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OIL CAN PUMP

Filed Sept. 25, 1959

FIG. 1.

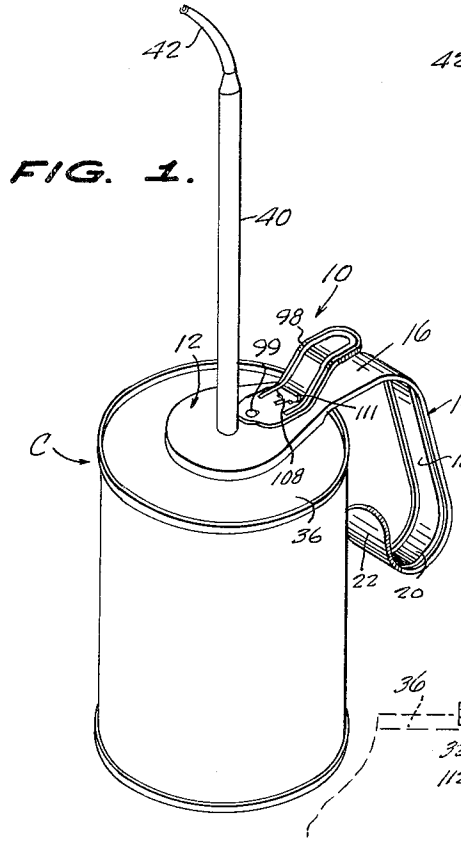


FIG. 2.

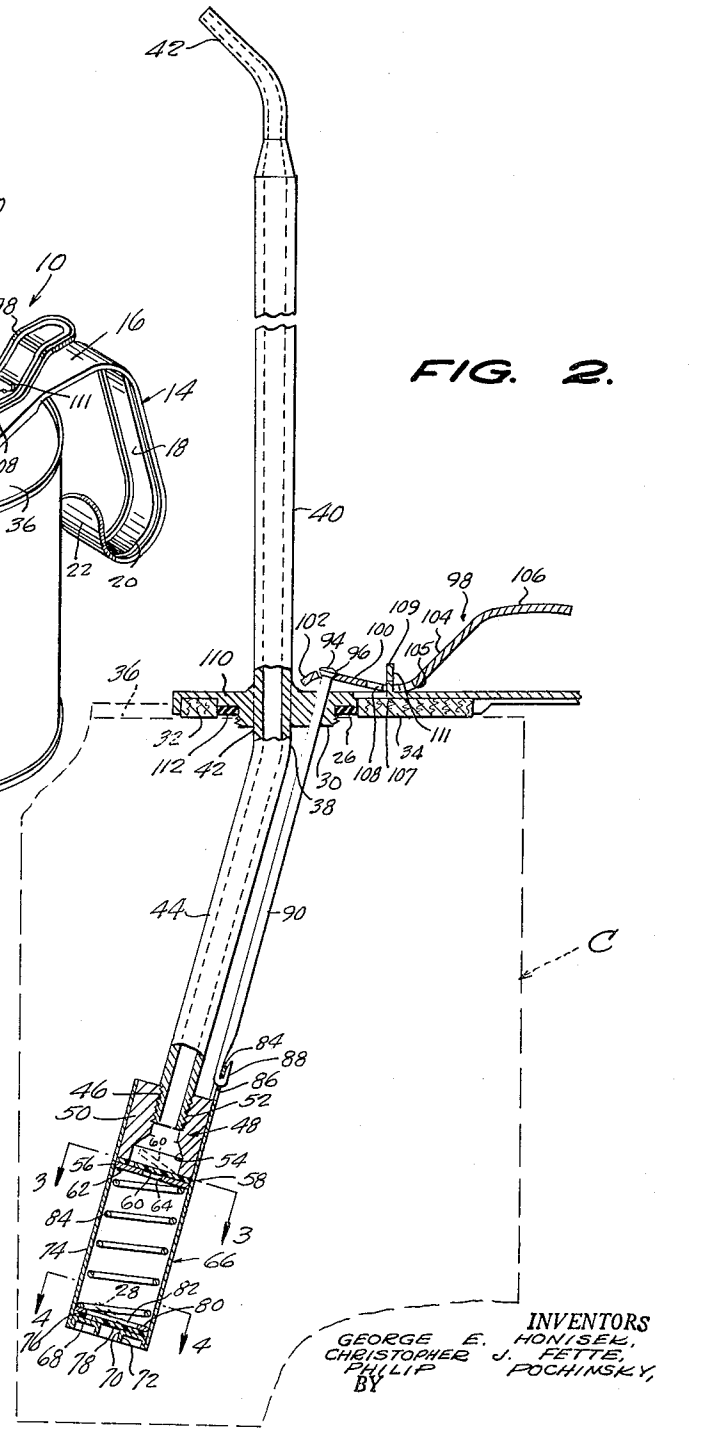


FIG. 3.

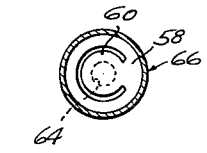
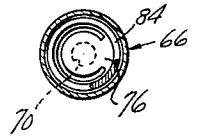


FIG. 4.



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OIL CAN PUMP

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This invention relates to a novel hand pump adapted to be installed through an opening made in the top of an oil can, such as a sealed quart can.

The primary object of the invention is to provide a more efficient, more rugged, and easier-operating device of this kind which can be readily transferred from can to can, and which, when installed in a can, seals the oil therein from contamination and dirt, in a more positive and effective manner than is obtainable from the use of hand oilers which must be periodically taken apart and refilled, with accompanying hazards of introducing contaminants and dirt.

Another object of the invention is the provision of a device of the character indicated above with simpler and more efficient valving means which is more effective in excluding outside contaminants and dirt than ball valve means, usually formed in devices of this kind, and which provides faster, more complete, and longer-lasting sealing effects, and permits of using greater pumping pressures.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a perspective view showing a device of the invention installed on an oil can;

FIGURE 2 is an enlarged side elevation, partly in vertical section, of such device, showing valve means in closed positions in full lines, and in open positions in phantom lines, and the mechanism in unoperated condition; and

FIGURES 3 and 4 are horizontal sections taken on the lines 3—3 and 4—4, respectively, of FIGURE 2.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated device, generally designated **10**, comprises an elongated oval, inverted pan-shaped flat base **12** on whose smaller outer end is formed a can holding and manipulating handle **14**, which has a horizontal upper portion **16**, an outwardly and downwardly declining portion **18**, and an inwardly and upwardly curved arcuate lower portion **20** having a terminal **22** which can bear against a can C, such as a one-quart sealed oil can.

The base **12** has a web **24** and depending side flanges **26**, and suitably fixed or otherwise formed on the underside of and centered relative to the circular portion **28** of the base is a depending, relatively large diameter threaded boss **30**. Compressible pads **32** and **34** are secured to the underside of the web **24** and extend therebelow the side flanges and the boss for pressure contact with the upper surface of a can top **36**, as indicated in FIGURE 2. Suitably fixed in a central opening **38** in the web **24** and the boss is the lower end of an upstanding perpendicular oil spout tube **40** terminating at its upper end in a laterally angled applicator nozzle **42**.

Suitably fixed to the boss **30** in the opening **38** thereof, and permissibly integral with the lower end of the spout tube **40**, and communicating with the spout tube, is the perpendicular upper end portion **42** of a rigid declining uptake tube **44**, which is angled out of the perpendicular, in a direction away from the handle **14**, and

has an externally threaded lower end portion **46**. Threaded on the lower end portion **46** is a tubular pump plunger or piston **48**.

The piston or plunger **48** comprises a solid cylindrical body **50** having in and opening to its upper end a threaded axial bore **52** in which the lower end portion of the tube **40** is threaded, and having in and opening to its lower end an upwardly tapering valve chamber **54** which opens at its upper end into the bore **52**. The plunger **48** has a squared lower end **56** against which bears a flexible, compressible, and resilient upper valve disc **58**. The disc **58** is of substantially the same diameter as the lower end **56** and has a partially severed central valve flap **60** which is displaceable upwardly, as indicated in phantom lines in FIGURE 2, form coplanar relationship with the remainder of the valve **58**. Bearing against the underside of the disc **58** is a lower, hardened, preferably steel ring or flat washer **62** which has a central hole **64** therethrough which is smaller in diameter than the valve chamber **54**.

Slidably telescoped onto the plunger body **50** is a tubular cylindrical combination pump cylinder and valve chamber **66**, which has a lower flat end wall **68** which is imperforate except for a central intake part **70**. As shown in FIGURE 2, the post **70** is surrounded at the lower side of the end wall **66** by a collar **72**, and the end wall **68** is upwardly offset from the lower end of the side wall **74** of the combination **66**. Resting upon and covering the upper side of the end wall **68** is a flexible, resilient, and compressible lower valve disc **76**, having a central, partially severed valve flap **78** therein. Resting upon the upper side of the lower valve **76** is a lower hardened, preferably steel ring or flat washer **80** having a central hole **82** therein. A helical spring **84**, working freely but closely in the combination **66**, is compressed between the washers **62** and **80** and serves normally to keep the valve flaps **60** and **78** closed. The valve discs **58** and **76** are preferably made of neoprene so that they are long-lived mechanically and are resistant to deterioration from contact with oil and substances present therein.

A fixed upstanding lug **84** on the upper end of the side wall **74** of the combination **66** has in opening **86** therein, through which is engaged a hook **88** on the lower end of an operating rod **90** which extends parallel spaced along the side of the uptake tube **40** at the side thereof facing the handle **14**, and whose upper end portion slides through an angled bore **92** provided in the boss and the base web.

The rod **90** has an enlarged head **94** on its upper end which seats in a chamfered opening **96**, through which the rod **90** extends, which is provided in the inward end of a pump-operating lever **98**. The lever **98** is preferably an elongated flat strip or bar having a straight inner end portion **100**, containing the opening **96** and terminating in a downturned stop **102** for engaging the base web **24**, a straight intermediate portion **104** which is disposed at an outward and upward angle relative to the portion **100**, and a slightly upwardly bowed outer end portion **106**, which is disposed at a slight outward and downward angle relative to the intermediate portion **104**, and is normally spaced upwardly from the base **12**, as indicated in FIGURE 2, in a position to be manually depressed to start a pumping action. The lever **98** is provided, at the meeting of the inner end and intermediate portions **100** and **104**, respectively, an arcuate portion **105** provided with a longitudinal slot **108**, upwardly through which extends, as a part of the web **24**, the shank **107** of a T-shaped retainer **109**, which has a cross head **111** bridging the slot **108** and bearing upon the upper side of the lever, so that the lever is confined to rock upon the base web **24**, at the point where the arcuate portion **105** bears upon the web **24**.

Manual depression of the operating lever **98** pulls the

combination pump cylinder and valve chamber 66 upwardly relative to the piston 48, against the resistance of the spring 84. The elevation of the combination 66 relative to the piston 48 compresses the spring 84, so that release of the lever 98 enables the spring to expand and push the combination downwardly relative to the piston, so that oil is sucked through the port 70 from the can C and enters the combination 66, so that the next manual depression of the lever 98 and accompanying elevation of the combination serves to close the lower valve flap 78, compress the oil within the combination, open the upper valve flap 60, and force oil upwardly through the uptake tube 44 and the spout tube 40, and out of the nozzle 42. On release of the lever 98 further discharge of oil from the nozzle ceases, and such oil as may be above the upper valve flap 60 is retained in the tube 44 by the closing of the upper valve flap 60, as a reserve to start the next pumping action.

The device 10 is installed on an oil can C simply by making, by suitable means, of a hole in the can top 36, and threading the boss 30 downwardly in the hole. The boss 30 has a lateral flange 110 just below the base web 24 against which bears a resilient, flexible, and compressible sealing ring 112, preferably of neoprene, which is circumposed on the boss, and which is compressed by the installing of the device, to seal the can top hole around the boss 30.

Although there has been shown and described herein a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. An oil can pump comprising a base having a web, a boss fixed on the web and depending therefrom to be screwed into a hole provided in the top of an oil can, said boss having a central opening therethrough, an upstanding spout tube having a lower end fixed to the boss and a depending oil uptake tube having an upper end fixed to the boss in communication with the spout tube, said uptake tube having an open lower end, and enlarged piston fixed on the lower end of the uptake tube, said piston having therein a valve chamber opening to the lower end of the piston and communicating with the lower end of the uptake tube, a tubular member slidably telescoped on the piston and having an open upper end receiving the piston and a closed lower end wall, said lower end wall being provided with a central intake port and said piston having a flat lower end, an upper compressible valve disc engaged with the lower end of the piston and extending across the intake port, said upper disc having a central valve flap covering a valve opening provided in the upper disc, a lower compressible valve disc resting upon said lower end wall and having a central valve flap covering a valve opening provided in the lower disc, a helical spring confined in said tubular member and compressed between the upper and lower valve discs, and manual operating means mounted on the base and operatively connected to said tubular member for elevating the tubular member relative to the piston against the resistance of the spring.

2. An oil can pump comprising a base having a web, a boss fixed on the web and depending therefrom to be screwed into a hole provided in the top of an oil can, said boss having a central opening therethrough, an upstanding spout tube having a lower end fixed to the boss and a depending oil uptake tube having an upper end fixed to the boss in communication with the spout tube, said uptake tube having an open lower end, and enlarged piston fixed on the lower end of the uptake tube, said piston having therein a valve chamber opening to the lower end of the piston and communicating with the lower end of the uptake tube, a tubular member slidably telescoped on the piston and having an open upper end receiving the piston and a closed lower end wall, said lower end wall being provided with a central intake port and said piston having a flat lower end, an upper compressible valve disc engaged with the lower end of the piston and extending across the intake port, said upper disc having a central valve flap covering a valve opening provided in the upper disc, a lower compressible valve disc resting upon said lower end wall and having a central valve flap covering a valve opening provided in the lower disc, a helical spring confined in said tubular member and compressed between the upper and lower valve discs, and manual operating means mounted on the base and operatively connected to said tubular member for elevating the tubular member relative to the piston against the resistance of the spring, and rigid washers interposed between related ends of the spring and the upper and lower valve discs, the washers having central openings registered with the openings in the valve discs.

3. An oil can pump comprising a base having a web, a boss fixed on the web and depending therefrom to be screwed into a hole provided in the top of an oil can, said boss having a central opening therethrough, an upstanding spout tube having a lower end fixed to the boss and a depending oil uptake tube having an upper end fixed to the boss in communication with the spout tube, said uptake tube having an open lower end, an enlarged piston fixed on the lower end of the uptake tube, said piston having therein a valve chamber opening to the lower end of the piston and communicating with the lower end of the uptake tube, a tubular member slidably telescoped on the piston and having an open upper end receiving the piston and a closed lower end wall, said lower end wall being provided with a central intake port and said piston having a flat lower end, an upper compressible valve disc engaged with the lower end of the piston and extending across the intake port, said upper disc having a central valve flap covering a valve opening provided in the upper disc, a lower compressible valve disc resting upon said lower end wall and having a central valve flap covering a valve opening provided in the lower disc, a helical spring confined in said tubular member and compressed between the upper and lower valve discs, and manual operating means mounted on the base and operatively connected to said tubular member for elevating the tubular member relative to the piston against the resistance of the spring, said base being pan-shaped and having side flanges depending from said web, and can top engaging compressible pads secured to the underside of the web and normally extending below the side flanges.

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