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GRINDING STONE

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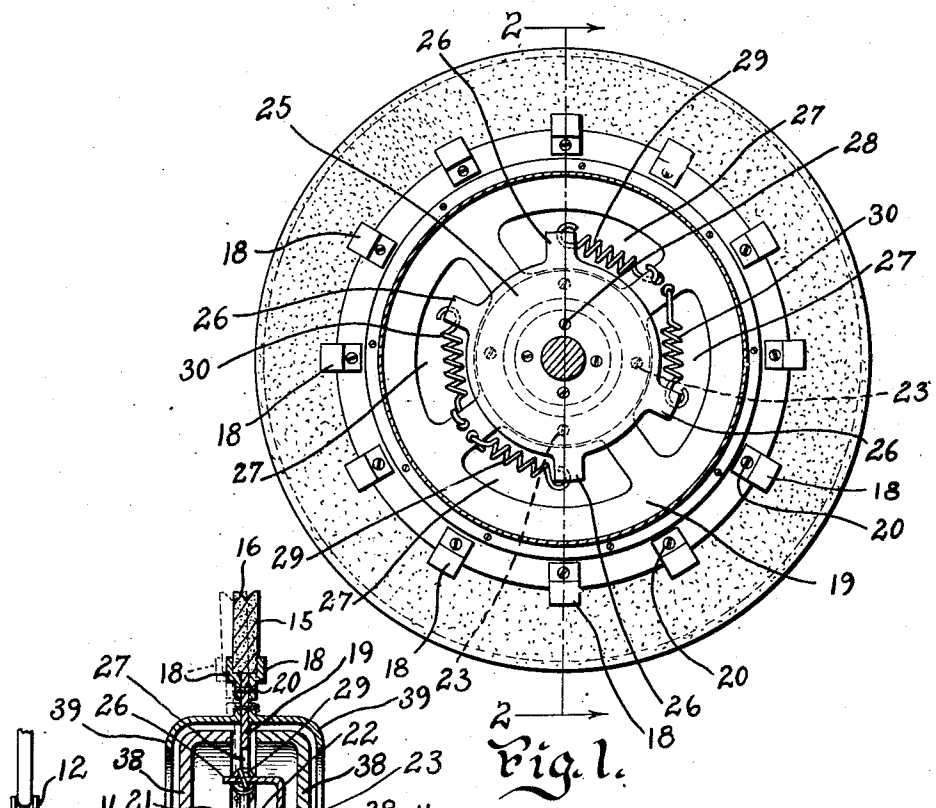


Fig. 1.

Fig. 2.

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GRINDING STONE.

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The present invention relates to an improved form of floating or wabbly grinding stone and has particular reference to a stone mounting that will permit the stone to adapt itself to irregularities in contour of any form of ophthalmic lens that may be desired to be edged.

The principal object of the invention is to provide a stone mounting of this nature wherein the grooved stone will be sensitive to the irregularities in the contour of the lens to be edged, said mounting permitting of both faces of the said lens to be edged simultaneously.

Another object of the invention is to provide, in a stone mounting of this nature, means whereby a substantially even amount of driving pressure will be maintained during the grinding operation regardless of what angle the stone may be tilted or rocked.

Another object is to provide a device of this nature that will be strong, durable, simple and inexpensive in construction, and that will be well adapted for the uses for which it is designed.

Other objects and advantages will be apparent by reference to the following specification taken in connection with the accompanying drawings, and it will be understood that I may make any modifications in the specific details of construction shown and described within the scope of the appended claims without departing from or exceeding the spirit of the invention. The preferred form of the invention only has been shown and described by way of illustration.

Referring to the drawings:

Figure 1 is a side elevation of the stone and stone mounting;

Figure 2 is a view of a section on line 2—2 of Figure 1, and shows the stone and mounting as associated with a lens and lens holder.

The primary object of the invention is to mount the bevel faced stone 15 upon a ball faced member 13 so that the stone may be tilted or rocked to any angle desired, and to connect the ball faced member and stone with the springs, or the like, 29 and 30 so that the stone may be driven and still be tilted or rocked as desired to follow the contour of the edge of the lens 17 that is placed within the bevelled face 16 of the stone.

To produce a mounting of the character described the drive shaft 10 is supported by the journals 11 and has connection with the belt and pulley 12 to properly drive the same. The ball faced member 13 is keyed to the shaft 10 by means of the pin 14.

The stone 15 having the bevelled face 16 which is adapted to receive an ophthalmic lens 17, is held between the clamp members 18 which are mounted on the outer edge of the stone supporting plate 19 by means of the screws 20. The two ring members 21 and 22 mounted on the inner end of the plate member 19 by means of the screws 23 are adapted to encircle the ball faced member 13 and are chamfered around their inner edges, preferably in arcuate formation to form a bearing surface 24 to receive the said ball faced member 13.

A second plate member 25 having the arms 26 extending within the openings 27 formed in the plate member 19 is rigidly mounted upon the ball faced member 13 by the screws, or the like, 28.

The two springs 29 are adapted to be connected at one end to the plate member 19 and at the opposite end to the arms 26 within the openings 27, and are adapted to both pull in the same direction. A second pair of springs 30 of equal tension to the springs 29 are mounted in the same manner as the said springs 29 and are adapted to pull in the opposite direction, thus leaving the stone 15 mounted in a neutral position, or namely free from the action of the springs other than to hold the same in initial, normal position on the ball faced member 13, with a tendency always to return it thereto and free to respond to the slightest tilting or rocking action at the bevelled face 16.

The lens 17 is supported by the usual lens clamps 31 carried by the shafts 32 and 33, respectively, the latter of which supports the former 34 and is driven by the belt and pulley 35. The former 34 is adapted to engage the former shoe 36 and is held in engagement with the same by the spring, or the like, 37 which tends to urge the lens carriage toward the stone 15 during the edging of the lens.

The two flange members 38 are adapted to clamp the stone supporting plate 19 when necessary through means not shown, to hold the stone rigid, and they also serve as means along with the shields 39 for forming a

housing to keep the mounting and ball faced member 13 clean and free from grit or any waste material.

In operation the lens 17 is held between the clamping members 31 and is positioned within the bevelled face 16 of the stone 15. Power is then applied to the shaft 10 by means of the belt and pulley 12 and the ball faced member 13 keyed to the shaft 10, along with the plate member 25 mounted on the ball faced member 13, is rotated at a suitable speed.

The arms 26 of the plate member 25 being connected by means of the springs 29 and 30 to the stone supporting plate 19, transmits power to the stone 15.

The lens 17, together with the former 34 which determines the size and shape of the lens, is rotated at a suitable speed through the belt and pulley 35 and is rotated in the opposite direction as to the stone15, thereby causing a grinding action to take place within the bevelled face 16 which bevels both sides of the lens simultaneously.

During the bevel edging of a toric type lens 17, that is to say, a lens having a different curvature in the two major meridians, it will be seen by reference to Figure 2 that an angle A exists, to which the stone has to be tilted, and a distance B from one axis of the lens to the other, to which the stone has to be rocked. The said movements taking place during the edging operation as the stone follows the contour of the lens being edged.

It will be seen that with the construction shown and described I provide a mounting that will respond to the slightest movements necessary in bevelling the edges of a lens, and that I have provided a structure simple, strong and durable, and well adapted for the purposes for which it is designed.

Having described my invention, I claim:

1. In a machine of the character described, a shaft, a ball member on the shaft, means to rotate the shaft, a bearing member on the ball member having a plurality of openings, a bevelled annular grinding member secured to the bearing member, a member rotatable with the shaft having projections extending into the openings in the bearing member, and resilient means secured to the projections and to the bearing member.

2. In a device of the character described, a shaft, means to rotate the shaft, an annular grindstone mounted on the shaft, a universal connection between the grindstone and shaft, a member rotatable with the shaft and resilient means connecting the grindstone and the member rotatable with the shaft for driving the grindstone and to resiliently maintain the grindstone in a position transverse to the shaft.

3. In a device of the character described, a shaft, means to rotate the shaft, an annular grindstone mounted on the shaft, a movable connection between the grindstone and shaft adapted to permit the grindstone to be deflected from a position transverse to the shaft, a grindstone driving member rotatable with the shaft, and resilient means connecting the grindstone and the member rotatable with the shaft whereby the grindstone is resiliently driven and resiliently maintained in a position transverse to the shaft.

4. In a device of the character described, a shaft, means for rotating the shaft, an annular grindstone mounted on the shaft, a movable connection between the grindstone and shaft adapted to permit the grindstone to be deflected from a position transverse to the shaft, a grindstone driving member rotatable with the shaft, and a plurality of springs connecting the grindstone and the member rotatable with the shaft in a manner whereby power is exerted on some of the springs in one direction and on some of the springs in the opposite direction.

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