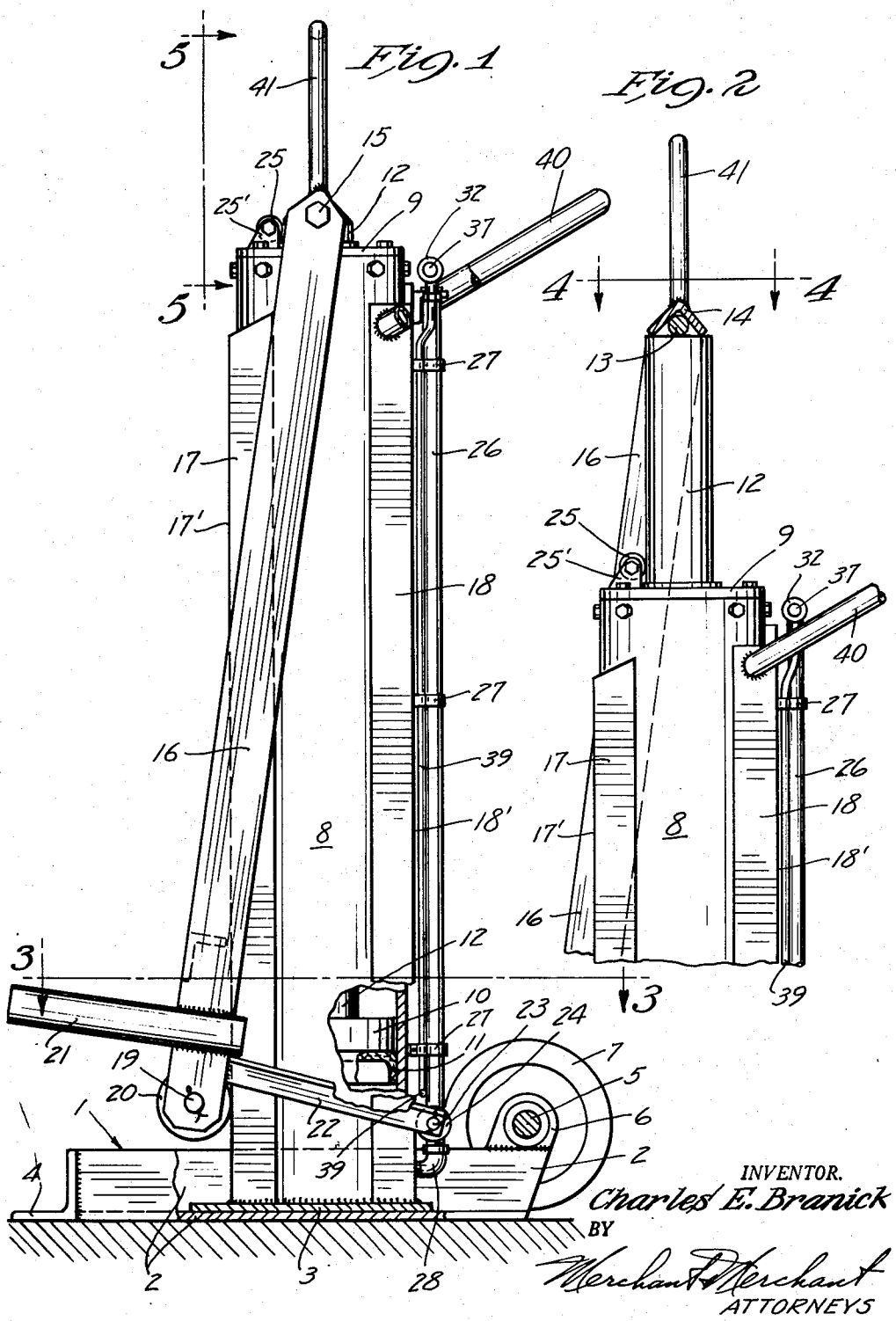
April 20, 1954 C. E. BRANICK 2,675,990

BUMPER JACK

Filed Dec. 13, 1951 2 Sheets-Sheet 1



INVENTOR.
Charles E. Branick
BY
Merchant & Merchant
ATTORNEYS

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Fig. 3

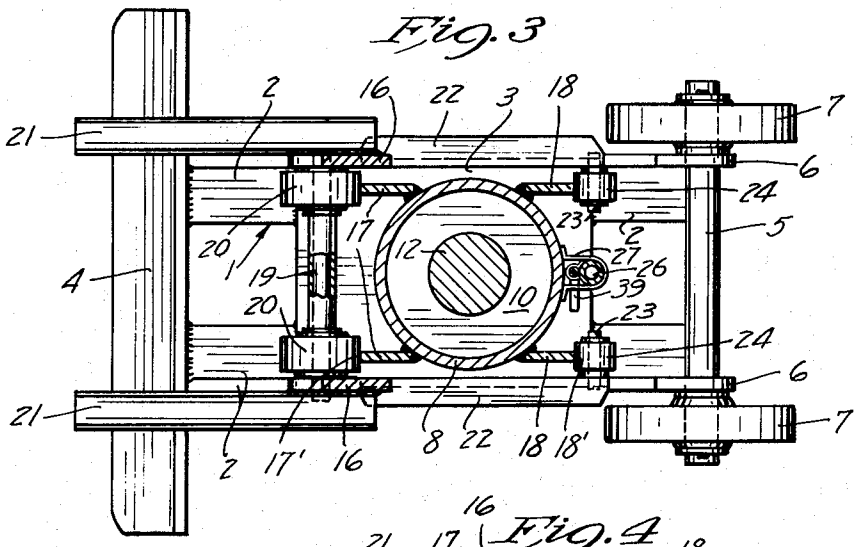


Fig. 4

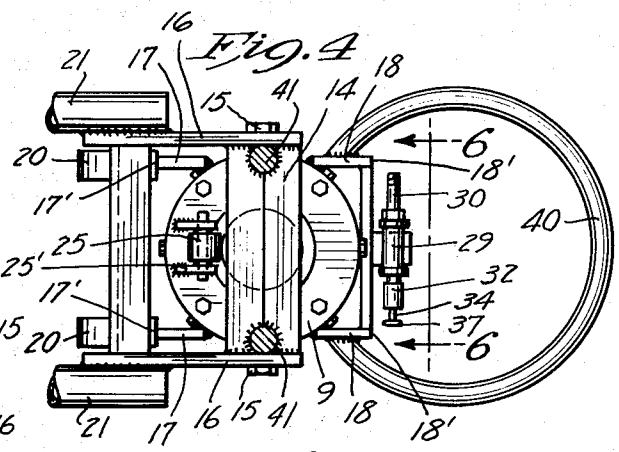


Fig. 5

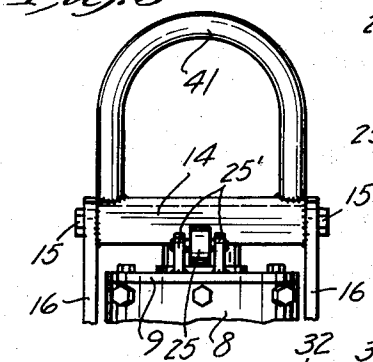
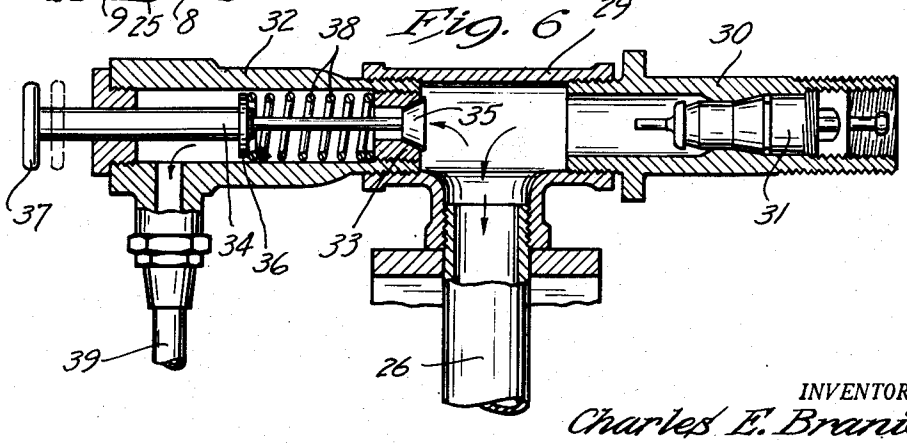


Fig. 6



INVENTOR.
Charles E. Branick
BY
Merchant & Merchant
ATTORNEYS

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BUMPER JACK

Charles E. Branick, Fargo, N. Dak.

Application December 13, 1951, Serial No. 261,499

1 Claim. (Cl. 254—93)

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My invention relates to fluid pressure lifting jacks and, more particularly, to bumper jacks of this type for lifting automobile vehicles.

The primary object of my invention is the provision of an extremely rugged and durable, yet inexpensive, structure of the class described, which is not provided with a self-contained fluid pressure pump, but is adapted to draw its source of fluid pressure from an air hose connected to a remote source of air pressure. Gasoline-filling stations, garages, and the like are excellent examples of places where structures of this type could be used, in view of the fact that air hoses, fluid pressure pumps, reservoirs and lengthy hoses are almost always present.

A further object of my invention is the provision of a device of the class described which is relatively light in weight and may be readily transported, but which will not tend to shift when being used.

The above and still further objects of my invention will become apparent from the following detailed specification, appended claim, and attached drawings.

Referring to the drawings, wherein like characters indicate like parts throughout the several views:

Fig. 1 is a view in side elevation of my novel structure, some parts being broken away;

Fig. 2 is a fragmentary view corresponding to Fig. 1, but showing a different position of some of the parts and with some parts being shown in vertical section;

Fig. 3 is a view in transverse section, taken on the line 3—3 of Fig. 1;

Fig. 4 is a view partly in plan and partly in transverse section, taken on the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary view in elevation, taken on the line 5—5 of Fig. 1; and

Fig. 6 is an enlarged view in axial section, taken substantially on the line 6—6 of Fig. 4.

Referring with greater particularity to the drawings, the numeral 1 indicates, in its entirety, a base shown as comprising a pair of laterally-spaced parallel angular members 2 joined at their intermediate portions by a generally rectangular base plate 3 and at their front ends by a transverse angular shoe 4. Adjacent their rear ends, an axle 5 is shown as being mounted in a pair of upstanding lugs 6, one each on one of the base members 2. The axle 5 extends transversely of the base and has journalled at its opposite end portions, axially outwardly of the lugs 6, a pair of wheels 7. As shown, particularly by reference to Fig. 1, the wheels are normally in vertically-spaced relation to the ground when the base 1 is flat against the ground in operative position.

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Mounted on the base 1 and, more specifically on the generally rectangular base member 3, is a vertically-disposed pressure cylinder 8, shown as being provided with a detachable head 9 at its upper end. Mounted within the cylinder 8 for reciprocal movements is a piston 10 having a conventional cup washer 11 attached to its lower end. Piston 10 is provided with a plunger rod 12 which works through an opening in the head 9. Secured to the upper end of the plunger rod 12 is a crosshead comprising a rod-like member 13 and an inverted V-shaped mounting member 14 made from angle iron or the like. Secured to the opposite ends of the crosshead member 13, by means of bolts or the like 15 and preferably for slight pivotal movements, are depending lifting links 16.

Also mounted on said base 1 are cooperating pairs of parallel laterally-spaced external track-forming rails, one pair of rails projecting forwardly of the cylinder 8 and bearing the numeral 17 and the other pair projecting rearwardly from the cylinder 8 and bearing the numeral 18. Extending transversely across the lower ends of the lifting link 16 is a shaft 19 upon which and intermediate the lifting links 16, are journalled a pair of rollers 20, one each of which is adapted to ride on the surface 17' of the rail 17. Rigidly secured to the lower end portions of said lifting links, preferably and as shown above the level of the shaft 19, are a pair of laterally-offset forwardly-projecting lifting feet 21. As shown, the lifting links depend angularly forwardly and feet 21 are at right angles thereto so as to project slightly upwardly at their free ends with respect to the horizontal. Also rigidly secured one each to the lower ends of one of the lifting links 16 but projecting rearwardly therefrom, preferably at substantially right angles thereto, are a pair of guide rods 22, each of which carries a laterally inwardly-projecting stub shaft 23 on which is journalled a roller 24 adapted one each to ride upon the surface 18' of rails 18.

Preferably and as shown, a thrust roller 25 is mounted between bearing brackets 25' rigidly secured to and projecting upwardly from the head 9. As shown in Figs. 2 and 4, the thrust roller 25 bears upon the plunger rod 12 throughout its movements and tends to prevent undue wear of the plunger rod 12 against the head 9.

In order to elevate the piston 10, plunger rod 12 and parts carried thereby, I provide a fluid conduit 26 which extends axially of the cylinder 8 and is secured thereto by means of straps or the like 27, and communicates with the interior of the cylinder 8 below the piston 10, as indicated at 28. Secured to the upper end of the conduit 26 is a pipe T 29, to one branch of which is connected a valve casing 30 having a valve member preferably and as shown in the nature of a conventional pneumatic tire valve 31 mounted therein. Secured to the other branch is a valve body 32 having an annular valve seat 33 therein. Mounted for axial sliding movements through said valve body 32 is a plunger rod 34 having on its inner end a conical valve plug 35 having seating engagement with the valve seat 33, a flange 36 at its intermediate portion, and a button-like head 37 at its outer free end. A coil spring 38 is shown as being interposed intermediate the valve seat 33 and the flange 36, whereby to bias the valve plug 35 toward seating engagement with the annular seat 33. A fluid outlet from the interior of valve body 32 is indicated by the numeral 39 and extends downwardly adjacent the conduit 26 where it is open to atmosphere adjacent the lower end portion of the cylinder 8.

Preferably and as shown, I provide a pair of handles adjacent the upper end of my novel jack, the angularly rearwardly-projecting one being indicated by the numeral 40 and the vertically-disposed one by the numeral 41. As shown, particularly in Figs. 1 and 2, the handle 40 is preferably and as shown secured to the upper ends of the track 18, whereas the handle 41 is secured to the crosshead member 14 and hence is movable up and down with the plunger rod 12.

For storage, my novel structure consumes less floor space in the vertical position of Fig. 1. When it is desired to put it to use, however, it may be readily transported by merely imparting rearward rocking actions thereto through the handle 40 until the wheels 7 come into contact with the ground. Thereafter, it is transported in much the manner of a wheelbarrow, either handle 40 or 41 being utilizable, depending upon the tilting position, the height of the operator, etc. When the device has been wheeled to a position wherein the feet 21 underlie the bumper of an automotive vehicle or the like, vertical movements may be imparted to the lifting links 16 by placing the nozzle of a conventional fluid pressure line or air hose on the outer end of the valve casing 30, whereby to unseat the valve 31. Fluid under pressure will, as indicated by arrows in Fig. 6, flow through the depending conduit 26 into the bottom of the cylinder 8 until the

piston 10 and plunger rod 12 and associated parts have been raised to a desired height. When it is desired to lower the piston 10, plunger rod 12 and associated parts 16 and 21, it is only necessary to push inwardly on the head 37, whereby to unseat plug 35. Air under pressure within the cylinder 8 will then follow the arrows in Fig. 6 through the valve body 32 and outlet 39 to atmosphere.

While I have illustrated a commercial form of my invention, it should be obvious that the same is capable of modification without departure from the spirit and scope of the invention as set forth in the appended claim.

What I claim is:

In a portable fluid pressure jack including a ground engaging base member, a vertically disposed pressure cylinder secured to said base member having a piston rod projecting through the upper end of said cylinder, the improvement comprising two transversely spaced rigid guide track means anchored at their lower ends to said base member and extending longitudinally of said cylinder and rigidly secured throughout their entire length along their opposed sides to opposite sides of said cylinder, a laterally extending member rigidly connecting together the adjacent upper ends of said guide track means around one side of said cylinder, a cross-head connected to the free end portion of said rod and extending laterally outwardly therefrom above the upper ends of said guide track means, lifting links depending from the ends of said cross-head to opposite points adjacent the lower ends of said guide track means, a second member rigidly connecting together the lower end portions of said lifting links around the opposite side of said cylinder, lifting bracket means extending laterally outwardly from said links, and means including anti-friction elements secured to said links, said anti-friction elements being in opposed contact with said guide track means providing only longitudinal movement of said links on said guide track means whereby said bracket is mutually supported by said guide track means and cylinder during lifting and lowering movements of said piston rod, cross-head and lifting links.

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