A. E. IBERSHOFF.

OCULIST'S TESTING FRAME.

APPLICATION FILED MAY 13, 1915.

1,293,450. Patented Feb. 4, 1919.

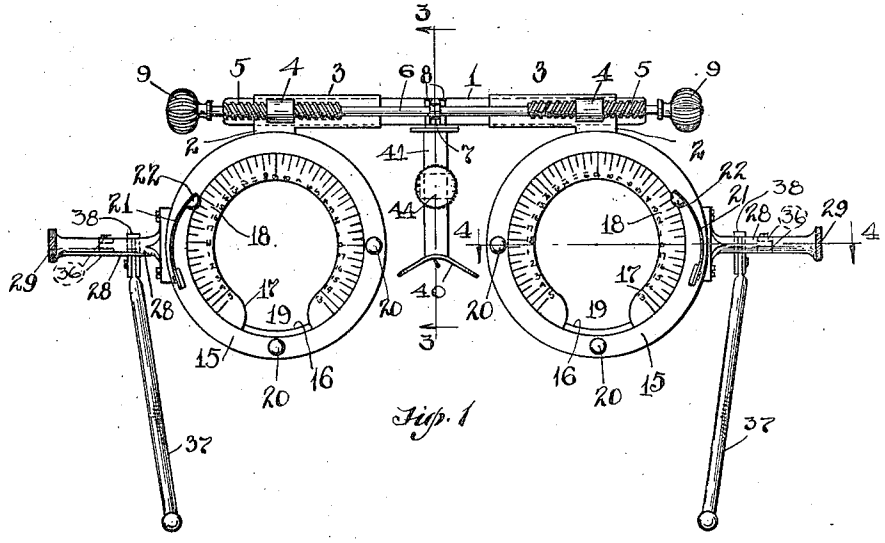


Fig. 1

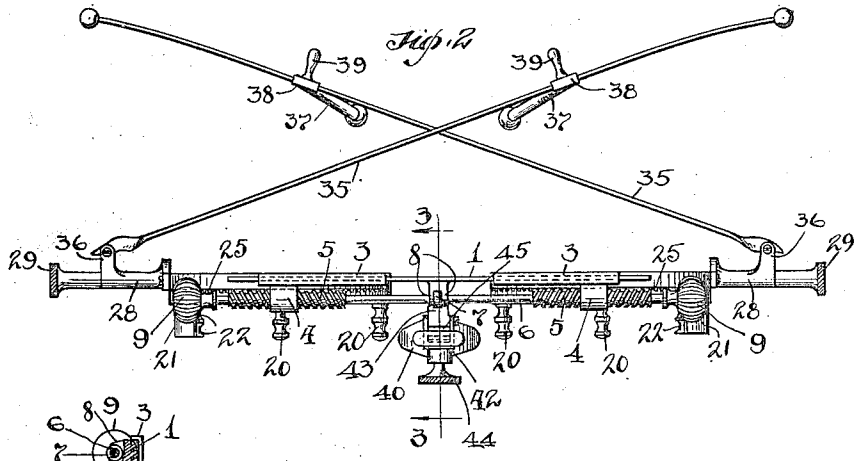


Fig. 2

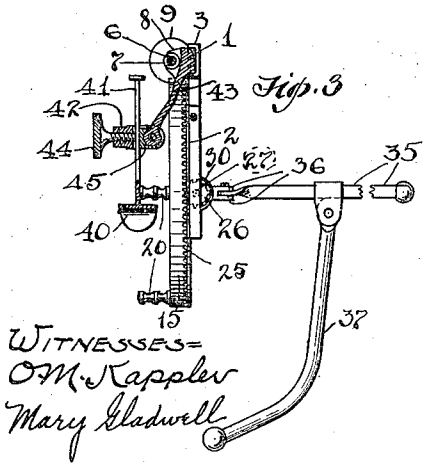


Fig. 3

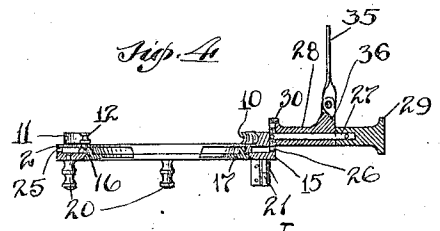


Fig. 4

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OCULIST'S TESTING-FRAME.

1,293,450. Specification of Letters Patent. Patented Feb. 4, 1919.

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To all whom it may concern:

Be it known that I, ADOLPH E. IBERSHOFF, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Oculists' Testing-Frames, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The object of the present invention is to provide an improved testing or trial frame for the use of oculists, which will be of simple and compact construction, while yet possessing all desired possibilities of adjustment, including some not heretofore provided in devices of this sort. A further object is to provide improved means for holding the lenses on the frame, also to provide for the ready disassembling of those portions of the frame which are apt to come more or less close to the eyes of the patient so as to permit of their thorough cleansing and sterilization. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Figure 1 is a front elevational view of my improved testing frame; Fig. 2 is a plan view of the same; Fig. 3 is a transverse vertical section thereof taken on the plane indicated by the lines 3—3, Figs. 1 and 2; while Fig. 4 is a transverse horizontal section taken on the plane indicated by the line 4—4, Fig. 1.

The main element of the frame consists of a rigid transverse bar 1 from which depend the lens-holders as well as the bridge or nose-piece. The bows are in turn attached to the lens-holders, the latter carrying suitable indicators or protractor scales to assist in axially locating the lenses, as will be presently described.

Each such lens holder comprises an annular support or ring 2 fixedly secured at its upper edge to a slide 3 that is mounted on the corresponding end of the bar 1 and provided on its forward face with a threaded projection or lug 4 adapted to receive one of two reversely disposed threads 5 formed on the respective ends of an operating shaft 6. The latter is secured against longitudinal movement by being provided with a collar 7 at its mid-point, which is held between two ears 8 formed on the front face of the bar 1; while a knurled head or knob 9 on each end of said shaft is provided to facilitate rotation thereof. Depending upon the direction of such rotation, the annular supports 2 for the lens holders will be simultaneously moved either toward or from each other as the case may be, so as to always maintain the same symmetrical with respect to the mid-point of the bar, as defined by the ears 8 wherewith the collar on the shaft engages.

On its rear face, each annular support 2 is provided with a segmental inturned groove 10 extending part way around its circumference, and, opposed to such groove, with a curved resilient finger 11 attached to the support at its one end, and formed at its other or free end with a solid tip or lug 12 of the form clearly illustrated in Fig. 4. In other words, such tip, or lug, is concavely recessed so as to securely engage the edge of a testing lens, or rather of the metal protective band or ring wherewith such lenses are ordinarily fitted.

To the forward face of each annular support is detachably, rotatably secured an annular plate 15, such plate resting against a circular rib or rim 16 on the support, and being normally held in place by means of a split segmental plate 17 that is adapted to spring into engagement with such rib from the inside and overlie the beveled inner edge of the plate. This segmental, securing plate bears the scale or indicator 18 previously referred to, and it will be noted that when in place as illustrated in Fig. 1 the discontinued portion of such securing plate is directed downwardly so as to leave open the corresponding portion 19 of the circular space defined by the inner edge of the annular support. Each rotatable plate 15 is provided with two spaced studs 20 of the form clearly shown in Figs. 2 and 4, from which such studs will be seen to have two axially spaced encircling concavities or recesses. To the opposite side of each plate is attached a double spring 21, the outer free ends of such springs being provided with tips or

lugs 22 respectively formed with concave recesses disposed in the same planes as those on the studs, so that a lens, with or without its metal frame, may be slipped into one or the other set of such recesses on the two studs and corresponding spring, and be there securely retained. The scale, or indicator, will lie behind such lens or lenses and may be easily read therethrough, and in any position of the lens such position may be accurately determined by noting with what line on the scale the line marked on such lens to indicate the latter's axis, happens to register.

In order to independently rotate the plates 15, which are thus adapted to hold one or two lenses respectively, as the case may be, each such plate is provided on its rear face with spur teeth 25 wherewith a pinion 26 meshes, such pinion being carried on a short spindle 27 that is in turn rotatably held in a tubular extension 28 projecting laterally from the corresponding annular support 2. The outer end of each such spindle is provided with a knurled head 29 to facilitate rotation, and not only are the teeth on the rear face of the plate covered by the annular support, but such pinion is likewise inclosed by the inner end 30 of the tubular extension, as best shown in Figs. 3 and 4.

The bows 35 are conveniently attached to these same tubular extensions 28, the latter being provided with rearwardly directed ears 36 between which the forward ends of the bows are pivotally secured, so as to swing in a horizontal plane. These bows do not curve downwardly at their rear ends to engage the ears of a patient, as is the ordinary construction, but are provided with separate ear-pieces 37 which are independently slidably mounted on the bows, respectively. The manner of such mounting is best shown in Fig. 3, from which it will be seen that the ear-piece is pivotally secured to a clip 38, which in turn slides on the bow, the upper end of such ear-piece having a cam formation so that when it is dropped into vertical position shown, as in the figure just referred to, it is automatically locked in place. In order, however, to free it to be adjusted along the bow, it is merely necessary to swing such ear-piece slightly in a forward direction, that is to the left in said figure, each clip being provided with an outwardly directed pin 39 for convenience in thus adjusting the same (see Fig. 2).

The nose-piece proper comprises a curved plate 40 transversely mounted on the lower end of a bar 41 and adapted to rest on the bridge of the patient's nose. In order to provide for the various necessary positions which such bridge-piece may be required to assume, if the lenses carried by the lens holders are to be properly centered with respect to such patient's eyes, it is necessary that this bar should not only be adjustable in a vertical direction, but also angularly, in a vertical plane, as well. I accordingly secure such bar slidably in a block 42 that is oscillatorily mounted on a bracket 43 depending from the mid-point of the bar, upon which said lens holders are slidably mounted, as heretofore described. A set-screw 44 in such block is adapted to press against the bar 41 and thereby press against a member 45 slidably secured in the block and contacting with the lower end of the bracket, which is of general cylindrical form. The action of the set-screw accordingly is to simultaneously lock the bar, or in other words the bridge-piece, in selected vertical position as well as in the desired angular position about the axis of the block 42, where it is pivotally attached to the bracket.

It will be understood that a scale may be provided on the bows 36 to assist in noting the position of the ear-pieces; also that the bar 1 may also be provided with graduations to determine the pupillary distance of the lenses held in the lens-holders.

The method of using the foregoing device should require only very brief explanation in view of the simplicity of the structure and the description of the adjustment of the various parts incidentally given in describing their construction. The frame is placed on the patient's face by slipping the ear-pieces 37 on the bows 36 over his ears and adjusting the nose-piece 40, so that not only is a comfortable fit of both such ear-pieces and nose-piece secured, but the centers of the lens-holders brought into the plane of the pupils of the eyes. Such lens-holders are then adjusted in or out by rotating the screws on spindle 6 in or out until the centers of the holders are accurately centered with respect to the eyes. A spherical lens, if required for the correction of the patient's eyesight, will be ordinarily tested out by being fitted in the holding means on the rear of the annular support 2; while such cylindrical or prismatic lenses as may be required will be tested out by being secured to the rotatable plate 15 mounted on the front of such support. The lens being tested can be brought into the proper angular position to correct the astigmatic error in the patient's eye by rotating the plate through the corresponding knurled head 29, and when the proper angle has been determined it may be readily noted by observing the indication of the scale 18.

While the foregoing structure provides for all the adjustments that can be desired in connection with the use of a device of this sort, the parts are so arranged and fashioned as to very much simplify the construction, thereby not only rendering it less expensive to manufacture, but also making it more

convenient and comfortable in use. At the same time the arrangement of the indicating scale insures accuracy of reading, while not interfering in any way with the line of vision through the lower portion of the lenses mounted in the holder through which it is necessary for the patient to look in testing out lenses for reading or short distance work. Such holder may furthermore be taken apart instantly and without the use of any tools by simply springing loose the segmental plate which carries the scale, thus permitting the holders to be thoroughly cleansed in transferring the device from one patient to another.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a device of the character described, the combination of a supporting bar; two slides mounted on said bar; an annular support depending from each of said slides; an annular plate rotatably fitted to the front face of each support; a resilient segmental plate adapted to spring into engagement with said support and overlie said annular plate so as detachably to secure the same in place; and lens-holding means on said annular plate.

2. In a device of the character described, the combination of a supporting bar; two slides mounted on said bar; an annular support depending from each of said slides; an annular plate rotatably fitted to the front face of each support; a resilient segmental plate adapted to spring into engagement with said support from the inside and overlie said annular plate so as detachably to secure the same in place, said segmental plate bearing an indicator; and lens-holding means on said annular plate.

3. In a device of the character described, the combination of a supporting bar; two slides mounted on said bar; an annular support depending from each of said slides; an annular plate rotatably fitted to the front face of each support; a resilient segmental plate adapted to spring into engagement with said support and being disposed with its discontinuous portion directed downwardly; and lens-holding means on said annular plate.

4. In a device of the character described, a lens-holder comprising an annular support; an annular plate rotatably fitted to the front face thereof; a resilient segmental plate adapted to spring into engagement with said support and overlie said annular plate so as detachably to secure the same in place; and lens-holding means on said annular plate.

5. In a device of the character described, a lens-holder comprising an annular support; an annular plate rotatably fitted to the front face thereof; a resilient segmental plate adapted to spring into engagement with said support and overlie said annular plate so as detachably to secure the same in place from the inside, said segmental plate bearing an indicator; and lens-holding means on said annular plate.

6. In a device of the character described, a lens-holder comprising an annular support; an annular plate rotatably fitted to the front face thereof; a resilient segmental plate adapted to spring into engagement with said support and overlie said annular plate so as detachably to secure the same in place from the inside, said segmental plate bearing an indicator and being disposed with its discontinuous portion directed downwardly; and lens-holding means on said annular plate.

Signed by me, this 12th day of May, 1915.

ADOLPH E. IBERSHOFF.

Attested by—
BERYL J. PARSONS,
D. T. DAVIES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."