W. M. K. Thornton,

Lifting Jack,

No. 46,599. Patented Feb. 28, 1865.

Fig. 1.

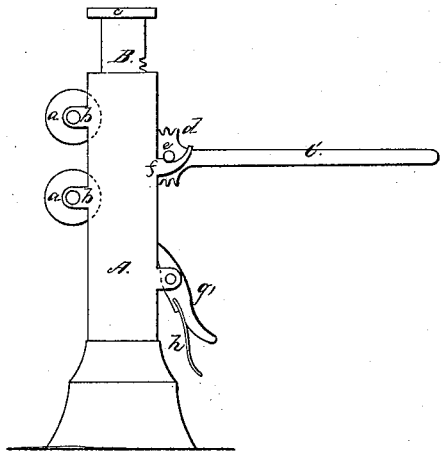


Fig. 2.

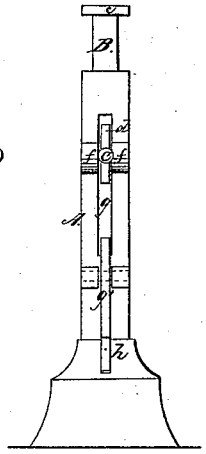


Fig. 3.

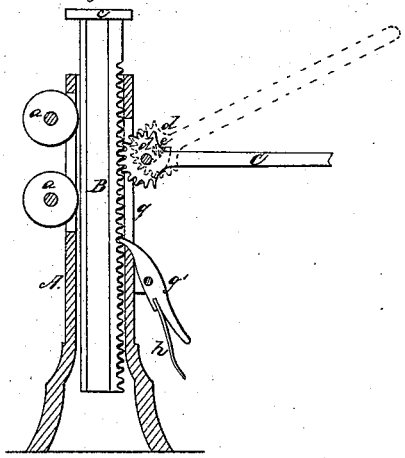


Fig. 4.

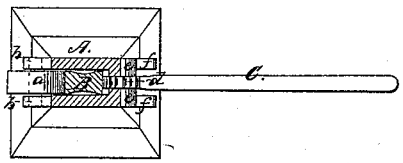
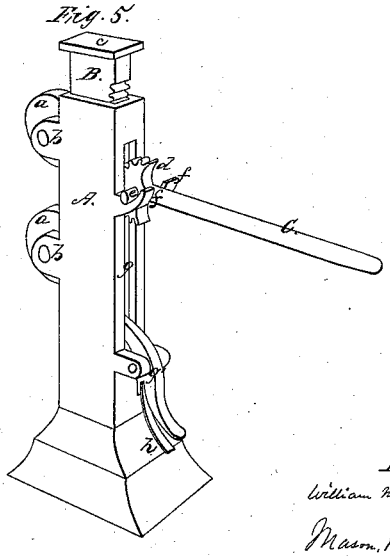


Fig. 5.



Witnesses.
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E. Schäfer.

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William M. K. Thornton
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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

UNITED STATES PATENT OFFICE.

WILLIAM M. K. THORNTON, OF CLINTON JUNCTION, WISCONSIN.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **46,599**, dated February 28, 1865.

To all whom it may concern:

Be it known that I, WILLIAM M. K. THORNTON, of Clinton Junction, county of Rock, and State of Wisconsin, have invented a new and Improved Non-Friction Jack; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of my improved lifting-jack. Fig. 2 is an elevation showing the front side of the jack. Fig. 3 is a vertical section through the pillar of the jack. Fig. 4 is a horizontal section taken at a point above the upper friction-roller. Fig. 5 is a perspective view of the jack complete.

Similar letters of reference indicate corresponding parts in the several figures.

This invention is an improvement in machines for raising heavy bodies short distances, commonly known as "lifting-jacks."

The object of my invention is to so construct a lifting-jack, which is operated by means of a rack and segment, that all the lateral force which is applied to the lifting-bar or jack-staff shall be resisted by friction-rollers instead of by a fixed friction-surface, as hitherto.

Another object of my invention is to provide for the shifting of position of a removable lever by furnishing a constant support for the fulcrum of said lever during the vibrating movements of the same in the act of forcing the jack-staff upward, as will be hereinafter described.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

The standard or pillar A of the jack is made with a vertical hole through its center adapted for receiving the jack-staff B and allowing this staff to rise and fall freely. At the back of the standard A and near its upper end are two friction-wheels, *a a*, which are arranged at a short distance apart in the same vertical plane, and have their support in bearings *b b*, cast or otherwise formed on the back of the standard. These two wheels are of such a diameter as to enter the standard A and form back supports for the vertical jack-staff B when any force is applied to its toothed side to lift it. The upper end of the jack-staff B is furnished with a cap, *c*, and its front edge forms a straight rack for receiving the teeth of the segment *d*, which is formed on one end of the lifting-lever, C, as clearly shown in Fig. 3. This segment *d* is concentric with the axis of a pin, *e*, which constitutes the fulcrum of the lever-handle, and during the act of lifting the jack-staff the pin *e* is supported by the curved brackets *f f*, which are secured to the front face of the standard on each side of a vertical slot, *g*, as shown in Figs. 2, 4, and 5. When the outer end of the lever C is thrown up again to elevate the jack-staff still farther, the fulcrum-pin *e* moves backward and upward against the curved surfaces of the brackets *f*, so as to allow the teeth of the segment to escape from those of the rack on the jack-staff.

I desire to so construct the jack that the lever C can be detached from it at pleasure, and also to furnish a bearing for the fulcrum of this lever which is so constructed that it can be made to support the lever not only during the act of lifting the jack-staff, but also during the act of lifting the long arm of the lever when the teeth of the rack are disengaged from those of the rack. The curved bearings *f* serve this purpose, and they dispense with the necessity of detaching the lever from the machine at each vibration thereof. The position of these brackets *f* is such with relation to the friction-wheels *a a* that the lateral force applied to the jack-staff by the lever C in the act of lifting the former will be received uniformly by both of these wheels, and by this arrangement the friction upon the back edge of the staff B will be very slight, and the staff will be raised vertically instead of being tilted on one side.

At a suitable distance below the brackets *f* and on the front side of the jack, a pawl, *g'*, is pivoted, which is acted upon by a spring, *h*, so as to force its upper end toward the jack-staff and thus engage this end with the rack on the front edge of this staff. The pawl *g'* admits of the upward movement of the staff B, but prevents it from descending again.

When it is desired that the jack-staff should descend, the lower end of the pawl is depressed so as to detach its upper end from the rack-teeth.

Having thus described my invention, I claim as new—

1. The combination of the friction-wheels *a a* with a jack-staff, B, which is operated by

means of a rack and segment, substantially as described.

2. The application of friction-wheels to the back edge of a jack-staff which has a rack formed on its opposite edge adapted to receive the toothed segment formed on the end of the removable lever C, substantially as described.

3. The relative arrangement of the bearings *f f* and friction wheels *a a* on the standards of the jack-staff, which is operated substantially as described.

WM. M. K. THORNTON.

Witnesses:
W. B. GUILD,
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