April 30, 1935. E. R. BLAKE 1,999,353

WASHING MACHINE

Filed Aug. 20, 1931

Fig. 1.

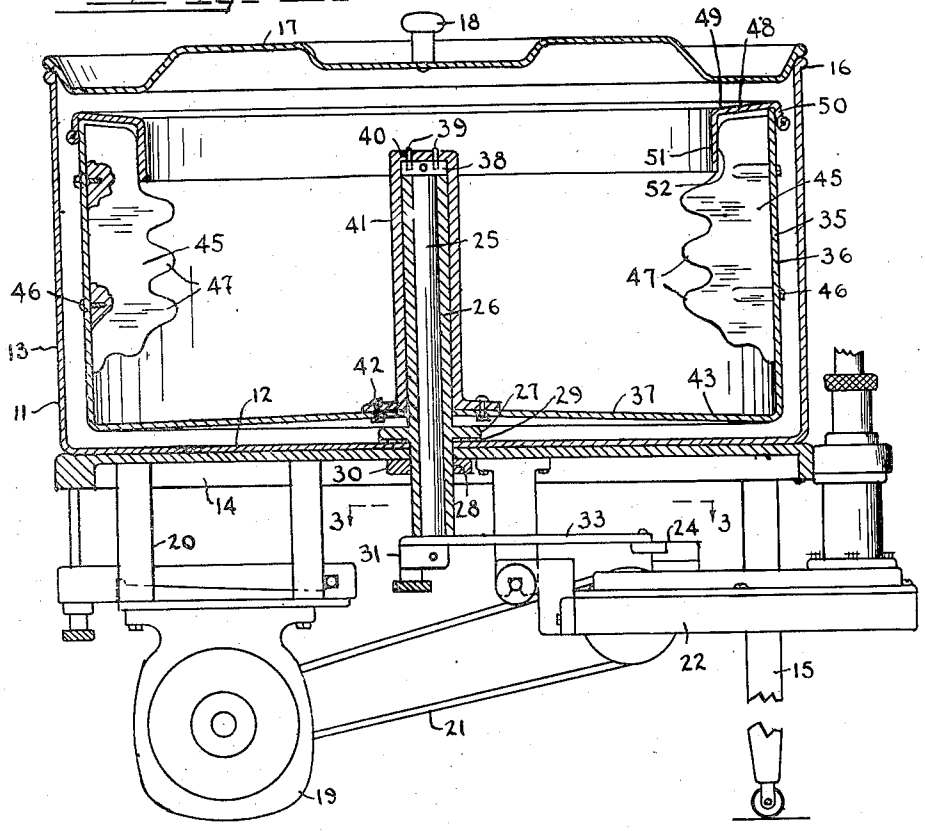


Fig. 2.

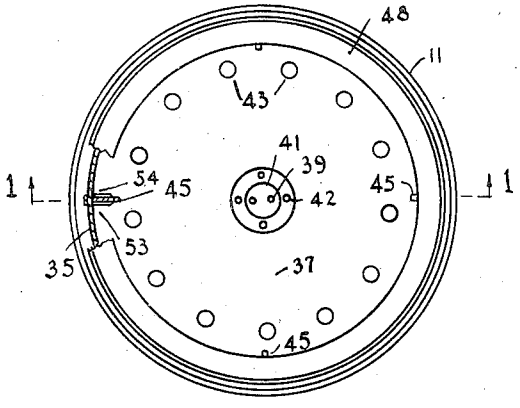
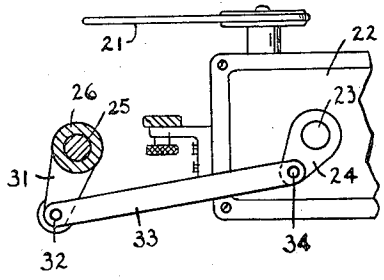


Fig. 3.



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WASHING MACHINE

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4 Claims. (Cl. 68—18)

This invention relates to an improved washing machine and more particularly to means for agitating the contents of the machine and injecting air into the washing medium.

The object of the invention is to provide the machine with an outer tub and an inner tub oscillating therein, provided with means for agitating the contents of the tub. A further object is to provide the inner tub with a band having a depending flange for forming an air pocket around the tub. A still further object is to provide the inner rotary oscillating tub with water reception openings. Further objects reside in the novel construction of parts.

The invention will be further readily understood from the following description and claims, and from the drawing in which latter:

Fig. 1 is a vertical section of my improved washing machine, taken in the plane of the line 1—1 of Fig. 2.

Fig. 2 is a plan view of the same with the cover removed and partly broken away.

Fig. 3 is a detail section of the oscillating means, taken in the plane of the line 3—3 of Fig. 1, and partly broken away.

A tub 11 comprising a bottom wall 12 and side wall 13 is mounted on a supporting base 14 to which the legs 15 are attached. The upper edge of the tub has a bead 16. A cover 17 rests on the bead 16 and is provided with a handle 18.

The machine is driven by an electric motor 19 supported on brackets 20 extending from the base. A belt 21 connects the motor with a power unit 22 for imparting rotation to a shaft 23, which has a lever 24 fixed thereto. A vertical central operating shaft 25 is journaled in a sleeve 26. The sleeve is provided with a flange 27 and a threaded portion 28. A suitable gasket 29 is interposed between the flanges 27 and the bottom of the tub. A nut 30 received over the threaded portion clamps the sleeve to the bottom of the tub. A lever 31 is fixed to the bottom of the shaft 25 and has articulation 32 with a link 33. The other end of the link is articulated at 34 to the lever 24 for causing a rocking motion of the shaft 25.

An inner oscillating tub 35, having a side wall 36 and a bottom wall 37, is spaced from the outer tub. The shaft 25 and sleeve 26 extend upwardly in the center of the tub. A collar 38 is fixed to the upper end of the shaft and has a pair of pins 39 fixed therein, which are arranged to extend through holes 40 in the top wall of a bonnet 41. The bonnet has an oscillating movement about the sleeve 26 and is secured to the bottom wall 37 of the inner tub by means of bolts 42.

The bottom wall 37 tapers away from the center of the tub to facilitate draining. The bottom of the tub has a series of openings 43, spaced from the outer wall of the tub. Agitator blades 45 are secured to the tub by means of screws 46 received through holes in the tub and threaded into the agitator blades. I have shown four of these blades equally spaced about the inner periphery of the inner tub. The blades are spaced from the bottom and extend upwardly to the top of the tub. The inner projecting edge of the blades have fingers 47 for creating an agitation in the upper part of the tub. A band 48 is received over the upper edge of the inner tub and has an inwardly tapered top wall 49 and depending flanges 50, 51 forming an inverted channel. The flange 51 is received over the inner edge 52 of the blades, forming air pockets 53 and 54 on both sides of each blade.

When the washer is started, the lever 24 rotates about its axis causing the lever 31 to oscillate back and forth, imparting an oscillating motion to the inner tub. The blades moving through the body of water in the tub first in one direction and then in the other causes an agitation of the water. The water is forced into the air pockets formed by the blade and inverted channel causing injection of air into the contents of the tub. The blades also contact the materials being washed and move them about in the agitated bath. The lower wall of the inner container slants outwardly causing the sediment from the washing operation to pass through the openings. The action of the blades and the injection of air into the bath causes the sediment, after it passes through the openings, to deposit in the center of the outer tub.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a washing machine, an outer tub, an inner tub therein, said inner tub having an imperforate side wall and a bottom plate sloping downwardly and outwardly from its center, there being a plurality of circumferentially arranged apertures in the bottom adjacent the said side wall to allow sediment to escape therethrough said side wall on its inner face being provided with radially arranged agitator blades spaced from the bottom of the shell, an inverted annular channel member for trapping air and deflecting the washing fluid having its outer flange engaging the upper outer surface of the side wall and its inner

flange projecting into the inner tub, and means for oscillating said inner tub.

2. In a washing machine, a cylindrical inner tub pivotally and concentrically supported in spaced rotatable relationship within an outer tub, a series of inwardly extending, radially disposed agitator blades carried by the walls of said inner tub, fingers formed on said agitator blades by the serration of their inner edges, a rim cover for said inner tub having a downwardly extending flange enclosing the upper extensions of said agitator blades to form in conjunction therewith a series of downwardly opening air chambers, and means to oscillate said inner tub through a shaft connection within its pivotal support.

3. In a washing machine, a pivotal support, a cylindrical inner tub mounted on said support in spaced rotatable relationship within an outer tub, said inner tub having a bottom plate sloping downwardly and outwardly from its center, a series of inwardly extending radially disposed agitator blades carried by the walls of said inner tub, fingers formed on said agitator blades by the serration of their inner edges, a rim cover for said inner tub having a downwardly depending flange extending within and spaced from the wall of said inner tub, forming in conjunction with the upper ends of said agitator blades a series of downwardly opening air chambers, and means to oscillate said inner tub through connections within said pivotal support.

4. In a washing machine, the combination of a pivotal support, an inner tub mounted on said pivotal support concentrically supported in spaced rotatable relationship within an outer tub, said inner tub having a bottom plate sloping downwardly and outwardly from its center, there being a plurality of apertures in said bottom plate, a series of inwardly extending radially disposed agitator blades carried on the walls of said inner tub, a rim cover for said inner tub having a downwardly depending flange extending within and spaced from the wall of said inner tub forming in conjunction with the upper ends of said agitator blades a series of air chambers, and means to rotate said inner tub intermittently through a shaft connection within said pivotal support.

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