

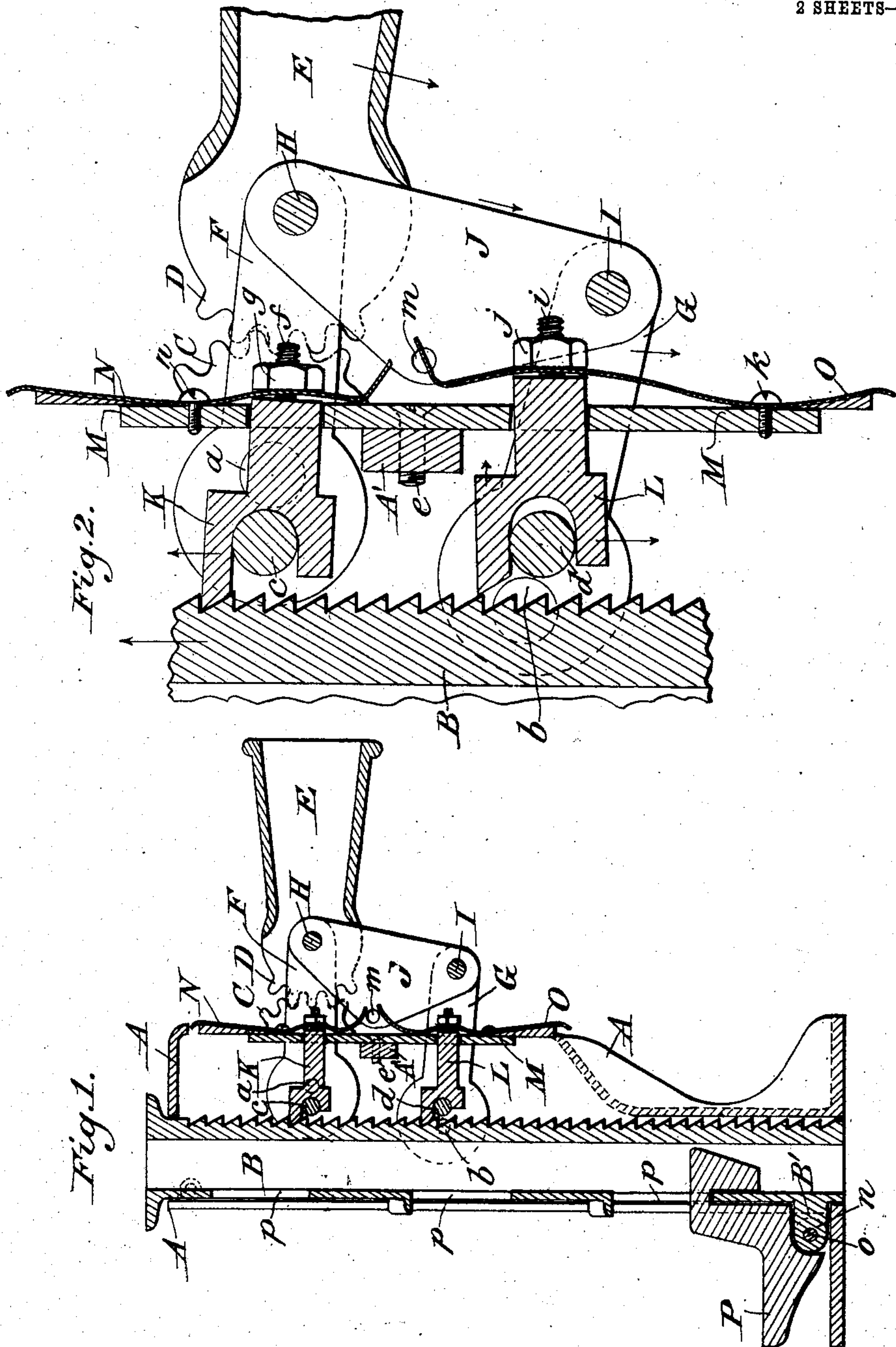
No. 835,048.

PATENTED NOV. 6, 1906.

N. WEILER.
LIFTING JACK.

APPLICATION FILED OCT. 30, 1905.

2 SHEETS—SHEET 1.



Witnesses:

J. S. Nelson
C. M. Stevens.

Inventor:

N. Weiler,
Per Hel. Gardiner. Atty.

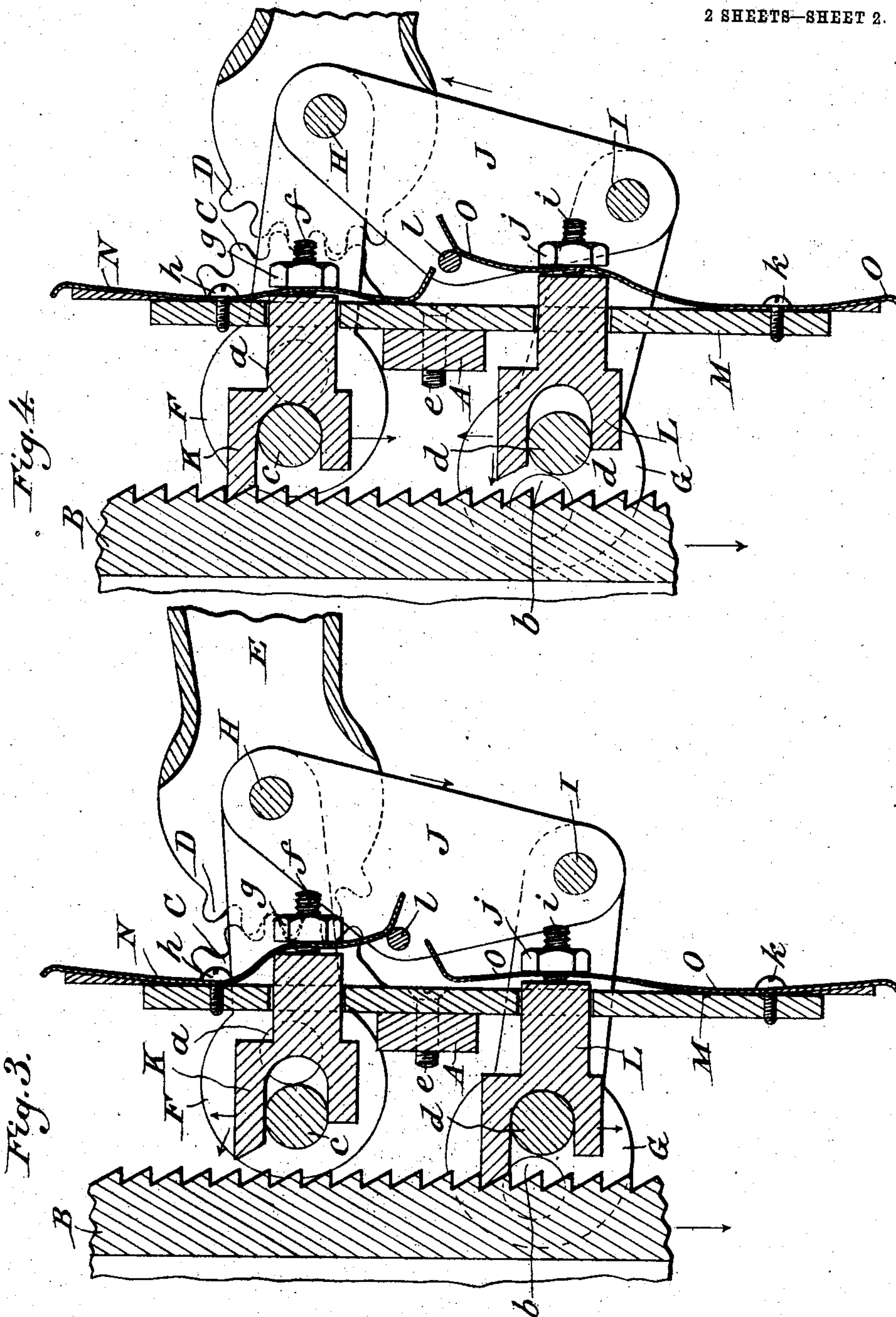
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UNITED STATES PATENT OFFICE.

NICHOLAS WEILER, OF SIOUX CITY, IOWA.

LIFTING-JACK.

No. 835,048.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed October 30, 1905. Serial No. 285,186.

To all whom it may concern:

Be it known that I, NICHOLAS WEILER, a citizen of the United States, and a resident of Sioux City, in the county of Woodbury and State of Iowa, have invented a new and useful Improvement in Triple-Lever Lifting-Jacks; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to means for raising heavy loads; and the object of the invention is to produce a new and improved lifting-jack operated by triple levers which while raising a load by the step-by-step movement may be quickly reversed and the load lowered. This I accomplish by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view showing one-half of the machine, except that the springs are shown in full. Fig. 2 is a similar view of the operating parts as the same are adjusted in raising the load. Fig. 3 is a view similar to Fig. 2, but showing the machine reversed with the lower pawl engaged. Fig. 4 is the same as Fig. 3, except that the upper pawl is engaged.

Like parts are designated by similar letters of reference throughout the several views.

In the drawings, A is a hollow frame adapted as a support and guide for the hollow toothed bar B. On each side of the face of the frame, formed integral therewith, are cogged segments C, in which the cogged forks D of the lever E are adapted to mesh. Pivotaly secured to the sides of the frame by the short shafts *a* and *b*, respectively, are the parallel bars F and G, the former set being above the latter and both working in the same plane. The inner ends of the bars F are connected by the shaft *c* between the shaft *a* and the toothed bar and the inner ends of the bars G by the shaft *d* outside of the shaft *b*, the ends of the shafts *c* and *d* being firmly secured to said bars. The outer ends of the bars F are connected by a bolt H passing freely through them and serving also as an axis or fulcrum for the forked lever E. The outer ends of the bars G are connected in the same manner by a bolt I. The two sets of parallel bars F and G are adapted to act together by means of upright parallel bars J, which connect them, the upright bars being of triangular shape, the inner angle facing the frame of the jack. The bolts H

and I pass, respectively, through the upper and lower ends of the upright bars, serving as fulcrums for the bars. A pawl K, having an enlarged head, the front of which is forked to inclose the shaft *c* as a fulcrum, is adapted to engage the toothed bar, the stem being rounded and supported freely in the opening of a flat piece M, secured to a bar A', connecting the sides of the frame, by screws *e*. A similar pawl L operates on the shaft *d*, the rounded stem of the pawl being freely supported in the flat piece M. A flat spring N is freely secured to the outer end of the pawl K by means of a threaded bolt *f* and nut *g*, and the upper part of the spring is freely secured to the piece M by a screw *h*. A similar spring O is secured to the lower pawl L by a threaded bolt *i* and nut *j*, the lower part being freely secured to the piece M by a screw *k*. The free ends of the springs are bent outward, as shown in the drawings, for a purpose presently described.

As the axis or fulcrum of the pawl K is between the axis of the bars F and the toothed bar, when the operating-lever is lowered and the outer ends of the bars lowered with it the inner end of the pawl will be raised, as indicated in Fig. 2, and the pawl being forced into engagement with the toothed bar by the spring the bar will be carried up. The fulcrum of the lower pawl being outside the fulcrum of the bars G, the movement of the lever which raises the upper pawl will lower the lower one, which slips by the teeth, and vice versa. The pawls thus alternately engage the bar when a reciprocating movement is applied to the lever. The upper and lower pawls being thus fulcrumed may be described as levers of the first and second classes, respectively, and the sets of parallel bars between which the pawls are respectively supported being connected by the upright bars J they are operated together, and thus alternately raise the load.

The triple leverage of the pawls, parallel bars, and the operating-lever fulcrumed to the bars and to the frame are all combined to raise the load in the manner described. When it is desired to lower the load in the same step-by-step process, a pin *l* is inserted through the holes *m* in the upright bars J. As the operating-lever is raised the pin is carried up by the bars J between the spring N and the flat piece M, which forces the pawl K outward. As the lever is lowered the pin is brought down between the spring O and the

piece M, which forces out the pawl L. By thus throwing one of the pawls outward at each stroke of the lever the load is lowered instead of raised. The free ends of the springs are curved outward in order that in whatever relative position the springs and pin may be the pin will pass under the springs upon coming in contact with them, as seen in Figs. 3 and 4.

10 The frame is open at the back, and an ear B', formed integral with the lower end of the upright bar B, extends through the open space and bears the rollers *n* on a shaft *o*, the rollers by contact with the adjacent sides of the frame tending to reduce the friction of the bar on the frame caused by the load. 15 The rear of the hollow bar is provided with slots *p p*, into which may be hooked the foot P. The foot is for raising low objects and may be adjusted in the slots to the height of the load it is desired to carry.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

25 1. The combination with an upright movable bar having teeth on one side thereof, and a frame supporting said bar, of normally horizontal bars fulcrumed to the frame, a pawl fulcrumed to said bars between the fulcrum of the bars and the toothed bar and adapted to engage said toothed bar, nor- 30 mally horizontal bars fulcrumed to the frame underneath said pawl, a pawl fulcrumed to said bars outside the fulcrum of said bars and adapted to engage the toothed bar, springs for normally holding said pawls in engage- 35 ment, upright bars connecting the outer ends of said parallel bars, and a lever fulcrumed to the frame and also to the outer ends of said parallel bars, substantially as described. 40

2. The combination with an upright movable bar having teeth on one side thereof and a frame supporting said bar, of normally horizontal bars fulcrumed to the frame, 45 pawls supported by said bars and adapted for engagement with said toothed bar, springs secured to said frame and attached to said pawls for normally holding said pawls in engagement, upright bars connect- 50 ing the outer ends of said horizontal bars, an operating-lever fulcrumed to the horizontal bars for alternately raising and lowering said bars, and a pin supported by said up-

right bars and adapted to be interposed alternately between said springs and the frame 55 whereby the pawls are thrown out of engagement and the movement of the toothed bar reversed, substantially as described.

3. In a lever lifting-jack, the combination with normally horizontal bars pivotally se- 60 cured to a supporting-frame, pawls pivotally supported by said bars and adapted to engage a toothed bar whereby the load is raised, springs secured to the frame and to said pawls and adapted to press the pawls into 65 engagement with the toothed bar, and a lever pivotally secured to said horizontal bars, of a pin adapted to be interposed between said springs and the frame, whereby the pawls are alternately thrown out of engage- 70 ment and the movement of the toothed bar reversed, substantially as described.

4. In a lever lifting-jack, the combination with normally horizontal bars pivotally se- 75 cured to a supporting-frame, pawls pivotally supported by said bars and adapted to engage a toothed bar whereby the load is raised, flat springs secured to the frame and to said pawls to hold the pawls in engagement, and an operating-lever pivotally secured to said 80 horizontal bars, of upright bars pivotally secured to said lever and to said horizontal bars, and a pin supported by said upright bars and adapted to be interposed alternately between said springs and the frame where- 85 by the pawls are thrown out of engagement and the movement of the toothed bar reversed, substantially as described.

5. In a lever lifting-jack, the combination with an upright movable bar having teeth on 90 one side thereof and a frame supporting said bar, of pawls pivotally secured to the frame, springs secured to said frame and to said pawls for holding the pawls in engagement with said toothed bar, a lever pivotally se- 95 cured to said frame and to said pawls for operating said pawls, and a pin adapted to be interposed between said springs and the frame for throwing the pawls out of engagement, substantially as described. 100

In witness whereof I have hereunto affixed my signature in the presence of two witnesses.

NICHOLAS WEILER.

Witnesses:

F. W. LOHR,
H. C. GARDINER.