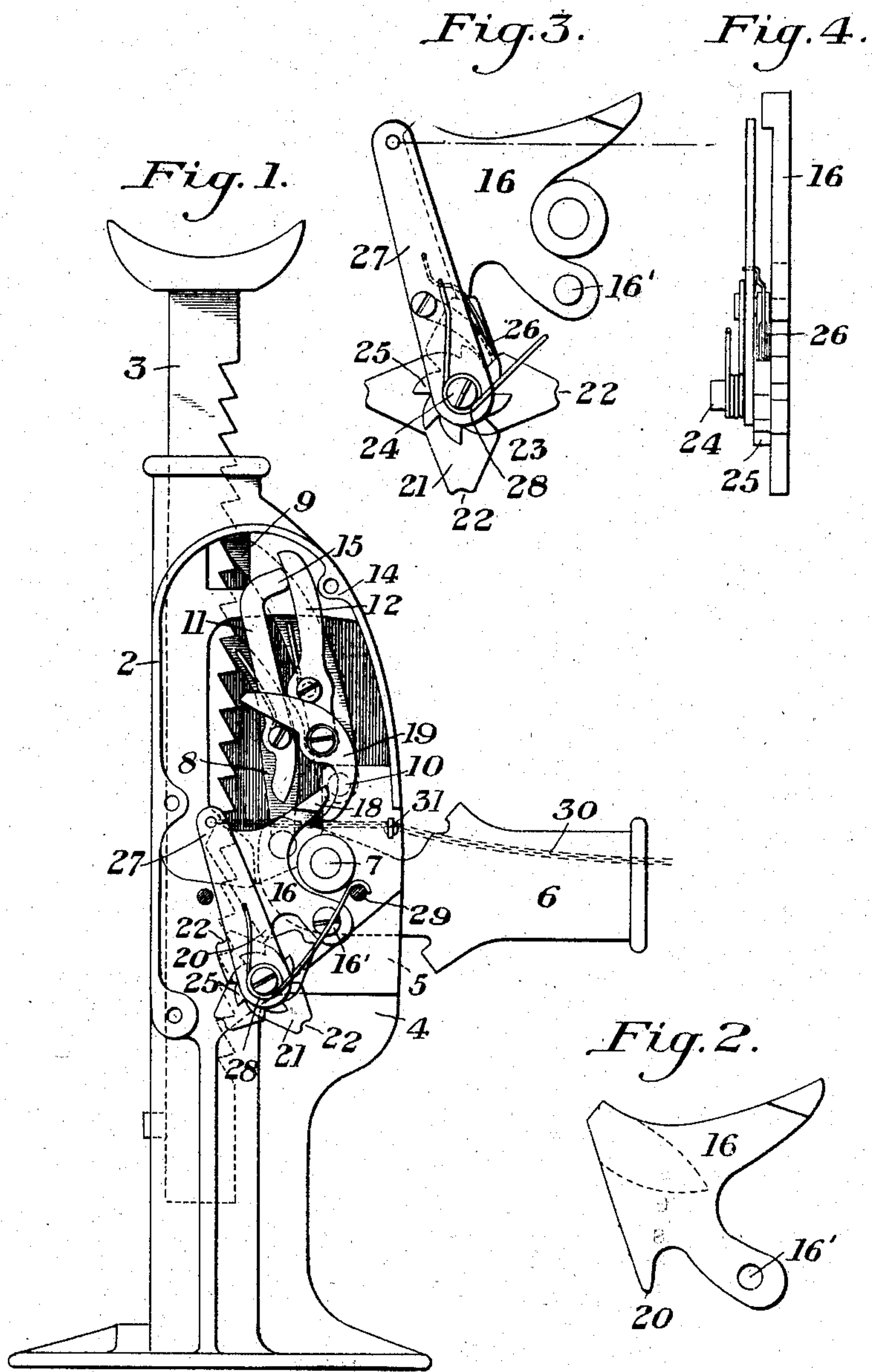


No. 874,061.

PATENTED DEC. 17, 1907.

G. F. FREED.
LIFTING JACK.
APPLICATION FILED MAR. 25, 1907.



WITNESSES

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UNITED STATES PATENT OFFICE.

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LIFTING-JACK.

No. 874,061.

Specification of Letters Patent.

Patented Dec. 17, 1907.

Application filed March 25, 1907. Serial No. 364,286.

To all whom it may concern:

Be it known that I, GEORGE F. FREED, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Lifting-Jack, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation with the face plate removed showing my improved form of jack; Fig. 2 is a detail view of the tripping plate; and Figs. 3 and 4 are detail views of parts hereinafter referred to.

My invention relates to the class of lifting jacks which give a step by step movement in either direction; and particularly to the well known "Barrett" type of jack.

The object of the invention is to avoid the side thumb nut which has heretofore been employed, and provide an improved reversing device having operating means which extend and may be actuated from the front of the jack.

It is also designed to provide a reversing lever which will be within the side limits of the frame.

In the drawings in which I show my invention as applied to the well known Barrett type of jack, 2 represents the frame and 3 the lifting bar which moves longitudinally therein. The frame is preferably provided with a flange 4 and socket 5 receiving the inner end of the operating lever 6. This lever is pivoted on a pin 7 extending through the sides of the socket, and to said lever at a point in front of the fulcrum is pivoted a pawl 8 engaging the ratchet teeth on the bar 3. The pawl or detent 9 is pivotally mounted on a pin 10 passing through the sides of the socket, this detent being outside of the pawl 8 and engaging the bar teeth about it. The pawls 8 and 9 are normally held in engagement with the ratchet teeth of the bar by levers 11 and 12 pivoted to them. Around the pivots of the levers 11 and 12 are placed coil springs, one end of each spring being connected to the lever at or near its upper end, while the other end is connected to the corresponding pawl. These springs are arranged to force the upper ends of the levers outwardly or to the right, and the lower ends thereof inwardly or to the left, as shown in Fig. 1; but as the outward movements of the upper ends are prevented

by a shoulder or stop 14 on the frame or stand, the lever 12 bearing against said stop, and a projection 15 on the lever 11 bearing against the lever 12, the lower portions of the levers are forced inwardly or to the left, thereby moving the pawls into engagement with the ratchet-teeth on the bar 2.

In the lifting-jack constructed as hereinbefore described, the lifting-bar is raised during the downstroke of the operating-lever 6, and held in such raised position by the pawl or detent 9 during the upstroke of said lever, the pawl 8 and detent 9 being held against the ratchet-teeth of the lifting-bar by the spring-levers 11 and 12.

In order to lower the bar or permit the movement under the action of the load, the above-described operation of the pawls must be reversed, i. e., the pawl or detent 9 must be held away from the bar 2 during the upstroke of the operating-lever and caused to engage one of the teeth of the bar at the end of such stroke, while the pawl 8 must be held away from the ratchet-teeth during the downstroke of the lever, and at the end of such downstroke must engage one of the teeth of the bar 2 and retain such engagement until the end of the upstroke, when it is forced out of engagement with the ratchet-teeth again. It will be understood that the outer end of the lever 6 is referred to in the above statements as to the directions of the stroke. This reversal of the normal operation of the pawl and detent is effected by the tripping-plate 16, (see Fig. 2), provided on its inner face with a projection 17 having a suitably-shaped cam-surface for engagement with the lower end of the lever 11, and with a bearing-point or stop 18 for engagement with the auxiliary or releasing lever 19, pivoted on the lower end of the lever 12, as shown in Fig. 1.

The tripping plate 16 is pivoted to the abutment of the frame at 16', and its lower forward end is formed with a nose 20 which is supported by a star wheel 21. This wheel has a series of teeth or projections, the apex of each of which is preferably formed with a slight indentation 22 to retain the nose of the tripping plate, and between these two adjacent teeth is a depression 23 in which the nose of the tripping plate is also adapted to rest.

The star wheel 21 is loosely mounted on a stud 24, and has secured thereto a ratchet

wheel 25, the teeth of which are arranged to be engaged by pawl 26 which is pivoted to a lever arm 27 loosely fulcrumed on the stud 24. A spring 28 is coiled to the stud 24 with one of its ends connected to the lever arm and its other end to a fixed pin or stud 29. Attached to the lever arm is a cord, chain, or link 30 which extends through a guiding eye or lug 31 of the frame, in a direction parallel to the operating lever.

When lifting the bar step by step, the parts are in the position shown in Fig. 1, with the nose of the tripping plate resting in the depression between two of the teeth of the star wheel. When it is desired to reverse the operation for the purpose of lowering the bar step by step, the chain, link, or cord, 31 is pulled, thereby causing the operation of the pawl and ratchet to move the star wheel a sufficient distance to cause the nose of the tripping plate to ride on to the top of the next adjacent tooth. This forces the tripping plate upwardly and toward the right, thereby bringing the projection 17, and the bearing point on the stop 18 into operative relation with the lever 11 and the auxiliary or releasing lever 19, thereby effecting a reversal of the pawls. Another pull on the chain or cord 31 will permit the tripping plate to drop into one of the depressions of the star wheel which returns the parts to their former position for lifting the bar.

The lifting and lowering movements of the bar will be obvious, being the same as in the ordinary Barrett jack. The feature of my invention consists in the novel form and arrangement of the tripping plate in connection with the reversing mechanism therefor, which may be operated from the front of the jack.

The advantages of my invention result from the provision of reversing mechanism which may be actuated from the front, thereby obviating the necessity for reaching through a wheel when the jack is used in connection with automobiles or other vehicles. The construction also enables the jack cas-

ing to be placed along the side wall or other obstruction which would prevent access to the ordinary reversing button at the side of the Barrett jack.

Various changes may be made in the form and arrangement of the tripping plate, and of the reversing mechanism therefor, without departing from my invention, since

What I claim is:—

1. In a step by step raising and lowering jack, a tripping plate, a rotatable member adapted to hold said plate in either one of two positions, and means for actuating said member to rotate it in one direction only; substantially as described.

2. In a step by step raising and lowering jack, a tripping plate, a toothed reversing wheel therefor, and means for rotating the wheel; substantially as described.

3. In a step by step raising and lowering jack, a tripping plate, a toothed reversing wheel therefor, lever and pawl and ratchet mechanism for operating said wheel, and means for operating the lever; substantially as described.

4. In a jack of the Barrett type having step by step raising and lowering mechanism, a pivoted tripping plate, a star wheel arranged to hold the tripping plate in either one of two positions, and means for actuating said wheel from the front of the jack; substantially as described.

5. In a step by step raising and lowering jack, a tripping plate, a rotatable member adapted to hold said plate in either one of two positions, said member having a plurality of plate actuating projections, and means for actuating said member to rotate it in one direction only; substantially as described.

In testimony whereof, I have hereunto set my hand.

GEORGE F. FREED.

Witnesses:

J. O. JACKSON,
A. E. ASH