Sept. 5, 1950 F. C. WOELFER 2,521,671

LUBRICANT PUMP

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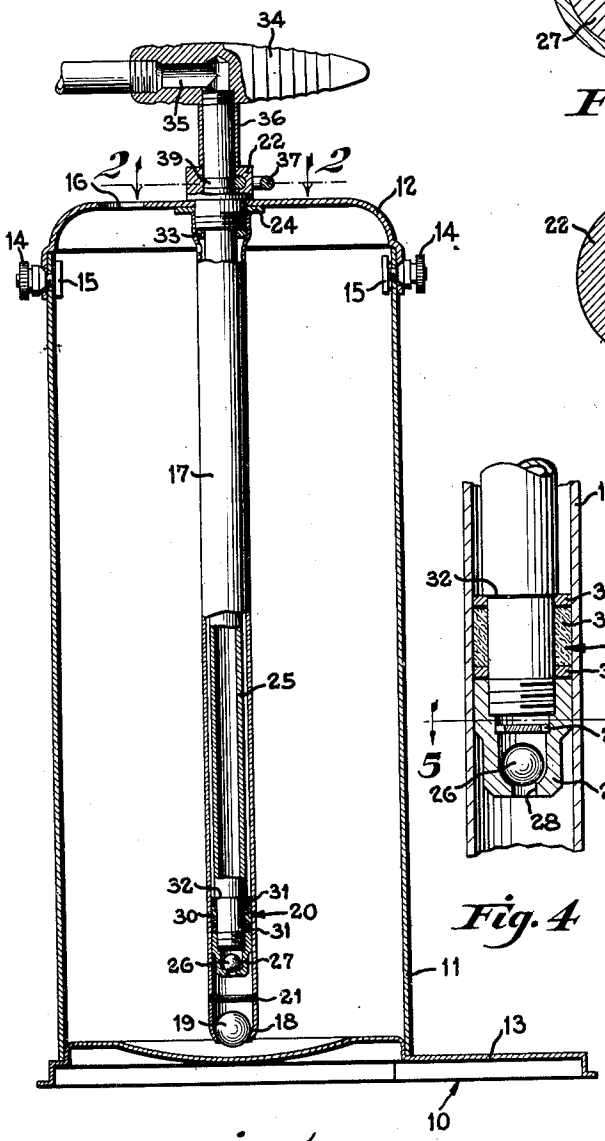


Fig. 1

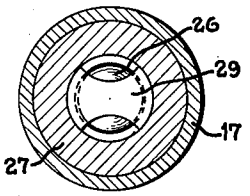


Fig. 5

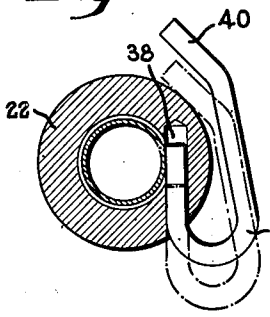


Fig. 2

Fig. 4

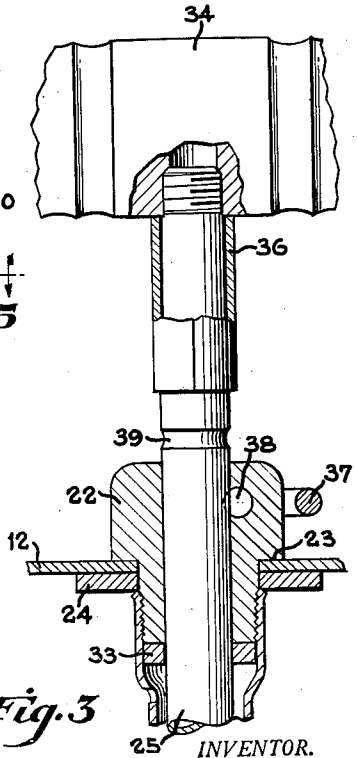


Fig. 3

INVENTOR.

Frank C. Woelfer

BY

Wood, Grey, Herrm & Evans

ATTORNEYS

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LUBRICANT PUMP

Frank C. Woelfer, Cincinnati, Ohio, assignor to Balcrank, Inc., Cincinnati, Ohio, a corporation of Ohio

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5 Claims. (Cl. 222—385)

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This invention relates to pumping apparatus of the type known as bucket pumps. It is particularly directed to improvements in this type of apparatus for pumping oil or the like from the pump to points of use. The present pump has been specifically designed to deliver oil under low pressure from the pump container to the differential or transmission of an automobile.

The present pump is portable, the operator carrying the pump to the approximate location of the automobile to be oiled. The pump rests at some point adjacent the car and by the use of a piston type hand operated pump mechanism the oil is transferred from the pump to the point of use. For this purpose a hose extends from the piston and includes a delivery nozzle at its end. Obviously in moving the hose from one point of delivery to another, the hose is apt to become twisted with respect to the pump.

Accordingly, it has been one of the objectives of the present inventor to provide a pump apparatus of the piston type wherein the hose is free to swivel relative to the pump despite the fact that it is connected directly to the pump piston. The piston in this instance is tubular and may include a handle at its upper end to which the hose is connected.

An additional objective has been that of providing a quickly detachable connection or latch means for securing the handle and the piston relative to the pump container so that the container may be picked up by the handle and carried from place to place. In other words, when the latch is placed in latching position the piston cannot be drawn upwardly or moved in a pumping stroke but it as well as the handle, which is fixed to it, are held in position against displacement relative to the container except for the rotative movement which permits the swivelling motion previously discussed.

Thus, the inventor has provided a swivelling connection for the discharge hose relative to the pump container by attachment to the rotatable piston handle and piston. Further, he has provided a quickly operated locking means for securing the piston in lowered position enabling the operator to carry the pump around through the medium of the handle.

Other objects and certain advantages of the inventor will be more fully apparent from the following description of the drawings in which:

Figure 1 is a vertical sectional view taken diametrically of the pump, a portion of the pumping cylinder being shown externally, this view

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illustrating the arrangement of the parts in general.

Figure 2 is a sectional view taken on line 2—2, Figure 1, illustrating the locking or latching mechanism for securing the piston and its attached handle in position whereby the pump may be transported by means of its piston operating handle.

Figure 3 is a fragmentary sectional view corresponding to the upper portion of Figure 1 but showing the handle and piston moved upwardly in a pumping stroke and the latch ineffective for locking the same.

Figure 4 is a fragmentary enlarged sectional view similar to the lower part of Figure 1 detailing the pumping piston at its lower end.

Figure 5 is a sectional view taken on line 5—5, Figure 4.

Referring specifically to the drawings, the pump includes a base indicated at 10, a cylindrical container or bucket 11, and a top or cover 12. The base 10 has a raised portion which fits within the main cylinder 11 and may be welded or riveted to secure it in position therein. The raised central portion of the bottom is slightly concave or depressed to provide that the pump cylinder may extend beneath the main level of the bottom. This permits pumping of oil when the quantity of oil within the pump is practically exhausted. The base further has a laterally extended portion 13 which acts as a platform on which the operator may place his foot to prevent tipping of the pump and to more easily operate the pump.

The cover 12 is removable to permit access to the container, for replenishing the oil, and to the oil ejecting means for cleaning and inspection. In order to secure the top in position over the top portion of the container, it is held in place by thumb nuts 14 and screws 15, preferably two or more in number, engaged through the flange of the cover and the adjacent top margin of the container. A hole 16 is provided in the top 12 to allow the admission of air to the container.

Depending from the top 12 centrally thereof is the pump cylinder 17. The cylinder has a lower end 18 of decreased diameter which retains a valve ball 19. The oil is drawn into the cylinder before ejection through the piston 20. The valve 19 retains the oil within the cylinder 17 on the downward or ejecting stroke of the piston 20. The ball valve 19 is retained in position against movement beyond normal opening movement on the intake stroke of the piston by means of a pin

21 fixed transversely across the cylinder and above the ball.

A piston rod guide bushing 22 is secured in the cover centrally thereof and co-axially with the cylinder 17. This bushing includes a shoulder 23 which rests on the upper surface of the cover 12 and includes a threaded portion depending through the top. This threaded portion is screw threaded into the enlarged upper end of the cylinder 17. A washer 24 is secured by welding or other means to the under surface of the cover about the opening through which the guide bushing extends and is utilized for the purpose of reinforcing this opening marginally. Thus, when the bushing is screwed down into the cylinder, the cylinder is drawn tightly upwardly against this reinforcing washer and the cylinder is rigidly fixed in position depending axially within the container.

The piston rod 25 traverses the bore of the guide bushing and, as stated, is tubular. The piston 20 is secured to the lower end of this rod, the details of the piston being illustrated in Figure 4. The piston assembly includes a ball valve 26. The ball valve rests within a retainer element 27, this retainer element being screw threaded on the lower end of a counterturned portion of the piston rod. The opening 28 in the valve retainer below the valve is smaller than the diameter of the valve and the ball therefore rests in position normally blocking this opening. The internal diameter of the valve retainer is larger than the diameter of the valve and therefore the oil may pass the valve when it is lifted from its seat as during a downward or pumping stroke. A retaining ring 29 is secured in the retainer on a shoulder spaced above the ball valve, this retaining ring including openings therein which will permit the passage of oil when the ball valve engages the ring or washer centrally.

The piston 20 consists of suitable packing material 30 of sleeve form secured between washers 31. One of the washers engages the upper end of the retaining member 27, and the other engages a shoulder 32 of the piston rod so that when the retaining element is screwed on the end of the piston rod the packing is compressed between the washers.

It will be noted at this time that the piston rod guide bushing includes an annular packing ring 33 secured between the shoulder of the enlarged upper end of the cylinder and the valve rod guide bushing. This ring acts as a wiper to prevent excessive oil, or the material being pumped which adheres to the rod from passing out and collecting on the outside of the pump. In other words, the oil is stripped off and drains back to the bottom of the cylinder.

The upper end of the piston rod 25 carries a handle 34. The handle is screw threaded on the extended upper end of the piston rod and is tubular so as to serve the additional purpose of a fixture to which the delivery hose, which delivers the oil from the pump to the point of use, is connected. Specifically the handle contains a central bore 35 threaded at its open end and connecting at its inner end to a bore which is axially aligned with the piston rod and therefore with the bore into which the piston rod is screw threaded. The handle not only functions as a means for picking up the pump, as will be described later, but also serves as the means for reciprocating the piston during the pumping operations.

A spacer sleeve 36 is disposed around the piston rod just below the handle. This sleeve is pressed upon the rod tightly enough so that it will not be displaced and consequently its lower end acts as a stop means engaging the top of the piston rod guide bushing to limit downward movement of the piston. Through the provision of this stop it will be obvious that the operator cannot get his hand caught between the handle and the upper portion of the pump on the down strokes of the piston, the sleeve being of sufficient length to prevent contact of the operator's hand with the top of the valve guide bushing.

Means is provided in the piston rod guide bushing for locking the piston rod relative to the bushing so that, when the pump is not in use, it may be picked up by the handle and transported. This locking means consists of a hook-shaped latch rod 37. The latching portion of this rod traverses a bore 38 drilled into the bushing tangentially of the piston rod. The piston rod includes an annular groove 39, that is one which has a semi-circular cross section, this groove being spaced down from the lower end of the spacer sleeve so as to be disposed adjacent the latch rod when the piston rod is in lowered position. As detailed in Figure 3, the bore 38 is positioned so that its inner contour coincides or may be aligned with the cross sectional contour of the groove only when the piston rod is all the way down, thus providing that the latch rod can only be inserted into latching position when the piston rod is in this position. The latch rod is movable within the bore 38, that is can be withdrawn from effective position but cannot be fully withdrawn from the bore. As illustrated in Figure 2, its outer hooked end is turned as at 40 so as to contact the side of the bushing and thus complete withdrawal is prevented.

After the container of the pump is filled with oil or light grease or the substance being delivered, the top is secured in position. The latch element 37 is placed in latching position as shown in Figure 2 and the operator can then carry the pump bodily by means of the handle. When the pump is placed in the position in which it is intended to be used, the latch element is withdrawn and the pump is ready for operation. The operator then places the delivery nozzle of the hose in the opening to the differential or transmission, or whatever the delivery point is, and the handle and piston rod will rotate to align to the point of use. When it is desired to change the hose to deliver the oil to another point, the operator need pay no attention to the position of the pump for the handle will rotate to accommodate the change in angle. Thus, it is possible to use a relatively long hose and to move the hose about to lubricate the various parts of a car without causing the hose to become entangled or without causing the hose to pull on the pump which would otherwise tend to upset the pump, this of course assuming that the hose is of sufficient length.

Having described my invention, I claim:

1. A pumping apparatus for dispensing oil to a point of use comprising: a container, a pumping cylinder disposed therein, a pumping piston in the cylinder, a piston rod supporting the piston, said cylinder and piston rod supported on the top of the container, the piston rod being rotatably mounted relative to the cylinder, a handle on the upper end of the piston rod and a latch for securing the piston rod against axial movement but permitting rotational movement thereof when the piston rod is at its lowermost stroke position whereby the pumping apparatus can be

transported by means of the handle when the piston rod is thus latched relative to the container.

2. A pumping apparatus for dispensing oil to a point of use comprising; a container, a pumping cylinder disposed therein, a pumping piston in the cylinder, a piston rod supporting the piston, said cylinder and piston rod supported on the top of the container, the piston rod being rotatable relative to the cylinder, a handle on the upper end of the piston rod and means for latching the pison rod against axial movement when at its lowermost stroke position whereby the pumping apparatus can be transported by means of the handle when the piston rod is locked relative to the container, said latching means consisting of a latch pin mounted in the top of the container for movement tangentially of the piston rod and the piston rod including an annular groove therein engaged by the latch pin when adjacent thereto for holding the piston rod against axial movement.

3. A pump for dispensing oil to a point of use consisting of a container for oil, a pump cylinder depending from the top of said container, a piston rod disposed in said cylinder and including a pumping piston at its lower end, a piston rod guide bushing fixed to the top of the container coaxially of the cylinder and piston rod, the piston rod slidably mounted in said bushing, a handle on the top of said piston rod, said piston rod being rotatable in said bushing, and a latch mechanism in said bushing for locking the piston rod against axial movement in the lowermost position but permitting rotational movement thereof through 360 degrees.

4. A device for dispensing oil under pressure to a dispensing hose, comprising; a container constituting an oil reservoir, a guide bushing mounted upon the container and having an axial bore, a pump unit mounted upon the said guide bushing and extending within the said container, the said pump unit including a piston rod freely movable rotatably and axially in said guide bushing, said piston rod having a circumferential groove in its external periphery and having a pump handle mounted externally of said container, said piston rod being constructed for delivery of pump to fluid through said handle, and said handle having means associated therewith for receiving a dispensing hose, the said guide bushing having a bore therein chordally communicating with its axial bore, and a latch pin movably mounted in the chordal bore and adapted to engage the circumferential groove of the piston rod and thereby lock the piston rod against axial movement while allowing it to rotate.

5. A device for dispensing oil under pressure to a dispensing hose, comprising; a container constituting an oil reservoir, a guide bushing mounted upon the container and having an axial bore, a pump unit mounted upon the said guide bushing and extending within the said container, the said pump unit including a piston rod freely movable rotatably and axially in said guide bushing, said piston rod having a circumferential groove in its external periphery and having a pump handle mounted externally of said container, said piston rod being constructed for delivery of pump to fluid through said handle, and said handle having means associated therewith for receiving a dispensing hose, the said guide bushing having a bore therein chordally communicating with its axial bore, and a latch pin having a leg adapted for sliding movement in the chordal bore and adapted to engage the circumferential groove of the piston rod, said pin having a second leg residing externally of said bushing and configurated to contact the bushing to prevent complete withdrawal of the first leg from the chordal bore.

FRANK C. WOELFER.

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