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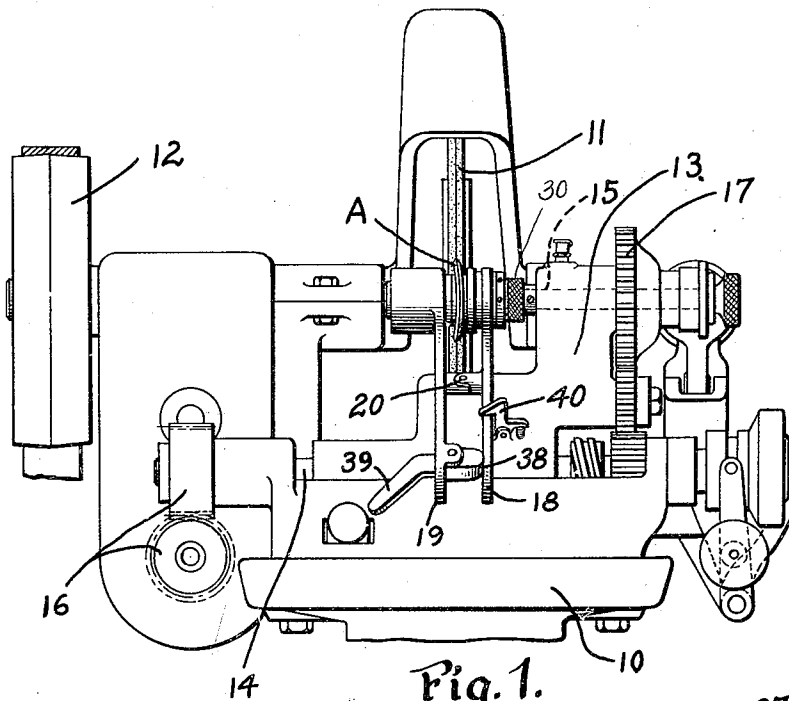
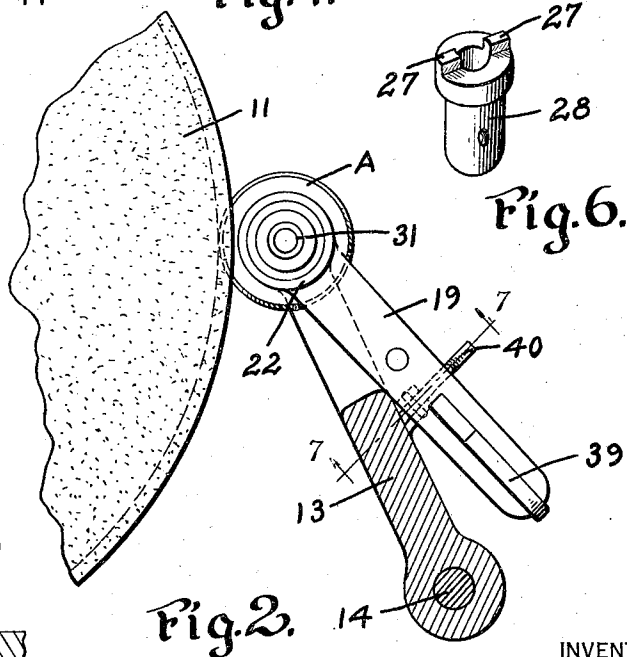
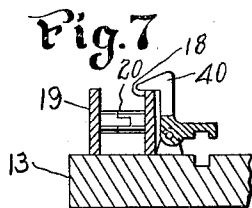
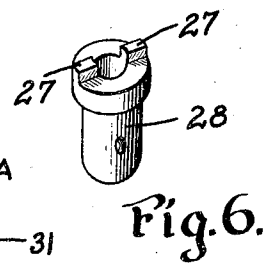
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LENS GRINDING MACHINERY

Filed March 23, 1925

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

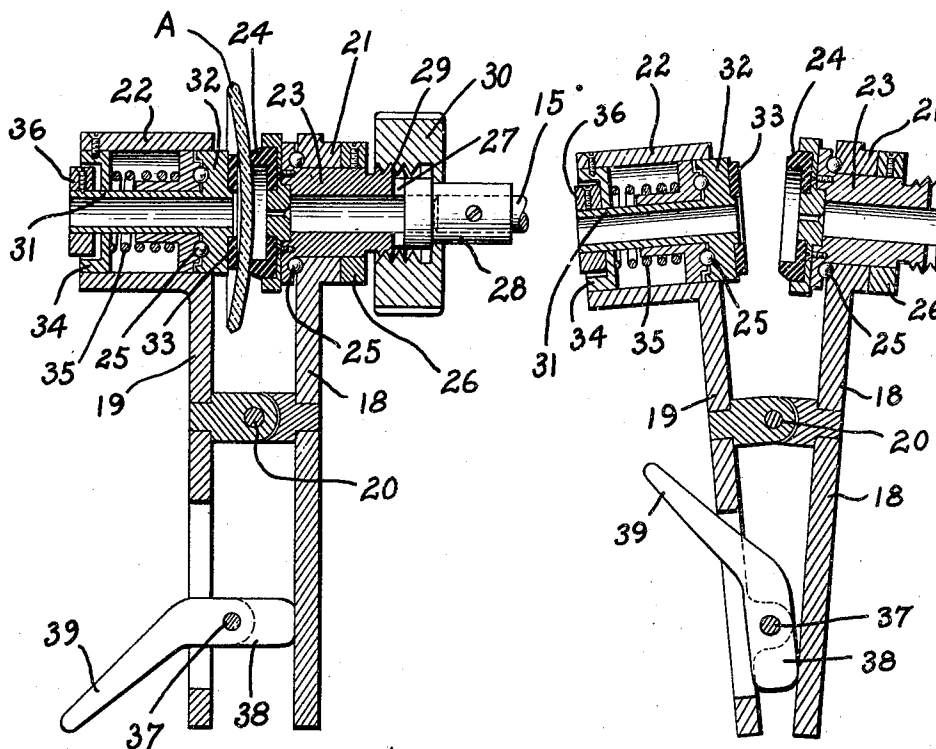


Fig. 3.

Fig. 4.

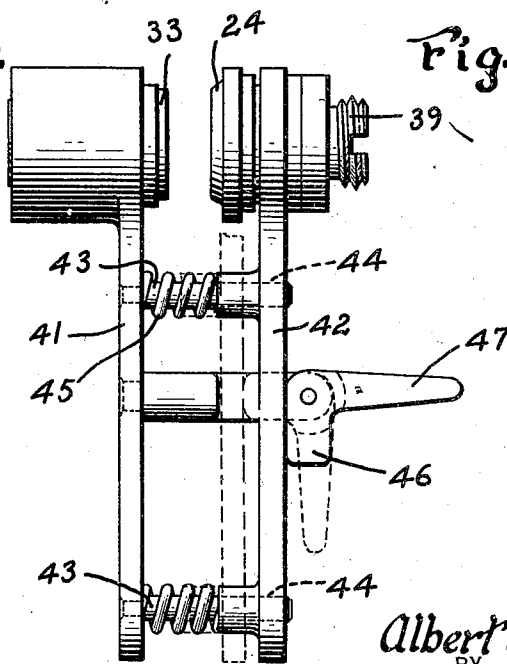


Fig. 5.

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LENS-GRINDING MACHINERY.

Application filed March 23, 1925. Serial No. 17,546.

This invention relates to improvements in lens grinding machinery, and has particular reference to lens edge grinding machinery and lens clamping means therefor.

5 An important object of the present invention is the provision of a lens clamping member in which the lens to be ground may be securely held while being operated upon.

Another object is to provide such a device 10 which will be readily detachable from the work supporting carriage of a lens edging machine.

Another object is to provide such a device 15 in which the lens may be positioned with a great degree of accuracy and maintained so in relation to its center of rotation.

Still another object is to provide a lens edging machine having an improved and simplified work supporting carriage.

20 A further object is to provide improved means for positioning a lens in proper central and axial alignment with its rotating mechanism.

Another object is to provide such a device 25 which will be simple in construction, strong and durable in service, efficient in use, and an advance in the art.

With these and other objects in view, the invention resides in the novel details of construction, combination and arrangement of parts hereinafter more fully set forth, illustrated in the accompanying drawings, and specifically pointed out in the appended claim.

35 In the drawings, wherein similar reference characters designate corresponding parts throughout the several views:

Figure 1 is a front elevation of a lens edge grinding machine embodying the invention;

40 Figure 2 is a fragmentary end elevation thereof;

Figure 3 is a vertical longitudinal sectional view through the detachable lens clamping mechanism;

45 Figure 4 is a similar view showing the clamp opened;

Figure 5 is a front elevation of a modified form of lens holding member;

Figure 6 is a detail perspective view of the 50 lens driving bushing; and

Figure 7 is a cross section on line 7—7 of Figure 2.

In Figure 1 is illustrated a conventional lens edge grinding machine, which comprises

a base member 10, on which is rotatably 55 mounted an abrasive wheel 11 adapted to be rotated through the instrumentality of a driving pulley 12. Preferably disposed at the front of the base member 10 is a work supporting carriage 13, which is pivotally mount- 60 ed upon the shaft 14, and carries in its upper free end a lens driving shaft or spindle 15. The shaft 14 is adapted to be rotated by means of a train of gears 16 which are preferably connected to the main grind stone shaft, 65 whereby to be synchronously rotated by the pulley 12. The power thus imparted to the shaft 14 is transmitted to the lens spindle 15 through the gears 17.

It is to be understood that this invention in 70 its broadest aspect comprises the provision of a detachable lens holder on any lens edging machine, so that I do not limit myself to the precise structure of machine illustrated in the drawings, since there are a number of 75 machines well known to those skilled in the art to which my device is readily adaptable.

Referring now to Figures 3 and 4, it will be seen that my improved lens holder comprises a pair of supporting arms 18 and 19 held in 80 relatively adjustable position, as by the pivotal connection 20. Adjacent their upper ends the supporting arms 18 and 19 are provided with suitable bosses 21 and 22, which are normally in axial alignment, and which 85 are adapted to form bearings for the rotatable clamping members.

In the boss 21 is mounted a sleeve 23 which carries on its inner extremity a suitable lens clamping cushion or pad 24 of any ordinary 90 or preferred type. If desired the device may be provided with anti-friction bearings 25 and be held against relative longitudinal movement by means of a collar 26. The outer 95 extremity of the sleeve 23 is preferably notched for the reception of a driving key 27, which is carried by a sleeve 28 mounted upon the lens spindle 15. Furthermore, the extremity of the sleeve 23 is threaded as at 29 for engagement by a locking nut 30, whereby 100 the device may be securely attached to the spindle 15. From this it will be evident that when the device is connected to the lens holding carriage of an edging machine, the sleeve 23 will be rotated by the spindle 15 and, of 105 course, the lens clamping pad 24 will be similarly rotated.

Disposed in the boss 22 of the supporting

arm 19 is a hollow shaft 31 having an enlarged outside diameter 32 at its inner end and carrying a suitable lens clamping pad 33 in opposed relation to the pad 24. The outer end of the hollow boss 22 is closed as by a cup-shaped washer 34, against which is disposed a compression spring 35 which tends to force the enlarged head 32 of the shaft outwardly in the direction of the clamping pad 24. A suitable bushing 36 is fastened to the end of the shaft 31 to hold the clamp member 32 in the boss 22 in its operative position retaining the ball bearings 25 and the spring 35 in their respective operative positions in the boss 22. Adjacent the opposite end of the supporting arm 19 is a pivoting pin 37 upon which is pivotally mounted a locking cam 38 operative by means of the handle 39. The operative face of the cam 38 is adapted to engage the inner surface of the supporting arm 18, whereby to maintain the two supporting arms 18 and 19 in parallel relationship so that the opposed lens clamping members will be in proper axial alignment.

By referring particularly to Figure 4 it will be seen that when the handle member 39 is moved upwardly so as to disengage the cam 38 the arms 18 and 19 will move about the pivot 20 so as to separate the clamping pads 24 and 33.

A spring actuated catch member 40 is carried, preferably on the front side of the carriage 13, and adapted to hook over one of the supporting arms, as clearly shown in Figure 1, whereby the whole detachable member will be securely held in operative position on the machine.

In use a lens A to be ground is marked in the usual manner well known to those skilled in the art, whereby to properly relate the axis of rotation with the optical center of the lens, and thereafter it may be inserted in the detached lens holder. It is especially to be noted that in view of the fact that the lens holder is detachable, the lens may be very accurately aligned and immediately clamped and securely held. In view of the fact that the shaft 31 and associated parts 32 and 33 are yieldingly mounted in the boss 22, the device is capable of engaging lenses of different thicknesses, which is a very necessary qualification. After the lens has thus been clamped the device is applied to the carriage 13 of the machine by connecting the sleeve 23 to the shaft 15 and securely locking the nut 30. Power may then be applied to rotate the grindstone 11 and the lens A simultaneously, as is well known in the art.

In Figure 5 is illustrated a modified form of lens holder. This comprises a pair of

relatively adjustable supporting arms 41 and 42, one of which carries a pair of guide pins 43, upon which the other arm is slidably mounted as at 44. Disposed between the members 41 and 42 and encircling the guide pins 43, are a pair of compression springs 45, which tend to normally force the two supporting arms away from each other. A locking cam 46 is mounted on the member 41 and operative against the outer face of the supporting arm 42, whereby when its handle 47 is depressed it will force the supporting arms and their associated lens clamps towards each other and into operative relationship, as clearly shown by dotted lines in Figure 5. The application of this modification to the carriage of the grinding machine is just the same as in the previously described embodiment.

From the foregoing it will be evident that I have provided a novel lens clamping mechanism for edge grinding machines, which in view of its simplicity and ease of operation will be an improvement in the art. Obviously changes may be resorted to in the minor details of construction and proportion of parts, and the right is herein reserved to make such changes falling within the scope of the appended claim without departing from the spirit of the invention.

Having thus described my invention, I claim:

In a device of the character described, a supporting arm having a boss with a bore for a bearing, the axis of the bore being substantially normal to the support, a lens clamp bearing slidably and rotatably mounted in the bore and having a resilient lens contacting face, means for holding the bearing in the bore and limiting its sliding movement therein, resilient means in the bore engaging the bearing and tending to urge the bearing in lens engaging direction, a second support separated from and substantially parallel with the first support and having a boss with a bore, the axis of which is aligned with the axis of the first bore when the supports are in lens engaging position, a lens clamp bearing in the second bore rotatably mounted therein and having a resilient lens contact face and having interengaging means by which it may be engaged with the drive shaft of a lens edging machine, means for holding said bearing in its bore, means connecting the two supports whereby the distance between them at the lens engaging position may be changed, and means for locking the two supports in the lens engaging position.

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