

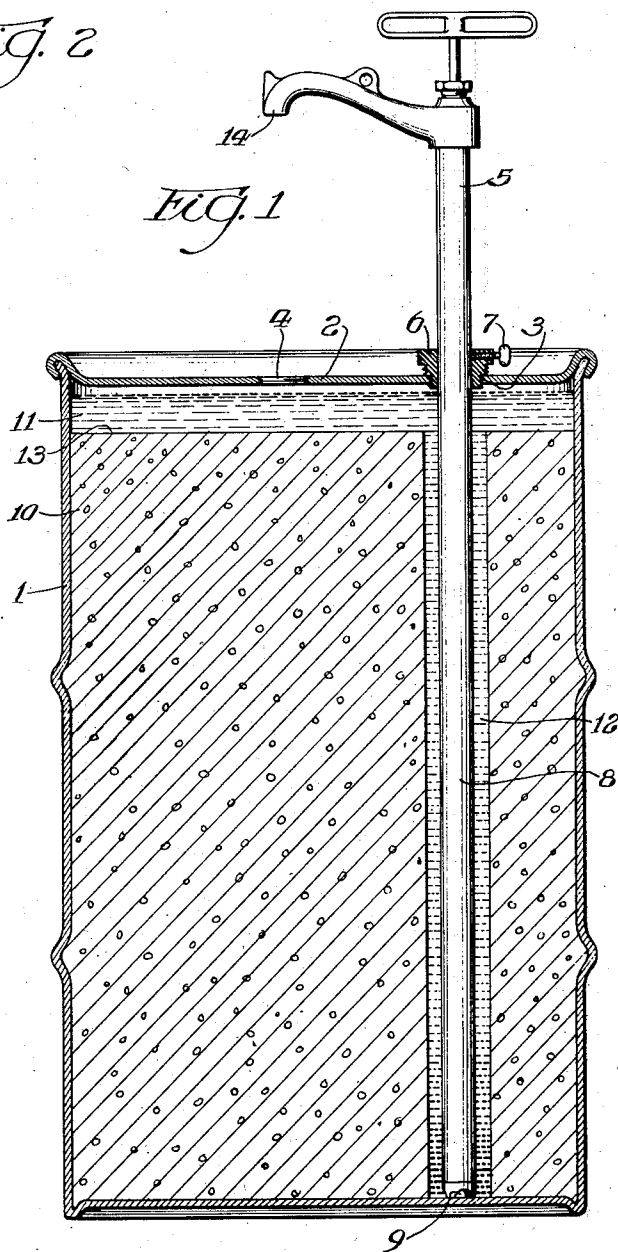
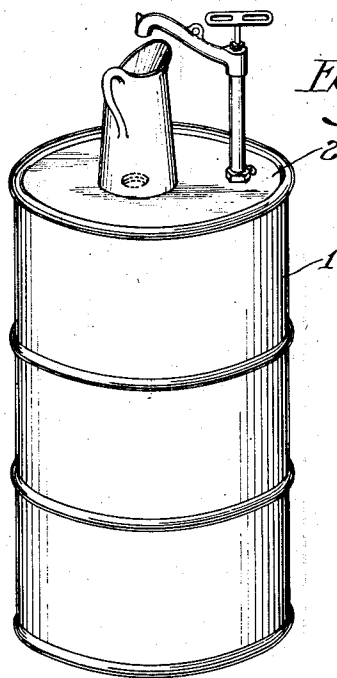
April 5, 1932.

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1,852,821

SOAP DISPENSING

Filed Aug. 14, 1931



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UNITED STATES PATENT OFFICE

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SOAP DISPENSING

Application filed August 14, 1931. Serial No. 557,097.

This invention relates to the manner of filling large steel drums with hard soap and providing for the dispensing of the soap from the drum in small quantities and in liquid form, preferably a concentrated solution thereof.

The object of the invention is therefore to provide improvements in the methods of preparing hard soap for use and the dispensing of the soap in dissolved liquid form, ready for rapid dilution and use in the cleaning of finished surfaces, and particularly for use in automobile washing.

In the drawings, which illustrate a means for carrying out the invention

Figure 1 is a longitudinal sectional view of the steel drum nearly filled with hard soap, and illustrating how the soap is formed by providing a vertical opening therein for receiving water which is poured into the container from time to time to dissolve away portions of the hard soap.

Figure 2 is a perspective view of the soap container which is illustrated by section of Fig. 1.

In some washing processes, such as the washing of automobiles, soap in liquid form is desirable, since it may easily and rapidly be diluted to the desired condition for use.

It is not desirable to market the soap in liquid form because of its undue weight and bulk. Therefore, it is customary to deliver the soap in concentrated hard form in large steel drums. The soap used, for example, may be hard potassium soap of approximately seventy percent anhydrous content. In the use of the soap it is common practice to make solutions thereof and then add forty gallons of water to each gallon of soap solution, the solution approximating twenty percent to twenty-eight percent anhydrous soap, which is a saturated solution. To remove a quantity of the hard soap from the container and then dissolve this quantity for use is too slow a process to be satisfactory and further is likely to result in particles of soap remaining undissolved because of lack of time and considerable waste since the undissolved particles are mainly washed away with rinsing

water during the automobile washing operation.

To save time and loss of soap it has been common practice to connect the steel soap containers with a source of water supply under pressure, forcing water through the drum into a dispensing bucket. This method has the disadvantage of an irregular percentage of soap content in the water. Use of steam in the same manner is for a like reason unsatisfactory. The pressure causes solid particles of soap to flow with the solution, resulting in a liquid ten percent to twelve percent stronger in soap than it should be.

The drums are often provided with a spigot at the side near the bottom thereof, and in order to provide a passageway through the hard soap so that a solution may be delivered through the spigot the hard soap is cored out horizontally from the spigot and inwardly to meet a vertical passageway also formed in the body of the soap and extending from the horizontal passageway to the upper surface thereof. Water is poured into the drum through an opening in the top and the soap gradually dissolves into the water. More water is added as the solution is withdrawn through the spigot.

The horizontal passageway through the soap has the disadvantage of becoming clogged by viscous particles of the soap dropping from the walls of the passageway and settling therein so the solution is of irregular strength and the passageway is likely to clog and necessitates opening or removing the faucet when cleaning out the passageway.

By means of the present method which utilizes a vertical passageway only and a space in the top of the drum for the dissolving liquid, and the saturated solution being removed from the bottom of the vertical passageway upwardly through a hole in the top of the drum, satisfactory dispensing of the soap is effected until the contents of the container are used and the drum is left free of all soap.

The drum may be left unused for a month or more after a solution is formed therein, and the solution is still in condition for

pumping upwardly from the bottom of the vertical passageway through an opening in the top of the drum.

This method of dispensing soap is illustrated for example by the accompanying drawings which shows a steel drum 1, provided with a closure or lid 2 at its top having two threaded apertures 3 and 4. These apertures are closed by plugs during shipment, but when the soap filled containers are set up ready for use the plugs are removed from the apertures 3 and 4.

A pump 5 is installed in one of the apertures being centered therein by the nut 6 and locked in position by a set screw 7.

The pump cylinder 8 extends down to the bottom of the drum and its lower end is perforated at 9 to permit the soap solution to enter the cylinder at this point.

The drum when delivered is nearly filled with solid soap as indicated at 10 with an air space 11 between the upper surface of the soap and the lid 2. There is also a vertically extending air space 12 extending from the upper surface 13 of the solid soap through the bottom of the block of soap. This vertical opening through the block of soap is preferably formed by boring rather than molding, since in molding the removal of the form is apt to cause suction and possible collapse of soap walls at the bottom of the drum, whereas boring a hole by an auger gives a clean, firm passage. Before the boring operation the drum is filled to the required extent while the soap is in the liquid form due to heat. It is then cooled and fully hardened before the boring operation.

The manner of dispensing the soap consists in pouring water through the opening 4 after pump 5 has been installed, to fill the spaces 11 and 12. Before the first portion of soap solution is withdrawn through the pump, it is necessary to allow the water to stand in the container five or six hours before a saturated solution is formed around the bottom of the pump. Then after the solution is withdrawn, more water is added through the opening 4.

The pump is preferably so installed that its spout outlet 14 comes directly above the aperture 4 to eliminate possible spilling and cause the drip from the pump to go directly back into the container.

By means of this method and arrangement of the container and pump no faucets are required at the bottom of the drum, no up-ending of the drum is necessary for removal of the soap therefrom, the drum may be placed on its end on the floor, requiring no special platform or stand for dispensing, and the delivery of a soap solution of uniform strength is assured.

I claim:

1. A soap dispensing apparatus comprising a container which is filled with a block

of hard soap, except for an air space between the top of the block of soap and the top of the container, a vertical hole formed in said block of soap and extending from the air space to the bottom of the container, a pump fitted to the top of the container and extending through said hole in the block of soap to the bottom of the container and provided with an inlet at its lower end, said pump being provided with an outlet spout above the top of the container.

2. A soap dispensing apparatus comprising a container which is filled with a block of hard soap except for an air space between the top of the block of soap and the top of the container, a vertical hole formed in said block of soap and extending from the air space to the bottom of the container, a pump fitted to the top of the container and extending through said hole in the block of soap to the bottom of the container and provided with an inlet at its lower end, said pump being provided with an outlet spout above the top of the container, an aperture in the top of the container communicating with said air space and for receiving a soap dissolving medium, said aperture being located directly below the outlet of the pump spout.

3. The method of dispensing a saturated solution of soap from a container which has been filled with hard soap except for an air space extending across the top of the container and a vertical passageway through the soap, which method consists in first pouring a soap-dissolving medium into said air space and passageway so as to cover all exposed surfaces of the soap with said dissolving medium, and then pumping the resultant solution upwardly out of the container from the bottom of the vertical passageway.

Signed at Chicago, in the county of Cook and State of Illinois this 8th day of August, 1931.

WINSTON T. RAMBO.