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A. MILLER

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WASHING MACHINE

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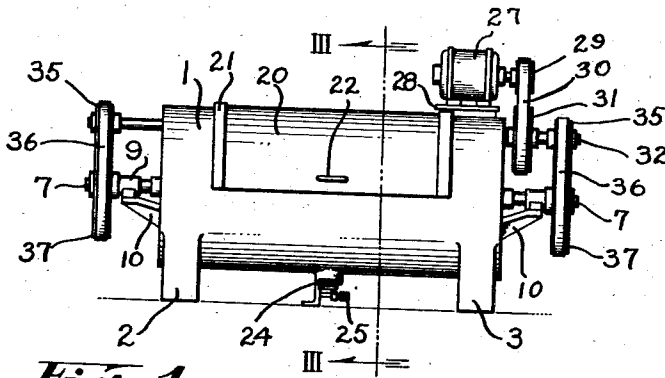


Fig. 1

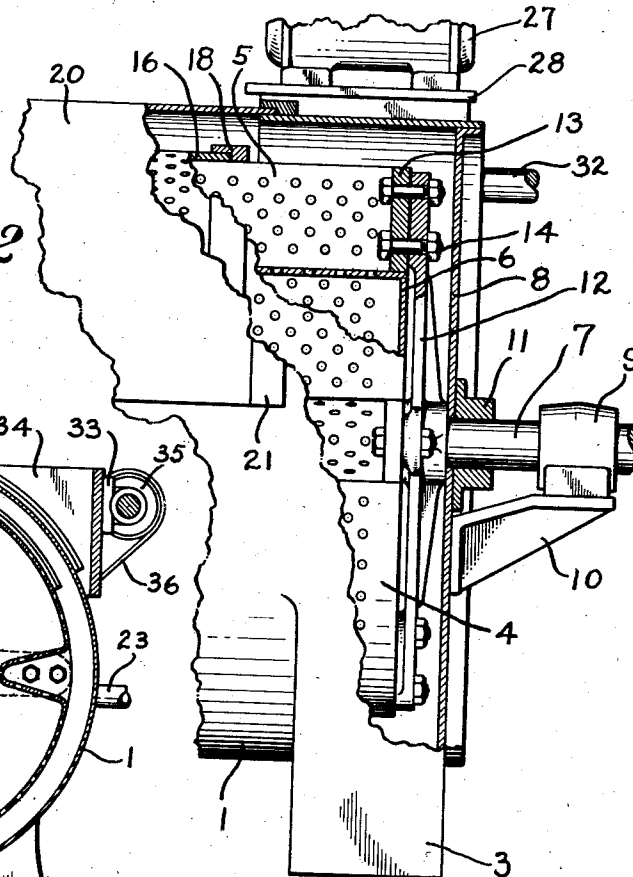


Fig. 2

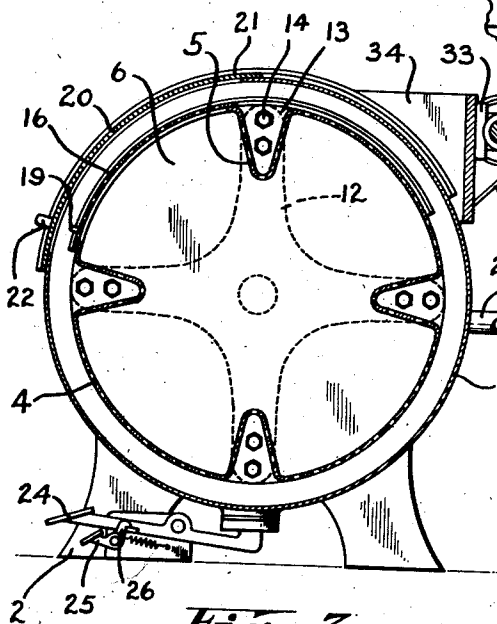


Fig. 3

INVENTOR.
ABE MILLER
BY *Raymond M. Barnes*
ATTORNEY

UNITED STATES PATENT OFFICE

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WASHING MACHINE

Abe Miller, Detroit, Mich.

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1 Claim. (Cl. 68—140)

This invention relates to washing machines, and in particular it relates to a washing machine embodying features of construction with particular reference to means for forming a drive for rotatable portions of the washing machine.

Washing machines for commercial laundries usually comprise a cylindrically disposed tank within which a cylindrical and perforated container is rotatable. These perforated containers are relatively large, and difficulty is frequently encountered in providing an adequate drive from a central shaft to the container. In containers of this type the shaft does not extend axially through the tank and it has been conventional practice to merely provide a flange connected to a short shaft and fastened to end plates which form the enclosure for the ends of the container. Such an arrangement has not proven satisfactory because of the severe usage to which the machines are subjected. Also, such machines are frequently stopped and started and usually the container is rotated a number of revolutions in one direction and intermittently rotated in the opposite direction.

In accordance with the practice of my invention I provide a drive for a washing machine in the form of a flange or spider connected to a drive shaft. The perforated container with which the flange is associated is provided with a plurality of V-shaped indentations extending horizontally of the container and communicated with the outer periphery of the container. At the ends of the container and within the V-shaped indentations a plate is rigidly secured. Bolts secure the plates within the V-shaped indentations with the flange or spider. By this method of construction the drive for the container is located near the outer periphery of the container leaving the entire end enclosure of the container free from association with the drive.

Among the objects of my invention are to provide a washing machine of the horizontal type in which a drive therefor is limited to a connection near the outer periphery of a rotatable container, and by this arrangement to eliminate much of the driving strain from the container itself, thereby making it possible to decrease the rigidity of the container, a feature of considerable efficient and economic value.

These and other objects and advantages will appear more fully in the following detailed description when considered in connection with the accompanying drawing, in which:

Figure 1 is a side elevational view of a washing apparatus embodying features of my invention; 55

Figure 2 is an enlarged side elevational view, partly in section, of a portion of one end of the apparatus; and,

Figure 3 is a transverse view, in section, of the washing machine taken along lines III—III of Figure 1.

Referring to the drawing, I show an embodiment of my invention in the form of a commercial type of laundry machine comprising essentially a horizontally disposed cylindrical tank 1. The tank is supported from the floor by legs 2 and 3. As shown in Figures 2 and 3 a perforated cylindrical container 4 lies within the tank 1 and is rotatably adapted therein. This perforated container functions as a receptacle for the laundry and is made as large as possible allowing clearance only for its rotation within the tank 1. The perforated container 4 is provided with a plurality of baffles 5 extending horizontally of the container and substantially radially of the container. These baffles are V-shaped in formation and their walls form a continuation of the walls of the perforated container 4. End plates 6 provide an enclosure for each end of the container 4.

In order to support the container 4 in an axial relationship within the tank 1, a shaft 7 is mounted at each end of the tank and container. The shafts 7 extend through end plates 8 which enclose the ends of the tank 1 and are mounted in bearings 9 supported by brackets 10 attached to the end plates 8. Also attached to each of the end plates 8 is a flanged member 11 through which the shaft 7 extends. The perforated container 4 is secured to the shaft 7 by means of a flange or spider 12 rigidly fastened to each shaft 7.

The V-shaped opening resulting from the formation of the baffles 5 permit the reception of a V-shaped heavy plate 13 in each of the V-shaped openings. This plate is secured permanently to the baffles as by a welding operation.

The flange 12 extending from each shaft 7 lies adjacent the heavy plates 13, and bolts 14 join these members securely together thus providing a drive from the shaft 7 to the outer periphery or portion of the perforated container 4.

This drive concentrates the load on the flange 12 without any engagement of the drive to the end plate 6.

In order to insert and to remove laundry from the perforated container 4 a sliding door 16 is provided as shown in Figures 2 and 3. The sliding door is also perforated and is arcuate in form to suit the conformity of the wall of the container 4. The size of these openings is deter-

mined in accordance with the convenience required to insert or remove laundry from the container. Retaining members 18 are positioned on either side of the sliding door and are attached to the wall of the container 4. Each of the retaining members are provided with a recess which, in combination with the wall of the container, enables the door 16 to be slidably retained in a position adjacent the wall of the container 4. A handle 19 permits an operator to grasp and actuate the sliding door.

The tank 1 is also provided with a sliding door 20, this door is substantially the same size as the sliding door 16 on the container 4 and is positioned for alignment therewith. The sliding door 20 is arcuate in form and is adapted to conform with the curvature of the wall of the tank 1. A pair of guide members 21 flank the sides of the sliding door and are attached to the wall of the tank 1. The guide members include recesses which in cooperation with the wall of the tank form slideways for retaining the door 21 in slidable relation with the tank wall. A handle 22 secured to the door 20 provides manual means for permitting actuation of the sliding door.

A pipe line 23 (Fig. 3), connects with a source of supply for injecting water into the tank 1. At the lower terminus of the tank is a foot operated valve 24 of a quick opening conventional type. A second foot pedal 25 includes a latch member 26 which retains or releases the valve 24 upon actuation of one or the other foot pedal. In washing machines of this type it is generally customary to provide a trough (not shown) in the floor below the valve 24 to facilitate the rapid draining of the tank.

During the washing cycle the perforated container is rotated continuously. An example of a drive is illustrated in the form of a motor 27 supported on a plate 28 attached to the top of the tank 1. Through a motor pulley 29, belt 30 and

pulley 31 a countershaft 32 is driven. The countershaft is supported by bearings 33 (Fig. 3) secured to a plate 34 attached to the tank. Keyed to each end of the countershaft is a pulley 35 which, through a belt 36, drives a pulley 37 keyed to each of the shafts 7, thus causing rotary movement to be imparted to the perforated container 4.

As thus shown and described it is believed apparent that I have provided a washing machine having construction features which are new and which are limited to a specific field and resulting in an improved washing machine commercially tested and demonstrated for outstanding efficiency in this field.

While I have shown and described a preferred embodiment of my invention it is to be understood that it is susceptible of those modifications which appear reasonably within the scope of the invention and as appear within the appended claim.

Having thus described my invention what I claim and desire to protect by Letters Patent is:

In a washing machine comprising a horizontally disposed cylindrical tank, a perforated cylindrical container positioned for rotation within the tank, the cylindrical walls of said container including a plurality of horizontally extending indentations, a plate secured in each indentation at the ends of the cylindrical container and lying wholly within the indentations, a wall at each end of the cylindrical container for completing the enclosure, a drive shaft positioned coaxially with the cylindrical container, a spider in spaced relation and unconnected with the end wall secured to the drive shaft and having its outwardly extending arms terminating in face abutment with each of said plates, and means for securing the abutment portions of the spider with the plates, whereby the sole driving force between the spider and the cylindrical container is effected through said plates.

ABE MILLER.