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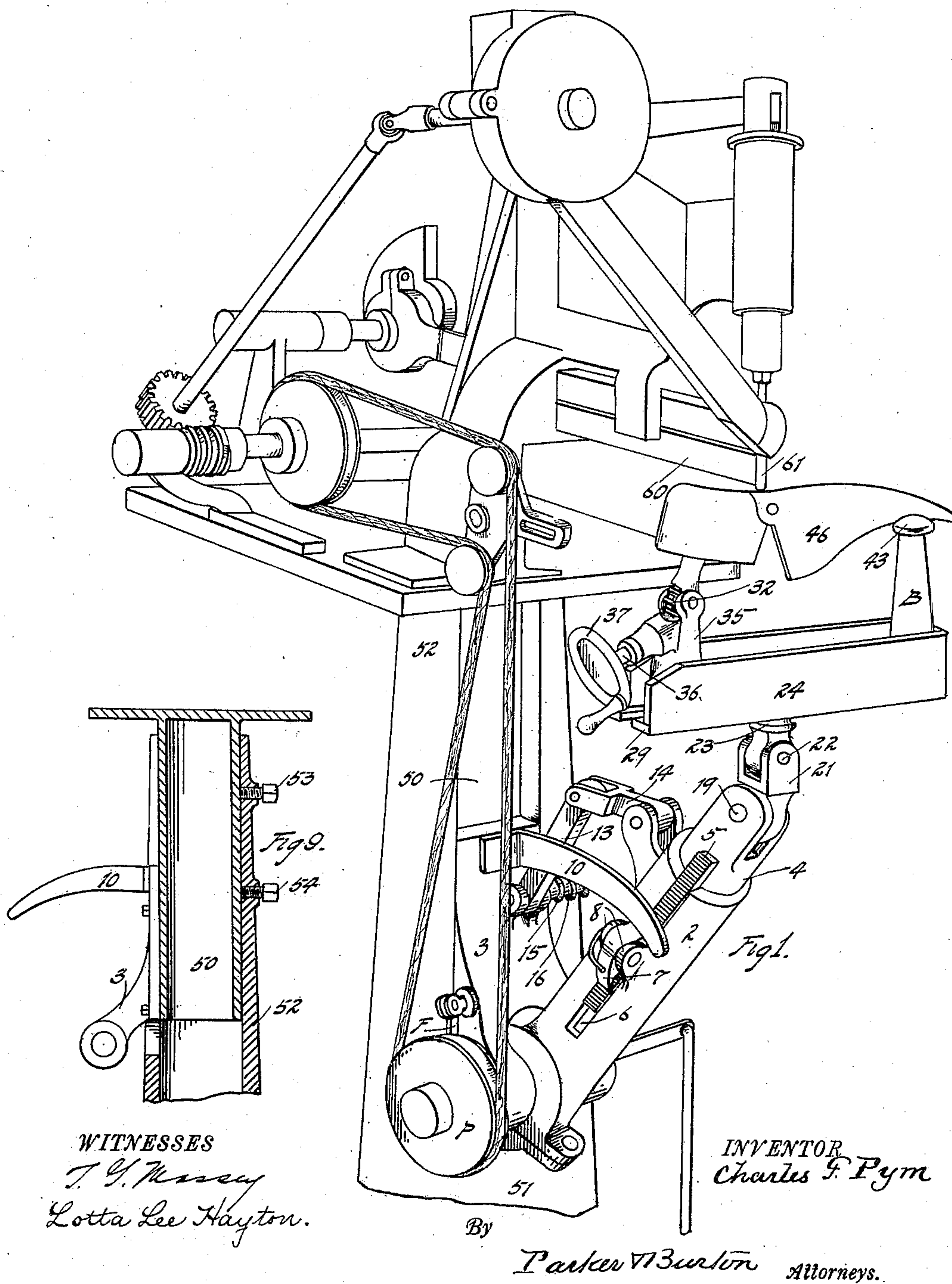
PATENTED MAR. 22, 1904.

C. F. PYM.  
LASTING JACK.

APPLICATION FILED MAR. 9, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES

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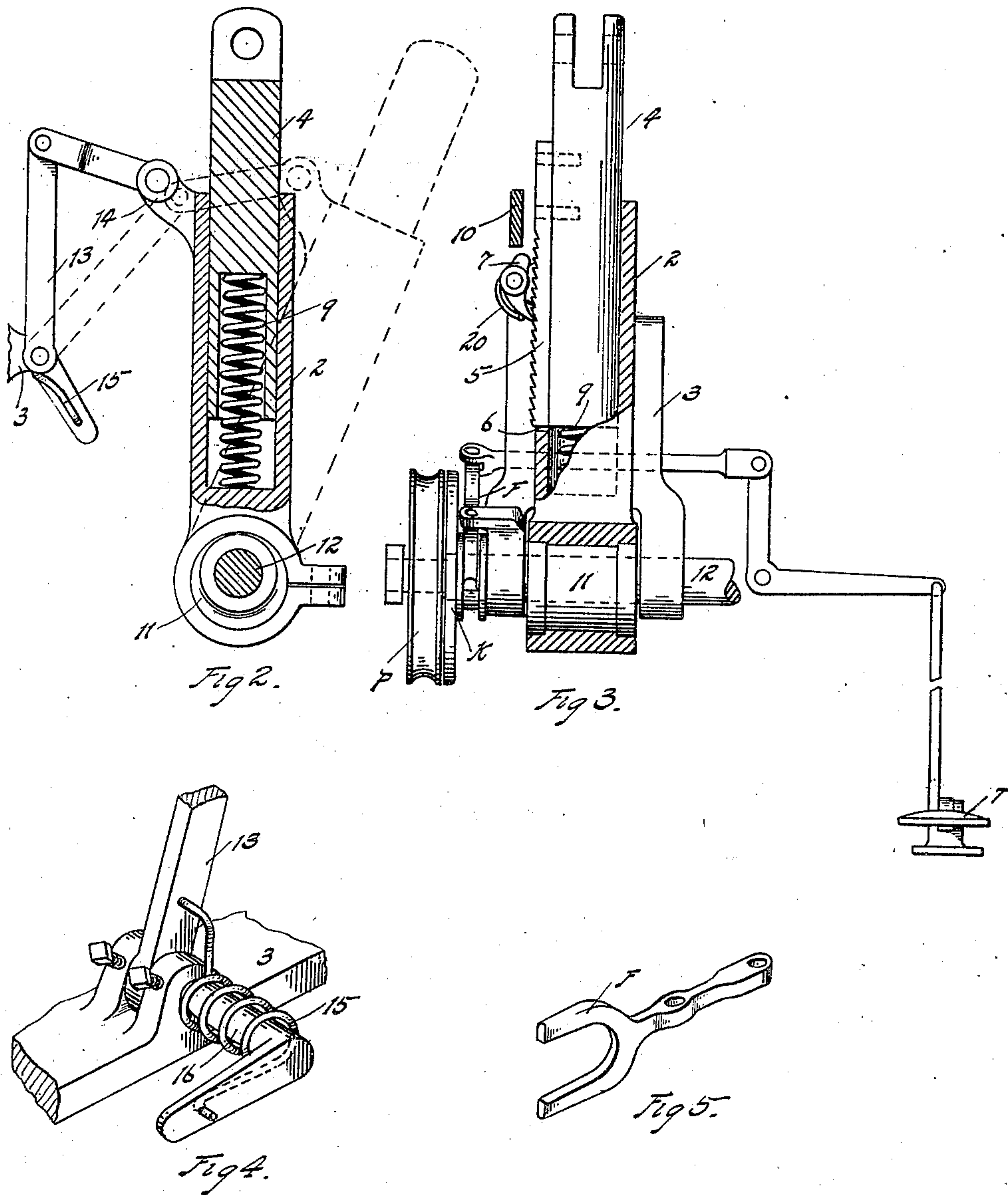
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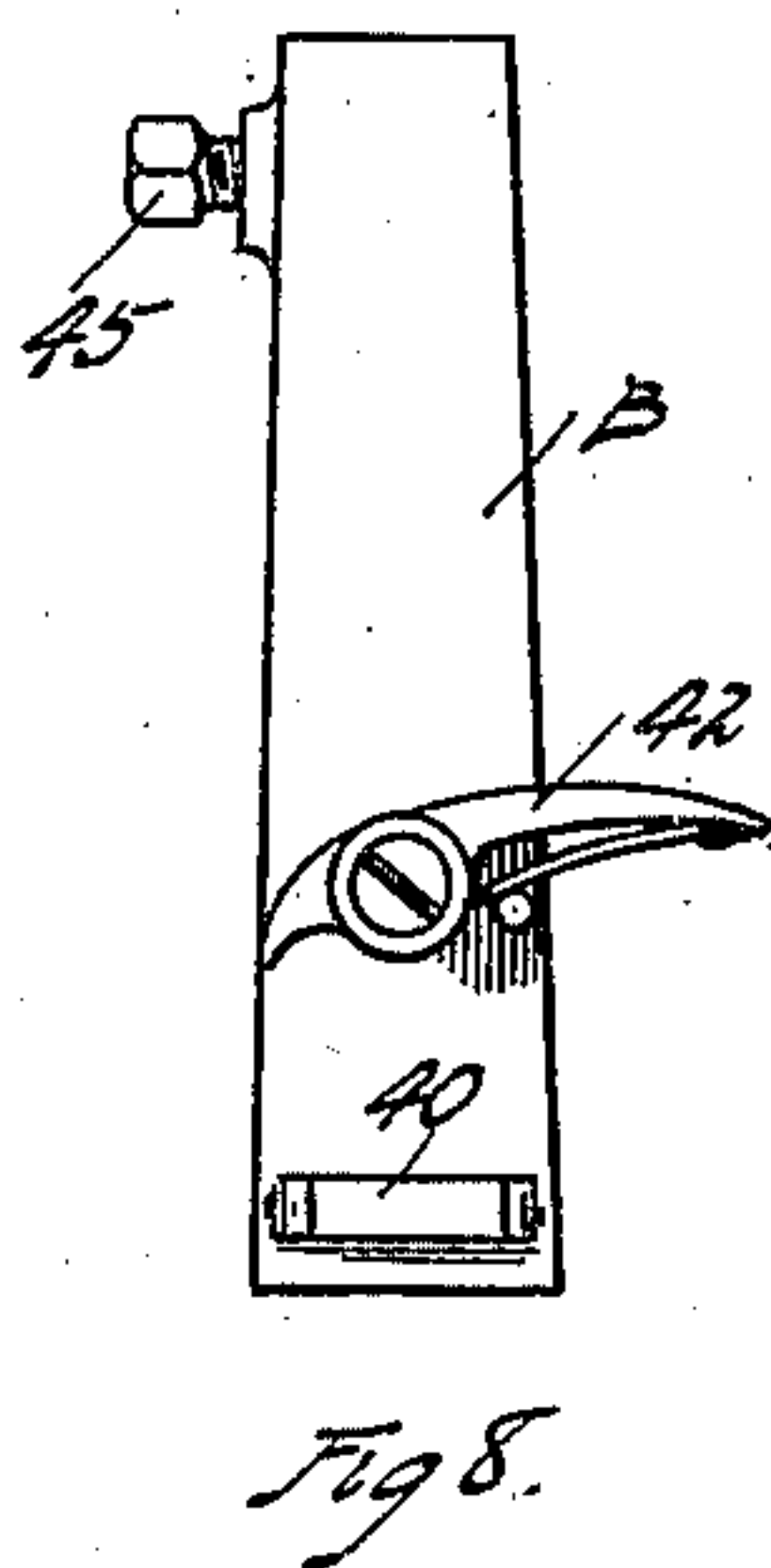
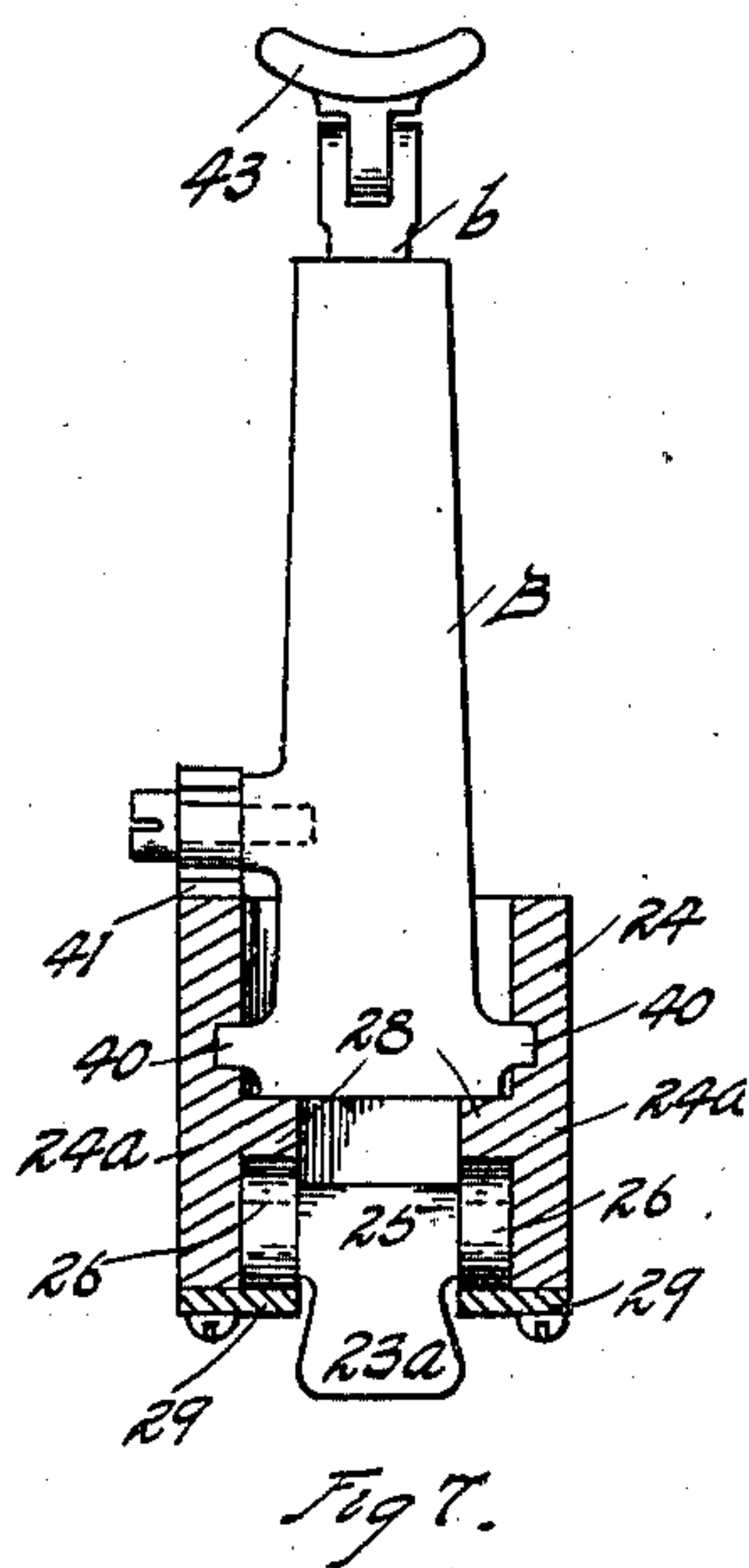
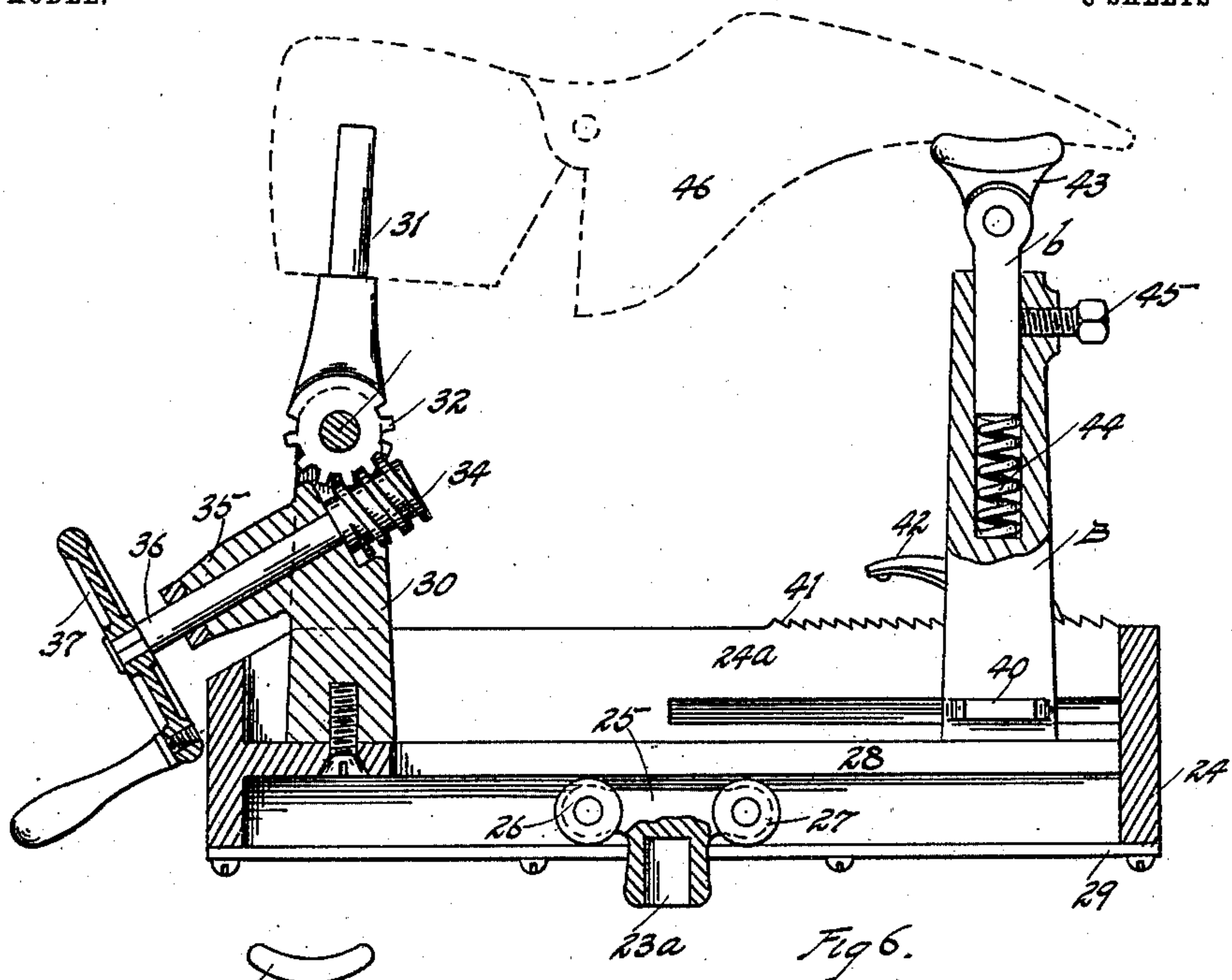
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

CHARLES F. PYM, OF ESSEX, CANADA, ASSIGNOR OF ONE-HALF TO THE  
KRENTLER BROTHERS COMPANY, OF DETROIT, MICHIGAN.

## LASTING-JACK.

SPECIFICATION forming part of Letters Patent No. 755,544, dated March 22, 1904.

Application filed March 9, 1903. Serial No. 146,911. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. PYM, a subject of the King of Great Britain, residing at Essex, in the county of Essex and Province of Ontario, Canada, have invented a certain new and useful Improvement in Lasting-Jacks; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to lasting-jacks, and has for its object an improved jack to be used with lasting and nailing machines, and especially with the crimping and nailing machine which forms the subject-matter of my pending application, Serial No. 111,116, filed June 11, 1902.

In the drawings, Figure 1 shows the jack attached to the front of the lasting and nailing machines. Fig. 2 is a vertical section of the swinging post of the jack. The plane of section passes through the vertical axis of the nailing-machine. Fig. 3 is a vertical section of the post at right angles to the section shown in Fig. 2. Fig. 4 is a detail of a balance-spring. Fig. 5 is a detail of a fork used to actuate the clutch mechanism shown in Fig. 3. Fig. 6 is a vertical section lengthwise of the head of the jack. Fig. 7 is a cross-section of the head, showing the post B in elevation. Fig. 8 shows the post B in elevation. Fig. 9 shows the adjustable connection between the nailing-machine head and the pedestal and shows the jack-bearing attached to the stem of the nailing-machine head.

The jack consists of a swinging post and a head swiveled thereto by joint connections which allow to the head a universal motion. The post consists of a sleeve 2, pivotally supported on a bracket 3, which is secured to the pillar or stem 50 of a lasting or nailing machine. In the sleeve 2 is a sliding stem 4, provided with a rack 5, rigidly secured to one side thereof, and the rack 5 projects into or through a long slot 6 in the side of the sleeve 2 and is engaged by a pawl 7, that is pivotally sup-

ported by ears 8 on the sleeve 2 at each side of the slot 6. The bottom of the stem 4 bears against a spring 9, and the stem is under tension, tending to project it from the sleeve or lift it in the sleeve. From the bracket 3 an arm 10 extends over the tail of the pawl 7. The sleeve 2 has in its base an eccentric 11 on the shaft 12, and the rotation, as hereinafter described, of the eccentric with the shaft 12 causes a longitudinal reciprocation of the sleeve and of the stem 4, that is partly contained in the tube. The sleeve is held in its upright position by links 13 and 14, one of which is pivotally secured to the bracket 3 and the other of which is pivotally secured to the sleeve, and both of which are pivotally secured together. The linkage permits considerable freedom of swing to the entire post, and a balance-spring 15, secured to the pivot 16, on which the link 13 is pivoted, and also secured to the link 13, is arranged to lift the link 13, and thereby to swing the entire post to a nearly vertical position. The upper end of the post may, however, be forced outward against the tension of the spring, as may be desired. The spring has strength sufficient to very nearly balance the weight of the post and its attachments and makes the post easy to manipulate in either direction.

The eccentric 11 on the shaft 12 is a pivotal support for the post, and on this shaft is a loose wheel P and clutch mechanism K, arranged to be actuated by treadle T and connecting linkage and by the fork F, which embraces a collar on the clutch K. The rotation of the shaft 12 causes a reciprocating motion of the sleeve, jack-stem, and the jack supported thereby. The arm 10 normally lies in position to engage the tail of the pawl 7 when the eccentric has lifted the sleeve 2 and to engage it with sufficient force to disengage the pawl from the rack 5. During the period of disengagement the stem 4 is projected by the spring and rises so long as the sleeve 2 is lifted to cause the disengagement; but immediately the sleeve 2 drops under the actuating force of the eccentric until the tail of the pawl is out of engagement with the arm 10 the



spring 20 swings the point of the pawl into engagement with the rack and holds the stem from rising farther.

A coupling 21 is pivotally connected to the top of the stem 4 and has pivotally connected to itself by a pivot 22 a neck-piece 23, that projects from a socket-piece 23<sup>a</sup>, connected with the head 24. The pivot 19, which connects the joint-coupling 21 to the stem 4, is at right angles to the pivot 21. On the top of the neck-piece 23 rests the socket-piece 23<sup>a</sup>, having a cross-head 25, provided with wheels 26 and 27, that run in the head 24 between flanges 28, that are above the wheels, and a pair of bars 29, that are below them. To the head 24 is secured a vertical post 30, that has pivotally connected to its upper end an arm that carries the jack-pin 31. The bottom of this arm is provided with an arched rack 32, that engages with a worm 34, the shaft of which is journaled in a bearing 35, that forms part of the post 30. The projecting end of the shaft 36 of the worm is provided with a hand-wheel 37, by means of which the arm 31, carrying the jack-pin, can be actuated. On the opposite end of the head 24 is a post B, the bottom of which is provided with side lugs 40, that engage in grooves in the side walls 24<sup>a</sup> of the head 24. One of the side walls 24<sup>a</sup> is provided with a rack 41, in which engages a pawl 42, arranged to be actuated by hand. The post B is provided with a sliding extension *b*, that has pivotally secured to its upper end a toe-rest 43. The sliding extension *b* bears on the upper end of a spring 44, located in the cavity in the post B, and is held against projection by said spring by set-screw 45. The effective height of the post B and its extension are regulated by the spring 44 and set-screw 45. The location on the head of the post B to regulate the distance between it and the post 30 is adjusted by manipulation by the pawl 42 and rack 41. The pressure of the toe of the last 46 on the toe-rest 43 is regulated by manipulation of the hand-wheel 37. That part of the jack which engages the wheeled cross-head 25 may be considered as a last-carriage capable of universal motion and also capable of travel on the wheels.

In operation after the upper of the shoe has been pulled over the last and the last placed on the jack and the eccentric has been put in operation by the workman the upper part of the jack and the shoe carried thereby tends to rise and guided by the workman bears up strongly under the lasting-finger 60 of the machine and under the nail-channel 61 of the machine; but the parts are balanced and are easy of manipulation and require only to be guided and slightly pressed downward by the workman to effect the required work along and around the bottom (sole part) of the shoe. It is not required that the workman hold the shoe up or hold the machine up or any part of

the machine up, but simply guide it and use the necessary amount of force to depress the upper part against the tension of the spring 9, and the workman is therefore enabled to work for long periods without over-exerting and tiring himself. The various connections between the stem and the head enable the head to travel on the wheeled cross-head 25, to rotate on a vertical axis by turning the socket 23<sup>a</sup> on the neck 23, to swing on the pin 22, and to swing on the pin 19, and with every change of position of the last brought about by any of these movements a corresponding point of the last is presented at once to the nozzle of the nail-channel 61 and is lifted against the nozzle by the spring 9. The nailing-machine mechanism is mounted on a stem 50, that is vertically adjustable in a pedestal 51, on which there is an upright sleeve 52, in which the stem 50 telescopes. A slot is cut through the upright sleeve 52, and the bracket which carries the jack is bolted or otherwise secured to the stem 50 and is adjustable vertically with the nailing-head. Set-screws 53 54 hold the parts in their proper vertical adjustment. The workman is thus enabled to adjust the entire machine for ease and convenience.

What I claim is—

1. In a lasting-jack, in combination with a standard, a jack-supporting post pivotally connected thereto, a stem for the jack slidably connected to the pivoted post, a ratchet-and-pawl connection between the post and the stem, means for automatically disengaging the pawl and ratchet, and a spring arranged to actuate the sliding stem, substantially as described.

2. In combination with a pedestal, a stem slidably connected therewith, a swinging post pivotally connected to the sliding stem, a lasting-jack stem slidably connected to the pivoted post, a jack-head connected by a universal joint to the sliding stem, means for reciprocating the pivoted post and the parts carried thereby, a ratchet-and-pawl connection between the pivoted post and the sliding jack-stem and an arm fixed to the pedestal-stem and extending into the path of the pawl, substantially as described.

3. In combination with a pedestal, a stem slidably connected therewith, a swinging post pivotally connected to the sliding stem, a lasting-jack stem slidably connected to the pivoted post, a jack-head connected by a universal joint to the sliding stem, means for reciprocating the pivoted post and the parts carried thereby, means for balancing the pivoted post and the parts carried by it, a ratchet-and-pawl connection between the pivoted post and the jack-stem, and an arm fixed to the pedestal-stem and extending into the path of the pawl, substantially as described.

4. In combination with a machine-pedestal,



a machine-support adjustable vertically on said pedestal, a post pivoted to the machine-support, a jack-supporting stem slidingly connected to said post, means for interlocking the post and stem, and means for automatically disengaging the interlocking means, substantially as described.

5 In a last-mentioned jack, in combination with a reciprocating extensible jack-support, a jack-head held by universal-joint connections thereto, a last-carriage constituting part of the jack-head, a spring for extending the jack-

support and lifting the carriage, means to lock together the parts of the extensible jack-support and means brought into action by the reciprocation of the jack-support to disengage the lock, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES F. PYM.

Witnesses:

MAY E. KOTT,

CHARLES F. BURTON.