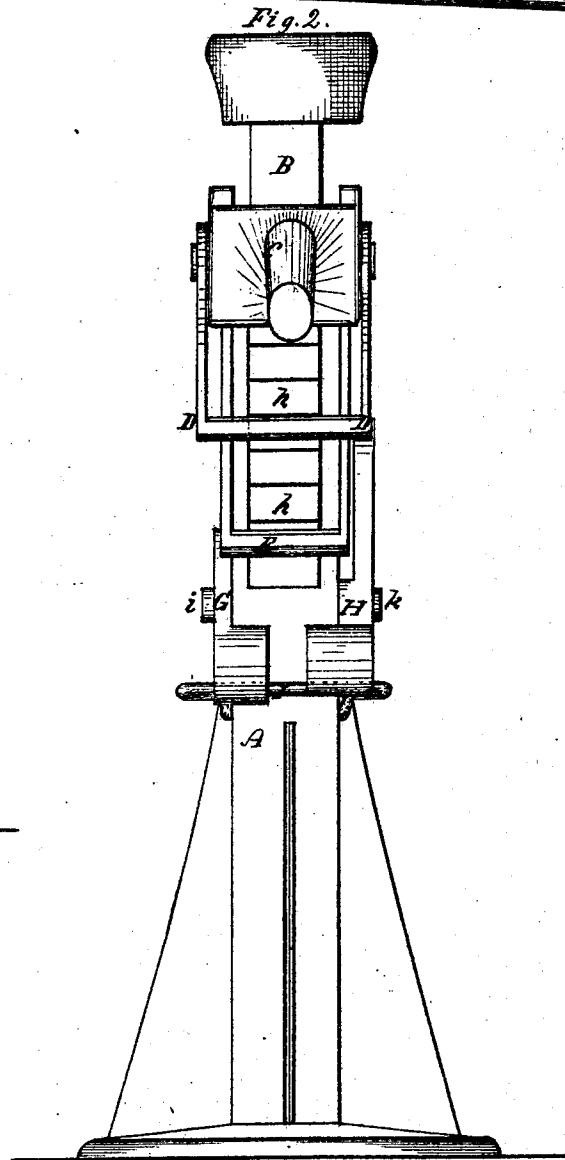
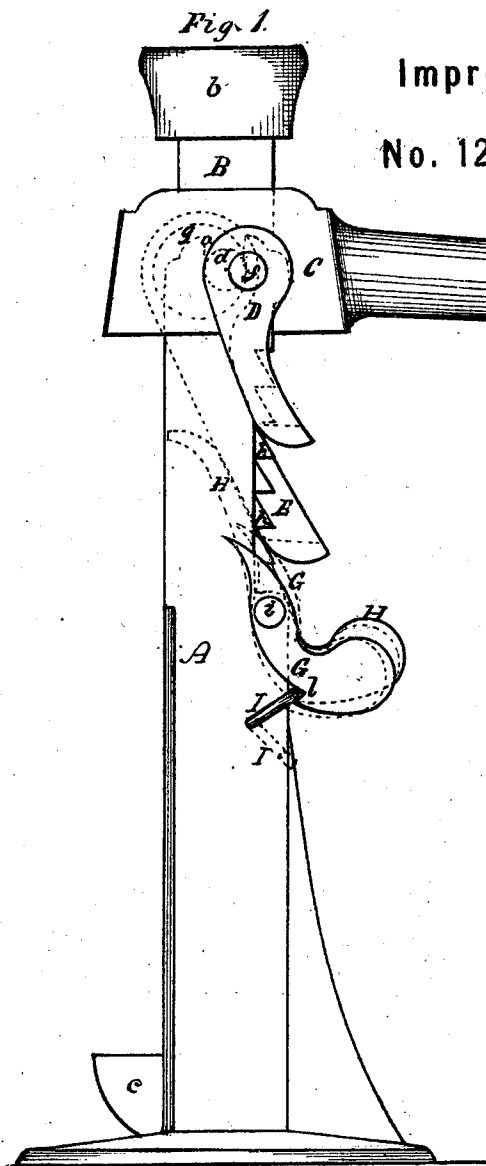


E. R. GARD.

Improvement in Lifting Jacks.

No. 123,010.

Patented Jan. 23, 1872.



Witnesses,
Chas. M. Gallaher.
R. D. Smith

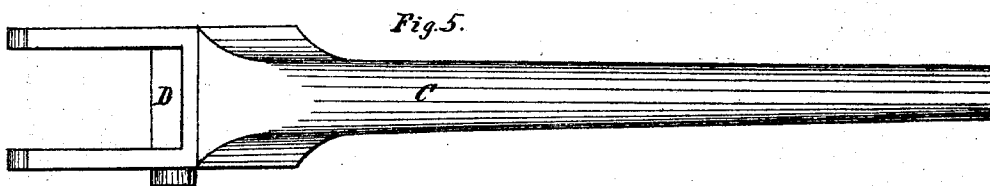
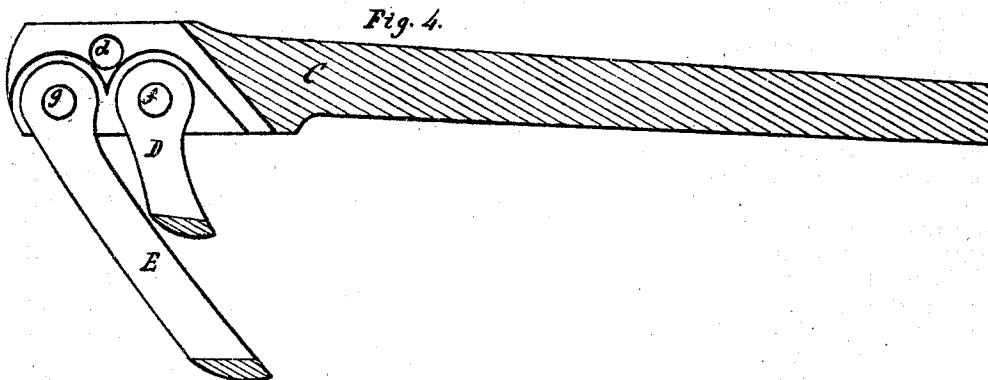
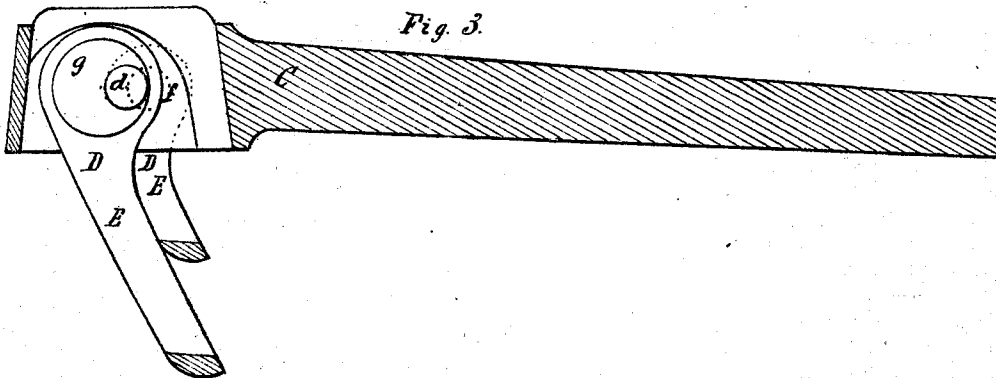
Inventor,
Emery R. Gard,
By his attorney,
J. S. Brown.

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UNITED STATES PATENT OFFICE.

EMERY R. GARD, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. 123,010, dated January 23, 1872.

To all whom it may concern:

Be it known that I, EMERY R. GARD, of Chicago, in the county of Cook and State of Illinois, have invented an Improved Lifting-Jack; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a side elevation of the improved lifting-jack; Fig. 2, a front elevation of the same; Fig. 3, a central longitudinal vertical section of the operating-lever thereof, with the lifting-pawls attached thereto; Fig. 4, a similar section, showing a modification of lever and pawls; Fig. 5, a top view of the last.

Like letters designate corresponding parts in all of the figures.

This is an improved lifting-jack having two lifting-pawls, so as to lift at each single vibration of the lever. It is also capable of lowering as well as lifting by the simple vibration of the lever.

It being desirable to so arrange a lifting-jack as not to obstruct the back side thereof, whereby it may freely lift by a lifting-hook behind, one of the principal features of my invention is the construction of a jack with double lifting-pawls, so as to present an unobstructed back for that purpose; and since all good and reliable lifting-jacks should have wrought-iron lifting-bars, and on account of the labor and expense of forming the ratchet-teeth thereof it is desirable to dispense with a double set of teeth on opposite sides, another feature of my invention consists in so constructing and arranging the jack that the two lifting-pawls shall act on the same side of the lifting-bar, and thus require only one set of ratchet-teeth.

In the drawing, let A represent the stock or standard of the lifting-jack; B, the lifting-bar thereof; C, the operating-lever or handle; and D E, the two lifting-pawls. The lifting-bar B has lifting ratchet-teeth *h h* on one side only, and the two lifting-pawls D E, though one is suspended from the lever, and is pivoted at *f* on one side of the fulcrum-journals *d d*, on which the lever turns, and the other pawl is pivoted at *g* to the lever on the other side of the said fulcrum-journals, yet both pawls reach to the same side of the jack, and lift by engaging into the same set of ratchet-teeth *h h* of the lifting-

bar. To enable this to be accomplished one pawl, E, is made longer than the other pawl, D, so that it may reach and operate below it, as presented; and the bar is mounted by its journals *d d* in bearings *a a* in the top of the standard A, or as high up therein as requisite, so as to allow room for the pawls to act independently. Thus, the operating parts being arranged on the front side of the jack, the rear side is left unobstructed for lifting with a lifting-hook or projection, *c*, on the back side of the lifting-bar. Also, the rear end or cross-bar of the lever C may be dispensed with, as shown in Figs. 4 and 5, if desired. The pawls D E may both be suspended from the lever C from pivots *f g*, both inside of the side plates of the lever, as represented in the modification, Figs. 4 and 5. And this is a good and compact arrangement. But for lifting-jacks of great power I employ an improved arrangement, as represented in Figs. 1, 2, and 3. Here, one pawl, D, is pivoted outside of the lever-head, and the other pawl, E, is pivoted inside of the side plates thereof.

The advantage of this arrangement is that the pivots *f f* and *g g* of the two pawls, respectively, may be placed as nearly in line with the pivot-journals *d d* of the lever, as desired, so as to get the utmost leverage required, and still make the bearings of the pawls as large and strong as wanted, since it is evident that one does not interfere with the other; whereas in the modifications, Figs. 4 and 5, the pivots *f f* and *g g* must be far enough apart not to interfere with each other, nor with the pivot-journals of the lever between them. Further, in order to bring the pivots still nearer the line of the lever-journals when required, the inner pivots *g g* of the pawl E are made large enough to surround the pivot-journals *d d* of the lever, being eccentric thereto in proportion to the distance of its axis from the axis of the lever.

In order to adapt the weighted or swinging guides G G (claimed in a former patent issued to me for changing the lifting to a lowering jack) to the long and short pawls D E and still be able to adjust them simultaneously, they are hung on pivots *i k*, respectively, opposite to or in line with each other, and their upper ends reach to different heights, so as to meet the pawls in the proper positions. The catch-notches *l l* of the two guides are also in line,

so that the same swinging detent I may retain both at the same time, as indicated in full lines in Fig. 1, and relieve both together when it is swung down into the position indicated by dotted lines in the same figure. This detent may be simply and cheaply made of a single piece of wire bent into the form shown. The full lines in Fig. 1 show the position of the guide G when held away from its pawl E for lifting by the pawls; and its position for throwing out the pawl for lowering with the jack is shown by dotted lines in the same figure. There is another especial advantage in this improved jack. It is adapted to a horizontal or inclined as well as a vertical position, so that it can as conveniently be employed for moving bodies along, or for applying power horizontally, as for simple lifting. For this purpose it lies or rests on its back, and the pawls D E, both being on the top then, keep in place by their own gravity, so that the jack works as well as or better than when in a vertical position. Here also the unobstructed back of the jack is advantageous.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The short and long pawls D E, pivoted to the lever C on opposite sides of its fulcrum, and both acting on the same side of the lifting-bar B, substantially as and for the purpose herein specified.

2. The two pawls D E, arranged one outside and the other inside of the lever-head, substantially as and for the purpose herein specified.

3. The construction of the pivots *g g* of the inner pawl E so as to embrace eccentrically the fulcrum-pivots *d d* of the lever C, for the purpose set forth.

4. The pawl-guides G H, arranged, as described, in combination with the pawls D E, substantially as and for the purpose herein specified.

5. The detent I, arranged, as described, so as to retain and release the two pawls simultaneously, as set forth.

Specification signed by me this 28th day of October, 1871.

EMERY R. GARD.

Witnesses:

H. A. WARE,

F. A. WEBSTER.