T. E. MURRAY.

DISH WASHING MACHINE.

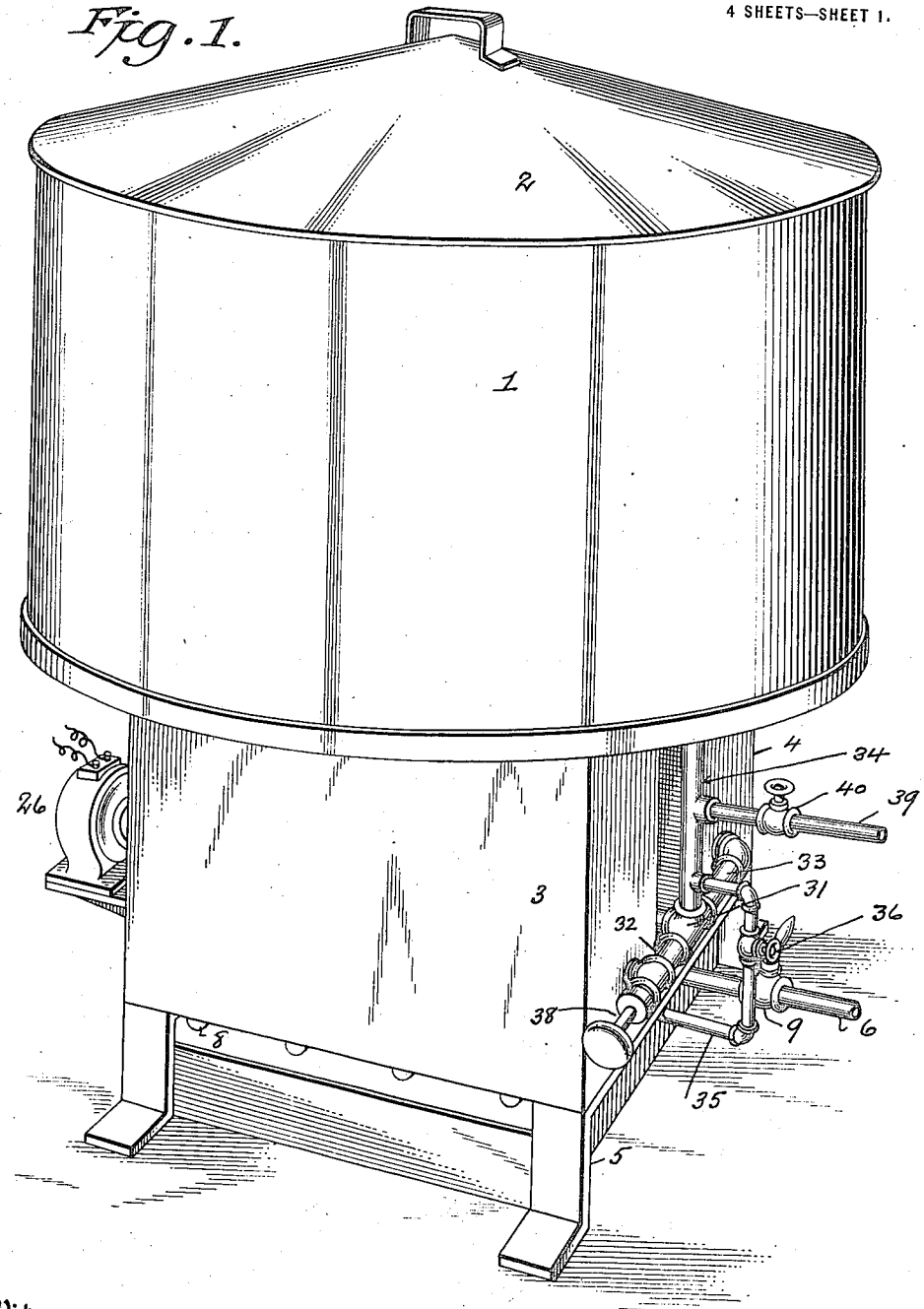
APPLICATION FILED FEB. 1, 1915.

1,172,300.

Patented Feb. 22, 1916.

4 SHEETS—SHEET 1.

Fig. 1.



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Inventor
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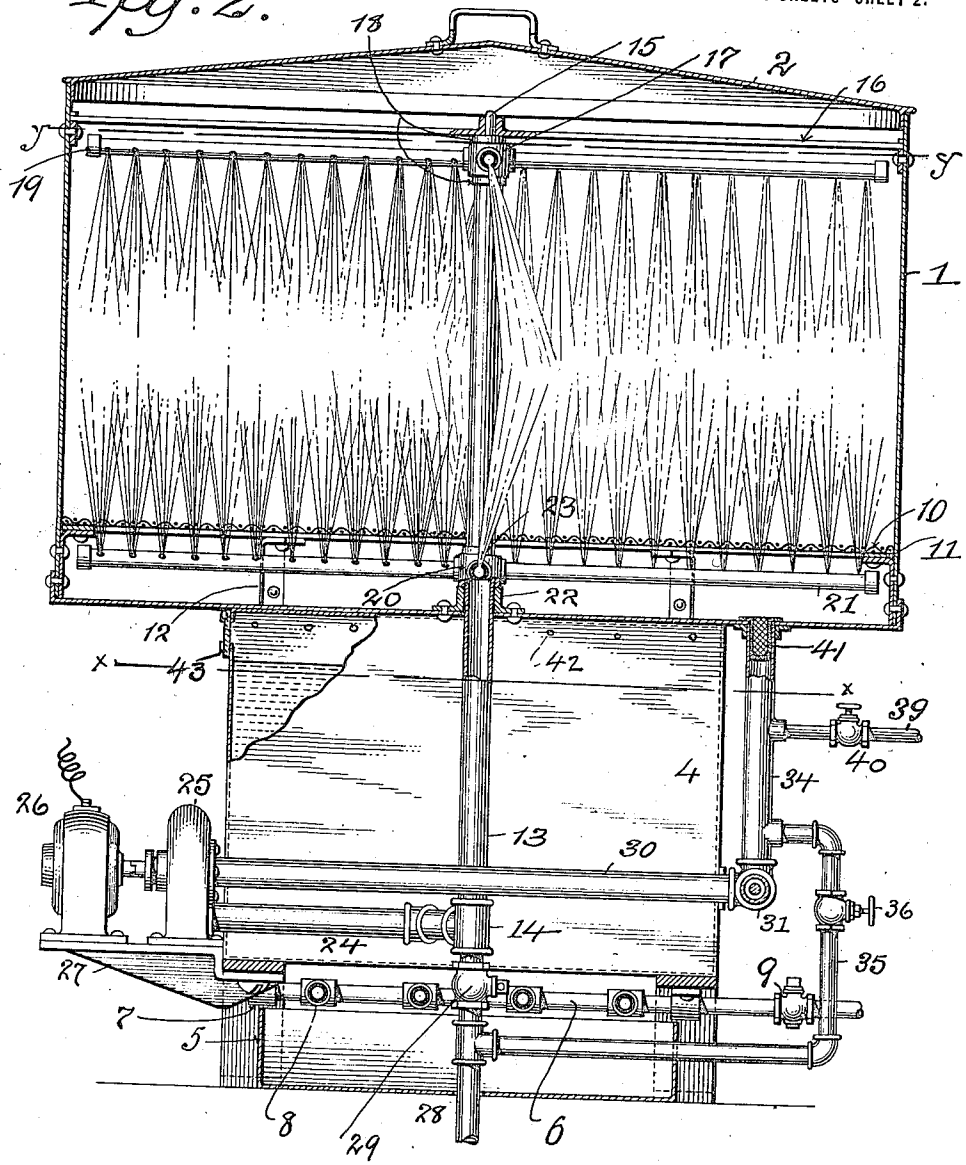
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4 SHEETS—SHEET 2.

Fig. 2.



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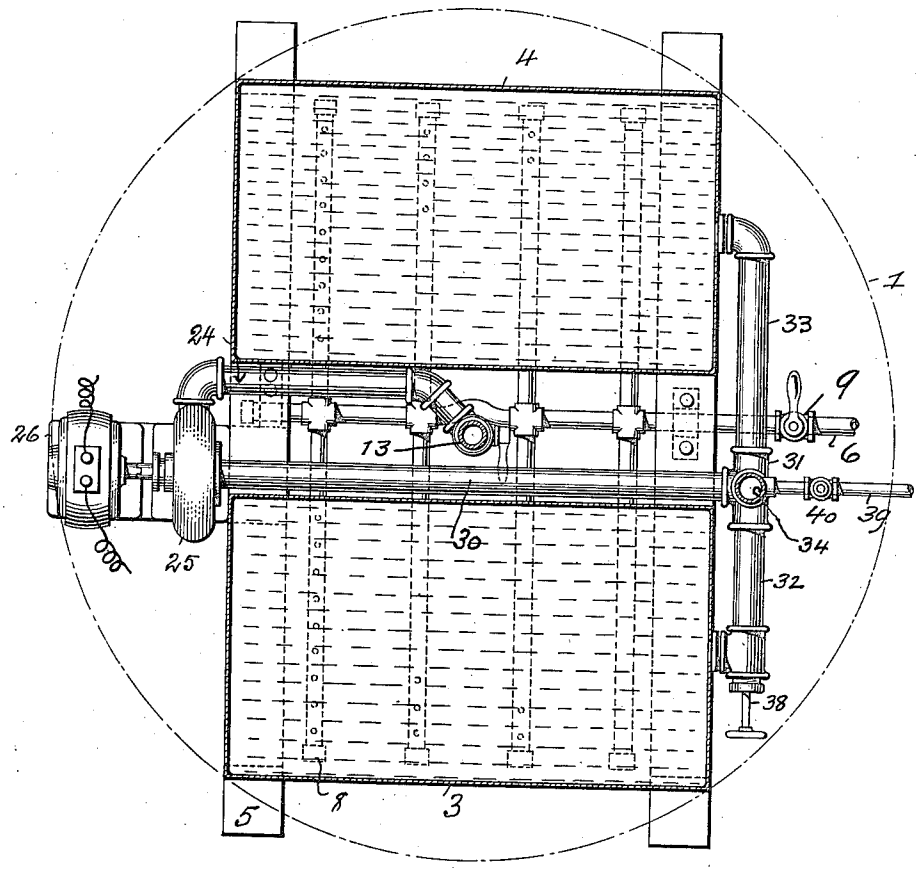
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4 SHEETS—SHEET 3.

Fig. 3.



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4 SHEETS—SHEET 4.

Fig. 4.

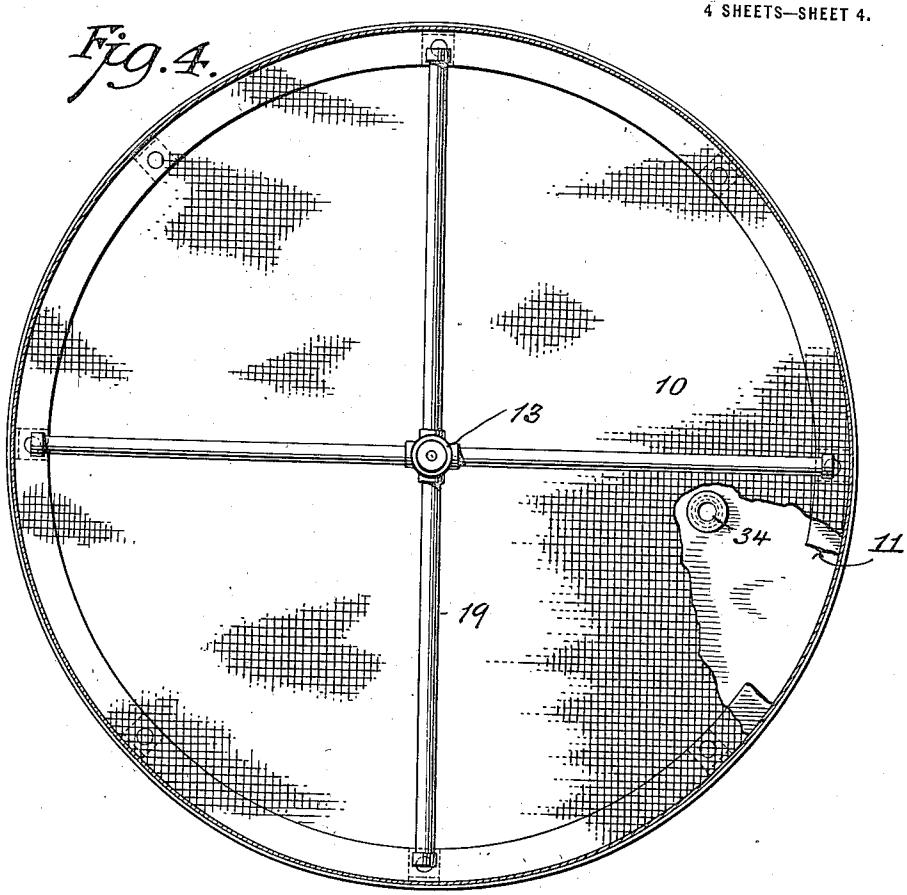


Fig. 5.

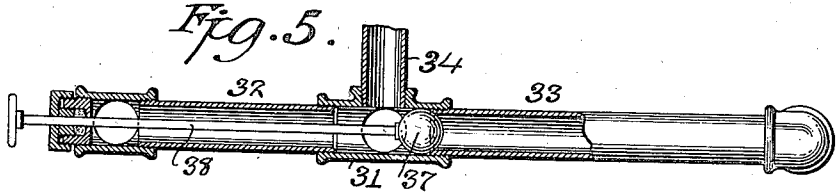
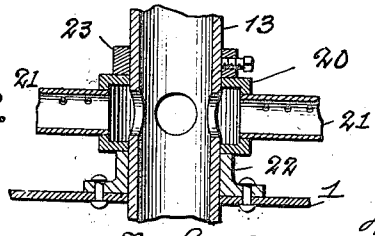


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

DISH-WASHING MACHINE.

1,172,300. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed February 1, 1915. Serial No. 5,581.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Dish-Washing Machines, of which the following is a specification.

The invention relates to dish-washing machines, and comprises a fixed receptacle containing a support for the dishes which are subjected to jets of liquid delivered under pressure from radial arms rotated by the reaction of said jets. Two tanks are provided for containing respectively a detergent solution and water, and means are arranged whereby either tank may be put in connection with suitable sources of liquid supply. The jets are delivered under pressure by means of a pump having connections so arranged that it may draw from one or the other of said tanks at the will of the operator, and also cause a continuous circulation of the liquid from either tank through the receptacle and back to the pump. Means are also provided for heating the liquids in the tanks and connections disposed between said tanks.

In the accompanying drawings Figure 1 is a perspective view section of my dish-washing machine. Fig. 2 is a vertical section. Fig. 3 is a horizontal section on the line x, x of Fig. 2. Fig. 4 is a similar section on the line y, y of Fig. 2. Fig. 5 is a longitudinal section of pipes 32, 33 and coupling 31. Fig. 6 is an enlarged vertical section of the ends of the lower rotating arms, their hub and pipe 13.

Similar numbers of reference indicate like parts.

1 is a cylindrical receptacle of sheet metal, having a removable cover 2. Said receptacle is supported upon two tanks 3, 4, which in turn rest upon frame 5. Carried by said frame and disposed below both tanks and below the space separating said tanks is a gas heater of any suitable construction. As here shown, it consists of a middle tube 6 supported in brackets 7, from each side of which tube 6 laterally extend four tubes 8. The gas supply to tube 6 is controlled by a valve 9. The upper sides of tubes 6 and 8 are perforated or provided with burner tips, so that the gas flames there ignited heat the contents of the tanks 3, 4, and of the pipes, hereinafter described, which extend through the space between said tanks.

The dishes to be washed are placed upon a circular table, which consists of wire gauze or netting 10, carried by a flat metal ring 11 which is secured upon brackets 12 on the wall of receptacle 1.

13 is a fixed vertical pipe which extends upward from a three-way coupling 14 and passes through the bottom of receptacle 1 and through network table 10. Said pipe is closed at its upper end and is there provided with a pin 15, received in the central opening of a spider 16, secured at the ends of its arms to the wall of the receptacle. At the upper portion of the pipe 13 is a hollow hub 17, supported between collars 18 on said pipe and free to rotate thereon. Said hub carries four horizontal arms 19, perforated on their lower sides so as to project streams of liquid angularly downward, as shown in Fig. 2. Said liquid is admitted to the hub 17 through suitable openings in pipe 13. A similar hub 20 is disposed within receptacle 1 at the lower portion of pipe 13, and carries arms 21, from openings on the upper side of which liquid received into said hub through openings in pipe 13, as before, is projected in an angularly upward direction, so that the dishes on table 10 receive jets of liquid on both their upper and under sides. The hub 20 rests upon a flanged ring 22 secured to the bottom of receptacle 1 and inclosing pipe 13, and on said pipe above said hub is a collar 23. By reason of the reaction of the inclined liquid jets, the arms 19, 21 are caused to revolve around the pipe 13. Liquid supply comes to pipe 13 from a pipe 24 connected to the delivery of a rotary pump 25, driven preferably by an electric motor 26, said pump and motor being supported upon a bracket 27 secured to the bottom frame 5. The pipe 24 communicates with the three-

way coupling 14. Also to said coupling is connected the upper end of drain pipe 28, in which is a valve 29. The inlet of pump 25 is connected to a horizontal pipe 30 which at its outer end is connected to a four-way coupling 31. From opposite ends of said coupling extend pipes 32, 33 which respectively communicate with the tanks 3 and 4, and a vertical pipe 34 connects said coupling with the bottom of receptacle 1. The pipe 34 is connected by a pipe 35 having a valve 36 to the drain pipe 28. The interior of coupling 31 forms a valve casing or chamber which receives the ball valve 37, which is operated by the rod 38 which extends through a stuffing-box on the end of pipe 32, so that said valve may be seated at will upon the inner end of pipe 32 or the inner end of pipe 33 to close one or the other of said pipes at will. A liquid supply pipe 39 is connected to vertical pipe 34 and is provided with a valve 40. In the upper end of pipe 34 is placed a removable strainer 41 of wire gauze or netting. The pipes 13, 24 and 30 are all disposed in the space between the tanks 3 and 4 and are heated by the gas flames below said space.

The apparatus being empty, the valve 29 in drain pipe 28 and the valve 36 in pipe 35 are closed. The feed pipe 39 is connected with a suitable source of supply of a solution of soda or other alkaline detergent. The valve 37 is adjusted to permit this solution to pass into one of the tanks 3 or 4—say, tank 3—in which case the valve will be placed as in Fig. 5, so as to close communication to tank 4. When tank 3 is filled, the feed pipe 39 is disconnected from the source of soda solution and connected to the water supply. The valve 37 is then shifted so as to close communication with tank 3 and open the same to tank 4, which thus becomes filled with water. The valve in feed pipe 39 is then closed, and the gas heater set in operation to bring the water and solution in tanks 3 and 4 to whatever temperature may be desired. The dishes to be washed are placed upon the table 10. The valve 37 is brought back to the position shown in Fig. 5. The pump being started, now draws the solution from tank 3 and delivers it into pipe 13, through which it rises to the revolving arms 19, 21, which distribute said solution in jets, as described, upon both sides of the dishes. After the dishes have been treated with said solution to remove greasy matter, and the tank 3 is practically emptied, the pump is stopped, the valve 29 in drain pipe 28 and the valve 36 in pipe 35 are opened, and the solution in the receptacle 1 flows to waste. The valve 37 is then shifted to open communication to tank 4 and close it to tank 3. The valves 28 and 36 are closed. The pump now draws water from tank 4, and delivers it to pipe 13, whence it passes to arms 19, 21, as before, and is sprayed upon the dishes until their cleansing is completed. The dishes are finally removed from the receptacle and the valves 29 and 36 are opened to allow the water to run to waste. The soda solution or water after being sprayed upon the dishes escapes from the receptacle by pipe 34, and so passes by way of pipe 30 again to the pump; so that a continuous circulation is maintained. The strainer 41 prevents any solid matter removed from the dishes from entering the pump. Openings 42 for escape of air when the tanks 3, 4 are filled may be made in the upper part of the walls of said tanks, and a larger opening provided with a removable cover plate 43, as indicated in Fig. 2, may be arranged in each tank to permit access to the interior.

I claim:

1. A dish-washing machine, comprising a receptacle having an inlet and an outlet for liquid, a support for dishes therein, two tanks for liquid, a pump having its delivery connected to said receptacle inlet and its inlet connected to said tanks and to said receptacle outlet, and means for closing communication between said pump inlet and one or the other of said tanks at will.

2. A dish-washing machine, comprising a receptacle having an inlet and an outlet for liquid, a support for dishes therein, two tanks for liquid, a pump having its delivery connected to said receptacle inlet, a valve casing, pipe connections from said valve casing to said receptacle outlet, to the inlet of said pump and to each of said tanks, and a valve in said casing movable to close one or the other of said tank connections at will.

3. A dish-washing machine, comprising a receptacle having an inlet and an outlet for liquid, a support for dishes therein, two tanks for liquid, a pump having its delivery connected to said receptacle inlet, a valve casing, pipe connections from said valve casing to a source of liquid supply, to the inlet of said pump and to each of said tanks, and a valve in said casing movable to close one or the other of said tank connections at will.

4. A dish-washing machine, comprising a cylindrical receptacle, a horizontal dish-supporting table of foraminated material therein having openings, a liquid supply pipe entering said receptacle, hollow hubs rotatable on said pipe and communicating therewith, and two groups of radial arms on said hubs and respectively disposed above and below said table having their outer ends approximating the wall of said receptacle; there being apertures on the

lower portions of the upper arms and upper portions of the lower arms disposed to project liquid jets in angularly downward and upward directions upon said table and to cause by the reaction of said jets rotation of said hubs on said pipe.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS E. MURRAY.

Witnesses:

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MAY T. MCGARRY.