May 23, 1950 C. J. MANVILLE 2,508,958

DISH WASHING APPARATUS

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FIG. 1

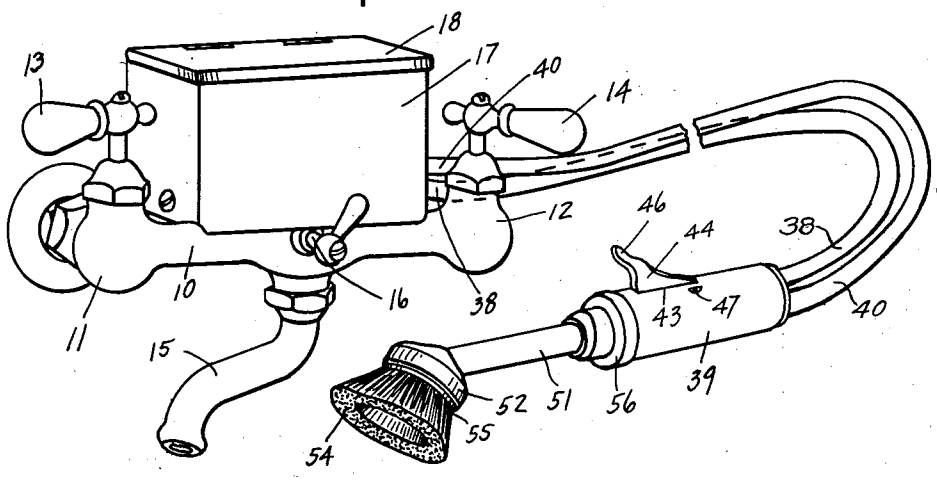
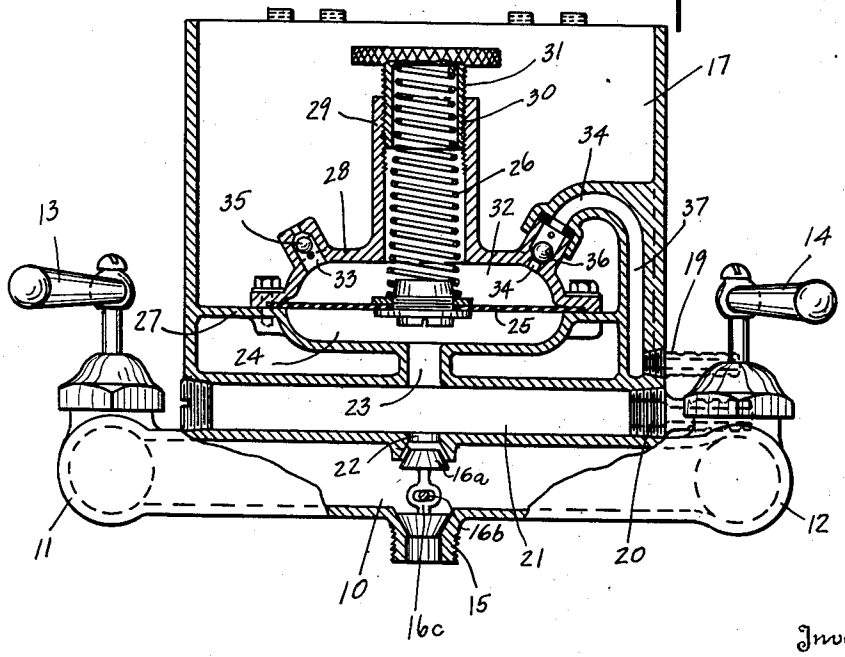


FIG. 2



Inventor.
CHARLES J. MANVILLE.

By Lockwood, Goldsmith & Galt,
Attorneys.

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FIG. 3

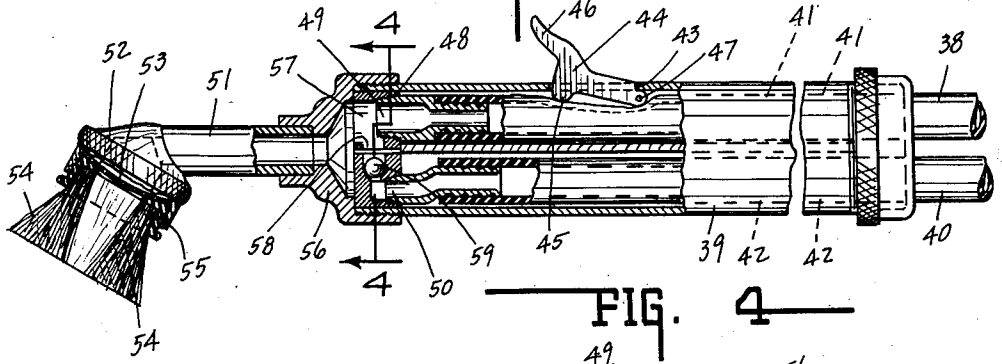
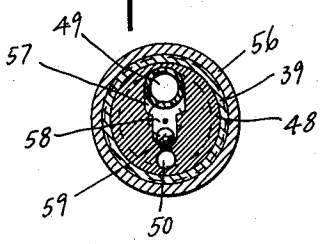


FIG. 4



Inventor
CHARLES J. MANVILLE.

By Lockwood, Goldsmith & Galt,
Attorneys.

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DISH WASHING APPARATUS

Charles J. Manville, Pontiac, Mich.

Application September 20, 1947, Serial No. 775,221

10 Claims. (Cl. 15—129)

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This invention relates to a dish and like washing apparatus.

The chief object of the present invention is to provide apparatus that will selectively wash and rinse, the washing being accomplished by a soap and/or detergent water solution, the rinsing being of soapless character, the washing and rinsing being accomplished with hot water, cold water, or warm water as desired or required.

The chief feature of the present invention resides in providing a water and a detergent solution supply to a fountain type brush and the like, finger control of which utilizes the water pressure for detergent supply for washing purposes when desired.

Another feature resides in the brush unit embodied in this invention.

A further feature resides in the detergent reservoir and the supply therefrom to the said brush.

Still another feature resides in the incorporation of the present invention in a combination mixing spout fixture with diversion valve control.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings,

Fig. 1 is a perspective view of a kitchen sink fixture or mixing unit of diversion valve type with which is associated the detergent reservoir, pump means, the handle type brush and its attached control all embodying the invention.

Fig. 2 is a vertical sectional view through the detergent reservoir and associated parts, the cover being omitted.

Fig. 3 is a longitudinal sectional view of the handle type brush and its control.

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 3 and in the direction of the arrows.

In Fig. 1 of the drawings 10 indicates a mixing chamber fixture unit connected at 11 and 12 to hot and cold water pressure supplies controlled by valves 13 and 14 respectively for regulating the amount discharged from spout 15 and the temperature thereof as well understood in the art. 16 indicates a control that operates through an eccentric pin and slot a diversion valve means 16a, generally known in the art as a diverter valve, which when disposed in one position effects mixing chamber discharge from spout 15 and when disposed in an opposed position effects spout cut-off and diversion of the water to another outlet such as indicated at 20. Herein, see Fig. 2, 16^b indicates the eccentric pin operable by handle shaft 16 (see Fig. 1) and 16^c indicates the cooperating slot associated with valve 16^a.

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In Fig. 1, 17 indicates a chamber forming housing or reservoir having tiltable lid or cover 18, soap solution outlet 19 and water outlet 20. Passage 21 in the base of said housing has an intake 22 suitably connected to or communicating with the mixing chamber 10 and controlled by diverter valve control 16^a.

Passage 1 has a branch 23 leading to a chamber 24 closed by diaphragm 25 normally subject to a spring 26 disposed to position the diaphragm, when not subject to fluid pressure, as illustrated in Fig. 2.

Chamber 24 is formed as a part of partition 27 near the bottom of chamber 17. Member 28 forms with the diaphragm a pump chamber and includes stem 29 threaded at 30 to take closure 31 whereby the force of spring 26 can be adjusted to the supply pressure in passage 21 when the full pressure of the mixing chamber 10 is diverted and is applied thereto.

Member 28 forms pump or detergent chamber 32 with the diaphragm 25. It has check valve controlled ports 33 and 34 controlled by checks 35 and 36 respectively. The former serves as an intake from the soap chamber. The latter serves as a discharge from the pump chamber.

When fluid pressure is increased in passage 21 as hereinafter described, the increase in pressure flexes diaphragm 25 in opposition to spring 26 thereby forcing soap solution from chamber 32 past check 36 and through outlet 34 to line 37 connecting to outlet member 19. Check 35 in intake 33 prevents soap solution return to reservoir 17.

When the fluid pressure is released or decreased in passage 21 the spring 26 returns diaphragm 25 to the position shown in Fig. 2, which return effects suction of soap solution into pump chamber 32 through intake 33, soap return from line 37 etc. being prevented by check valve 36.

Thus the diaphragm is actuated as often as the pressure in passage 21 is increased which is as often as the discharge from line 21 is checked or momentarily restricted as now will be described.

Referring to Figs. 1 and 3, it will be noted that one flexible conduit 38 is connected at one end to handle 39 and at its opposite end to outlet 20 of passage 21. A second flexible conduit 40 is connected at one end to handle 39 and at the other end to outlet 19.

In Fig. 3 handle 39 includes passages 41 and 42 wherein conduits 38 and 40 are disposed. Handle 39 is longitudinally notched at 43 and disposed therein is member 44 having clamp portion 45 and exposed finger engageable portion 46. Pin 47 or the like pivotally supports the member 44 in the notch of the handle.

When finger pressure is applied to portion 46, portion 45 is depressed restricting the free flow through passage 21, and conduit 38 thereby building up a pressure in chamber 24 to flex diaphragm 25. When the finger pressure is released, the water pressure returns member 44 to the position shown in Fig. 3 and the spring 26 returns diaphragm 25 to the position shown in Fig. 2.

The end of handle 39 is closed as at 48 and same has two bores 49 and 50 with which tubes 38 and 40 connect. A tubular arm 51 terminates in a brush head 52 which is hollow and has a perforated plate 53 for discharge purposes. Brush bristles 54 are detachably secured at 55 to said head thereby forming a fountain brush structure.

Tubular arm 51 at its other end terminates in unit 56 having port 57 registering with port 49 and discharging to the arm. Unit 56 also has port 58 registering with port 50 and also discharging to the tubular arm. However, included herein is check valve 59 preventing pressure from line 38 etc. being applied to the soap supply line.

Accordingly every time portion 46 is depressed a shot of soap solution will be discharged to the fountain brush. Thus the amount of soap in the water used for washing can be regulated and varied as desired or required. When member 46 is not depressed the brush can be used for spray rinsing or brush rinsing since after a short interval of clear water flow there will be little or no soap discharged by or in the brush.

While the invention has been illustrated and described in great detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character.

The several modifications described herein as well as others which will readily suggest themselves to persons skilled in this art, all are considered to be within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. In a dish and like washing apparatus having a mixing unit adapted to be connected to a hot water supply and a cold water supply, each supply having a hand valve control, the unit having a common discharge, and a fountain brush, the combination therewith of a flexible connection between the brush and the discharge, a fluid flow restricting valve downstream from the mixing unit, a liquid detergent reservoir, and pump means arranged to draw detergent from the reservoir and discharge same to the brush in opposition to fluid pressure therein, said pump means having a portion exposed to the fluid pressure in the unit, and operable in response to an increase of pressure incident to last mentioned valve operation restricting the brush discharge.

2. Apparatus as defined by claim 1 wherein the fountain brush includes a handle and the valve includes a hand operable member disposed contiguous thereto for one hand brush holding and detergent supply control.

3. Apparatus as defined by claim 1 wherein the pump means includes a detergent chamber in check valve controlled communication with the reservoir.

4. Apparatus as defined by claim 1 wherein the pump means includes a detergent chamber having a check valve controlled discharge.

5. Apparatus as defined by claim 1 wherein there is provided a check valve in the flexible connection to the brush, said check valve preventing the application of water pressure upon the detergent supply portion of the flexible connection to the brush.

6. Apparatus as defined by claim 1 wherein the pump means is of diaphragm type.

7. Apparatus as defined by claim 1 wherein the pump means includes a member which is fluid pressure operable in one direction and a spring for moving that member in the opposite direction.

8. Apparatus as defined by claim 7 wherein the pump is spring chargeable and fluid pressure dischargeable.

9. In a structure having hot and cold water independently controlled supply lines and discharging to a diverter-valve, said structure including a mixing unit, the combination therewith of a detergent reservoir, flexible discharges connected at one end to the mixing unit and the reservoir, a fountain brush head and handle device connected to the other ends of said discharges, and manually controlled means carried by the device for automatic control of the supply of detergent to the device incident to water discharge therefrom.

10. Structure as defined by claim 9 wherein the manually controlled means comprises a finger operable member carried by the handle of the device, the detergent discharge being responsive to member operation and by pressure imposed incident to such operation.

CHARLES J. MANVILLE.

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