July 4, 1933. F. L. V. SPRING 1,916,394

PUMP-TYPE OILER

Filed Oct. 14, 1931

Fig. 1.

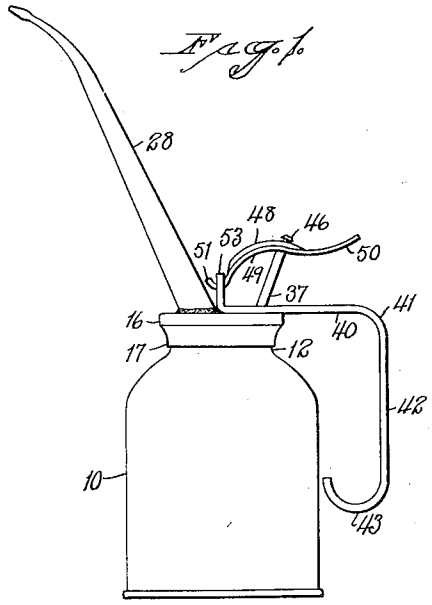


Fig. 2.

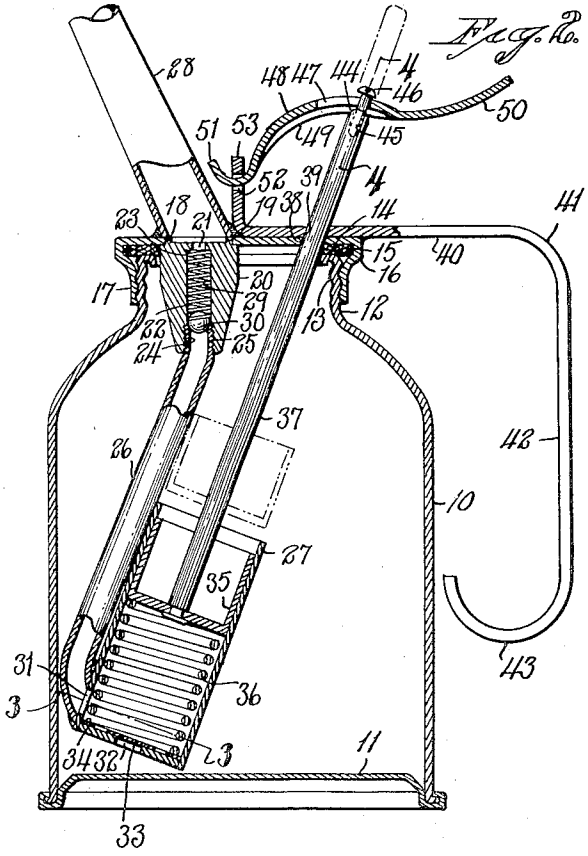


Fig. 5.

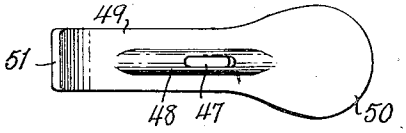


Fig. 3.

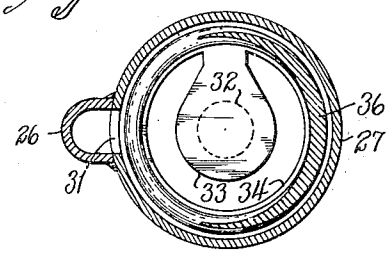


Fig. 7.

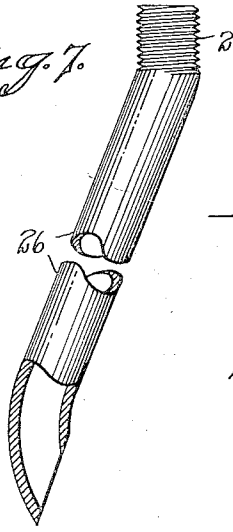


Fig. 4.

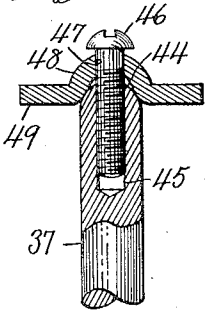
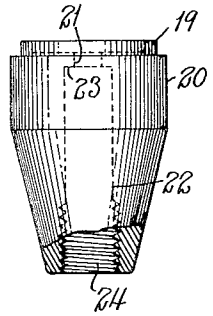


Fig. 6.



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UNITED STATES PATENT OFFICE

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PUMP-TYPE OILER

Application filed October 14, 1931. Serial No. 568,723.

This invention relates to improvement in oilers and particularly to oilers of the type which are provided with pump-mechanisms for forcibly ejecting oil therefrom.

The main object of my present invention is to provide at a low cost for manufacture a simple and reliable pump-type oiler constructed with particular reference to superior convenience of disassembly and reassembly for the purpose of cleaning or adjusting its pumping-mechanism and associated parts.

With the above and other objects in view as will appear from the following, my invention consists in a pump-type oiler having certain features of construction and combinations and arrangements of parts as will be hereinafter described and particularly recited in the claims.

In the accompanying drawing:

Fig. 1 is a view in side elevation of a pump-type oiler embodying my invention;

Fig. 2 is a view thereof in vertical central section but on a larger scale;

Fig. 3 is a broken detail sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a similar view taken on the line 4—4 of Fig. 2;

Fig. 5 is a top or plan view of the finger-lever detached;

Fig. 6 is a view partly in side elevation and partly in longitudinal section of the mounting-member detached; and

Fig. 7 is a broken view partly in side elevation and partly in longitudinal section of the outlet-tube detached.

The particular pump-type oiler herein chosen for the illustration of my invention consists, as shown, of a cup-shaped body 10 having a crimped-on bottom-plate 11 and an upstanding integral contracted neck 12 provided at its upper end with rolled-in threads 13. The extreme upper end of the neck 12 is turned inwardly, as shown, to provide a gasket-seat 14 receiving a gasket 15 located within the upper end of an inverted cup-shaped cap 16, the skirt 17 of which latter is provided with internal threads for coaction with the rolled-in threads 13 of the neck 12 of the body-member 10.

The cap 16 is provided in its upper wall with an annular opening 18 to receive an upstanding annular collar 19 which is soldered, or otherwise secured in place therein, and formed integral with a mounting-head 20. The said mounting-head 20 is formed with an axial passage 21 having its lower portion enlarged as at 22 to provide a downwardly-facing spring-seat 23, and is provided internally with threads 24 at its extreme lower end for the reception of the threaded upper end 25 of an outlet-tube 26, which latter supports a pump-cylinder 27 to which its lower end is secured by solder or in any other suitable manner. As thus assembled, the cylinder 27 and the outlet-tube 26 form a unitary structure which may be threaded into and unthreaded from the mounting-head 20, for the purpose as will hereinafter appear.

The axial passage 21 in the supporting-head 20 before referred to intersects at its upper end, the lower end of a tapered spout 28 which is secured, as shown, by means of solder to the upper face of the cap 16. The enlarged lower portion 22 of the said axial passage 21 houses a check-valve spring 29 which bears at its upper end against the seat 23 therein, and has its lower end engaged with a ball check-valve 30 slightly larger in diameter than the passage through the outlet-tube 26 and normally seated against the upper end thereof to prevent the downward flow of oil through the said outlet-tube.

The pump-cylinder 27 is formed in its periphery, near its lower end, with an outlet-port or opening 31 intersecting the lower end of the outlet-tube 26 and is also provided in its bottom wall with an inlet-port 32 which is normally covered by an upwardly-yielding flexible flap 33, formed integral with a check-valve ring 34, and normally serving to prevent the outflow of oil through the said inlet-port 32 of the cylinder 27, but yielding upwardly to permit the inflow of oil into the said cylinder, as will hereinafter appear.

Resting upon the check-valve ring 34, so as to hold the same in place, and interposed between the same and the under face of a cup-shaped piston 35 reciprocating within the cylinder 27, is a helical spring 36 which serves to restore the said piston and associated parts

to its upper position after each manual depression of the same, as will shortly appear.

The piston 35 has riveted, or otherwise secured to it an upstanding plunger- or piston-rod 37 projecting through and bearing in an opening 38 in the top wall of the cap 36 and in an aligned opening 39 formed in the horizontal reach 40 of a sheet-metal handle 41, which is shaped to provide a vertical grip-portion 42 terminating at its lower end in a reversely-bent loop 43. Either or both of the openings 38 and 39 just referred to may serve as a bearing or guide for the upper end of the plunger-rod 37, or any other suitable guide may be provided as a feature of the unit of which the cap forms a part.

The upper end of the piston-rod 37 is rounded off to provide a spherically-contoured terminal 44 and is provided with an axial internally-threaded socket 45 receiving the threaded stem of a coupling-screw 46, which latter passes through a longitudinal slot 47 formed in a longitudinal upwardly-bowed rib 48 forming a feature of a finger-lever 49 and accommodating the upper end of the said rod with capacity for relative rocking and sliding movement.

The finger-lever 49 just above referred to is shaped to form an upwardly-curved finger-piece 50 at its outer end and is bent also at its opposite end to form a coupling-tongue 51 which enters and rocks in a slot 52 formed in the upwardly-bent terminal 53 of the horizontal reach 40 of the sheet-metal handle 41, before referred to.

From the foregoing, it will be seen that when the handle 41 is gripped and the thumb of the user engaged with the finger-piece 50 so as to depress the same, the piston-rod 37 and piston 35 will be depressed with the effect of expelling a large proportion of such oil as may be in the cylinder 27 below the said piston 35 therein, outwardly through the port 31 and thence upwardly through the outlet-tube 26, passage 21 in the mounting-head 20, and thence outward through the spout 28.

Upon releasing the finger-piece 50, the spring 36 will assert itself with the effect of moving the piston 35 and associated parts upward to thus draw into the lower end of the said cylinder, through the inlet-port 32, a fresh supply of oil. The ball-check 30 meanwhile serves, during this phase of the operation, to prevent the reverse flow of oil or such residual oil as may remain in the spout 28.

It is often necessary to disassemble the parts, especially the pumping mechanism, in order to remove any dirt which may interfere with the proper operation. This requirement for cleaning, while occurring in ordinary use, is especially necessary when the oilers are used in connection with harvesting, or other farm machinery, where chaff and dust are present in excessive amounts.

The oiler may be disassembled for purposes of cleaning by first removing from the can-body 10, the cap 16 together with the pumping-mechanism and handle and spout organized therewith. It now becomes necessary to provide ready access to the interior of the cylinder 27 and access also to the passage through the outlet-tube 26, etc. If now, the screw 46 is removed so as to disconnect the finger-lever 49 from the piston-rod 37 and to permit the complete removal of the said finger-piece, or to permit its being swung into a clearance position, the piston 35, together with the piston-rod 37, may be moved upwardly into the position indicated by broken lines in Fig. 2, so as to permit the unit comprising the said cylinder 27 and outlet-tube 26 to be unscrewed from the mounting-head 20 to thus provide access to the interior of the pumping-mechanism and the tube 26 for the purpose of removing any dirt or chaff therefrom.

When the parts have been properly cleaned, the oiler may be reassembled by reversing the process above described.

It will be noted that while the unit, comprising the cylinder 27, tube 26 and associated parts, is removable from the cap 16 by unscrewing the upper end 25 from the mounting-head 20, as before described, the piston 35 and its piston-rod 37 serve, when the parts are in their assembled position, to prevent the accidental unscrewing of the said cylinder owing to the fact that the said piston-rod is guided in the cap 16 at a point eccentric to the axis of the threaded end 25 of the said tube 26. Thus, the cylinder 27, tube 26 and associated parts, while readily removable by a simple unscrewing operation, are effectively prevented from accidentally unscrewing by the "keying" action, so to speak, of the piston-rod 37.

As before pointed out, the unit comprising the parts 26, 27, etc., may be unkeyed to permit it to be unscrewed by moving the piston 35 upwardly to clear the cylinder 27, and may again be keyed in place by reinserting the piston into the cylinder, as before described.

It will be understood by those skilled in the art that my invention may assume varied physical forms without departing from my inventive concept and I, therefore, do not limit myself to the specific embodiments herein chosen for illustration, but only as indicated in the appended claims.

I claim:

1. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a cylinder-member and a piston-member axially separable one from the other and one of which is provided with a plunger-rod extending through the said cap and reciprocating in the plunger-guide thereof, and the other of which is removably connected to the said cap by a screw-threaded

connection eccentrically positioned with respect to both the said piston-member and the said plunger-guide.

2. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a cylinder-member and a piston-member axially separable one from the other and one of which is provided with a plunger-rod extending through the said cap and reciprocating in the plunger-guide thereof, and the other of which is provided with a rigid outlet-tube removably connected to the said cap by a screw-threaded connection eccentrically positioned with respect to both the piston-member and the said plunger-guide.

3. In a pump-type oiler, the combination with the cap therefor provided with a punger-guide; of a piston provided with a plunger-rod extending through the said cap and reciprocating in the plunger-guide thereof; and a cylinder removably connected to the said cap by a screw-threaded connection eccentrically positioned with respect to both the said piston and the said plunger-guide.

4. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a piston provided with a plunger-rod extending through the said cap and reciprocating in the said plunger-guide thereof; and a cylinder-unit comprising a cylinder proper and an outlet-tube rigidly attached thereto and removably connected to the said cap by a screw-threaded connection eccentrically positioned with respect to both the said piston and the said plunger-guide.

5. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a mounting-head depending from the said cap to one side of the said plunger-guide thereof, and provided with a screw-threaded portion; a cylinder-member and a piston-member axially separable one from the other and one of which is provided with a plunger-rod extending through the said cap and reciprocating in the said plunger-guide thereof, and the other of which is provided with a screw-threaded portion engaged with the screw-threaded portion of the said mounting-head at a point eccentric with respect to both the said piston-member and the said plunger-guide.

6. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a mounting-head depending from the said cap to one side of the said plunger-guide thereof, and provided with a screw-threaded socket; a cylinder-member and a piston-member axially separable one from the other and one of which is provided with a plunger-rod extending through the said cap and reciprocating in the said plunger-guide thereof, and the other of which is provided with an outlet-tube rigidly secured to it and screw-threaded for entry into the threaded socket of the said mounting-head at a point eccentric with respect to both the said piston-member and the said plunger-guide.

7. In a pump-type oiler, the combination with the cap therefor provided with a plunger-guide; of a cylinder-member and a piston-member axially separable one from the other and one of which is provided with a plunger-rod extending through the said cap and reciprocating in the plunger-guide thereof, and the other of which is removably connected to the said cap by a screw-threaded connection eccentrically positioned with respect to both the said piston-member and the said plunger-guide; and a pivotal finger-lever removably connected to the said plunger-rod and mounted upon the said cap with capacity for being moved clear of the path of movement of the said plunger-rod to permit the same to be axially moved outward to separate the said piston-member and the said cylinder-member and permit the unscrewing of the eccentrically positioned screw-threaded connection before referred to.

In testimony whereof, I have signed this specification.

FRED L. V. SPRING.