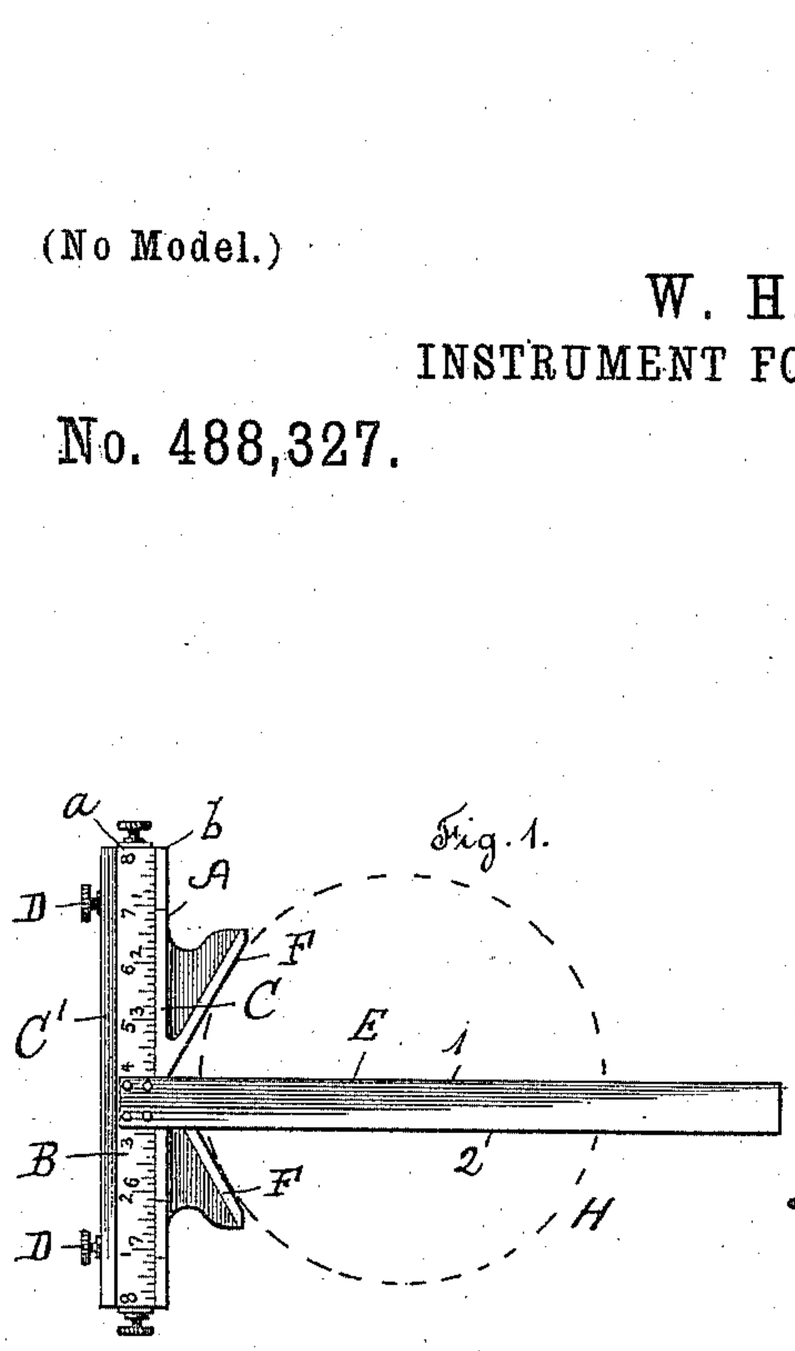
(No Model.)

W. H. BROWN.

INSTRUMENT FOR DRAWING CHORDS.

No. 488,327. Patented Dec. 20, 1892.

Fig. 1.



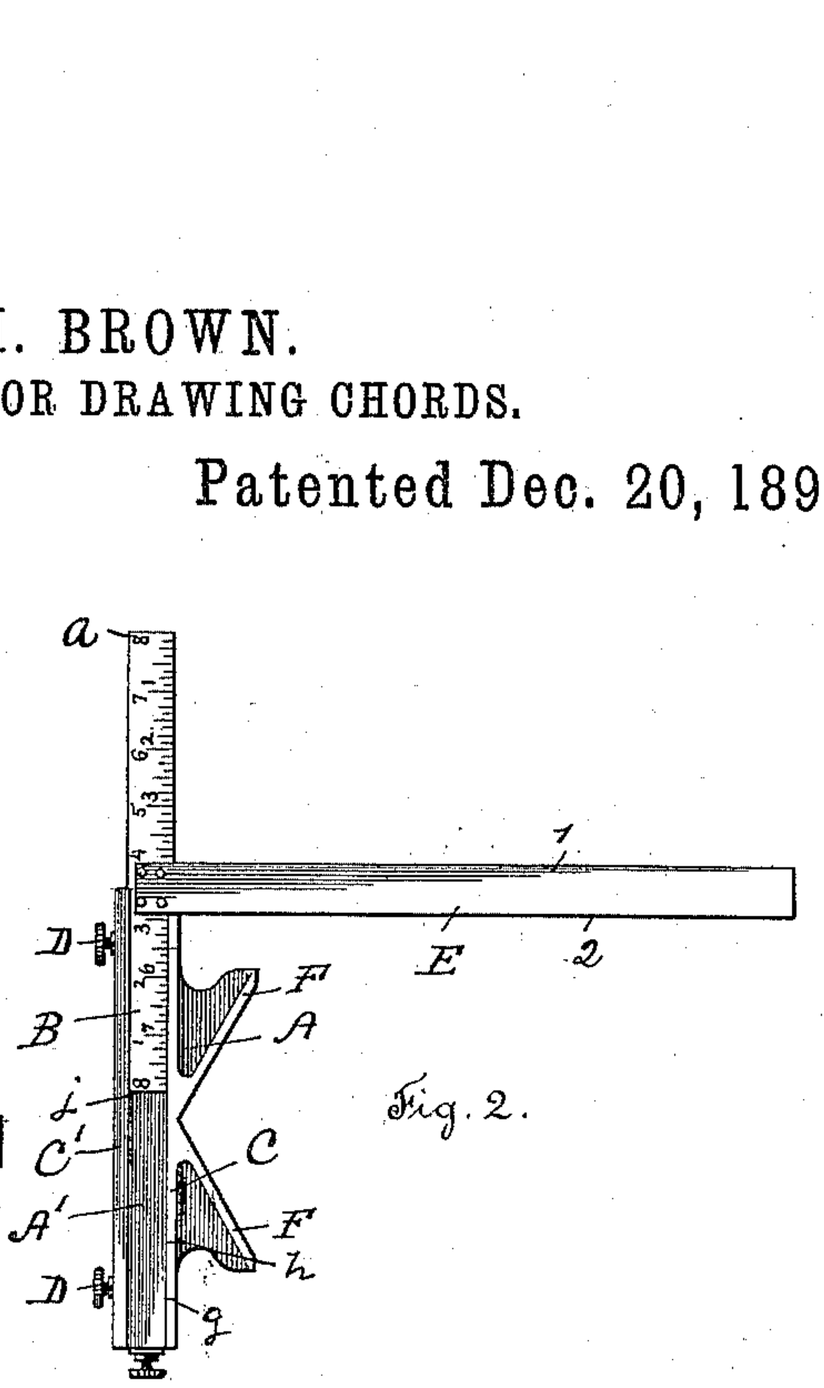


Fig. 2.

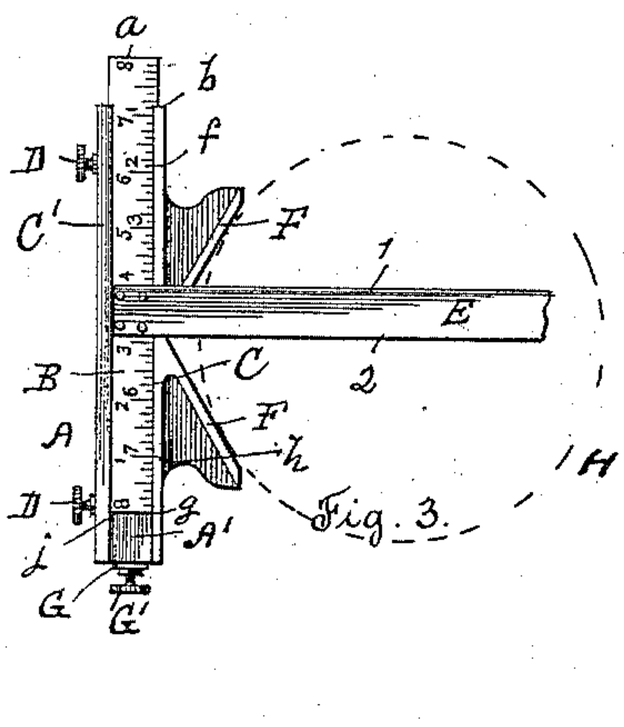


Fig. 3.

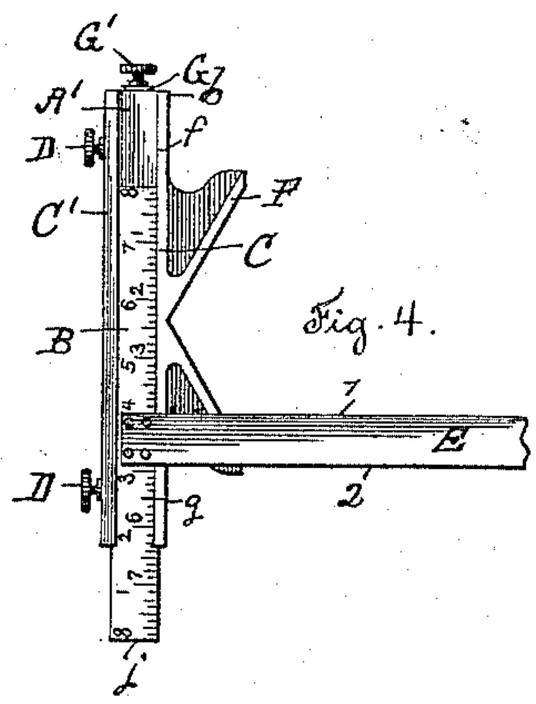


Fig. 4.

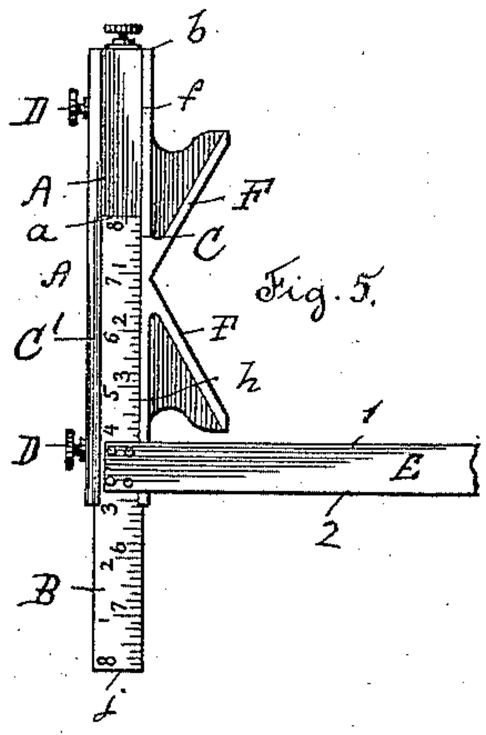


Fig. 5.

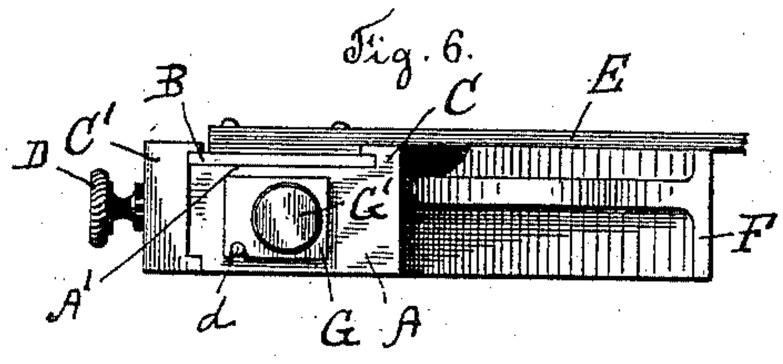


Fig. 6.

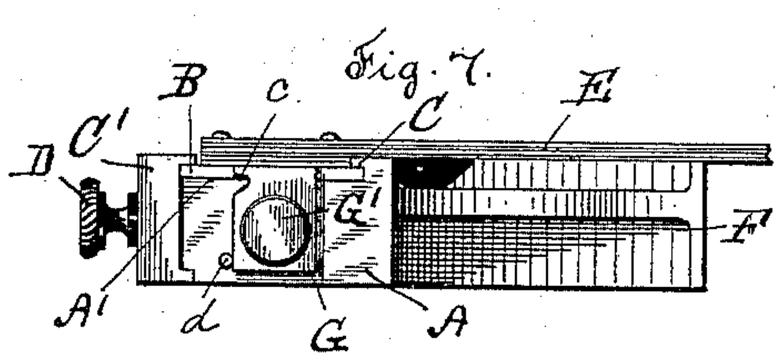


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM H. BROWN, OF WORCESTER, MASSACHUSETTS.

INSTRUMENT FOR DRAWING CHORDS.

SPECIFICATION forming part of Letters Patent No. 488,327, dated December 20, 1892.

Application filed March 5, 1890. Serial No. 342,731. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, a citizen of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in an Instrument for Drawing Chords, of which the following is a specification, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a view of the instrument embodying my invention, in the form in which it is used as a "center square" with the side 1 of the blade serving as the acting edge, Fig. 2 is a similar view, but with the blade drawn to one side of the center, for the purpose of marking a chord with side 1 as the acting edge, of the blade, Fig. 3 represents the position of the blade when the instrument is used as a "center square" with the side 2 of the blade as the acting edge, Fig. 4 is a similar view, but with the blade drawn to one side of the center for the purpose of drawing a chord with the side 2 of the blade as the acting edge, Fig. 5 denotes the instrument with the blade in a different position from that shown in Fig. 4, in order to illustrate the use of the index marks upon the head, or stock, of the instrument. Fig. 6 is an end view, somewhat enlarged and with a portion of the blade removed, and Fig. 7 represents the same view as shown in Fig. 6, but with the button G turned in position to retain the graduated slide in the head.

Similar letters and numerals refer to similar parts in the different figures.

Referring to the drawings A, denotes the stock or head, preferably of cast metal and having a shallow groove or way A′ to receive the graduated slide B, between the gibs C, C′. The gib C is integral with the body of the stock or head A, and the gib C′ is separate therefrom and is connected with the body of the stock and capable of being tightened upon the edge of the graduated slide by the tightening screws D, D, which pass through holes in the gib C′ and screw into the body of stock A. When the edge 1 of the blade E is to be used as the acting edge, the graduated slide B is placed centrally in the way A′ with the end *a* corresponding with the end *b* of the gib C, which serves as an index line. To the graduated slide B is fastened the blade E at right angles thereto, the slide B and blade E being moved as one piece. The stock is provided with the ribs F, F, extending from the side of the stock, at equal angles therewith and inclosing between the ribs an obtuse angle of about one hundred and twenty degrees, so arranged that the acting edge 1 of the blade E, will bisect the angle included between the ribs F, F, when the slide B is placed centrally in the way A′ as shown in Fig. 1 of the drawings. The slide B is held in the position shown in Fig. 1 by means of the buttons G upon the body of the stock A, one of which is represented in Figs. 6 and 7, these buttons consist of a thin rectangular plate G, held upon the end of the stock by a tightening screw G′, and so arranged that one edge of the plate can be brought over the end of the slide E as represented in Fig. 7 of the drawings thereby holding the slide in the position shown in Fig. 1, and preventing any lateral movement within the way A′, while a quarter rotation of the plate serves to release the slide as shown in Fig. 3. The plate G is provided with a notch *c*, and a stud *d* is inserted in the end of the stock A, to limit the rotary movement of the button, while it is being tightened by the binding screw G′. Whenever the slide B is moved into a position other than central to the stock A, as shown in Figs. 2—5, the slide is retained in position by means of the tightening screws D, D, and the gib C′.

When edge 1 of the blade E is employed as the acting edge the end *b* of the gib C serves as an index line to determine the position of the slide B, and when the edge 2 of the blade E is employed as the acting edge, the index mark *g* upon the gib C serves as an index to indicate the position of the slide B. One inch from the end *b* and also from the index line *g*, I place alternate index lines *f* and *h*, which are used whenever the end *b* of the line *g* is covered by the blade E, as represented in Figs. 2 and 5. The instrument above described is designed to be used in the delineation of chords upon the plane surface of circular bodies, and in use the ribs F, F, are placed against the edge of the circular body, indicated in Figs. 1 and 3 by the broken line H, and the blade brought into position to bisect

the angle formed by the ribs F, F, in case the line is to be drawn diametrically through the circle, the instrument then serving as a center square. If chords are to be drawn; the distance of the chord from the center of the circle is to be determined and the slide B moved laterally in the way A′, bringing the acting edge of the blade E to requisite distance from the center, as indicated by the index lines on the gib C as described, the slide being retained in its eccentric position relatively to the stock A, by means of the gib C′ and tightening screws D, D.

I am aware that a triangular frame, having a blade bisecting one of its angles has long been in use as a center square, such I do not herein claim, but what I do claim as of my invention, and desire to secure by Letters Patent is:

1. In an instrument for drawing chords, the combination with a head or stock, provided with a re-entering angle and having a way at right angles with a line bisecting said angle and extending laterally upon each side of said angle, a slide moving in said way, and a drafting blade attached midway of said slide, whereby said drafting blade can be moved upon either side of said angle, substantially as described.

2. In an instrument for drawing chords, the combination with a head, or stock, provided with a reentering angle and having a way extending laterally upon each side of said angle, a slide moving in said way, a drafting blade attached midway of said slide, and a clamping gib, or bar, with means substantially as described for tightening the same, whereby said drafting blade is held in the desired position upon either side of said reentering angle, substantially as described.

3. In an instrument for drawing chords, the combination of a head, or stock, provided with a reentering angle, adapted to inclose an arc of a circular body and having a way extending laterally upon each side of said angle, a drafting blade attached to a slide and a slide sliding in said way and having the drafting blade attached to its central section, and having its edges graduated from the drafting blade toward either end, substantially as described.

4. In an instrument for drawing chords, the combination with a head or stock provided with a way to receive a sliding plate, of a sliding plate having a drafting blade attached at right angles thereto, and buttons pivoted upon the ends of said head or stock and arranged to bear against the ends of said sliding plate and hold the same from movement in said way, substantially as described.

5. In an instrument for drawing chords, the combination with a head or stock provided with gibs C, and C′, forming a way for a sliding plate, said gib C′ being separable from said head or stock, of a sliding plate carrying a drafting blade, and sliding in said way, and tightening screws D, D, by which said separable gib is clamped upon the edge of said sliding plate, substantially as described.

Dated at Worcester, in the county of Worcester and State of Massachusetts, this 3d day of March, 1890.

WILLIAM H. BROWN.

Witnesses:
RUFUS B. FOWLER,
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