

No. 795,812.

PATENTED AUG. 1, 1905.

W. BUCKETHAL.
DOUBLE ACTING REVERSIBLE LIFTING JACK.
APPLICATION FILED DEC. 2, 1904.

Fig. 2.

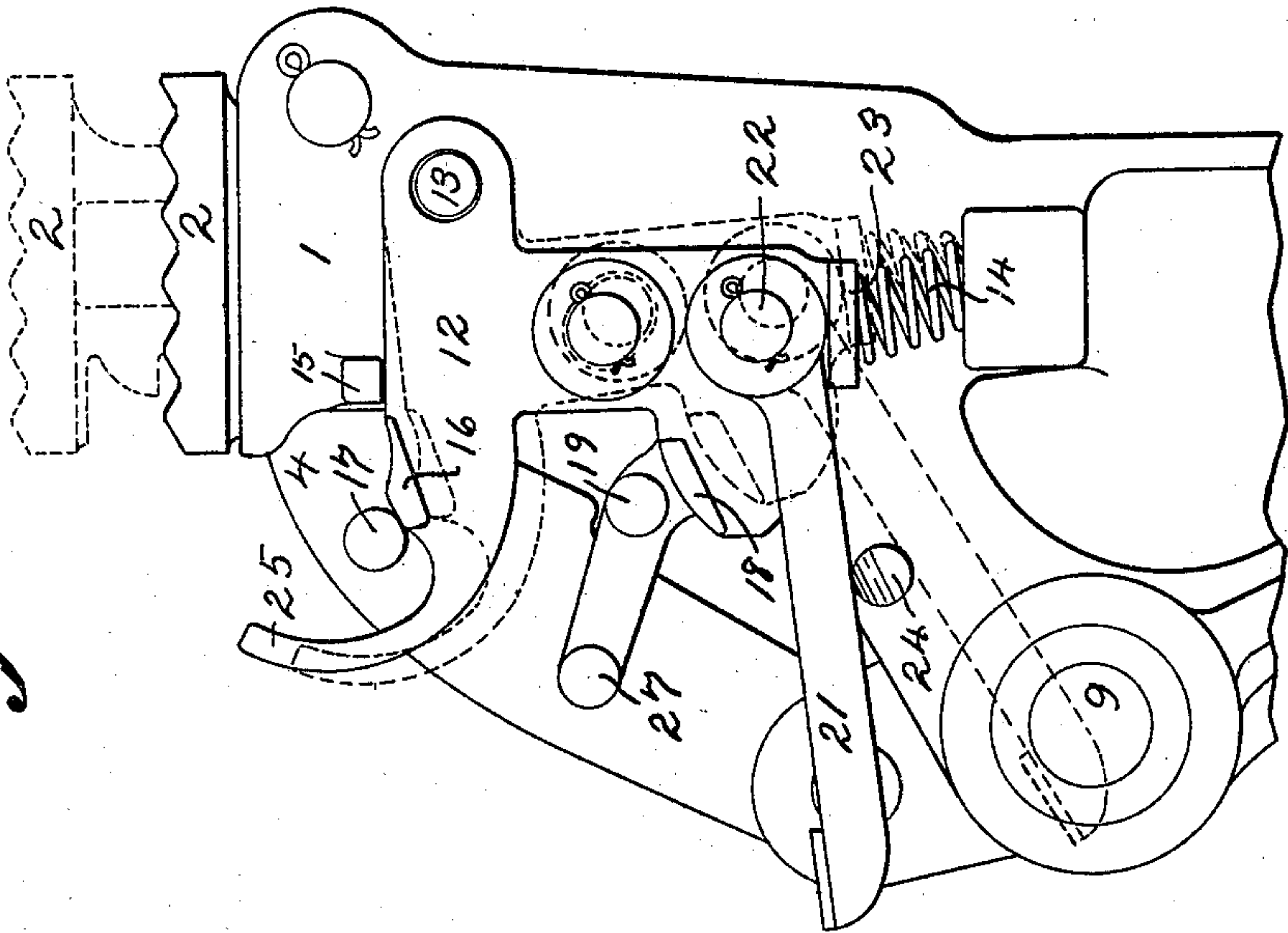
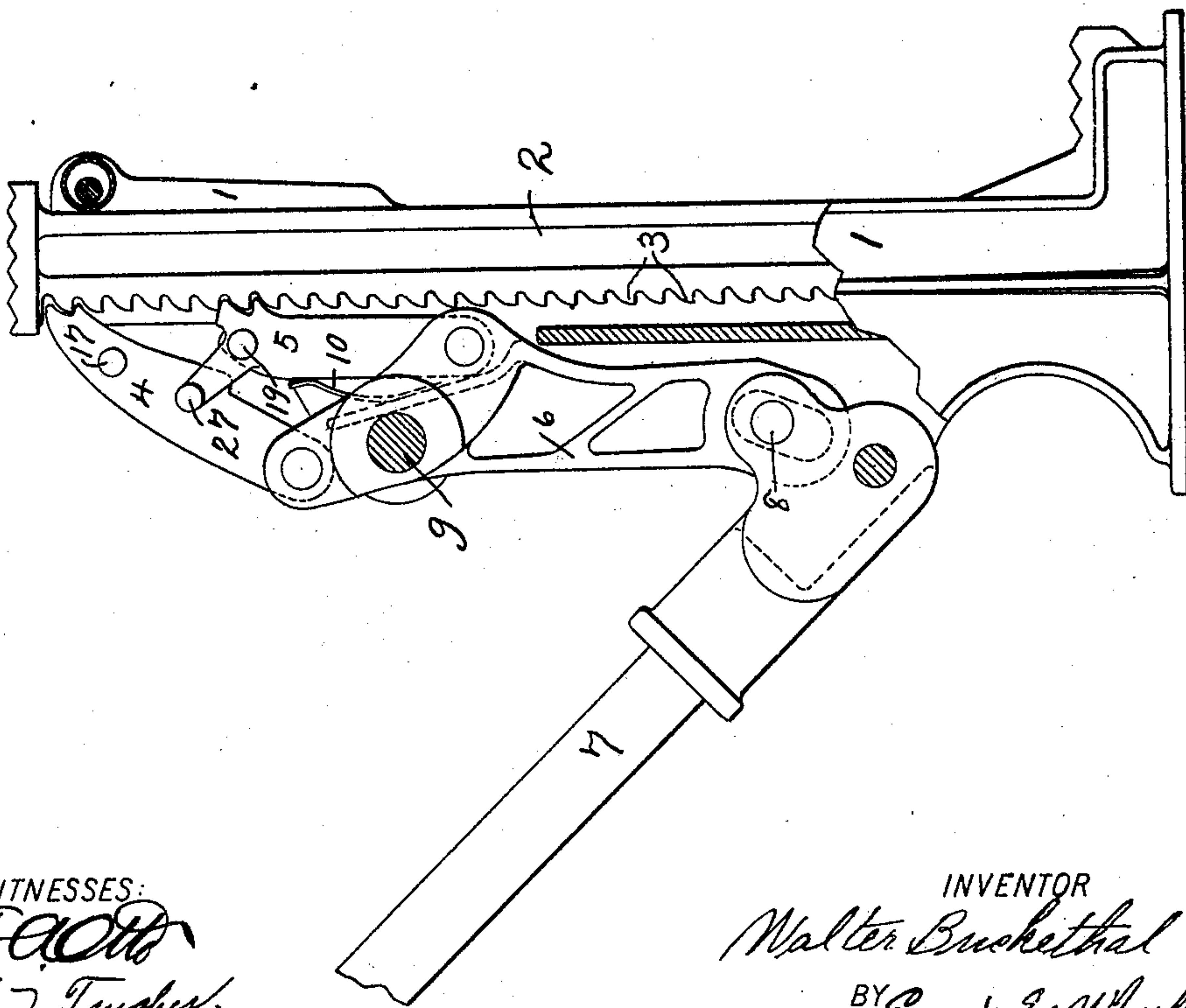


Fig. 1.



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WALTER BUCKETHAL, OF MILWAUKEE, WISCONSIN.

DOUBLE-ACTING REVERSIBLE LIFTING-JACK.

No. 795,812.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed December 2, 1904. Serial No. 235,216.

To all whom it may concern:

Be it known that I, WALTER BUCKETHAL, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Double-Acting Reversible Lifting-Jacks, of which the following is a specification.

My invention relates to improvements in double-acting reversible lifting-jacks.

The object of my invention is to provide a simple device for reversing the movement of a double-acting lifting-jack which may be embodied in any ordinary jack of this class without radical alterations of structure, the reversing mechanism being comprised almost wholly in a separate external attachment.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a side view of a jack embodying my invention with the reversing mechanism and part of the frame removed. Fig. 2 is an enlarged detail side view of the upper portion of a jack embodying my invention.

Like parts are identified by the same reference characters in both views.

1 is the frame of my improved jack, in which a vertically-movable lifting-bar or plunger 2 is supported. The plunger is provided with the usual rack-teeth 3 and is operated by lifting-pawls 4 and 5, respectively, which are pivotally mounted on an intermediate lever 6 and actuated by an operating-lever 7. The lever 7 has sliding pivotal connection with the intermediate lever at 8, and the lever 6 is pivoted to the frame at 9. The pawls 4 and 5 are pivoted to the lever 6 on opposite sides of the pivot-pin 9, so that the pawls act in alternation on the rack-teeth. The upper pawl is held in normal contact with the rack-teeth by gravity and the lower pawl by a spring 10.

A controlling-plate 12 is pivotally secured at 13, near one upper corner, to the frame 1 and at its lower end is mounted upon a spring 14, which is adapted to push the plate upwardly and cause the same to swing upon the pivot-pin 13 until it contacts with a stop 15, as shown in Fig. 2. When in this elevated position, an abutment 16 on the plate is in position for interfering contact with a stud 17 on the pawl 4 when the latter is at or near the limit of its downward movement, and another abutment 18 on the plate is similarly in position for interfering contact with a stud 19 on the pawl 5 when at or near the limit of

its downward stroke. The studs 17 and 19 are so located that they move upon the rounded surfaces of the respective abutments and are pushed outwardly by the abutments to prevent the engagement of the corresponding pawl at the end of its downward stroke or the beginning of its upward stroke. With the plate in the described position it is therefore evident that the lifting-bar will be permitted to descend with each downwardly-moving pawl until the upwardly-moving pawl is sufficiently raised to clear the abutment and at least one tooth on the rack. The last-mentioned pawl then moves into position to engage and support the rack-teeth as it nears the limit of its upward stroke, while the other is thrown out of engagement with the teeth to permit a further descent of the lifting-bar during the next movement of the pawls. The lifting-bar is therefore lowered step by step. When it is desired to lift the bar 2, the controlling-plate is depressed by means of a lever 21, which is pivoted to the plate at 22 and arranged to bear against the flanged lower edge 23 of the plate. The lever when depressed pushes the plate downwardly against the tension of the spring 14 until the outer end of the lever can be engaged underneath a stud 24 on the frame 1, when the controlling-plate will be held in a position with the abutments 16 and 18 sufficiently depressed to be out of the path of the studs 17 and 19, thus permitting the pawls to act in the ordinary manner and lift the rack-bar step by step.

25 is an arm of the controlling-plate, adapted to limit the outward throw of the pawl 4 when pushed out of engagement with the rack-teeth. When this pawl is held out of engagement with the teeth by abutment 16, the other pawl may be withdrawn manually from the rack-teeth by grasping an arm 27 on this pawl and pulling the pawl outwardly. This will allow the lifting-bar to drop by gravity to the base of the frame.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a double-acting lifting-jack, the combination with a set of lifting-pawls provided with lateral projections; a controlling-plate movably mounted on said jack and provided with rigidly-attached abutments adapted for sliding engagement with said lateral projections; a spring arranged to support said plate with the abutments in position to push said projections and pawls to inoperative position

when at and near the extreme downward position; and means for adjusting said controlling-plate and abutments out of the path of the pawl projections.

2. In a double-acting lifting-jack; the combination of a supporting-frame; a rack-bar mounted to slide therein; a set of alternately-acting lifting-pawls and actuating connections in operative relation to the rack-bar; lateral projections on each of said pawls; a controlling-plate, having its rear upper corner pivotally connected with the frame and provided with abutments rigidly connected with the plate and supported thereby in the path of the respective lateral pawl projections, said abutments being formed for a sliding engagement with the pawl projections during their initial upward stroke; and means for swinging said plate on its pivotal connection to bring said abutments into and out of operative position.

3. In a double-acting lifting-jack; the combination of a supporting-frame; a rack-bar mounted therein; a set of alternately-acting lifting-pawls and actuating connections in operative relation to the rack-bar; a controlling-plate having one upper corner pivotally connected with the frame; a resilient support for said plate below and at one side of said pivotal connection; abutments rigidly connected with said plate and adapted to interfere with the engagement of the lifting-pawls during their initial upward stroke; a stop on said frame adapted to engage the controlling-plate at one side of the pivotal connection between said plate and frame; a lever pivotally connected with said plate and arranged to bear against a projection thereof; and a device on said frame adapted to engage and lock said lever when the latter is depressed, said resilient support being adapted, when the lever is released, to push the controlling-plate upwardly against said stop with the abutments in position to interfere with the engagement of the pawls with the rack-teeth during their initial upward stroke.

4. In a double-acting lifting-jack; the combination of a supporting-frame; a rack-bar

mounted to slide therein; a set of alternately-acting lifting-pawls and actuating connections in operative relation to the rack-bar; a controlling-plate having one upper corner pivotally connected with the frame and adapted to swing on said pivotal connection; a spring mounted on said frame and adapted to engage a projecting portion of said plate, below and at one side of the pivotal connection; a stop for limiting the swinging movement of said plate when pressed upwardly by said spring; means for locking said plate in a depressed position; and a set of abutments rigidly mounted on said plate and adapted to interfere with the engagement of the lifting-pawls during their initial upward stroke.

5. In a double-acting lifting-jack, the combination of a supporting-frame; a rack-bar mounted to slide therein; a set of alternately-acting lifting-pawls and actuating connections in operative relation to the rack-bar; a controlling-plate adjustably mounted on said frame and provided with abutments; and means for adjusting the plate to bring said abutments into and out of the paths of the pawls during their initial upward stroke, said controlling-plate being provided with a hook adapted to limit the outward throw of the outer pawl.

6. In a double-acting lifting-jack, the combination of a supporting-frame; a rack-bar mounted to slide therein; a set of alternately-acting lifting-pawls and actuating connections in operative relation to the rack-bar; each of said pawls being provided with laterally-projecting studs; a controlling-plate adjustably mounted on said frame and provided with abutments adapted to be moved into and out of the paths of the studs; a lever for shifting the controlling-plate; and an arm projecting from one of the pawls in a position to facilitate its manual retraction.

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

WALTER BUCKETHAL.

Witnesses:

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