This invention relates to a lens chuck for supporting lenses in a lens grinding or polishing machine. It is an object of the invention to provide a chuck particularly designed for supporting a suction cup lens holder and attaching the same to the shaft of a lens edger machine.

A further object of the invention resides in providing a chuck which may be attached to the work shaft of a grinding machine without the use of locking screws or pressure springs.

A still further object of the invention resides in providing a chuck which allows the lens holder and the lens when attached to the work shaft without further adjustment. Another object of the invention resides in providing a chuck which may be easily removed from the work shaft.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

FIG. 1 is a perspective view of the lens chuck attached to the work shaft of a grinding machine,

FIG. 2 is a section taken on line 2-2 of FIG. 1,

FIG. 3 is a section taken on line 3-3 of FIG. 1,

FIG. 4 is a perspective view showing the parts in separate relation.

FIG. 5 is a perspective view of the block forming the main part of the chuck.

FIG. 6 is a perspective view of a modified form of lens holder with the holder and lens in separate relation, and,

FIG. 7 is a cross sectional view of the holder shown in FIG. 6 with the lens attached thereto.

In the drawing wherein for the purpose of illustration a preferred embodiment of the invention is shown, the numeral 10 denotes a collar block forming the main body of the chuck. An annular recess 6 is formed in one end of the block and the rim of the recess is knurled, as at 7, providing a series of projecting teeth. The opposite end of the block has a transverse slot 8 forming parallel flanges 9 and adjacent each end of the slot, in the center thereof, are indentations 10. The bottom 11 of the recess 6 is provided with a central rectangular opening 12 extending through the bottom into the slot 8. The walls of the opening 12 at their upper ends are concave shape, as at 12.

A suction cup 13, of rubber or similar yieldable material, is adapted to be seated in the recess 6 of the body 5 and fixedly attached to the bottom of the cup is a rectangular plug 14 adapted to snugly engage the opening 12 in the bottom of recess 6. The upper edge of the cup 13 is of larger diameter than the diameter of the body 5 so as to extend over the rim of recess 6 for engagement with the teeth formed therein. The lens 15 is supported by the suction cup with the convex face of the lens in engagement with the edge of the cup.

A collar 16 attached to the work spindle 17 of a grinding machine has parallel straight side faces 18 for engagement with the flanges 9 when the collar is seated in the slot 8 of block 5. The front face 19 of the collar adjacent each end face 20 is provided with projecting pins 21 for engagement with the indentations 10 when the collar is seated in slot 8 thus holding the block in proper alignment.

In use, the suction cup 13 is placed on a solid base and the lens is placed on the convex face of the lens seated on the edge of the cup. After centering the lens on the cup downward pressure is exerted on the lens which creates suction in the cup to hold the lens firmly in position. The cup with the lens attached is then seated in the recess 6 of the block with the teeth around the rim of the recess in engagement with the cup and the plug 14 in engagement with the recess 6. The collar 16 is then attached to the collar 16 by fitting the slot 8 over the collar so that the flanges 9 engage the side faces 18 of the collar and the pins 21 engage the indentations 10 in the slot. With the collar in interfitting engagement with the body 5, rotation of the work spindle 17 will rotate the body and suction cup with the lens attached.

In FIGS. 6 and 7 a modified form of lens holder is shown for use in place of the suction cup. A block 22 of extremely low melting point alloy is molded onto the convex face of the lens and is substantially rectangular in shape with a circular boss 23 in the center having a diameter to establish a snug fit with the wall of the recess 6 when inserted therein. The block 22 is of a length to extend over the rim of the recess.

Having thus described my invention, I claim:

1. A chuck for supporting lens in a lens grinding machine comprising a block having an annular recess in one end and a transverse slot in its opposite end, the bottom of said slot having indentations adjacent each end of the said slot, an elongated collar attached to the work spindle of the grinding machine having means complementary to said slot for fitting engagement with the slot of said block, the face of said fitting means on said collar having projecting pins for engagement with the indentations in the bottom of said slot, a yieldable suction cup seated in the recess of said block having its peripheral edge extending over the rim of the recess, and a plug attached to the bottom of said suction cup having complementary interfitting driving engagement with an opening extending between the bottom of said recess and said slot.

2. A chuck for supporting lens in a lens grinding machine as described in claim 1 wherein said plug is rectangular in shape.

3. A chuck for supporting lens in a lens grinding machine as described in claim 1 wherein the rim of the recess in said block is knurled to provide projecting teeth and the peripheral edge of said suction cup extends over the rim of said recess in engagement with the projecting teeth.

4. A chuck for supporting lens in a lens grinding machine as described in claim 1 wherein the opening in said block between the slot and recess has the ends of its walls adjacent the recess shaped to conform to the contour of said suction cup.

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