

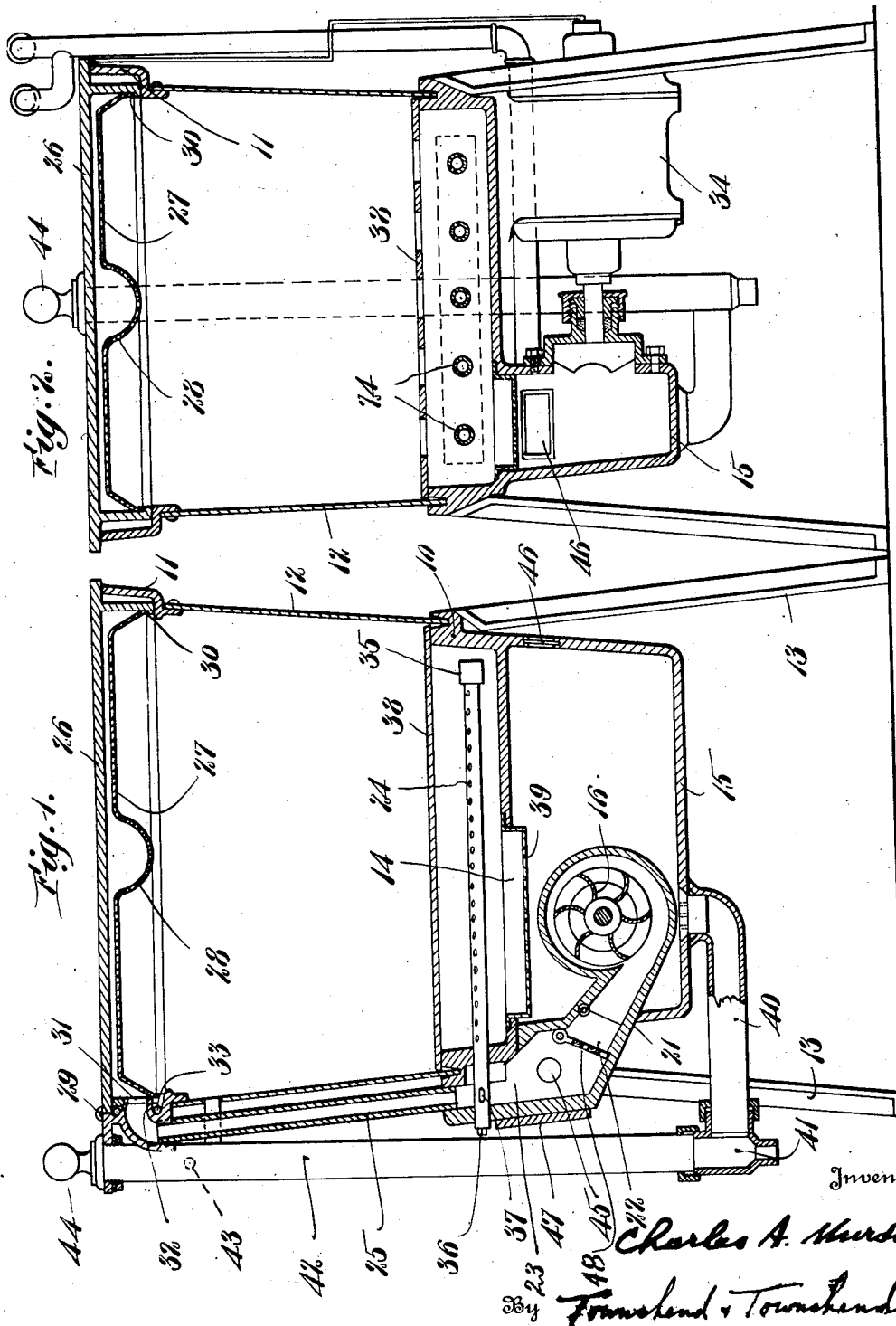
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HOUSEHOLD WASHING MACHINE

Original Filed Oct. 18, 1921 2 Sheets-Sheet 1



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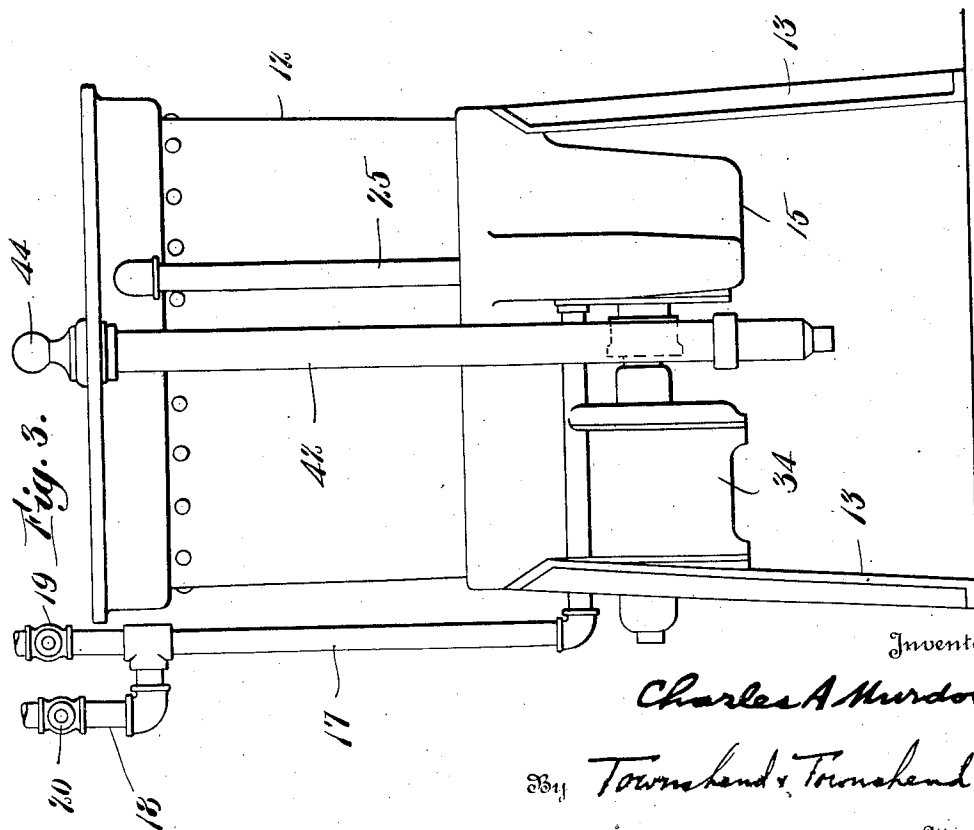
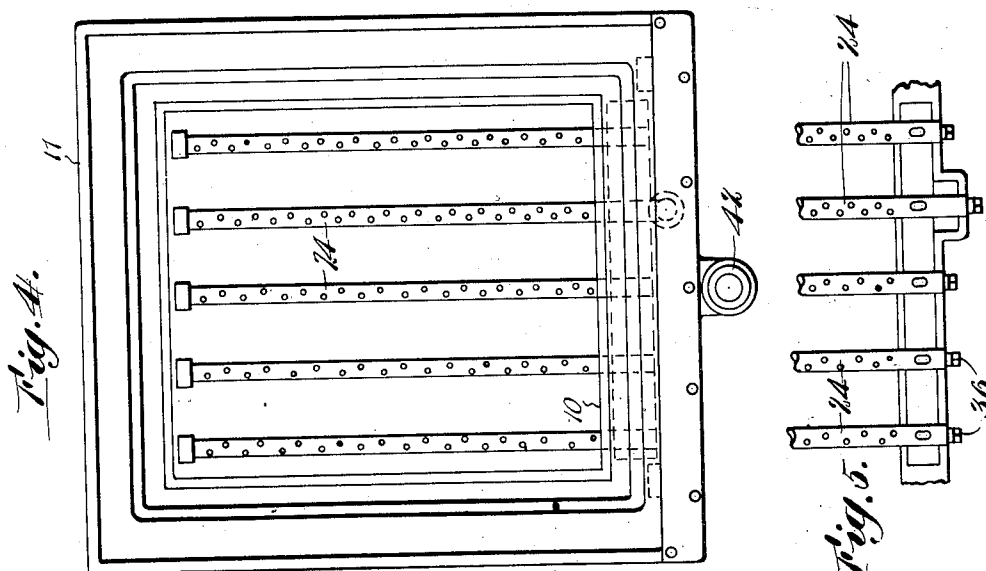
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UNITED STATES PATENT OFFICE.

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HOUSEHOLD WASHING MACHINE.

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My present invention relates to machines for washing and sterilizing dishes, china, cutlery, silverware, and the like.

An object of the invention is to provide a compact, efficient washing machine, attractive in appearance and operating on novel methods, which will be suitable for service in individual households or families, as distinguished from hotel and restaurant machines.

In my development of the art of washing machines, I have discovered that it is desirable to have apparatus capable of cleansing, sterilizing and washing articles of an irregular contour, such as cups, pitchers, and the like, as well as dishes, saucers, and such devices of simple contour, and with this object in view I have devised novel means to supply a plurality of impinging lines of cleansing fluid, from all directions and at varying angles and cross-angles, so as to insure the cleansing of such articles. To this end I provide means, at a plurality of points in the washing machine, preferably both in the bottom surface and in the removable lid constituting the top of same with a manifold, and other liquid delivery openings angularly arranged to give a large number of varying angular directions to the liquid flow directed upon, over and into the articles received and to be treated. In order to have a small and compact machine for use in households, it is desirable that such a washing machine have an open top through which the articles to be treated are placed, which top is closed by a removable cover, and I have provided a novel type of lid or cover, which is also a manifold or liquid distributing carrier and which automatically shuts off the liquid supply when opened and opens the liquid supply when closed.

A further object is the provision of means for temporarily dispensing with the pumping apparatus and allowing the washing and rinsing operations to take place by the water supplied by the pressure of the house supply. Further details of construction, novel combinations of parts and important advantages will be hereinafter more fully described and claimed.

Referring to the drawings,

Fig. 1 is a vertical sectional view of the machine from front to rear;

Fig. 2 is a transverse sectional view;

Fig. 3 is a rear view; and

Fig. 4 is a plan view of the tank with the lid and the grid plate removed; and

Fig. 5 is a fragmentary plan view of the pipes in the bottom of the tank.

Referring to the drawings, wherein I have illustrated a preferred embodiment of the present invention, particularly adapted for use as a household washing machine, the washing machine comprises a tank having a bottom casting 10 and top ring 11 united by the sheet metal walls 12 and mounted on the legs 13. At one side of the bottom casting is an opening 14 and below the same is a pocket 15 whose walls are integral with the bottom casting and has located at one side a rotary pump 16, water being initially supplied from the pipe 17 which has the hot water branch 18 so that when the cold water valve 19 is closed and the valve 20 is opened, and the operation is reversed when the valve 20 is closed. When the pocket is filled with water and the pump rotated, the water is forced out of the pipe 21 and past the check valve 22 into the manifold 23 and its spray pipes 24 and up the pipe 25 at the rear of the tank and into the space between the cast lid 26 and a flexible sheet metal inner wall 27 that has the depression 28 with perforations to permit the escape of the water and spray in all directions.

The check valve is arranged between the pump chamber and the manifold 23 in such a manner as to be opened to allow passage of water from the pump to the manifold when the pump is operated, and to automatically close when the pump is stopped. Further, the valve 22 is provided with a small orifice 48 that allows the water to drain out of the spray pipes back into the pump chamber, when the machine is at rest, but not in sufficient quantity to materially affect the pressure from the house supply, which may be admitted through pipe 17 and inlet 45.

The provision of the orifice 48 remedies the defect that if my improved machine be placed in a kitchen with the water in between this section of the pump and the lower spray pipes where it cannot get out, it would be liable to freeze in winter, and the machine would have to be thawed out

before being put into operation again. With my improved construction, however, the lower spray pipes and the manifold 23 will be gradually drained. This improved construction also makes my device capable of being operated in three distinct ways; first, pump pressure; second, house pressure; and third, used as a sink, should other methods fail, by inserting a dish pan in the machine and washing the dishes by the hand method.

The hollow lid above described receives the water from the pipe 25 and the water freely flows out of the perforations. When the force of the pump is applied to the water, it is forced in all directions and upon the contents of the tank while the sprays from below attack the lower sides of the articles to be washed and as will be seen in Fig. 2, this arrangement of sprays enables the water to reach all corners of the tank.

The lid 26 is hinged to the ring 11 at 29 and the depending flange 30 has an opening 31 into which extends a nipple 32 on the end of pipe 25 and around the nipple is a gasket 33 adapted to be compressed by said flange 30 to make a close joint and prevent the leakage of any water at the joint when the lid is closed.

In a washing machine of this type it is very desirable that the tank be entirely open and without obstacles at its mouth so that a basket containing dishes and cutlery may be placed in the tank. During the time that the lid is open the motor 34 that drives the pump is at rest, but when the lid is closed after depositing in the tank a basket of dishes, a closed joint is made by the nipple 32 and the water escapes only from the depression 28.

Each of the lower spray pipes 24 has a cap 35 at one end while the other end passes entirely through the manifold and is provided with a plug 36, the pipe being closely fitted in the manifold holes so that there is no leakage but water is admitted to the pipes through appropriate openings 37.

Above the lower spray pipes is a perforated bottom or grid 38, the openings being directly above each pipe whose outlets are arranged to direct the sprays obliquely, as shown in Fig. 2. This bottom grid is removable for cleaning purposes and below the pipes is a strainer 39 in the opening 14 to collect the garbage and clarify the water that is to again go through the pump and sprays.

Special provisions are made to relieve the pocket 15 and the various parts from dirt that is apt to accumulate and the device is drained into a sewer through the pipe 40 normally closed by the valve 41 of the overflow 42 that has an opening 43 on line with the upper end of the tank and at a height at which the tank may be filled when the dishes are immersed and this overflow may be controlled by the knob 44 at the top of the machine. In flushing the pump and pocket, the valve 22 is raised and the water allowed to enter through the pipe 17 and opening 45 into the manifold from the house supply. The water may be allowed to fill the pocket and can be released by the valve 41 when desired.

When it is desired to put an appropriate amount of water into the pocket, its height may be observed through the transparent window 46 while access may be had to the check valve and manifold by the door 47. To clean the pipes 24 the plugs 36 are taken out and a swab inserted while the flexible nature of the wall 27 permits of its ready removal from engagement with the lid flange.

Referring to the safety feature, wherein I provide means compelling the closing of the cover or lid before the machine is started, it should be noted that this arrangement prevents any damage or danger, eliminates the throwing of the liquid from the pump through the upright conduit to the top, and therefore prevents the very objectionable danger of leakage, etc., heretofore possible. Also the opening of the cover will instantly shut off the motor so that the careless operative cannot open the apparatus with the pump still running. When it is considered that these machines may be and frequently are operated by inexperienced and thoughtless people, this feature is of importance. Any suitable means of effecting the automatic shutting off and turning on of the current to the motor may be provided. Preferably, in addition to a switch control, I arrange the wiring 50 from the motor in any suitable manner so that a part of the lid or cover closes the motor circuit when the cover is closed and breaks it when the cover is opened.

My improved washing machine is compact, attractive, a complete unit, capable for use in a small space, corner, butler's pantry, or kitchenette, is efficient in its operation, distributing the flow of liquid from both above and below and at varying angles to automatically clean out, wash and sterilize dishes, cups, saucers and even bottles, without the necessity of having placed such articles in any special position to receive the cleansing spray. The impinging line of cross streams from different angles and divergent directions, I find is most efficient, and very quickly results in a thorough cleansing of the articles within the tank. Such articles, although preferably placed in a wire basket or carrier, may also be placed directly in the tank and still thoroughly cleansed as the pressure of the streams is equal and will be in constant balance. While I have necessarily described my present invention somewhat in detail, it will

be appreciated that I may vary the size, shape and arrangement of parts within wide limits without departing from the spirit of the invention.

5 I claim:

1. In a dish washing machine, the combination of a tank comprising a bottom with a pocket and a ring at the upper edge of said tank, a lid hinged to the ring and having a depending flange provided with an aperture, a pump in the pocket, a coupling on the ring and comprising a nipple adapted to enter the aperture in said flange when the lid is closed, and a pipe connecting the pump and the coupling.

2. In a dish washing machine, the combination of a casing having internal spray pipes, a hinged lid having depending flanges with a hole in one flange, a wall with edges to detachably engage the flanges, spraying means in the wall, a pump, and a pipe from the pump adapted to be automatically connected with the spraying means through the hole when the lid is closed to deliver water from the pump between the lid and its wall.

3. In a dish washing machine, the combination of a casing having interior spray pipes, a lid hinged to the open top of the casing, depending flanges to the lid and

having a hole in one flange, a flexible wall under the lid and supported by the flanges a sprayer dome in the wall with perforations to discharge the water downward and sideways, a pocket below the casing to collect the sprayed waters, a pump in the pocket, and a pipe from the pump adapted to be connected automatically with the sprayer dome of the lid when the lid is closed.

4. In a dish washing machine the combination with a receptacle having a wash chamber therein and a pump for circulating a liquid therethrough, of a cover adapted to be swung to open or closed position over said chamber, said cover having depending flanges formed thereon, an inner face plate detachably supported on said flanges in spaced relation from said cover to form a water chamber, said plates having a plurality of perforations for dispersing water from the cover chamber to the receptacle chamber, a pump eduction pipe extending into the top of said wash chamber, and means on said cover for engagement over said eduction pipe extension for connection between said pipe and the water chamber of the cover.

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