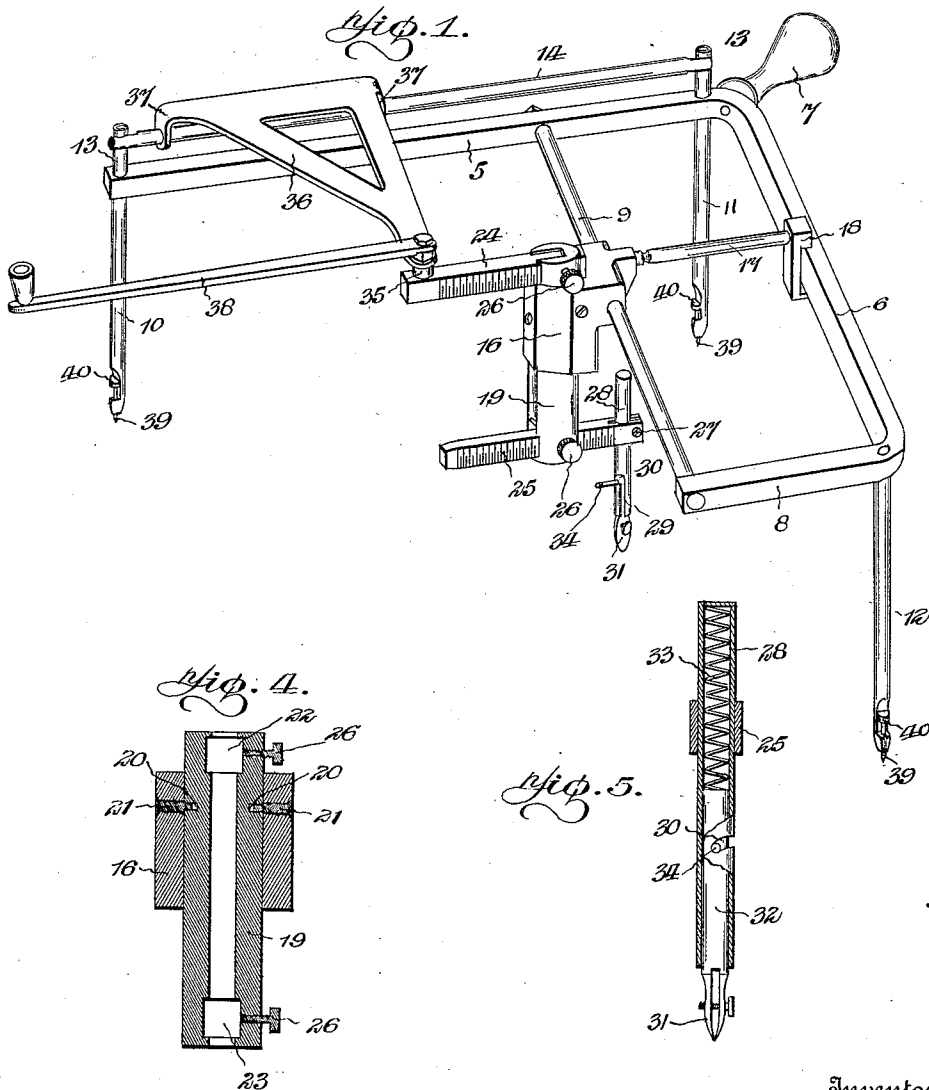


A. GRAN & J. H. KARLSON.
 ELLIPSOGRAPH.
 APPLICATION FILED MAY 27, 1911.

1,017,287.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.



Witnesses
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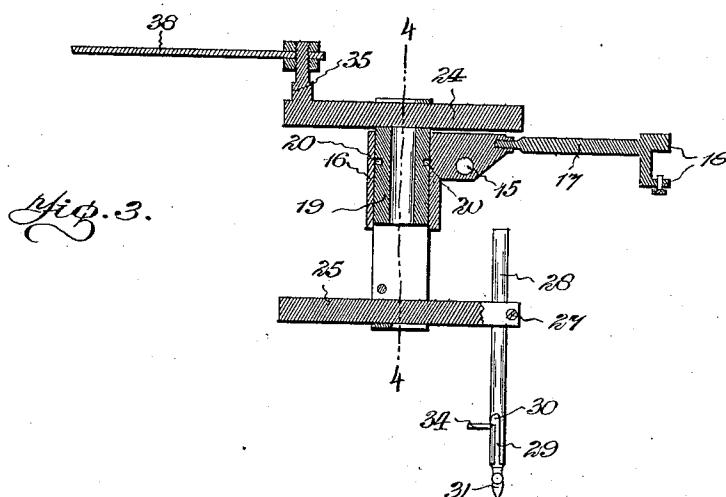
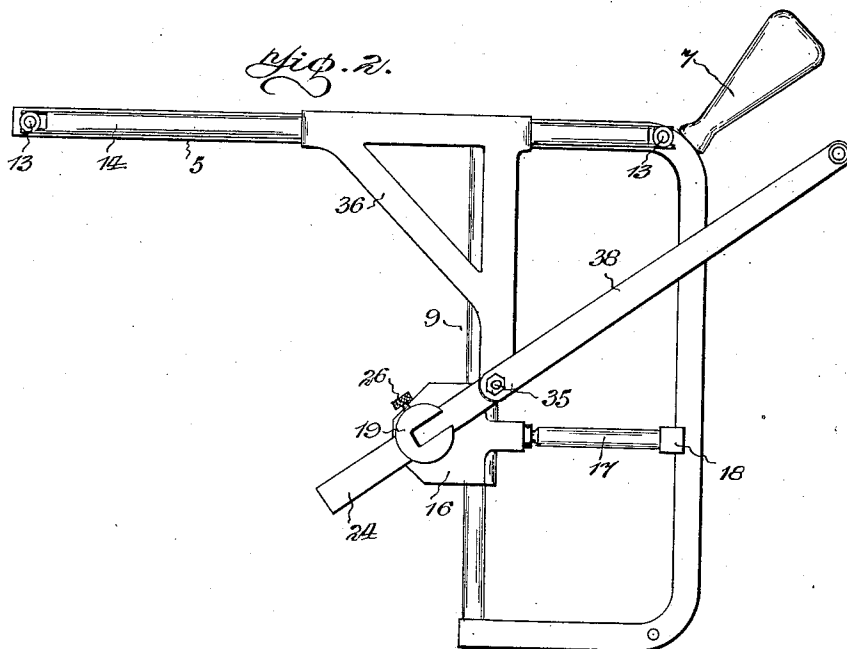
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UNITED STATES PATENT OFFICE.

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ELLIPSOGRAPH.

1,017,287.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ALBERT GRAN and JULIUS H. KARLSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ellipsographs, of which the following is a specification.

Our present invention relates to that character of drawing instruments designed for the purpose of constructing ellipses, our primary object being to provide an instrument which will be accurate and of novel and simple construction capable of manufacture at a small cost as compared with instruments of this type now in use.

A further object is to provide an instrument of the above character having a range from zero to its largest capacity and capable of constructing circles as well as ellipses.

With these and other objects having to do with details and which will be hereinafter made apparent, our invention resides in the features of construction, arrangement and operation to be fully described in the specification to follow, with reference to the accompanying drawing, in which,

Figure 1 is a perspective view of our improved instrument. Fig. 2 is a plan view thereof. Fig. 3 is a vertical longitudinal section, through the carriage and its connected parts. Fig. 4 is an enlarged detail cross-section through the carriage, removed, taken on line 4-4 of Fig. 3, and Fig. 5 is an enlarged vertical section through the line marking device.

Referring now to these drawings, our improved ellipsograph comprises an L-shaped frame consisting of bars 5 and 6, formed and extending at right angles to one another, at the juncture of which is secured an angularly extending handle 7, which the operator may grasp in any manner to steady the frame in use. The frame bar 6 is provided at its end with a short extension 8 projecting at right angles thereto and extending parallel with the frame bar 5, said extension 8 being connected to said frame bar 5 by a rod 9 which extends parallel with the frame bar 6. Substantially at the three corners of this frame, depend supporting legs 10, 11 and 12, the legs 10 and 11 being provided with portions 13 which project above the frame and serve to receive and

support the ends of a rod 14 arranged parallel with and above the frame bar 5.

Slidably disposed upon the rod 9, by means of its transverse opening 15, is a carriage 16 having a projecting arm 17 extending toward the frame bar 6 and provided at its end with a bracket 18 slidably engaging said frame bar in order to prevent the carriage from rocking. This carriage 16 is provided with a vertical bore in which is rotatably disposed a center post 19, having an intermediate annular channel 20 into which project the inner ends of studs 21 threaded through the wall of the carriage 16 at diametrically opposite points, to form a bearing for said center post and take up end-thrust. The lower portion of the center post 19 is bifurcated as shown, and it is further provided with upper and lower transverse openings 22 and 23 which slidably receive the similar shaped upper and lower graduated bars 24 and 25 respectively. Threaded through the wall of the post 19 in line with its said transverse openings 22 and 23 are set screws 26, the inner ends of which may bear against the slide bars 24 and 25 and lock the same in desired adjustment. One end of the lower slide bar 25 is split and controlled by a screw 27 in order to receive and clamp the barrel 28 of the line marking device, which barrel is open at its lower end and provided with a slot 29 extending upwardly from said end and terminating in an angularly disposed upper portion 30. The line marker in the present instance we have shown as a pen 31 having a vertical stem 32 adapted for projection upwardly within the lower end of the barrel, against the tension of a spring 33 within the barrel, said stem 32 having an intermediate laterally projecting pin 34 slidably disposed within the barrel slot 29 and engageable within the upper angular slot end 30 when it is desired to raise the line marker and lock the same from engagement with the surface upon which the instrument rests. At one end, the upper slide bar 24 is provided with an upstanding stud 35 which projects loosely through the inner end of a triangular guide leaf 36, this guide leaf having down-turned side ears 37 at its other end which are apertured to receive and also slide upon the rod 14 before mentioned. The operating handle, in the form of a crank 38,

has its inner end rigidly secured upon the upper end slide bar stud 35.

The lower ends of the supporting legs 10, 11 and 12 are split to receive and frictionally hold surface engaging pins 39 having upper heads 40 located in cut-out portions in said legs.

Thus from the foregoing it will be readily seen that our improved device fulfils all requirements for a simple and inexpensive instrument which may be readily and quickly adjusted to construct ellipses, circles and even straight lines, and in which the line being drawn is in full view of the operator.

In order to draw an ellipse of any given dimensions, the line marker is adjusted, by sliding the graduated bar 25, a distance from the center of post 19, equal to one-half the length of the minor axis, and adjusting the stud 35, by sliding the upper graduated bar 24, from the center of post 19 a distance equal to one-half the distance which the major axis is longer than the minor axis. To draw a circle the stud 35 should be adjusted by sliding the upper graduated bar 25, until it occupies a position in vertical alinement with the center of the post 19, after which the line marker is adjusted, by sliding the lower graduated bar a distance from the center of post 19 equal to the radius of the circle desired. A line of a given length may be drawn by adjusting the line marker, by sliding the lower graduated bar 25 to occupy a position in alinement with the center of post 19, and by adjusting the stud 35, by sliding the upper graduated bar 24, a distance from the center of post 19 equal to one-half the desired length of the line.

While we have shown a pen 31 as constituting the line marker, we use the term line marker to include also a pencil point where such is desired or necessary.

We claim:—

1. In an instrument of the character described, the combination of an L-shaped frame comprising bars formed and extending at right angles to one another, one of said bars being provided with an extension projecting at right angles therefrom and parallel with the other bar, a rod connected between said extension and the frame bar

parallel therewith, a second rod mounted upon one of the frame bars at right angles to said first named rod, a carriage slidably mounted upon said first named rod, a guide member having one portion thereof mounted to slide upon the other rod, a vertical rotatable post mounted in said carriage, graduated bars slidably mounted through the upper and lower portions of said post, the upper one of which is provided with an upstanding stud adjacent to one end, a line marking device carried by one end of the lower slide bar, said guide member having an opening through which the said slide bar stud loosely extends, and an operating handle rigidly secured to said stud.

2. In an instrument of the character described, the combination of an L-shaped frame comprising bars formed and extending at right angles to one another, one of said bars being provided with an extension projecting at right angles therefrom and parallel with the other bar, a rod connected between said extension and the frame bar parallel therewith, a second rod mounted upon one of the frame bars at right angles to said first named rod, supporting legs depending from said frame and provided with lower split ends, surface engaging pins frictionally held within said split leg ends, a carriage slidably mounted upon said first named rod, a guide member having one portion thereof mounted to slide upon the other rod, a vertical rotatable post mounted in said carriage, graduated bars slidably mounted through the upper and lower portions of said post, the upper one of which is provided with an upstanding stud adjacent to one end, a line marking device carried by one end of the lower slide bar, said guide member having an opening through which the said slide bar stud loosely extends, and an operating handle rigidly secured to said stud.

In testimony whereof we affix our signatures in presence of two witnesses.

ALBERT GRAN.
JULIUS H. KARLSON.

Witnesses:

HARRY A. DIEB,
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