Oct. 28, 1930. E. C. GROTBERG 1,779,700

WASHING MACHINE

Filed Jan. 12, 1928

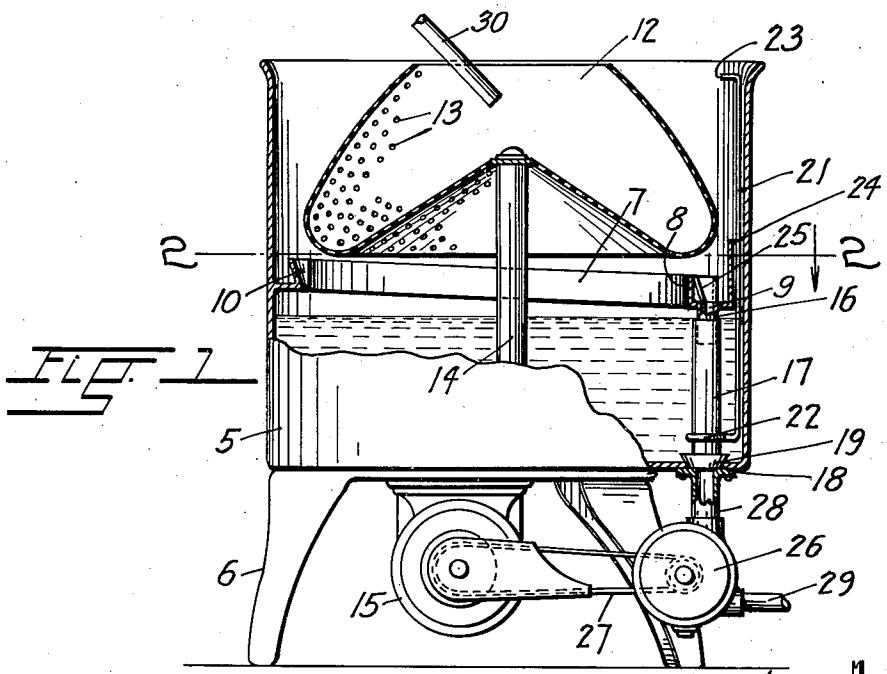


FIG. 1

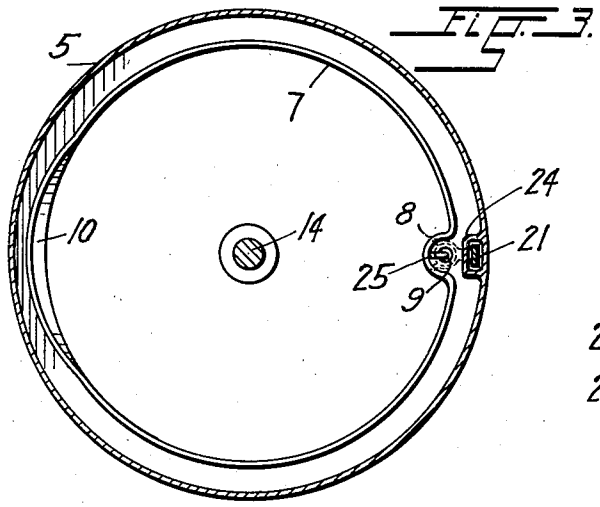


FIG. 2

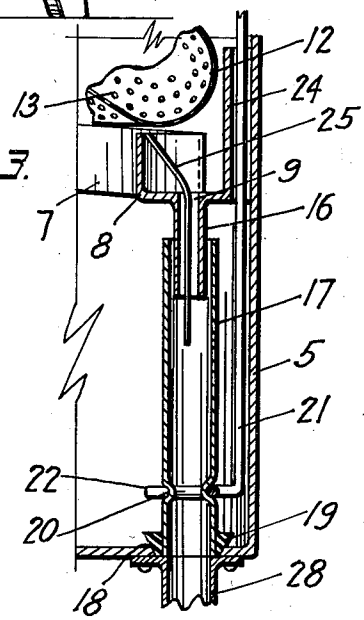


FIG. 3

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WASHING MACHINE

Application filed January 12, 1928. Serial No. 246,278.

My invention relates to washing machines, and more particularly to those washing machines having means to rinse and dry clothes by centrifugal force.

Heretofore after washing clothes in a washing machine of the type described, water used to rinse the clothes has been allowed to mix with the hot suds in the tub. This mixing not only dilutes the suds but also cools them to such an extent that the suds must be drained out and fresh hot water and suds put in the machine to wash the next batch of clothes.

An important object of the present invention is to provide in a washing machine means to prevent rinse water from mixing with the hot suds in the operation of the machine.

Another object is to provide means whereby the rinse water and the suds may be drained from the machine, separately or simultaneously.

A further object is to provide means for forcibly drawing the rinse water or the suds from the machine.

Still further objects reside in details of construction and in novel arrangements of parts, as will appear more fully in the following description.

An embodiment of the invention has been illustrated in the accompanying drawings, in the several views of which like parts are similarly designated and in which,

Figure 1 represents a partially sectional elevation of a washing machine to which the improvements are applied;

Figure 2, a section taken along the line 2—2 of Figure 1; and

Figure 3, an enlarged sectional view of the drainage means of the machine.

Referring more specifically to the drawings the reference numeral 5 represents the cylindrical tank of the washing machine, and the numeral 6, the legs supporting the tank.

On the inner circumference of the tank is a trough 7 having an enlargement 8 for an outlet 9. The opposite side of the trough slants inwardly as at 10 to provide sufficient clearance for a clothes basket 12 in the tank, hereinafter to be described. The trough is slightly tilted out of a horizontal plane toward the outlet.

The clothes basket 12 has small perforations 13 for the escape and entrance of liquid. The basket is mounted on a shaft 14 central of the tank. A motor 15 is mounted on the under side of the bottom of the tank and is connected to rotate the shaft 14. The details of this connection are not a part of the present invention, so have not been shown in detail in the drawings. Any ordinary driving connection will be suitable.

A short drain pipe 16 connects with the outlet 9 of the trough. Loosely fitting around this drain pipe is a hollow valve stem 17 that normally connects the pipe with an outlet 18 in the bottom of the tank. The outlet 18 provides a valve seat for a valve 19 at the end of the hollow stem 17. The valve 19 may be of resilient material to secure a close fit in its seat.

The stem 17 has a circumferential groove 20 for its connection with a fork 22 at the lower end of a control rod 21 which at its other end has a handle 23. The rod 21 passes through a recess 24 in the trough so that it may be easily accessible from the top of the tank.

An air tube 25 connects the space above the trough with the interior of the hollow valve stem 17 to prevent a vacuum in the valve stem and to expedite drainage through the stem.

A pump 26 is mounted on the under side of the tank bottom and is driven by the motor 15 by means of a belt 27. The pump is connected with the tank outlet 18 by a drain pipe 28, and it has a discharge pipe 29.

In the operation of the washing machine, to which the invention is applied, after the clothes have been washed, the basket is rotated to wring the clothes therein by centrifugal force. During the rotation, rinse water is supplied to the tank thru a hose 30 held above the same. The wash water and rinse water, which pass thru the clothes by centrifugal force, are discharged from the basket thru the perforations in the outer wall thereof. The discharged water falls into the trough and is constantly drawn off by the pump 26. The air supplied thru the tube 25

provides for a constant equable flow of water thru the discharge tube.

For draining the trough, the valve 19 is in engagement with its seat 18. When it is desired to drain the entire tank the rod 21 is lifted by the handle 23, thus raising the valve 19 from its seat and opening the outlet of the tank.

From the foregoing, it may be seen that one batch of clothes in the basket may be rinsed and dried without the rinse water diluting and cooling the suds in the lower part of the tank. Thus the suds may be used for washing subsequent batches of clothes, and each batch may be rinsed and dried without affecting the suds.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A washing machine comprising a tank, a rotating perforated basket in the tank, a trough to catch liquid driven through perforations in the basket by centrifugal force, the trough and the tank having outlets, and a drain pipe for the trough outlet carrying a valve adapted to control the flow through the tank outlet.

2. A washing machine comprising a tank having a space for suds, a rotating perforated basket in the tank, a trough above said space to catch liquid driven through perforations in the basket by centrifugal force, the trough and the tank having outlets, and a valve for the tank outlet having a hollow stem connecting the trough outlet with the exterior of the tank.

3. A washing machine comprising a tank, a rotating perforated basket in the tank, a trough to catch liquid driven through perforations in the basket by centrifugal force, the trough having an outlet, a conduit connecting the outlet with the exterior of the tank, and an open-ended air tube in said conduit, connecting the space above the trough with the interior of the conduit to expedite the flow of liquid through the conduit.

4. A washing machine comprising a tank having an outlet, a rotating perforated basket in the tank, a trough to catch liquid driven through perforations of the basket by centrifugal force, the trough having an outlet, a drain pipe connected with the trough outlet, a hollow valve stem telescoping with the drain pipe, a valve on the stem to close the tank outlet, the valve stem being movable on the drain pipe to remove the valve from the tank outlet, and means to effect said movement of the valve stem.

5. A washing machine comprising a tank, a rotating perforated basket in the tank, a trough to catch liquid driven from clothes through perforations in the basket by centrifugal force, the trough and the tank having outlets, a valve for the tank outlet, having a hollow stem connecting the trough outlet with the exterior of the tank, the stem having a circumferential groove, and a rod connected in said groove to remove the valve from the outlet.

In testimony whereof I have affixed my signature.

EDWARD C. GROTBERG.