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H. W. HILL

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LENS BLOCK

Filed Nov. 23, 1920

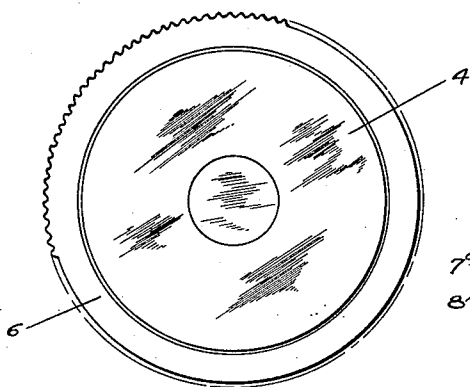


Fig. I

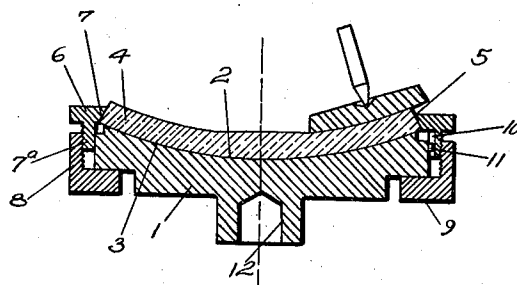


Fig. II

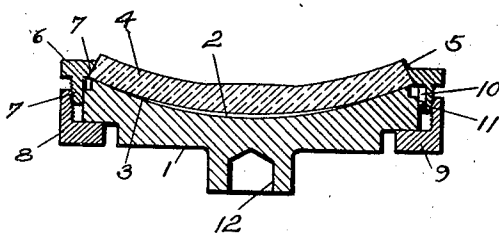


Fig. III

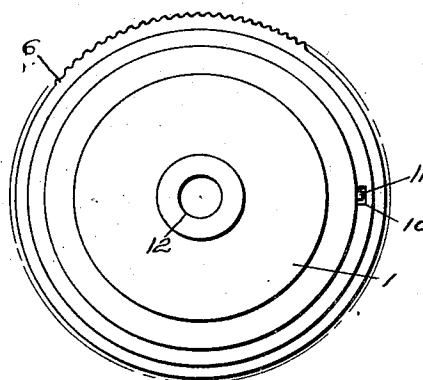


Fig. IV

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HARRY W. HILL, OF SOUTHBRIDGE, MASSACHUSETTS, ASSIGNOR TO AMERICAN OPTICAL COMPANY, OF SOUTHBRIDGE, MASSACHUSETTS, A VOLUNTARY ASSOCIATION OF MASSACHUSETTS.

LENS BLOCK.

Application filed November 23, 1920. Serial No. 426,005.

To all whom it may concern:

Be it known that I, HARRY W. HILL, a citizen of the United States, residing at Southbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Lens Blocks, of which the following is a specification.

This invention relates to a lens block and has for its leading object the provision of a device which shall serve to satisfactorily mechanically hold large lens blanks or discs such as are most commonly used in the manufacture or production of bifocal lenses, but which are capable of various other uses.

A further object of the present invention is the provision of a novel and improved mechanism for mechanically securing lenses in holders for the grinding operation, which shall securely and satisfactorily hold and retain the lens, but which will not subject it to any undue lateral pressure or the like tending to spring or twist the material of the blank.

A further object of the invention is the provision of a device of this character in which the parts shall be so related that accidental relative twisting of the lens and body of the holder will be prevented.

Other objects and advantages of the improvement include the provision of a holder which shall automatically position or center the work, which will permit of the removal and replacement of the lens on the block as desired and insure the lens being in proper position for continuance of the grinding operation, and which shall do away with the various difficulties experienced in connection with the use of pitch or other adhesive for grinding such lenses.

Figure I is a plan view of a blocked lens in position for grinding.

Figure II is a transverse sectional view illustrating the grinding member in use in connection with the improved mechanism.

Figure III is a sectional view similar to Figure II showing a slightly different shape of backing member.

Figure IV is a bottom view with the locking collar removed.

The body portion 1 of the lens block has a face 2 substantially corresponding to the curve on the rear face of the lens blank 3 to provide a seat for the lens blank. If de-

sired, as shown in Figure III, the seat may be curved on a trifle shorter radius than that of the glass so it will contact with the glass at the edge portion rather than center. This is important due to the fact that as is well known, glass is a bendable material, lateral strains as by clamping tending to spring the material or distort its surface. In this invention, therefore, in place of making use of lateral clamps on the discs here in question the glass discs 4 with the flaring bevelled edges or sides 5 are formed, while to engage these sides an annulus 6 having an inclined face 7 is employed for sliding slightly down over the edge 5 of the glass blank. This annulus 6 has a depending collar 7^a slidable on the lens block 1 and exteriorly threaded to engage with the threaded flange 8 of the clamp ring 9. In use the lens blank is placed on the block 1 and the annulus 6 slipped down thereover, automatically and accurately centering the blank and properly positioning it on the holder 1, after which the clamp ring 9 is turned to draw the annulus 6 down toward the member 1, clampingly engaging with a downward pressure the bevelled or inclined edge 5 of the glass blank and securely pressing it against the member 1 so it will be properly supported.

The member 1 may either exactly fit the lens or it may be of such shape as to engage the lens just under the edge toward the clamping point of the annulus 6. In either event it has been found that no distortion of the glass takes place with this form of the invention, the test to which it is put for this purpose being the Newton ring test, and it being found that if the blank be tested on the Newton ring principle, when clamped in position in the holder and the holder then released, it will still test the same showing there is no distortion due to the clamping action.

There is one other point that must be considered, and that is to prevent relative twisting of the parts. This is accomplished by forming the groove or key-way 10 in the annulus 6 to receive the pin or key 11 on the body portion, so that when the annulus is placed over the body portion and lens it will immediately slip down onto the lens, the pin 11 being received in the slot 10 and interlocking with the walls thereof, locking these parts against any possible twisting.

It is also to be noted that the glass blanks 4 is so constructed that the annulus 6 will slip down a certain distance thereover, leaving the upper surface projecting above the annulus so that the grinding tool will ride up freely over the side of the tool without coming into contact therewith.

It is to be noted that the body portion 1 is centrally provided with a socket 12 to receive a rotatable grinding spindle, in use the block being rotated about the dotted line shown in Figure II as an axis, which may be termed the axis of grinding. It is the purpose of the invention to clampingly secure the lens by pressure applied in the direction of this axis of grinding rather than opposed to this axis, therefore reducing the liability of springing of the glass during the grinding, while permitting of its being positively securely held.

What is claimed is:

1. A lens block comprising a lens supporting member having a seat to receive the lens slightly more concave centrally than the curve of the lens to be mounted thereon, a lens engaging annulus slidably but non-rotatably carried by the seat and projecting thereabove, and a clamp ring interlocking with the annulus and having a portion engaging the opposite face of the lens supporting member for clampingly drawing the annulus in the direction of the lens seat.

2. A lens block comprising a body portion having a lens receiving seat formed on one side and a clamp ring receiving groove formed on the opposite side, an annulus telescopically fitting the body portion of the lens block and having a depending threaded collar portion and an inwardly extending bevelled lens edge engaging portion, and a clamp ring having a portion seated in the groove of the body portion of the lens block

and having a portion in interlocking threaded engagement with the depending portion of the lens clamping annulus.

3. A lens block comprising a body portion having a lens receiving seat formed on one side and a clamp ring receiving groove formed on the opposite side, an annulus telescopically fitting the body portion of the lens block and having a depending threaded collar portion and an inwardly extending bevelled lens edge engaging portion, a clamp ring having a portion seated in the groove of the body portion of the lens block and having a portion in interlocking threaded engagement with the depending portion of the lens clamping annulus, and means for holding the lens clamping annulus against rotation relative to the block.

4. A lens block comprising a body portion having a lens receiving seat formed on one side and a clamp ring receiving groove formed on the opposite side, an annulus telescopically fitting the body portion of the lens block and having a depending threaded collar portion and an inwardly extending bevelled lens edge engaging portion, a clamp ring having a portion seated in the groove of the body portion of the lens block and having a portion in interlocking threaded engagement with the depending portion of the lens clamping annulus, the body portion of the lens block having a cut away portion peripherally of the lens engaging side into which the inwardly projecting portion of the clamping annulus is received as the parts are tightened.

In testimony whereof I have affixed my signature, in presence of two witnesses.

HARRY W. HILL.

Witnesses:

ALICE G. HASKELL,
ESTHER M. LAFLER.