(No Model.)

L. YAKEL.

LIFTING JACK.

No. 264,020. Patented Sept. 5, 1882.

Fig. 1.

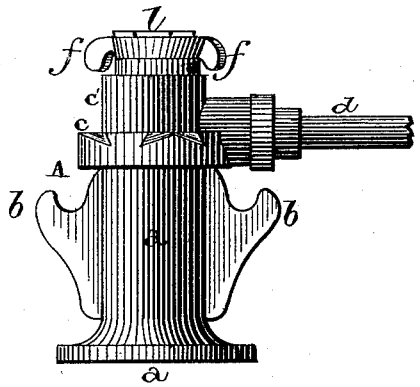


Fig. 2.

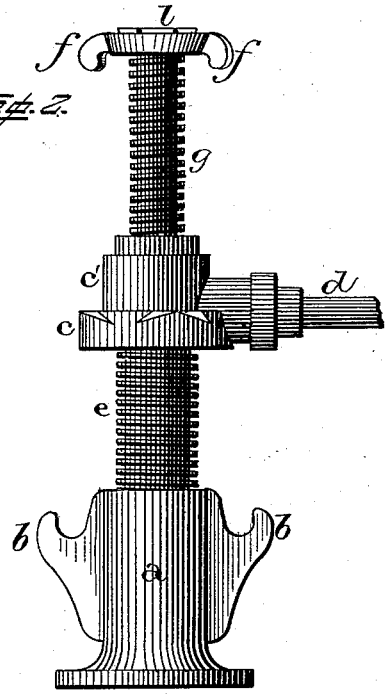


Fig. 3.

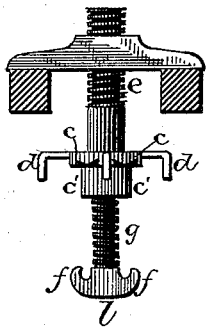
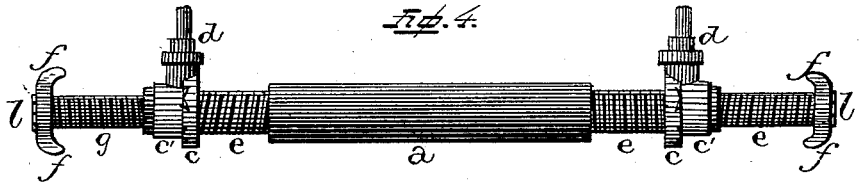


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

LEVI YAKEL, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO SAML. K. DUFF, OF SAME PLACE.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 264,020, dated September 5, 1882.

Application filed May 27, 1882. (No model.)

To all whom it may concern:

Be it known that I, LEVI YAKEL, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in lifting-jacks and other mechanical devices by which heavy bodies are lifted, held together, or pushed apart; and it consists in an application of differential screws in such a manner as to occupy less space than other lifting-jacks require, to combine power with speed, and at the same time to be handled with ease.

Heretofore lifting-jacks have been constructed with telescoping screws—*i. e.*, screws one of which revolves within the other, both having the same width and grade of thread, and consequently the same lifting power and speed.

To gain in lifting power and retain in part the velocity, I make two screws, right and left handed, of different diameter and thread, the smaller one, having the steeper or coarser thread, revolving within the larger, whereby not only is the lifting power increased, but space also gained, which is of great importance to builders, since it frequently occurs that for want of space ordinary jacks cannot be used in lifting heavy bodies.

My lifting-jack is also provided with hooks and lugs to hold or draw together heavy bodies, as will be described hereinafter.

The accompanying drawings represent my invention. Figure 1 represents the lifting-jack closed or screwed down; Fig. 2, the same extended; Fig. 3, timber-wheel screws; Fig. 4, double differential screws.

The lifting-jack A, Fig. 1, when closed, presents a socket or stand, *a*, provided at opposite sides on its upper end with lugs *b*. The lugs may be of any suitable form, or rings may be substituted therefor.

Over the socket *a* is shown a ratchet, *c*, with sleeve *c'*, operated by a lever, *d*. The ratchet *c* is firmly attached to the upper end of a screw, *e*, Fig. 2, that screws into and is of a length equal to that of the socket.

On top of the ratchet is shown, in Fig. 1, a head, *l*, with hooks *f* at opposite sides, which hooks may also be exchanged for rings or other suitable devices. This head *l* is fixed on top of a screw, *g*, Fig. 2, that is of smaller diameter than the screw *e*, and reaches down to the bottom of the socket *a* when the jack is closed. The screws *e* and *g* are right and left handed, and the thread on *e* is finer than that on *g*. The core of the screw *e* is removed for the admittance of the screw *g*, and its inner wall threaded to correspond with the thread on the screw *g*. The threads on these screws are so adjusted to each other that one turn of the finer-threaded screw causes a more or less rapid ascent or descent of the other, and in such proportion to each other that both arrive at their terminus at the same time. Assuming the jack, when closed, to measure twelve inches in height, it would, when raised, measure thirty-one inches, showing a rise of nineteen inches, which is more than can be gained from screws of a different construction.

If inverted, the action of this lifting-jack may be advantageously applied to form presses of various kinds, and also for lifting timber to swing under wagons, Fig. 3. The differential screws, as shown in Fig. 4, may also be doubled by introducing screws at both ends of a lengthened socket and operating them either separately or simultaneously, as the case may require. The hooks *f* and lugs *b*, or their equivalents, serve for fastening and holding together detached bodies.

Having thus described my invention, I claim—

1. A lifting-jack or equivalent device (shown in Fig. 4) operated by a lever and ratchet, in combination with differential screws, constructed and arranged substantially as described.

2. A lifting-jack or equivalent device (shown in Fig. 4) provided with lugs, hooks, or rings, as shown and described, and operated by a ratchet and lever, in combination with differential screws.

In testimony whereof I affix my signature in presence of two witnesses

LEVI YAKEL.

Witnesses:

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