Oct. 25, 1932. R. PAULY 1,884,180

DISH WASHING MACHINE

Filed Oct. 7, 1929

Fig. 1

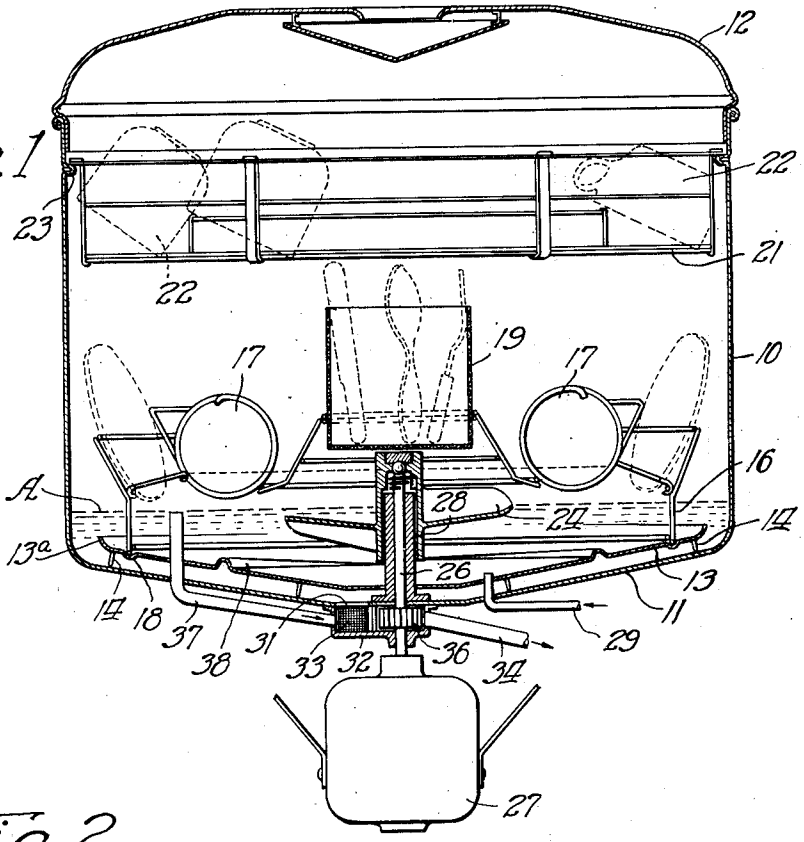
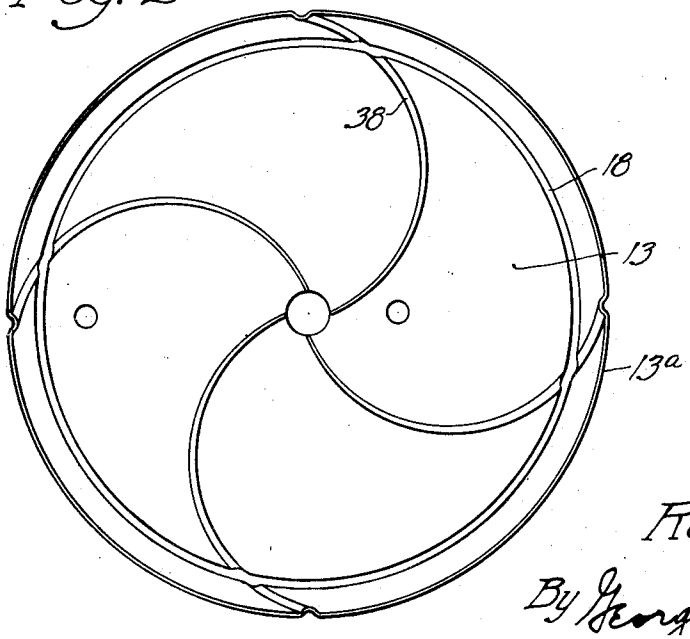


Fig. 2



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UNITED STATES PATENT OFFICE

REMIGIUS PAULY, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO ERIC OSTERBERG, OF CHICAGO, ILLINOIS

DISH WASHING MACHINE

Application filed October 7, 1929. Serial No. 397,779.

My invention relates to dish washing machines.

The principal object of the invention is the provision of an improved dish washing machine.

Another object is the provision of a dish washing machine in which the dishes can be rinsed in the machine and without stopping the operation thereof.

Another object is the provision of a dish washing machine adapted to have its water changed continuously during operation.

Other objects and features of the invention will be apparent from a consideration of the application taken with the accompanying drawing, wherein

Fig. 1 is a vertical sectional view taken through the dish washer of my invention.

Fig. 2 is a plan view of one of the important dish washer parts.

The invention as shown is an improvement over my dish washer shown in my copending application, Serial No. 726,770, filed July 18, 1924. The improvement consists briefly in introducing a new function whereby the dish washer may be charged with soapy water, loaded with dishes to be washed and the impeller started for forcing water spray against the dishes in a swirling manner as the copending application points out. Simultaneously with starting the dish washer clear water is introduced and the soapy water removed at the same rate of speed so that gradually the water changes from soapy water to clear water, and when the water is entirely clear the machine can be shut off and the dishes allowed to drain.

Referring now to the structure by means of which the invention is accomplished my dish washer comprises a tub 10 with a bottom 11 and hinged top 12. Spaced from the bottom is an auxiliary or false bottom 13, provided with a suitable number of spacing supports 14—14 to give a clearance between the two members. A plate rack 16 is provided of suitable shape to support plates and similar dishes 17—17 at the lower portion of the dish washer, this rack having a circular bottom support adapted to rest in an annular groove 18 in the false bottom 13. A central rack 19 spaced above the plate rack is adapted for supporting silverware or similar small articles as shown. Still further above, and near the top of the tub is a cup rack 21 for supporting cups 22—22 and similar dishes. This rack is hung on an annular inwardly projecting flange 23 provided on the inside of the tub.

For throwing the washing water with proper force and directly against the dishes, an impeller 24 is provided, driven from a shaft 26 which turns by means of an electric motor 27. The shaft 26 is journaled in a sleeve 28 and bearing means is provided for the impeller as shown, no detailed description of this portion of the device being made, as the invention does not apply particularly thereto.

It will be recalled that in accordance with the present invention the water may be continuously changed while the dish washer is in operation. This is done by feeding a clear supply of water to the impeller and drawing an equal amount of water from the tub below the false bottom 13. The direction of water movement in the tub as the impeller is working is upwardly in the center and down around the sides of the tub. The false bottom has a peripheral upturned edge 13*a* and the water passing down around the sides of the tub has a tendency to flow under the false bottom as water is withdrawn therefrom, and this in a relatively short time, will produce entirely clear water in the tub.

Now, as to the arrangement of the supply and drains, a pipe 29 is sealed through the bottom 11 but extends upwardly through the false bottom 13 to supply clear water from a suitable source (not shown), directly to the impeller. An opening 31 in the lowermost portion of the bottom acts as a drain, the water therefrom flowing into a housing 32 provided with a strainer 33, the water passing from the strainer to a discharge pipe 34, whence it moves to a suitable waste pipe (not shown). With proper arrangement of the dish washer the water may be made to flow from the pipe 34 by gravity, thus operating the system entirely in this way. But in general, for home use, the dish washer will be

used near a sink which is higher than the bottom of the tub and a pumping system is required. For this purpose I employ of suitable pump 36 arranged to be turned with the shaft 26 for drawing water through the strainer 33 and delivering it to the drain pipe 34.

In order to operate the dish washer with the greatest success the water should not be above a predetermined level indicated in general by the character A in Fig. 1. This is the level the water will take when the impeller is not in motion but, of course, the distribution of water will be somewhat different when the washer is in operation. I provide an overflow pipe 37 sealed through the bottom 11 and extending up through the false bottom to the water line A. The other end of the pipe is connected to the screen housing 32 to deliver overflow water through the screen 33 to the discharge pipe 34. The water so removed from the dish washer can, of course, flow by gravity or by means of the operation of the pump.

In order to bring the water down properly to the drain opening 31 I may modify the construction of the bottom and false bottom to some considerable extent, without departing from the scope of the present invention. I have found that good results are procured in this respect with a model on which I have experimented, by employing spiral flutes 38 in the false bottom for giving a circling or swirling motion to the water and thus passing it more satisfactorily to the drain opening. Incidentally the water in the tub proper takes a swirling movement from the operation of the impeller and the flutes 38 are of advantage in cooperating with this movement of the water and allowing it to pass more directly and with less resistance to the drain opening.

I have described in considerable detail the features of my invention to enable those skilled in the art to practice the same. I do not restrict myself, however to the entire combination as shown and described, the invention being limited only by the scope of the appended claims.

What I claim is new and desire to protect by Letters Patent of the United States is:

1. In a dish washing machine, a tub for receiving a supply of soapy washing water, a rack therein for dishes to be washed, an impeller below the rack adapted to throw water in said tub in a path upwardly near the sides of the tub, means for continuously supplying clear rinsing water to the impeller from below the same and means for simultaneously withdrawing the soapy water from the sides whereby the soap washing water may be removed from the tub and the clear rinsing water supplied thereto during the operation of the impeller whereby a continuous flow of water takes place from below the impeller, up and outwardly, down the sides of the tub, and out of the tub at the bottom thereof, without again coming in contact with the impeller.

2. In a dish washing machine, a tub for holding dish washing water, having top, sides and bottom, a false bottom spaced from the tub bottom and disposed above the same and open at its periphery, a rack in the tub for supporting a supply of dishes to be washed, an impeller positioned above the false bottom for driving washing water against the dishes in the rack, a supply pipe for clear water extending through the tub bottom and false bottom for supplying clear water directly to the impeller, and a drain in the tube bottom and disposed underneath the false bottom for withdrawing soapy washing water from the tube during the admission of clear water to the impeller, whereby the soapy washing water may be removed and clear rinsing water supplied to the tub during the washing operation.

3. A dish washer as set forth in claim 2, wherein the impeller is disposed on a vertical shaft at the center and bottom of the tub so as to impart swirling motion to the water and the false bottom is provided with spiral flutes for facilitating movement of the swirling soap water between the tub bottom and the false bottom to the drain.

4. In a dish washing machine, a tub, means for supporting dishes therein, an impeller in said tub for throwing water against the dishes and moving it radially toward the wall of the tub, a false bottom disposed below the impeller and open at its periphery to receive water moving downwardly along the wall of the tub, means for withdrawing used water from under the false bottom, and means for supplying fresh water directly to the impeller above the false bottom.

In witness whereof, I hereunto subscribe my name this 20th day of September, 1929.

REMIGIUS PAULY.