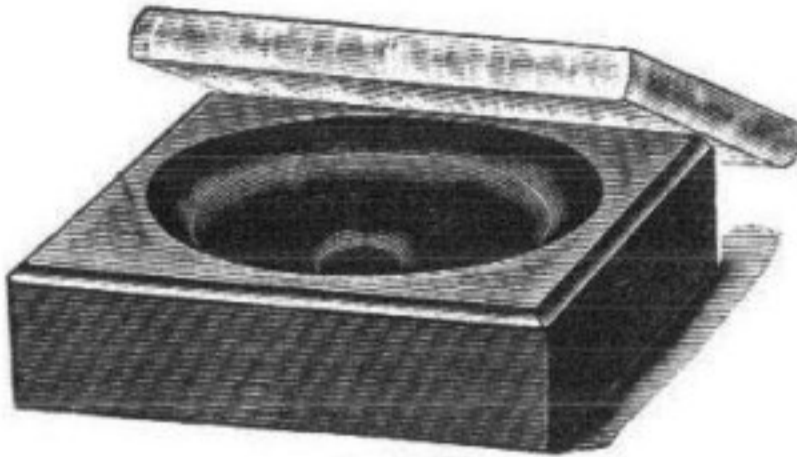


No. 1485.

No. 1485. Camel Hair, in tin, with 2 points.

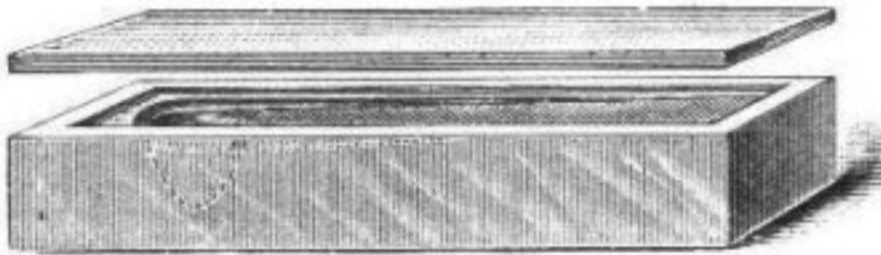
Nos . . . . .	0	1	2	3
Each . . . . .	\$0 45	55	65	75

## Ink and Color Slabs.



No. 1501.

No.		Each.
1501.	Slate Ink Stone, 5 inch, with heavy glass cover . . . . .	\$0 50
1502.	Round White Glass Ink Slab, with cover. . . . .	50

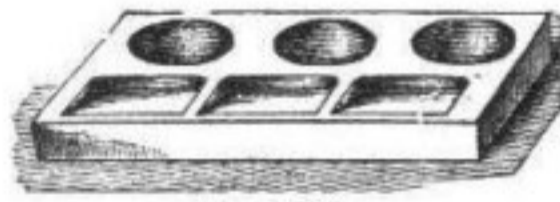


No. 1503.

No.		Each.
1503.	Patent Ink Slab, with cover, $2\frac{1}{8} \times 5\frac{1}{2}$ inches . . . . .	\$0 50
1504.	“ “ “ “ $1\frac{3}{4} \times 4\frac{1}{2}$ “ . . . . .	40



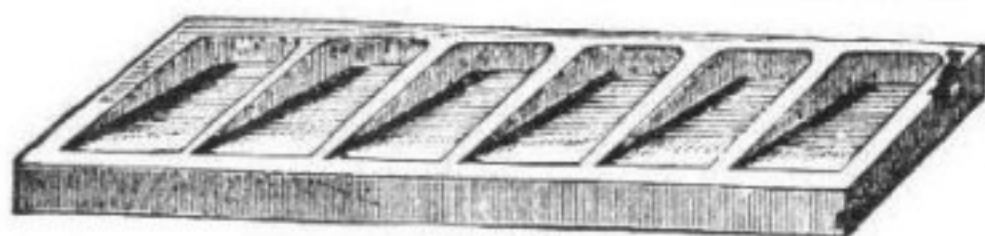
No. 1505.



No. 1513.

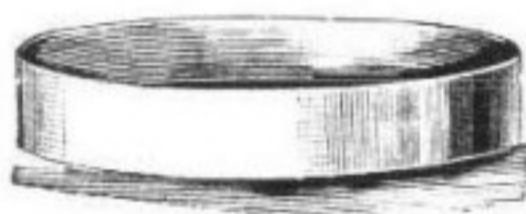
No.		Each.
1505.	Nests of Cabinet Saucers, $3\frac{3}{4}$ inches, 8 in nest . . . . .	\$1 00
1506.	“ “ “ $3\frac{1}{4}$ “ 8 “ . . . . .	80
1507.	“ “ “ $2\frac{5}{8}$ “ 6 “ . . . . .	70
1508.	“ “ “ $2\frac{3}{8}$ “ 6 “ . . . . .	60
1509.	Ink or Color Slab, 3 wells and slant, $3 \times 4\frac{1}{2}$ inches . . . . .	35
1510.	“ “ 3 “ “ $2\frac{3}{4} \times 4\frac{1}{4}$ “ . . . . .	30
1511.	“ “ 3 “ “ $2\frac{3}{8} \times 3\frac{5}{8}$ “ . . . . .	25
1512.	“ “ 3 “ “ $1\frac{1}{2} \times 2\frac{3}{4}$ “ . . . . .	15
1513.	“ “ 3 “ 3 “ $2\frac{1}{2} \times 4$ “ . . . . .	25

## Ink and Color Slabs—Continued.



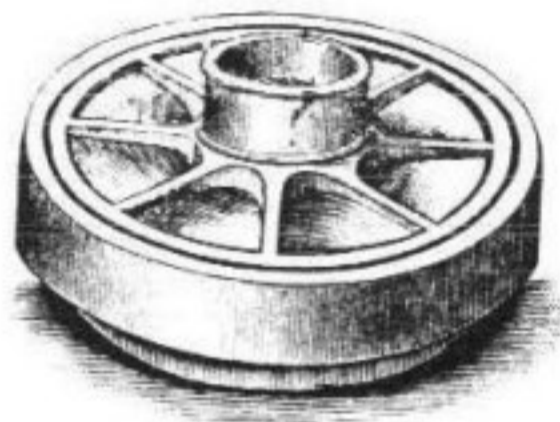
No. 1514.

No. 1514.	Sloping Tiles, 5 divisions, $3\frac{1}{8} \times 7\frac{3}{4}$ inches	Each, \$0	40
No. 1514a.	" " 6 " $3\frac{1}{8} \times 7\frac{3}{4}$ "	"	40
No. 1515	" " 8 " 6 $\times 7\frac{5}{8}$ "	"	60



No. 1516.

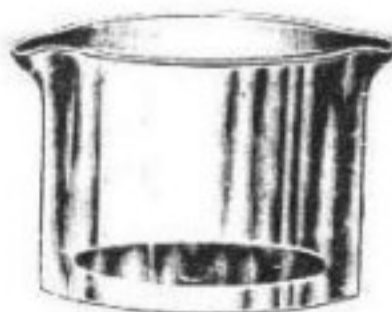
No. 1516.	China Color Cups . . . . . diameter	$2\frac{1}{2}$	3	$3\frac{1}{2}$ inches.
	Each . . . . .	\$0 10	10	20



No. 1517.

No. 1517.	Architects' Slant and Basin, 8 divisions and cup, 7 inches diameter.		
	Each . . . . .		\$1 35

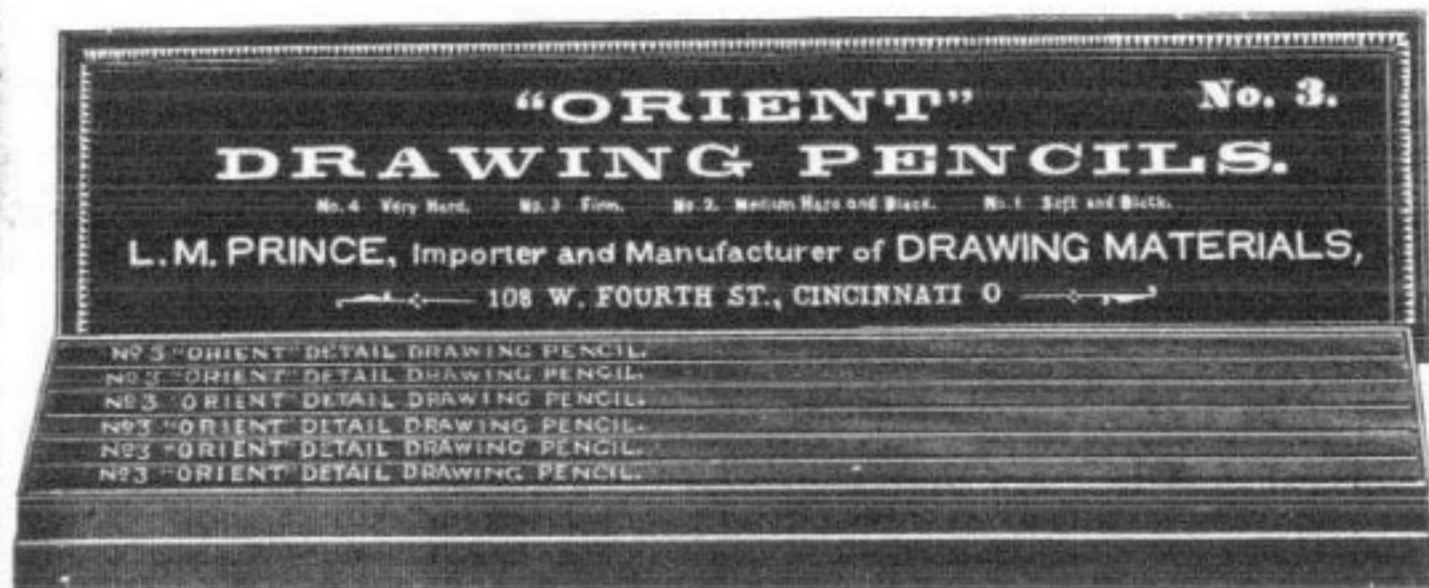
## Artists' Water Glasses.



No. 1518.

No. 1518.	Artists' Water Glasses, $2\frac{3}{8}$ inches diameter	Each, \$0	15
No. 1519.	" " " $3\frac{1}{4}$ " "	"	25

## Draughtsmen's Lead Pencils.



No. 1520.

Made in five grades of hardness:

No. 1, soft and black. No. 2, medium hard and black. No. 3, firm. No. 4, hard.  
No. 5, very hard.

To those desiring cheap but good pencils, the above are earnestly recommended. Being made for us especially for draughting, they are even and free from grit. The best pencil sold for the price. Put up in a neat box.

No. 1520. Prince's Orient Detail Pencil . . . . . Per doz., \$0 35

## Faber's Maroon Finish Polygrade Pencils.



No. 1521.

No. 1521. Faber's Hexagon Gilt, Nos. 1, 2, 3, 4, 5 . . . . . Per doz., \$0 65

## Faber's Finest Siberian Lead Pencils.



No. 1522.

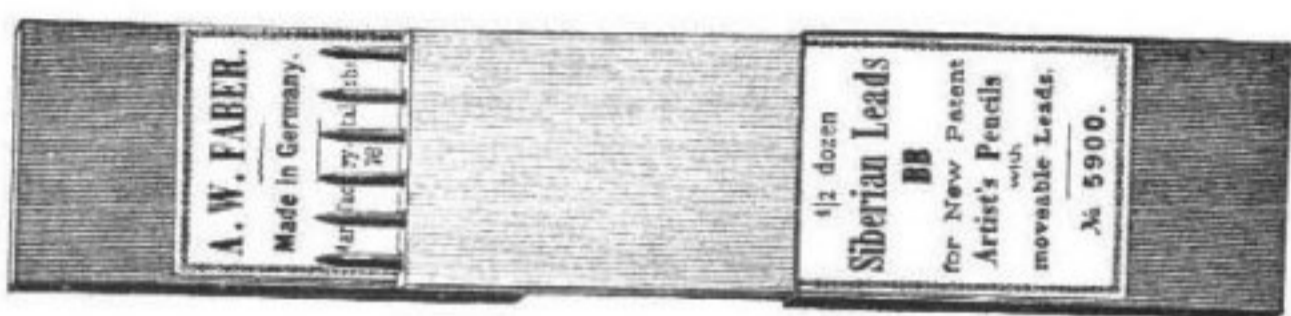
No. 1522. Faber's Hexagon Siberian Pencils, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H . . . . . Per doz., \$1 25

## Lead Pencils—Continued.



No. 1524.

No. 1523. Artists' Pencil, with Siberian lead, double pointed . . . . . Each, \$0 35  
 No. 1524. " " " " " " single " . . . . . " 25



No. 1525.

No. 1525. Siberian Leads, 6 in box, No. 2B to 6H . . . . . Per box, \$0 65

## Hardtmuth's Koh-i-noor Pencils.



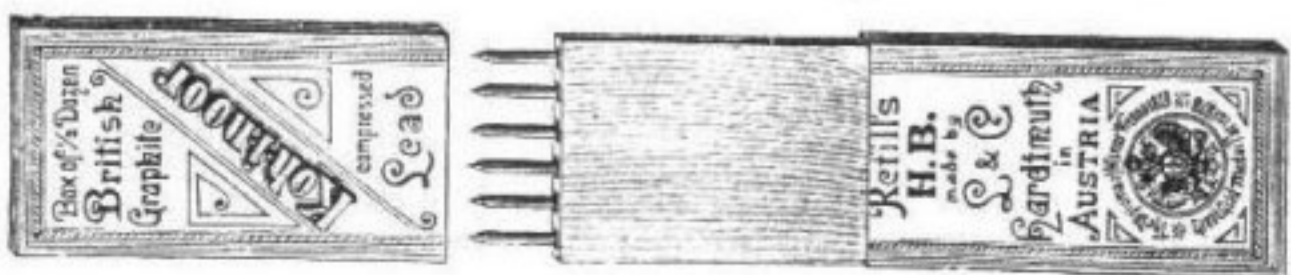
No. 1526.

No. 1526. Koh-i-noor Pencils, hexagon, yellow polish. In degrees as follows:  
 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H . . . . . Per doz., \$1 25  
 4B . . . . . " 1 50  
 6B, 5B . . . . . " 1 80



No. 1527.

No. 1527. Koh-i-noor Artists' Pencil, with lead, double pointed . . . Each, \$0 35  
 No. 1528. " " " " " " single " . . . . . " 25



No. 1529.

No. 1529. Koh-i-noor Leads, 6 in box, all grades, from 6B, to 8H . . . Per box, \$0 60



## Prince's Ideal Pencil Holder.



Invaluable to large offices or those using a great number of fine pencils, enabling one to use up small stubs. They are made to fit either hexagon or round pencils. The tube being threaded, the stub is firmly held and can neither move nor fall out. Finely finished, one dozen in a box.

No. 1529 $\frac{1}{2}$ . Ideal Pencil Holder . . . . . Each, \$0 10

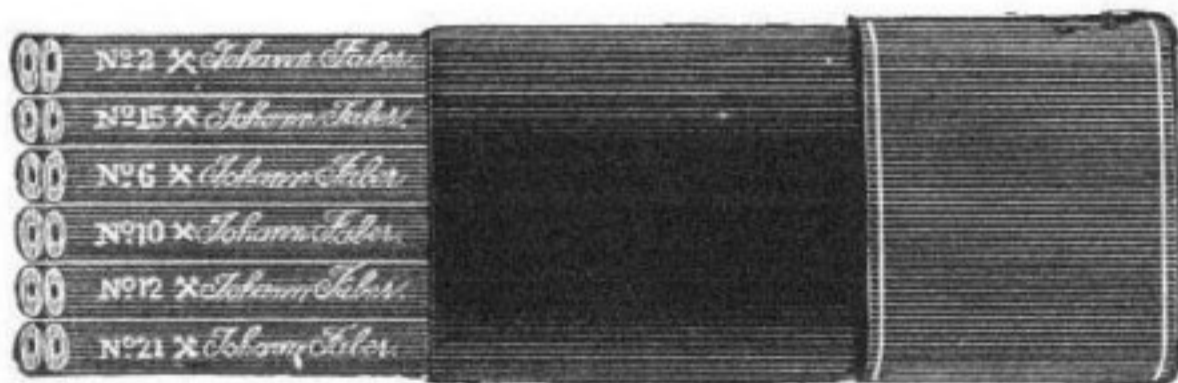
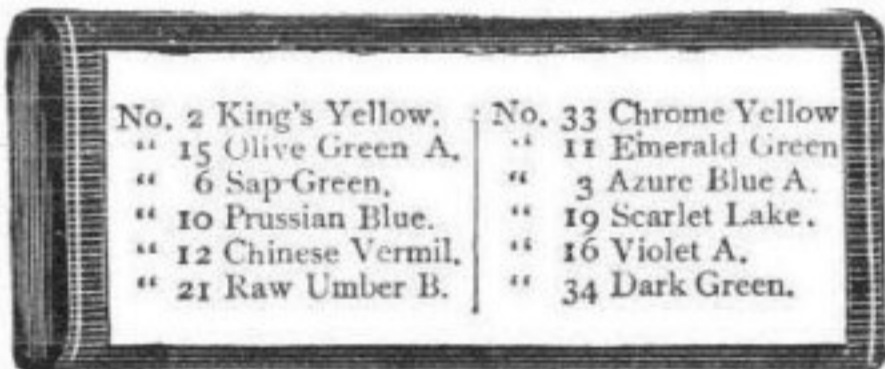
## Faber's Finest Colored Pencils.



No.	No. 1531.	Per doz.
1530.	Faber's Hexagon Carmine Pencils . . . . .	\$1 00
1531.	" " Blue " . . . . .	1 00
1532.	" Round Carmine " . . . . .	75
1533.	" " Blue " . . . . .	75

## Wax Crayon's, or Creta Laevis Pencils.

FOR COLORING DRAWINGS AND DETAILS.



No.	No. 1534a.	Each
1534.	Faber's Wax Crayons, in pull-off boxes, No. 6, assorted colors . .	\$0 75
1534a.	" " " " " " " No. 12, " " . . . .	1 25
1535.	" " " in wood: No. 1, white; No. 2, yellow; No. 26, dark blue; No. 14, sienna; No. 12, Vermilion; No. 20, black; No. 9, dark brown; No. 4, orange; No. 11, Emerald green; No. 34, dark green; No. 75, Carmine. Per doz., \$1.00 . . . . .	0 10

## Crayons—Continued.



No. 1536.

We believe this Crayon to be superior to anything in the market for like purposes. Its lead is tough and has a deep, rich, black color.

No. 1536. Dixon's Sketching Crayon . . . . . Per doz., \$1 00

## Dixon's Lumber Pencils.



No. 1538a.

No. 1538.	Dixon's Lumber Crayon, red, hexagon . . . . .	Per doz., \$1 25
No. 1538a.	" " " blue, " . . . . .	" 1 25
No. 1539.	" Metal Workers' Crayon, paper covered, 5 in. . . . .	" 50

## Franklin's Venetian Crayon.



No. 1540.

This Crayon is hard, a dark red color, and especially adapted for Civil Engineers' and Surveyors' use in marking stakes. It does not soil the hands like kiel.

No. 1540. Franklin's Venetian Crayon, size and shape of cut . . . Per doz., \$0 50

## Franklin's Lumber Crayon.



No. 1541.

This is a Round Crayon,  $\frac{1}{8}$  diameter;  $3\frac{3}{4}$  inches long. Being so handy in size and shape, many prefer it to a larger kind, not so easy to carry and use at all times. For rough work it out-wears two or three oil crayons.

No. 1541. Round Lumber Crayon, black, blue and red . . . . . Per doz., \$0 50

## Steel Pens.

FOR LETTERING AND DRAWING.



No.		No. 1545.	Per Doz
1545.	Gillott's Crow Quill Pens,	659, on cards with holder . . . . .	\$0 60
1546.	" " "	850, Long Shoulder, on cards . . . . .	75
1547.	" Drawing "	1000, Superfine, on cards . . . . .	1 10
1548.	" Lithographic "	290, on cards, with holder . . . . .	60
1548a.	" " "	290, loose, in gross boxes . . . . .	50
1549.	" Mapping "	291, on cards, with holder . . . . .	60
1549a.	" " "	291, loose in gross boxes . . . . .	50
1550.	" " "	170, " " " . . . . .	10
1551.	" " "	303, " " " . . . . .	15
1552.	" " "	404, " " " . . . . .	10
1553.	French Crow Quill Pens, on cards, with holders . . . . .		40



No.		No. 1554.	Per Doz
1554.	Keuffel & Esser's Drawing and Lettering Pens, 1 doz. in box . . . . .		\$0 60
1555.	" Lithographic Pens, 1 doz. in box . . . . .		60

## Penholders.



No.		No. 1556.	Each
1556.	Improved Crow Quill Penholder, without pen . . . . .		\$0 10
	A holder for Crow Quill Pens of the thickness of an ordinary penholder.		

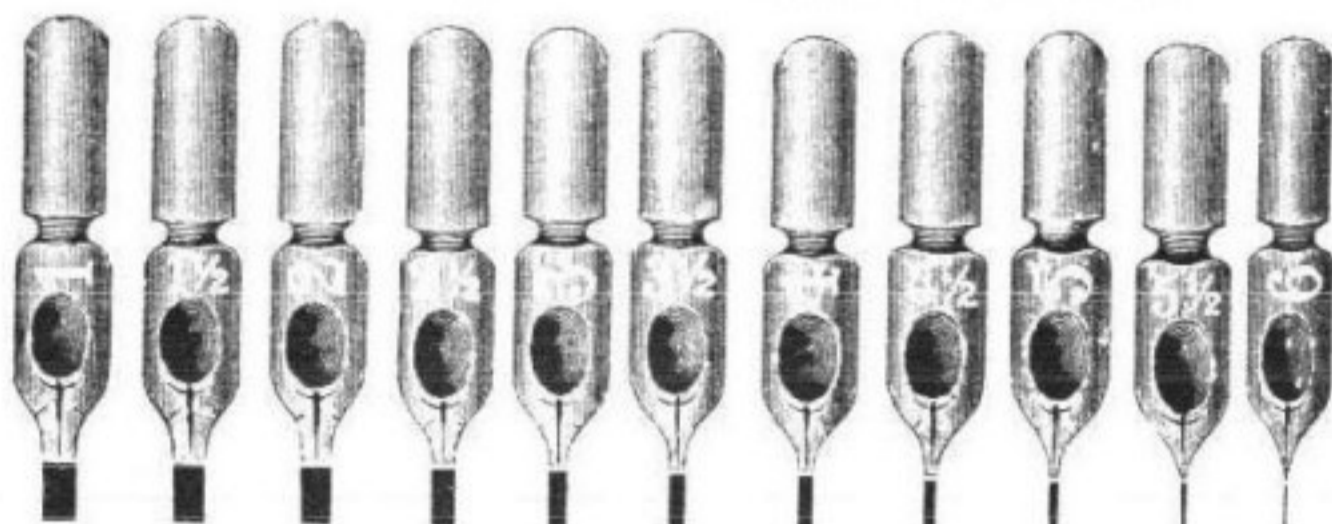


No.		No. 1557.	Each
1557.	Penholder, polished handle, for Nos. 1548 to 1552 . . . . .		\$0 10

## Round Writing.

Full directions, explaining the system of round writing, giving directions as to how to hold the pen, also examples to copy from, etc., are found in the Methodical Text Book.

- |   |              |
|---|--------------|
| No. 1560. Methodical Text Book to Round Writing . . . . . | Each, \$0 75 |
| No. 1561. Round Writing Copy Book, without text . . . . . | " " " " 45   |



Nos. 1      1½      2      2½      3      3½      4      4½      5      5½      6

Single Pointed Pens, Nos. 1562-1564.

- |   |                                     |
|---|-------------------------------------|
| No. 1562. Single Pointed Pens . . . . .                           | Per ¼ gross of any one size, \$0 30 |
| No. 1563. " " " " . . . . .                                       | Per " " " " " " " " " " " " 1.00    |
| No. 1564. Assortment of 11 Single Pointed Pens, on card . . . . . | Per card, 15                        |



Nos. 0      1      2      3      4      5

Double Pointed Pens, No. 1565.

- |  |                  |
|--|------------------|
| No. 1565. Assortment of 12 Double Pointed Pens, six different kinds, on card, with penholder . . . . . | Per card, \$0 25 |
| No. 1568. Assortment of Single and Double Pointed Pens, 25 in box, . . . . .                           | Per box, 40      |



- |  |                  |
|--|------------------|
| 1567   | 1569             |
| No. 1567. Inkholders for Single or Double Pointed Pens . . . . . | Each, \$0 10     |
| No. 1568. " " " " " " " " " " . . . . .                          | Per box of 6, 30 |
| No. 1569. Penholder for Round Writing Pens . . . . .             | Each, 10         |

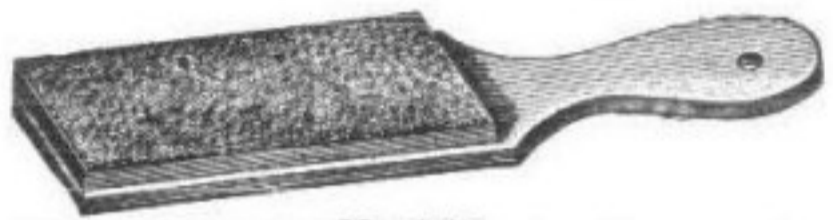
## Shading Pens.



No. 1570.

No. 1570. Automatic Shading Pens,	0	1	2	3	4	5	
Width of nib . . . . .	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	in. Each, \$0 25

## Pencil Pointers.



No. 1573.

No. 1571. Pencil Pointer, $1\frac{1}{4} \times 4$ inches . . . . .	Each, \$0 10
No. 1572. " " $2\frac{1}{2} \times 4$ " . . . . .	" 15
No. 1573. " " $1\frac{1}{4} \times 4$ " with handle. . . . .	" 15

Above Pencil Pointers consist of a number of sheets of flint paper made into a block.

## Rubber Pencil Erasers.



No. 1574.

The feature of this Rubber is its softness and superior erasing qualities.

No. 1574. Prince's Terre Verte "Green" Rubber, small. . . . .	Each, \$0 05
No. 1575. " " " " " large. . . . .	" 10

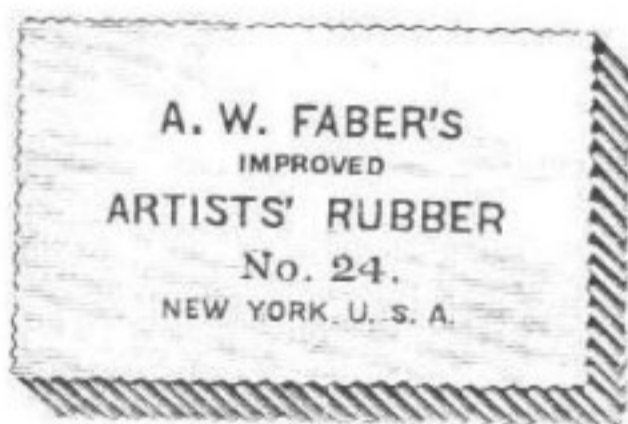


No. 1576.

Red Pliable Rubber does not smear or injure the surface of the paper.

No. 1576. Prince's Acme "Red" Rubber, small. . . . .	Each, \$0 05
No. 1577. " " " " " large. . . . .	" 10

## Ink and Pencil Erasers.

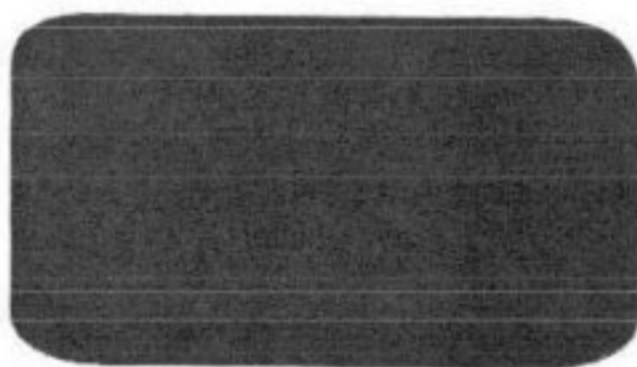


No. 1578.



No. 1579.

No. 1578.	A. W. Faber's Artists' Rubber, Nos. 4-50c, 12-20c, 20-10c, per cake,	\$0 10
No. 1579.	" Ink Eraser, small . . . . .	" 05
	" " large . . . . .	" 10



No. 1580.

No. 1580.	A. W. Faber's "Soft Red" Rubber . . . . .	Each, \$0 10
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No. 1581.

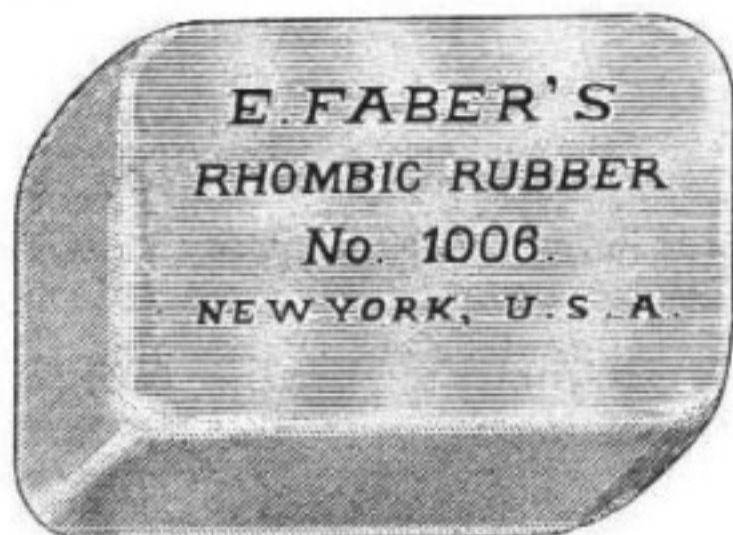
No. 1581.	Ink and Pencil Eraser, in wood . . . . .	Each, \$0 15
No. 1582.	" " " mammoth . . . . .	" 25



No. 1583.

No. 1583.	A. W. Faber's Ink and Pencil Eraser, in pencil form . . . . .	Each, \$0 15
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## Ink and Pencil Erasers—Continued.



No. 1584.

### Rhombic Rubber.

This Eraser possesses the novelty and advantage of having four sharply-beveled edges for erasive purposes. It is made of the very best material and is equally effective in removing either ink or pencil marks. It comes in two convenient sizes.

No. 1584. Faber's "Rhombic" Rubber . . . . . Each, \$0 10



No. 1585.

No. 1585. Faber's Kneaded Rubber . . . . . Each, \$0 10

### Clasp Eraser.

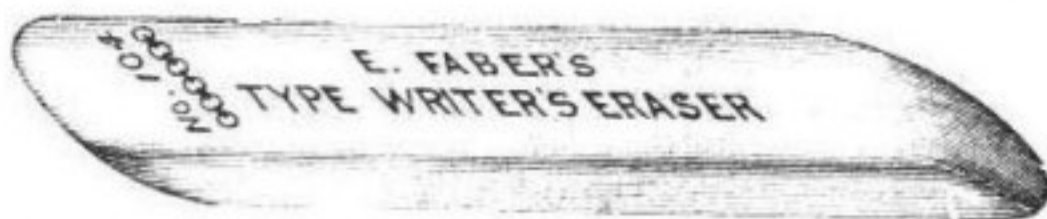
This thin strip of Erasive Rubber, within the metal clasp, constantly presents a sharp, stiff edge to the paper. To adjust, loosen the clasp by means of sliding band. This is an Eraser well adapted to type-writers' use.



No. 1586.

No. 1586. Clasp Eraser, for ink and pencil . . . . . Each, \$0 10  
 No. 1587. Re-fills, for same, one dozen in a box . . . . . Box 50

## Ink and Pencil Erasers—Continued.



No. 1588.

E. Faber's. Double Beveled, Flat, Typewriter Eraser.  
 No. 1588. Typewriter Eraser . . . . . Each, \$0 10

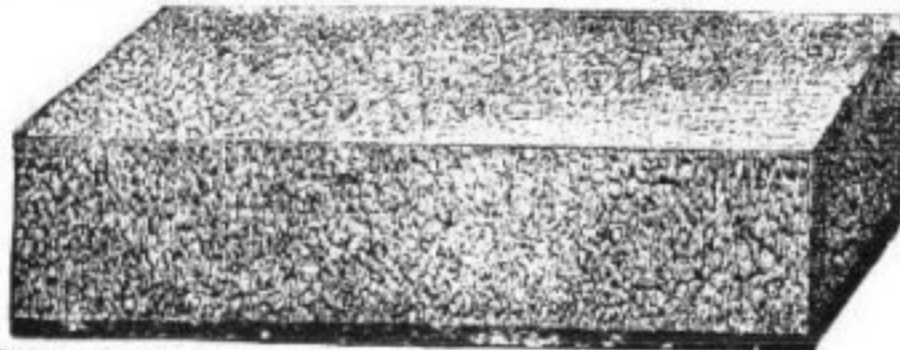
### Hardtmuth's Pliable Rubber.



No. 1589.

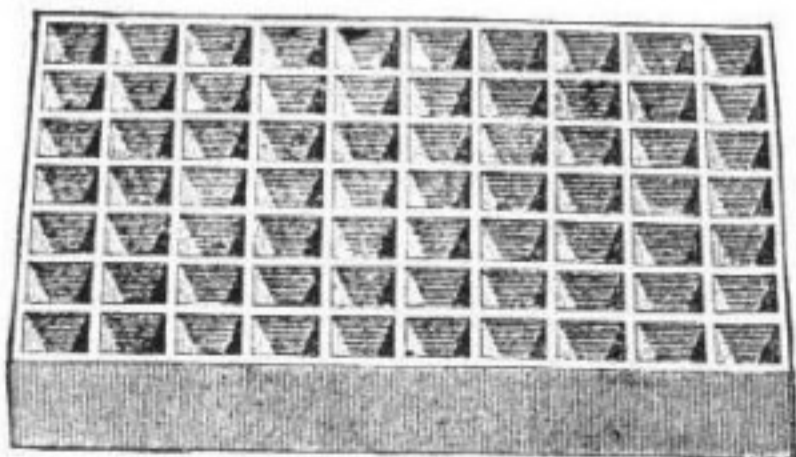
	Nos. 8	12	20	30
No. 1589. Hardtmuth's Pliable Rubber . . . . .	Each, \$0 30	20	15	10

### Sponge Rubber for Cleaning Drawings.



No.		Each
1601.	Small Cakes, about 1 x 1 x 1 inch . . . . .	\$0 10
1602.	Medium Size, rubber back, 2½ x 1¾ x 5/8 inch . . . . .	25
1603.	Large Size, 4 x 2 x 1 inch . . . . .	60
1604.	Mammoth Size, 6 x 4 x 1 inch . . . . .	1 80

### Rubber and Paper Cleaner.



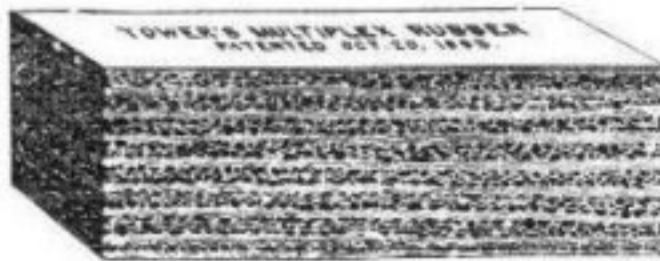
No. 1618.

No. 1618. Red Moulded Rubber and Paper Cleaner, 2¾ x 1½ inch . . . Each, \$0 25



## Tower's Multiplex Rubber Eraser.

A New Article that Removes Pencil Marks without Smooching.



No. 1621.

No. 1621.	Multiplex Rubber, large	Per cake, \$0 50
No. 1622.	" " medium	" " 25
No. 1623.	" " small	" " 15
No. 1624.	" " "	" " 10

### Steel Erasers.



No. 1630.

No. 1630.	Steel Eraser, cocoa handle	Each, \$0 40
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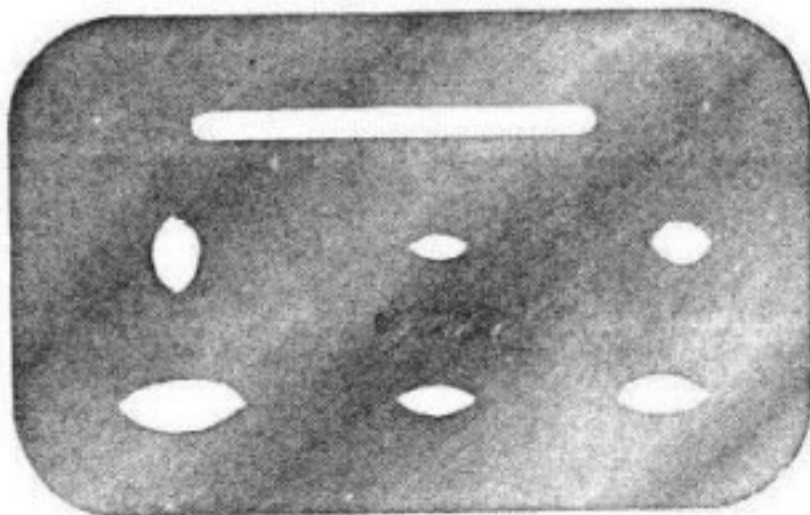


No. 1631.

No. 1631.	Steel Eraser, cocoa handle	Each, \$0 70
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### Erasing Shields.

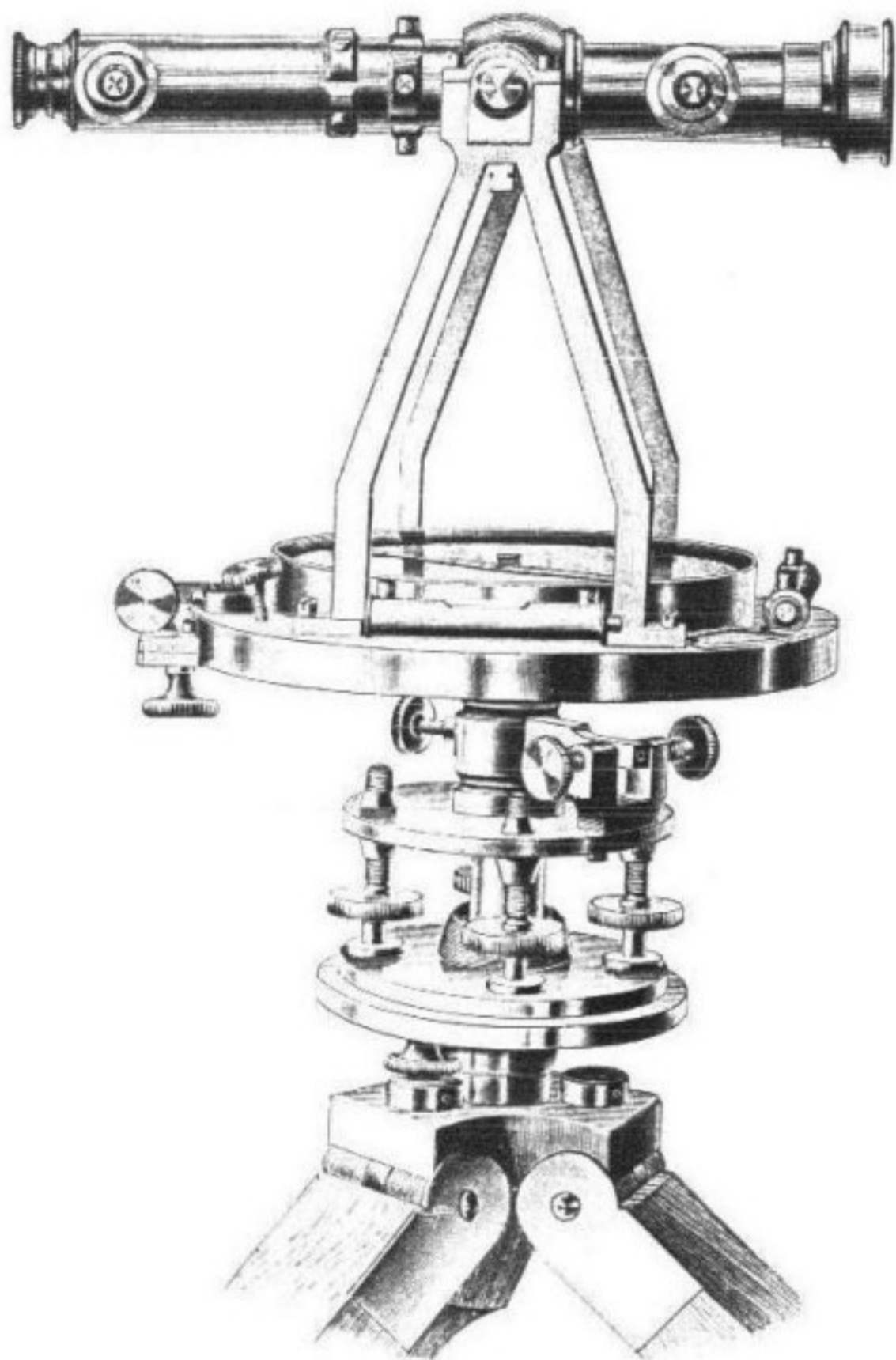
Made of thin, flexible metal, or transparent celluloid, with slots and holes of various sizes, so that small erasers can be made on drawings or on typewriting, limited in size to that of the opening on the shield.



No. 1632.

No. 1632.	Metal Erasing Shield, nickel-plated, $2\frac{3}{8} \times 3\frac{3}{4}$ inches	Each, \$0 25
No. 1633.	Celluloid Erasing Shield, transparent, $2\frac{1}{2} \times 4\frac{1}{2}$ inches	" 25

Transits.



Nos. 1640-1641.

For Description, see page 133.  
Engineer's Transit, with Plain Telescope.  
For Extras, see page 158.

## Transits—Continued.

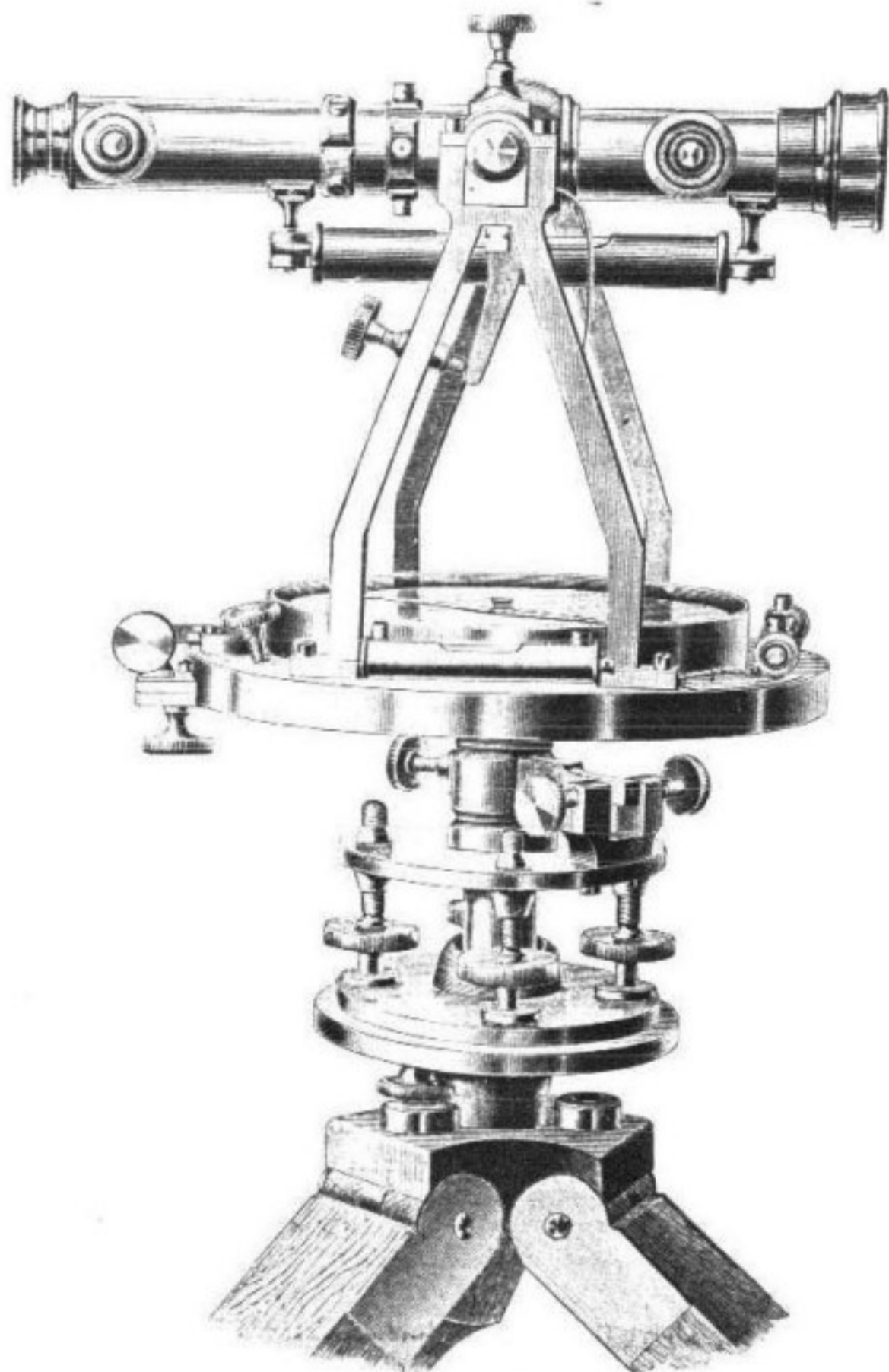
### ENGINEER'S TRANSIT, WITH PLAIN TELESCOPE.

No. 1640. Engineer's Transit, with 6½-inch division circle divided to half degrees, with two verniers reading to minutes, placed in most convenient position to the line of sight of telescope; 4½-inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. Telescope provided with rack and pinion motion for setting focus of eye-piece and object glass. Telescope swings over compass box when both the eye and object ends are extended to their utmost lengths; shifting tripod head, etc. . . . . Price, \$150 00

No. 1641. Engineer's Transit, with 7-inch division circle divided to half degrees, with two verniers reading to minutes, placed in the most convenient position to the line of sight of telescope; 5-inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. Telescope provided with rack and pinion motion for setting focus of eye-piece and object glass. Telescope swings over compass box when both the eye and object ends are extended to their fullest lengths; shifting tripod head, etc.  
Price . . . . . \$160 00

The price of the above instruments include Tripod, Walnut Case for instrument, Plumb-bob, Reading Glass, Adjusting Pins, etc.

Transits—Continued.



Nos. 1642-1643.

For Description, see page 135.  
Engineer's Transit, with Level to Telescope.  
For Extras, see page 156.

## Transits—Continued.

### ENGINEER'S TRANSIT, WITH LEVEL TO TELESCOPE.

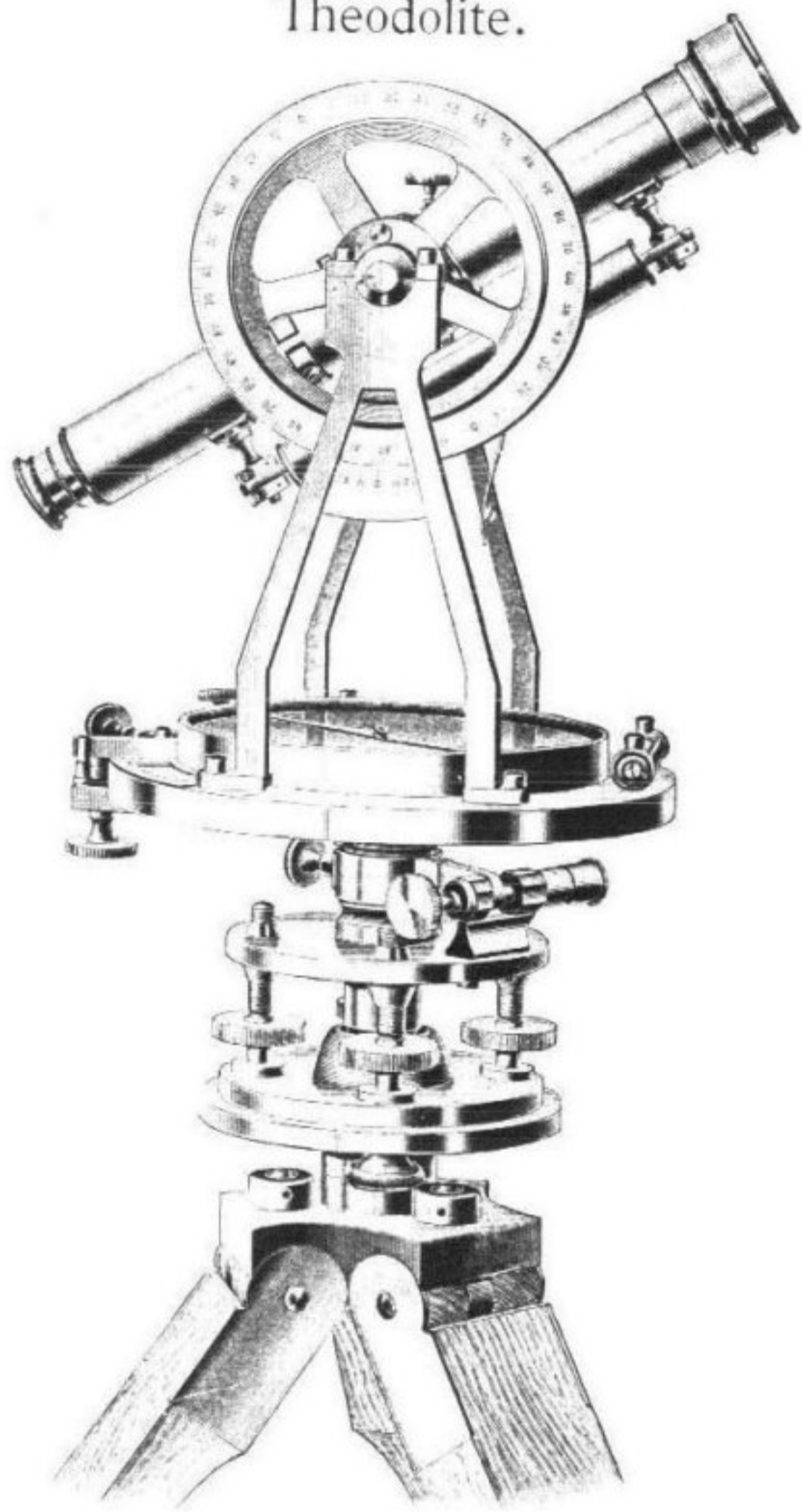
No. 1842. Engineer's Transit, with Level to Telescope, with  $8\frac{1}{2}$ -inch division circle divided to half degrees, with two verniers reading to minutes, placed in most convenient position to the line of sight of telescope;  $4\frac{1}{2}$ -inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. The telescope is provided with a level, clamp and spring tangent motion. Telescope provided with rack and pinion motion for over setting focus of eye-piece and object glass. Telescope swings compass box when both the eye and object ends are extended to their utmost lengths; shifting tripod head, etc. . . . . Price, \$160 00

No. 1843. Engineer's Transit, with Level to Telescope, with 7-inch division circle divided to half degrees, with two verniers reading to minutes, placed in the most convenient position to the line of sight of telescope; 5-inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. The telescope is provided with a level, clamp and spring tangent motion, and with rack and pinion motion for setting focus of eye-piece and object glass. Telescope swings over compass box when both the eye and object ends are extended to their fullest length; shifting tripod head, etc. . . . . Price, \$170 00

The prices of the above instruments include Tripod, Walnut Case for instrument, Plumb-bob, Reading Glass, Adjusting Pins, etc.

For Extras, see page 158.

# Theodolite.



Nos. 1644-1645.  
For Description, see p. 137. **Engineers' Theodolite.** For Extras, see p. 156.

## Theodolite—Continued.

## ENGINEER'S THEODOLITES.

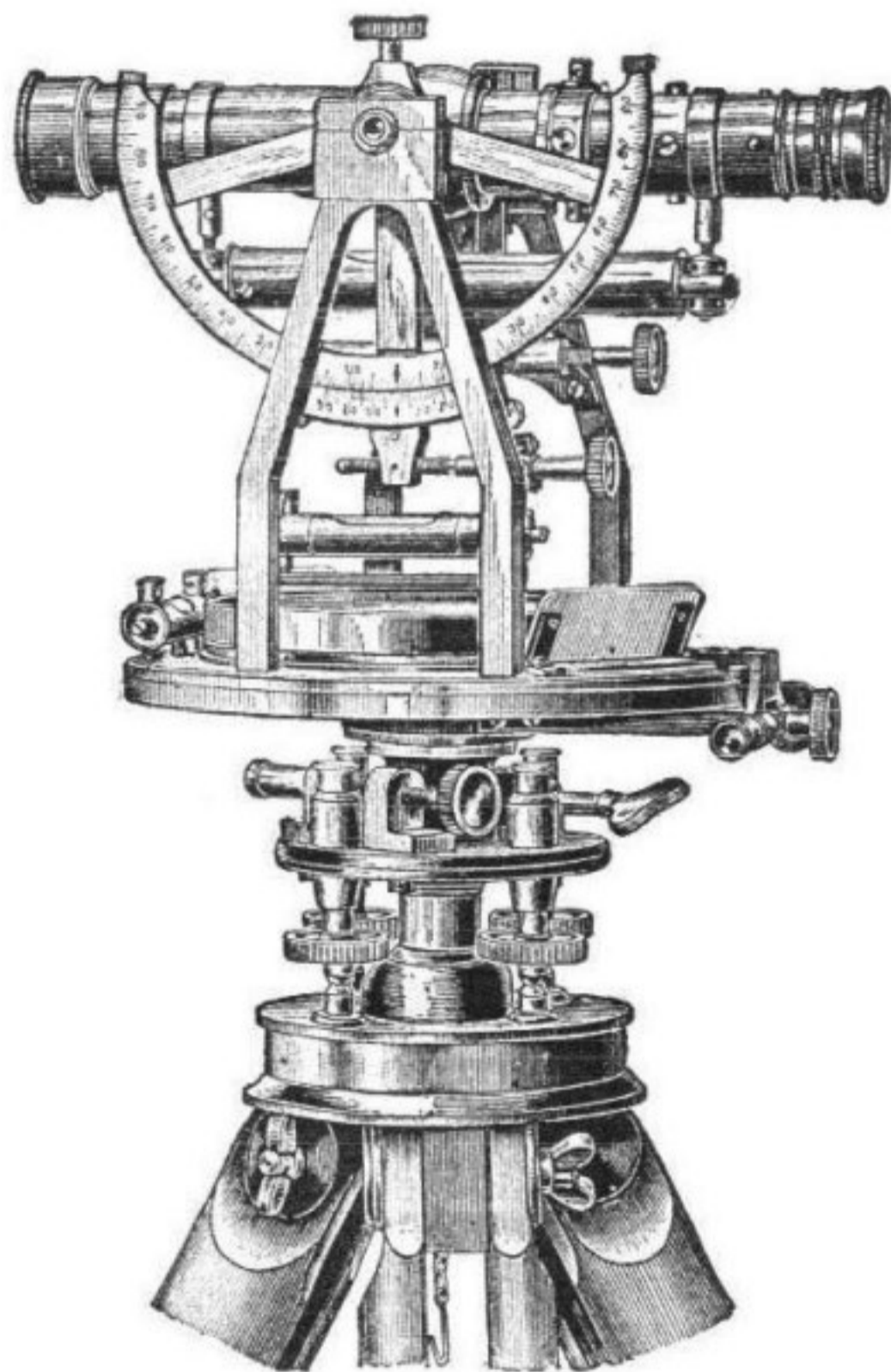
No. 1644. Theodolite with  $6\frac{1}{2}$ -inch division circle divided to half degrees, with two verniers reading to minutes placed in the most convenient position to the line of sight of telescope;  $4\frac{1}{2}$ -inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. Telescope revolves over compass box when both the eye and object ends are extended to their fullest length; rack and pinion motion for adjusting focus to cross-hairs and object. Telescope provided with a level, clamp and spring tangent motion, also a full vertical circle  $4\frac{1}{2}$  inches diameter, with vernier reading to minutes, for reading angles of elevation and depression; shifting tripod head, etc. . . . . † Price, \$180 00

No. 1645. Theodolite, with 7-inch division circle divided to half degrees, with two verniers reading to minutes, placed in the most convenient position to the line of sight of the telescope; 5-inch magnetic needle, long compound spindles, spring tangent motion to upper and lower plate. Telescope revolves over compass box when both the eye and the object ends are extended to their fullest length; rack and pinion motion for adjusting focus to cross-hairs and object. Telescope provided with a level, clamp and spring tangent motion, also a full vertical circle,  $4\frac{1}{2}$  inches diameter, with verniers reading to minutes, for reading angles of elevation and depression; shifting tripod head, etc. . . . Price, \$190 00

The prices of the above instruments include Tripod, Walnut Case for instrument, Plumb-bob, Reading Glass, Adjusting Pins, etc.

For Extras, see page 156.

Light Mountain or Mining Transit.



No. 1846.

For Description, see page 139.



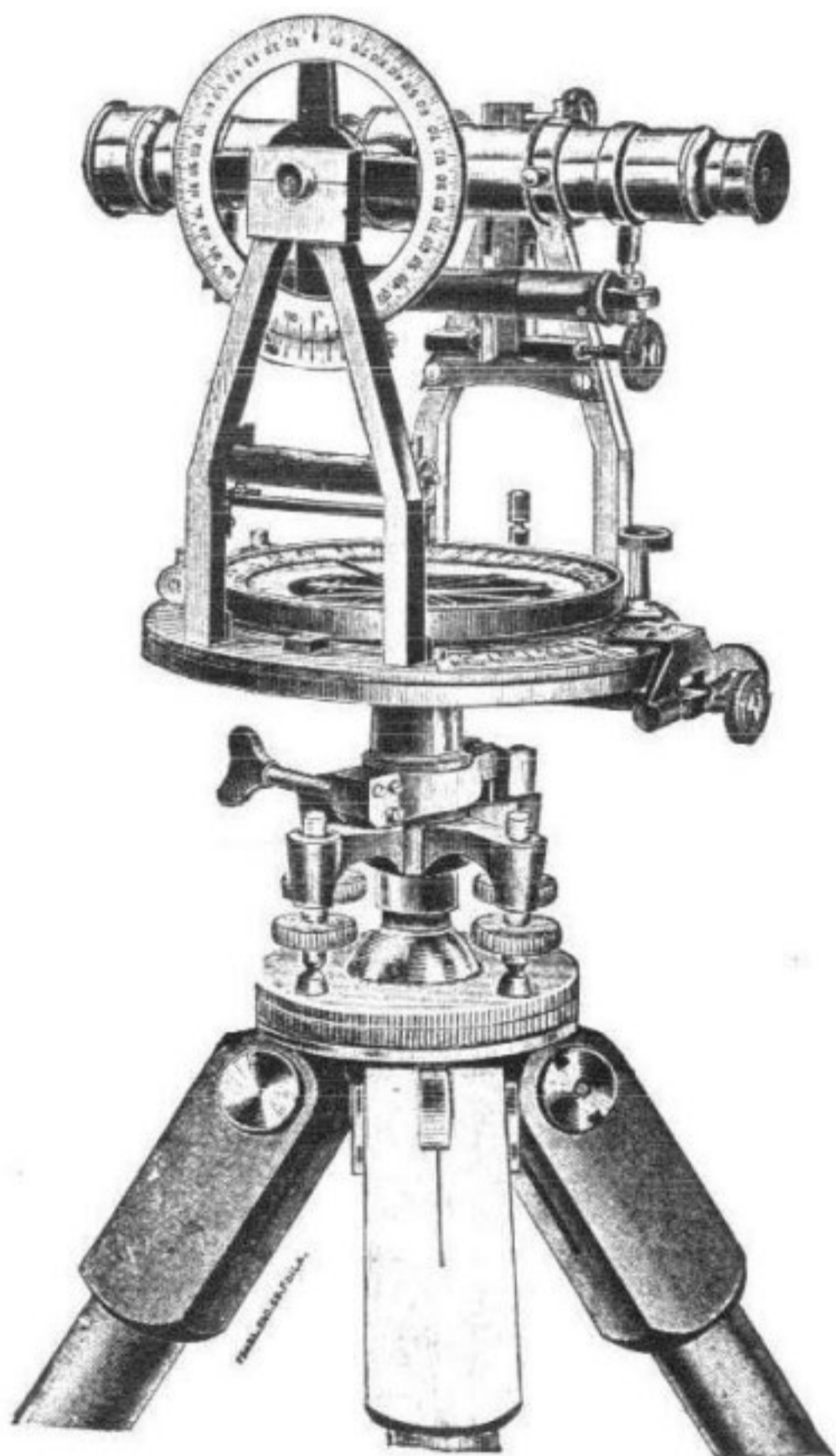
## Light Mountain or Mining Transit—Continued.

The Light Mountain Transit, as introduced by us, meets every demand for a light transit—possessing great accuracy—for use in the mountains or underground mining work. It is constructed on the same model, of the same material and workmanship as our Engineer's Transit, and differs from it only in reduced size and, consequently, lightness of construction, thus making it extremely portable. When packed in our sole leather case, with shoulder or saddle straps, it can be carried as easily as a knapsack, and enables the engineer to work and travel rapidly and with great ease.

- No. 1646. Light Mountain Transit, with achromatic telescope 9 inches long, with dust cover to draw tube. Power of telescope 24 diameters. Improved rack and pinion movement to object slide; special formulæ eye-piece lenses, giving high power without reducing the light or field; patent spiral screw focussing arrangement to eye-piece; improved cross wires. Ten-second ground level, mounted under telescope. Four-inch silvered vertical arc graduated to  $\frac{1}{2}$  degrees reading by adjustable verniers to single minutes. Figuring of graduations on arc from 0 to 90 each way from centre line. Clamp and tangent screw with opposing spring to axle of telescope. Four-inch special magnet steel needle, swung on jeweled centre, supported by a hardened and well-pointed centre pin. Variation plate, with improved clamp and rack and pinion movement; silvered horizontal circle (graduated edge)  $5\frac{1}{2}$  inches in diameter; graduated to  $\frac{1}{2}$  degrees, with double verniers reading to single minutes. Figuring of graduations on circle, in two rows, from 0 to 360 degrees in opposite directions. Verniers fitted with ground glass reflectors. Clamp and opposing spring tangent to horizontal limb and centres. Two graduated right angle levels, one placed on horizontal circle and one on left-hand standard. Compound extra long centres of special formulæ metal to reduce friction. Special skeleton leveling plate. Capped and packed leveling screws; shifting centre tripod head; extension leg tripod. Hardwood box, containing sunshade, plumb-bob, screw driver and adjusting pins. Weight of transit, 10 lbs.; weight of tripod, 6 lbs. . . . . Price, \$185 00
- No 1647. Light Mountain Transit, as above in every detail, excepting that the graduations are on solid silver . . . . . Price, \$210 00

For Extras, see page 156.

# Reconnaissance Transit.



No. 1648b.

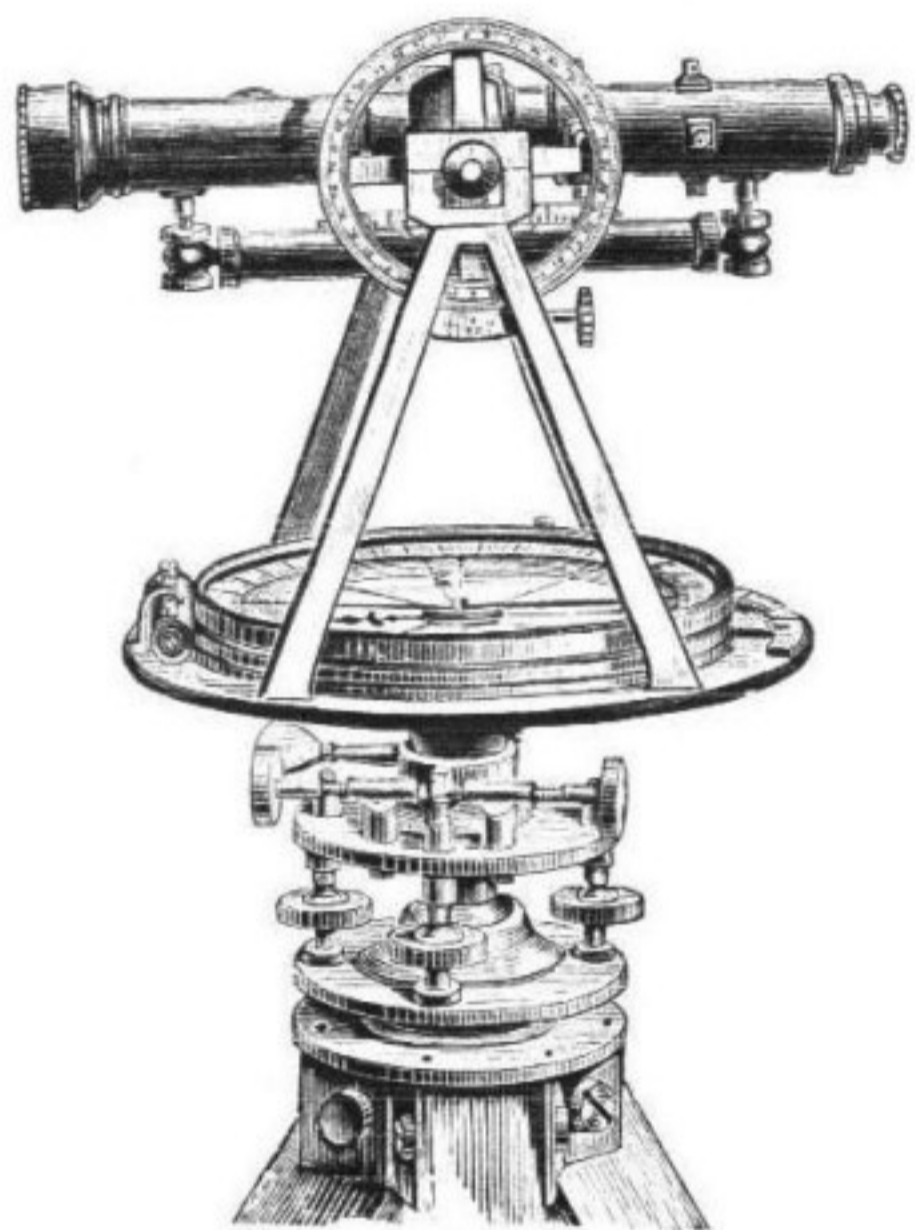
For Description, see page 141.

## Reconnaissance Transit—Continued.

- No. 1648. The Reconnaissance Transit, as recently designed by us, is in response to a demand for a light transit for rapid work where extreme accuracy is not required. It has an 8-inch achromatic telescope with fine optical power, large field and abundance of light; improved stadia wires;  $4\frac{1}{2}$ -inch ground level under telescope;  $3\frac{1}{2}$ -inch vertical circle, with fixed vernier reading to 5 minutes; clamp and tangent screw to axis of telescope;  $3\frac{1}{2}$ -inch bar needle, with agate centre. Compass circle fitted with variation plate. Horizontal circle,  $5\frac{1}{2}$  inches in diameter, graduated in half degrees reading by one vernier to single minutes. Leveling head and shifting centre. Light extension tripod. Hardwood box fitted with reading glass, plumb-bob, screw driver, adjusting pins and rubber cover. Weight of instrument, 8 lbs.; complete weight with tripod, 15 lbs.
- Reconnaissance Transit, as above . . . . . Price, \$125 00
- No. 1648a. Reconnaissance Transit, with shifting centre, without stadia wires, with solid leg tripod instead of extension . . . . . Price, \$110 00
- No. 1648b. Reconnaissance Transit, without shifting centre and stadia wires; with solid leg tripod instead of extension . . . . . Price, \$100 00

For Extras, see page 156.

## Transits—Continued.



No. 1651.

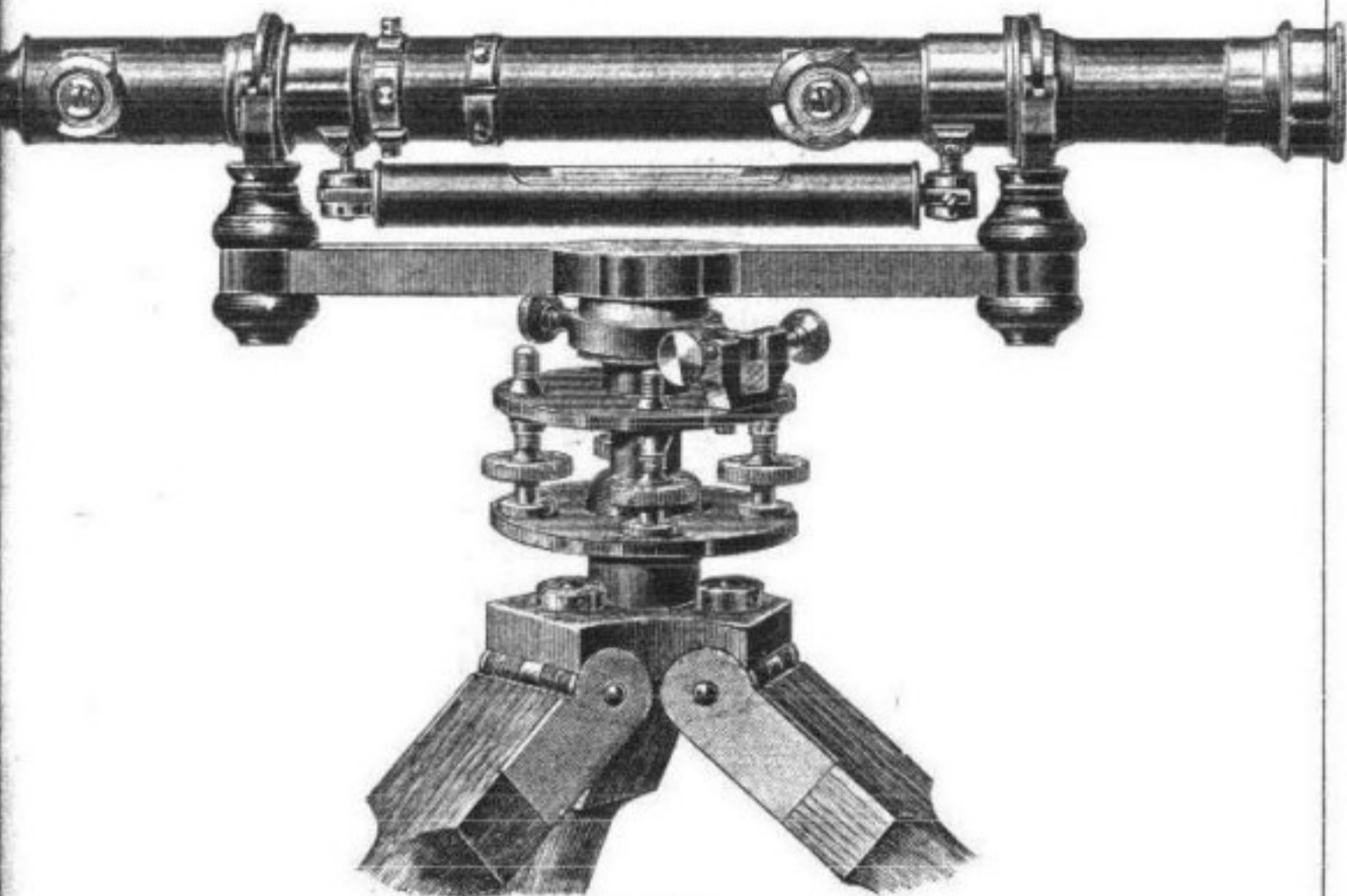
### SURVEYOR'S TRANSIT OR TRANSIT COMPASS.

This instrument, shown in the engraving No. 1651, resembles the vernier compass in its construction and general principles, differing from it mainly in the use of a telescope in place of the ordinary sights. The variation of the needle is set off by a pinion, as shown, and the circle clamped by a nut underneath the place as usual.

- No. 1650. Surveyor's Transit, with 5-inch magnetic needle and vernier. This instrument is far superior to the ordinary compass, as it is provided with regular transit telescope, mounted in the same manner, and provided with all the adjustments found in the regular transit telescope. The instrument is furnished with a full leveling tripod, with leveling plates and screws; 10½-inch telescope, with level, clamp, and tangent motion to telescope axis for taking levels . . . . . \$95 00
- No. 1651. Surveyor's Transit, with 5-inch magnetic needle, vernier 10½-inch telescope, with level, clamp, and tangent motion to telescope axis for taking levels; also a 4½-inch vertical circle, with vernier reading to minutes, full tripod with leveling screws and plates; also clamp and tangent motion . . . . . \$110 00

For Extras, see page 156.

Levels.



No. 1652.

ENGINEER'S Y LEVEL.

The illustration represents our Engineer's Y Levels of the most improved construction, with telescope 18 inches long. The telescope has object glass  $1\frac{1}{2}$ -inch diameter; has a rack and pinion motion for adjusting focus of eye-piece and object glass, and  $8\frac{1}{2}$ -inch accurately ground and highly sensitive level tube under telescope.

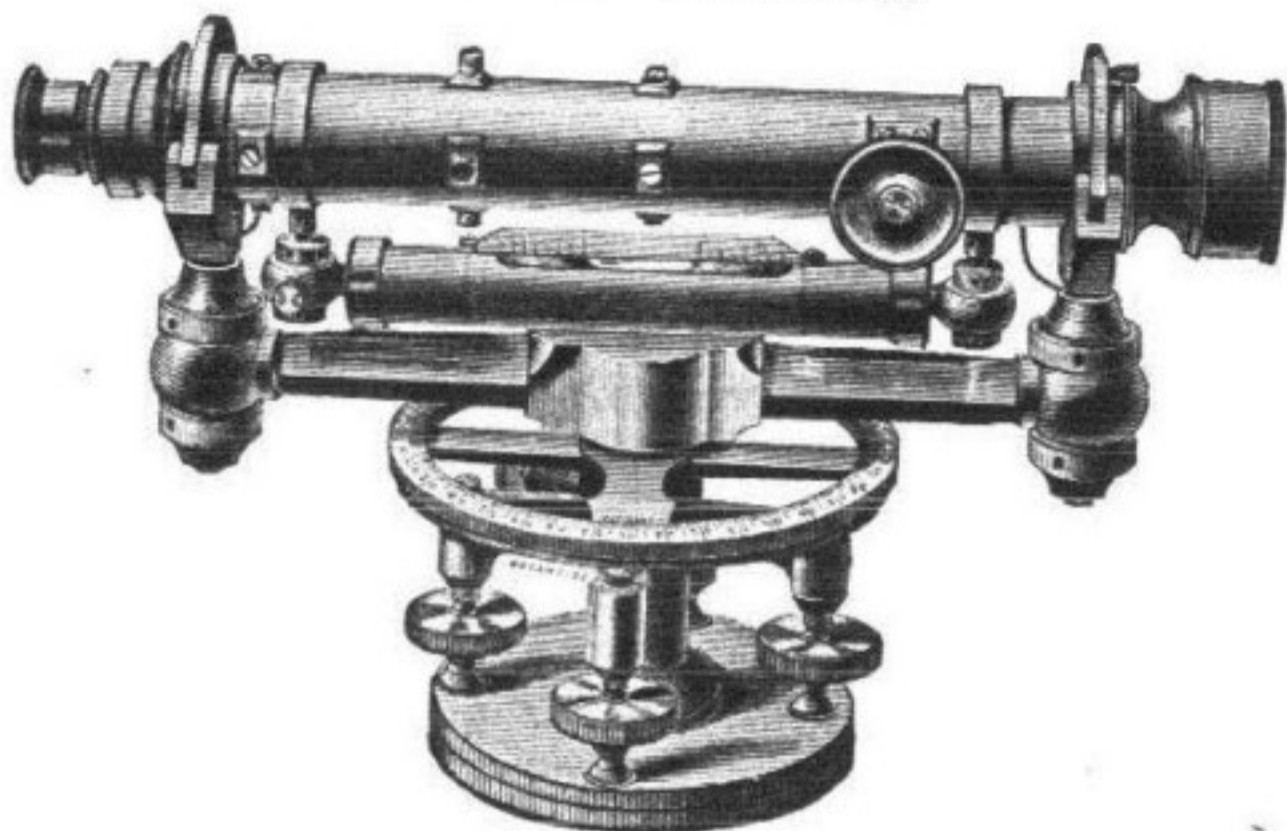
The telescope revolves truly in the Y's by rings of bell metal, which, when desired, may be firmly clamped by the clips and held in any position. One Y dip is furnished with a horizontal stud fitting into a semi-cylindric cut on the flange of the ring of the telescope, insuring the accurate position of the vertical wire. The Y's are large and strong, made of the best bell metal, each Y having two nuts, both of which are adjustable with the ordinary steel pin. The level bar is made square, and so proportioned as to have the greatest strength in the parts most subject to severe strains. The leveling plates and screws of the Y Levels are constructed in the same manner as those of the Transits, not being detachable from the instrument proper.

It packs whole, and stands in the case erect. Walnut case, provided with straps and hooks, contains sunshade, wrench, screw driver, and two adjusting pins. Weight of instrument, 10 lbs.; weight of tripod, from 7 to  $7\frac{1}{2}$  lbs.

No. 1652. Engineer's Y Level complete . . . . . Price, \$110 00

For Extras, see page 156.

## Levels—Continued.



No. 1653.

### The Architect's Level.

- |            |  |         |
|------------|--|---------|
| No. 1653.  | Architect's Level, complete with tripod . . . . .  | \$50 00 |
| No. 1653a. | “ “ same as No. 1653, with tangent screw . . . . . | 55 00   |

This admirable instrument, although only recently introduced by us in its improved form, has already met with a very large sale among architects, builders, millwrights, and others engaged in construction, and among engineers and surveyors, by whom it is used in city work.

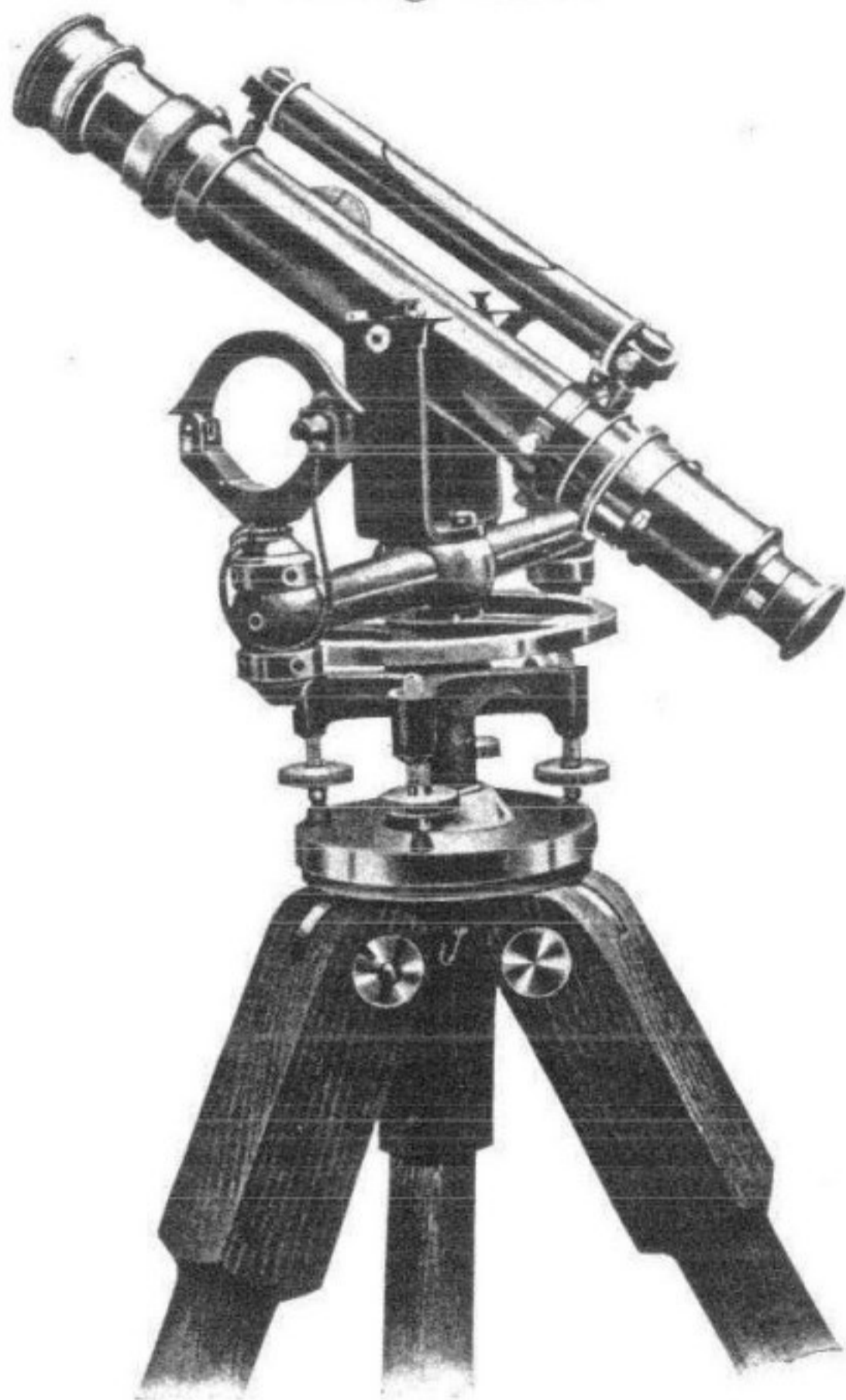
The telescope is 12 inches long, and of the finest optical qualities, and is arranged and adjusted as in the regular engineer's level. It is furnished with a carefully ground long level. The instrument turns upon a horizontal circle 3 inches in diameter, graduated from 0 to 90 each way, and is read to five minutes by a vernier which is fixed to the spindle. Packed in box with strap.

### The Architect's Compass Level.

- No. 1654. This instrument is similar to the Architect's Level before described, but is fitted with compass with  $3\frac{1}{2}$ -inch needle. Has a clamp to spindle and tangent adjustment. This is so arranged that it adds practically nothing to the weight or bulk, and does not interfere with the portability of the instrument, whilst its value, in many kinds of work, is obvious. Architect's Compass Level, complete with tripod . . . . . \$85 00

Price of Nos. 1653-1654 includes a metal base tripod for use on walls of buildings in course of erection, besides the regular tripod.

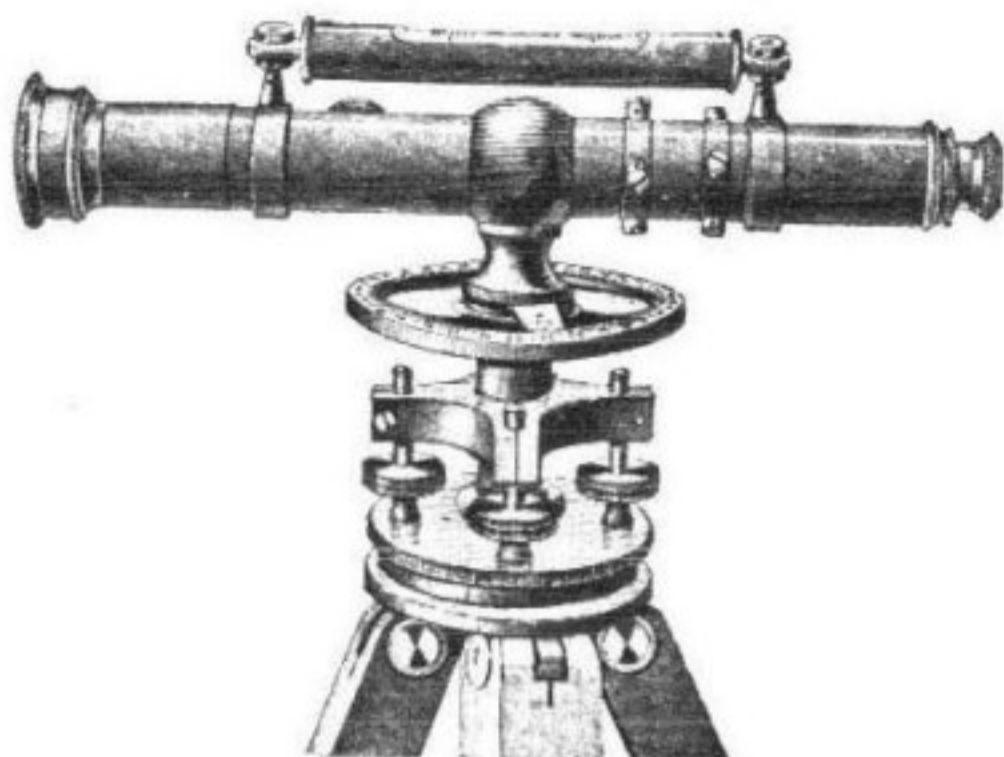
## Tilting Level.



No. 1654½

No. 1654½. Architect's Tilting Level is the same as the Architect's Level, No. 1653, excepting that it has the addition of an attachment by which sights of 45 degrees above or below the horizontal can be taken. This attachment is a small set of standards screwed into the centre of the level bar, and when not in use can readily be removed. It has V-shaped grooves at the top to receive the telescope axle, also clamps to hold it in place. The small axle mounted on the telescope does not interfere when the instrument is used as an ordinary level . . . . . Price, \$65 00

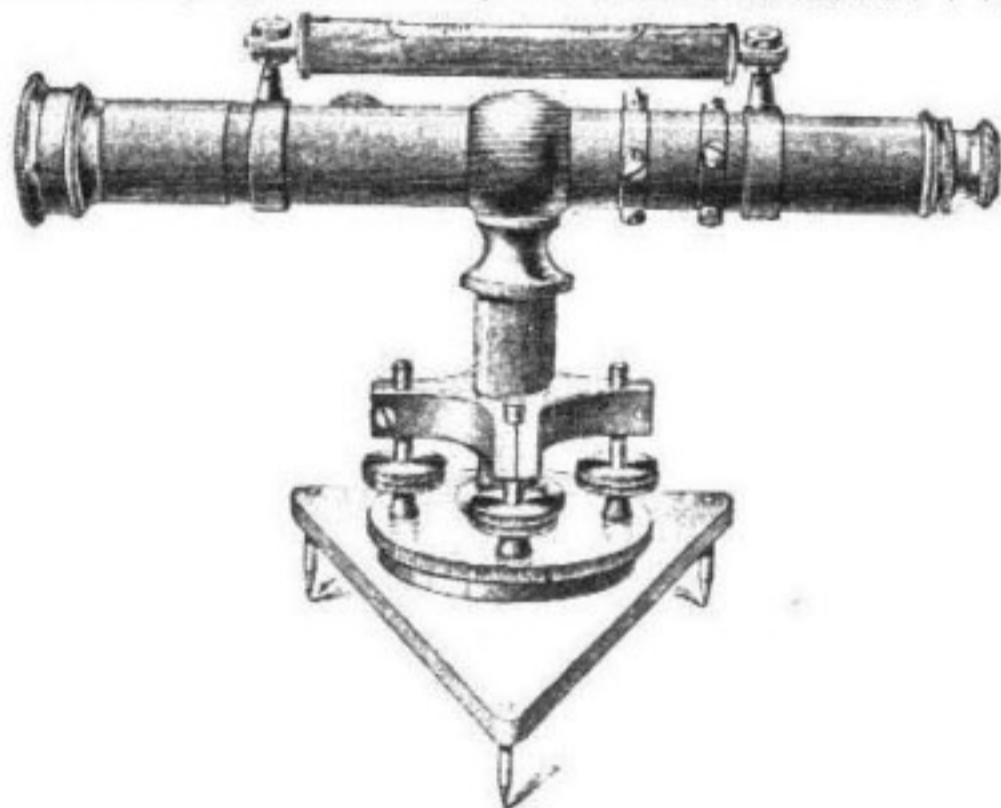
Levels—Continued.



No. 1655.

BUILDER'S OR FARMER'S DRAINAGE LEVEL.

No. 1655. Has 11-inch telescope, made especially for this instrument, and contains achromatic objective 1 inch diameter and necessary eye-piece, having  $\frac{1}{2}$ -mile range, cross-hairs, rack and pinion adjustment to eye-piece, vernier with clamp reading to one degree, with wooden carrying case and tripod and metal trivet . . . . . Each, ~~35 00~~ <sup>\$40 00</sup>

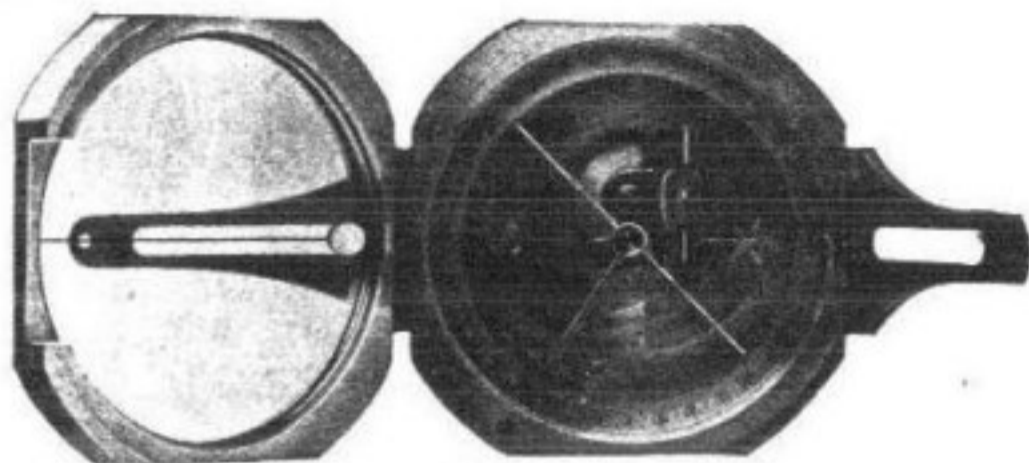


No. 1656.

No. 1656. Builder's Level.—Telescope 12 inches long, with cross-hairs, rack and pinion movement, adjustable eye-piece, ground bubble with protecting tube. Instrument complete in neat polished box, with lock and key and strap, including plumb-bob, adjusting pins, hardwood tripod and metal trivet . . . . . Each, ~~30 00~~ <sup>\$35 00</sup>



## The Brunton Patent Pocket Transit.



No. 1657.

A complete, accurate and reliable pocket instrument for taking the topography and preliminary surveys of every description, either on the surface or under-ground; thus taking the place of a sighting compass, clinometer, prismatic compass and Abney level, and combining them as it does in one light and handy instrument. The case is made of aluminum,  $2\frac{3}{4} \times 2\frac{3}{4} \times 1$  inch; weight of instrument about 8 ounces.

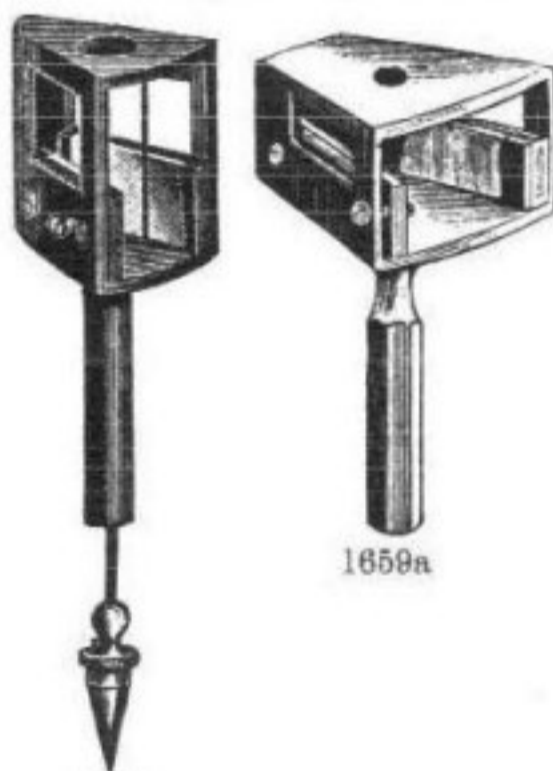
No. 1657. Brunton Patent Pocket Transit, with directions . . . . . Each, \$25 00

### Cross Staff Heads.



1658

### Angle Mirrors.

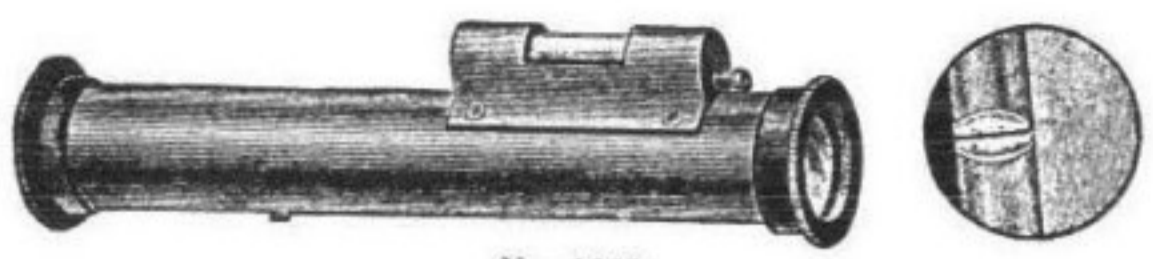


1659

1659a

No.		Each
1658.	Cross Staff Head, octagonal, for Jacob staff, $2\frac{1}{2}$ in., in case . . . . .	\$ 2 70
1658a.	" " " " " " " " " " with magnetic compass, 3-in. needle, $1\frac{3}{4}$ in. . . . .	4 50
1658b.	Cross Staff Head, like No. 1658a, with vertical axis and divided circle, to take angles, $3\frac{3}{8}$ in., needle, $2\frac{1}{8}$ in. . . . .	11 50
1659.	Angle Mirror, for right angles, with small plumb-bob. Size of instrument when packed, $3\frac{3}{4} \times 2 \times 1\frac{3}{4}$ in. . . . .	7 50
1659a.	Angle Mirror, for right angles, plain . . . . .	5 00

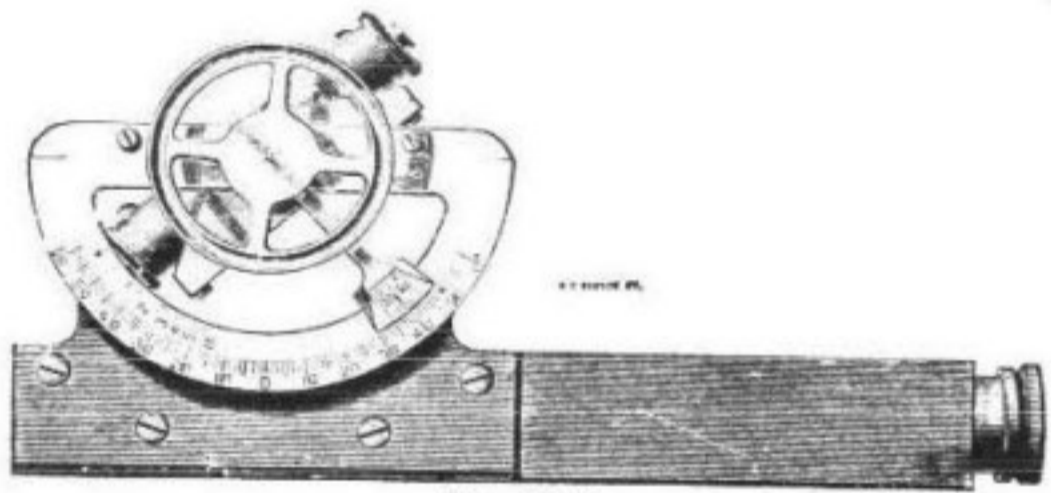
## Locke's Hand Levels.



No. 1660.

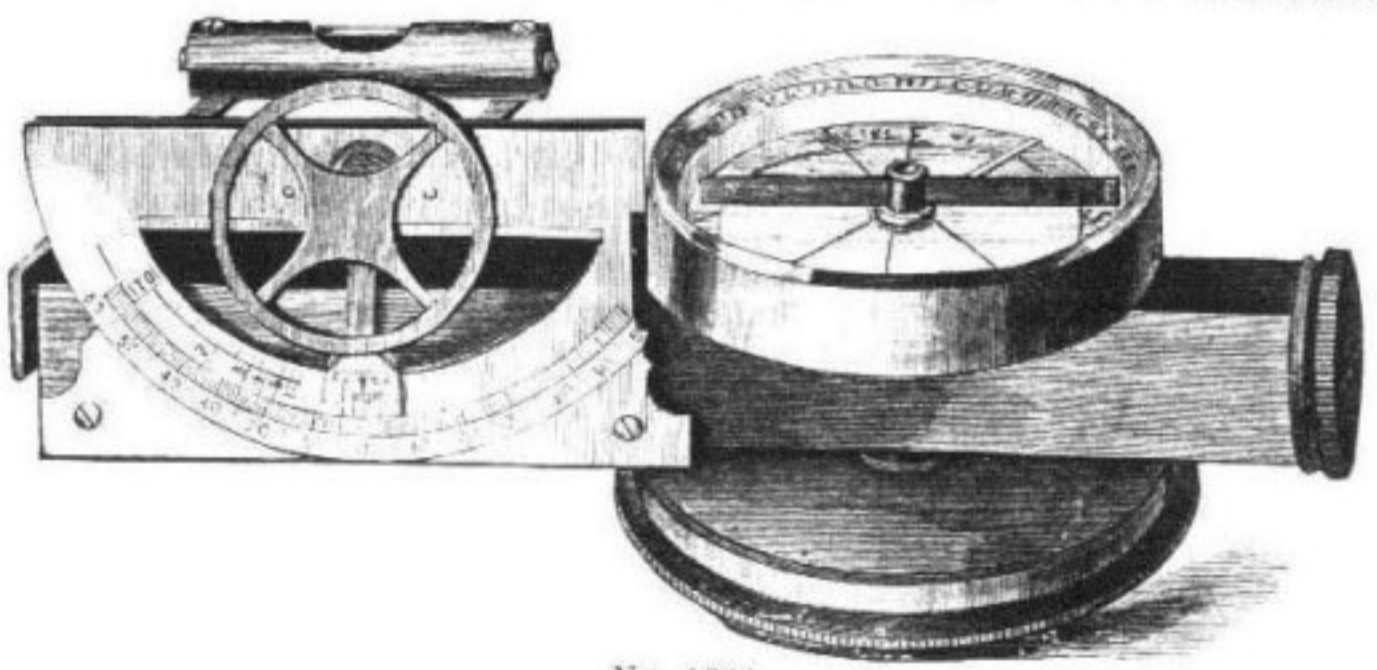
- |  |              |
|--|--------------|
| No. 1660. Locke's Hand Level, German silver, in case . . . . . | Each, \$8 00 |
| No. 1661. " " " brass, in case . . . . .                       | " 7 00       |
| No. 1662. Square Hand Level, in leather case . . . . .         | " 5 00       |

## Abney Hand Levels and Clinometers.



No. 1663.

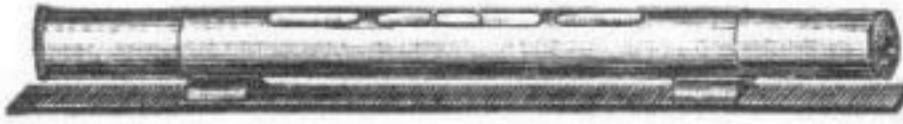
- No. 1663. Abney's Reflecting Level or Pocket Altimeter, improved, with divided arc to show gradients, in Morocco case . . . . . Each, \$13 50



No. 1664.

- No. 1664. Same as No. 1663, with bar needle compass and socket for Jacob staff . . . . . Each, \$18 00

## Pocket Levels.



No. 1665.

No.		Each
1665.	Pocket Levels, brass mounted in metal case, 2-inch, 80c; 3-inch, 75c; 4-inch, \$1.00; 6-inch, \$1.25; 12-inch . . . . .	\$ 2 00



No. 1666.

Pocket Levels mounted in brass with adjusting screws, vials finely ground and very sensitive.

No.		Each
1666.	Adjustable Level Base, 5-inch; bubble tube, 3-inch . . . . .	\$ 3 50
1666a.	" " " 6 " " " 4 " . . . . .	4 00
1666b.	" " " 7 " " " 5 " . . . . .	4 50
1666c.	" " " 8 " " " 6 " . . . . .	5 00
1666d.	" " " 10 " " " 8 " . . . . .	6 50
1666e.	" " " 12 " " " 10 " . . . . .	8 00
1666f.	" " " 14 " " " 12 " . . . . .	10 00

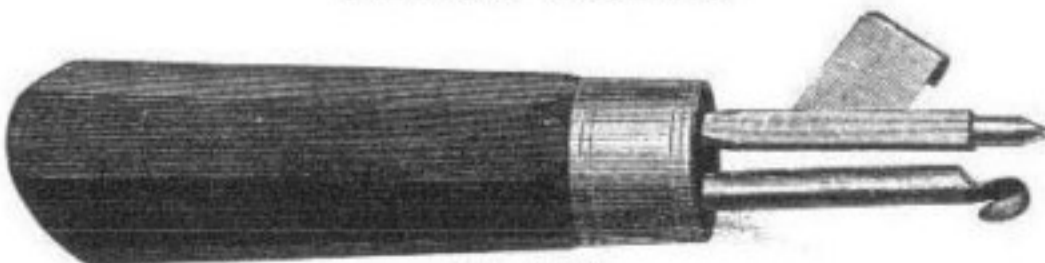
## Patent Tape Level.



No. 1667.

No.		Each
1667.	Length, 2½ inches; weight, 1 ounce; clamps on tape securely by two springs, as shown; can be attached and detached instantly, and be carried in pocket when not in use. It fills a long felt want, and is a remarkably useful addition to every surveyor's outfit. Price, \$1 50	

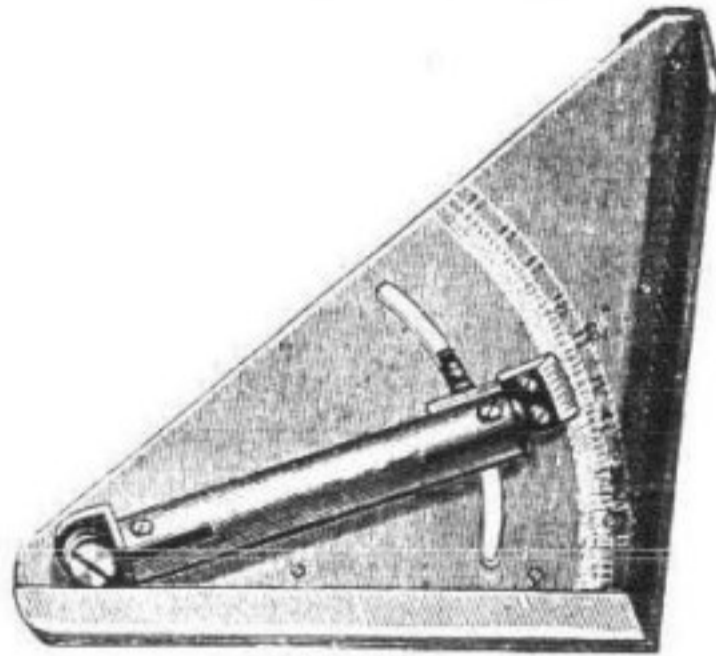
## Timber Scribe.



No. 1688.

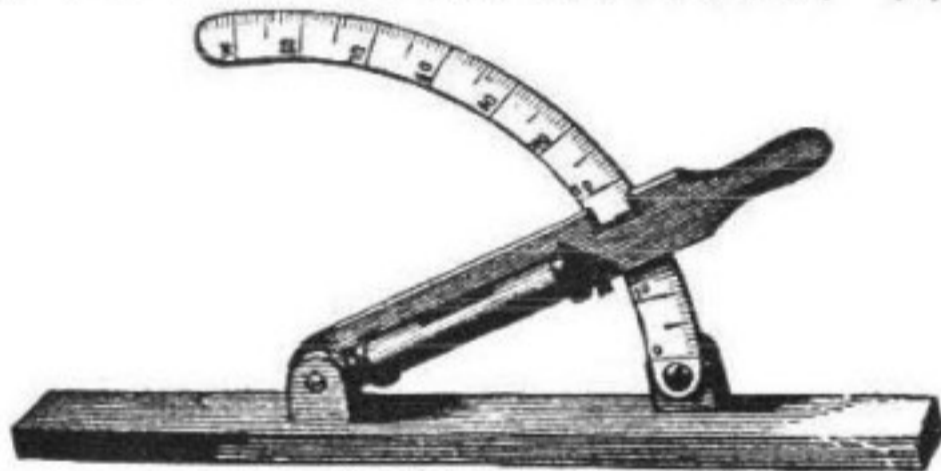
No. 1688.	Timber Scribe or Tree Marker, small . . . . .	Each, \$1 00
No. 1688a.	" " " " " large . . . . .	" 1 25

## Clinometers.



No. 1669.

No. 1669. Clinometer or Slope Level, of brass, triangular frame  $4\frac{1}{2}$  in. side, divided to  $\frac{1}{2}$  degrees, vernier reading to 3 minutes, in substantial case . . . . . Each, \$10 00



No. 1670.

No. 1670. Clinometer or Slope Level, of brass,  $8\frac{3}{8}$  in. long, with folding arc and vernier reading to 3 minutes, in case . . . . . Each, \$12 00

## Automatic Register.



No. 1671.

No. 1671. Automatic Register, nickel-plated, for keeping count by pressing on a lever, registers to 999 . . . . . Each, \$2 50

## VERY ACCURATE Pocket Aneroid Barometers.

Compensated and specially tested and adjusted for engineer's use. These Aneroids have movable altitude scales, with silver enameled dials, and are in Morocco Cases.



No. 1672.



No. 1675.

No.		Each
1672.	Plain Pocket Aneroid, $1\frac{3}{4}$ inches diameter . . . . .	\$15 00
1673.	Pocket Mountain Aneroid, compensated for temperature, $1\frac{3}{4}$ inches diameter, with altitude scale to . . . . .	20 00
1673a.	$1\frac{3}{4}$ " " " " " " . . . . .	20 00
1673b.	$1\frac{3}{4}$ " " " " " " . . . . .	21 00
1673c.	$1\frac{3}{4}$ " " " " " " . . . . .	24 00
1673d.	$1\frac{3}{4}$ " " " " " " . . . . .	27 00
1674.	Pocket Mountain Aneroid, compensated for temperature, $2\frac{1}{2}$ inches diameter, with altitude scale to . . . . .	20 00
1674a.	$2\frac{1}{2}$ " " " " " " . . . . .	20 00
1674b.	$2\frac{1}{2}$ " " " " " " . . . . .	21 00
1674c.	$2\frac{1}{2}$ " " " " " " . . . . .	24 00
1674d.	$2\frac{1}{2}$ " " " " " " . . . . .	27 00
1675.	Mining Barometer, 5 inches diameter, silvered metal dial, raised ring for divisions, altitude 2,000 feet below and 4,000 feet above sea- level, with rack vernier scale reading to 1 foot, and magnifying lens, in leather sling case . . . . .	50 00
1676.	Mining Barometer, $3\frac{1}{2}$ inches diameter, bronzed case, best engraved silver dial, altitude 5,000 feet, with rack vernier scale reading to 5 feet, compensated for temperature, in leather sling case . . . . .	50 00

Leveling Rods and Poles.



1677.



1678.



1679.



1680.



1681.



1683.



1684.



1685.

For Description and Prices, See Next Page.

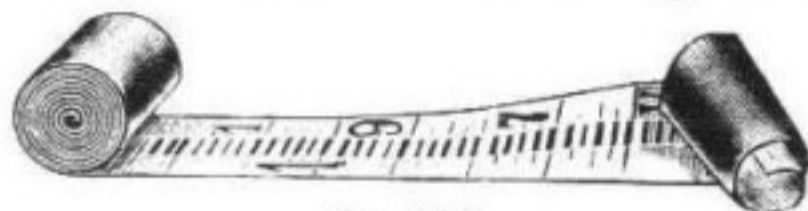
## Leveling Rods.

No.	Each
1677. Philadelphia Rod, hardwood, divided into feet and 10ths, vernier reading to 100ths, with target, vernier and clamp, 7 feet, sliding out to 13 feet . . . . .	\$15 00
1677a. Philadelphia Rod, like No. 1677, but divided into feet, 10ths and 100ths, vernier reading to 1000ths . . . . .	15 00
1677b. Light Philadelphia Rod, hardwood, divided into feet and 10ths, vernier reading to 100ths, with target, vernier and clamp, 6½ feet, sliding out to 12 feet . . . . .	14 00
1677c. Light Philadelphia Rod, like No. 1677, but divided into feet, 10ths and 100ths, vernier reading to 1000ths . . . . .	14 00
1678. New York Rod, hardwood, light color, divided into feet, 10ths and 100ths, vernier reading to 1000ths, with target, vernier and clamp, 6½ feet, sliding out to 12 feet . . . . .	14 00
1679. Mining Rod, hardwood, divided into feet and 10ths, vernier reading to 100ths, with target, vernier and clamp, 5 feet, sliding out to 9 feet,	12 00
1680. Architect's Rod, hardwood, light color, divided into feet, inches and ⅛ inches, target, vernier and clamp, 5½ feet, sliding out to 10 feet . . . . .	6 00
1680a. Architect's Rod, like No. 1680, but divided into feet, 10ths and 100ths, vernier reading to 1000ths . . . . .	6 00
1681. Cross Section Rod, 10 feet, divided into feet, 10ths and 100ths, on both sides; level bubble at each end, and opening for the hand . . . . .	10 00
1682. Stadia Rod, self-reading, folding, with strong brass hinge; 6 feet closed, opening to 12 feet . . . . .	12 00

## Ranging Poles.

1683. Ranging Poles, of best seasoned wood, octagonal, tapered, painted red and white alternately every foot . . . . . 8 feet, \$2.25; 10 feet, \$2 50	\$2 50
1684. Steel Ranging Poles, ½ inch diameter, turned and hardened points, painted red and white alternately every foot . . . . . 6 feet, \$2.75; 8 feet, 3 00	3 00
1685. Iron Tubular Ranging Poles, ⅞ inch diameter, painted red and white alternately every foot . . . . . 6 feet, \$2.75; 8 feet, \$3.00; 10 feet, 3 50	3 50

## Flexible Pocket Leveling Rods.



No.	No. 1686.	Each
1686.	Flexible Pocket Leveling Rod, 10 feet long, divided into feet, 10ths and 100ths . . . . .	\$3 25
1686a.	Flexible Pocket Leveling Rod, like No. 1686, but 12 feet long. . . . .	4 00
1686b.	“ “ “ “ “ 12 feet long, divided into inches and $\frac{1}{8}$ inches . . . . .	4 00

These Rods are made of pliable, strong, rubber canvas, divided like self-reading rods. Can be coiled up and carried in the pocket. For use, they are fastened to a board or stick with thumb tacks.

### Rod Level.



No. 1687.

No. 1687. Rod Level, brass, round level vial, 1 inch . . . . . Each, \$3 00

This Rod Level is used to determine that the rod is held perpendicular. By the long rectangular plate, proper contact is secured when holding it to the rod, but it may be attached to the rod by means of a flat-head screw, for which there is a key-hole slot in the plate.

### Engineers' Stake Tacks.



Prince's

ENGINEERS' AND SURVEYORS'

STAKE TACKS,

WITH DEPRESSED CENTRE POINTS.

A tack of this description furnishes a durable stake or starting point, and assists in quickly and accurately setting the plumb bob.



No. 1688.

A tack of this description furnishes a durable stake or starting point, and assists in quickly and accurately setting the plumb-bob.

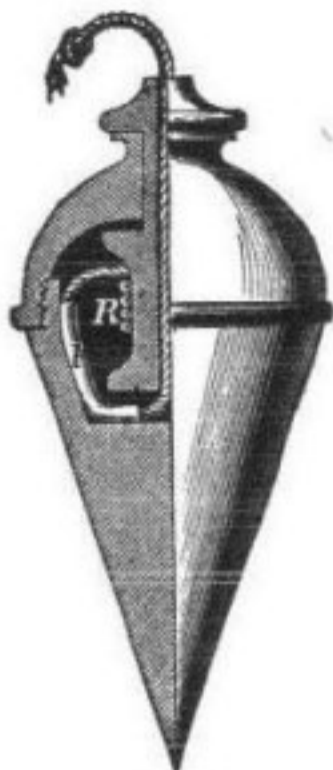
No. 1688. Prince's Stake Tacks, galvanized, 1 pound boxes . . . Per box, \$0 60



## Plumb Bobs.



1689



1690



1691

### STEEL POINTED PLUMB-BOBS.

With well-tempered long points, which avoids stooping to see point, etc.

No. 1689.	Brass, Steel Point, Screw Cap,	8 ounce	Each, \$1 50
No. 1689a.	" " " " " "	10 " "	" 2 00
No. 1689b.	" " " " " "	12 " "	" 2 50
No. 1689c.	" " " " " "	16 " "	" 3 00
No. 1690.	New Adjustable Plumb-Bob,	10 " "	" 2 75

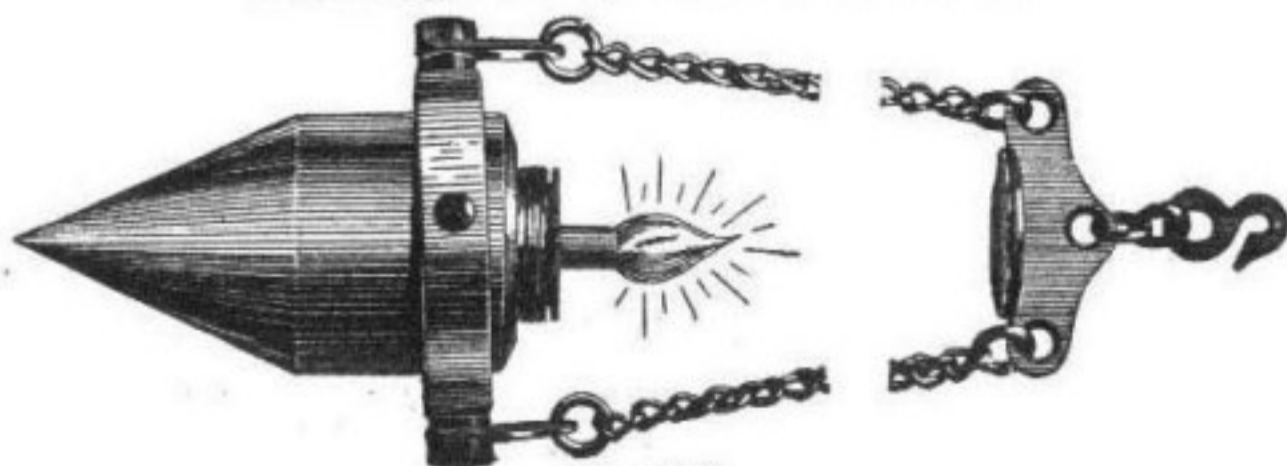
This plummet has a concealed reel, around which the string is wound by turning the milled head on top. The friction upon the reel within will hold the bob at any desired point of the line.

No. 1691.	Iron, for builders and general use	Each, \$0 75
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### Plumb-Bob Cord.

No. 1692.	Plumb-Bob Cord, best linen; thin, medium or thick	Per yard, \$0 02
No. 1692a.	" " " braided silk	" " 06

## Mining Lamp and Plummet.



No. 1693.

This Plummet is made large, with upper part hollow to receive oil and form lamp. It is suspended directly to sides by a Gimbal Ring, and hung from a point in the roof of the mines. The sight is taken to centre of flame.

No. 1693.	Single Lamp, packed neatly in box	\$10 00
No. 1694.	Two Lamps, packed in box	20 00

**Prices for Parts of Instruments Liable to Loss or Injury.**

**FOR TRANSITS.**

	PRICES
Needle and Center Pin . . . . .	\$ 3 50
Ground Glass Level Vial, for plate or standard, and setting . . . . . Each,	1 00
"    "    "    "    brass mounted, complete, plate or standard, " . . . . .	3 00
"    "    "    "    for telescope, and setting . . . . . " . . . . .	3 00
Cap, for eye-piece or object glass . . . . . " . . . . .	1 00
Shade, for object glass . . . . .	1 00
Clamp Screws, for horizontal limb . . . . . Each,	1 00
Tangent Screw, for leveling head . . . . .	2 00
Clamp " " " " . . . . .	1 00
Leveling " " " " . . . . . Each,	1 75
Eye-piece, complete . . . . .	6 00
Object Glass, complete . . . . .	6 00
Cross Wires . . . . .	2 00
Cross Wires and Diaphragm . . . . .	4 00
Stadia Cross Wires and Diaphragm . . . . .	6 00

**FOR Y LEVELS.**

Ground Glass Level Vial . . . . . (according to quality) \$2.00 to	5 00
Cap, for eye-piece or object glass . . . . . Each,	1 00
Clamp Screw, for leveling head . . . . .	1 00
Tangent " " " " . . . . .	2 00
Leveling " " " " . . . . .	2 00
Eye-piece, complete . . . . .	6 00
Object Glass, complete . . . . .	6 00
Cross Wires . . . . .	2 00
Cross Wires and Diaphragm . . . . .	4 00
Stadia Cross Wires and Diaphragm . . . . .	6 00

**FOR SURVEYOR'S COMPASSES.**

Needle and Center Pin . . . . .	8 50
Ground Glass Level Vials and setting . . . . . Each,	1 00
"    "    "    "    brass mounted, complete . . . . .	1 75
Brass Cover, for compass of our make . . . . .	2 00
Outkeeper . . . . .	1 25
Staff Mountings, brass head (without spindle) . . . . .	3 00
"    "    steel point . . . . .	1 00
Ball Spindle, fitted . . . . .	2 00
Compass Sight Vanes . . . . . Each,	3 00
Clamp Screw, for spindle or sight vane . . . . .	75
Tangent Screw, for moving vernier . . . . .	2 00
Staff Mountings, complete, for pocket compass . . . . . \$3.00 to	5 00

**MISCELLANEOUS.**

Patent Extension Tripod, for Engineer's Transit or Level . . . . .	15 00
Extension Legs only, with clamps, " " " " . . . . . Per set,	12 00
Plain Tripod, " " " " . . . . .	10 00
Plain Tripod Legs only, " " " " . . . . . Per set,	6 50
Split Leg Tripod, " " " " . . . . .	15 00
Tripod Heads, with bolts, " " " " . . . . .	6 00
Wooden Cap, with brass screw plate, for tripod head . . . . .	1 00
Steel Adjusting Pins . . . . .	15
Glass Circle, for compass face . . . . .	75
Mahogany Case, with lock and key and leather strap, fitted complete for Transit or Level . . . . .	6 00
Mahogany Case, with lock and key, leather strap, fitted complete for Compass, . . . . .	5 00
Regraduating Compass Circle . . . . .	6 50
"    Horizontal Limb and Verniers of Transit . . . . .	12 00
"    Vertical " " " " . . . . .	6 00
Reading Microscope . . . . .	75
Plumb-Bob, for Transit or Level . . . . .	1 50
Rubber Hood, for Transit or Level . . . . .	1 00
Chain Handles . . . . . Each,	75
Chain Tallies . . . . . Per set of nine,	75
Clamp Screw and Band, for extension leg . . . . .	1 00
Leather Case, with shoulder straps, lock and key, fitted inside . . . . . \$8.00 to	12 00

## COMPASSES.



No. 1698b.

### Vernier Compasses.

No.		Price
1698.	Surveyor's Compass, 4-inch needle, two straight levels, Jacob staff mountings, brass cover, outkeeper, vernier under the glass for adding or subtracting the magnetic variation of the needle, sights graduated for taking angles of elevation and depression. In mahogany box with lock, and strap for carrying . . . . .	\$35 00
1698a.	Surveyor's Compass, same as above, but with 5-inch needle . . . . .	40 00
1698b.	" " " " " " " " 6 " " and vernier outside, as shown in engraving . . . . .	45 00

### Railroad Compasses.

The Railroad Compass has the main plate, levels, sights and needle, brass cover, outkeeper, and vernier for setting off the variations of the needle of the ordinary Surveyor's Compass, but has also underneath the main plate a divided circle or limb, by which horizontal angles to single minutes can be read independently of the needle. A clamp and tangent screw with opposing spring is attached to facilitate the reading of the vernier. The sights are graduated into half degrees on the edge for angles of elevation or depression. The lower part has four leveling screws and clamp and tangent movement. The instrument is readily attached to the tripod by a screw fastened on head of tripod. The sights are detachable and are packed in case with the compass. The box is fitted with plumb-bob, screw drivers, wrench, etc.

No.		Price
1699.	Vernier Railroad Compass, 4-inch needle, 13-inch plate, as above, with tripod and leveling screws, complete . . . . .	\$45 00
1699a.	Vernier Railroad Compass, 5-inch needle, 14-inch plate, as above, with tripod and leveling screws, complete . . . . .	55 00
1699b.	Vernier Railroad Compass, 6-inch needle, 16-inch plate, as above, with tripod and leveling screws, complete . . . . .	85 00

## Compasses—Continued.



No. 1700.

### Plain Compasses.

No.		Price
1700.	Surveyor's Compass, 4-inch needle, two straight levels, Jacob staff mountings, brass cover, outkeeper, sights graduated for taking angles of elevation or depression. In mahogany box, with lock, and strap for carrying . . . . .	\$30 00
1701.	Surveyor's Compass, same as above, but with 5-inch needle . . . . .	35 00
1702.	" " " " " " " " 6 " " . . . . .	40 00

### Extras to Compasses.

1703.	Compass Tripod, cherry legs . . . . .	5 00
1704.	Patent Extension Tripod, furnished with any compass . . . . .	10 00
1705.	Compass Tripod, with leveling screws, and clamp and tangent movement . . . . .	20 00
1706.	Compound Tangent Ball . . . . .	7 00
1707.	Leveling Adopter, large size . . . . .	8 00

The price of the leveling adopter, without tripod or ball spindle, is \$7.00; with tripod and compound tangent ball, \$18.00.

## Surveying and Mining Compasses.

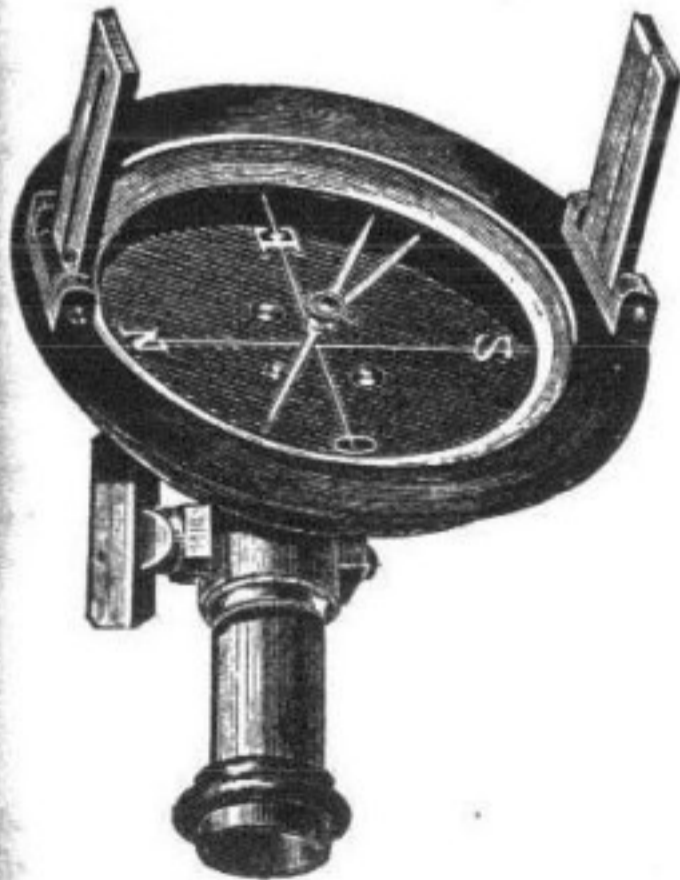


No. 1712.

### Vernier Pocket Compass.

This instrument, shown in the engraving, has a  $3\frac{1}{2}$ -inch needle, and is furnished with a vernier outside, reading to five minutes, by which the sights can be placed at any desired angle with the line of zeroes, so as to set off the variation of the needle, as with the vernier compass. It has two levels inside of compass box, all packed in a neat mahogany box.

No.	Price
1708. $3\frac{1}{2}$ -in. needle and Jacob staff mountings . . . . .	\$18 00
1710. Same, with tripod, as engraving . . . . .	22 00
1711. $4\frac{1}{2}$ -in. needle and Jacob staff mountings . . . . .	18 00
1712. Same, with tripod, as engraving . . . . .	25 00



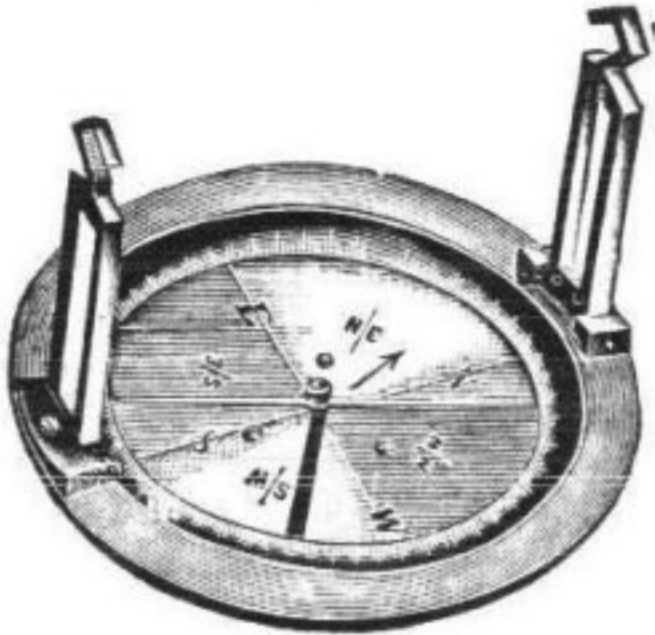
No. 1800.

### Pocket Sight Compasses.

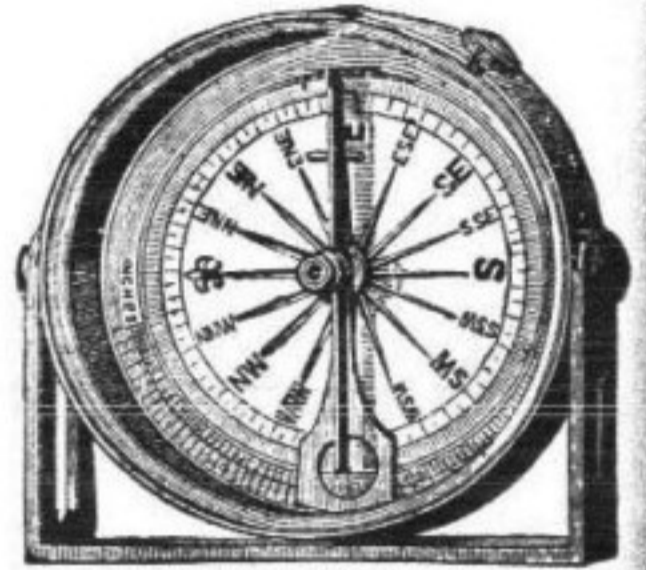
No. 1800. Pocket Swinging Compass, brass, octagonal, agate centre, bar needle, folding sights, Jacob staff mounting, mahogany case:

inch, 2	$2\frac{1}{2}$	3
\$7 00	\$8 00	\$10 00

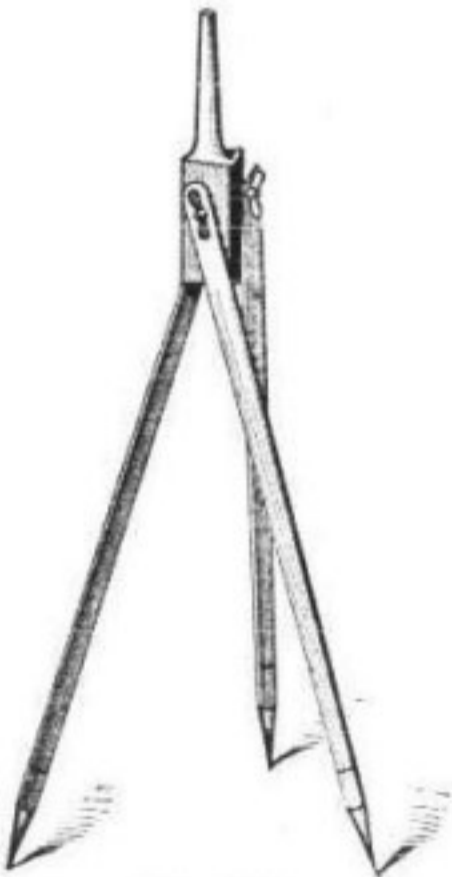
## Surveying and Mining Compasses—Continued.



No. 1801.



No. 1810.



No. 1809.

No.	Description	Each
1801.	Surveying Compass, with folding sights ending in hooks, graduated to 1 degree, needle 2 inches, in mahogany case . . . . .	\$8 00
1802.	Same as No. 1801, needle 2 $\frac{1}{8}$ inches, in mahogany case . . . . .	7 00
1803.	Same as No. 1801, needle 2 $\frac{1}{2}$ inches, in mahogany case . . . . .	8 00
1804.	Surveying Compass, with folding sights graduated to 1 degree, with ball joint and socket for Jacob staff mounting, needle 2 $\frac{1}{2}$ inches, in mahogany case . . . . .	10 00
1805.	Same as No. 1804, needle 3 $\frac{1}{2}$ inches, in mahogany case . . . . .	12 00
1806.	Surveying Compass, with folding sights graduated to 1 degree, with two bubbles, ball joint and socket for Jacob staff mounting, needle 2 $\frac{1}{2}$ inches, in mahogany case, . . . . .	14 50
1807.	Same as No. 1806, needle 3 $\frac{1}{2}$ inches, in mahogany case . . . . .	15 00
1808.	Same as No. 1806, needle 4 $\frac{1}{8}$ inches, in mahogany case . . . . .	16 00
1808a.	Jacob staff, 5 feet, iron shoe . . . . .	2 00
No. 1809.	Tripod, with Jacob staff top for compasses, light . . . . .	3 00
No. 1810.	Bronzed Sight Compass and Clinometer, metal dial, graduated to 1 degree, edge bar needle with top. The sights are pivoted to the compass box and connected by a cross bar, which is turned down to serve as foot when the instrument is used as clinometer. The clinometer gives inclinations in inches, per yard, and in degrees. Diameter 2 $\frac{1}{2}$ inches, in box . . . . .	7 50
No. 1812.	Same as above, diameter 3 inches, in box . . . . .	9 50
No. 1814.	" " " " 4 " " " " . . . . .	10 50

## Pocket Compass with Folding Sights.



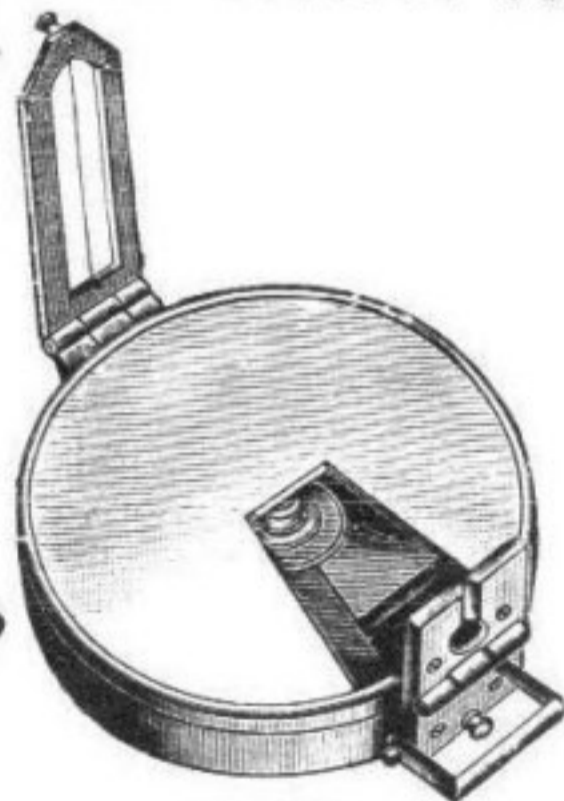
No. 1816.

- |           |   |        |
|-----------|---|--------|
| No. 1816. | Pocket Compass, with folding sights, watch pattern case, nickel-plated, jeweled needle with stop. Compass $1\frac{3}{4}$ in. in diameter. . . . . | \$4 50 |
| No. 1817. | Same as No. 1816; compass 2 inches in diameter . . . . .  | 5 00   |
| No. 1818. | " " " " $2\frac{1}{4}$ " " " . . . . .  | 5 50   |
| No. 1819. | " " " " $2\frac{1}{2}$ " " " . . . . .  | 6 00   |

## Prismatic Compasses.



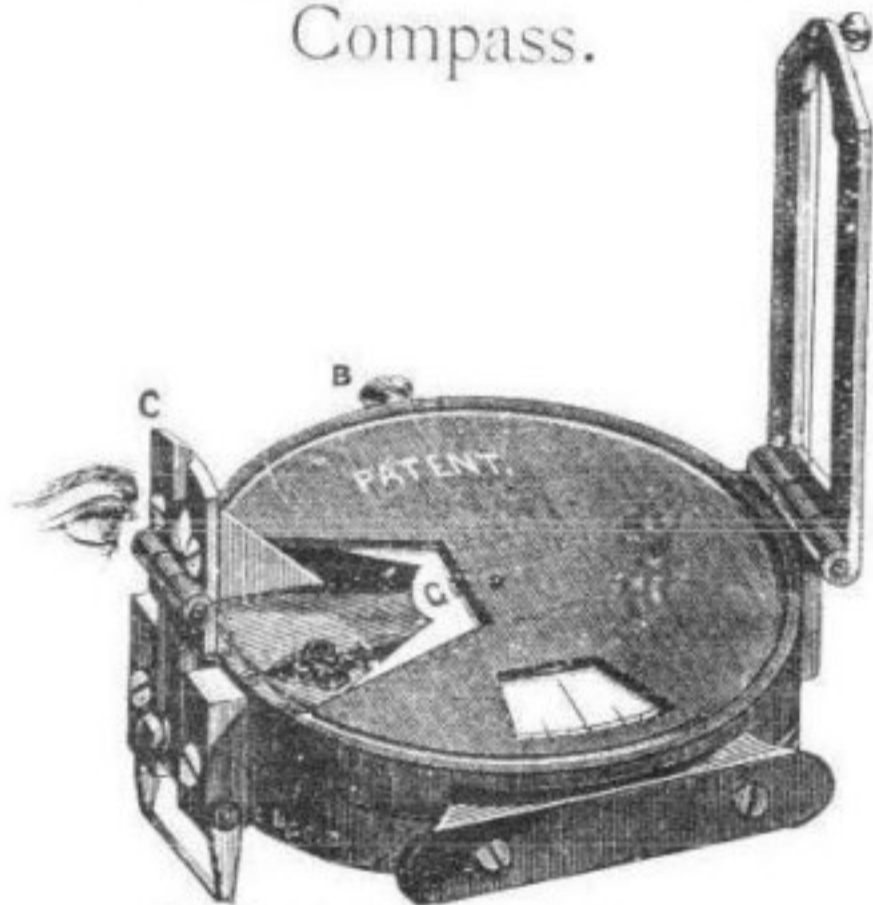
No. 1820.



No. 1824.

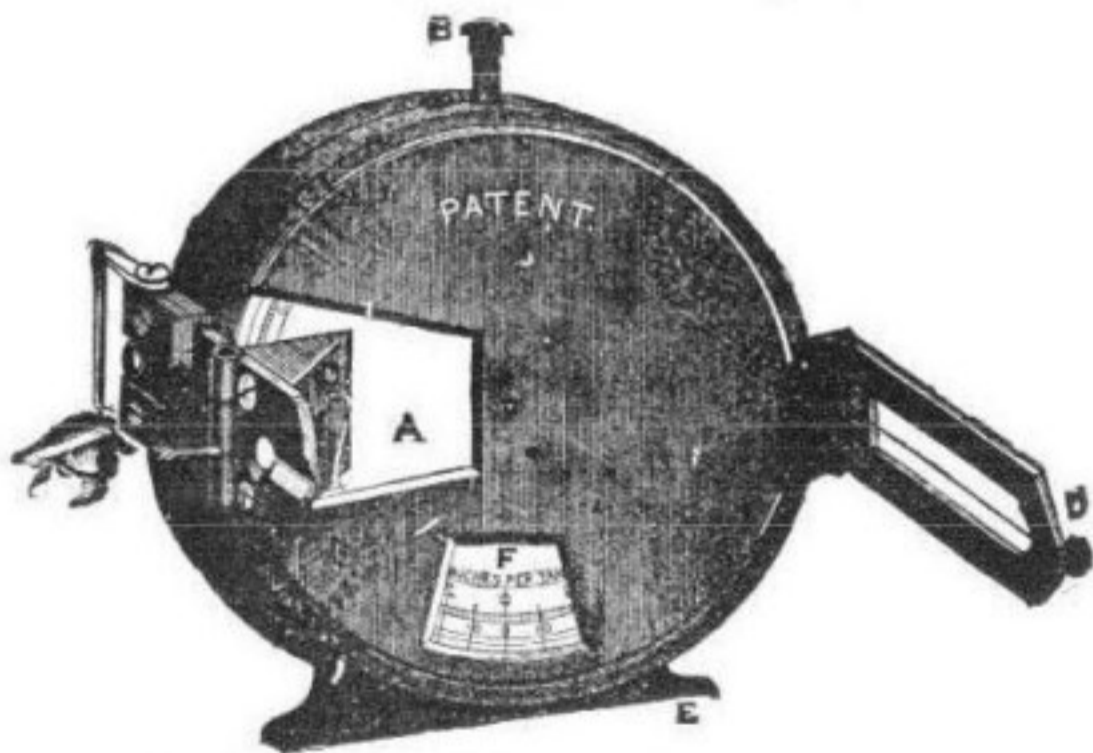
- |           |   |         |
|-----------|---|---------|
| No. 1820. | Patent Prismatic and Pocket Compass, bronzed hunting case; can be used as an ordinary compass without opening the cover, and a prismatic compass by raising the cover; glazed with a stout glass, on which is etched a line answering for the sight. With Singer's Patent Card Dial, 2 inch . . . . . | \$17 00 |
| No. 1821. | Prismatic and Pocket Compass, green card dial floating, $3\frac{1}{2}$ inch . . . . .   | 20 00   |
| No. 1822. | Same, 3 inch . . . . .  | 17 00   |
| No. 1823. | Same, with metal floating dial . . . . .  | 15 00   |
| No. 1824. | Hutchinson's Prismatic Compass, bronzed, of improved pattern, nearly enclosed top, floating card dial, 2 in., in Morocco case . . . . .   | 12 00   |
| No. 1825. | Same, 3 inch, in leather sling case . . . . .   | 16 00   |

## Combined Altitude Instrument and Prismatic Compass.



No. 1826.

FIG. 1.—As Prismatic Compass.



No. 1826.

FIG. 2.—As altitude Instrument and Clinometer.

No. 1826. Combined Prismatic Compass, Clinometer and Altimeter, bronzed, pocket size,  $2\frac{3}{4}$  inches, floating card compass dial upon agate centre, with automatic stop and spring check; mounted beneath  $2\frac{3}{4}$ -inch pendulum dial C, graduated for altitude 0 to 180 degrees; also divided 0 to 90 degrees both ways as clinometer, and bearing scale of rise or fall in inches per yard. Folding prism and sight vane with vertical wire. Bronze metal case, with cover and also leather sling case . . . . . Price, \$27 00



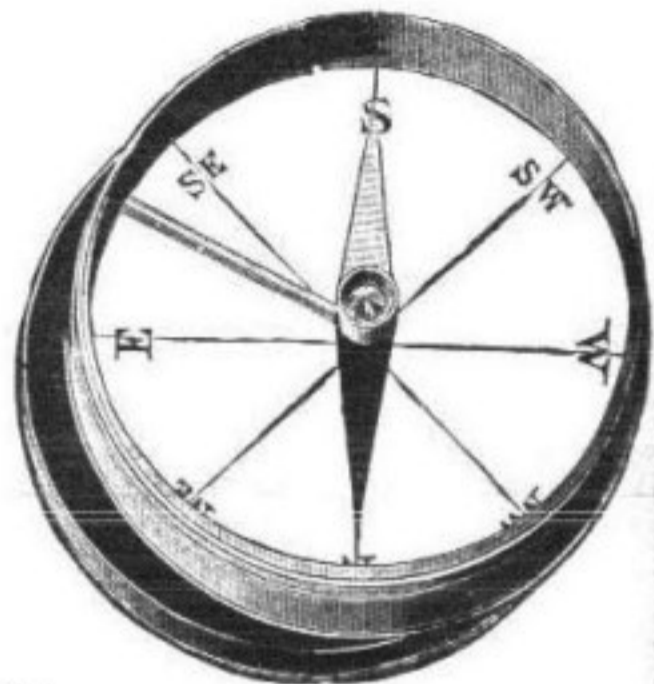


## Compasses—Continued.



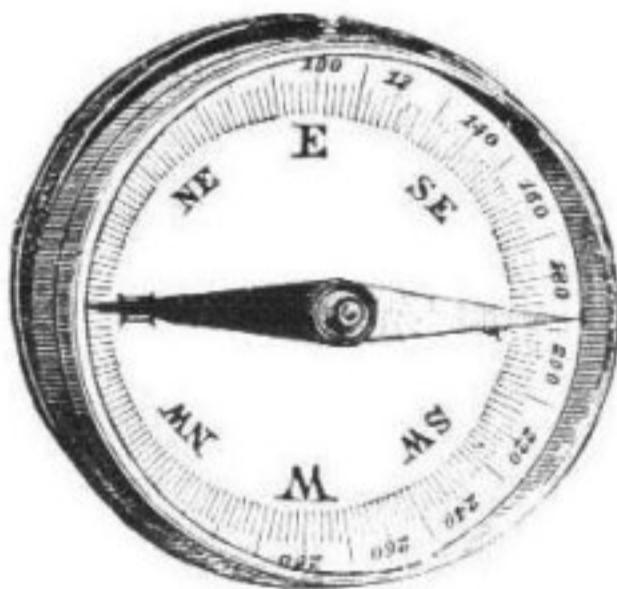
No. 1830.

POCKET COMPASSES.



No. 1831.

- |           |   |        |
|-----------|---|--------|
| No. 1830. | Brass Compass, metal dial, no stop, no cover, with ring handle, 1-in., 50c; 1 $\frac{1}{4}$ -in., 75c; 1 $\frac{1}{2}$ -in., 90; 1 $\frac{3}{4}$ -in. . . . .                         | \$1 10 |
| No. 1831. | Brass Compass, metal dial, slip cover, no stop, 1-in., 75c; 1 $\frac{1}{4}$ -in., \$1.00; 1 $\frac{1}{2}$ -in., \$1.25; 1 $\frac{3}{4}$ -in. . . . .                                  | 1 50   |
| No. 1832. | Brass Compass, metal dial, with stop, no cover, with ring handle, 1-in., 75c; 1 $\frac{1}{4}$ -in., \$1.00; 1 $\frac{1}{2}$ -in., \$1.25; 1 $\frac{3}{4}$ -in., \$1.50; 2-in. . . . . | 1 75   |
| No. 1833. | Brass Compass, metal dial, slip cover, slide stop, 1-in., \$1.00; 1 $\frac{1}{4}$ -in., \$1.25; 1 $\frac{1}{2}$ -in., \$1.50; 1 $\frac{3}{4}$ -in. . . . .                            | 1 75   |



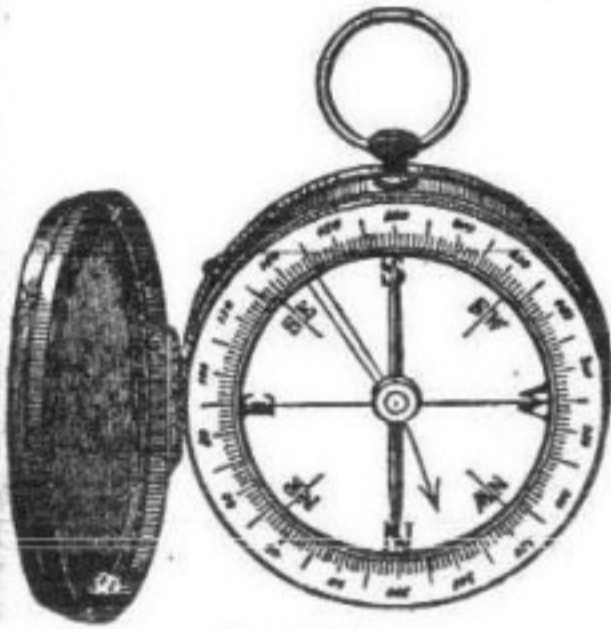
No. 1834.



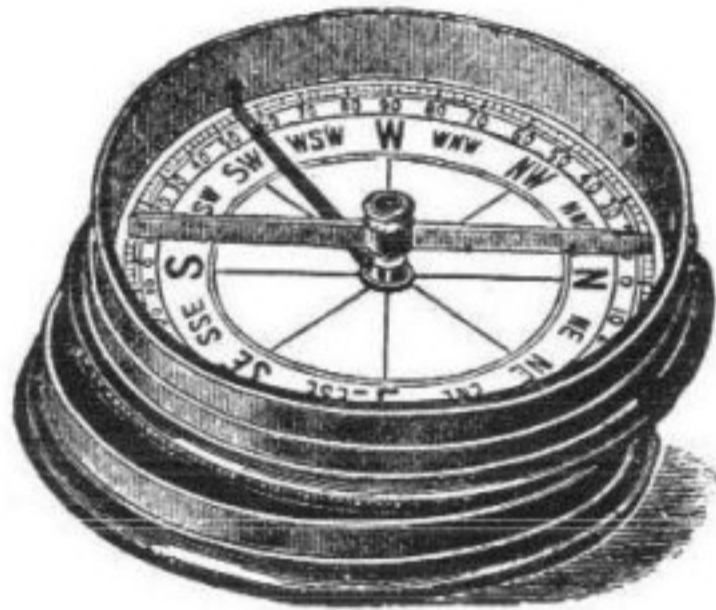
No. 1835.

- |           |   |        |
|-----------|---|--------|
| No. 1834. | Brass Compass, metal dial, slip cover, slide stop, full circle division, 1-in., \$1.25; 1 $\frac{1}{4}$ -in., \$1.50; 1 $\frac{1}{2}$ -in., \$1.75; 1 $\frac{3}{4}$ -in. . . . .                        | \$2 00 |
| No. 1835. | Brass Compass, metal dial, no cover, ring handle, stop, full circle division, 1-in., \$1.00; 1 $\frac{1}{4}$ -in., \$1.25; 1 $\frac{1}{2}$ -in., \$1.50; 1 $\frac{3}{4}$ -in., \$1.75; 2-in., . . . . . | 2 00   |
| No. 1836. | Nickel-Plated Compass, same as No. 1835, 1-in., \$1.50; 1 $\frac{1}{4}$ -in., \$1.75; 1 $\frac{1}{2}$ -in., \$2.00; 1 $\frac{3}{4}$ -in., \$2.25; 2-in. . . . .   | 2 50   |

Compasses—Continued.



No. 1838.



No. 1841.

No. 1838. Brass, metal dial, hinge cover, jeweled, slide stop, full circle division:

$\frac{1\frac{9}{16}}$	$1\frac{3}{4}$	2	$2\frac{3}{8}$	$2\frac{3}{8}$ inch diameter.
\$1 75	2 00	2 25	2 50	2 75

No. 1839. Nickel-plated, metal dial, hinge cover, jeweled, slide stop, full circle division:

	$1\frac{3}{4}$	2	$2\frac{3}{8}$	$2\frac{3}{8}$ inch diameter.
	\$2 50	2 75	3 00	3 25

No. 1840. Flat, brass water-proof case, metal dial, slip cover, automatic stop, jeweled, best French bar needle, raise full circle division, cover to fit on bottom:

	2	$2\frac{3}{8}$	$2\frac{3}{4}$	$3\frac{3}{4}$ inch diameter.
	\$2 25	2 50	3 00	4 50

No. 1841. Brass, finely engraved metal dial, slip cover, automatic stop, jeweled, English bar needle, full circle division:

	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3 inch diameter.
	\$3 00	3 50	4 00	4 50

No. 1842. Nickel-plated, finely engraved metal dial, slip cover, automatic stop, jeweled, English bar needle, full circle division:

	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3 inch diameter.
	\$3 50	4 00	4 50	5 00

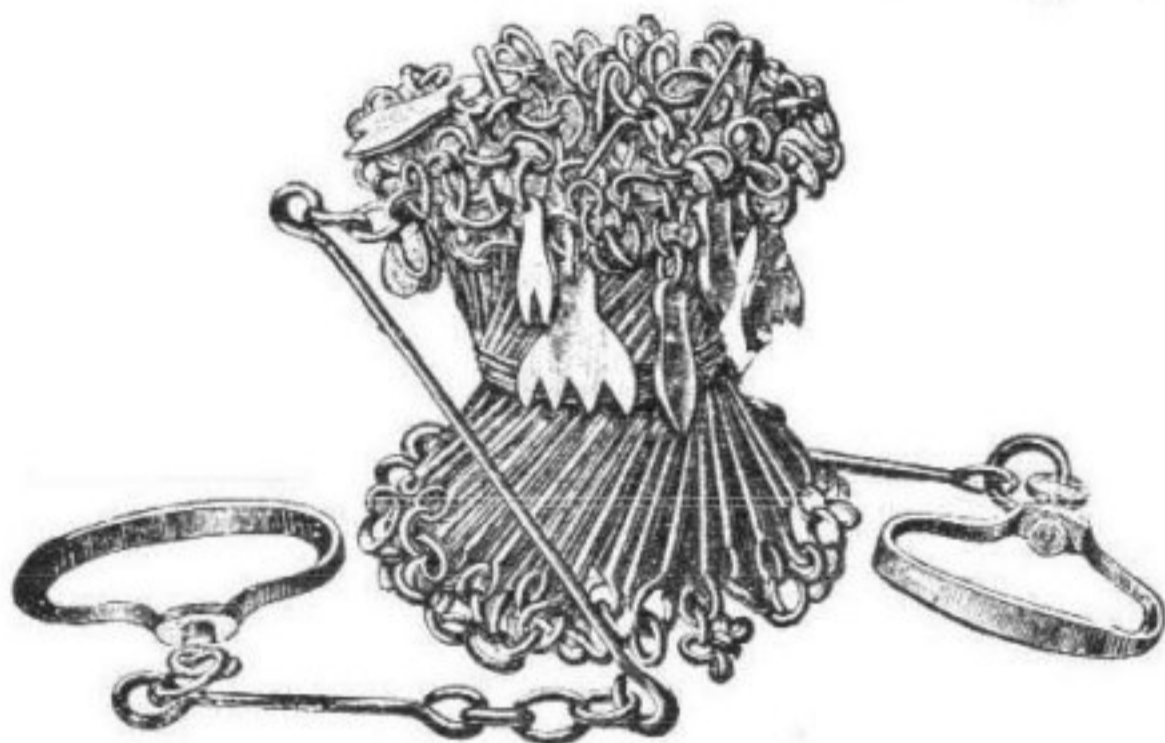


No. 1843.

No. 1843. Nickel-plated, watch pattern, hunting case, spring cover, metal dial, automatic stop, jeweled, English bar needle, full circle division:

$1\frac{3}{4}$	2	$2\frac{1}{4}$ inch diam.
\$4 00	5 00	6 00

## Surveyors' and Engineers' Measuring Chains.



No. 1846.

### Iron Wire Chains.

No.		Each
1845.	Surveyors' Chain, 2 poles, 33 feet, oval rings, No. 8 iron wire . . . .	\$2 50
1846.	" " 4 " 66 " " " " . . . .	4 00
1847.	Engineers' " 50 feet, 50 links, oval rings, No. 7 iron wire . . . .	3 50
1848.	" " 100 " 100 " " " " " " " . . . .	5 00

### Steel Wire Chains.

These are made from the best quality of steel wire, hardened.

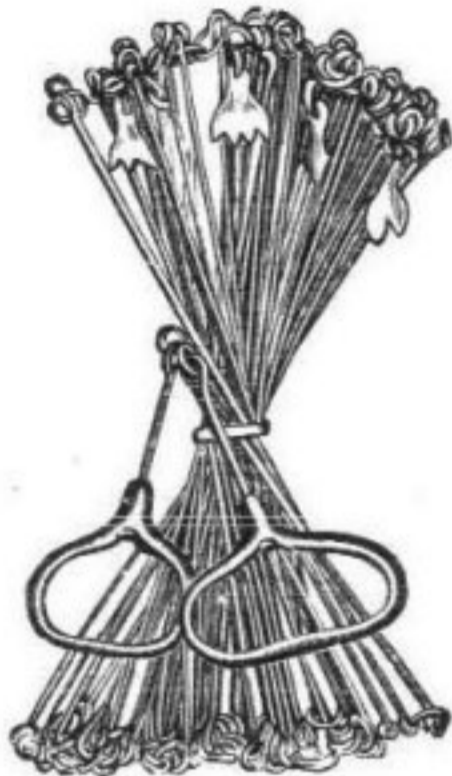
No.		Each
1849.	Surveyors' Chain, 2 poles, 33 feet, No. 11 steel wire, oval rings . . .	\$3 50
1850.	" " 4 " 66 " " " " " " " " . . . .	6 50
1851.	Engineers' " 50 feet, 50 links, No. 12 steel wire, oval rings . . . .	4 50
1852.	" " 100 " 100 " " " " " " " " " . . . .	8 00

### Metric Chains.

The Metric Chain, or French Measure, now greatly in use by all railroads building in Mexico, also by the United States Engineering Corps. One meter is 39.37 inches. We generally make these chains five links and two rings to the meter.

No.		Each
1853.	10 Meters, 50 links, No. 12 steel wire . . . . .	\$4 00
1854.	10 " 50 " " " " " brazed links and rings . . . .	6 00
1855.	20 " 100 " " " " " " " " " " " " " " . . . .	7 00
1856.	20 " 100 " " " " " brazed links and rings . . . .	10 50

## Steel Wire Chains, Brazed Links.



No. 1861.

### Brazed Steel Chains.

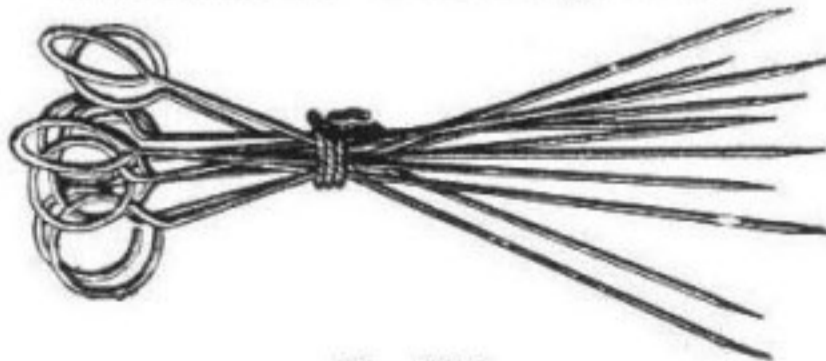
A very portable and excellent measure; is made by a light, steel chain, each link and ring of which is securely **brazed**, after being united and tested, the wire is also tempered.

The wire generally used by us is of size No. 12, the rings are of oval form, the chain, though exceedingly light, is almost incapable of being either broken or stretched.

Our Steel Brazed Chains have been found exceedingly desirable for all kinds of measurements, and for the use of engineers upon railroads and canals, have almost entirely superseded the heavier chains.

No.							Each
1857.	Surveyors' Chains,	2 poles,	33 feet,	No. 12 steel wire,	oval rings	. . .	\$ 5 50
1859.	"	4 "	88 "	" 12 "	" "	. . .	10 00
1861.	Engineers'	"	50 feet	. . . . .	" 12 "	" "	. . . 8 00
1863.	"	"	100 "	. . . . .	" 12 "	" "	. . . 11 00

### Arrows or Marking Pins.



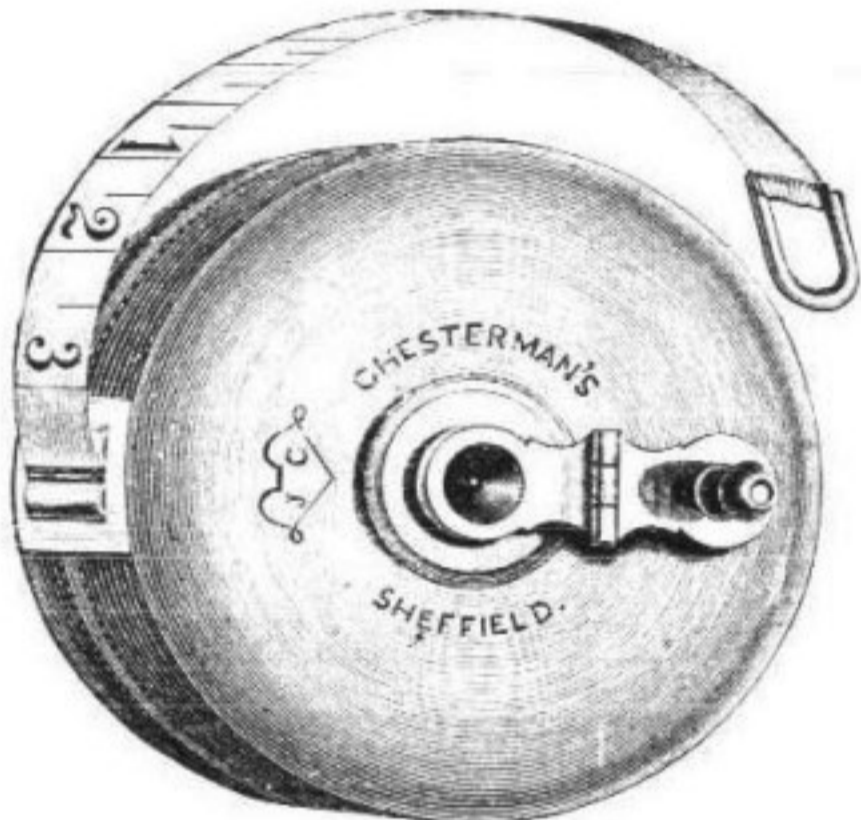
No. 1865.

No.			Each
1865.	Steel Wire,	11 in a set, 15 in. . . . .	\$1 25
1867.	"	extra heavy, 11 in a set, 15 in. . . . .	1 50
1868.	Iron,	11 in a set, 15 in. . . . .	75

## Metallic and Steel Tapes.

### Chesterman's Metallic Tapes.

These tapes are made of linen thread, interwoven with fine brass wire, not so liable to stretch as the usual linen tape, and better calculated to withstand the effects of moisture. They are in substantial leather case.



No. 1869.

In ordering all tapes, state what division of the foot is required; they are divided in **tenths** of a foot, or **twelfths** of a foot.

No.		Each
1869.	Chesterman's Metallic Tape Measure, 25 feet long, in 10ths or 12ths	\$1 80
1870.	"    "    "    "    33    "    "    "	2 10
1871.	"    "    "    "    50    "    "    "	2 60
1872.	"    "    "    "    66    "    "    "	3 00
1873.	"    "    "    "    75    "    "    "	3 30
1874.	"    "    "    "    100    "    "    "	4 25

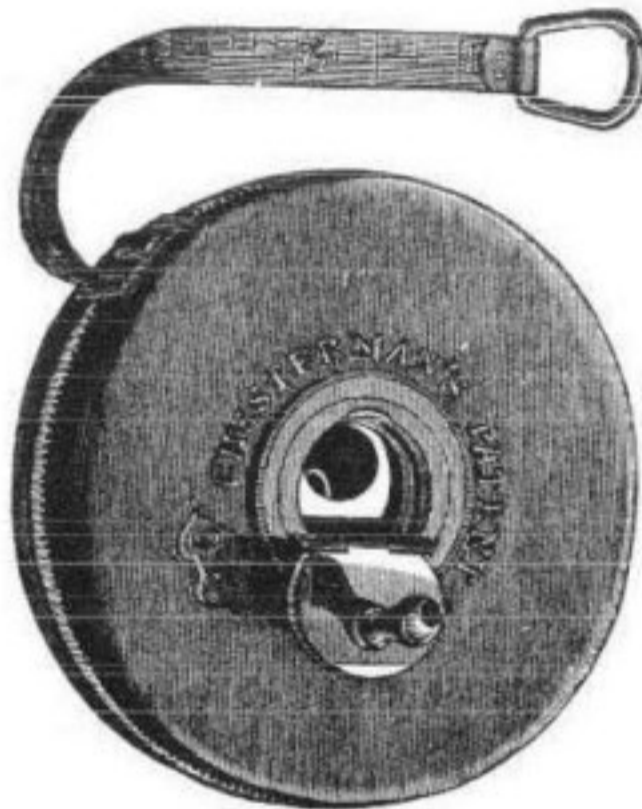
### Chesterman's Metallic Tapes—No Boxes.

1875.	50 feet, tape only . . . . .	1 75
1876.	100 " " . . . . .	3 00

In ordering tapes, state what graduation is wanted.

## Measuring Tapes—Continued.

### Chesterman's Steel Tapes.



No. 1877.

Red Leather Case, Flush Handle, Steel Ribbon  $\frac{3}{8}$  Inch Wide.

No.								Each
1877.	Chesterman's Steel Tape Measure,	25 feet long,	in 10ths or 12ths . .					\$4 50
1878.	"	"	"	33	"	"	"	5 25
1879.	"	"	"	50	"	"	"	7 25
1880.	"	"	"	66	"	"	"	9 20
1881.	"	"	"	75	"	"	"	10 40
1882.	"	"	"	100	"	"	"	12 80

In ordering Tapes, state what graduation is wanted.

Tapes repaired at short notice.

## Measuring Tapes—Continued.

### Reliable Metallic Measuring Tapes.

FOLDING HANDLE.



No. 1883.

Reliable Metallic Tapes,  $\frac{5}{8}$  Inch Wide, Hard Leather Cases,  
Made of Best Woven Linen, With Metallic Warp.

No.		Each
1883.	Reliable Metallic Tapes, 25 feet long, in 10ths or 12ths . . . . .	\$1 80
1884.	“ “ “ 33 “ “ “ . . . . .	2 10
1885.	“ “ “ 50 “ “ “ . . . . .	2 60
1886.	“ “ “ 66 “ “ “ . . . . .	3 00
1887.	“ “ “ 75 “ “ “ . . . . .	3 30
1888.	“ “ “ 100 “ “ “ . . . . .	4 50

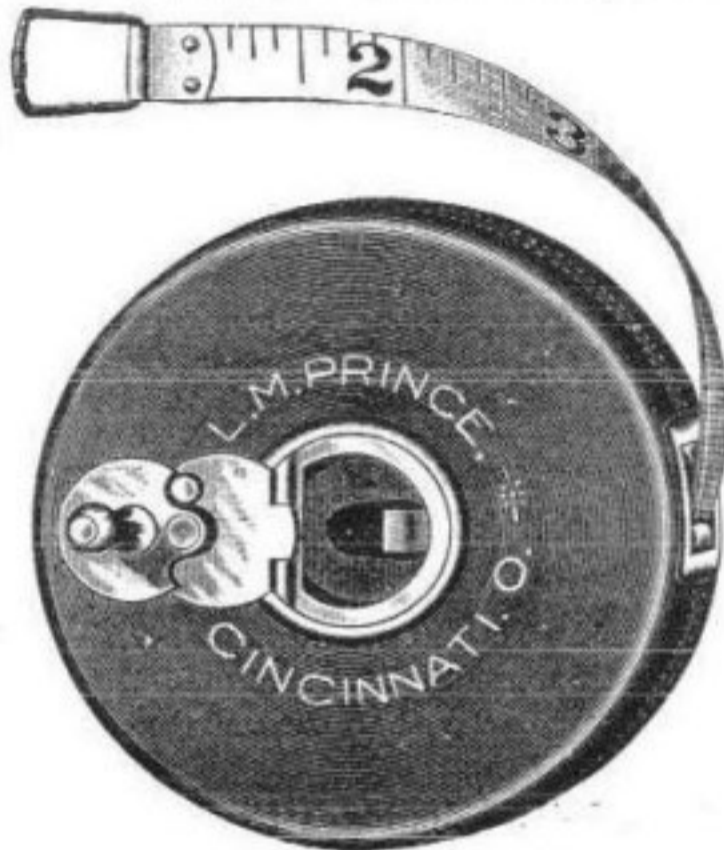
In ordering, specify if Tapes should be divided in 10ths or 12ths.

Tapes repaired at short notice.



## Measuring Tapes—Continued.

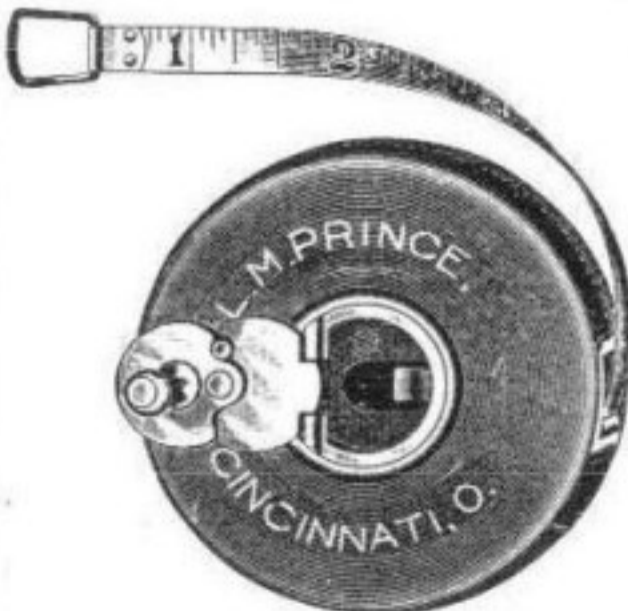
### “Reliable” Steel Tapes.



No. 1889.

With double folding flush handle, opened by pressing small pin or button on opposite side. Hard leather cases. Nickel-plated trimmings. Measurements guaranteed perfectly accurate.

No.	Reliable Steel Tape Measure, 25 feet long, in 10ths or 12ths and links,	Each
1889.	25	\$4 50
1890.	33	5 25
1891.	50	7 25
1892.	66	9 25
1893.	75	10 40
1894.	100	12 80



No. 1895.

### “Reliable Junior” Steel Tapes.

A Fifty-Foot Steel Measuring Tape that weighs only five ounces complete, and can be conveniently carried in vest pocket.

Tapes marked feet and 12ths on one side, feet and 10ths on the other, add 3 cents per foot to the list price.

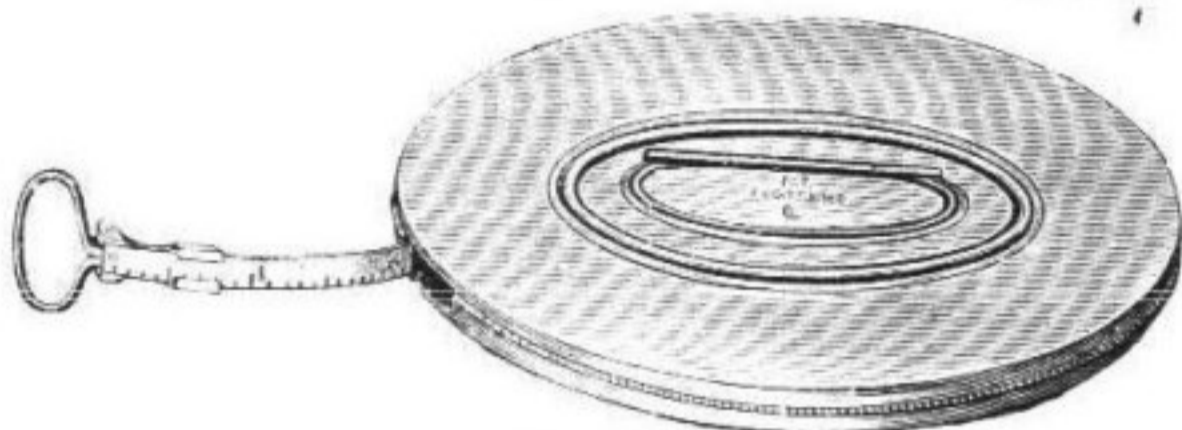
No.	Reliable Junior Steel Tape, 25 feet, in 10ths or 12ths	Each
1895.	25 feet, in 10ths or 12ths . . . . .	\$4 00
1895a.	50 feet, in 10ths or 12ths . . . . .	5 00

In ordering Tapes, please state what graduation is wanted.

Tapes repaired at short notice.

## Measuring Tapes—Continued.

### Paine's Patent Steel Standard Tapes.



No. 1896.

The popularity and rapidly increasing demand for these Tapes evince the fact that they are equal to the imported. They are made so as to be readily detached from the case: the cases are thinner than the usual tape.

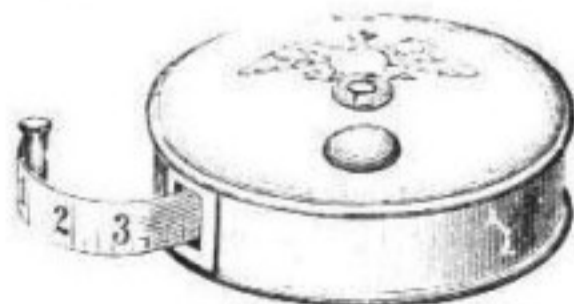
No.		Each
1896.	Paine's Steel Tape, $\frac{1}{2}$ -in. wide, in leather case, flush handles, 50 feet long, 10ths or 12ths	\$8 00
1897.	Paine's Steel Tape, $\frac{3}{8}$ -in. wide, in leather case, flush handles, 100 feet long, 10ths or 12ths	12 00

#### Extras to Paine's Patent Standard Steel Tapes.

No.		Per Pair
1898.	Handles, with graduated scale	\$3 00
1899.	Pocket Thermometers	1 50
1900.	Spring Balance and Level	5 00

In ordering Tapes, please state what graduation is wanted.

### Pocket Tapes, With Spring and Stop.

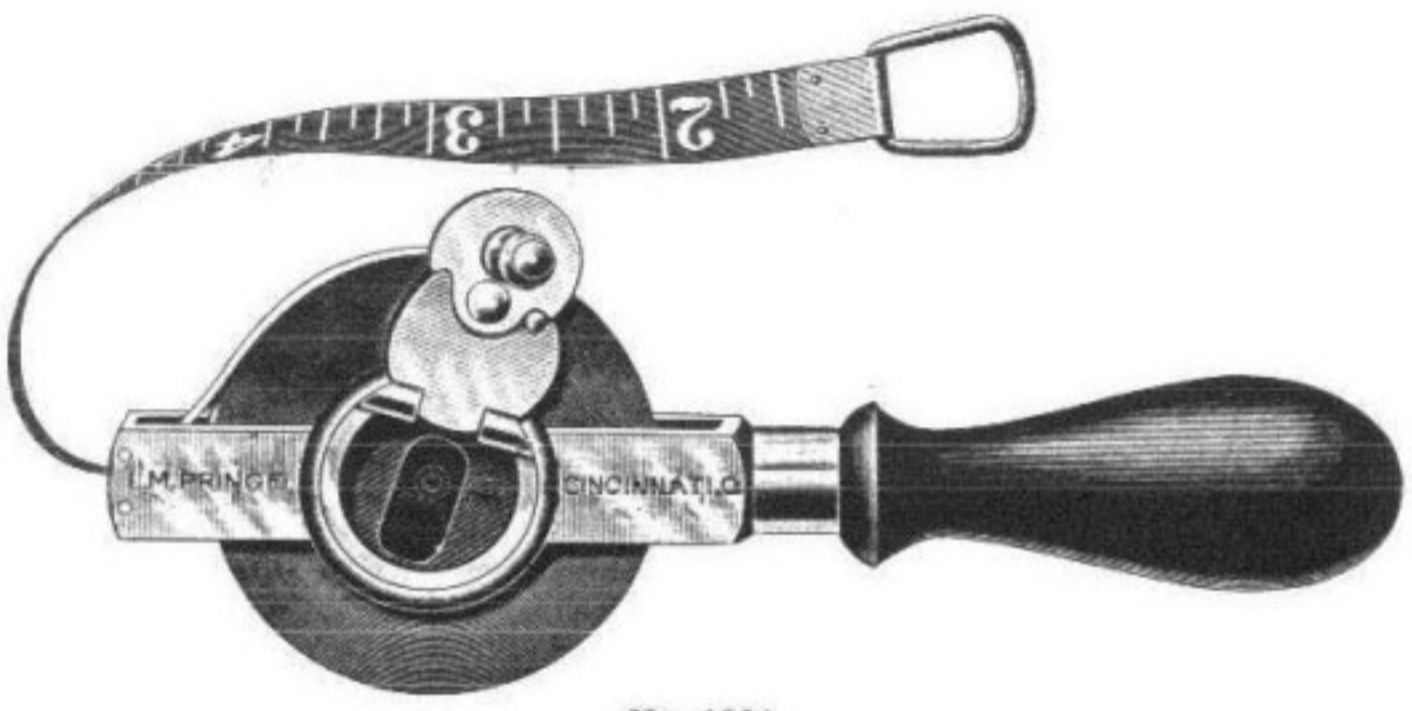


No. 1902.

No. 1902.	Steel Spring Pocket Tapes in German Silver Case, with Stop, divided 16ths inch,	3	5	6	9	12 ft.
	Each	\$1 25	1 80	1 90	2 40	3 00
No. 1903.	Divided in 16ths inch and Meter	1 35	2 00	2 10	2 70	3 40

Measuring Tapes—Continued.

“Reliable” Frame Steel Tapes.



No. 1904.

With 1/2 Inch Steel Tapes.

Nickel plated brass frames and trimmings and our patent double folding flush handle, opened by pressing small pin or button on opposite side.

This is the finest and best Frame Tape on the market.

Marked either in 10ths or 12ths and links on back.

The “Reliable” Steel Tape, on improved nickel plated frame with double folding flush handle.

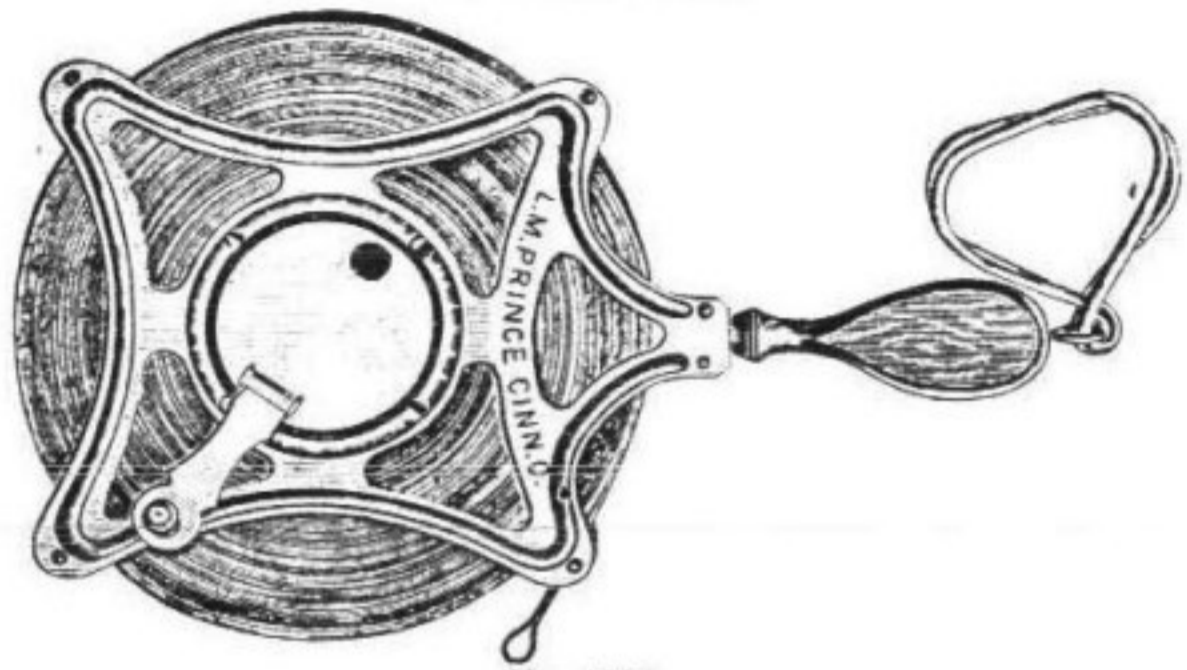
No.	Each
1904. Divided 10ths of feet and links, 50 feet . . . . .	\$7 50
1905. “ 12ths “ “ 50 “ . . . . .	7 50
1906. “ 10ths “ “ 100 “ . . . . .	12 00
1907. “ 12ths “ “ 100 “ . . . . .	12 00

In ordering Tapes, please state what graduation is wanted.

Tapes repaired at short notice.

## Improved Steel Tape Chains.

ON PATENT REEL.



No. 1908.

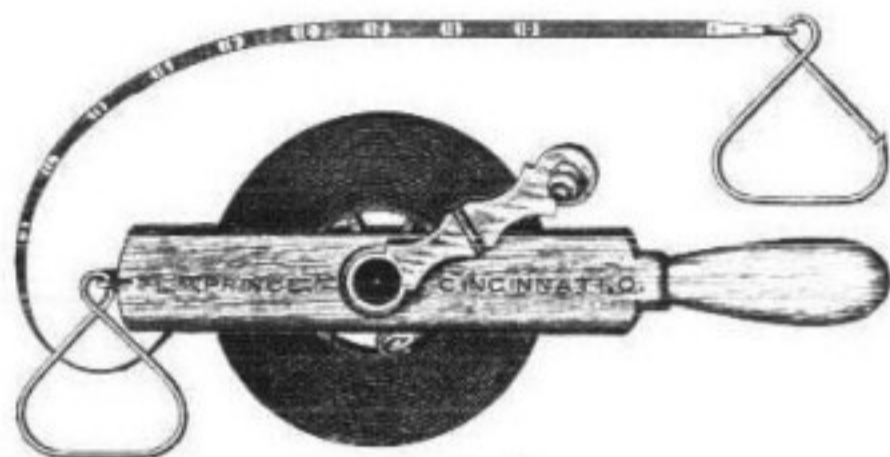
These Tapes are made of superior steel, about  $\frac{1}{4}$ -inch wide graduated every foot by a brass rivet, end feet in 10ths or 12ths, and the number of feet is stamped on brass plates every five feet. They are provided with a handy, substantial reel and a pair of round detachable handles. These Tapes are not intended to take the place of the finely graduated steel Tapes, but are especially designed for convenience and durability to replace the heavy chains in all land surveying, railroad and canal work and town plotting. They can be dragged through woodland, brush, etc., and if they are plated they do not rust and do not require any oiling or cleaning after being used.

No.	GRADUATED.			Plain.	Nickel Plated.	Alum. Plated.
1908.	100 feet long, every foot, end feet in 10ths . . . . .			\$5 00	\$6 00	\$7 00
1909.	100 " " " " inches . . . . .			5 00	6 00	7 00
1910.	68 " " link . . . . .			5 00	6 00	6 50
1911.	50 " " foot, end feet in 10ths . . . . .			4 00	5 00	5 50
1912.	50 " " " " inches . . . . .			4 00	5 00	5 50
1913.	33 " " link . . . . .			3 00	4 00	4 50
1914.	200 " " foot, end feet in 10ths . . . . .			7 50	9 00	10 50
1915.	200 " " " " inches . . . . .			7 50	9 00	10 50
1916.	300 " graduated every foot, end feet in 10ths .			10 50	12 00	15 00
1917.	300 " " " 5 feet, end 10 feet every foot, and end feet in 10ths . . . . .			8 50	10 50	12 50
1918.	400 feet long, graduated every foot, end feet in 10ths .			12 50	15 50	18 00
1919.	400 " " " 5 feet, end 10 feet every foot, and end feet in 10ths . . . . .			11 00	13 50	16 00
1920.	500 feet long, graduated every foot, end feet in 10ths .			16 00	19 00	22 00
1921.	500 " " " 5 feet, end 10 feet every foot, and end feet in 10ths . . . . .			13 00	16 00	20 00

Brass Reel, without tape, \$1.50. Improved Folding Hard Wood Reel, 50c. Patent Brass Detachable Handles, per pair, 30c.

Prices above include our Patent Brass Reel and pair Patent Brass Detachable Handles.

## Steel Tape Chains—Continued.



No. 1922.

These Tapes are made of best quality of steel, about  $\frac{1}{4}$  inch wide, and are provided with a nicely finished hardwood reel with large metal folding handle and two large detachable handles. Trimmings nicely nickel-plated. They are graduated every foot, the end feet in 10ths; the graduations are not made with rivets, but wherever graduated the steel has a bright, raised surface, with the figures etched in. The steel being tempered and of the finest quality, the graduations and figures will never be effaced, but will always show up clear and distinct. The frame and winding apparatus is strong, durable and compact, and can be conveniently carried in the pocket. When the tape is not in use the handles are fastened to the frame where they will not get lost and at the same time they serve as a convenient handle for carrying the complete tape.

No.	Complete with Reel, Each
1922. 100 feet long, graduated every foot, end feet in 10ths . . . . .	\$6 00
1923. 200 " " " " " " . . . . .	9 00
1924. 300 " " " " " " . . . . .	12 50
1925. Plain Reel only . . . . .	2 50
1926. Pair of plain handles . . . . .	60

Tapes repaired at short notice.

## Pedometer and Passometer.

FOR MEASURING DISTANCES BY WALKING.

The demand for a first-class, well made and perfectly accurate instrument of this kind at a popular price being so greatly on the increase,

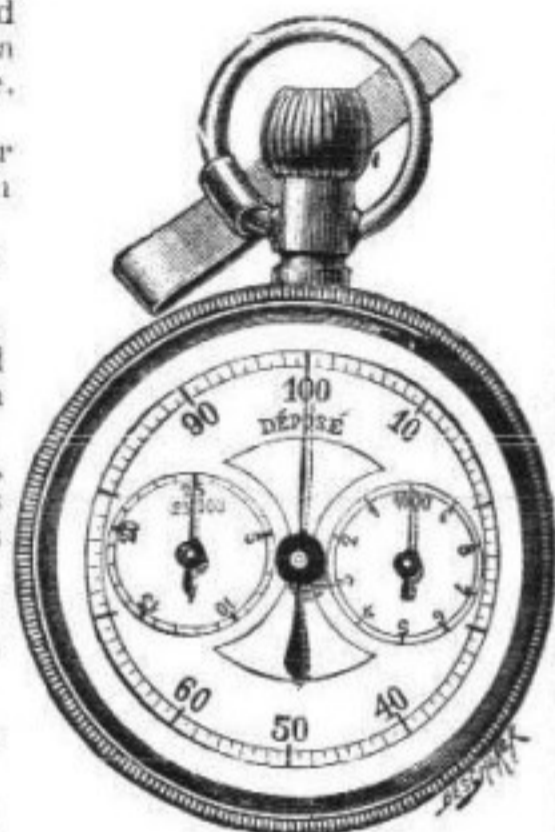


No. 1928.

we have made arrangements for importing in such quantities the celebrated **Swiss Pedometers.**

The Pedometers are highly finished in nickel, having a white porcelain dial on one side, reading to 12 miles divided into miles and quarters of miles. They are the size of a watch.

They can be adjusted to any length of step by simply turning the screw at the back by means of an ordinary watch



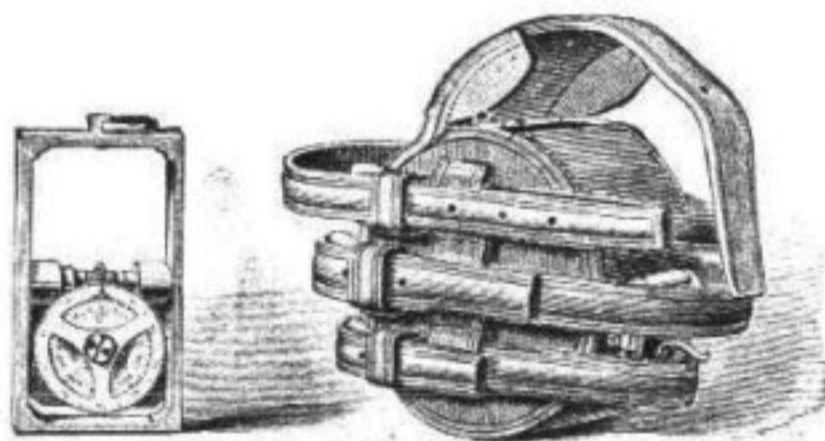
No. 1930.

key, with which each instrument is provided, as well as a nickel hook for convenience in attaching to pocket or belt.

No.		Each.
1928.	Pedometer, watch pattern, nickel case, registering distances walked to 12 miles	\$5 00
1929.	Pedometer, watch pattern, nickel case, crystal back, registering distances walked to 100 miles	8 50
1930.	Passometer, watch pattern, nickel case, with three hands, registering 25,000 steps	8 00

## Odometers.

FOR MEASURING DISTANCES BY THE REVOLUTIONS OF A CARRIAGE WHEEL.



No. 1932.

In metal case, leather covered, with straps.

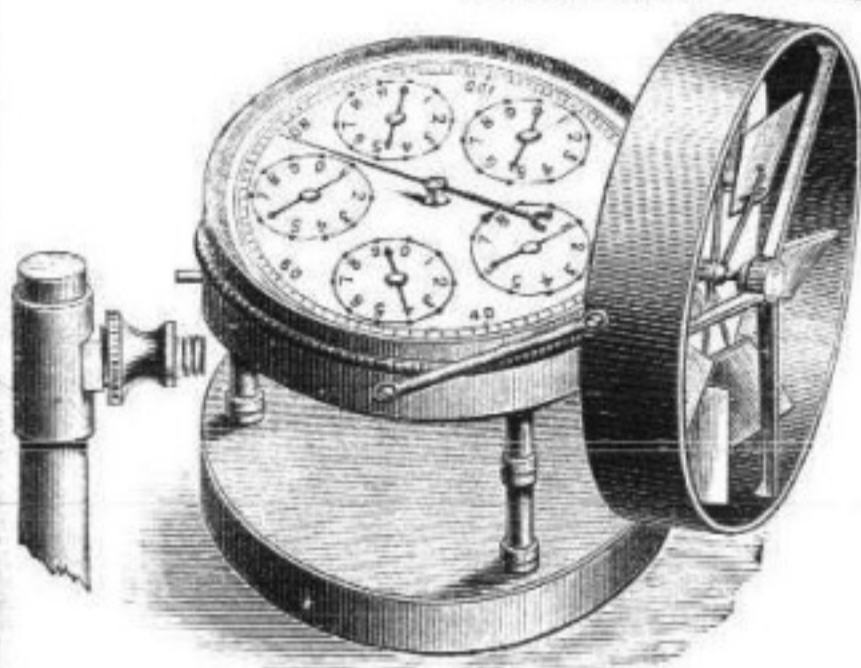
Can be attached to any carriage without injury to the wheel and removed at pleasure.

The circumference of the wheel being given, the distance is obtained by multiplying it by the number of revolutions recorded on the dials.

No. 1932. Odometer, inside dial, with leather case and straps, complete \$15 00

## Anemometers.

For Measuring the Pressure and Velocity of Currents of Air in Coal Mines, Flues, Public Buildings, etc.



No. 1934.



No. 1938.

The Portable Air Meter for the measurement of currents of air through mines, tunnels, sewers and the ventilators of hospitals, public buildings, etc. The indications are obtained by means of a delicately poised fan-wheel, the recordings 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 up to ten millions of feet (say 1,894 miles), by a series of smaller dials, as shown in illustration. A "Disconnecter" projecting from the band of the instrument, opposite the fan-wheel, serves to throw the mechanism out of gear and arrest its action when required. The instrument is packed, with the usual Universal Jointed Socket Holder, in a box 4 inches square. Printed instructions accompany each instrument.

No.	Each
1934. The Portable Air Meter, 6 dials, diameter of fan-wheel, $2\frac{3}{4}$ inches, with disconnecter, which is extensively used for testing the ventilation of hospitals, mines, schools and public buildings; forms also an admirable Pocket Anemometer for tourist . . . . .	\$22 00
1935. Same with the addition of a Standard one minute glass . . . . .	26 00
1936. Air Meter, same as preceding, with 2 dials, reading only to 1000 feet, . . . . .	22 50

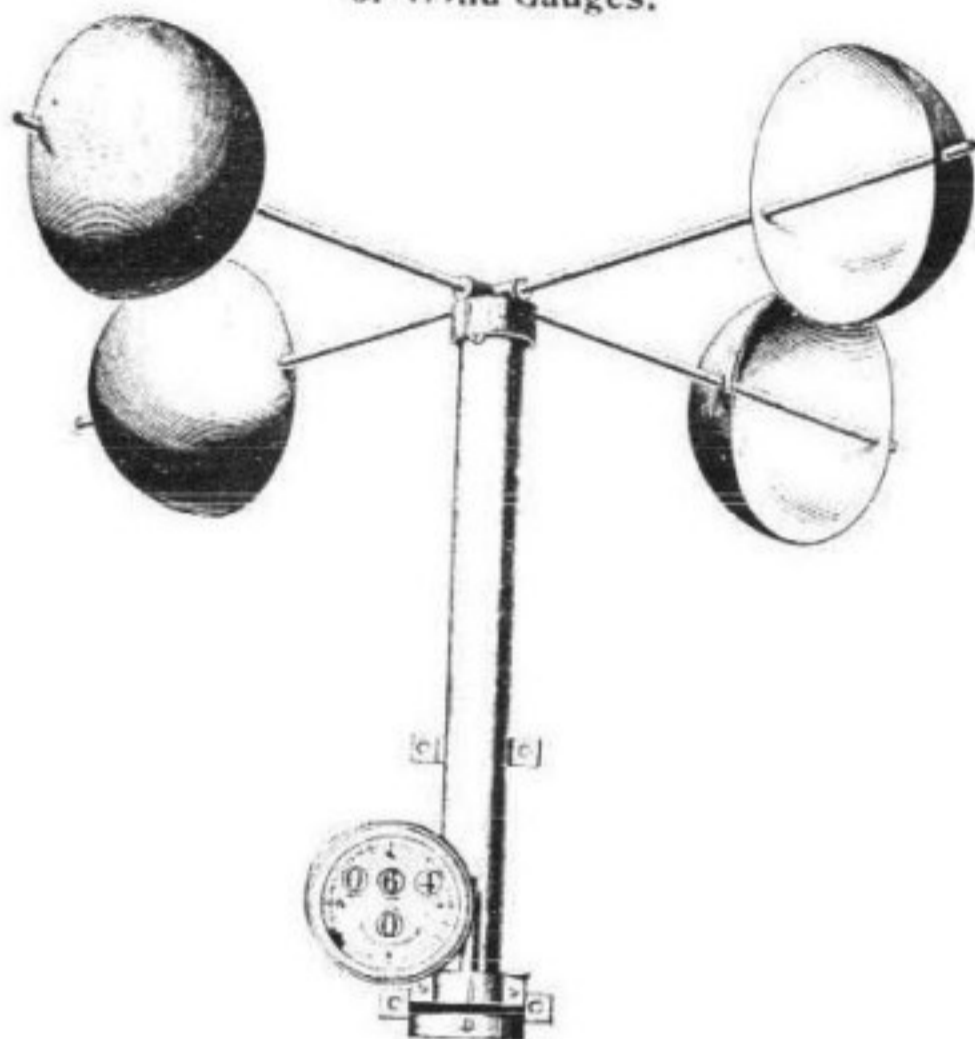
## Biram's Anemometer.

This instrument placed in the passage of a mine registers automatically the rate at which the air is traveling through it, and a simple observation will detect any slackening of the current arising from obstruction of the ways, or want of attention at the ventilating furnace or fan wheel.

No.	Each
1938. Biram's Anemometer, 4-inch diameter, reading to 1,000 feet, without disconnecter . . . . .	\$20 00
1939. Biram's Anemometer, 5-inch diameter, reading to 1,000 feet, without disconnecter . . . . .	22 00
1940. Biram's Anemometer, 6-inch diameter, reading to 1,000 feet, with disconnecter . . . . .	23 50
1941. Biram's Anemometer, 6-inch diameter, reading to 100,000 feet, with disconnecter . . . . .	30 00
1942. Biram's Anemometer, 6-inch diameter, reading to 10,000,000 feet, with disconnecter . . . . .	40 00

## Anemometers

or Wind Gauges.



No. 1944.

### Draper's Registering Anemometer.

*Each Instrument Standardized and Fully Warranted.*

No. 1944. Price complete, ready for use . . . . . \$12 00

This simple device for indicating the velocity of the wind in miles consists of a vertical shaft, to the upper end of which are fastened four arms, each carrying a Robinson hemispherical copper cup. These cups turn in one direction, regardless of the direction of the wind, and at a ratio determined by experiment. To the lower end of the shaft is rigidly fastened a plate carrying two small roller bearings which, as the shaft revolves, actuate a wheel which in turn meshes into a series of other wheels; thus the miles are indicated on the registering dial. The dial is so divided as to show velocities from one hundredths of a mile to 10,000 miles, and then it repeats, commencing at zero.

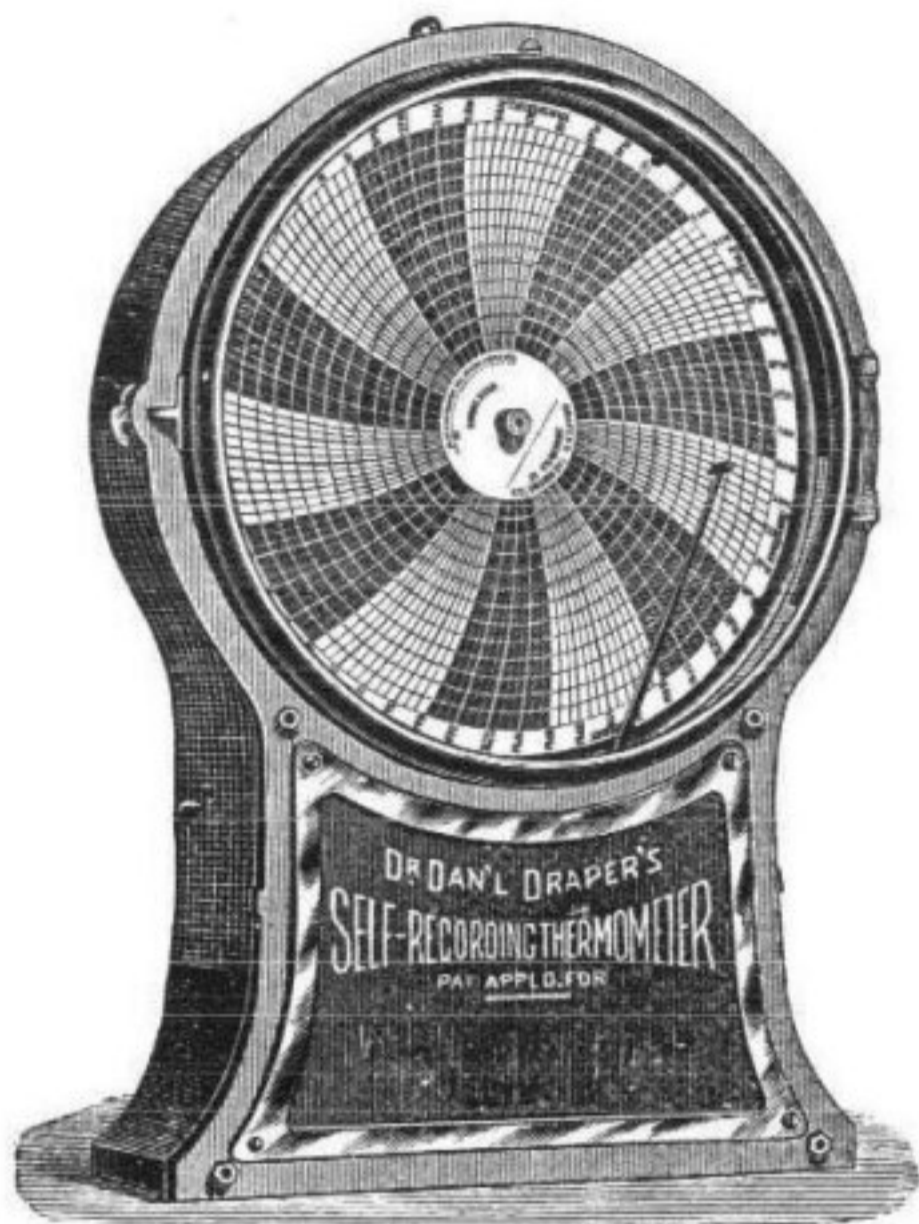
To ascertain the rate in miles per hour at which the wind is traveling, make two readings with an interval of ten minutes and multiply the difference by six.

This instrument is carefully made and requires no care or attention, save a little oiling, say once a month. All parts are interchangeable.

This instrument is of especial use to Weather Observers and Yacht and Boat Clubs. Weight, 3½ lbs.



## Draper's Self-Recording Thermometer.



- |  |                   |
|--|-------------------|
| No. 1945. Size, 14 x 20 inches . . . . . | Price, \$30 00    |
| No. 1946. Size, 9 x 14 inches . . . . .  | Price, 20 00      |
| Extra Charts . . . . .                   | per hundred, 3 00 |

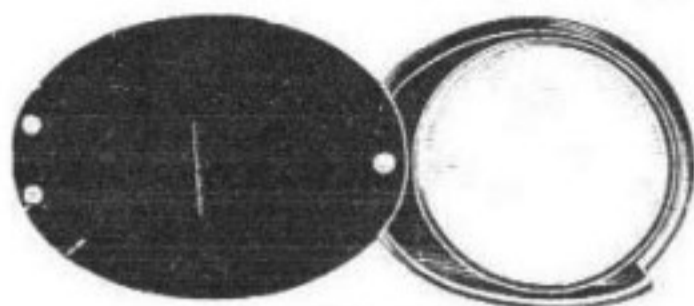
The thermometer gives a permanent and continuous record of the temperature. In this instrument a clock revolves a disc, on which is placed a chart, indicating the hours of the day and days of the week, by radiating divisions, and gives the degrees of temperature, Fahrenheit scale, from 20 degrees below zero to 110 above, by concentric circular divisions. A lever provided with a pen is supported on an axis, carried by the expansion and contraction of bimetallic strips, so that the pen which rests on the chart moves outward and inward from the center, drawing a line on the surface of the chart, showing the temperature at any given time.

All instruments are *accurately adjusted and warranted*, and are provided with ink, a dropping tube to fill the pen, and twelve charts.

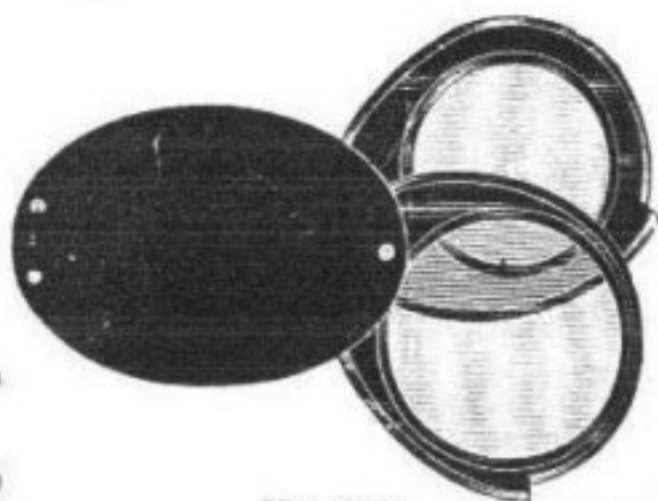
Makes automatically a continuous record of temperature without error or omission. The very slightest variation in temperature is recorded by the thermometer, which is made with the following ranges: 50° below zero to 80° above, 20° below zero to 110° above, 70° to 200° and 0 to 260°, depending upon the purpose for which they are intended.

It is an invaluable accessory in dwellings, hotels, hospitals, asylums, schools, etc., also in dry kilns, gas works, breweries, glue, varnish, and other manufactories.

## Pocket Magnifying Glasses.



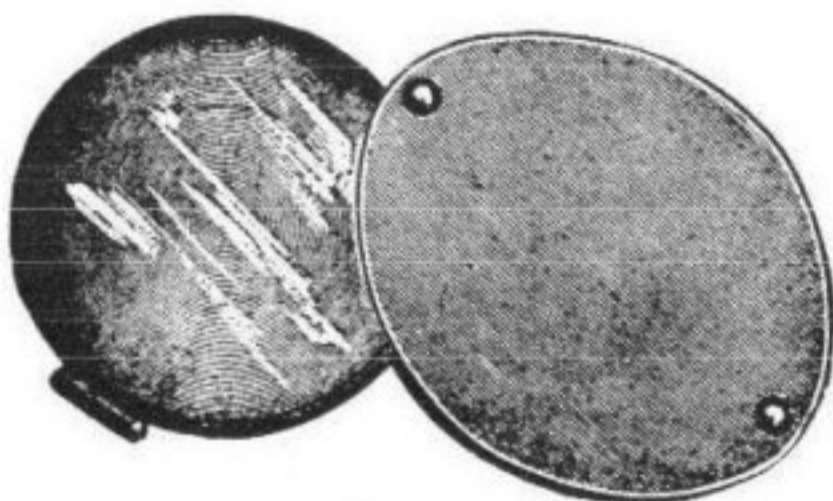
No. 1948.



No. 1949.

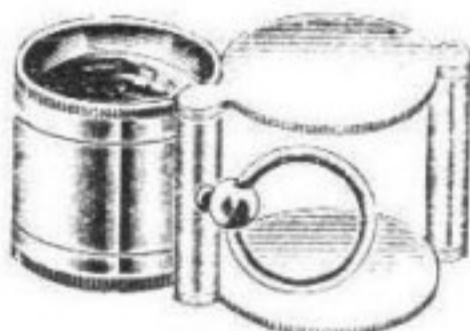
No.	Description	Each
1948.	Mounted in Hard Rubber, Oval Pattern, 1 lens.	
	Diameter, $\frac{3}{4}$ -inch . . . . .	\$0 30
	" 1 " . . . . .	40
	" $1\frac{1}{4}$ " . . . . .	
	" $1\frac{1}{2}$ " . . . . .	
1949.	Mounted in Hard Rubber, Oval Pattern, 2 lens.	
	Diameter, $\frac{5}{8}$ and $\frac{3}{4}$ -inch . . . . .	60
	" $\frac{7}{8}$ and 1 " . . . . .	80
	" $1\frac{1}{8}$ and $1\frac{1}{4}$ " . . . . .	1 00
	" $1\frac{1}{4}$ and $1\frac{1}{2}$ " . . . . .	1 25

No.	Description	Each
1950.	Mounted in Metal, nickel-plated, 1 lens, 1-inch diameter . . . . .	\$0 75
1951.	Mounted in Metal, nickel-plated, 2 lens, 1-inch diameter . . . . .	1 25
1952.	Mounted in Metal, nickel-plated, 3 lens, 1-inch diameter . . . . .	1 50

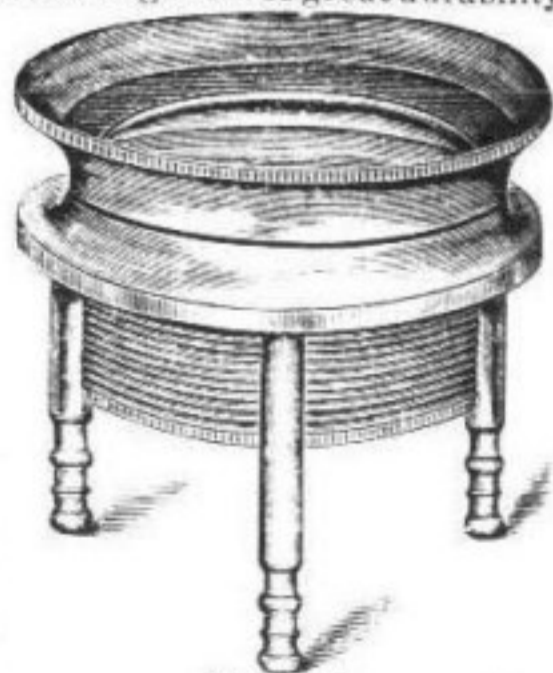


No. 1950.

Have a very good magnifying power, and are especially adapted for reading graduations on surveying instruments. Their metal mounting insures great durability



No. 1953.

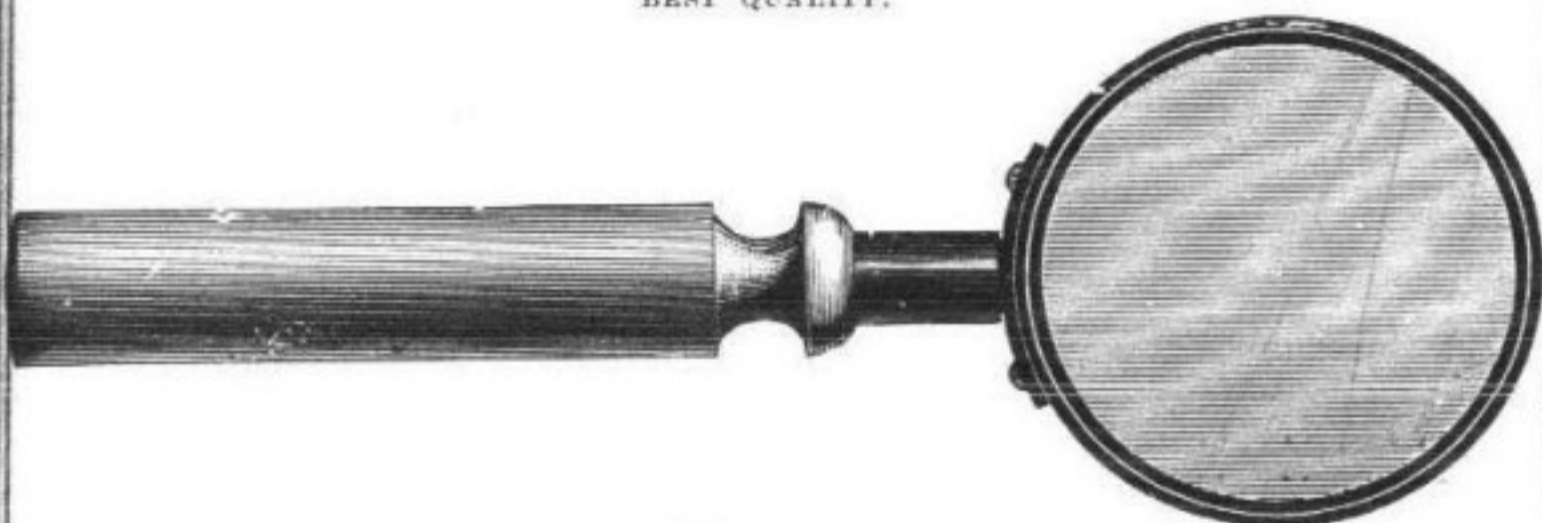


No. 1957.

No.	Description	Each
1953.	Coddington Lens, metal folding frame, nickel-plated, $\frac{1}{2}$ -in. diam.,	\$1 50
1954.	Coddington Lens, metal folding frame, nickel-plated, 1-in. diam.,	2 25
1955.	Coddington Lens, metal folding frame, nickel-plated, $1\frac{3}{8}$ -in. diam.,	3 60
1956.	Thread Counter, brass frame, $\frac{1}{2}$ -inch field . . . . .	\$0 50
1957.	Magnifier, on 3 legs, brass, screw adjustment, 1-inch diameter . . . . .	50

## Reading and Picture Glasses.

BEST QUALITY.



No. 1958.

No. 1958.	Size,	1½	2	2½	3	3½	4	4½	5 inch.
	Each,	\$0 65	85	1 00	1 25	1 75	2 25	2 75	3 40

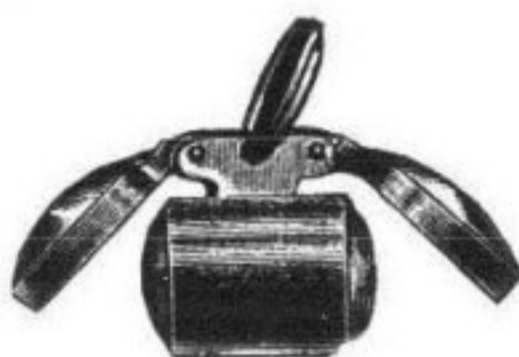
These Reading and Picture Glasses, No. 1958, are of superior magnifying power, and substantially mounted in round nickel plated frames, with polished ebony handles.

## “Coddington” Magnifiers.

FOR PROSPECTORS.



No. 1959.



No. 1960.

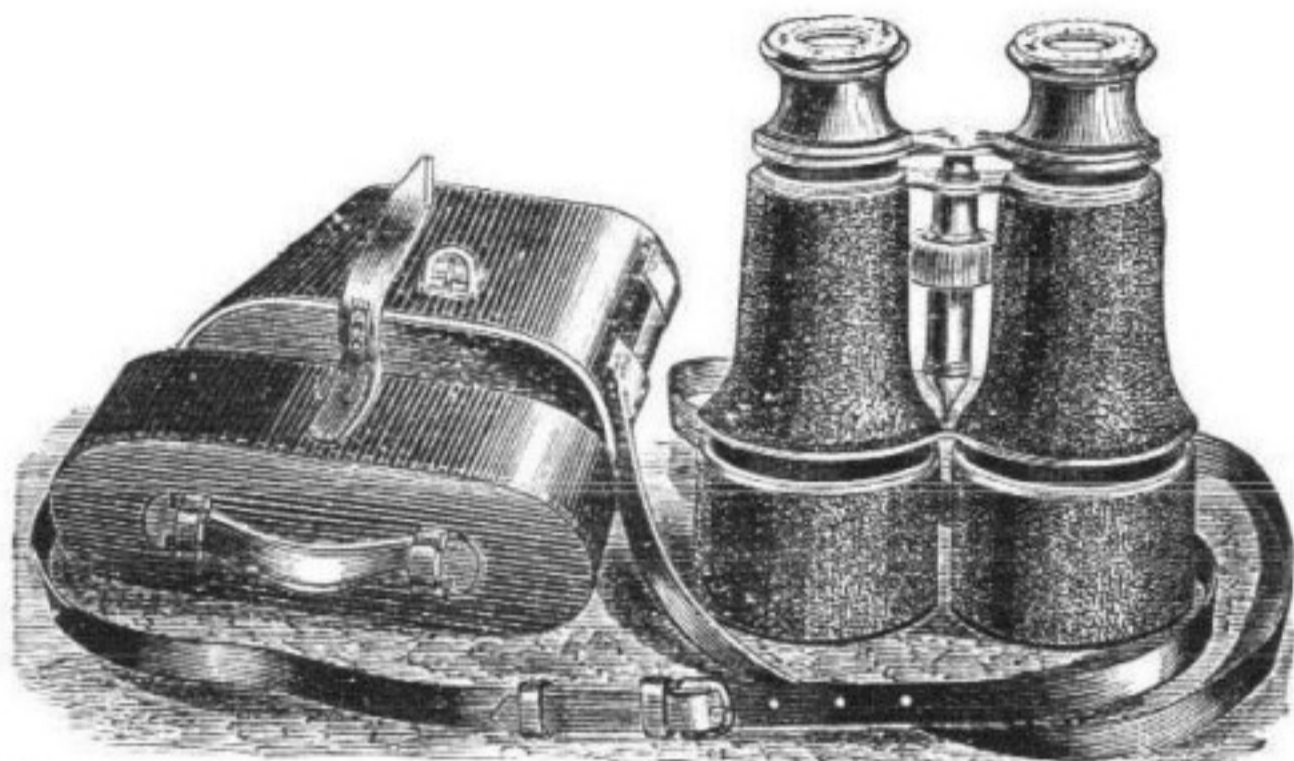
No. 1959. Coddington Magnifier, with twisted wire handle, nickel plated.

Size,	½	¾	1	1¼	1½ inches diameter.
Each,	\$1 25	1 75	2 00	2 50	3 00

No. 1960. Coddington Magnifier, two hinged, protecting covers and ring, German silver, superior lenses.

Size,	¾	1	1¼ inches diameter.
Each,	\$2 75	3 25	3 75

## Field and Marine Glasses.



The Field Glasses here described are of the best quality and especially adapted for tourists, engineers, military service or general field use. They are designated and priced according to the diameter of the object glasses in French lines, eleven lines being equal to one inch.

Six Lens Achromatic Field Glass, metal body, covered with Morocco, sun shades to extend over the object glasses, in Morocco case with strap.

No.		Price
1961.	Object Glasses, 24 lines in diameter . . . . .	\$ 8 00
1961a.	" " 26 " " . . . . .	10 00

## Lemaire's (Paris) Field Glasses.

**Lemaire Field Glass.** Made especially for those desiring a powerful and substantial glass. Highly endorsed by government pilots and river men. Metal mounting, fine leather body, six special high power lenses, with heavy waterproof sole leather case and strap.

No.		HIGH TOP.	Each
1962.	19 ligne, length, closed, $4\frac{3}{4}$ in.; extended, 6 in.; power, 5 diam.		\$15 00
1963.	21 " " " $5\frac{1}{4}$ " " " $6\frac{1}{2}$ " " " $5\frac{1}{4}$ " "		18 00
1964.	24 " " " $5\frac{3}{4}$ " " " $7\frac{1}{4}$ " " " $5\frac{3}{4}$ " "		18 00
1965.	26 " " " $6\frac{1}{4}$ " " " $7\frac{1}{2}$ " " " 6 " "		20 00
1968.	21 " Same as No. 1963, but with 12 lenses; power, $5\frac{1}{4}$ diam.		20 00
1967.	24 " " " 1964, " " 12 " " " 6 " "		23 00
1968.	26 " " " 1965, " " 12 " " " 7 " "		28 00
LOW TOP.			
1969.	21 ligne, length, closed, $4\frac{1}{4}$ in.; extended, 5 in.; power, $5\frac{1}{4}$ diam.		15 00
1970.	24 " " " $4\frac{5}{8}$ " " " $5\frac{5}{8}$ " " " $5\frac{3}{4}$ " "		17 00
1971.	26 " " " $5\frac{1}{2}$ " " " $6\frac{1}{4}$ " " " 6 " "		19 00
1972.	21 " Same as No. 1969, but with 12 lenses; power, $5\frac{1}{2}$ diam.		18 00
1973.	24 " " " 1970, " " 12 " " " 6 " "		20 00
1974.	26 " " " 1971, " " 12 " " " 7 " "		22 00

NOTE.—There is no difference in the quality between the high and low top excepting that the low top closes up smaller.

## Lemaire's Aluminum Field Glasses.

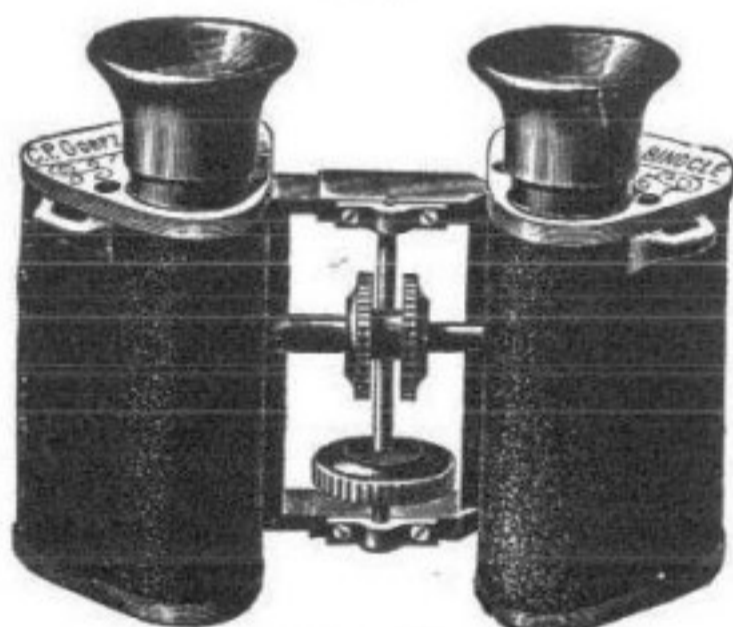
FINEST QUALITY.

Lemaire's make, aluminum body, with black japanned bars and tops and polished tubes; black Morocco covered, in sole leather case.

No.							HIGH TOP.	LOW TOP.
1975.	21 ligne;	6 lenses;	power, 5¼	diameter . . . . .			\$30 00	\$27 00
1976.	24 "	6 "	" 5¾	" . . . . .			35 00	32 00
1977.	28 "	6 "	" 6	" . . . . .			40 00	37 00
1978.	21 "	12 "	" 5½	" . . . . .			35 00	30 00
1979.	24 "	12 "	" 6	" . . . . .			40 00	35 00
1980.	26 "	12 "	" 7	" . . . . .			45 00	40 00

NOTE.—The Lemaire Aluminum Mounted Field Glasses, are the same size when closed or extended as the metal mounted.

## Goerz Trieder-Binocular.



No. 1985.

Made on an entirely new principle with the use of prisms, whereby extreme power, excellent definition and stereoscopic penetration are obtained in a very compact form; adapted for the theatre, tourist, race track, yachting and military observations.

No.		Linear Magnification.	Surface Magnification.	Actual Field of View.	Sub. Field of View.	Total Length.	Price.
1982.	The best glass for the theatre, for hunters or tourists. . . . .	3x	9x	13,3°	40°	2½-in.	\$38 00
1983.	The best glass for army, navy, hunting, races, etc. . . . .	6x	36x	6,7°	40°	3 -in.	46 00
1984.	The best glass for general use, very clear and powerful. . . . .	9x	81x	4,4°	40°	4 -in.	54 00
1985.	The best glass for extra long range . . . . .	12x	144x	3,3°	40°	5 -in.	62 00

The above glasses are all furnished with water-proof cases with shoulder strap.

N. B.—Special pamphlet fully describing these special glasses will be sent free on application.

## Prince's Ideal Binocular Field, Marine and Bird Glass.



No. 1986.

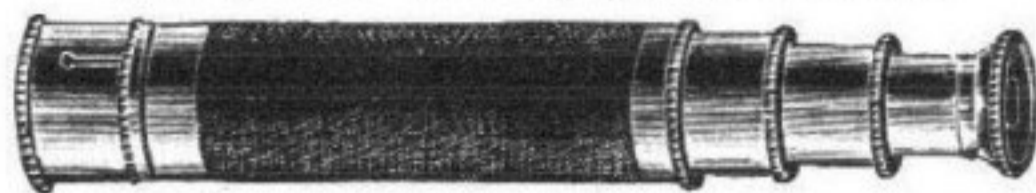
No. 1986. Binocular Field Glass . . . . . Price, \$12 00

The highest power glass for the money ever placed on the market; made for us especially by the celebrated maker, **Lemaire**, of Paris. It has a large field of vision; 21 line object glass,  $1\frac{7}{8}$ -inch; is compact,  $4\frac{3}{4} \times 2\frac{1}{4} \times 3\frac{3}{4}$  inches; has a fine morocco case.

**MAKES AN IDEAL OPERA GLASS.**

## Telescopes.

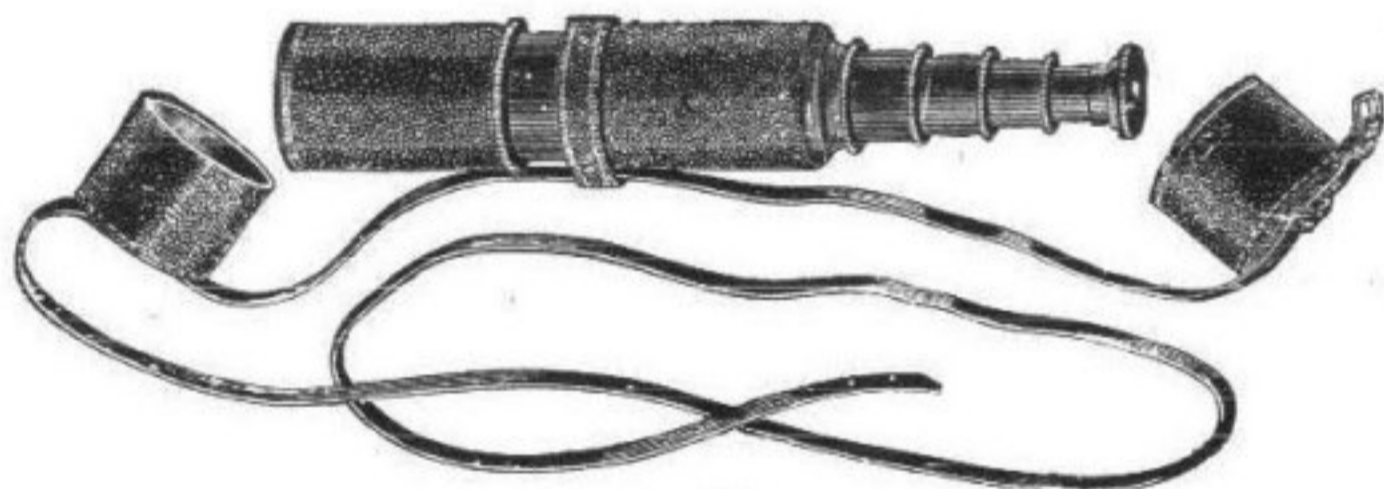
FIRST QUALITY. 11 LINES, EQUAL TO ONE INCH.



No. 2000.

Spyglasses, 3 Draws, Black Morocco Body, Burnished Brass Draw Tubes.

No.	Full Length	Dimensions.		Diameter of Object Glass	Magnifying Power	Price Each
		Closed	Open			
2000.	14 $\frac{3}{4}$ inches.	5 $\frac{1}{4}$ inches.	10 inches.	10 lines.	10 times.	\$ 2 50
2001.	16 $\frac{1}{4}$ "	6 "	11 "	11 "	15 "	3 00
2002.	16 $\frac{3}{4}$ "	6 "	12 "	12 "	15 "	3 50
2003.	17 "	6 $\frac{1}{4}$ "	13 "	13 "	20 "	4 00
2004.	17 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	14 "	14 "	20 "	4 50
2005.	23 "	8 "	16 "	16 "	25 "	6 00



No. 2006.

## Tourists' Achromatic Telescopes.

No.	Description	Price.
2006.	Telescope, with brass body covered with morocco, 24 inches drawn out, 9 inches shut, object-glass 1 $\frac{3}{4}$ inches in diameter. Power 30 times . . . . .	\$15 00
2007.	Telescope, has 4 draws, 30 inches drawn out, 10 inches shut, object-glass 2 inches in diameter. Power 35 times . . . . .	22 00
2008.	Rifle Spy-glass, 10 $\frac{3}{4}$ inches drawn out, body covered with morocco, object-glass $\frac{1}{2}$ -inch in diameter. Power 10 times . . . . .	2 50

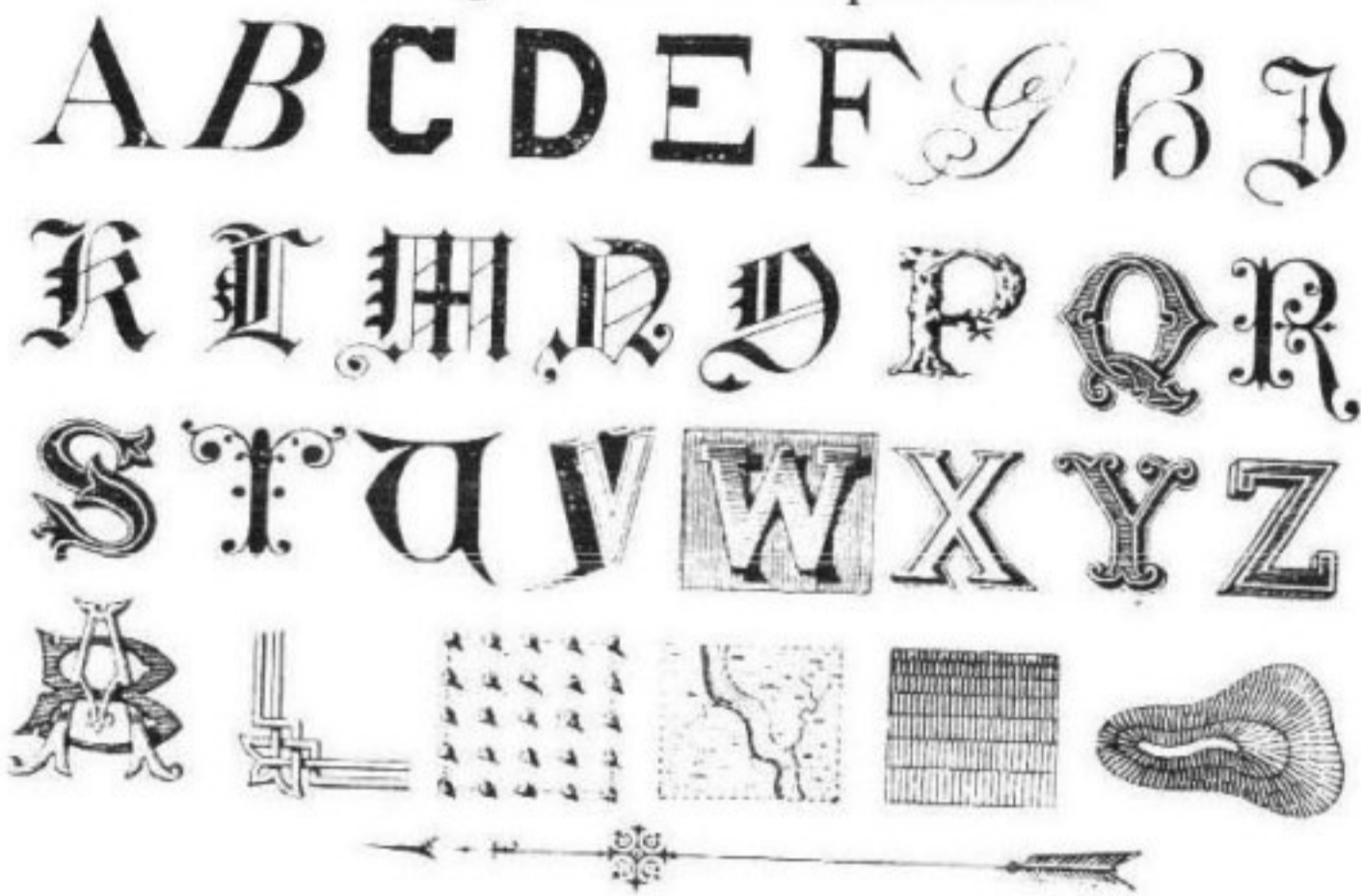
## Astronomical Telescopes.

2009.	Astronomical Telescope, polished brass body, 35 inches long, rack and pinion for focusing, achromatic object-glass 2 $\frac{1}{2}$ inches in diameter, terrestrial eyepiece, power 40 times, celestial eyepiece with darkener, power 80 times, wooden tripod with horizontal and vertical motion. In box with lock, for receiving the body and eyepieces . . . . .	75 00
2010.	Astronomical Telescope, with body 40 inches long, achromatic object-glass 3 inches in diameter, terrestrial eyepiece, power 55 times, celestial eyepiece with darkener, power 110 times. In box with lock . . . . .	100 00

## Tripods and Clamps for Telescopes.

2011.	Wooden Tripod Stand, with vertical and horizontal motion, upon which to place a telescope; a useful article, as a telescope of much power can not be held in the hand with sufficient steadiness . . . . .	5 00
2012.	Brass Clamp with Gimlet Screw, to fasten a telescope to a post or tree; 4 sizes to fit telescopes. Price according to size . . . . .	\$1 50, \$2 00, \$2 50, and 3 50

## Draughtman's Alphabets.



No. 2014.

No.		Each
2014.	Alphabet Book, 7 x 10 <sup>1</sup> / <sub>2</sub> inches . . . . .	\$1 50
	The above cut shows reduced specimens of New Edition of the "Draughtman's Alphabet," which has been entirely revised and much enlarged.	
	<b>Ame's Alphabets.</b> Fifth revised edition. Adapted to the use of Architects, Engravers, Engineers, Artists, Sign Painters, Draughtsmen, etc. This work has been prepared with special reference to the wants of Architects, Sign Painters and Draughtsmen. One oblong volume, thirty-three 7x11 well filled plates, handsomely bound in cloth . . . . .	1 50
	<b>Becker's Ornamental Penmanship and Draughtman's Letter Book.</b> A series of Analytical and Finished Alphabets . . . . .	3 50
	<b>Copley's Alphabets.</b> A set of alphabets of all the various hands of modern use, with examples in each style; also the Mechanical and Analytical Construction of Letters, Figures and Titles . . . . .	2 00
	<b>Dearborne's Scrolls, Ornaments, Monograms, Crests, etc.</b> . . . . .	2 50
	<b>Jacoby Text Book of Plain Lettering,</b> with 48 plates . . . . .	3 00
	<b>Landa's Alphabets</b> . . . . .	1 00
	<b>Prang Alphabets.</b> Standard Alphabets, partly printed in colors, including Topographical Signs, Borders, Corners, etc. . . . .	3 00
	<b>Practical Manual of House Painting, Graining, Marbling and Sign Writing.</b> Containing full information on the Processes of House Painting in Oil and Distemper, the Formation of Letters and Practice of Sign Writing, the principles of Decorative Art, a course of Elementary Drawing for House Painters, Writers, etc., and a Collection of Useful Recipes. With nine colored illustrations of Woods and Marbles, and numerous wood engravings. By <i>Ellis A. Davidson</i> . 12mo, cloth, . . . . .	2 50
	<b>Lettering for Draughtsmen, Engravers and Students.</b> By <i>Chas. W. Reinhardt</i> . A Practical System of Free-hand Lettering for Working Drawings, Fourth thousand. Oblong, boards . . . . .	1 00



## Scientific Books.

The following prices apply to the latest editions now on the market.

### Architecture, Carpentry and Building.

<i>Bell</i> —Carpentry Made Easy; or, the Science and Art of Framing on a New and Improved System. With specific instructions for building balloon frames, barn frames, mill frames, warehouses, church spires, etc. Comprising also a system of bridge building, with bills, estimates of cost, and valuable tables. Illustrated by 44 plates, comprising nearly 200 figures. 8vo. . . . .	\$5 00
<i>Birkmire</i> —Architectural Iron and Steel, and its Application in the Construction of Buildings. Fully illustrated from original designs. 8vo. . . . .	3 00
<i>Birkmire</i> —Skeleton Construction in Buildings. Fully illustrated with engravings from practical examples of high buildings. 8vo. . . . .	3 00
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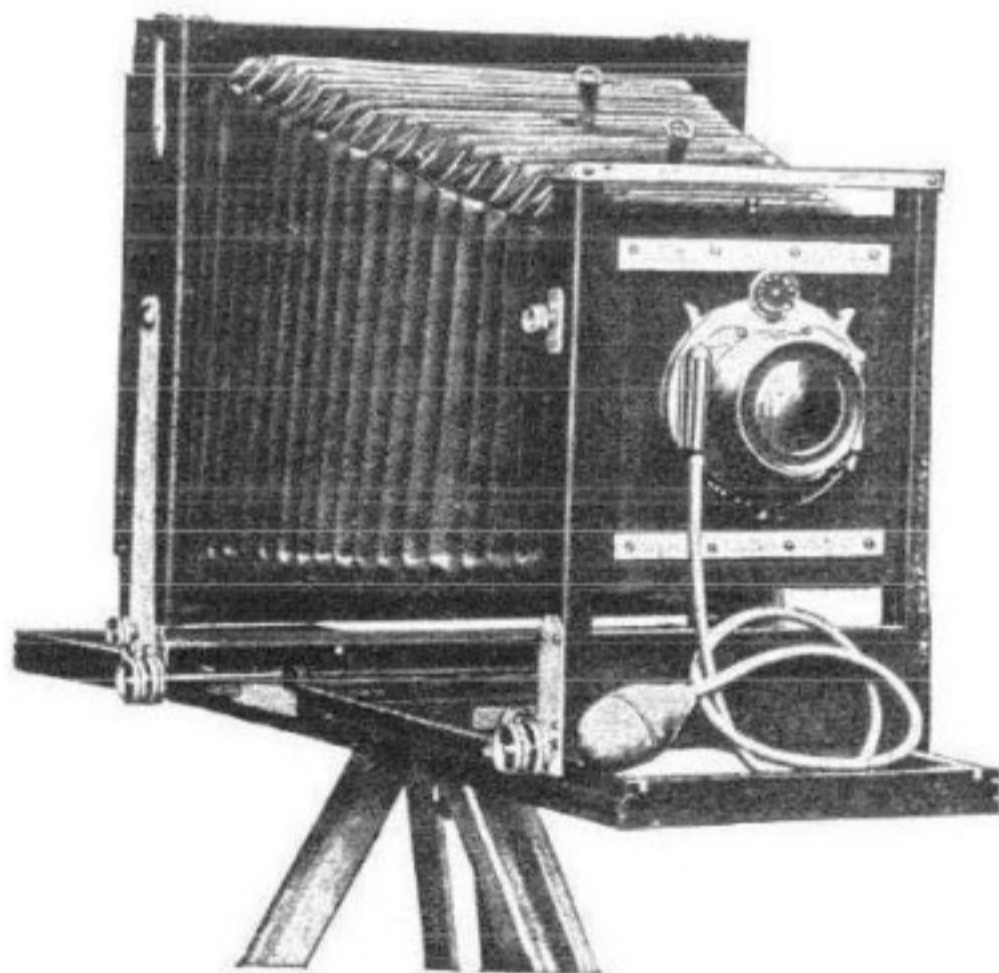
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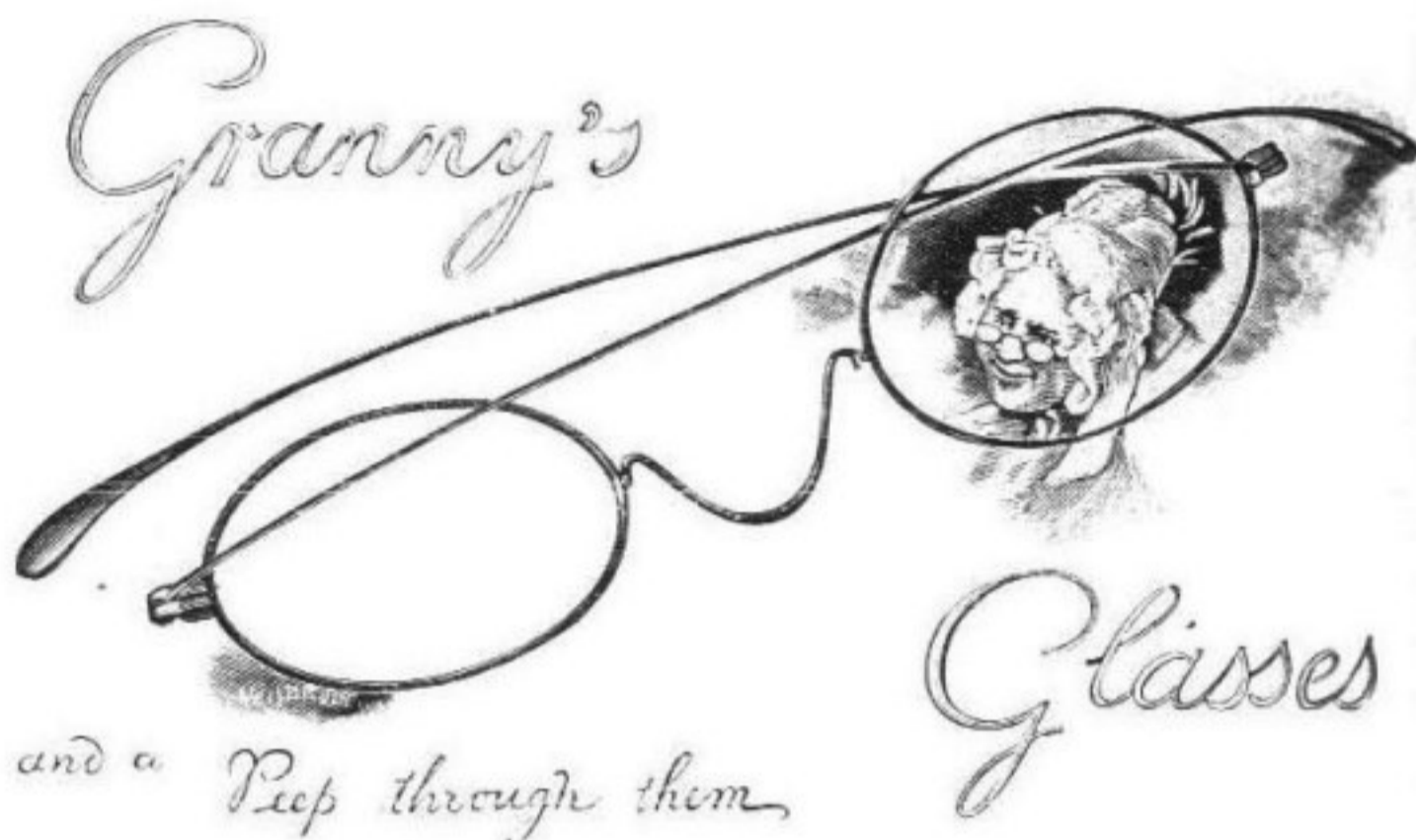
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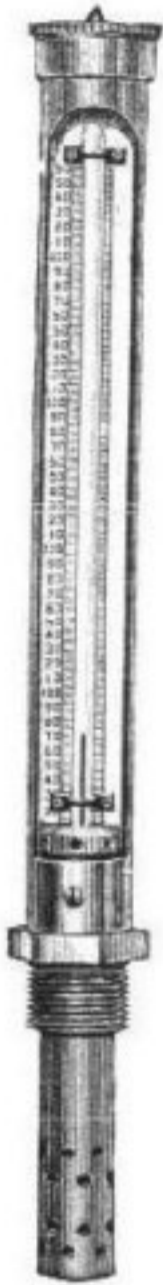
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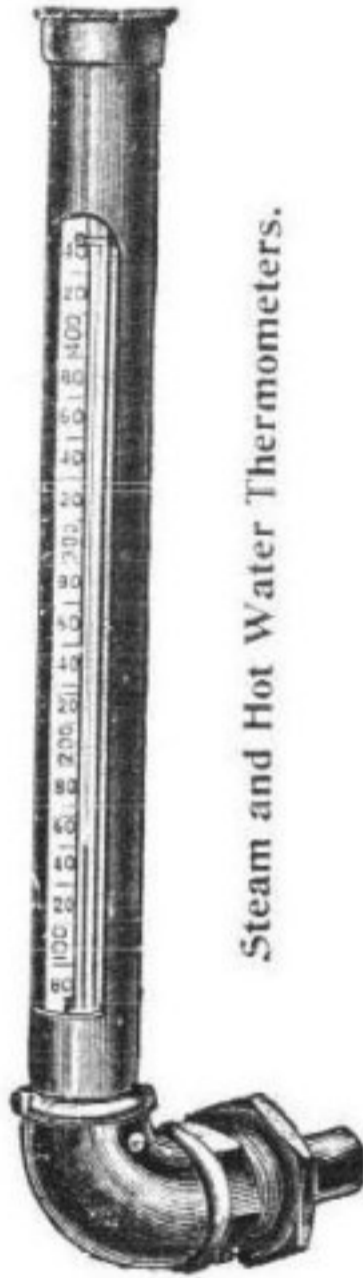
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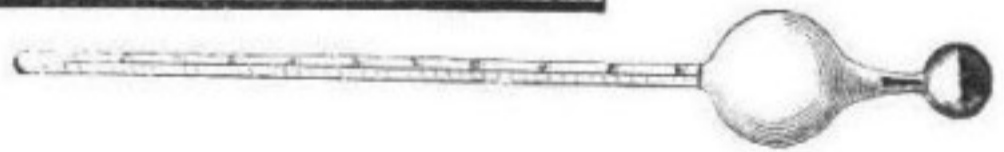
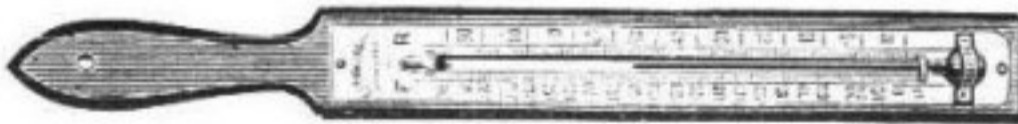
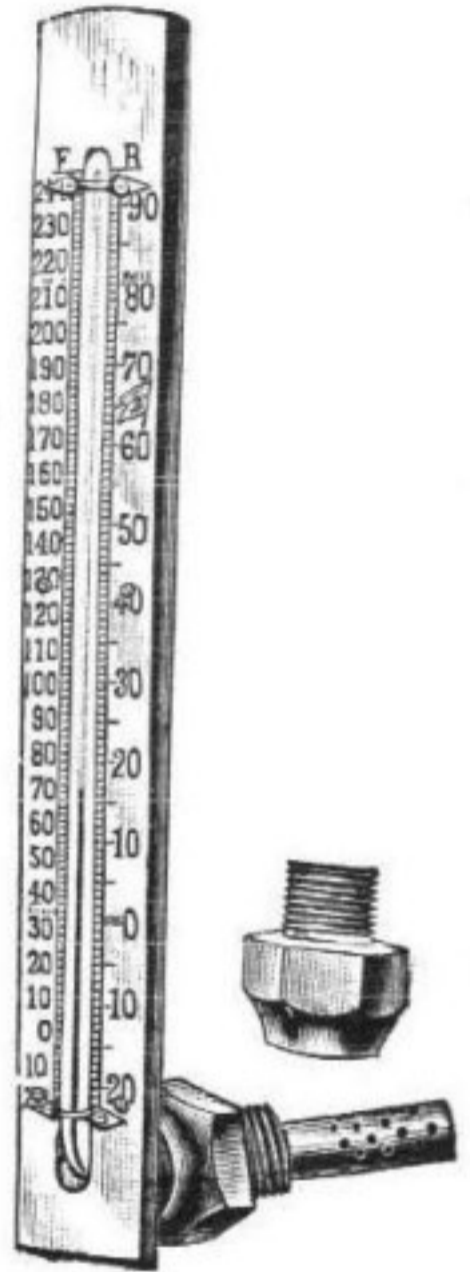
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