

April 1, 1941.

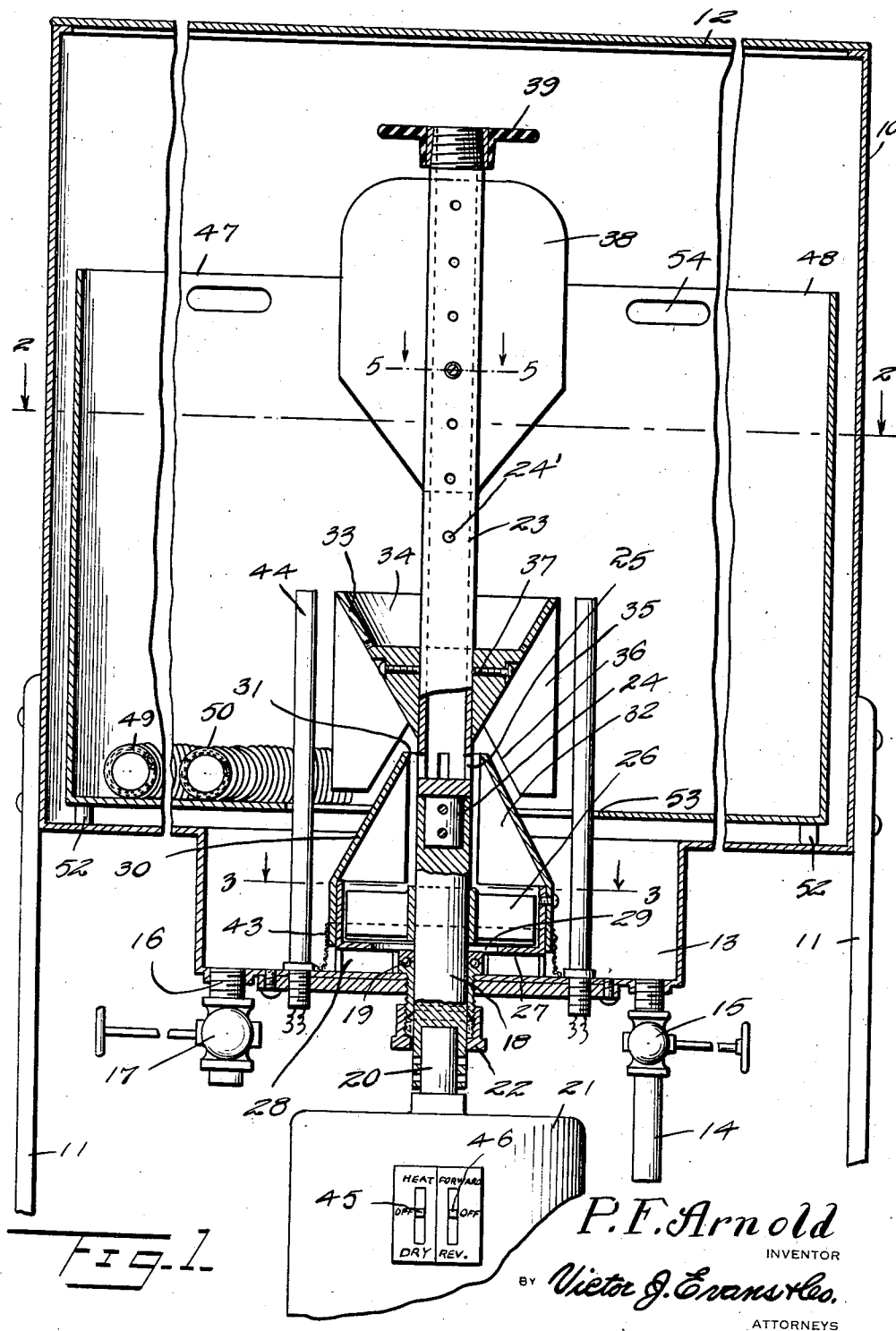
P. F. ARNOLD

2,237,209

WASHING MACHINE

Filed Feb. 13, 1939

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Fig. 2.

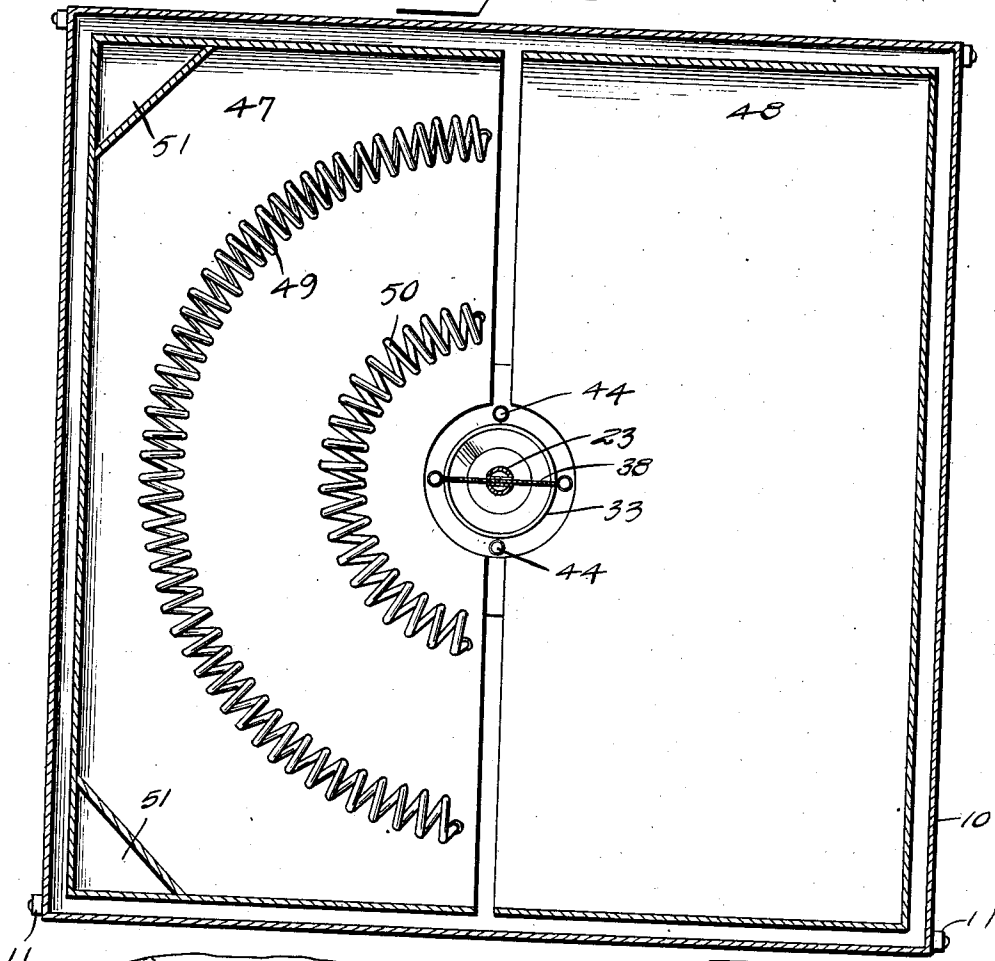


FIG. 5.

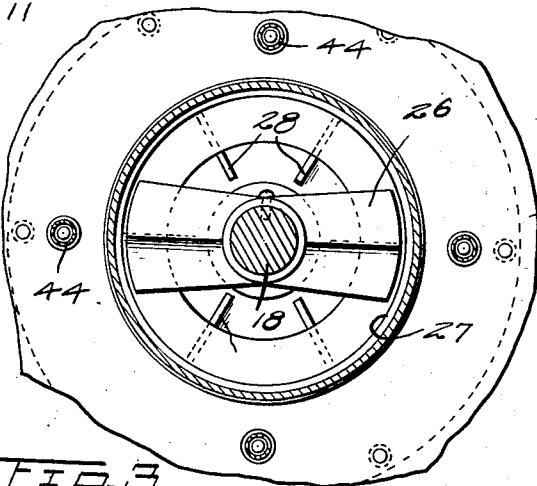
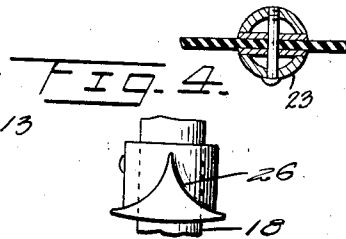


FIG. 3.



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WASHING MACHINE

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10 Claims. (Cl. 141—9)

The invention relates to a washing machine and more especially to dish washing machines.

The primary object of the invention is the provision of a machine of this character, wherein the construction thereof adapts the same for family use or for domestic purposes in washing dishes, pots, pans, skillets, bottles, jars and the like, thereby eliminating hand labor for this purpose, being automatic in the working.

Another object of the invention is the provision of a machine of this character, wherein through centrifugal action water under pressure is forced against the contents of the machine for a thorough washing thereof, the machine in its entirety being of novel construction.

A further object of the invention is the provision of a machine of this character, wherein the articles such as dishes, pans or the like can be stacked during the process of the washing operation of the machine, there being no liability of breakage in that the contents of the machine are held fixed so that they cannot work against each other resulting in breakage.

A still further object of the invention is the provision of a machine of this character, which is simple in its construction, thoroughly reliable and efficient in operation, sanitary, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which disclose the preferred and modified forms of embodiment of the invention and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is a fragmentary vertical sectional view through a machine constructed in accordance with the invention

Figure 2 is a sectional view on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a sectional view taken on the line 3—3 of Figure 1 looking in the direction of the arrows.

Figure 4 is a fragmentary elevation of a water vane detail of the machine.

Figure 5 is a sectional view on the line 5—5 of Figure 1 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, particularly Figures 1 to 5 inclusive, the washing ma-

chine comprises a stationary casing 10 in this instance of substantially square shape in contour although it may be of any other desirable shape and is supported through the medium of legs, a portion of each being indicated at 11. This casing constitutes a tank having a suitable water-tight cover 12 at the open top thereof and such cover is mounted so that it can be opened or closed for giving access to the interior of the tank. At the bottom of the tank 10 centrally thereof is a well 13 into which leads a water supply pipe 14 having a hand controlled valve 15 for regulating the supply of water and for the cutting off of such supply at the will of the user of the machine. Leading from the well 13 is a drain pipe 16 equipped with a hand controlled cut-off valve 17 so that the machine can be drained at the will of the user thereof. This well opens upwardly into the tank constituted by the casing 10.

Centrally projected through the well 13 is a solid rotatable coupling shaft 18 mounted in bearings 19 and having at its lower end connection with a driving shaft 20 of an electric motor 21 stationarily supported in any suitable manner. The shaft 18 works in a stuffing box 22 carried by the well 13 at its bottom while carried upwardly within the tank 10 is a hollow rotatable shaft 23 which at the lower solid stud end 24 has coupling with the shaft 18. The shaft 23 longitudinally thereof is provided in the upper portion of the same with lateral outlet ports 24' for water rising vertically therein and admitted through inlet slots 25 provided in the lower portion of said shaft 23 close to the end 24 thereof. The shafts 18 and 23 rotate with the driving shaft 20 of the motor 21 when active.

Fixed to the shaft 18 below the slots 25 in the shaft 23 is a radially bladed water wheel 26, the latter operating in a circular stationary water trough or pan 27 within the well 13 and elevated from its bottom by legs or separated vertically disposed webs 28, the trough or pan 27 concentrically about the shaft 18 being formed with a circular opening 29 in its bottom and of considerably greater diameter than the cross sectional diameter of the said shaft 18.

Capping the pan or trough 27 is a conical shaped internally finned hood or water ejector nozzle 30 truncated at 31 which is the discharge mouth of said nozzle or hood, the fins being denoted at 32 and radially disposed within said hood or nozzle.

Above the hood or nozzle 30 and suitably fixed

to the shaft 23 is an inverted conical shaped spreader 33 dished at 34 while exteriorly of this spreader are radially disposed wings 35, these being cut away at 36 for overriding the hood or nozzle 30. The manner of fixing the spreader 33 to the shaft 23 is by the use of suitable fasteners 37. Fitted in the upper portion of the shaft 23, which is suitably bifurcated, is a rubber paddle 38 constituting a wiper brush, being inherently flexible or yieldable. This paddle 38 can be extended into a tumbler, jar or other cylindrical container for wiper brush action thereon at its interior. Tapped on the upper end of the shaft 23 is a disk-like spreader head 39 which is removable and this head is preferably made from rubber stock, and which spreads the water as it passes from the upper end of the hollow shaft 23.

Concentric to the legs or webs 28 beneath the trough or pan 27 is a wire mesh annular screen 43 while extending upwardly from the bottom of the well 13, through the same and into the casing 10 are electric heating posts or tubes 44, these being controlled from a hand switch 45, the motor 21 being of the reversible type and being controlled from a reversing switch 46 which switches 45 and 46 are accessible to the user of the machine.

Removably fitted within the casing 10 is a two-section article carrying cage or tray, the sections thereof being independent of each other and denoted at 47 and 48, respectively, one being adaptable for articles to be washed, such as pots, pans or the like (not shown) and the other section in its equipment carrying stationary holding racks 49 and 50, respectively, these serving to hold dishes or other like articles (not shown). The section 47 preferably carries the racks 49 and 50 and at corners thereof is equipped with pockets 51 receptive of silverware such as knives, forks and similar miscellaneous articles (not shown). The sections 47 and 48 are provided with feet 52 elevating the same slightly from the bottom of the tank or casing 10, these sections being independent of each other and cut away at 53 to afford clearances for the posts or tubes 44 and other centrally assembled equipment of the machine projected within the said tank or casing. The vertical side walls of the sections 47 and 48 are created with openings 54 for effecting hand holds convenient for the lifting of the sections or the lowering of the same in the use thereof with the machine.

With reference to Figure 1 of the drawings, it will be noted that the water through the supply pipe 14, which is hot, will flow from the well 13 under the force of the water wheel 26 through the pan or trough 27 upwardly through the nozzle or hood 30 and be spread by the spreader 33 angularly between the wings 35 toward the side of the tank or casing 10, a portion of the water admitted being carried upwardly through the casing 23 and discharged through the outlet ports 24' therein. The wings 35 and the paddle function to agitate the water sent into the tank or casing 10 and thus the contents of the sections 47 and 48 will be washed in the operation of the machine. The soiled or dirty water is drawn off through the drain 17, the screen 43 being adapted to function for eliminating circulation of solids in the washing process through the activity of the machine. The tubes or posts 44 may serve to further heat the water or when the water is drained off from the tank or casing 10 for drying purposes. These outlet ports 24' are laterally disposed. It is understood of course that the water will also rise to the upper open end of

the hollow shaft 23 and flood the sponge head or brush. The required quantity of water can be let into the casing and the level of the water within is preferably at a plane immediately below the lowermost edges of the wings 35, this being the normal water level. That is to say, this water level just mentioned has to do with the construction as shown in Figure 1 while in Figure 9 of the drawings the normal water level is in the plane with the upper open end of the well 55.

What is claimed is:

1. A machine of the character described comprising a casing having a well at its bottom, a hollow shaft rotatable in said casing and having outlet openings, a fluid supply nozzle stationarily held operatively associated with the well and delivering fluid into the casing and said shaft, a bladed fluid wheel fixed to the shaft and interiorly of said nozzle, a fluid supply pipe opening for communication with the well and nozzle, a drain pipe leading from said well, fins fixed interiorly of said nozzle, a spreader carried by said shaft above said nozzle, and wings projecting radially from the spreader and overhanging said nozzle.

2. A machine of the character described comprising a casing having a well at its bottom, a hollow shaft rotatable in said casing and having outlet openings, a fluid supply nozzle stationarily held within the well and delivering fluid into the casing and said shaft, a bladed fluid wheel fixed to the shaft and interiorly of said nozzle, a fluid supply pipe opening into the well, a drain pipe leading from said well, fins fixed interiorly of said nozzle, a spreader carried by said shaft above said nozzle, wings projecting radially from the spreader and overhanging said nozzle, a racking carrier within the casing, and a paddle carried by the shaft above the spreader.

3. A machine of the character described comprising a casing having a well at its bottom, a hollow shaft rotatable in said casing and having outlet openings, a fluid supply nozzle stationarily held within the well and delivering fluid into the casing and said shaft, a bladed fluid wheel fixed to the shaft and interiorly of said nozzle, a fluid supply pipe opening into the well, a drain pipe leading from said well, fins fixed interiorly of said nozzle, a spreader carried by said shaft above said nozzle, wings projecting radially from the spreader and overhanging said nozzle, a paddle carried by the shaft above the spreader, and electric heaters rising from the well interiorly of the casing.

4. A machine of the character described comprising a casing having a well at its bottom, a hollow shaft rotatable in said casing and having outlet openings, a fluid supply nozzle stationarily held within the well and delivering fluid into the casing and said shaft, a bladed fluid wheel fixed to the shaft and interiorly of said nozzle, a fluid supply pipe opening into the well, a drain pipe leading from said well, fins fixed interiorly of said nozzle, a spreader carried by said shaft above said nozzle, wings projecting radially from the spreader and overhanging said nozzle, a racking carrier within the casing, a paddle carried by the shaft above the spreader, electric heaters rising from the well interiorly of the casing, and a power unit for operating said shaft.

5. A machine of the character described comprising a casing having a well at its bottom, a hollow shaft rotatable in said casing and having outlet openings, a fluid supply nozzle stationarily held within the well and delivering fluid into the

casing and said shaft, a bladed fluid wheel fixed to the shaft and interiorly of said nozzle, a fluid supply pipe opening into the well, a drain pipe leading from said well, fins fixed interiorly of said nozzle, a spreader carried by said shaft above said nozzle, wings projecting radially from the spreader and overhanging said nozzle, a racking carrier within the casing, a paddle carried by the shaft above the spreader, electric heaters rising from the well interiorly of the casing, a power unit for operating said shaft, and a screening concentrically about the nozzle and extending to the lowermost point of the well.

6. A machine of the character described comprising a casing, a hollow shaft extended within the casing and having inlet openings in its lower end and outlet openings adjacent its upper end, a fluid supply nozzle concentrically about the said shaft and located at a lowermost point in said casing, a bladed fluid wheel within the nozzle and driven by said shaft on rotation thereof, a truncated ejector tip formed with said nozzle, fins stationarily arranged within said tip above the bladed fluid wheel, and an inverted conical shaped spreader overriding the said tip and operated by said shaft.

7. A machine of the character described comprising a casing, a hollow shaft extended within the casing and having inlet openings in its lower end and outlet openings adjacent its upper end, a fluid supply nozzle concentrically about the said shaft and located at a lowermost point in said casing, a bladed fluid wheel within the nozzle and driven by said shaft on rotation thereof, a truncated ejector tip formed with said nozzle, fins stationarily arranged within said tip above the bladed fluid wheel, an inverted conical shaped spreader overriding the said tip and operated by said shaft, and wings radially disposed on said spreader and in overlapped relation to the said nozzle.

8. A machine of the character described comprising a casing, a hollow shaft extended within the casing and having inlet openings in its lower end and outlet openings adjacent its upper end, a fluid supply nozzle concentrically about the said shaft and located at a lowermost point in said

casing, a bladed fluid wheel within the nozzle and driven by said shaft on rotation thereof, a truncated ejector tip formed with said nozzle, fins stationarily arranged within said tip above the bladed fluid wheel, an inverted conical shaped spreader overriding the said tip and operated by said shaft, wings radially disposed on said spreader and in overlapped relation to the said nozzle, and a resilient paddle on the shaft above said spreader.

9. A machine of the character described comprising a casing, a hollow shaft extended within the casing and having an inlet opening at the lower end and outlet openings at its upper end, a fluid supply nozzle concentrically about the said shaft and located at a lowermost point in said casing, a bladed fluid wheel within the nozzle and driven by said shaft on rotation thereof, a truncated ejector tip formed with said nozzle, fins stationarily arranged within said tip above the bladed fluid wheel, an inverted conical shaped spreader overriding the said tip and operated by said shaft, wings radially disposed on said spreader and in overlapped relation to the said nozzle, a resilient paddle on the shaft above said spreader, and fluid supply means communicating with the lower end of the casing.

10. A machine of the character described comprising a casing, a hollow shaft extended within the casing and having outlet openings at its upper end and an inlet opening at its lower end, a fluid supply nozzle concentrically about the said shaft and located at a lowermost point in said casing, a bladed fluid wheel within the nozzle and driven by said shaft on rotation thereof, a truncated ejector tip formed with said nozzle, fins stationarily arranged within said tip above the bladed fluid wheel, an inverted conical shaped spreader overriding the said tip and operated by said shaft, wings radially disposed on said spreader and in overlapped relation to the said nozzle, a resilient paddle on the shaft above said spreader, fluid supply means communicating with the lower end of the casing, and a power unit operating said shaft.

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