

Jan. 22, 1929.

1,699,897

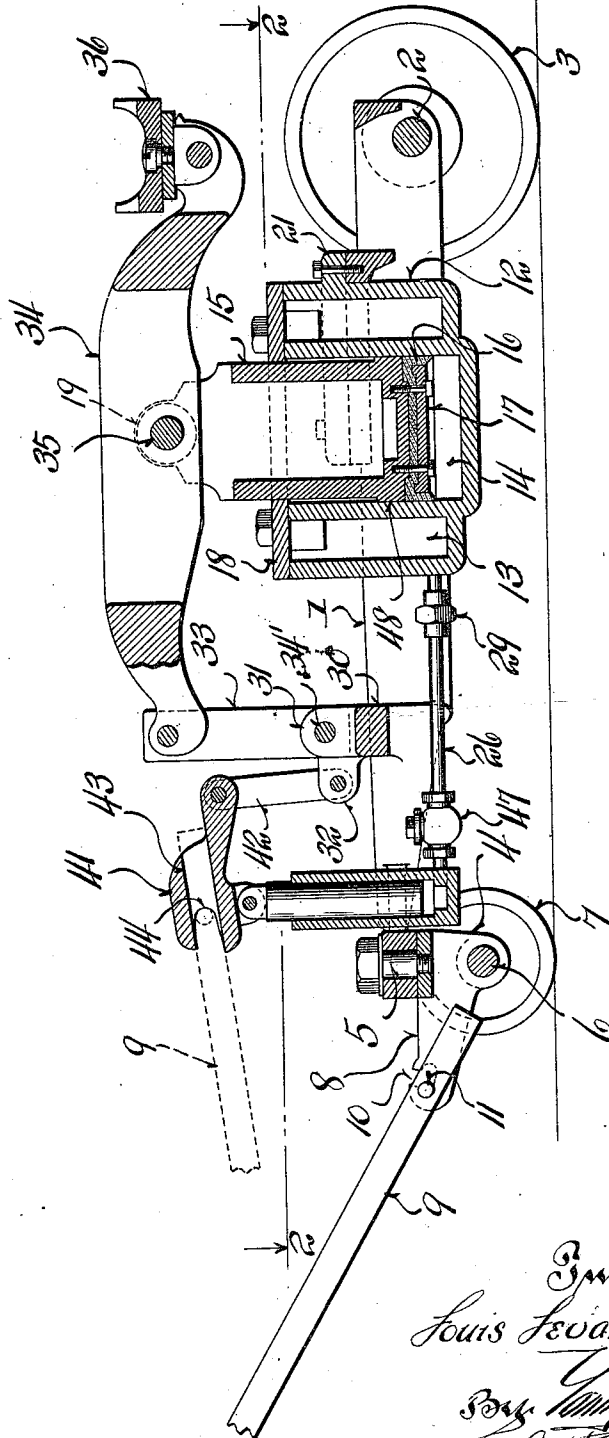
L. LEVANDOWSKIE

HYDRAULIC JACK

Filed Dec. 10, 1926

2 Sheets-Sheet 1

Fig. 1



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2 Sheets-Sheet 2

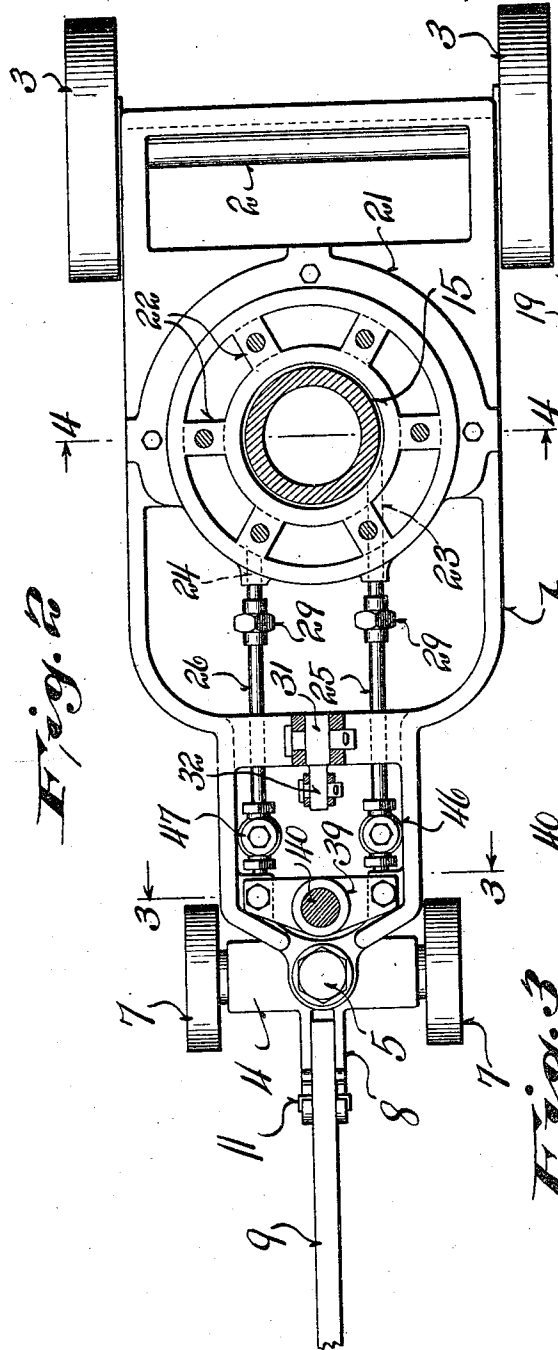


Fig. 2

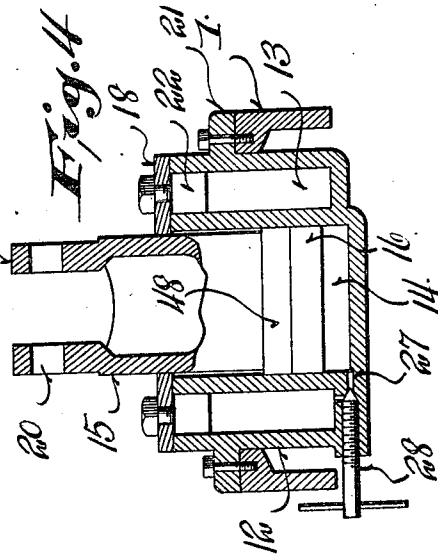


Fig. 4

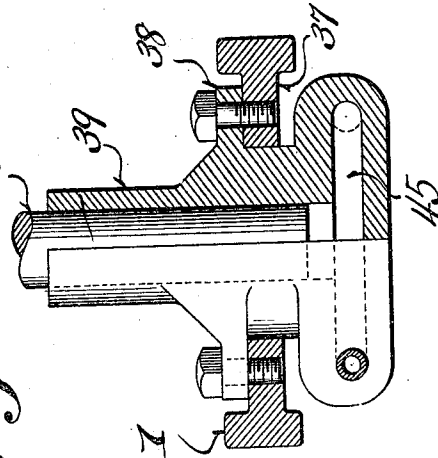


Fig. 3

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UNITED STATES PATENT OFFICE.

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HYDRAULIC JACK.

Application filed December 10, 1926. Serial No. 153,848.

This invention relates to a hydraulic jack. Objects of this invention are to provide a hydraulic jack which has great lifting power with a minimum of exertion, which will start and stop at any point up or down, in which the ram locks automatically in any position, and in which the load can be released either slow or fast, as desired.

Further objects are to provide a novel form of portable hydraulic jack which may be closed or lowered to a very low position, so that it may be run under a low swung automobile or other device, even if such automobile has a great overhang.

Further objects are to provide a hydraulic lifting jack in which the handle for guiding and moving the jack may also be used to operate the plunger of the pump, so that the necessity of two operating handles is avoided.

An embodiment of the invention is shown in the accompanying drawings in which:

Figure 1 is a longitudinal sectional view through the device;

Figure 2 is a horizontal sectional view on the line 2—2 of Figure 1;

Figure 3 is a sectional view on the line 3—3 of Figure 2;

Figure 4 is a sectional view on the line 4—4 of Figure 2.

Referring to the drawings, it will be seen that the jack comprises a body portion 1 in the form of an open relatively heavy and strong frame. This body portion, as may be seen from Figures 1 and 2, carries a rear axle 2 supported by rear wheels 3, and is joined to a front truck 4 by means of a king pin 5. Further, the body portion itself rests upon the front truck, as shown in Figure 1. This front truck is provided with an axle 6 supported by relatively smaller front wheels 7. Further, the front truck is provided with a pair of spaced forwardly extending arms 8 between which a handle 9 is removably mounted. These arms are provided with a notch 10 having lateral projections at opposite sides within which a pin 11 carried by the handle 9 is adapted to seat.

The body portion 1 also carries adjacent the rear end thereof a composite reservoir and cylinder, as indicated by the reference character 12 in Figures 1, 2, and 4. The reservoir consists of an annular compartment 13, and the cylinder is indicated by the reference character 14. The cylinder

carries a ram or lifting plunger 15 which is preferably provided with a leather or similar cup 16 held in place by a washer or plate 17 bolted to the lower end of the plunger, as shown in Figure 1. Further, the reservoir is closed by an annular plate 18 which is centrally apertured to form a guiding recess for the plunger 15. In order to secure lightness, the plunger may be hollow, as shown in Figure 1. This plunger terminates in a pair of upwardly extending spaced arms 19 which are apertured, as indicated at 20, attention being particularly directed to Figures 1 and 4.

It is to be noted that the main body portion 1 carries the combined reservoir and main cylinder in a very secure manner as the combined reservoir and cylinder is provided with a flange 21 securely bolted to the body portion. Further, it is to be noted that the inner and outer walls of the reservoir and cylinder 13 and 14, respectively, are joined by radial webs 22, as well as by the bottom of the casting, as shown in Figures 1 and 2.

This construction, therefore, is extremely sturdy and reliable.

It is to be noted further that a passageway, indicated at 23 in Figure 2, communicates with the cylinder 14 and a similar passageway 24 communicates with the reservoir 13. These passageways are connected by means of pipes 25 and 26 with a plunger pump, as hereinafter described. Further, it is to be noted that a bypass opening 27 is provided between the reservoir and the cylinder (see Figure 4).

This bypass opening is controlled by a needle valve 28. It is to be noted further that the pipes 25 and 26 are provided intermediate their length with unions 29 to facilitate assembly and repair.

The body portion, it will be noted from Figure 1, is provided with a transverse bar 30 and projecting portions 31 and 32, the projecting portions and bar being integrally formed with the body portion. The projecting portion 31 has a pair of links 33 mounted on opposite sides thereof and pivoted by means of a pin 34. These links extend upwardly and are pivoted to the rear end of a lifting lever 34. The intermediate portion of the lifting lever is pivoted by means of a pin 35 to the arms 19 of the plunger, such pin passing through the aper-

tures 20 (see Figure 4). The rear end of this lifting lever is provided with a shoe 36 which is pivotally carried by such rear end. Preferably, the shoe is provided with transverse and longitudinal depressions, as shown in Figure 1, for the reception of differently arranged or positioned members.

The forward end of the body portion 1 is provided with a pair of lugs 37 (see Figure 3) to which lugs 38 of the pump cylinder 39 are bolted. This pump cylinder extends upwardly and carries a plunger 40. The plunger is pivoted to a rocking lever 41 at its upper end. The rear end of this rocking lever is connected by means of a pair of links 42 to the forward projection 32 of the body portion (see Figure 1). Further, it is to be noted that the rocking lever 41 for the pump is provided with an aperture 43 adapted to receive the end of the tongue or bar 9, as shown in dotted lines in Figure 1, such rocking lever being further provided with a slot or notch 44 for the reception of the transverse pin 11 of such bar.

The lower end of the pump cylinder 39 is laterally extended to provide a passageway 45 communicating directly with the lower end of the cylinder, as shown in Figure 3. Into this passageway the pipes 25 and 26 open, as shown in Figures 2 and 3. It is to be noted particularly that the pipes 25 and 26 are provided with check valves 46 and 47. These check valves open oppositely so that fluid may be drawn from the reservoir by the pump and forced into the lifting cylinder.

It is to be noted particularly that the valves are external of the pump and may be readily replaced or repaired without dismantling the pump. Further, it is to be noted that the unions 29 materially facilitate this operation.

It is also to be noted that the pump consists of a simple plunger which may be accurately machined to fit the pump cylinder. If desired, a stuffing box may be employed, although this has not been found necessary.

It is to be particularly noted with reference to the plunger or piston 15 that it is guided adjacent its upper end by the ring 18 and is guided adjacent its lower end by the enlarged portion 48 so that rocking of this piston or ram can not occur, as it is supported against such rocking at two widely spaced points.

It is to be noted also that the lifting lever

34 hangs downwardly at its rear end so that the lifting shoe 36 may be positioned at a very low point, and may even be positioned between the rear wheels 3. 60

It is apparent, therefore, that this lifting jack may be run under very low swung automobiles with the utmost ease. Further, it is to be noted that due to its peculiar construction that the jack may be operated to lift automobiles, although they have a materially large overhanging portion, as the pump is widely spaced from the lifting cylinder. 65

From actual practice with this lifting jack, it has been found that it can be placed in positions heretofore considered inaccessible with this type of apparatus. Further, it has been found that the lifting jack is highly efficient in operation and is easily backed or guided into position and quickly operated. 70 75

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting as the invention may be variously embodied and as the scope of such invention is to be determined as claimed. 80

I claim:

1. A hydraulic jack comprising a body portion, a unitary lifting cylinder and reservoir carried by said body portion, a main piston mounted within said cylinder, said body portion having a bracket, a lever carried intermediate its ends by said piston and having one end of such lever connected by links to said bracket, the other end of said lever being provided with a lifting shoe, and a pump for drawing liquid from said reservoir and supplying liquid to said lifting cylinder. 85 90

2. A lifting jack comprising a body portion having a pair of spaced rear wheels, a main cylinder and a reservoir carried by said body portion, a piston mounted within said main cylinder, a lever pivoted intermediate its ends to said piston and having a free end adapted to travel upwardly or downwardly between said rear wheels and above said rear wheels, the other end of said lever being connected by link mechanism with said body portion, and a pump for drawing liquid from said reservoir and supplying it to said cylinder. 95 100 105

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin. 110

LOUIS LEVANDOWSKIE.