Oct. 22, 1963 C. A. COBB 3,107,512

FLUENT MATERIAL DISPENSER FOR A WASHING MACHINE

Filed March 4, 1963

Fig. 1.

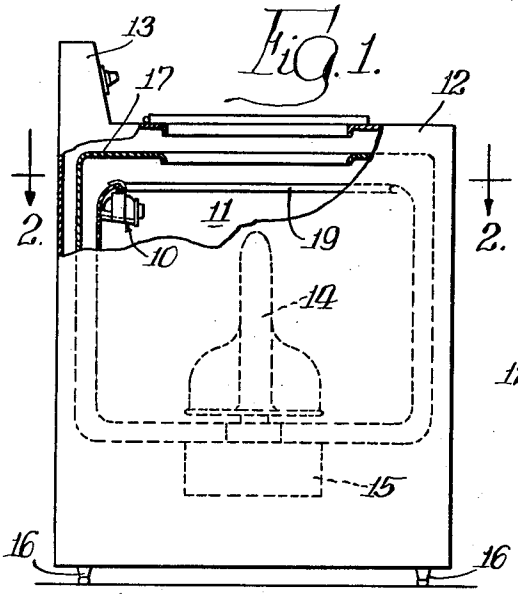


Fig. 2.

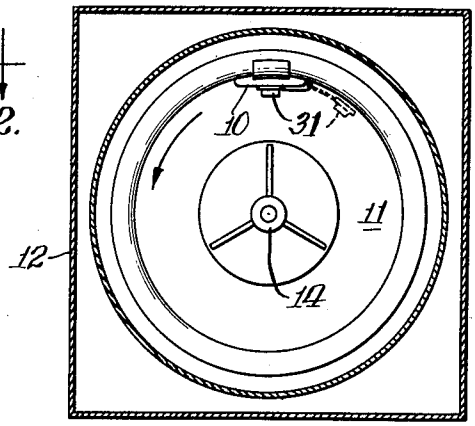


Fig. 3.

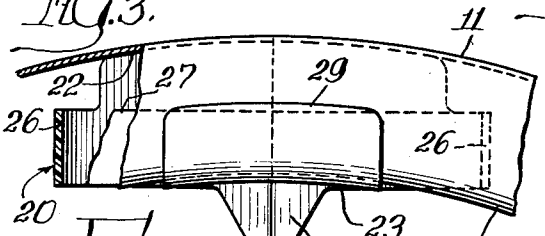


Fig. 4.

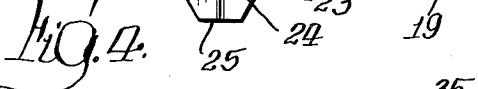


Fig. 6.

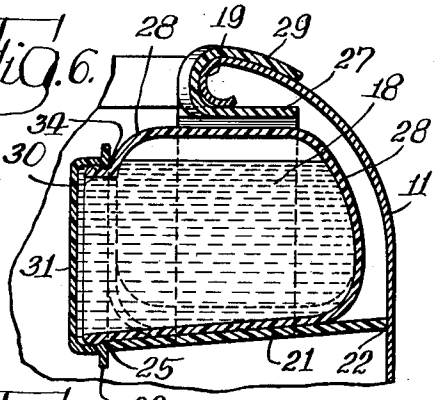


Fig. 5.

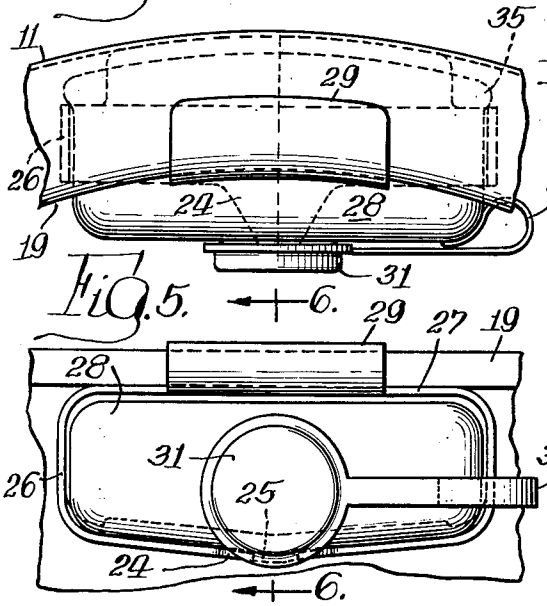
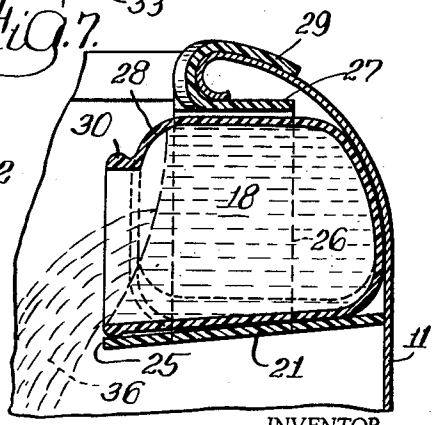


Fig. 7.



INVENTOR.
Clifton A. Cobb,
BY
Hofgren, Wegner, Allen,
Stellman & McCord Attys.

United States Patent Office 3,107,512 Patented Oct. 22, 1963

3,107,512

FLUENT MATERIAL DISPENSER FOR A WASHING MACHINE

Clifton A. Cobb, St. Joseph, Mich., assignor to Whirlpool Corporation, a corporation of Delaware

Filed Mar. 4, 1963, Ser. No. 262,547
6 Claims. (Cl. 68—17)

This invention relates to a fluent material dispensing device for a washing machine spin basket.

During the laundering of clothes it is frequently necessary to add ingredients such as softeners or conditioners or even detergents to the washing liquid in an automatic washing machine spin basket. Thus, where the washing machine goes through several cycles including rinsing it is frequently desirable to add a water softening compound or additive in order to reduce scum formation, particularly in the rinse water.

The dispensing device of this invention utilizes the spinning of the basket itself to condition the dispensing device for gravitational discharge of a fluent material upon cessation of rotation of the basket.

One of the features of this invention therefore is to provide an improved fluent material dispensing device for a washing machine spin basket in which means operated by the spinning of the basket opens a closure to a container for the material while retaining the material in the container as the spinning approaches a maximum but with the container arranged to permit flow of material therefrom when the basket approaches and/or is at a state of rest.

Other features and advantages of the invention will be apparent from the following description of one embodiment thereof taken in conjunction with the accompanying drawings. Of the drawings:

FIGURE 1 is a side elevational view partially broken away of an automatic washing machine having a dispensing device embodying the invention.

FIGURE 2 is a horizontal sectional view taken substantially along line 2—2 of FIGURE 1.

FIGURE 3 is a fragmentary plan view partially broken away for clarity of illustration of the removable holder for holding the dispensing container of the dispensing device.

FIGURE 4 is a view similar to FIGURE 3 but showing the container in position.

FIGURE 5 is a front elevational view of the assembly of FIGURE 4.

FIGURE 6 is a sectional view taken substantailly along line 6—6 of FIGURE 5.

FIGURE 7 is a view similar to FIGURE 6 but showing the dispensing container in retracted position under the influences of the spinning forces.

In the embodiment of the drawings the dispensing device 10 is shown associated with the spin basket or vessel 11 of an automatic washing machine having the usual outer casing 12, rear control panel 13, agitator 14 driven by a motor 15 and supporting feet 16.

During the operation of the washing machine the spin basket 11 which contains the usual perforations (not shown) is spun at high speed during a centrifuging cycle within its imperforate tub 17 in order to extract liquid such as a washing solution from the clothes within the basket 11. While not shown in detail basket 11 is rotatably supported and driven by a drive tube having driving connections to motor 15 all of which drive connections may hereinafter be referred to as the drive means for basket 11. In the automatic washing machine described the liquid is contained in both the basket 11 and tub 17. The clothes themselves are contained within the spin basket 11. Then, during the extraction the

basket is spun at a centrifuging speed approaching, for example, 500 r.p.m.

The dispensing device 10 of this invention is constructed to utilize the spinning of the basket 11 to precondition the dispensing device 10 for gravitational discharging fluent material 18 into the basket 11 as the basket 11 drops below the centrifuging speed capable of retaining material 18 within device 10. The spin basket contains the usual inturned rim 19 and held on this rim is a holder 20.

The holder 20 includes a bottom plate section 21 that is sloped downwardy and forwardly toward the center of the basket 11 and which has a lower edge 22 adapted to bear against the inner surface of the basket 11. The front edge 23 of the section is thus at a lower elevation than the rear edge 22. The front edge 23 is provided with a central projecting tongue 24 having a front edge 25 defining a relatively stationary abutment surface. The holder is provided with sides 26 and a top 27 forming an enclosure for retaining the fluent material container 28. As can be seen in FIGURES 3 and 6, the sides 26 and top 27 are narrower than the bottom plate section 21 so that the sides and top constitute an enclosing ring spaced forwardly of the adjacent portion of the spin basket 11. The holder 20 which provides a stationary reaction member including abutment surface 25 is removably clamped in place by means of an integral resilient anchor clip 29 forming a part of the top 27 and shaped complementarily to the rim 19 to be held securely on this rim. The holder 30 is preferably made of a molded plastic so that it can be snapped into position by means of the clip 29 and can be just as easily removed.

The container 28 is in the form of a relatively flat elongated bottle having a circular neck 30 on which is resiliently retained a cap 31. This cap is attached to the container preferably at the front by means of a flexible strip 32 of plastic material having one end attached to the cap 31 and the other end attached to the container 28 at the front portion thereof so as to be clear of the holder 20. Other hinged constructions may readily be adapted for retaining cap 32 upon actuation of this dispenser device. The cap 31 is provided with a rim 33 and an inwardly extending annular tongue 34 so that the cap may be snapped into and out of position on the container.

In order to retain the container 28 within the holder 20 when the spin basket 11 is at rest, the rear sides of the container are enlarged, as indicated at 35, with these enlargements abutting against the rear edges of the sides 26 when the container is in position. Because of the resilient nature of the plastic of the holder and because the top 27 is normally spaced above the top of the container 28 the enlarged projections 35 may be used to snap the container into and out of position within the holder.

FIGURES 4, 5 and 6 illustrate the relative position of the container 28 when the spin basket is at rest. In this position the enlarged projections 35 are against the rear edges of the sides 26, the container 28 is in a forward position on the sloped bottom plate section 21 and the bottom of the annular rim 33 of the cap 31 is against the forward edge 25 of the tongue 24. In this position the fluent material 18, here shown as a usual water conditioning or additive compound in fluid form, is retained in the container 28 by means of the cap 31. Various types of fluid, powder, pellet or granular additives for treatment of the solution or the fabrics themselves may be used in this dispenser device.

During the spinning portion of the cycle centrifugal force on the container 28 as the speed increases toward a maximum causes the container 28 to slide upwardly and rearwardly on the inclined bottom plate section 21

of the holder 20 in a transverse movement relative to container 28. As soon as the centrifugal force becomes sufficient the forward abutting edge 25 of the tongue 24 engaging the bottom of the cap rim 33 snaps the cap 31 from the neck 30 of the container. At this point, however, centrifugal force on the contents of the container is sufficient to retain the fluent material within the container, as shown in FIGURE 7. However, as the spinning cycle terminates and the basket slows down, there is a point reached in the speed of rotation where centrifugal force is not sufficient to retain the material 18 within the container at which time the fluent contents flow by gravity out of the container indicated by the dotted lines at 36.

As can be seen from the above description the dispensing device of this invention is a separate device that can be easily installed as by snapping on the rim of an ordinary spin basket of an automatic washing machine. The device is so constructed that the fluent material is retained in the dispensing device until the spin basket is spun in a spinning cycle at which time the closure for the container for the fluent material is automatically opened. However, the fluent material is not fed from the container into the interior of the spinning basket at this time as the speed also causes the material to be retained in the container. However, as soon as the spinning slows down from its maximum, gravity on the fluent material overcomes the centrifugal effect and the material flows from the container into the spin basket where it is available in the next liquid cycle.

Having described my invention as related to the embodiment shown in the accompanying drawings, it is my intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the accompanying claims.

I claim:

1. A fluent material dispensing device for a washing machine spin basket, comprising: a container for said material arranged to permit flow of material therefrom when said basket is at a state of rest; a holder on said basket for said container permitting movement of the container under the forces of spinning; a closure for said container; and means operated by the spinning of said basket for simultaneously opening said closure upon said container movement and retaining said material in said container as said spinning approaches a maximum.

2. A fluent material dispensing device for a washing machine spin basket, comprising: a container for said material arranged to permit flow of material therefrom when said basket is at a state of rest; a holder on said basket for said container permitting movement of the container under the forces of spinning; a closure for said container; and means on said holder engaging said closure to open the same as said spinning approaches a maximum, said spinning serving to retain said material in the container.

3. The device of claim 2 wherein means are provided removably mounting said holder on said basket.

4. A fluent material dispensing device for a washing machine spin basket, comprising: a container for said material arranged to permit flow of material therefrom when said basket is at a state of rest; a holder on said basket in which said container is movable under the forces of spinning; a closure for said container; and cooperating means on said closure and said holder for removing said closure on said movement of said container.

5. A dispenser for automatically discharging fluent material into a rotatable vessel subjected to a range of centrifuging speeds by a rotatable driving means, comprising: a container for said fluent material, means including a stationary abutment member for supporting said container on said vessel for transverse movement relative to said vessel, a movable closure for said container normally precluding discharge of said material into said vessel, and means connected to said closure and operated by the transverse movement of said container against said stationary abutment member at centrifuging speeds for opening said closure to thereby permit the discharge of said material into said vessel below centrifuging speeds of said vessel.

6. A dispenser for automatically discharging fluent material into a rotatable vessel subjected to a range of centrifuging speeds by a rotatable driving means, comprising: a container for said fluent material, means for supporting said container on said rotatable vessel for gravitational discharge of said fluent material into said vessel, a movable closure for said container to prevent discharge of said fluent material prior to the rotation of said rotatable vessel at centrifuging speeds, and means associated with said closure and operated by the movement of said container radially of the axis of rotation of said vessel at centrifuging speeds of said vessel for opening said closure and thereby permitting the discharge of said fluent material into said vessel below centrifuging speeds of said vessel.

References Cited in the file of this patent

UNITED STATES PATENTS

2,970,463	Johnston	Feb. 7, 1961
3,010,304	Altorfer	Nov. 28, 1961
3,086,380	Gerhardt	Apr. 23, 1963