

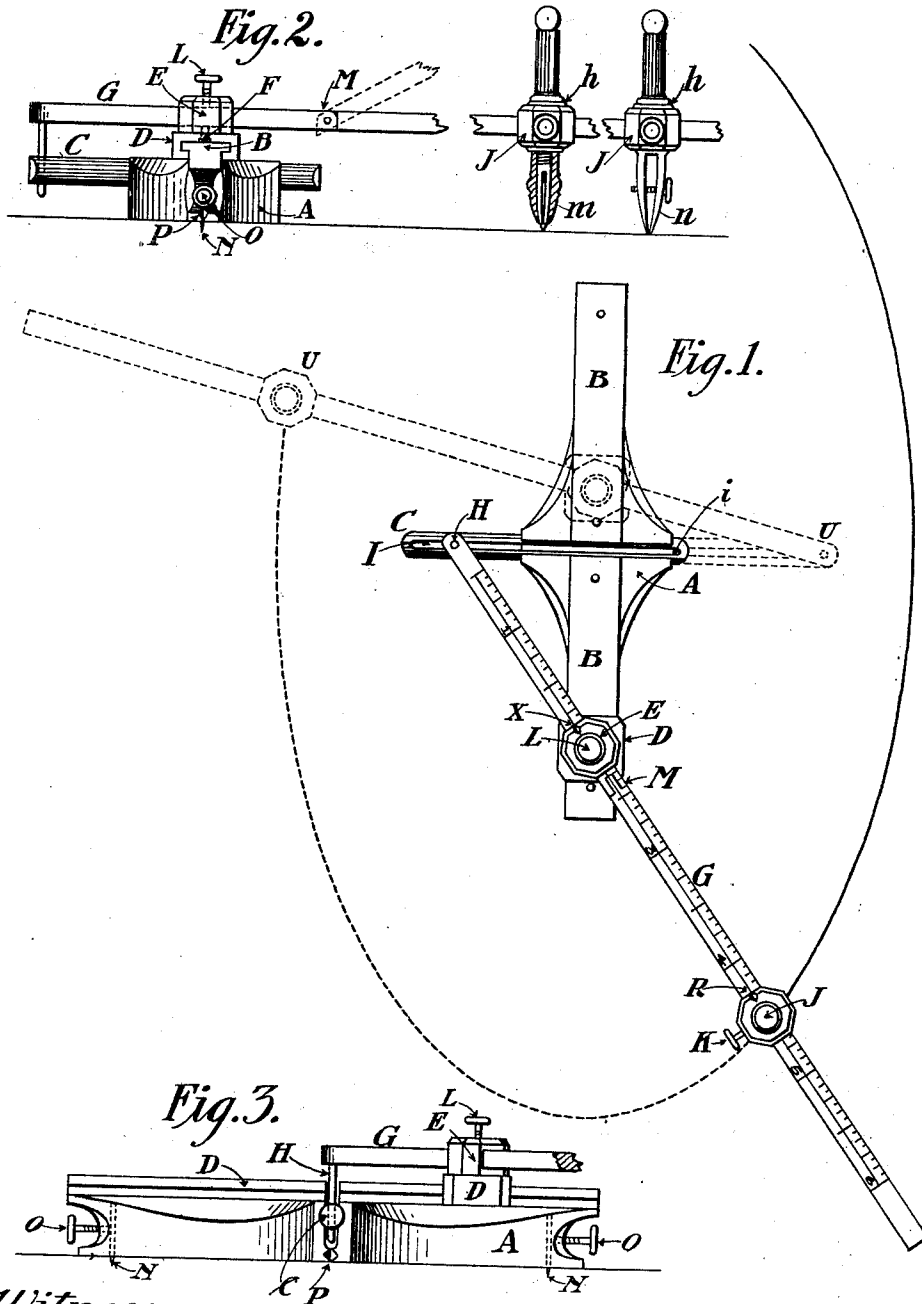
No. 717,082.

Patented Dec. 30, 1902.

E. N. DART.
ELLIPSOGRAPH.

(Application filed May 26, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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ELLIPSOGRAPH.

SPECIFICATION forming part of Letters Patent No. 717,082, dated December 30, 1902.

Application filed May 26, 1902. Serial No. 108,978. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DART, a citizen of the United States of America, and a resident of New York city, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Ellipsographs, of which the following is a specification.

The object of my invention is to produce an instrument with which an entire ellipse can be drawn at one operation and that shall be capable of ready adjustment, whereby ellipses of a considerable range of eccentricity and size can be drawn.

The instrument is of the well-known tram-mel form, in which two points in a beam are guided by two intersecting trams, the ellipse being described by a third point on the beam.

Such instruments have heretofore been limited in their range of adjustment by reason of the fact that the tram for the minor axis of the ellipse will lie across the line of the ellipse if the ellipse is at all narrow, so that the portions of the ellipse which adjoin this axis cannot be drawn with the instrument and must be patched out by the use of curves after the instrument has been removed from the paper. My invention avoids this difficulty by providing a sliding or telescopic tram for the minor axis of the ellipse.

In the accompanying sheet of drawings, which form a part of this application, Figure 1 is a plan view of the instrument. Fig. 2 is an end view, and Fig. 3 is a side view.

A base A carries a tram B B and supports a tram C, which is free to slide transversely of the tram B and is therefore not rigidly attached or formed on the base, but is guided in a slot through the base at right angles to the tram B and is free to slide in this slot. A slide D is guided by the tram B, and a block E is swiveled to this slide by a pin F. The block E slides on a scribing-beam G and is clamped to the beam at the desired point, depending on the size of the ellipse to be scribed, by a screw L. The point on the beam at which the block is clamped and which is opposite the pin F is therefore confined in its movement to a straight line in the direction of the slide D. At one end of the scribing-beam is a pin H, which slides along a slot I, with closed ends, in the tram C, and is therefore confined

in its movement to a straight line in the direction of this tram. Its movement, however, is not limited by the length of this slot, for if the scribing-beam is brought to the position shown by the dotted lines U U the pin H on reaching the end *i* of the tram C will slide this tram transversely of the other tram B, and the pin will continue its movement in the direction of the tram C and be guided by this tram. At a third point on the scribing-beam is the drawing-point J, which is clamped to the beam by a screw K. This may be either a drawing-pencil *m* or a drawing-pen *n*, as shown in Fig. 2. The upper end of the drawing-point is provided with a handle, which is swiveled at *h*. In order that the instrument may be packed in a smaller compass, the beam is jointed at M. Near each end of the base A are pins N, which are clamped in place by the screws O. The points of these pins are protruded through the bottom of the base and into the paper or drawing-board sufficiently to hold the instrument in place.

Having determined upon the length, width, and location of the ellipse to be drawn, the drawing-point J is set on the scribing-beam at a distance from the pin H equal to half the major axis of the ellipse, and the block E is set at a distance from the pin H equal to the difference between half the major and the minor axes of the ellipse. The scribing-beam is provided with a graduated scale by which the drawing-point and the block can be adjusted by bringing the notches R and X to the proper marks on the scale. The notch in the block is at one side of the swivel-pin F, and the notch in the block carrying the drawing-point is at an equal distance to one side of the point directly over the drawing-point. In order that these blocks may be set properly by reading the scale at these notches, the scale-divisions are each placed on the beam nearer to the pin H by the amount that these notches R and X are to one side, respectively, of the drawing-point and the swivel-pin. The base of the instrument is set on the drawing-paper so that its tram B B will lie over the major axis and its tram C will lie over the minor axis of the ellipse to be drawn. The handle of the drawing-point is then seized by the fingers and the ellipse is drawn.

What I claim as new, and desire to secure
by Letters Patent of the United States, is—

5 In an ellipsograph, the combination of two
intersecting trams, one of which is free to
slide transversely of the other tram, and a
scribing-beam with points guided by each
tram, substantially as described.

Signed by me, in New York city, borough
of Manhattan, New York, this 23d day of May,
1902.

EDWARD N. DART.

Witnesses:

SAMUEL W. BALCH,
EDWARD J. MURPHY.