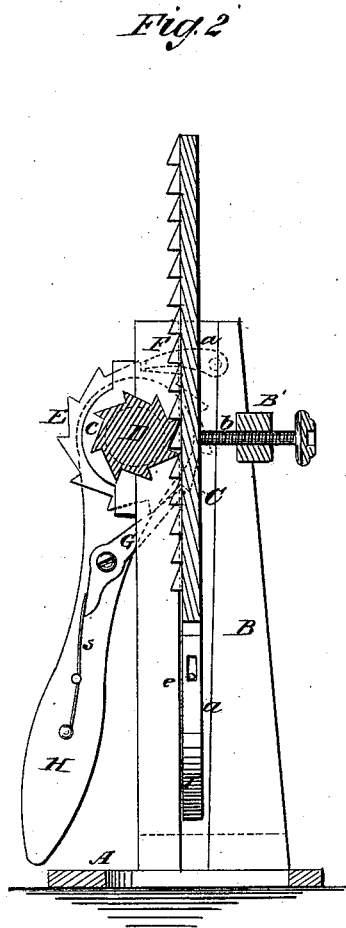
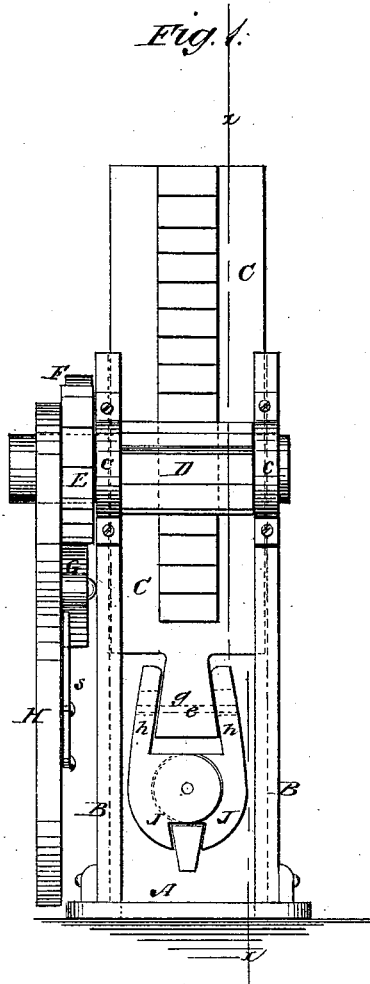


J. S. KIRKWOOD.
LIFTING-JACKS.

No. 194,827.

Patented Sept. 4, 1877.



WITNESSES:

Thomas M. Smith.
J. H. Scarborough.

INVENTOR:

J. S. Kirkwood
BY *[Signature]*

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH S. KIRKWOOD, OF McKEESPORT, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND HENRY C. MYERS, OF SAME PLACE.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **194,827**, dated September 4, 1877; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, JOSEPH S. KIRKWOOD, of McKeesport, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Spike and Bolt Drawer and Hoisting-Jack, of which the following is a specification:

This invention relates to machines which are designed for extracting spikes, bolts, &c., and which are also useful for lifting buildings and other heavy bodies.

The nature of my invention and improvement consists in combining, with a ratchet lifting-drum, a lifting-rack, which is guided by tapered grooves in two standards, in combination with one or more adjusting-screws, which will allow the rack-bar to be disengaged from the said ratchet-drum whenever desired, and thus quickly raised or lowered by hand, as will be hereinafter more fully described.

My invention also consists in combining tongs or grippers with the rack-bar, which tongs will be caused to gripe the head of a spike or bolt firmly, and with more or less force, according to the resistance offered, as will be hereinafter explained.

This invention also consists in the use of said combined rack-bar and ratchet-drum as a hoisting-jack, which, being placed under any heavy body, the rack-bar is raised by means of the aforesaid ratchet-drum, which will herein be more fully described.

In the annexed drawings, Figure 1 is a front elevation of my improved machine. Fig. 2 is a vertical section through the same, taken in the plane indicated by dotted lines *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The letter A designates the base of the machine, which has an opening through it of sufficient size to allow free access to the head of a bolt or spike.

Upon this base A rise two standards, B B, which are grooved inside to receive a rack-bar, C, which receives vertical motion by means of a long ratchet-wheel, D. The grooves *a* in the standards B B are widened at their upper ends, and gradually taper to their lower ends.

The rack-bar C is held in position so that

its teeth engage with the teeth of ratchet-wheel D by means of one or more set-screws, *b*, which are tapered through a tie-bar, B', and provided with hand bars or cranks.

Should the rack-bar be raised, and it is desired to lower it quickly, this can be done by turning back the screws *b* and disengaging the said bar from its wheel D.

The ratchet-wheel teeth, as well as the teeth on the rack-bar, are pitched like saw-teeth, so that they are very strong, and will stand considerable strain without fracturing.

The shaft of wheel D is journaled in boxes *c c*, and has keyed on one end a ratchet-wheel, E, with which two pawls, F G, engage. Pawl F is pivoted to one of the standards B, and prevents the wheel E from turning backward.

The pawl G is pivoted to a hand-lever, H, and held engaged with the wheel E by means of a spring, *s*. Lever H is allowed to oscillate freely on the shaft of wheels D E, and it is removable therefrom.

The lower end of the rack-bar C has a dove-tailed tongue, *g*, formed on it, and to this tongue the arms *h h* of a pair of gripping-tongs, T, are connected by a pivot, *e*, passed through oblong holes. The shape of the space between the arms *h h* corresponds to that of the tongue *g*; consequently during the act of drawing a spike or bolt the jaws of the tongs will firmly gripe it, and the more resistance offered the firmer will the jaws gripe the object.

I do not broadly claim a pair of clamping-jaws operated by a wedge or dovetail shaped piece.

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

1. In combination with the rack-bar C and set-screw *b*, the tapered grooves *a*, substantially as and for the purpose specified.

2. The combination, with the rack-bar and wheel D, of the dovetail tongue *g* and the tongs J, as shown and described.

3. In combination with rack-bar C, standards B B, tapered grooves *a*, and ratchet-wheel D, substantially as described.

JOSEPH S. KIRKWOOD.

Witnesses:

A. H. BOWMAN,
W. A. CLARK.