

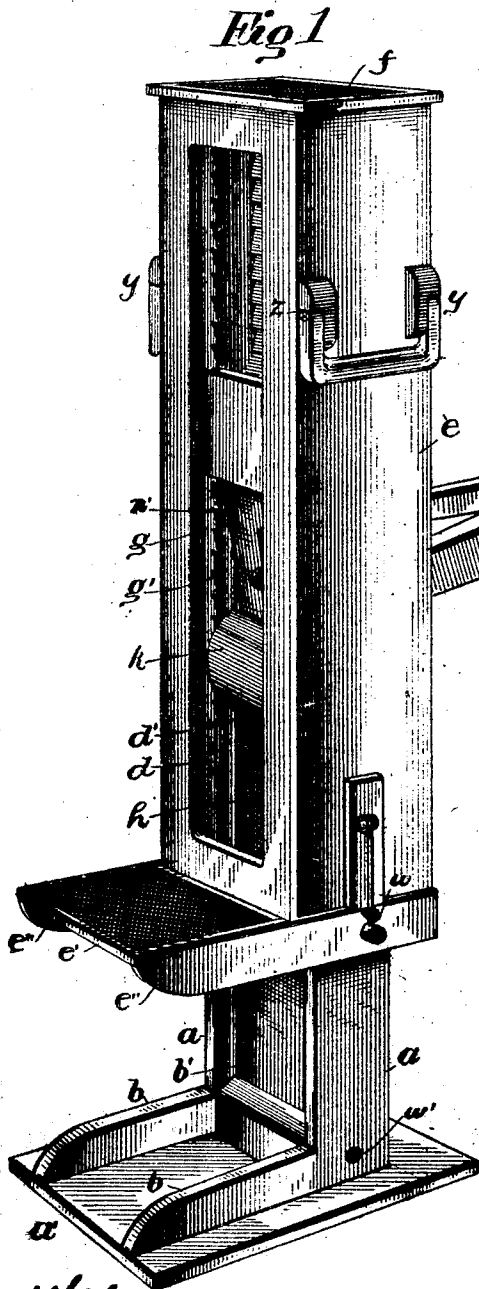
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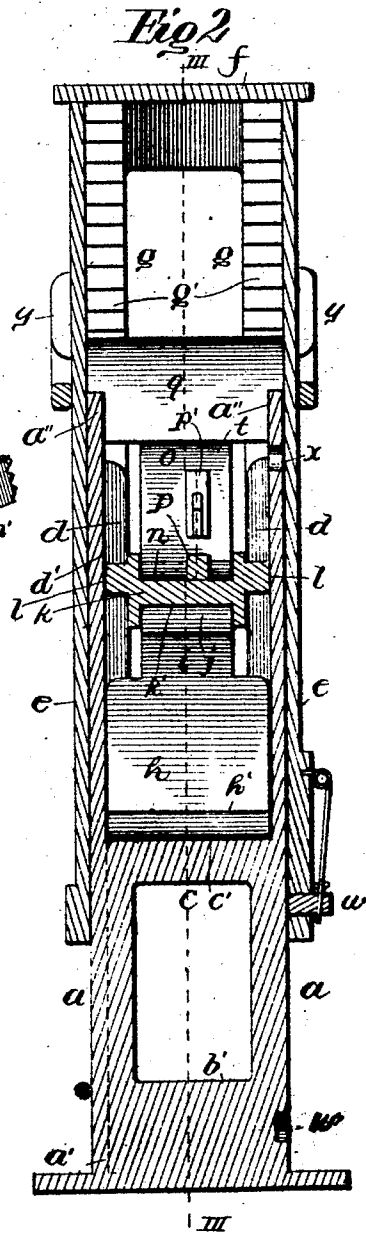
A. J. LOGAN.
LIFTING JACK.

No. 462,566.

Patented Nov. 3, 1891.



Witnesses
C. C. Burdine
James T. DuBris



Inventor
Albert J. Logan
per *W. H. Gordon*
Att'y

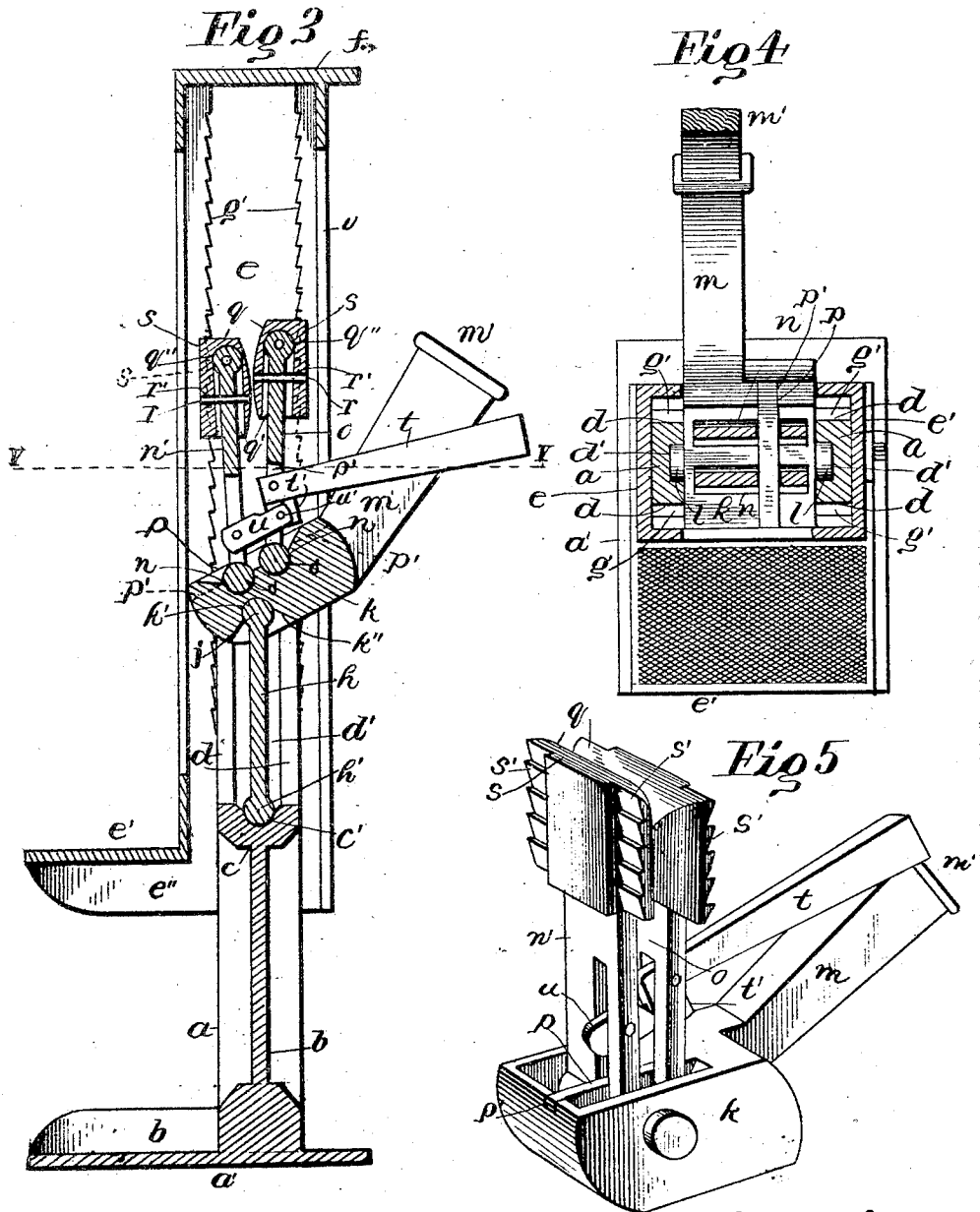
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UNITED STATES PATENT OFFICE.

ALBERT J. LOGAN, OF CLEARFIELD, PENNSYLVANIA.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 462,566, dated November 3, 1891.

Application filed July 20, 1891. Serial No. 400,140. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. LOGAN, a citizen of the United States, residing at Clearfield, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a lifting or hoisting jack, and is designed for raising heavy and bulky objects, its object being to provide a comparatively simple and an effective jack; and my invention consists of certain features of novelty to be hereinafter described and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my improved jack. Fig. 2 is a vertical section thereof. Fig. 3 is a vertical section on line III III, Fig. 2. Fig. 4 is a section on line V V, Fig. 3. Fig. 5 is a perspective view of the operating attachment.

The jack comprises three distinct parts—to wit, a support or guide frame, an elevator-frame, and the operating attachments.

The support or guide frame consists of parallel side bars *a a*, supported on a base or foot *a'*, which is braced by parallel ribs *b b*. The lower parts of the bars *a a* are connected by a web *b'*, and above the web they are connected by a cross-piece *c*, which is provided with a longitudinal recess *c'* in its top. This recess is semicircular in cross-section and affords an open bearing for a device to be hereinafter described. From the inner edges of the side bars *a a*, above the cross-piece *c*, parallel flanges *d d* project, and these flanges form between them longitudinal recesses or guideways *d' d'* in the side-bars. Projections or stops *a''* extend upwardly from the upper ends of side bars *a a*.

e e indicate the sides of the elevator-frame. *f* from the lower ends of which projects a lifting-foot *e'*, strengthened by ribs *e''*.

f is the top of the elevator-frame, consisting of a plate connecting the sides. Both the lifting-foot *e'* and the top *f* are preferably roughened or serrated on the upper surfaces, as shown.

At the inner edges of each of the sides *e e* of the elevator-frame is a pair of parallel rack-bars *g*, the teeth *g'* of the rack-bars of the respective sides being presented toward each other and extending downwardly.

An oscillating rest *h* works between the side bars *a a* in the recesses *d' d'* of the guide-frame, its lower end *h'* being rounded or beaded and having bearing in the recess *c'* of the cross-piece *c* and constituting a hinge connection. The upper end *i* of the oscillating rest *h* is provided with a rounded or beaded portion *j*.

Received between the upper ends of the side bars *a a* is a block *k*, which at its lower side has a transverse recess *k'*, semicircular in cross-section to receive the rounded or beaded portion *j* of oscillating rest *h* and constituting a hinge connection for the block. The recess is flared at *k''* to allow the block to rock. At the sides of the block *k* are trunnions *l*, which guide the block into position between the side bars *a a* and have bearing in the recesses *d' d'* against the opposing sides of the flanges *d d*. Projecting rearwardly from the block *k* is a handle-socket *m* for the reception of a handle *m'*.

In the top of the block *k* is a pair of transverse seats *n n*, providing bearings for the rounded or beaded portions *o' o'* of the oscillating arms *o n'*. The arms are thus hinged to the block *k*, and are confined to their seats by means of a lock-bar *p*, which passes through longitudinal slots *p' p'* in the arms and is secured at each end to the block.

At the upper end of each arm *o n'* is a movable head *q*, provided with a longitudinal opening *q'*, the base of which is suitably conformed to receive and provide a bearing for the rounded or beaded portion *q''* of the arm. Passing through the respective arms *o n'* and their heads are pins *r*, which confine the heads to the arms, the arms having short openings *r'* to allow the movement of the heads. From each side of the heads *q* projects a lateral extension *s*, each provided with a series of upwardly-projecting teeth *s'* on their outer sides or at the fronts of the heads. The heads *q* are arranged on each side of the projections or stops *a''*, being kept in that position by the latter. A disengaging-lever *t* is pivoted at its inner end in the slot *p'* of the rear arm

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o and has a lateral downward extension *t'* which is connected by a pivot *u'* with one end of a toggle-link *u*, the other end of which is pivoted in slot *p'* of arm *n'*. The extension *t'* and the link *u* constitute a toggle connection between the arms *o* and *n'*.

In building up the jack the oscillating rest *h* is first placed in position in the support or guide-frame. Then the operating attachments are adjusted in position. The elevator-frame is now placed over the support or guide-frame and the operating attachments, said elevator-frame having an open back *r* to allow the handle-socket *m* and the lever *t* to project through. When the elevator-frame is down, it is locked to the guide-frame by means of a spring-catch pin *w*, which projects through an opening in the lower end of the elevator-frame and into a bolt-hole *w'* at the lower end of the guide-frame. Above the hole *w'* is a bolt-hole *x* into which the catch *w* springs when the elevator-frame has been raised to its highest limit. At each side of the elevator-frame is a swinging bail *y*, by which the jack may be lifted for carrying it about. Above the bails are shoulders *z*, for limiting the upward movement thereof.

The jack is operated as follows: The elevator-frame is raised by reciprocating the handle of the rocking block *k*, thus alternately raising and lowering the toothed heads *q* and causing their teeth to alternately engage the rack-bars at the front and back, respectively, of the elevator-frame. In this way great power is obtained, and while one of the toothed heads is being lowered to take a fresh hold the other one supports the elevator-frame. The weight of the lever *t* is sufficient to hold the toothed heads *q* up against the rack-bars. When it is desired to lower the elevator-frame, the lever *t* is raised, thus causing the toggle connection between the arms *o* and *n'* to draw the teeth of the heads *q* away from the rack-bars.

Slight changes will readily suggest themselves to skilled mechanics and can be made without departing from the scope and spirit of my invention.

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

1. In a lifting-jack, the combination, with a support or guide-frame and an elevator-frame, of means for operating the latter, consisting of an oscillating rest supported in the guide-frame, a rocking block hinged to said rest and provided with suitable devices for working the elevator-frame, and means for rocking said block, substantially as set forth.

2. In a lifting-jack, the combination, with a support or guide-frame provided with parallel side bars and the toothed operating attachments mounted between the side bars, of an elevator-frame having paired rack-bars engaged by the teeth and between which the side bars are received, substantially as set forth.

3. In a lifting-jack, the combination, with a support or guide-frame and an elevator-frame, of means for operating the latter, consisting of a rocking block supported in the guide-frame, a pair of arms hinged near together at their lower ends and provided with devices for raising the elevator-frame, means for drawing the arms together to lower the elevator-frame, and means for rocking said block, substantially as set forth.

4. In a lifting-jack, the combination, with a support or guide-frame and an elevator-frame provided with rack-bars, of means for operating the latter, consisting of a rocking block supported in the guide-frame, a pair of arms hinged to the block at their lower ends, movable toothed heads at the upper ends of the arms, the teeth of which are adapted to engage the rack-bars, and means for rocking said block, substantially as set forth.

5. In a lifting-jack, the combination, with a support or guide-frame and an elevator-frame, of means for operating the latter, consisting of a pair of alternately-movable arms provided with devices for raising the elevator-frame, a toggle connection between the arms, and means for working the toggle connection to draw the arms together, whereby the elevator-frame is lowered, substantially as and for the purpose set forth.

6. In a lifting-jack, the combination, with a support or guide-frame and an elevator-frame, of means for operating the latter, consisting of a pair of alternately-movable arms provided with devices for raising the elevator-frame, a lever pivoted to one of said arms and provided with a lateral extension, and a toggle-link pivoted to the latter and to the other arm, substantially as set forth.

7. In a lifting-jack, the combination, with a support or guide-frame provided with an upper and a lower bolt-hole and an elevator-frame, of a spring-bolt secured to the elevator-frame and adapted to automatically engage either of said holes, substantially as set forth. In testimony whereof I affix my signature in presence of two witnesses.

ALBERT J. LOGAN.

Witnesses:

WM. C. HELMBOLD
J. E. AUSTIN.