Feb. 23, 1932. C. J. BRISTOL 1,846,299

AUTOMOBILE LIFT

Filed Oct. 29, 1930

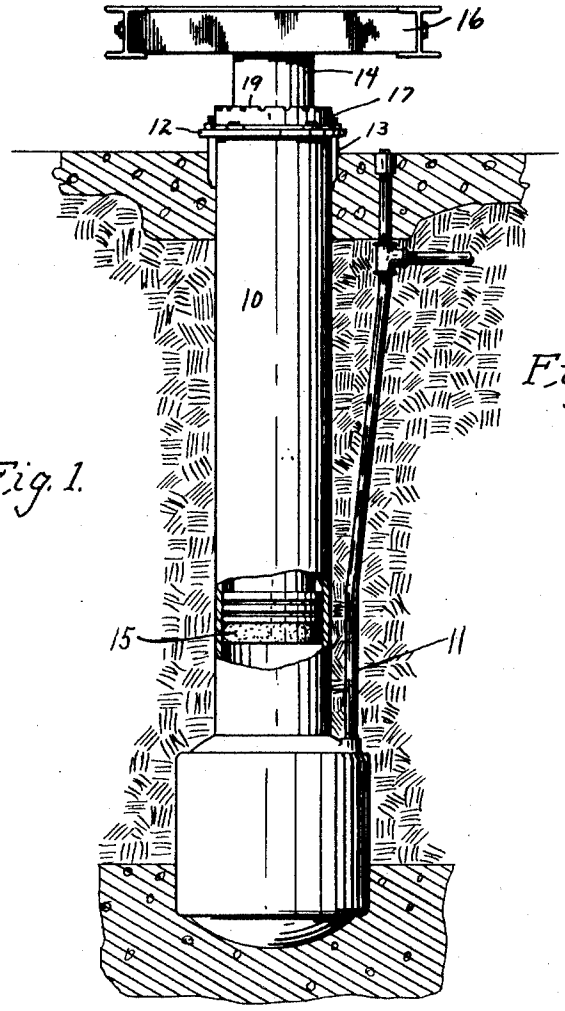


Fig. 1.

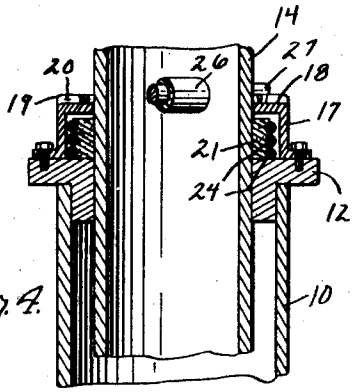


Fig. 4.

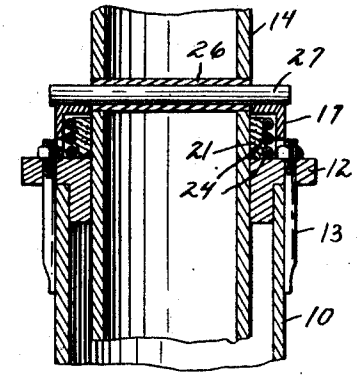


Fig. 3.

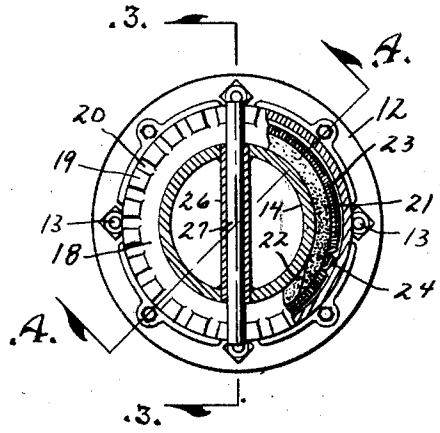


Fig. 2.

Inventor
Cyrus J. Bristol
by Owig & Hague Atty's

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UNITED STATES PATENT OFFICE

CYRUS J. BRISTOL, OF DES MOINES, IOWA, ASSIGNOR TO GLOBE MACHINERY & SUPPLY COMPANY, OF DES MOINES, IOWA, A CORPORATION OF IOWA

AUTOMOBILE LIFT

Application filed October 29, 1930. Serial No. 491,933.

This invention relates to that class of fluid pressure lifts in which there is employed an upright cylinder open at its top, a piston within the cylinder having a head at its lower end (preferably of the cup leather variety), and means at the upper end of the piston for engaging and elevating an automobile.

The object of this invention is to provide means of simple, durable and inexpensive construction to prevent the entrance of dirt or water into the upper end of the cylinder, and also to provide means whereby the piston when elevated may be held against rotation.

This invention consists in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in the claim, and illustrated in the accompanying drawings, in which:

Figure 1 shows a side elevation of an automobile lift device having my improvements applied thereto.

Figure 2 shows a horizontal sectional view through the upper end of the piston at the point where the locking pin is extended through the piston and looking downwardly.

Figure 3 shows a sectional view on the line 3—3 of Figure 2.

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

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate generally the upright cylinder, which is preferably embedded in the ground. A pipe 11 communicates with the lower end of the cylinder for applying fluid pressure to elevate the piston. At the top of the cylinder is a flanged collar 12 detachably connected to the cylinder by the bolts 13.

The piston, indicated by the reference numeral 14, is hollow and its upper portion is loosely fitted into the collar 12, and at its lower end is a cup leather packing 15, which engages the interior of the cylinder. The piston projects beyond the top of the cylinder and has at its upper end a structure indicated generally by the numeral 16 for engaging and supporting an automobile.

The structures just described are now in common use for elevating and servicing automobiles, and it has been demonstrated in practice that with the raising and lowering of the piston within the cylinder, dust and dirt accumulates upon the outer surface of the piston, and then when the piston is lowered, this dust and dirt gets into the lower part of the cylinder and causes excessive wear upon the cup leather packing at the bottom of the piston. Furthermore, with the construction now in use it sometimes happens that water flows down between the piston and flange 12 and mixes with the oil in the bottom of the cylinder with objectionable results.

Detachably mounted on the top of the flange 12 is a housing having a cylinder, side wall 17 and a top 18 extended inwardly to loosely fit the piston. At the top of the housing is a raised rib 19 having radially arranged notches 20 therein. Mounted within the housing is a flexible packing strip 21, preferably of felt, the ends thereof being beveled as shown at 22. This strip is wound about the piston before the housing is placed in position.

Then for the purpose of yieldingly holding the packing strip in frictional engagement with the piston, I provide one or more coil springs 23. These springs have hooks 24 formed in their ends, and the springs are wound around the outer surfaces of the packing 21 and their ends are hooked together, as shown in Figure 2, so that they constantly apply yielding pressure inwardly upon the packing strip 21.

After the springs are placed in position, then the housing is moved downwardly on the piston and bolted to the flange 12, as shown in Figure 4. The packing is preferably thoroughly soaked with oil before being placed in position, and then may be lubricated from time to time through the loosely fitted opening between the top of the housing and the piston.

Obviously, with this construction the packing may be readily, quickly and easily placed in position, and then thoroughly protected by the housing, and serves as a cleaner for the outer surface of the piston and prevents the entrance of dust or water into the space be-

tween the upper end of the cylinder and the piston, and yet does not appreciably interfere with the up and down movements of the piston.

When the piston is wholly or partly elevated it is sometimes desirable to hold it against rotation, and for this purpose I have provided in the piston a sleeve 26 extended through the piston and open at both ends, and into this sleeve I insert a round bar 27 with its ends projecting beyond the piston. When this has been done, and the piston lowered until the bar engages the notched rib on the top of the housing, then the bar will enter these radial notches and prevent rotation of the piston, and also lock the piston against downward movement. When it is desired to lower the piston, fluid pressure is applied to elevate the piston a slight distance. Then the bar 27 is removed and then the piston may freely rotate and move downwardly.

The housing performs the double function of protecting the packing, preventing the packing from moving upwardly with the piston and also provides a raised notched rib to co-operate with the bar 27 in preventing downward movement of the piston, and also preventing rotary movement thereof. By this arrangement obviously the bar 27 does not interfere with the bolts 13 which project upwardly through the flange 12.

I claim as my invention:

In a lift device, the combination of a cylinder, a flange at the top of the cylinder, a piston slidingly mounted in the cylinder, a housing detachably fixed on top of said flange and surrounding the piston, the upper surface of the housing being notched, said piston being formed with a transverse opening, a bar extended into the opening and projected beyond the piston and designed to enter a notch in the housing for holding the piston against downward and rotary movements, and a packing within the housing and in engagement with the outer surface of the piston.

Des Moines, Iowa, October 23, 1930.

CYRUS J. BRISTOL.