

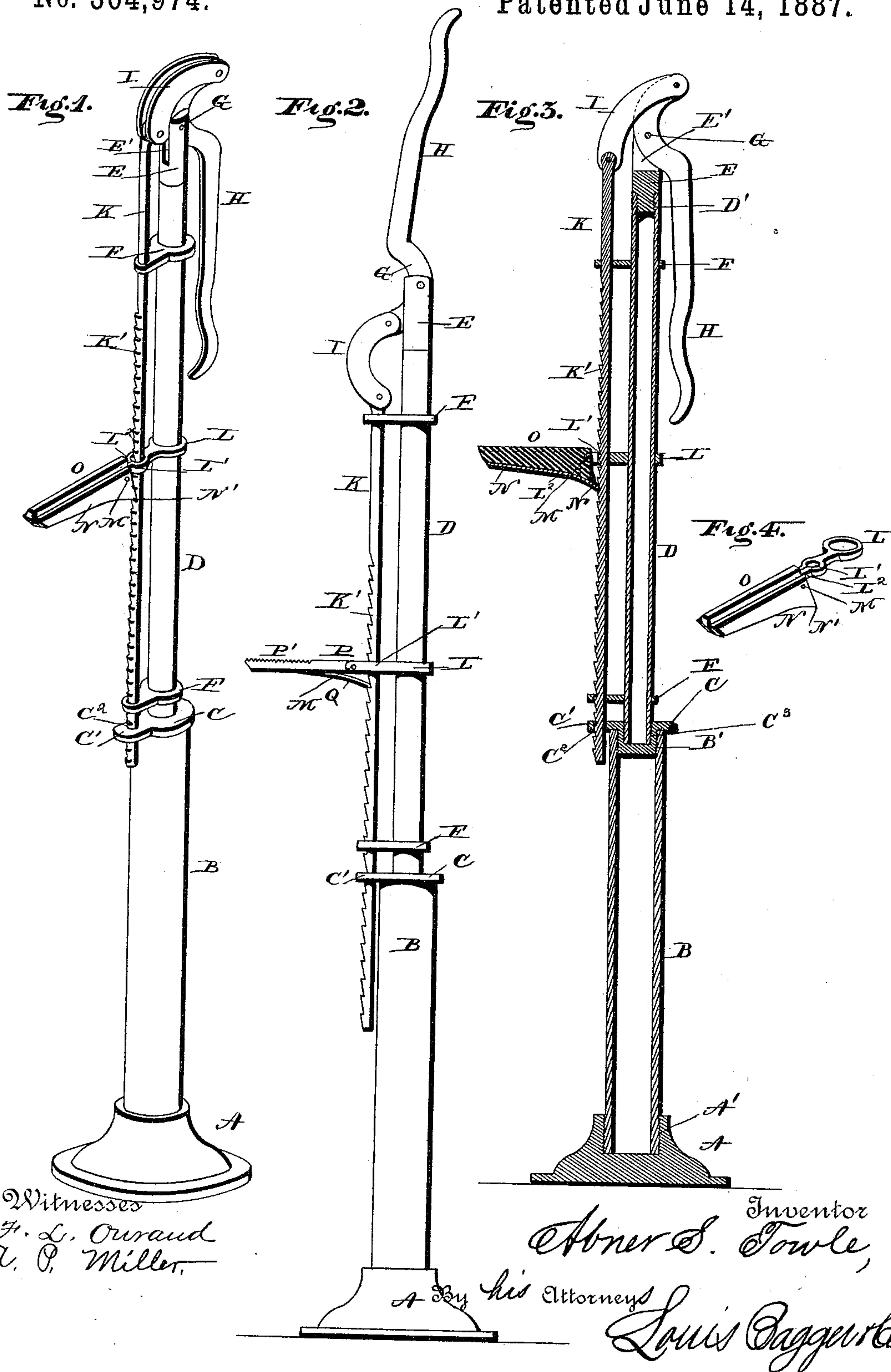
(No Model.)

A. S. TOWLE.

LIFTING JACK.

No. 364,974.

Patented June 14, 1887.



UNITED STATES PATENT OFFICE.

ABNER S. TOWLE, OF EAST ROCHESTER, NEW HAMPSHIRE.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 364,974, dated June 14, 1887.

Application filed March 28, 1887. Serial No. 232,747. (No model.)

To all whom it may concern:

Be it known that I, ABNER S. TOWLE, a citizen of the United States, and a resident of East Rochester, in the county of Strafford and State of New Hampshire, have invented certain new and useful Improvements in Lifting-Jacks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective view of my improved lifting-jack, showing the handle or lever thereof lowered into its normal position. Fig. 2 is a side elevation showing the handle or lever raised. Fig. 3 is a central longitudinal sectional view, and Fig. 4 is a detail view of one form of pivoted arm or step which I prefer to employ.

The same letters of reference indicate corresponding parts in all the figures.

My invention consists in an improved lifting-jack which is simple, strong, and light in construction, and exceedingly efficient in its operation, and which will be hereinafter fully described and claimed.

Referring to the several parts by letter, A indicates the circular base-piece of my improved lifting-jack, which is preferably solid, and which is usually made to weigh about three and one-half pounds. In the central part of this base-piece A is rigidly secured the lower end of the upright lower tube, B, of the lifting-jack. This lower tube may be made of one-half-inch gas-pipe, or a tube of that size, and its lower end is preferably screwed into a suitable threaded vertical opening, A', in the center of the base-piece A. The upper end of this tube B is formed with an interior screw-thread, B', and in this upper end of the tube is screwed the lower threaded end of a cap, C, which closes the upper end of the lower tube, B, this cap being formed on one side with an extension, C', which has a vertical opening, C², and the cap is further formed with a central threaded opening, C³. In this central threaded opening of the cap C is firmly screwed the lower threaded end of an upper tube, D, which forms the upper half of the body of the

lifting-jack, and which may be constructed on one-quarter-inch gas-pipe, or other tubing of that size, and the upper end of this upper tube, D, is formed with an interior screw-thread, D', and in this screw-threaded upper end is screwed the lower threaded end of a solid cap, E, which is formed in its upper portion with a vertical slot, E'. The upper tube, D, is also provided with the perforated guides F F, which are rigidly secured upon it at its lower and near its upper end, as shown.

In the vertical slot E' of the cap E is pivoted, by means of a transverse pivot, G, the upper portion of the operating lever or handle H, which is curved at its upper end into a half-circular form, as shown, and is pivoted at the center of this curved portion; and the upper end of this handle or lever is pivotally connected by means of the curved link or links I with the upper end of the reciprocating elevating-rod K, which is about as long as the upper tube, D, and which passes through and slides in the perforated guides F F, which are immovably secured to the upper tube, D, and also passes through the perforated extension C' of cap C. The rod K is formed on its outer side with a series of upwardly-inclined teeth, K', having their upper sides formed straight, as clearly shown in the sectional view, Fig. 3.

L indicates the supporting-ring, which slides upon the upper tube, D, between the stationary guides F F, this ring being formed with a perforated extension, L', which loosely encircles the reciprocating rod K, and with parallel lips L², extending out beyond this rod K, a transverse pivot, M, passing through these lips.

N indicates the pivoted arm or step which I prefer to employ, the inner end of which is pivoted, as shown, on the transverse pivot M, the lower inner end of the said arm being slightly extended to form a point, N', which is adapted to engage with the straight upper faces of the series of teeth formed on the outer side of the elevating-rod K. This arm N may be formed of a single piece or plate of metal of sufficient thickness and strength, bent double, so that its sides are parallel and its upper longitudinal edges lie in close proximity, and between these upper parallel edges is secured a cushion or piece of rubber or other suitable

flexible material, O, which extends the full length of the upper longitudinal side of the arm or step, as clearly shown in the detail view, Fig. 4, of the drawings. It will be seen by reference to the said view that the pivoted step N may readily swing upward on its pivot; but its downward movement is stopped as soon as it lies in a horizontal plane by its lower point, N', engaging with the straight upper face of one of the series of teeth of the elevating-rod K.

In operation, the step may be adjusted up or down on the upper tube by merely raising its outer end until its inner point, N', is clear of the teeth of the rod K, when the step, with its supporting-ring L, may be moved up or down, as desired. The jack is then placed in position, with the step or arm N beneath the outer part of the axle, when the handle of the lever H is raised, thereby lowering the rod K, the inclined faces of the teeth K' sliding readily down past the point of the step, the outer end of the step being raised, which presses the inner end of the rubber cushion O up against the rod K. It will now be seen that when the rod K has reached its lowermost point in its descent and comes to a moment's pause before being raised, at that moment the expansion of the rubber cushion at the point where it has been pressed against the rod K will throw the point N' down and in, so that it will be sure to engage with one of the teeth K'. The handle of the lever H is then pressed down, and as the point N' of the rest N is over the straight face of one of the teeth K', it will be seen that the step will be raised with the rod K as the latter is elevated by the depression of the lever H, thus raising the end of the wagon or axle, as will be readily understood.

It will be seen that the preliminary adjustment of the step may be easily and rapidly effected by merely raising and lowering the handle of the lever H, like working a pump-handle, the slanting faces of the teeth K' of the elevating-rod K slipping under and raising the point N' at each downward movement of the rod K, while the straight faces of the said teeth will engage with the point N' at each upward movement of the rod K, thus working the step up to the desired point by merely raising and lowering the handle of the lever H.

Instead of the form of step before described, and illustrated in Figs. 1, 3, and 4, I may employ the form of step shown in Fig. 2 of the drawings, this latter form consisting of a flat metal bar or plate, P, formed on its upper longitudinal edge with a series of teeth or serrations, P', to adapt it to engage with the wood of the wagon or axle, and thus prevent it from slipping, the inner end of this step being pivoted to the pivot M, and the step having secured to its lower edge the outer end of a brace, Q, the inner end of which extends in slightly beyond the inner lower end of the step itself, so as to adapt it to engage with the teeth of the rod K. The operation of this form of step will be readily understood without further ex-

planation. I prefer to use the rubber-cushioned step N, before described, as the rubber cushion protects the paint or varnish of the wagon, preventing it from being cracked or scaled, which would be the case if the flexible cushion were not employed; and the rubber cushion further acts as a spring to throw the point N' of the step into engagement with the straight edges of the rod K, in the manner previously described. By forming the upper pivoted end of the lever in the curved semicircular form shown, and connecting the upper end of the rod K to the upper end of the lever by the curved semicircular link or links I, it will be seen that when the handle of the lever has been depressed to raise the step and the curved link lies directly over the curved upper end of the lever, as shown, the lever and link lock the rod K in its raised position, and that the lock thus formed will hold against the downward pressure of any weight that may be lifted or rested upon the step N.

From the foregoing description, taken in connection with the accompanying drawings, the construction, operation, and advantages of my invention will be readily understood. It will be seen that it is simple and strong in construction, and, being formed with the tubes B and D, is very light in weight, the entire jack weighing only about seven pounds, of which the circular base weighs three and one-half pounds. The parts may be readily unscrewed, so as to pack the jack in a small space for storage or shipment.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of a standard having a base-piece, a supporting-ring upon said standard having a perforated extension, an arm or step pivotally secured thereto, an elevating-rod passing through said extension, a lever, the upper end of which is formed into a half-circle and pivotally secured to the upper end of said standard at the middle of said half-circle, a curved link or links connecting the upper end of said rod to the upper end of said handle, and means, substantially as described, for securing the rod at the side of the standard.

2. The combination of a standard, a lever pivotally secured at its upper end, a lifting-rod provided with upwardly-inclined teeth secured thereto, a supporting-ring upon said standard having an extension, an arm pivotally secured thereto, said arm consisting of a single plate of metal bent double, so that its sides are parallel and its upper longitudinal edges lie in close proximity and having its lower inner end extended, and a piece of elastic material secured within said arm.

3. The combination of a tube having a base-piece secured to its lower end and a cap secured to its upper end, said cap having a perforated extension, an upper tube secured in said cap having a slotted cap in its upper end,

guides secured to the upper tube having perforated extensions, an elevating-rod within said perforated extensions having upwardly-inclined teeth, a supporting-ring, an arm pivotally secured thereto, a handle, and links for securing the upper end of said handle to the upper end of said rod.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ABNER S. TOWLE.

Witnesses:

STEPHEN D. WENTWORTH,
GEO. H. JACKSON.