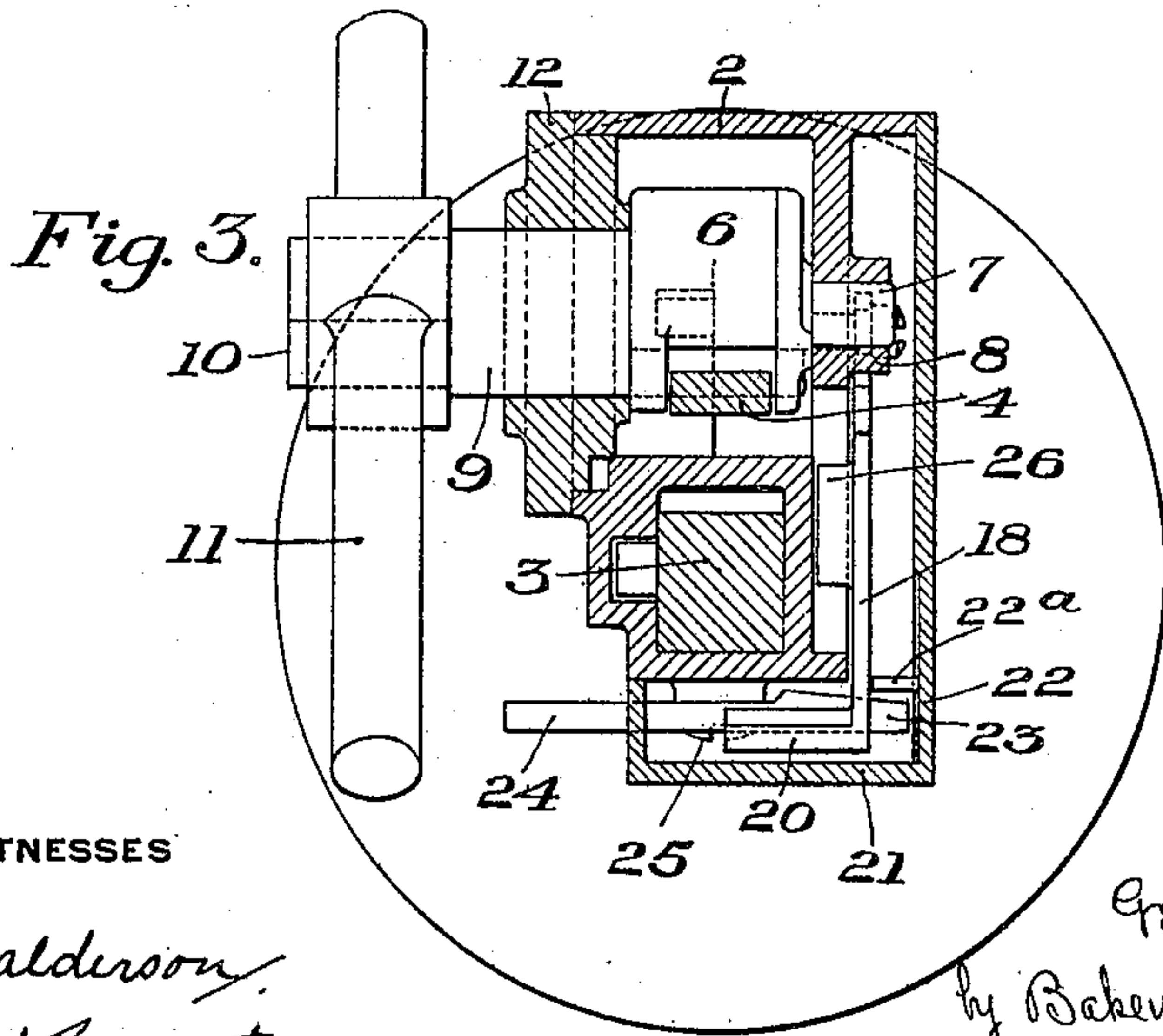
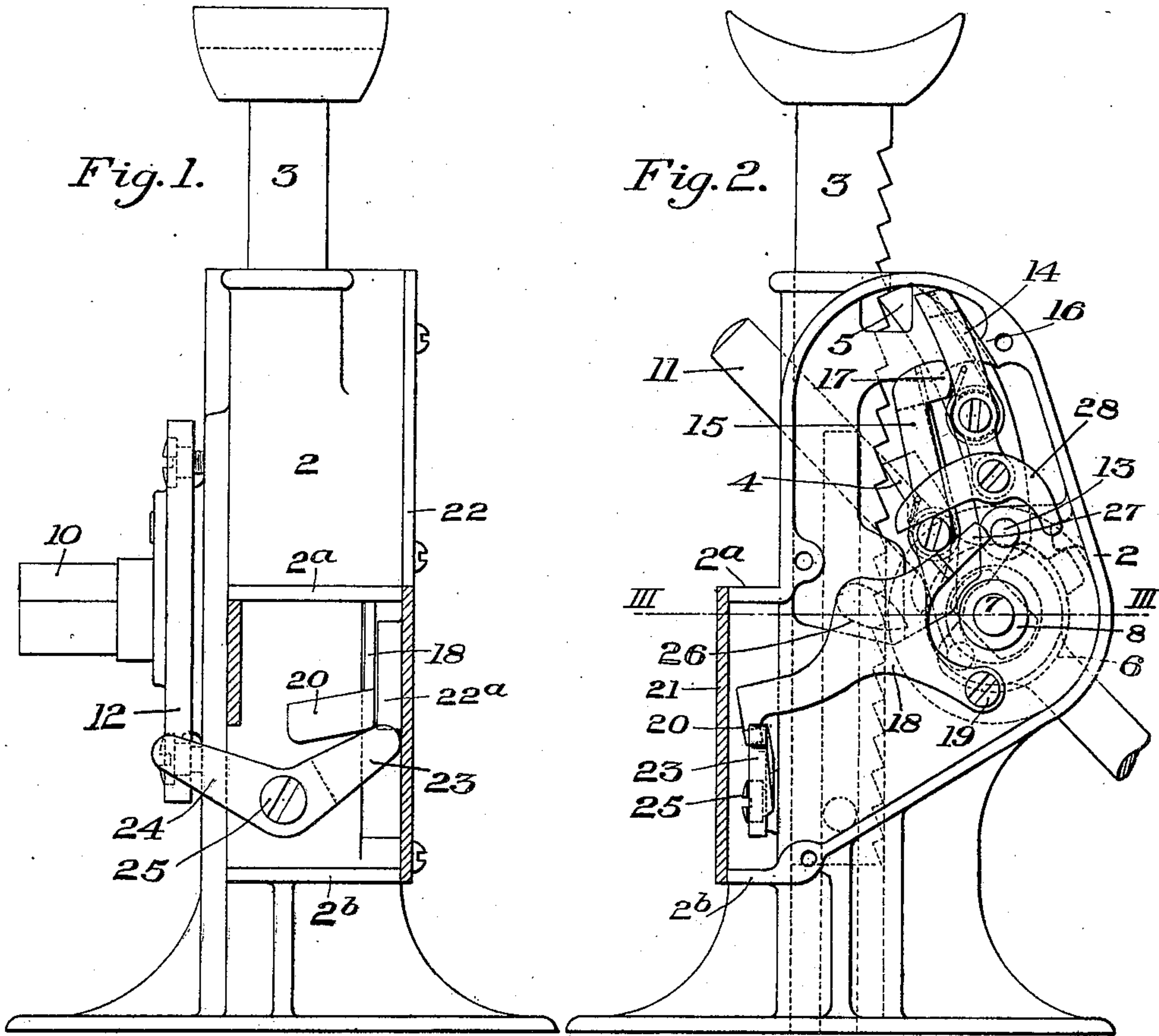


G. F. FREED.
LIFTING JACK.
APPLICATION FILED OCT. 7, 1907.

922,412.

Patented May 18, 1909.



WITNESSES

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UNITED STATES PATENT OFFICE.

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LIFTING-JACK.

No. 922,412.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed October 7, 1907. Serial No. 396,161.

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 an end view of a jack embodying my invention, with the casing partly in section; Fig. 2 is a side view of the same with a side plate of the casing partly removed and partly in section; and Fig. 3 is a cross-section on the line III—III of Fig. 2.

My invention has relation to the class of lifting jacks having a step by step movement in either direction; and particularly to the well-known "Barrett" type of jack.

An object of my invention is to provide means whereby the jack of this type may be operated from one side instead of by a lever bar projecting outwardly through the end of the jack casing as heretofore. Jacks of this character are frequently required for use where there is not sufficient room to admit of the operation of a lever bar of the usual character, and it has been found desirable to provide a jack which could be readily and efficiently operated from the side.

A further object of my invention is to provide a reversing lever which can also be operated from the side.

In the drawings, in which I show my invention as applied to the well-known Barrett type of jack, 2 represents the frame of the jack, and 3 the lifting bar which moves vertically therein. The frame 2 is preferably entirely closed at the side through which the socket for the operating lever usually projects.

4 designates the short or lifting pawl, and 5 the long pawl, or retaining pawl, these two pawls being arranged to alternately act upon the ratchet teeth of the lifting bar in the usual manner. The pawl 4 is pivotally connected to a carrier 6. This carrier has a trunnion or journal 7 provided with a bearing at 8, in one of the side walls of the casing, and at its opposite end has an enlarged bearing extension 9, which projects outwardly through an opening in the opposite side wall of the casing, and is formed at its projecting end with a seat 10 to receive a bar or tee wrench 11, or other suitable operating de-

vice. To provide a bearing for the extended portion 9 of the carrier, I preferably employ a separate plate 12, which closes the opening in the side of the casing, and which is removably secured to the casing so that the pawl-carrier can be inserted into and removed from the casing from the side. It will be readily seen that the jack can in this manner be conveniently and effectually operated from the side, and inasmuch as the wrench 11 may have a shank portion of any suitable length, this operation can be effected from a considerable distance from one side of the jack. For instance, the socket shank of the wrench 11 may be sufficiently long to project between the spokes of a vehicle wheel and extend from the jack to the outside of the wheel, so that the jack can be operated in connection with automobiles, where it would not be possible to operate the ordinary lever type of jack.

The pawl or detent 5 is pivoted to the frame at 13. The pawls 4 and 5 are normally held in engagement with the ratchet teeth of the bar by the levers 14 and 15, and having coil springs placed around their pivots, 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 in the usual manner. These springs are arranged to force the upper ends of the levers outwardly or to the right, looking at Fig. 2, and the lower ends thereof inwardly or to the left, but as the outward movement of the upper ends is prevented by a shoulder or stop 16 on the frame, the lever 14 bearing against such stop, and a projection 17 on the lever 15 bearing against the lever 14, 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 one oscillation of the pawl-carrier 6, and is held in such raised position by the pawl or detent 5 during the reverse oscillation of said carrier, the two pawls being held against the ratchet teeth of the lifting bar by the spring levers 14 and 15. In order to lower the bar with its load, this described action of the pawls must be reversed, i. e., the pawl or detent 5 must be held away from the bar 3 during the up-stroke of the operating lever, and caused to engage one of the

teeth of the bar at the end of said stroke, while the pawl 4 must be held away from the ratchet teeth during the down-stroke of the lever, and at the end of such down-stroke must engage one of the teeth of the bar 3 and retain such engagement until the end of the up-stroke, when it is again forced out of engagement with the ratchet teeth. This reversal of the normal direction of the pawl and detent is effected by the tripping member 18, which is pivoted to the frame at 19, and has its free end portion bent around the corner of the frame as shown at 20, into a supplemental casing portion formed by the flanges 2^a and 2^b of the main frame and by the flange 21 of the removable side plate 22. The bent end or nose 20 of the tripping member 18 rests on the arm 23 of the reversing lever 24, which is pivoted at 25 within the supplemental casing described, with its operating arm projecting outwardly at the same side of the jack as the wrench seat extension 10 of the pawl-carrier 6. When lifting the bar step by step, the parts are in the position shown in Fig. 2, with the bent nose 20 of the tripping member resting on the arm 23 of the reversing lever, as shown in Figs. 1 and 2. When it is desired to lower the bar step-by-step, the projecting end of the arm 24 is pushed down, thereby lifting the arm 23 and raising the tripping member on its pivot until the cam projection 26 thereon engages the lower portion of the lever 15 and rocks the part 4 away from the teeth on the bar 3. The arm or projection 27 of the tripping member also engages the auxiliary lever 28, which is pivoted on the lower portion of the lever 14. This causes the lever 28 to act on the lever 14 to force the pawl 4 to take the load when it is released by the pawl 5. The operation of this reversing member is similar to that employed in the ordinary Barrett type of jack, except in the means provided for its actuation from the side of the jack in the manner described. The movements of the parts in step-by-step raising and step-by-step lowering, will be obvious, being the same as in the ordinary Barrett jack. The tripping member may be steadied and guided in its operation by providing the side plate

22 with an inwardly extending flange or lug 22^a, which engages the tripping member and holds it to its true plane of movement.

The advantages of my invention result from the construction and arrangement of the pawl-carrier, and of the reversing devices, whereby, for the first time in the art, a jack of this type is provided which can be operated wholly from the side, thus enabling the jack to be used under conditions where there is not sufficient room for the operation of the usual lever and where the reversing devices as usually arranged would not be accessible.

What I claim is:—

1. In a step-by-step raising and lowering jack, a frame or casing having an opening at one side, a removable plate closing the said opening, and a pawl-carrier journaled in the opposite wall of the casing and in said removable plate, and having an actuating portion extending through and beyond said plate; substantially as described.

2. In a step-by-step raising and lowering jack, a lifting pawl, a holding pawl, mechanism for reversing the action of the pawls, an oscillating carrier to which the lifting pawl is connected, an actuating connection extending through one side of the jack frame or casing, and a reversing lever having an actuating member at right angles thereto extending outwardly at the same side of the casing; substantially as described.

3. In a step-by-step lowering jack, a reversing member having a nose portion, and a reversing lever at right angles thereto arranged to operate the reversing member and having an arm projecting at one side of the frame or casing; substantially as described.

4. In a step-by-step raising and lowering jack, a reversing member, and a reversing lever at right angles thereto arranged to operate the reversing member; substantially as described.

In testimony whereof, I have hereunto set my hand.

GEORGE F. FREED.

Witnesses:

GEO. B. BLEMING,
GEO. H. PARMELEE.