

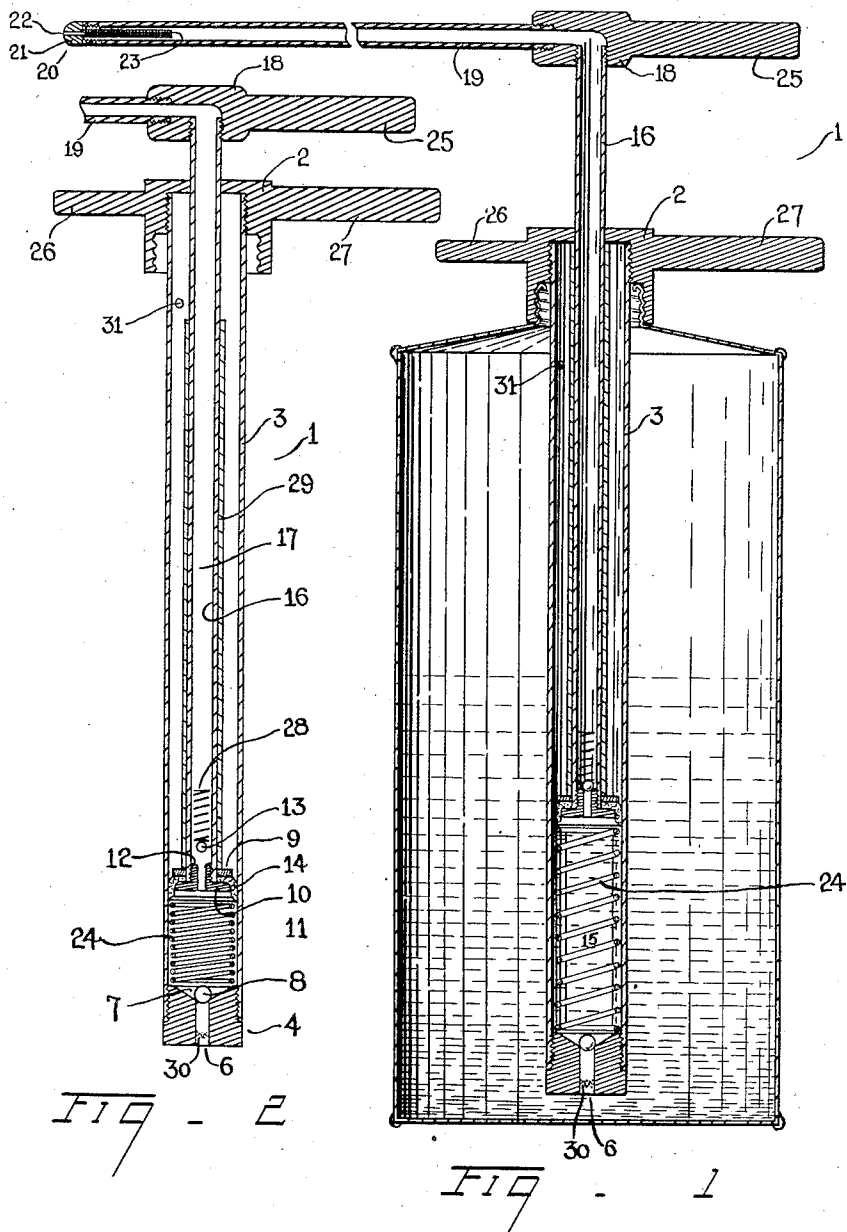
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ONE-HAND OIL RIFLE

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ONE HAND OIL RIFLE

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This invention relates to one hand oil rifles, more particularly adapted to lubricate inaccessible parts, and has as one of its objects to provide an oil rifle that is adapted for continuous operation by the use of one hand.

Another object of the invention is to provide a one hand oil rifle that will load itself automatically.

A further object of the invention is to provide a one hand oil rifle that will be under no pressure when not in use and hence that will remain loaded and always ready for use, without leakage.

A further object of the invention is to provide a one hand oil rifle whose flow will automatically cease when released from the hand.

A further object of the invention is to provide a one hand oil rifle that is highly efficient in operation and that is relatively cheap to manufacture.

With these and other objects in view reference is now had to the accompanying drawing in which

Fig. 1 is a sectional elevation of the oil rifle and container assembled and in the loaded position; and

Fig. 2 is a sectional elevation of the oil rifle detached from the container and in the final position of discharge.

Having reference to the drawing like numerals refer to like parts throughout the several views, and the numeral 1 refers to a compression pump consisting of a cap 2, adapted to serve as the head of the pump, which cap is designed for removable securement to a container, by threaded engagement therewith as illustrated in the drawing, or by any suitable method, the purpose of securement being more to obtain a secure and rigid union of the pump with the container rather than a severely tight oil joint, as there is no pressure on the container at any time that might force oil out of a relatively loose joint.

The pump further consists of a barrel 3 of the usual cylindrical type, and is suitably secured at its upper end in the said cap 2 and has provided on its lower end a foot valve 4, the foot valve comprising a valve block 5, adapted to threadedly engage the barrel, in

the usual manner of such construction, and is in turn provided with a centrally positioned inlet orifice 6. This block is also provided on its upper end with a concave or conical valve seat 7 in which is seated a ball 8 or other valve wherewith to close the foot valve on the compression stroke of the plunger 9, and to open the said valve on the suction stroke.

Operably mounted in the said barrel 3 is the said plunger 9 comprising a suction block 10, of similar construction to that of the block 5 of the said foot valve 4, except as to size, and this suction block contains an outlet orifice 11 terminating in a like seat 12, and is also provided with a ball 13 mounted in this seat to complete the said suction valve, and is adapted to threadedly engage the lower end of a hollow plunger rod, as shown, and mounted therein for a purpose to be explained.

Shaped around this last named block is a cup leather 14 of the usual type and for the usual purpose, and that part of the barrel through which the plunger moves during operation will be termed the oil chamber 15, and a plunger rod 16 is provided to operate the plunger 9.

The plunger rod is hollow to provide an oil passageway 17 therethrough and is extended upward to engage, externally of the cap 2, an elbow fitting 18 in which is separably secured a nozzle pipe 19 in a position preferably perpendicular to the plunger rod 16 and arranged with the plunger rod for rotation about the axis of the barrel.

The nozzle pipe 19 obviously is also hollow and thus provides a passageway from the oil chamber 15, through the suction valve, with which the plunger rod is associated, the ball valve being movably mounted therein, to the nozzle pipe and thence through the nozzle 20 proper, which nozzle consists of a tip 21 provided with a fine jet orifice 22 with a strainer 23 disposed in the nozzle pipe and secured to the tip to maintain the jet orifice clear of obstruction and for removal therewith.

Interposed between the plunger and the foot valve, and disposed in the oil chamber,

is a compression spring 24 adapted to yieldingly move the plunger 9 away from the foot valve 4 thereby automatically producing a suction stroke that will automatically load said oil chamber.

It is obvious that the contents of the oil chamber will be under zero pressure when loaded and hence with the plunger in the position shown in Fig. 1, i. e. the loaded position, that there can be no discharge through the hollow plunger rod, and further that upon this chamber being loaded with the plunger brought to the above mentioned position there will simultaneously be caused a cessation of flow through said nozzle.

It is now plainly evident that to discharge the contents of the oil chamber through the nozzle a compression stroke will be required and to provide this compression stroke a handle 25 is provided that forms a part of the elbow fitting 18, and this handle is positioned extended in a direction opposite to and in prolongation of the nozzle pipe 19, and a pair of oppositely extended grips 26 and 27 respectively are attached to or formed integral with the said cap 2 where they are positioned in cooperable relation with said handle whereby the compression stroke may be provided by resting that part of the palm of the hand, at the base of the thumb, upon the top of the said handle, with the thumb and first finger astride the elbow fitting, and with the first finger gripping the smaller or shorter grip 26 and the three remaining fingers comfortably engaging the longer grip 27, whereby, upon closing the hand with a gripping movement, the handle will be moved downward to the grips forcing the content of the pump out of the nozzle, the relative position of the handle with respect to the grips being rotated to a slight angle of diversion (not shown) from one another to comfortably fit the hand automatically, as the device is seized for operation, by the slight unhindered rotation of the plunger rod in the cap.

Upon the compression stroke occurring the foot valve will close automatically and the suction valve will open in the general manner shown in Fig. 2, and to prevent the ball of this valve from lodging in the nozzle pipe a light spring, represented as at 28, is placed in the passageway of the plunger rod and above the ball whereby should the device be turned upside down the said spring would fall to the point of change of direction in said passageway, within the elbow fitting, there to rest without obstructing flow through this passageway and by its diametrical dimensions being less than that of the ball, preventing the ball from entering this pipe.

By this means operation may occur with the device in any position.

As the device depends for operation upon bringing the handle and grip together by the gripping of one hand it is obviously neces-

sary that the handle and grip be spaced a proper distance apart normally to be conveniently seized by one hand, and as the barrel length is in excess of this normal distance between the handle and grip, means is provided to prevent the spring 24 from raising the plunger rod and its attendant handle beyond this distance, which means to prevent this extreme action consists of a gauge 29 provided to determine the length of compression stroke, whereby to accommodate the average hand in gripping, and which gauge consists of a tubular member loosely surrounding said plunger rod in said barrel and cut to the proper length that one end will bear against the plunger, with the opposite end thereof bearing against the head of the cap, at the end of the suction stroke, the gauge being free to move with the plunger and plunger rod on the compression stroke of these members.

By this means and by cutting this gauge to the required length it is obvious that the handle and grips of the device will always be in a position for convenient seizure for operation.

In use the container will be filled in the usual manner with the proper contents when the barrel will be inserted through the top of the container and the whole securely assembled by means of the threaded cap with the container securement being aided by the grips 26 and 27 acting as a wrench-lever therefor.

Should the level of the content be above the plunger the content will gradually fill the oil chamber without external assistance, but in operation pressure upon the said handle 25 will be used to force the plunger downward, compressing the spring 24 in the oil chamber and displacing the air therein, thus forcing it upward through the hollow piston rod passageway and out through the nozzle, the foot valve being closed by the act of displacement.

Upon loosening the grip upon the handle and grip members the spring will yieldingly move the plunger upward and provide a suction stroke which, by creating a partial vacuum in the oil chamber, will draw the content into this chamber loading it for subsequent use.

Now by closing the hand with a gripping action the handle will be forced downward and toward the cap, which movement will force the plunger rod and plunger to a like movement, when the content of the oil chamber will be forced upward through the passageway, and past the suction valve for forced expulsion of the content through the fine jet orifice of the nozzle to its destination.

It is understood that oil rifles for a like purpose have been devised; however, the herein described rifle is self loading as the suction stroke is automatically obtained in the manner before described, and being self load-

ing is ever-loaded and ready for operation as an obvious result of the self loading, and by means of the gauge is self gauging, and is further self stopping, and also as the device is under zero pressure when not in use there is positively no danger of leakage with its consequent waste, and during operation and with the pressure confined against the foot valve on the one hand and the nozzle on the other it is obvious that any leakage occurring can only be through a leaky foot valve when its content might possibly drain back into the container without loss.

To prevent sediment entering the oil chamber to lodge under the ball of the foot valve, or to choke the screen of the said nozzle, a screen may be added to the foot valve as shown at 30, and should the plunger become worn that the content of the chamber may pass thereby during the compression stroke, the usual relief vent 31 is provided in the barrel and positioned to discharge into the container.

Heretofore the duration of continuous application of the jet of oil has been comparatively brief requiring several operations of the plunger to completely oil, say one entire spring of an automobile, and with each operation it is a known fact that much loss will occur between the time the jet leaves the rifle until it is finally brought into contact with its target. This is due to the fact of the comparatively small available power found in a single digit of a hand, which power in turn is the determining factor for the size of the plunger, and the oil chamber forming its cylinder.

Obviously then a device adapted to utilize the comparatively and acknowledged greater power of a grip may also provide an oil chamber of relatively greater capacity which, by one stroke of the plunger will completely oil the spring with correspondingly less loss of oil in the one stroke than in the many, and with greater force.

Having thus described my invention, I claim:

1. In a one hand oil rifle, the combination of a pump comprising a cap, a barrel attached to and having its upper end closed by said cap, a foot valve attached to the lower end of said barrel, a plunger slidably mounted in said barrel and provided with an outlet orifice, and forming a suction valve, an oil chamber formed in said barrel between said plunger and said foot valve, a plunger rod attached to said plunger and provided with a passageway therein disposed to register with said outlet orifice for communication with said oil chamber, a nozzle pipe provided with a nozzle and separably attached perpendicular to said plunger rod, by means of an elbow fitting, and a gripping means comprising a handle rigidly attached to said elbow fitting, and disposed to provide a guid-

ing means for said nozzle, and oppositely extended gripping members rigidly secured to said cap and disposed in cooperable relation with said handle, said gripping members being disposed and adapted to provide levers wherewith to tightly secure said cap to a container.

2. In a one hand oil rifle, the combination of a compression pump comprising a cap, a barrel attached to and having its upper end closed by said cap, a foot valve attached to the lower end of said barrel, a plunger slidably mounted in said barrel and provided with an outlet orifice, and forming a suction valve, an oil chamber formed in said barrel between said plunger and said foot valve, a plunger rod attached to said plunger and provided with a passageway therein disposed to register with said outlet orifice for communication with said oil chamber, a compression spring mounted in said oil chamber and disposed and adapted to automatically load said chamber and simultaneously cause a cessation of flow at the nozzle during the loading operation, a gauge loosely mounted on said plunger rod and disposed to control the length of suction stroke to accommodate the average grip, a nozzle pipe provided with a nozzle and separably attached perpendicular to said plunger rod, by means of an elbow fitting, and adapted for rotation about the axis of said barrel, and a gripping means comprising a handle rigidly attached to said elbow fitting in prolongation of the nozzle pipe, and providing a guiding means for said nozzle, and oppositely extended gripping members rigidly secured to said cap and disposed in cooperable relation with said handle, said gripping members being disposed and adapted to provide wrench-levers wherewith to rigidly secure said cap to a container.

3. In a one hand oil rifle, the combination with a pump and a container, of a cap adapted to close the upper end of the pump and provide a securing means for attachment to said container, said pump having a hollow plunger rod operable through said cap and provided with a nozzle pipe attached perpendicularly to the said rod by an elbow fitting, and a gripping means comprising a handle formed integral with said fitting and positioned in line with and on the opposite side of said rod from said nozzle pipe, and oppositely extended gripping members rigidly secured to said cap and disposed in cooperable relation with said nozzle pipe and said handle.

In testimony whereof I affix my signature.
CHARLES L. WILLIAMS.