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DISPENSING ATTACHMENT FOR CONTAINERS

Filed March 9, 1934

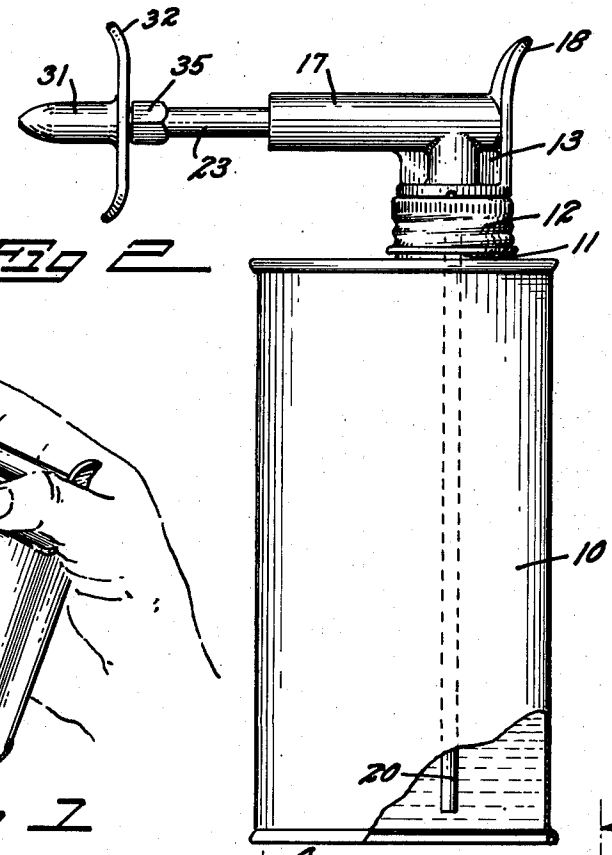

Fig 2

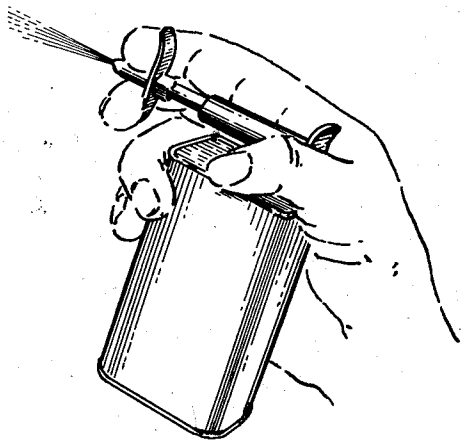

Fig 1

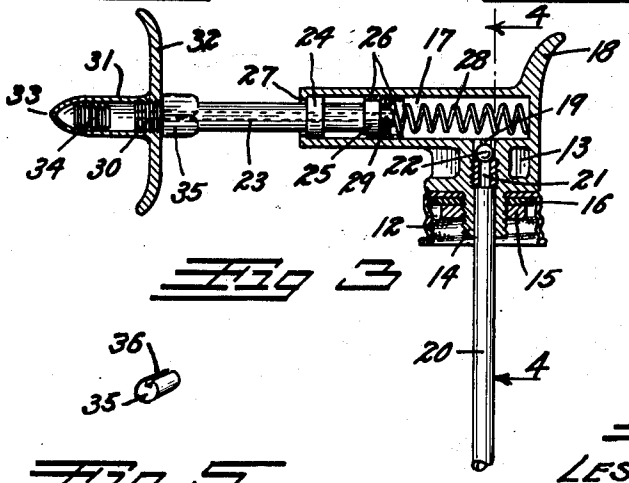

Fig 3

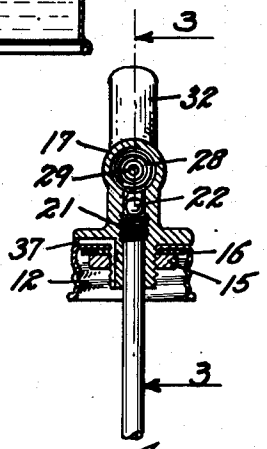

Fig 4

Fig 5

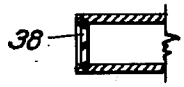

Fig 6

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DISPENSING ATTACHMENT FOR CONTAINERS

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3 Claims. (Cl. 299—97)

This invention relates to a dispensing attachment for containers and is more particularly designed for spraying liquids, such as window and glass cleaning fluids, spring oils, etc., from cans although it is of course not limited to this particular use.

The principal object of the invention is to provide a simple, economical, compact device which can be readily placed on the usual threaded nipple of a can or bottle and which can be conveniently operated with a single hand.

Another object of the invention is to so construct the device that it will be adaptable or interchangeable to suit different depths of containers and different solution viscosities.

A further object is to provide an article of this character in which the parts will be readily adaptable to die casting so that no expensive machine work will be required in the manufacture.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:—

Fig. 1 illustrates the appearance of the invention in use on a typical can.

Fig. 2 is an enlarged side elevation thereof.

Fig. 3 is a longitudinal section taken on the line 3—3, Fig. 4.

Fig. 4 is a vertical section taken on the line 4—4, Fig. 3.

Fig. 5 is a detail view of an alternate form of distributing plug.

Fig. 6 is a detail view illustrating an alternate method of locking the plunger in the cylinder.

In the drawing a typical container or can is indicated at 10 provided with the usual threaded filling nipple 11. The filling nipple 11 receives a threaded cap 12. This cap may be the usual threaded cap furnished with the can or an additional threaded cap furnished with the invention. In either case the invention is applied to this threaded cap 12.

The invention comprises a cylinder member 13 formed with a threaded nipple 14 which passes downwardly through a suitable hole formed in the cap 12. The casting 13 is locked to the cap by means of a clamp nut 15 threaded on the nipple 14 and against a sealing washer 16 beneath the cap 12. The cylinder casting 13 is provided with a pump cylinder 17 extending to one side thereof and open at its outer extremity. It is also provided with a thumb grip member 18 extending upwardly therefrom. An intake passage 19 extends downwardly from the bore of the cylinder 17 through the threaded nipple 14 to slidably receive a suction tube 20. A threaded valve seat member 21 is positioned in the intake passage 19 to form a seat for a ball valve 22.

The cylinder 17 receives a hollow plunger 23 formed with a stop flange 24 and a piston 25. The stop flange 24 serves as a guide to maintain the plunger in axial alignment with the cylinder bore. The piston 25 is sealed in the cylinder 17 preferably by means of a pair of oppositely-facing, cup washers 26. It is prevented from leaving the cylinder by an inwardly turned edge 27 on the open extremity thereof which engages the stop flange 24. A helical compression spring 28 constantly urges the plunger 23 outwardly. The compression spring 28 is compressed between the closed end of the cylinder 17 and the cup washers 26 and serves to hold the latter in place upon a washer teat 29 formed on the extremity of the plunger 23.

The outer extremity of the plunger 23 is threaded as shown at 30 to receive a nozzle member 31. The nozzle member 31 is formed with oppositely extending ears 32 for receiving the forefingers of the user. The extremity of the nozzle member 31 is provided with a discharge orifice 33 and is hollow to receive a distributing plug 34. It will be noted that the outer extremity of the plunger member 23 is formed with nut faces 35 so that it may be firmly held with a wrench for the removal or replacement of the nozzle 31.

In use the complete device is threaded onto the nipple 11 of the can 10. The suction tube 20 is of sufficient length to terminate just above the bottom of the can. The can and the device are then gripped by the hand as shown in Fig. 1. Contraction of the hand forces the plunger 23 into the cylinder 17 to force fluid from the cylinder through the plunger 23 to the nozzle 31. When released, the spring 19 again forces the plunger forwardly to suck additional fluid past the ball valve 22 into the cylinder.

The distributing plug shown at 34 contains a spiral thread on its exterior which fits snugly against the inner wall of the nozzle 31. This imparts a whirling action to the discharging

fluid which breaks it into a fine atomized spray as it exists from the orifices 33.

An alternate form of distributing plug is illustrated in Fig. 5. It consists of a short cylindrical plug 35 formed with a longitudinal groove 36 in its surface. This plug is designed to replace the plug 34 when the device is to be used upon heavier fluids which are not desired atomized. The size of the groove 36 is determined by the particular viscosity of the fluid to be discharged.

It is desirable to provide some means for the entrance of air to the can 10 to replace the discharging fluid. This is accomplished by forming an air groove 37 in the bottom of the casting 13 and extending this groove downwardly through the threads of the threaded nipple 14. This forms a continuous air passage over the top of the cap 12 and into the can.

It is desired to call attention to the fact that the suction tube 12 is removable and replaceable. This facilitates packing the device, and since this tube can be laid alongside the plunger in a comparatively small package and can be easily inserted by the user. This also allows short suction tubes to replace long ones or vice versa so as to adopt the device for containers of various depths. The casting 13 is rotatable upon the cap 12, the washer 16 always maintaining a sufficient seal, so that the nozzle may be projected in any desired direction from the can.

An alternate method of locking the plunger in the cylinder is illustrated in Fig. 6. In this method a spring wire locking ring 38 is slipped into an annular groove in the extremity of the cylinder to prevent withdrawal of the plunger 23.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. A sprayer for attachment to the threaded nipple of a liquid containing can comprising: a cylinder supporting member; means for attaching said member to said threaded nipple; a horizontal cylinder carried by said supporting member and projecting to one side thereof, the projecting extremity of said cylinder being open; the other extremity being closed; a plunger extending into said cylinder through the open end thereof; a spring compressed between said plunger and the closed end of said cylinder; a passage for admitting liquid to said cylinder; a check valve in said passage for preventing return of said liquid; a suction tube extending from said passage; a nozzle member carried on the projecting extremity of said plunger; oppositely extending ears carried by the protruding extremity of said plunger for receiving the forefingers of the user; and a thumb grip member extending from said cylinder for receiving the thumb of the user so that the entire device may be gripped in one hand and contraction of said hand will expel fluid from said cylinder through said nozzle member.

2. The combination of a can having a threaded neck; a perforated cap closing said neck; a spraying device on said cap comprising: a cylinder member closed on one end from which extends a holding and operating thumb engaging member, a reciprocating plunger member partially within said cylinder member; holding and operating finger engaging ears mounted on that part of said plunger member which is not within the said cylinder member, a spring for extending said reciprocating plunger after contraction by means of the hand.

3. A liquid dispenser comprising: a relatively small can adapted to be held in the palm of the hand; a pump cylinder mounted on said can so as to be engaged by the thumb of the hand; a plunger projecting from said pump cylinder; oppositely extending ears projecting from said plunger so as to be engaged by the forefingers of said hand; and a nozzle member extending from said plunger so as to extend between said forefingers.

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