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W. H. ALTON

1,932,384

SOAP DISPENSER

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Fig. 1.

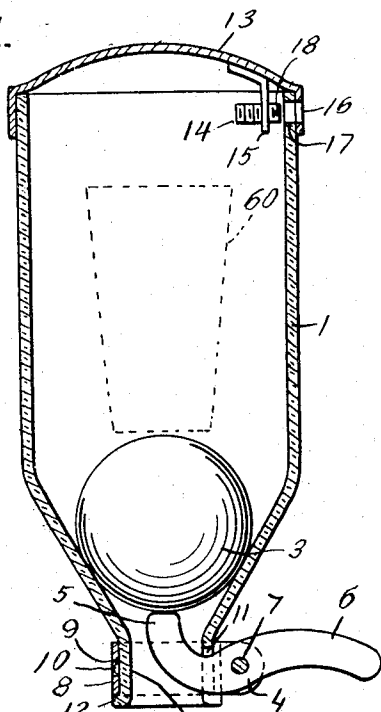


Fig. 2.

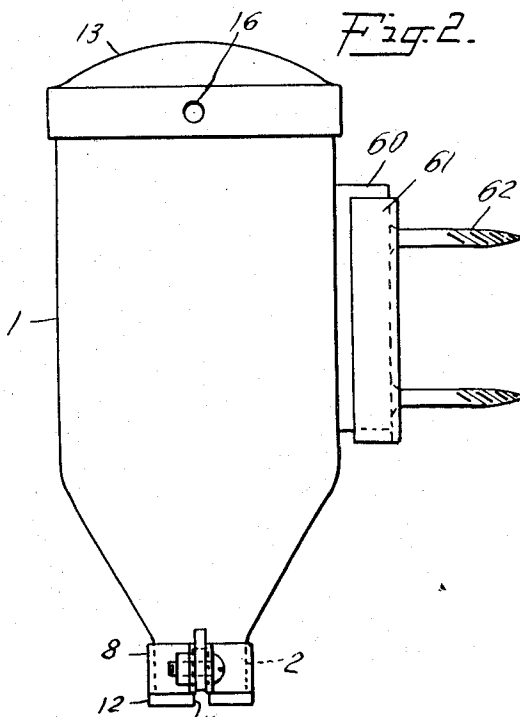


Fig. 3.

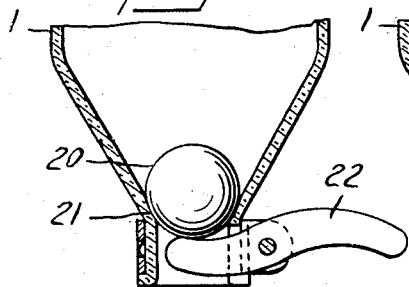


Fig. 4.

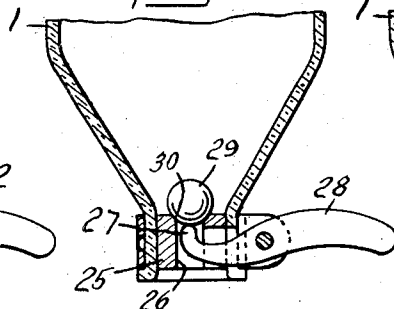


Fig. 5.

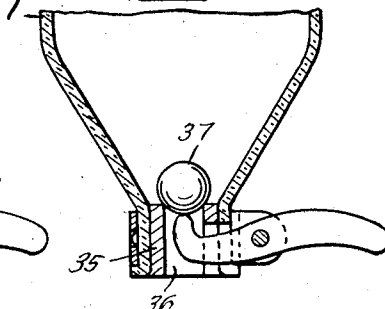


Fig. 6.

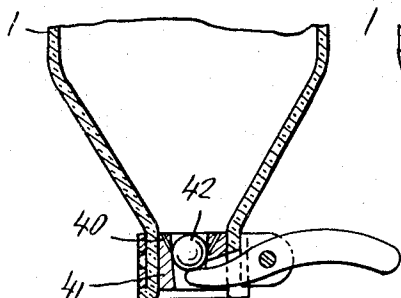
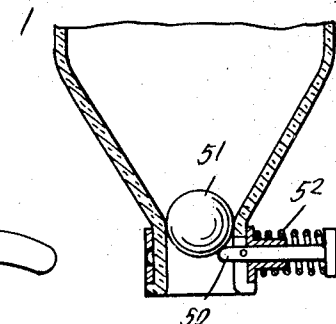


Fig. 7.



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UNITED STATES PATENT OFFICE

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SOAP DISPENSER

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Serial No. 633,963

6 Claims. (Cl. 221-94)

This invention relates to a new dispenser, designed for dispensing soap materials, and particularly finely powdered soap products in the wash-rooms of hotels, offices and stores and other public and semi-public places, etc.

Many of the soap dispensers on the market are not suited for use with finely powdered soap. With many, it is necessary to bring the moist hand which is to receive the soap near or in contact with the outlet of the dispenser so that the powder becomes moistened before it is removed from the dispenser or the outlet is moistened or in some way the soap becomes moistened and accumulates in or at the outlet so that eventually the opening becomes clogged and the frequent attention of an attendant is required. The present design of dispenser is operated without contacting the hands with the opening through which the soap is discharged and avoids various difficulties inherent in prior dispensers and has many advantages, some of which will appear in what follows.

In many dispensers, the closing of the valve through which the material is discharged is dependent on the action of a spring, and many such are designed in such a way that when used for powdered soap materials the soap will accumulate in the spring and eventually prevent complete closing of the valve when pressure on the valve is released. This results in unnecessary waste of the soap. The preferred form of the invention comprises a soap dispenser which is not dependent upon any spring action to actuate the dispensing valve, but the valve is closed by the action of gravity and the weight of the soap material. It is advantageous to locate any spring mechanism which may be employed, outside of the dispenser and out of contact with the soap.

The body of the dispenser of this invention may be made of glass or a resinous material such as a phenol resin, or it may be made of a metal, as by stamping it out of tin, for example. The storage portion may be circular in cross-section or square or of any desired shape. The lower portion is contracted to form a neck, or a suitably channelled stopper may be inserted in an opening at the bottom to form a neck through which the soap is discharged. When not in use, the neck is closed by a ball which is drawn down onto or into the neck, or the sloping shoulder leading to the neck, by the force of gravity and the weight of the soap material.

When it is desired to discharge soap from the dispenser, the ball is lifted in such a way that the powdered or liquid soap flows down around

the ball and is discharged through the neck at the bottom of the dispenser. I have found it advantageous to use a trigger for this purpose, particularly in dispensers for powdered soap products. The handle of the trigger is outside of the dispenser, and preferably some little distance from the neck so that the operator may lift the ball and discharge soap from the dispensers without bringing his moistened hands near the neck, thus preventing the formation of a wet soap deposit at the mouth of the dispenser.

An advantage of using a ball as the valve in a dispenser for powdered soap materials is that as the ball is forced up inside of the dispenser to make way for the flow of soap out through the neck, it agitates the contents of the dispenser and prevents any arching-over of the powdered material in the storage portion of the dispenser, thus maintaining it in a free-running condition at all times and ready for use.

I prefer to use a rubber ball, preferably a rather large rubber ball, as the valve in my dispenser, because the yielding surface of a rubber ball forms a tight closure with the walls of the dispenser. Balls of various sizes may be used and the balls may be made of different materials. Although rubber is generally preferred, metal balls or glass balls or variously weighted balls, etc. may be employed.

Although the soap dispenser is designed particularly for handling powdered materials, it may be employed for dispensing liquid soaps, etc. In this case the valve is to be made of a material not attacked by the liquid. When metal or glass balls, or balls of other non-yielding material are used in dispensers for liquids it is generally desirable to grind the ball and the upper portion of the neck to perfect roundness so as to insure a tight closure.

The invention will be further described in connection with the accompanying drawing which is illustrative and is not to be considered as limiting the scope of the invention.

Fig. 1 is an elevation of a dispenser partly in cross-section;

Fig. 2 is an elevation at right angles to Fig. 1;

Fig. 3 is a detail of a dispenser of similar dimensions with a smaller ball ground into the neck for a valve;

Figs. 4, 5 and 6 are details showing the use of a stopper to form the neck through which the contents of the dispenser are discharged; and

Fig. 7 is a modification showing a spring-actuated lever for raising the ball.

The body 1 of the dispenser shown in Fig. 1 may

be made of any suitable material such as glass or a resinous substance, or it may be stamped from metal, etc. Glass has been found to be attractive and desirable. The bottom portion is contracted to a neck 2. The ball 3 which is preferably a solid hard rubber ball serves to close the neck and stop the flow of soap from the dispenser. The trigger 4 may be made of any suitable metal, resin, or hard rubber, etc. and may be made of a single piece, or the hammer end 5 may be made as a separate unit and fastened to the balance of the trigger. This hammer end 5 which projects up through the neck of the dispenser is so arranged that by actuating the handle 6, the ball 3 is raised and soap flows out through the neck. For this purpose the trigger is pivoted at 7 to a metal band 8 which fits around the neck 2. The band 8 is advantageously held in place by means of small holes 9 which coincide with lugs 10 on the neck of the bottle. It is advantageous to provide a slit 11 in the side of the neck for the trigger. The trigger may be so designed that such a slit is not necessary. The mouth of the dispenser is advantageously flanged as at 12 to assist in holding the band 8 in place.

I prefer to employ a rubber ball as a stopper or valve because the force of gravity and the weight of the soap on top of the rubber ball cause a tight closure between the shoulder or neck of the dispenser and the yielding surface of the ball. The size of the ball may be varied depending upon the design of the neck, the fineness of the powder and the rate at which it is desired to discharge the powder. With a larger ball, a larger amount of a given powder will be discharged through the opening at a given movement of the trigger than will be the case when a smaller ball is employed. A ball about two inches in diameter in a dispenser of cylindrical cross-section and the proportions shown in Fig. 1, with a neck $\frac{3}{4}$ th inch in diameter has been found suitable for dispensing a very finely powdered soap material.

The dispenser is advantageously provided with a suitable cover 13. The cover may be laid onto the container or it may be fastened in place if desired. I have found it advantageous to fasten the cover to the dispenser by a screw 14 threaded into a lug or bracket 15 fastened on the bottom of the cover. An opening 16 in the overlapping rim of the cover coincides with an opening 17 in the wall of the dispenser through which a screw driver may be inserted into a slot in the head 18 of the screw to draw the screw through the hole 17 and then into the hole 16 to lock the cover onto the dispenser.

The storage portion of the dispenser may be cylindrical or it may be square, oval or oblong in cross-section and the neck may be any shape, but the whole is so formed that the ball forms a tight seal at the periphery where it contacts.

A modified discharge device designed particularly for dispensing liquid soap is shown in Fig. 3. The valve is a perfectly round glass ball 20 which fits snugly into the ground surface 21 at the neck of the dispenser. By manipulating the trigger 22 the ball is raised to allow the soap to flow out through the neck.

Fig. 4 shows a modification in which a stopper 25 is provided in which is a cylindrical opening 26 through which the end 27 of the trigger 28 operates on the ball 29. A portion of the stopper 30 is cut away to form a socket into which the ball 29 fits to form a tight closure to stop the flow of soap through the opening 26. The stop-

per may be made of rubber and any suitable material may be employed for the ball 29. To make a liquid-tight closure a ground glass stopper is advantageously employed with a perfectly round glass ball 29 ground to fit into the socket 30.

A further modification is shown in Fig. 5 in which a rubber tube or stopper 35 is provided through the opening 36 through which the soap is dispensed. The pressure of the solid metal ball 37 on the yielding tube or stopper insures a tight fit.

To dispense liquid soap a channelled stopper such as that shown in Fig. 6 may be employed to advantage. The lower openings of the channels 40 in the stopper 41 are closed by the ball 42 when the ball comes to rest. By depressing the handle 22 of the trigger, the ball is raised above these openings to discharge the liquid.

A still further modification is shown in Fig. 7 for use with a liquid or water-resistant powder, etc. where a spring operated discharge device is not disadvantageous. According to this arrangement a plunger 50 is used for raising the ball 51 to discharge soap through the neck of the container. The spring 52 holds the plunger out of contact with the ball 51. By depressing the spring the ball is raised and the contents of the dispenser flow out through the opening.

The dispenser is supported from the wall or a bracket by suitable means. Figs. 1 and 2 show a tapered block 60 which is slid between the tapered walls of the bracket 61 which may be fastened to the wall, etc. by screws 62. The walls of the bracket are not quite perpendicular, but are inclined slightly toward one another and the sides of the block 60 are correspondingly beveled so that when the block is slid into the bracket, it is held rigidly in place, and yet it is easily removable. When the body of the dispenser is molded of glass or resinous material, etc. the block may be formed as a unitary part of the dispenser.

Dispensers of this type, particularly the arrangement shown in Fig. 1 are inexpensive to manufacture and form a simple and convenient arrangement for dispensing free-flowing finely-divided materials such as soap materials, and may be used for other purposes.

I claim:

1. A dispenser for a powdered soap product contracted to a neck at the lower extremity containing a ball which is independent of any positive operating connection with the balance of the dispenser and adapted to be drawn by gravity to form a tight closure at or above the neck, and a trigger the hammer end of which is adapted to reciprocate through the neck to contact with the ball and raise it, said trigger being pivoted above the discharge outlet of the dispenser and wholly to one side of the path of flow of soap therefrom.

2. A dispenser for a powdered soap product having an opening at the lower extremity, containing a ball which is independent of any positive operating connection with the balance of the dispenser and adapted to be drawn by gravity to form a tight closure with a circular portion of the walls of the dispenser above the opening to prevent discharge of the soap product through the opening, and a trigger pivoted outside of the dispenser having a hammer end adapted to contact with the bottom of the ball and raise it, said trigger being pivoted above the discharge outlet of the dispenser and wholly to one side of the path of flow of soap therefrom.

3. A dispenser for a powdered soap product provided with a neck at the lower extremity, containing a ball which is independent of any positive operating connection with the balance of the dispenser and adapted to be drawn by gravity to form a tight closure at or above the neck, and a trigger pivoted to a part removably fastened to the neck of the dispenser, the trigger being positioned in such a way that when the handle of the trigger is depressed the hammer end will move up in the neck and contact with the ball and raise it.

4. A dispenser for a powdered soap product contracted at its lower extremity to a neck, a bracket fastened to the storage portion of the dispenser to support the dispenser from a wall or other support, a ball of hard rubber with a yielding surface within the dispenser and independent of any positive operating connection with the balance of the dispenser, the ball being of a sufficient size to form a tight closure with the walls of the dispenser on the shoulder above the neck, a band around the neck, and a trigger pivoted to the band in such a way that by depress-

ing the handle of the trigger the hammer end of the trigger will be raised within the neck, so as to contact with the ball and raise it.

5. A dispenser for a powdered soap product contracted at the lower extremity to a neck, a slit in the neck, a ball inside of the dispenser which is independent of any positive operating connection with the balance of the dispenser and of sufficient size to form a closure with the walls of the dispenser and prevent discharge of the soap product through the neck and a trigger passing through the slit and so pivoted to a support outside of the neck that the hammer end when raised will lift the ball and allow the soap product to flow out through the neck.

6. Valve actuating mechanism adapted to be attached to an open ended soap dispenser comprising a band to fit around the neck of the dispenser, a pivot supported between the open ends of the band and a trigger on the pivot, the hammer end of the trigger being substantially centrally located with respect to the band.

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