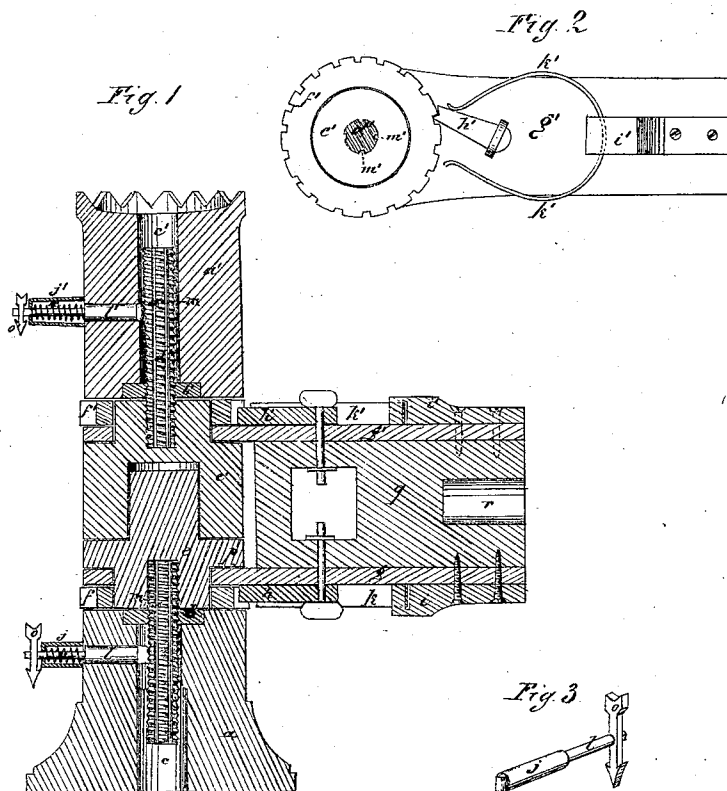


H. T. MORRISON.

Improvement in Lifting-Jacks.

No. 115,086.

Patented May 23, 1871.



Witnesses:

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UNITED STATES PATENT OFFICE.

HACKLEY T. MORRISON, OF LAWRENCEVILLE, VIRGINIA.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. 115,086, dated May 23, 1871.

To all whom it may concern:

Be it known that I, HACKLEY T. MORRISON, of Lawrenceville, in the county of Brunswick and State of Virginia, have invented a new and useful Improvement in Screw-Jacks; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a sectional elevation; Fig. 2, a horizontal section, showing the upper ratchet and pawl; and Fig. 3, a perspective view of spring pin and pointer.

This invention has for its object to enable a screw-jack to work continuously either while lifting or lowering, and while the lever by which the screws are rotated is turning back as well as while it is turning forward, to the end that there may be no lost motion; which object is accomplished by the provision of two separate screws, arranged one above the other, one of which raises or lowers itself in the foot-piece, while the other raises or lowers the head-piece, said screws working alternately.

Referring to the drawing, *a* is an ordinary foot-piece for a lifting-jack. *b* is a nut, placed centrally of and flush with the top of the same. *c* is the central orifice within the foot-piece. *d* is the screw that passes through the nut *b* down into the orifice *c*. *e* is a cylindrical block placed above the foot-piece and pierced centrally at its lower end by the screw *d*, to which the block is rigidly fastened so as to turn with it. *f* is a circular ratchet rigidly secured to and outside of the block *e* at the lower end of the same. *g* is a lever pivoted upon the block *e* just above the ratchet *f*. *h* is a pawl pivoted loosely at one end to the under side of the lever *g*, and, when turned forward, engaging at its free end with the ratchet *f*. *k k* are springs, secured at their rear ends to a block, *i*, that is attached to the lower side of the lever *g*, and at their front ends bearing, one at a time, upon the pawl *h*, according as the same is turned to one side or the other of its pivot, and keeping the pawl engaged with the ratchet *f*. A pin, *l*, passing horizontally through the foot-piece *a* enters at its inner end one of the longitudinal grooves *m*, of which there are several in the exterior of the screw *d*. A spring, *n*, inclosed in a tube, *j*,

and encircling the pin *l*, presses the same inward. The inner end of the pin *l* is beveled at one side, while the other side is straight.

The object of this construction is to enable the straight side of the pin to operate as a stop by catching in one of the grooves *m* and thus preventing the screw from rotating backward, while the beveled side enables the screw, when rotated forward, to press the pin outward, so that the latter then presents no obstacle to turning the screw. The pin *l* may be turned so as to act as a stop to prevent the backward rotation of the screw either while the same is moving upward or downward. A pointer, *o*, fixed on the outer end of the pin, shows whether the latter is arranged for the rise or lowering of the screw.

The rotation of the screw is effected by means of the lever *g*, pawl *h*, and ratchet *f*, the pin *l* holding the screw stationary while the pawl travels back to get a fresh hold. To make the screw move downward the pawl *h* must be turned entirely around so as to engage with the ratchet at a point on the other side of its pivot from that at which it engages when the screw is moving upward, and the arrow *o* should be made to point downward. By this arrangement the screw *d* remains stationary half the time, and the block *e* rises or descends, as the case may be, also only half the time, the moving of said block being effected solely by the rotation of the screw *d*. The other half of the time is occupied by the rest of the apparatus, not yet described, in continuing the lifting or lowering operation of the jack so as to make it incessant.

Upon the flange *p* of the block *e* rests a cylindrical block, *e'*, having a central chamber for the reception of the block *e*. The block *e'* serves as the foundation for an apparatus in all respects the duplicate of that above described, and indicated in the drawing by the same letter, with the addition of the mark ', that indicates corresponding parts in the lower mechanism. The duplicate levers *g* and *g'* are connected by a block, *q*, in the outer end of which a recess, *r*, is made for the reception of the bar by which the levers are worked. The upper mechanism operates alternately with the lower one, the two pawls, *h* and *h'*, being placed at different angles, so that while the

ratchet *f* is turning and raising the block *e* the ratchet *f'* is held stationary by the pin *l*, and while the ratchet *f'* is rotating and raising the head-piece *a'* the ratchet *f* is held stationary by the pin *l*. By this arrangement the head-piece *a'* is made to ascend or descend half the time by the action of its own screw, and the other half of the time by the operation of the screw *d*.

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

1. The screw *d*, provided with longitudinal

grooves *m*, and combined with the spring-pin *l* having a beveled end, as specified.

2. The arrangement of the spring-pin *l* with the pointer *o*, as described.

3. The arrangement of the head and foot pieces *a a'*, screws *d d'*, blocks *e e'*, ratchets *f f'*, pawls *h h'*, levers *g g'*, and spring-pins *l l'*, as explained.

HACKLEY T. MORRISON.

Witnesses:

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