S. E. MOSHER.
LIFTING-JACKS.

No. 194,711. Patented Aug. 28, 1877.

Fig 1

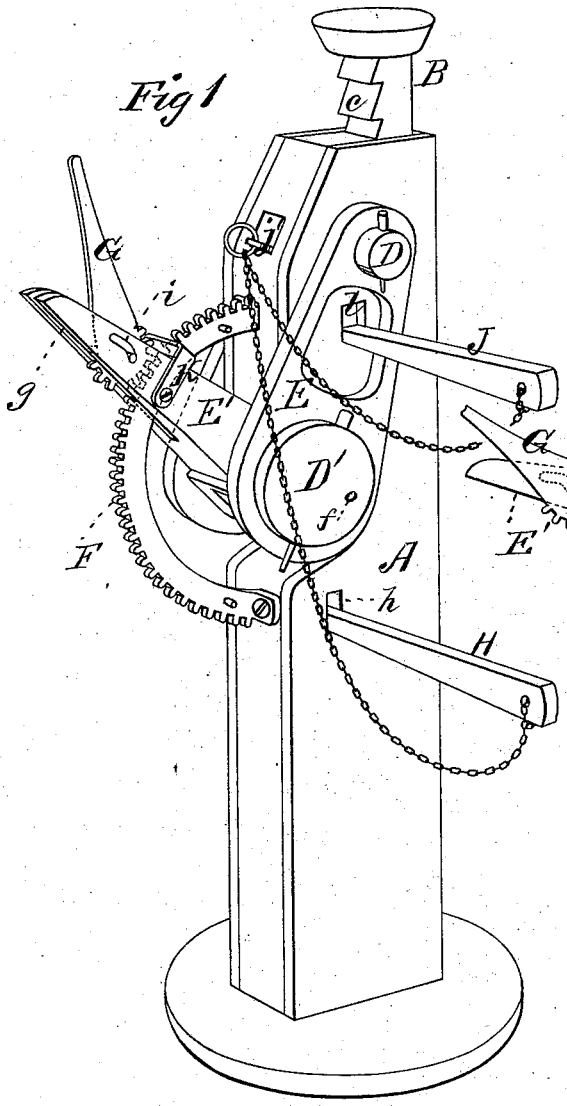
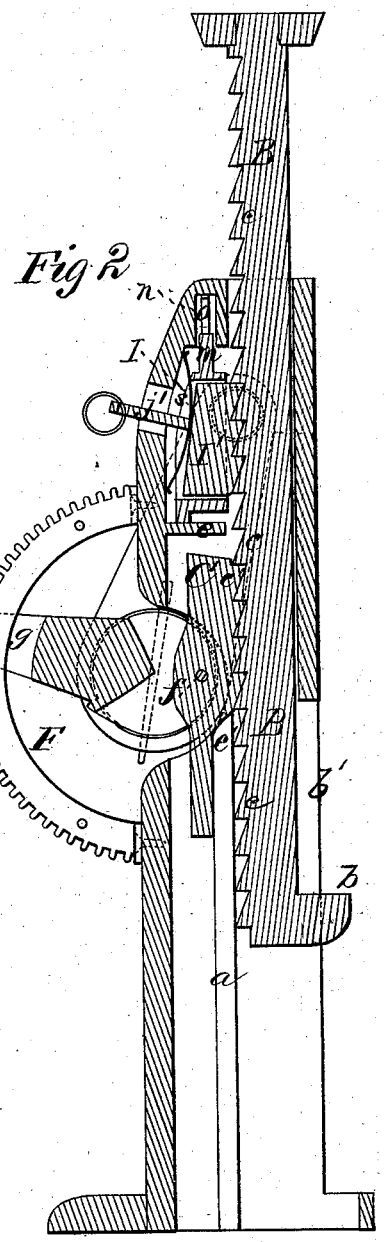



Fig 2

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **194,711**, dated August 28, 1877; application filed May 12, 1877.

*To all whom it may concern:*

Be it known that I, SAMUEL EARL MOSHER, of Chillicothe, in the county of Ross and State of Ohio, have invented a new and valuable Improvement in Lifting-Jacks; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a perspective view of my improved lifting-jack, and Fig. 2 is a vertical sectional view thereof.

This invention has relation to improvements in lifting-jacks that are principally constructed of cast-iron, and are adjustable at any height to support the object to be lifted; and it consists in the arrangement and novel construction of its parts, and in their combination, as will be hereinafter more fully described and claimed.

In the annexed drawings, A designates the hollow standard or frame, cast in one piece, or made in two symmetrical sections, adapted to be bolted together in any suitable manner. This standard is provided with guide-strips *a* upon its opposite inner walls, between which and the rear wall of the standard is arranged a lifting-bar, B, having a heel, *b*, working in a slot, *b'*, in said rear wall, that prevents the lifting-bar from undue upward extension.

Bar B is provided on one of its edges with a series of teeth, *c*, downwardly inclined, with which the teeth *c'* of a lifting-block, C, are adapted to engage. This block C has sufficient outward play in the standard to clear the teeth of the lifting-bar, but is limited in its vertical movements by a shelf or ledge, *e*, above and a shoulder, *e'*, below, the latter being in the upper ends of one or both of the guide-strips aforesaid.

The side walls of the standard are provided near their upper ends with trunnions D, upon which are secured, in any suitable manner, hangers E. These hangers afford bearings in their lower ends for trunnions D' of a vertically-vibrating lever, E', that is notched between said trunnions to admit the lifting-block aforesaid, and is pivoted by means of a bolt, *f*, to the same.

When this lever is drawn outward the lifting-block will be disengaged from the lifting-bar, and its end may then be vibrated upward. If now the said lever be thrown down it will raise the said block and actuate the lifting-bar, which will be extended from the standard.

Lever E' is longitudinally slotted, as shown at *g*, and in this slot is received a toothed circular segment, F, the ends of which are secured to the standard above and below the lifting-block. In the slot *g*, outside of the segment, is journaled, in curved slots *i* in the arms of said lever, a toothed segment-lever, G, that engages the segment F aforesaid. This lever G forms, with the toothed segment F and lever E', a compound lever of great power, and, as it is journaled in slots *i* in the said lever E', it may readily be disengaged from the segment aforesaid and take fresh hold.

In order to take the strain off the operating mechanism the standard is provided with spaced perforations *h* on the same level at each side, through which a strong wedge-shaped bar, H, is passed directly under the lifting-block, and preventing the same from slipping backward; and in order to hold the said lever E' from upward vibration when the lifting-bar is under strain I employ a pawl, K, that straddles or lies over the periphery of the segment, and is pivoted to the lever E' aforesaid.

Above the ledge *e*, against which the lifting-block abuts, is arranged a box, I, having vertical play, and containing a spring-actuated pawl, I', composed of a body having several teeth engaging with those of the lifting-bar, and an operating-handle, *j*, that extends through a perforation in the box and standard beyond the latter.

By drawing on this handle the pawl will recede in its box from the lifting-bar and clear the teeth thereof, and the said bar may then be lowered by disengaging the lifting-block aforesaid from it. In the upward movements of the lifting-bar the pawl readily recedes, owing to the yielding of the spring *s*, but the moment this movement ceases it takes hold and operates as an ordinary pawl. Should it not take hold when the object has attained the desired height,

a wedge-shaped key, J, is passed under its heel through registering-perforations *l* in the side walls of the standard, thereby raising the pawl and causing it to engage the teeth of the lifting-bar. In being thus raised, a spur, *m*, working in a recess, *n*, of the standard compresses a spring, *o*, seated therein, which, upon the removal of the wedge, will react and force the box back upon its ledge.

The lifting-bar above described may be sometimes made hollow, and in this hollow a supplemental bar may be placed, which, being drawn out and supported in this extended state by a pin, bolt, or other equivalent device, will increase the length of the lifting-bar and dispense with the usual blocking in raising high objects.

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

1. The combination, with the lifting-bar B and hollow standard A, having shelf *e*, of the spring-actuated pawl I′ and its inclosing movable box I, substantially as specified.

2. The standard A, having registering-perforations *h l* below the lifting-block and below the locking-pawl, adapted to receive a key-wedge, substantially as specified.

3. The combination, with the lifting-bar B and lifting-block C, of the hollow standard A, having trunnions D, the vertically-vibrating hangers E, the lever E′, having trunnions D′ journaled in said hangers, the pivot-pin *f*, toothed segment F, and toothed segment-lever G, substantially as specified.

4. The combination, with the segment F and the standard and raising mechanism of a lifting-jack, of the lever E′, having longitudinal slot *g* and curved slots *i*, and the segment-lever G journaled in said slots and engaging said segment, substantially as specified.

5. The combination, with the vertically-movable pawl-box and pawl, of a hollow standard recessed to receive said pawl-box, and provided with perforations at the heel of said box, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

SAMUEL EARL MOSHER.

Witnesses:
GEORGE EARL MOSHER,
E. K. ULECK.