

C. T. BEGGS.
POLISHING MACHINE.
APPLICATION FILED JUNE 21, 1921.

1,425,829.

Patented Aug. 15, 1922.

Fig. 1.

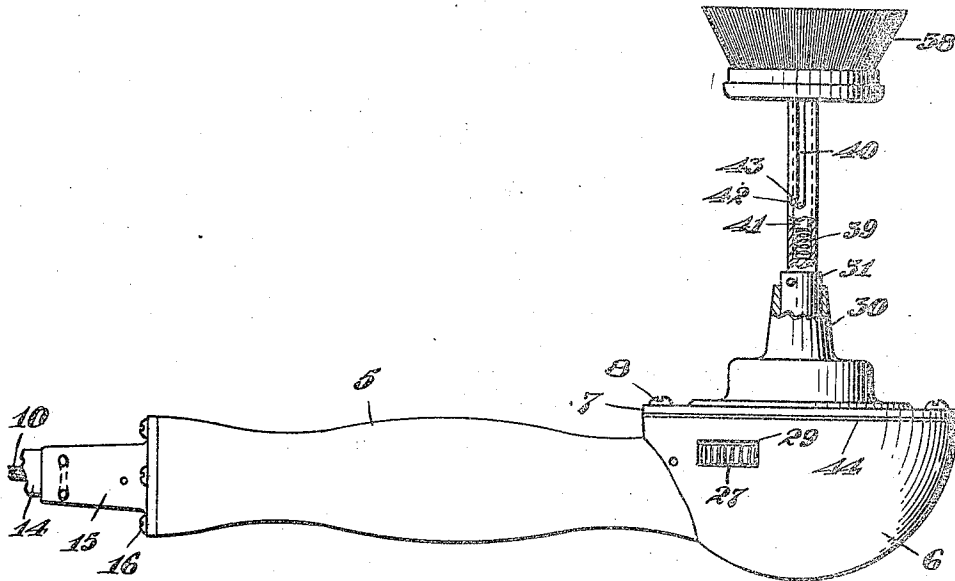
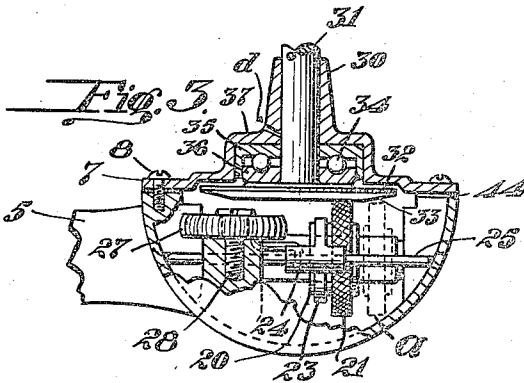
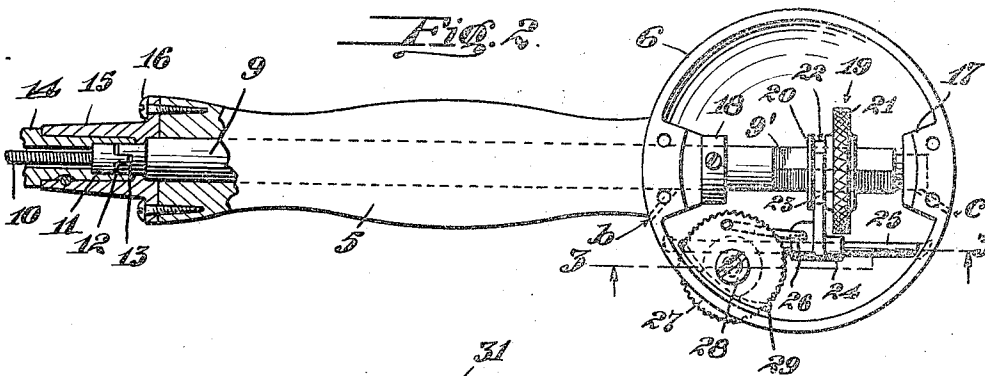


Fig. 2.



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POLISHING MACHINE.

1,425,829.

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To all whom it may concern:

Be it known that I, CARL T. BEGGS, a citizen of the United States, residing at Long Beach, in the county of Los Angeles and State of California, have invented new and useful Improvements in Polishing Machines, of which the following is a specification.

This invention relates to a mechanism for effecting and controlling rotation of spindles in electrically driven hand manipulated instruments, such as polishers, vibrators and the like, and particularly pertains to a tool for shining boots, shoes and other articles.

An object of this invention is to provide a simple and effective means for regulating the speed of spindles in hand tools of the character above referred to, by which change of speed may be accomplished by the hand holding the tool.

Another object is to provide a tool embodying a drive shaft and a rotary spindle in which a hand controlled speed regulating mechanism is provided by means of which the spindle may be thrust in and out of operative connection with the drive shaft and propelled at various speeds, and in which the parts are compactly and conveniently arranged and so assembled that they may be readily removed and replaced and adjustments easily effected.

With the foregoing and other objects in view the invention consists of the parts and the combination and arrangement of parts hereinafter more fully described and claimed, and illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a view in side elevation of a tool constructed in accordance with my invention.

Figure 2 is a plan view of the tool with parts broken away and with the spindle and its mounting removed.

Figure 3 is a detail in vertical section as seen on the line 3—3 of Figure 2 showing parts in elevation.

More specifically, 5 indicates a tubular handle formed on a cup shaped shell 6 forming part of the head portion of the tool; the shell 6 being open on one side and adapted to be closed by a cover plate 7 detachably connected to the shell by screws 8 or other suitable fastenings.

Revolubly mounted in the handle 5 is a shaft 9; the outer end of which is detachably

connected to a flexible drive shaft 10 by a suitable coupling, here shown as comprising a collar 11 rigidly mounted on the shaft 10 having a tongue 12 extending into a groove 13 on the end of shaft 9. The flexible shaft 10 is encased in a tube 14 which encompasses the collar 11 and is engaged by a ferrule 15 secured to the end of the handle 5 by screws 16.

The inner end of the shaft 9 extends across the shell 6 and is supported in a bearing 17 formed interiorly of the latter. A collar 18 is fastened on the shaft 9 and abuts against the inner end of the handle 5 and co-operates with the bearing 17 in holding the shaft against shifting longitudinally.

The inner end portion of the shaft 9 between the bearing 17 and the collar 18 is formed with flat faces 9', being preferably square and slidably mounted on this portion of the shaft is a friction driving wheel 19 comprising a hub 20 with a wheel 21 formed thereon, preferably provided with a knurled periphery. The hub 20 is formed with an annular channel 22 into which extends a yoke 23 carried by a sleeve 24 slidably mounted on a guide rod 25 carried by the shell 6 and extending parallel to the shaft 9.

Connecting with the sleeve 24 is a link 26, the outer end of which connects with a knurled wheel 27 revolvably mounted on a post 28; the knurled wheel having a portion of its periphery projecting through a slot 29 in the shell and so positioned that it may be readily engaged by the thumb of the hand grasping the handle 5, so that the knurled wheel 27 may be rotated by the thumb to shift the sleeve 24 and the drive pinion 19 longitudinally of their respective mountings.

The cover plate 17 is formed with a hub 30 projecting outwardly therefrom centrally of the shell 6, in which a spindle 31 is revolvably mounted. The spindle 31 extends at right angles to the shaft 9 and has a friction disk 32 formed thereon and arranged to be engaged by the wheel 19, as is common in friction disk construction, and which disk is preferably provided with a leather face. The disk 32 is formed with a beveled edge 33 so that when the wheel 19 is shifted to dispose its knurled periphery opposite the beveled portion, as indicated in dotted lines α in Figure 3, the wheel and disk will be out of operative engagement with each other.

As a means for affording a roller bearing for the end thrust of the spindle, ball bearings 34 are arranged between a pair of race-ways 35 and 36 and interposed between the disk 33 and the hub 30; the end plate being formed with a recessed portion 37 to receive the race-ways.

The outer end of the spindle 31 is designed to receive any suitable tool, here shown as comprising a polishing brush 38, but obviously, any desired tool adapted to be rotated by the spindle may be attached thereto, according to the use the device is to be put.

The spindle is here shown as having its outer end portion tubular in form with a spring 39 arranged therein and as having a longitudinal slot 40 opening at the end of the spindle. The tool is formed with a stem 41 adapted to extend into the tubular spindle and to abut against the spring 39; a pin 42 being mounted on the stem 41 and adapted to engage a side notch 43 formed at the inner end of the slot 40 into which the pin 42 is pressed by the spring 39 to effect a substantial engagement between the stem and spindle when the pin is moved sideways from the slot into the notch.

In the operation of the invention, when it is desired to employ the tool, the drive shaft 10 is connected to and operated by any suitable source of power, whereby the shaft 9 and the wheel 19 thereon may be rotated continuously. When it is desired to drive the spindle 31 the wheel 19 is moved by means of the knurled wheel 27, as before described, to dispose it into engagement with the friction disk 32, as shown in Figure 3, whereupon motion will be transmitted to the spindle 31 and to the tool thereon. On initial engagement of the wheel with the friction disk the latter will be rotated at a relatively slow speed, but by advancing the wheel toward the center of the friction disk the speed of rotation of the latter will be accordingly increased, as is common to friction disk operations.

It will now be seen that the speed of rotation of the tool on the spindle may be varied to any desired speed from a condition of rest to its maximum speed by merely rolling the regulating wheel 27 under the thumb. This feature of the invention renders it especially applicable for use on shoe shingling or polishing tools where it is desirable to operate the brush or polisher at different speeds according to the character of polish being used, for example, in using a liquid polish and applying it to the brush, the latter should be revolved slowly to avoid spattering the polish, but when a heavy polish, such as paste is being used, the brush may be rotated at a high speed.

By providing the means for throwing the friction transmission out of operation, the

spindle may be quickly stopped, which is advantageous when it is desired to change the tool thereon.

An important feature of my invention resides in mounting the spindle and friction disk on the cover plate, so that wear on the disk or the wheel may be compensated for by tightening the screws 8; thin shims 44 being interposed between the cover plate and the shell, which shims may be removed when it is desired to advance the friction disk toward the wheel by tightening the screws. This cover plate being readily removed and replaced, gives easy access to the working parts in the shell, so that they may be removed and replaced and with oil holes *b*, *c*, and *d* at the bearings *p* permits ready lubrication of the parts.

While I have shown and described a specific embodiment of my invention, I do not limit myself to the exact details of construction and arrangement of parts shown, but may employ such other changes and modifications as come within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. In a device of the character described, a spindle adapted to carry a tool, a friction disk on said spindle, a rotary shaft, a friction wheel slidable on said shaft and revolvable therewith, a thumb operable regulating wheel, and means whereby turning said wheel will shift said wheel to throw it in and out of engagement with said disk and to move it diametrically across the face of the disk in frictional engagement therewith.

2. A mechanism for the purpose set forth comprising, a spindle, a friction disk thereon, a rotary shaft, a friction wheel slidable on said shaft and revolvable therewith; said wheel having a hub formed with a peripheral groove, a slidable sleeve, a yoke on said sleeve extending into the groove on the hub, a thumb operable regulating wheel, and a link connecting said wheel to said sleeve whereby rotation of the regulating wheel will move said sleeve to effect shifting of said friction wheel whereby it may be thrown in and out of engagement with said disk and moved diametrically across its face.

3. A polishing tool comprising, a shell, a handle on said shell, a rotary shaft extending through said handle into said shell, a cover plate on said shell, a spindle carried by said cover plate, a friction disk on said spindle, a driving wheel slidable on said shaft and revolvable therewith having a hub formed with a peripheral channel, a guide in said shell, a member slidable on said guide having a yoke extending into the channel on the hub, a wheel having a portion of its periphery extending through the shell, and a link con-

necting the wheel to said slidable member.

4. A polishing tool comprising, a shell, a handle on said shell, a rotary shaft extending through said handle into said shell, a cover
5 plate on said shell, a spindle carried by said cover plate, a friction disk on said spindle, a driving wheel slidable on said shaft and revoluble therewith arranged to contact said friction disk, means for shifting said wheel

to throw it in and out of engagement with 10 said disk and to move it across the face of the disk; said cover pate being adapted to be adjusted to regulate contact between the friction disk and the drive wheel.

In witness whereof I have hereunto affixed 15 my signature this 13th day of June, 1921.

CARL T. BEGGS.