

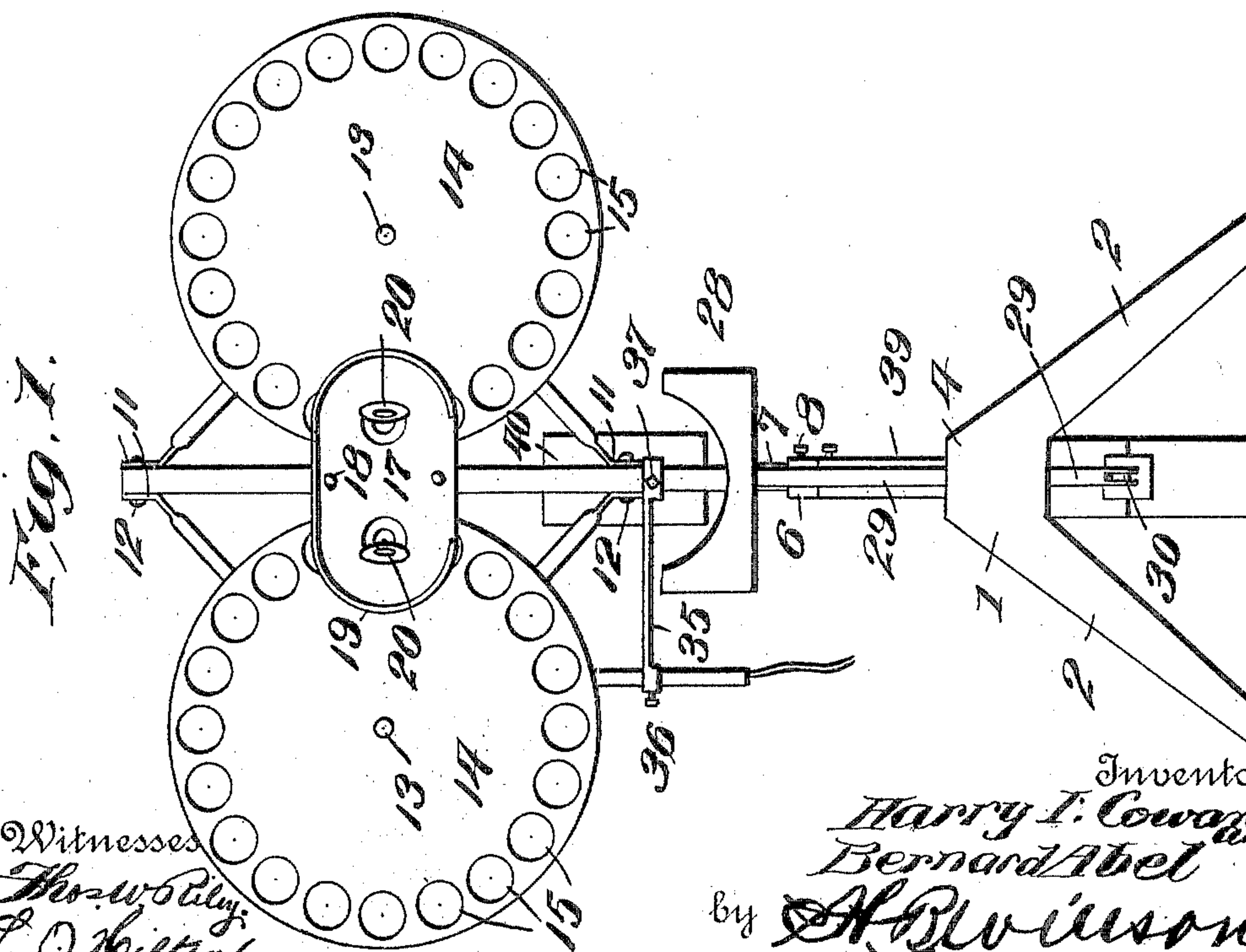
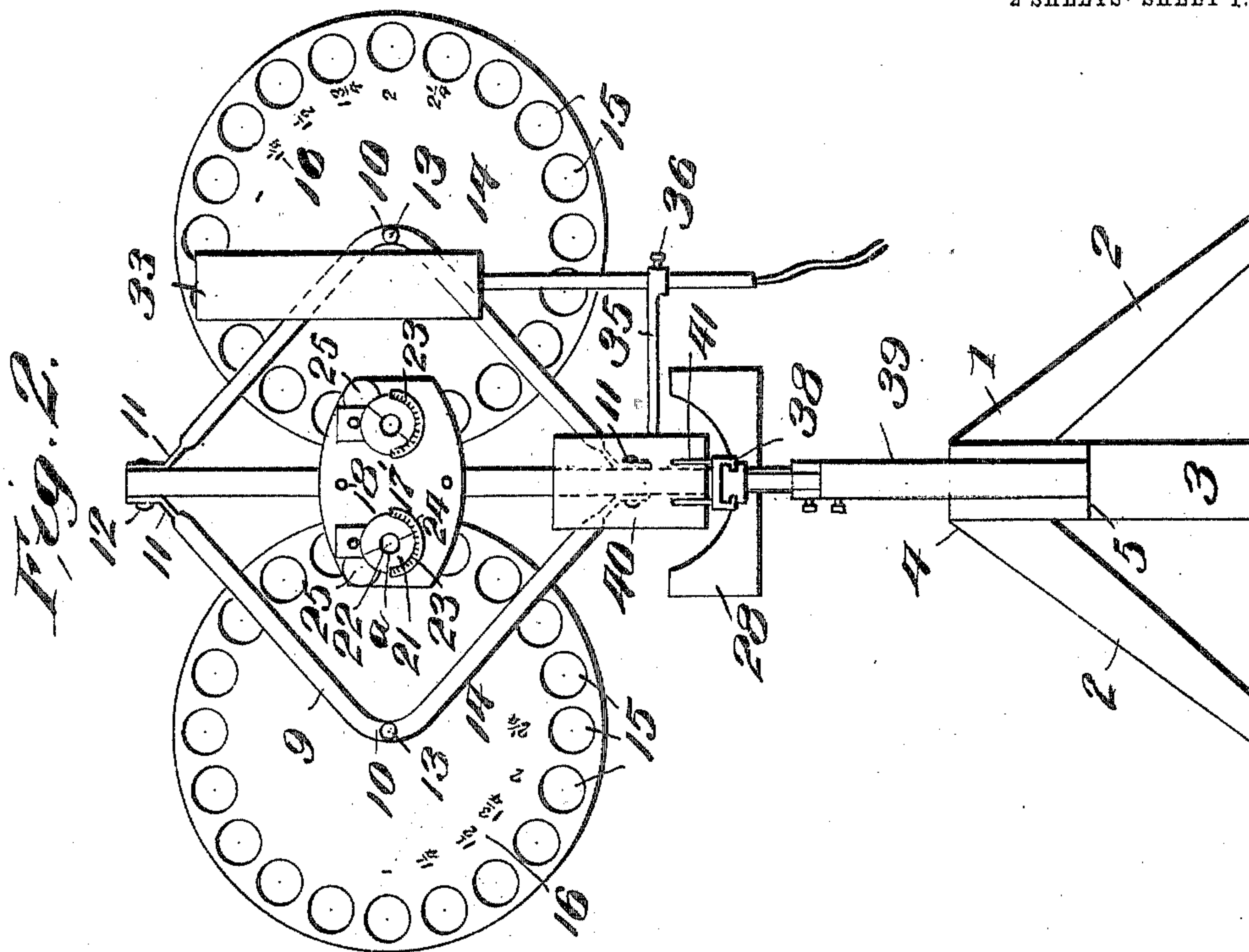
No. 817,046.

PATENTED APR. 3, 1906.

H. I. COWAN & B. ABEL.  
OCULOMETROSCOPE.

APPLICATION FILED SEPT. 21, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 7.

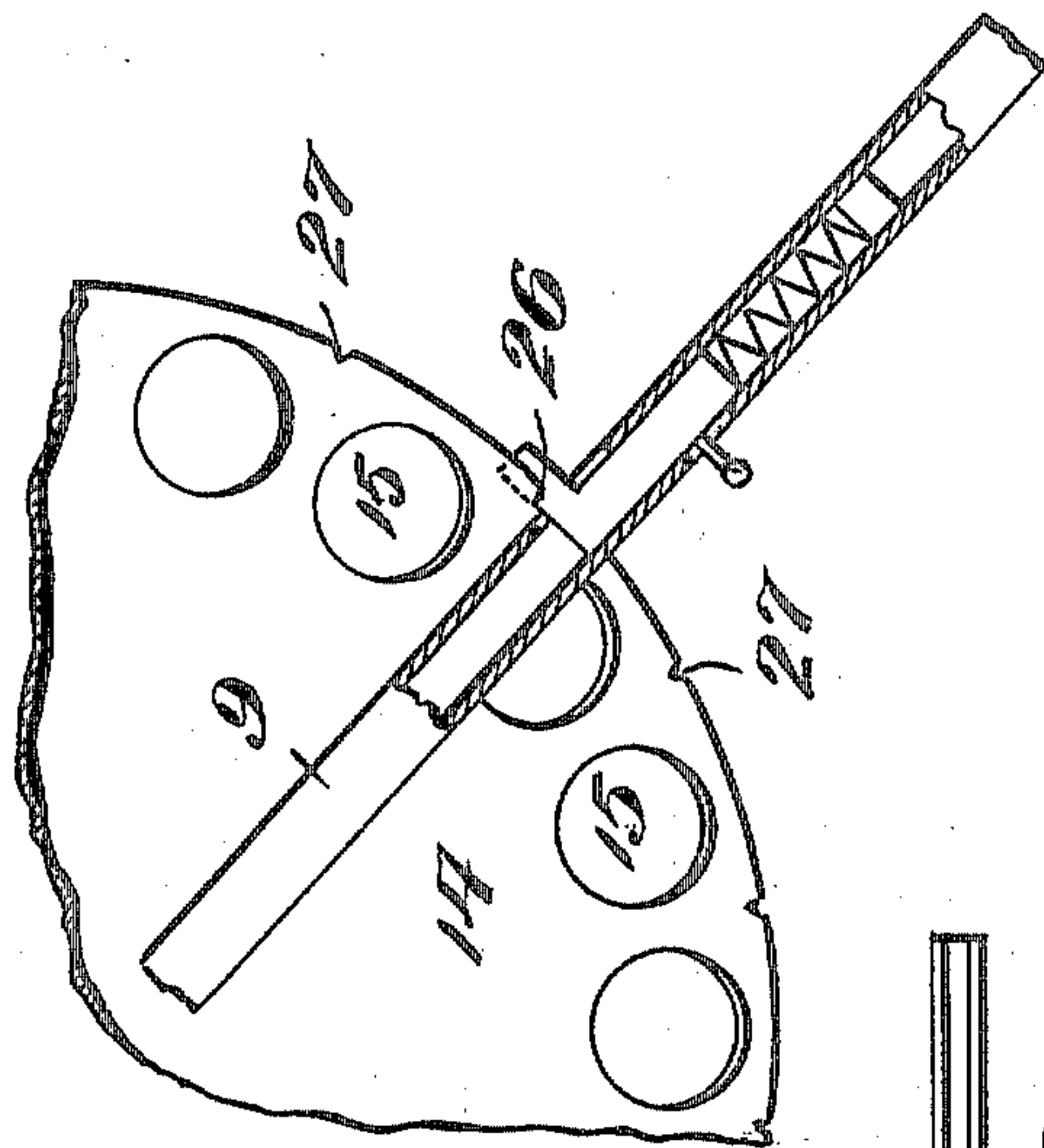
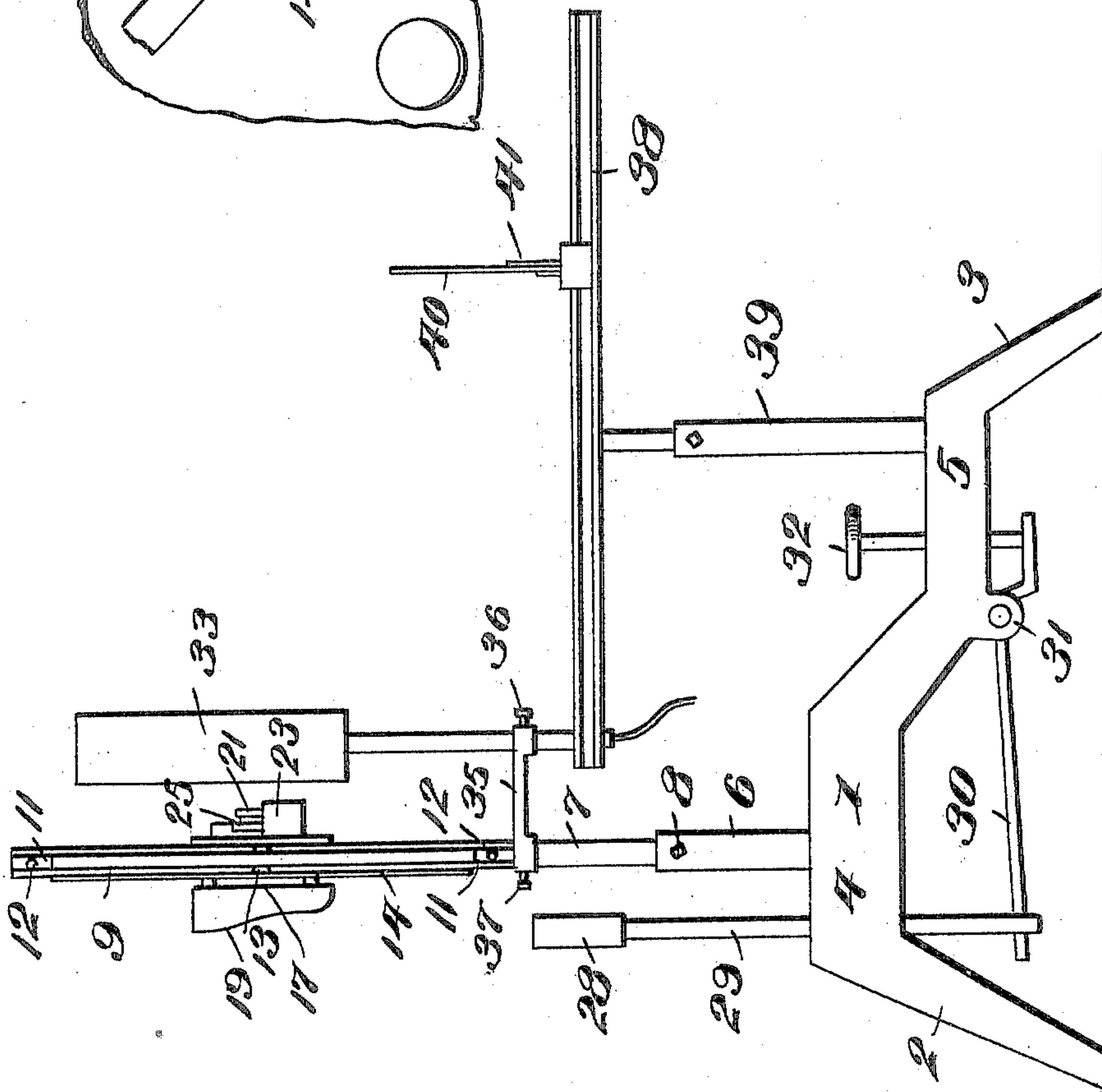


Fig. 3.



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# UNITED STATES PATENT OFFICE.

HARRY I. COWAN AND BERNARD ABEL, OF WOBURN, MASSACHUSETTS.

## OCULOMETROSCOPE.

No. 817,046.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed September 21, 1905. Serial No. 279,431.

*To all whom it may concern:*

Be it known that we, HARRY I. COWAN and BERNARD ABEL, citizens of the United States, residing at Woburn, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Oculometrosopes; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to oculometrosopes, and one of the principal objects of the same is to provide an instrument for accurately and quickly locating the axis of astigmatism and for indicating the required lens for correcting the vision.

Another object of the invention is to provide an instrument which is adapted for both objective and subjective examination of the eye and in which the near point of the eye can be accurately and readily found.

Still another object is to provide means for obtaining a perfect visual image without requiring a dark room in which to operate.

These and other objects are attained by means of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of an instrument made in accordance with our invention. Fig. 2 is a rear elevation of the same. Fig. 3 is a side elevation of the same, and Fig. 4 is a detail section of one of the spring-detents for holding the lens-disks in place.

Referring to the drawings for a more particular description of the invention, the numeral 1 designates a base or stand for supporting the instrument and consisting of the two front legs 2 2, the rear leg 3, the elevated front support 4, and the depressed rear support 5. A tubular socket 6 is secured in an upright position to the support 4 of the base 1, and fitted in said socket is a vertically-disposed standard 7, the lower end of which is held in adjusted position in the socket 6 by means of a binding-screw 8. Tubular arms 9, bent centrally at 10, are secured at their terminal ends 11 to the standard 7, said ends 11 being flattened and attached by rivets 12 to the standard 7. Secured to each arm 9 at the bent portion 10 is a pivot-pin 13, and mounted to rotate upon each pin 13 is a lens-disk 14, each disk having a series of progressively-arranged lenses 15 secured near the peripheral edge thereof, and each lens having its number indicated on the rear side of the disk, as at 16.

Secured to the standard 7 at a point in horizontal line with the pivots 13 are plates 17 17', one of said plates being arranged at the front and the other at the back of the standard and secured in place by the rivets 18 and the lens-disks 14 being free to rotate between said plates. On the front plate 17 is a hood 19, provided with side blinders 20, of the usual construction, having a colored-glass lens to modify light. On the plate 17' are arranged two apertured disks 21, each having a white line *a* extending from its periphery to its central aperture 22. The disks 21 are mounted to be rotatably adjusted in semicircular bearings 23, having each an indicating-scale 24 thereon. A blind 25 is provided for each disk 21. These blinds are pivoted to the plate 17' and are adapted to swing into line with the apertures 22 or out of the way, as will be understood.

To hold the lens-disks 14 in adjusted positions with the axis of each lens central to the apertures 22, a spring-detent 26 is mounted in each arm 9 and adapted to engage one of a series of notches 27 in the peripheries of the disks 14. These detents permit the disks to be freely rotated and click in the notches to indicate the axial points in the lenses.

A chin-rest 28 is secured to a bracket 29, the vertical member of which is passed through an opening in the portion 4 of the base, and is pivotally connected at its lower end to a lever 30, pivoted at 31 to the base and having a flattened rear end adapted to be engaged by a hand-screw 32 for adjusting the chin-rest vertically to suit different patients.

An electric light and chimney 33, of any suitable character, is mounted upon the upper end of a tube 34, and said tube is vertically adjustable in a bracket 35 by means of a set-screw 36, the opposite end of said bracket being fitted to slide vertically and swing laterally upon the standard 7, so that said light may be adjusted from one side to the other or centrally to the disks 21. A set-screw 37 secures the bracket in adjusted position on the standard 7. The electric light shown in the drawings is of the incandescent type and is adapted to be connected to the usual fixtures by conventional means.

A graduated rod 38 is adjustably mounted upon a tubular support 39, rising from the base 1, and a printed card 40 is connected to a clip 41, fitted to slide upon the rod 38 to test the near vision of the patient.

The operation of our invention will be un-



derstood from the foregoing. By adjusting the disks 21 the white lines *a* may be adjusted to accurately coincide with the band of light in the eye, and the indicating-marks on the bearings 23 will designate the exact axis of the cylindrical lens required to correct the astigmatism. The face and eyes being within the hood 19 perfect darkness is attained, and the adjustments and tests may be quickly carried on with accuracy and precision.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an instrument of the character described, the combination of a base, an adjustable standard rising therefrom, arms on the standard, lens-disks mounted to revolve on the arms, plates secured to the standard, one on each side of the disks, a sight-hood secured to one of said plates, a pair of apertured disks provided with lines and mounted to revolve in bearings on the other plate, said

bearings provided with indicating-marks, an adjustable chin-rest on one side of the lens-disks, and an adjustable light upon the opposite side thereof, substantially as described.

2. In an instrument of the character described, the combination of a base, an adjustable standard rising therefrom, outwardly-bent arms connected to said standard, lens-disks mounted to revolve on said arms, plates secured to the standard, one on each side of the disk, a sight-hood secured to one of said plates, a pair of apertured disks mounted to revolve in bearings on the other plate and provided with lines extending across said disk, said bearings provided with indicating-marks, a chin-rest vertically adjustable toward and from the sight-hood, and a light located upon the opposite side of the lens-disk, substantially as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

HARRY I. COWAN.  
BERNARD ABEL.

Witnesses:

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