

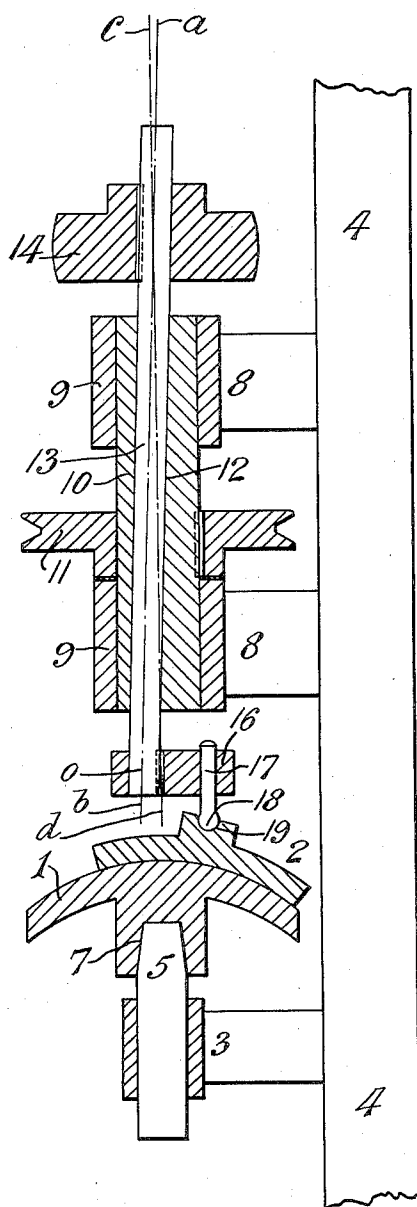
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POLISHING MACHINE

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POLISHING MACHINE

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5 Claims. (Cl. 51—120)

This invention relates to a polishing machine suitable for optical work such as polishing spectacles and other lenses.

The main object of the invention is to provide a machine for polishing spectacle lenses, the work head of which automatically traces a line in a substantially circular path with a continuously changing centre.

Another object of the invention is to provide a machine which can easily be adjusted in order to control the throw of the work head.

Still another object of the invention is to provide a polishing machine of a simple and robust character and having a minimum number of parts.

The invention is illustrated in the accompanying drawing which is a sectional elevation of a lens polishing machine.

The machine comprises a work table 1 on which a lens to be polished is mounted, and polishing head 2. The work table 1 is detachably carried on a bracket 3 forming part of a vertical post 4 rigid with the base of the machine (not shown). The bracket 3 has a spigot 5 the head of which engages a tapered socket 7 on the underside of the work table; this permits of varying sizes and types of work tables being fitted.

Also integral with the post 4 are brackets 8 having bearings 9 for a sleeve member 10 which is one of the driving members and has keyed to it a driving pulley 11. The sleeve is provided with an angular or inclined bore 12 which forms a bearing for a spindle 13 constituting the other driving member. It is to be noted that the centre line of the bore 12 denoted at $a-b$ is inclined to the axis of rotation of the sleeve denoted by $c-d$.

Keyed to the upper end of the spindle is a driving pulley 14 the face of which is curved to accommodate the angularity of its axis of rotation.

Fast on the lower end of the spindle is a crank block 15 which carries an eccentric finger piece 17 for imparting movement to the polishing head 2. The finger is provided with a spherical end 18 for engagement with a spherical concavity 19 on the work head.

In operation it will be obvious that the movement of the work head is dependent upon the respective eccentricities of the finger piece as regards its rotational movement about the axis $a-b$ and the lower end of the spindle as regards its eccentric mounting in the sleeve member that is the eccentricity of the point o with respect to the axis $c-d$.

The combination of these movements results in the work head tracing a line over a given area

which never retraces itself. The amount of eccentricity of the spindle can within limits be controlled by varying the length of the spindle projecting from the end of its bearing in the sleeve member.

It will be appreciated that it is essential for the spindle 13 carrying the pulley 14 at the top end to pass through the revolving bearing 10 of the spindle at an angle to the axis $c-d$ of same, whereby the end of the spindle carrying the crank 16 is eccentric to the revolving bearing, yet at the same time the pulley at the top of the spindle remains the same distance from its driving shaft. Whereas if the axis $a-b$ of the spindle were parallel to the axis $c-d$ of the revolving bearing and was out of centre or eccentric to it, the pulley 14 would constantly be changing its distance from the driving shaft by the amount of eccentricity of the spindle resulting in the belt becoming alternately tight and slack.

In order that the angular movement of the pulley 14 shall be a minimum it is preferable that in the normal position of the spindle, its centre line $a-b$ intersects the axis $c-d$ at a point which is the vertical centre of the pulley.

In practice it will be found convenient to drive the spindle at a greater speed than the bearing member 10. A suitable ratio is about 4:1.

What I claim is:—

1. In a polishing machine suitable for optical work the combination of a bearing member mounted for rotational movement, a spindle rotatably carried by the bearing member, the axes of the spindle and bearing member being inclined to each other, a polishing head eccentrically mounted on the spindle, and means for driving the bearing member and the spindle.

2. In a polishing machine suitable for optical work, the combination of a bearing member mounted for rotational movement, a spindle rotatably carried by the bearing member, the axes of the spindle and the bearing member being at an angle to each other, a crank block on the eccentric end of the spindle and a driving member on the other, a polishing head on the crank block and means for imparting rotational movement to the bearing member and to the spindle through its driving member.

3. In a polishing machine suitable for optical work, the combination of a base, a sleeve forming a revolvable bearing rotatable in bearings on the base, said sleeve having a longitudinal bore, whose axis is at an angle to the rotational axis of the sleeve, a spindle rotatable in the bore, a crank block on the eccentric end of the spindle and

a driving member on the other, a polishing head on the crank block and means for imparting rotational movement to the bearing member and to the spindle through its driving member.

- 5 4. In a polishing machine, in combination with a work-supporting table, a spindle having on one end a crank, a head adapted to be moved over the table and operatively connected to the crank, means to rotate the spindle and cause the head
10 to revolve about on the table, and means to cause the spindle to move in a conical path while it is rotating.

5. In a polishing machine, in combination with a work-supporting table, a rotatably mounted sleeve having a bore at an acute angle to its axis of rotation, a spindle rotatably mounted in the bore, a grinding head on the spindle adapted to pass about over the table, means to rotate the sleeve, the axis of rotation of the sleeve intersecting the axis of rotation of the spindle, and driving means on the spindle where the axis of rotation of the sleeve crosses the axis of rotation of the spindle. 10

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