

(No Model.)

C. C. HARE.
DRAFTING INSTRUMENT.

No. 465,264.

Patented Dec. 15, 1891.

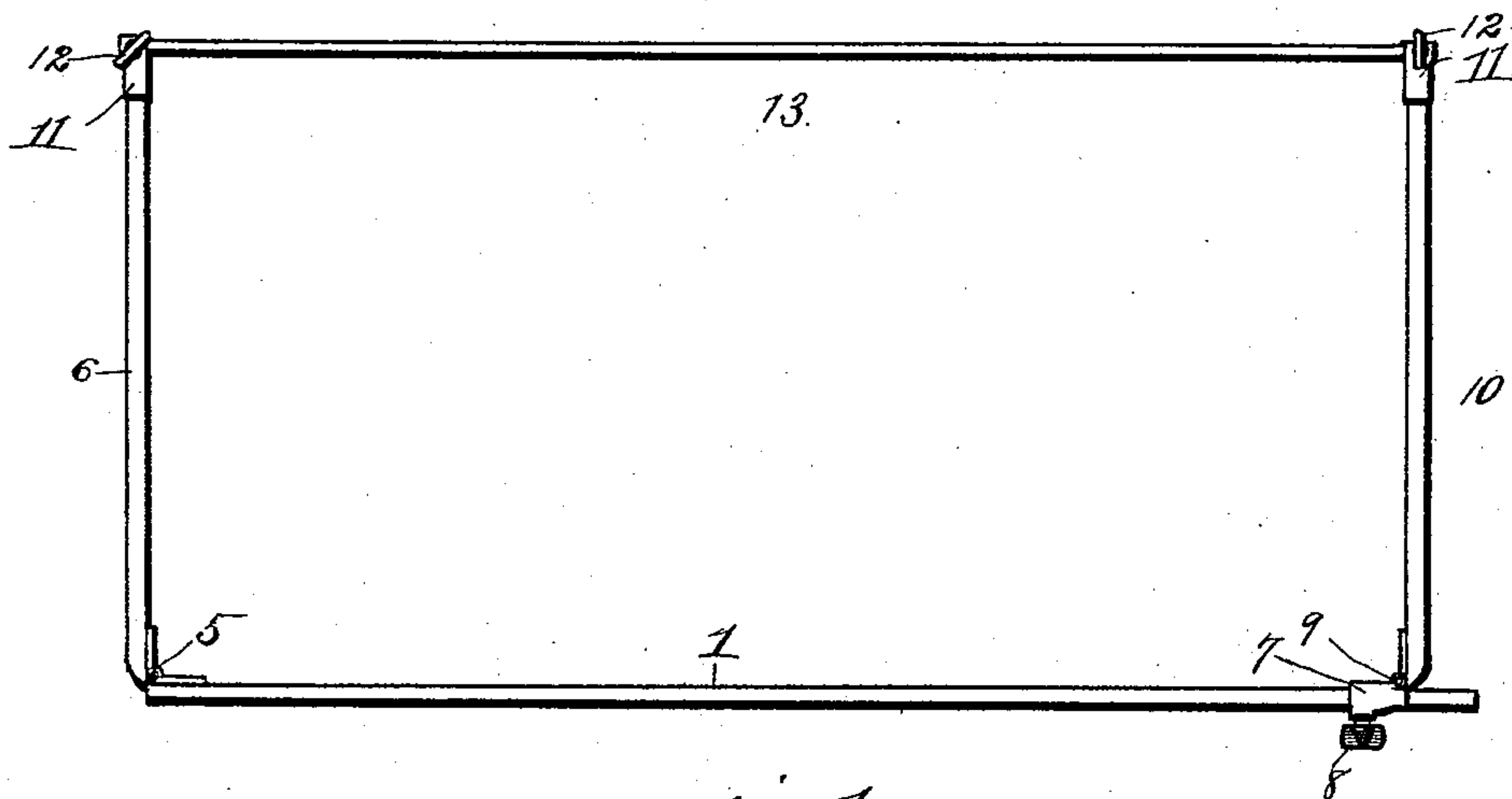


Fig. 1.

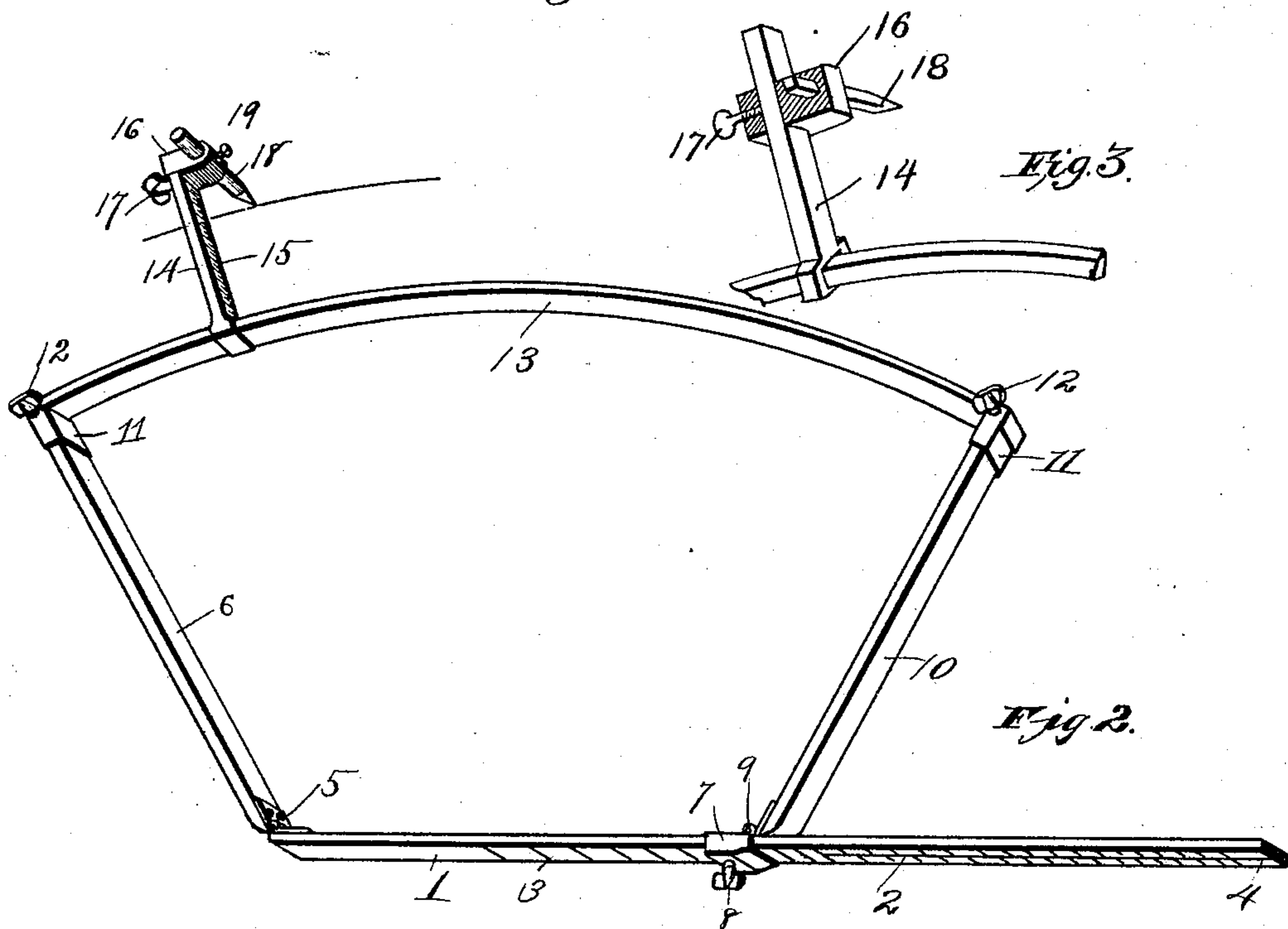


Fig. 3.

Fig. 2.

Witnesses:

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DRAFTING-INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 465,264, dated December 15, 1891.

Application filed June 16, 1891. Serial No. 396,450. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. HARE, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Drafting-Instruments, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to instruments which are designed to be used by architectural, mechanical, topographical, and other draftsmen; and the object of my invention is to produce a simple, durable, and inexpensive instrument, by means of which circles, curves, and segments of circles of such great radius as could not be readily laid out by other instruments can be easily, accurately, and rapidly laid out to any desired scale.

To the above purposes my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a plan view of my improved drafting-instrument with its parts assembled in readiness to be adjusted for use. Fig. 2 is a perspective view of the same adjusted in readiness for use. Fig. 3 is a detached view, on an enlarged scale, of a portion of the flexible bar and its auxiliary or extension bar, the slide for said bar being shown in cross-section.

In the said drawings, 1 designates a flat rod or bar, which is provided on one side with a graduated scale 2, the graduations of which are made to feet and diminished in quantity from about the point marked 3 in Fig. 2 to near the extremity 4 of the bar. This bar may be of wood or metal, as preferred, and at one extremity of the same is connected, by a suitable hinge 5, one end of a bar 6, which may also be either of wood or metal, as desired, and the inner end of which is preferably beveled, as shown at 20, to permit the required movement of the bar. The bar 1 is embraced by a movable slide 7, also either of wood or metal, and which carries a set-screw 8, working through the outer part of the slide and impinging at times at its inner end upon

the outer surface of the bar 1, so as to retain the slide in any desired position. Upon the front or the opposite side of this slide is connected, by a suitable hinge 9, a bar 10, corresponding in length with the bar 6 and constructed either of wood or metal, as preferred, the inner end of this bar being preferably beveled, as shown at 21, to permit the required movement of the arm. The outer extremities of the arms or bars 6 and 10 are provided each with a box 11, having a set-screw 12 working through its upper side, the said boxes being formed or secured rigidly upon the outer ends of said arms 6 and 10.

13 designates an elongated bar, which may be either flat, as shown, or round, or of any other preferred form and which is either of wood or metal, as preferred, but which must in any event possess sufficient spring or resilience to assume a curved form similar to that shown in Fig. 2 and then return readily to the straight form shown in Fig. 1. The ends of this bar 13 are inserted into the outer ends of the boxes 11, so as to pass transversely through the same, and are retained therein by set-screws 12, the inner ends of which impinge upon one of the sides or edges of the said bar 13, and thus securely retain it in the boxes 11.

14 designates an auxiliary or extension arm, which is either of wood or metal, as preferred, and the inner end of which is in the form of a loop, which embraces the bar 13, so as to permit the arm 14 to be moved longitudinally thereon. Upon one side this arm 14 is provided with a graduated scale 15, which is marked to inches and fractions of inches, and said arm 14 is embraced by a slide 16, also either of wood or metal, as preferred. This slide fits around the arm 14 in such a manner as to move longitudinally thereof, and is provided with a set-screw 17, which passes through one end of the slide and impinges at times at its inner end upon one side of the arm 14, so as to retain the slide in any desired position of adjustment.

A suitable pencil 18, or a pen or other inscribing implement, is passed through the body of the slide 16 in such manner as to cause its point or scribing end to come into contact with the paper or other material to be

drawn upon, said implement being preferably held in position by a suitable set-screw 19.

The operation of the above-described drafting-instrument is as follows: A line drawn
5 from the center to the periphery of a circle intersects the circular line at right angles thereto. Therefore the arms 6 and 10, being connected to the flexible bar 13 normally at right angles thereto, will, when the bar 10 is
10 moved toward the bar 6, cause both of said bars to converge toward the center of a circle, an arc of which is described by the flexible bar 13. This adjustment imparts the required curvature to the spring-bar 13, as just
15 stated, and said curve is described upon the outer side of the bar 13 by any suitable drawing-instrument. If it is desired to increase the length of the curve, the inner side of one of the arms 6 or 10 is marked and the instru-
20 ment is moved round until the inner side of the opposite arm comes to this line and a curve is again inscribed about the outer side of the bar 13. The graduated scale 2 on the bar 1 being a constantly-varying one, the space
25 between the graduating-marks becoming smaller as the radius increases, it is impossible to indicate more than feet upon said bar 1. If it is desired to indicate inches and fractions of inches, the auxiliary arm 14 is
30 placed in position and the slide 16 is adjusted to the required position relative to the scale 15 on said arm 14, the scribing operations being continued as before.

From the above description it will be seen
35 that I have provided a simple, compact, and inexpensive instrument, by means of which curves, circles, and segments or arcs of circles of great radius can be readily inscribed, it being possible with this instrument to lay
40 out arcs of from three feet to five hundred feet, the work being performed accurately and rapidly. It will be seen that by separating the several parts of the instrument it can be folded up so as to occupy a very small space.

45 It will be seen that owing to the rigid character of the boxes 11 and the transverse direction of the openings for the ends of the flexible bar 13 said bar must always assume the form of a true arc or segment of a circle
50 when the inner end of the bar 10 is adjusted

toward the inner end of the bar 6, and this constitutes an important feature of my invention.

Having thus described my invention, what I claim as new therein, and desire to secure 55 by Letters Patent, is—

1. An improved drafting-instrument comprising a bar provided with a graduated scale, a second bar hinged to one end of the scale-bar, a slide embracing the scale-bar, a bar 60 hinged to said slide and corresponding in length with the first hinged bar, a spring-bar attached at its ends to the outer ends of the hinged bar, an auxiliary arm provided with a finer scale than that of the scale-bar, a 65 slide embracing said arm, and a scribing implement carried by said slide, substantially as set forth.

2. An improved drafting-instrument comprising a bar having a diminishing foot-scale, 70 a bar hinged to one end of said scale-bar, a slide embracing said scale-bar, a bar hinged to said slide and corresponding in length with the first hinged bar, a pair of boxes secured to the outer ends of the hinged bars, a spring- 75 bar removably secured to said boxes, an auxiliary arm embracing the spring-bar and movable thereon and also carrying an inch and inch-fractions scale, a slide mounted movably upon an arm, and a scribing-implement car- 80 ried by said slide, substantially as set forth.

3. An improved drafting-instrument comprising a continuous bar having a graduated scale, a second bar hinged to one end of said scale-bar and having at its outer end a rigid 85 box provided with a transverse opening, a slide embracing the scale-bar, a third bar hinged to said slide and corresponding in length to the first-named hinged bar and having also at its outer end a rigid box provided 90 with a transverse opening, and a spring-bar passing through the transverse openings of said rigid boxes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHRISTOPHER C. HARE.

Witnesses:

GEO. Y. THORPE,
H. E. PRICE.