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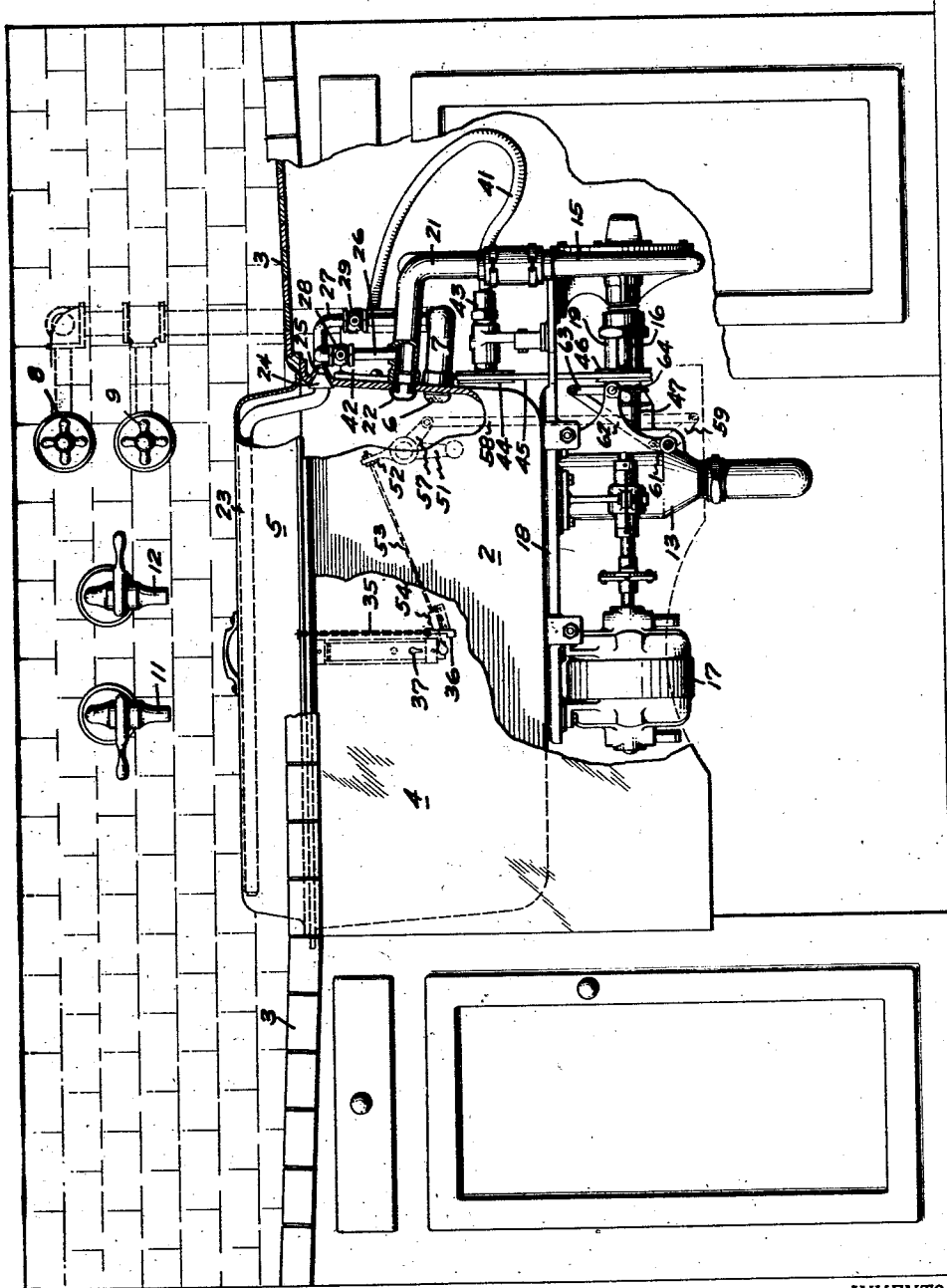
1,646,142

J. FASSIO

DISHWASHING APPARATUS

Filed June 6, 1923

4 Sheets-Sheet 1



WITNESS:
H. Shurburne

FIG. 1.

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Oct. 18, 1927.

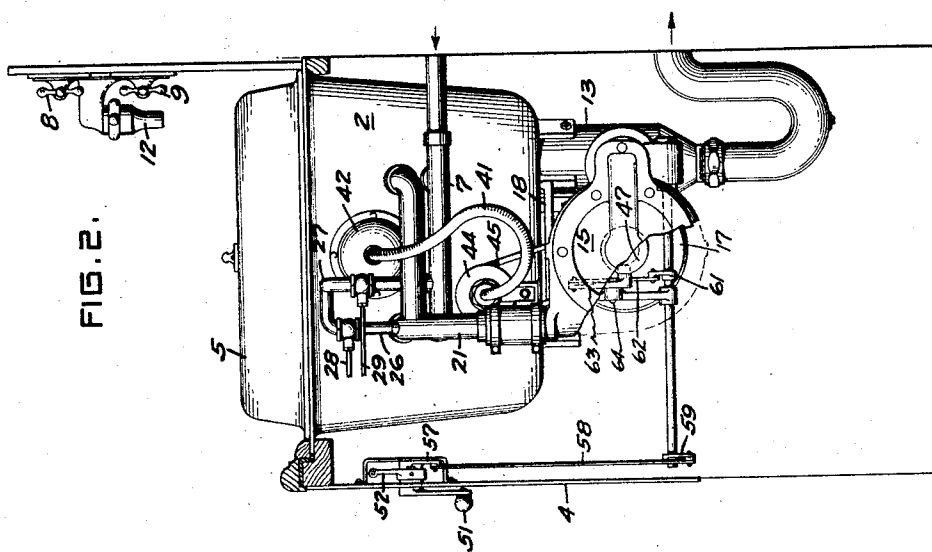
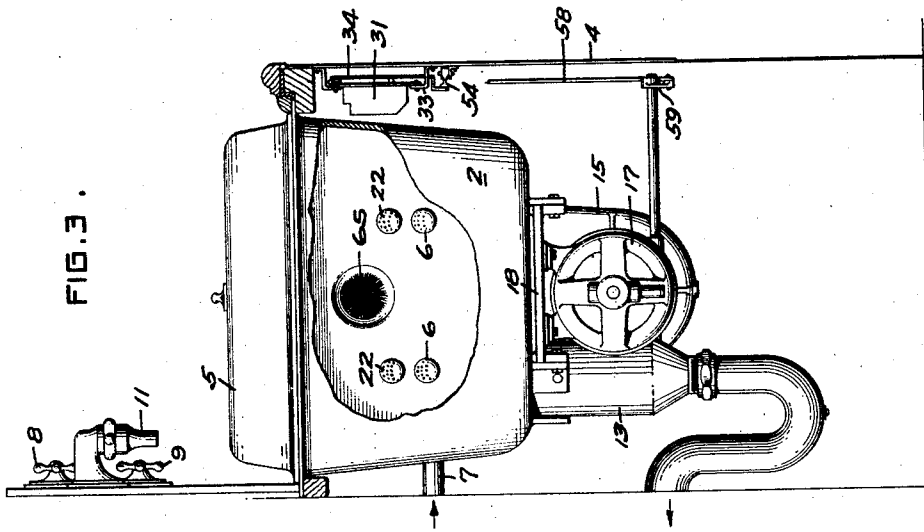
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DISHWASHING APPARATUS

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4 Sheets-Sheet 2



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DISHWASHING APPARATUS

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4 Sheets-Sheet 3

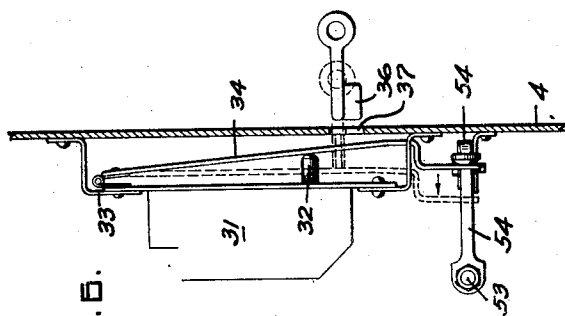


FIG. 6.

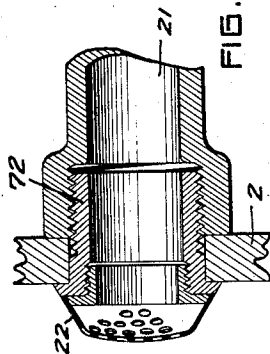


FIG. 5.

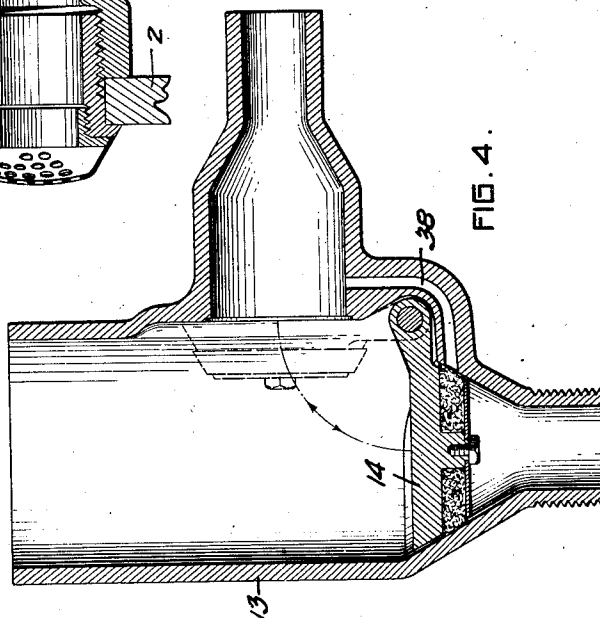


FIG. 4.

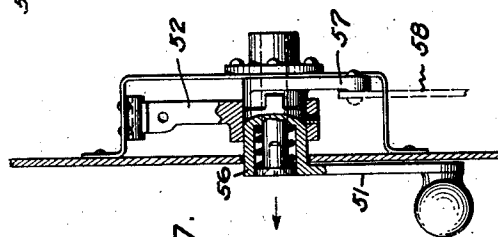


FIG. 7.

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DISHWASHING APPARATUS

Filed June 6, 1923

4 Sheets-Sheet 4

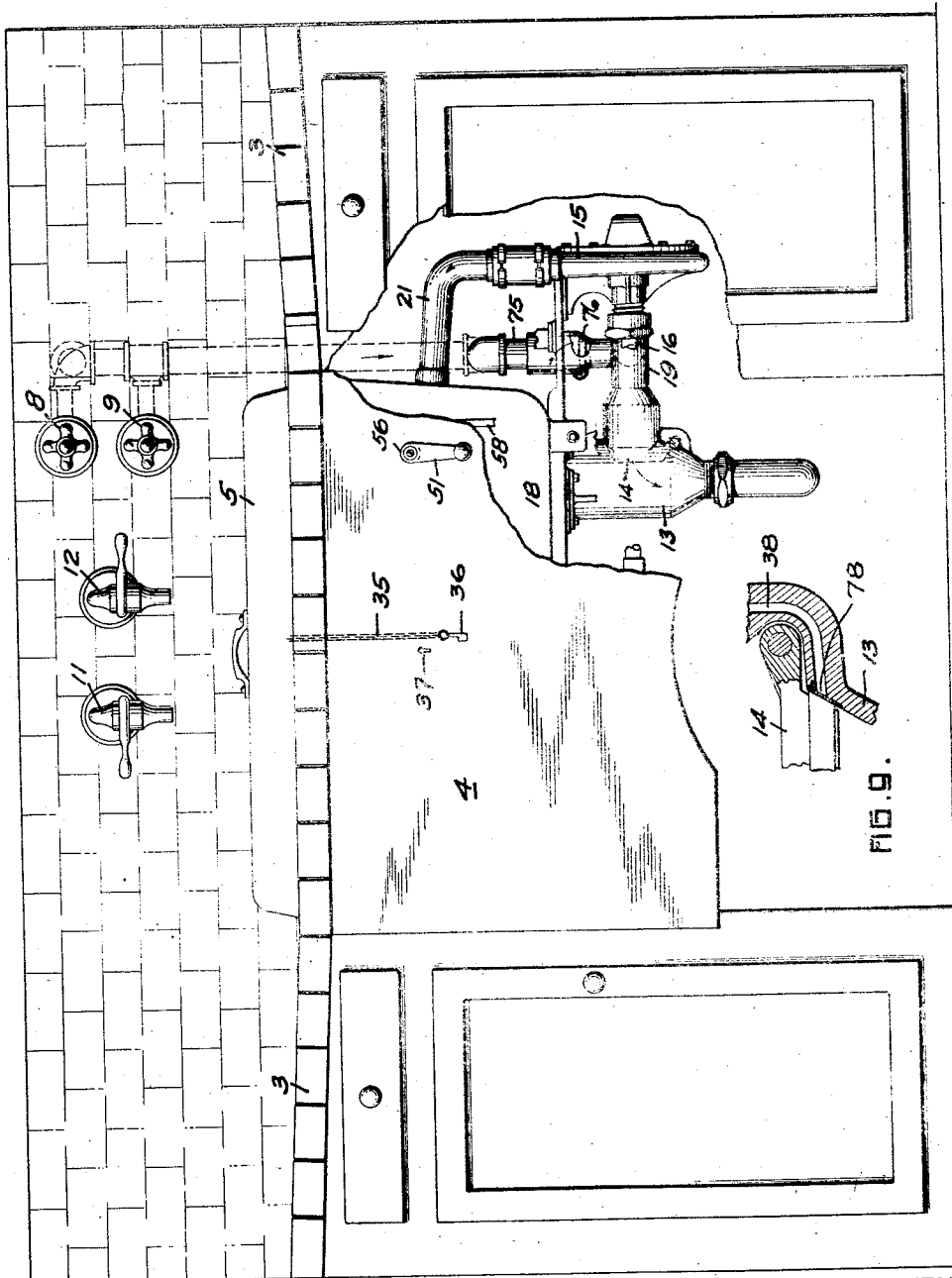


FIG. 8.

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UNITED STATES PATENT OFFICE.

JULIUS FASSIO, OF SAN FRANCISCO, CALIFORNIA.

DISHWASHING APPARATUS.

Application filed June 6, 1923. Serial No. 643,625.

The invention relates to dish washing apparatus and particularly to such apparatus embodying a sink in which the dishes are washed.

5 An object of the present invention is to provide a dish washing apparatus having in combination a sink and a motor driven pump for circulating washing water contained in the sink and discharging it into the sink in a plurality of sprays against the utensils in the sink, to be washed.

10 Another object of the invention is to provide a dish washing apparatus comprising a sink having a removable cover and means connected to the cover for controlling the electric circuit of the motor which drives a water circulating pump, so that the pump may be operated to recirculate washing water only when the cover is in place on the sink.

15 A further object of the invention is to provide an organized dish washing apparatus which may be built directly into the kitchen so that it may serve as the ordinary sink, for the usual culinary purposes or as a dish washing apparatus.

20 The invention possesses other advantageous features, some of which, with the foregoing, will be set forth at length in the following description, where I shall outline in full, that form of my invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. In said drawings I have shown one form of dish washing apparatus of my invention, but it is to be understood that I do not limit myself to such form since the invention as set forth in the claims, may be embodied in a plurality of forms.

Referring to said drawings:

25 Fig. 1 is a front elevation of the dish washing apparatus of my invention in its environment, a portion thereof being broken away to disclose the construction.

30 Fig. 2 is an end elevation of the apparatus of my invention a part thereof being broken away to disclose the construction.

35 Fig. 3 is an opposite end elevation of the dish washing apparatus, a portion of the sink being broken away to disclose the opposite end of the sink.

40 Fig. 4 is a vertical section through the drain pipe associated with the sink.

45 Fig. 5 is a vertical section through one of the spray nozzles and its mounting.

50 Fig. 6 is a detail of the electric switch actuating means.

Fig. 7 is a detail of the control handle and its associated levers.

Fig. 8 is a front elevation of a modified form of dish-washing apparatus of my invention, part thereof being broken away to disclose the construction.

Fig. 9 is a detail of a portion of the apparatus shown in Figure 8.

60 The dish washing apparatus of my invention comprises a sink 2 of any desirable size and depth depending upon the desired dish washing capacity. The sink is arranged in place in the kitchen with its associated drain boards 3 on either side thereof and the front of the sink is preferably concealed by a panel or skirt 4. Means are provided for introducing streams of fresh water into the sink for the purpose of washing or rinsing the dishes therein and also for recirculating the water in the sink and projecting it in sprays into the sink against the dishes therein. The sink is also preferably provided with a cover 5 which prevents the water issuing from the spray nozzles, from discharging over the edge of the sink. Arranged at one end of the sink are one or more spray nozzles 6 which are connected by a pipe 7 to the hot and cold water service pipe and these service pipes are provided with valves operated by the handles 8 and 9 for controlling the discharge of fresh water into the sink. Cold and hot water faucets 11 and 12 are also arranged over the sink to permit the introduction of water into the sink when it is not being used for dishwashing purposes. The sink is provided with a drain pipe 13 which is connected with the sewer, so that the water in the sink may be run to waste when desired. The drain pipe 13 is provided with a valve 14 which, when closed, prevents the discharge of the water to the sewer, so that the water in the sink may be recirculated and projected against the dishes in the sink, thus thoroughly cleaning them and minimizing the amount of water necessary to clean the dishes.

65 Arranged below and preferably to one side of the sink is a rotary or centrifugal pump 15, the shaft 16, of which is driven by the electric motor 17. The motor and pump are preferably mounted on a plate 18 secured to the bottom of the sink so that these instrumentalities may be readily and properly installed. The pump 15 is connected on its suction side by the conduit 19, with the drain pipe 13 and the conduit 19 opens into the drain pipe 13 above the valve

14 so that when the valve 14 is closed water flows from the sink to the pump. The discharge side of the pump is connected by the pipe 21 with one or more spray nozzles 22 arranged preferably in the end wall of the sink. The spray nozzles 6 and 22 are so constructed and positioned that a portion of the water discharging therefrom, strikes the cover 5 and falls therefrom onto the dishes producing the effect of downward streams of water directed against the dishes. The cover causes the deflected streams to also discharge in various directions in the sink so that the washing water reaches all parts of the dishes disposed in the sink. It is preferable to arrange a wire or other rack in the sink and to arrange the dishes on the rack in such manner that the water will have access to all of the surfaces of the dishes.

When desired, a spray pipe 23 may be arranged on the under side of the cover so that positively directed downward sprays will be produced. The spray pipe 23 is preferably rigidly attached to the cover and is provided on its end with a fitting 24 which, when the cover is in place, forms a tight joint with the socket 25 formed in the end of the sink. The socket 25 is supplied with water by the pipes 26 and 27 which connect respectively with the pipes 7 and 21 so that the spray pipe 23 is supplied with water whenever water is being introduced into the sink through the spray nozzles 6 or 22. The pipes 26 and 27 are provided with valves 28 and 29 having control stems which extend to the front of the panel 4 where they are provided with operating handles. Thus the spray pipe 23 may be used or not, at the discretion of the operator.

The electric motor 17 is controlled by an electric switch contained in the switch housing 31 mounted on the rear side of the panel 4. The construction of the switch is standard and need not be described herein. The switch is closed by pressing the button or plunger 32 and means are provided for pressing this button and holding it in the depressed position. Pivoted to the bracket 33 which supports the casing 31 is a lever 34 which lies between the button 32 and the panel 4. By pressing backward on the lever 34 the button 32 is depressed and the switch closed. Means are provided for preventing the closing of the switch when the cover 5 is not in place or when the valve 14 is closed, so that water may not be recirculated and discharged through the nozzle 22 when the cover is removed. When the valve 14 is open, the water will discharge to the sewer and will not pass through the pump so that operation of the motor during the time that the valve is open will not cause recirculation of the water. Flexibly attached to the cover 5 as by means of the chain 35 is

a key 36 which is adapted to be inserted through the key hole 37 in the panel 4. The key hole is disposed in front of the lever 34 so that by inserting the key in the key hole and then turning the key, the button 32 is held in position to close the switch. Since the key 36 is attached to the cover it cannot be inserted in the key hole unless the cover is in place.

The pipe 19, connected to the suction side of the pump 15, opens into the drain pipe 13 above the valve 14 and the valve is so designed that when it is in one position, as shown in Figure 4, it closes the drain pipe and when it is in the other position, as shown in dotted lines in Figure 4, it closes the suction pipe 19. Therefore when the valve is closed the water is recirculated by the pump and when the valve is open no water is recirculated by the pump since the valve closes the suction pipe 19. This suction pipe may contain some water which would be picked up by the pump and ejected from the spray nozzle 22, at a time when such action would not be desirable, and to prevent this I provide a bypass conduit 38 connecting the pipe 19 with the drain pipe so that when the valve is in raised position any residual water in the suction pipe 19 may drain therefrom. The conduit 38 preferably opens on the seat of the valve 14 so that when the valve 14 is closed the conduit 38 is likewise closed thereby preventing the drainage of water past the valve 14.

The dishwashing apparatus of my invention is also provided with a power driven brush which may be used for washing pans and pots. This brush is mounted on the flexible shaft 41 and is normally disposed in the socket 42 formed in the end of the sink. The shaft is of sufficient length so that the brush may be withdrawn from the socket and freely used to clean dishes. The flexible shaft is connected at its lower end to a shaft 43 which is driven by the pulley 44. The pulley 44 is driven by the belt 45 which passes over the pulley 46 which is secured to a clutch member 47 slidably arranged on the shaft 16. Means are provided for moving the clutch member 47 into engagement with the clutch member secured to the shaft 16 to cause rotation of the flexible shaft 41. Mounted on the panel 4 and arranged in front thereof, is a control lever 51 to which is secured the lever 52 which is disposed behind the panel 4. The lever 52 is connected by a flexible chain or cord 53 with one arm of a bell-crank lever 54, which is pivoted on a vertical axis, the other arm of which is disposed in front of the lever 34. By pulling on cord 53 the bell-crank lever 54 is operated to move the lever 34 to close the electric switch. Co-operating with the hub 56 of the lever 51 is a lever 57 which is connected by the link 58 to the lever 59 which is secured

to the shaft of the valve 14. The valve 14 is therefore movable to either of its operative positions by the control handle 51. The lever 59 is provided with an extension 61 extending past the shaft of the valve 14 and this extension 61 is connected by means of the link 62 with the clutch shifting lever 63. The lever 63 is pivoted on the bracket 64 and is provided on its lower end with a pin which engages in the circumferential groove formed on the clutch member 47. The connection between the valve 14 and the clutch member 47 is such that when the valve 14 is in position to open the drain pipe, the movable clutch member is moved into its engagement with the fixed clutch member on the shaft so that closing of the motor circuit will then cause operation of the rotating brush 65. When the valve 14 has been moved to drain pipe opening position and the clutch member 47 has been shifted, the electric circuit has not been closed, since the length of the chain 53 is such that at this time no tension has been placed in it and the switch has not been closed. The valve 14 having been moved to a seat in its upward position, prevents further movement of the lever 57 and consequently further movement of the control handle 51. Means are provided for disconnecting the control handle from the lever 57 so that the control handle may be moved further to close the switch. The hub 56 of the control handle is provided with a diametrically disposed tooth on its rear surface and this tooth normally engages in a corresponding slot in the forward face of the lever 57 so that the handle and the lever rotate together. The handle however may be pulled forward to move the diametrically disposed tooth 65 from engagement in the slot in the lever 57, so that the handle 51 may be moved to operate the switch without affecting the lever 57. The lever 57 is preferably also provided with a hub and the hub 56 and the hub of the lever 57 are both seated in a bearing so that the control handle 51 may be moved from connection with the lever 57 without interfering with the pivotal support of the lever or the control handle. The motor may thus be operated during the time that the cover is removed but in order to close the motor circuit, the handle 51 must be moved past the position of closing the pump inlet pipe, and normally the handle will be moved to this position before it is pulled out to free it from the lever 57 so that normally the motor circuit will not be closed until after the suction inlet pipe to the pump has been closed so that operation of the motor at this time serves only to drive the brush and not to recirculate water through the sink.

The spray nozzles 6 and 22 are preferably mounted directly in the end of the sink but when desired pipes may extend into the sink

adjacent the end and the spray nozzle may be mounted on the pipes. I prefer to mount the spray nozzles removably, so that they may be readily removed for cleaning in the event that solid material may lodge therein. I preferably secure a hollow fitting 72 having an internal thread, to the wall of the sink and screw the spray nozzle into the fitting. The spray nozzle may thus be readily removed when it is desirable to attach some other structure, such as a bottle washing rack, to the fitting 72. Instead of entering the sink through the end wall, the water carrying pipe may enter the sink through the bottom or through the top and may be disposed in the portion of the sink adjacent the end and the spray nozzles may be arranged on the pipe to project sprays of water into the sink.

In the construction shown in Figure 8, I employ only one spray nozzle or one set of spray nozzles for discharging both the fresh water and the recirculated water into the sink. This construction not only eliminates one set of spray nozzles but provides for the introduction of fresh water into the sink under higher pressure and consequently in more effective sprays than is frequently obtained by drawing the water directly from the supply mains. In many localities the water pressure in the supply mains is low so that effective sprays are not produced. In accordance with the present construction, the water supply pipe 75 is connected to the pump inlet pipe 19, and the fresh water is forced by the pump, at a pressure higher than the static pressure of the water, through the spray nozzles. The supply of fresh water to the pump may be controlled by the valves which are operated by the handles 8 and 9 or by a valve 76 arranged in the pipe 75, or both sets of valves may be employed when desired. To prevent the induction of air through the drain passage 38, during the time that the valve 14 is in position to close the conduit 19 and the pump is operating on water supplied through the pipe 75 I provide a check valve 78, covering the lower end of the passage 38. The check valve is preferably a leather disc disposed in a seat formed in the wall of the pipe 13, so that it will not interfere with the closing of the valve 14.

In the dish washing operation, the dishes are arranged in the sink, the valve 14 turned to open the drain pipe and fresh water discharged from the spray nozzles to remove the major portion of the material from the dishes. When this material has discharged from the sink, the valve 14 is turned to close the drain pipe and fresh water permitted to accumulate in the sink. Soap or other washing material is added to the water and after sufficient water has accumulated, the supply of fresh water is turned off and the accumulated water circulated by the pump and

sprayed against the dishes. After the dishes are thoroughly washed, the drain pipe is opened and the dirty water flowed to waste. Fresh hot water is then discharged through the spray nozzles to thoroughly rinse the dishes, which may be allowed to dry, due to their stored heat or which may be wiped dry.

I claim:

1. A dish washing apparatus comprising a sink, a drain pipe connected to the sink, a pump connected on its intake side to said drain pipe, a conduit connecting the discharge side of the pump with the sink, a single two way valve adapted in one position to close the drain pipe and in another position to close the pump section and a by-pass conduit connecting the pump suction with the drain pipe adapted to be closed by the valve, when the valve is in position to close the drain pipe.

2. A dish washing apparatus comprising a sink, a drain pipe connected to the sink, a pump connected on its intake side to said drain pipe, a conduit connecting the discharge side of the pump with the sink, a single two way valve in the drain pipe below the suction pipe connection adapted to close

the drain pipe or the suction pipe and a conduit opening at one end on the valve seat in the drain pipe and at the other end in the suction pipe.

3. In a washing apparatus, a sink, a drain pipe connected to said sink, a circulating pump having an intake pipe connected to said drain pipe, a movable valve member at the junction of said intake pipe and said drain pipe, said valve member being movable in one position to close the lower portion of said drain pipe and allow said pump to draw water from said sink thru the upper portion of the drain pipe, and movable in another position to open the lower portion of the drain pipe and close the intake pipe, a bypass passage extending from said intake pipe to said drain pipe, and means for closing said by-pass passage upon movement of the valve member to said first mentioned position and for opening the passage upon movement of the valve member to said second mentioned position.

In testimony whereof, I have hereunto set my hand.

JULIUS FASSIO.