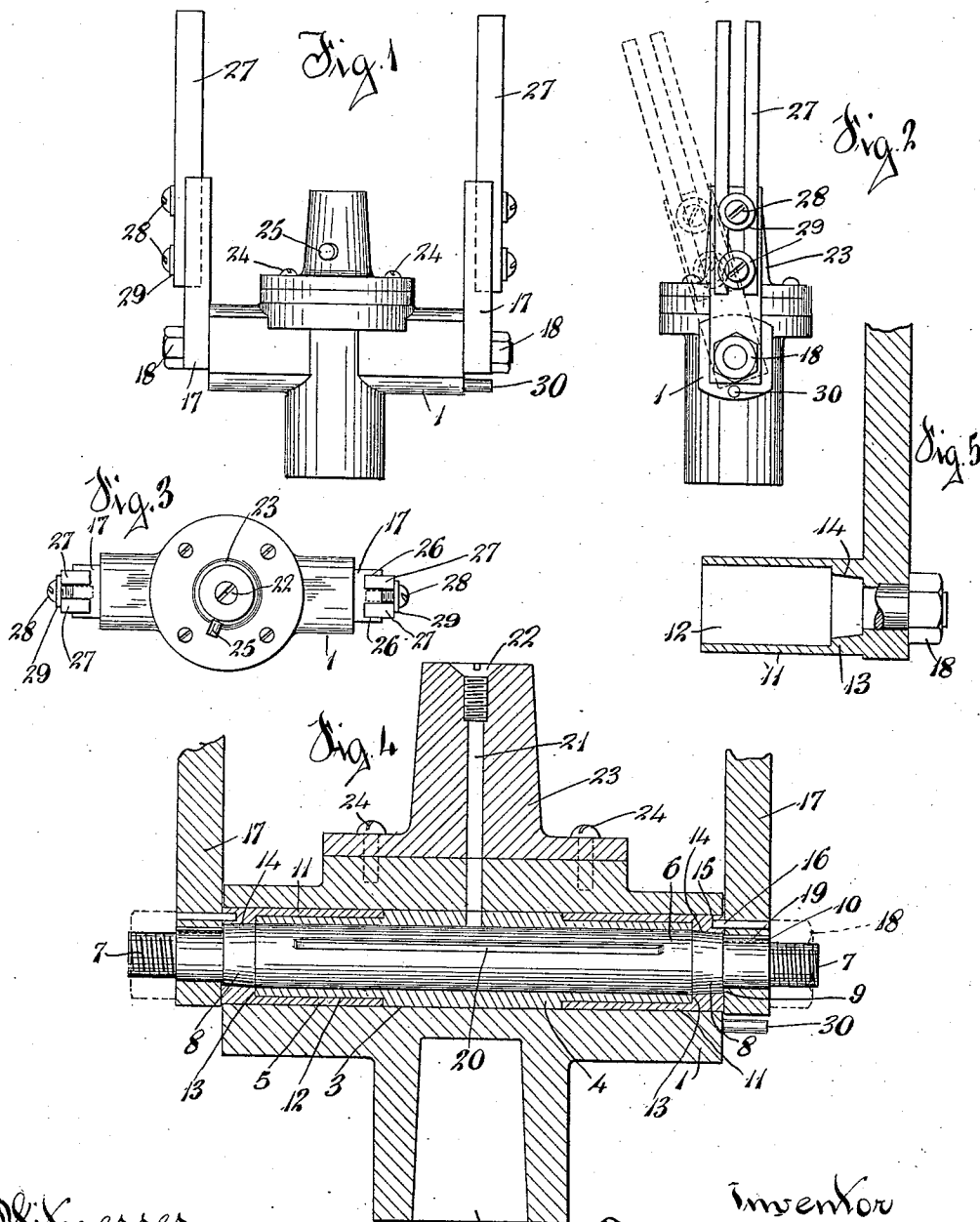


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BEARING FOR LENS GRINDING MACHINES.
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Patented May 6, 1913.



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BEARING FOR LENS-GRINDING MACHINES.

1,061,030.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK ZETTEL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Bearings for Lens-Grinding Machines, of which the following is a specification.

My invention relates to improvements in bearing for lens grinding machines.

The objects of my invention are to provide simple and efficient means to exclude the emery (which is used in grinding the lens) from the rock shaft and thereby eliminate the wear of said shaft and of the housing or bearing in which it is mounted; to increase the bearing surface by which the wear between the body of the machine and moving parts is reduced to a minimum; to produce a more durable device and one which is less liable to get out of repair than otherwise; to protect the body of the machine against wear by providing a replaceable bearing sleeve therein; and to provide by means of said sleeve additional bearing surface thereby relieving the rock shaft and replaceable bearing surface partly of wear.

My invention consists in the details of construction and arrangement and in the parts and combination and arrangement of parts as herein set forth and claimed.

In the drawings, which serve to illustrate the construction, application and use of my invention: Figure 1 is a side elevation of a cylinder attachment for lens grinding machines showing my invention applied thereto; Fig. 2 is an end view of the same; Fig. 3 is a top view of the same; Fig. 4 is a vertical section lengthwise of the device showing the shaft in side elevation; and Fig. 5 is a sectional view of a modified construction showing the shell and arms formed integral and showing a portion of the shaft with the nut thereon in side elevation.

In the embodiment of my invention as illustrated and which shows a preferred construction 1 represents the body or housing of a cylinder attachment for lens grinding machines, said body having a socket 2 of the usual construction whereby it is mounted upon a vertical revolving spindle of the surface or lens grinding machine (not shown). Said body 1 is provided with a horizontal longitudinal bearing 3 within which is secured by friction a replaceable sleeve 4 which engages said horizontal bearing 3 at the cen-

tral portion thereof and has its outer surface or periphery cut away or reduced at each end to form in connection with the body a tubular cavity 5. A rock shaft 6 is mounted in said replaceable sleeve 4 and is provided with projecting screw threaded ends 7. Near each end said shaft is provided with a taper 8 and shoulder 9 and also with a feather 10. I provide shells or sleeves 11 each having its bore 12 reduced to form a shoulder 13 and tapered bearing 14, said shell being preferably provided with a socket 15 to receive a pin 16 extending through or projecting from arm 17 to insure the movement of said shells and shaft in unison under all circumstances. Said shell is inserted in said tubular cavity 5, its shoulder 13 abutting against the end of said replaceable sleeve 4 and its tapering bearing 14 having wedging engagement upon the taper 8 of the shaft when the nut 18 is screwed tightly against the arm 17. Each arm 17 is provided with a key way 19 to receive the feather 10 whereby said arms are held in fixed relative position and adapted to move in unison with the rock shaft 6 and with each other. Thus it is seen that when the parts are assembled as shown in Fig. 4 and the nuts 18 are placed tightly against the arms 17 said arms will bear against the outer ends of said shells 11 respectively and wedge the same tightly upon the tapers 8 to form an absolutely tight joint between said parts. It will also be seen that the replaceable bearing 4 remains stationary in its position and that the arms 17, shells 11 and rock shaft 6 move in unison and that this construction and arrangement of the parts forms a movable bearing surface both upon the interior and exterior of said shells 11 thereby providing additional support for the rock shaft 6 and more than doubling the bearing surface, thereby distributing the wear over a greater area than otherwise and greatly lengthening the life of the movable parts. This construction by which said sleeves are telescoped and provided with shouldered bearings at each end where so telescoped makes it practically impossible for any material to work through from the exterior into and between said rock shaft and its bearing. At the same time this construction and arrangement whereby said sleeves telescope and the shells form a wedge non-leakable joint with the rock shaft together with the longitudinal oil channel or groove 20 effects a non-leakable

lubricant retainer, whereby said parts may be operated with the least possible wear. A suitable oil hole 21 is provided and is preferably closed by a screw 22 in the top of the tool or lap holder 23 which is preferably detachably mounted upon the body 1 by means of the screws 24. Making the tool or lap holder thus detachable enables me to substitute any other form or style for the one shown.

In the operation of my device the body 1 is mounted upon a vertical spindle (not shown) which rotates at the rate of about six hundred revolutions per minute. The arms 17 must accordingly accommodate themselves to the position of the lens block (not shown) which is carried by the forked arms and this causes said arms to oscillate back and forth rapidly a short distance thereby causing the movement of the rock shaft within the bearing of the replaceable sleeve 4.

It will be seen that my construction insures the prevention of any emery getting between the rock shaft and its bearing thereby greatly increasing the durability of the device.

It will be apparent that my invention is capable of some modification without material departure from the spirit or scope thereof, as for instance, the shells 11 and the cooperating arms 17 may be formed separately and connected together in the manner shown in Fig. 4 or they may be formed integral as shown in Fig. 5 and I do not, therefore, wish to be confined to the particular construction and arrangement set forth, but

What I claim as new and desire to secure by Letters Patent is:

1. In lens grinding machines, a body having a horizontal bearing, a replaceable bearing sleeve held therein and reduced or cut away upon its periphery adjacent each end forming in connection with the body a tubular cavity between the ends of said replaceable bearing sleeve and horizontal bearing, a rock shaft mounted and adapted to oscillate within said replaceable bearing sleeve and having its periphery tapered near each end, a shell mounted upon each reduced end of said replaceable bearing and having its bore reduced at one end to form a shoulder which abuts the end of said replaceable bearing and also having a tapered surface to form a wedging engagement between said rock shaft and said shells, respectively, whereby an absolutely tight joint

is obtained between said parts, operating means secured against the ends of said shells respectively whereby said shells are firmly held and moved with the shaft, and means for holding said operating means in fixed relation with said shells and with said shaft respectively.

2. In a device of the character described, a body having a horizontal bearing, a replaceable bearing sleeve held therein by friction, and having its periphery reduced or cut away adjacent each end to form a tubular cavity between the ends of said replaceable bearing sleeve and horizontal bearing, a rock shaft mounted in said replaceable bearing sleeve and having its periphery tapered near one end, a shell mounted upon each reduced end of said replaceable bearing and filling said tubular cavity, said shell having its bore reduced at its outer end to form a shoulder which abuts the end of said replaceable bearing and also having a tapered surface to form a wedging engagement between said shaft and said shells respectively and means for holding said parts in engagement with each other, substantially as set forth and for the purposes specified.

3. In a device of the character described, a body having a horizontal bearing, a replaceable bearing sleeve therein and reduced or cut away upon its periphery adjacent each end to form in connection with the body a tubular cavity between the end of said replaceable bearing sleeve and horizontal bearing, a rock shaft mounted and adapted to oscillate within said replaceable bearing sleeve and having its periphery tapered near one end, a shell mounted upon each reduced end of said replaceable bearing and having its bore reduced at one end, to form a shoulder which abuts the end of said replaceable bearing and also having a tapered surface to form a wedging engagement between said rock shaft and said shells respectively whereby an absolutely tight non-leakable joint is obtained between said parts, said shells each being provided with a socket, operating means secured upon said shaft in engagement with said shells respectively and each operating means provided with a pin engaging the sockets in said shells, substantially as set forth and for the purposes specified.

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