Oct. 5, 1965 R. E. GREENE ETAL 3,209,951

ATTACHABLE OIL PUMP

Filed June 12, 1963 2 Sheets-Sheet 1

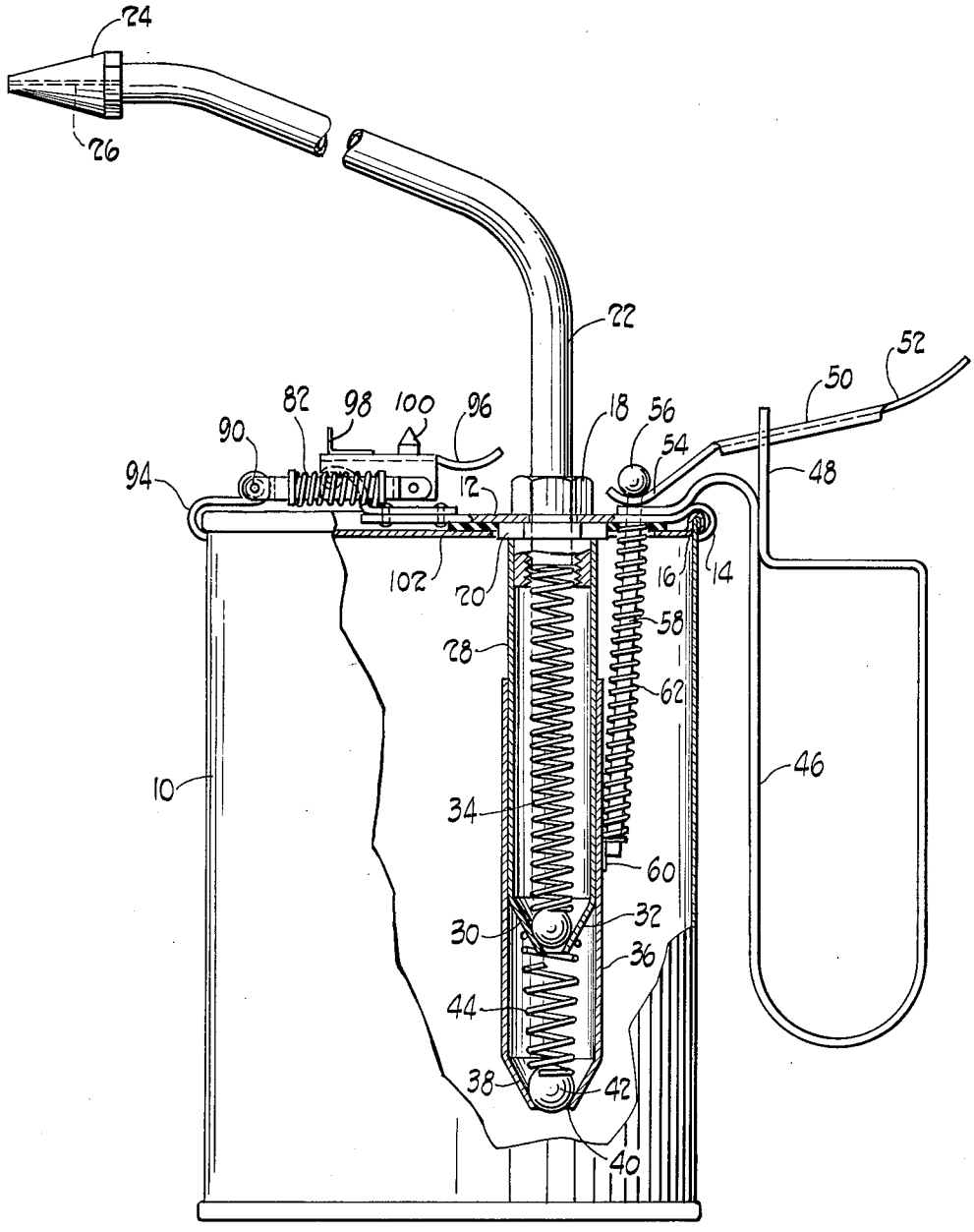


FIG. 1

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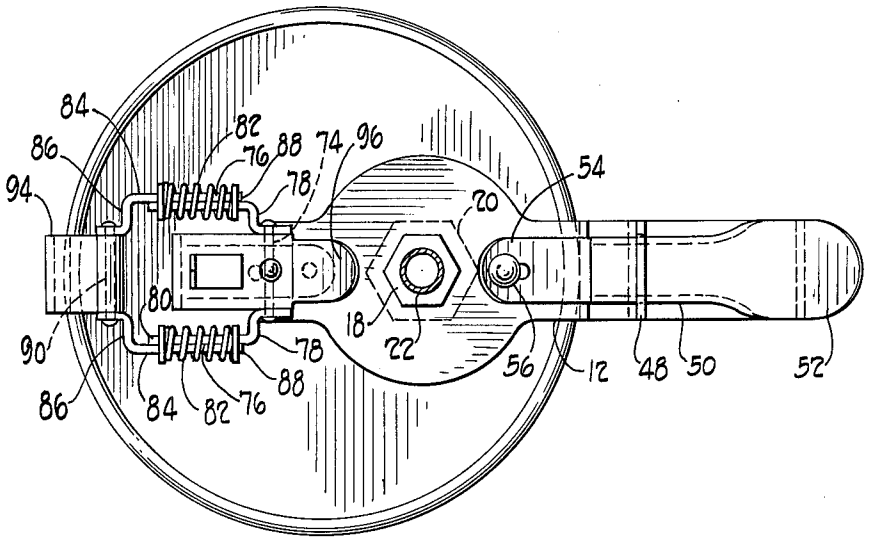


FIG. 2

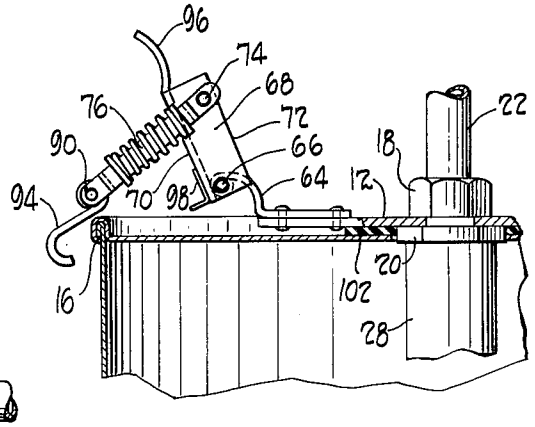
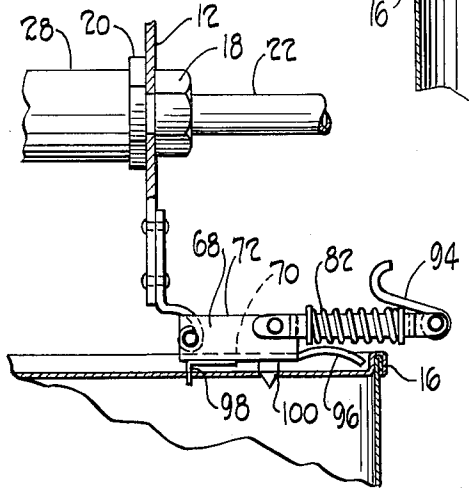


FIG. 3

FIG. 4



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ATTACHABLE OIL PUMP

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This invention relates to pump oilers and more particularly to a pump oiler attachable to a sealed oil can for dispensing the contents thereof in the manner of a pump type oil can.

Accordingly, it is an object of this invention to provide a pump apparatus having spout and attachment means for readily affixing the pump in operative position in a conventional oil can for dispensing the contents through the spout when the pump is actuated.

Pump type oil cans having fillable reservoirs have been available for dispensing small quantities of oil for lubricating bearings and the like. Such a device has limitations and disadvantages resulting from the necessity for the reservoir to be filled from another container with consequent contamination of the oil either during the filling operation or during subsequent storage in the opened supply can. Further, such an arrangement is not convenient when it is desired to transfer quantities of oil in amounts up to a pint.

The invention disclosed herein contemplates apparatus capable of dispensing oil in small or large quantities as desired by the user. Further the pumping apparatus is applied directly to the supply container thus precluding any possibility of contamination during the use and dispensing of the contents of the can irrespective of the length of time involved or the cleanliness of the surroundings during storage. An ordinary sealed can of oil is opened by cutting a hole in the lid having a diameter sufficiently large to receive a pump cylinder and actuation pull rod, the pump cylinder being immersed in the contents of the can and extending substantially to the bottom thereof. A flange confronts the top of the oil can and a rubber like gasket lies between the flange and the top of the can to effectively seal the space therebetween against leakage of oil from the can or dirt or of other contaminating materials into the can. A toggle lock is provided for actuating a hook which cooperates with a second hook on the apparatus to removably affix the apparatus to the top of the oil can. Spring means is provided in the latching means to allow for the tolerance necessary to accommodate varying size vessels.

A cutter means is carried by the latch means and includes a sharpened pivot post which is first inserted through the lid. The can is then rotated with a cutter spaced radially from the pivot post, said cutter cutting the thin metal of the can lid in a circle as the can is rotated.

It is an object of this invention, therefore, to provide readily operable latch means for holding a pump type dispensing apparatus in sealed relation with the top of an oil can whereby actuation of the pumping apparatus removes the contents of the can and dispenses the same as desired by the operator.

Another object of the invention is to provide an attachable pump and dispensing apparatus particularly adapted to be affixed on the top of a sealed oil can, the apparatus including cutter means for forming an opening in the can of correct size and position to receive the portion of the apparatus which extends into the can for dispensing the contents thereof.

A still further object of this invention is to provide an attachable fixture having a toggle clamp mounted thereon for engaging the upper rim of an oil can and thereby removably attaching the fixture to the can with

the operating mechanism in position for dispensing the contents of the can.

Other objects more or less ancillary to the foregoing, and the manner in which all the various objects are realized, will appear in the following description, which considered, in connection with the accompanying drawings, sets forth the preferred embodiment of the invention.

In the drawings:

FIG. 1 is an elevational view of the oil pump apparatus of our invention shown installed on an oil can with parts cut away for purposes of clarity;

FIG. 2 is a top view of the pump apparatus of FIG. 1;

FIG. 3 is a fractional detailed view showing the locking means in unlocked position; and

FIG. 4 is a fractional detailed view showing the cutter assembly in cutting position on the lid of the can.

Referring first to FIG. 1, the preferred embodiment of our invention is shown mounted on the lid of a conventional sealed oil can **10**. A perforate mounting plate **12** provides a frame or base structure for the assembly constituting the oil pump. The plate **12** has a hook **14** bent downwardly for engaging the upper rim **16** of the can **10**.

A threaded bushing **18** has a reduced portion extending through an opening in the plate **12**, the reduced portion being threaded externally to receive an adapter **20** threaded internally to receive the bushing **18** making it possible to rigidly mount the bushing **18** and the adapter **20** on the plate **12**, by tightening the adapter **20** thereagainst and drawing the bushing **18** against the top of the plate **12**. The bushing **18** is threaded internally to receive a threaded portion of a spout **22** which is bent laterally in respect to the plate for convenience in the use of the mechanism in discharging the contents of the oil can **10**. The opposite end of the spout **22** carries a nozzle **24** threaded thereon. The nozzle **24** has a small bore **26** therein, communicating with the spout **22** and externally of the nozzle **24**, the bore **26** being small relative to the internal diameter of the spout **22**. The nozzle **24** with a small bore **26** is positioned on the spout **22** for convenience in discharging small quantities of oil. However, in utilizing the pump mechanism for purposes of transferring larger quantities of oil, the nozzle **24** may be removed from the spout **22** thus allowing the discharge of the contents of the can **10** in much greater volume.

A piston **28** is hollow and tubular in form and has an internal diameter such that it mounts on the depending portion of adapter **20** with a press fit. The lowermost end **30** of the piston **28** is frusto-conical to provide a relatively small passageway into the piston for the ingress of the oil to be pumped. A ball **32** normally rests in the conical end **30** and functions with the conical end **30** to provide a one-way valve allowing the flow of oil into the hollow piston **28** and preventing the flow of such oil back into the oil can **10**. A compression spring **34** having one end in engagement with the ball **32** and the opposite end in engagement with the bushing **20**, biases the ball **32** into valving position in the conical end **30**, irrespective of the attitude of the pump during its use.

A cylinder **36** having an inside diameter for a sliding fit on the outside of the piston **28** is slidably disposed thereon for reciprocal movement. The cylinder **36** has a lower frusto-conical end **38** with a port **40** in the lowermost end thereof. A ball **42** larger than port **40** and freely movable in the cylinder **36** normally rests on the conical end **38** and closes the port **40** against flow from the cylinder **36** into the can **10**. The ball **42** is shiftable away from the port **40** to allow the ingress of oil as the pump is actuated. A spring **44** has one end positioned in engagement with the ball **42** and the opposite end in engagement with the end **30** of the piston **28**. Spring **44** maintains the ball **42** in operative position in the end **38**

during the use of the pump in any position desired by the operator. As the end 38 of the cylinder 36 moves toward the end 30 of the piston 28 the volume in the cylinder is reduced thus forcing the contents thereof into piston 28 and discharge is accomplished through the spout 22 and the nozzle 24 to the desired location.

A handle 46 is formed from rebent flat stock and permanently affixed to the plate 12 by welding or other appropriate means. A vertically extending portion 48 of the handle 46 has an opening formed therein through which a pump lever 50 is fulcrumed for pivotal movement. A thumb grip 52 is formed at the outermost end of the lever 50 and positioned in a convenient location for the operator to actuate the lever while grasping the handle 46. The opposite end of the lever 50 to the thumb grip 52 has a slotted end 54, arcuate in form, which engages a ball 56 integral with a cylinder actuation shaft 58. As the lever 50 is rotated, the end 54 is raised upwardly causing the shaft 58 to be moved through a vertical path of travel. The opposite end of the shaft 58 to the ball 56 is pivotally joined to the cylinder 36 by a clip 60 which is affixed to the cylinder 36 and is loosely mounted on the end of the shaft 58. A compression spring 62 surrounds the shaft 58 and is positioned between the plate 12 and the clip 60 thus biasing the cylinder 36 to the lowermost position and the thumb grip 52 to the uppermost position thus maintaining the pumping mechanism at the position of the start of the pumping stroke.

Referring now to FIGS. 2 and 3, the spring loaded clamp assembly for releasably mounting the pump assembly on the oil can is best illustrated therein. A bracket 64 is riveted to the plate 12 and provides a journal mounting for a pin 66. A toggle body 68 is mounted on the pin 66 for pivotal movements on the bracket 64. The body 68 is channel shaped and includes a web 70 and a pair of flanges 72 at right angles thereto. The pin 66 is mounted in the flanges 72 proximate to the web 70 and near one end of the flanges 72. At the opposite end of the flanges 72 and spaced from the web 70, a pin 74 passes through the flanges 72 and extends laterally thereof. A pair of tension bars 76 having off-sets 78 formed therein are carried by the pin 74 for relative rotation with the body 68 of the toggle assembly. An enlarged end 80 is formed on the ends of the bars 76 and engages the ends of compression springs 82 which surround the bars 76 and are freely slidable thereon. A second pair of bars 84 having off-sets 86 are positioned generally parallel to the bars 76 and are relatively slidable therewith. Further, the bars 84 are positioned within the compression springs 82 and an enlarged end 88 is formed on each of the bars 86 for engagement with one end of the spring 82. When the end 80 of the bar 76 engages the spring 82 and the end 88 of the bar 84 also engages the opposite end of the spring 82, further relative movement of the bars 76 and 84 in opposite directions compresses the spring, and such relative movement is cushioned and constant bias is applied thereto. A pin 90 is carried by the bars 84 and is journalled in an end 92 in a hook which opens downwardly to engage the rim of the can 10. A thumb hook 96 is integral with the end of the web 70 and provides for manual actuation of the toggle assembly.

When the pump assembly is applied to the can 10, the hook is positioned over the rim as shown in FIG. 3 with the toggle in an unlatched position. By applying force to the thumb hook 96, the toggle is rotated around the pin 66, thus bringing the hook 94 into firm engagement with the rim 16 of can 10. Further rotation of the body 68 of the toggle assembly separates the pins 90 and 74 thus producing compression of the springs 82. When the toggle assumes the position illustrated in FIGS. 1 and 2, hooks 14 and 94 are firmly engaged with the rim 16 of the can 10 and the compression of the springs 82 applies continuous bias irrespective of small variation

in the diameter of the can. Since the position of the pin 74 is below the position of the pin 66 when the toggle is in locked position, it is beyond center and the toggle body 68 will remain in the locked position until the thumb hook 96 is actuated to raise the end of the toggle body 68 and thus unlatch the hook 94 from the rim 16 of the can.

In order to provide an opening in the top of the sealed can 10, of the proper size and in a suitable location for receiving the pump and cylinder shaft, a cutter assembly is permanently carried by the toggle assembly. The metal lid is cut by a blade 98 joined to the web 70 of the toggle body 68. A sharpened pilot pin 100 is mounted on the web 70 and spaced from the blade 98 a distance equal to the radius of the opening required. To effect the cutting of the opening, the pilot pin 100 is first pressed through the lid. The toggle assembly is then rotated about the pilot pin, the cutter thus describing the circle with the pilot pin opening as the center and severing a disk of metal from the lid in this manner.

The cylinder 28 and shaft 58 must be spaced from the rim 16 a definite distance as established by the relation of the hook 14 to the location of the adapter 20. In order that the opening in the lid may be in the proper position, thumb hook 96 has a predetermined length such that the outermost end thereof is the required distance from the pilot pin 100 to position the opening in the necessary location spaced from the rim 16. In FIG. 4 the cutter is illustrated in operative position with the thumb hook 96 in engagement with the rim 16, and the pilot pin and blade 98 extending through the material of the can lid. Rotation of the cutter assembly from this position will produce an opening in the can in the proper position for receiving the depending parts of the attachable pump.

Prior to the introduction of the cylinder assembly to the can, a rubber like gasket 102 is placed around the opening. When the plate 12 is hooked on the rim 16 of the can and the spring-loaded toggle assembly is latched into locked position, plate 12 is pressed downwardly against the gasket 102 thus effectively preventing leakage of the contents of the can to the outside or of contaminating dirt or foreign matter into the can from the outside.

With the pump locked in place as described, the contents of the can may be pumped therefrom. When the can is empty the pump is removed and the can thrown away. The pump is then available for use on a fresh can of oil by utilizing the cutter assembly to make the necessary opening in the lid thereof for receiving the pumping assembly contained within the can 10.

Having thus described this invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same and having set forth the best mode contemplated of carrying out this invention, we state that the subject which we regard as being our invention is particularly pointed out and distinctly claimed in what is claimed, it being understood that equivalents or modifications of, or substitutions for, parts of the above specifically described embodiments of the invention may be made without departing from the scope of the invention as set forth in what is claimed.

What is claimed is:

1. An oil dispensing apparatus to be readily attached to a standard, sealed, oil can comprising a flange means, a manually operable pump means having parts projecting in opposite directions from said flange means, and carried thereby, a hook integral with the flange for engaging the rim of said can, a toggle body pivotally joined to said flange and carrying a spring loaded hook for latching said flange to the rim of the can, a thumb hook on said toggle body, a pilot pin on said body and spaced from the outer end of said thumb hook, and a cutter mounted on said toggle body and spaced from said pilot pin, a distance equal to the distance of the first hook

to the median of the pump means whereby an opening is formed in the top of the can upon rotation of the cutter around the pilot pin, the opening being established by the thumb hook at a location required to receive the portion of the pump means adapted to be immersed in the can for removing the contents thereof.

2. An oil dispensing apparatus to be readily attached to a standard, sealed, oil can comprising a flange means, a manually operable pump means having parts projecting in opposite directions from said flange means and carried thereby, a hook on the flange for engaging the rim of said can, a toggle body pivotally joined to said flange, a spring loaded hook carried by the toggle body for latching said flange to the rim of the can, a thumb hook on said toggle body, pilot means on said body and spaced from the outer end of said thumb hook, and a cutter mounted on said toggle body and spaced from said pilot means a distance equal to the distance of the first hook to the median of the pump means whereby an opening is formed in the top of the can upon rotation of the cutter around the pilot means, the opening being established by the thumb hook at a location required to receive the portion of the pump means adapted to be immersed in the can for removing the contents thereof.

3. An oil dispensing apparatus adapted to be mounted on a standard sealed oil can with a rim and having pump means adapted to be immersed in the can for dispensing the contents thereof, said pump means extending into the can through an opening to be formed in the lid of the can, said apparatus including a cutter assembly for forming said opening comprising a sharpened pilot pin, a cutter spaced from said pin a distance equal to the desired radius of the opening, and guide means integral with said pilot pin and said cutter engageable with the inside of the rim of the can for positioning the pilot pin relative to the rim of the can to determine the location of the opening relative to the rim for receiving the pump means of the oil dispensing apparatus.

4. An oil dispensing apparatus adapted to be mounted on a standard sealed oil can with a rim and having pump means adapted to be immersed in the can for dispensing the contents thereof, said pump means extending into the can through an opening to be formed in the lid of the can, said apparatus including a cutter assembly for forming said opening comprising a sharpened pilot pin, a cutter spaced from said pin a distance equal to the desired radius of the opening, and a guide integral with said pilot pin and said cutter and positioned in opposed relation to said cutter for engaging the inside of the rim of the can and positioning the pilot pin relative to the rim of the can to determine the location of the opening relative to the rim for receiving the pump means of the oil dispensing apparatus.

5. An oil dispensing apparatus adapted to be mounted on a standard sealed oil can with a rim and having pump means adapted to be immersed in the can for dispensing the contents thereof, said pump means extending into the can through an opening to be formed in the lid of the can, said apparatus including a cutter assembly for forming said opening comprising a sharpened pilot pin, a cutter spaced from said pin a distance equal to the desired radius of the opening, guide means integral with said pilot pin and said cutter engageable with the inside of the rim of the can for positioning the pilot pin relative to the rim of the can to determine the location of the opening relative to the rim for receiving the pump means of the oil dispensing apparatus, and spring-loaded toggle clamp means operably joined to the apparatus for engaging the rim and holding the apparatus in operative position relative to the can.

6. An oil dispensing apparatus adapted to be mounted on a standard sealed oil can with a rim and having pump means adapted to be immersed in the can for dispensing the contents thereof, said pump means extending into the can through an opening to be formed in the lid of the can, said apparatus including a cutter assembly for forming said opening comprising a sharpened pilot pin, a cutter spaced from said pin a distance equal to the desired radius of the opening, guide means integral with said pilot pin and said cutter engageable with the inside of the rim of the can for positioning the pilot pin relative to the rim of the can to determine the location of the opening relative to the rim for receiving the pump means of the oil dispensing apparatus, and spring-loaded toggle clamp means operably joined to the apparatus for engaging the rim and holding the apparatus in operative position relative to the can, said clamp means carrying the cutter assembly for shifting to a position wherein said cutter assembly engages the can lid without interference from the dispensing apparatus.

References Cited by the Examiner

UNITED STATES PATENTS

1,142,601	6/15	Merker	222—89
1,772,454	8/30	Bosworth	222—83
2,051,981	8/36	Bowman	222—89 X
2,740,666	4/56	Boulay	222—89 X
2,792,969	5/57	Anderson	222—88 X

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