

UNITED STATES PATENT OFFICE

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POWDERED SOAP DISPENSER FOR
CLOTHES-WASHING MACHINES

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2 Claims. (Cl. 222—193)

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The present application is a division of my application Serial No. 551,097 filed August 25, 1944.

The invention relates to washing machines and is particularly concerned with the supplying of powdered soap or other powdered water conditioning compound to a washing machine of the automatic type.

The object of my invention is to provide an improved dispenser or soap box for powdered soap or other powdered water conditioning compound which is adapted to be attached to and to form an integral part of an automatic washing machine and from which powdered soap or other powdered water conditioner is adapted to be removed by water being supplied to the machine, the powdered conditioner being flooded from the soap box as the water flows through it.

For a consideration of what I believe to be novel and my invention, attention is directed to the following specification and to the claims appended thereto.

In the drawing, Fig. 1 is a sectional elevation of a washing machine embodying my invention, and Fig. 2 is a section taken on line 2—2 of Fig. 1.

Referring to the drawing, there is shown a washing machine of the construction disclosed in my application Serial No. 551,096, filed August 25, 1944. It comprises a tub or outer casing 1 in the upper part of which is a spinner basket 2 having centrifugal discharge openings 3 at the region of greatest diameter which during washing serve as overflow openings defining the wash water level. By suitable mechanism in a sealed casing 4, for example that shown in my aforesaid application, an agitator 5 is oscillated for washing or the spinner basket is rotated for centrifugal drying. During washing the basket is filled to overflowing and a continuous circulation of water is maintained by a circulating pump 6 driven by a motor 7 and having an inlet 8 connected to the bottom of the outer casing and a discharge 9 directed onto an annular filter 10 on the rim of the spinner basket. During centrifugal drying the liquid contained in the spinner basket is discharged through the openings 3 and falls into the bottom of the outer casing where it may be stored for use in a succeeding washing operation, or pumped to a drain by a drain pump (not shown).

Water is supplied to the machine through solenoid controlled thermostatic normally closed mixing valves 11 and 12 either of which when energized is opened to supply water to the bot-

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tom of the outer casing which water is pumped into the spinner basket by the circulating pump 6 which is running whenever either of the valves is open. The amount of water supplied may be controlled in any suitable manner.

Higher temperature water for washing is supplied to the tub through the valve 12, the discharge side of which is connected by a pipe 13 to a powdered water conditioner dispenser or soap box embodying my invention. Lower temperature water for soaking or rinsing is supplied through valve 11.

My improved dispenser or soap box is in the form of a casing which is preferably circular in cross section and comprises a side wall 14, a bottom wall 15, and a removable cover 16. It is of a size to hold the soap or other conditioner required for the washing operation. At its upper end, it is provided with a tangential water admission pipe 17 with which the discharge end of pipe 13 connects and at its lower end with a tangential water discharge pipe 18 which connects at its outer end with the interior of tub 1. Pipe 18 extends horizontally and projects beyond casing 14 a distance such that the dry soap particles will not flow out of the dispenser due to the natural angle of repose of the soap particles, which angle of repose is indicated by the dotted line 19. Because of this arrangement, there is no need for a valve or closure for pipe 18.

In the use of my invention, the cover 16 is removed, the amount of dry powdered soap or other dry powdered water conditioner required for the washing operation is placed in the casing, and the cover replaced. At the proper time in the washing cycle, valve 12 is opened automatically to admit hot water of the desired temperature through pipe 13 and tangential pipe 17 to the casing of the dispenser. This water, since it enters tangentially, flows around the outside of the dispenser as is indicated by the arrows in Fig. 2, the water setting up a vortex flow and being discharged finally through discharge pipe 18.

The soap particles are flushed out of the conditioner without any substantial dissolving of the soap in the water. The soap particles are dissolved in the water while the water passes through the circulating pump, the soap being substantially wholly in solution before it reaches the spinner basket. Undissolved particles of soap are caught on the filter 10, further insuring the purity of the water solution. The vortex action flushes the dry particles of soap or other water conditioning compound out of the dispenser quite

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rapidly, ordinarily within an interval of a few seconds. The vortex action results in a thorough scouring of the side walls of the dispenser so that the dispenser is thoroughly cleaned after each use. This is one important feature of my construction since any wetted soap particles remaining in the dispenser tend to dry and form a cake therein.

By my invention, I provide a dispenser or soap box which is simple in structure, permits of the desired amount of soap or other water conditioner being placed in the soap box before operation of an automatic washing machine is started and insures that the soap is thoroughly and completely flushed from the soap box into the machine.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. For use in a washing machine, a soap box for receiving dry particles of soap or other water conditioning compound having an open outlet passage at its lower end constructed so that dry particles will not flow out due to the natural angle of repose of the particles, and an inlet for water connected to the box at its upper end and arranged tangentially with respect to the box for setting up a vortex action in the box whereby the particles are thoroughly flushed from the box through said outlet passage.

2. In combination, a soap box for receiving dry particles of soap or other water conditioning

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compound, an outlet conduit extending horizontally from the box at its lower end a distance greater than the point to which the dry particles will flow due to their natural angle of repose whereby the need for a closure for the conduit is eliminated, and an inlet for water arranged tangentially with respect to the soap box for flushing the particles from the box through said outlet conduit.

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