

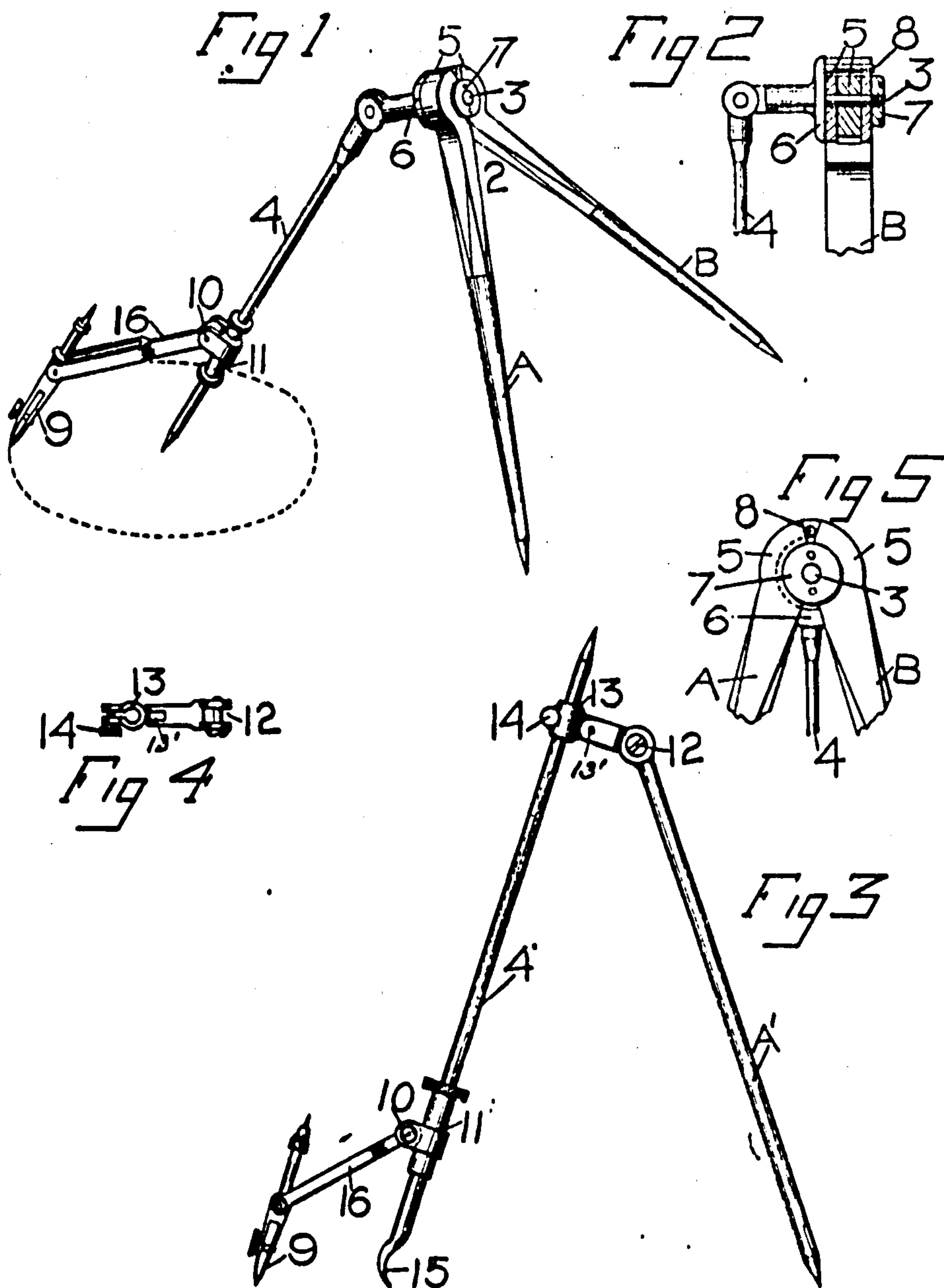
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No. 783,009.

PATENTED FEB. 21, 1905.

H. C. BARNES.
ELLIPSOGRAPH.

APPLICATION FILED JAN. 22, 1904.



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Witnesses

E. B. Aulay
James

Inventor

Harry C. Barnes
By Geo. C. Strong
Attorney

UNITED STATES PATENT OFFICE.

HARRY C. BARNES, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-THIRD
TO AARON T. SPENCE, OF ALAMEDA, CALIFORNIA.

ELLIPSOGRAPH.

SPECIFICATION forming part of Letters Patent No. 783,009, dated February 21, 1905.

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To all whom it may concern:

Be it known that I, HARRY C. BARNES, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Ellipsographs, of which the following is a specification.

My invention relates to an apparatus which is especially designed for the production of ellipses or similar curved outlines, such as are employed in the draftsman's profession.

My invention consists of the parts and the constructions and combinations of parts hereinafter described and claimed.

Figure 1 is a perspective view showing the application of my device. Fig. 2 is a section of the head-joint. Fig. 3 is a modification to be referred to. Fig. 4 is a top view of the joint shown in Fig. 3. Fig. 5 is a side view of the head-joint of Fig. 1.

In mechanical drawing many or most of the ellipses which are required to be shown are representations of oblique projections of circular forms in which the angle of obliquity is indicated and measurements of the required major and minor axes are readily obtained.

My apparatus is designed to rapidly and accurately produce such elliptical figures by means of the following apparatus:

A and B are two legs jointed or pivoted together at the top, as shown at 2, and adapted to be closed for convenience in packing or separated when in use. The heads of these two legs are united by a rule or similar joint, which is turnable about a pin 3, which projects and serves as a pivot or hinge support for the leg 4, which I will term the "axial" leg and which carries the marking or inscribing pen or pencil, as will be hereinafter described. The semicircular heads 5 of the legs A and B are separated to a considerable extent at the side opposite the legs, and when the legs are spread apart the limit of their separation will be attained when the two separated ends of the rims 5 are brought together.

The pin 3 of the axial leg has a flange or disk 6, against the face of which the segments 5 are fitted and are held by the nut 7, which

screws upon the opposite end of the pin 3, and thus clamps the head of the legs A and B against the disk 6. This disk has a pin 8 projecting from it between the separated ends of the segments 5, and this serves as a stop against which these ends strike when the legs have been separated to the proposed limit. At the same time the relation of the pin 8 to the pin 3 and the axial leg 4 is such that the latter will when the legs A and B have been separated be placed upon an axial line equidistant from the two legs A and B. Thus the major axis of the ellipse will be found upon this line. The "axial" leg 4, as I have termed it, has a point, and this point is set upon the junction of the major and minor axes of the proposed ellipse. If the ellipse is to be short, the axial leg will be brought nearer to the separated legs A and B. If the ellipse is to be much elongated, this leg will be moved farther away, with a corresponding elongation of the ellipse. This axial leg carries a pen, pencil, or other marking-point, or both, and such marking device, as at 9, is hinged or pivoted, as at 10, to a sleeve 11, which is slidable and turnable upon the axial leg 4. Thus when said leg has been set at its proper point with relation to the supporting-legs A and B the sleeve 11 may be slipped down until the marking-point can be adjusted to contact with the surface to be marked at one end of the minor axis of the proposed ellipse. From this point the marking-point may be moved around the axial leg by reason of the tubular support, and as it is moved outward it will also be slipped down along the axial leg, so as to maintain the point in contact with the surface until it reaches the outward extremity of the major axis of the proposed ellipse.

It is convenient to commence the inscription of the ellipse upon one side rather than at the end of the ellipse in order to more readily start the ink flowing. With the pencil or other marking-point any point of starting which may be convenient may be assumed, and when the point has been moved around the obliquely-supported axial leg with the marking-point constantly in contact with the

surface it will be found that the ellipse or oblique cylindrical projection will be correctly outlined as determined.

In Fig. 3 I illustrate a modified construction wherein a single leg A' serves as the support, said leg being jointed at 12 and supporting a socket 13, pivoted at 13'. In the socket is mounted to slide the supplemental leg 4', said leg 4' being clamped at any point of adjustment by a screw 14. In this case I have shown this leg 4' as having a straight point at one end and a curved point 15 at the opposite end. This latter point is serviceable where the proportionate length of the major axis of the ellipse is very great, and the point thus formed will stand more vertical to the surface upon which the ellipse is inscribed than if the straight point were used and projecting in line with the axial leg. The marking device or pen 9 is in this case shown as pivoted to a link 16, and this link is pivoted to the part 10, projecting from the cylindrical sleeve 11, as previously described. With this construction the marking portion 9 may be adjusted by means of the link 16 and the revoluble slide 11, so as to move about the axial leg and produce single or concentric homologous ellipses, as may be desired, with no change in adjustment other than that of the link 16.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is --

1. An ellipsograph having in combination a jointed support, a leg pivoted at one side of and independent of the joint of the support,

a sleeve slidably mounted on said leg, and a marking-point carried by the sleeve.

2. An instrument for the inscription of oblique projections of circles and the like, said instrument consisting of a pair of pointed supporting-legs, a joint at the head and a central pin about which the legs are turnable, segmental heads for the supporting-legs, said heads being separated when the legs are closed, and approaching each other when the legs are opened, a disk upon the center pin against the face of which disk the segments contact, and a stop-pin projecting from said disk between the segments, a leg hinged to the outer end of the center pin of the supporting-legs and turnable in the plane which passes through the pin which projects from the disk whereby said leg is restricted to adjustment in a plane bisecting the angle formed by the supporting-legs, and a marking-point carried by and revoluble about said leg.

3. An ellipsograph having in combination a pair of pivoted supporting-legs, a pivotally-mounted third leg and means whereby it is restricted in adjustment in a plane bisecting the maximum angle formed by the supporting-legs, and a slidable sleeve and marking-point revoluble about said third leg.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HARRY C. BARNES.

Witnesses:

C. M. WHITE,
T. J. NOONE.