April 30, 1929. G. S. CLARKSON 1,710,863

DISHWASHING MACHINE

Original Filed Nov. 6, 1924

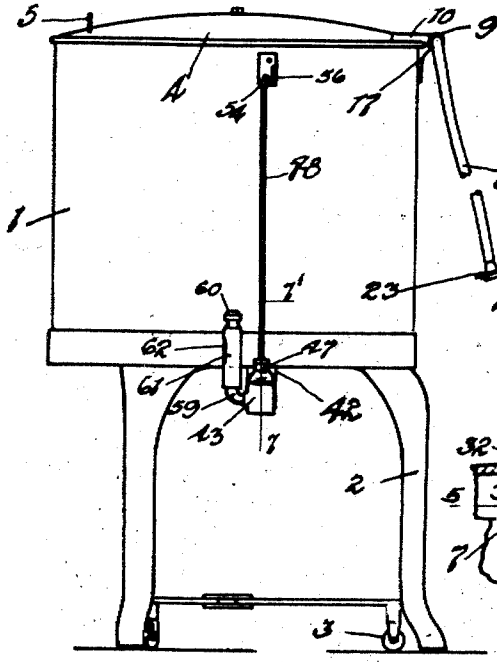


Fig 1

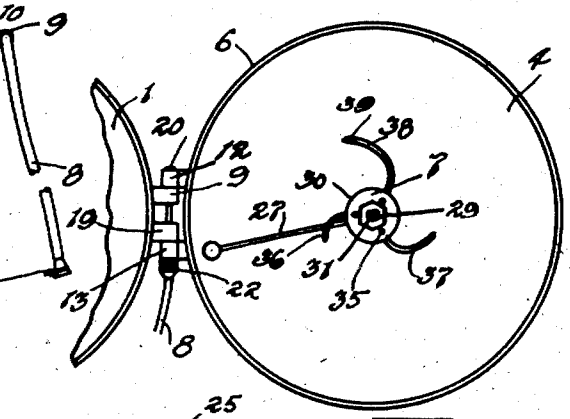


Fig 3

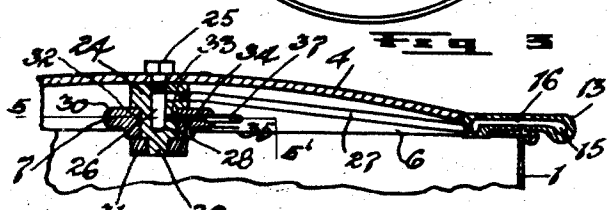


Fig 4

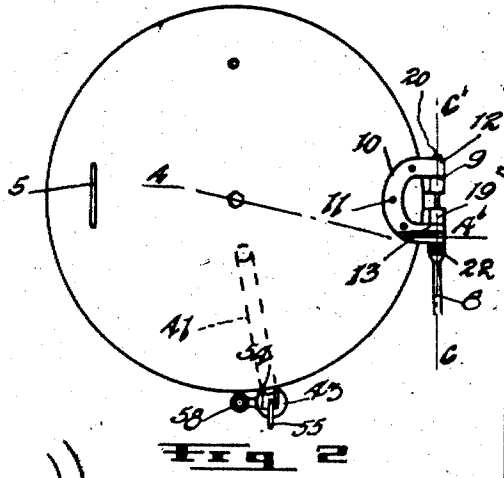


Fig 2

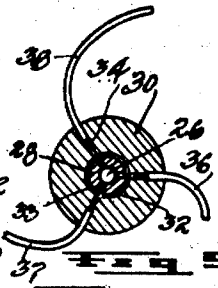


Fig 5

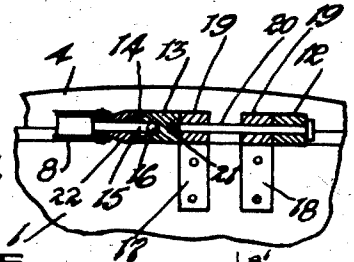


Fig 6

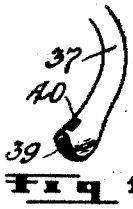


Fig 11



Fig 10

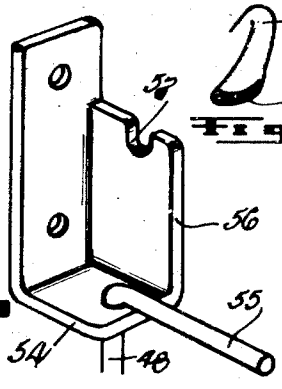


Fig 9

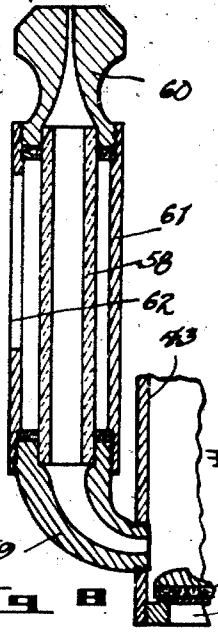


Fig 8

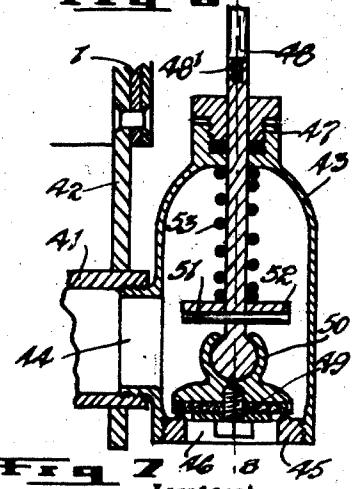


Fig 7

Inventor

G. S. Clarkson

By

Patented Apr. 30, 1929. 1,710,863

UNITED STATES PATENT OFFICE.

GUY S. CLARKSON, OF WINNIPEG, MANITOBA, CANADA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ELECTRIC DISHWASHERS LIMITED, OF WINNIPEG, CANADA.

DISHWASHING MACHINE.

Application filed November 6, 1924, Serial No. 748,235. Renewed October 6, 1928.

The invention relates to improvements in dish washing machines and an object of the invention is to provide a spraying device for initially washing off any foreign material adhering to or lodged on the dishes, and whilst the said dishes are in the machine and to arrange the machine such that the foreign material can be drained directly from the machine through a drain valve provided in the flow of water utilized for spraying purposes, such construction avoiding the undesirable work of having to primarily scrape the dishes before placing them in the machine.

A further object of the invention is to utilize the aforesaid spraying device to fill the machine to the required height with water utilized for washing purposes and to provide a sight glass for determining the height of the water by observation and to arrange the drain valve so that it can be readily closed to maintain the washing water in the machine.

A further object is to provide a machine wherein the dishes, subsequent to washing them, can be rinsed, this being accomplished in my machine by utilizing the sprayer and opening the drain valve.

A further object of the invention is to arrange the sprayer so that the cover of the machine is sprayed to maintain the same clean.

A further object of the invention is to construct the various parts so that they can be readily replaced or repaired and such that there is very little liability of them getting out of order, and such that the various operations can be quickly learned and carried out by the average housewife.

With the above more important and other minor objects in view which will become more apparent as the description proceeds, the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described, reference being had to the accompanying drawing in which:

Fig. 1 is a side view of a machine equipped with my invention.

Fig. 2 is a plan view thereof.

Fig. 3 is a view showing the cover of the machine open.

Fig. 4 is an enlarged detailed vertical sectional view at 4—4′ Figure 2.

Fig. 5 is a horizontal sectional view at 5—5′ Figure 4.

Fig. 6 is an enlarged detailed vertical sectional view at 6—6′ Figure 2.

Fig. 7 is an enlarged detailed vertical sectional view at 7—7′ Figure 1.

Fig. 8 is an enlarged detailed vertical sectional view through the sight glass and parts associated therewith.

Fig. 9 is a perspective view of the catch associated with the valve rod.

Fig. 10 is a perspective view of the end of one of the sprayer tubes.

Fig. 11 is a perspective view of the end of a further sprayer tube.

In the drawing like characters of reference indicate corresponding parts in the several figures.

In the present machine I have not shown the racks for the dishes or the propeller and driving mechanism therefor and as utilized for lifting the water from the bottom of the machine and forcing it through the dishes suspended in the racks. The racks and the propeller aforesaid form the subject matter of separate patent applications which are now pending under Serial Nos. 664,762 and 664,761 filed the 25th day of September, 1923.

In so far as the present machine is concerned it is to be understood that the parts herein disclosed are utilized for primarily spraying the dishes introduced into the machine to remove foreign substances therefrom and drain the same away, then for introducing the necessary quantity of water in the machine for washing purposes and finally for draining out such water and rinsing the washed dishes as well as the interior of the washing compartment.

The body 1 of the machine in which the dishes to be washed are placed, is cylindrical and has a closed bottom and an open top and is supported by suitable legs 2 which are fitted with casters 3 as shown. The open top of the machine body is closed by a cover 4 which is fitted with a handle 5 and a down turned flange 6 adapted to telescope into the top end of the body.

The cover carries a rotary sprayer indicated generally by the reference numeral 7 which is fed with water under pressure which passes to the machine through the hose connection 8 and is led to the sprayer through a special type of hinge 9 employed also to hingedly connect the cover to the body 1.

The hinge comprises a U-shaped strap 10 riveted at 11 to the cover and having the ends

thereof outwardly directed and terminating in horizontally aligned, spaced bearings 12 and 13. The bearing 13 has the outer side thereof formed to provide a screw threaded boss or nipple 14 which is provided with a duct 15 communicating with a further duct 16, the duct 16 being an internal one formed in the strap and having the inner end thereof opening to the interior of the cover as shown best in Figure 4.

A pair of straps 17 and 18 are permanently secured to the side of the machine body and terminate in opposing bearings 19 entered between the ends of the strap 10. A hinge pin 20 passes through aligned holes in the bearings 12 and 19 and enters the bearing 13, the inner end of the pin being screw threaded into the latter bearing as indicated at 21, but being entirely clear of the duct 16. One end of the hose 8 is provided with a coupling 22 which screw threads on to the nipple and the other end thereof is fitted with suitable means 23 for attaching the hose to a water service tap.

According to the above arrangement, the cover is hinged to the body 1 and water is passed to the interior of the cover from the hose 8 by way of the hinge.

Centrally within the cover I locate a distributing head 24 which is fastened firmly to the cover by a screw 25 screwing into the upper end of the head. Here it will be observed that the head is provided with an interior passage 26 which is connected by means of a pipe 27 with the inner end of the duct 16 and further that the head is provided with a contracted portion 28 forming a short spindle and beneath the spindle with a contracted screw threaded stud 29. On the spindle I mount the rotary sprayer 7, the circular body part 30 of the sprayer being held rotatably in place by a nut 31 screw threaded on to the stud and screwed tightly against the shoulder formed at the lower end of the spindle.

The body of the sprayer is provided on the inner side with a circumferentially directed channel 32 surrounding the spindle and this channel is at all times in direct communication with radially disposed ducts 33 formed in the spindle and leading from the passage 26. Radiating horizontal holes 34 are drilled through the body member 30 and communicate with the channel 32 and further vertically disposed holes 35 are drilled upwardly in the body member 30 and communicate with the holes 34. Bent spraying tubes 36, 37 and 38 of varying length are provided, these having their inner ends screw threaded into the holes 34 and their outer ends somewhat down turned.

From the above arrangement it will be obvious that the water passing to the machine through the hose 8 will enter the sprayer and cause the same to rotate and will be sprayed by the tubes and the holes 35 into the lower part of the container 1. It will be noted that the tubes are of varying length. This together with the provision of the holes 35 distributes the water throughout the entire area of the container.

I have found it desirable to make the outer ends of the tubes 36 and 38 as best shown in Figure 10 and the outer end of the tube 37 as shown in Figure 11. All the tubes have their ends cut off at a wide angle and the ends are then pressed together to provide a comparatively long, narrow, inclined outlet 39 on the under side and end thereof and the tube 37 is provided with a further slit or outlet 40 in the top side. The water emanating from the slots spreads in a fan shape and as the slots are narrow and the pressure is comparatively high, the water has a considerable velocity. The upwardly directed spray of water, through the slot 40 is utilized for rinsing off the inner side of the cover 4.

A drain pipe 41 leads from the bottom of the container or tank 1 and has the outer end thereof extending through and supported by a bracket 42 secured to the bottom of the container and communicating with a valve casing 43, the valve casing being provided with a screw threaded boss 44 screw threading into the end of the drain pipe (see Figure 7). This casing is more or less cylindrical and sits in an upright position adjacent the side of the machine and has the lower end thereof screw threaded to receive a disc like valve seat 45, the open centre of the seat forming an outlet 46 for the drain water. The upper end of the casing is fitted with a stuffing box 47 of any suitable design and a valve rod 48 passes slidably through the stuffing box and has the lower end thereof carrying a valve 49 adapted to engage the valve seat. In the present instance the valve is connected to the valve rod by a ball and socket joint 50 of well known design. This arrangement permits the valve to seat tightly. The lower end of the rod is provided with a cross pin 51 on which I place a washer 52 and a spring 53 encircles the rod and engages the washer and the upper end of the casing, and normally holds the valve seated.

The upper end of the rod passes slidably through a guide 54 and has the end thereof out turned to form a hand grip 55. The guide is permanently attached to the side of the casing 1 and when the handle is resting on the guide, the valve is closed. Adjoining the guide I locate an upstanding web 56 which is notched as indicated at 57 to provide a catch for the handle when the same is raised, it being here understood that one grips the handle and raises it sufficiently far to permit the handle to be passed into the catch. In this position of the handle, the valve is open. The rod 48 as shown, is made from upper and lower lengths screw threaded together at 48'.

This allows the valve and parts associated therewith to be removed, as after the valve seat 45 has been unscrewed, the lower end of the rod can be unscrewed and the valve and parts associated therewith pulled out.

Associated with the machine I provide a sight glass 58 whereby the attendant can visibly determine the height of water in the machine. This sight glass is carried, in the present instance, by the valve casing, the lower end thereof being seated in the upper end of an elbow 59 screw threading into the casing, and the upper end thereof being seated within a vent tube 60. The glass is enclosed within a metal casing which protects the same, and the casing is supplied with a vertically disposed sight opening 62.

Assuming that the dirty dishes to be washed have been placed in the machine, it being unnecessary to scrape them, one initially sprays them with hot water passed to the rotary sprayer through the hose 8, the valve 49 being at this time open. This initial spraying effectively cleans off the scrapings and such pass out with the spraying water through the pipe 41, the valve and the opening 46. After spraying, the attendant releases the handle 55 from the catch and turns the valve rod to allow the valve 49 to seat, it being observed that the seated valve is below the sight glass elbow connection. He then permits hot water to enter the machine through the sprayer until it is at the desired level in the bottom of the machine, this being observed through the slot 62 of the sight glass. When sufficient water is in the machine, he closes the tap or such like connected with the hose and proceeds with the washing of the dishes, such being accomplished by a rotary propeller in the bottom of the machine and fully shown and described in my co-pending applications Nos. 664,762 and 664,761 hereinbefore referred to. After the dishes have been washed, the valve 49 is opened to drain the water from the casing or tank and further water is then introduced through the hose 8 and sprayer to finally rinse the dishes and the interior of the top. The rinse water runs out the drain pipe as the valve is at this time open, and when the rinsing has been completed, the cover is opened and the clean dishes removed from the machine.

By primarily spraying the dirty dishes and discharging the initial dirty spraying water from the machine, I have much cleaner water in the machine to do the actual washing with, and by finally rinsing the dishes after the dirty washing water has been drained out, I am able to have the dishes perfectly clean at the end of the operation.

What I claim as my invention is:—

A washing machine comprising a tank, a cover, a spraying device attached to the inner side of the cover, a U-shaped strap attached to the cover with the ends of the strap formed to provide aligned bearings projecting beyond the cover, one of said bearings being formed at its outer end to provide a nipple having a fluid passage adapted for connection to a source of fluid supply and communicating with an internal duct formed in a portion of the strap, a conduit leading from said duct to the spraying device to supply fluid to the latter, bearing members carried by the tank and aligned with the bearing members of the cover, and a pin passing through and hingedly connecting the two sets of bearings.

Signed at Winnipeg, this 7th day of August 1924.

GUY S. CLARKSON.