Sept. 10, 1929. C. A. TOMPKINS 1,727,844

DEVICE FOR GRINDING CYLINDERS

Filed Feb. 23, 1928 2 Sheets-Sheet 1

Fig. 1.

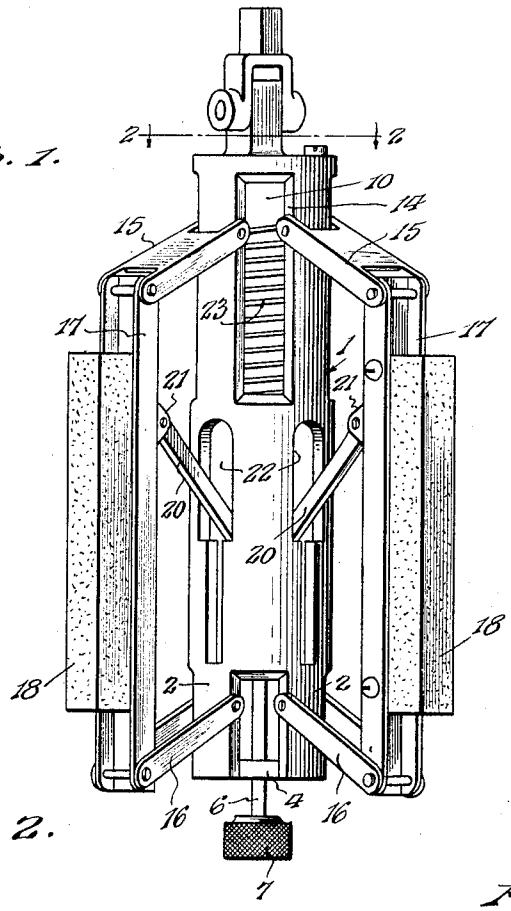


Fig. 2.

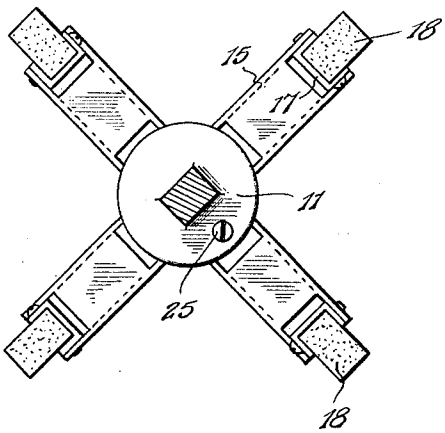
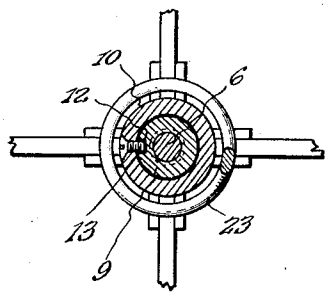


Fig. 5.



Inventor.

C. A. Tompkins

By Lacey & Lacey, Attorneys

Sept. 10, 1929. C. A. TOMPKINS 1,727,844

DEVICE FOR GRINDING CYLINDERS

Filed Feb. 23, 1928 2 Sheets-Sheet 2

Fig. 3.

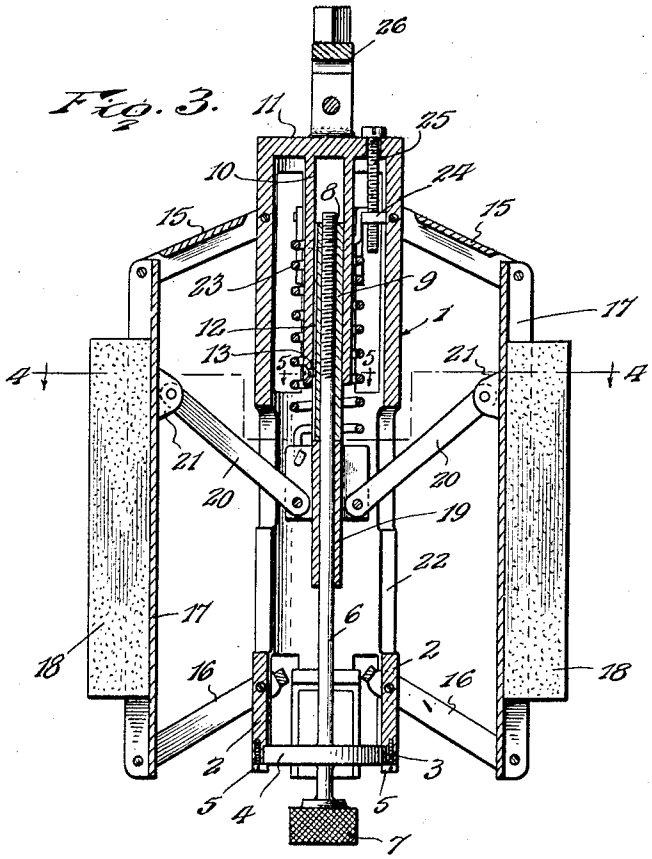
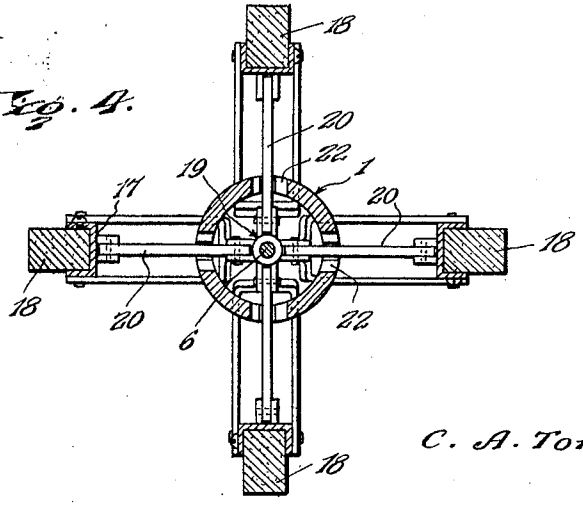


Fig. 4.



Inventor

C. A. Tompkins.

By Lacey & Lacey, Attorneys

Patented Sept. 10, 1929. 1,727,844

UNITED STATES PATENT OFFICE.

CLAUDE A. TOMPKINS, OF LAKE CITY, FLORIDA.

DEVICE FOR GRINDING CYLINDERS.

Application filed February 23, 1928. Serial No. 256,339.

The present invention is directed to improvements in devices for grinding cylinders.

The primary object of the invention is to provide a device of this character so constructed that it can be placed in the cylinder and rotated in order to effectively and evenly grind the wall of the cylinder bore.

Another object of the invention is to provide a device of this kind constructed in such manner that the movement of the grinding blocks can be conveniently regulated in order that the grinding action thereof will be arrested at a predetermined point, thus eliminating the likelihood of grinding the cylinder bore oversize.

Another object of the invention is to provide a device of this kind which may be collapsed in order that it will conveniently enter the cylinder bore, resilient means being provided for expanding the device in order that the grinding blocks will yieldably engage the wall of the cylinder bore, the construction being simple, durable, and extremely efficient in operation.

While the drawings illustrate a preferred embodiment of the invention, it is to be understood that in adapting the means to meet specific needs and requirements, the design may be varied and such other changes in the minor details of construction may be resorted to within the scope of the invention as claimed, without departing from the spirit thereof.

For a full understanding of the invention and the merits thereof, reference is to be had to the following description and the drawing hereto attached, in which,—

Figure 1 is a side elevation of the device.

Figure 2 is a sectional view on line 2—2 of Figure 1.

Figure 3 is a vertical sectional view through the device.

Figure 4 is a sectional view on line 4—4 of Figure 3.

Figure 5 is a sectional view on line 5—5 of Figure 3.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawings by like reference characters.

Referring to the drawings, 1 designates a hollow cylindrical body having its lower end provided with spaced extensions 2, four in number, the lower ends of which are provided with internal seats 3 for engagement with the periphery of the disk 4. The disk 4 is rotatably mounted in the seat and maintained therein by the heads of the screws 5. Fixed centrally of the disk is a spindle 6, the lower end of which extends below the disk and is provided with a turning knob 7 while the upper end of said spindle is provided with threads 8 for engagement in the tube 9, said tube being slidably guided in the sleeve 10 depending from the head 11 of the body. The tube is provided with a longitudinal groove 12 in which is engaged a screw 13 carried by the sleeve 10 which obviously prevents rotation of the tube but will permit the same to slide when the spindle 6 is rotated.

The body is formed near its upper end with openings 14, four in number, and to the walls of which are pivotally connected the inner ends of the plates 15, there being links 16 having their inner ends pivotally connected to the sides of the extensions 2.

Having their upper and lower ends pivotally connected respectively, with the plates 15 and links 16 are boxes 17 in which are detachably mounted the grinding blocks 18 formed of suitable abrasive material.

Slidable on the spindle 6 is a hub 19 to which are pivotally connected the inner ends of the arms 20, the outer ends of said arms being pivotally connected to the ears 21 carried by the boxes 17, said arms operating in the slots 22 of the body, said slots being of key hole formation in order to accommodate the ear 21 when the boxes lie close along the side of the body.

Encircling the sleeve 10 is a coil spring 23, the upper terminal of which is fixed to a nut 24 threaded on the bolt 25 adjustable in the head 11. The lower terminal of the spring is fixed to the hub 19. Obviously upon adjusting the bolt 25 the tension of the spring 23 can be conveniently regulated.

It will be obvious that upon rotating the spindle 6 the tube 9, owing to its threaded engagement with the spindle can be moved up-

wardly or downwardly according to the direction of rotation of the spindle. In this manner the upward sliding movement of the hub 19 is limited by the lower end of the tube 9 in order to limit the outward movement of the boxes and blocks. As shown in Figure 3, the hub is engaged with the lower end of the tube 9, thereby preventing the arms 20 from exerting strain upon the boxes 17, whereby even though the device is rotated further grinding action will cease, thus preventing oversized grinding of the cylinder wall. Upon adjusting the spindle the tube 9 may be raised or lowered in order to limit the upward movement of the hub 19. It will be of course understood that the boxes are pressed toward the body in order to collapse the device so that it can be conveniently placed in the cylinder bore, and at which time the spring 23 is expanded. The spring 23 will obviously place strain upon the hub 19, thereby causing the arm 20 to hold the blocks 18 yieldably engaged with the wall of the cylinder bore in order that the grinding operation will take place as the device is rotated. When the device is first placed in the cylinder bore the hub 19 will be spaced from the lower end of the tube 19, thus permitting the blocks to move outwardly during the grinding operation which ceases as soon as the hub engages the lower end of the tube.

The disk 4 may be graduated in order that the device can be set for grinding predetermined diameters which is regulated by adjusting the tube 9 through the medium of the spindle. Rotary movement is imparted to the device through the medium of the coupling 26 which may be driven from any suitable machine.

Having thus described the invention, I claim:

1. A device of the class described, comprising a hollow body, a sleeve therein, a tube slidably interlocked in the sleeve, a spindle rotatable in the body and having threaded engagement with the tube, a hub slidable on the spindle, boxes having grinding blocks therein, arms pivotally connecting the boxes and hub, yieldable means tending to slide the hub toward the tube to hold the blocks in yielding engagement with a surface, the tube limiting the sliding movement of the hub in one direction, as and for the purpose set forth.

2. A device of the class described, comprising a hollow body, a spindle rotatable in the body, a hub slidable on the spindle, a tube threaded upon the spindle, and movable upon rotation thereof, a coil spring having one end adjustably connected with the body and its other end fixed to the hub, boxes pivotally connected with the body and having grinding blocks therein, arms pivotally connecting the hub and boxes, said spring serving to exert its force upon the arms to hold the blocks yieldably engaged with a surface, the movement of the hub being limited by the tube in one direction.

3. A device of the class described, comprising a hollow body, said body having a head at one end, a sleeve depending from the head, a screw adjustable in the head and having a nut thereon, a spindle rotatable in the body, a hub slidable on the spindle, a coil spring encircling the sleeve and having one terminal fixed to the nut and the other to the hub, boxes having their upper and lower ends pivotally connected with the body, grinding blocks removably mounted in the boxes, a tube slidable in the sleeve and having threaded engagement with the spindle, arms pivotally connecting the boxes and hub and influenced by the spring for holding the grinding blocks yieldably engaged with a surface.

In testimony whereof I affix my signature

CLAUDE A. TOMPKINS