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WASHING MACHINE

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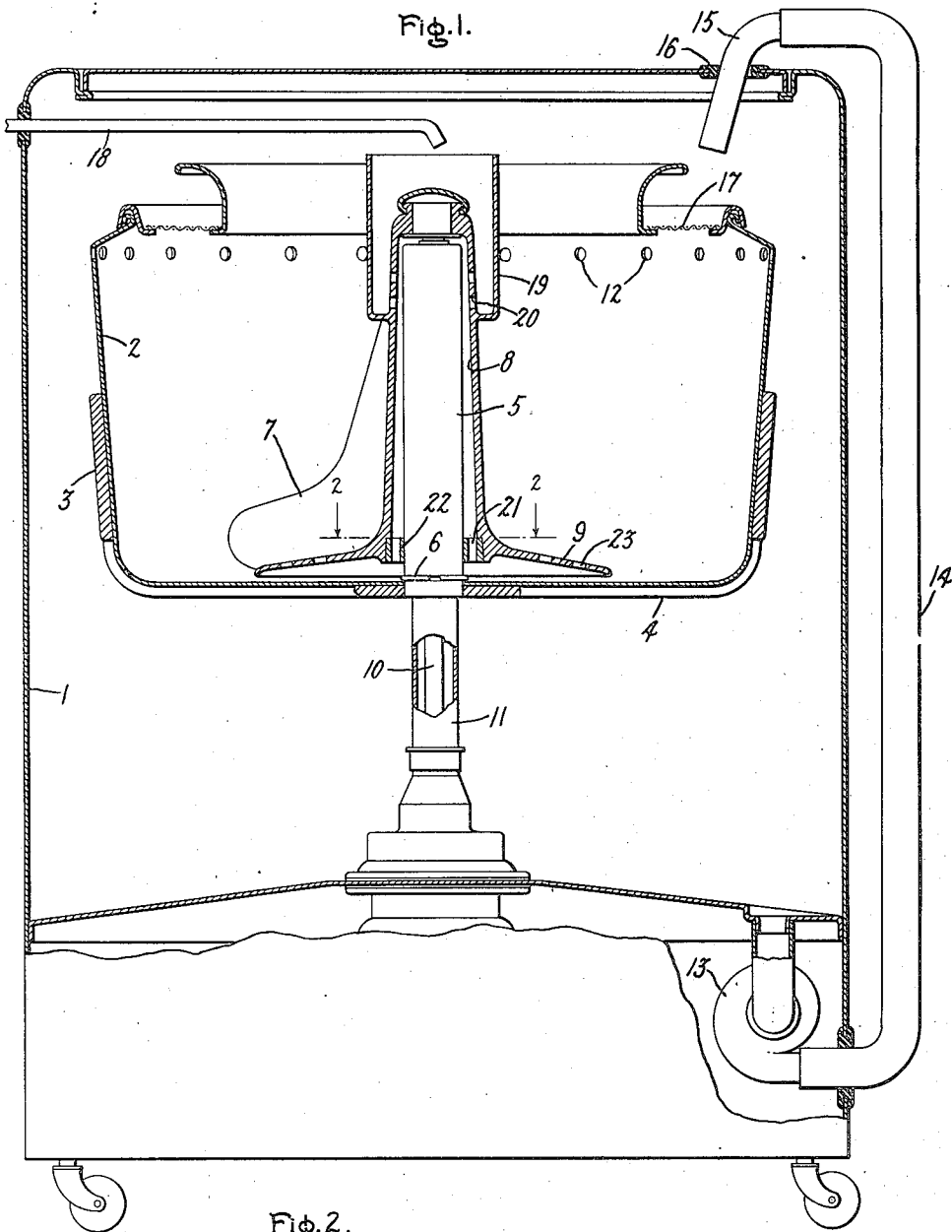
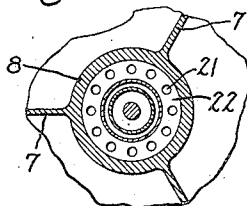


Fig. 2.



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UNITED STATES PATENT OFFICE

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WASHING MACHINE

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1 Claim. (Cl. 68—53)

The present invention relates to washing machines of the type in which clothes are washed and centrifugally dried in a single tub or receptacle.

In this type of machine, during rotation of the tub for centrifugal drying, the liquid and clothes are thrown outward against the side walls of the tub and the liquid is discharged through suitable openings. Some of the liquid filters through the clothes, causing suspended particles in the liquid to collect on the inner surface of the clothes.

The object of my invention is to provide an improved construction and arrangement for removing suspended particles in the washing liquid. For a consideration of what I believe to be novel and my invention, attention is directed to the following description and the claim appended thereto.

In the accompanying drawing, Fig. 1 is a sectional elevation of a washing machine embodying my invention, and Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Referring to the drawing, there is shown a washing machine having an outer casing 1 in the upper part of which is located a rotatable tub or receptacle 2 seated in an annular balance ring 3 which is connected by radial arms 4 to a hub 5. The receptacle 2 is held in place within the balance ring 3 by means of snap ring 6 on the hub. Within the tub is an agitator having blades 7 projecting from a hollow body 8 depending around the hub 5 and terminating adjacent the bottom of the tub in a disk 9. The agitator is oscillated for washing and the tub 2 is rotated for centrifugal drying by suitable mechanism associated with a vertical shaft 10 extending up through a sleeve 11 connected to the bottom wall of the outer casing. Such mechanism being well known, illustration is not required. It may, for example, be that shown in Patent 2,161,618 G. W. Dunham.

During washing, the tub is filled until liquid overflows through openings 12 in the upper part thereof at the region of greatest diameter, and the liquid overflowing through the openings 12 falls into the bottom of the outer casing whence it is pumped by means of a pump 13 through a rubber hose 14 having a discharge nozzle 15 extending through an opening 16 in the cover for the outer casing and discharging onto an annular filter 17 mounted on the upper edge of the tub. The liquid overflowing through the openings 12 carries with it some of the impurities floating on the surface of the liquid, and these impurities are removed by the filter 17. Only the impurities which float on the surface of the liquid are removed by the filter. At the conclusion of the washing operation there accordingly may be

a substantial amount of solid particles, such as lint and the reaction products of soap, suspended in and dispersed throughout the washing liquid. These particles are removed by introducing rinsing liquid through a conduit 18 discharging into a cylindrical cup-shaped member 19 at the upper end of the agitator body 8. The open end of the cup-shaped member 19 projects substantially above the overflow openings 12 so the liquid level therein can rise substantially above the liquid level in the tub. The liquid received in the cup-shaped member flows in through perforations 20 in the upper end of the agitator body 8 to the space between the agitator body and the hub 5, and flows out from this space through openings 21 in a guide bearing 22 mounted in the lower end of the agitator. The liquid flowing through the openings 21 flows outward into the bottom of the tub through the space between the outer edge of the disk 9 and the bottom of the tub, and through openings 23 in the disk. The clean rinsing liquid is accordingly introduced into the bottom of the tub so it will tend to carry the suspended particles in the washing liquid up toward the overflow openings 12. Since this is the direction of the water currents set up by the oscillation of the agitator, the removal of suspended particles from the washing liquid is increased if the agitator is oscillated while the rinsing liquid is being introduced. At the conclusion of the rinsing operation the tub is rotated to centrifugally dry the clothes, the liquid in the clothes being discharged through openings 12 and falling into the bottom of the outer casing. The storage space below the tub is sufficient so that the liquid discharged during centrifugal drying is stored below the bottom of the receptacle. This liquid is diluted to some extent by the addition of rinsing liquid. It, however, contains a sufficient concentration of soap so that it may be used to wash a succeeding batch of clothes by the addition of a relatively small amount of soap.

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

In a washing machine, a receptacle for receiving liquid and clothes to be washed and having an overflow opening defining the liquid level therein, an agitator having a hollow body having its upper end projecting above said opening and its lower end terminating in a disk adjacent the bottom of the receptacle, passages from the interior of said body to the receptacle beneath said disk, and provisions for introducing rinsing liquid into the upper end of the agitator body whereby suspended particles are flushed out through said overflow opening.

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