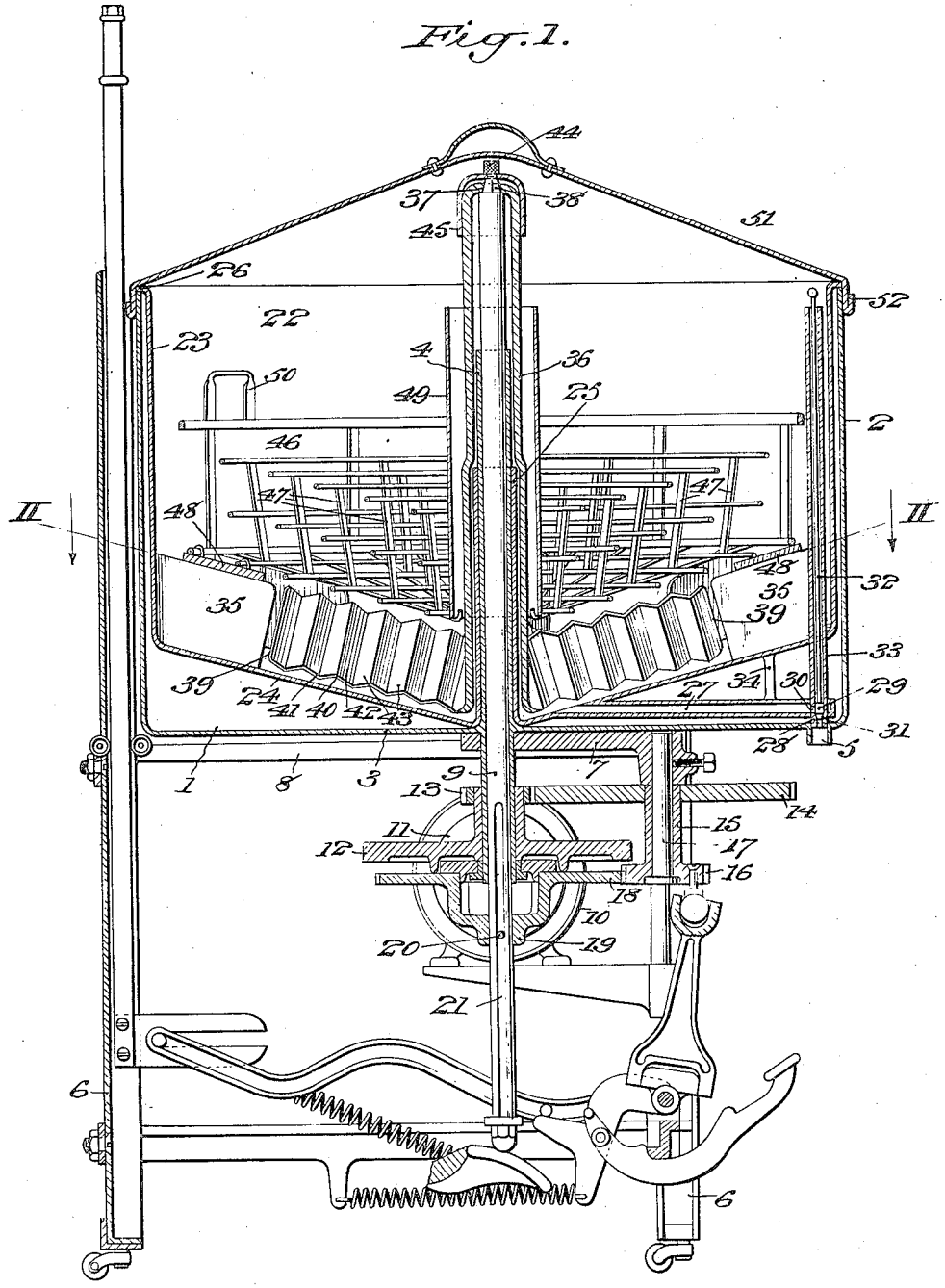
Jan. 29, 1929. 1,700,563

W. B. EBELING ET AL

CONVERTIBLE WASHING MACHINE

Filed June 18, 1921 2 Sheets-Sheet 1

Fig. 1.



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1,700,563

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2 Sheets-Sheet 2

Fig. 2.

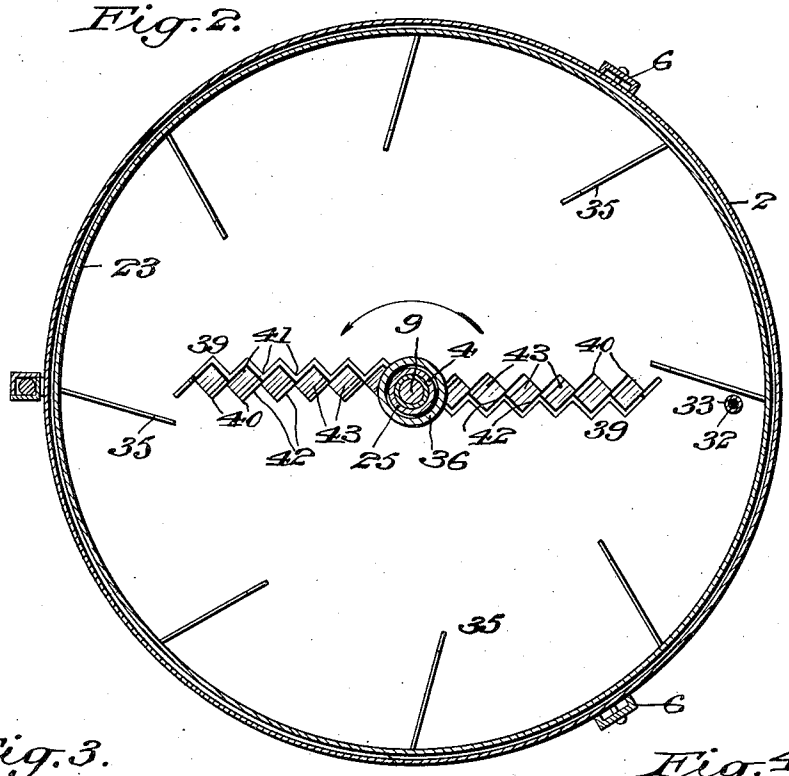


Fig. 3.

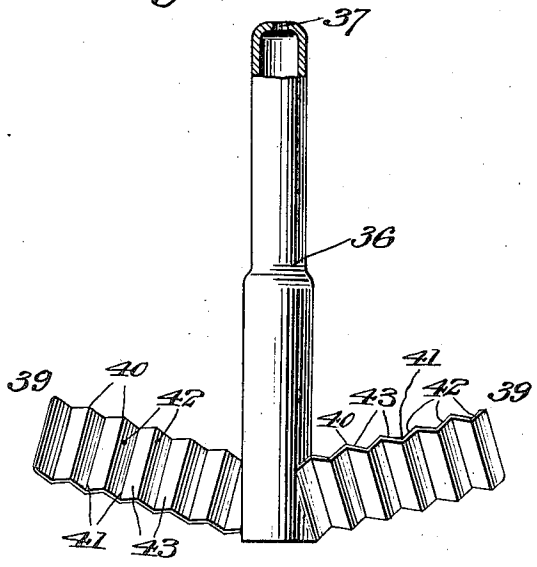
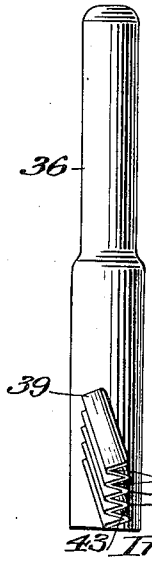


Fig. 4.



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Patented Jan. 29, 1929. 1,700,563

UNITED STATES PATENT OFFICE.

WILLIAM B. EBELING AND CHARLES H. BRIGGS, OF BROOKLYN, NEW YORK, ASSIGNORS TO SAVAGE ARMS CORPORATION, OF UTICA, NEW YORK, A CORPORATION OF DELAWARE.

CONVERTIBLE WASHING MACHINE.

Application filed June 18, 1921. Serial No. 478,591.

Our invention consists in a convertible washing machine comprising a main supporting frame, driving motor and operating gearing combined with appropriate interchangeable appurtenances whereby the power of the motor is available for washing either clothes or dishes as desired, each in a separate water tank with water circulation therethrough and without contact of dish water with clothes washing parts or vice versa. The invention includes means for draining away the dish water without contact with the clothes tank and also other features hereinafter made apparent, whereby existing washing machines may be practically converted and their utility extended to the operation of washing dishes with the least possible additional expense.

Our invention lies in the dish washing mechanism as such as well as in the broad combination above described in which the dish-washing attachment constitutes an element, and provides certain improvements in the form, construction and arrangement of the several parts of such attachment. It includes water circulating devices, which in the form illustrated, consists principally in an impeller having one or more blades, each formed with a plurality of angular surfaces arranged to produce when being rotated a very effective and systematic breaking up and circulation of the body of liquid in the dish washing tank.

For purposes of illustration and to indicate the applicability of this invention to existing constructions, we have illustrated our invention as applied to a washing machine of the type shown in the patent to Kirby No. 1,277,604, September 3, 1918, the Kirby construction being in some respects simplified and various of its details having been omitted as irrelevant to the invention of this application.

Fig. 1, is a vertical central section of a washing machine of the said type showing the dish washing tank and appurtenances of this invention substituted for the clothes container;

Fig. 2, is a horizontal section on the line II—II, Fig. 1.

Fig. 3, is a front elevation of the impeller, broken away in part to show the means of connection with the drive spindle of the washing machine, and

Fig. 4 is a side elevation of the impeller.

The washing machine includes a main frame which may be said to comprise the clothes washing tank 1 having cylindrical side wall 2, flat bottom 3, and central bearing sleeve 4, and the legs 6 connected by brace bars 7, 8. The tank 1 has a drain outlet 5 which is normally closed by suitable means when this tank is in use.

The vertical drive spindle 9, journaled in the sleeve 4, is driven by the frame-supported motor 10 having a friction drive disc 11 contacting with the rim of a friction wheel 12 journaled on the sleeve and normally held yieldingly in contact with the disc. The friction wheel 12 has a pinion 13 meshing with gear 14 fast on a hub 15 of gear 16 loose on stud 17 carried by the frame. The gear 16 meshes with a gear 18 whose hub 19 is splined to spindle 9 by a pin 20 arranged to engage the slot 21 in the spindle.

When the machine is used for clothes washing a usual clothes container is placed on and secured to the spindle for rotating therewith as in the aforesaid Kirby patent. The construction of this well known clothes washing machine will be recognized from the drawing so far as illustrated and its mode of operation will be understood by those skilled in this art without description. By removing the thumb nut, the clothes container can be lifted off the spindle and removed from the machine.

For the conversion of the clothes washing machine into a dish washing machine, we substitute for the removable clothes container, a dish washing tank and appurtenances which may be so related to the driving spindle as to receive from the latter such operation as may be desirable or necessary, the washing machine being thus converted into a dish washing machine as shown in Fig. 1, wherein appears the dish washing tank 22 having side wall 23, conical bottom 24, and central vertical sleeve 25 adapted to slide into position over the sleeve 4, which it fits, and the tank to be then supported by the annular flange 26 in which its side wall 23 terminates and which rests upon the edge of the cylindrical side wall 2 of the outer re-

ceptacle 1, and by the junction of its sleeve 25 with the conical bottom 24 which junction rests upon the bottom 3 of the outer receptacle.

In a convertible clothes washing and dish washing machine, it is essential to prevent dish water from coming into contact with clothes washing parts and this object is accomplished in the construction illustrated in part by the sleeve 25, in part by the flange 26, but especially by the dish water draining means which comprises the horizontal passage 27 leading from the dish washing tank 22 near its lowest part adjacent the center and having a downwardly extended plug-form nozzle 28 adapted to enter or register with the outlet 5 of the outer tank 1. This nozzle 28 is provided with a plunger valve 29 which controls the opening and closing of a port 30 in the pasage 27 by movement toward and away from its seat 31 in the nozzle 28. For convenient manipulation of this valve its stem 32 is extended to a point adjacent the top of the dish washing tank and is surrounded by a riser tube 22 secured in and passing through the passage 27, furnishing the nozzle 28, the seat 31 for the valve 29, and the port 30, and extending up through the bottom of the dish washing tank to a point adjacent the upper end of the valve stem. A strut 34 connecting bottom 24 and passage 27 insures the requisite strength and rigidity. This is a convenient way of preventing dish water from reaching the outer receptacle while permitting its drainage from the dish tank without removal of the latter.

The dish washing tank 22 is provided with a series of fixed baffle plates 35 angularly disposed along the wall 23 and bottom 24, so that their top edges are substantially parallel with the conical bottom and their vertical edges substantially at right angles to the bottom 24, thereby constituting obstructions to promote the outward passage of the liquid and forming pockets open at the top and inner side to the tank proper.

The dish washing devices are also provided with appurtenances whereby the water is caused to circulate among the dishes which are supported in any suitable way within the dish washing tank. These means for causing circulation are removably securable to the driving shaft or spindle in lieu of the clothes container and in the construction illustrated and which has various advantages, are as follows:

The agitator or impeller having the vertical tubular shaft 36 closed at its upper end except for the squared hole 37 arranged to fit over the reduced squared end 38 of the spindle 9 is, like the clothes container, removably secured in position by thumb screw 44 and cover cap 45. It is provided with radially arranged blades 39 extending outwardly and upwardly adjacent the conical bottom 24, and in operation throwing water toward the baffle plates. As will be apparent, the blades are located between the baffle plates and the hollow shaft 36, which has its lower portion enlarged to accommodate the vertical sleeve 25 of the dish washing tank 22. Each blade is inclined to its direction of motion so that the lower edge will extend forwardly of the upper edge, the upper and lower edges of each blade being substantially parallel with the conical bottom 24 and the outer edge of the blades substantially parallel with the inner vertical edges of the baffle plates. Each of the blades 39 is corrugated forming a plurality of edges 40 and intervening channels 41, thereby presenting flat faces 42, 43 which are oppositely disposed. As the blades are rotated, by the rotary spindle 9, the liquid is forced upwardly and outwardly and caused to strike the baffle plates, and is well broken up and splashed inwardly toward the tubular shaft 36, active circulation of water among the dishes being thus insured. The means for supporting the dishes consists of the basket 46 of wire or other suitable material formed with a conical bottom and provided with wire projections 47 for holding the dishes and other culinary utensils between them. Cleats 48 secured to the bottom of the basket rest upon the baffle plates 35 and hold the basket with the articles to be cleaned therein in position to be splashed by the liquid being agitated and circulated.

The cylindrical guard 49 secured to the bottom of the basket and surrounding the rotating tubular shaft 36 prevents dishes from coming into contact therewith. The basket is provided with handles 50.

The outer receptacle 1 has a removable cover 51 having a depending rim 52 fitting snugly over the side wall 2 of the receptacle.

By reason of the effective circulation and dispersal of the liquid which is promoted by the particular construction of the agitator blades, the liquid will be caused to be splashed repeatedly upon the dishes with the least expenditure of power. This agitation and circulation of the liquid is further promoted by the fact that the outer ends of the blades travel in close proximity to the substantially vertical inner edges of the baffle plates, so that the body of liquid moved by the blades is forced by centrifugal action against the plates, the impact of which causes the liquid to be broken and forced upwardly and inwardly into and upon the dishes in the basket and thence to the bottom of the tank whence it is returned by the impeller to the dishes as before.

It is obvious that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of our invention, hence, we do not wish to be limited to the details herein shown and described ex-

cept as they may be specifically included in the claims.

What we claim is:

1. In a combined dish and clothes washing machine, the combination with a main tank and an operating motor, of a dish-washing tank removably insertable in said main tank, and dish-washing mechanism appurtenant to the dish-washing tank and connectable to said motor for operation thereby.

2. The combination of claim 1, in which the main tank has an outlet and the insertable tank has an outlet member adapted to connect with the outlet of the main tank, whereby dish-water may be kept out of the main tank.

3. The combination of claim 1, in which the main tank has an upright bearing sleeve inclosing a motor-driven shaft, and the dish-washing tank has an upstanding central hollow part adapted to fit over said sleeve and the connection of said dish-washing mechanism to the motor is by a connection with the top part of said shaft.

4. In a combined dish and clothes washing machine, a frame having uprights, a main tank, said tank secured to said uprights and having an outlet in the bottom, a second tank removably seated within said main tank, said second tank having an outlet and an extension therefrom to connect said outlet of the second tank to the outlet of the main tank, article holding means in said second tank and means for circulating water through said second tank.

5. In a combined dish and clothes washing machine, an outer receptacle adapted to contain liquid, a vertical shaft therein extending up through its bottom, means for rotating said shaft, a liquid container removably mounted in said outer receptacle and having a sleeve surrounding said shaft, dish holding means in the liquid container, and means actuated by the shaft for circulating the liquid through said dish-holding means.

6. In a combined dish and clothes washing machine, an outer receptacle having an outlet, a vertical shaft therein, means for rotating said shaft, and a liquid container removably mounted in said outer receptacle, said container being provided with a liquid outlet, said outlet being arranged to register with the outlet in the receptacle.

In testimony, that we claim the foregoing as our invention, we have signed our names this 8th day of June, 1921.

W. B. EBELING.
CHAS. H. BRIGGS.