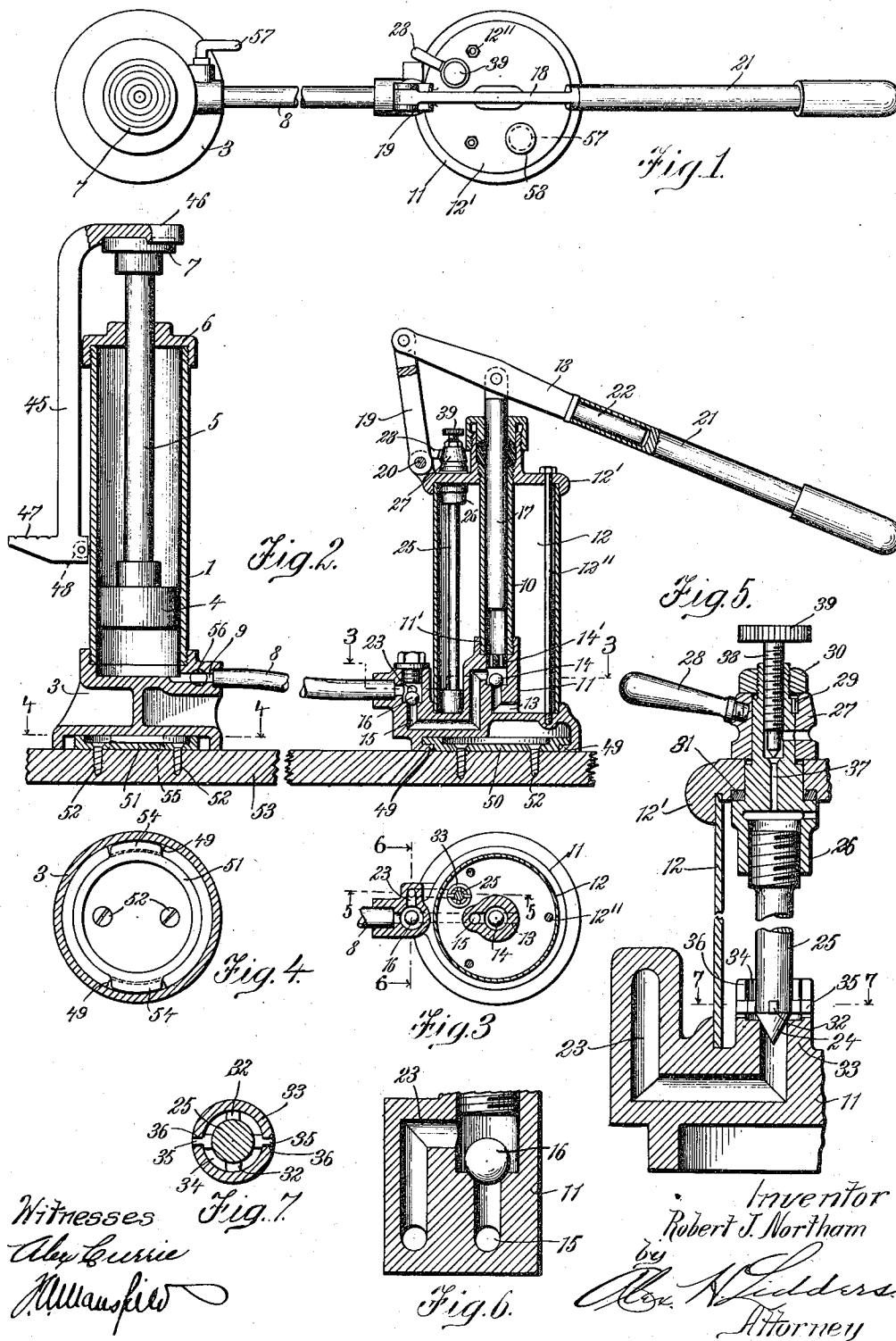


R. J. NORTHAM.
LIFTING JACK.
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Patented Nov. 8, 1910.



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LIFTING-JACK.

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To all whom it may concern:

Be it known that I, ROBERT J. NORTHAM, a citizen of the United States of America, residing at Los Angeles, in the county of Los Angeles, State of California, have invented a certain new and useful Lifting-Jack; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to lifting jacks and particularly to the means for operating the same; devices constructed according to this invention being especially adapted to be used in jacking up automobiles or other vehicles, though they may be used equally well in lifting other heavy objects.

One object of the invention is to provide a device of the character specified which is compact and easily portable and capable of being stored in a small space and yet permits of the operating means being placed at a distance from the jack proper when the device is in use.

With the above and other objects and advantages in view, which will be apparent to those skilled in the art from a consideration of the following description and accompanying drawings in which one form of construction embodying the invention is described and illustrated, the invention may be said to consist of the construction, arrangement and combination of parts hereinafter described and set forth in the appended claims.

Referring now to the drawings: Figure 1 is a plan view of a device embodying the invention. Fig. 2 is a sectional elevation thereof. Fig. 3 is a horizontal sectional view taken on line 3—3 Fig. 2. Fig. 4 is a horizontal sectional view taken on line 4—4 Fig. 2. Fig. 5 is an enlarged detail section taken on line 5—5 Fig. 3. Fig. 6 is an enlarged detail section taken on line 6—6 Fig. 3 and Fig. 7 is a detail section taken on line 7—7 Fig. 5.

The jack proper is preferably constructed to be operated hydraulically; as here shown comprising a cylinder 1 mounted on a base 3 and containing a piston 4. A piston rod 5 is secured to piston 4 and projects upwardly through the top 6 of the cylinder, this piston rod being preferably provided with a cap 7 on which an object being raised by the device is adapted to rest.

Liquid under pressure may be supplied to cylinder 1 through a preferably flexible tube 8 which may be of any desired length and which fits at one end in an opening 9 leading to the cylinder. The opposite end of tube 8 preferably connects with a pump cylinder 10 which is mounted on a base 11, being secured thereto in any convenient manner as by the threaded connection indicated at 11'.

The liquid by means of which the jack is raised may be drawn from a reservoir 12. To make the device compact this reservoir is preferably mounted as shown on the base 11 to inclose the pump cylinder 10; the reservoir being preferably of cylindrical formation and provided with a cap or cover 12'. Bolts 12'' passing through the cover 12' and threaded into the base 11 may be used to secure the reservoir to the base 11, the latter forming the bottom of the reservoir. Connection between the cylinder 10 and reservoir 12 is effected by means of a conduit 13 controlled by a one-way valve 14 while connection between the cylinder and tube 8 is effected by means of a conduit 15 controlled by a one-way valve 16. A perforated plug 14' prevents the valve 14 from being drawn up into the cylinder on the upward stroke of the pump plunger.

The advantage of the foregoing arrangement of parts will be apparent as it will be readily seen that the device will be compact and easily carried about while at the same time it will greatly facilitate the jacking up of an object which is difficult of access, such as axle of an automobile, as the pump can be set in any convenient place while being operated.

The pump plunger 17 may be operated by means of a lever 18. This lever is preferably fulcrumed on a link 19 which is pivoted as at 20 to a projection on cover 12' and it may be provided with a removable handle 21 fitting over the end 22 of the lever.

A by-pass 23 leading from conduit 15 to the reservoir 12 may be provided to permit of the return of the liquid to the reservoir 12 when the jack is lowered. Connection between the by-pass and the reservoir may be controlled by suitable means as by the valve 24, the stem 25 whereof is elongated and threaded into the lower end of a sleeve 26 swiveled in the cover 12'. Rotation of the sleeve 26 to open or close valve 24 may be effected by means of a ring 27 encircling the

latter above the cover and provided with a handle 28; the ring being keyed to the sleeve as indicated at 29. A nut 30 screwed upon the end of the sleeve and bearing 5 against the ring 27 secures the ring and sleeve to the cover as will be readily understood by referring to Fig. 5 of the drawings. A washer 31 may be provided to make a liquid-tight joint between the sleeve and the 10 cover 12'; the nut 30 being screwed up sufficiently to make a snug fit between the parts without preventing rotation of the sleeve and ring.

To hold valve 24 in alinement with the 15 by-pass 23 which opens into the cylinder 10 from a boss 33 on the base 11, the stem 25 has near its lower end a spider 32 which slides in the enlarged inner end 34 of the by-pass, while lugs 35 bearing in slots 36 in boss 33 keep the valve stem from rotating with sleeve 26 when the latter is actuated by handle 28.

Communication between the upper part of the reservoir and the outside air may be 25 effected by means of a conduit 37 leading from the reservoir through sleeve 26 and ring 27. A valve 38, the stem whereof is threaded into the upper end of sleeve 26 and has a head 39, may be provided to close 30 the passage to prevent any possibility of the liquid in the reservoir escaping therefrom when the device is not in use.

In case it should be desired to raise an object the space underneath which is not of 35 sufficient height to permit of the cap 7 being inserted thereunder, a supplementary device 45, the top 46 of which fits over the cap 7, may be provided. The lower end of the device is provided with a projecting step 47 40 which may be inserted under the object to be raised; while friction between the device and the cylinder when the piston is being raised may be prevented by any suitable means as the roller 48.

As shown particularly in Figs. 1 and 4, 45 the base members 3 and 11 may be recessed on their under sides and formed with oppositely disposed inwardly projecting lugs 49 through which the jack and pump may be 50 secured when not in use to base-plates 50 and 51, these base-plates being fastened by screws 52 or in any suitable way to a stationary part indicated at 53, such as the foot-board of an automobile; the base-plates 55 50 and 51 being formed with outwardly projecting lugs 54 under which the lugs 49 are adapted to engage—this connection being substantially a bayonet-joint connection and the manner of securing the pump and jack 60 to the base-plates by placing them over the latter and giving them a partial turn will be readily understood. The lugs 49 and 54 are preferably slightly beveled circumferentially as indicated at 55 to allow of the 65 pump and jack being secured firmly in place.

Any suitable means, as the stop cock 56 operated by the handle 57 may be provided to retain the liquid in cylinder 1 and relieve the strain on the flexible tubing 8 in case it 70 should be desirable to leave the jack for a length of time with the piston raised and a weight bearing upon it. An opening 57 having a removable cover 58 may be provided in the cover 12'.

When it is desired to use the device, the 75 jack proper is placed under the object to be raised, the pump being arranged in any convenient place. Upon reciprocation of the lever 18 the liquid will be drawn from reservoir 12 through conduit 13 into cylinder 10 80 and from cylinder 10 the liquid will be forced through conduit 15 and tube 8 into cylinder 1, thus raising piston 4. When it is desired to lower the object the same is accomplished by opening valve 24 when the 85 liquid will return to the reservoir 12 through by-pass 23.

Although one form of construction in which the invention may be embodied has been illustrated and described it is obvious 90 that various changes and modifications might be made therein and the right is reserved to all such changes and modifications as come within the spirit and scope of the invention. 95

I claim:

1. In combination, a pump cylinder, a base on which the cylinder is mounted, said base having a slotted projection thereon, a reservoir mounted on said base and inclosing 100 the cylinder, a valve controlled conduit leading from the reservoir to the cylinder, a second valve controlled conduit leading away from the cylinder, a by-pass leading from the second mentioned conduit to the 105 reservoir, a valve controlling said by-pass, a stem for operating the valve, a spider formed on the stem near its lower end to keep the valve in alinement with the by-pass, a sleeve rotatably mounted on the cover 110 of the reservoir and threaded into the upper end of the valve-stem, a ring encircling the sleeve and keyed thereto, a nut threaded onto the upper end of the sleeve and bearing against the ring, a handle on the ring 115 whereby the ring and sleeve may be rotated, and means for preventing rotation of the valve stem when the sleeve is rotated, including a lug formed on the stem and bearing in the slotted projection on the base. 120

2. In a device of the class specified, in combination, a pump cylinder, a reservoir inclosing the cylinder, a valve controlled conduit leading from the reservoir to the cylinder, a second valve controlled conduit 125 leading away from the cylinder, a by-pass leading from the second conduit to the reservoir, a valve for the by-pass, means to actuate the valve including a sleeve rotatively mounted in the cover of the reservoir, 130

said sleeve provided with a passage leading from the upper part of the reservoir to the outer air, a valve in the sleeve operable to close the passageway.

5 In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses at Los Angeles,

in the county of Los Angeles, State of California, this 28th day of April A. D. 1910.

ROBERT J. NORTHAM.

Witnesses:

ALEX. H. LIDDERS,

ALEX CURRIE.