W. McH. ALSTON & I. E. HINDMAN.

LIFTING JACK.

APPLICATION FILED JAN. 26, 1915.

1,147,476.

Patented July 20, 1915.

2 SHEETS—SHEET 1.

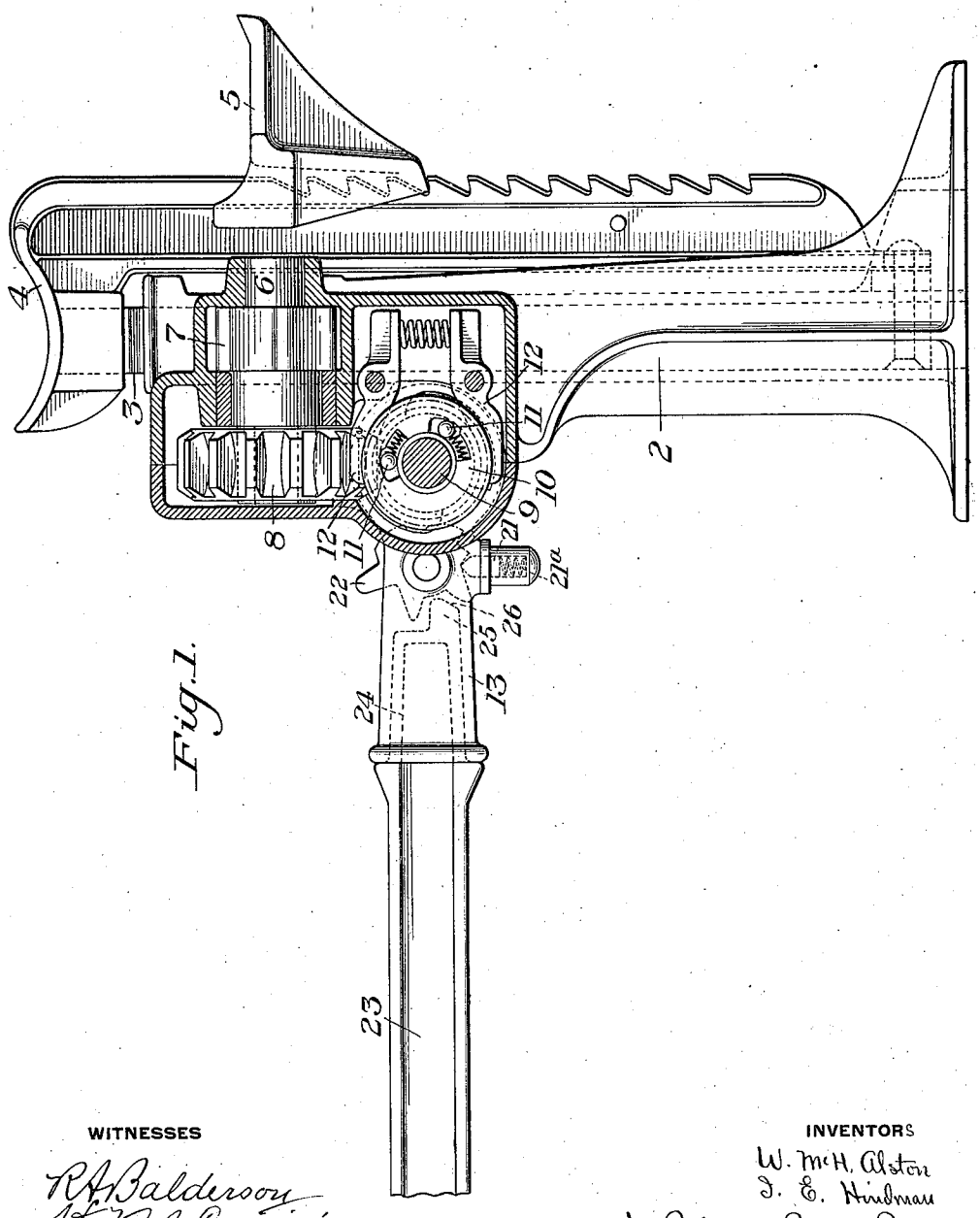


Fig. 1.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

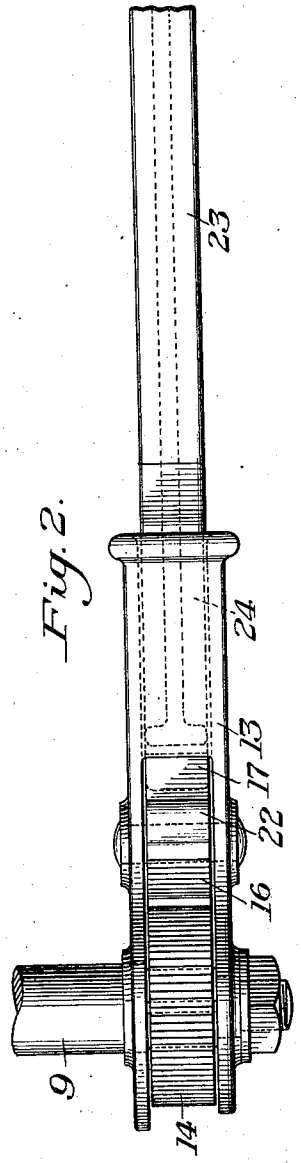


Fig. 3.

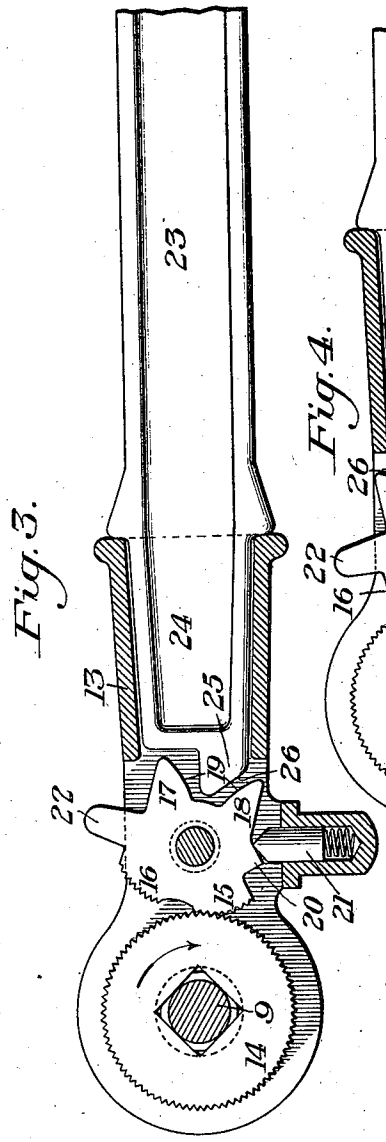
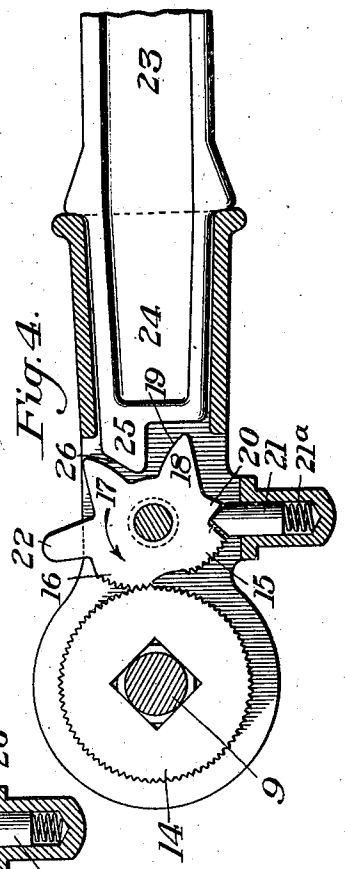


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LIFTING-JACK.

1,147,476. Specification of Letters Patent. Patented July 20, 1915.

Application filed January 26, 1915. Serial No. 4,449.

To all whom it may concern:

Be it known that we, WALTER McH. ALSTON and ISAIAH E. HINDMAN, both citizens of the United States, residing, respectively, at Ben Avon and at Oakmont, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Lifting-Jacks, 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 view partly in side elevation and partly in vertical section showing our invention applied to one form of jack; Fig. 2 is a plan view of the operating mechanism; Fig. 3 is a sectional elevation of the same; and Fig. 4 is a view similar to Fig. 3, but showing the operating devices reversed.

Our invention has relation to lifting jacks, and more particularly to the actuating mechanism therefor.

The invention is particularly applicable to lever-operated jacks, and is designed to provide means whereby the action of the jack may be readily reversed by manipulation of the actuating lever.

Lifting jacks are often used in places, as, for instance underneath automobiles, where it is more or less inconvenient to get at the jack for the purpose of reversing its action. Our invention provides means of simple character whereby this reversal can be effected from a point outside the structure or machine in connection with which the jack is being used.

The particular form of jack illustrated in the drawings forms no part of the present invention, but is described and claimed in our copending application Serial No. 4450 filed January 26, 1915. The invention is not limited in its application to this particular form of jack, which is shown for the purposes of illustration only.

In the accompanying drawings, the numeral 2 designates the frame of the jack, 3 the vertically movable lifting bar, 4 the rest, 5 a supplemental rest, 6 a pinion shaft carrying a pinion 7 for engagement with the usual rack teeth on the lifting bar, 8 a worm wheel on said shaft 6, which is actuated by a worm on the shaft 9, and 10 a brake disk adapted to be automatically connected and disconnected with the shaft 9 through the medium of the clutch members 11. 12 designates spring-actuated brake shoes which coöperate with the disk. These parts, as above stated, form no part of the present invention.

13 is a lever socket, which is bifurcated at its forward end, the bifurcated portions loosely engaging one end portion of the shaft 9. Fixedly secured to said shaft within the bifurcated portion of the lever socket is a wheel 14. Rotatably journaled in said lever socket adjacent to the periphery of the wheel 14 is a cam pawl of the following construction. This pawl has two eccentric cam portions 15 and 16 either one of which is adapted to contact with the periphery of the wheel 14. At the opposite side, it has the teeth or projections 17 and 18, each of which has an inner beveled face 19. At its lower side, it has a double beveled tooth 20, for engagement with a spring-pressed locking pin 21. It is also shown as provided with a finger projection 22 at its upper side, by means of which it can be manually turned to reverse the jack, if desired.

23 designates a lever having an end portion 24, adapted to enter the socket portion of the lever socket, and having at its extreme inner end a projection 25, having a beveled surface 26.

The operation is as follows: When the parts are in the position shown in Fig. 3, the cam portion 16 of the cam pawl is in engagement with the periphery of the wheel 14, and when the lever 23 is moved downwardly, said pawl acts upon the wheel to rotate it in the direction indicated by the arrow in said figure. Upon the upstroke of the lever 23, the contacting surface of 16 turns idly on the periphery of the wheel 14. In order to prevent slippage between these contacting surfaces, they are preferably toothed or serrated, as indicated. The cam pawl is held in this operative position by the spring-pressed locking pin 21, which engages one side of the tooth 20. When it is desired to reverse the jack by means of the lever 23, the latter is withdrawn from the socket of the lever socket and is reinserted therein in reversed position, as shown in Fig. 4. As it is inserted into the socket in the reverse position, its beveled surface 26 contacts with the beveled surface 19 of the projection 17, and rotates the cam pawl in the direction indicated by the arrow in Fig. 4. This

action turns the pawl a sufficient distance to throw the beveled point of the pin 21 to the other side of the tooth 20, and when this occurs the action of the spring 21ª of said pin imparts a still further movement to said pawl to bring it to the position shown in said figure. To again reverse the jack, the lever is withdrawn and reinserted in the position shown in Fig. 3, when the action of the cam face 26 upon the beveled face 19 of the tooth 18, coöperating with the spring pin 21, will cause the return of the pawl to the position shown in said figure. It will be readily understood that any suitable gearing for actuating the lifting bar may be connected to the shaft 6.

The advantages of our invention will be apparent, since it provides a jack-actuating lever, by means of which the jack can be reversed, as described, without the necessity for getting at the jack itself and through the medium of said lever.

We do not desire to limit ourselves to the particular construction and arrangement of the parts constituting our invention as herein shown and described, as it is obvious that the form of the cam pawl may be changed and that changes may be made in the form and construction of the lever socket and of the actuating lever, without departing from the spirit and scope of our invention as defined in the claims.

We claim:

1. A lifting jack comprising a lifting bar, gearing connected to the lifting bar, a reversible pawl member for actuating the gearing, and a lever mounted to oscillate in a vertical plane, said lever being reversible edge for edge, and the lever and pawl having portions which engage each other in different positions of the lever as the lever is inserted in its socket to thereby reverse the pawl, substantially as described.

2. A lifting jack having an actuating lever mounted to oscillate in a vertical plane, said lever being reversible edge for edge, an actuating pawl carried by said lever and having two actuating portions, the lever having means for engaging one of said actuating portions in one of its positions, to thereby throw the pawl in one position and also to engage the other of said actuating portions in the other position of the lever to thereby throw the pawl to its reversed position, said means being operative by the entrance of the lever to its socket, substantially as described.

3. A lifting jack having a reversible actuating pawl and a detachable reversible actuating lever mounted to oscillate in a vertical plane, said pawl having two actuating portions and the lever having means which, as it is inserted in its socket, engages with one of said actuating portions in each of its reverse positions to thereby reverse the pawl, together with means for holding the pawl in its reversed positions, substantially as described.

4. A lifting jack having a reversible actuating pawl and a detachable reversible lever, said pawl and lever having coacting portions for effecting the reversal of the pawl, together with spring-actuated holding means for the pawl, substantially as described.

5. A lifting jack having a reversible actuating pawl and a detachable reversible lever, said pawl and lever having coacting portions for effecting the reversal of the pawl, together with a spring-actuated holding device arranged to exert a turning and also a holding action on the pawl, substantially as described.

6. A lifting jack having a lever socket, a reversible lever detachably engaging said socket and adapted to be received therein in either of two positions, and an actuating pawl pivotally mounted on the lever socket, said pawl and lever having cam portions which engage each other when the lever is inserted in its socket in both positions of the lever to thereby move the pawl on its pivot and reverse it, substantially as described.

7. A lifting jack having an actuating lever, a reversible cam pawl journaled on said lever and provided with beveled faced projections, and a reversible lever having a beveled portion adapted to engage the beveled faces of said projections when the lever is inserted in its socket to thereby effect a reversing movement of the pawl, substantially as described.

8. A lifting jack, having a lever socket, a reversible pawl carried by said socket, a lever adapted to enter said socket in either one of two positions, and means on the socket-entering end portion of the lever which, when the lever is inserted in the socket in one position, contacts with and thereby throws the pawl in one direction, and when the lever is inserted in its other position, contacts with and thereby throws the pawl to its reverse position; substantially as described.

In testimony whereof, we have hereunto set our hands.

WALTER McH. ALSTON.
ISAIAH E. HINDMAN.

Witnesses:
GEO. A. YOUNG,
JACOB WITTMER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."