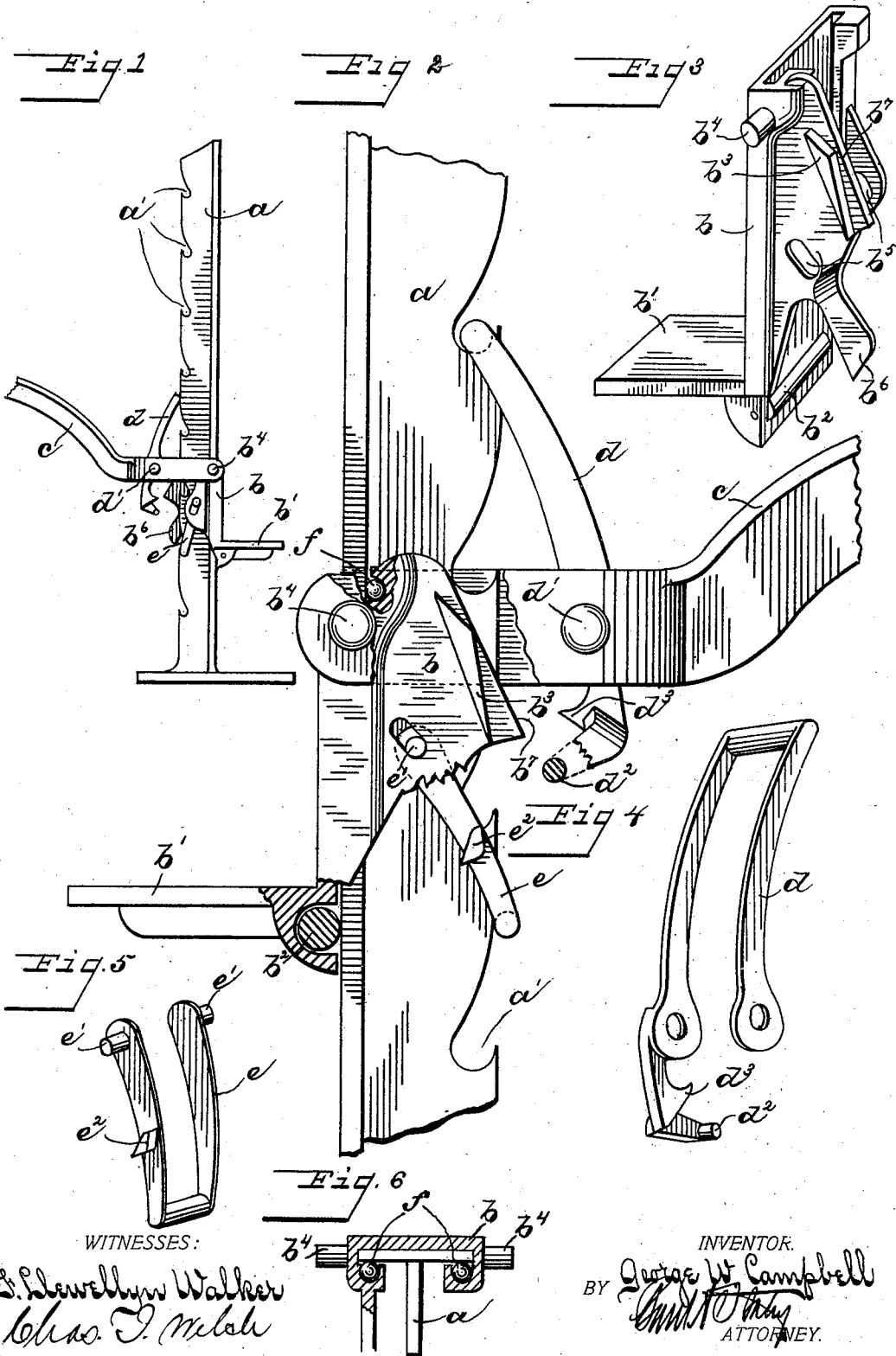


G. W. CAMPBELL.
LEVER JACK.

(Application filed Dec. 24, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE W. CAMPBELL, OF KENTON, OHIO.

LEVER-JACK.

SPECIFICATION forming part of Letters Patent No. 682,601, dated September 17, 1901.

Application filed December 24, 1900. Serial No. 40,836. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CAMPBELL, a citizen of the United States, residing at Kenton, in the county of Hardin and State of Ohio, have invented certain new and useful Improvements in Lever-Jacks, of which the following is a specification.

My invention relates to improvements in lifting-machines, and more especially to that form known as "lever-jacks."

The object of my invention is to provide a jack for both heavy and light work, simple in construction, that can be easily handled, and quick in operation. I attain these objects by the mechanisms illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the jack. Fig. 2 is an enlarged side view of the working parts of the jack partly broken away. Fig. 3 is a perspective view of the sliding frame with the lifting-foot. Fig. 4 is the lifting-pawl with the cam-face and guide-finger. Fig. 5 is a retaining-pawl with projecting cam; and Fig. 6 is a section of the upper portion of the sliding frame, showing ball-bearings.

Like parts are represented by similar letters of reference in the several views.

In the accompanying drawings, *a* represents the stock, which is preferably T-shaped in cross-section, the stem of which is formed into a rack having teeth *a'*. The sliding frame *b* on said stock is formed with the lifting-foot *b'*, projecting outwardly from its rear or closed side, and has an antifriction-roller *b²* between it and the stock *a*. It is further provided with the guides *b³* and *b⁴*, bearing-pins *b⁴*, slotted openings *b⁵*, and the projection *b⁶* for the purposes hereinafter mentioned.

The operating-lever *c* is bifurcated at its inner end and pivoted to the bearing-pins *b⁴* of the sliding frame *b*. The bifurcated lifting-pawl *d* is pivoted to a cross-rod *d'* in the bifurcated end of the lever *c*, and its upper end catches in the teeth *a'* of the rack in the manner hereinafter stated. One of the arms of the lifting-pawl *d* is provided with the projecting finger *d²*, which by reason of the movement of the lever *c* to an unusual position travels about the guide *b³* on the sliding frame *b* to throw the upper end of the lifting-

pawl *d* in and out of engagement with the teeth *a'*, and said arm is further provided with the catch *d³* for the purpose hereinafter mentioned.

The retaining-pawl *e* is pivoted by the bearing-pins *e'* in the slotted openings *b⁵* of the sliding frame *b* and catches at its lower end in the teeth *a'*. It is provided with cam-face *e²*, which the catch *d³* of the lifting-pawl *d* by reason of the movement of the operating-lever *c* to an unusual position operates to lift the retaining-pawl *e* out of engagement with the teeth *a'* of the rack. To increase the efficiency and ease of its operation, the lower end of the sliding frame *b* is formed with a recess in which the antifriction-roller *b²* operates against the rear side of said stock *a*, and the upper end of the sliding frame *b* is recessed, in which recesses the ball-bearings *f* operate against the front side of the flange of the stock *a*.

The operation of my improved jack is as follows: To lift a weight, place the jack so that the lifting-foot *b'* extends under the weight, with the retaining-pawl *e* resting in a tooth *a'* of the stock, the lever *c* extending horizontally. Then raise the lever *c*, thereby lifting the pawl *d*, and the finger *d²* of said pawl passing outside of the guide *b³* forces its upper end inwardly until by said upward and inward movement said pawl *d* catches in one of said teeth *a'*. Now by drawing the lever down the sliding frame *b*, with the foot *b'* and the weight, is lifted, and the retaining-pawl *e* by reason of its being pivoted back of the teeth will catch into the next higher tooth, and the operation may then be continued. To lower the weight, depress the lever *c* beyond its usual movement until the catch *d³* engages the cam-face *e²* and lifts the retaining-pawl *e* out of engagement, the slotted openings *b⁵* permitting this slight upward movement. Then by raising the lever *c* the retaining-pawl *e* is allowed to descend to the next lower tooth. Continue to elevate the lever *c* beyond its usual movement until the finger *d²* at the lower end of the lifting-pawl *d* is above the guide *b³*, when by reason of the upper end of the lifting-pawl passing outside of the face of the tooth *a'* the finger *d²* is thrown in and travels inside the guide *b³*,

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when the lever *c* is lowered, thereby holding the lifting-pawl *d* out of engagement until it passes the tooth in which it has been resting, and then by reason of the catch *d*³ engaging the guide *b*⁷ and the finger *d*² engaging the projection *b*⁶ the lifting-pawl is thrown into engagement with the next lower tooth, when the operation may be continued.

While roller-bearings are shown at one end and ball-bearings at the other end of the sliding frame, it is obvious that either roller-bearings or ball-bearings may be used at both ends of said frame.

Having thus described my invention, I claim—

1. In a lifting-jack, the combination with the stock having a rack on one side as an essential part thereof, of a single sliding frame on said stock, an operating-lever, a lifting-pawl on said lever and a retaining-pawl carried by said frame, whereby when said lever is operated said pawls will alternately engage said rack, substantially as specified.

2. In a lifting-jack, the combination with the stock having a rack on one side as an essential part thereof, of a sliding frame on said stock, an operating-lever pivoted to said frame, a lifting-pawl on said lever and a retaining-lever pivoted to said frame so as to normally engage said rack, whereby when said lever is operated said pawls will alternately engage said rack to lift and hold the load, substantially as specified.

3. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a sliding frame on said stock carrying a lifting-foot, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said pawl and frame which upon said lever being moved beyond its position for lifting, serve to throw said pawl out of engagement with the teeth of said rack, substantially as specified.

4. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a sliding frame on said stock adjacent to said rack and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to normally engage said rack, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said lifting and retaining

pawls which upon said operating-lever being moved beyond its position for lifting serve to throw said retaining-pawl out of engagement with the teeth of said rack, substantially as specified.

5. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a frame sliding on said stock and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to engage said rack, an operating-lever also pivoted to said frame and having a lifting-pawl pivoted thereto, and interengaging parts on said lifting and retaining pawls whereby, when the lifting-lever is moved beyond its position for lifting, the pawls will be thrown out of engagement with the rack until they have passed the teeth on said rack which they would normally engage, substantially as and for the purpose specified.

6. In a lifting-jack, the combination with a stock having a rack as an essential part thereof, of a frame sliding on said stock adjacent to said rack and provided with a lifting-foot, a retaining-pawl pivoted to said frame and adapted to normally engage said rack, an operating-lever pivoted to said frame, a lifting-pawl pivoted to said lever and interengaging parts between said lifting and retaining pawls and said frame which upon said operating-lever being moved beyond its position for lifting serve to throw said lifting and retaining pawls alternately in and out of engagement with said rack, substantially as specified.

7. In a lifting-jack, the combination with a stock T-shaped in cross-section, having a rack formed on the stem thereof, of a frame sliding on said stock having recesses in each end thereof, antifriction-bearings in said recesses to engage opposite sides of said stock, an operating-lever, a lifting-pawl on said lever and retaining-pawl carried by said frame and interengaging parts between said lifting and retaining pawls and said frame whereby when said lever is moved beyond its position for lifting, said pawls will alternately engage said rack, substantially as specified.

In testimony whereof I have hereunto set my hand this 22d day of December, A. D. 1900.

GEORGE W. CAMPBELL.

Witnesses:

CHAS. I. WELCH,
EDMOND J. OGDEN.