

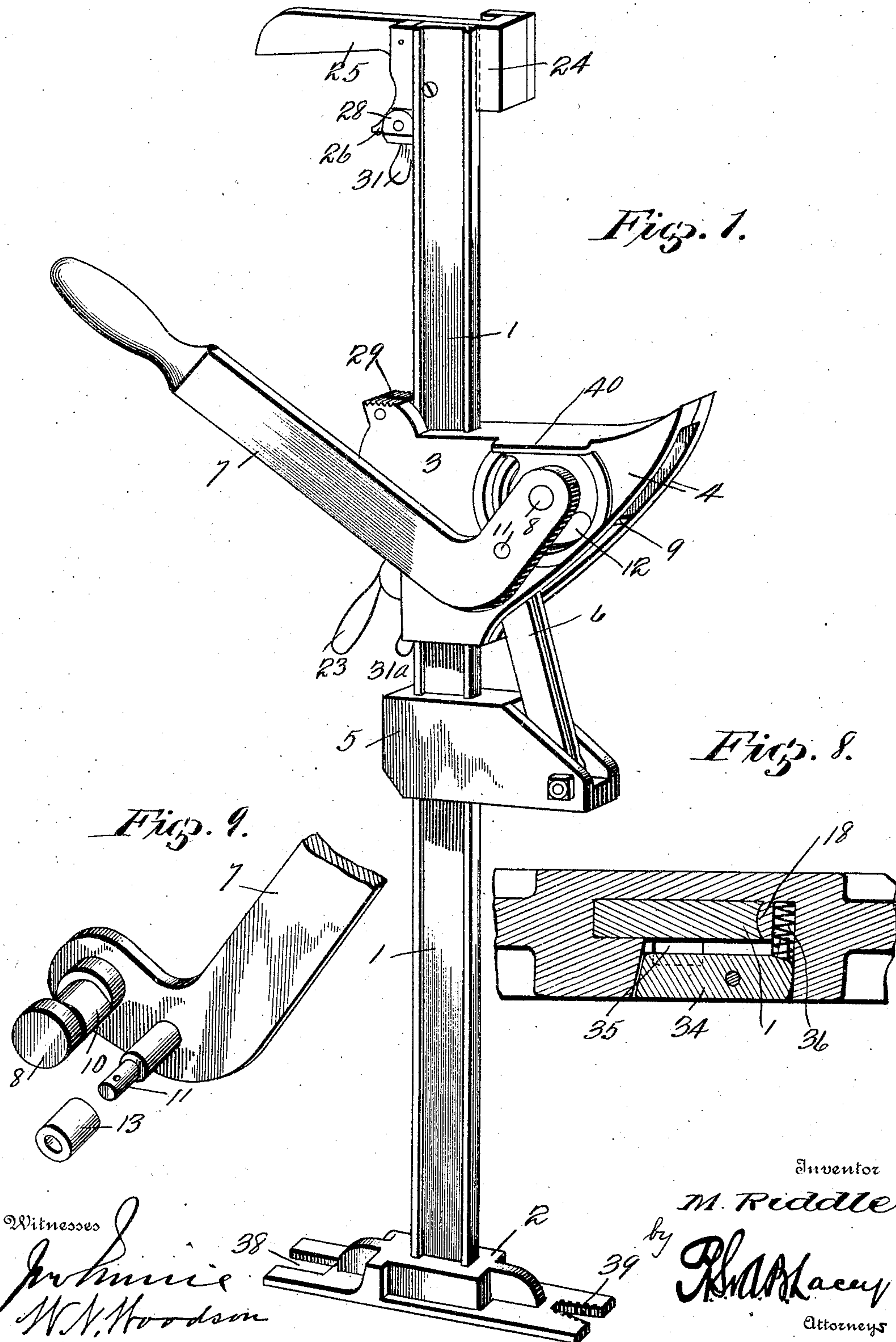
No. 785,572.

PATENTED MAR. 21, 1905.

M. RIDDLE.
LIFTING JACK.

APPLICATION FILED MAR. 16, 1904.

3 SHEETS—SHEET 1.



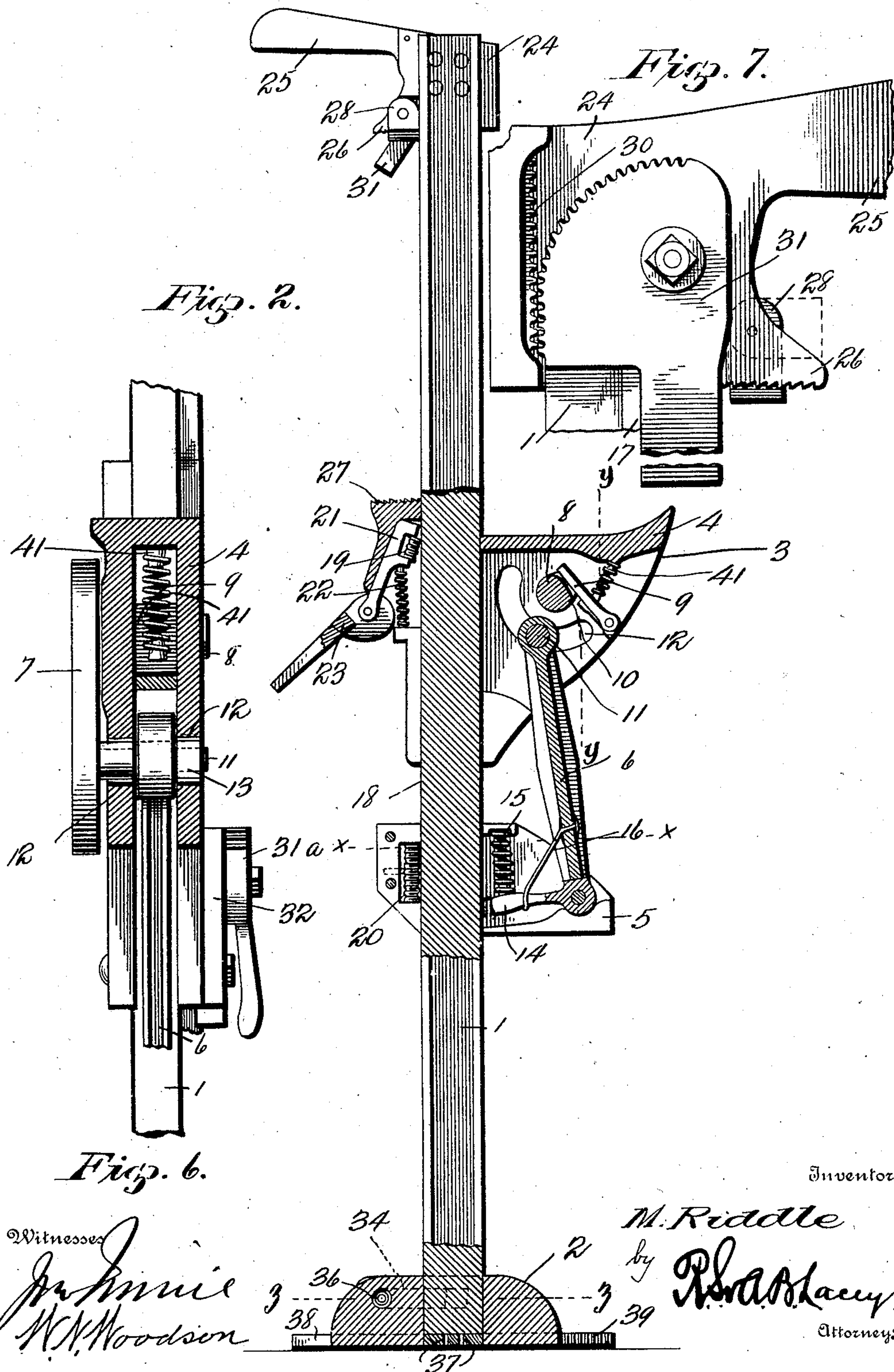
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3 SHEETS—SHEET 3.

Fig. 4.

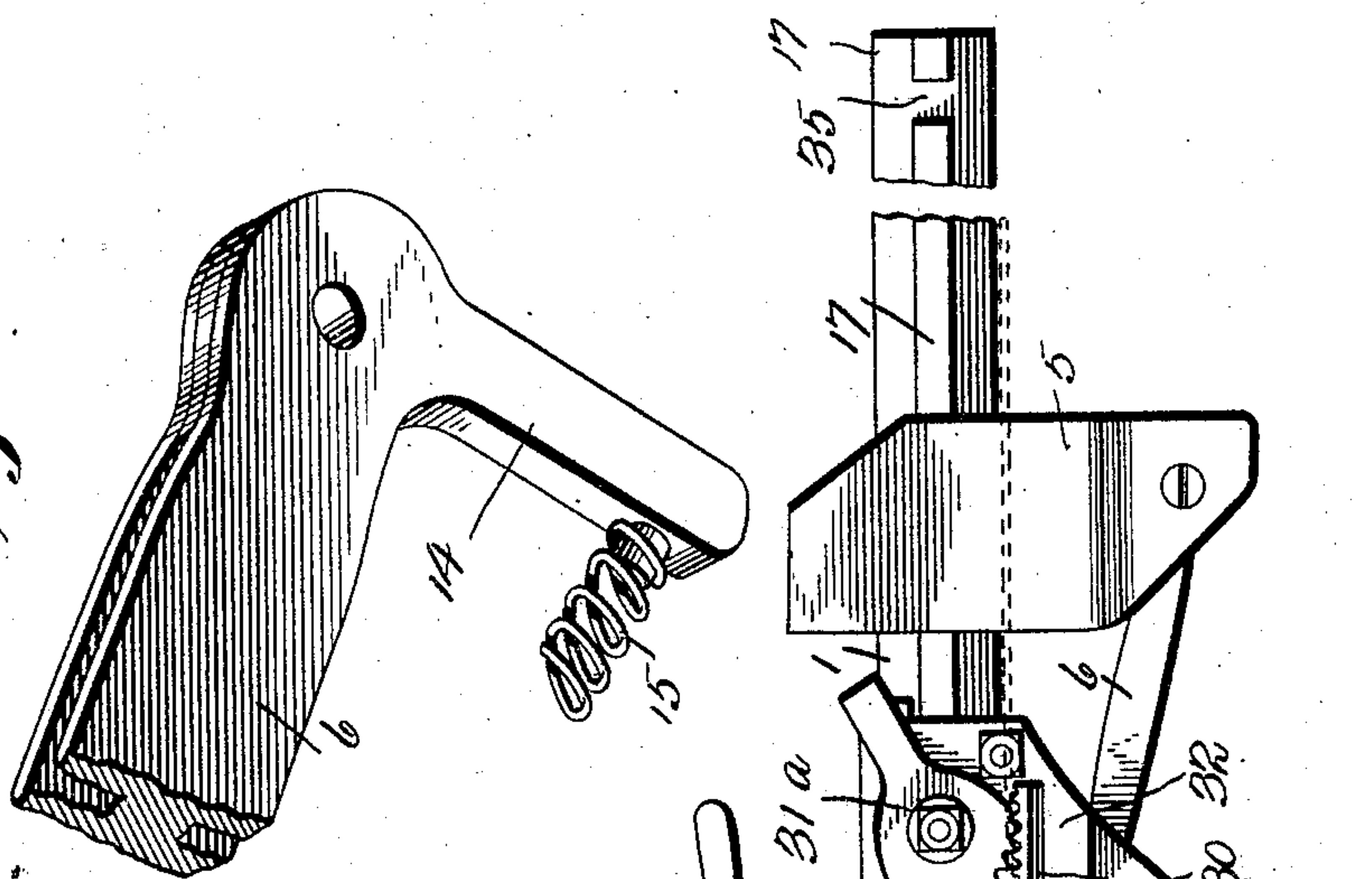


Fig. 5.

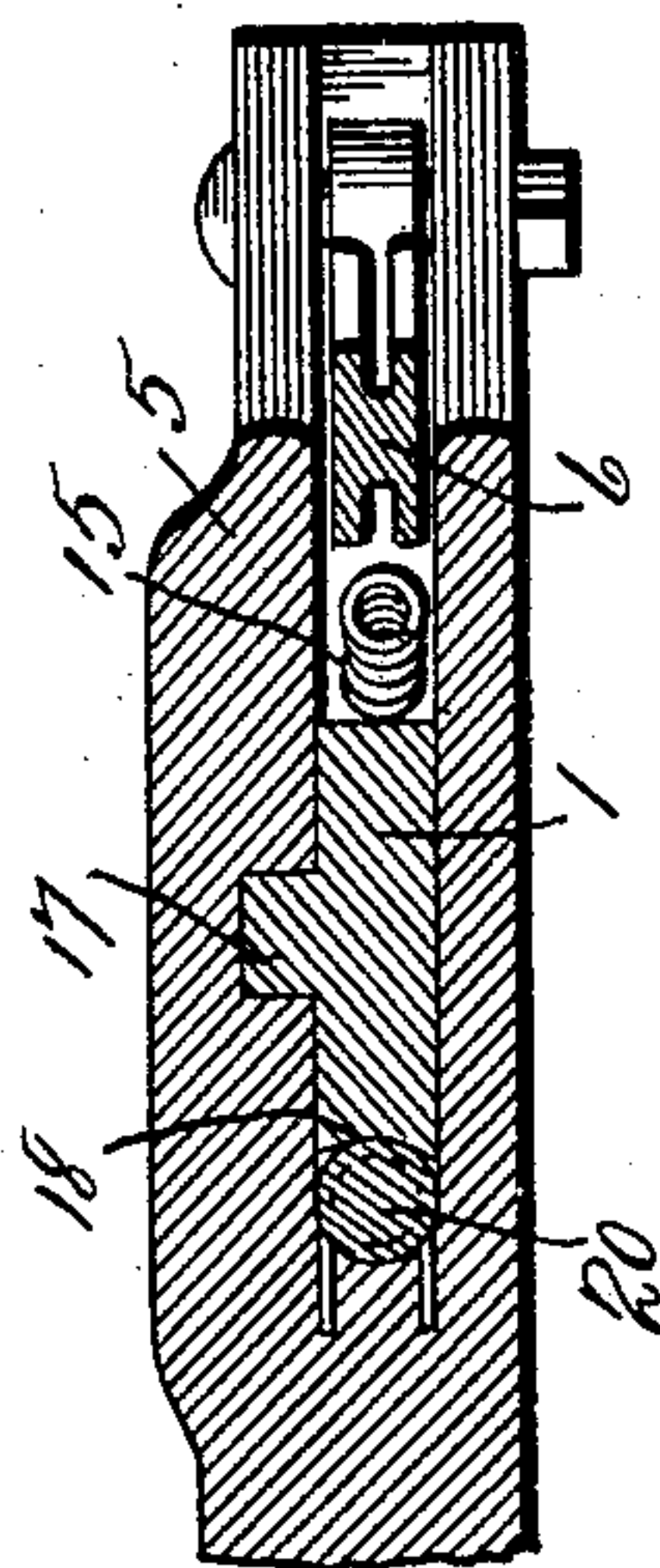
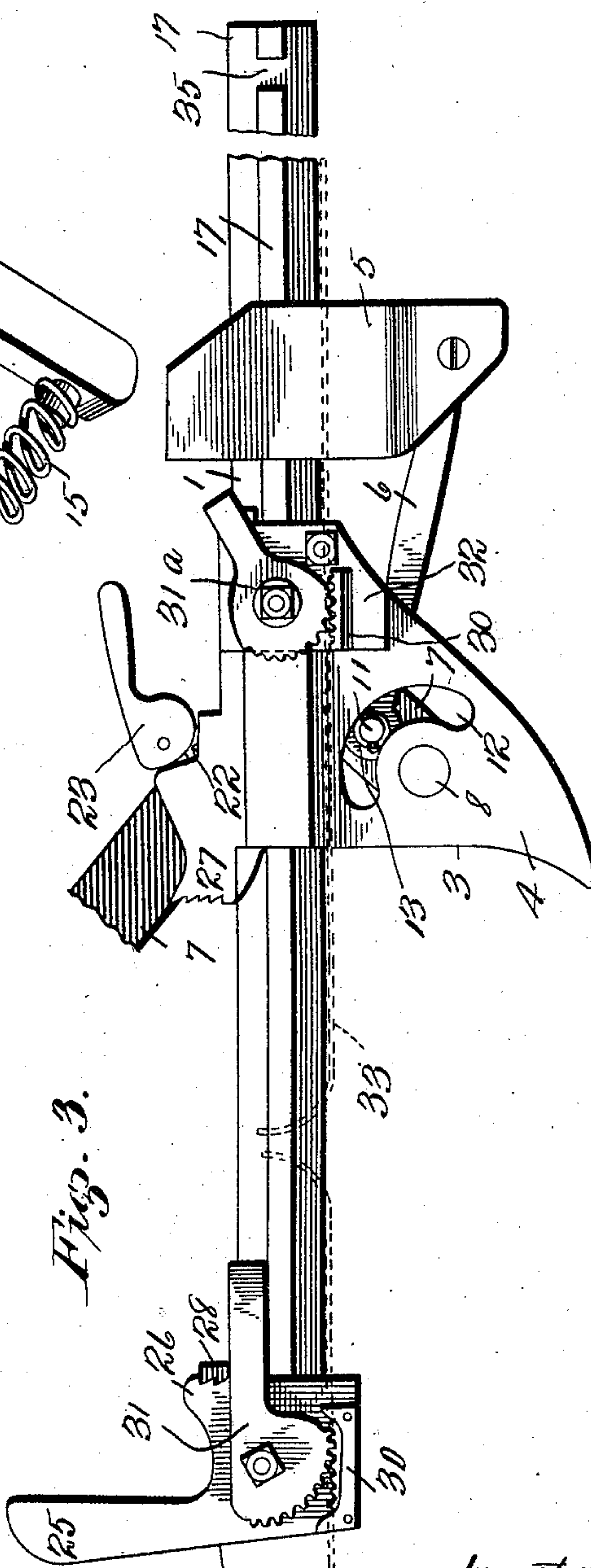


Fig. 3.



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UNITED STATES PATENT OFFICE.

MILFORD RIDDLE, OF BLOOMFIELD, INDIANA, ASSIGNOR OF ONE-THIRD TO JOHN F. SLINKARD AND ONE-THIRD TO JOHN A. PHILLIPS, OF BLOOMFIELD, INDIANA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 785,572, dated March 21, 1905.

Application filed March 16, 1904. Serial No. 198,470.

To all whom it may concern:

Be it known that I, MILFORD RIDDLE, a citizen of the United States, residing at Bloomfield, in the county of Greene and State of Indiana, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention provides a handy tool especially adapted for setting up, tearing down, and repairing fence structure, though susceptible of use in various other capacities.

Among the several tool elements embodied in my device are a lifting-jack particularly designed for removing fence-posts or the like, wire tightening, cutting, and splicing means, and clamp and vise parts, all coöperating in an especially advantageous manner.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a tool embodying the special features of my invention. Fig. 2 is a vertical longitudinal sectional view through my device. Fig. 3 is a side elevation, partially broken away, illustrating the adaptation of my invention when used for splicing wires. Fig. 4 is a detail perspective view, partially broken away, showing more clearly the construction of the lower end of the lifting-bar. Fig. 5 is a transverse sectional view on the line X X of Fig. 2. Fig. 6 is a vertical sectional view taken on about the line Y Y of Fig. 2, parts broken away. Fig. 7 is a view in elevation, showing the arrangement of the clamping and cutting members carried by the upper end of the main bar of the tool. Fig. 8 is a transverse sectional view about on the line Z Z of Fig. 2, showing the means for attaching the base to the main bar. Fig. 9 is a detail perspective view of

the lower end of the operating-lever, showing more clearly the structure of the journal member of this part.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The principal parts of my device consist of the main bar 1, the base 2, which supports the bar 1 when my invention is used as a lifting-jack, and the movable lifting-head 3. The head 3 of the device consists, preferably, of spaced plates or elements 4, and the main bar 1 is embraced upon opposite sides by the spaced members or elements 4 of the head 3, above mentioned. The arrangement of the head 3 upon the main bar admits of a slidable movement of this part in the lifting or jacking operation. Below the head 3 and also slidably mounted upon the main bar 1 of the tool is disposed a frame 5, which also embraces the main bar upon opposite sides in a manner similar to the disposition of the head 3.

When my tool is utilized as a lifting-jack, this operation is performed by a step-by-step movement of the lifting elements. These elements comprise the movable head 3 and the sliding frame 5, before described, which parts are connected together by means of a lifting-bar 6. The lifting-bar 6 is pivoted at its lower end between laterally-extended portions of the frame 5, and the upper end of this bar 6 is received between the spaced members 4 of the head 3 and operably connected with an operating-lever 7. The operating-lever 7 is peculiarly mounted upon the head 3, the latter being provided with bearings in its spaced members 4 to receive a journal member 8, projected laterally from the lower end of the lever 7. The journal member 8 is rigidly secured to the lever, and in order to obviate the use of nuts or projecting fastenings of any kind a latch 9 is pivoted between the spaced members 4 of the head, as shown most clearly in Fig. 2 of the drawings, and this latch engages the journal member so as to prevent displacement of same from the head. To facilitate the engaging coöperation

of the member 9, the journal member 8 is provided with an annular groove or depression 10 between the ends thereof, and the latch is received in this groove portion 10, thereby interlocking with the journal in a manner which will be clearly comprehended.

From the foregoing it will be noted that owing to the fact that there are no projecting parts adjacent the point of fulcrum of the lever there is no liability of the chains or tackle, which is passed around the head 3 when it is desired to lift a post or other part, being interfered with in a manner detrimental to the proper working of the tool. The use of nuts or removable fastenings being obviated in the mounting of the lever 7, the likelihood of such parts being accidentally displaced by being engaged by the tackle or chains aforesaid is also prevented. The above has been found a disadvantageous feature of the majority of tools of the type to which my invention relates which are now being used.

The lever 7, which is pivoted as described, is also connected with the upper end of the lifting-bar 6, the latter being provided at this portion with a journal-opening which receives a pin 11, projected from the lower end of the lever 7 at a point adjacent to the position of the journal member 8. The spaced members 4 of the head 3 are provided with corresponding arcuate slots 12, formed upon the arc of a circle generated about the pivotal member 8 as a center. The pin 11 of the lever projects entirely through the head 3, the upper end of the lift-bar 6 engaging the pin 11 about intermediate the ends thereof. The outer end of the pin 11 is provided with a roller 13, which operates in the slot 12 of the spaced member 4, situated remote from the lever 7. The roller 13 is designed to reduce friction, and thereby decrease the leverage to a minimum extent.

The lift-bar 6 has projected from the lower end thereof an arm 14, which extends laterally toward the main bar 1 of the tool, being housed by the frame 5. The arm 14 is engaged by a coil-spring 15, disposed between the sides of the frame 5 and interposed between the arm 14 and the said frame. (See Fig. 2.) The spring 15 normally tends to force the body of the lift-bar 6 toward the main bar 1 and to thereby normally hold the lever 7 in an upright position convenient for operation thereof. The brace 16 may be used to connect the lift-bar and the outer portion of the arm 14 thereof to brace the last-mentioned parts. Further, the spring 15 in its cooperation with the lift-bar coacts to secure the step-by-step movement of the frame and head parts, since the frame 5 is actuated upwardly by the said spring after a corresponding movement has been imparted to the head under the actuation of the operating-lever 7. In other words, as the lever 7 is moved downwardly the weight is carried by the frame 5

and lift-bar 6, the head 3 being forced upward. The lever 7 being relieved, the spring 15, cooperating with the bars 6, causes same to move toward the main bar 1, and this action restores the lever to its normal uppermost position, at the same time lifting the frame 5 to a higher adjustment upon the bar 1, and the step-by-step movement progresses in this manner.

To afford a greater rigidity as regards the main bar 1, this part is provided with a longitudinal rib 17, and the rear side of this bar is concaved longitudinally, as indicated at 18, to afford a greater engaging surface for the bite members 19 and 20, carried by the head 3 and the frame 5, respectively. The bite member 20 of the frame 5 is secured to this part in any substantial manner, and the weight which is being raised or elevated by the head 3 causes this member 20 to firmly engage with the concave side 18 of the main bar 1, so that at certain intervals of time dependent upon the operative positions of the lever 7 the frame will be rigidly fixed at an ascertained adjustment upon the bar 1. The above will also apply as regards the member 19 of the head 3, this member, however, being somewhat differently mounted than the member 20. The bite member 19 is carried by a movable member or bar 21, a spring 22 engaging the member 21 to normally hold the bite member 19 in engagement with the bar 1 sufficient to always cause this part 19 to cooperate with the main bar in the upward step-by-step adjustment of the part 3. It is contemplated, however, to use my device for tightening wire and for analogous purposes, and for this reason it is necessary that some means be provided for locking the head 3 rigidly at an ascertained adjustment upon the bar 1. For this reason the bite member 19 is carried by the movable bar 21, and this bar 21 is adapted to be actuated by a cam-lever 23 to positively engage the bite member against the main bar 1, whereby the head 3 may be virtually locked in position upon this bar 1. The bite members 19 and 20 are both provided with laterally-extending biting-teeth, which are of convex form, so as to concord somewhat with the concave side 18 of the main bar 1. When the lever 23 is in the position shown in Fig. 2, the bite-bar 19 is in its normal engaging position, admitting of the jacking operation. Upon operation of the lever 23 to throw same in the position shown in Fig. 3, however, the bite member affords an interlocking connection which prevents movement of the head 3, as above premised. The lower end of the movable member 21 is pivotally secured to the lever 23, and the cam action of this lever is designed to force the bite member 19 hard against the bar 1 for the purpose above set forth.

A plate 24 is secured to the upper end of the bar 1, and projecting laterally from this

plate extends a handle 25. The lower portion of the plate 24 is provided with a rigid vise or jaw 26, which is designed to cooperate with a corresponding jaw 27, carried by the rear portion of the head 3. Adjacent the jaw 26 of the plate 24 is mounted a cutter 28, which may be operated so as to bring the cutting edge thereof into cooperation with the jaw 27 should it be desired to cut wire or the like. The jaw 27 is provided with a transverse groove 29 to receive the cutting edge of the cutter 28 when the jaw 27 is forced into contact with this part. When the jaws 26 and 27 are utilized as clamping means only, the cutter 28 is turned with its cutting edge outward, so as to admit of the necessary clamping cooperation of the jaws aforesaid. Extended laterally from the plate 24 is a flange 30, which is toothed in its length, as shown most clearly in Fig. 7. The toothed flange 30 cooperates with a cam segment-lever 31, pivoted to the plate 24, as an engaging means for tightening wire. The segment-lever 31 is toothed upon its segmental portions to admit of firm clamping and engagement with the wire in the practical use of the device. The head 3 is likewise provided with a plate 32, which has the cooperating flange 30, and a second segment-lever 31^a is pivoted to the plate 32 for cooperation with the toothed flange 30 of this plate.

When the tool is used for tightening and splicing wires, the parts are arranged as shown in Fig. 3, the ends of the wires being clamped by the segment-levers 31 and 31^a. Operation of either of these segment-levers admits of tightening the wire, and after the above has been done the ends may be readily spliced. When the device is used in the above capacity, the lever 7, carried by the head 3, may be operated to secure a preliminary tightening of the wire, which is indicated at 33, and after the above has been performed the cam-lever 23 is actuated so as to fix the position of the head upon the bar 1. In order to afford a convenient means for splicing the ends of the wires, the base 2 of the bar 1 is made removable. The part 2 is provided with a vertical opening which receives the lower end of the bar, and a lock-dog 34 is pivoted upon the side portion of the base in a lateral opening provided therein. The dog 34 is adapted to engage in a notch 35, provided adjacent the lower end of the longitudinal rib 17 of the bar 1, being normally held in this engaging relation by means of a spring 36 or similar device. The bottom of the base 2 is provided with two vertical openings 37, which lead into the opening which receives the lower end of the bar 1, and the said openings 37 are adapted to receive the ends of the wires which are to be spliced. The base is of course removed when it is desired to splice the wire, and it is only necessary, after the ends have been introduced into the openings 37, to rotate the

base, which will twist the said ends of the wire securely together. The use of the base 2 for the purpose above set forth obviates the necessity of having a supplemental tool especially adapted for this purpose. One end portion of the base 2 may be provided with a rectangular slot to form a wrench, as shown at 38, and the other end of the base may be formed with a triangular slotted portion 39, one wall of which is toothed. The part 39 is particularly adapted for use in turning cylindrical parts, such as pipes or the like.

In the practical use of my tool as a jack the same is arranged adjacent the post or part to be elevated and suitable tackle or chains are passed about the head 3 and the part to be lifted. Downward movement of the lever 7 raises the head 3 initially, and the said head is held in its elevated position by the biting action of the member 19. Upward movement of the lever 7, which is caused by the spring 15, elevates the frame 5 to a position adjacent the lower end of the head 3. The second downward stroke of the lever throws the weight upon the frame 5, and the bite member 20 of this part rigidly positions the frame from downward movement. This same downward stroke elevates the head, and thus the step-by-step movement continues until the part to be elevated is raised to the desired height.

As a wire-tightener the bar 1 is disposed in an approximately horizontal position and the wire ends are engaged by the segment-levers 31 and 31^a. Operation of the main lever 7 will cause tightening of the wires, and the base 2 may be removed so as to admit of the splicing operation. As a vise the head 3 is moved adjacent the upper plate 24, and operation of the lever 7 is adapted to cause closing and opening movement of the jaws 26 and 27, carried by the plate 24 and head 3, respectively. The operation of the cutter 28 is very probably obvious from the foregoing. So as to prevent the tackle secured to the head 3 from interfering with the movement of the lever 7, a lateral flange 40 is projected from the upper edge portion of the adjacent member 4 of the head 3, and this flange overlaps the lower end of the lever 7 adjacent the fulcrum thereof. Should it be desired to remove the lever 7 from the head 3, it is only necessary to press upwardly upon the latch 9 to disengage same from the journal member 8, when the lever may be laterally disposed. A spring 41 normally holds the latch in engagement with the journal member 8.

The tool is comparatively simple in general structure and the various parts may be quickly removed and placed in position when found necessary.

Having thus described the invention, what is claimed as new is—

1. In a tool of the class described, the combination of a main bar, an elevating head mov-

ably mounted upon said bar, a lever mounted upon the head, a journal member projected from the lever and received by the head, a latch carried by the head and engaging the journal member aforesaid to prevent displacement thereof, and the lift-bar cooperating with the lever.

2. In a tool of the class described, the combination of a main bar, a head movably mounted upon said bar and comprising spaced members, a lever pivoted to the head, a journal member projected from the lever and received by the head, a lock device disposed between the spaced members of the head and engaging the journal member, and a lift-bar connected with the lever aforesaid.

3. In a tool of the class described, the combination of a main bar, a head movably mounted upon said bar and comprising spaced members, a lift-bar cooperating with the head, a lever pivoted to the head, a journal member projected from the lever and received by the head, connecting means between the lever and the lift-bar, and a latch device disposed between the spaced members of the head and interlocking with the journal member of the lever aforesaid.

4. In a tool of the class described, the combination of a main bar, a head slidably mounted upon said bar and comprising spaced members, a frame slidably mounted upon said bar, a lift-bar pivoted to the frame, a lever pivoted to the head, means connecting the lift-bar and the lever, a journal member projected from the lever and received by the head, said bar being provided with an interlocking groove or depression, and a latch device disposed between the spaced members of the head and engaging the grooved portion of the journal member.

5. In a tool of the class described, the combination of a main bar, a head movable along said bar and comprising spaced members, a frame on the bar engaging means between the

main bar and the head and frame, a lift-bar pivoted to the frame at its lower end, a lever pivoted to the head, the spaced members of the head being provided with arcuate slotted openings, a journal-pin projected from the lever and connected with the upper end of the lift-bar, said pin operating in the slotted portions of the head aforesaid, and a roller mounted upon the outer end of the pin and operating in the slotted opening of the adjacent spaced member of the head.

6. In a tool of the class described, the combination of a main bar, a base removably applied to the bar, a pivoted latch carried by the base and interlocking with the lower end of the bar, a frame and head slidably mounted upon the bar, engaging members carried by the frame and head and cooperating with the bar to fix the adjustment of said head and bar, a lift-bar pivoted to the frame, a lever pivoted to the head, and connecting means between the lever and the lift-bar.

7. In a tool of the class described, the combination of a main bar, a head slidably mounted upon said bar, a frame movably mounted upon said bar, a lift-bar pivoted to the frame, a lever pivoted to the head and operably connected with the lift-bar, engaging means between the frame and the main bar, an engaging member carried by the head and cooperating with the main bar, a spring cooperating with the engaging bar aforesaid to normally hold same in engagement with the main bar, and a lever for actuation of the engaging bar carried by the head to effect a locking of the head at an ascertained adjustment upon the main bar.

In testimony whereof I affix my signature in presence of two witnesses.

MILFORD RIDDLE. [L. s.]

Witnesses:

W. T. BROWN,
C. A. GUNDER.