A. H. MICHELSEN.

LENS MEASURING INSTRUMENT.

APPLICATION FILED SEPT. 8, 1908.

917,097. Patented Apr. 6, 1909.

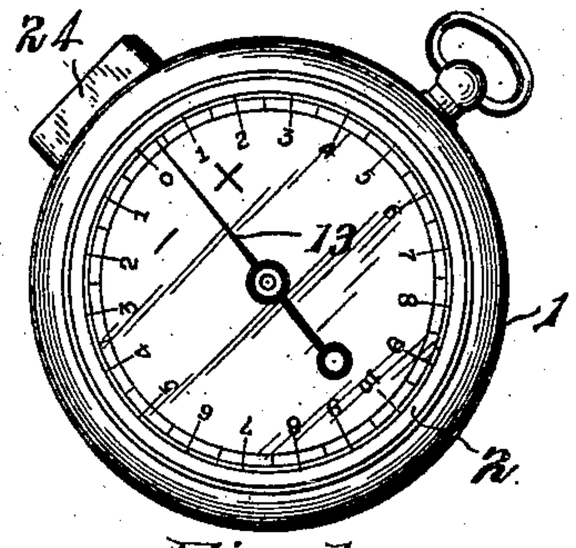

Fig. 1.

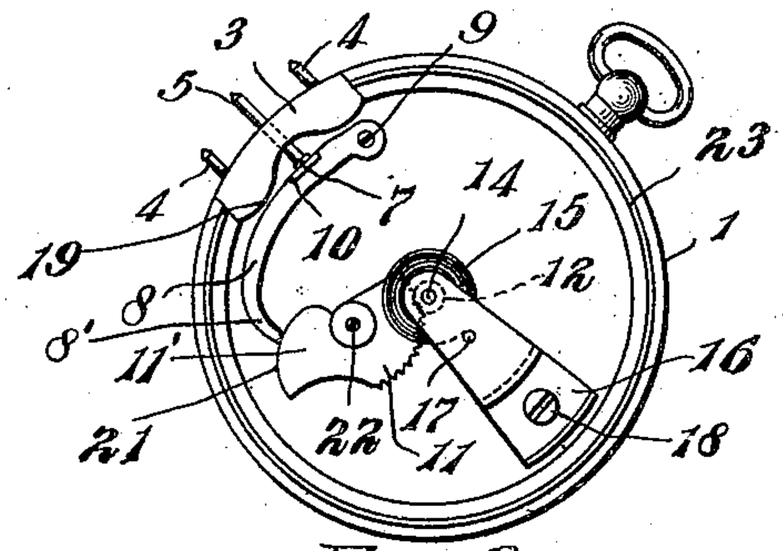

Fig. 2.

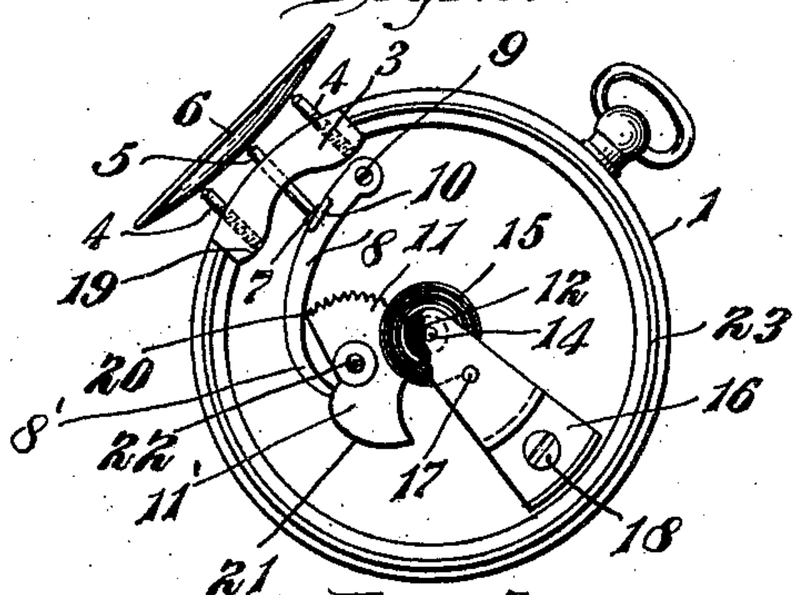

Fig. 3.

Fig. 4.

Witnesses:

William C. Smith

A. A. Olson

Inventor:

Anton H. Michelsen,

By Joshua R. H. Potts

Attorney

UNITED STATES PATENT OFFICE.

ANTON H. MICHELSEN, OF CHICAGO, ILLINOIS.

LENS-MEASURING INSTRUMENT.

No. 917,097. Specification of Letters Patent. Patented April 6, 1909.

Application filed September 3, 1908. Serial No. 451,950.

To all whom it may concern:

Be it known that I, ANTON H. MICHELSEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Lens-Measuring Instruments, of which the following is a specification.

My invention relates to improvements in lens-measuring instruments, the object being to construct an instrument by the use of which the focal length of cylindrical and spherical lenses may be obtained by direct reading of a suitably graduated dial.

A further object is to provide a mechanism which may be readily secured in an ordinary watch-case.

Further objects will appear hereinafter.

My invention consists in certain details of construction and arrangements of parts all as will be hereinafter fully described and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a perspective view of my improved device having the general form of a watch, Fig. 2 is an elevation with the crystal and dial removed showing the movable parts of the mechanism in their normal positions, Fig. 3 is a similar view showing the positions of the movable parts when acted upon by a lens, and Fig. 4 is a detail elevation.

Referring now to the drawings, 1 indicates an ordinary watch-case and 2 the crystal thereof. A block 3 is inserted in one side of the case 1 and secured by soldering or in any suitable manner. The block 3 is tapped to receive threaded pins or points 4, so that either one or both of these pins may be adjusted and the pins may be adjusted from the outside of the case 1. By giving one of the pins 4 a slight turn, the whole mechanism may be adjusted so that the dial pointer will register accurately. The movable point 5 is slidably mounted in the block 3 and is normally in the outermost position as shown in Fig. 2. The point 5 is provided with a head 7 which at all times engages a lever 8. When depressed by a lens 6 the head 7 integral with the point 5 moves the lever 8 which is pivoted on a screw 9. An upwardly extending lip 10 is provided on the lever 8 to engage the head 7. The lever 8 contacts with and rotates a segment-gear 11, and the latter meshes with and rotates a pinion 12. The dial pointer 13 and the pinion 12 are secured to the same central arbor 14. The hair-spring 15 is connected to the arbor 14 in the usual manner and to the bridge 16 by means of the pin 17. The bridge 16 is secured in the case 1 by means of the screw 18, and is broken away to expose the pinion 12. The block 3 is provided with a downwardly curved portion 19 which forms a stop to limit the movement of the lever 8 in one direction and the end 20 of the gear 11 forms a stop to abut the lever 8 and limit its movement in the opposite direction.

The segment-gear 11 is provided with a tail piece 11′ having a cam-surface 21 generated upon its edge into such a form as to cause the dial pointer 13 to register uniformly on the dial when said cam-surface is acted upon by the lever 8. The segment-gear 11 is pivoted on the screw 22, and its two extreme positions are shown in Figs. 2 and 3. The lever 8 is slightly curved throughout its length and its free end 8′ is turned sharply inward to engage the cam 21 and to arch over the end 20 of the gear to permit sufficient movement of said gear.

The case containing the crystal 2 may be snapped over the flange 23 as in the usual construction of watch-cases. A cap 24 is provided to protect the points 4 and 5, and is adapted to press securely over said points.

While I have shown what I deem to be the preferred form of my device, I do not wish to be limited thereto, as there might be many changes made in the details of construction and arrangement of parts without departing from the spirit of my invention.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:

1. In a lens measure, in combination with a suitable case, relatively fixed and movable pins mounted in said case, a curved lever suitably pivoted in said case and adapted to be engaged and moved by said movable pin, a segment-gear in the same plane with said lever and provided with a tail-piece having a cam-surface, the free end of said lever being turned inwardly to engage said cam-surface and clear said gear and adapted to rotate the same, a pinion meshing with said gear, a dial pointer securely connected with said pinion,

and a suitable spring for yieldingly holding the parts in normal position, substantially as described.

2. In a lens measure, a case in combination with a pair of fixed pins and a movable pin mounted therein, a pivotally mounted lever, said movable pin engaging said lever, a segment-gear having a tail piece, the free end of said lever being turned inwardly to engage said tail piece and to arch over said gear, a pinion meshing with said gear, a dial pointer movable therewith, a spring for yieldingly holding the parts in normal position, a stop for limiting the movement in one direction and one end of said segment-gear constituting a stop to engage said lever and limit its movement in the opposite direction, substantially as described.

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

ANTON H. MICHELSEN.

Witnesses:
JANET E. HOGAN,
ANNA L. EKVALL.