

March 5, 1929.

W. G. MATTHEWS

1,704,573

OIL CAN

Filed Jan. 28, 1928

Fig. 1.

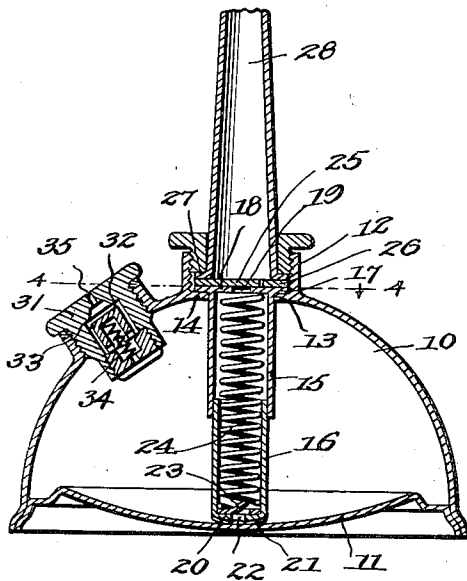


Fig. 2.

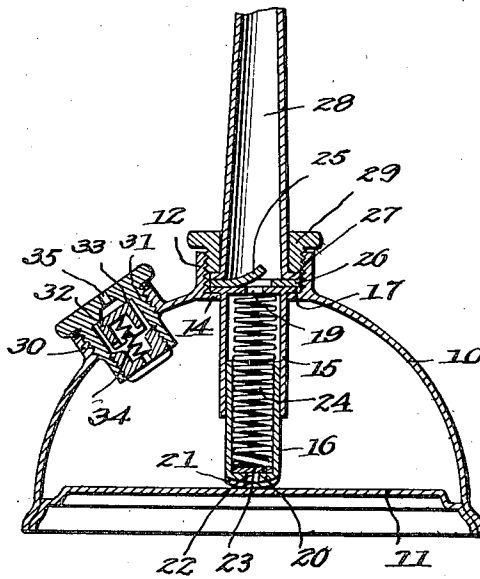


Fig. 3.

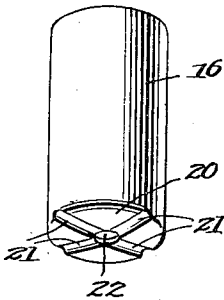
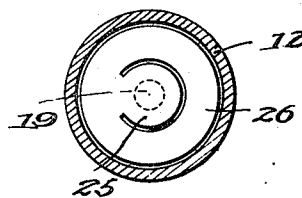


Fig. 4.



WITNESSES

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OIL CAN.

Application filed January 28, 1928. Serial No. 250,129.

This invention relates to oil cans and refers particularly to an improvement in dispensing oil cans of the type set forth in my prior United States Letters Patent No. 1,507,498.

While the oil can constituting the subject matter of my prior patent operated effectually with the thinner or lighter grades of oil, the same failed to function efficiently with oil of the heavier or thicker grades.

In order to overcome the above-recited objection, the present invention comprehends an improved oil can which insures a positive feeding and discharge of the contents irrespective of the character of the contents or the position in which the can is used.

The invention further and more specifically contemplates in a dispensing oil can of the usual diaphragm bottom type, a forced pump mechanism operable by manual inward flexing of the diaphragm bottom to move the column of oil contained within the mechanism and spout and to positively discharge a predetermined quantity therefrom irrespective of the position in which the can is held.

As a further feature, the invention embodies a spring-actuated forced pump mechanism for diaphragm bottom dispensing oil cans, which mechanism operates when released, to return the diaphragm bottom to the normal position.

Other objects reside in the comparative simplicity of construction and mode of operation, the economy with which the same may be produced, and the general efficiency derived therefrom.

With the above recited and other objects in view, reference is had to the following description and accompanying drawings in which there is exhibited one example or embodiment of the invention, while the appended claims define the actual scope of the invention.

In the drawings—

Figure 1 is a vertical sectional view through the can with the pump mechanism and diaphragm in normal position;

Fig. 2 is a similar view illustrating the position of the parts when the oil is being ejected and with the diaphragm flexed inwardly;

Fig. 3 is an inverted perspective view of the lower section of the pump mechanism removed;

Fig. 4 is a horizontal sectional view taken approximately on the line 4—4 of Fig. 1;

Referring to the drawings by characters of reference, 10 designates a can body which constitutes a reservoir for the oil or other contents, and 11 designates the flexible diaphragm bottom of the body. The body is provided with a substantially cylindrical neck or boss 12 at its upper end, which is interiorly threaded and which communicates with the interior of the can body through a central opening 13 in a wall 14 at the lower end of the neck. A pump mechanism including upper and lower telescopically associated cylindrical sections 15 and 16, is provided. The upper section 15 is of a diameter to snugly fit within the opening 13 and is provided with an annular outwardly projecting flange 17 which fits within the boss or neck 12 and which is adapted to rest upon the bottom wall 14 thereof. The upper section 15 is also provided with an upper end wall 18 having a central opening 19. The lower section 16 is open at its upper end and is provided with a bottom wall 20 having a convex outer surface provided with radial grooves 21 communicating with a central opening 22. An upwardly opening downwardly-closing flap valve 23 is seated upon the bottom wall 20 of the lower section 16 and is maintained in place by a coiled expansion spring 24 interposed between the upper wall 18 of the upper section 15 and the body of the flap valve 23. The spring also functions to normally distend the section 16 relatively to the section 15 and to flex the diaphragm bottom 11 downwardly or outwardly to the extent of its flexing movement. A downwardly-closing, upwardly-opening flap valve 25 constituting a semi-circular cup portion of a disk 26, is arranged over the upper end of the upper section 15 and said disk is clamped and maintained in place between the outturned flange 27 at the lower end of the spout 28 and the upper end of the upper section 15, by an annular retaining nut 29, which threadedly engages within the interiorly-threaded neck or boss 12.

In order to provide means for permitting an intake of air to the interior of the can body and to allow for filling of the same, an interiorly-threaded filling nozzle 30 is provided at one side of the neck or boss 12, and a removable plug 31 is engaged therein

which also comprises a valve element 32 which is normally seated against an internal annular shoulder 33, by means of a spring 34. The closure plug is provided with an intake opening 35.

In use and operation, with the parts in the position illustrated in Fig. 1, inward flexing of the diaphragm bottom 11 obviously causes the lower flap valve 23 to close and trap the volume of liquid contained within the sections 15 and 16. The movement of the section 16 into the section 15, causes the upper flap valve 25 to open and to displace from the column of liquid contained in the sections 15 and 16, a predetermined quantity which in turn acts to eject a similar quantity of the liquid contained in the spout 28. When the diaphragm bottom 11 is released, the spring 24 functions to again distend the sections 15 and 16 relatively and to reflex the diaphragm bottom 11 outwardly. During this operation, the flap valve 25 closes and the flap valve 23 opens, permitting fluid within the can body 10 to flow through the grooves 21 and opening 22 into the distended sections 15 and 16, to replace the quantity of fluid ejected or displaced therefrom. It is obvious that the inward flexing of the bottom closes the valve 32 and builds up a pressure within the body which assists in effecting the re-filling or replenishing of the compartment defined by the sections 15 and 16. As the diaphragm bottom is reflexed outwardly, it is obvious that the valve 32 opens to admit air for the next operation.

Under this construction and arrangement, the oil or fluid irrespective of its character and irrespective of the position in which the can is used, will be forcefully ejected or dispensed from the spout.

What is claimed is:

1. An oil can, including a body having an outlet and a flexible resilient portion, and a pump mechanism having an outlet communicating with the body outlet, operable by inward flexing of said flexible portion to positively discharge a quantity of the contents, said pump mechanism comprising a pair of telescopically associated barrel sections having open communicating inner ends and apertured heads at the outer ends and check valves controlling the apertured ends.

2. An oil can, including a body having an outlet and a flexible resilient portion, and a pump mechanism having an outlet communicating with the body outlet, operable by inward flexing of said flexible portion to positively discharge a quantity of the contents, said pump mechanism comprising a pair of telescopically associated barrel sections having open communicating inner ends and apertured heads at the outer ends, check valves controlling the apertured ends, and means for normally moving the sections away from each other.

3. An oil can, including a body having an outlet and a flexible resilient portion, and a pump mechanism having an outlet communicating with the body outlet, operable by inward flexing of said flexible portion to positively discharge a quantity of the contents, said pump mechanism comprising a pair of telescopically associated barrel sections having open communicating inner ends and apertured heads at the outer ends, check valves controlling the apertured ends, and means for normally moving the sections away from each other, said means also serving to flex the flexible portion outwardly.

4. An oil can, including a body having an outlet and a flexible resilient portion opposite the same, an annular interiorly threaded boss on the body surrounding the outlet, a pump mechanism comprising a pair of telescopically associated barrel sections having open communicating inner ends and apertured heads at the outer ends, one of the heads having a peripheral outwardly projecting flange resting upon the body around the outlet and within the boss, a disk-like member seated within the body upon said flanged head, said disk-like member having a hinged resilient central portion constituting a check valve overlying the aperture of said head, a spout having an annular outturned flange seated in the boss upon the marginal portion of the disk-like member, a nut threaded into said boss surrounding the spout and engaging its flange for clamping the same together with the disk-like member and the flange of the head in said boss, a second check valve element within the head of the remaining barrel section, and a coiled expansion spring within the barrel sections engaging the heads of the barrel sections and normally forcing the innermost barrel section against the flexible resilient portion of the can body.

5. An oil can, including a body having an outlet and a flexible resilient portion opposite the same, an annular interiorly threaded boss on the body surrounding the outlet, a pump mechanism comprising a pair of telescopically associated barrel sections having open communicating inner ends and apertured heads at the outer ends, one of the heads having a peripheral outwardly projecting flange resting upon the body around the outlet and within the boss, a disk-like member seated within the body upon said flanged head, said disk-like member having a hinged resilient central portion constituting a check valve overlying the aperture of said head, a spout having an annular outturned flange seated in the boss upon the marginal portion of the disk-like member, a nut threaded into said boss surrounding the spout and engaging its flange for clamping the same together with the disk-like member and the flange of the head in said boss, a second check

valve element within the head of the remaining barrel section, and a coiled expansion spring within the barrel sections engaging the heads of the barrel sections and normally forcing the innermost barrel section against the flexible resilient portion of the can body, the head of the innermost section having a convex outer surface and radial grooves leading to the aperture therethrough.

Signed at New York in the county of New York and State of New York this 27th day of January A. D. 1928.

WILLIAM G. MATTHEWS.