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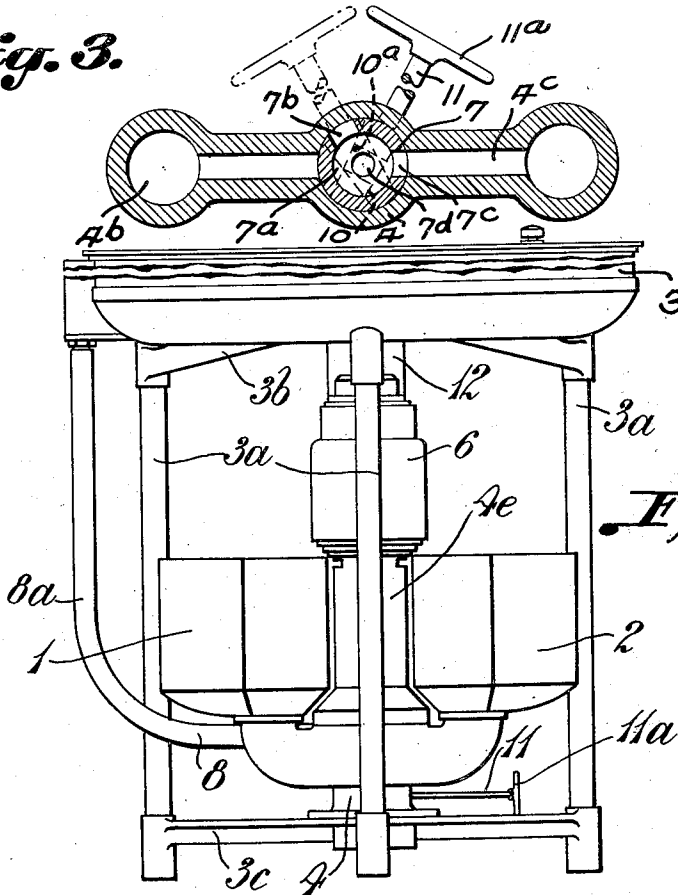
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FLOW CONTROLLING MEANS FOR DISHWASHERS

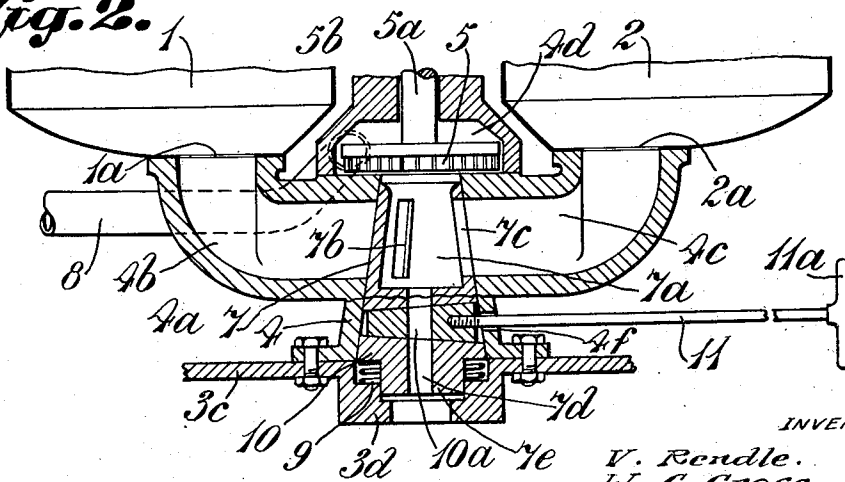
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*Fig. 3.*



*Fig. 1.*

*Fig. 2.*



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## UNITED STATES PATENT OFFICE

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FLOW CONTROLLING MEANS FOR  
DISHWASHERS

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## 1 Claim. (Cl. 277—39)

This invention relates to dish and the like washing machines of the kind wherein hot water is withdrawn from a tank or reservoir by means of a pump and sprayed through nozzles on to the dishes or the like contained in a rotatable basket, the action of the jets of liquid on the dishes or the like causing the rotation of the basket and the waste water being returned to the tank or reservoir. The invention specifically relates to machines of this kind wherein two or more tanks or reservoirs are provided and wherein a valve member or members is or are provided for placing the tanks or reservoirs in communication with a common circulating pump or with a common drainage outlet, as desired.

According to the present invention the outlets from the tanks or reservoirs are connected to a ported member with which a spring pressed main valve member is adapted to co-operate in such manner that the outlets from the tanks or reservoirs may be placed alternatively in communication with the circulating pump, and the main valve member is formed or provided with a drainage passage or outlet controlled by an auxiliary valve member mounted in or upon the main valve member, the main and auxiliary valve members being operated by a single and common lever or handle. Conveniently, the main valve member is in the form of a plug cock having a central chamber in free communication with the circulating pump and having suitably arranged ports in the wall of such chamber for co-operating with ports in the valve body in communication with the respective outlets from the tanks or reservoirs, so that by angular movement of the main valve member to predetermined positions, one tank or the other may be placed in communication with the pump which circulates the liquid in the machine. In such a construction the drainage outlet conveniently is constituted by an axial passage in the conical plug, and the auxiliary valve member is in the form of a plug cock arranged with its axis at right angles to the axis of the main cock. The handle or lever is fitted to extend outwardly from the auxiliary plug cock, and it will be understood that by moving the handle or lever angularly about the axis of the main cock, the position of the latter may be adjusted as required, while by rotating the handle or lever about the axis of the auxiliary cock the latter may be opened or shut as required.

The invention is hereinafter described by way of example with reference to the accompanying diagrammatic drawing, in which:—

Figure 1 is a rear elevation of a washing machine in accordance with the present invention;

Figure 2 is a sectional elevation of the lower part of Figure 1 drawn to an enlarged scale, the lower part of the figure being a section on the line II—II of Figure 3;

Figure 3 is a sectional plan view corresponding to Figure 2.

In carrying the invention into effect according to one construction and in the application of the invention, for example to a dish washing machine of the kind referred to wherein two supply tanks 1, 2 are mounted beneath the upper receptacle 3 in which the rotatable basket is mounted, the upper receptacle 3 may be supported upon legs 3a which are connected together at a suitable height by means of a transverse member or spider fitting 3b upon which the upper receptacle is mounted and at or adjacent their lower ends by a spider fitting 3c upon which the tanks 1, 2 are fixedly mounted. The pair of tanks 1, 2 may be constituted by a single reservoir divided into two compartments by means of a transverse wall.

The tanks or reservoirs 1, 2 are formed with outlets 1a, 2a at the bottom preferably in oppositely disposed positions and a valve body 4 in the form of a casting is fixed to the underside of the tanks or reservoirs, such casting having a central vertical bore 4a of conical formation and oppositely disposed passages 4b, 4c arranged to communicate with the outlets from the tanks or reservoirs and opening into such bore 4a. Above the valve body 4 a suitable centrally disposed chamber 4d is provided for the reception of the impeller 5 of a pump which is preferably driven from an electric motor 6 arranged coaxially with the impeller 5 and at a position above the top of the pair of tanks or reservoirs 1, 2 the driving shaft 5a being enclosed by means of a suitable tube 4e. At its lower end the valve body 4 may be flanged for bolting upon the spider 3c.

A main valve member 7 in the form of a plug cock adapted to fit into the conical bore 4a in the valve body 4 is formed with a central chamber 7a extending from the top of the valve member to an intermediate position, the wall of such chamber being formed with suitably arranged ports 7b, 7c so that by turning the valve member 7 through a suitable angle one or other of the passages 4b, 4c in the body 4 leading from the outlets 1a, 2a in the tanks or reservoirs 1, 2 may be placed in communication with the axial inlet to the pump. The outlet 5b from the pump may be at or around the periphery of the impeller 5 in the case of a centrifugal pump or at

a position above the pump if the impeller is of the propeller type, such outlet 5b from the pump communicating as by means of a laterally extending pipe or passage 8 with a vertical pipe 8a leading to the nozzle or nozzles by which the liquid is sprayed on to the dishes or the like in the rotatable basket in the receptacle 3. The main valve member 7 is pressed upwardly against the conical seating in the valve body 4 by means of a suitable spring 9 which may be a helical spring, arranged between the base of the cock 7 and an inwardly flanged or otherwise suitably formed member 3d fixed to the bottom of the valve body 4.

It will be understood that when the machine is in use the hot liquid in one tank may be used for the actual washing, while that in the other tank may be used for rinsing, the liquids preferably being heated up by means of electric heaters of any suitable kind, and preferably immersion heaters.

For the purpose of draining the tanks or reservoirs 1, 2 after use, the main valve member 7 is formed with an axial drainage or outlet passage 7d extending from the upper chamber 7a in the valve member to the lower end thereof which may be formed with an extension 7e of reduced diameter adapted to fit more or less closely into the valve retaining member 3d which may be fitted with a suitable drain-pipe. The drainage or outlet passage 7d in the valve member 7 is normally closed by means of a plug cock 10 arranged with its axis at right angles to the axis of the main valve member 7, such auxiliary cock 10 having a diametrically disposed passage 10a which in one position of the auxiliary cock 10 registers with the drainage or outlet passage 7d.

For the operation of the cocks 7 and 10, a rod 11 is fitted to the auxiliary cock 10 to extend coaxially therewith and outwardly through a suitable slot 4f in the wall of the body 4. Thus, by moving the rod 11 angularly about the axis of the main valve member 7, the latter may be turned into one or other of the two positions as illustrated in Figure 3 for the alternative circulation of the liquid from the tanks or reservoirs 1, 2 while by turning the rod 11 about its axis as by means of a handle 11a at its outer extremity, the auxiliary cock 10 may be opened or closed as desired. If immersion heaters are used it is important that they should be switched off before

the tank or reservoir is emptied, and it is thus an advantage to have separate control of the drainage.

The discharge pipe 12 from the upper receptacle 3 containing the basket is centrally arranged above the two compartments, and the discharge from the upper receptacle 3 is directed by suitable means into the compartment 1 or 2 from which liquid is being withdrawn by the pump.

It is to be noted that the bore of the main valve extends completely therethrough so that discharge may be had at either top or bottom of the valve. It is also to be particularly noted that the auxiliary valve is enclosed in the tapered body of the main valve and that a single handle secured to the auxiliary valve and extending through a slot formed in the body of the main valve is the instrument for operating both valves so that a very strong and compact device is produced.

What we claim is:—

In a device of the class described, a housing having a valve chamber therein provided with an outlet in its top and a drain opening in its bottom, the housing having inlet ports at opposite sides of the valve chamber and a slot in one side below the inlet ports, a main plug valve in the valve chamber having an axial bore extending completely therethrough, the lower part of the bore constituting a drain opening a pair of ports in the valve communicating with said bore and disposed out of alinement with each other and adapted, when the valve is turned on its axis, to dispose one of the valve ports in registration with one of the housing ports and disconnect the other of said valve ports from the other of said housing ports, an auxiliary plug valve in the main valve below the inlet ports in the housing having its axis at a right angle to the axis of the main valve and having a diametrical port adapted to communicate with said bore, and a handle lever fixed to the auxiliary valve and projecting through the slot in the side of the housing, said lever being rotatable on its own axis to turn the auxiliary valve on its axis to close the drain opening and swingable in an arc about the axis of the main valve as a center to turn the main valve on its axis.

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