No. 866,913. PATENTED SEPT. 24, 1907.

M. CARLUCCI.

LIFTING JACK.

APPLICATION FILED MAY 13, 1907.

2 SHEETS—SHEET 1.

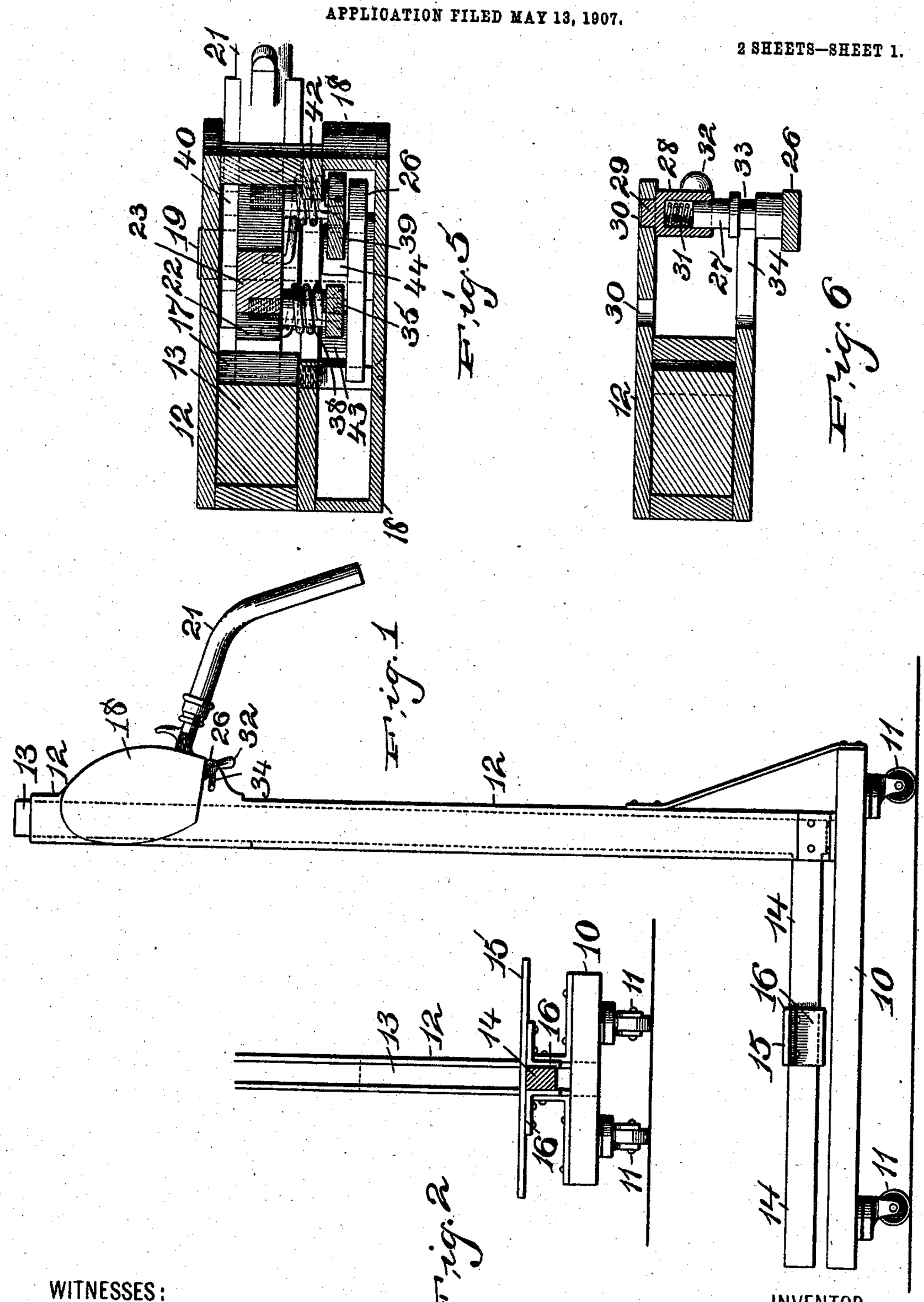

Fig. 5.

Fig. 6

Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 4

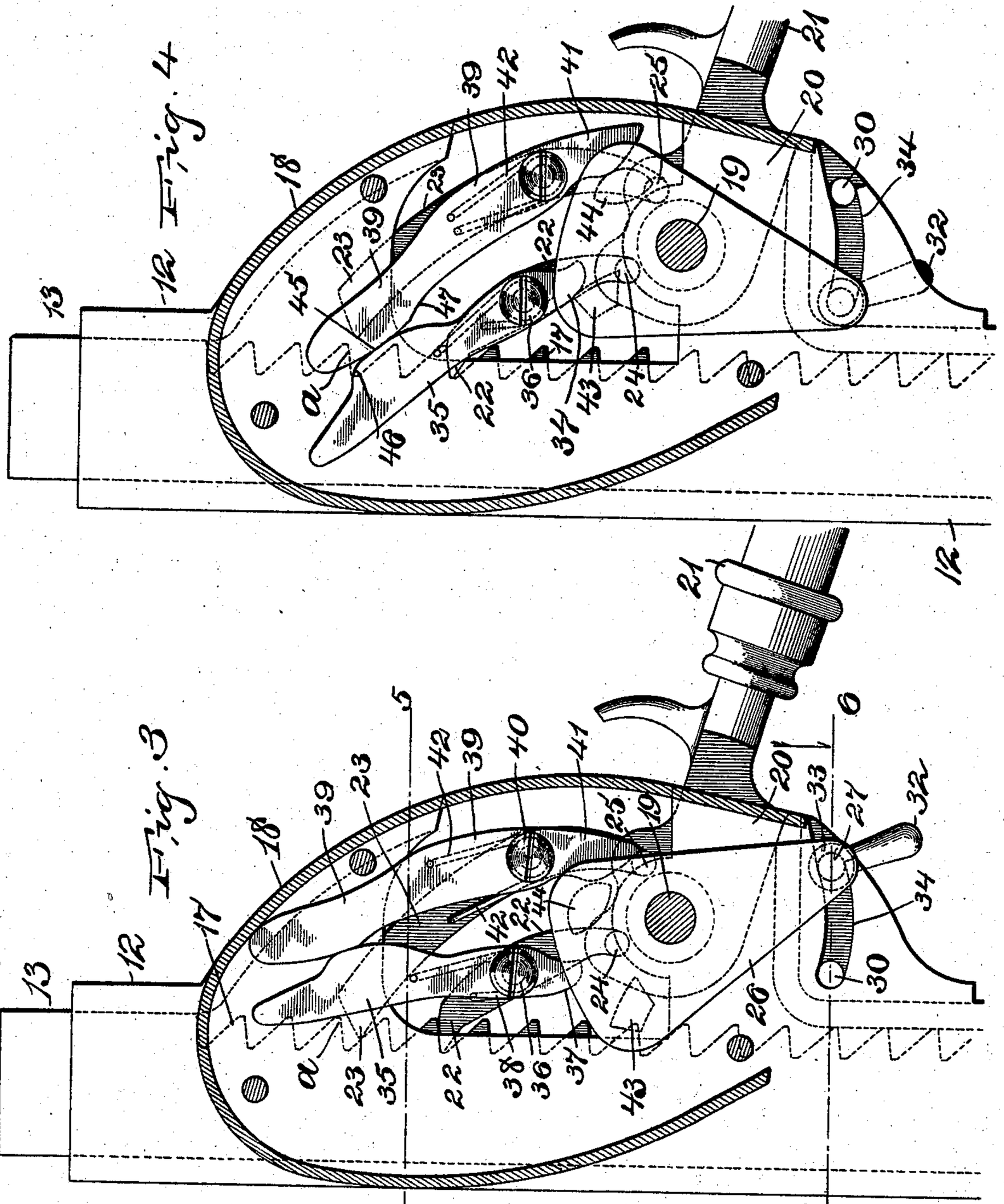

Fig. 3

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MICHAEL CARLUCCI, OF NEWARK, NEW JERSEY.

LIFTING-JACK.

No. 866,913. Specification of Letters Patent. Patented Sept. 24, 1907.

Application filed May 13, 1907. Serial No. 373,194.

To all whom it may concern:

Be it known that I, MICHAEL CARLUCCI, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby 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 figures of reference marked thereon, which form a part of this specification.

This invention relates to a lifting jack, and is primarily designed as a jack for lifting articles to be placed in narrow spaces, such as might be used by plumbers when setting a bath-tub, for instance, in a narrow place where it is necessary to put it in endwise, and the jack provides a means for lifting and lowering the article being moved, with a slight change in the operating mechanism, which is quickly accomplished and entails very little labor.

The invention is further designed to provide means for bringing out this reversal of movement so that a reciprocation of the operating lever will cause an upward step-by-step movement of the lifting arm of the jack, and a simple manipulation or throwing over of the reversing mechanism will, with a continuation of the reciprocation of the operating lever, cause a downward step-by-step movement, and in this way reversals can be brought about in quick time and with very slight operation.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is a side view of the complete jack, and Fig. 2 is an end view of the lower part thereof. Fig. 3 is a side view with part of the casing shown in section, and Fig. 4 is a similar view, but with the reversing mechanism thrown over to cause a lowering of the arm of the jack by a step-by-step movement. Fig. 5 is a section on line 5, 5, in Fig. 3, and Fig. 6 is a section on line 6, 6, in Fig. 3.

The jack comprises a platform 10 mounted on rotating casters 11 that allow the jack to be moved in any direction, and a hollow standard 12 is erected on the platform to form a casing for the lifting arm 13, which is adapted to slide in the standard 12, and has a right-angled portion 14. The right-angled portion is used principally for lifting articles close to the ground, and in the case of a large article to be lifted, a removable plate 15 is used which is held in place, when it is on the right-angled portion 14, by means of the ears 16 which are fastened to the plate 15.

As will be seen from Figs. 3 and 4, the lifting arm 13 is provided with teeth 17, and adjacent to the standard 12, and secured thereto, is a casing 18 which contains some of the mechanism for causing reversal of movement. Journaled in the standard 12 and the casing 18 is a shaft 19 which acts as a fulcrum for a lever 20 which has an extension forming a hand-piece 21, for manual operation. On each side of the shaft 19, and secured to the lever 20, are a pair of pawls 22 and 23. These pawls are pivoted at 24 and 25 respectively, and swing on these pivot points.

Loosely mounted on the shaft 19 is a reversing plate 26 which is held in either of two positions by means of a pin 27 which is secured thereto, and on the end of which is a sleeve 28 having a projection 29 to fit in one of the two perforations or holes 30 in the standard 12, the pin being engaged by the action of the spring 31, and being disengaged from the holes by the manual manipulation of the handle 32. The handle serves to operate to throw this reversing plate in one or the other direction, and also serves as a locking means, the pin 27 having a recess portion 33 which runs in the groove 34 in the standard 12. Secured to the pawl 22 is a finger 35 pivoted at 36, intermediate of its ends, and having a nose 37 on its lower end. A spring 38, passing around the pivot 36 and secured to the pawl and the finger, tends to throw them apart to a certain extent. A second finger 39 is fastened intermediate of its ends, at 40, to the pawl 23, and it also has a nose 41 projecting down therefrom.

When the reversing plate is in the position shown in Fig. 3, and the hand-lever 21 is operated, it being shown at its lower position similar to the one in Fig. 1, it is raised and the pawl 23 is forced upward, lifting the arm 13 by engagement with one of the teeth 17, and on the completion of the upward stroke of the hand-lever, the arm having been raised, the pawl 22 has been dropped by reason of that portion of the lever having gone down when the hand manipulated end went up, and then on a reverse direction of the hand-lever, the pawl 22 will lift and the pawl 23 ride down to engage the next tooth to the one it previously engaged. In this way a steady step-by-step movement causes the raising of the arm 13, and consequently the right-angled portion 14, and any lifting necessary is easy and smooth.

When the arm 13 is to be lowered, the reversing plate 26 is manipulated by the handle 32 and locked in its other position as shown in Fig. 4, and in this case a block 43 engages the nose 37 of the finger 35, and the finger is tilted to the position shown in Fig. 4. A second block 44 engages the lower end 41 of the finger 39 and it is thrown over, in the position shown in Fig. 4, engaging the finger 35. The finger pulls over with it the pawl 23, moving it on its fulcrum 25, and is drawn away from the teeth 17 of the arm 13. When the handle 21 is lifted upward, the pawl 22 goes down and lowers the arm 13, and the pawl 23 rides up, and the finger 39 going up with it, by reason of having its end 41 riding over the block 44, and its edge 45 riding on the finger 35, causes the end of the pawl 23 to skip or ride over the tooth a with which it was previously en-

gaged in Fig. 3, and it engages the next higher tooth, this being permitted by reason of the edge 46, of the finger 35, slipping into the recess 47 of the finger 39. On a reverse motion the pawl 23, engaging the teeth 17 and sustaining the weight of the arm 13, is held in engagement with the teeth, and the pawl 22 being released is forced backward and rides out of engagement with the teeth, a tooth 17 passing it on the descent of the arm 13, the pawl being held back by reason of the nose 37 engaging the block 43, and in this way the reciprocation of the hand-lever causes a steady step-by-step downward movement of the arm 13, by causing the alternate engagement and lowering of each pawl with the teeth of the arm. The reversing plate 26, in conjunction with the fingers 35 and 39, offers an easy means for changing the direction of movement of the arm 13 through the pawls 22 and 23.

This jack is inexpensive to make, and the operating mechanism occupies but a small space, and a compact, neat device is the result.

Having thus described my invention, what I claim is:—

1. A lifting jack comprising a support embodying a standard, an arm sliding in the standard and having teeth on one edge, a lever pivoted in the standard and having a portion projecting therefrom providing for its manual manipulation, a pair of pawls pivoted to the lever on opposite sides of its fulcrum, the pawls on their outer end engaging the teeth of the arm, a reversing plate, an operative connection between the reversing plate and the pawls to cause a pawl not in engagement with a tooth to be lifted away therefrom when in one position, the reversing plate being arranged to swing on the pivot of the lever, and means on the end of the plate for locking it to the support in its operative and inoperative positions and to cause the engagement of the disengaged pawl with a tooth when in the other position.

2. A lifting jack comprising a standard, an arm sliding in the standard and having teeth on one edge, a lever pivoted in the standard and having a portion projecting therefrom providing for its manual manipulation, a pair of pawls pivoted to the lever on opposite sides of its fulcrum, the pawls on their outer edges being adapted to engage the teeth of the arm, fingers pivoted to the pawl intermediate of their ends, a reversing plate swinging on the pivot of the lever and adapted to engage the fingers to cause the pawls to be drawn away from the teeth of the arm, and means on the projecting end of the reversing plate for operating it and locking it to the support in its operative and inoperative positions.

3. A lifting jack comprising a support embodying a standard, an arm sliding in the standard having teeth on one edge, a lever pivoted in the standard and having a projecting end for manual manipulation, a pair of pawls pivoted to the lever at their ends on opposite sides of its fulcrum, the pawls on their outer ends engaging the teeth of the arm, fingers pivotally secured to the pawls intermediate of their ends, springs providing a spring action between the fingers and the pawls, a reversing plate pivoted on the pivot of the lever and having lugs thereon to engage the lower end of the fingers to draw the pawls away from the teeth alternately, and spring actuated means for locking the reversing plate in its operative and inoperative positions, the locking means acting as a medium for the manual manipulation of the plate.

4. A lifting jack comprising a support embodying a standard, an arm sliding in the standard having teeth on one edge, a lever pivoted in the standard and having a projecting end for manual manipulation, a pair of pawls pivoted to the lever at their ends on opposite sides of its fulcrum, the pawls on their outer ends engaging the teeth of the arm, fingers pivotally secured to the pawls intermediate of their ends, springs providing a spring action between the fingers and the pawls, a reversing plate pivoted on the pivot of the lever and having lugs thereon to engage the lower end of the fingers to draw the pawls away from the teeth alternately, a pin on the end of the reversing plate, a sleeve having a projection thereon, and a handle on the sleeve, the support having a groove therein to receive the pin and having holes with which the projection of the sleeve is adapted to come in register to lock the reversing plate in its operative and inoperative positions.

In testimony, that I claim the foregoing, I have hereunto set my hand this 9th day of May, 1907.

MICHAEL CARLUCCI.

Witnesses:
WM. H. CAMFIELD,
E. A. PELL.