No. 696,350. Patented Mar. 25, 1902.

# K. A. MOTT.

## SKIASCOPE.

(Application filed Nov. 1, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

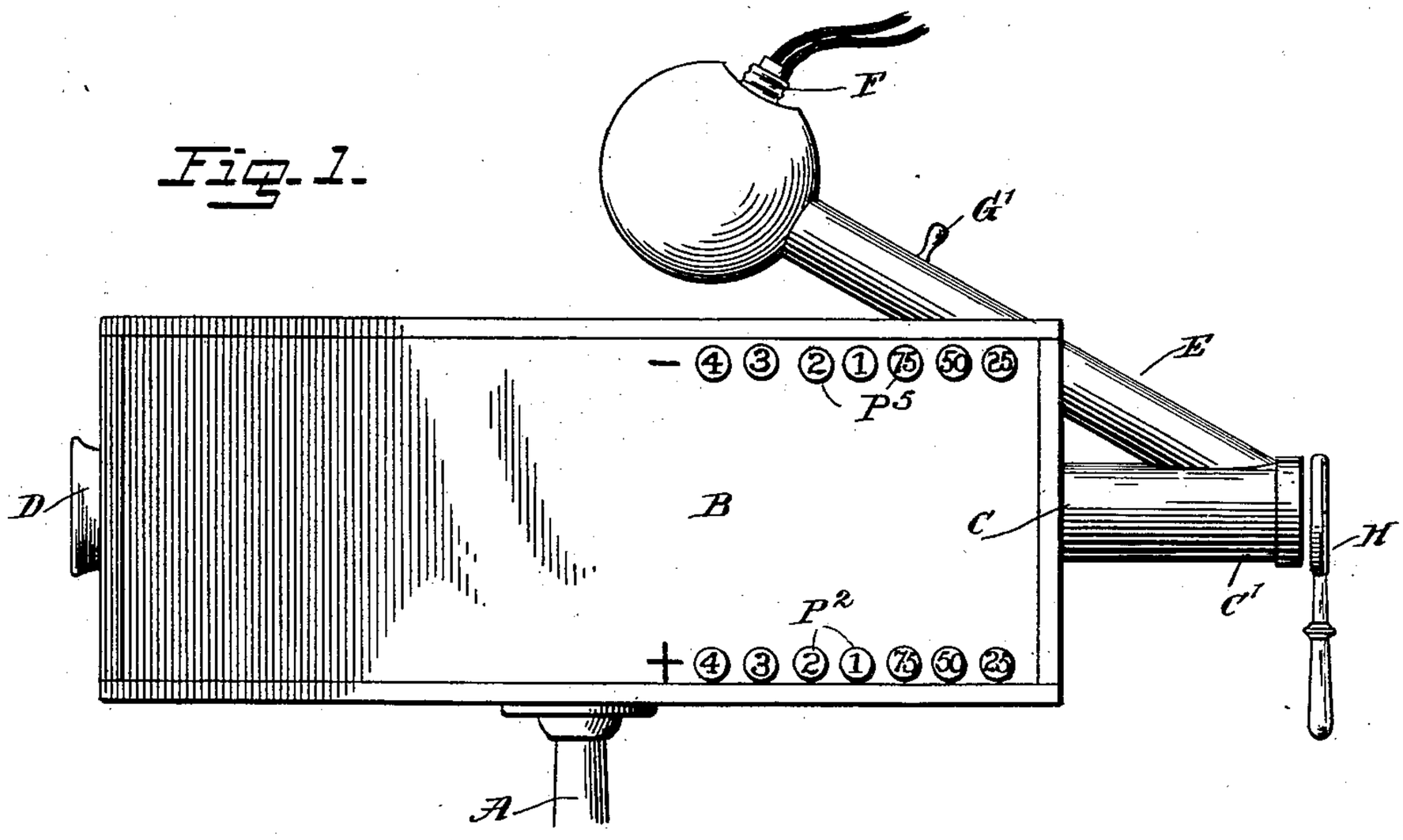


Fig. 2.

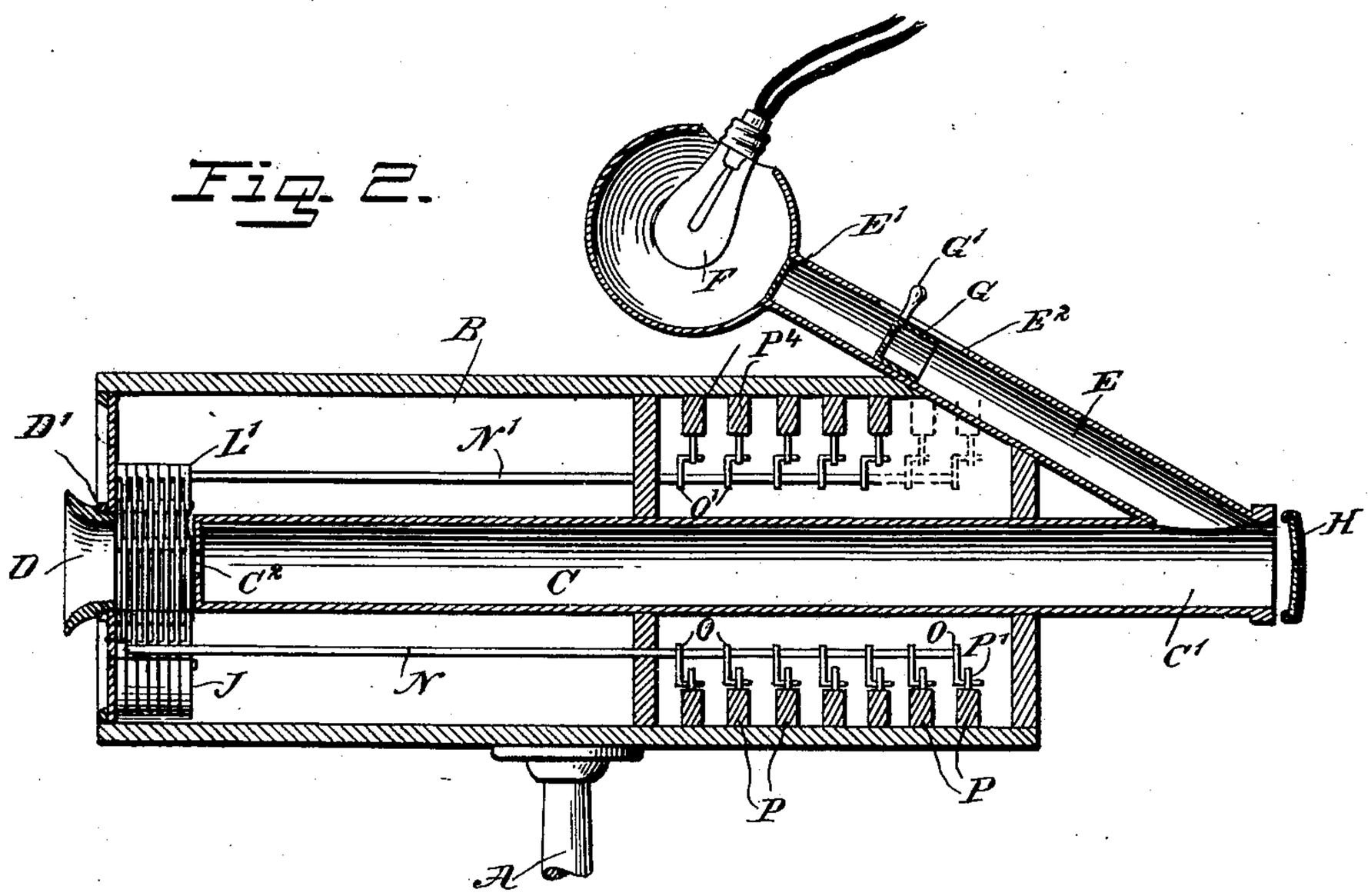


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Fig. 3.

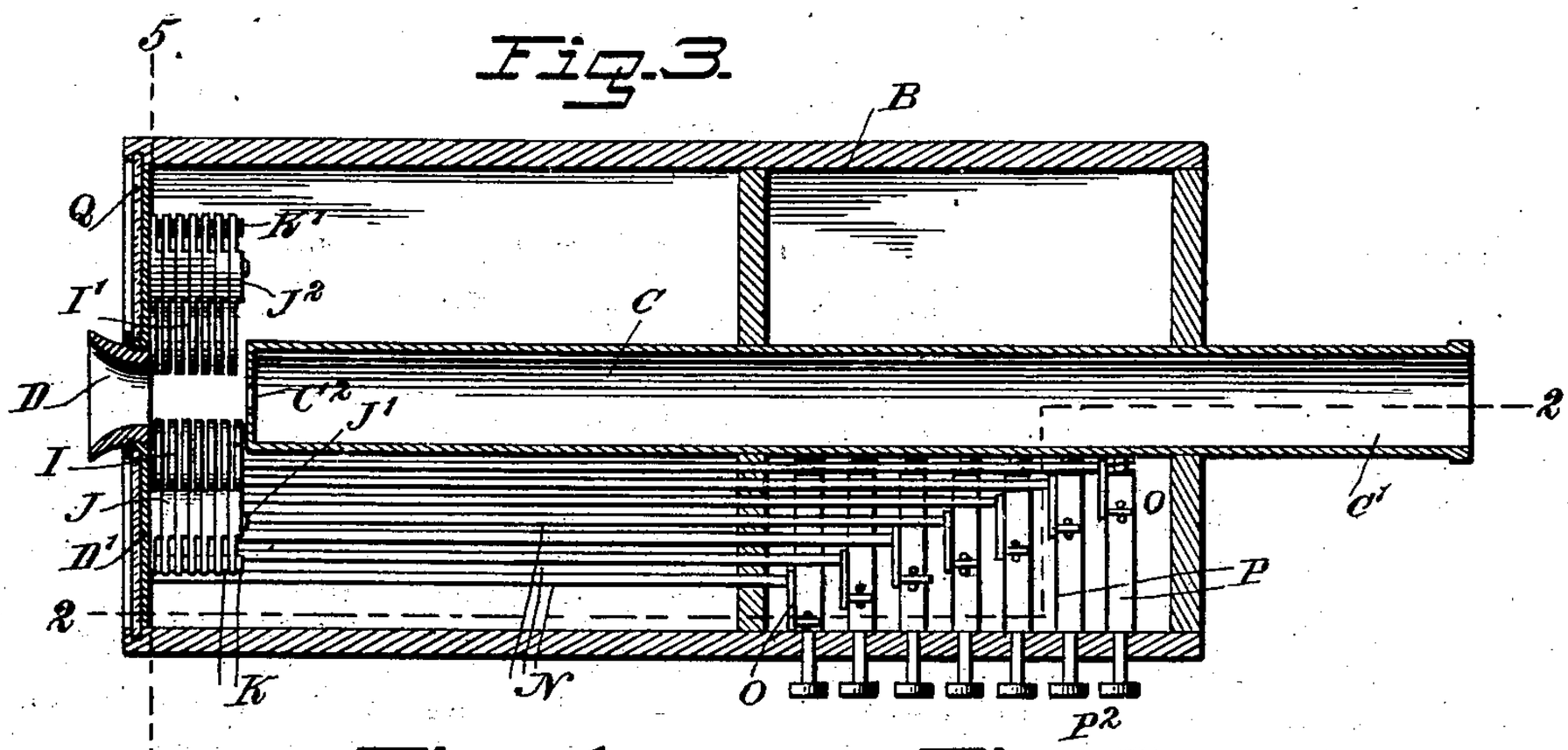



Fig. 4.

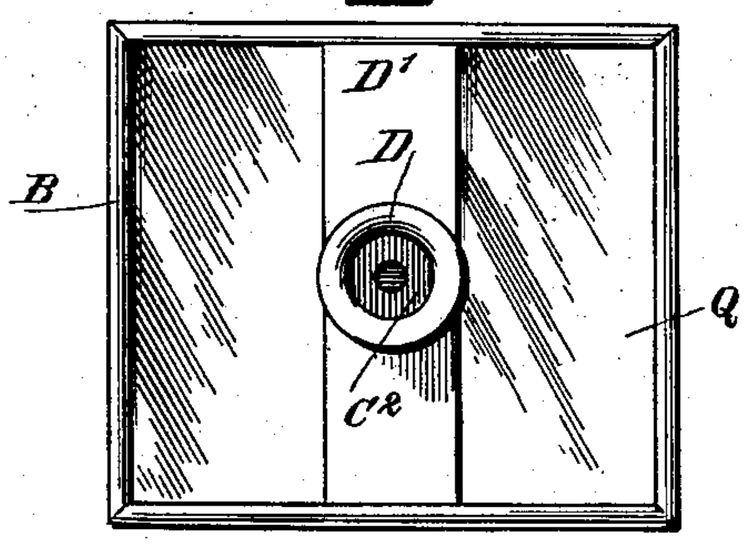



Fig. 5.

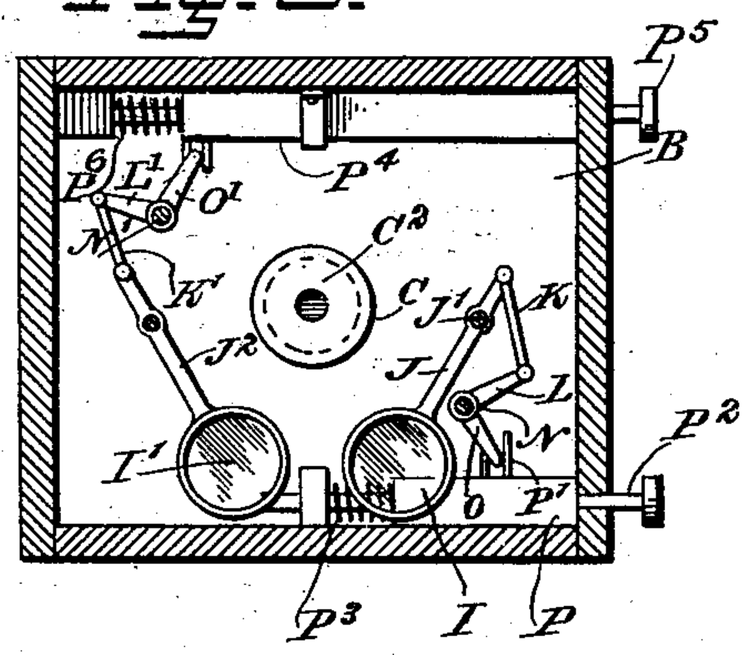
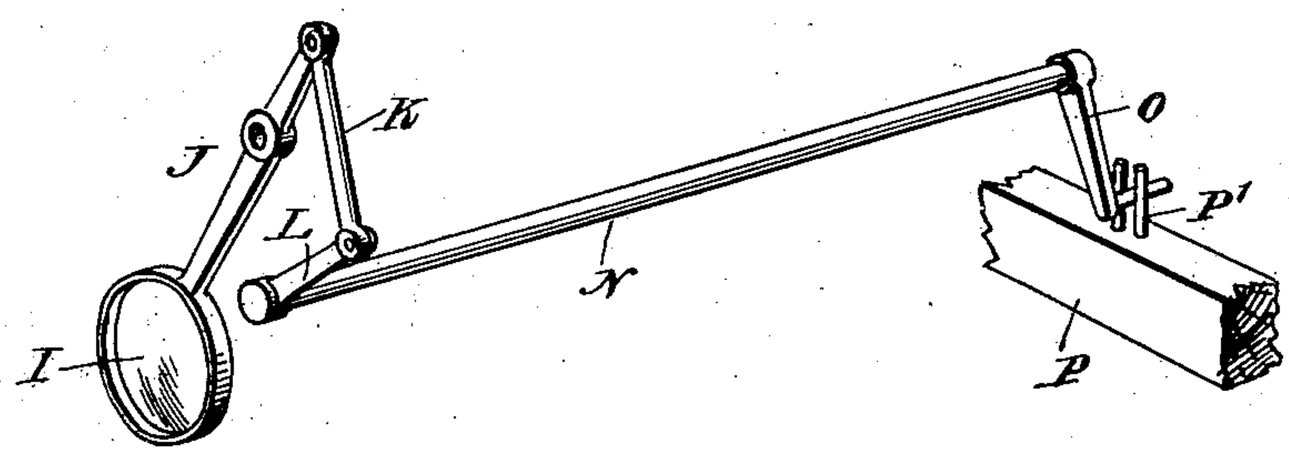



Fig. 6.

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# UNITED STATES PATENT OFFICE.

KIRK A. MOTT, OF AVALON, MISSOURI.

## SKIASCOPE.

SPECIFICATION forming part of Letters Patent No. 696,350, dated March 25, 1902.

Application filed November 1, 1901. Serial No. 80,825. (No model.)

*To all whom it may concern:*

Be it known that I, KIRK A. MOTT, a citizen of the United States, and a resident of Avalon, in the county of Livingston and State of Missouri, have invented a new and Improved Skiascope, of which the following is a full, clear, and exact description.

The invention relates to instruments for examining and testing the visual power of persons; and its object is to provide a new and improved skiascope which is simple and durable in construction and arranged to permit of quickly bringing a single lens or any desired combination of lenses into proper position for viewing one eye of a patient, at the same time relieving the other of undue strain.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a longitudinal sectional elevation of the same on the line 2 2 of Fig. 3. Fig. 3 is a sectional plan view of the same. Fig. 4 is an end view of the same. Fig. 5 is a transverse section of the same on the line 5 5 of Fig. 3, and Fig. 6 is a perspective view of the actuating mechanism for a lens.

On a suitably-constructed stand A is mounted a casing B, in which extends longitudinally a sight-tube C, projecting at the open end C′ somewhat beyond one end of the casing, the other end $C^2$ of the sight-tube being in the form of an apertured diaphragm located a distance from the eyepiece D of the patient, the said eyepiece being in axial alinement with the sight-tube C and secured to a spider or cross-piece D′, carried by the casing B. From the outer open end C′ of the sight-tube C extends upwardly and forwardly and at an angle a light-supply tube E, carrying a lamp F of any preferred construction and arranged to throw rays of light through an apertured diaphragm E′ and through an adjustable apertured slide G to an apertured hand-mirror H, held by the operator between the end C′ of the sight-tube C and the eye of the operator. The slide G extends in the light-tube E and is provided with a suitable handle G′, projecting through an elongated aperture $E^2$, formed in the light-tube E to bring the rays of light in proper position relative to the hand-mirror H. Into the space between the inner end $C^2$ of the sight-tube C and the eyepiece D are adapted to be moved sets of lenses I and I′, of which the lenses I are a set of positive lenses ranging in regular order, say, from 025 to 400D—and the lenses I′ are a negative set ranging in regular order from —025 to 400D. The lenses in each set are spaced apart and normally stand out of alinement with the sight-tube C in the lower portion of the casing B, as plainly indicated in Fig. 5. Each of the lenses I is mounted in a frame J, and the several frames J are fulcrumed on a pin J′, carried by the casing B, and each frame J is pivotally connected by a crank K with an arm L, projecting from a rock-shaft N, journaled in suitable bearings in the casing B and extending longitudinally therein. On the forward end of each rock-shaft N is secured a crank-arm O, engaged by a bearing P′ on a slide P, mounted to slide transversely in suitable bearings arranged in the casing B. The outer end of each slide P is provided with a button $P^2$, bearing the number of the corresponding lens and under the control of the operator, and the inner end of each slide P is pressed on by a spring $P^3$ to normally hold the slide and connected parts in the position shown in Fig. 5—that is, with the lenses I standing in the lowermost inactive position.

When the operator presses one of the buttons $P^2$, the inward movement of the slide P causes a rocking of the rock-shaft N, so that by the arm L and link K of this rock-shaft a swinging motion is given to the lens-frame J to swing the lens I into axial alinement with the sight-tube C and eyepiece D. As soon as the operator releases the pressure on the button the spring $P^3$ returns the several parts to the normal position illustrated in Fig. 5. The lenses I′ are similarly mounted—that is, each is carried by a pivoted frame $J^2$, connected by a link K′ with an arm L′ on a rock-shaft N′, carrying an arm O′, engaging a bearing on a slide $P^4$, having a button $P^5$ and a spring $P^6$. The buttons $P^5$ are marked to

give the value of the corresponding negative lenses I′, and the said buttons are preferably arranged on the said casing B above the buttons P′.

From the foregoing it will be seen that by the operator pressing any one of the buttons $P^2$ $P^5$ any desired lens can be moved in axial alinement with the sight-tube C and by pressing a number of the buttons any desired combination of lenses can be brought in register or alinement with the sight-tube C.

The device is used as follows: The eye of the patient to be examined is brought in close proximity to the eyepiece D and the observer views the eye by looking through the aperture in the mirror H, and the rays of light emanating from the lamp F and reflected by the mirror H illuminate the eye to such an extent that the observer can readily examine the eye of the patient, it being understood that the desired lens or a combination of lenses I I′ is moved into axial alinement with the eyepiece D and sight-tube C, so that the observer views the eye through the said lenses. In order to relieve the other eye of the patient from any undue strain, I provide the eyepiece end of the casing B with a mirror Q, which reflects distant objects in the room, so that the eye not under examination views such objects through the mirror, and hence is relieved of undue strain.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A skiascope, having a sight-tube, and a plurality of manually-controlled lenses, an independent carrier for each lens, and means for independently adjusting each into axial alinement with the said sight-tube, as set forth.

2. A skiascope, having a sight-tube, a light-supply tube connected thereto at one end and at angles to the sight-tube, and a plurality of manually-controlled lenses, an independent carrier for each lens, and means for independently adjusting each into axial alinement with the sight-tube at the end opposite the one carrying the light-supply tube, as set forth.

3. A skiascope, having a sight-tube, a light-supply tube connected thereto at one end and at angles to the sight-tube, a plurality of manually-controlled lenses adapted to be moved independently into axial alinement with the sight-tube at the end opposite the one carrying the light-supply tube, and an apertured slide under the control of the operator and movable in the said light-supply tube, as set forth.

4. A skiascope, having pivoted frames each carrying a separate lens and normally standing in an inactive position, and means under the control of the operator for imparting an independent swinging motion to each of the said frames, to bring either one of the frames in axial active position, as set forth.

5. A skiascope, having a sight-tube, an eyepiece in alinement with the said sight-tube, pivoted lens-frames each carrying a separate lens and normally standing in an inactive position relative to the said sight-tube, and means under the control of the operator for imparting independent swinging motion to each of the said lens-frames, to bring either one of the lenses into an axial position relative to the sight-tube and eyepiece, as set forth.

6. A skiascope, having a sight-tube, an eyepiece in alinement with the said sight-tube, pivoted lens-frames carrying lenses and normally standing in an inactive position relative to the said sight-tube, and means under the control of the operator for imparting independent swinging motion to the said lens-frames, to bring either one of the lenses into an axial position relative to the sight-tube and eyepiece, the said means comprising spring-pressed slides, one for each lens-frame, and a rock-shaft having arms at each end, one of the arms being connected with the said slide and the other with the said lens-frame, as set forth.

7. A skiascope, having a sight-tube adapted to view one eye of the patient, and a mirror outside the sight-tube and located on the skiascope, for reflecting distant objects to the other eye of the patient, as set forth.

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

KIRK A. MOTT.

Witnesses:
S. A. BROWNING,
D. J. DAVIS.