Sept. 28, 1943. A. H. HABERSTUMP 2,330,420

CYLINDER

Filed Aug. 7, 1939

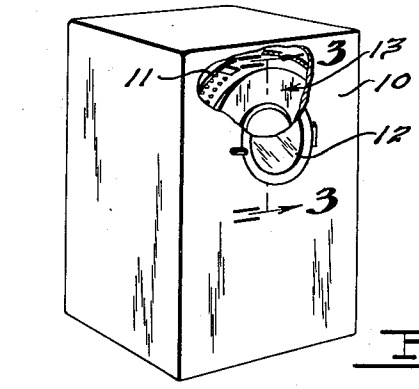


Fig. 1.

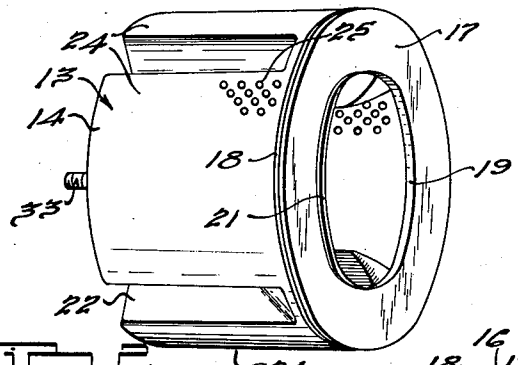


Fig. 2.

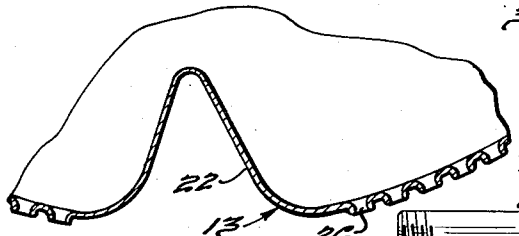


Fig. 4.

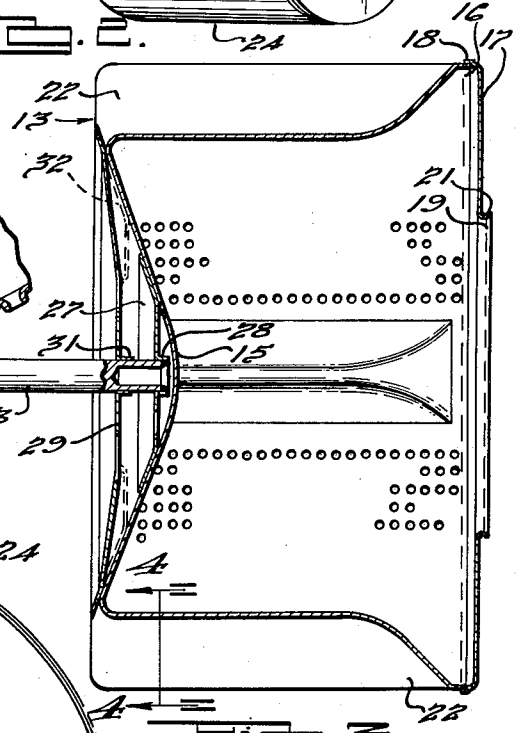


Fig. 3.

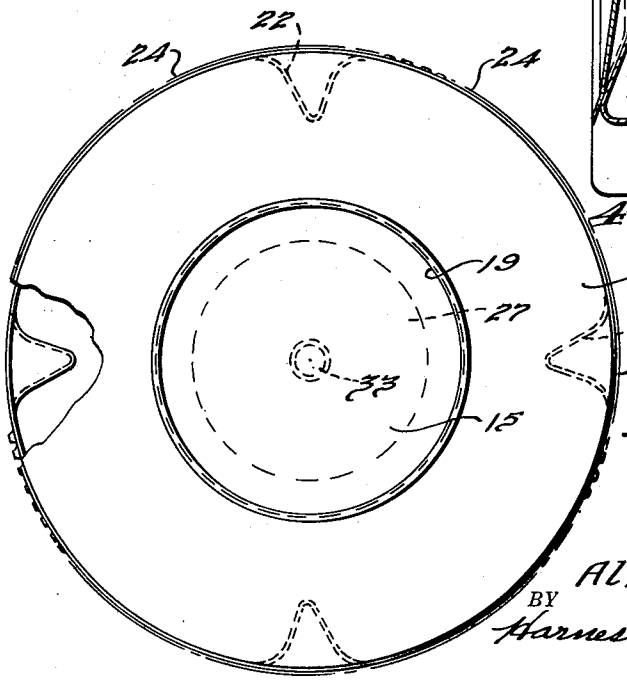


Fig. 5.

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2,330,420

CYLINDER

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Application August 7, 1939, Serial No. 288,742

5 Claims. (Cl. 68—142)

My invention relates to washing machines, and particularly to a cylinder for receiving and rolling the clothes within the tub thereof.

The machine containing the cylinder of the present invention embodies a tub which is vertically disposed and provided with a door on one side through which the clothes are inserted into the cylinder which is also vertically mounted. Because of the opening in one end of the cylinder, a single stub shaft is attached to the other end by which the cylinder is supported. Heretofore the cylinder was constructed of end discs attached to a cylindrical shaped element made of a sheet of metal rolled into cylindrical shape.

In practicing my present invention, I form a cylinder from a single piece of metal by a method illustrated, described and claimed in the copending application of George T. Koch, Serial No. 289,254, filed August 9, 1939, and assigned to the assignee of the present invention. The cylinder has the inwardly dished bottom reinforced by spaced discs which support the stub shaft on which the rotor is mounted. The peripheral wall of the cylinder is formed inwardly at spaced points to constitute means for engaging the clothes and carrying them upwardly until such time as they tumble back through the water agitated through a plurality of apertures in the cylinder wall.

The open end of the rotor is provided with a washer-like disc having a flange which projects over the peripheral edge of the cylindrical portion of the stamping and having an outwardly disposed reversely bent flange at the edge of the central opening through which the clothes are inserted and withdrawn from the cylinder. Rows of apertures are provided in the walls of the cylinder between the inwardly projecting ribs thereof through which the water contained in the tub is agitated as the cylinder revolves therein.

Accordingly, the main objects of my invention are: to form a cylinder of a stamping having a unit wall and unbroken peripheral surface with the opposite end closed by a washer-like stamping; to provide a cylinder having a continuous peripheral end wall which is dished inwardly and has welded thereto spaced discs which receive and support a stub shaft by which the cylinder is supported; to provide a stamping of cup shape, having the bottom dished inwardly and the open end thereof enclosed by a washer-like disc, with a stub shaft mounted on spaced discs which are welded to the bottom within the confines of the dished portion thereof; and in general, to provide a cylinder for a wash machine which is simple in construction and economical of manufacture.

Other objects and features of novelty of my invention will be either specifically pointed out or will become apparent when referring, for a better understanding of my invention, to the following description taken in conjunction with the accompanying drawing, wherein:

Figure 1 is a broken perspective view of a washing machine containing a cylinder embodying features of my invention;

Fig. 2 is a perspective view of a cylinder employed in the machine illustrated in Fig. 1;

Fig. 3 is an enlarged sectional view of the cylinder illustrated in Fig. 2;

Fig. 4 is an enlarged broken sectional view of the cylinder illustrated in Fig. 3 taken on the line 4—4 thereof; and,

Fig. 5 is a side view of the cylinder illustrated in Fig. 3, as viewed from the right hand end thereof.

In Fig. 1, I have illustrated a washing machine 10, having a wash tub 11 mounted therein with its axis disposed horizontally. The front face of the tub has an opening which is sealed by a door 12. Within the tub 11 a cylinder 13 is mounted in which the clothes to be washed are disposed and which are tumbled thereby through the wash and rinse water in the tub 11.

In Figs. 2 to 5 inclusive, I have illustrated the cylinder 13 in detail embodying a cup-shaped stamping 14 having a dished bottom 15 and an open end 16 enclosed by a washer-like plate 17. The plate 17 is provided with a marginal flange 18 which is welded or otherwise secured to the peripheral edge of the stamping 14 at the open end thereof to be in unit relation therewith. A central opening 19 is provided in the plate 17 having the marginal edge 21 rolled outwardly and backwardly on itself to form a smooth edge and to strengthen the plate.

The stamping 14 is provided with inwardly formed ribs 22 at spaced points and herein are illustrated as being four (4) in number, spaced 90 degrees apart. The inwardly projecting ribs engage the clothes within the cylinder and carry them upwardly along the side thereof until they fall by gravity and tumble through the water being agitated through the cylinder. Peripheral areas 24 between the ribs 22 are provided with rows of apertures 25 which are pressed outwardly of the inner surface to provide a smooth interior. The apertures 26 of the rows may be formed in any manner, but preferably are drawn outwardly and coined to predetermined shape and size. The

method of forming the rotor in dies from a flat sheet of material and the punching and coining of the apertures 26 in rows 25 therein has been illustrated, described and claimed in the above-mentioned copending application of George T. Koch.

An inner dish-shaped plate 27 is welded to the dish-shaped bottom 15 of the stamping 13 having a central opening flanged inwardly at 28 coincident with the axis of the cylinder. A larger, but similar dish-shaped plate 29 is welded to the peripheral edge of the dish-shaped bottom of the stamping, likewise being provided with a flanged central opening 31 aligned with the flange opening 28 of the plate 27. The disc 29 has offset portions 32 which engage greater areas of the dish-shaped bottom 16 to provide further strength to the bottom and to the disc 29 for mounting the stub shaft 33. The shaft is disposed in the central apertures in the plates 27 and 29 engaged by the flanges 28 and 31, respectively thereof, to which the shaft is welded or otherwise secured. The shaft is provided with a hollow end spaced from the bottom wall.

By accurately locating the central holes in the plates 27 and 29, and accurately locating the plates on the dish-shaped bottom, the axis of the shaft will be aligned with that of the cylinder to provide a balanced condition which prevents gyration. The apertures 26 in the areas 24 permit the wash and rinse water in the tub 11 to be admitted into the cylinder with a swirling action which is forced through the clothes as they are agitated therein when raised by the ribs 22 and tumbled downwardly across the areas 24 containing the rows 25 of the apertures.

The cylinder formed in this manner is accurately balanced since all of the stampings 13 will be the same. The rib in the peripheral wall of the cylinder, heretofore present when the cylinder was constructed of a central sheet and two end discs, is omitted. Similarly, the washer-like plate 17 enclosing the front end of the rotor is balanced as are also the shaft supporting discs 27 and 29. As a result, a very accurate balanced cylinder is formed when constructed of uniform stamping as above illustrated and described. When assembled to form a unit, the supporting shaft 33 is accurately located by the plates secured within the dished bottom of the stamping.

While I have described and illustrated but a single embodiment of my invention, it will be apparent to those skilled in the art that various changes, omissions, additions and substitutions may be made therein without departing from the spirit and scope of my invention, as set forth in the accompanying claims.

What I claim is:

1. A cylinder supported at one end and having a central opening in the opposite end including, in combination, an element having a cylindrical wall with an enclosing wall at one side dished inwardly, a pair of spaced plates disposed within the dish of said wall having central apertures aligned with the axis of the element, and a shaft having a hollow end extending through said apertures and secured rigidly thereto with the hollow end spaced from the dished wall.

2. A cylinder supported at one end and having a central opening in the other end, including in combination, a unit element embodying a cylindrical wall and a closed side, a plate having a central opening enclosing the other side, a stub shaft having a hollow end portion, and means for mounting said stub shaft to said closed side with its axis aligned with the axis of the element and with the hollow end portion spaced from said side.

3. A rotatable cylinder having a dished end portion, a plate secured in said end portion having a central opening, and a shaft having a hollow end fixed to said plate so as to be spaced from the wall of the dished portion.

4. A washing machine rotor having a cylindrical wall and a bottom formed from a sheet of material, the entire side wall and bottom being drawn from said sheet and disposed inwardly at spaced points forming inwardly projecting ribs which blend into the bottom forming spaced marginal edge portions therefor.

5. A washing machine rotor having a cylindrical wall and a bottom formed from a sheet of material, the entire side wall and bottom being drawn from said sheet and disposed inwardly at spaced points forming inwardly projecting ribs which blend into the bottom forming spaced marginal edge portions therefor and which blend into the open end to form a cylindrical opening.

ALFRED H. HABERSTUMP.