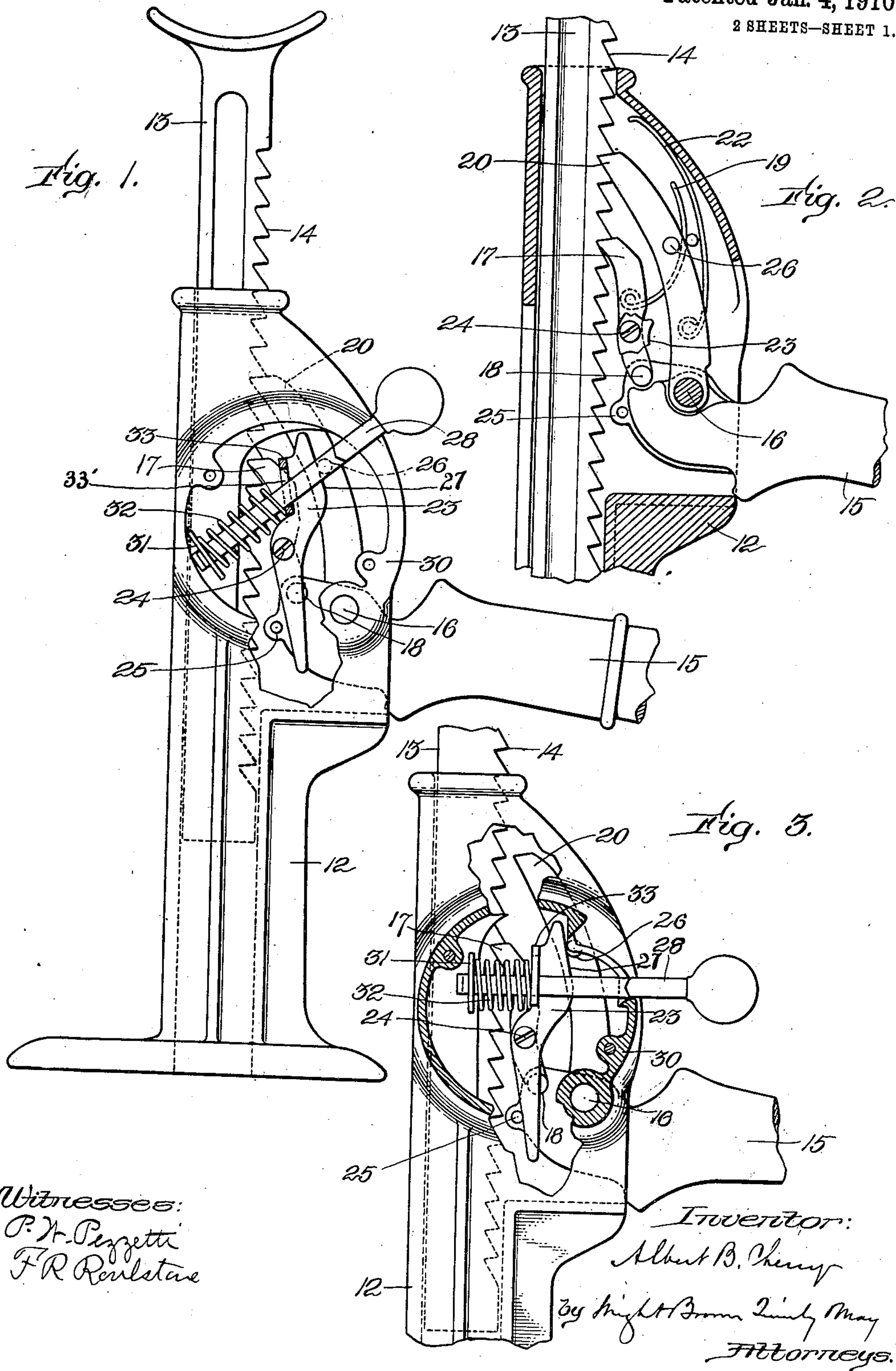


A. B. CHERRY.  
LIFTING JACK.  
APPLICATION FILED APR. 26, 1909.

945,489.

Patented Jan. 4, 1910.  
2 SHEETS—SHEET 1.



Witnesses:  
P. H. Pezzetti  
F. R. Revell

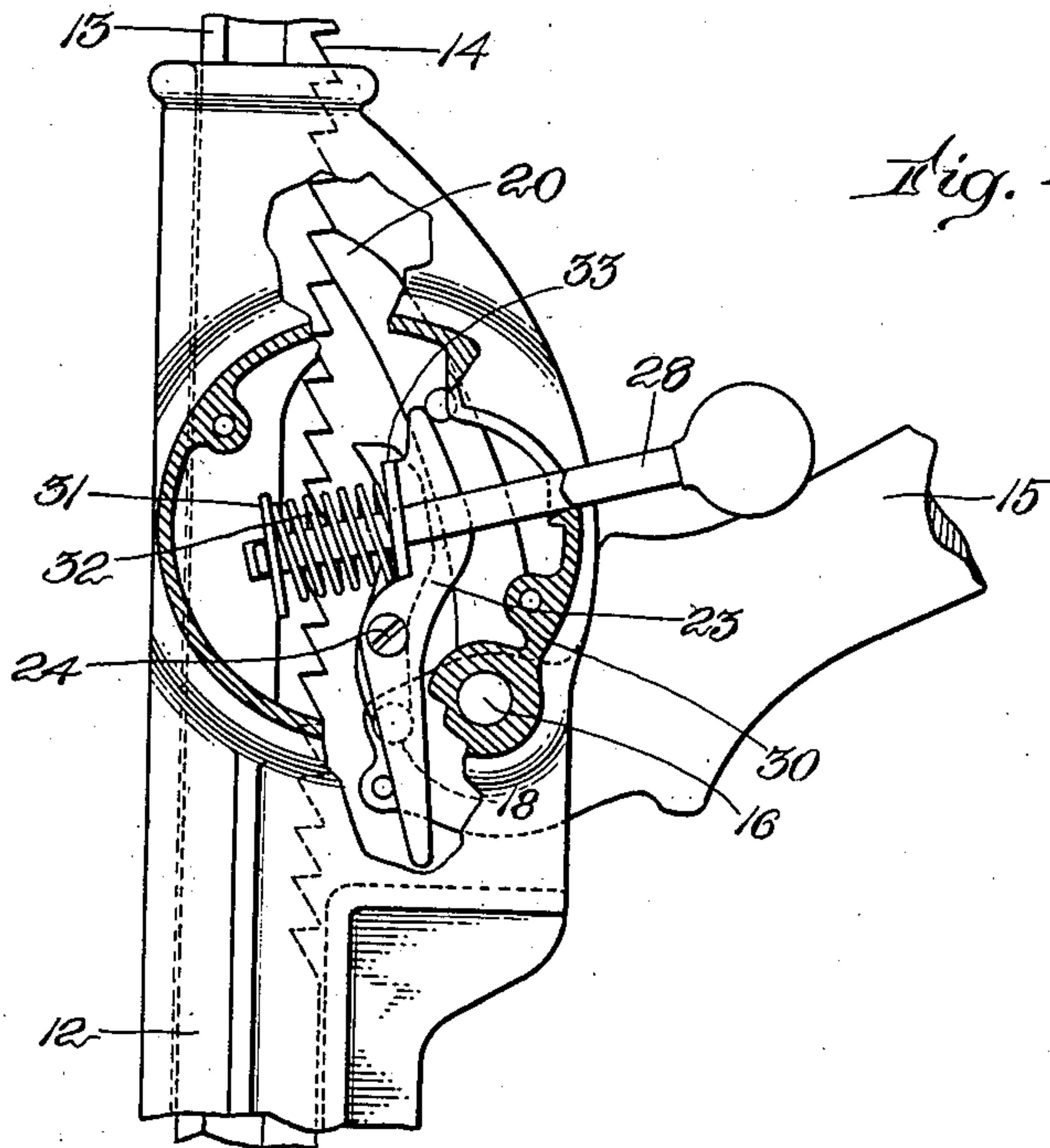
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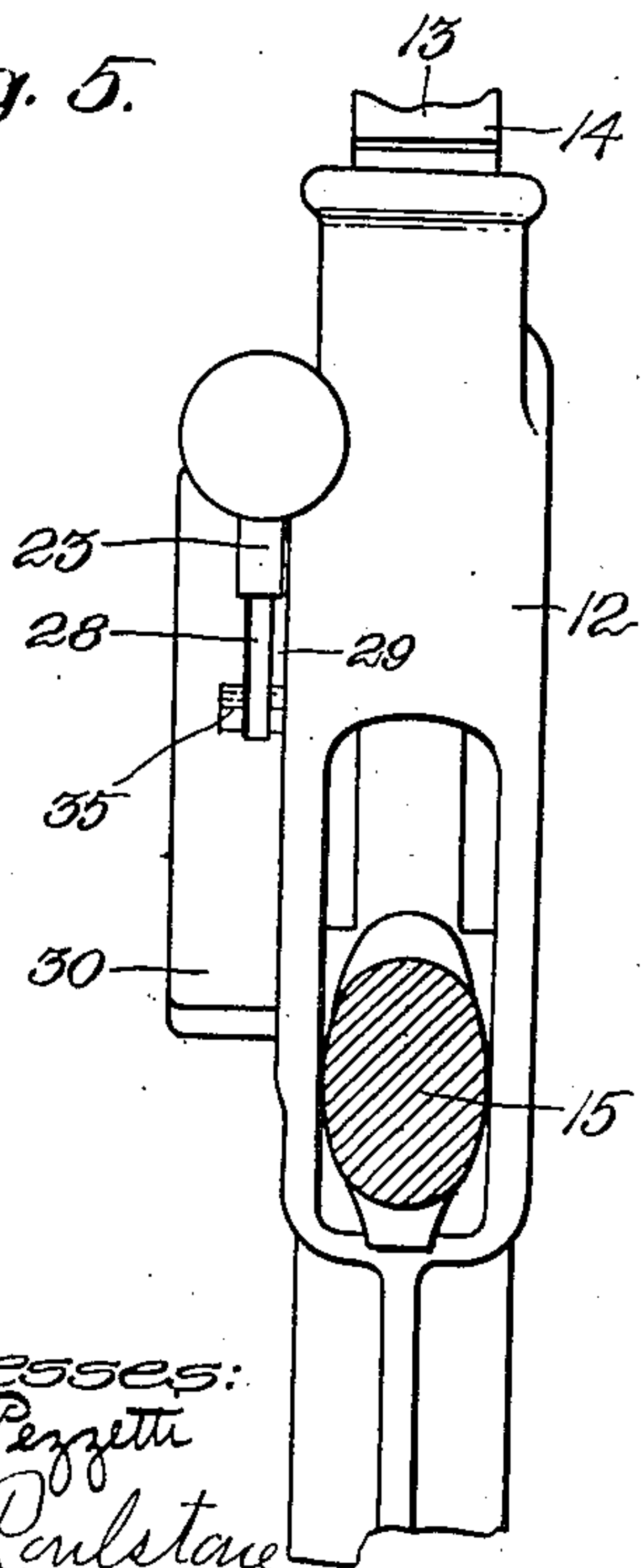
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2 SHEETS—SHEET 2.

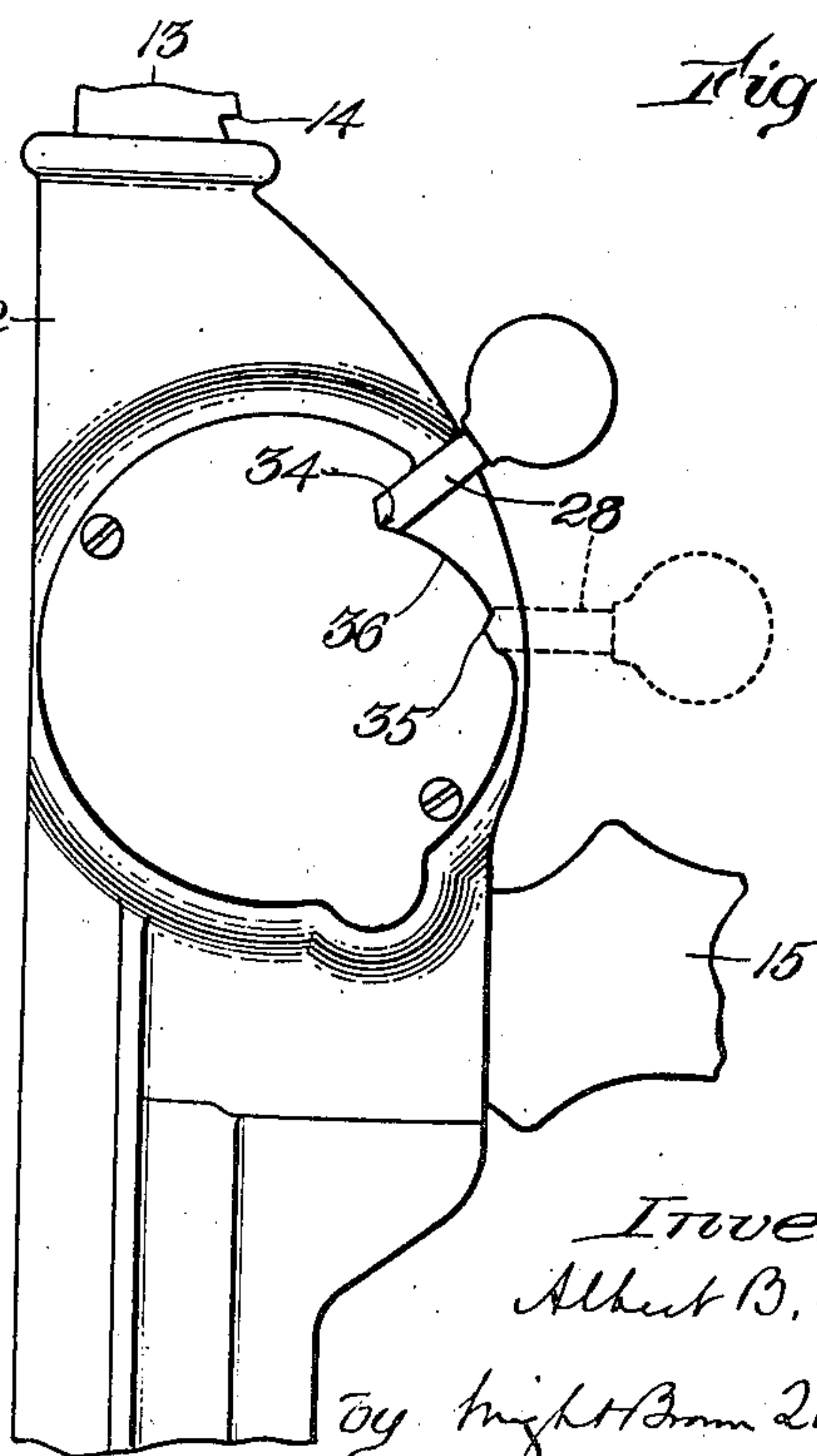


*Fig. 4.*

*Fig. 5.*



*Fig. 6.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ALBERT B. CHERRY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO SAMUEL ASCHER, OF BROOKLINE, MASSACHUSETTS, AND THOMAS E. CHERRY, OF REVERE, MASSACHUSETTS.

## LIFTING-JACK.

945,489.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed April 26, 1909. Serial No. 492,366.

*To all whom it may concern:*

Be it known that I, ALBERT B. CHERRY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to a lifting jack having a lifting bar which is movable endwise by oscillating movements of an operating lever, adjustable means being employed for causing the movements of the operating lever under one adjustment to progressively raise the lifting bar step by step, and under another adjustment to let down the lifting bar step by step.

The invention has for its object to provide a simple and effective construction of a jack of this character, and it consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a side elevation of a jack embodying my invention, a part of the casing being removed to show the internal mechanism, the operating mechanism being adjusted to cause a progressive upward movement of the lifting bar. Fig. 2 represents a view similar to a portion of Fig. 1, the frame being shown in section and the end portions of the tripping lever shown in Fig. 1, being broken away. Fig. 3 represents a view similar to Fig. 1 showing the operating mechanism adjusted to permit a step-by-step downward movement of the lifting bar, the operating lever being depressed. Fig. 4 represents a view similar to Fig. 3, showing the operating lever raised. Figs. 5 and 6 represent elevations of portions of the jack, the adjustment being as shown in Figs. 1 and 2.

The same reference characters indicate the same parts wherever they occur.

In the drawings, 12 represents the frame or casing of the jack, and 13 represents a lifting bar which is provided along one of its vertical edges with ratchet teeth 14.

15 represents an operating lever which is fulcrumed at 16 to the casing.

17 represents a lifting pawl which is pivoted at 18 to the shorter arm of the operating lever and is normally pressed by a spring 19 against the ratcheted edge of the lifting bar.

20 represents a holding pawl which is pivoted at a suitable fixed point relatively

to the frame or casing. In the drawings said fixed point is the fulcrum stud 16 of the lever 15. The holding pawl is normally pressed by a spring 22 against the ratcheted edge of the lifting bar, the arrangement of its pivot relatively to the fulcrum of the lever being such that the up and down movements of the lever do not cause the holding pawl to effect any lifting action on the ratcheted bar, so that the holding pawl is at all times in position to retain the lifting bar in any position to which it is raised by the upward movement of the lifting pawl caused by a downward movement of the operating lever.

23 represents a tripping lever which is fulcrumed at 24 to the lifting pawl 17.

The shorter arm of the operating lever 15 is provided with a laterally projecting stud 25 which constitutes an abutment against which the lower arm of the tripping lever bears when said tripping lever is in its operative adjustment.

26 represents a stud or projection on the holding pawl 20, said projection being operatively engaged with an inclined edge 27 on the upper arm of the tripping lever 23 when said tripping lever is in its operative adjustment.

28 represents a rod which is longitudinally movable in a slot 29 formed in the wall of a circular boss 30 on the frame 12, said rod being longitudinally movable in said slot and provided at its inner end with a head or abutment 31 on which bears one end of a spring 32 which surrounds the inner end portion of the rod. The other end of said spring bears upon an ear or wing 33 which forms a part of the tripping lever 23, said wing having a slot or opening 33' through which the rod 28 passes loosely. Said spring 32 is of a strength greater than that of the spring 22 which presses the holding pawl against bar 13, so that when said spring 32 is permitted to act, as hereinafter described, the holding pawl will be disengaged from said bar to permit lowering of the latter.

When the rod 28 is pushed inwardly as shown in Fig. 1, the spring 32 is removed from active bearing pressure on the tripping lever so that the latter is free to assume the inoperative position shown in Fig. 1, its lower arm being out of contact with the abutment 25 and its upper arm being



so related to the projection 26 on the holding pawl that it does not affect said pawl. When the rod 28 and the tripping lever are in the position last described, both pawls bear continuously on the ratcheted edge of the lifting bar, the jack being therefore adjusted to cause a step-by-step elevation of the lifting bar and its load, the pawls simply yielding, as required, against their springs 19 and 22. When the rod 28 is pulled outwardly as shown in Figs. 3 and 4, the spring 32 is compressed so as to bear actively on the tripping lever and hold the lower arm of the latter in engagement with the abutment 25 on the operating lever, the tripping lever being therefore in its operative position to permit lowering of the bar 13. This compression of the spring causes the tripping lever to oscillate on its fulcrum 24 under the influence of the spring 32 but controlled by the abutment 25 of the operating lever 15. When the outer end of the operating lever 15 is depressed as in Fig. 3, the abutment 25 occupies a position which permits the spring 32 to press the upper end of the tripping lever 23 back so that the edge 27 of said lever 23 acts against the stud 26 of holding pawl 20 to press the latter yieldingly out of engagement with the ratchet bar 13. The pawl 17 is now holding the bar 13. Upon actuating the operating lever to the Fig. 4 position, the pawl 17 first lets the bar 13 down and then the abutment 25 causes the lever 23 to oscillate so as to further compress the spring 32 and permit the spring 22 to throw the holding pawl 20 back to the ratchet bar. During the last part of this lowering movement, the conjoint action of abutment 25 and spring 32, acting in the same direction on both ends of the lever 23, overcomes the power of spring 19 and presses the lever 17 away from the ratchet bar because the lever 23 and pawl 17 are pivotally connected at 24. At the beginning of the next movement from the Fig. 4 to the Fig. 3 position, the swinging of the abutment 25 somewhat away from the lower end of lever 23 relieves the force which spring 32 is causing at the pivot 24 so that the spring 19 can return the pawl 17 into engagement with a tooth of the ratchet before the further movement of the operating lever causes the release of the holding pawl 20 in the manner already described. It will be seen therefore, that, when the tripping lever is in its operative adjustment the movements of the operating lever cause a step-by-step downward movement of the lifting bar and its load.

The rod 28 is provided with a projection or latch member 34, adapted to engage a notch 35 in the perimeter of the boss 30 when the rod is drawn outwardly, the rod being thus retained in its outward position and caused to retain the tripping lever in its

operative position. The notch 35 is located at one end of a cam face 36 on the boss 30, said cam face being so formed that, when the rod is moved from the position shown by dotted lines to that shown by full lines in Fig. 6, the cam face will permit an inward movement of the rod to the position shown in Fig. 1.

It will now be understood that, owing to the structure including the tripping lever and the spring 32, the pawls are both forced yieldingly and successively out of engagement with the bar 13 when the latter is being lowered, and consequently there is compensation for wear of the pawls and ratchet teeth which would not be the case if the outward movement were effected by mechanism acting positively on the pawls. My improved structure is such that springs are permitted to act at the required times to shift the pawls both in and out, and therefore the action will remain the same even after considerable wear of the moving parts.

I claim:—

1. A lifting jack comprising a frame, a ratcheted lifting bar movable therein, an operating lever fulcrumed on the frame and having an abutment on its shorter arm, a lifting pawl pivoted to the shorter arm of the operating lever, a holding pawl having a projection, means for normally maintaining the pawls continuously against the lifting bar, a tripping lever fulcrumed on the lifting pawl at a point between the abutment on the lever and the projection on the holding pawl, said lever being movable on its pivot to bring its end portions into and out of operative engagement with said abutment and projection, and adapted to trip the pawls alternately when in said operative engagement, and means for moving the tripping lever to and from its operative position.

2. A lifting jack comprising a frame, a ratcheted lifting bar movable therein, an operating lever fulcrumed on the frame and having an abutment on its shorter arm, a lifting pawl pivoted to the shorter arm of the operating lever, a holding pawl having a projection, means for normally maintaining the pawls continuously against the lifting bar, a tripping lever fulcrumed on the lifting pawl at a point between the abutment on the lever and the projection on the holding pawl, said lever being movable on its pivot to bring its end portions into and out of operative engagement with said abutment and projection, and adapted to trip the pawls alternately when in said operative engagement, a rod loosely engaged with the tripping lever, its outer end projecting and forming a handle, a spring carried by the rod and bearing on the tripping lever, the rod being movable longitudinally outward to compress the spring and cause it to hold



the tripping lever in its operative position, and means for detachably securing the rod in its outward position, the rod, when moved inwardly, permitting the tripping lever to assume its normal inoperative position.

3. A lifting jack comprising a frame having a slotted cam-shaped external portion and a notch at one end thereof, a ratcheted lifting bar movable in the frame, a holding pawl, a lifting pawl, an operating lever fulcrumed on the frame, means for normally maintaining the pawls continuously against the lifting bar, said pawls being adapted to normally cause a step-by-step elevation of the latter through the operation of the lever, a tripping lever movable by the operating lever and adapted to trip

the pawls alternately to cause each to bear intermittently on the lifting bar, an adjusting rod connected with the tripping lever and extending through the slot in the casing, said rod having a projection which is adapted to engage the notch in the casing to confine the rod and is movable on the said cam-shaped portion, the latter permitting an inward endwise movement of the rod, and a spring connected to said rod and bearing against the tripping lever, substantially as described.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ALBERT B. CHERRY.

Witnesses:

C. F. BROWN,  
P. W. PEZZETTI.