O. M. MYERS.

AXIS REGISTER FOR LENSES.

APPLICATION FILED MAR. 2, 1908.

996,663.

Patented July 4, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

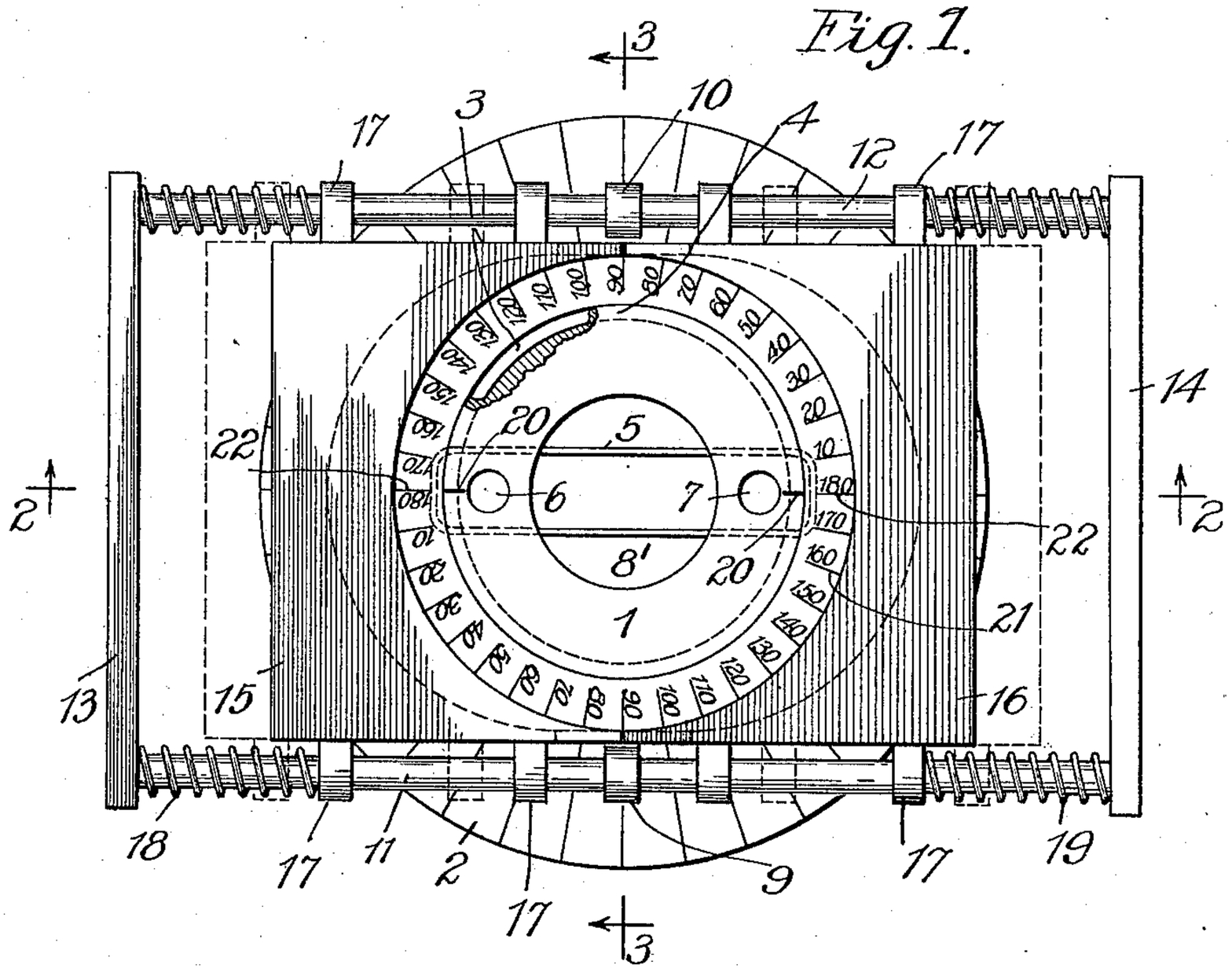
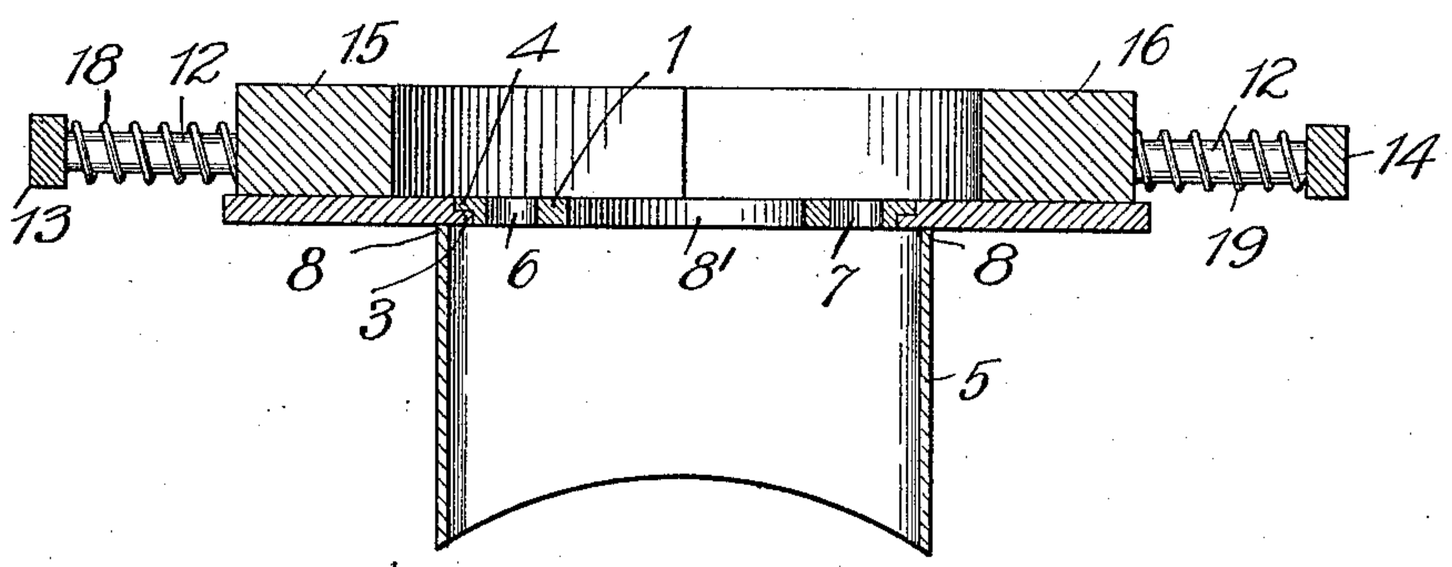


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

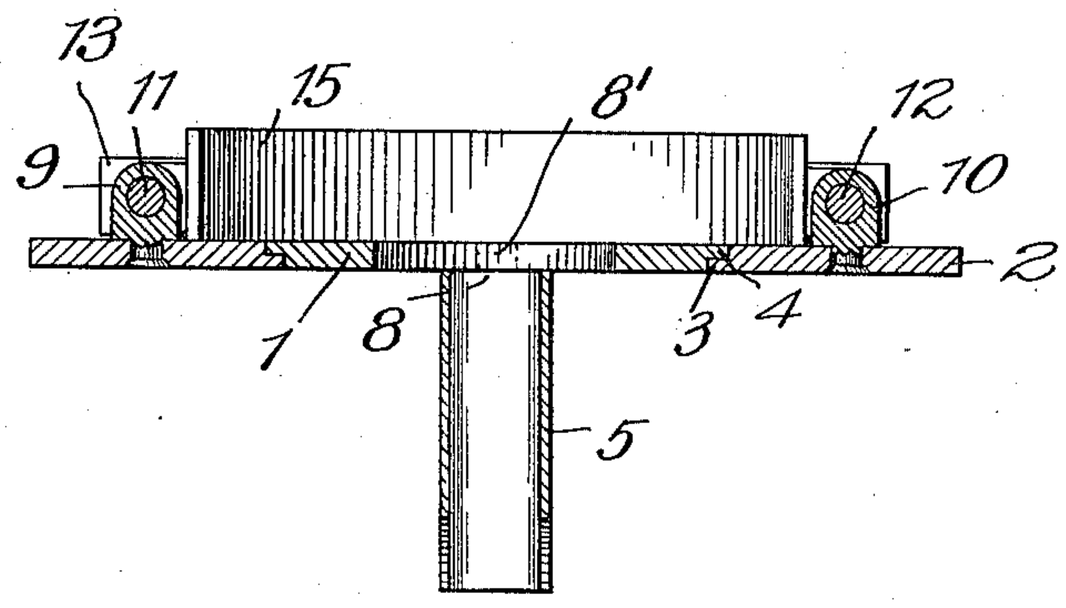
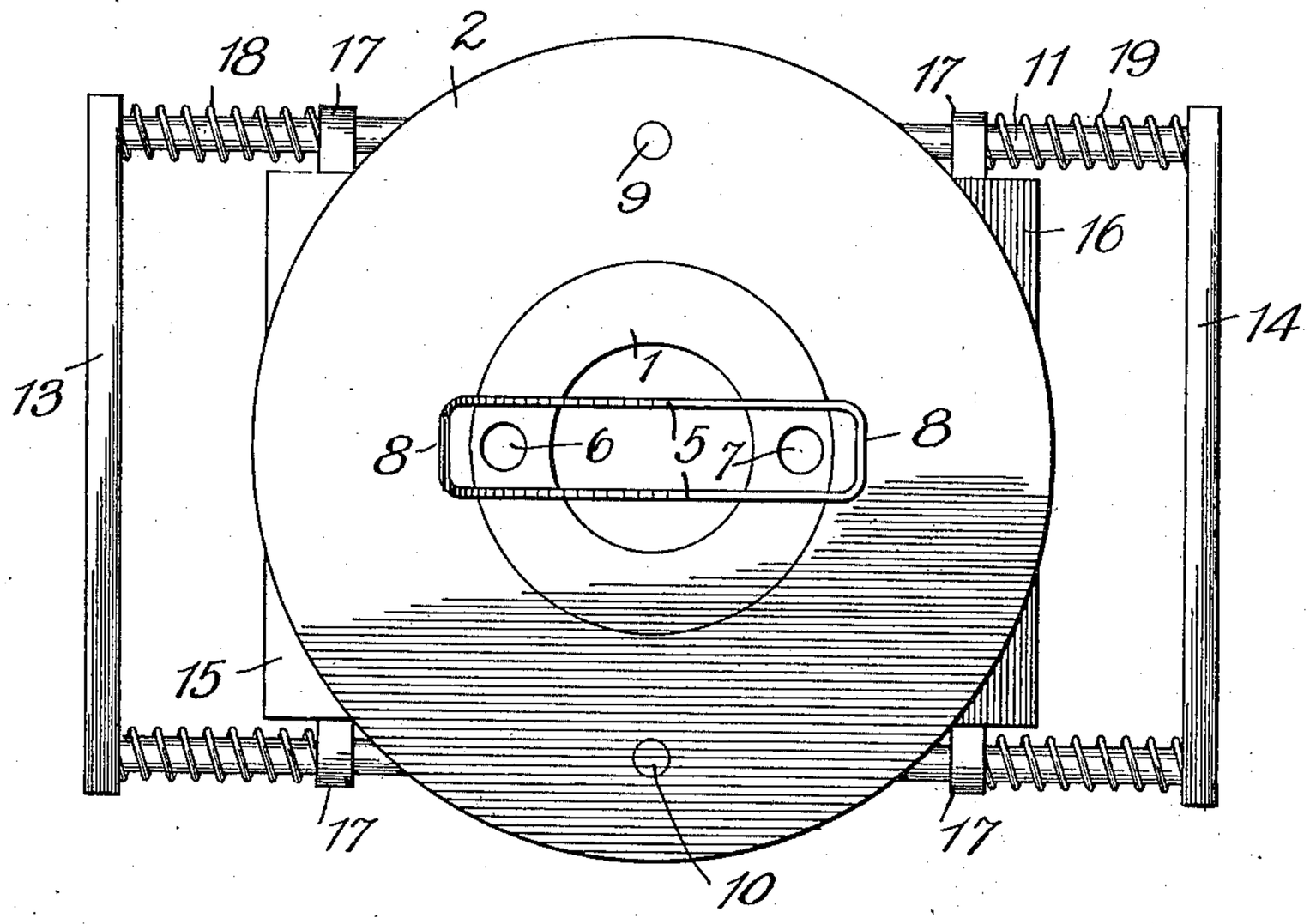


Fig. 4.



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UNITED STATES PATENT OFFICE.

ORSON M. MYERS, OF ROCK ISLAND, ILLINOIS.

AXIS-REGISTER FOR LENSES.

996,663. Specification of Letters Patent. Patented July 4, 1911.

Application filed March 2, 1908. Serial No. 418,799.

To all whom it may concern:

Be it known that I, ORSON M. MYERS, a citizen of the United States, residing at No. 1900 Twelfth avenue, in the city of Rock Island, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Axis-Registers for Lenses Used for Optical Purposes, of which the following is a specification.

My invention relates to improvements in instruments for determining and registering the location of the optical axis in cylindrical and compound lenses used for optical purposes.

The object of my invention is to provide a measuring mechanism which can be used in connection with a Geneva lens measure, the combination of which mechanisms enables the optical axis of a lens to be accurately and quickly determined and its angle of divergence from the longest axis indicated.

My invention will be readily understood by referring to the accompanying drawings, in which—

Figure 1 is a plan view of the mechanism to be associated with a Geneva lens measure; Fig. 2 is a cross-sectional view taken on plane 2—2 of Fig. 1; Fig. 3 is a cross-sectional view taken on plane 3—3 of Fig. 1; and Fig. 4 is a view looking at the under face of the mechanism.

The mechanism comprises a central annular disk 1 and an outer annular disk 2 concentric with disk 1 and having a flange 3 along its lower inner edge coöperating with flange 4 extending from the upper outer edge of the inner disk. Secured to and projecting downwardly from the inner disk is a sheath 5 of a size and form to snugly receive the protruding neck of a Geneva lens measure, whose construction is well known in the art. Through the inner disk are holes 6 and 7, placed diametrically opposite, which holes receive the outer fixed posts of the Geneva lens measure, whose inner slidable post extends axially through the inner opening 8′ of the disk 1. The end portions 8 of the sheath 5 extend under the inner portion of the outer disk 2 and the disks are thus held in concentric relation and one rotatable with reference to the other. Extending upwardly and secured to the outer disk and in a diametrical line at right angles to the diametrical line passing through the openings 6 and 7 are lugs 9 and 10, which support guide rods 11 and 12, respectively. The left and right ends of the guide rods 11 and 12 are connected by the bars 13 and 14, these bars and rods forming a rigid rectangular frame. Between the guide rods are the left and right jaw frames 15 and 16, from whose sides extend guide lugs 17, slidably engaging the guide rods 11 and 12, whereby the jaw frames may be separated and closed. Encircling the guide rods between the bar 13 and the guide lugs of the left jaw frame are the compression springs 18, and encircling the guide rods between the bar 14 and the lugs on the right jaw frame are the compression springs 19, the tendency of these springs being to hold the jaw frames together. The inner surfaces of these jaw frames are concave and when together may form a circular opening, as shown. The purpose of these jaw frames is to hold a lens in proper position to be measured for its axis location, the jaws being spread apart and the lens inserted to be held between the jaws by the force of the springs 18 and 19. Short lines 20 are marked on the inner disk adjacent the openings 6 and 7 and indicate the plane passing through the centers of these openings and the opening 8′. The outer disk 2 is subdivided by lines 21 into divisions representing degrees, the divisions shown in Fig. 1 representing each ten degrees.

In operation, the neck of a Geneva lens measure is inserted in the sheath 5, with its rigid posts extending through openings 6 and 7 and the slidable post extending through the center of the opening 8′. The lens to be measured is then inserted between the jaw frames with its longest axis coinciding with a previously chosen initial diameter of the outer disk 2, the plane of which diameter is indicated by the lines 22 and is marked 180 on the graduated scale. The lens is then pressed firmly against the rigid posts extending through openings 6 and 7 and the disk 2 rotated until the Geneva lens measure points to zero, which indicates that the points of the rigid and movable

posts are in a common line and that the optical axis of the lens has been reached. In other words, the optical axis of the lens has been brought into coincidence with the plane connecting the measuring posts of the Geneva lens measure, this plane being indicated on the disk 1 by the lines 20. The angle at which the optical axis is displaced from the longest diameter of the lens can now be read from the scale marked on the disk 2. By the combination of the Geneva lens measure and the mechanism above described the optical axis of a lens can be quickly and readily located and its displacement from the horizontal axis readily and accurately determined.

I do not desire to be limited to the precise arrangement and construction of the parts as described, as changes and modifications could readily be made which would still be included in my invention.

The procedure of manipulating the mechanism need not be as described, so long as the lens to be measured is securely and accurately inserted between the jaw frames and relative movement caused between the inner and outer disks until the Geneva lens measure indicates zero.

Having thus described my invention, I desire to secure the following claims by Letters Patent:

1. In combination, an inner disk, an outer disk concentric with and rotatable about said inner disk, a sheath extending from the inner disk for receiving the neck of a Geneva lens measure, said inner disk being provided with openings for receiving the measuring posts of the Geneva lens measure, framework carried by the outer disk, and jaw members supported from the framework for clamping a lens to be measured in position against said Geneva lens measuring posts, said outer disk being graduated to indicate the angle of divergence between the optical axis and the longest diameter of the lens to be measured after said optical axis has been located by the Geneva lens measure upon relative rotation between the disks.

2. The combination of an inner disk, supporting means extending from said inner disk for receiving the neck of a Geneva lens measure, a graduated outer disk concentric with the inner disk and rotatable about said inner disk, means for holding the lens in a given position on the outer disk and in measuring association with the posts of the Geneva lens measure, whereby relative rotation of said disks will enable the optical axis of the lens to be located and its angle of divergence indicated by the graduated outer disk.

3. In combination, two concentric disks rotatable one about the other, one of said disks having an indicating scale for showing the relative position of rotation of said disks, means for supporting a lens flatwise upon one of said disks with its longest diameter parallel to a previously chosen diameter of said disk, and means on the other disk for locating and supporting a Geneva lens measure in measuring relation with said lens, said indicating scale being adapted to indicate the angle of divergence of the optical axis from the longest diameter of the lens.

4. In combination, an inner annular disk marked with lines to indicate a previously chosen diameter, a sheath extending from said inner disk and adapted to receive the neck of a Geneva lens measure in line with said diameter, an outer disk concentric with and rotatable about the inner disk, said outer disk having graduations thereon, means carried by said outer disk for clamping a lens flatwise and in engagement with the Geneva lens measure and with its longest diameter parallel to said chosen diameter of the outer disk, said indicating scale being adapted to indicate the angle of divergence of the optical axis from the longest diameter of the lens.

5. In combination, two relatively rotatable devices, mechanism carried by one device for holding a lens with its longest diameter in a predetermined plane, and mechanism carried by the other device for receiving a Geneva lens measure and associating it in measuring relation with the lens carried by the other device, one of said devices having a graduated scale and the other indicating points to indicate the angle of divergence between said optical axis and the longest diameter of the lens.

6. The combination with a disk provided with a center opening and with a lens-gage receiving sleeve extending from one side of the disk, of an annular member carried by said disk and rotatable thereabout, said member and said disk being marked to indicate their relative rotative movement in degrees, and lens-holding means carried by said member.

7. The combination with a lens-carrying member having a flat face and provided with lens-holding means adapted to hold a lens in parallelism with said face, of a supporting member for the first named member adapted to receive and hold a lens-gage in operative relation to the lens, said members being connected for relative rotative movement about an axis perpendicular to the flat face of the lens-carrying member, one of said members being marked to indicate the extent of such movement in degrees.

8. The combination with a ring-like member having a flat side face and provided with means for definitely locating a lens on said face and so as to cover the opening in said member, of a member coaxial with the member first named and having an opening to

receive and hold a Geneva lens gage in fixed relation to said last named member and in operative relation to the lens, said members being connected for relative rotation about their common axis and being marked to indicate the extent of such rotation in degrees.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ORSON M. MYERS.

Witnesses:
FRANK J. TAYLOR,
HOPE THOMPSON.