

No. 765,353.

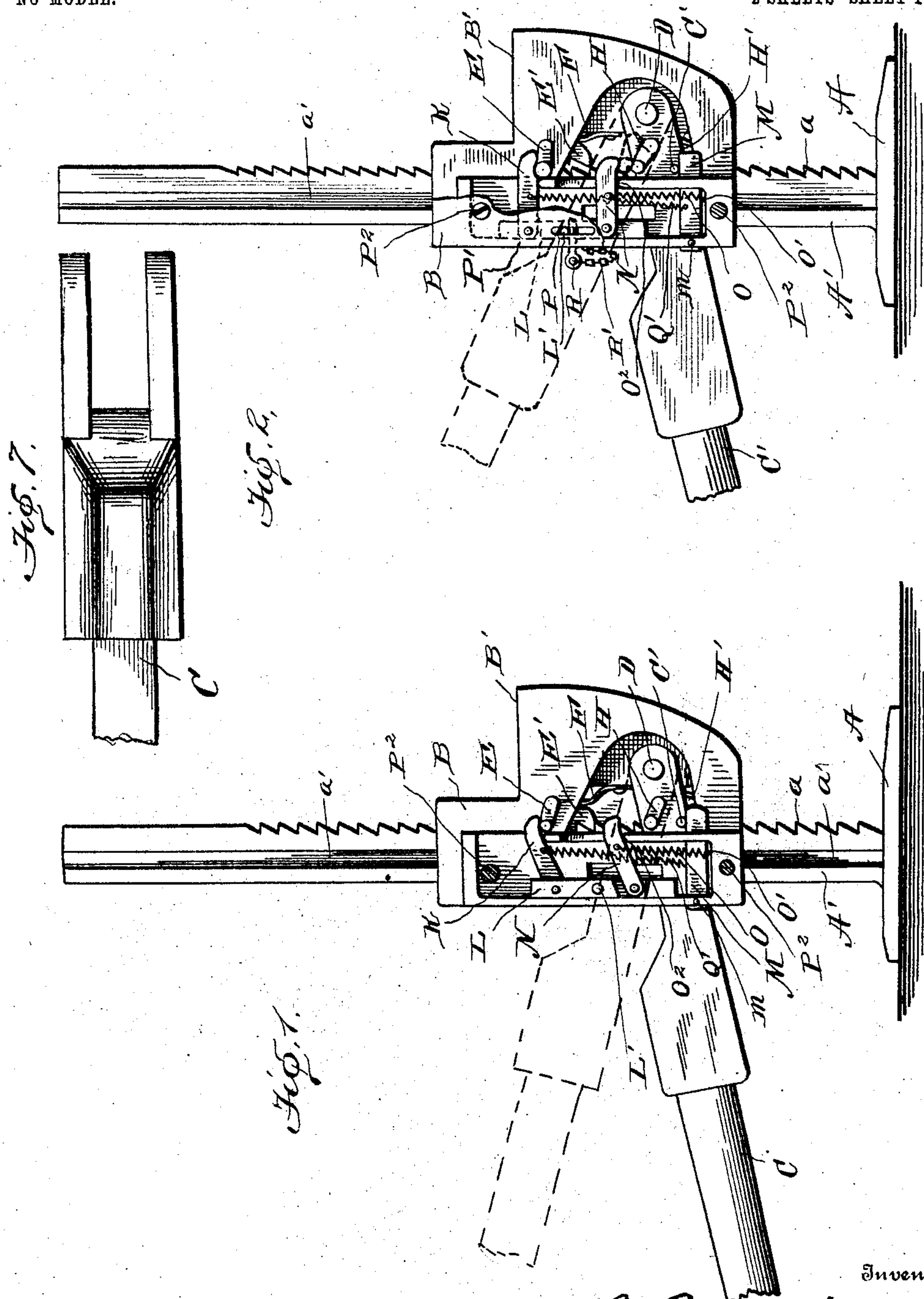
PATENTED JULY 19, 1904.

J. R. BEST.
LIFTING JACK.

APPLICATION FILED MAR. 14, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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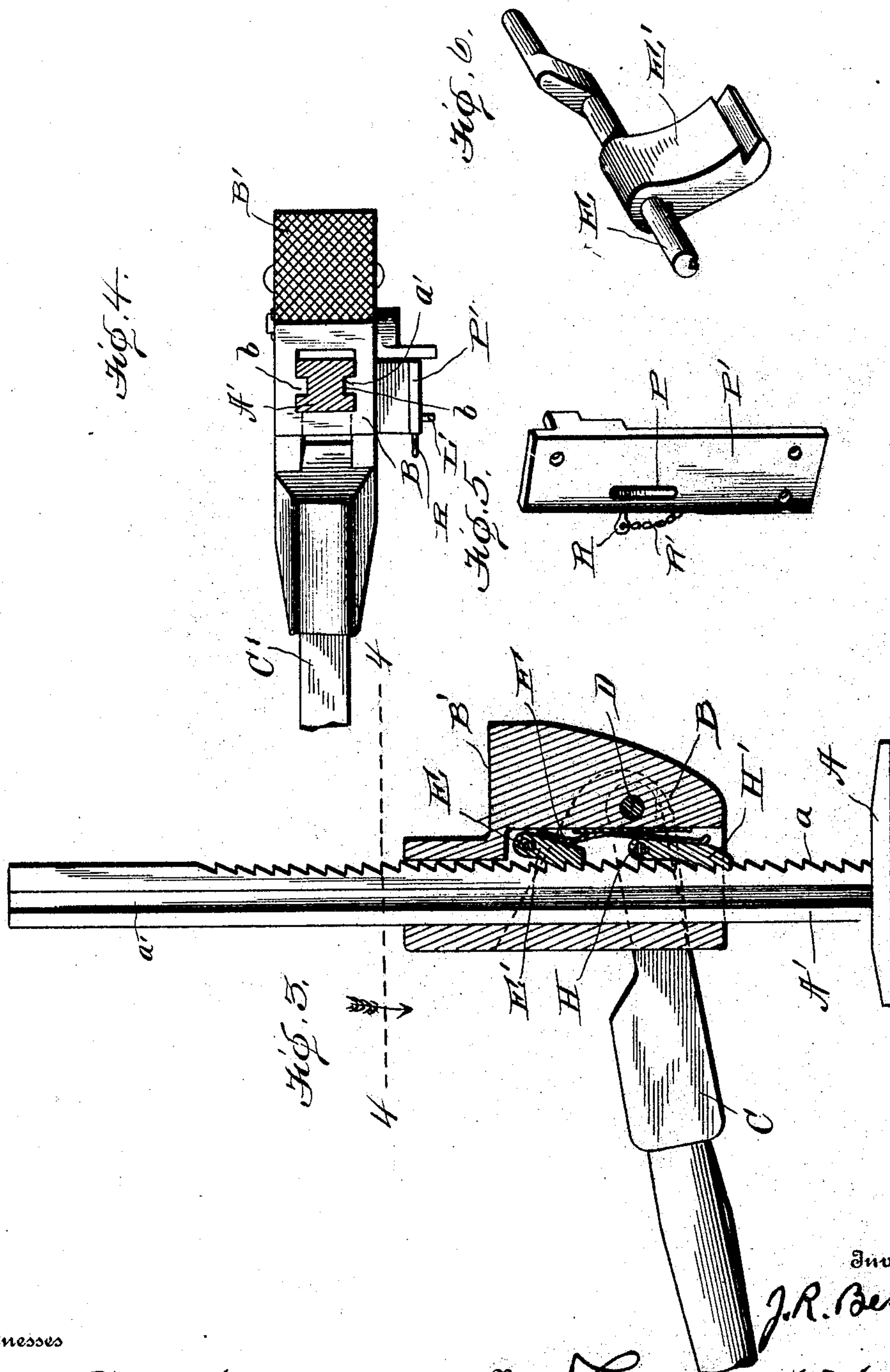
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UNITED STATES PATENT OFFICE.

JOSEPH R. BEST, OF DOW CITY, IOWA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 765,353, dated July 19, 1904.

Application filed March 14, 1904. Serial No. 198,002. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH R. BEST, a citizen of the United States, residing at Dow City, in the county of Crawford and State of Iowa, have invented certain new and useful Improvements in Lifting-Jacks; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in lifting-jacks; and the object of the invention is to provide a device of this character in which a lever ratchet and pawl apparatus is provided, whereby a weight may be raised by a step-by-step movement and also lowered by degrees by the manipulation of certain mechanism.

The invention consists, further, in various details of construction and in combinations and arrangements of parts, which will be hereinafter fully described, and then specifically defined in the appended claims.

My invention is illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings—

Figure 1 is a side elevation of my improved lifting-jack, showing the positions that the operative parts will assume when the invention is used for raising a weight. Fig. 2 is a similar view showing the adjustment of the parts to adapt the lifting-jack for lowering a weight by a step-by-step movement. Fig. 3 is a central sectional view through the lifting-jack, showing the manner of mounting of the spring-actuated pawls. Fig. 4 is a sectional view on line 4 4 of Fig. 3. Fig. 5 is an enlarged detail view showing the means for holding the mechanism in position to effect a lowering movement of a weight, and Fig. 6 is a detail view of one of the pawls or dogs. Fig. 7 is a detail view showing the bifurcated end of the operating-lever.

Reference now being had to the details of the drawings, A designates the base of the lifting-jack, from which rises a standard A',

having ratchet-teeth *a* upon one face thereof and opposite longitudinal grooves *a'*.

B designates a boxing which has a vertical play upon the standard and is chambered and provided with ribs *b*, as shown clearly in Fig. 4 of the drawings, which are guided in said longitudinal grooves *a'*.

B' designates a shoulder formed upon said boxing, upon which the article to be raised rests, and C is an operating handle or lever having a bifurcated end, the arms of which are pivotally mounted on a pin D, supported in the walls of said boxing. The opposite faces of said boxing are cut away, forming shoulders which limit the tilting movement of said lever in opposite directions, and a crank-pin E, a detail view of which is shown in Fig. 6 of the drawings, is pivotally mounted in said boxing and has a dog or pawl E', keyed thereto, which is adapted to engage said ratchet-teeth *a*. A spring F is mounted in the wall of the chambered portion of the boxing and one end thereof bears yieldingly against said pawl E' and is designed to normally hold the same in engagement with the ratchet-teeth *a*. A second crank-pin H, similar to the crank-pin E, is pivotally mounted in the arms of the bifurcated end of the lever C, and keyed to said crank-pin H is a pawl H', which is held by spring F', normally in engagement with the teeth *a'*.

Referring to Figs. 1 and 2 of the drawings, it will be observed that in a recessed portion of one face of said boxing are mounted two pivotal links K and N, each of which is pivoted to a bar L, which has a vertical sliding movement in said recessed portion. A spring O is fastened at O' to the bottom wall of said recess, while its upper end is fastened to the link N, and the purpose of said spring is to hold the under edge of the link N against the shoulder O² of a slot opening in said recess in which the pivotal links are mounted. A third link M is pivoted at one end to a pin *m*, while its free end projects through a slot in the wall of said recessed portion, and a spring Q is fastened at one end to said link M, while its other end is fastened to the link K. A pin C' projects from one of the arms of the bifurcated end of the lever C and is adapted to

contact with the upper edge of the link M as the lever is depressed. The free end of the link K projects through a slot in the wall of the chambered or recessed portion in which the links are mounted and is disposed in the path of the crank end of the pin E, while the free end of the link N is disposed in the path of the crank end of the pin H.

Projecting from the bar L is a pin L', which has a play through a slot P in the plate P'; Fig. 2 of the drawings, which plate is fastened by means of screws P² to the side of the boxing, thus inclosing the recessed chamber in which the pivotal links are mounted. A pin R is provided, which in the drawings is shown as attached to a chain R' and is adapted to be inserted through registering holes in the walls of said slot P for the purpose of supporting the pin L' in the position shown in Fig. 2 of the drawings when it is desired to adapt the apparatus for lowering weights by a step-by-step movement.

The operation of my invention when utilized for raising an object, as disclosed by Fig. 3 of the drawings, is as follows: The weight to be raised resting on the shoulder B', the lever is raised, allowing the dog to run idly on the ratchet-teeth, and on the downward depression of the lever the pawl H' will fulcrum upon the ratchet-teeth and the housing or block may be raised. In the upward movement of said block or housing the pawl E will hold the purchase by engaging the ratchet-teeth, and the same movement may be continued, whereby the object may be raised by a step-by-step movement. In adapting the apparatus for lowering the object by degrees the pin L' is raised from the position shown in Fig. 1 to the position shown in Fig. 2, which causes the bar L and the links K and N to assume the position shown in Fig. 2, in which the link K is in contact with the crank end of the pin E and adapted when in these positions to effect a movement of said dogs as the operating-lever is raised and lowered. The effect of working the lever when the parts are in the position shown in Fig. 2 of the drawings is to cause the weight to be lowered by degrees as follows: As the lever is depressed the pin C' coming in contact with the link M will cause the latter to be tilted down and through the medium of the spring connecting the link M with the link K the latter will be drawn down and bearing frictionally against the crank end of the pin E will cause the latter to rock slightly in its bearings sufficiently to throw the pawl keyed to said crank-pin out of engagement with the ratchet-teeth, and on the upper throw of the operating-lever the moment the pin C' relieves the link M of pressure the latter will return to its normal position, and also the link K, which will cause the dog E' to engage the next lower ratchet-tooth. As the operating-lever is raised to its highest limit the crank end of the pin H coming in contact with the

link N will arrest its upper movement to cause the pin H to turn upon its pivot, which will throw the pawl H' carried thereby to raise out of the ratchet-tooth which it engages, whereby when the lever is lowered said pawl H' may engage the next lower ratchet-tooth below the one it engages on the downward movement of the lever. The moment the operating-lever is depressed the pressure will be relieved from the crank-pin H and the spring will cause the pawl H' to engage the ratchet-tooth and allow the weight to be gradually lowered by a step-by-step movement, and as the lever is raised and lowered the operation is continued until the lowest ratchet-teeth are reached by the pawls. By withdrawing the pin R the pivotal links will be allowed to assume their normal positions and the apparatus will be adapted for raising objects by a step-by-step movement.

While I have shown a particular construction of apparatus embodying the features of my invention, it will be understood that I may make alterations, if desired, in the detailed construction of the invention without in any way departing from the spirit of the invention.

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

1. A lifting-jack for raising and lowering objects, comprising a standard with ratchet-teeth thereon, a housing mounted upon said standard, an operating-lever pivotally mounted upon said housing, spring-actuated pawls carried, one by said housing and one by said lever, and adapted to engage said ratchet-teeth, and means for actuating said pawls whereby they may be alternately held out of engagement with said ratchet-teeth, whereby said housing may be lowered by a step-by-step movement, as set forth.

2. A lifting-jack comprising a standard with ratchet-teeth thereon, a housing mounted upon said standard, a lever pivoted to said housing, spring-pressed pawls pivotally mounted, one upon said housing and the other upon said lever, crank-pins upon which said pawls are mounted, and mechanism against which said crank-pins are adapted to contact to alternately hold said pawls out of engagement with the teeth of the lifting-jack, as said lever is raised and lowered, as set forth.

3. A lifting-jack comprising a standard, ratchet-teeth thereon, a housing movably mounted upon said standard, an operating-lever pivoted to said housing, crank-pins, one pivotally mounted in said housing and the other upon said lever, pawls keyed to said pins, springs for holding the dogs in engagement with said ratchet-teeth, spring-actuated links, a bar to which said links are connected, the free ends of said links adapted to be positioned in the path of said crank-pins, whereby the pawls will be alternately held out of en-

gagement with the ratchet-teeth as the lever is raised and lowered, as set forth.

4. A lifting-jack comprising a standard with ratchet-teeth thereon, a housing movably mounted upon said standard, a handle pivoted to said housing, crank-pins, one journaled in said housing and the other in said handle, pawls keyed to said crank-pins and springs for holding the same in engagement with the ratchet-teeth upon said standard, pivotal links carried by said housing, a longitudinally-movable bar to which said links are pivoted, a third link pivoted to the housing, a spring connecting said third link with one of the other links, a pin carried by said lever and adapted to contact with said third link, and means for holding the links in the paths of said crank-pins, whereby as the lever is raised and lowered, the link may be alternately thrown into and out of engagement with said ratchet-teeth, as set forth.

5. A lifting-jack comprising a standard with ratchet-teeth thereon, a housing movably mounted upon said standard, a lever pivoted

upon said housing, crank-pins journaled, one in said housing and the other upon said lever, pawls keyed to said crank, a longitudinally-movable bar carried by said housing, links pivoted to said bar with their free ends disposed in the paths of said crank-pins, respectively, a spring connecting one of said links with the housing, a third link pivotally mounted upon said housing and a spring connecting the same with the upper of said links, a pin carried by said lever and adapted to contact with said third link, a pin projecting from said bar, and means for supporting the pin carried by the bar, whereby the links may be held so that the crank-pins will contact therewith as the lever is raised and lowered for alternately raising said pawls from engagement with the ratchet-teeth, as set forth.

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

JOSEPH R. BEST.

Witnesses:

GEO. H. DAVIS,
E. H. SWASEY