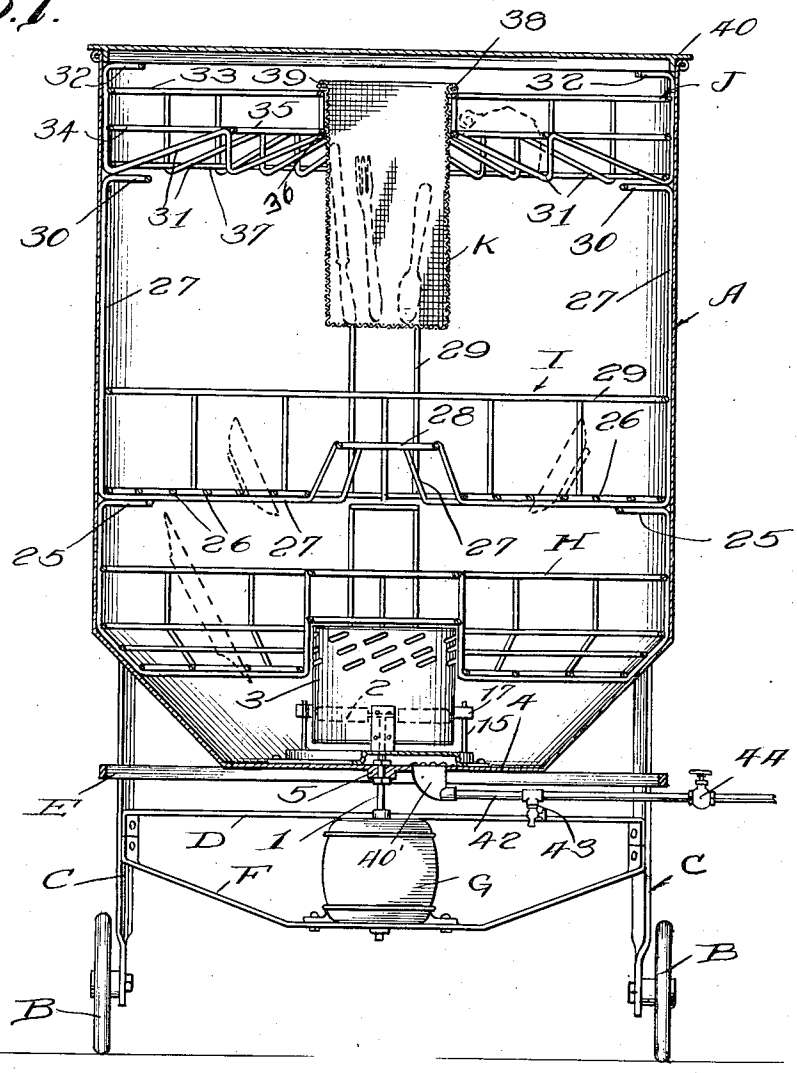
Jan. 15, 1924. 1,481,115

J. T. ANTHONY

WASHING MACHINE

Filed Oct. 19, 1922 2 Sheets-Sheet 1

Fig. 1.



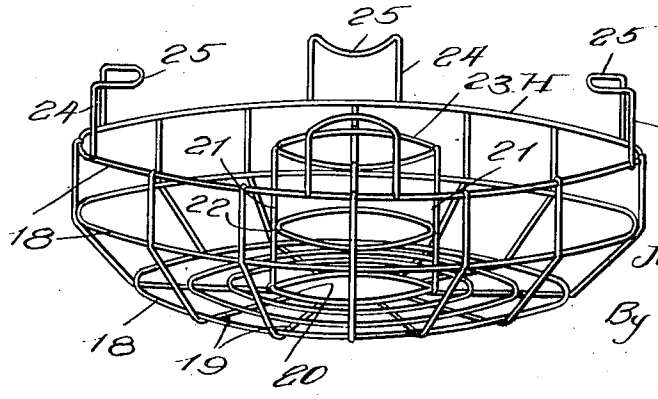


Fig. 4.

Inventor
James T. Anthony.
By A. M. Dunn
Attorney

Jan. 15, 1924. 1,481,115

J. T. ANTHONY

WASHING MACHINE

Filed Oct. 19, 1922 2 Sheets-Sheet 2

Fig. 2.

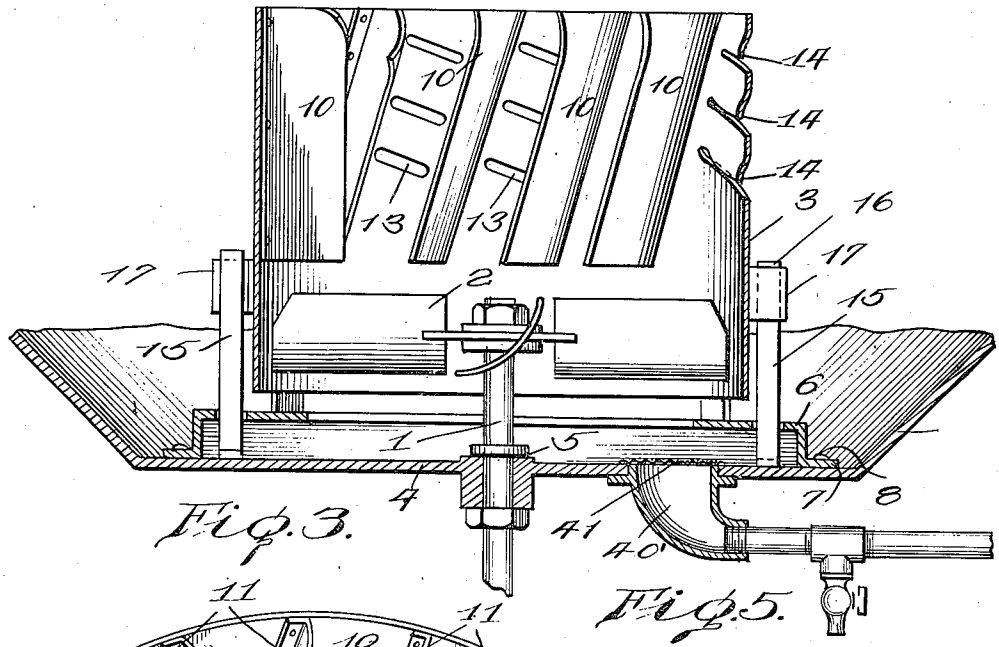
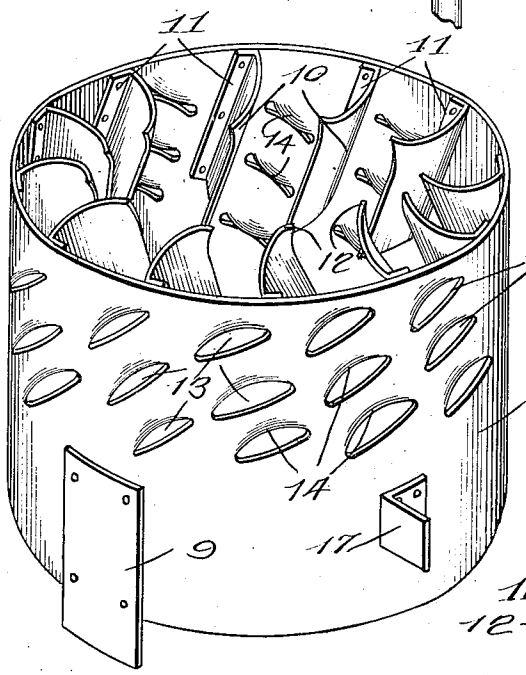


Fig. 3.

Fig. 5.



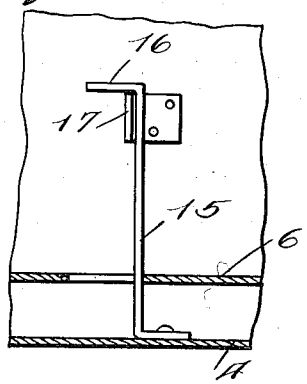
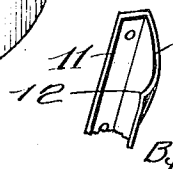


Fig. 6.



Inventor
James T. Anthony
By A. M. Burns
Attorney

Patented Jan. 15, 1924. 1,481,115

UNITED STATES PATENT OFFICE.

JAMES T. ANTHONY, OF NEW YORK, N. Y.

WASHING MACHINE.

Application filed October 19, 1922. Serial No. 595,560.

To all whom it may concern:

Be it known that I, JAMES T. ANTHONY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Washing Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to washing machines, and especially to machines for rapidly and effectively cleaning dishes, cups, saucers, glasses, knives, forks, spoons, etc., and many other articles.

The principal object of the invention is the provision of a novel and improved form of apparatus whereby the cleaning fluid may be forcibly thrown upon the articles to be cleaned, and thereafter returned to a well for further utilization or for drainage. In this respect the herein described and illustrated apparatus is similar to that embodied in my co-pending application Serial No. 483,502, filed July 9, 1921.

I have herein illustrated a preferred embodiment of my invention in the accompanying drawings which form a part of this application. In said drawings:

Figure 1 is a partial sectional view taken transversely through the interior of the washing machine.

Fig. 2 is a fragmentary, partial sectional view, showing the lower portion of the washing machine, including the impeller and the water distributor.

Fig. 3 is a perspective view of the water distributor.

Fig. 4 is a perspective view of one of the article trays.

Fig. 5 is a detail showing the means for detachably fastening the distributor to the bottom of the water container.

Fig. 6 is a fragmentary detail showing the upper portion of one of the deflecting fins.

Referring specifically to the drawings, the washing machine comprises a container A, which may be permanently fixed, or which may be mounted upon wheels or rollers B, secured to legs C depending from the container, and braced by struts D, E, F. The struts F constitute a platform upon which is mounted a motor G, provided with a shaft 1, carrying an impeller 2, which rotates within a distributor 3, positioned in the bottom of the container A. The motor is preferably of the electric type, provided with connections adapted for operative attachment to the sockets which are a part of the house wiring.

The construction so far explained is disclosed in my co-pending application heretofore referred to.

The lower portion of the container A tapers downwardly and inwardly, as shown in Fig. 1 terminating in a flat bottom 4, through which extends the shaft 1, suitable water-tight packings 5, being provided at this point, as clearly shown in Fig. 2. A flat, ring-like platform 6, having a peripheral flange 7, is secured to the bottom 4 of the container A, by bolts or screws 8, passing through the flange 7, into said bottom 4.

The water distributor 3, is provided with three or more legs 9, 9, which rest upon the platform 6, thereby spacing the bottom of the distributor from the top of the ring, for a purpose to be hereinafter explained.

The impeller 2 may be of the form shown in my co-pending application referred to, the essential feature thereof being that it must throw the water upwardly and outwardly, and, for this purpose, it is provided with a plurality of concaved, inclined blades, as clearly shown.

The distributor 3 consists of a cylindrical shell, preferably of metal, interiorly provided with a plurality of inclined fins 10, as clearly shown in Fig. 3. Each fin 10 is provided with a flange 11 at an angle to the body portion of the fin, said flange being rigidly secured by rivets, or otherwise, to the body of the distributor. As shown in Fig. 3, the flanges 11 are all secured in parallelism, and at equal distances apart, and are inclined at an angle to the vertical. Moreover, the fins 10 are concaved, and, at their outer, upper edges 12, the concavity is accentuated by being turned in slightly more than the body portion 10.

It will be noted that the application of the flanges 11 to the distributor 3, as described and illustrated, divides the interior of said distributor into a plurality of inclined, equally spaced rows, and, in these rows are provided a plurality of apertures or vents 13, as also clearly shown in Figs. 2 and 3. The vents are formed by cutting a slot in the body of the distributor 3, and the flange 14 thereof is forced inwardly towards the center of the distributor, as shown in Fig. 2.

The distributor is placed in position with the legs 9 thereof resting upon the platform 6. Fastened to each side of the bottom of the container, and extending through openings in the platform, is a locking brace 15, provided with an angularly extending head 16, as more clearly shown in Fig. 5. Upon each side of the distributor is secured an outwardly extending lug 17. When the distributor is placed upon the platform, it is rotated until the lugs 17 slide under the head 16 and contact the brace 15, whereupon further rotative movement in the same direction is prevented, as is also any movement of the distributor away from the platform, as will be clearly understood.

I have herein shown four trays H, I, J and K, for supporting the article to be washed, and these trays are supported within the container A, as follows:

As shown in Fig. 4, the tray H is a structure comprising a plurality of concentrically arranged, equally spaced, circular wires 18, and a plurality of radially arranged wires 19 beneath the wires 18, and secured thereto. The tray is provided with an inwardly inclined lower portion, as shown in Figs. 1 and 2, coinciding with the inclination of the tapering bottom of the container A. The tray is further provided with a central opening which fits over the distributor 3, so that, when in position, the top of the distributor extends upwardly to about the central lateral plane of the tray, as indicated in Fig. 1. Extending upwardly from a ring 20, forming said central opening in the bottom of the tray, are two or more wires 21, connected, about midway of their length, by another ring 22, and at the top by a third ring 23, this construction being shown in Fig. 4. Connected to opposite sides of the top wire 18, are vertical wires 24, provided with inturned handles 25 whereby the tray may be removed from the container A.

As shown in Fig. 1, the dishes to be washed are placed in the tray H, as indicated, the inside of the plates, for instance, being turned upwardly. The lower edges of the plates extend downwardly between two adjacent wires 18, until the outer edges of the plate contact a wire 19, on each side, and the plate remains in its inclined position, with its face exposed to the apertures 13, in the distributor 3, for a purpose to be hereinafter explained.

The tray I is formed of a plurality of concentrically arranged circular wires 26, provided with bracing and space forming cross wires 27. The bottom of this tray is exactly like the extreme bottom, flat portion of the tray H, and hence no further description should be necessary. The wires 27, at their inner ends, extend upwardly inside of the inner wire 26, and are connected to a ring 28, as shown in Fig. 1, it being noted that the ring 28 is of smaller diameter than the diameter of the smallest of the rings 26, causing the said end portions of the wires 27 to be inclined inwardly and upwardly.

The outer portions of certain of the wires 27, extend across the bottom of the tray I, being connected to each of the rings 26; thence the wires 27 extend upwardly, being connected to a circular wire 29 forming the upper edge of the tray, and extending upwardly within the container A, and terminating in the inwardly turned handle portions 30.

The top tray J is formed of a plurality of base wires 31, provided on opposite sides with upwardly extending portions terminating in inwardly turned handles 32. A circular wire 33, connected to the vertical portion of the wires 31, forms the upper edge of the tray, and an intermediate circular wire 34 is positioned below the wire 33, and connected to the wires 31. Concentric with and in the same plane as the wire 34, is another circular wire 35, and also a circular wire 36, of smaller diameter than the diameter of the wire 35, and in the same plane. A lower circular wire 37 forms the bottom edge of the tray.

The wires 31 are connected to the wire ring 33, and extend downwardly therefrom, passing under the wire 37, and radiating toward the center of the tray. As shown in Fig. 1 however, after passing under the wire 37, the wires 31 pass upwardly and contact with the wire 35, thence downwardly and again upwardly and connect to the wire 36. This structure provides inclined supports for the articles being washed, permitting the presentation of the inner faces of such articles to the top of the distributor 3. Concentric and in the same plane as the circular wire 33, but of smaller diameter, is a circular wire 38, for a purpose to be described.

The tray K is a tubular screen of wire mesh having a body portion of a diameter slightly less than that of the circular wires 36 and 38, and provided on its top with a bead 39 which rests upon the wire 38, by which the tray is supported.

A removable top 40 is provided for the container A.

It will be noted that the raised platform 6 forms a chamber the bottom of which is the bottom 4 of the container A. Leading through an elongated aperture in said bottom 4, is a drain connection 40′ provided with a screen 41, and connected to a drain pipe 42. If the machine is of the portable variety and mounted on the wheels B, the contents of the container A are drained by a take-off valve 43. It is obvious, however, that the machine may be stationary and the

pipe 42 connected to a stationary drain, in which event the valve 43 would remain closed, and the valve 44 opened.

In operation the trays are positioned in the container A, as shown in Fig. 1. It will be noted that the inclined wires 18 bear against the inclined walls of the lower portion of the container, and hence the tray A is firmly held against downward movement. The tray I is supported by the handles 25 of the tray H, and the tray J by the handles 30 of the tray I.

The dishes are placed in the tray H, as before explained, the faces thereof being inclined with respect to the axis of the distributor 3. Some of the dishes or saucers in the tray I are similarly placed, but others are allowed to rest, facing downwardly, upon the upper inclined portions of the wires 27, facing the top of the distributor, but inclined at an angle to the axis thereof.

The articles in the tray J are placed upon the inclined portions of the wires 31, also facing the top of the distributor but inclined with respect to its axis.

In the tray K are placed knives, forks, spoons, etc.

The tank is now supplied with the desired amount of hot water and the motor A energized, the motor being so geared that the impeller 2 may be rotated at a speed of about 3000 revolutions per minute. Since the hot water has filled the lower part of the distributor so as to just cover the propeller blades, the rapid revolutions of the latter will operate to throw the water upwardly against the back of the fins 10, whence it will be deflected, some of it directly through the apertures 13, and some, in its upward movement, being caught by the concaved face of the outer surfaces of the flanges 14, and being thrown outwardly therefrom against the dishes in the tray H. It is obvious that such upwardly moving water as impinges against the dishes in said tray must pass directly through the apertures 13, or must be deflected to the dishes after striking the flanges 14. Since the dishes are inclined upwardly any water striking the dishes must impinge at an acute angle, and with a wiping or scrubbing effect. It is believed that the water which passes directly through the apertures 13 strikes the face of the articles in the tray H at a sharp acute angle, and that such water as contacts the flanges 14 strikes the articles at an acute angle which is not so sharp.

After striking the articles in the tray H, the water is deflected upwardly to the articles in the trays above.

Some of the water which strikes the fins 10 is deflected upward out of the top of the distributor at an angle to said fins, and some of it is given a decided inclination to return to the vertical, by the inwardly bent corners at the upper edges 12. The whole construction and combination of the impeller blades, the fins 10, the curved corners 12, the apertures 13 and the curved flanges 14, insure that the water will be thrown upwardly and outwardly in every direction, reaching and scouring every article, placed as described, in the trays. The water strikes the top or cover 40 and falls downwardly upon the top of some of the articles and the bottom of others, depending upon the positions in the trays. After the impeller is rotated for two or three minutes, the water is drained off and the container supplied with clean hot water and the operation is repeated to rinse the articles. The top 40 is then removed, and the trays taken out and allowed to stand for a few minutes, when it will be found that the articles are not only thoroughly cleaned but perfectly dry.

The relative positions of the trays H, I, J and K, and especially the formation of the bottom portions of the trays H and J, is of importance, as it permits, through the impeller 2, the fins 10, the corners 12, the apertures 13 and the flanges 14, the hot water to be thrown directly, and, in some cases, at an acute angle, against the greasy portions of the articles being cleaned.

Modifications of the invention may be suggested to those skilled in the art, but all embodiments fall within my invention, if fairly covered by the appended claims.

I claim:

1. A washing machine provided with a container, a rotative impeller adapted to throw the water upwardly into said container, a distributor surrounding said impeller and supported by said container, said distributor being interiorly provided with a plurality of fins extending at an angle to the body of the distributor, substantially as and for the purpose set forth.

2. A washing machine provided with a container, a rotative impeller adapted to throw the water upwardly into said container, a distributor surrounding said impeller and supported by said container, said distributor being interiorly provided with a plurality of fins inclined at an angle from the vertical and extending at an angle to the body of the distributor, substantially as and for the purpose set forth.

3. A washing machine provided with a container, a rotative impeller adapted to throw the water upwardly into said container, a distributor surrounding said impeller and supported by said container, said distributor being interiorly provided with a plurality of fins arranged in parallelism and inclined relation and extending at an angle to the body of the distributor, substantially as and for the purpose set forth.

4. A washing machine provided with a container, a rotative impeller adapted to throw the water upwardly into said container, a distributor surrounding said impeller and supported by said container, said distributor being interiorly provided with a plurality of fins arranged in parallelism and spaced relation, and apertures through the distributor and located in the spaces between the fins, substantially as and for the purpose set forth.

5. A washing machine provided with a container, a rotative impeller adapted to throw water upwardly into said container, a distributor supported by said container and surrounding said impeller, a plurality of apertures in the body of said distributor, and an inwardly extending flange carried by said distributor immediately above each of said apertures, substantially as and for the purposes set forth.

6. A washing machine provided with a container, a rotative impeller adapted to throw water upwardly into said container, a distributor supported by said container and surrounding said impeller, a plurality of apertures in the body of said distributor, an inwardly extending flange carried by said distributor, immediately above each of said apertures, and means for deflecting the water towards said flanges, as and for the purposes set forth.

7. A washing machine provided with a container, a rotative impeller adapted to throw water upwardly into said container, a distributor supported by said container and surrounding said impeller, a plurality of apertures in the body of said distributor, an inwardly extending flange carried by said distributor, immediately above each of said apertures, and means for deflecting the water towards said flanges, said means comprising fins located on each side of said apertures, as and for the purposes set forth.

8. A washing machine provided with a container, a rotative impeller adapted to throw the water upwardly into said container, a distributor supported by said container and surrounding said impeller, a plurality of apertures in the body of said distributor arranged in rows, an inwardly extending flange on the distributor immediately above each aperture, and a fin carried by the distributor on each side of each row of apertures and adapted to deflect water towards said flanges, substantially as and for the purposes set forth.

9. A washing machine provided with a container, a rotative impeller adapted to throw water upwardly and laterally with respect to said container, a distributor supported by said container and surrounding said impeller, and a plurality of fins mounted on the interior of said distributor, said fins being inclined upwardly and having a body portion which is concaved in cross section, substantially as described and for the purposes set forth.

10. A washing machine provided with a container, a rotative impeller adapted to throw water upwardly and laterally with respect to said container, a distributor supported by said container and surrounding said impeller, and a plurality of fins mounted on the interior of said distributor, said fins being inclined upwardly and having a body portion which is concaved in cross section, the upper outer corner of each fin being concaved to a greater extent than the body of the fin, substantially as described and for the purposes set forth.

In testimony whereof I hereunto affix my signature.

JAMES T. ANTHONY.