G. SALOT.
Protractor.

No. 227,844. Patented May 18, 1880.

Fig. 1.

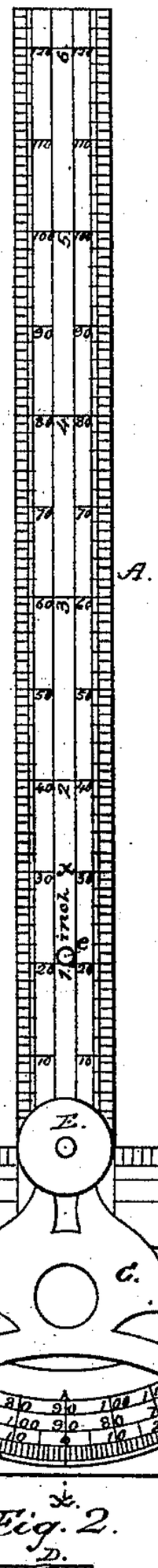


Fig. 3.

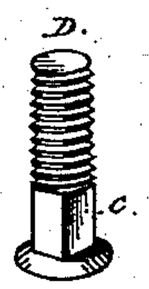
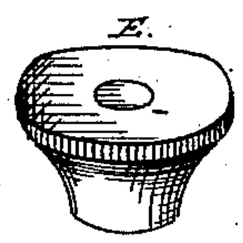


Fig. 4.



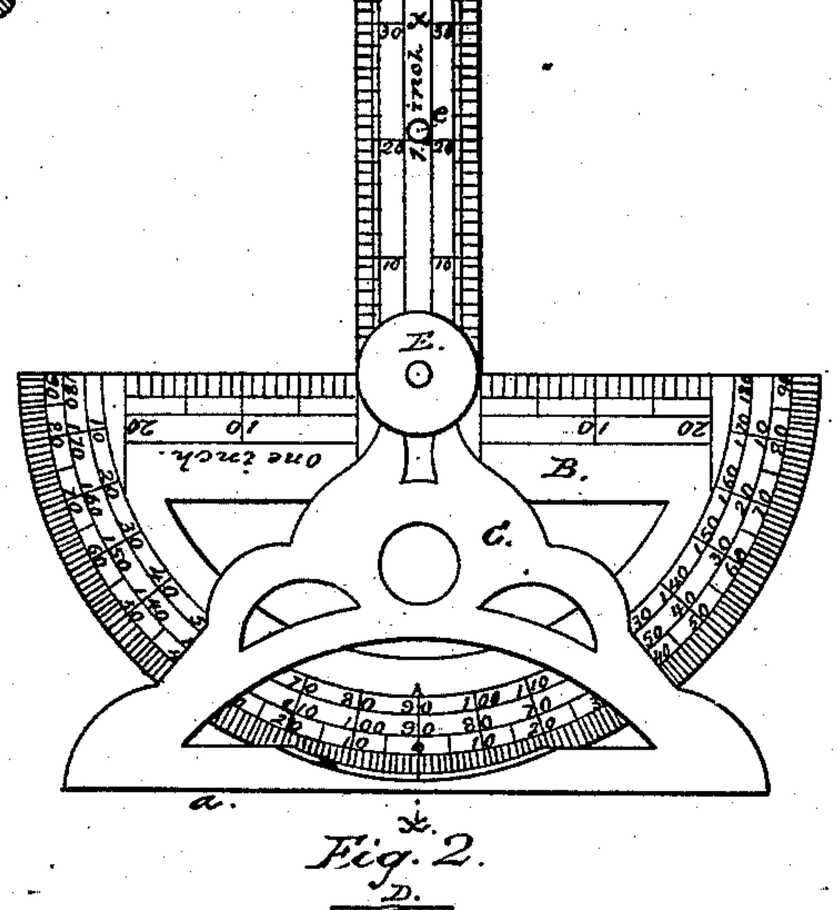
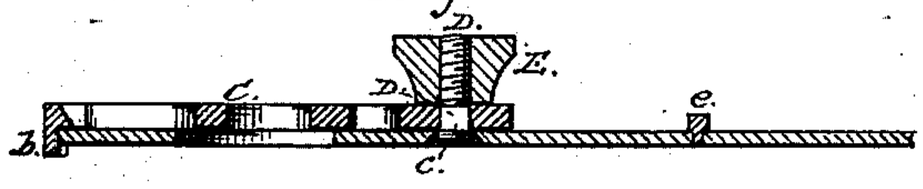


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE SALOT, OF DUBUQUE, IOWA.

PROTRACTOR.

SPECIFICATION forming part of Letters Patent No. 227,844, dated May 18, 1880.

Application filed February 26, 1880.

To all whom it may concern:

Be it known that I, GEORGE SALOT, of Dubuque, in the county of Dubuque and State of Iowa, have invented a new and useful Improvement in Protractors; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to a class of instruments used by draftsmen, more particularly for plotting in map-work.

It consists of a circular protractor, to which is attached on the side of the chord, at right angles to it, a graduated rule of any convenient length and width. This protractor with its rule is pivoted upon a segmental standard or base-line support.

It also consists in the various operative combinations of the several parts, all as more fully hereinafter described and explained.

In order that those skilled in the art may know how to make and use this instrument, I proceed to describe the same, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of the same; Fig. 2, a central vertical section through the lower part of the same, and Figs. 3 and 4 details of the pivotal screw and thumb-screw connected with the same.

Like letters denote corresponding parts in each figure.

In the drawings, A represents the rule, and B the protractor, each made of suitable metal, preferably struck out of sheet metal in one piece, the rule being attached at right angles to the center of the outside of the chord of the protractor, which is semicircular in outline.

The protractor is graduated on its curved surface in the following manner: The degrees on the outer line are numbered from zero at the center to ninety degrees at each corner. The second row of degrees is numbered from right to left, commencing with zero at the right and running to one hundred and eighty degrees at the left-hand corner. The third row of degrees is numbered from left to right, running from zero at the left to one hundred and eighty degrees at the right-hand corner.

All the figures, for convenience of inspection, are placed directly above the line to which they belong. The chord of the protractor is also graduated on each side of the double-edged rule in a similar way, for the purpose of drawing parallel lines, and also lines running in any direction.

The segmental standard or base-line support C may be a casting of any suitable metal, preferably of segmental form, with a base, *a*, of a true straight line, flanged on one side, as at *b*, so as to raise the protractor when in use above the paper on which it rests. The protractor and rule are pivoted to this segmental standard at the point where the rule joins the chord of the segmental standard, and for convenience and security in use the curve of the protractor extends down as far as the flange *b*, and the base of the standard is cut away a little on its front for more convenient reading of the figures upon the protractor.

A screw, D, having the part *c* next to its head made square, passes loosely through the rule, then through a square hole, *d*, in the segmental standard, to which the square part of the screw fits closely.

A thumb-screw, E, serves, when turned tightly in one direction, to hold the protractor and rule and segmental standard tightly together. When turned in the other direction it allows the protractor and rule to be moved in either direction, as the square portion of the screw does not allow it to turn in the segmental standard, while the size of the screw-opening in the protractor and rule permits a freedom of movement of them. A stud or pin, *e*, enables the rule to be moved more conveniently by the finger. It is remarked that the rule A is graduated in the usual way of draftsmen's scales.

The following is the manner of operation of this device: The paper on which any drawing is to be made being tacked in the ordinary manner to the drawing-board, and an ordinary T-square placed upon the same, the base of the segmental standard is brought closely against the side of the square, the instrument lying flat upon the paper. A point is designated from which to start operations. The protractor is then turned until the desired degree—say ten degrees east—exactly touches a line, called, for convenience, F, which is the center of the rule and of the protractor, running through zero in its outer line of figures,

and a central mark designated upon the base of the segmental standard, and then the screw is tightened so that the protractor will not turn. Then the T-square is moved, with the instrument resting upon it, until one side of the rule just touches the commencing-point. The required distance is then drawn along the edge of the rule in the direction of the degree required—as, for instance, one inch. If, then, it is desired to go ten degrees west—one inch—the protractor is turned until ten degrees west just touches the line F, and the T-square with the instrument is moved until the edge of the rule just touches the edge of the former line, and the one inch is marked along the edge of the rule in the direction indicated—namely, ten degrees west—and this process is continued until the plot is completed.

If parallel lines are to be drawn at any angle the protractor is turned until the desired degree touches the line F, and then one of the parallels is drawn along the edge of the rule, and the distance the lines are to be apart is measured off from the graduated chord, and the instrument moved from left to right or from right to left, as the case may be, the required distance, and the other parallel is drawn along the side of the rule, the rule in that case and the protractor remaining in the same angle.

Among the advantages connected with this device are the following: It does away with all dividers, and for plotting nothing more is required but this instrument, a pencil, and a T-square or parallel rulers, and the instrument need never be raised from the paper. The work of plotting can therefore be done with much greater rapidity than with the ordinary instruments.

Having thus described my invention, what I claim as new therein is as follows:

1. The combination, in a plotting-instrument, of the segmental standard C and protractor B, constructed and arranged substantially as described, and for the purpose set forth.

2. The combination of the segmental standard C, protractor B, and rule A, substantially as and for the purposes set forth.

3. In a plotting-instrument, the combination, with the rule A and protractor B, of the segmental standard C, screw D, and thumb-screw E, all constructed and arranged to operate substantially as described and shown.

4. The screw D, constructed and arranged substantially as described.

This specification signed and witnessed this 30th day of January, 1880.

GEORGE SALOT.

Witnesses:

G. L. TORBERT,

MONROE M. CADY.