

S. M. MARSHALL.
 WASHING MACHINE.
 APPLICATION FILED FEB. 3, 1914.

1,129,219.

Patented Feb. 23, 1915.

2 SHEETS—SHEET 1.

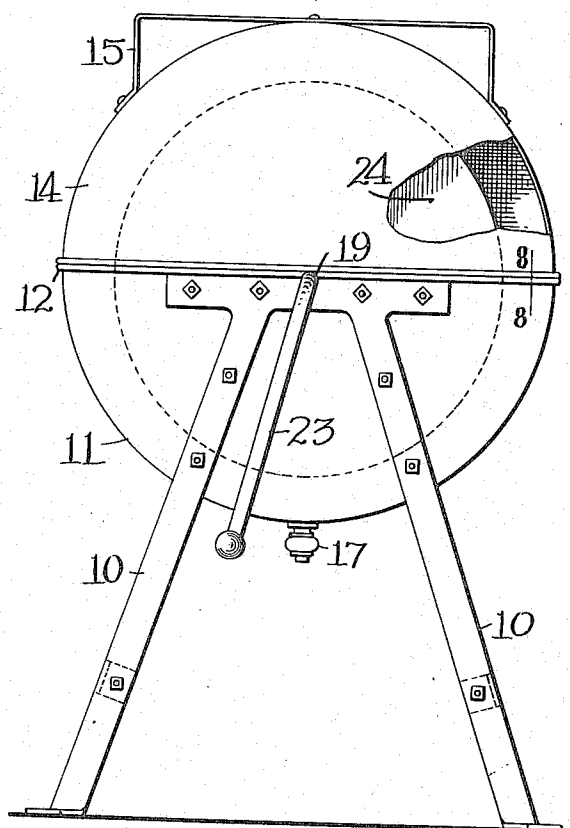


Fig. 1.

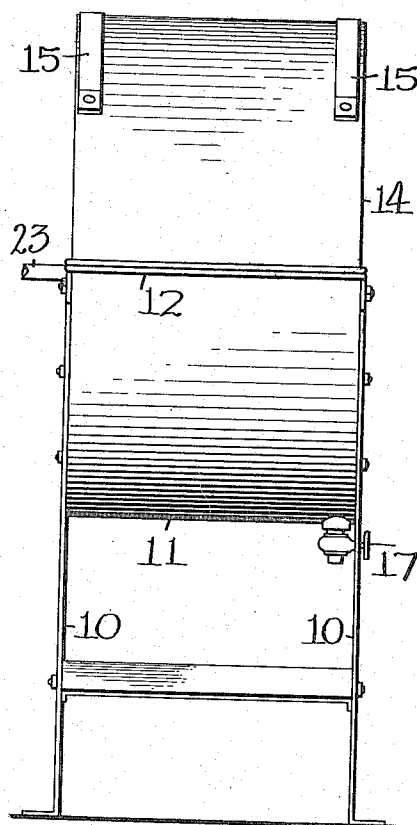


Fig. 2.

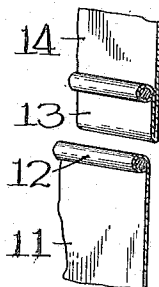


Fig. 8.

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2 SHEETS-SHEET 2.

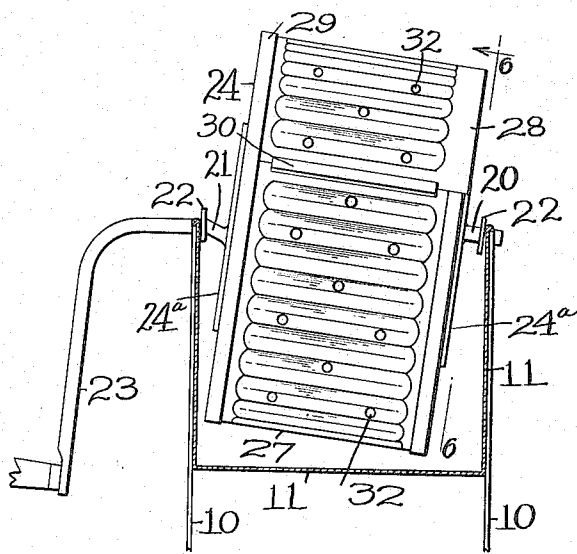


Fig. 3.

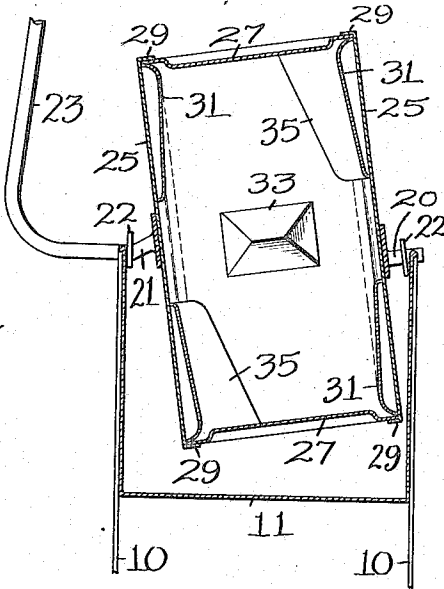


Fig. 4.

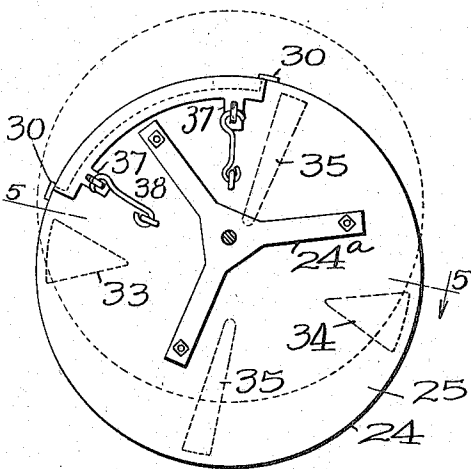


Fig. 5.

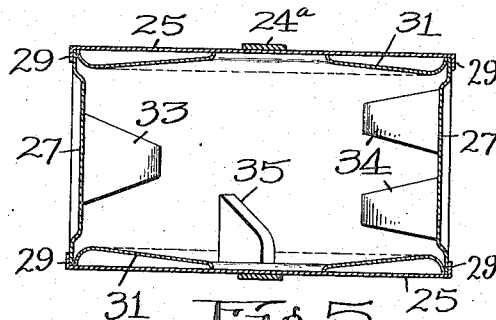


Fig. 6.

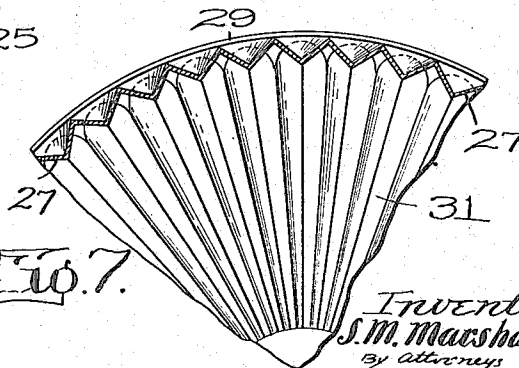


Fig. 7.

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UNITED STATES PATENT OFFICE.

STEPHEN M. MARSHALL, OF CLINTON, MASSACHUSETTS.

WASHING-MACHINE.

1,129,219.

Specification of Letters Patent.

Patented Feb. 23, 1915.

Application filed February 3, 1914. Serial No. 816,296.

To all whom it may concern:

Be it known that I, STEPHEN M. MARSHALL, a citizen of the United States, residing at Clinton, in the county of Worcester and State of Massachusetts, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to a washing machine especially adapted for household use and the principal objects thereof are to provide a machine of this character reduced to its simplest terms so that it can be operated by a person of any degree of intelligence, and so arranged that there is no possibility of injuring the articles placed in it or of winding them up in a ball, and so that the crank can be turned always in the same direction if desired, there being no necessity of reversing the rotation in order to get a satisfactory result.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a side elevation of a washing machine constructed in accordance with this invention; Fig. 2 is an end elevation of the same; Fig. 3 is a central vertical sectional view of the outside casing with the cover removed, showing the washing drum in elevation; Fig. 4 is a sectional view taken on a vertical longitudinal plane through the center of the device; Fig. 5 is a central sectional view of the washing drum taken on a central horizontal plane; Fig. 6 is an end view of the drum, also showing a second position in dotted lines; Fig. 7 is an inside end view, partly in section, of one side of the drum on enlarged scale; and Fig. 8 is a fragmentary view showing how the casing and cover fit together.

The machine is shown as provided with a main stand 10 of any desired character supporting a semi-cylindrical tank or casing 11. This tank or casing is provided with an external bead 12 at the top thereof inside of which fits a tongue 13 forming the bottom of a cover 14. This cover 14, preferably, is of semi-cylindrical shape so that when in place the cover and tank together constitute a complete cylinder. The cover is provided with two metallic handles 15 at the top thereof spaced apart. Each of these handles is shown as secured to the cover near the edge thereof and also secured at the top of the cover and the center of the handle by rivets or the like. They are flat on the top

so as to provide a flat base on which the cover can rest when reversed and set on the floor. The tank 11 is provided with an outlet, closed by a cock 17 for an obvious purpose.

Supported in a pair of notches or bearings 19 at the top of the tank are two members 20 and 21 which may be considered as constituting the shaft. The member 20 is located at an angle to a line drawn perpendicular to the wall of the tank 11 and the same is true of the member 21 but these angles are differently arranged. When the parts are in the position shown in Fig. 3 which is the position they normally assume by gravity when they are at rest with nothing in the machine, the part 21 points downward from its bearing 19 at which it is supported on the tank. Each member 20 and 21 is provided with a fixed collar 22 arranged to rotate in a plane and to engage the inside of the wall of the tank when operating.

The member 21 is provided with an operating crank and handle 23 and the two members 20 and 21 are securely connected by a rotary cylinder 24 hung between them. Although this is a complete cylinder in its preferred form, it is so hung on the shaft formed of the two parts 20 and 21 that it assumes an inclined or angular position in all positions of the shaft. For the purpose of securing it to the end walls of the drum each of the members 20 and 21 is provided with a metallic spider 24^a, the ends of which are securely fixed to the flat end walls 25 of the drum.

In the form shown in the drawings both of the end walls 25 are circular and they are arranged parallel with each other but the one on the side toward the handle 23 is made concentric with the bearing of the shaft in that side of the tank so that as the drum is rotated the edge of this end will remain substantially in a cylindrical path having for its axis a line drawn between the two bearings in the two walls of the tank, but as this wall is on a slant the edge will move back and forth in this cylindrical surface as the drum rotates. The other end wall 25, although also circular, is shown as mounted eccentrically with respect to the bearing of the other end of the shaft and consequently as the drum rotates this side will have an eccentric motion as will be observed by a comparison of Figs. 3 and 4. Each point on this end also has a side motion during this rotation.

The two end walls of the drum are connected by a cylindrical wall 27 which is open at one side to receive a removable closure or door 28. This is cylindrical at its ends to fit an inturned end flange 29 of the drum, but is corrugated between its ends. It slides into place under flanges 30. The cylindrical wall 27 is also corrugated throughout its circumference, and the end walls are provided with corrugations 31 on the inside extending nearly to the center. Both the door and wall are provided with numerous perforations 32 to permit circulation of water therethrough.

Inside the drum it is provided with abutments as for example, an abutment 33 on one side, two abutments 34 opposite the abutment 33, all these being located on the cylindrical wall 27, and abutments 35 extending inwardly from the end wall 25. These are so arranged as to cause the articles being washed to be forced from one side of the drum to the other during the rotation thereof and prevent these articles winding up in a compact ball at any point in the drum. They are made preferably of sheet metal as is the rest of the device and permanently fixed in position within the drum.

The closure 28 is similar to the wall 27 and is held in place in any desired way. In the present instance it is shown as having lugs 37 extending inwardly for the reception of hooks 38 pivoted to the end wall 25 on the outside. These are arranged at one end only as the other end fits under a projecting flange 29 on the other end wall 25.

In the use of the device the tank is provided with water and the clothing to be washed is placed in the drum, soap is preferably also placed in the drum. The cover is then secured in position and the drum rotated. On account of the arrangement of the two end walls and the abutments inside it will be seen that the clothing is thrown from side to side as the drum rotates and eventually practically engages every abutment in the drum and each wall thereof, as it is thrown from side to side. Yet it is not rubbed between two surfaces and is subjected to no action tending to tear it or injure it in any way. In practice it is found that the clothing is uniformly cleaned in a very short period of time.

It is to be observed that if an article to be washed is originally located at the lowest point shown in Fig. 3 and carried by that part of the drum during substantially an entire rotation it will drop almost to the center of the cylindrical wall when it reaches its highest point as shown in Fig. 4 and then will have a tendency to slide down to the lowest point shown also in Fig. 4 thus going substantially from one side of the drum to

the other in half a revolution. Substantially the same result is secured if it starts from the lowest point as shown in Fig. 4, or if it starts to drop back before the drum turns half way around. Consequently the clothing is thoroughly subjected to the action of the soap and water, as well as the action of rubbing against the different interior surfaces of the drum twice during each revolution. Moreover, it is to be seen that on account of the direction of the two shaft ends 20 and 21 they have the effect of a bent or curved shaft thus throwing the drum from side to side during its rotation and assisting in the above mentioned distribution of the articles in the drum.

Although I have illustrated and described only a single embodiment of the invention I am aware of the fact that many modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but

What I do claim is:—

1. In a washing machine, the combination of a tank having a pair of opposite bearings, a pair of members rotatable in said bearings, a drum having its ends rigidly fixed directly to the ends of said members, one of the ends of the drum being mounted substantially concentrically with respect to the bearing and member on that side and the other eccentrically with respect to the other bearing and member, and both of said ends being parallel with each other and at an angle to the side walls of the tank.

2. As an article of manufacture, a rotary drum for a washing machine and provided with abutments extending inwardly from its inner surface and spaced apart so as to provide a central space between them, and an abutment projecting inwardly from the same surface substantially opposite the first named abutments and located about half way between the end walls.

3. As an article of manufacture, a rotary drum for a washing machine having spaced diametrically opposite each other, two sets of abutments extending inwardly from the outer wall, one set consisting of an even number of abutments and the other set of an odd number, and an abutment projecting in from the end wall.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

STEPHEN M. MARSHALL.

Witnesses:

ALBERT E. FAY,
C. FORREST WESSON.