Aug. 25, 1925. 1,551,140

K. A. EDSTROM

LENS GRINDING MACHINE

Filed Feb. 26, 1921

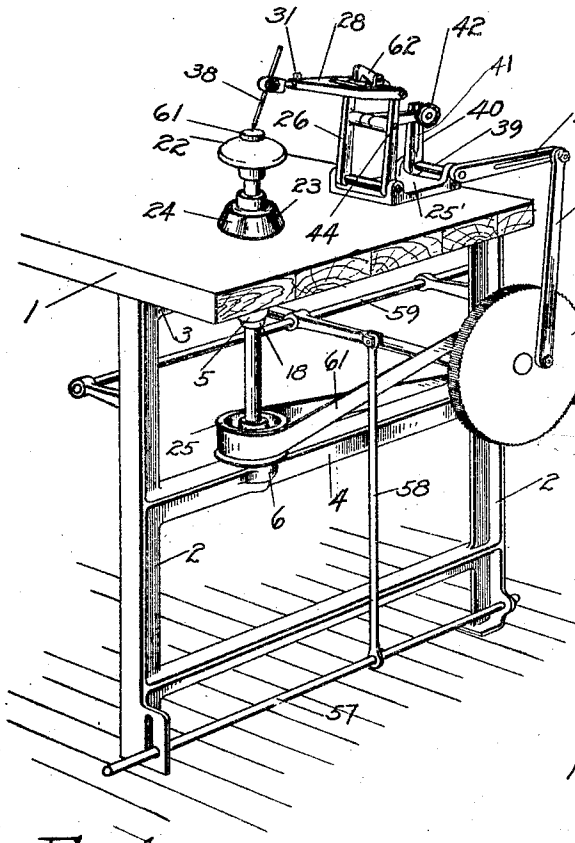

Fig. 1.

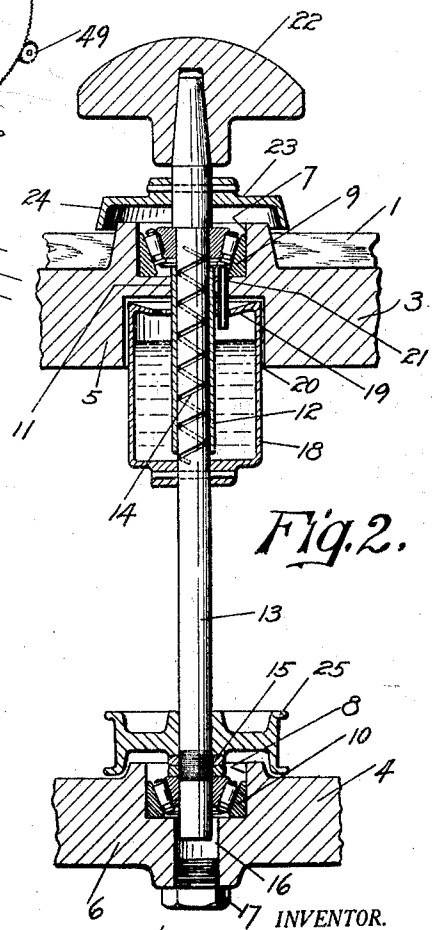

Fig. 2.

INVENTOR.
Karl A. Edstrom
BY
ATTORNEY.

Patented Aug. 25, 1925. 1,551,140

UNITED STATES PATENT OFFICE.

KARL A. EDSTROM, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO THE WEISS INSTRUMENT COMPANY, OF DENVER, COLORADO.

LENS-GRINDING MACHINE.

Application filed February 26, 1921. Serial No. 448,152.

To all whom it may concern:

Be it known that I, KARL A. EDSTROM, a citizen of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Lens-Grinding Machines, of which the following is a specification.

The present invention is directed to improvements in lens grinding machines.

The primary object of the invention is to provide a bearing for the tool shaft constructed in such a manner that the same will be positively held firmly against lateral movement in its bearing, but at the same time being freely rotatable, means being provided to properly and positively lubricate the necessary points of contact.

Heretofore, machines of this character have been so constructed that the tool shafts thereof soon wear and become loose in their bearings, due chiefly to the fact that the points subject to wear do not receive the proper lubrication, and it is to overcome this defect that the present invention has been perfected.

With these and other objects in view, this invention resides in the novel features of construction, formation, combination and arrangement of parts to be hereinafter more fully described, claimed and illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of the device showing the bearing on a table.

Figure 2 is a vertical sectional view through the bearing.

Referring to the drawings, 1 designates the usual wooden table top, and 2 the supporting legs therefor, said legs being connected by horizontal metal brace bars 3 and 4, said bars being provided with enlargements 5 and 6, respectively, the purpose of which will appear later.

The enlargement 5 has a circular well 7 formed therein, while the enlargement 6 has a similar well 8, and in these wells are removably mounted roller bearings 9 and 10, respectively, preferably the Timken type bearings.

The well 7 has an opening 11 formed in its bottom, and suitably fixed therein is the upper end of the sleeve 12, the lower end of which extends below the bar 3, as clearly shown in Fig. 2 of the drawing. Passing through the sleeve 12 and having engagement in the bearing 9 is the tool shaft 13, said shaft being formed with a spiral groove 14, which extends longitudinally of said shaft, and is of such length as to extend above and below the ends of the sleeve 12, therefore the groove for a major portion of its length is confined within said sleeve.

The lower end of the shaft 13 is engaged in the bearing 10, and has engaged thereon jam nuts 15 which may be manipulated to adjust the shaft vertically when desired, the lower end of said shaft resting in the inner race of the bearing 10.

The well 8 has a duct 16 leading from the bottom thereof, and a plug 17 is engaged therein, and readily removable when desired to drain the oil from said well.

A tubular reservoir 18 is provided and surrounds the sleeve 12 and shaft 13 for a portion of their length, the lower end of said sleeve stopping at a point slightly above the bottom of the reservoir. The upper edge of the reservoir terminates in an annular inturned downwardly inclined flange 19, said reservoir being suitably fixed to the shaft 13 so as to rotate therewith. The enlargement 5 has a cavity 20 formed therein and receives the upper end of the reservoir 18.

A comparatively small tube 21 is employed and has its upper end fixed in and projected slightly above the bottom of the well, the lower end of said tube being extended into the upper end of the reservoir, the purpose of which will later appear.

Suitably fixed to the shaft 13, and below the usual tool head 22 is a hood 23, the flange 24 thereof enclosing the upper end of the well 7 so as to exclude from the well grit, dirt or any other foreign matter. However, if a small quantity of grit should enter the well the rollers of the bearing will immediately crush the same, thus preventing injury to the associated parts. A pulley 25 is fixed to the shaft 13 adjacent its lower end, and serves as a hood for the well 8.

It will be obvious that the construction and arrangement of these bearings are such that the shaft 13 can be easily and quickly removed when desired, and that the wells 7 and 8, and reservoir 18 can be quickly replenished with oil whenever necessary.

It will be apparent that when the reservoir contains oil and rotary movement is imparted thereto by the shaft through the

medium of the pulley 25 that oil from the reservoir will be conducted by the spiral groove 14 from the reservoir upwardly through the sleeve 12 and into the well 7, thus assuring proper lubrication to the bearing 9 in said well. As long as the shaft 13 is rotated, the rotary movement thereof being rapid, oil will be continually fed from the reservoir 18 to the well 7. Since it is only necessary to have a small quantity of oil in the well 7 to effectively lubricate the bearing 9, any surplus oil which may be forced thereinto will gravitate through the tube 21 into the reservoir. Since the upper end of said tube projects slightly above the bottom of the well 7 a small amount of oil will at all times remain in said well. By providing the tube 21 any possibility of the well 7 over flowing, due to the too rapid rotation of the reservoir, will be positively eliminated.

By providing the reservoir 18 with a flange 19 oil will be prevented from splashing therefrom as the reservoir rotates.

Mounted on the table top 1 is a plate 25′, which may be rocked in any suitable manner to cause the pin 38, which is associated with the frame 28 pivotally connected with the frame 25′ to move the lens 61 transversely on the tool 22 as the same is rotated.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit of the invention.

What is claimed is:

1. In a lens grinding machine, a tool shaft, bearings for the upper and lower ends of the shaft including roller bearings, supports for the bearing comprising wells, means for conducting oil to the well of the upper bearing, and means for covering the wells, said means being fixed to the shaft adjacent the respective wells.

2. In a lens grinding machine, the combination with a pair of bars, roller bearings carried by the bars, a vertical tool shaft journaled in the bearings, an oil reservoir fixed to the shaft, and means associated with the shaft and reservoir for conducting oil from the latter to the bearing above the reservoir.

3. In a lens grinding machine, the combination with a support having a well formed therein, of a tool shaft journaled in the well and having a spiral groove therein, a reservoir fixed to the shaft below the well, a sleeve surrounding the shaft and depending into the reservoir and having its upper end fixed in the bottom of the well, said sleeve affording fluid communication between the reservoir and well, and a tube having its upper end extended into the well and its lower end extended into the reservoir.

In testimony whereof I have hereunto set my hand.

KARL A. EDSTROM.