

T. J. CALLOWAY.
CYLINDER FOR WASHING MACHINES.
APPLICATION FILED JAN. 20, 1909.

956,479.

Patented Apr. 26, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

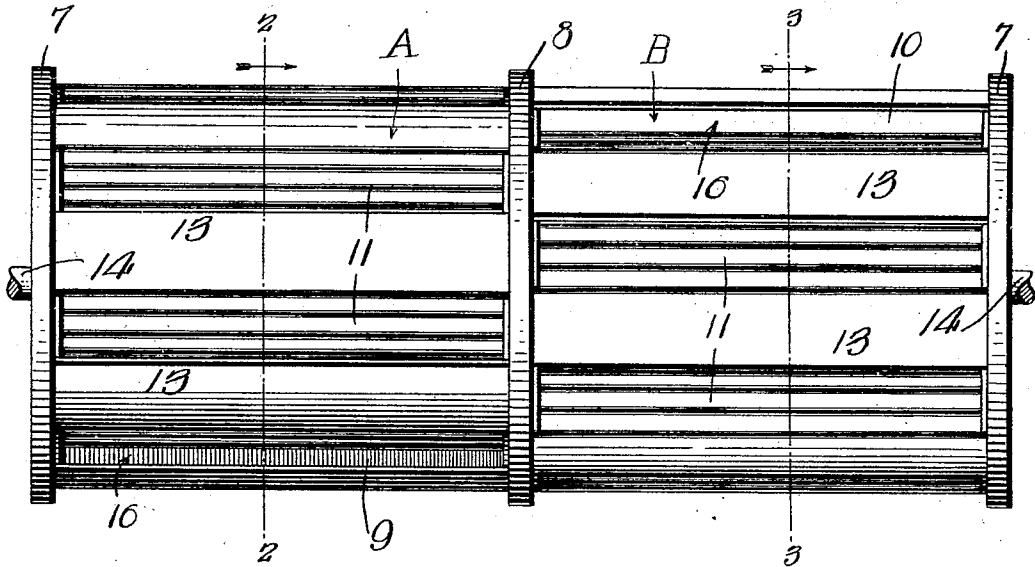


Fig. 2.

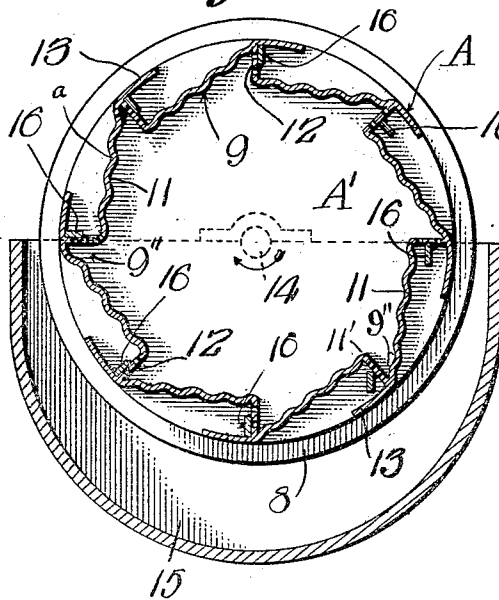
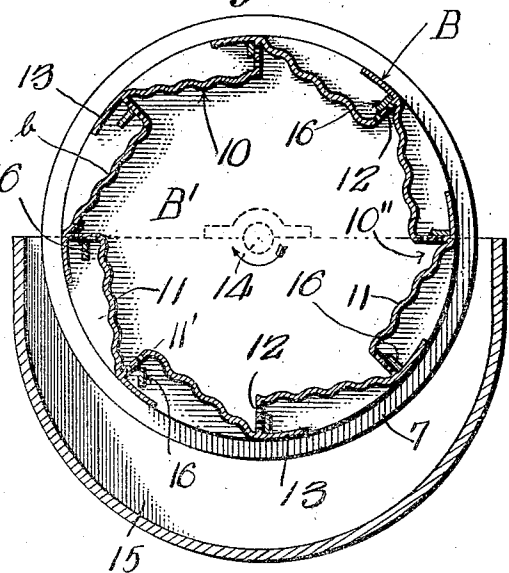


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

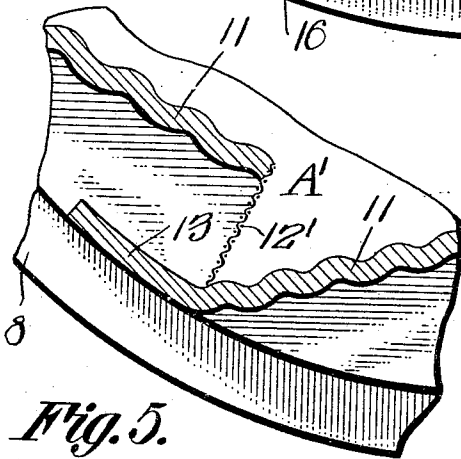
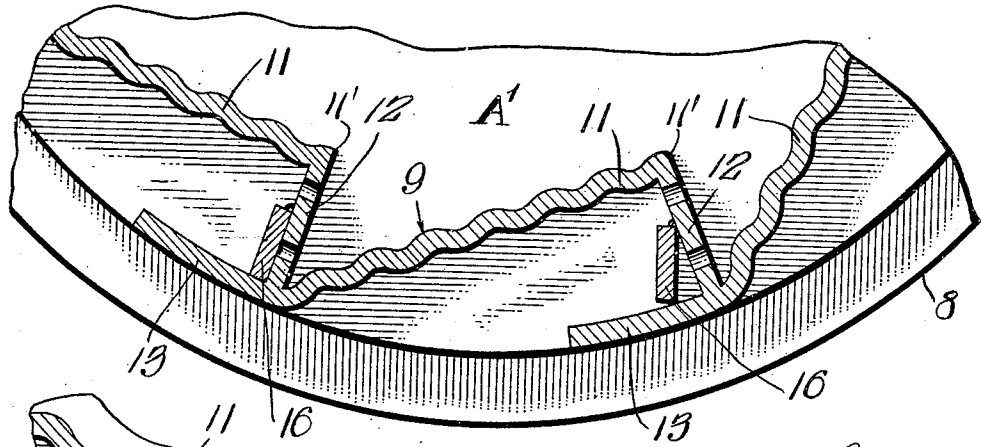


Fig. 5.

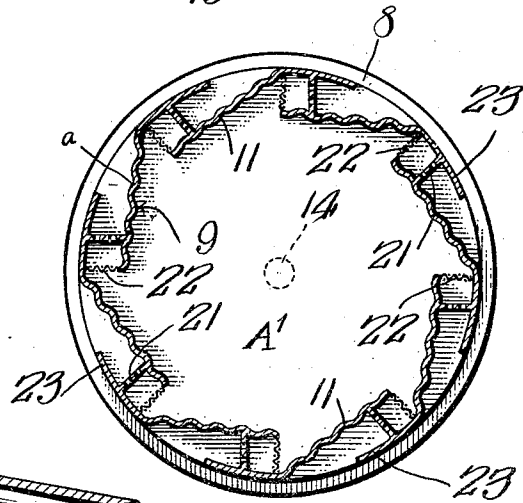
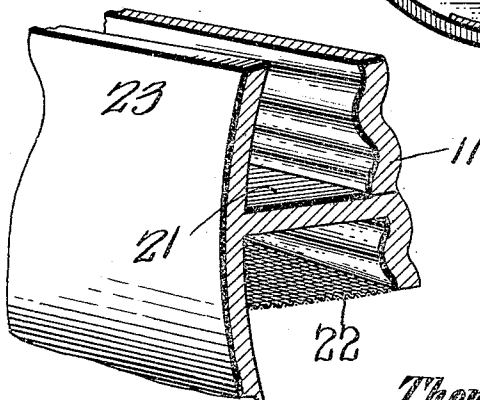


Fig. 6.

Fig. 7.



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CYLINDER FOR WASHING-MACHINES.

956,479.

Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed January 20, 1909. Serial No. 473,209.

To all whom it may concern:

Be it known that I, THOMAS J. CALLOWAY, a citizen of the United States, residing at Cambridge, in the county of Dorchester, State of Maryland, have invented certain new and useful Improvements in Cylinders for Washing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in washing machines, and more particularly to that type of machine in which an oscillatory clothes-receiving cylinder is employed, the principal object of the invention being the provision of an exceedingly simple, inexpensive and effective cylinder wherein the clothes are designed to be thoroughly saturated and agitated, and the water subsequently drained therefrom, the saturating and draining operations taking place alternately. To this end, the cylinder has its peripheral wall so constructed as to form a series of parallel water-carrying scoops whose backs have corrugated rubbing surfaces, and whose bottoms are perforated, each scoop further including a front or retaining member arranged in spaced relation to and virtually parallel with the back member thereof, as a result of which construction, the movement of the cylinder in one direction will cause the scoops to fill and to carry up the water to a point where it will flow through the perforated bottoms into the interior of the cylinder and upon the wash, *i. e.*, the clothes, which latter thus become thoroughly saturated, while rotation of the cylinder in the other direction will cause the water therewithin to drain through the perforated bottoms of the scoops as the latter are carried upwardly and backwardly, the wash being likewise carried upwardly by the scoops until it reaches a point near the top of the cylinder, whereupon it will fall upon the corrugated backs of the lowermost scoops with sufficient force to squeeze the water therefrom, the water draining through the bottoms of said scoops.

The invention further resides in the attachment of a swinging valve to the bottom member of each scoop, these valves being co-

extensive in length with said members and about half as wide, the arrangement being such that during the forward rotation of the cylinder, half of the bottom member of each scoop is covered, thus permitting the water to be carried to a greater height than would be possible if said bottom members were completely uncovered.

The invention still further resides in the division of the cylinder into two sections by means of a transversely-disposed partition plate, and in the arrangement of the scoops of one section reversely of those of the other section, so that one of the two interior chambers of the cylinder is filling, while the other is emptying, it having been found from actual experience that the quantity of soap and water necessary is thus considerably diminished with a corresponding decrease in the cost of operating the machine.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts, or features, as the case may be, are designated by the same reference characters throughout the several views.

Of the said drawings, Figure 1 is a front elevation of the improved cylinder. Figs. 2 and 3 are sections taken transversely through the two sections thereof, on the lines 2—2 and 3—3 of Fig. 1, and illustrating the manner in which one chamber is filled and the other emptied. Fig. 4 is a detail view showing one of the valves in place upon the bottom member of the scoop to which it is attached. Fig. 5 is a fragmental detail view showing a modified form of bottom member. Fig. 6 is a transverse section of a further modified form of cylinder. Fig. 7 is an enlarged fragmental perspective view of one of the scoops shown in Fig. 6.

Referring more particularly to the drawings, the cylinder is shown as comprising end heads 7, a central head 8, and two separate series of scoops 9 and 10 which connect said heads and constitute the peripheral wall of the cylinder, the central head having the effect of dividing the cylinder as a whole into two independent sections A and B, and the interior thereof into two non-communicating chambers A' and B'. The scoops, each of which has the general ap-

pearance of the letter J, are arranged at right angles to the heads and in staggered relation to each other, the flanged ends of the members thereof being disposed against the adjacent faces of the heads and secured in any desired manner to the same. Each of these scoops comprises a back 11, a perforated bottom 12, and a front or retaining member 13. The last mentioned members are arranged in spaced parallel relation to the backs and perpendicular to the bottoms. The bottom members of the scoops may be constituted by perforated sheet metal plates 12, (Figs. 2, 3, and 4) or by strips of wire gauze 12' or similar screening fabric, (Fig. 5), according as preferred, the term "perforated" employed in connection with these members being intended to cover both constructions. The backs of the scoops are formed by transversely-corrugated sheet metal plates similar to those commonly attached to wash-boards.

The two series of scoops are arranged in reverse alinement with each other, as shown. That is to say, the front or outer longitudinal edges of the front members of the corresponding scoops aline with each other, but said members and the back members as well, of course, extend in opposite directions, so that one series of scoops is inoperative so far as carrying up water is concerned, irrespective of the direction in which the cylinder is turned, while the other series is operative.

It has been originally stated that the cylinder is designed to receive an oscillatory movement; this movement may be effected by means of any preferred mechanism, but since such mechanism forms no part of this invention, illustration and description thereof have been omitted, it being merely necessary to state that the two end heads 7 are provided with trunnions 14, which are arranged to be journaled in bearings with which the end members of the receptacle 15 are provided, the latter appearing in section in Figs. 2 and 3. It will be apparent, therefore, as a result of this construction, that when the cylinder is revolved toward the left, the left-hand series of scoops 9 will be successively filled during their passage through the water in the bottom of the receptacle 15, and will carry up the water as they are raised, the water also flowing into the left hand chamber A' through the perforations in the bottoms of the scoops. At the same time, the right hand scoops 10 are drawn backwardly through the water and in consequence, remain unfilled during such time, while practically all of the water previously contained within the right hand chamber B' will flow out through the scoop bottoms. On the other hand, when the cylinder starts on its

return movement, or to the right, the left hand series of scoops 9 will become inoperative, and the chamber A' will empty, while the right hand scoops 10 will carry up water and the chamber B' will fill. It will be apparent, however, that under ordinary conditions, the water which fills each operative or forwardly moving scoop will immediately flow directly through the perforated bottom thereof into the corresponding chamber. It is the purpose of the invention, however, to permit the scoops to carry up the water to a point above the level of the water in the receptacle before it is discharged into the chamber, so as to permit it to fall upon and thoroughly sprinkle the wash therewithin, introduction of the wash being permitted by hinging the back of one scoop of each series, these hinged backs, which serve as doors, being designated by the letters *a* and *b*. To provide for the above mentioned feature, there is carried by the bottom member of each scoop a metal plate 16, whose length is exactly equal to that of the bottom member, while its width is half that of said member, each plate being hinged at its rear or inner longitudinal edge to the longitudinal center or axis of the bottom member by which it is carried. These plates, which act as valves, and will be hereinafter so termed, will therefore be held against and thus cover the outer or front portions of the perforated bottom members of the scoops during the forward movement of the same, and will thus enable more of the water to be carried up with the scoops than would be possible if the valves were omitted.

It will thus be obvious from the foregoing, that during the time that a chamber is filling, the wash therein will be turned over and over in the water and thus become thoroughly saturated, but will not be carried up with the scoops, since it will rest upon the back of each scoop as the latter passes therebeneath, and will slide therefrom onto that of the succeeding scoop. The wash in the other cylinder, however, which latter is arranged to empty as the first cylinder fills, will be caught by the shoulders 11' and pockets 9'' and 10'' formed by the conjunction of the backs and bottoms of the scoops, and will be carried up to a point sufficiently far above the axial center of the cylinder to enable it to fall therefrom of its own accord onto the bottom of the cylinder whence it is again carried up and subsequently drops. This takes place, as above stated, in the emptying cylinder and hence the back of the lowermost scoop will be completely uncovered, so that when the wash strikes thereagainst, a large part of the water contained in the wash will be squeezed out, as will be apparent. The invention thus provides for an alternate filling and emptying of each

chamber of the cylinder during the continuous operation of the machine, so as to thoroughly saturate, agitate, and drain the wash contained therein, and for the filling of one chamber and emptying of the other during each half revolution of the cylinder.

In the further modification shown in Figs. 6 and 7, the valves are dispensed with and their places taken by perforated metal plates 21 arranged in spaced relation to and parallel with the bottom members 22 of the scoop, said bottom members being constructed of wire gauze. The front or retaining members 23 of these scoops extend the requisite distance above the plates 21 to permit the scoops to carry up the water the required height above the plane of the axis of the cylinder during the filling of the chambers. The employment of wire screens as the bottom members of the scoops and the arrangement of the plates 21 in spaced relation thereto prevents the wash from striking against said plates and closing the perfora-

tions therein, while at the same time, offering no obstruction to the outflow of water when the chambers are emptying.

What is claimed is:—

A hollow oscillatory cylinder for washing machines provided with an imperforate dividing partition and with a peripheral series of water carrying devices reversely arranged at each side of the partition, each carrying device having one member thereof perforated, whereby the members formed by the partition will be automatically and alternately filled by said devices when turned in one direction and emptied when turned in the opposite direction, and a valve carried by the perforated member of each device.

In testimony whereof, I affix my signature, in presence of two witnesses.

THOMAS J. CALLOWAY.

Witnesses:

E. S. LAKE,
MURRAY G. HOOPER.