Feb. 5, 1935. A. E. MAYNARD 1,989,939

ABRADING MACHINE

Filed Sept. 23, 1930

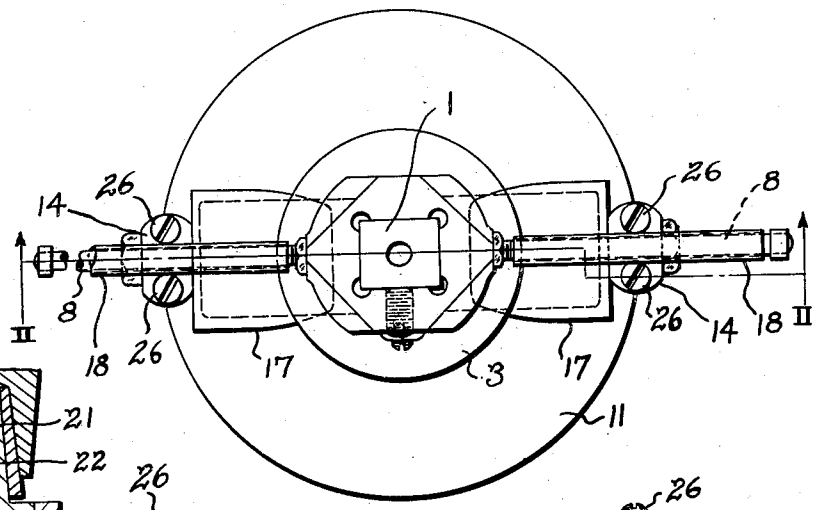


Fig. I.

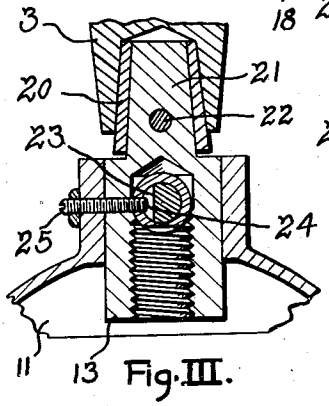


Fig. III.

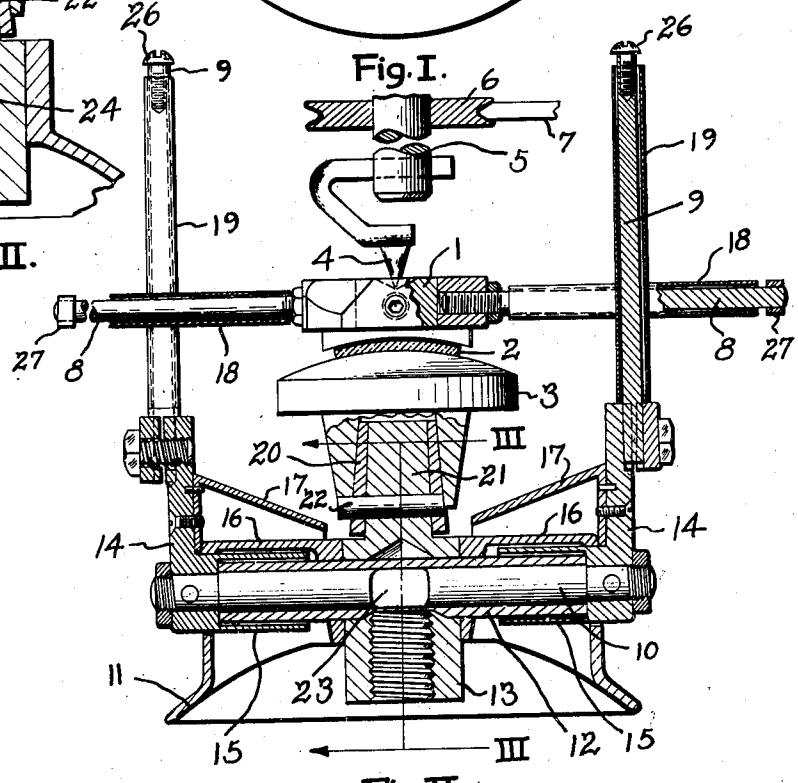


Fig. II.

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ABRADING MACHINE

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2 Claims. (Cl. 51—119)

This invention relates to improvements in abrading machines and has particular reference to an improved attachment for use in abrading cylindrical or toric lenses or articles of a similar nature.

The principal object of the invention is to provide improved means for prolonging the life and durability of an abrading machine and for obviating obnoxious noises during its use.

Another object of the invention is to provide improved means for keeping dirt and liquid abradant from the working parts of an abrading machine.

Another object is to provide an attachment having means on the tool or work holding support which may be removed and replaced after it has become worn.

Another object of the invention is to provide improved roller bearing means for reducing the friction and wear of the guiding parts of the abrading attachment and for reducing noises caused by said engaging parts.

Another object is to provide a durable, compact and inexpensive attachment for abrading toric or cylindrical lenses.

Other objects and advantages will become apparent from the following description taken in connection with the accompanying drawing and it will be apparent that many changes may be made in the details of construction and arrangement of parts without departing from the spirit of the invention as expressed in the accompanying claims. I, therefore, do not wish to be limited to the exact details of construction and arrangements shown and described as the preferred form only has been shown by way of illustration.

Referring to the drawing:

Fig. I is a plan view of the attachment embodying the invention;

Fig. II is a sectional view taken on line II—II of Fig. I showing some of the parts in elevation and having portions thereof broken away and;

Fig. III is a fragmentary sectional view taken on line III—III of Fig. II.

Abrading machines employed in the production of lenses having curves of different powers formed on one face thereof, such as toric or cylindrical lenses, are provided with an attachment for keeping the tool and work in proper abrading relation with each other so that the finished compound curve formed on the surface of the lens will be of the shape and power desired. The most accurately operating attachment for abrading such lenses was found in the past to be one formed with a pair of parallel upright supports pivoted diametrically opposite each other to the tool holder and provided with a work holder formed with a pair of horizontally disposed arms which extended between the diametrically opposed supports to hold the work against rotation and in proper abrading relation to the tool. Although this type of attachment was very efficient in the production of high grade lenses it had a very serious drawback in that its working parts soon became worn and impractical for use. Another serious defect in this type of attachment was its tendency to produce a very displeasing and invidious noise during its use.

The prime object, therefore, of this invention is to provide an attachment of the above character with means for prolonging the life and durability of the working parts thereof and for obviating the obnoxious noises that existed in the past.

Referring to the drawing wherein like characters of reference designate like parts throughout the several views, the device embodying the invention comprises a work holder 1 for holding the work 2, in this instance a lens, in abrading relation with the abrading tool 3. The lens 2 to be abraded is moved over the face of the tool 3 by means of a crank pin 4 carried by a shaft 5 and rotated by a pulley 6 and belt 7. An abrasive such as emery, rouge or the like in liquid form is constantly applied to the face of the tool during the abrasion of the lens. To hold the lens 2 in proper axial relation with the tool 3 and to prevent the possible rotation thereof during the abrading, the holder 1 is provided with a pair of horizontally disposed arms 8 which extend between a pair of parallel uprights 9 which are pivotally supported diametrically opposite each other on a rock shaft 10 carried by the base 11 of the attachment. The rock shaft 10 is mounted within a bearing 12 which extends through aligned transverse openings formed in the base 11 and tool support 13, and acts as a key to lock the said support to the base. This bearing may be of the commonly known graphite type or one of a similar nature which is very durable and which requires little attention. The parallel uprights 9 are secured to the rock shaft 10 through intermediate supports 14. These intermediate supports are formed with tubular projections 15 which are adapted to telescope with the ends of the sleeve 12 to form a connection through which it is practically impossible for any material such as dirt or abrasive to work inwardly from the exterior thereof, into and be-

tween the rock shaft 10 and its bearing 12. Attention is called to the fact that the tubular projections 15 extend within a housing 16 formed on each side of the base 11 to further prevent the entrance of dirt or abrasive and that a shield member 17 attached to the intermediate supports 14, may also be employed if desired.

The arms 8 and uprights 9 are provided with loosely mounted sleeve members 18 and 19 which act as roller bearings for removing the friction and wear of the parts during the abrading of the lens. These roller bearings provide a smooth rolling action between the arms and uprights and not only provide a more durable construction but reduce the displeasing noises common in attachments of this type. The bearing members may be held on the arms 8 and uprights 9 by screws or like means 26 or collars 27.

The tool support 13 is provided with an interchangeable tapered sleeve member 20 which is secured to the slightly tapered end 21 of the support 13 by a pin or like member 22. When the tapered sleeve 20 becomes worn or damaged through the interchanging of tools it may be removed and replaced. This obviates the necessity of having to replace the entire support 13 as has been usual in the past.

The rock shaft 10 is provided with a flattened face 23 which is adapted to engage the end 24 of an adjustable screw 25 to limit the pivotal movement of the uprights 9. This screw may be adjusted in or out to vary the limits of the pivotal movement.

From the foregoing description it will be seen that I have provided simple, efficient and economical means for reducing the wear of parts and preventing dirt or abrasive entering the bearings of the attachment and also for reducing obnoxious noises usual in devices of this character.

Having described my invention, I claim.

1. In a device of the character described, a base member having a recess therein, a support on the base member having an opening aligned with the recess in the base member, bearing means in said aligned openings adapted to secure the support to said base member, bifurcated upright members having pivot means extending within said bearing member, said upright members being located at points opposite the support, an abrasive tool mounted on the support, a work holding member having arms extending laterally between the bifurcations of the upright members and means to move the work holder over the face of the abrasive tool.

2. In a device of the character described, a base member having transverse openings therein, a support on said base having an opening aligned with said transverse openings, a bearing member extending through said aligned openings adapted to secure the support to the base member, a shaft within the bearing, supports secured to each end of the shaft, said supports having a tubular extension thereon adapted to overlie the ends of the bearing member, bifurcated upright members on said supports, an abrasive tool mounted on the first named support, a work holding member having arms extending laterally between the bifurcated members and means to move the work holder over the face of the abrasive tool.

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