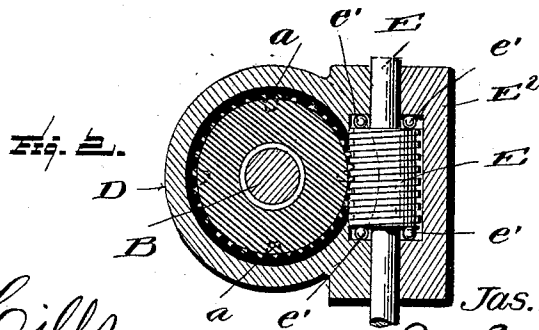
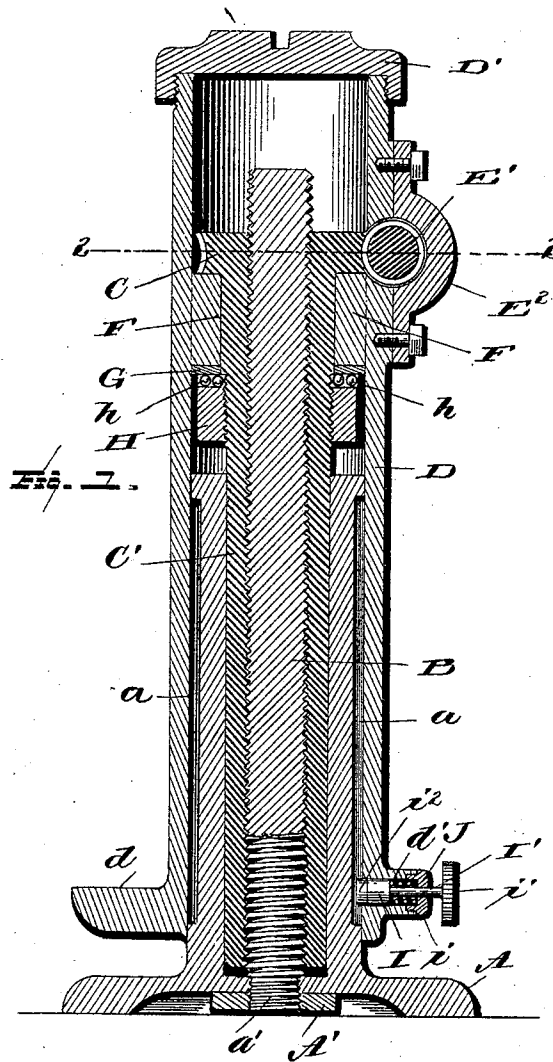


(No Model.)

J. H. SHERIDAN.
LIFTING JACK.

No. 538,392.

Patented Apr. 30, 1895.



Witnesses.

L. C. Hills.
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UNITED STATES PATENT OFFICE.

JAMES H. SHERIDAN, OF FITCHBURG, MASSACHUSETTS, ASSIGNOR OF NINE-SIXTEENTHS TO JOHN H. DALE AND PHILIP FARRELL, OF BROOKLYN, NEW YORK.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 538,392, dated April 30, 1895.

Application filed December 21, 1893. Renewed March 22, 1895. Serial No. 542,861. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. SHERIDAN, a citizen of the United States, residing at Fitchburg, in the county of Worcester, State of Massachusetts, 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.

This invention relates to certain new and useful improvements in lifting jacks and it has for its objects among others to provide a simple, strong, and durable and easily-operated lifting jack, operated by worm and screw gear and adapted for either foot or head lift and capable of rapid reverse movement for the purpose of obtaining a new lift.

The device embodies a stand with a screw shaft held therein, a worm gear with depending tubular portion internally threaded to receive the said screw shaft, and an outer casing in which is mounted a worm shaft to cooperate with the worm gear said casing carrying means for preventing rotary movement of the casing and yet permitting rotary movement when it is desired to return the parts to their normal position. The outer casing is constructed to receive the weight either at its upper end or upon a foot-lift near its lower end. The outer casing is provided internally with an annular ring between which and a nut on the tubular portion of the worm gear are arranged balls forming a ball bearing. The worm shaft is designed to be actuated in any suitable way as for instance by a double acting ratchet wrench.

The parts are easily assembled and the device is capable of sustaining a great weight and yet requiring but little power to operate the same.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a central vertical section through my improved lifting-jack. Fig. 2 is a cross-section on the line 2 2 of Fig. 1 looking downward.

Like letters of reference indicate like parts in both of the views.

Referring now to the details of the drawings by letter, A designates the base or stand which is tubular as shown and having upon its outer periphery a plurality of longitudinal channels *a* preferably four in number, and which terminate at a short distance from the ends of the tubular portion as seen in Fig. 1.

B is a screw shaft or rod arranged concentrically within the tubular portion of the stand and having its lower end passed through the bottom thereof and there provided with screw threads *a'* to receive the nut A' as seen in Fig. 1 which bears against the under side of the bottom portion of the stand or base and serves to keep the screw rod or shaft securely in place.

C is a worm gear having a tubular portion C' which is interiorly threaded as seen in Fig. 1 to receive the screw shaft or rod and fitted to slide within the tubular portion of the stand.

D is the outer case or cylinder fitted to slide over the tubular portion of the base or stand and provided at its upper end with a removable cap D'. Near its lower end it is formed or provided with a lateral portion *d* the upper face of which is preferably square to receive the load to be lifted.

E is a worm shaft mounted horizontally in bearings near the upper end of the outer casing and carrying a worm E' meshing with the worm gear as seen best in Fig. 2. This shaft is preferably mounted in bearings in the outer case and the removable cap or portion E² removably held to the outer case in any suitable manner, one or both ends of the shaft being extended and adapted to be rotated in any suitable way, as for instance by a double acting ratchet wrench. The worm is provided with balls *e'* at the ends as shown in Fig. 2 to take the end thrust.

Projecting inwardly from the inner wall of the outer casing near the upper end thereof is a ring F which fits just beneath the worm gear as seen in Fig. 1 and upon the under side of which is a hardened steel ring G between which and a nut H screwed onto the tubular portion of the gear are held the balls *h* as shown clearly in Fig. 1. In whichever

direction the strain comes the pressure is equal upon the balls.

Near its lower end the outer case is formed with a chambered or hollow boss d' in which is fitted a plunger I the stem I' of which projects through a hole in the removable cap i of the said boss and it is provided with a knob or other device i' by which it may be manipulated. At the inner end of this plunger is a small roller or wheel i^2 which is designed to travel in one of the channels of the tubular portion of the stand. A spring J urges the plunger with its wheel inward.

With the parts constructed and arranged as above described the operation is as follows:— The weight to be lifted may be placed either upon the upper end of the outer case or upon the foot-lift d thereof. The plunger is, by its spring, forced into one of the channels of the tubular portion of the stand, and when the worm shaft is turned it causes the worm gear to revolve, and this, by reason of the ring F and the nut G, causes the tubular portion of the gear and the outer casing to be elevated simultaneously, being guided by the tubular portion of the stand, and the tubular portion of the gear working on the screw shaft or rod. The parts are returned to their normal position by pulling outward the plunger so its wheel or roller is removed from the channel of the tubular portion of the stand and then the weight of the parts will cause the same to revolve and move downward, when the roller of the plunger springs into one of the chan-

nels of the tubular portion of the stand and the parts are ready to be again operated.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. The combination with the base and its screw rod and tubular portion, of the worm gear with interiorly threaded depending tubular portion, the outer casing with its worm shaft and interior ring, the nut on the tubular portion of the gear, and the balls between said nut and ring, substantially as specified.

2. The combination with the base and tubular portion and screw rod, of the worm gear with tubular portion, the outer casing with its worm shaft with balls for taking the end thrust, the ring on the inside of the outer casing, the nut on the tubular portion of the gear, the balls between the nut and ring, and means for preventing rotation of the outer case, as set forth.

3. The combination with the base and its tubular portion with channels, of the outer casing with hollow boss with removable cap, the spring-actuated plunger in said boss, and a roller at the inner end thereof to travel in the channels, substantially as specified.

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

JAMES H. SHERIDAN.

Witnesses:

J. E. McCONNELL,
JEREMIAH MCCARTHY.