

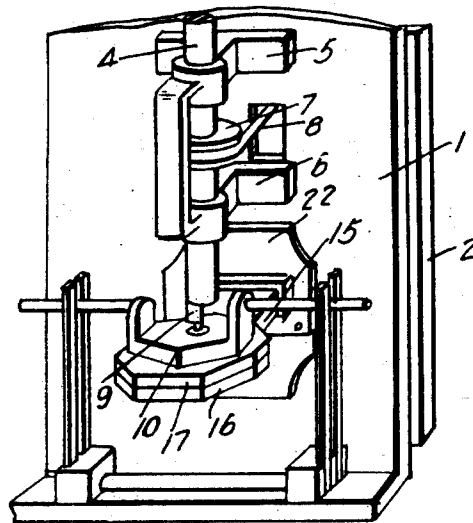
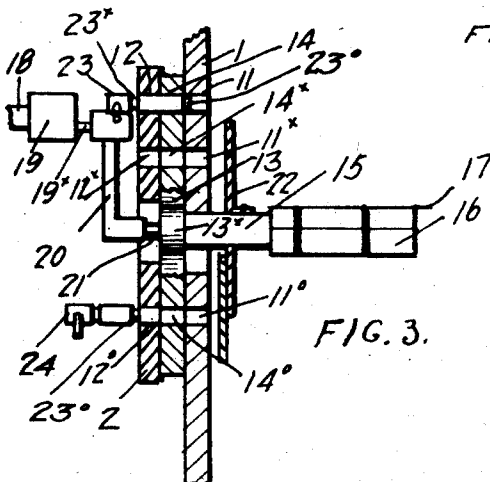
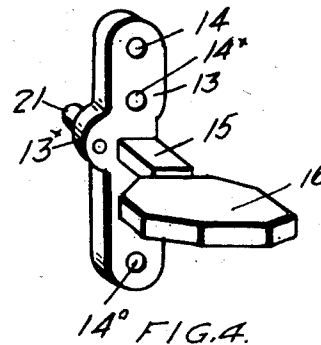
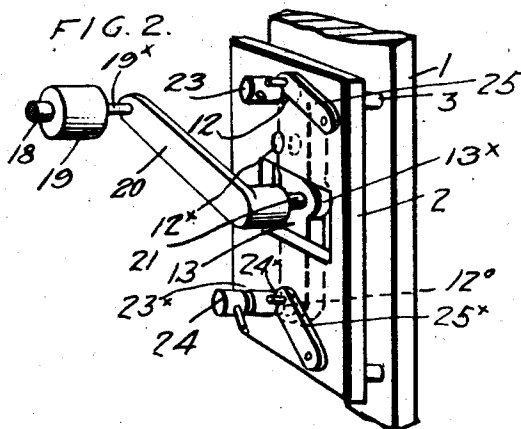
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CYLINDER LENS GRINDING MACHINE

Filed April 22, 1927



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UNITED STATES PATENT OFFICE.

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CYLINDER LENS-GRINDING MACHINE.

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My invention relates to improvements in cylinder lens grinding machines, and the object of the invention is to devise a single machine which is adapted to grind both a plus and minus cylinder curve on either face of the lens, and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

Fig. 1 is a perspective view of my device.

Fig. 2 is a vertical section through Figure 1.

Fig. 3 is a perspective detail of the back plate and radius pins operable therein.

Fig. 4 is a perspective detail of the swinging arm or tool holder.

In the drawing like characters of reference indicate corresponding parts in each figure.

1 indicates a portion of the main frame of the machine provided with a back plate 2 which is spaced therefrom by studs 3. 4 is the main driving spindle journaled in upper and lower bearings 5 and 6. 7 is a driving pulley secured to the spindle 4 and driven by a belt 8 from a suitable source. 9 is a stud extending eccentrically from the lower end of the spindle. 10 is a work holder in which the lens is held.

I do not describe the construction of this chuck in detail as it is a form commonly employed, the lens being secured therein in the usual manner.

11 and 12 are aligned orifices in the main frame 1 and back plate 2. 11^x and 12^x are intermediate aligned orifices also formed in the main frame and back plate 2, and 11^o and 12^o are lower aligned orifices. 13 is a swinging arm provided with an upper orifice 14 which is in align with the orifices 11 and 12 and intermediate orifice 14^x in align with the orifices 11^x and 12^x and a lower orifice 14^o in align with the orifices 11^o and 12^o. 15 is a lateral member extending from the arm 13 intermediate of its length, the orifices 14 and 14^x being above the lateral member 15 and the orifice 14^o below. 16 is the tool holder which is formed integral with the lateral member 15 and on which is suitably secured the tool 17 of a form commonly used for lens grinding.

13^x is a lug extending from the arm 13 intermediate of its length preferably below the intermediate orifice 14^x.

18 is a side shaft of the machine upon

which is secured an eccentric 19 provided with an eccentric pin 19^x as is commonly employed in this type of machine and which is connected by a link 20 to a pin 21 extending from the lug 13. 22 is a guard plate which is carried by the member 15. 23 and 24 are pins adapted to pass through the aligned orifices 12, 14 and 11 or 12^x, 14^x and 11^x or 12^o, 14^o and 11^o.

The pins 23 and 24 are each provided with inner and outer grooves 23^x and 23^o with which a pivoted latch 25 or 25^x is adapted to engage.

Having described the principal parts involved in my invention I will briefly describe the operation of the same.

When it is desired to grind what is known as a plus cylinder curve on the base of the lens the pin 23 is passed through the aligned orifices 12, 14 and 11 and the pin 24 withdrawn from the orifices 12^x, 14^x and 11^x in the position shown in Figure 2. The shaft 18 is then driven, reciprocating the lower end of the arm 13 and thereby swinging in a corresponding manner the tool holder 16 and the tool 17 carried thereby so as to operate against the lens held within the chuck 19 to grind a plus curve of a maximum radius.

If it is desired to grind the lens with a plus curve of less radius the pin 23 is withdrawn from the orifices 12, 14 and 11 and inserted in the orifices 12^x, 14^x and 11^x thereby giving a swing of less radius to the arm 13 and consequently to the tool holder and tool operating against the lens.

If it is desired to grind a minus curve the pin 23 is placed in the withdrawn position from either of the orifices 12, 14 and 11 or 12^x, 14^x and 11^x and the pin 24 is inserted in the aligned orifices 12^o, 14^o and 11^o so that when the lever is operated from the shaft 18^x it is swung from its lower end instead of from its upper end so that the tool holder and tool is so swung as to impart a minus curve to the lens.

It will also be seen by the construction of my device that an even pressure is exerted throughout the swing between the tool and lens so that the grinding face of the tool is always worn evenly.

It may be further pointed out that by my construction the tool being carried by a movable member operating against the lens

which is held comparatively stationary produces a greater grinding effect on the surface of the lens and produces a quicker polish without cloth marks or aberration which
5 has previously been the chief detriment in other lenses.

It may also be pointed out that during the grinding operation there is always perfect contact between the grinding surface
10 and the surface of the lens which is maintained throughout the operation, and therefore permits of the lens being ground in very much quicker time than has heretofore been possible.

15 From this description it will be seen that I have devised a very simple device which may be quickly adjusted so that a lens may be ground either with a plus or minus curve as desired.

20 What I claim as my invention is:—

1. In a cylinder lens grinding machine, the combination with the main frame, back plate spaced from the main frame, of a swinging arm interposed between the frame

and the back plate, a tool holder carried by 25 the swinging arm, means for swinging the arm, and interchangeable means for pivoting the arm either adjacent its upper or lower end to impart a varied swing to the tool carried thereby so that it can be made
30 to grind a minus or plus curvature upon the lens.

2. In a cylinder lens grinding machine, the combination with the main frame, back plates spaced from the main frame, upper 35 and lower aligned orifices in the frame and back plate, of a swinging member interposed between the frame and back plate having orifices in its upper and lower ends so located that they may be placed in alignment 40 with the orifices of the frame and plate, a pin adapted to pass either through the upper or lower aligned orifices in the frame and back plate and also one of the orifices in the swinging member, and means for 45 swinging the member.

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