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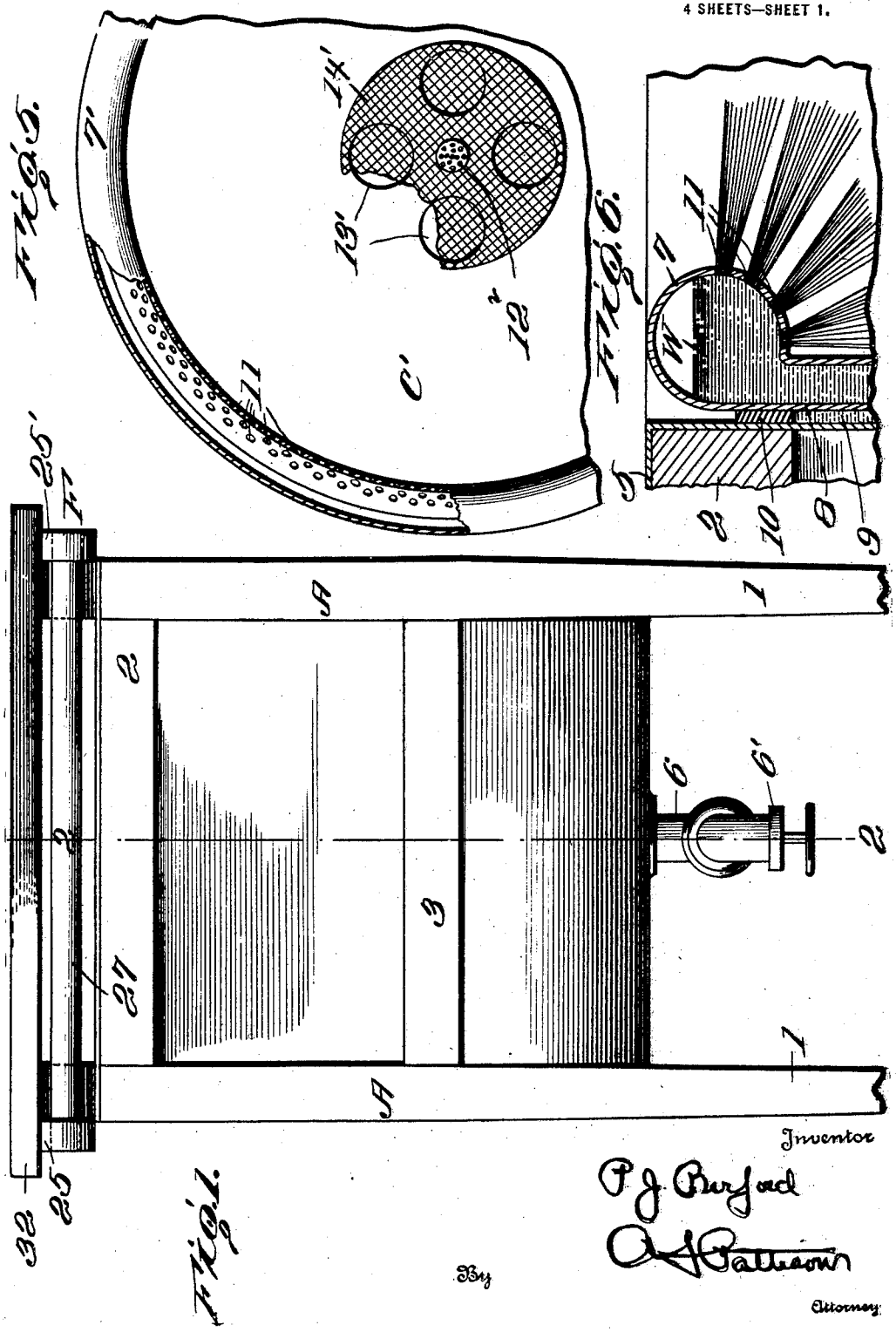
WASHING MACHINE.

APPLICATION FILED NOV. 14, 1919.

1,358,507.

Patented Nov. 9, 1920.

4 SHEETS—SHEET 1.



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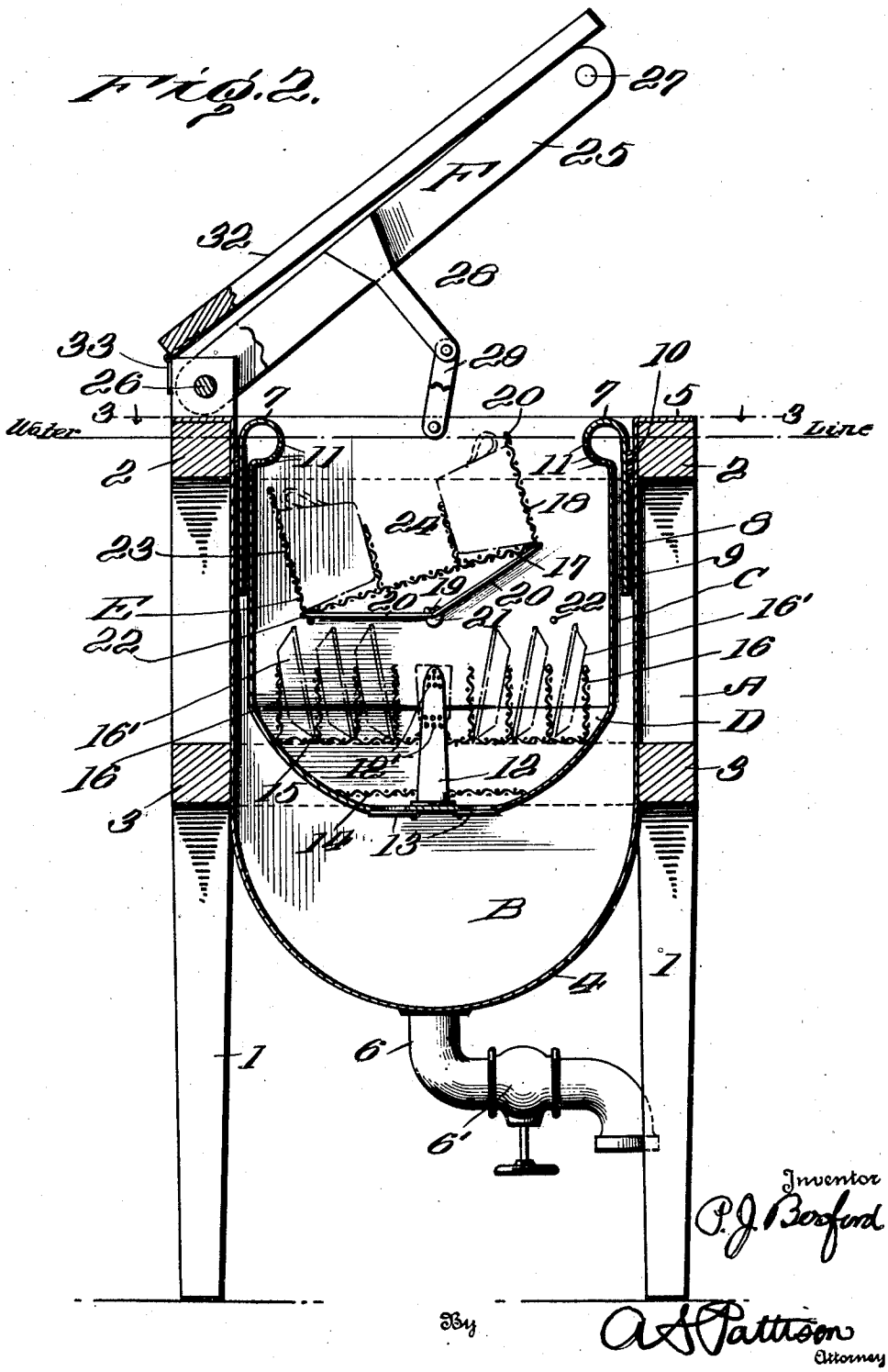
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4 SHEETS—SHEET 2.

Fig. 2.



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FIG. 3.

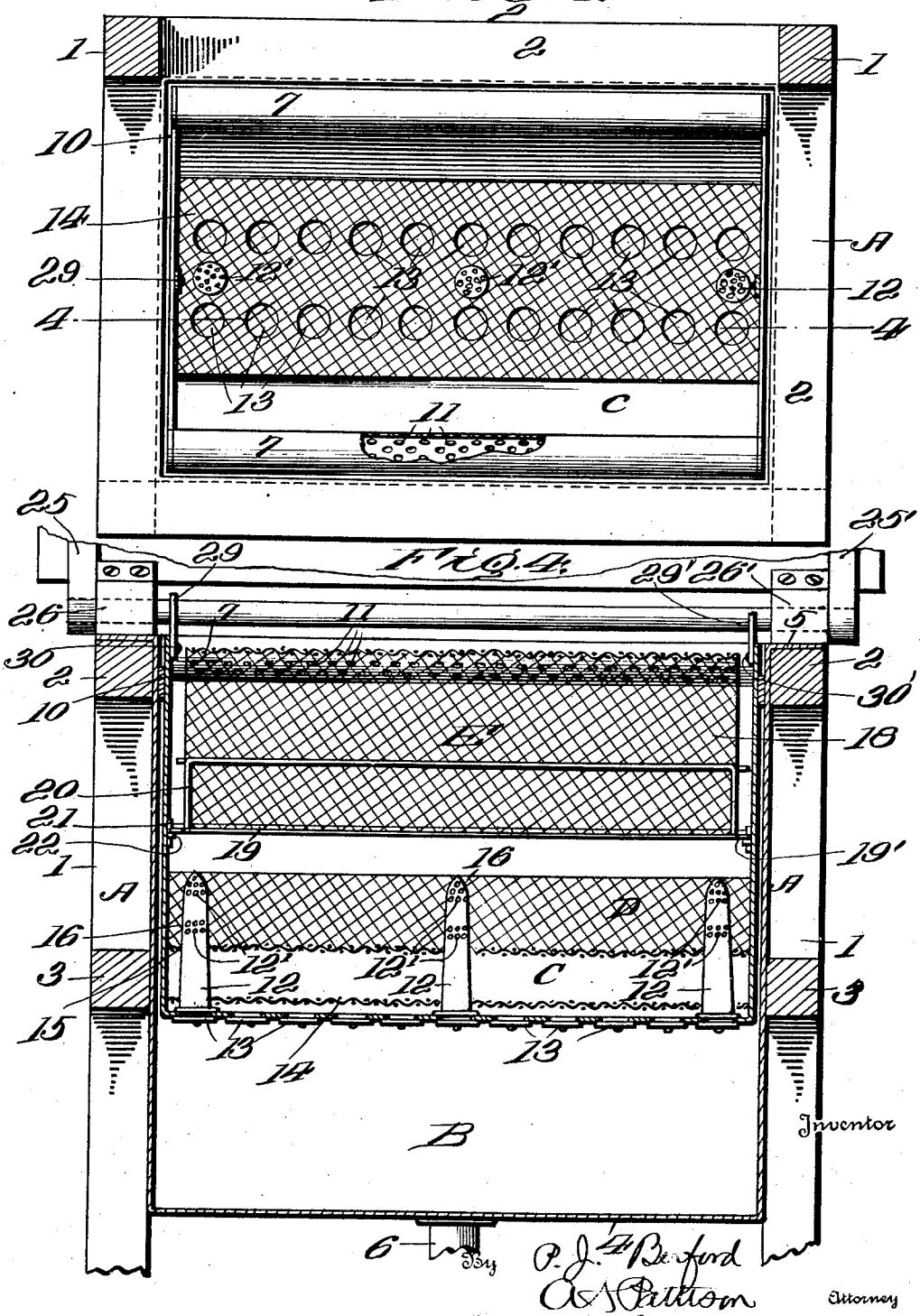


FIG. 4.

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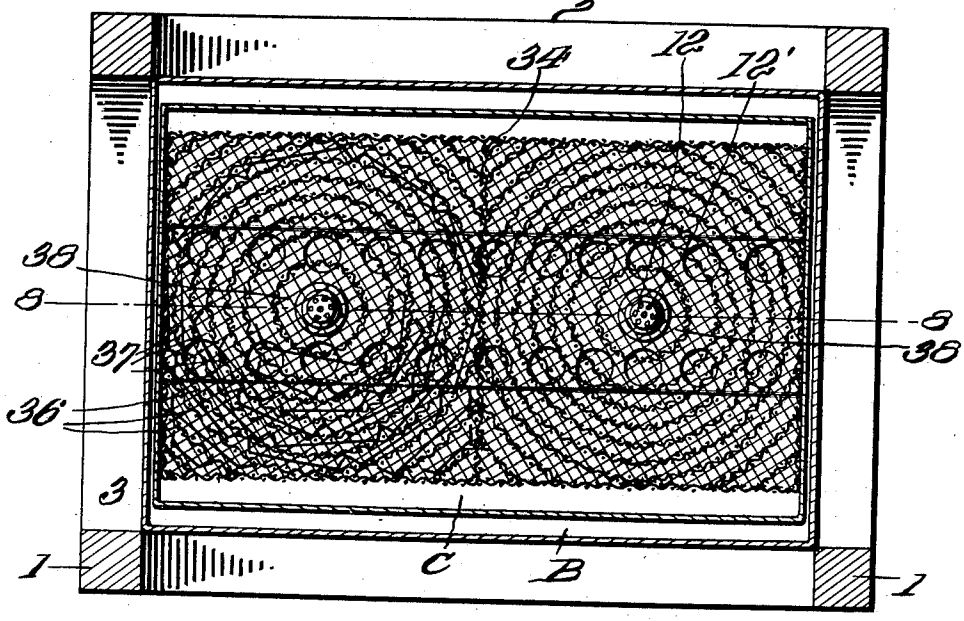
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FIG. 7.



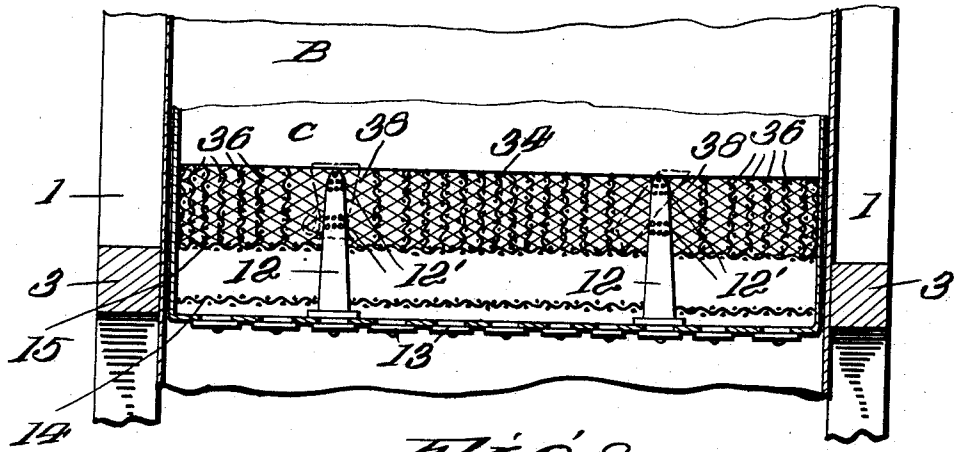


FIG. 8.

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UNITED STATES PATENT OFFICE.

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WASHING-MACHINE.

1,358,507. Specification of Letters Patent. Patented Nov. 9, 1920.

Application filed November 14, 1919. Serial No. 338,094.

To all whom it may concern:

Be it known that I, PATRICK J. BERFORD, a subject of the King of England and citizen of Canada, residing at Sprankles Mills, in the county of Jefferson and State of Pennsylvania, 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 improvements in washing machines, and more particularly to that type of washing machines known in the art as dish washing machines.

The object of my invention is to construct a dish washing machine of a compact form that will be efficient and easy of operation.

Another object of my invention is to spray water simultaneously from above and below the articles to be cleansed and in this manner insuring perfect cleansing.

Another object of my invention is to construct a washing machine which when not in use will not only require little room, but which can be used as a table or like piece of kitchen furniture.

In the accompanying drawings—

Figure 1 is a front elevation of my improved washing machine.

Fig. 2 is a central vertical transverse sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a top plan view with the top, operating handle and dish racks removed.

Fig. 4 is a vertical longitudinal sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a top plan view of a modified form of my improved washer, showing the washer with a cylindrical shape.

Fig. 6 is an enlarged sectional view of the upper edge of the dish container, showing its tubular form and the manner in which the water is sprayed into the container.

Fig. 7 is a top plan view with the cover removed, of my improved washing machine, showing a modified form of dish rack.

Fig. 8 is a vertical longitudinal sectional view on the line 8—8 of Fig. 7, showing the nozzle extending up through the modified form of dish rack.

Referring now to the drawings, my improved washing machine comprises an open-work supporting frame A, a water containing vessel B, an inner dish container C, dish rack D, cup and silver rack E, and an operating element F.

The supporting frame A of my improved washing machine is of a rectangular shape, consisting of four corner uprights 1, upper cross-frames 2, and the cross-frames 3, which are mid-way the height of the perpendicular uprights 1 and serve to strengthen and make the entire frame-work more rigid. The preferred form of my washer is rectangular, but the shape of the washer forms no part of this invention and the washer can be made in any desired shape, Fig. 5 showing a modification of the washer with a container of a circular shape.

In the preferred form, the vessel B contains the water with which the dishes in the container C are cleansed, as that member is reciprocated vertically in the vessel B. The outer water containing vessel B is of a rectangular shape with rounded bottom as at 4 and suspended within the supporting frame by having the upper end of its walls bent outwardly and over the cross-frames 2 of the washer support A, as shown at 5. The vessel B is made of any light metal and provided with a drain pipe 6 and valve 6′.

The dish container C is of a similar configuration as the vessel B and so designed that it can be reciprocated within that member. To accomplish this the container C is made of a less depth and cross-section than the vessel B, which allows a free and easy movement of the dish container C within the water vessel B. The upper ends of the walls of the dish container C are bent to a tubular shape as shown at 7, with the depending outer edge 8 of the wall bent to assume a line in a parallel plane to the container walls with a space 9 between it and the walls of the container C. This forms in effect an elongated perforated spray nozzle along the upper edges of the container C. To assure a water-tight fit of the wall of the vessel B and the depending edge 8 of the container, the depending edge 8 is provided with a gasket 10, which extends completely around the container C and is fastened to it in any suitable manner. To force the water W, which enters the tube 7 by way of the passage or space 9 downwardly into the dish container C, the tubular upper edge 7 of the said container C is provided with a plurality of holes 11 in its inner lower quarter. In the bottom of the container C there are a plurality of nozzles 12 with perforated stops 12′, which spray water into the container C, as it is forced downwardly into the water vessel B. A plurality of flap valves 13 open

as the dish container C starts its upward movement and thereby allow the water that has been sprayed into the dish container C to rapidly drain into the water vessel B, and the said valves 13 close when the container C begins to descend. A fine mesh screen 14 is provided to cover the outlet valves 13 to prevent any food or foreign matter that may have been washed from the articles in the container C, from escaping into the water vessel B.

Supported around the nozzle 12 by resting upon the round bottom of the dish container C, is a dish-rack D made of woven wire, to afford quick drainage, and composed of a bottom 15 and a plurality of uprights 16 against which the plates 16′ rest, as clearly shown in Fig. 2.

A cup and silver rack E of woven wire is mounted above the dish rack D, and just below and in full play of the water spray from the holes 11 in the tubular edge 7 of the dish container C. This rack consists of a bottom 17 and a plurality of uprights 18, and is mounted upon a longitudinal bar 19 with end braces and supporters 20. The outer ends 19′ of the bar 19 rests in open top sockets 21 in the ends of the dish container C which permits of its easy removal from the container. This construction permits the rack E to rock transversely of the disk container C and this rocking movement is limited by the lugs 22, which protrude from the end walls of the said container. As clearly shown in Fig. 2, of the drawings, this rack E carries cups 23 on its outer edges while a space 24 in the center of the rack is suitable for silver.

As stated, the rack E is within the full play of the water spray that is forced from the holes 11 in the tubular edge 7 of the container C, and the rocking of this rack allows the inside and outside of the cups 23 to be alternately sprayed with water. It will be understood that the rocking motion imparted to the rack E is due to the fact that the cups on the high side of the rack become filled with water and their greater weight causes them to overbalance the lower side of the rack and a see-saw movement is thus produced.

The operating element F of the washer is a frame composed of two parallel side bars 25 and 25′, having their inner ends pivotally mounted in the top of the two elongated rear perpendicular uprights 1, as at 26 and 26′ and their two outer ends joined by a handle 27. Each bar 25 and 25′ has a downwardly depending member 28 and 28′ fastened respectively intermediate its ends. Two links 29 and 29′ have their one end pivotally fastened to the members 28 and 28′ respectively, and their other ends pivotally fastened to the ends of the dish container C, as at 30 and 30′.

A top 32 is hinged as at 33 and when the washer is not in use is open as shown in Fig. 2.

The operating element as described above is of the form preferred, but it will be understood that any suitable form of operating means may be employed without departing from the spirit of the invention.

Referring now to the modified form of my washer, as shown in Fig. 5 of the drawings, only the dish container C′ is shown. In this form the upper edges of the container C′ are bent into a tubular form, as at 7′ and provided with perforations 11′, as in the preferred form. The food catching screen 14′ and the perforated nozzle 12^2 are shown in the center of the bottom of the container C′. The outlet valves 13′ are in a circle around the nozzle 12^2. It is understood that the supporting frame A, water vessel B and dish racks would be modified to give the similar results in the modified form as are obtained in that of the preferred.

The operation of my improved washer is as follows:

The valve 6′ in the drain pipe 6 is closed and the water vessel B is filled about one-half full of water. The handle 27 of the operating element F is grasped and raised and lowered, carrying with it the dish container C. As the dish container C is forced down into the water vessel B, water is forced in a spray from the nozzles 12 up and around the dishes in the rack D, and the articles in rack E are played upon by the water which having entered the space 9 is sprayed from the holes 11 in the tubular edge 7 of the dish container C, and a rocking motion is thus imparted to this rack in the manner hereinbefore described. Due to the fact that water can only get into the dish container C in a limited number of places, the result is that it enters with considerable force which insures perfect cleansing of the articles therein. The rocking motion of the rack E warrants perfect cleansing, both inside and out, of the cups held thereon. When the dishes have been washed and removed from the machine the water is drained from the vessel B through the pipe 6, which if desired can be connected with the drainage system of the house. Both the racks D and E are removable by the single operation of lifting them out of the container C. All food and foreign matter washed from the dishes will have settled upon the screen 14, which can be lifted out and easily cleaned. With the replacement of the screen and the dish rack, the water is in condition to operate upon the used dishes from another meal. By depressing the operating handle 27 to its lowest position and closing the top 32 of the machine, all possible odor is excluded from the room

and the machine can be used as a table or some like piece of kitchen furniture.

It will be noticed that the nozzles 12 extend through and above the bottom of the dish rack D and afford a washing means for milk bottles, coffee pots and deep dishes which may be slipped over their upper ends, as shown in Figs. 2 and 8.

Figs. 7 and 8 show a further modification of my improved washing machine in respect to the dish rack D. In this modified form the dish rack is divided by a transverse upright 34 into two equal parts. Two nozzles 12, only, are used and these pass through the bottom and into the dish rack, in the center of each half respectively. Circular dish supporting uprights 36 are provided to support the dishes 37, as shown in Figs. 7 and 8. The innermost dish supporting uprights are placed a sufficient distance from the nozzles 12 to provide a space 38 around them so that a milk bottle, coffee pot, or a deep dish can be put over their upper ends.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A washing machine comprising a frame support carrying a liquid containing vessel, an inner article container in sliding engagement with said vessel provided with upper and lower liquid spray nozzles communicating with the liquid vessel, outlet valves, rocking article supports within the container, and means carried by the frame support to reciprocate the container within the vessel to force liquid from the vessel into the container through said spray nozzles.

2. A washing machine comprising a covered frame support carrying a liquid containing vessel therein, an article container having liquid spray nozzles in communication with the liquid vessel and outlet valves, rocking article supports in the container and positioned within the play of the nozzle sprays, and means whereby the article container is reciprocated within the vessel to force liquid from the vessel into the container through said spray nozzles.

3. A washing machine comprising a liquid containing vessel, an article container vertically movable therein, the container having lower inlet and outlet openings, an article supporting rack at its lower portion receiving water from the lower inlet openings, a rocking article support above the first said support, the upper edges of the container having outlet openings in communication with the vessel and with the container, the outlet openings positioned to spray water in the articles of the rocking support to cause it to rock, and means for reciprocating the container within the vessel.

4. A washing machine comprising a liquid containing vessel, an article container vertically movable therein, the container having lower inlet and outlet openings, the opposite upper edges of the container having an inwardly overhanging horizontal tube with openings in communication with the vessel, an article support in the lower portion of the container, an article support above the first said support, and means for reciprocating the container within the vessel to force water from the vessel into the container through said openings.

In testimony whereof I hereunto affix my signature.

PATRICK JOHN BERFORD.