

No. 692,147.

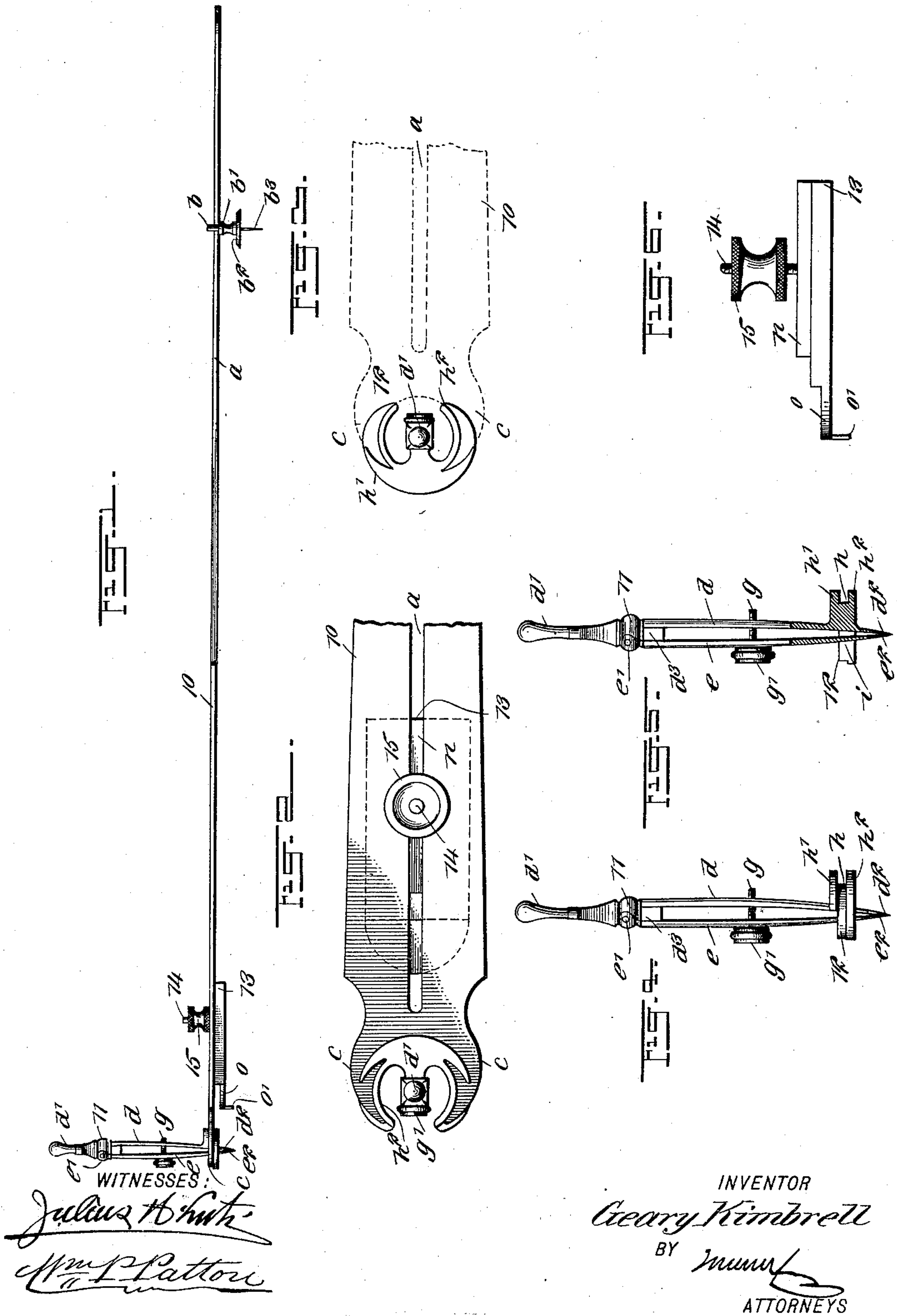
Patented Jan. 28, 1902.

G. KIMBRELL.  
ENTASISOGRAPH.

(Application filed Aug. 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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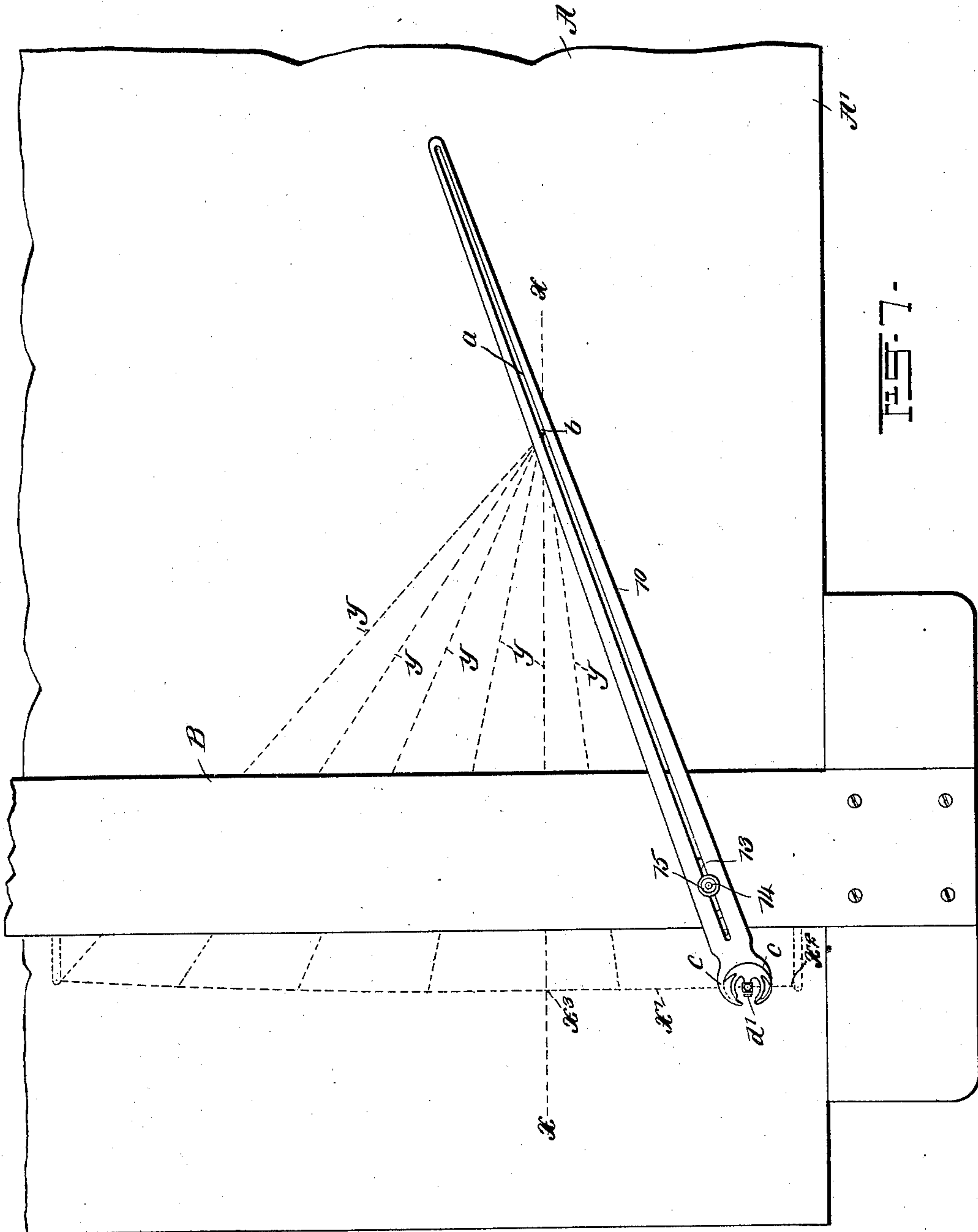
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(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

*Julius H. Smith.*  
*Wm. P. Patton*

INVENTOR

*Geary Kimbrell*

BY *Mumford*

ATTORNEYS



# UNITED STATES PATENT OFFICE.

GEARY KIMBRELL, OF PENDLETON, OREGON.

## ENTASISOGRAPH.

SPECIFICATION forming part of Letters Patent No. 692,147, dated January 28, 1902.

Application filed August 28, 1901. Serial No. 73,600. (No model.)

*To all whom it may concern:*

Be it known that I, GEARY KIMBRELL, a citizen of the United States, and a resident of Pendleton, in the county of Umatilla and State of Oregon, have invented a new and Improved Entasisograph, of which the following is a full, clear, and exact description.

The object of this invention is to provide a novel instrument especially adapted for accurately and quickly drawing the "entasis" of a classic column, which may be either of the Ionic, Corinthian or composite order, and an instrument that by its employment will enable any draftsman to execute a more perfect drawing than an expert can with the usual means employed and also effect a considerable saving of time.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly-sectional side view of the improved drawing instrument. Fig. 2 is an enlarged plan view of one end of the same, which embodies the main features of the invention. Fig. 3 is a plan view of portions of the device represented in Fig. 2, but arranged differently, part being shown by dotted lines. Fig. 4 is an enlarged detached side view of a drawing-pen of novel construction. Fig. 5 is a view similar to Fig. 4, showing the novel detail in section. Fig. 6 is an enlarged detached side view of a novel slide-block employed; and Fig. 7 is a plan view of the improvement as applied, the delineation of the entasis of half of a column being indicated by dotted lines.

The type of classic column the improved instrument is employed in drafting has a slightly-curved outline which in all cases extends the entire height of the column from its base to the top, and as this slight swell of the column is not the arc of a true circle, but changes gradually in degree of curvature, it is ordinarily a difficult and tedious undertaking to accurately draw the entasis of such a column with the exactitude that is essen-

tial for the correct proportion and ornate appearance of the same.

In Fig. 7 one-half of a column is shown by dotted lines, and the usual way employed in projecting the entasis or variable swell thereon is also indicated by dotted lines. In the same figure is shown the method of using the improvement, which plainly illustrates the advantages afforded by the novel instrument which will be hereinafter described.

Ordinarily the draftsman, on drawing-paper mounted upon the board A, projects a line  $x$  parallel with the side edge A' of the board A. A line  $x'$  is projected upwardly from the base of the column and terminates at the top of the column, this line representing the exterior contour of the column, which in this style of plain or fluted columns gradually increases in diameter from the base of the column toward the center and then diminishes in thickness toward the cap-piece of the column. From a suitable point  $b$ , that is taken on the line  $x$ , a plurality of radial lines  $y$  are drawn toward line  $x'$ . The usual method of forming the variable swell defined by the line  $x'$  is as follows: A T-square B is so placed upon the board A that its edge nearest the line  $x'$  is removed therefrom a distance equal to one-half of the diameter of the column, and therefore indicates the perpendicular axis of the same. The draftsman, with spacing-dividers, takes the distance between this edge of the T-square and the point  $x^3$  and then lays off this distance on each radial line  $y$  from the axis of the column as defined by the edge of the T-square, these points when joined by an arched line drawn through them defining the entasis of the column. As it is difficult to draw a continuous line of variable curvature by successive use of different-curved guides, the draftsman must be very expert to execute a true and properly-defined entasis by the means just described.

The instrument which I have devised affords means to draw a true entasis of any desired proportion without radial lines being necessary, as will appear from the following description.

In the drawings, 10 indicates a beam of suitable length, that is preferably of plate metal and may with advantage be gradually



tapered edgewise from one end or "head" of the beam toward the opposite end of the same. A slot  $a$  is formed at the transverse center of the beam 10 and extends from a point near the head of the beam to another near the opposite end, as clearly shown in Fig. 7.

In the slot  $a$  the cylindrical upper end  $b$  of a fulcrum-post is loosely introduced, the beam being seated upon a shoulder  $b'$ , that is at the base of the post, and preferably the body of the fulcrum-post is increased in area so as to provide a base-flange  $b^2$  at a suitable distance from the shoulder  $b'$ . Centrally from the base-flange  $b^2$  a pointed anchor-pin  $b^3$  projects, which in service is forced into the board A at a point that defines the common center of the variable curve to be drawn by the instrument.

At the head of the beam 10 two similar fingers  $c$  are formed thereon, having equal thickness with said beam. The fingers  $c$  curve toward each other, and, as shown in Figs. 2 and 3, their inner edges merge into each other and define a true arc of a circle, which preferably exceeds a semicircle.

The drawing-pen 11 (shown clearly in Figs. 4 and 5) comprises a leg  $d$ , that is a fixed projection from the handle  $d'$  of the instrument and curves down to the point or nib  $d^2$ .

In a perforation in the hinged leg  $e$  the body  $g$  of an adjusting-screw is loosely inserted, the head  $g'$  thereof being of considerable dimensions and preferably milled on its periphery to adapt it for convenient manipulation.

The screw  $g$  engages a tapped perforation in the fixed leg  $d$ , thus adapting it when turned in the right direction to draw the point  $e^2$  toward the point  $d^2$  to form a point for the pen, overcoming the stress of the spring-leg  $e$  when the latter is arrested by contact with the depending lower portion  $d^3$  of the handle  $d'$ .

Upon the leg  $d$  a coupling-piece 12 is formed or affixed, that consists of a circular block having a central peripheral groove  $h$  formed therein. The groove  $h$  is flat on the bottom and parallel on the sides, having such proportionate width as permits two substantial flanges  $h'$   $h^2$  to project in parallel planes from the opposite edges of the block. The space between the flanges  $h'$   $h^2$  is slightly in excess of the thickness of the fingers  $c$ , so that said fingers may be slidably introduced within the groove  $h$  if the coupling-piece and end of the beam 10 are disposed oppositely in the relative positions indicated by full and dotted lines in Fig. 3.

To permit the leg  $e$  to play in the block 12, a slot or opening  $i$  is formed in said block, which extends outwardly from the inner side of the leg  $d$ , so that the leg  $e$  may occupy the slot and receive adjustment as occasion may require.

Preferably the upper flange  $h'$  of the coupling-piece 12 is reduced in extent and so shaped as to approach a crescent form, while the lower flange  $h^2$  is extended around the lower edge of the block 12, and it will be seen that when

in position the drawing-pen may be rotated upon the end of the beam 10 and have its nibs  $d^2$   $e^2$  when they are closely adjusted disposed centrally within the arc of the circle that defines the inner edges of the fingers  $c$ .

A slide-block 13 is provided as a completing member of the novel instrument, which is preferably termed an "entasisograph." As shown, the slide-block 13 is parallel on the top and bottom faces and of suitable width to insure a proper bearing therefor upon the lower surface of the beam 10. A rib-like flange  $n$  projects centrally from the upper surface of the slide-block 13 and longitudinally thereof, the rib having a sliding fit within the slot  $a$  of the beam 10. A threaded stud 14 projects vertically from the rib  $n$  immediately of its ends, and upon the stud a clamping-nut 15 is screwed, said nut affording means to secure the slide-block 13 at any desired point on the beam 10.

The block 13 is preferably rounded on the end which in service is nearest to the drawing-pen, and this end portion is reduced in thickness by the removal of material from its upper side, said reduction permitting the forward end of the slide-block to pass below the lower flange  $h^2$ .

Upon the front edge of the block 13, at the transverse center of the thinner portion  $o$ , a guide-toe  $o'$  is formed or secured, which projects downward at a right angle to the lower surface of the slide-block, and it will be seen that the toe  $o'$  may be disposed in close proximity to the pointed end of the drawing-pen by a forward adjustment of the block 13.

In arranging the instrument for service the drawing-pen is loaded with ink and the beam 10 engaged with the pin  $b$  on the fulcrum-post, which has previously been bedded in the drafting-board A at a proper distance from the forward edge of the T-square blade B, held transversely of the board A, as shown in Fig. 7.

The upright dotted line  $x'$  may represent the side of a column which is completed by defining the entasis thereof that extends upwardly from the base  $x^2$  and represents the entire height of the column. The slide-block 13 is now adjusted so that the guide-toe  $o'$  will engage the forward edge of the T-square blade B when the point of the loaded drawing-pen is positioned directly over the point  $x^2$  at the base of the column to be drawn. The draftsman now slides the beam 10 toward the top end of the column to be drawn, said beam being rested upon the T-square blade B. The operator holds the toe  $o'$  in close engagement with the forward edge of the T-square blade while moving the beam and at the same time holds the drawing-pen steady, so that its point will draw an ink-line on the drawing-paper. Now, as the distance between the toe  $o'$  and the point of the pen remains constantly the same, it will be seen that the traverse of the toe along the blade B will draw the beam 10 forwardly and exactly define a true entasis for



one side of a column, which may be completed by an obvious repetition of the operation conducted from the other end of the board A.

While it is preferred to employ a pen and ink in delineating the entasis of a column, it is obvious that a drawing-pencil or a steel point may be placed in the drawing-pen and be substituted for the pen that marks with ink.

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

1. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, a fulcrum-post loosely engaging the slot, a slide-block having a depending toe passing down through the slot, means for securing the slide-block on the beam, and a pen or the like loosely held upon one end of the beam.

2. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, a fulcrum-post loosely engaging the slot, a slide-block, a depending toe on one end of the slide-block, a rib on the

slide-block engaging the slot in the beam, means for securing the block at any point along the slot in the beam, and a pen or the like loosely held upon one end of the beam.

3. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, curved fingers at one end of the beam, a drawing-pen or like device having a flanged circular coupling-block on one leg, and adapted to loosely receive the curved fingers, a slide-block, a depending toe on one end of the slide-block, a rib on said block loosely engaging the slot in the beam, means to secure the block in said slot, and a fulcrum-post securable in a drawing-board and loosely engaging the slot in the beam.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEARY KIMBRELL.

Witnesses:

T. F. HOWARD,  
J. R. RALEY.