May 2, 1939. O. B. CLARK 2,156,527

DISPENSER

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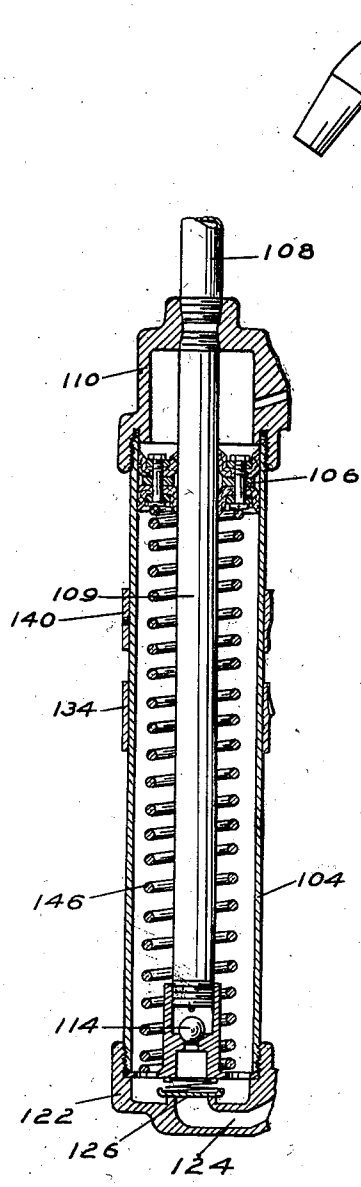


Fig. 2

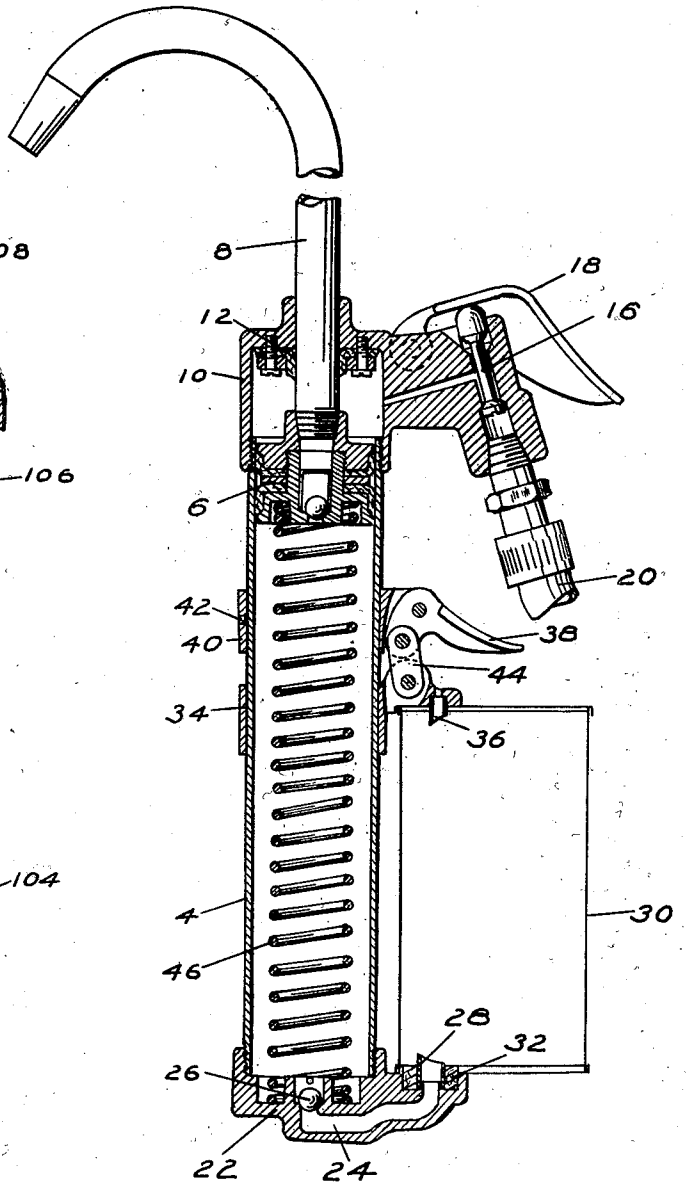


Fig. 1

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DISPENSER

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8 Claims. (Cl. 221—85)

This invention relates to dispensers and more particularly to devices for dispensing the contents of factory-filled sealed containers.

One of the objects of the invention is to provide a dispenser which will discharge the contents of a container positively and rapidly.

Another object of the invention is to provide a dispenser which will discharge the contents of a container without placing the container itself under pressure.

Still another object is to provide a dispenser in which an outlet opening is cut in a sealed container as the container is clamped to the dispenser. Preferably the clamping action also forms an air vent in the container opposite the outlet opening.

Other objects, advantages and novel features of the invention will be apparent from the following description of the embodiments shown in the accompanying drawing, in which:

Figure 1 is a central section with parts in elevation of a dispenser embodying the invention, and

Figure 2 is a partial view similar to Figure 1 showing a modified construction.

The dispenser of Figure 1 comprises a cylinder 4 in which a piston 6 is slidably mounted, the piston being packed to form a fluid tight seal with the cylinder wall and being formed with a central opening. A discharge tube 8 is secured to the piston in communication with the opening and extends through a head 10 which is secured to one end of the cylinder, a packing 12 forming a fluid tight seal between the head and discharge tube. An outwardly opening check valve 14 is preferably provided to control communication between the discharge tube and the space below the piston.

The piston is adapted to be forced down through the cylinder by compressed air or the like admitted into the head 10 past a valve 16 controlled by a suitable trigger 18. The compressed air is supplied through a hose 20 from any suitable source such as the usual compressor or storage tank.

The opposite end of the cylinder 4 is closed by a cap 22 formed with an inlet passage 24 controlled by an inwardly opening check valve 26. The passage 24 terminates in an annular knife 28 paralleling the cylinder and pointing in the direction of the head 10 for forming an outlet opening in a sealed container or can indicated at 30 and which may be a sealed tin can of the general type in which vegetables are marketed. A yielding gasket 32 is secured around the knife 28 to form a seal with the container 30 around the outlet opening therein.

In order to press the container against the knife 28, a collar 34 is slidably mounted on the cylinder 4 and carries a hollow knife 36 to form a vent opening in the container opposite the outlet opening. The collar 34 is operated by a bell crank lever 38 pivoted at its center on a collar 40 which is adjustably locked to the cylinder 4 by a set screw 42. A link 44 connects the lever 38 to the collar 34 so that as the lever 38 is swung about its pivot the collar 34 will be moved.

In use, the collar 40 is adjusted to the proper position according to the size can whose contents are to be dispensed and the lever 38 is swung counterclockwise to raise the collar 34. A can 30 may then be placed adjacent the cylinder 4 with its opposite ends in register with the knives 28 and 36 and the lever 38 may be moved to the position shown. This forces the knives through the ends of the can forming outlet and vent openings therein and clamping the can to the cylinder.

As soon as the can is clamped to the cylinder as shown the contents thereof will start to flow by gravity into the cylinder. However, in order to speed up the flow and to insure complete emptying of the can, the piston 6 is preferably forced to the bottom of the cylinder by admitting compressed air into the head 10, air in the cylinder being displaced out the discharge tube. When the air pressure is relieved, the piston will rise under the influence of a compression spring 46 and will suck the contents of the can into the cylinder. Upon readmitting compressed air to the head 10 the piston will again be forced down to displace the lubricant or other material through the discharge tube. If a container is used which is larger than the cylinder several piston strokes may be required to dispense its contents or if several containers are to be dispensed in succession a new one may be secured to the pump while the contents of the last container are still in the pump cylinder.

Since the containers are not confined there is no limit to the diameter of a container which can be used with the dispenser and containers of different axial lengths can be used by adjusting the collar 40.

Figure 2 illustrates a modified construction, parts therein corresponding to like parts in Figure 1 being indicated by the same reference numerals plus 100. In this construction the discharge tube 108 is provided with an extension 109 rigidly secured to the head 110 and project-

ing substantially to the opposite end of the cylinder 104 where it carries the check valve 114. The piston 106 is slidable along the tube extension 109 and is provided with suitable packing to form a seal therewith.

In operation a down stroke of the piston will displace any material in the cylinder 104 out through the discharge tube, the return stroke of the piston under the influence of spring 146 sucking material in through the passage 124 past the disc-type check valve 126.

While two embodiments of the invention have been shown and described, it will be apparent that many changes might be made therein and it is not intended to limit the scope of the invention to the embodiments shown nor otherwise than by the terms of the appended claims.

What is claimed is:

1. A dispenser for lubricant or the like comprising a cylinder, a piston slidably mounted in said cylinder and having an opening therethrough, a discharge tube communicating with one end of the cylinder through said opening, means connected to the cylinder at one side of the piston for communication with a container for lubricant or the like, and means for admitting fluid under pressure to the cylinder at the other side of the piston to move the piston through the cylinder, thereby to force the contents of the container out through the discharge tube.

2. A dispenser for lubricant or the like comprising a cylinder, a piston slidably mounted in said cylinder and having an opening therethrough, a discharge tube communicating with one end of the cylinder through said opening, a cutter carried by one end of the cylinder for cutting an outlet opening in a sealed container to establish communication of the cylinder therewith, and means for admitting fluid under pressure to the cylinder at the other side of the piston to move the piston through the cylinder, thereby to force the contents of the container out through the discharge tube.

3. A dispenser for lubricant or the like comprising a cylinder, a piston slidably mounted in said cylinder and having an opening therethrough, a discharge tube communicating with one end of the cylinder through said opening, a hollow knife communicating with said end of the cylinder, and rigidly carried by the cylinder, and means carried by the cylinder for pressing a sealed container against the knife to form an outlet opening in the container communicating with the knife.

4. A dispenser for lubricant or the like comprising a cylinder, a piston slidably mounted in said cylinder and having an opening therethrough, a discharge tube communicating with one end of the cylinder through said opening, a hollow knife communicating with said end of the cylinder, and rigidly carried by the cylinder, and means carried by the cylinder for pressing a sealed container against the knife to form an outlet opening in the container communicating with the knife, said means including a cutter to form a vent opening in the container opposite said outlet opening.

5. A dispenser for lubricant or the like comprising an elongated pump, a cutter carried by one end of the pump for forming an outlet opening in a sealed container, and means carried by the pump spaced from the cutter to force a container against the cutter thereby to form an outlet opening in the container and to clamp the container to the pump, said means including a part slidably mounted on the pump and movable toward and away from the cutter, and a lever for moving said part.

6. A dispenser for lubricant or the like comprising an elongated pump, a cutter carried by and communicating with one end of the pump for forming an outlet opening in a sealed container, a member slidably carried by the pump and movable toward and away from said cutter, a second member adjustably mounted on the pump, and a lever connecting said members and operable to move the first named member toward and away from the cutter to press a sealed container against the cutter and to clamp it in place.

7. A dispenser for lubricant or the like comprising an elongated pump, a cutter carried by one end of the pump for forming an outlet opening in a sealed container, a member slidably carried by the pump and movable toward and away from said cutter, a second member adjustably mounted on the pump, a lever connecting said members and operable to move the first named member, and a cutter carried by said first named member to form a vent opening in the container opposite the outlet opening.

8. A dispenser comprising a cylinder, a piston slidable in the cylinder and formed with an opening therethrough, means for supplying material to be dispensed to one end of the cylinder, a discharge tube extending through the other end of the cylinder and communicating with said one end of the cylinder through the opening in the piston, means for urging the piston toward said other end of the cylinder and means for admitting fluid under pressure to said other end of the cylinder to force the piston through the cylinder.

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