

C. W. BEAM.
POLISHING MACHINE.
APPLICATION FILED OCT. 9, 1911.

1,037,851.

Patented Sept. 10, 1912.

FIG. 1.

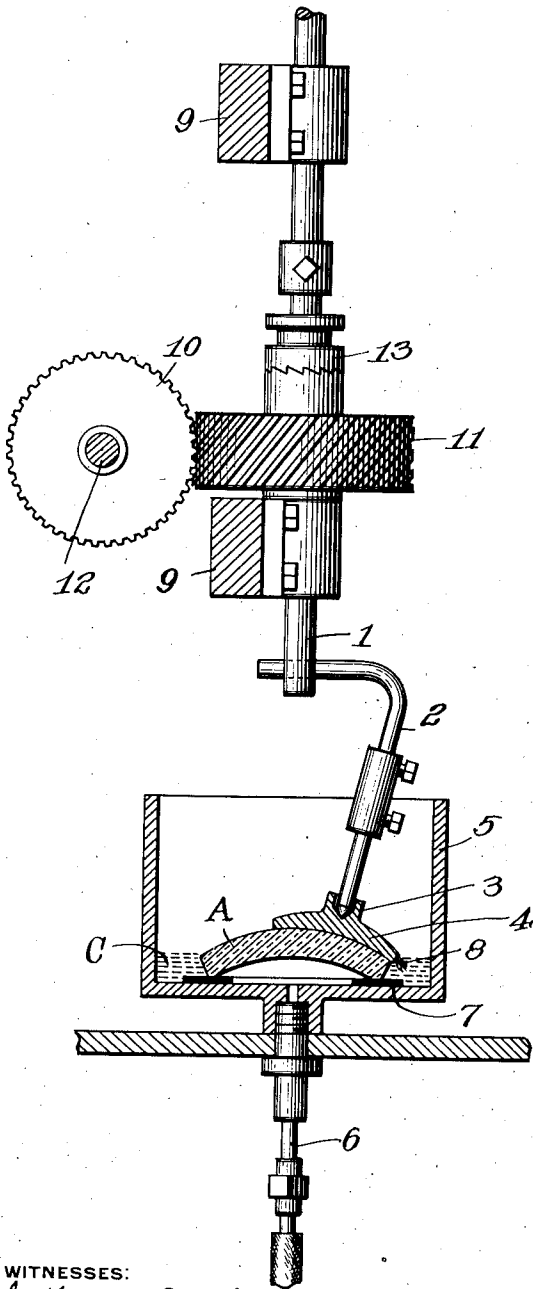
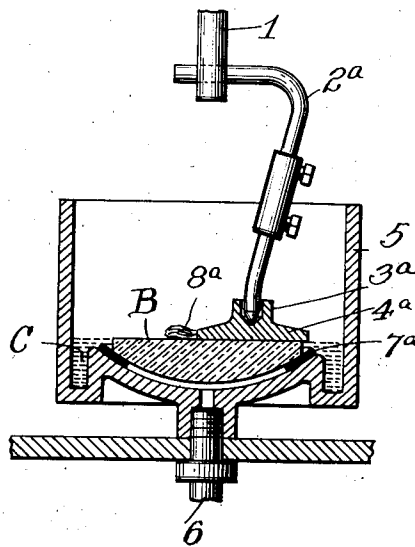


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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POLISHING-MACHINE.

1,037,851.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES W. BEAM, residing at Rochester, in the county of Beaver and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Polishing-Machines, of which improvements the following is a specification.

In grinding and polishing surfaces of such articles as glass lenses, the surface having already been brought to the approximate contour desired, the blank to be operated upon is suitably secured to a support, which may or may not be movable, and a suitable block is caused to move over the surface of the blank. During the progress of the grinding and polishing process, abrasion or attrition material of proper grade or degree of fineness is caused to come between the adjacent surfaces of the blank and block. The attrition material is, in glass polishing, mingled with water to form a soft paste or slurry.

My invention has to do with a machine adapted primarily for polishing ordinary lens surfaces, whether plane or curved.

In the accompanying drawings, which form part of my specification, Figure 1 is a view partly in elevation, and partly in vertical section, of a machine embodying my invention; and Fig. 2 is a view in vertical section and on like scale of an alternate part for the machine of Fig. 1.

Like numerals are used to designate corresponding parts in the two figures.

My invention, although applicable to many forms of polishing and grinding machines, is illustrated in a lens polishing machine.

As shown in Fig. 1, a rotatable shaft 1 is arranged preferably in vertical position and is provided at its lower end with a crank 2 (2^a), which crank extends into the socket 3 (3^a) of the buffer 4 (4^a). The free end of the crank arm is eccentric with relation to the axis of rotation of the shaft 1. The blank to be polished is mounted within a receptacle 5, arranged beneath the lens end of the shaft 1 and means are provided for securing the blank in position within the receptacle 5, concentrically beneath shaft 1, and suitably spaced to permit movement of the buffer 4 (4^a) upon and in contact with

the surface to be polished. The blank may conveniently be secured by providing a suitable seat for it in the bottom of receptacle 5 and reducing the air pressure in the space beneath the blank when seated, as by a suction pipe 6. To provide a tight joint, a soft gasket 7 (7^a) of rubber or other material may form the seat for the blank.

It will be well understood by those skilled in the art that, when such a polishing machine is used, the rotation of the shaft 1 will effect a double rotation of the buffer 4 (4^a). In the first place the buffer, being propelled by the tip of the crank 2 (2^a), will revolve in a circular orbit beneath shaft 1 and upon the surface of the blank, and in the second place, as the buffer revolves, owing to a difference in friction between buffer and blank at different points in the area of contact, the buffer will also rotate upon its own axis.

On comparing Figs. 1 and 2, it will be seen how my machine may be adapted for polishing either plane or curved surfaces. In Fig. 1 the tip of the crank extends in a direction angular to the axis of rotation and in Fig. 2 the tip of the crank is parallel to the axis of rotation, and in each case the tip of the crank extends in a direction perpendicular to the surface to be polished. This is the essential feature. The buffer is of course in each case suitably shaped for the particular surface to be polished.

The receptacle 5 contains the paste or slurry of rouge or other attrition material. The surface to be polished will preferably not be immersed in this slurry, but the surface of the slurry will be at a level lower than the surface to be polished. Means may be provided for automatically feeding the slurry to the surface when in process of polishing, such means may consist of a wick 8 attached to the edge of buffer 4 and alternately as the buffer moves dipping into the slurry and smearing the surface under treatment.

Any suitable means may be employed for rotating the shaft 1. As shown in Fig. 1, the shaft may be mounted in bearings 9 and may be rotated by worm gear 10, 11, from a shaft 12. Above the worm member 11, a clutch 13 may be provided, that shaft 1 may be shifted to inoperative position when desired and remain stationary while shaft 12

continues to turn. By so shifting shaft 1. and with it crank 2, ready access may be had to receptacle 5.

The drawings show a blank, A in Fig. 1, 5 B in Fig. 2, mounted for polishing. A quantity of slurry C fills the space provided for it within the receptacle 5 but at a lower level than the surface to be polished. As the buffer 4 (4^a) rotates and revolves in contact 10 with the upper surface of the blank, the wick 8 (8^a) alternately dips into the slurry C and smears the slurry on the surface which, is under polishing operation. Thus the polishing progresses mechanically and 15 uniformly.

I claim as my invention:

1. In a polishing machine, the combination of a slurry receptacle, means for securing a blank to be polished within said receptacle, a buffer movable upon the surface to 20 be polished, and means carried by said buffer

for transferring the slurry from the receptacle to the surface of the blank to be polished, substantially as described.

2. In a polishing machine, the combination of a receptacle, means for securing a blank to be polished within said receptacle, the surface of the blank which is to be polished extending in a general horizontal position and extending at a level above a surrounding trough-like space wherein slurry 25 may be held, a buffer movable upon the surface to be polished, a wick depending from the edge of said buffer, and means for moving said buffer upon the surface of a blank 30 when in position, substantially as described.

In testimony whereof I have hereunto set my hand.

CHAS. W. BEAM.

Witnesses:

LEMAN W. DOLBY,
HERBERT AILES.