Sept. 7, 1954 E. H. STEVENSON 2,688,241

LAUNDRY MACHINE AGITATOR

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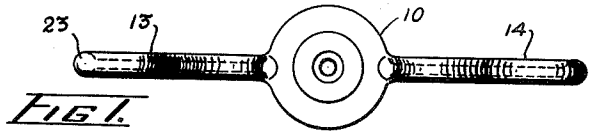


FIG 1.

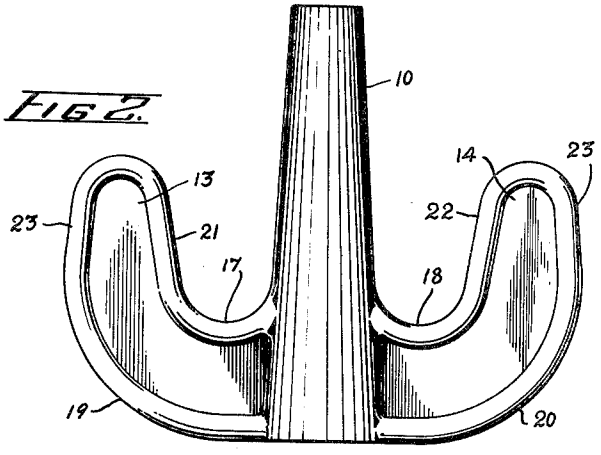


FIG 2.

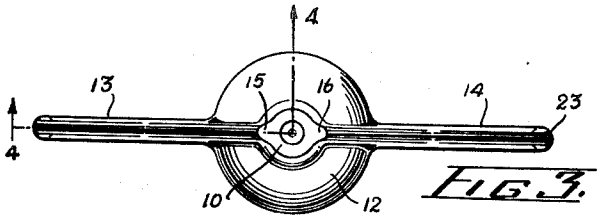


FIG 3.

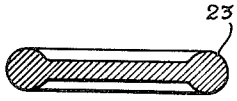


FIG 5.

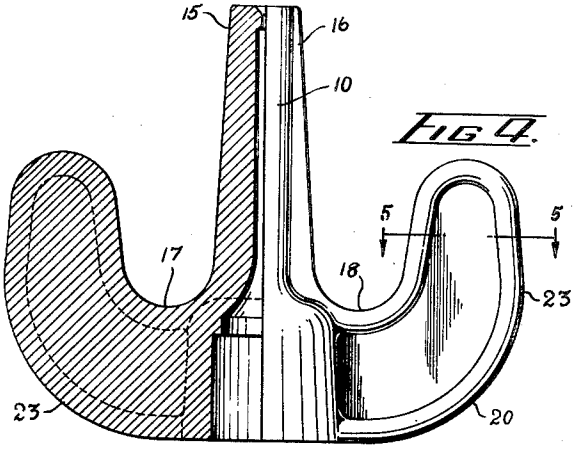


FIG 4.

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LAUNDRY MACHINE AGITATOR

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1 Claim. (Cl. 68—134)

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This invention relates to a laundry machine agitator so constructed that it will agitate the materials being washed in a manner which will result in an improved washing action and at the same time which will reduce the abrasive action on the clothes during washing. Without limiting the generality of the foregoing, the word "materials" wherever used in the following description includes all materials that are normally cleansed in a laundry machine such as textile materials, synthetic textile materials, fabric, cloth, clothes and the like goods.

It is well known in the art of washing clothes that the most effective cleansing action can be effected by a constant and uniform agitation of all of the materials throughout the washing cycle resulting in a uniform cleansing of the materials. It has also been found that if the materials are drawn rapidly through the washing liquid by the agitator, still better washing results are obtainable.

The agitators presently employed in laundry machines do not uniformly agitate the materials in the washing liquid nor do they effectively draw the materials rapidly through the liquid. One of the disadvantages of the agitators presently in use, is that the materials tend to pocket or bunch in the space between the outside upright edge of the agitating blades and the walls of the tub with the result that the materials are not uniformally agitated in the washing liquid and are subjected to abrasive action.

One of the objects of the present invention is to provide an agitator which will maintain the materials in a state of motion in the washing liquid, effect a progressive change of position of the materials throughout the entire washing cycle and will also rapidly draw the materials through the washing liquid, the materials being gripped by the agitator blade, and a new batch of materials being taken hold of by the agitator blade at each oscillation of the agitator.

A further object of the invention is to provide an agitator for a laundry machine which will not cause the materials to accumulate or bunch in the space between the upright edge of the agitator and the wall of the tub but which will effectively keep the materials moving into the path of the blades so that the materials will be subjected to the washing action effected by the agitator blades drawing the materials through the washing liquid.

A still further object of the invention is to provide an agitator for a washing machine which will substantially reduce or eliminate entirely the

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abrasive action of the agitator blade on the materials.

These and other objects are accomplished by the agitator described in the following description and illustrated in the accompanying drawings which disclose the preferred construction of the invention and in which:

Fig. 1 is a plan view of an agitator constructed in accordance with the preferred embodiment of the invention;

Fig. 2 is a side elevation of the agitator shown in Fig. 1;

Fig. 3 is a plan view alternative construction of that shown in Figs. 1 and 2;

Fig. 4 is a side elevation partly in cross section as shown on line 4—4, Fig. 3.

Fig. 5 is a cross section on the line 5—5, Fig. 3.

Like characters of reference refer to like parts throughout the specification and drawings.

The agitator comprises a barrel or hub 10 provided with an axial bore for the agitator shaft (not shown). Extending outwardly and upwardly from the lower end of the barrel is a pair of agitator blades 13, 14 which are diametrically opposite each other. In the modification shown in Figs. 3 and 4 the lower portion of the barrel is enlarged to form a hub 12. A pair of ribs 15, 16 projects outwardly from diametrically opposite sides of the barrel and cooperates with the blades to keep the materials in the path travelled by the blades.

The vertical portions of the blades are spaced from the barrel by arcuately curved portions 17, 18 respectively as illustrated. Each of the curved portions 17, 18 from the throat of the blades 13, 14 respectively are described on concentric arcs of a circle having its centre approximately midway between the periphery of the barrel and the inside edge of the vertical portions of the blades 13, 14 respectively.

Very satisfactory results have been obtained by positioning each blade so that when the agitator is mounted in the tub, the vertical centre line of each blade will lie approximately midway between the vertical axis of the hub and the inside vertical wall of the laundry machine tub. When used in a tub of twenty inches diameter, the agitator should preferably be proportioned so as to provide a clearance of about 3½" between the outside edge of the blade and the vertical wall of the tub with inside edge of each blade about 2½" from the edge of the rib shown in Figs. 3 and 4 or from the barrel 10 shown in Figs. 1 and 2. These measurements are given by way of illustration and are not to be taken as a limitation of the invention, since it will be ap-

parent that they can be changed without departing from the scope of the invention. The blades should be high enough so that when the tub is fully loaded with materials, they will penetrate a considerable distance into the materials.

The blades may be formed in any well-known shapes, but, by constructing them in the manner shown in the drawings which illustrate the preferred construction, effective cleansing action is obtained. It will be seen from the drawings that each blade is formed with an arcuately curved sole **19**, **20** respectively. The sole **19** is preferably described on the arc of a circle having its centre coincident with the centre of the curved portion **17**, commencing at the bottom of the barrel **10** and extending in an upward direction to a point from where it continues in a straight line approximately parallel to the vertical axis of the agitator. The sole **20** of the blade **14** is formed in a similar manner on the arc of a circle having its centre coincident with the centre of the curved portion **18**. The top edge of the blade is arcuately curved, the centre of the curve being approximately on the vertical centre line of the blade. The inside edge of each blade indicated by the numerals **21**, **22** is approximately parallel to the vertical portion of the outside edges of the blade down to the throats **17**, **18** previously described.

The edge of each blade is formed or provided with a bead **23** preferably circular in cross section. The diameter of the bead is greater than the thickness of the body of the blade as shown in Fig. 4. In the preferred construction, the bead **23** extends completely around the edge of the blade from the point where the sole is connected to the base of the barrel **10** to a point where the curved portion **17** joins the barrel. Other shapes of beading may be employed, but it is preferred to use or employ the beading described since that shape does not offer any sharp edges to the clothes during the washing cycle and has been found to give satisfactory results.

The washing action which is believed to take place is as follows. The agitator blades as they oscillate in the tub loaded with materials and washing liquid causes the materials to be moved in a direction to bring them into the path of the blades, the blades setting up a current which causes the materials to move away from the tub wall toward the centre of the tub, resulting in a general movement of the materials into path of the blades of the agitator. At each oscillation of the agitator, some of the materials are drawn through the washing liquid by the blades, any materials which tend to become lodged in the space between the blades and the wall of the tub being moved into the path of the blades by an upward flowing current created by the arcuately curved soles of the blades. The tendency of the materials to slide off or out of engagement with the agitator as it moves in one direction, is prevented by the bead which is formed around the edge of each blade as hereinbefore described and when the agitator changes its direction of movement one batch of materials is disengaged from the blades and a new batch is engaged by the blades. Through the action of the currents set up in the washing liquid by the agitator, a new batch of materials is moved into the path of the agitator at each oscillation of the agitator.

It will thus be seen that, during a predetermined time of operation, all of the materials will be subjected to the action of being drawn through the washing liquid a large number of times and also to the normal washing effected by the agitation of washing liquid by the agitator blades.

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

An agitator for agitating the material in a laundry washing machine tub, comprising a vertical barrel of substantially uniform diameter having an axial bore therethrough for receiving an agitator post and having an enlarged hub in its base, a pair of diametrically opposed agitator blades formed integrally with said base, each blade having an edge extending radially from the bottom of said base in a horizontal direction and then rising in a vertical direction to a point above the mid-height of the barrel, and another edge sloping downwardly to the top of the base, the two edges of each blade being substantially parallel, each blade having on its outer edge a bead extending from the base around the edges of the blade and thereafter merging into a vertical rib extending on each side of the barrel which rises above the top of the agitator blades.

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