P. R. GLASS.

AUTOMATIC ROTARY SHOE JACK.

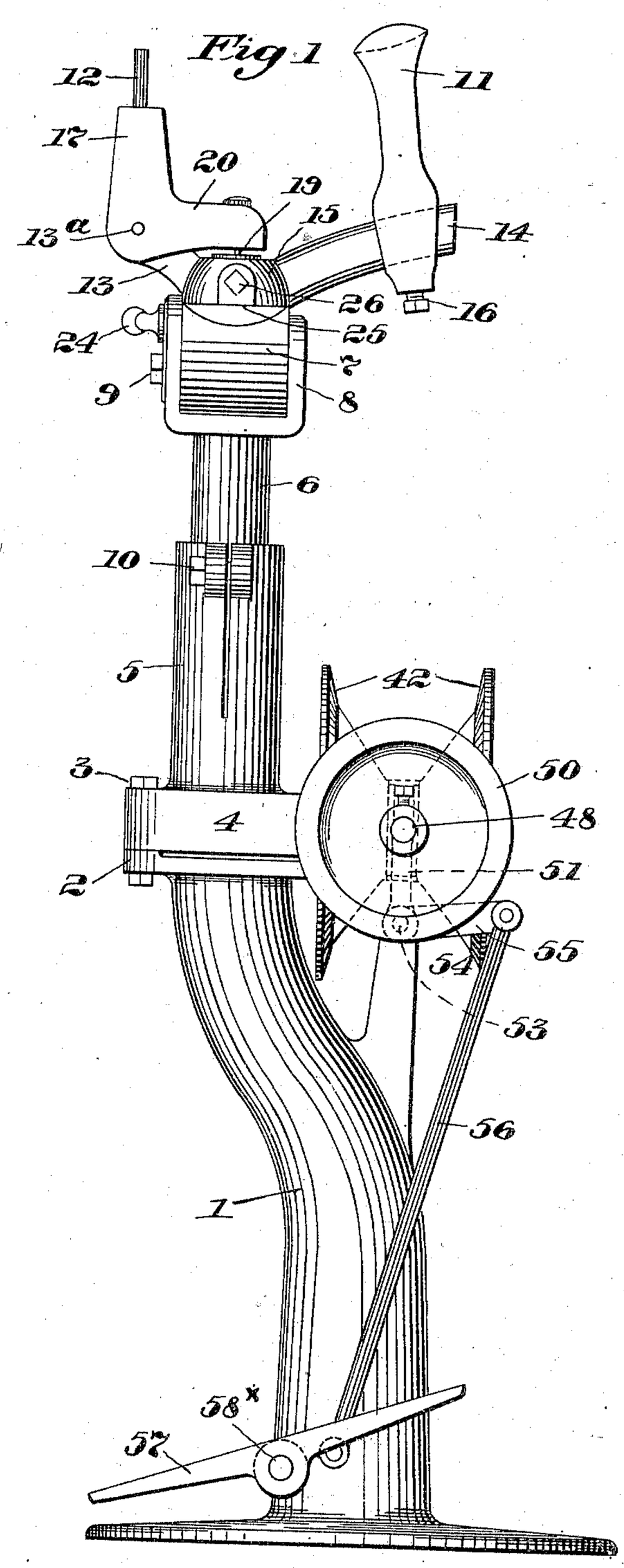
APPLICATION FILED FEB. 9, 1906. RENEWED FEB. 24, 1910.

957,950.

Patented May 17, 1910.

3 SHEETS—SHEET 1.

Fig 1

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3 SHEETS—SHEET 2.

Fig. 4

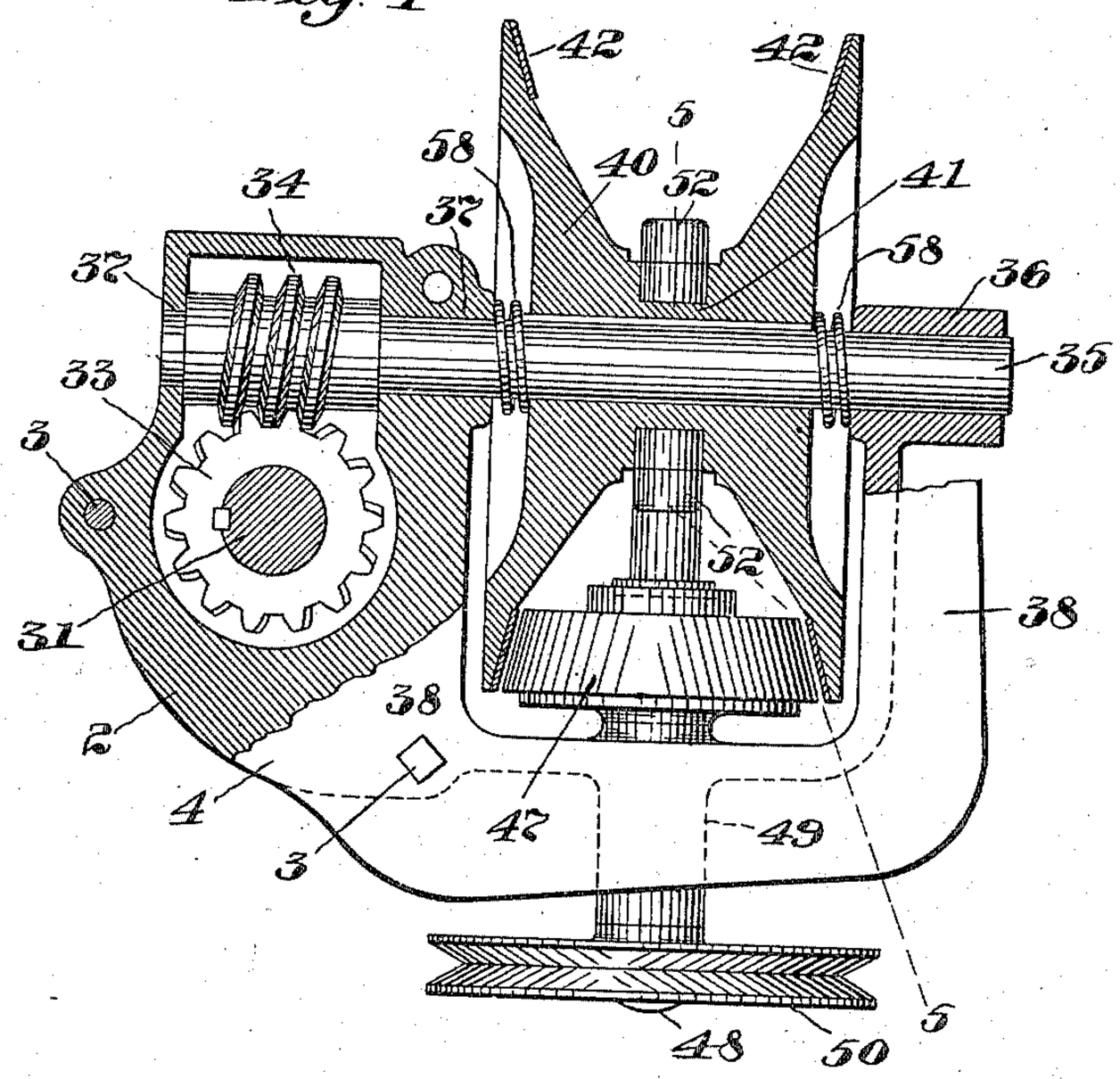
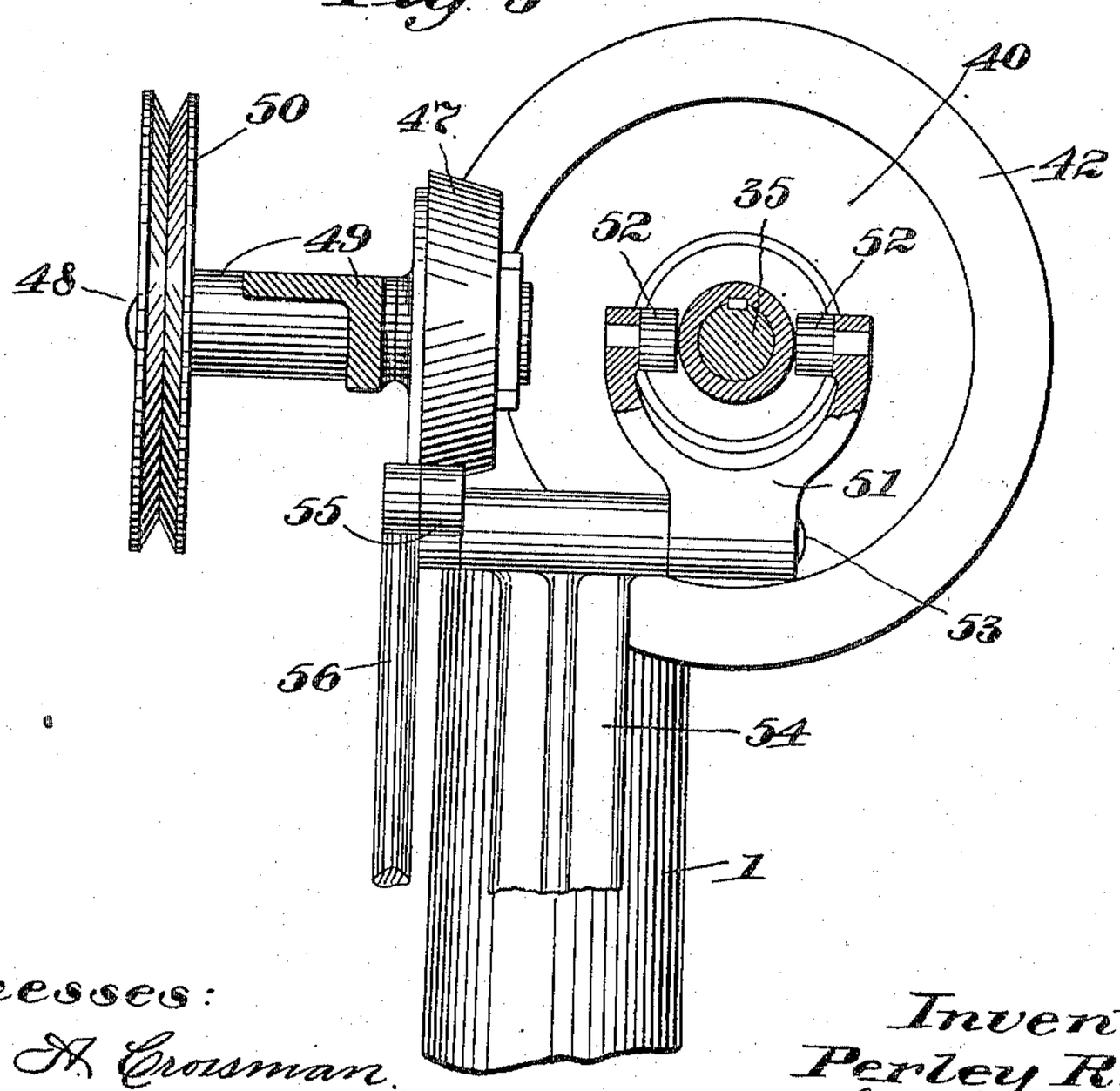



Fig. 5

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3 SHEETS—SHEET 3.

Fig. 2

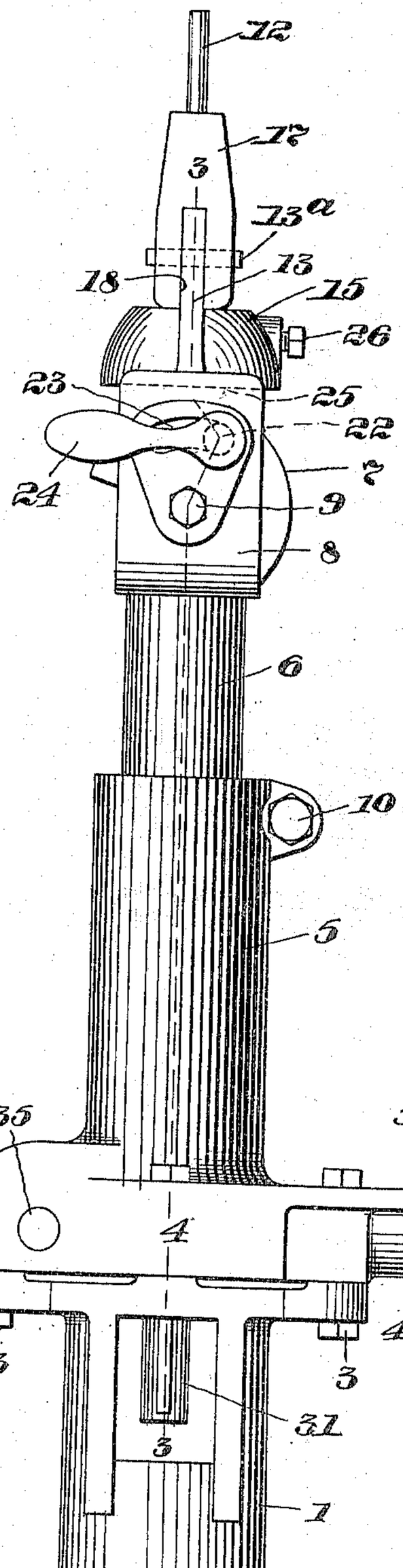
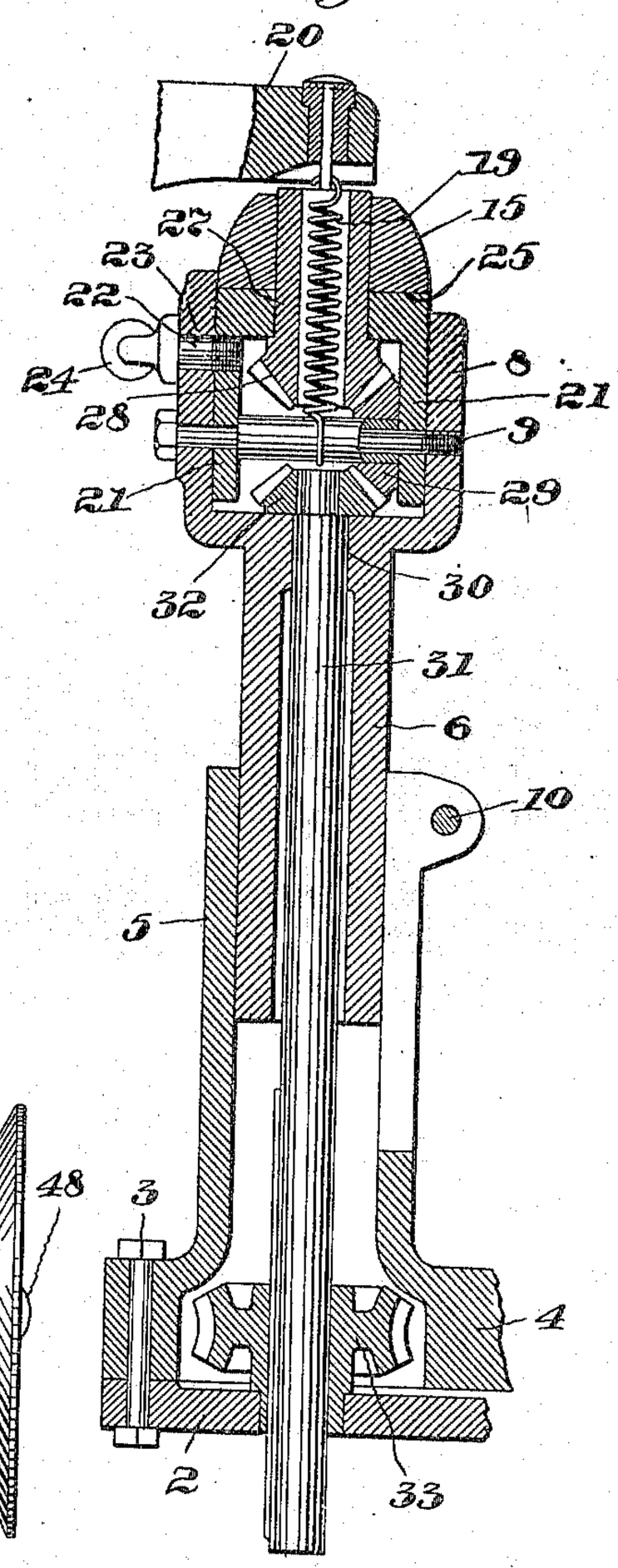



Fig. 3

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# UNITED STATES PATENT OFFICE.

PERLEY R. GLASS, OF QUINCY, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MANUFACTURERS MACHINE COMPANY, OF MONTCLAIR, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## AUTOMATIC ROTARY SHOE-JACK.

957,950. Specification of Letters Patent. Patented May 17, 1910.

Application filed February 9, 1906, Serial No. 300,259. Renewed February 24, 1910. Serial No. 545,714.

*To all whom it may concern:*

Be it known that I, PERLEY R. GLASS, a citizen of the United States, residing at Quincy, in the county of Norfolk, State of Massachusetts, have invented an Improvement in Automatic Rotary Shoe-Jacks, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

In the manufacture or repair of boots and shoes it is desirable to mount the jack which supports a last so that it can be adjusted vertically, rolled, and turned or rotated to the right or left as desired, and to facilitate the labor of the operator, it is further desirable that both his hands should be free for use in connection with the work upon which he is engaged without employing one or both of them to rotate the jack.

This invention aims to improve upon the jacks, as at present constructed, by providing means independent of the operator, but under his control, for rotating the jack automatically in both directions while carried at any desired adjustment either vertically or angularly.

In the embodiment of my invention herein illustrated the rotations of the jack are controlled by treadle means leaving the hands of the operator free for such other uses as may be desirable.

My invention will be best understood and appreciated by reference to the following description, when taken in connection with the drawings of a machine illustrating one embodiment of my invention, its scope being more particularly pointed out in the appended claims.

For the purposes of identification the device as a whole will hereinafter be known as the work support, and the part which directly engages and sustains the last will be known as the jack.

Referring to the drawings,—Figure 1 is an elevation of the right side of a complete machine, illustrating one embodiment of my invention; Fig. 2, a front elevation thereof, the base of the column being omitted; Fig. 3, a vertical longitudinal sectional detail on the line 3—3, Fig. 2, with parts broken away; Fig. 4, a plan of a partial horizontal sectional detail of the base of the standard and a driving mechanism supported thereby, and Fig. 5 a vertical section on the line 5—5, Fig. 4.

The machine illustrated comprises (see Fig. 1) a tubular column 1, having a head 2, to which is secured by bolts 3, the base 4 of a tubular standard 5 to receive the stem 6, on which is mounted the jack carrier 7. At its top this stem 6 is formed with a fork or yoke 8, upon which said jack carrier is pivoted by means of a horizontal yoke rod 9, secured to the arms of said yoke. In order that said jack carrier 7, and its supporting stem 6 may be adjusted vertically, the top of the standard 5, is split and provided with a clamping bolt 10, by which said stem is held at any desired elevation.

The jack shown in the embodiment illustrated and which directly engages the last or work is of the saddle and spindle type commercially known as a Crispin jack and is provided (see Fig. 1,) with a toe rest 11, and a heel post 12 for supporting the last and the shoe thereon. Said heel post and toe rest are mounted respectively on opposite radial arms 13, and 14, of a hemispherical collar or cap 15, constituting the base of the jack and which is revolubly mounted on the carrier 7. The toe rest 11, is slidable on the arm 14, to accommodate lasts of different sizes and shapes, it being adjustably held thereon at any desired distance from said cap 15 by means of the clamp bolt 16. The heel post 12 is formed at the upper end of the vertical arm of a bell crank 17, the angle or elbow of which (see Figs. 1 and 2) is slitted or provided with a vertical recess 18, to enable it to be pivotally mounted on the end of the arm 13, by a cross pin $13^a$. For normally holding the spindle or heeling post 12, inwardly to force the toe of the last into the saddle or toe rest, a coil spring 19, (Fig. 3) is interposed with one end secured to the horizontal arm 20 of said bell crank (Figs. 1 and 3) and its opposite end to the horizontal rod 9, carried by the yoke 8, said spring acting to depress said horizontal arm 20 and rock or swing the bell crank inwardly and move the last as described. The jack carrier is (see Fig. 3) loosely centered by its ears or heads 21 on said yoke rod 9 be-

tween the vertical arms of the yoke and to enable the carrier to be tilted or rolled on its yoke or pivot rod 9, it is provided at one end with a horizontal stud or pin 22 projecting into and adapted to slide in a curved slot 23 (see Fig. 2) of the opposed yoke arm and concentric with said rod 9. The outer end of said stud is threaded to receive the clamp lever 24 for locking the carrier in desired adjustment.

The top of the carrier is provided with a flat circular bearing face 25 upon which may rotate the hemispherical collar or cap 15 which is secured by a set screw 26 (Figs. 1 and 2) to the hub 27 of a bevel wheel 28 (Fig. 3) made tubular to receive said coil spring 19. This hub is loosely mounted in an axial hole or bearing formed in the circular bearing face of the carrier 7, and extends on both sides thereof. Said bevel wheel 28 engages a bevel wheel 29 (Fig. 3) loosely mounted upon one end of said yoke rod 9, the rotation of which causes the rotation of the bevel wheel 28 and the jack connecting therewith. The tubular stem 6 (see Fig. 3) has an internal bearing 30 for a vertical shaft 31 upon the upper end of which is a bevel wheel 32 also in mesh with and to drive said wheel 29. To permit said tubular stem to be adjusted vertically said shaft 31 has splined upon its lower end a horizontal worm wheel 33 (Figs. 3 and 4) which rotates in stationary bearings in the head of the tubular column. This worm wheel 33 is constantly in mesh with and adapted to be driven by a worm 34 formed upon the inner end of a horizontal operating shaft 35 journaled in bearings 36, 37, in the base of the standard. The outer end of the operating shaft is provided with friction wheels 40 formed with an integral hub 41 splined on said shaft. Said wheels are mounted to rotate within a yoke frame 38 (Fig. 4) formed at the rear side of the base of the column, adjacent the head of the column. These wheels 40 have bevel faces provided with suitable friction surfaces as leather 42, and are adapted to be slid into engagement with the similar friction face of a conical drive wheel 47, arranged between them. This conical wheel 47 (Figs. 4 and 5) is fast upon the inner end of a horizontal drive shaft 48 mounted in fixed bearings 49 in the base of the standard, so as to be arranged or positioned between the friction wheels at right angles to said wheel shaft. The outer end of said shaft, which projects through the base, is provided with a fixed pulley 50 (Figs. 4 and 5) adapted to be driven constantly from any source of power.

For sliding the hub of the friction wheels longitudinally on its shaft to cause the friction surface of either wheel 40 to engage with that of said constantly driven conical drive wheel 47, a vertical oscillatory yoke 51 is provided (see Figs 4 and 5, and dotted lines Fig. 1) to embrace said shaft, each yoke arm having a roller 52 running in a circumferential groove in the hub of said friction wheels. This yoke 51 is fast upon one end of the rock shaft 53 (Figs. 1 and 5) journaled in a bracket 54 of the column 1, the outer end of said rock shaft having an arm 55 connected with a treadle rod 56, which at its lower ends is connected with the treadle 57. This treadle 57, is pivoted at the base of the column upon the horizontal stud 58×, and may be elevated or depressed, to oscillate the rock shaft connected therewith in either direction so as to move either friction wheel into engagement with the fixed conical drive wheel 47 as described, to cause said drive wheel to rotate the operating or wheel shaft in either direction. For normally holding said friction wheel out of engagement with the conical driving wheel, coil centering springs 58 are interposed between the outer faces of said wheel and its shaft bearings.

While in the embodiment herein illustrated, a jack of the saddle and spindle type is shown and described, my invention is not limited thereto.

In operation the last with or without a shoe thereon is mounted on the jack and the stem 6 adjusted to adapt the position of said jack or shoe to the requirements of the work or needs of the operator. The carrier is then rolled or oscillated upon its yoke shaft 9 to present the shoe at any desired angle and is secured in such position by means of the clamp lever 24. The operator now begins to work upon the shoe, as for instance to pull over or last the same, during which operation he is frequently compelled to employ both his hands upon the work. While both hands may be thus engaged, the operator is able by the use of his foot upon the treadle to slide the friction wheels in one or the opposite directions into engagement with one or the opposite side of the constantly driven wheel to cause said drive wheel to rotate thereby the operating shaft, its worm, rotating the worm gear wheel, the vertical shaft and train of gears at the top of the stem, and the jack, rotating the shoe in either direction as desired.

This arrangement presents the shoe in any desired adjustment and rotates it, by means independent of the operator, in a convenient position for the operator to work upon, and it will be evident that the extent of rotation at any time may be controlled at will by the length of time during which the treadle is held depressed or elevated by the operator's foot.

When it is desired to arrest the rotation of the jack or shoe, the operator releases the treadle, whereupon the centering shaft springs 58 (Fig. 4) slide the friction wheels

into the central or inoperative position with their bevel faces or rims out of engagement with the conical wheel.

Claims.

1. A work support comprising a drive shaft, a shaft having a slidable wheel thereon provided with means to engage said drive shaft for rotating said slidable wheel and its shaft in either direction, a jack, a jack carrier, provisions for raising and lowering the jack carrier and means intermediate said jack and wheel shaft to rotate said jack therewith and with relation to the jack carrier.

2. A work support comprising a jack, a jack carrier, a drive shaft rotatable independent of the carrier, an operating shaft having means adapted to be connected therewith to cause rotation thereof in either direction, adjusting means for holding said jack in a predetermined position during rotation thereof, and means intermediate the jack and operating shaft for rotating said jack therewith, about an axis determined by the said adjusting means.

3. In an apparatus of the character described, the combination of a jack carrier, a drive shaft, an operating shaft having means for rotating it therewith in either direction independent of the jack carrier, and a vertically adjustable and swiveled jack provided with means for connecting it to said operating shaft to rotate it therewith about variably inclined axes determined by the swiveled adjustment of the jack.

4. In an apparatus of the character described, the combination of an operating shaft, a jack having an adjustable heel post and toe rest provided with means for vertical adjustment, a jack carrier and a slidable shaft intermediate said jack and operating shaft having operative connections therewith to produce rotation of said jack with respect to the jack carrier.

5. A work support comprising an operating shaft, a jack having an adjustable heel post and toe rest, a jack carrier with relation to which the jack is rotatable and a movable shaft connected therewith and to said operating shaft adapted to rotate said jack and enable it to be adjusted toward and from said operating shaft.

6. A work support comprising an operating shaft having means for rotating it, a worm on said operating shaft, a slidable shaft having a gear engaging said worm, and a jack provided with an adjustable heel post and toe rest and having operative connections with said slidable shaft for rotating said jack.

7. A work support comprising a slidable support, a carrier pivotally connected therewith, a jack rotatably mounted thereon provided with an adjustable heel post and toe rest, and a shaft carried by said support having operative connections with and to rotate said jack.

8. In a work support, a bearing shaft, a gear wheel thereon, a jack carrier pivoted on said shaft, a jack rotatably mounted on said carrier provided with a gear wheel engaging that of said shaft, and means for rotating said gears and the jack therewith.

9. In a work support, a bearing shaft, a gear wheel thereon, a jack carrier pivoted on said shaft, a jack rotatably mounted on said carrier provided with a gear wheel engaging that of said shaft, means for rotating said gears and the jack connected therewith, and means for adjusting said carrier relative to said support.

10. In a work support, the combination of a rotary lasting jack, a jack carrier adjustable to varying angles of inclination to place the jacked shoe in position for the operative, power means for turning the jack, and treadle controlled means for causing the power means to become effective to turn the jack in one or the other direction to present either side of the jacked shoe to the operative for treatment.

11. In a work support, the combination of a rotary lasting jack, a jack carrier adjustable to varying angles of inclination to place the jacked shoe in position for the operative, means for turning the jack in either direction, and a treadle pivoted between its ends for controlling the said turning means and causing the jack to be turned in either direction to present one or the other side of the jacked shoe to the operative for treatment.

12. In a work support, the combination of a rotary lasting jack, means for adjustably positioning the height of the rotary jack, a jack carrier adjustable to varying angles of inclination to place the jacked shoe in position for the operative, power means for turning the jack in either direction, and treadle controlled means for causing said power means to become effective to turn the jack in one or the other direction to present either side of the jacked shoe to the operative while his hands are otherwise engaged.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

PERLEY R. GLASS.

Witnesses:
SIDNEY F. SMITH,
WM. F. CORKERY.