

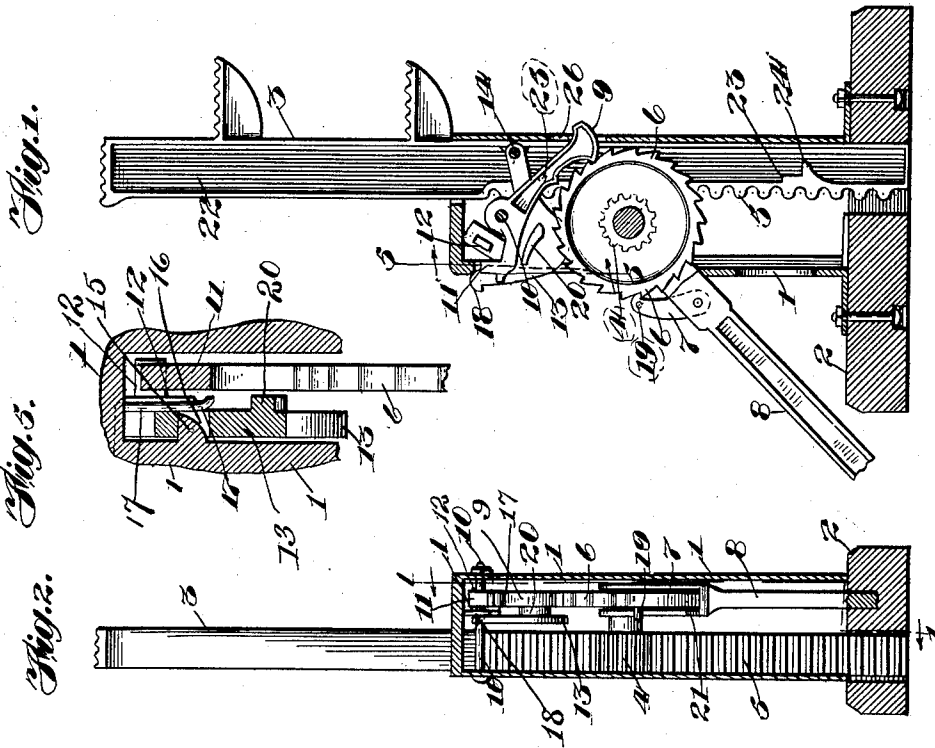
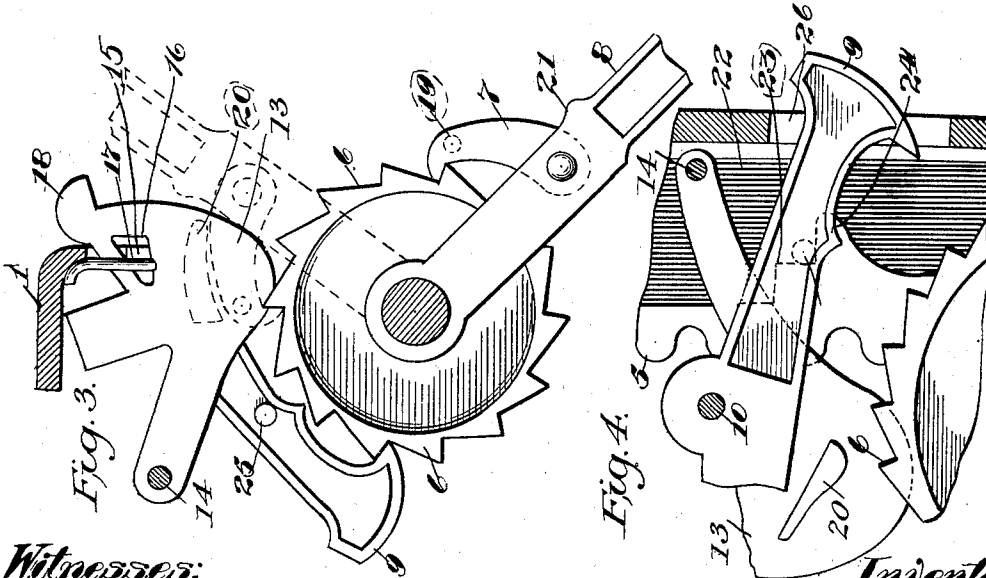
No. 737,655.

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W. H. OLIVER.
LIFTING JACK.

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NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM H. OLIVER, OF CHICAGO, ILLINOIS.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 737,655, dated September 1, 1903.

Application filed October 2, 1902. Serial No. 125,676. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. OLIVER, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a full, clear, and exact specification.

My invention relates to that class of lifting-jacks employing a pawl and ratchet for raising the standard, in which the standard may be lowered gradually or may be allowed to drop suddenly by an extreme upward movement of the operating-lever. An example of this type of lifting-jack is shown in my prior United States Patent No. 680,730 of August 20, 1901, in which the sudden release of the holding-dog is effected by raising the operating-lever until the pawl engages under the dog and forces the latter out of engagement with the teeth of the ratchet, while the gradual lowering of the standard is accomplished by releasing a weight which hangs upon one end of the retaining-dog and holds the opposite end out of engagement with the teeth of the ratchet until the weight is temporarily elevated by a lug on the pawl as the pawl rises with the operating-lever, whereupon the holding-dog temporarily engages the ratchet while the pawl disengages one tooth and reengages with another. A great objection which I found to this prior construction, however, is that in raising the lever to thus cause the retaining-dog and the pawl to alternately disengage and reengage the ratchet when lowering the standard gradually, if the operating-lever be elevated too far the end of the pawl will engage under the retaining or holding dog and force the latter out of engagement with the ratchet prematurely, and thus allow the standard to fall suddenly at an inopportune time.

One of the important objects of my present invention, therefore, is to lock the operating-lever from moving to the extreme limit of its upward stroke while the weight is in position for holding the retaining-dog out of engagement with the ratchet during the gradual lowering of the standard.

Another object of my invention is to arrange wholly within the frame the trip-lug which raises the holding or retaining dog when the standard rises to its maximum

height, whereby all danger of breaking this lug by striking against external objects will be avoided.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings and more particularly pointed out in the claims.

In the said drawings, Figure 1 is the vertical sectional view of my improved jack, taken on the line 1 1, Fig. 2. Fig. 2 is a view in elevation at right angles to the plane of section of Fig. 1, looking toward the right and showing the casing or frame in vertical section. Fig. 3 is an enlarged detail sectional view similar to Fig. 1, but looking from the opposite side. Fig. 4 is an enlarged detail sectional view showing the lug raising the holding-dog out of engagement; and Fig. 5 is a detail sectional view of the rear side of the weight and holding-dog taken on line 5 5, Fig. 1.

1 is a frame supported upon any suitable base 2 and in which frame is arranged the lower end of the standard 3 and the other operating mechanism, the standard 3 being mounted to slide vertically therein, as described in my former patent.

4 is the pinion which engages rack-bar 5, formed on the side of the standard, and which pinion is actuated by a ratchet 6 and a pawl 7, pivoted to operating-lever 8, all as fully described and shown in my former patent, or in any other suitable way.

9 is the holding or retaining dog, pivoted on a transverse bolt or rod 10 and having a hook or projection 11, through which extends a lug 12 on a weight 13, which is pivoted at 14 to the frame and serves to hold the dog aloof from the ratchet 6 when the weight is allowed to descend for lowering the standard 3 gradually, as before described and shown in my former patent. The weight 13 is held in its elevated position at such times as it may not be desired to lower the standard gradually by a catch consisting of a lug 15, formed on one side of the frame and adapted to engage in an aperture 16 in weight 13. A spring 17 forces the aperture end of

the weight toward the lug 15 as the weight is elevated in a suitable way, as by means of the thumb-piece 18. In all of the figures of the drawings the weight is shown in its elevated position. When the weight is released from its catch 16 17, the lug 12 thereon falls into the hook 11 and raises the lower end of the holding-dog until by the upward movement of the operating-lever 8 a laterally-projecting lug 19 on the side of pawl 7 engages under a cam 20 on the face of weight 13 and lifts the weight, thereby enabling the dog 9 to again engage the teeth of the ratchet 6. When the lug 19 passes inwardly a sufficient distance to clear the end of cam 20, the weight again falls in readiness to lift dog 9 out of engagement as soon as the friction of the teeth thereagainst is relieved by the pawl 7 again taking hold of the ratchet, which it does after the lug 19 has passed over the cam 20 in making the return movement, all as described in my former patent. During this gradual lowering of the standard an extreme upward movement of the lever 8 causes the pawl 7 to engage under dog 9 and lift it out of engagement with the ratchet 6, while the pawl is also out of engagement, thereby allowing the standard to fall suddenly and prematurely when the device is constructed as in my former patent, and in order that this objectionable result may be prevented I provide some suitable means whereby the lever 8 cannot be raised to the limit of its extreme upward movement while the weight 13 is in its lower position or released from its catch for lowering the standard gradually. Various expedients for accomplishing this will suggest themselves to those skilled in the art. A simple method which I have shown in the drawings as an example of my invention and one which I prefer to employ consists in forming a lug or shoulder 21 on the upper side of the lever 8 in such a position that it will engage the outer end of cam 20 and arrest the upward movement of the lever when the weight 13 is hanging or released from its catch. In my former patent I employ a similar shoulder on the lever 8; but that shoulder is so formed and arranged that it acts to lift the weight 13 and restore the same to its inactive or elevated position. That feature of my former invention is sacrificed in my present invention for the sake of a more important function of locking the lever 8 from moving to the limit of its upward movement at this particular time. When the weight 13 is in its upper position, however, an extreme upward movement of the lever may still be utilized for releasing the holding-dog 9, as in my former patent.

One side of the standard 3 is channeled, as shown at 22, and formed on the standard and projecting into this channel is a two-step trip 23 24, which when the standard rises to its maximum elevation comes into engagement with a laterally-projecting lug 25, formed on the side of holding-dog 9, and thereby lifts the dog out of engagement with the

ratchet 6 and prevents the pinion 4 from further elevating the standard. The upper step 23 of this trip is the first to engage the lug 9, and if the lug 9 remained in contact with the step 23 the lever 8 could not be further depressed, and consequently the operator would be liable to break the device. In order, therefore, that the releasing of the holding-dog 9 may not interfere with the free operation of the lever, the step 24 is formed a slight distance below the step 23 for catching and supporting the lug 9 as the standard rises on the lug 9 and drops from step 23. This trip 23 24 also serves as a stop for preventing the standard from being pulled entirely out of the frame when the jack is lifted by means of the standard, it being observed that the point of the dog 9 engages in an aperture 26 in the side of the frame, so as to limit the upward movement of the dog against the pressure of the step 24 from below.

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

1. In a lifting-jack the combination of a standard, a ratchet having operative connection therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet, a shiftable device for holding said dog out of engagement, an operating-lever for oscillating said pawl, and means in connection with said operating-lever for engaging with a part of said shiftable device and locking said lever against upward movement, substantially as set forth.

2. In a lifting-jack the combination of a standard, an operating-lever, means for lifting said standard by the oscillation of said lever comprising a disengageable member, a dog for holding said standard from descending while said disengageable member is out of engagement, means for holding said dog out of engagement while said disengageable member is in engagement, and means for locking the lever from moving to the limit of its full upward throw at will, substantially as set forth.

3. In a lifting-jack the combination of a standard, a ratchet operatively connected therewith, a holding-dog for preventing retrograde movement of said ratchet, a pawl for rotating said ratchet, a lever for actuating said pawl, a weight for holding said dog out of engagement, means for alternately lifting said weight and pawl by the oscillation of said lever, and means for preventing the lever from rising to the limit of its upward throw, substantially as set forth.

4. In a lifting-jack the combination of a standard, means for lifting said standard, and a two-step trip operated by said standard for throwing said lifting means out of action, substantially as set forth.

5. In a lifting-jack, the combination of a frame, a standard slidably mounted in said frame, means for lifting said standard and holding it elevated comprising a dog located

within said frame, and a trip on said standard within said frame for engaging said dog and holding it out of action, substantially as set forth.

5 6. In a lifting-jack the combination of a standard, having one side grooved, or channeled, a frame in which said standard is mounted, means for holding said standard

elevated comprising a dog, a trip secured in the channel of said standard, and a lug projecting from said dog into the line of movement of said trip, substantially as set forth.

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Witnesses:

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