(No Model.)

C. A. SULZMAN.

LIFTING JACK.

No. 341,962. Patented May 18, 1886.

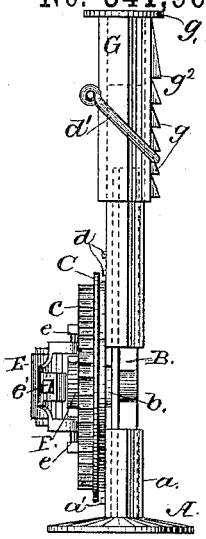

Fig. 3.

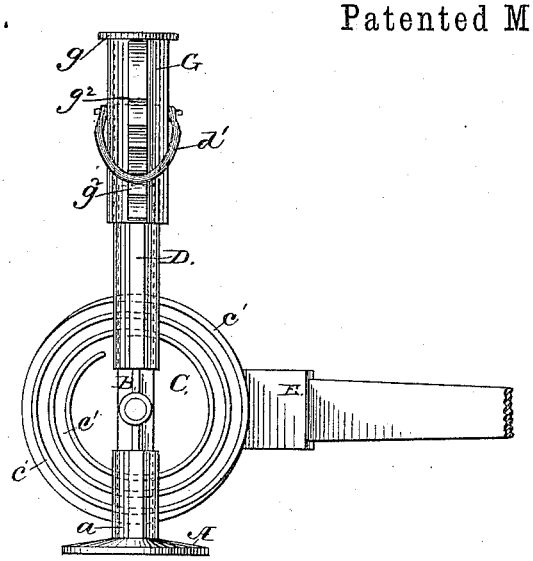

Fig. 2.

Fig. 1.

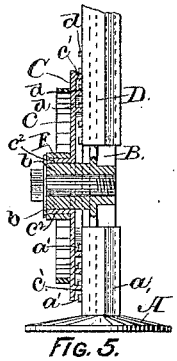

Fig. 5.

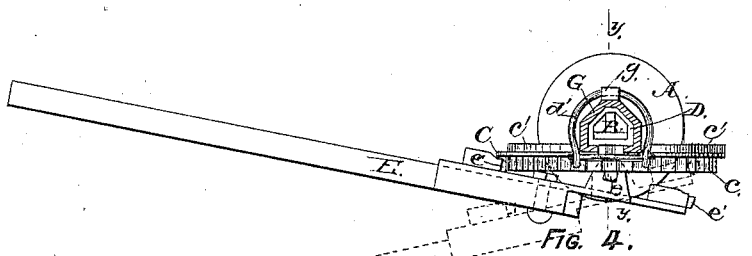

Fig. 4.

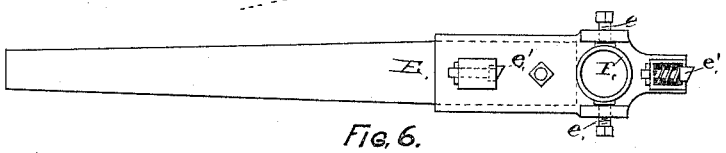

Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES A. SULZMAN, OF WATERFORD, NEW YORK.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 341,962, dated May 18, 1886.

Application filed January 29, 1886. Serial No. 190,163. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SULZMAN, of Waterford, in the county of Saratoga and State of New York, have invented new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention relates to improvements in apparatus for mechanically raising and sustaining heavy bodies; and the object of my invention is to provide a simple and reliable device for the above-named purpose. This object I attain by means of the mechanism illustrated in the accompanying drawings, which, being herein referred to, form part of this specification, and in which—

Figure 1 is a front elevation of my jack; Fig. 2, a rear elevation; Fig. 3, a side elevation; Fig. 4, a horizontal section at the line *x x* of Fig. 1; Fig. 5, a vertical section at the line *y y* of Fig. 4, and Fig. 6 a detached rear elevation of the operating-lever.

As shown in the drawings, A is the base-piece, provided with a hollow standard or sleeve, *a*, having short curved ribs *a'* across its face. Said ribs are spaced at equal distances to conform to a spiral scroll on the wheel, hereinafter described.

B is a sliding bar fitted to slide telescopically in the sleeve *a*, and provided with a hub, *b*, that is formed on said bar, so as to project at a right angle to the face thereof.

C is a wheel or disk fitted to revolve freely on the hub *b*, and having on its outer face a standing rim, *c*, which forms an internal and external ratchet-wheel. On the opposite face of the disk C there is a projecting rib, which forms a spiral scroll or volute, *c'*. Said scroll expands at a regular pitch, and is so arranged as to engage with the curved ribs *a'* in such manner that the rotations of the disk C will cause the sliding bar to slide into or out of the sleeve *a*, according to the direction in which the said disk is rotated.

D is a sliding sleeve, which fits over the upper part of the sliding bar B, and has a rising-and-falling movement that is independent of the latter. Said sleeve is provided with curved ribs *d*, which, like the ribs *a'* on the standard *a*, engage with the spiral scroll *c'* on the wheel C. At the upper part of said sliding sleeve a swinging stirrup, *d'*, is pivoted, for a purpose hereinafter explained.

E is a lever by which the wheel C is operated. Said lever is adapted to receive both a sidewise and an up and-down swinging motion, in the manner of a "universal joint," and for this purpose it is pivoted to swing on the points of the set-screws *e*, which enter the collar F, the latter being fitted to rotate freely on the hub c^2 of the wheel C. The lever E is provided with two spring-catches, *e'*, of which the one at the end of the lever is adapted to engage with the internal ratchet-teeth on the rim *c*, and the other is adapted to engage with the external ratchet-teeth on said rim. When said lever is in its midway position between the two extremes of its sidewise movements, both of said spring-bolts *e'* will be held clear from any engagement with either set of the ratchet-teeth. The wheel C and collar F (and by the latter the lever E) are retained in place by a bolt, *b'*, which enters the hub *b* for that purpose.

G is a head-piece fitted to slide on the upper part of the sliding sleeve D. Said head-piece is provided with a cap, *g*, on which the weight to be raised will rest, and a slotted opening, *g'*, which permits said head-piece to slide down past the stud by which the stirrup *d'* is attached to the sliding sleeve D and past the transverse ribs *d* on said sleeve. Said head-piece is also provided with serrated projections or hooks g^2, with which the stirrup *d'* is adapted to engage for the purpose of locking said head-piece to the sliding sleeve *d*.

The mode of operating my improved jack is as follows: The head-piece G being lowered to rest upon the upper end of the sliding sleeve D, the jack is placed under the weight to be raised, and the head-piece G raised to the nearest point permissible by the hooks g^2, so that the cap *g* will be as close as possible to the under side of said weight. Then, with the lever E swung sidewise in the position shown in Fig. 4, a downward movement of said lever will cause a partial rotation of the wheel C, and by reason of the spiral scroll *c'* on said wheel the sliding bar B will, in a corresponding degree, be raised upward in the hollow standard *a*, and the sliding sleeve D will, in like manner and to the same degree, be raised up on said sliding bar, and by a succession of the up-and-down vibrations of the lever E the jack will be extended vertically to the required distance.

To lower a weight resting on the top of the jack or to shorten the height of said jack, the lever E should be swung sidewise into the position indicated by the dotted lines in Fig. 4, so that the spring-bolt *e'* in the outer end of said lever will engage with the internal ratchet-teeth on the standing rim *c*, and then, by the up-and-down vibrations of the lever E, the wheel C will be rotated in a reverse direction, and thereby cause the sliding bar B and sliding sleeve D to move downward.

When preferred, the head-piece G and stirrup *d'* may be dispensed with, and in such case the weight to be raised will rest directly on the upper end of the sliding sleeve D; and, when preferred, a crank or other similar well-known device may be substituted for the lever E, to produce the rotations of the wheel C; but, while my invention includes such modifications, I preferably use said lever.

I claim as my invention—

1. In a lifting-jack, the combination, with the standard *a*, provided with transverse curved ribs *a'*, the sliding sleeve D, provided with transverse ribs *d*, the sliding bar B, fitted to said standard and sleeve, and the wheel C, journaled on said sliding bar, and provided with a spiral scroll, *c*, which engages the ribs *a'* and *d*, and provided with ratchet-teeth, of an operating-lever, E, pivoted to the wheel C, and provided with spring-catches *e'*, adapted to engage with the ratchet-teeth on said wheel, in the manner and for the purpose herein specified.

2. In a lifting-jack, the combination, with a standard, *a*, provided with transverse curved ribs *a'*, the sliding sleeve D, provided with transverse curved ribs *d*, and the sliding bar B, fitted to said standard and sleeve, as herein described, of the wheel C, journaled to the sliding bar B, and provided with a spiral scroll, *c*, which engages with the ribs *a'* and *d*, to operate as and for the purpose specified.

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