

Aug. 2, 1927.

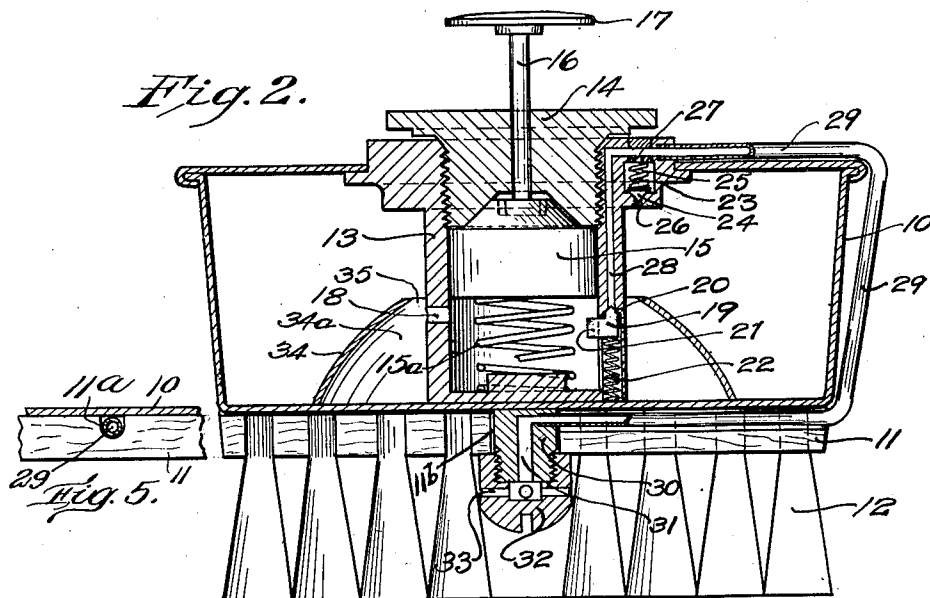
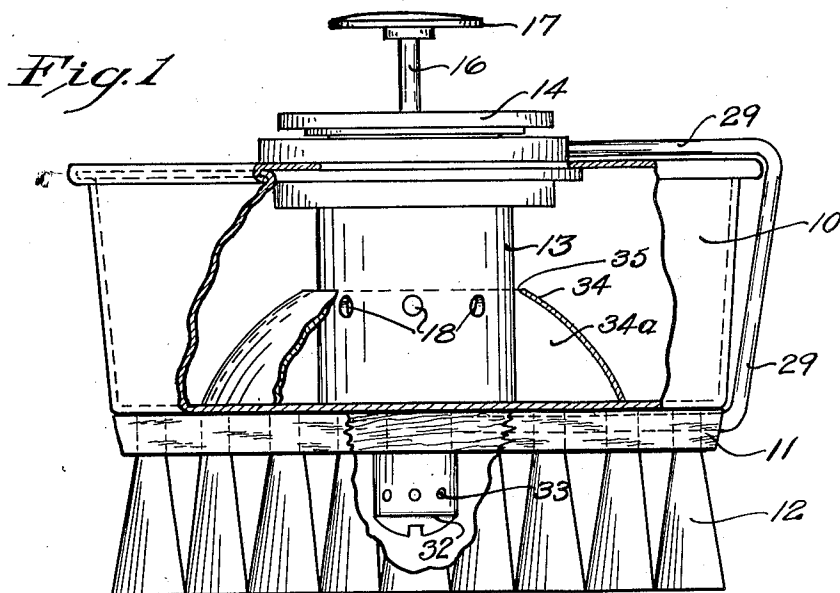
1,637,951

L. MARCHIONE

DISPENSING DEVICE

Filed May 28, 1923

2 Sheets-Sheet 1



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Fig. 3.

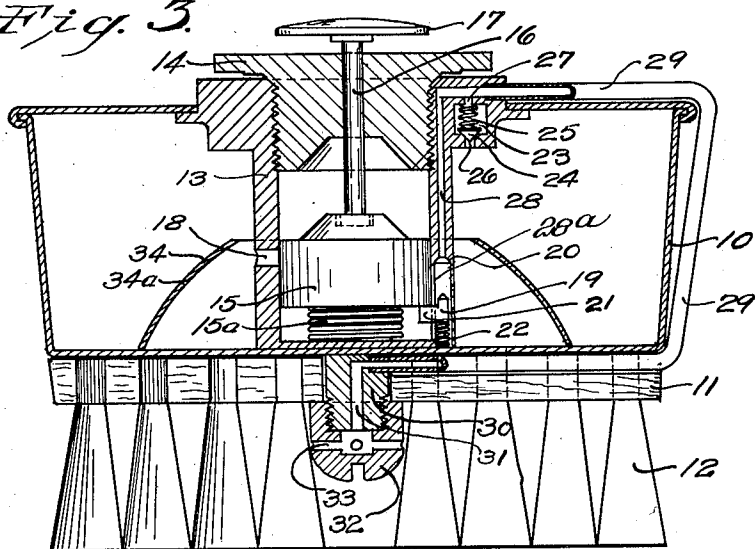
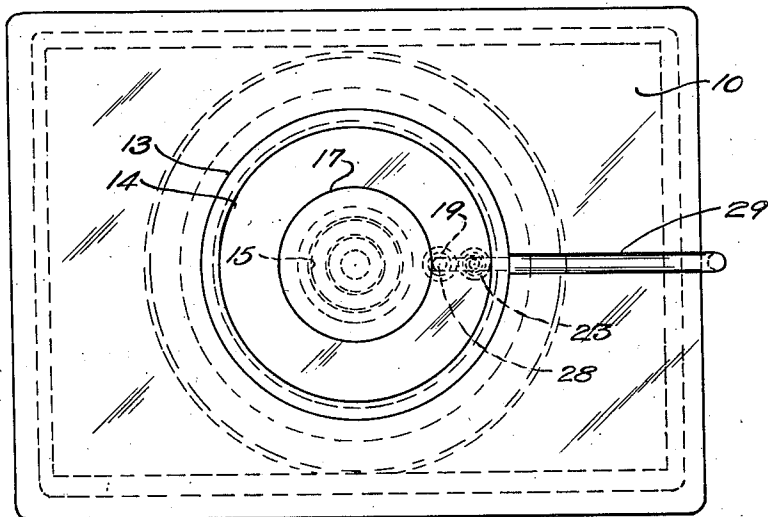


Fig. 4.



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UNITED STATES PATENT OFFICE.

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DISPENSING DEVICE.

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My invention relates to liquid distributing brushes of that class in which the body or handle of the brush is constructed with, or to serve as, a container for holding a supply of liquid, and having means for effecting the discharge of said liquid in controllable quantities to the spreading means of the brush as desired by the operator.

The primary object of this invention is to provide improved means for discharging liquid from the container to the bristles or other spreading means of the brush. Also, to dispense with outlets from the container which are below the level of the liquid in said container, thus eliminating leaks from poorly constructed outlets.

Another object of my invention is to provide proper relief for any abnormal pressures that may exist within the liquid container, and to improve the interior construction of said container whereby the pump is readily filled after discharges until the said liquid container is practically emptied. A further object of my invention is to provide for the ready removal or installation of the brush or spreading means of the device.

In the accompanying drawings;

Figure 1 is a side elevation of a liquid distributing brush constructed in accordance with my invention, showing the side of the container cut away to more clearly show the pump member.

Figure 2 is a longitudinal section through the center of the pump, showing the pump in a position ready to be discharged.

Figure 3 is a longitudinal section on the central line of the pump showing the pump in a discharged position.

Figure 4 is a plan view of the top of the brush and pump.

Figure 5 is a detail hereinafter described.

Referring to the drawings, 10 designates the container for the liquid to be used; 11 the wooden body for the brush bristles 12. Within the container 10 is a pump consisting of a body or cylinder 13; a head 14 which closes the upper end of said cylinder and a piston 15 provided with a piston rod 16 extending through the head 14 and provided at its outer end with a handle or push member 17. Cylinder 13 is made with inlet ports 18 which are located at the top of the displacement portion of said cylinder and below the bottom of the piston when

the latter is in its normal upper, or retracted, position. The cylinder 13 is also provided with an elongated outlet port 28^a communicating with an outlet conduit 28 that is controlled by an outwardly closing valve 19, said valve being normally held closed on its seat 20 by a spring 22. Valve 19 is made with a laterally extending arm 21 that occupies a position in the path of the piston 15 such that said arm 21 is engaged by the piston during the downward movement of the latter immediately upon the closing of the inlet ports 18 by the piston. The outlet conduit 28 extends upwardly through the wall of the cylinder 13 to the top end of the latter where it has connected with it one end of a pipe 29 that extends around one side of the container 10 and under the latter where its other end is connected with an exteriorly threaded nipple 30 that is attached to the bottom of the container, the wooden body 11 of the brush being channeled or cut away as at 11^a to accommodate the lower portion of said pipe. The lower end of the pipe 29 communicates with the passage 31 of nipple 30 and said passage delivers the liquid into the nozzle 32 made with laterally extending outlet ports 33 through which the liquid is discharged onto the bristles of the brush. As will be clear the nozzle 32 is screwed onto the nipple 30 and serves also as a nut by which the brush body 11 is clamped against the bottom of the container, said body being made with an aperture 11^b through which the nipple 30 extends.

Within the container 10, and surrounding the pump cylinder 13, is a conical sheet metal wall 34 fastened at its lower edge to the bottom wall of the container with its top edge slightly above the inlet ports 18 and out of contact with the cylinder so as to leave an opening 35 at the top thereof between the wall and cylinder. When, during use of the brush, the level of the liquid within the container falls below the top of the wall 34, the motions imparted to the brush when in use cause the liquid outside of the wall 34 to flow over the latter into the space between the wall 34 and the cylinder so that the ports 18 continue to be covered by liquid after the level of the liquid outside of wall 34 has fallen below ports 18, and until the contents of the container is practically exhausted.

A spring 15^a arranged between the piston 15 and the inner end of cylinder 13, normally holds the piston in its uppermost position at the limit of its suction stroke.

At the top of the cylinder 13 there is provided a vent port 23 communicating at one end with the delivery conduit 28 and at its other end with the interior of the container 10. This vent port is controlled by an outwardly opening check valve 26 normally held on its seat 24 by a light spring 25.

During the first part of the downward, or forcing, stroke of piston 15, and until the ports 18 are closed by said piston, a portion of the contents of the cylinder escapes through ports 18 into the container 10. This increases the air pressure within the container but this excess pressure is immediately relieved or removed through the escape of air past the valve 26 into delivery conduit 29. Continued downward movement of the piston first closes the inlet ports 18 and immediately thereafter the valve 19 is opened by the engagement of the piston with the arm 21 so that the liquid displaced by the continued downward movement of the piston is forced out through the delivery conduit to the nozzle 32 from which it is discharged onto the bristles of the brush. During the first part of the upward movements of the piston under the influence of spring 15^a, air will be drawn into the cylinder through the delivery conduit until the valve 19 is seated after which liquid will be drawn into the cylinder from the container until the piston reaches the limit of its upward movement. After the piston 15 uncovers the ports 18 during its upward movement the air within the cylinder escapes through the ports 18 into the container 10 while liquid flows from the latter into the cylinder taking the place of said air.

From the above description it will be observed that the supply of liquid is held within an air tight container 10 whose interior is normally completely shut off from the de-

livery passage and only is in communication therewith when the vent valve 24 is operated as described.

The container 10 is filled by removing the head 14 which carries with it rod 16 and piston 15, and pouring the liquid into the cylinder 13 from which it flows into the container 10 through the ports 18. The head 14 is an exteriorly threaded plug screwed into the interiorly threaded upper end of the cylinder 13 so that it can be readily removed and replaced.

The brush is manipulated by grasping the container in the hand and while it is in use liquid in measured quantities may be supplied to the bristles of the brush by pressing the palm or finger upon the push piece 17, the piston being manually moved downward to force a measured quantity of the liquid out through the delivery conduit and being returned to its uppermost position again by the spring 15^a.

Figure 5 shows in detail the groove 11^a formed in the top side of the brush body or back 11 to receive the lower horizontal portion of the delivery tube 29, said groove opening into the central aperture 11^b provided through said back for the nipple 30. It will be clear that the lower horizontal stretch of tube 29 holds the back 11 against rotation on the nipple 30 so that accidental loosening of nozzle 32 is prevented.

What I claim is:

A device of the character described having in combination, an air tight liquid container; a piston pump within said container; a delivery conduit connected with the outlet of said pump; a piston-operated valve controlling the outlet of said pump; a relief port communicating at one end with said conduit and at its other end with the interior of said container above the level of the liquid contained therein, and a check valve controlling said port, said valve opening toward said conduit.

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