

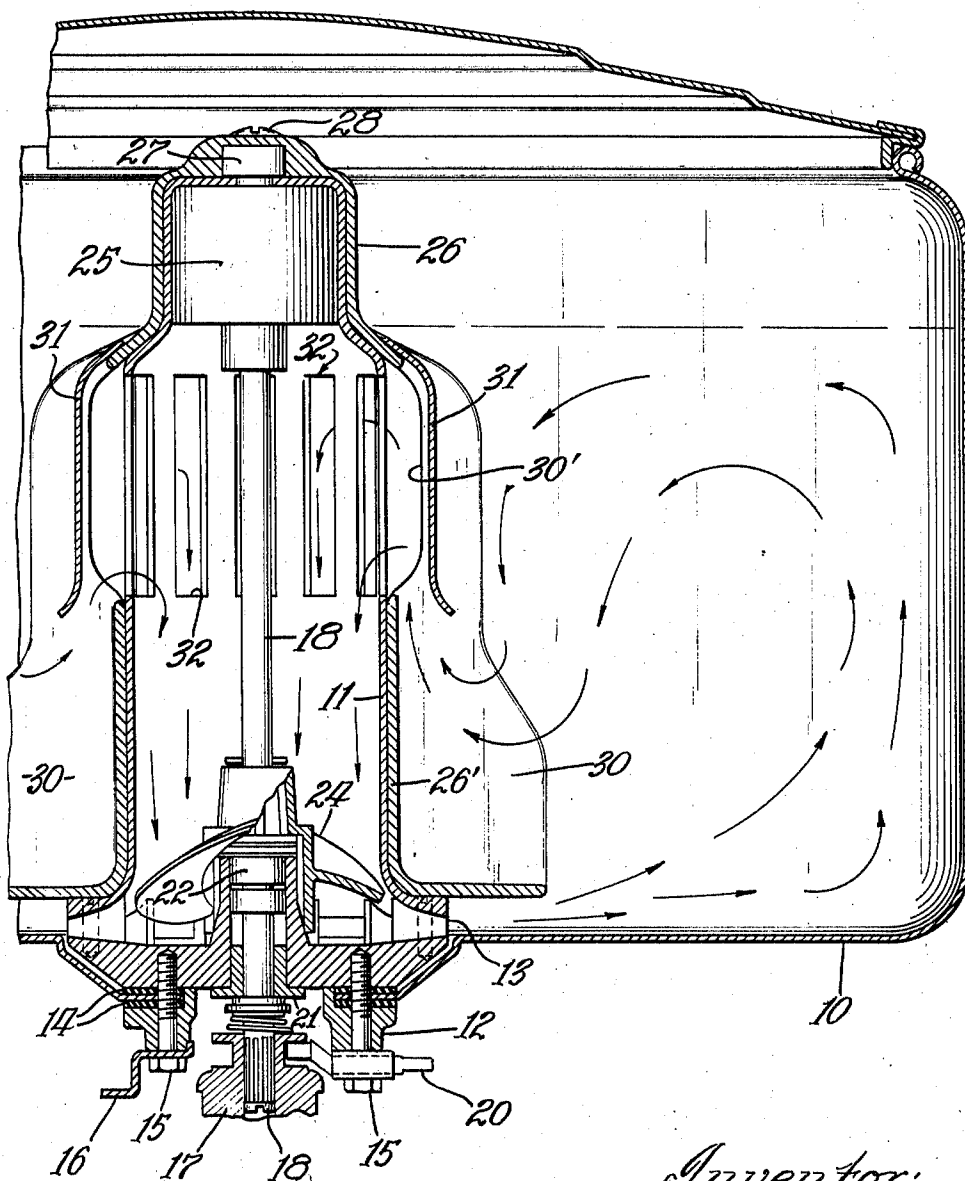
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DUAL AGENCY WASHER

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DUAL AGENCY WASHER

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3 Claims. (Cl. 68—53)

This invention relates to washing machines and is a continuation in part of my dual agitator and fluid agency washer as disclosed in my application Serial No. 292,973, filed September 1, 1939, this latter being an addition to my fluid agency washer disclosed in my Patent Re. 20,424, re-issued June 22, 1937.

The particular object of this invention is to provide means whereby the washing of clothes by dual fluid and mechanical agencies can be accomplished in a conventional unitary washer tub without using a perforated partition to provide an effective inlet to the fluid pump.

Another object is to provide an inlet to the fluid pump through the agitator and agitator post which will not be stopped or seriously obstructed by the clothes in the tub.

And a further object is to provide such an inlet fluid agitator and agitator post which will not induct air with the water.

And a still further object is to provide in a dual fluid and mechanical agency washer means to create a movement of the clothes being washed which will better expose them to both the fluid and mechanical washing agencies.

Other objects and benefits will be disclosed in the following descriptions and drawing:

The drawing shows a cross sectional elevation view showing my perforated agitator and agitator post in its relation to the pump impeller and fluid outlet for same.

Now referring to the drawing, I show a conventional washing machine tub 10 in which is mounted my dual agency washing means, and it will be observed that unlike the tub used in my former inventions, the tub is not divided by a perforated partition in order to effect proper fluid inlet to the pump.

Mounted in the tub 10 is an agitator post 11 having discharge orifices 13 adjacent the bottom of the tub 10. The agitator post 11 is mounted in a conventional manner by the flange bracket 12, and gaskets 14 and the cap screws 15.

Also mounted on the flange bracket 12 by the cap screws 15 is a motor support bracket 16 which supports a motor or power means, not shown. The power is transmitted through a clutch 17 slidably mounted on splines of the shaft 18 to drive said shaft in a conventional manner. The clutch is a spring actuated clutch controlled by shifter means 20, as shown.

The drive shaft 18 is mounted in a bearing bushing 21 and extends through a water seal 22 upward through the interior of the agitator post 11. Fixed to the drive shaft 18 is an impeller

24 whose blades are arranged to suck fluid downward through the interior of the agitator post 11 and impel the fluid outward through the discharge orifices 13 adjacent the bottom of the tub 10.

On the upper end of the drive shaft 18 is mounted a gear case 25 which changes the high rotational speed of the shaft 18 to slow reciprocating motion which is transmitted to the agitator 26 by means of a drive torque 27 held firmly in position in the agitator 26 by the round head screw 28. This is a conventional type of gear case well known in the art and well illustrated in the patent to Sherwood, No. 988,214.

From the foregoing structure it will be apparent that power from the motor is transmitted through the drive shaft 18 to rotate the impeller 24 at motor speed and to oscillate the agitator 26 at a considerably slower speed.

The central cylindrical barrel of the agitator 26 is broken near its top, leaving a cylindrical opening between the top section of the barrel 26 and the lower section 26', as shown. These two cylindrical sections are joined by four agitator blades 30, as shown. It will be particularly noted that the vanes are offset centrally at the section 30', the purpose of which will later be explained.

Over the cylindrical opening in the barrel of the agitator 26 is fixed a bell member 31 which completely covers the inlet openings 32 in the agitator post 11. Although the member 31 is preferably shown as a separate member, it is possible to make this section integral with the agitator 26 although I preferably show it as a separate member.

By observing the fluid flow arrows as shown it will be obvious that water ejected by the impeller 24 through the discharge openings 13 will flow outward towards the wall of the tub, then upward along the sides of the tub and then inward and downward towards the inlet opening under the bell member 31. It will be obvious that clothes subjected to these rapidly moving water currents will be drawn toward the agitator 26 where they will be caught by the vanes 30 and subjected to an oscillating movement which will have the effect of drawing them downward where they will again be subjected to the washing action of the fluid being forcibly discharged through the orifices 13. During this process while the clothes are in contact with the vanes 30, they will be subjected to mechanical washing from the vanes 30 and such mechanical action will have

the desired effect of changing the relation of the clothes with each other so that when they are again acted upon by the rapidly moving water currents from the orifices 13, different sections of the clothing will be washed and thus complete uniform washing of the entire batch of clothes will be effected.

It is well known that oscillating movement of the agitator vane 30 has a similar effect in inducing flow of water currents as above described, and, therefore, such oscillating action of my agitator vanes 30 will cooperate with the action of the water currents created by the discharge through the orifice 13. It is further well known that such water action and oscillating movement of vanes 30 has the tendency to draw air downward into the tub and such air, if not prevented by my bell member 31, will be immediately drawn through the openings 32 in the agitator post 11, and, therefore, the impeller 24 would be discharging both water and air, with the result that too much suds would be formed and generally the operation would be unsatisfactory.

It will be well understood from the foregoing that my bell member 31 prevents such air from entering the pump system because the inlet opening at the bottom of the bell 31 is too far below the surface of the water to permit such action.

It will also be apparent that although clothes will be inducted downward adjacent the water inlet opening at the bottom of the bell 31, these clothes will be prevented from entering with the inlet water because they will then be caught by the vanes 30 and inducted downward and outward, as previously explained.

From the foregoing it is believed that my invention will be well understood and that by the structure as explained I have provided means whereby clothes may be washed by dual mechanical and fluid agencies without the use of a perforate partition in the tub and by means which

will be helpful in better and more thoroughly washing the clothes.

Having thus described my invention, I claim:

1. In a domestic clothes washing machine the combination of, a tub, an agitator post in said tub, a pump impeller in said post, an agitator mounted on said post, power means to rotate the impeller and oscillate the agitator, said power means including a reduced speed oscillating motion gear case mounted in the post, fluid inlet means through the agitator and the post, and a fluid orifice near the bottom of the post adjacent the bottom of the agitator.

2. In a domestic clothes washing machine the combination of, a tub, an agitator post in said tub, said agitator post having fluid inlets in its upper section and a circular outlet orifice near its bottom, a pump impeller mounted in said post to induct water inward through the inlets and outward through the orifice, a vaned agitator mounted exteriorly of the post for oscillatory movement, said agitator having inlet openings adjacent the post inlets, and a bell-like cover section over said agitator inlets to provide a circular water inlet at the bottom of the bell section, and power means to actuate said pump and agitator.

3. In a domestic clothes washing machine the combination of, a tub, an agitator post in said tub, said agitator post having fluid inlets in its upper section and a circular outlet orifice near its bottom, a pump impeller mounted in said post to induct water inward through the inlets and outward through the orifice, a vaned agitator mounted exteriorly of the post for oscillatory movement, said agitator having inlet openings adjacent the post inlets, a bell-like cover section over said agitator inlets to provide a circular water inlet at the bottom of the bell section, said circular inlet being divided by and between the vanes and power means to actuate said pump and agitator.

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