

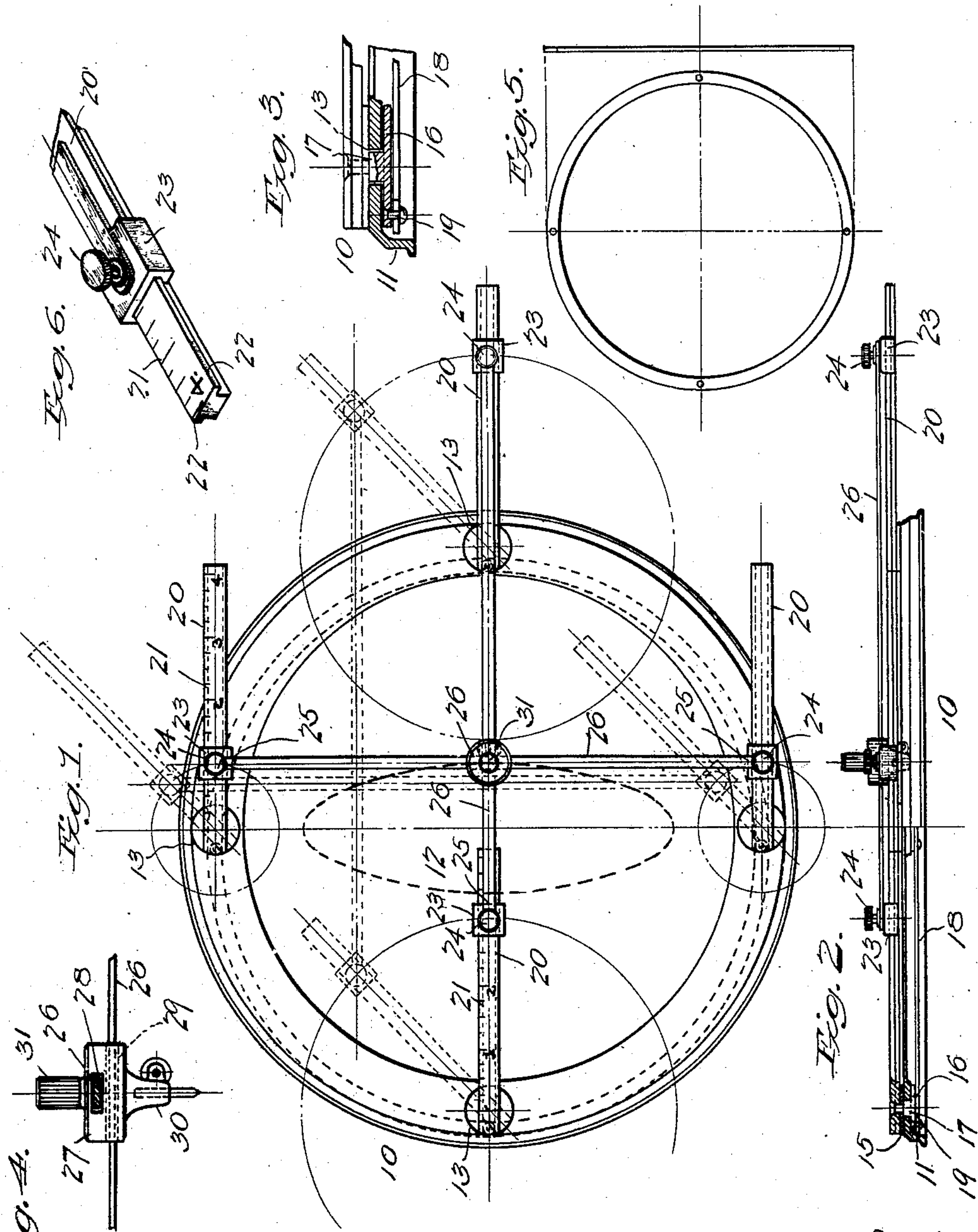
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ELLIPSOGRAPH.

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918,218.

Patented Apr. 13, 1909.



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ELLIPSOGRAPH.

No. 918,218.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NILS BIRGER HENRIK SUNDMAN, a subject of the Czar of Russia, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Ellipsographs, of which the following is a specification.

The present invention relates to drawing instruments, and has particularly in view a new and improved instrument especially adapted for drawing ellipses.

With the above and many other objects in view the invention contemplates the employment of a base frame to which two pairs of circle arms are pivoted, the arms of each pair having a pivotal and adjustable connection with a chord bar which passes through a marker holder, the relative arrangement of the said parts of the instrument being such that absolutely true ellipses may be made of varying sizes by a person without the necessity of any preliminary training or skill.

In carrying out the objects set forth changes may be resorted to in the details and arrangement of structural parts, a preferred and practical embodiment of which is shown in the accompanying drawings, in which—

Figure 1 is a plan view of the instrument showing the same adjusted for use in drawing a flat, narrow, ellipse, broken lines being used to indicate the paths of movement of the circle arms and the scribing point. Fig. 2 is a side elevation, partly in section, to show the pivotal connection of one of the circle arms with the base frame. Fig. 3 is an enlarged detail sectional view of the pivot connection between one of the circle arms and the frame. Fig. 4 is an enlarged detail view of the scribing point holder or carrier. Fig. 5 is a plan and elevation of the coupling ring shown in Figs. 2 and 3. Fig. 6 is an enlarged detail perspective view of the adjustable and pivotal connection between one of the chord bars and one of the circle arms.

Like characters of reference designate corresponding parts.

In the embodiment of the invention shown in the accompanying drawings it is contemplated using a circular base or frame 10, provided with an outer, annular depending rest flange 11, which provides an inclosed space below the working surface 12 of the frame, the utility of which will presently appear. The said working surface 12 of the frame 10 has formed therein a plurality of regularly spaced

apart openings 13, for the reception of pivot members composed of upper plates 15, lower plates 16, and connecting studs 17. Said pivot members are arranged in pairs in said frame, the members of each pair being disposed diametrically opposite, and the lower plates of the pivot members are coupled together by a coupling ring 18 which is eccentrically connected to the edge of each of said plates as indicated at 19.

The upper plates of the coupling members have a circle arm 20 fastened thereto upon the surface of which graduations 21 are marked and which is provided with side guiding flanges 22 upon which a sliding cuff 23 is mounted. Said cuff 23 has a top opening formed therein for the reception of a binding screw 24 which serves to hold the said cuff in any desired position on said arm, and also serves to fasten to said arm the pivoted end 25 of a chord bar 26 which extends across the upper surface of the frame and connects each member of the pair of diametrically opposite arms. This arrangement of chord bars causes the same to cross one another about midway their length, at which point they carry a marker holder 27 which has upper and lower openings 28—29 formed in different planes therethrough for the passage of the chord bars. Said marker holder is provided with the usual scribing point clamp 30, and also with a finger hold 31 to facilitate the manipulation of the same.

From the foregoing description it will be seen that the size of the ellipse to be drawn is regulated by the adjustments of the sliding cuffs on the circle arms, which, of course imparts the same adjustments to the chord bars which carry the marker-holder. And it will also be seen that through the medium of the four connected pivotal circle members, a movement of the marker holder will cause the circle members to swing on the arcs of circles as indicated in Fig. 1. And it will be further observed that the movement of the said marker holder is such as to permit an ellipse to be drawn in practically two strokes of the said marker holder.

Claims—

1. An ellipsograph comprising a base frame, a plurality of circle arms arranged in pairs and pivoted to the base frame, the members of said pairs of circle arms being disposed diametrically opposite each other on said frame, chord bars, a pivotal connection between the opposite members of each

pair of circle arms and a chord bar, a marker holder carried by the chord bars, and means for causing said circle arms to move simultaneously.

5 2. An ellipsograph comprising a base frame, a plurality of circle arms arranged in pairs and pivoted to the base frame, the members of said pairs of circle arms being disposed diametrically opposite each other
10 on said frame, chord bars, a pivotal and adjustable connection between the opposite members of each pair of circle arms and a chord bar, a marker holder carried by the chord bars, and means for moving said circle
15 arms simultaneously.

3. An ellipsograph comprising a base frame, a plurality of circle arms arranged in pairs and having a pivotal connection with
20 said base frame, the members of each pair of arms being disposed diametrically opposite each other on said frame, a cuff slidably mounted on each circle arm, chord bars, a pivotal connection between the cuffs of the opposite members of each pair of circle arms
25 and said chord bars, a marker holder carried by the chord bars, and means for moving said circle arms simultaneously.

4. An ellipsograph comprising a base frame, a plurality of circle arms arranged in
30 pairs and pivoted to the base frame, the members of said pairs of arms being disposed diametrically opposite each other on said frame, chord bars, a pivotal and adjust-

able connection between said chord bars and the opposite member of each pair of circle
35 arms, a marker holder having upper and lower openings in different planes there-through for the passage of said chord bars, and means for moving said circle arms simultaneously.

5. An ellipsograph comprising a base frame, pivot members mounted therein and arranged in pairs, the members of which are disposed diametrically opposite each other
40 on said frame, a circle arm carried by each pivot member, a chord bar connecting the members of each oppositely disposed pair of arms, a marker holder carried by said chord bars, and means for moving said circle arms simultaneously.

6. An ellipsograph comprising a base frame, pivot members mounted therein, said pivot members being arranged in pairs the members of which are disposed diametrically opposite each other on said frame; a
55 coupling having an eccentric connection with each pivot member, a circle arm carried by each pivot member, a chord bar connecting the members of each pair of circle arms, and a marker holder carried by said chord bars.

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

NILS BIRGER HENRIK SUNDMAN.

Witnesses:

N. E. GEE,

D. P. WOLHAUPTER.