July 14, 1970 P. W. DOUGLAS 3,520,156

LINT FILTERS AND BLEACH DISPENSING DEVICES

Filed Aug. 1, 1968

Fig. 1.

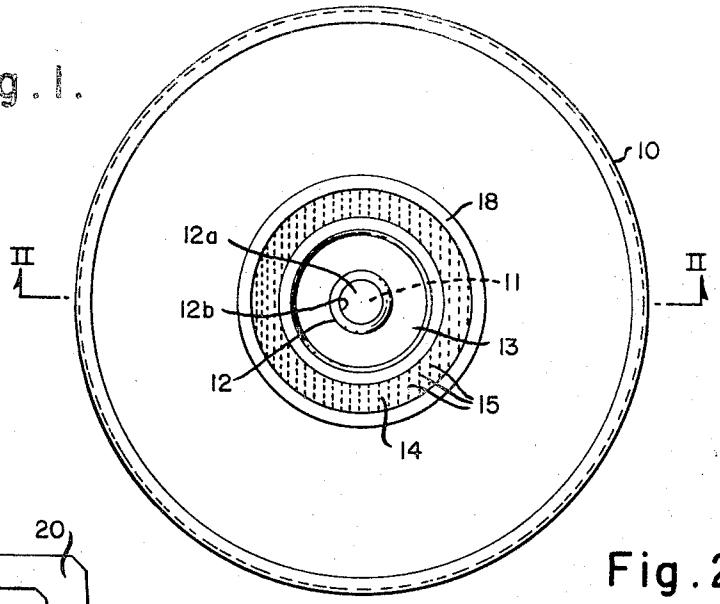


Fig. 2.

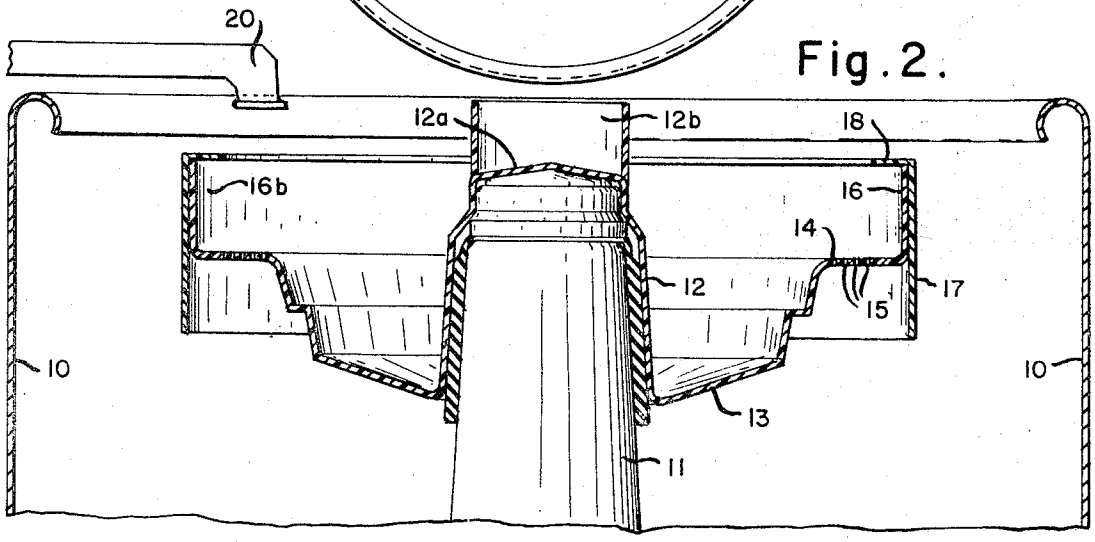
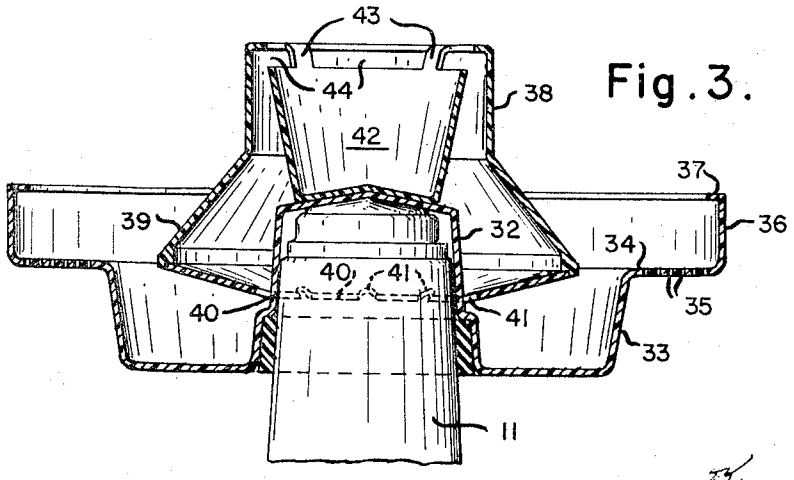


Fig. 3.



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United States Patent Office 3,520,156 Patented July 14, 1970

3,520,156

LINT FILTERS AND BLEACH DISPENSING DEVICES

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Filed Aug. 1, 1968, Ser. No. 749,482
Int. Cl. D06f 29/00, 39/08
U.S. Cl. 68—17 3 Claims

ABSTRACT OF THE DISCLOSURE

A combination lint filter, bleach or other wash and rinse water additive dispenser and fabric conditioner dispenser adapted for mounting on the agitator post of a clothes washer having a recirculating system and a spin-rinse cycle which receives wash-rinse water from the recirculating system, filters it and dilutes and delivers the bleach to the tub of the clothes washer and thereafter dispenses fabric conditioner during the spin-rinse cycle.

This invention relates to a combination lint filter and bleach dispensing means and a fabric conditioner dispenser and particularly to a removable apparatus for placement on the agitator of a washing machine to act as a filter for recirculating water and, at the same time, as a feeder for bleach or other wash water additive.

There are many patents in the art relating to devices for introducing bleach into a clothes washing machine. In some patents, this is accomplished by adding liquid bleach to the outside tub of a dual tub arrangement to be diluted before it enters into the wash water in the inside tub. In other cases, it is accomplished by actuating a solenoid controlled container and directing the bleach into the wash water at a pre-selected time. Still another form of bleach adding means is that in which the liquid bleach is introduced into the wash water through recirculation compartments by means of the recirculating pump. I do not know of any apparatus in which a bleach compartment and a rinse agent compartment are attached to the agitator in combination with a lint filter. There have been rinse agent compartments attached to the lint filter as in my Pat. 3,085,418 and others. These compartments act as a container for fabric conditioner or rinse agent which must be intoduced into the water during the rinsing cycle which comes after the washing and the spin out cycle. Such rinse agents cannot be introduced into the wash water during the washing cycle and these devices of the prior art are not designed to accomplish this purpose. As a matter of fact, if one were to add the rinse agent to the wash water, it would kill the detergent suds and the dirt removing ability of the detergent, thus destroying the entire effectiveness of the wash cycle. In these prior art structures, the fabric conditioners must be held in the dispenser during both the wash and the spin cycle without any of the material being introduced into the washer and they must then be introduced into the first or second clear rinse water in order to soften clothes, remove static electricity and give the user a soft wash. In the present invention, I provide not only a dispenser which adds bleach or other wash water additive such as detergent in a diluted condition directly into the wash cycle using either the liquid or the granular form of additive at a delayed time with the assistance of the recirculating water which passes through the lint filter when the washer begins its washing cycle but also a rinse agent dispenser. At the same time as bleach is added, detergent or soap, dry or liquid, may be added to the bleach compartment with the bleach if desired and it too will be diluted and sequentially added to the wash water at the proper time. The present invention has very real advantages over devices of the prior art. It adds the bleach or soap, or both, as the case may be, in gradual amounts as needed in the appropriate cycle of the wash operation and thereafter adds the rinse additive during the deep rinse cycle. Since the wash additive is introduced through an oscillating lint filter as it is here, it helps to keep the filter area clean and free from stickiness as distinguished from those instances where a rinse additive is added through the lint filter in the rinse cycle. It eliminates the problem of clogging which characterizes many bleach and detergent additive devices of the prior art and by reason of its oscillating motion, it keeps the whole apparatus clean through the fact that the lint, rolling up into a ball as it does on the filter, picks up particles and maintains the holes of the filter clean at all times.

In a preferred embodiment of my invention, I provide a combined lint filter, wash agent dispenser and rinse agent dispenser comprising an annular filter member having perforations in the surface thereof, a vertical upstanding outer rim on said lint filter, an inner annular cup within the annulus of the filter area and beneath said filter area, a cylindrical post engaging member within the annulus of the cup adapted to fit over the top of the agitator of a washing machine and having an upstanding rim forming a cylindrical cup. An inturned flange is preferably provided at the top of the upstanding outer rim to prevent the lint from being thrown out during the spinning operation.

In the foregoing general description, I have set out certain objects, purposes and advantages of my invention. Other objects, purposes and advantages of this invention will be apparent from a consideration of the following description and the accompanying drawing in which:

FIG. 1 is a top plan of a combination filter and wash agent dispensing device according to my invention;

FIG. 2 is a section on the line II—II of FIG. 1; and

FIG. 3 is a second embodiment of my invention.

Referring to the drawing, I have illustrated a washing machine having a tub **10** and a central agitator post **11**. The agitator post is provided with the lint filter, wash agent dispenser and rinse agent dispenser according to my invention. The lint filter wash-agent rinse-agent dispenser is made up of a hollow cylindrical center post engaging member **12** adapted to fit over the top of the agitator post having an intermediate plate **12***a* form a cylindrical rinse agent cup **12***b* directly on top of the agitator. The member **12** is surrounded by an annular cup-shaped portion **13** adapted to hold a wash agent. Above and outside the cup-shaped portion **13** is a flat annular lint filter member **14** having holes **15** provided with an outer vertically upstanding cylindrical wall **16**. The wall **16** is provided with a spin out baffle **17** which fits over the outer wall **16** and carries an inturned flange **18** which prevents lint from being thrown out during the spin operation. A recirculation nozzle **20** is provided from the conventional pump mechanism of the washing machine to recirculate water back to the lint filter and through the filter area into the wash tub proper in the usual manner of recirculating washers.

In operation, the lint filter and wash agent dispenser of my invention operates as follows. The cap member **12** is placed over the top of the agitator post **11**. The wash agent such as bleach is added into the cup **13** and the rinse agent into cup **12***b* and the machine is started. As wash water is recirculated from the tub **10** through nozzle **20**, it is discharged onto lint filter member **14** and cup portion **13** where a portion of it dilutes the wash additive in the cup-shaped portion **13**. As the machine operates, the diluted wash agent overflows portion **13** onto filter member **14** and passes through holes **15** into tub **10** where it mixes with the clothes and wash water.

This dilution and addition is continuous until the wash agent is entirely transferred from cup portion **13** to tub **10**. The filter member **14** removes lint from the recirculating water and by reason of its reciprocating action, causes the lint to form balls which roll back and forth keeping the filter surface clear of particles which retard filtration and water flow.

When the wash cycle is concluded the usual spin and rinse cycle is begun with the whole tub and agitator unit rotating at increased speed. This causes the rinse agent to be forced upwardly over the upper edge of cup **12***b* by centrifugal action and to be discharged into cup **13** from which it is carried over the holes **15**, collected into area **16***b* between flange **18** wall **16** and flange **14** and upon stopping of the spinner tub **10**, the rinse agent or fabric conditioner will drop through holes **15** into the tub—later to be diluted in the deep rinse water. The area of flange **14** adjacent wall **16** is without holes equal to the inward flange **18** this **16***b* area traps the fabric conditioner in the spin cycle.

In FIG. 3 I have illustrated a second embodiment of my invention in which a hollow cylindrical agitator engaging member **32** is adapted to fit over an agitator post **11**: The member **32** is surrounded by an annular cup-shaped portion **33** adapted to hold a wash agent. Above and outside the cup-shaped portion **33** is a flat annular lint filter member **34** having holes **35** and provided with an outer vertically upstanding cylindrical wall **36**. Preferably the wall **36** is provided with an inturned flange **37** at the top which acts as a spin out baffle. A removable rinse holding compartment and cup assembly **38** are removably attached to the agitator engaging member **32**. This assembly is made up of a holding compartment **39** having an opening **40** in the bottom adapted to slide over the member **32** and provided with drain opening **41**. A central cup **42** is fixed with compartment **39** and is attached thereto by spaced arms **43** separated by openings **44** communicating with the interior of compartment **39**.

In operation the device of FIG. 3 operates in generally the same fashion as that of FIGS. 1 and 2 except that when the wash cycle is completed and the spin cycle begins, a rinse agent in cup **42** is forced up and over the edge of cup **42** through openings **44** into holding

compartment **39** where it is held against the peripheral wall by centrifugal force. When the spin stops the rinse agent flows through openings **41** into annular cup **33** from which it is discharged in the next spin cycle as described in connection with FIGS. 1 and 2.

While I have illustrated and described a presently preferred embodiment of my invention in the foregoing specification, it will be understood that this invention may be otherwise embodied within the scope of the following claims.

I claim:

1. A combination lint filter, wash agent dispenser and rinse agent dispenser for use in a washing machine having a recirculating water system, a reciprocating agitator member and a spin-rinse cycle comprising an annular filter member having perforations in the surface thereof, a vertical upstanding outer rim on said filter member, an inner annular cup within the annulus of the filter area and beneath said filter area and an agitator engaging member within the annulus of the cup separated into upper and lower cup-shaped members, the upper adapted to receive rinse agent and the lower adapted to fit over and engage the agitator member.

2. A combination lint filter, wash agent dispenser and rinse agent dispenser as claimed in claim **1** wherein said outer rim is provided with an inturned top flange.

3. A combination lint filter, wash agent dispenser and rinse agent dispenser as claimed in claim **1** wherein the inner annular cup is joined to the filter by a sloping sidewall.

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U.S. Cl. X.R.

68—18; 222—145