PLATES

TO THE

GEOMETRICAL

AND

GRAPHICAL ESSAYS,

BY THE LATE

GEORGE ADAMS,

MATHEMATICAL INSTRUMENT MAKER TO HIS MAJESTY, &c.

THE THIRD EDITION,

CORRECTED AND ENLARGED BY

WILLIAM JONES, F. Am. P. S.

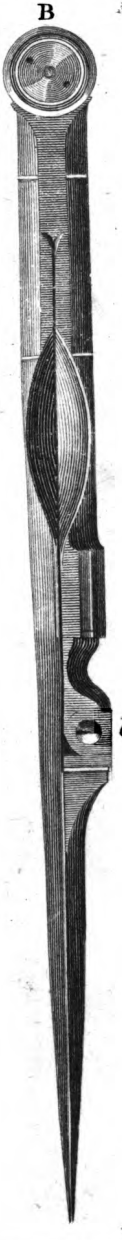
LONDON:

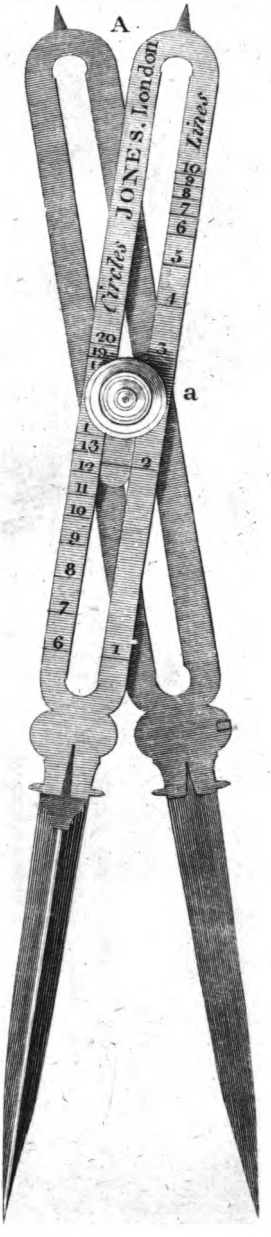
PRINTED BY W. GLENDINNING, 25, HATTON GARDEN,

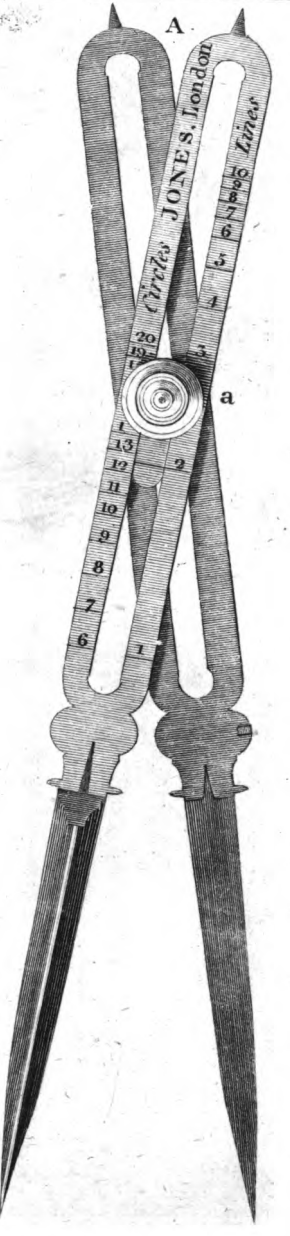
FOR, AND SOLD BY, W. AND S. JONES, OPTICIANS,

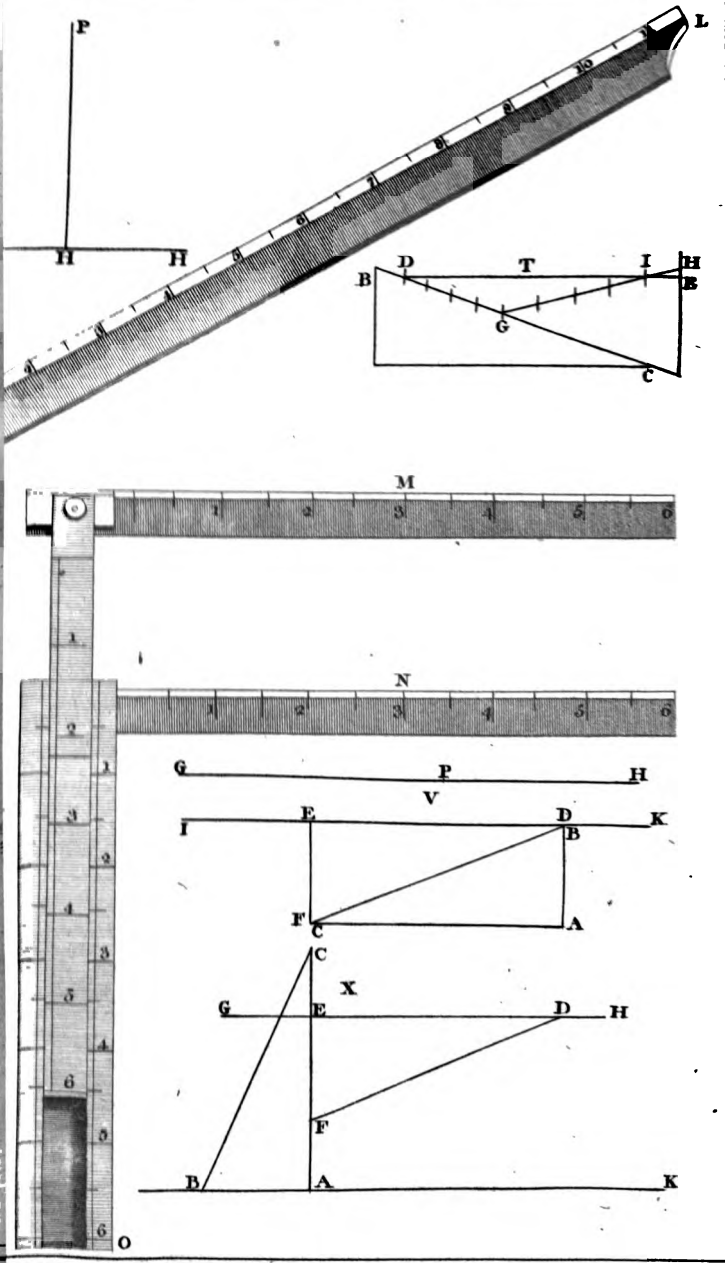
HOLBORN.

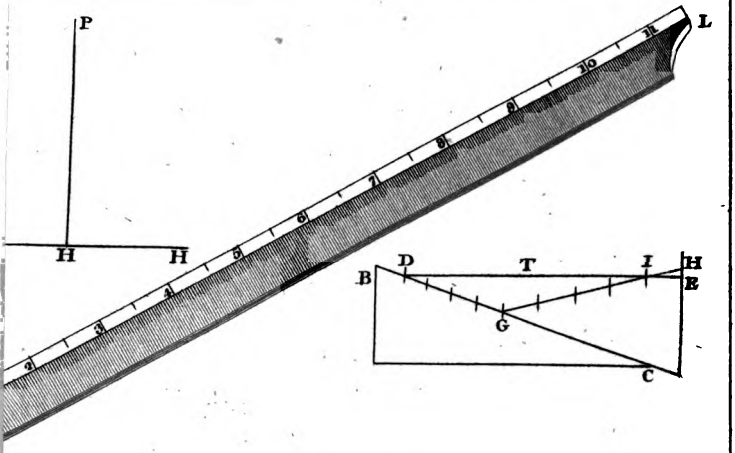
1803.

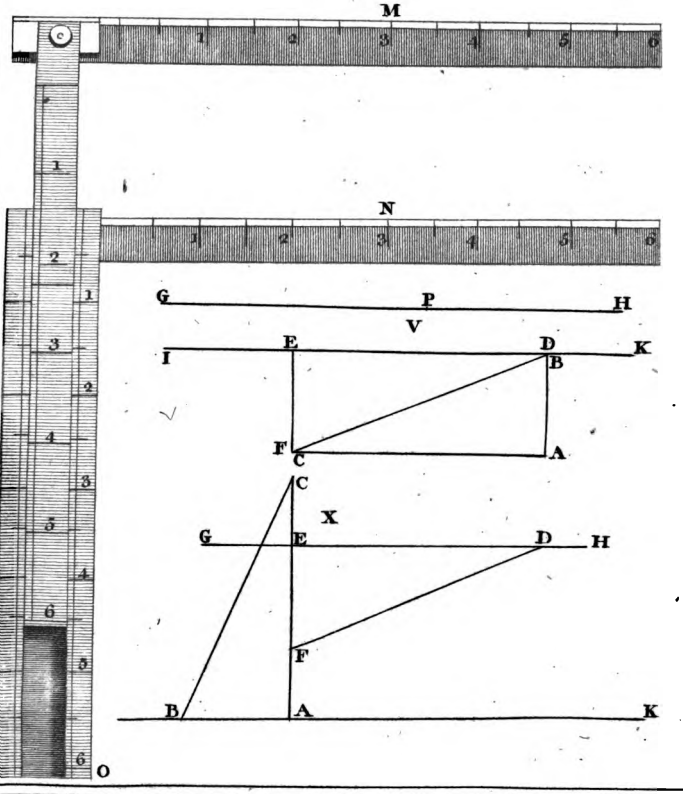


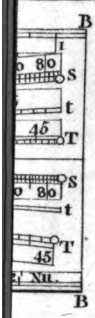


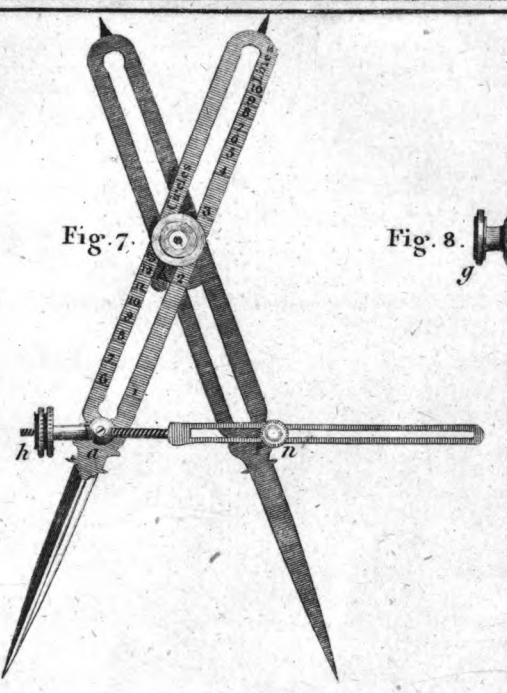


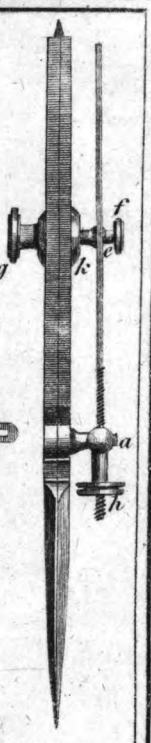


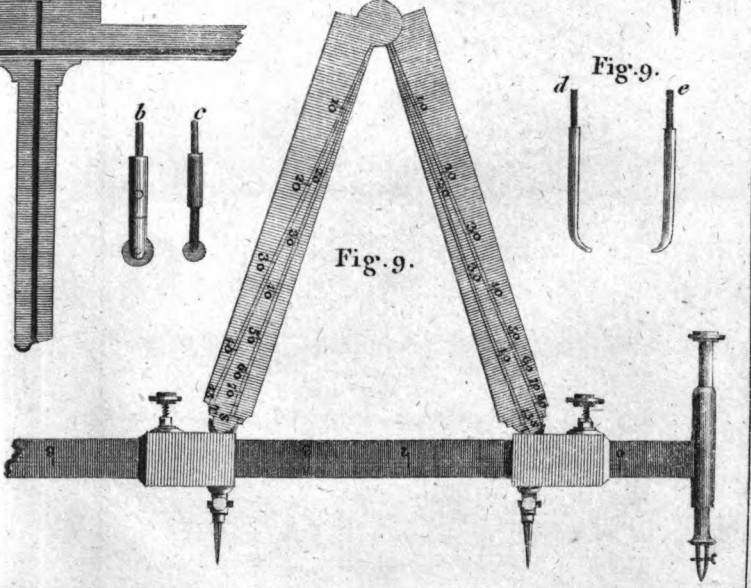


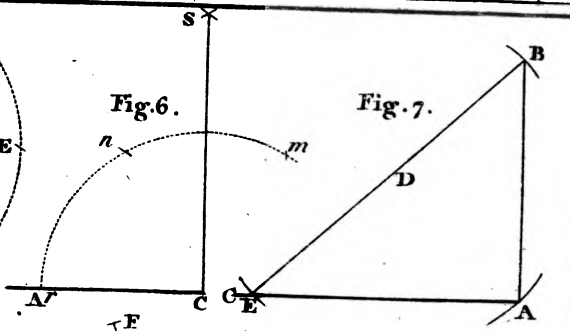


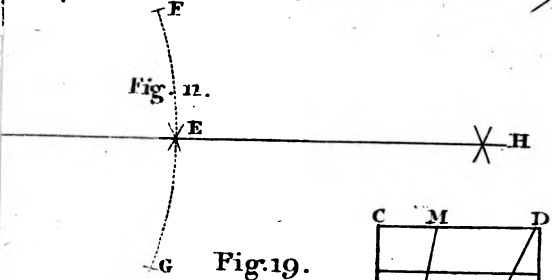


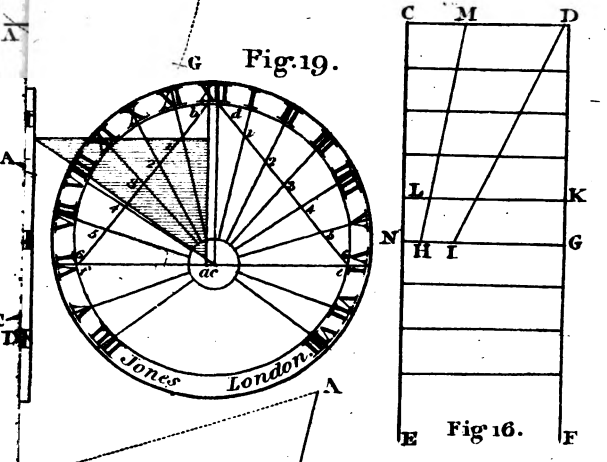


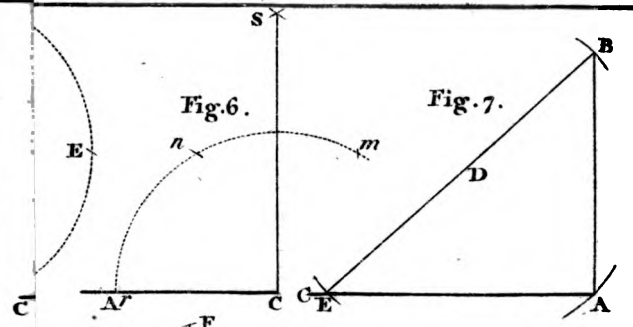


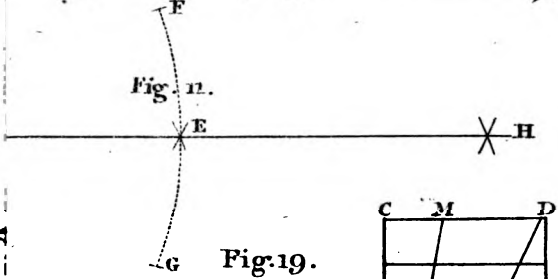


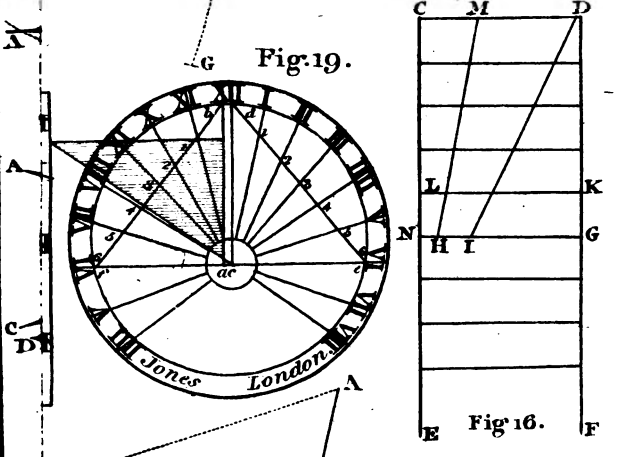












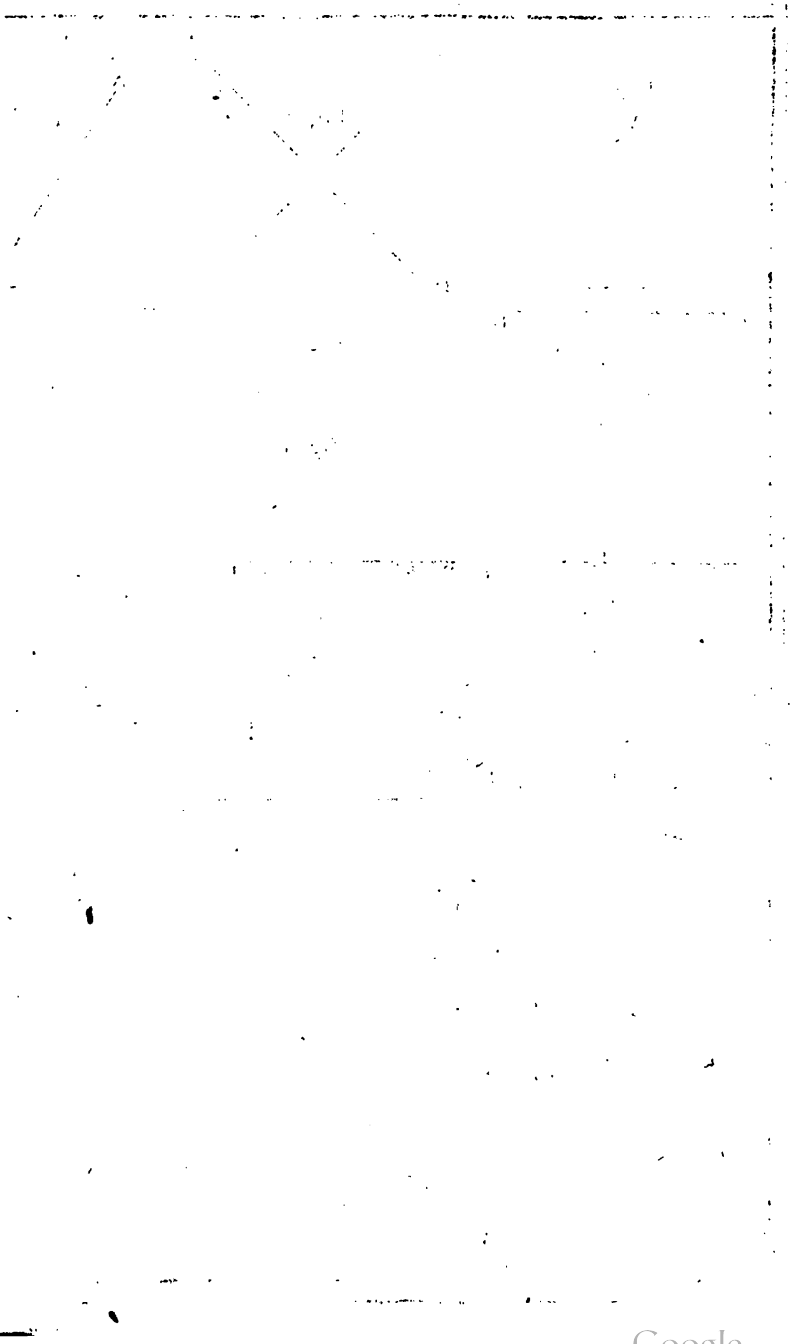


Fig. 9.

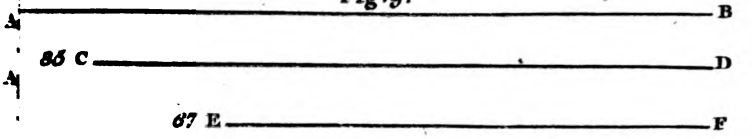


Fig. 10.

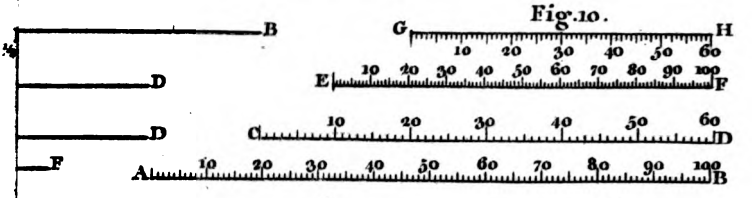
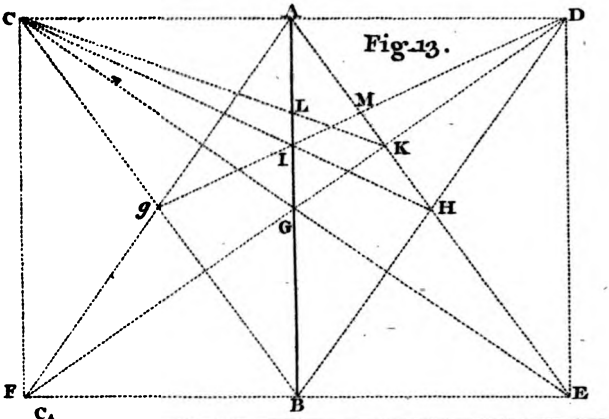
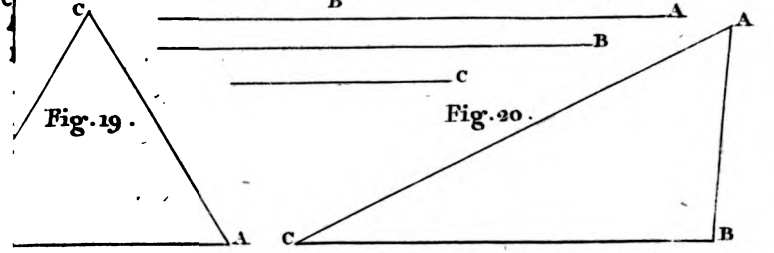


Fig. 13.





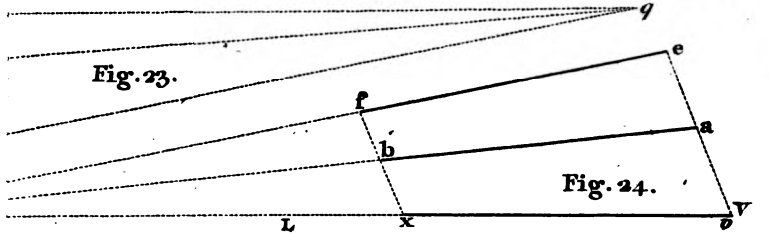
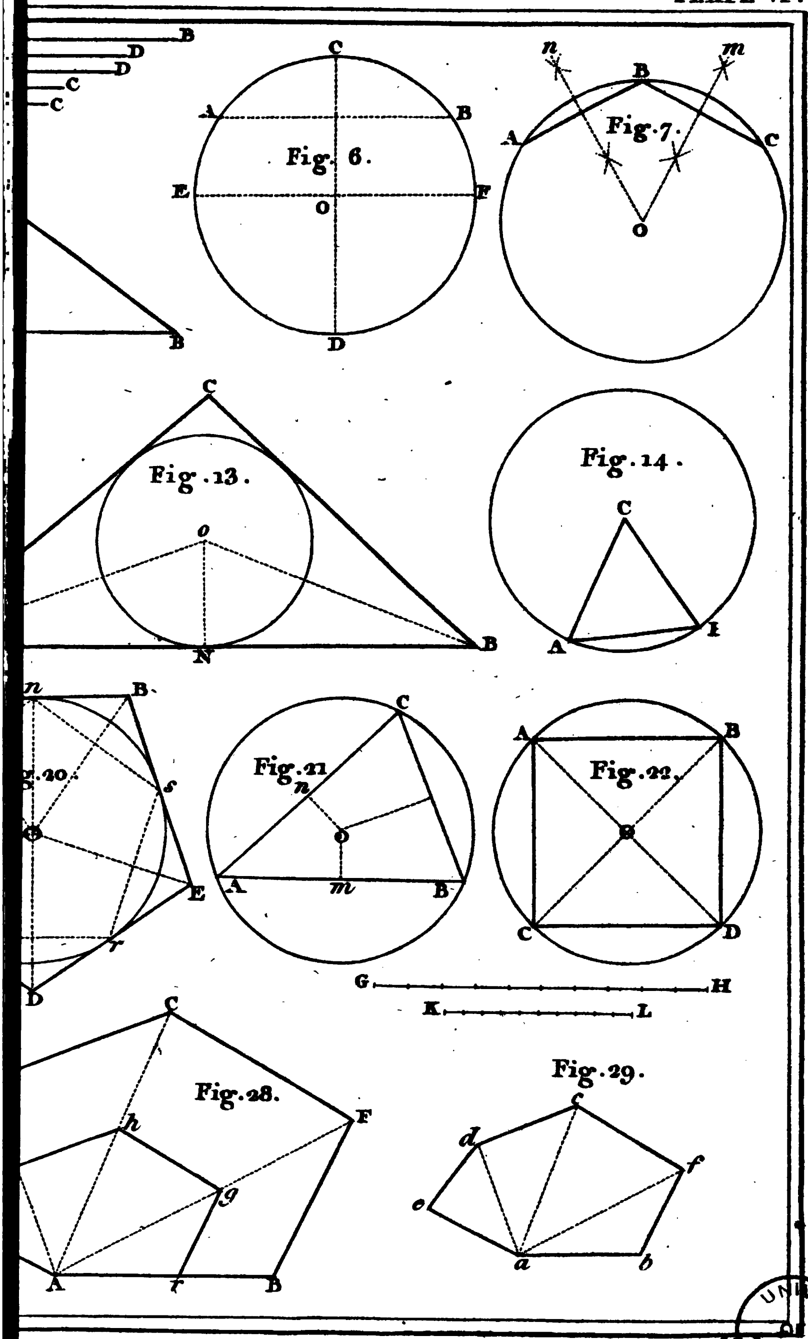
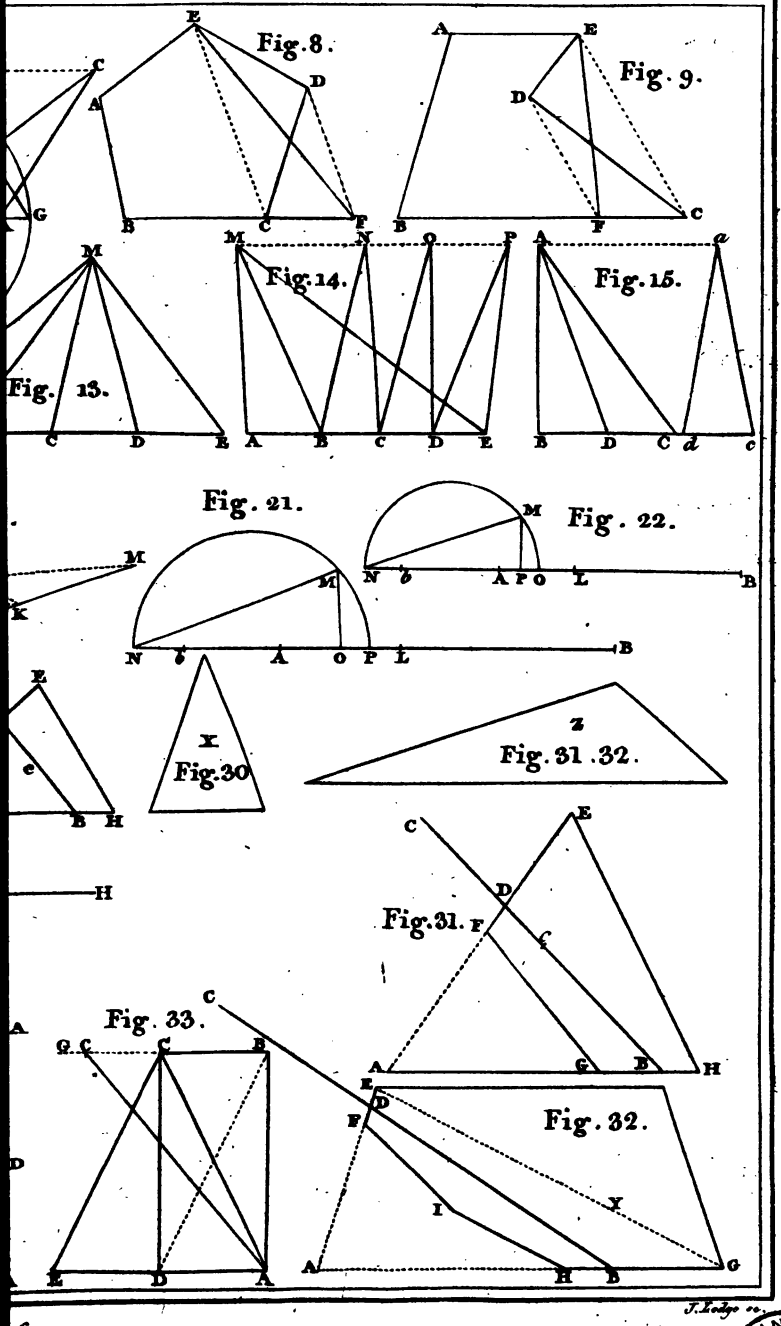


PLATE VI.



J. Lodge sc.



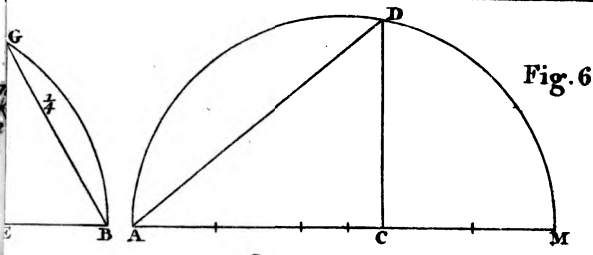


Fig. 6.

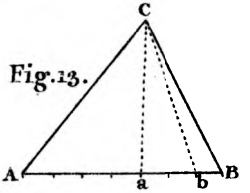


Fig. 13.

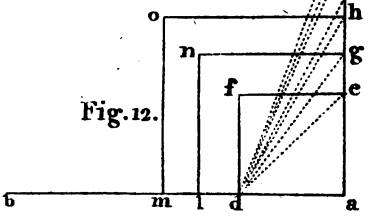
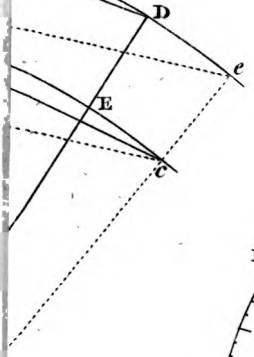


Fig. 12.



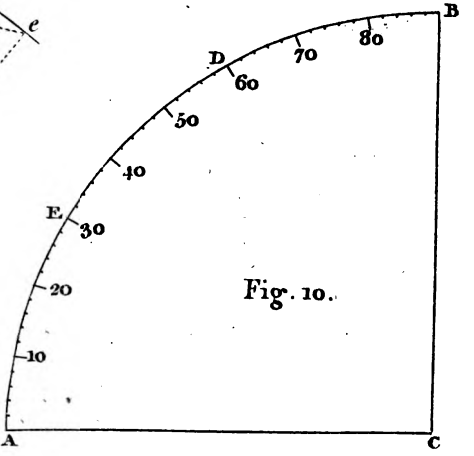
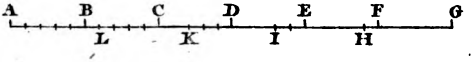


Fig. 10.



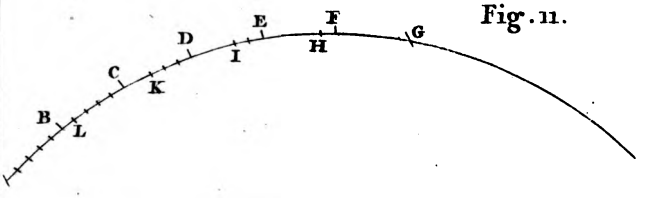
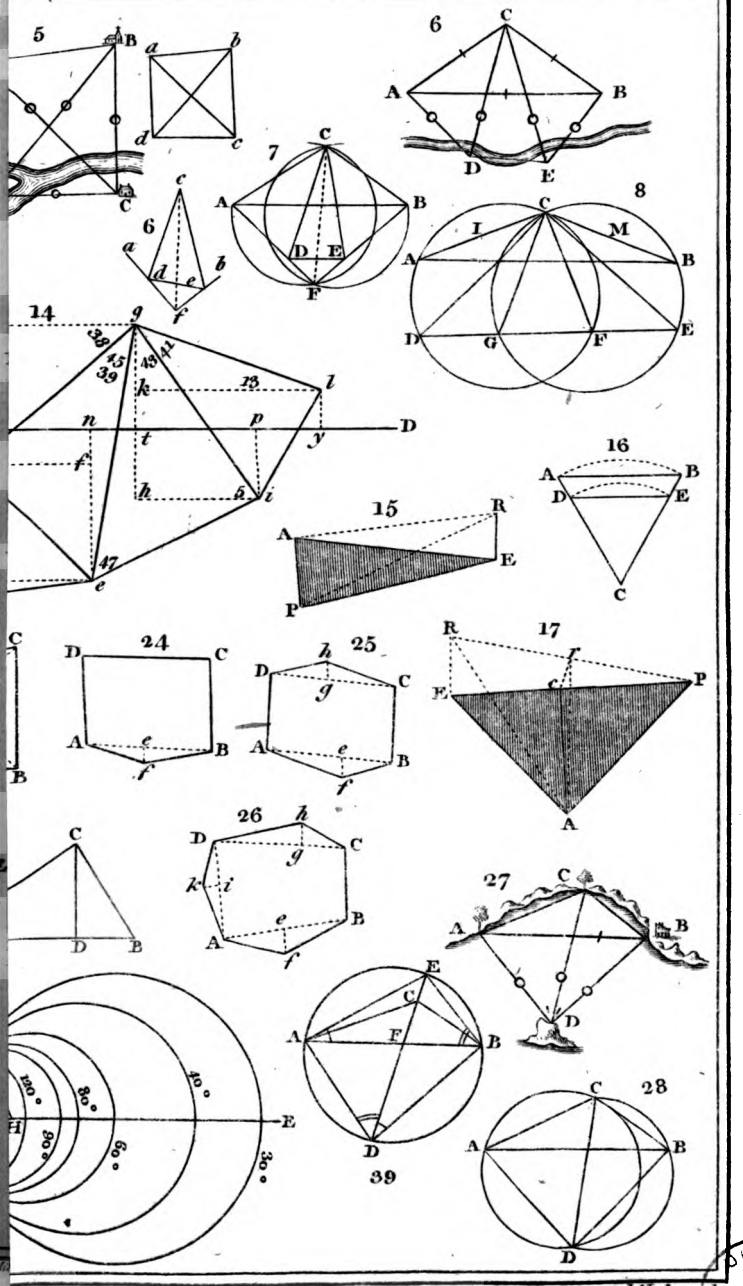


Fig. 11.



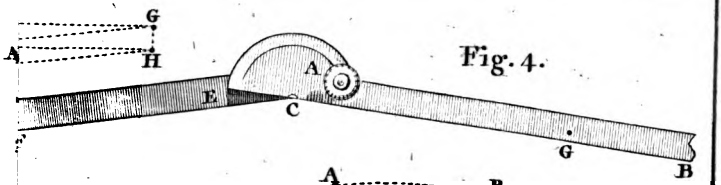


Fig. 4.

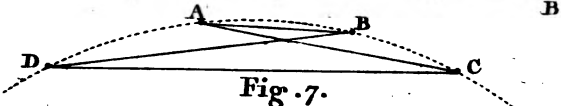


Fig. 7.

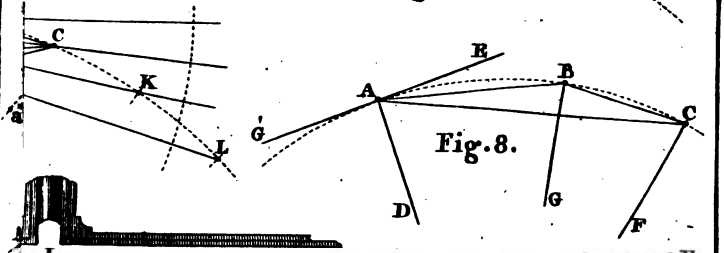


Fig. 8.

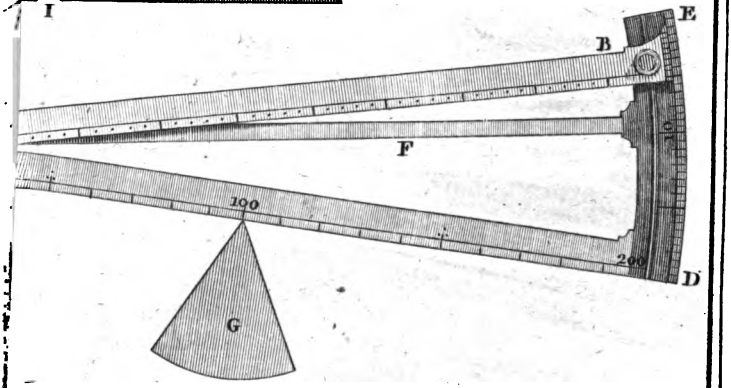
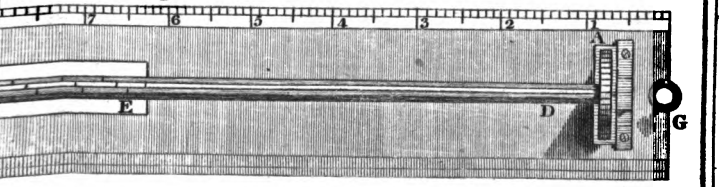


Fig. 17.

Fig. 18.



Jn.° Lodge sculp.

Fig. 3.

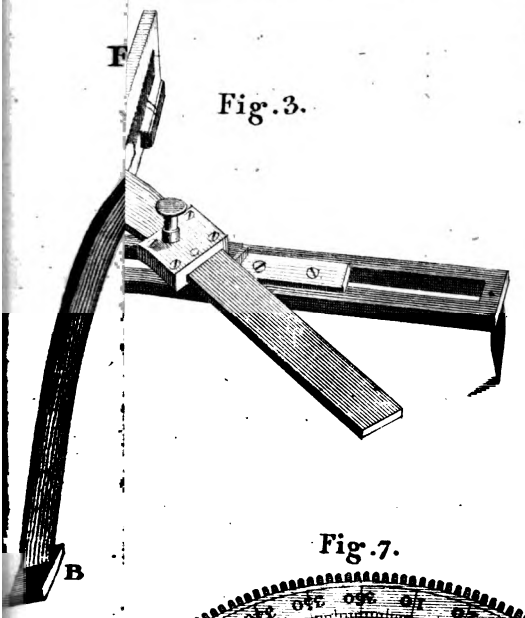


Fig. 4.

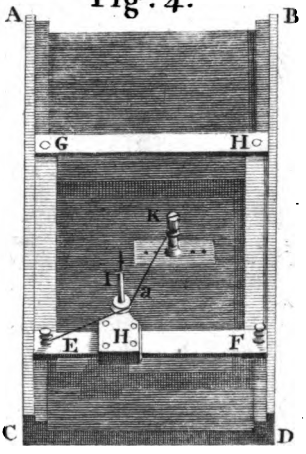


Fig. 7.

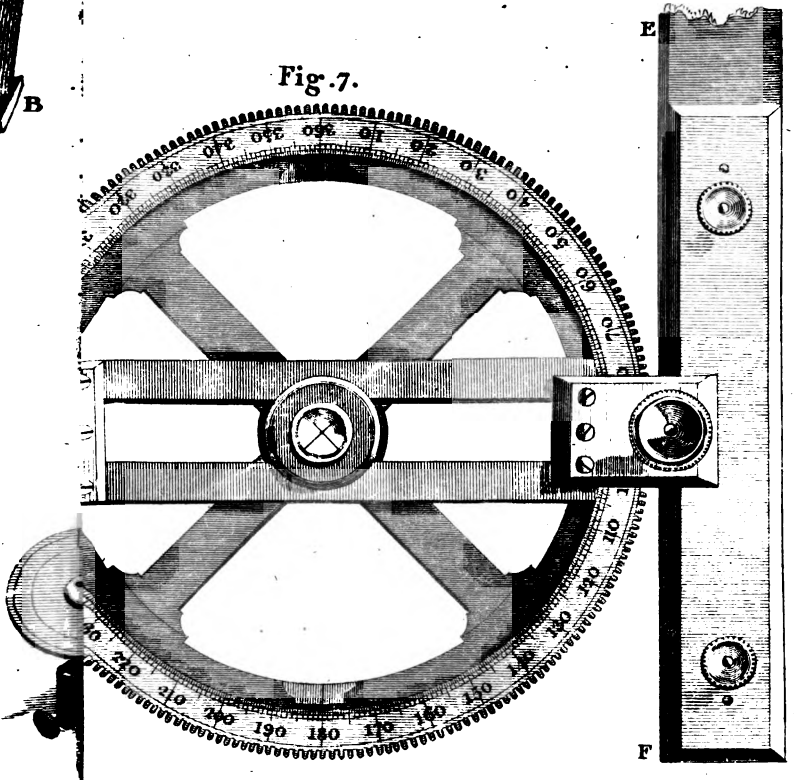
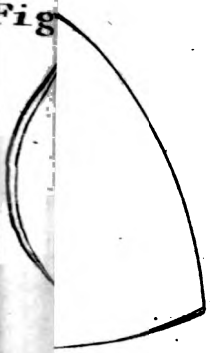
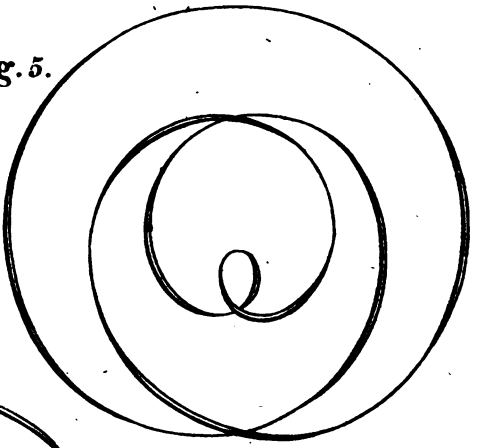


Fig.

Fig. 5.





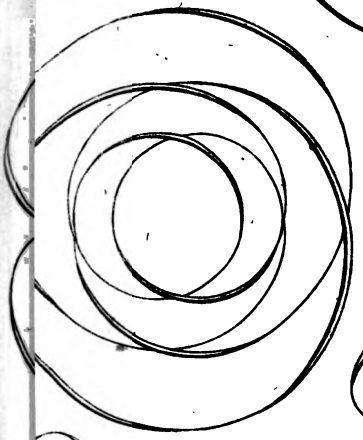


Fig. 6.

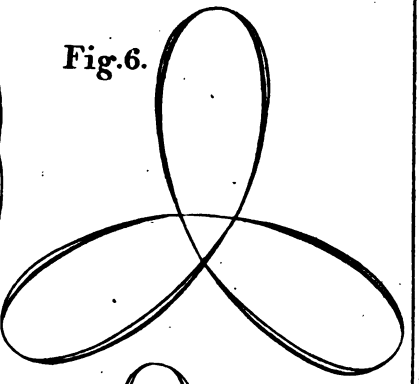
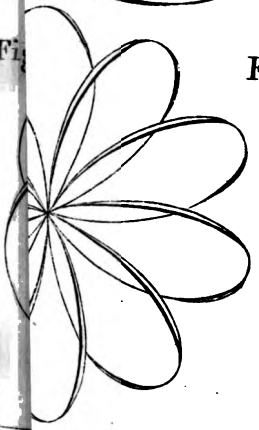
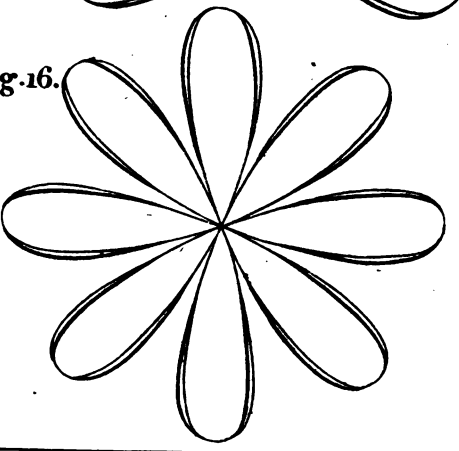
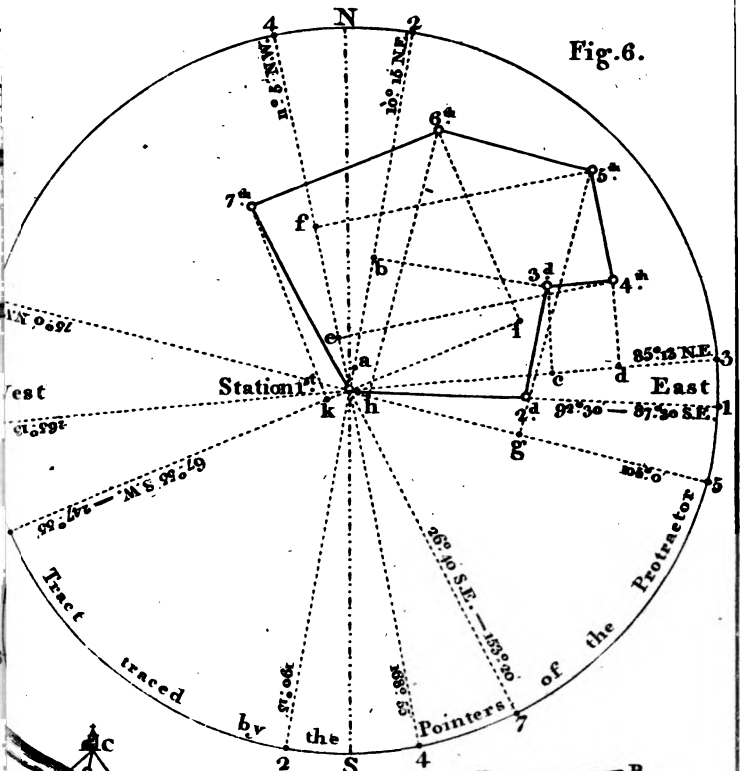


Fig.

Fig. 16.







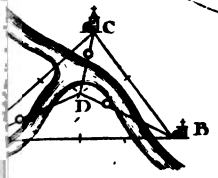
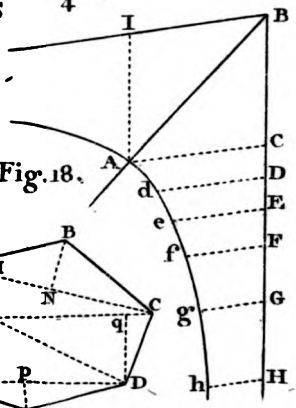
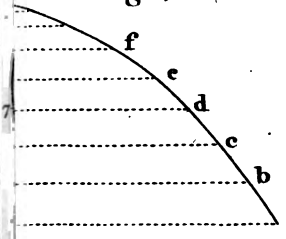


Fig.17.





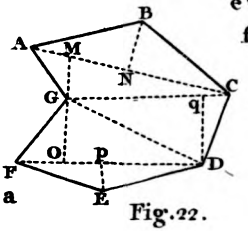


Fig.22.

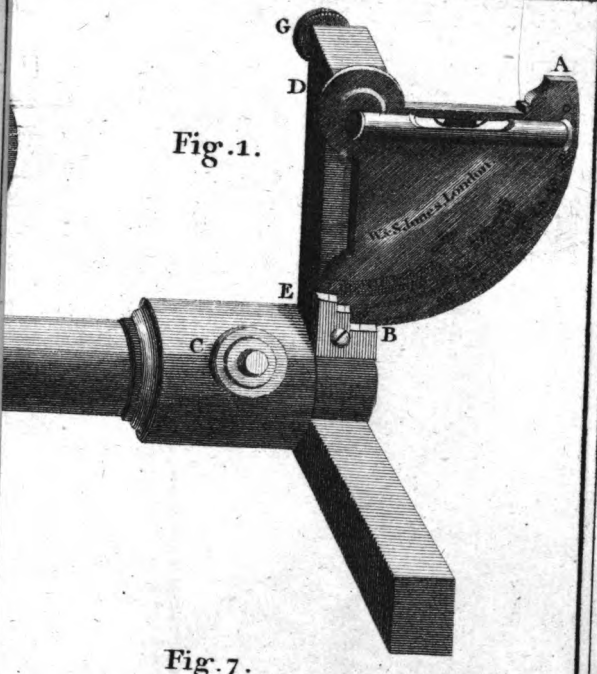


Fig. 1.

Fig. 7.

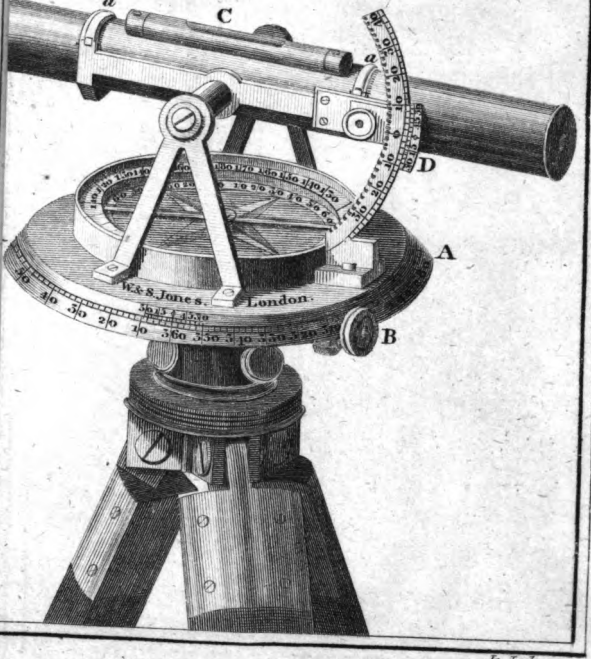


Fig.3.

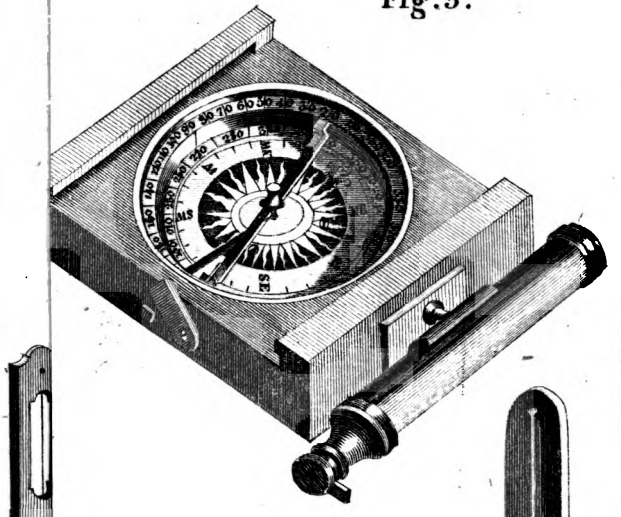


Fig.1.

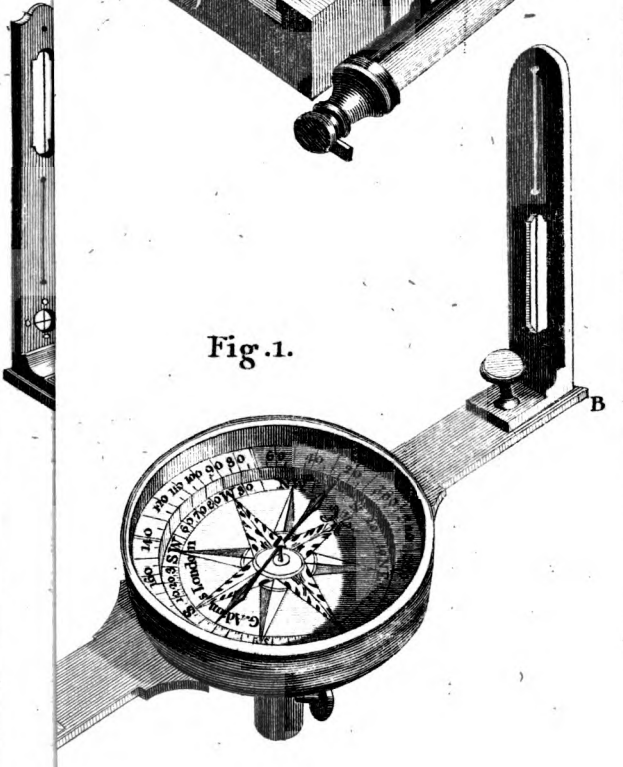
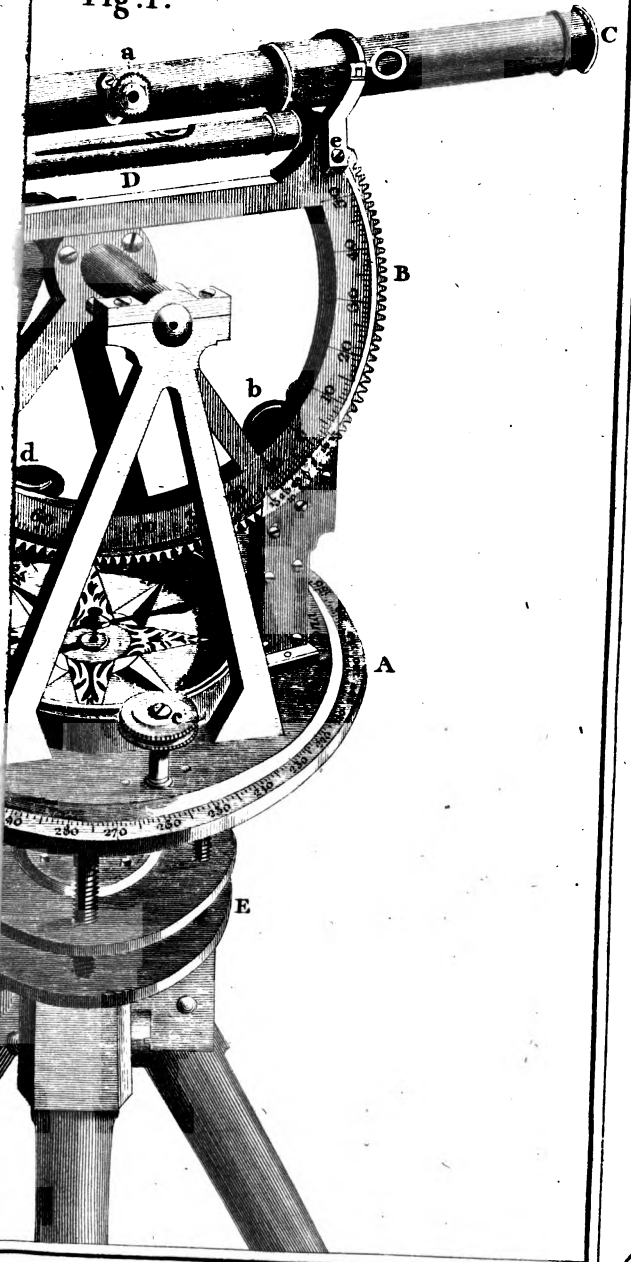


Fig. 1.



T. Milne
Jn.r Lodge sc.

Fig. 2.

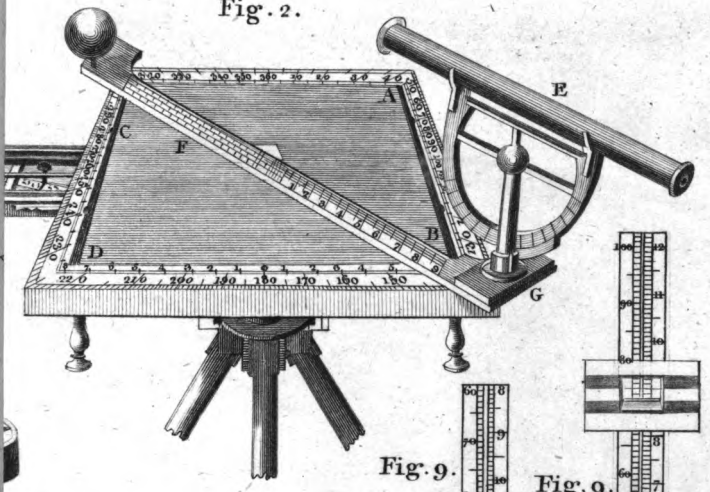


Fig. 9.

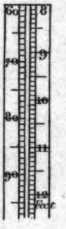


Fig. 9.

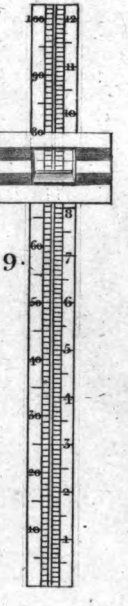


Fig. 5.

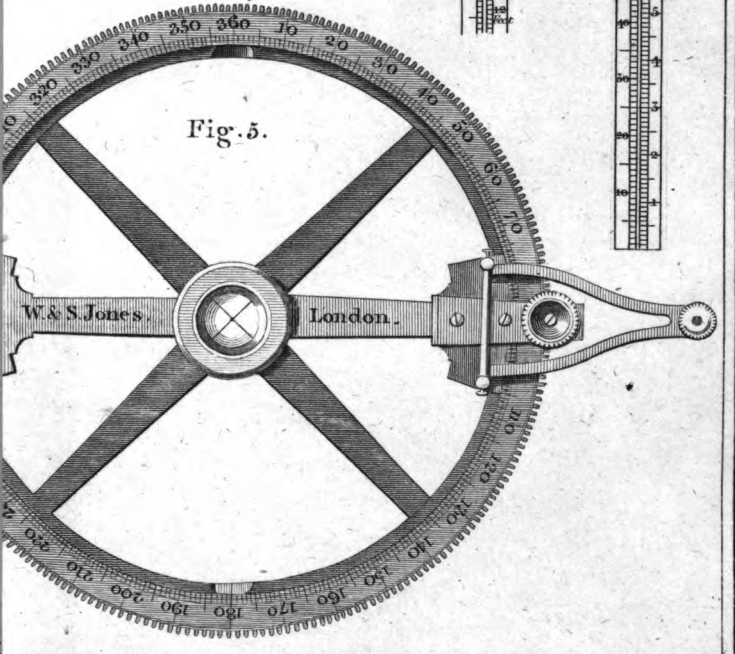
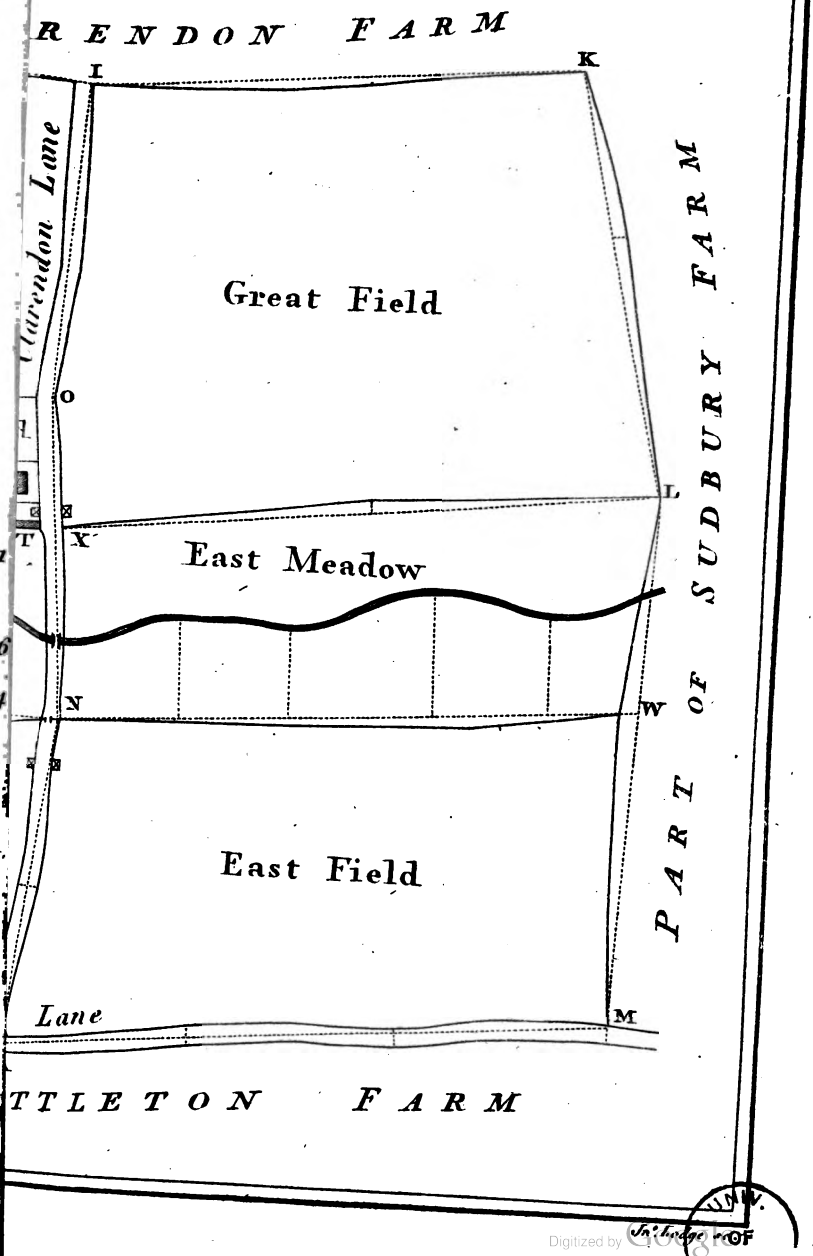
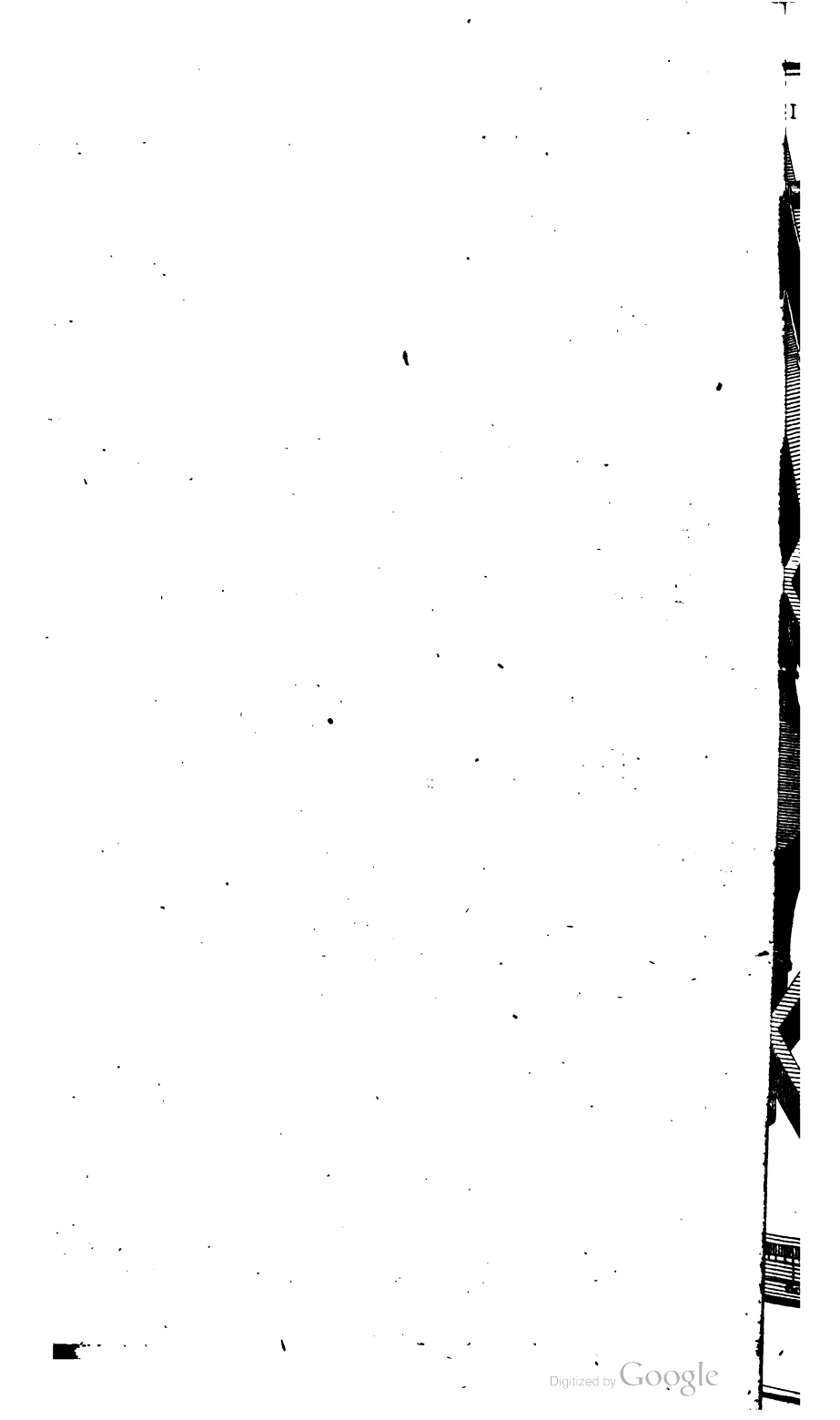


Fig. 5.





I

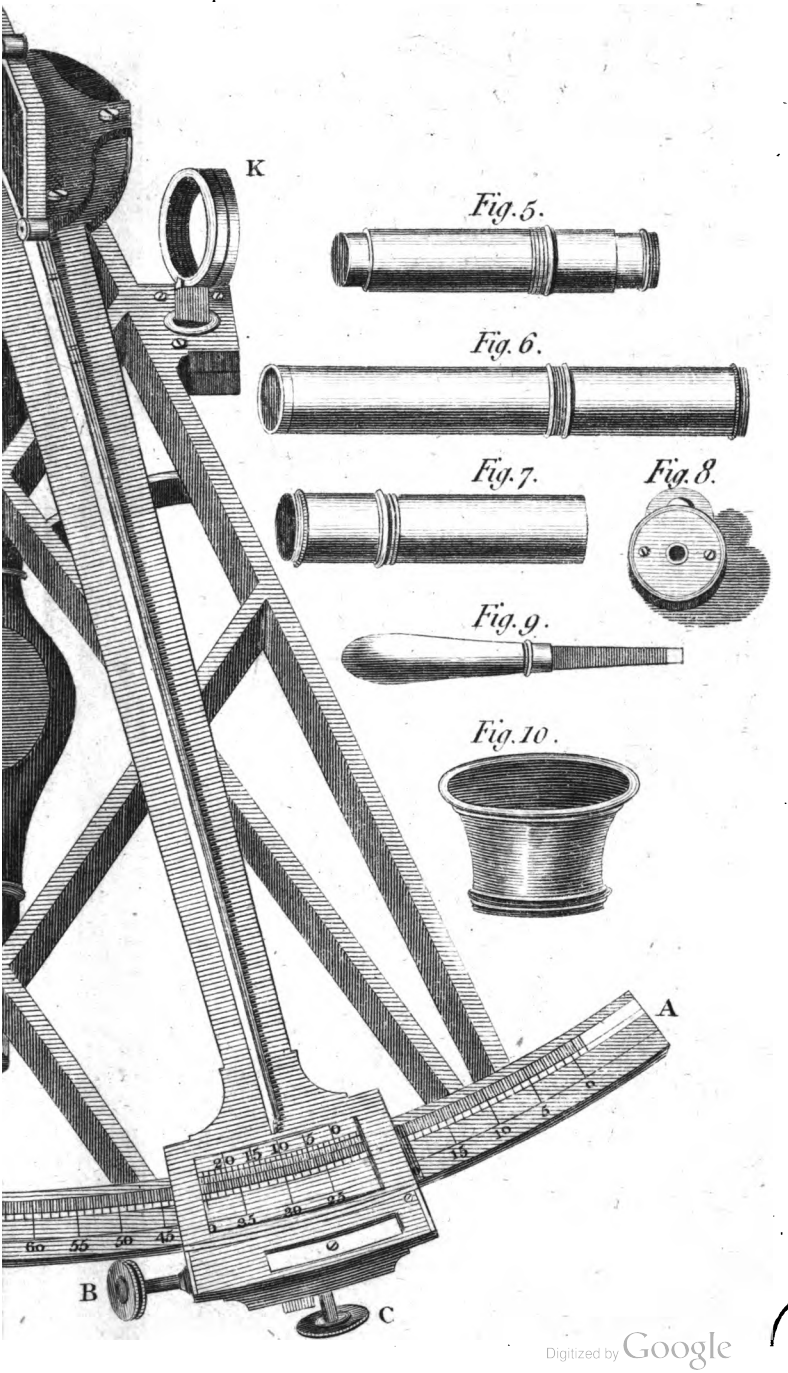
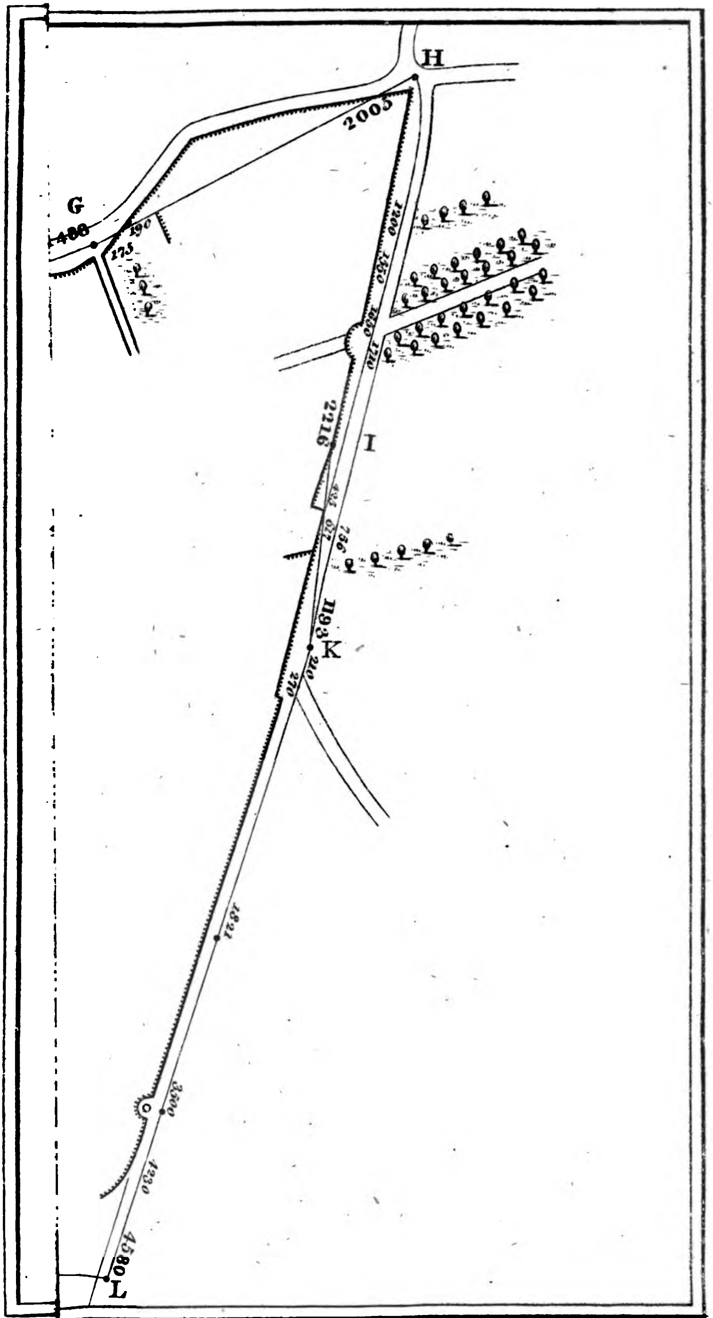


PLATE XX.



Jnº Lodge sc.

PLATE XXI.

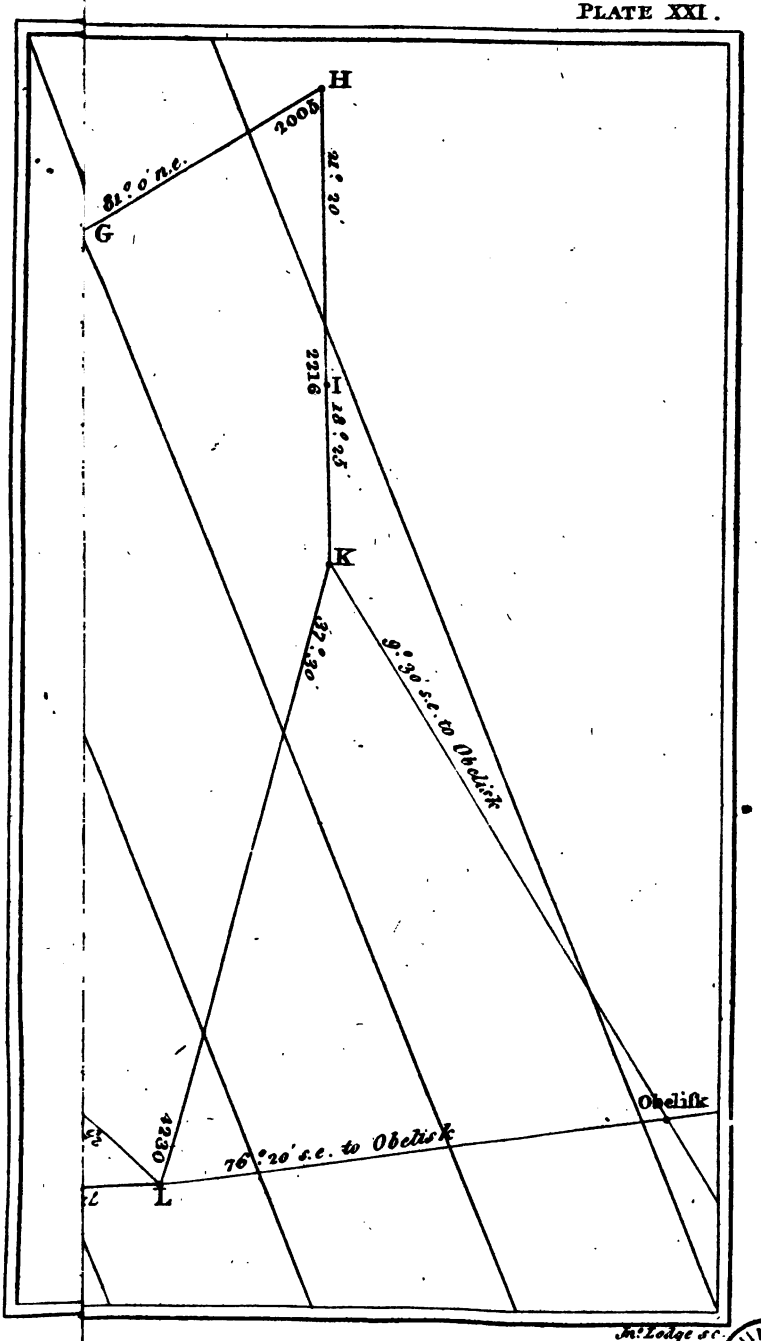


PLATE XXII.

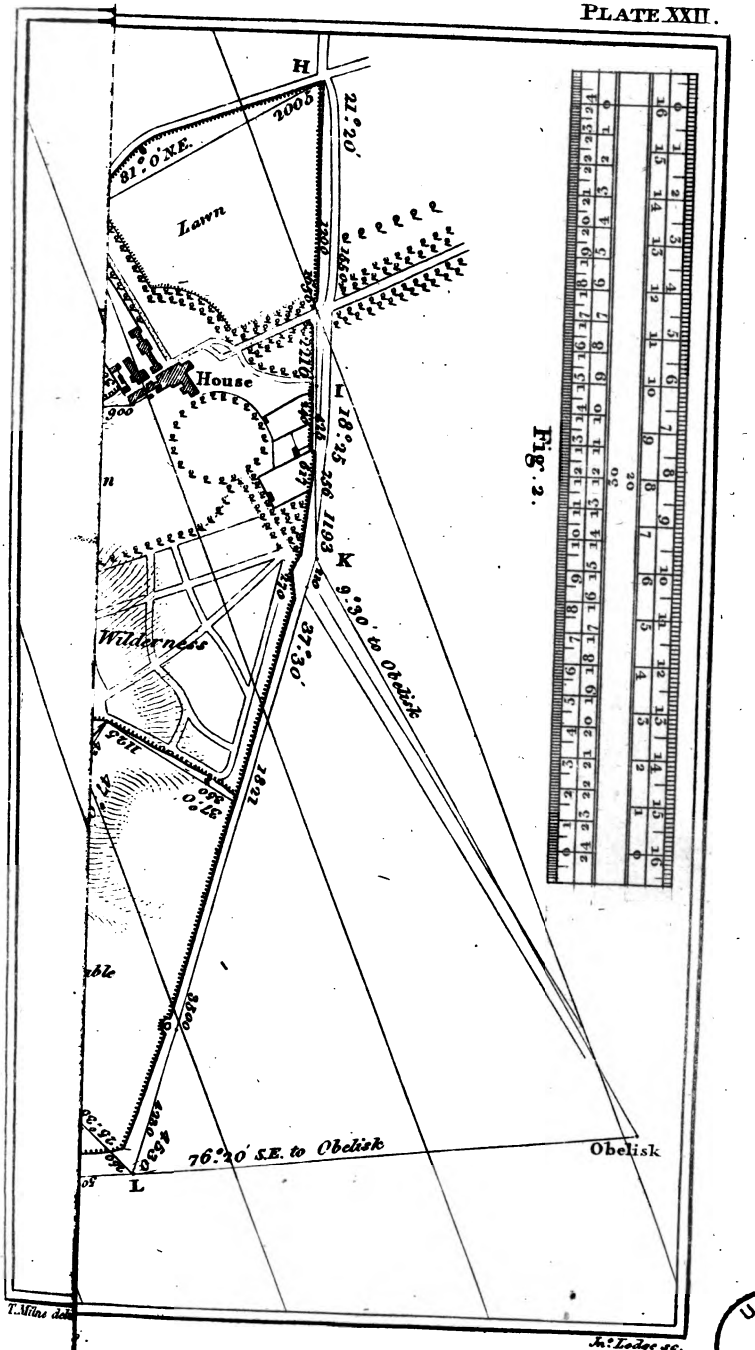
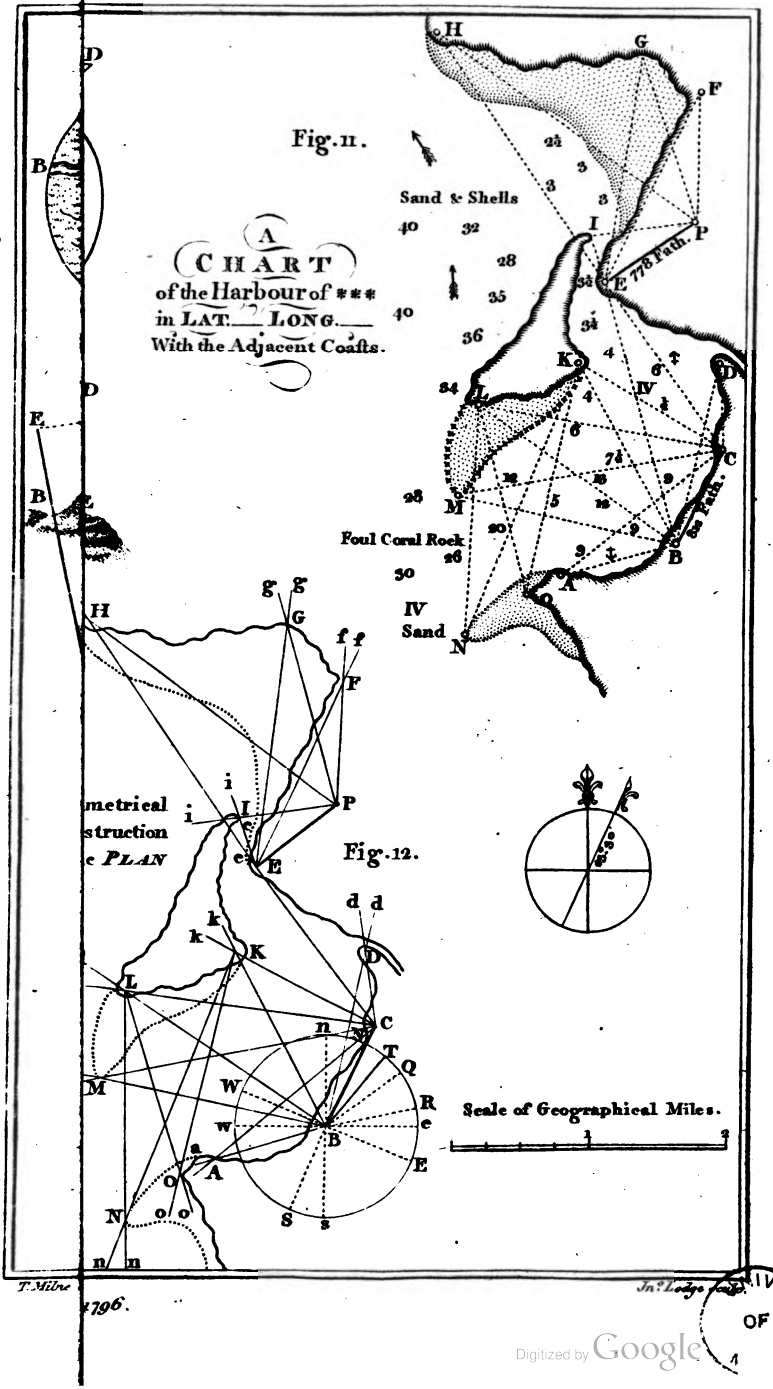
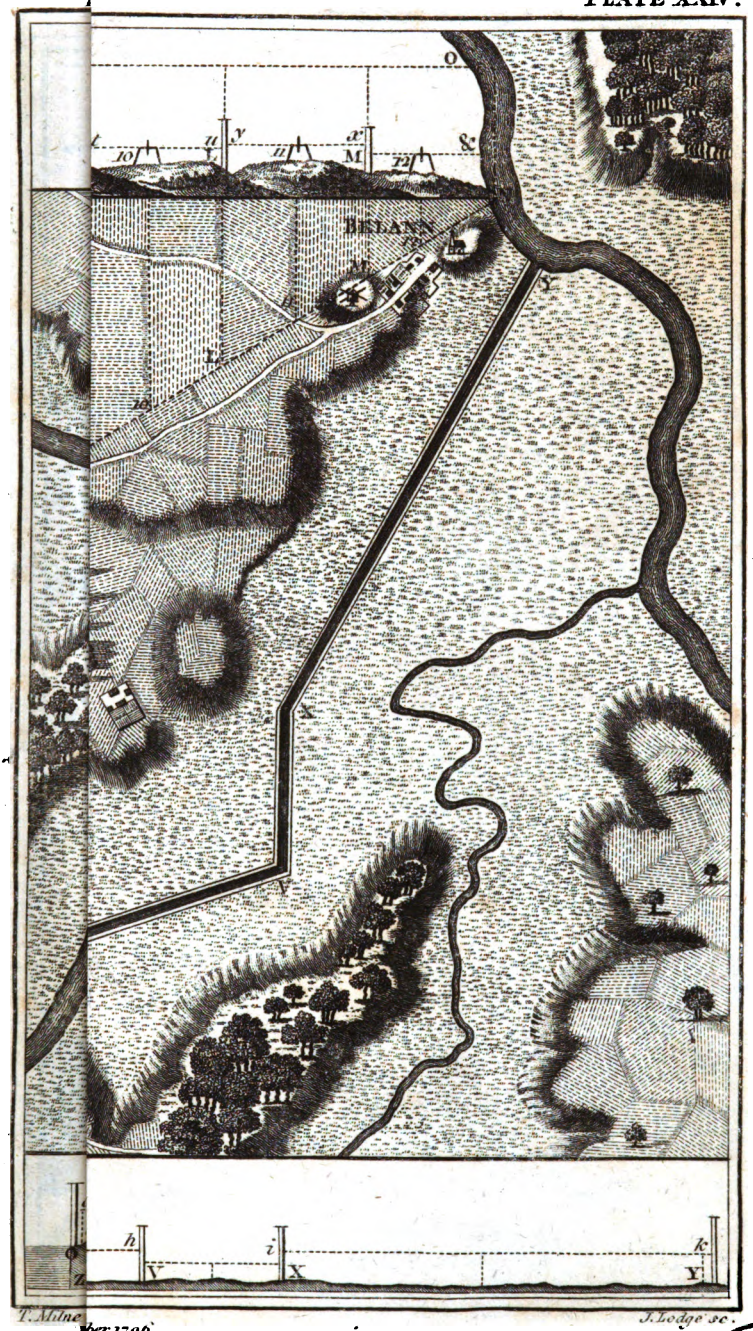


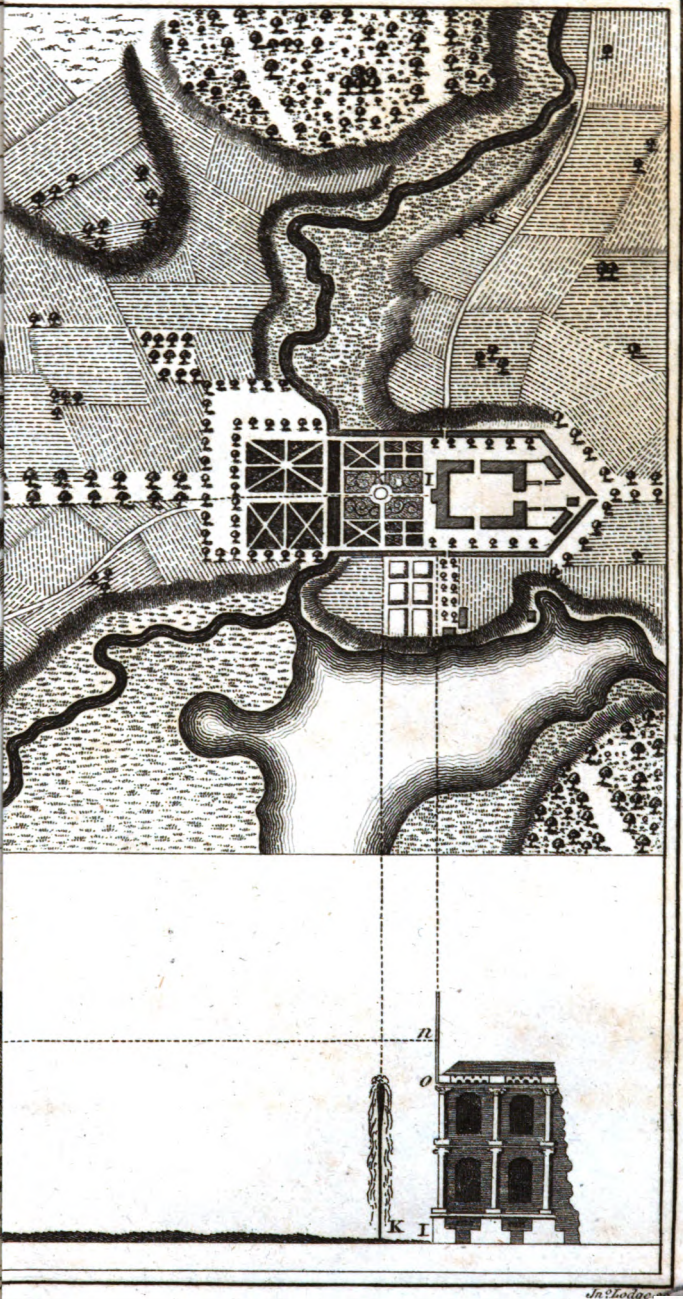
Fig. 2.





T. Milne ber 1790

J. Lodge sc.

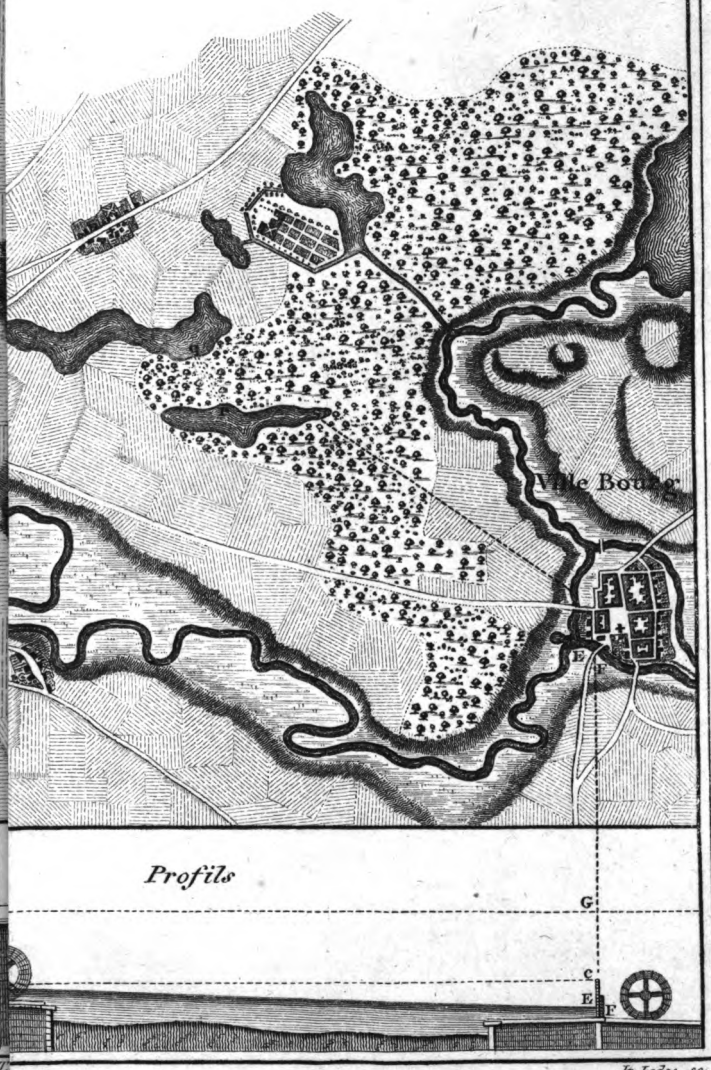


T. Milne

1791.

Jn. Lodge.

g. 1.



T...

1791.

Jn. Lodge sc.

Fig. 4.

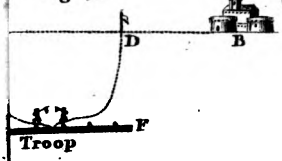


Fig. 5.

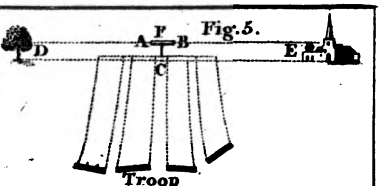


Fig. 22.

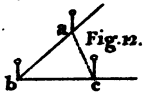


Fig. 23.

Fig. 19.

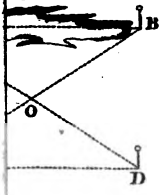


Fig. 20.

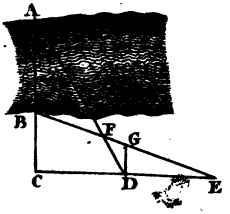


Fig. 21.

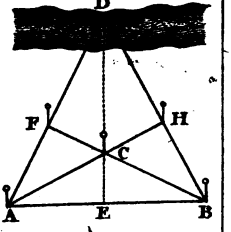
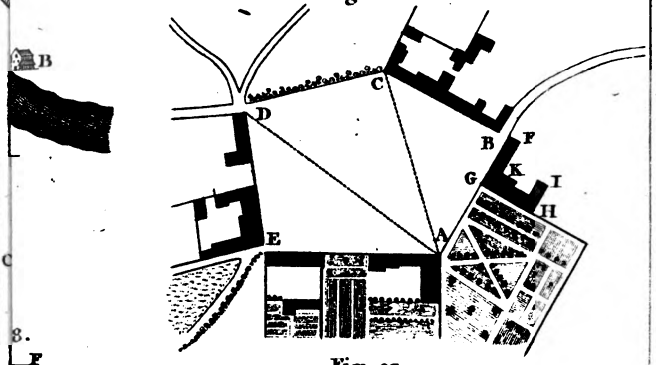


Fig. 26.



8.

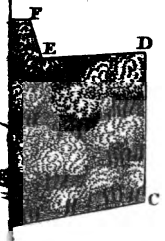


Fig. 27.

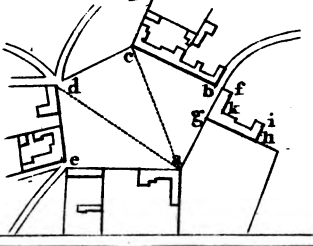


Fig. 40.

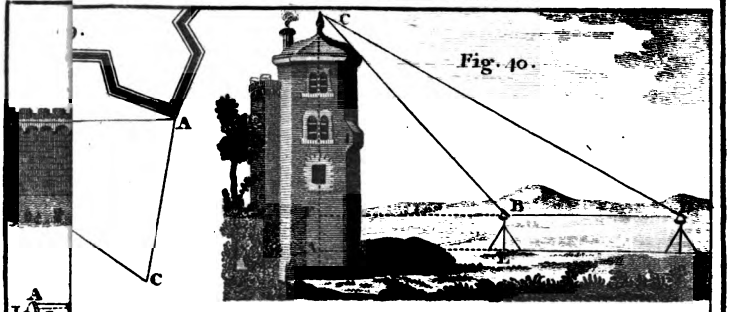


Fig. 43.

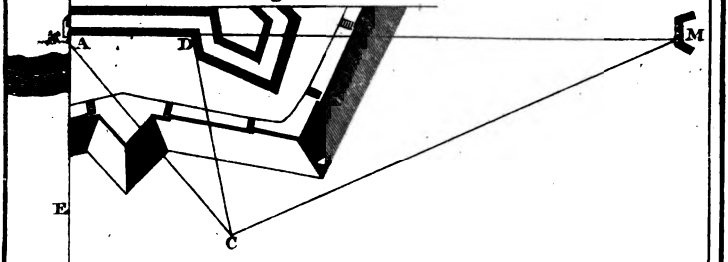


Fig. 46.

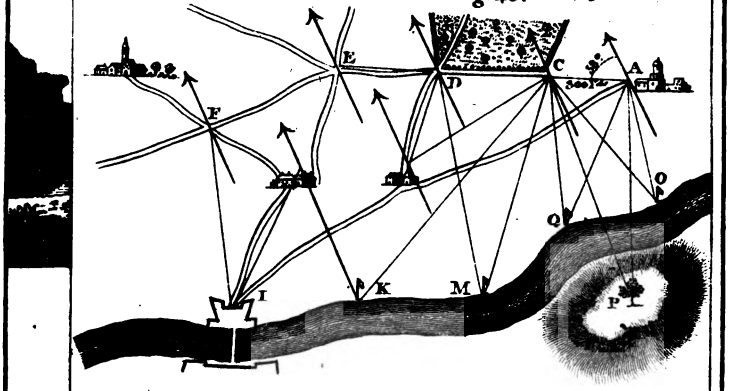
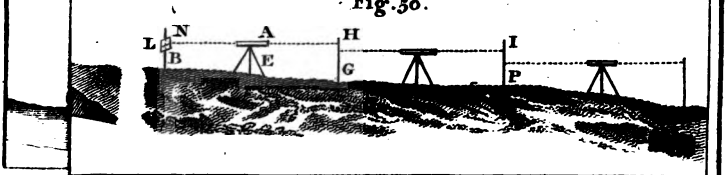
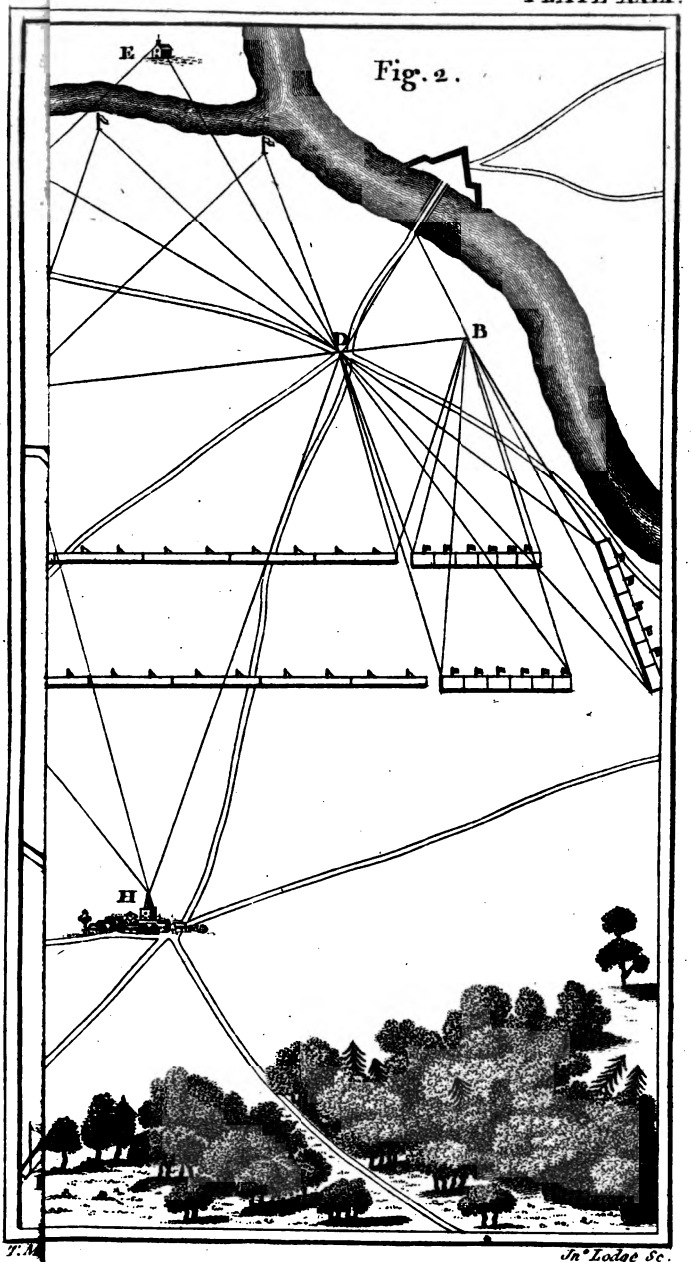


Fig. 50.



T. Milne

J. Lodge sc.



T. M. Jn° Lodge Sc.

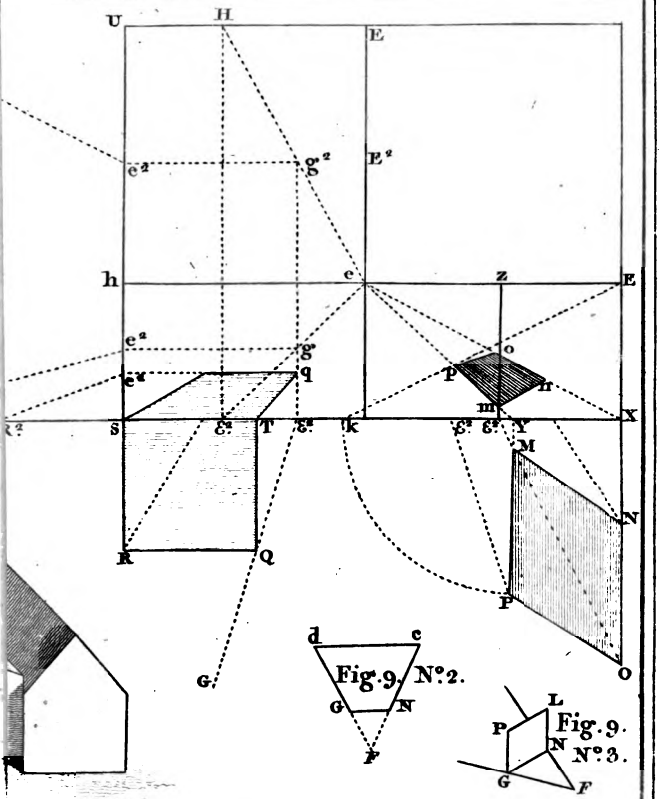


Fig. 9. N°. 2.

Fig. 9. N°. 3.

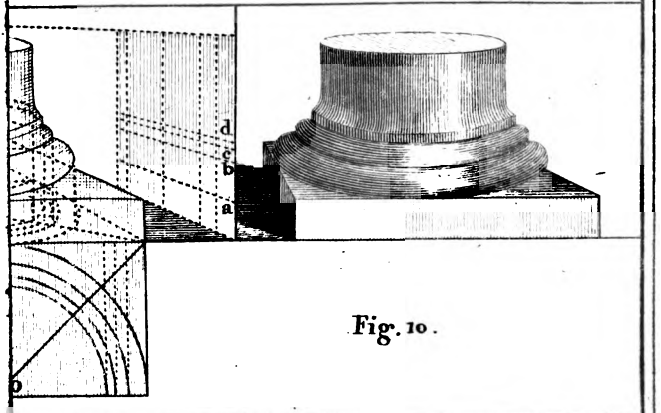


Fig. 10.

J.T. Ledger sculp.

Fig. 20.

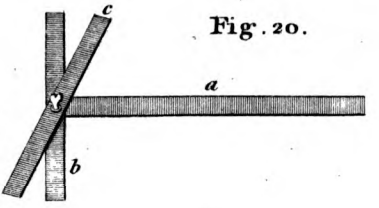


Fig. 19.

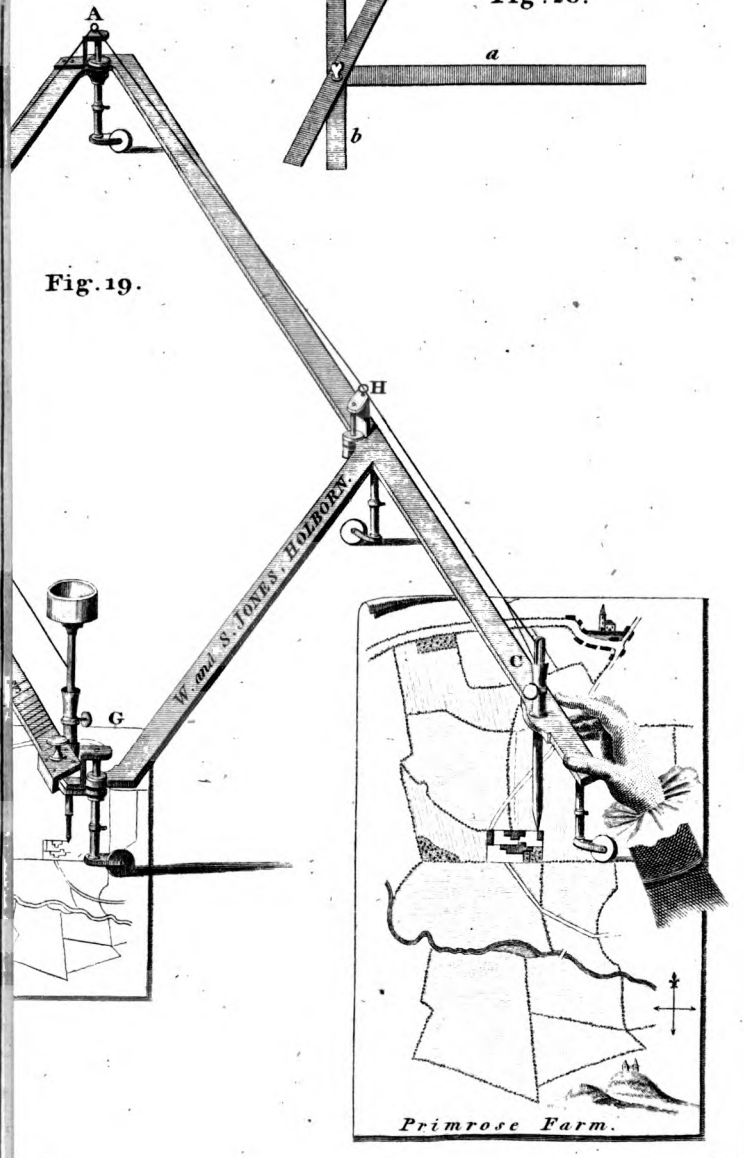


Fig. 20.

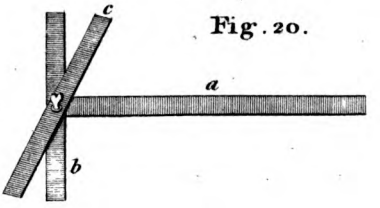
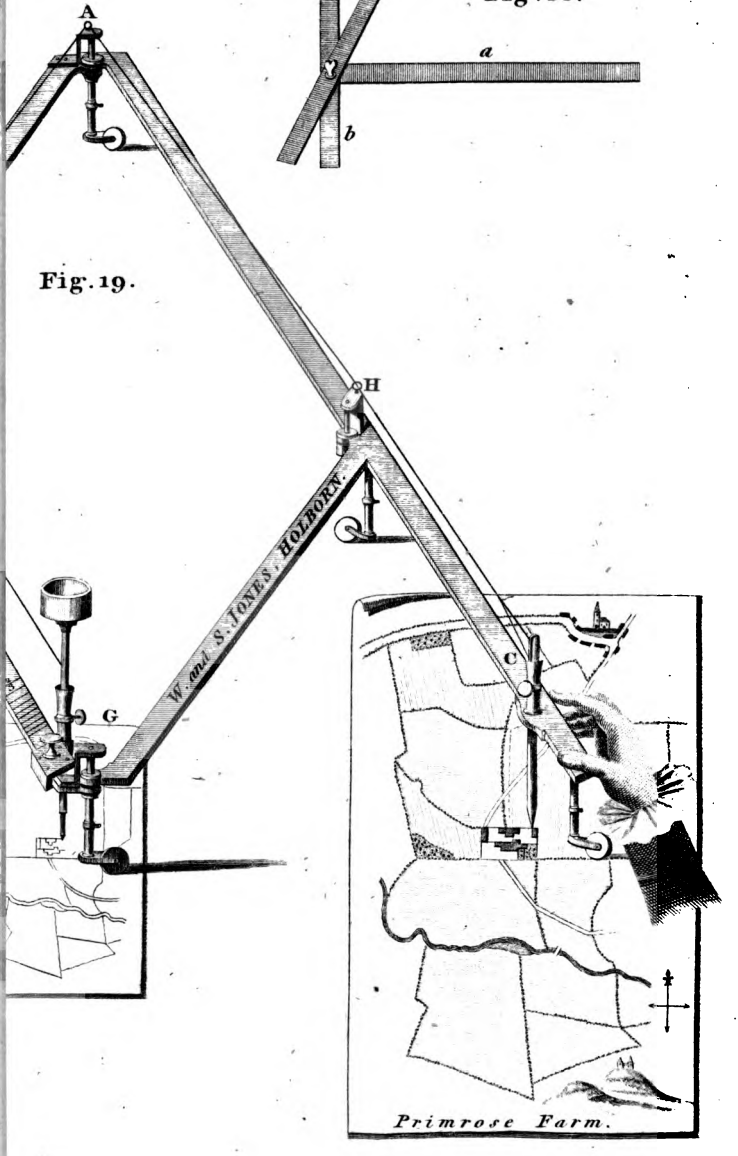
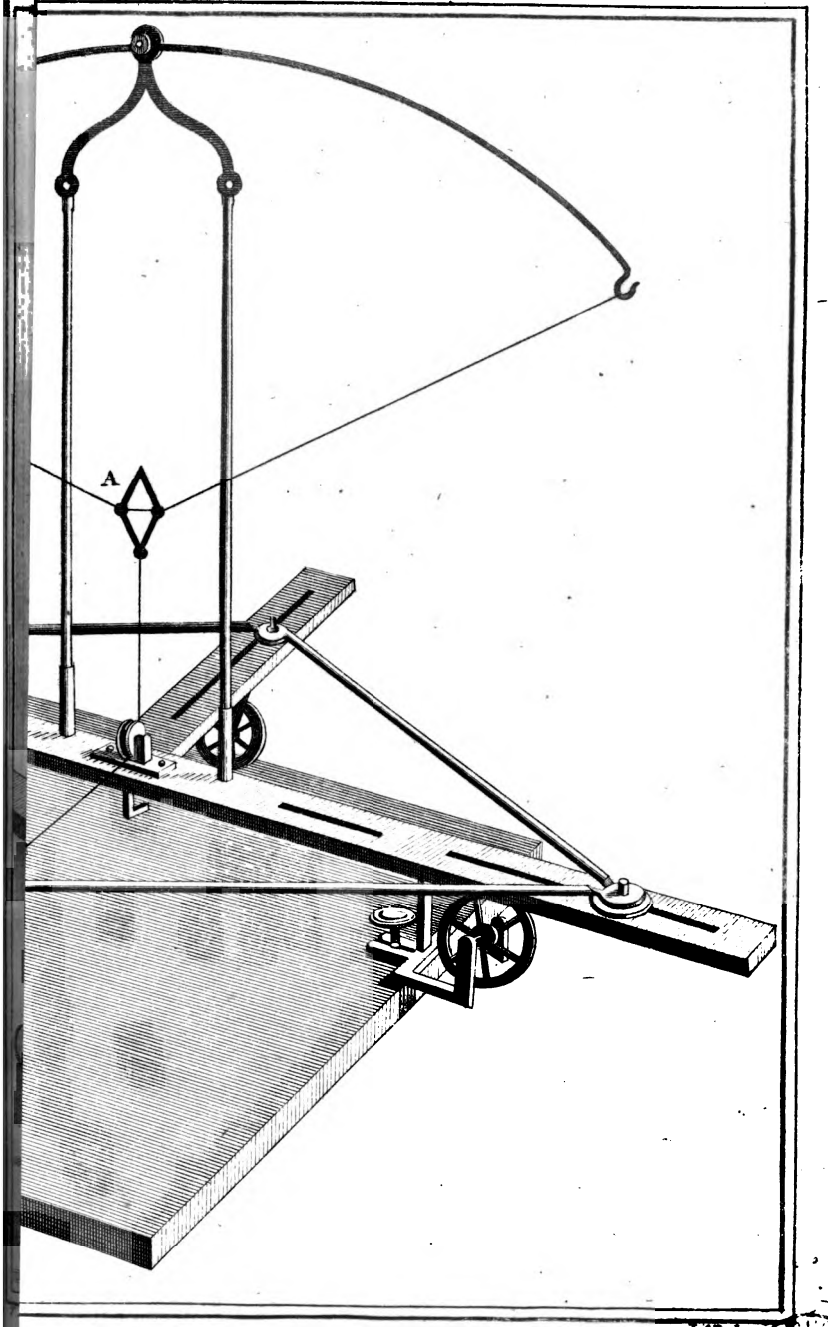


Fig. 19.



Primrose Farm.



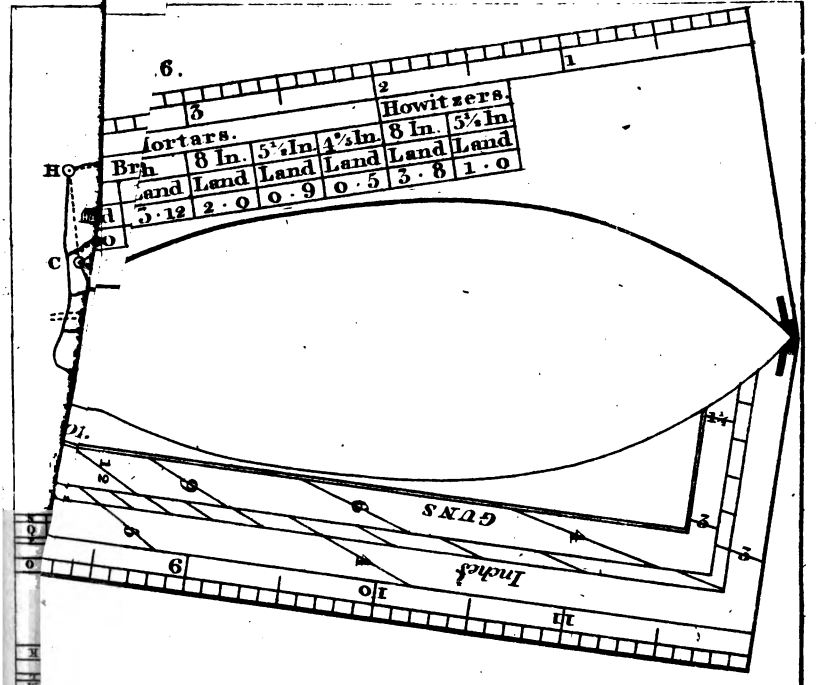
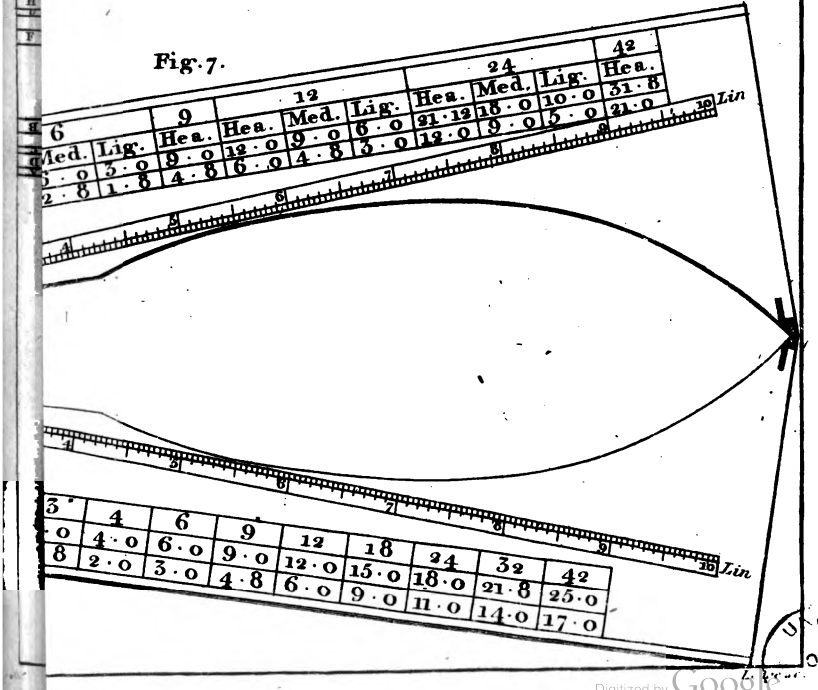
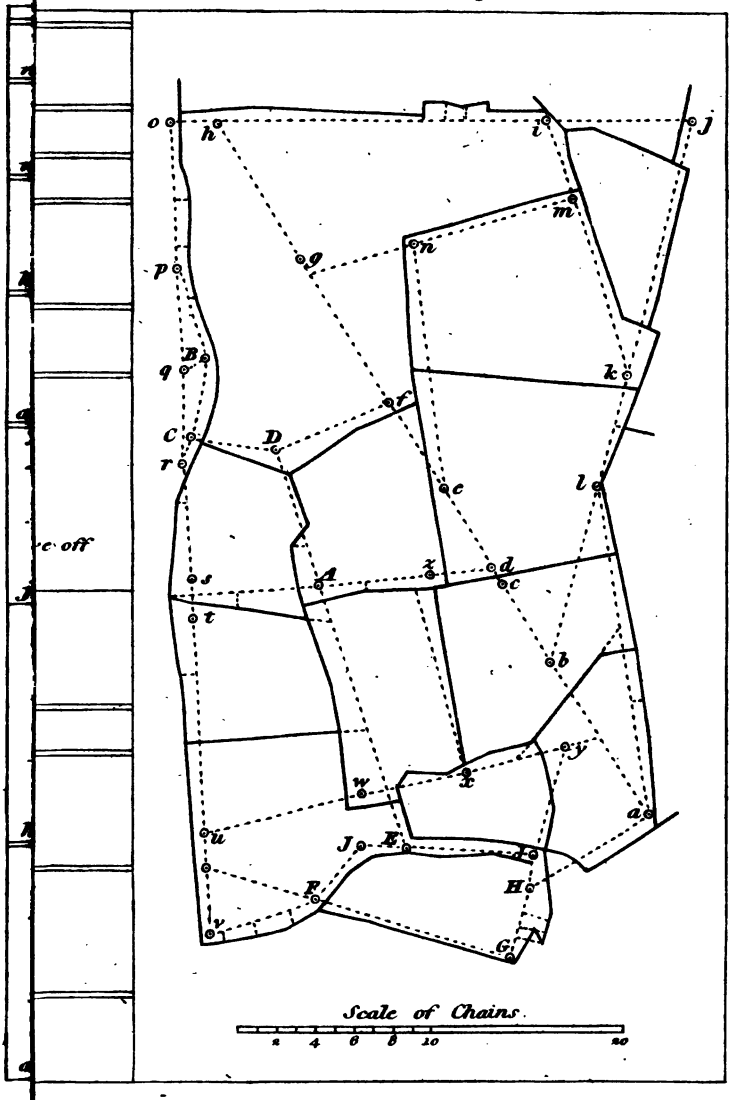


Fig. 7.



Plan from the foregoing Field Book.



A

CATALOGUE

OF

Optical, Mathematical, and Philosophical Instruments,

MADE AND SOLD BY

W. AND S. JONES,

[No. 30,]

LOWER HOLBORN, LONDON,

(Removed from their old Shop, No. 135, next to Furnival's Inn.)

OPTICAL INSTRUMENTS.	£.	s.	d.
BEST double-jointed standard gold spectacles, with pebbles, and fish-skin gold-mounted case	16	16	0
Ditto, single-jointed, with ditto case	10	10	0
Best double-jointed silver ditto, with pebbles	1	16	0
Ditto, ditto, with glasses	1	1	0
Best single-jointed, with pebbles	1	8	0
Ditto, with glasses	0	13	0
Best double-jointed steel ditto, with glasses	0	9	0
Second best double-jointed steel spectacles, with spring case	0	7	6
Common ditto	0	4	6
Best single-jointed steel spectacles, with fish-skin case	0	5	6
Second best ditto	0	2	6
Common ditto	0	1	6
Tortoiseshell spectacles, silver-jointed, with pointed and other shaped sides, peculiar for their lightness and uninterruption of dressed hair, in morocco leather cases	0	10	6
Ditto, double-jointed frames	0	15	0
Spectacles for eyes that have been couched	0	7	6
Ditto, with green glasses for very weak and inflamed eyes, according to the frames, from 6*s.* to	1	1	0
Ditto, for the same purpose, with new contrived portable shades to screen the eyes from candle, or other light	0	15	0
Nose spectacles in silver	0	7	6
Ditto, in tortoiseshell and silver	0	4	6
Spectacle cases in great variety, from 2*d.* each to	3	3	0
Concave glasses for short-sighted persons, in horn cases	0	1	6
Ditto, in tortoiseshell, pearl, silver, &c. from 2*s.* 6*d.* to	2	2	0
Ditto in new contrived frames for shooting caps	0	16	0
Reading and burning glasses in various mountings, from 3*s.* to	1	16	0
Convex glasses for watch-makers, engravers, &c. from 1 to	0	10	6
Gogglers, to guard the eyes from the dust or wind	0	2	6
New green light shades for the eyes	0	6	6

Printed by W. Glendinning, 25, Hatton Garden, 1803.

	£.	s.	d.
Opera glasses in great variety of mountings, from 5*s*. 6*d*. to	2	12	6
Ditto on an improved construction of glasses, plain mounting	1	1	0
REFRACTING TELESCOPES of various lengths, 10*s*. 6*d*. to	1	18	0
Two feet day and night best achromatic telescopes....	3	13	6
Achromatic stick telescopes, of various lengths, from 18*s*. to	4	0	0
The new improved one-foot ditto, with three sliding brass tubes, by which an instantaneous view of the object is obtained, and shuts up to a short length for the pocket..	1	11	6
Second best two drawers ditto	1	1	0
Twenty inch best three-drawers ditto	2	12	6
Two feet best three-drawers ditto	3	13	6
Three feet best four-drawers ditto	6	6	0
Four feet five-drawer best ditto.....	8	8	0
The preceding telescopes fitted up elegantly with silver or plated tubes, from 2*l*. 2*s*. to	21	0	0
Astronomical eye-pieces, and portable brass stands for the above, from 10*s*. 6*d*. to	2	12	6
The new improved 2½ feet achromatic refractor, on a brass stand, mahogany tube, with two sets of eye-glasses, one magnifying about forty times for terrestrial objects, and the other about seventy-five times for astronomical purposes, packed in a mahogany case	10	10	0
Ditto, ditto, the tube all brass, with three eye-pieces.....	11	11	0
The 3¼ feet ditto, ditto, mahogany tube	17	17	0
Ditto, ditto, brass tube	19	19	0
Ditto all in brass, with rack-work motions, &c. 26*l*. 5*s*. to	36	15	0
Achromatic perspective glasses for the pocket, in brass, &c. tubes, with a change of eye-glasses, from 12*s*. to	3	3	0
New improved ditto, answering the purpose of an opera glass, with a compass and helioscope for viewing the sun, from 1*l*. 3*s*. to	2	2	0
New improved achromatic pocket telescope, which, by a small apparatus within its tubes, is readily converted into a small compound microscope	3	13	6
An improved portable 7-inch achromatic telescope in brass, with a stand that packs up into the tube of the telescope, adapted for astronomical uses	3	13	6
REFLECTING TELESCOPES, fitted up either upon the *Gregorian*, *Newtonian*, or *Herschelian* principles, with improved wood or metal stands, and other apparatus, for making celestial observations in the most commodious and accurate manner.—The general prices are as follow:			
—Fifteen feet in length, the large metal fifteen inches in diameter, from 250*l*. to	500	0	0
—Twelve feet in length, fourteen inch metal	200	0	0
—Ten feet in length, twelve inch metal.....	150	0	0
—Eight feet in length, eleven inch metal	140	0	0
—Six feet in length, nine inch metal.....	100	0	0
—Four feet in length, in brass tubes, with portable brass or mahogany framed stands, from 40*l*. to	100	0	0

Those reflectors that are constructed upon the principles of Newton *or* Herschel, *are about twice the above lengths in the tubes. The reflectors upon the usual Gregorian construction are made with the vertical motion*

upon a new principle, so as to render them more firm and steady while in use, than any reflectors mounted in the common manner.

	£.	s.	d.
A four feet 7-inch aperture Gregorian reflector, with the vertical motion upon a new-invented principle, as well as apparatus to render the tube more steady in observation; according to the additional apparatus of small speculums, eye-pieces, micrometers, &c. from 80*l.* to....	100	0	0
Three feet long, mounted on a brass stand, common mounting.....	23	2	0
Ditto with rack-work motions, improved mounting, and metals	38	17	0
Two feet long, without rack-work, and with four magnifying powers, improved, 13*l.* 13*s.* to	15	15	0
Ditto improved, with rack-work motions	21	0	0
Eighteen-inch on a plain stand	8	18	6
Twelve inch ditto.....	5	15	6
Telescopes, both refracting and reflecting, fitted up with equatorial, &c. motions, micrometers, adjusting, compensating, &c. apparatus, for the most accurate astronomical purposes			
Common MICROSCOPES, from 5*s.* to	1	1	0
Wilson's single pocket microscopes, from 18*s.* to	2	12	6
Compound microscopes improved, from 2*l.* 12*s.* 6*d.* to....	5	5	0
New improved universal ditto	6	16	6
Ditto with the most complete apparatus	10	10	0
Solar microscopes in brass, improved, from 5*l.* 5*s.* to	6	6	0
The new opake and transparent solar microscopes, with improved apparatus, from 10*l.* 10*s.* to.....	16	16	0
Ditto of a larger size, with additional megalascopic apparatus, from 14*l.* 14*s.* to.....	19	19	0
Ditto, and best compound ditto, packed together in one mahogany box	21	0	0
The LUCERNAL MICROSCOPE, as improved by *W. Jones*, exhibiting images of opake and transparent objects, by night or day, in a manner singularly pleasing, brilliant, and distinct, with upwards of 100 objects, proper apparatus, patent lamp, &c.	18	18	0
Ditto combined with a solar, compound, &c. apparatus, forming the most perfect collection of microscopical apparatus	39	18	0
A portable optical apparatus, consisting of a scioptic ball and socket, a solar microscope, Wilson's microscope, a pocket compound microscope, a pocket telescope, and solar telescope, in mahogany and brass	4	4	0
Pocket microscopes for opake objects, from 16*s.* to.....	2	12	6
Botanic microscopes for flowers, &c. from 8*s.* to	1	11	6
A new universal pocket ditto, adapted to all sorts of objects	1	6	0
Ditto with adjusting screw, silvered speculum, &c.	2	10	0
Cloth microscopes, from 4*s.* 6*d.* to	0	10	6

For descriptions of all the most improved Microscopes, see the late Mr. G. ADAMS'S Essays on the Microscope, *corrected and improved by* F. KANMACHER, F.L.S. *&c. with* 33 *folio plates. Price* 1*l.* 12*s.*

Magic lanthorns, as phantasmagoria, &c. from 1*l.* 4*s.* to..	6	6	0
Do. with new set of moveable painted sliders, shewing the funda-			

	£.	s.	d.
mental principles of astronomy, with the real and apparent motions and positions of the planets, stars, &c. &c. accompanied by a proper improved lanthorn, complete ..	13	13	0
Small magic lanthorns, with twelve sliders, complete, at 7s. 6d.—10s. 6d.—12s. and	1	0	0
Ditto with twelve sliders of best English paintings	2	2	0
Optical diagonal machines for viewing prints, from 1l. 4s. to	1	10	6
Perspective views in great variety for ditto, each	0	1	9
Scioptic balls and sockets, from 15s. to	1	11	6
An artificial eye in brass, to exemplify the nature of vision	1	11	6
For a description of the principle of this instrument, as well as of spectacles, reading glasses, &c. see the late Mr. G. ADAMS's Essay on Vision, *8vo. price* 3s. *now sold by* W. *and* S. JONES.			
Camera obscura for the pocket, from 9s. to	1	16	0
A new-invented folding ditto, in portable morocco leather case	2	5	0
Large ditto, shutting up like a book or neat portable chest, the objects represented on paper, from 4l. 14s. 6d. to..	6	16	6
Concave and convex glass mirrors, in plain black frames, four, five, six, and seven inches diameter, each 9s. 12s. 14s. and	0	18	0
Eight inches diameter ditto	1	1	0
Nine inches ditto	1	7	0
Ten inches ditto	1	12	0
Twelve inches ditto	2	5	0
Fifteen inches ditto	3	13	6
Eighteen inches ditto	6	6	0
Twenty-one inches ditto	9	9	0
Twenty-four inches ditto	11	11	0
Concave mirrors ground cylindrically, possessing several curious properties in the deformation of objects; according to the size, from 1l. 1s. to	5	5	0
Concave metal burning mirrors, from 3l. 13s. 6d. to	21	0	0
Glass prisms, plain or mounted on stands, from 7s. 6d. to	1	11	6
A curious set of optical models, where the rays of light are represented by variously coloured silken strings, and illustrating the principles of vision, telescopes, prisms, &c. packed in four cases	6	16	6

MATHEMATICAL INSTRUMENTS.

THEODOLITES of the common construction, and of the best workmanship, from 4l. 4s. to	31	0	0
A portable theodolite, with a telescope, level, and vertical arch	7	7	0
Ditto larger, with parallel plates, &c. divided to two minutes	12	12	0
Ditto with rack-work motions, divisions to a minute	22	1	0
A new-improved theodolite, with two achromatic telescopes, and contrivances for very accurate adjustment ...	31	10	0
A 4-inch improved ditto, by which the vertical and horizontal angles are shewn at the same time, with rack-work motions, and portable parallel plate staves, &c.	10	10	0
Circumferentor, much used in wood lands, from 2l. 2s. to	4	4	0

	£	s.	d.
An improved ditto, contrived to answer the purposes of a common theodolite, level, altitude instrument, &c.	5	5	0
Surveying crosses or squares, on a staff, from 10*s.* 6*d.* to	1	11	6
A brass cylindrical ditto, with a staff	0	18	0
Ditto with compass, agate capped needle, &c.	1	11	6
Improved ditto, with rack-work and pinion, and moveable divided limb, making a very portable cross-staff, compass, and theodolite, in one small instrument	2	16	0
Levels of the latest improvement from 2*l.* 2*s.* to	12	12	0
A pair of Station staves, with sliding vanes, for levelling.	2	12	6
Plane tables, with index, sights, &c. complete, from 3*l.* 13*s.* 6*d.* to	5	5	0
Pantagraphs, by which any person unskilled in drawing may copy plans, surveys, profiles, drawings, &c. in any proportion to the original, from 1*l.* 16*s.* to	6	16	6
Perambulators or measuring wheels, from 7*l.* 7*s.* to	10	10	0
Gunter's measuring chain, according to strength, from 5*s.* to	0	12	0
——— navigation scale, from 2*s.* to	0	4	0
——— ditto improved by Donn, with book of directions	0	5	0
——— ditto improved by Robertson, with brass adjusting screws, &c. being the completest scale of the kind	1	15	0
——— sectors of various lengths, from 2*s.* to	1	11	6
A new pocket 10-inch box sliding rule for solving all sorts of problems in trigonometry, mensuration, &c.	0	4	0
Measuring tapes, 1, 2, 3, and 4 poles, 5*s.* 7*s.* 6*d.* 9*s.* to	0	11	0
Pedometers for ascertaining distances, to apply to carriages.	10	10	0
Miner's compasses for working in subterraneous grounds, from 1*l.* 6*s.* to	1	14	6
Cases of drawing instruments, from 4*s.* 6*d.* to	5	5	0
Magazine, or complete collection of every kind of useful drawing instruments, from 5*l.* 5*s.* to	35	0	0
A new portable drawing board and seat, the board folds up for the pocket, and the legs of the seat form a walking stick	1	1	0
Proportional compasses, from 1*l.* 10*s.* to	3	3	0
Elliptical compasses of various degrees of perfection and utility, from 16*s.* to	10	10	0
Triangular compasses, by which three points at once may be transferred, from 13*s.* to	1	5	0
Hair compasses that take extents to a great accuracy	0	7	6
Beam compasses for dividing large circles, projections, &c. from 1*l.* 1*s.* to	5	5	0
Bow compasses for describing very small circles, from 2*s.* 6*d.* to	0	6	0
Perspective compasses to take angles, &c.	1	18	0
Parallel rulers of different constructions, from 2*s.* to	2	12	6
Protractors for laying down angles, from 2*s.* to	1	1	0
Ditto with a nonius and moveable limb	2	2	0
Ditto, ditto, with teeth and pinion	4	4	0

Sets of protracting and plotting scales; instruments for dividing lines or transferring divisions on paper. An instrument for describing circles from four to six inches radius or to the utmost conceiveable distance—Gunners callipers—Gunners levels or perpendiculars—Shot gauges—Shell

	£.	s.	d.
ditto—Gunners quadrants, with a plummet or level, or adjusting screw, &c. and all other instruments for military purposes.			
HADLEY'S QUADRANTS, mahogany, the divisions on wood	1	11	6
Dittomahogany with ivory arch and nonius, double observation	2	2	0
Ditto, ditto, a brass index, double observation	2	12	6
Ditto, ebony and brass, best glasses, engine divided, &c. ..	3	0	0
Ebony and brass mounted best sextants, from 4*l.* 4*s.* to	8	18	6
Metal ditto, framed on a principle the least liable to be warped or strained, with adjusting screws, telescopes, and other auxiliary apparatus, the most proper for taking distances accurately, to determine the longitude at sea, &c.	12	12	0
A new small 3-inch pocket box sextant to take angles to a minute, from 2*l.* 2*s.* to	3	3	0
Artificial horizons, by parallel glasses and quicksilver, to take double altitudes by	1	16	0
Gunter's quadrant, from 6*s.* to.....	1	1	0
Azimuth compasses of different constructions, from 5*l.* 5*s.* to	12	12	0
Pocket compasses from 2*s.* 6*d.* to	5	5	0
Horizontal sun-dials, in brass, made for any latitude, of four, five, or six inches diameter, divided into five minutes of time, each at 7*s.* 10*s.* and	0	14	0
Ditto seven inches	0	18	0
Ditto eight inches, into two minutes	1	6	0
Ditto ten inches, ditto	2	0	0
Ditto twelve inches, ditto	2	18	0
Ditto fifteen inches, into every minute, thirty-two points of the compass, &c.	5	5	0
Ditto eighteen inches ditto, ditto, with equation table, &c.	9	9	0
Ditto 2 feet diameter, ditto, ditto	16	16	0
A new universal ditto and equatorial, making a very portable angular instrument, from 8*l.* 8*s.* to.....	31	10	0
Universal ring-dials, from 10*s.* 6*d.* to	10	10	0

For a general description and representation of the instruments used in surveying, levelling, and other branches of practical geometry, see the late Mr. G. ADAMS's Geometrical and Graphical Essays, *an improved edition by* W. JONES, *in two vols.* 8*vo.* 1803, *with thirty-five folio copper-plates. Price* 1*4s.*

ASTRONOMICAL, &c. INSTRUMENTS.

A portable TRANSIT INSTRUMENT, with a cast-iron stand, to ascertain the rate of chronometers, and clocks, the longitude, &c. the axis is twelve inches in length, and the telescope about twenty inches, packed in a case	12	12	0
Ditto, with a brass framed stand, and other additions	20	0	0
Transit instruments of larger dimensions made to order.			
The new CIRCULAR INSTRUMENT and EQUATORIALS, from 63*l.* to	180	0	0
Planetariums, shewing the phænomena of the Ptolemaic and Copernican systems, from 7*l.* 7*s.* to	50	0	0
Manual orreries of the common construction, 2*l.* 12*s.* 6*d.* to.	5	5	0

	£.	s.	d.
Jones's (Wm.) new portable orrery, the tellurian part	1	1	0
Ditto, the planetarium part	1	1	0
Tellurian and planetarium together, making the *New Portable Orrery*, packed in boxes, according to the sizes and wheel-work, from 2*l.* 12*s.* 6*d.* to	5	5	0
A complete planetarium, tellurian, and lunarium, all in brass, shewing the motions completely by wheel-work, packed in a portable mahogany case	36	15	0
Other planetariums and orreries in great variety, the motions by wheel-work, exemplifying all the motions and phænomena of all the planets, from 40*l.* to	1000	0	0
A Cometarium, for exemplifying the motion of comets	5	5	0
Senex's globes 28 inches diameter, mahogany frames, 25*l.* to	50	0	0
The NEW EIGHTEEN INCH BRITISH GLOBES—The Terrestrial, containing all the latest discoveries and communications, from the most correct and authentic observations and surveys to the year 1804, engraved from an accurate drawing by Mr. *Arrowsmith*.—The Celestial containing the positions of nearly 6000 stars, clusters, nebulæ, planetary nebulæ, &c. correctly computed and laid down, by *W. Jones*, for the year 1800, from the latest observations and discoveries, by Dr. *Maskelyne*, Dr. *Herschel*, the Rev. Mr. *Wollaston*, &c.			
N. B. These are the only modern 18-inch globes in the English language extant, the plates being engraved from entire new drawings, and are dedicated, by permission, to the Right Hon. Sir *Joseph Banks*, Bart, P. R. S, and the Rev. Dr. *Maskelyne*, Astronomer Royal.			
In common plain frames of stained wood	7	7	0
A compass fitted to both the frames of ditto	0	6	0
A pair of red leather covers for ditto	1	6	0
The same globes in best mahogany claw-feet frames, with large compasses fixed to the claw feet.....	12	12	0
Ditto, in more elegant and varnished frames, with improved brass sliding hour circle, from 13*l.* 13*s.* to	17	17	0
Red and stamped leather covers for the above, from 1*l.* 8*s.* to	2	8	0
The New TWELVE INCH BRITISH GLOBES, reduced from the above, being the most recent and correct of any extant, mounted in neat mahogany claw-feet frames, with compasses	5	15	6
Ditto, in common coloured wood frames	3	13	6
Additional price of a compass, and fitting to both globes...	0	5	0
A pair of red leather covers for ditto	0	11	6
Globes, nine inches diameter, with the new discoveries...	2	2	0
Ditto, six inches ditto, plain frames	2	0	0
Ditto, ditto, best mounting	3	3	0
Ditto, three inches ditto, in claw-feet mahogany frames .	1	12	0
Ditto, three inches, single one in a case for the pocket ..	0	9	0
Geographical planispheres, to solve problems, mounted as a hand fire screen	0	7	6
A brass armillary sphere, three inches diameter	3	13	6
A four inch ditto	4	14	6
A six inch ditto	6	6	0

	£	s.	d.
A nine inch ditto	9	19	6
A brass armillary sphere, twelve inches diameter	13	13	0
Larger ditto, with planetarium, from 21*l.* to	105	0	0

For a general description of orreries and other astronomical instruments, see the late Mr. G. ADAMS's *Astronomical Essays, 8vo. with sixteen plates; fifth edition, price* 10*s.* 6*d. now sold by* W. *and* S. JONES.

PHILOSOPHICAL, &c. INSTRUMENTS.

A single-barrel AIR-PUMP, with receiver	2	12	6
Improved ditto, exhausting more accurately	5	15	6
A small double-barrel air-pump, with gauge-plate	5	5	0
A middle size ditto	7	7	0
A large size table ditto	11	11	0
Air-pump of the largest sort, exhausting more accurately, being upon an improved construction, from 20*l.* to	34	13	0
Condensing engines, from 5*l.* 5*s.* to	21	0	0
Papin's digester improved, with a stand, &c.	4	14	6
The principal Apparatus for the Air Pump as follow:			
Guinea and feather apparatus, demonstrating the resistance of the air, with one, two, or three falls, from 18*s.* to	1	11	6
A set of wind-mills for the same demonstration	1	11	6
The brass hemispheres, shewing the air's external pressure, from 16*s.* to	1	10	0
A bell, proving that there is no sound without air	0	10	6
Improved construction of this bell, from 1*l.* 1*s.* to	3	3	0
Lead weights, with bladder, &c. proving the air's elasticity	0	17	0
The double transferrer, that transfers a vacuum from one receiver to another, by turning stop-cocks only	3	0	0
A model of a water-pump, exemplifying the nature of pumps, and proving the absurdity of what is called *suction*	1	5	0
A single transferrer, plate, and pipe, for a fountain	0	18	0
A copper air-pipe for experiments on infected air	0	17	0
flat plate, collar of leathers, with sliding wire, for placing on receivers	0	12	0
An apparatus for firing gunpowder in vacuo	0	18	0
A copper bottle, beam & stand, for accurately weighing air	2	12	6
A glass vessel for making a fountain in vacuo	0	5	6
Ditto on a larger and different construction	0	16	0
A glass with a bladder, shewing the action of the lungs	0	6	0
Ditto mounted with the figure of a Bacchus	1	10	0
A balance beam and stand	0	7	6
A filtering cup, shewing the porosity of vegetables	0	5	0
A plate and piece of wood for the same purpose	0	4	6
An apparatus for striking flint and steel in vacuo	0	18	0
The Torricellian experiment	0	18	0
Fruit stand	0	3	6
Candlestick	0	3	6
Syringe with lead weight	0	10	6
Six breaking squares, cage and cap	0	9	0
Glass bubble and stand	0	3	0
Hand and bladder glasses	0	3	6

With a great variety of receivers, and other apparatus, as described by various authors.

	£.	s.	d.
Exhausting and condensing syringes, from 10*s.* 6*d.* to	1	11	6
Exhausting syringes, with sets of cupping glasses, breast glasses, with scarificator, complete	4	14	6
Air fountains of copper, with various jets, from 5*l.* 5*s.* to..	9	9	0
CYLINDER and PLATE GLASS ELECTRICAL MACHINES, with conductors and jars, from 2*l.* 12*s.* 6*d.* to	12	12	0
New and much improved ditto, from 3*l.* 13*s.* 6*d.* to	42	0	0
Electrical machines and complete apparatus for medical purposes, packed in boxes, the cylinder from seven to ten inches diameter, from 6*l.* 6*s.* to	12	12	0
An electrical machine, with apparatus, for philosophical experiments and medical uses, packed in a box, the cylinder about eight inches diameter, from 9*l.* 9*s.* to	12	12	0
Apparatus for Electrical Machines as follow:			
Electrical batteries of combined jars, from 2*l.* 12*s.* 6*d.* to	10	10	0
An universal discharger, with a press	1	8	0
A quadrant electrometer with divided arch	0	7	6
Jointed dischargers with glass handles	0	10	6
Common jointed ditto, ditto	0	5	6
An useful and illustrative apparatus, compounded of the luminous conductor, exhausted flask, two jars, exhausting syringe, insulated stand, and wires with balls, &c. complete	3	3	0
Luminous conductors, from 12*s.* to	1	5	0
Exhausted flasks, called the Aurora Borealis	0	6	6
A thunder house, demonstrating the use of conductors	0	6	0
A powder house for the same purpose	0	16	0
An obelisk or pyramid for ditto	0	10	6
A set of plain bells, three to a set	0	7	6
A new set of musical ditto, containing the gamut	1	10	0
A magic picture for giving shocks	0	7	6
An electrical cannon, to be discharged by hydrogen gas..	0	16	6
Brass pistols for ditto	0	7	6
Spiral tubes to illuminate by the spark, from 6*s.* to	0	10	6
Luminous names, or words, from 10*s.* 6*d.* to	1	11	6
Spotted jars, from 6*s.* to	0	10	6
A double jar for explaining the Franklinian theory	0	15	0
Copper plates and stands for dancing images	0	9	0
An electrical tin fire house	0	10	6
An electrical shooter and mark	0	5	0
A mahogany stand for eggs	0	4	6
A small head with hair	0	7	6
An artificial spider	0	1	6
An electrical swan	0	2	0
An electrical star	0	1	6
Balls of wood, bone, &c. each from 6*d.* to	0	2	6

A curious collection of working models, to be set in motion by the electrical fluid, consisting of a corn mill and a three-barrelled water pump, worked by one crank only; an orrery, shewing the diurnal motion of the earth, age, and phases of the moon, &c. an astronomical clock, shewing the aspects of the sun and moon, age, phases, &c all delicately made of card-paper, cork, and wire only, packed in a deal case	2	12	6

	£.	s.	d.
Kinnersley's electrical air thermometer	1	1	0
Cavallo's atmospherical electrometer	0	10	6
Ditto, as improved by Saussure	1	1	0
Bennet's gold-leaf electrometer	0	18	0
The new discharging electrometer, by which the forces are denoted by grain weights	1	18	0
Volta's new Galvanic pile of zinc, and silver, or copper, &c. plates, that produces spontaneous and repeated electricity, decomposes water, from 1*l.* 18*s.* to	6	16	6
Zinc plates for ditto, sold separately, per 100	0	15	0
Ditto, in troughs, to form Galvanic Batteries, from 1*l.* 18*s.* to	10	10	0
An electrophorus, complete, from 10*s.* 6*d.* to	3	3	0
Conductors for the preservation of ships, houses, &c. from lightning, from 3*l.* 3*s.* to	5	5	0
The Medical Apparatus consists of			
Jars with electrometers, from 12*s.* to	1	1	0
A new medical ditto, for communicating shocks in the most convenient and qualified manner	0	7	6
A pair of directors, glass handles, wood points, &c.	0	7	6
An electrometer to apply to the conductor	0	6	6
A brass ball and wire for taking sparks, 4*s.* 6*d.* to	0	6	6
Electrical insulated stools and chairs, from 9*s.* to	5	5	0
A glass for the eye	0	4	6
Ditto for the ear	0	2	6
A new perpetual inflammable air lamp, lighted by the electrophorus, a curious and useful apparatus	4	4	0

A variety of other apparatus too numerous to be herein inserted, which, as well as the machines, are mounted from the most approved eligible methods, so as to render them in action both powerful and permanent.

For a description of electrical apparatus, see the late Mr. G. ADAMS's Essay on Electricity, *by* W. JONES, 8*vo. six plates*; *new edition, price* 8*s. in boards.*

BAROMETERS, plain mounted, from 1*l.* 18*s.* to	2	12	6
Thermometers for all the various purposes, from 9*s.* to	3	3	0
Six's new thermometers, for shewing the extremes of heat and cold in the absence of the observer, from 1*l.* 11*s.* 6*d.* to	2	12	6
An hygrometer, shewing the moisture and dryness of the air	0	10	6
Barometers, thermometers, and hygrometers, all in one neat mahogany frame, from 4*l.* 4*s.* to	6	6	0
Barometers for measuring the heights of mountains, 7*l.* 7*s.* to	10	10	0
Marine barometers, diagonal, wheel, and statical ditto.			
New hygrometers constructed by De Luc, &c. from 2*l.* 2*s.* to	3	3	0
A rain gauge, with float and tin vessel	1	0	0
Wind gauges of the constructions of Dr. Lind, &c.	0	16	0
Accurate hydrometers for discovering the strength & proportion of compounds in spirituous liquors, from 1*l.* 11*s.* 6*d.* to	4	4	0
Hydrostatic balances, from 1*l.* 11*s.* 6*d.* to	9	9	0
An apparatus for hydrostatical experiments, 3*l.* 13*s.* 6*d.* to	21	0	0
Artificial magnets, in bars and sets of bars, from 2*s.* 6*d.* to	6	6	0
Ditto in shape of a horse-shoe, the strongest form, 1*s.* 6d. to	1	1	0
Ditto, combined to any number, from 12*s.* to	21	0	0
Box of magnetical apparatus, illustrating a variety of curious and entertaining properties in magnetism, consisting chiefly of the following articles; a set of six artificial bar			

	£.	s.	d.
magnets; two horse-shoe magnets; six small iron balls; a magnetometer; two magnetical spinners; a small dipping needle; a gimbal compass; two brass magnet tables; an armed combined magnet; six magnetic needles, with six pointed stands; and sundry other illustrative and entertaining articles, all packed in a mahogany case, 5*l.* 5*s.* to	7	7	0
Dipping needles, variation & other compasses in great variety.			
Pyrometers, shewing the expansion of metals, from 3*l.* 3*s.* to	8	8	0
The mechanical powers, for illustrating and demonstrating the laws of motion, gravity, &c. a set neatly made in brass, consisting of the balance, the pullies, different kinds of levers, the inclined plane, the wheel and axle, the screw, a compound engine, a compound lever, a double cone to move up an inclined plane, friction wheels, weights, wedges, &c. complete	25	4	0
The same occasionally made on a more elegant and enlarged plan, for a large auditory, 40*l.* to	60	0	0
Ditto, with many parts of the apparatus made of mahogany, and the whole set packed in a neat mahogany box	14	14	0
Separate sets of pullies, variously constructed and combined.			
A small carriage with inclined plane, and wheels of different sizes, &c. experimentally proving the friction, resistance, &c. of all sorts of wheel-carriages	8	18	6
Ferguson's compound engine, in which all the simple mechanical powers work together	4	4	0
A whirling table, for explaining and demonstrating the laws of the planetary motions, the demonstrations of the doctrine of the tides, and other properties of gravity and centrifugal force, from 16*l.* 16*s.* to	27	6	0
Atwood's elegant and accurate apparatus for demonstrating the laws of accelerated and retarded motion, and other interesting laws in mechanics	25	4	0
Several small mahogany models for explaining the centre of gravity, the line of direction, &c.	2	2	0

FOR PHILOSOPHICAL CHEMISTRY.

Glass bottles with bent necks, from 5*s.* to	0	10	6
A glass machine for impregnating water with fixed air, and apparatus	2	12	6
Glass eudiometer tubes, for ascertaining the purity of airs, &c.	0	10	6
Ditto, as improved by Abbe Fontana, &c.	2	4	0
Gazometers by Priestley, Lavoisier, &c. from 1*l.* 15*s.* to	5	5	0
A blow pipe with various caps, for fluxing metals, &c.	0	7	6
Ditto, with silver spoon, megalascope, &c.	1	1	0
Ditto, ditto, with a variety of other necessary apparatus, packed in a fish-skin case, forming Cronstedt's complete pocket laboratory, improved by Magellan	2	12	6
Magellan's new portable lamp furnace, with the blow-pipe, small glass retorts, &c. &c. for chemical as well as mineralogical operations, on a small scale	4	14	6
Ditto, with the double bellows to apply to the blow-pipe	7	7	0

	£.	s.	d.
Double bellows, with deal table and appendages for glass-blowing	2	12	6
A mineralogical goniometer, to measure the angles of chrystals, in a case	1	4	0
A wooden tub for water, and another for quicksilver, with a selection of glass apparatus for performing the late discovered experiments on gasses	6	6	6
A box, containing all the useful precipitants of Bergman, &c. for analysing waters, and fluxes for the blow-pipe in phials with glass stoppers, with printed description of ditto	6	6	0
A mahogany case, containing, in phials, a variety of preparations for young persons to perform amusive and instructive chemical experiments	3	13	6
Fumigating bellows, for destroying insects in gardens by tobacco, from 1*l.* 6*s.* to	1	16	0

Instruments of Recreation.

The sensitive fishes, that have the property of swimming to a piece of bread placed at the end of a stick; and, when the other end is presented, of retreating and going back, sensible, as it were, of no substance for them to eat	0	6	6
The sagacious swan, that, with a machine, makes three kinds of amusements—1st. the swan will point out the secrets of the cards; 2d. it will point answers to 16 humourous enigmas; and 3d. disclose any particular hour that was thought of, packed in a case	1	18	0
A box containing four numbers and four letters, the order of which may be discovered, if ever so secretly placed, by means of a curious perspective	0	10	6
Ditto with five numbers, no perspective, but another very similar box, made in neat mahogany boxes, and more difficult to discover the reason of	1	18	0
A magic painter, exhibiting a copy of any one of eight different paintings secretly chosen	0	10	6
A communicative mirror, shewing portraits of any one of four secretly chosen; an elegant curious instrument	2	12	6
A box containing five pieces of different metals, which may any way be secretly placed, and their situation be told by the magical perspective	1	8	0
An optical paradox, containing two perspectives, between which a board may be placed, and the object will be seen through them just as well as if the board was not there, 7*s.* 6*d.* to	0	10	6
An optical deception, containing from six to twelve different paintings, which are looked down upon through a perspective, and immediately there appear another very different object, without any alteration of the instrument whatsoever, or concern of the person using it, 1*l.* 11*s.* 6*d.* to	3	8	0
A diagonal opera glass, that shews persons on one side, when the glass is presented to the object directly before you, from 6*s.* to	0	15	0

	£.	s.	d.
A multiplying glass, making one object appear a great, number, from 1*s.* 6*d.* to	0	10	6
A set of anamorphoses, or deformed pictures, rectified by a polished cylinder	2	2	0
A mathematical recreation, containing near seventy figures on a card; any one figure being thought of, is readily pointed out by any one using it	0	1	0
The two curious mathematical cubes, one of which is gauged so as to prove it to be larger than the other, yet the *larger* one will actually *pass through* the *smaller* one, and not in any degree stretch it	1	0	0
The mathematical paradox, a piece of wood of one figure, fits exactly, and passes through a triangular, a square, and a circular hole	0	2	6
A double cone, that apparently rolls upwards up an inclined plane, though actually descending	0	5	0
A mechanical instrument, consisting of a cube and two wooden handles, that supports itself on a point, although the entire form and weight appear evidently all on one side	0	12	0
A cylindrical mirror that produces two or three curious optical effects	1	1	0
A magic or electrical bottle, that is charged by the rubbing of a ribbon only, and will give a shock to five or six persons, with apparatus, in a pocket case	0	10	6
Concave mirrors fitted up in boxes, to magnify prints, to shew various deceptions in an entertaining and pleasing manner, from 5*l.* 5*s.* to	12	0	0

Besides the preceding, a great variety of other articles too numerous to be included in this catalogue, as well as any instrumental article made from particular drawings, or as described by the different writers upon mathematics, philosophy, philosophical chemistry, &c. And students of the sciences furnished with the most approved elementary treatises.

Merchants, shopkeepers, schoolmasters, and others that sell again, are supplied with the best articles, and with good allowance.

Letters from the country or abroad, containing orders or previous inquiries, explicitly and punctually attended to.

Les académies, observatoires, et ecoles de pays, étrangers, ainsi que les négociants, marchands, et autres personnes peuvent se procurer toutes sortes d'instruments de la meilleure qualité, tant pour les matériaux, que la main d'œuvre, avec la plus grande expédition, et au plus juste prix.

BOOKS PUBLISHED BY W. JONES.

A Description and Use of the New Portable Orrery, to which is prefixed a short account of the solar system, including a concise description of the recent discoveries by Dr. Herschel, &c. with three copper-plates, 5th edition		2	0

	£.	s.	d.
A Description and Use of the Hadley's Quadrant, with an account of all the new apparatus added to it, for taking observations accurately, in order to determine the longitude at sea; illustrated by copper-plate figures, 2d edit.	0	1	0
A Description and Use of the Pocket Case of Mathematical Drawing Instruments, illustrated by copper plate figures	0	1	0
Methods of finding a Meridian Line, to set sun-dials, regulate clocks, watches, &c.	0	0	6
Directions for finding a Meridian Line, on a card	0	0	3
A concise Explanation of the Barometer, Thermometer, and Hygrometer, with rules for predicting changes in the weather, in a small box 6*d.* on a pasteboard varnished	0	1	0
Cowley's Illustration of Solid Geometry, containing 42 copper-plates of moveable figures; a work very useful and convenient for teachers and young students in geometry, as the figures, when folded up, form exactly the solid figures of the Platonic bodies, conic sections, and several portions of Euclid's Elements, &c. &c. boards	1	1	0

Other Books sold by W. and S. JONES.

QUARTO.

Hutton's (Dr.) Mathematical Dictionary, 2 vols. boards	3	0	0
Mendoza's Astronomical Tables, boards	1	10	0
Nicholson's Philosophical Journal, 10 vols. boards	8	8	0
The Philosophical Transactions of the Royal Society, containing 11 vols. of the Abridgement; and from thence, the Continuation at large to the present time; the Index, with Birch's and Sprat's History, 5 vols. all in uniform clean calf binding and tooled backs, in 65 vols.	68	0	0
Vince's Treatise on Astronomy, in 2 vols. sewed	2	8	0

OCTAVO.

Keith's Introduction to Plane and Spherical Trigonometry, boards	0	10	6
Mackay's Theory and Practice of the Longitude, 2 vols. boards	1	1	0
——— Complete Navigator	0	10	0
Cavallo's Treatise on Magnetism, with Supplement, 3d edit.	0	8	0
Mountaine's description, &c. of Robertson's improved 3 feet sliding Gunter's scale	0	2	0
Moore's Practical Navigator, or Seaman's Daily Assistant	0	9	0
Thomson's System of Chemistry, 4 vols. boards	2	2	0
Nautical Almanacks, a complete set bound, 28 vols.	5	5	0
Ditto for any year to 1804	0	5	0
Requisite Tables to the above, unbound	0	5	0
Robertson's Elements of Navigation, new edit. 2 vols.	1	0	0
Wale's Method of finding the Longitude by Time-keepers, and Description of a portable Transit Instrument, &c.	0	3	6

FINIS.

W. *and* S. JONES *take this Opportunity of informing the Public, that they have purchased the Stock and Copyright of the several Philosophical Works by the late Mr.* GEORGE ADAMS, *deceased, of Fleet Street; and that they are now sold, as follow, at their Shop, No.* 30, *Lower Holborn.*

I. LECTURES ON NATURAL AND EXPERIMENTAL PHILOSOPHY, considered in its present State of Improvement; and describing in a familiar and easy Manner the principal Phenomena of Nature. *Second Edition*, with considerable Corrections and Additions, both in the Letter-press and Copper-plate Figures; containing more complete Explanations of the various Instruments, Machines, &c. and the Description of many others not inserted in the former Edition; by W. JONES, Mathematical Instrument Maker. In five Volumes, 8vo. the fifth Volume containing the Index and forty-two folio Copper-plates. Price 1*l.* 12*s.* 6*d.* in boards.

II. ESSAYS ON THE MICROSCOPE, containing a particular Description of the most improved Microscopes; a general History of Insects, their Transformations, peculiar Habits, and Economy; an Account of the various Species and singular Properties of the hydræ and Vorticellæ; a Description of 379 Animalcula; a View of the Organization of Timber, and the Configurations of Salts when under the Microscope, &c. &c. *Second Edition*, with considerable Corrections, Augmentations, and Improvements, and occasional Notes; together with Instructions for Procuring and Collecting Insects, and a new copious List of the most curious and interesting Microscopic Objects; by FREDERIC KANMACHER, F. L. S. In one large Volume 4to, and illustrated by thirty-three folio Plates. Price 1*l.* 12*s.* in boards.

III. GEOMETRICAL AND GRAPHICAL ESSAYS. This Work contains, 1. A select Set of Geometrical Problems, many of which are new, and not contained in any other Work. 2. The Description and Use of those Mathematical Instruments that are usually put into a Case of Drawing Instruments. Besides these, there are also described several new and useful instruments for Geometrical Purposes. 3. A complete and concise System of Surveying, with an Account of some very essential Improvements in that useful Art. To which is added, a Description of the most improved Theodolites, Plane Tables, and other Instruments used in Surveying; and most accurate Methods of adjusting them. 4. The Methods of Levelling, for the purpose of conveying Water from one place to another; with a Description of the most improved Spirit Levels. 5. A Course of Practical Military Geometry, as taught at the Royal Academy, Woolwich. 6. A short Essay on Perspective. The *Third Edition*, corrected and enlarged, with the Description of several Instruments, &c. unnoticed in the former Edition, by W. JONES, F. Am. P.S.; illustrated by 35 Copper-plates, in 2 Vols. 8vo. Price 14*s.* in boards.

VI. AN APPENDIX TO THE GEOMETRICAL AND GRAPHICAL ESSAYS, containing the following Table by Mr. JOHN GALE, viz. a Table of the Northings, Southings, Eastings, and Westings, to every Degree and Fifteenth Minute of the Quadrant, Radius

from 1 to 100, with all the intermediate numbers, computed to three Places of Decimals. Price 2*s*.

V. AN ESSAY ON VISION, briefly explaining the Fabric of the Eye, and the Nature of Vision; intended for the Service of those whose Eyes are weak and impaired, enabling them to form an accurate Idea of the State of their Sight, the Means of preserving it, together with proper Rules for ascertaining when Spectacles are necessary, and how to choose them without injuring the Sight. 8vo. *Second Edition*. Illustrated with Figures. Price 3*s*. in boards.

VI. AN ESSAY ON ELECTRICITY, explaining clearly and fully the Principles of that curious and useful Science, describing the various and most approved Instruments that have been contrived, either to illustrate the Theory, or render the Practice of it entertaining. The different Modes in which the Electric Fluid may be applied to the human Frame for Medical Purposes, are distinctly and clearly pointed out, and the necessary Apparatus explained. To which is added, A LETTER to the AUTHOR, from Mr. JOHN BIRCH, Surgeon, on the Subject of MEDICAL ELECTRICITY. *Fifth Edition*, with Corrections and Improvements, by W. JONES. Illustrated with six Copper-plates. Price 8*s*. in boards.

VII. ASTRONOMICAL AND GEOGRAPHICAL ESSAYS, containing, 1. A full and comprehensive View, on a new Plan, of the general Principles of Astronomy, with a large Account of the Discoveries of Dr. HERSCHEL. 2. The Use of the cœlestial and Terrestrial Globes, exemplified in a greater Variety of Problems than are to be found in any other Work; they are arranged under distinct Heads, and interspersed with much curious but relative Information. 3. The Description and Use of small Orreries or Planetaria, &c. 4. An Introduction to Practical Astronomy, by a Set of easy and entertaining Problems. *Fourth Edition*, corrected by W. JONES, 8vo. Price 10*s*. 6*d*. in boards, illustrated with sixteen Plates.

VIII. AN INTRODUCTION TO PRACTICAL ASTRONOMY for the Use of the Quadrant and Equatorial; selected from the preceding Work. Sewed, with two Plates, 2*s*. 6*d*.

In the Press,

THE DESCRIPTION AND USE OF THE GLOBES,

By W. JONES;

Containing a comprehensive Variety of Problems illustrative of the fundamental Principles of Geography and Astronomy; a Collection of Examples for Solution; a Description of the various Constructions of Globes hitherto made, and of a new Apparatus, invented by the Author, applicable to Globes, for the Purposes of extending their Uses in the Solution of Problems, and making Observations on the Heavenly Bodies, &c. &c. Intended principally to accompany the NEW EIGHTEEN and TWELVE-INCH BRITISH GLOBES, just completed, 8vo. with Copper-plate Figures.

Printed by W. Glendinning, 25, Hatton Garden, 1808.