Nov. 27, 1923. 1,475,489

T. C. HICKS

DISHWASHING MACHINE

Original Filed Oct. 17, 1919 2 Sheets-Sheet 1

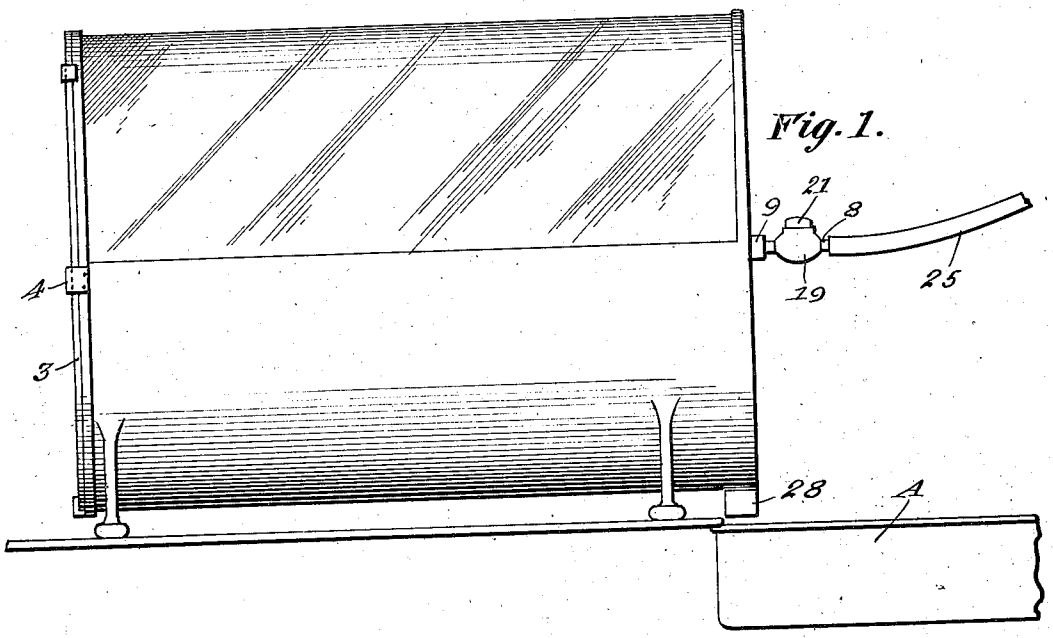


Fig. 1.

Fig. 2

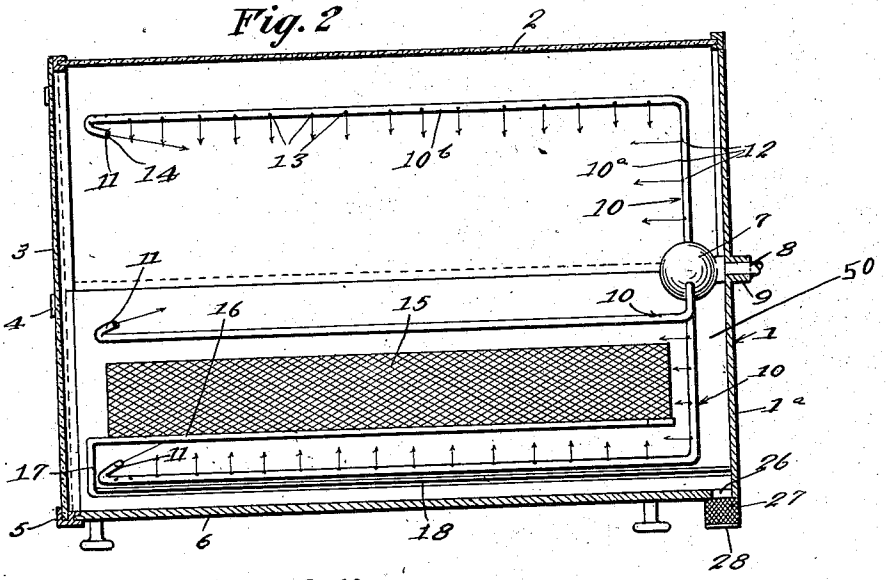
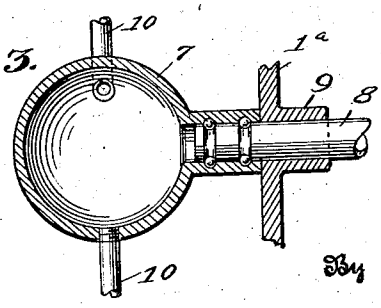


Fig. 3.



Witnesses
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Nov. 27, 1923.

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Fig. 4.

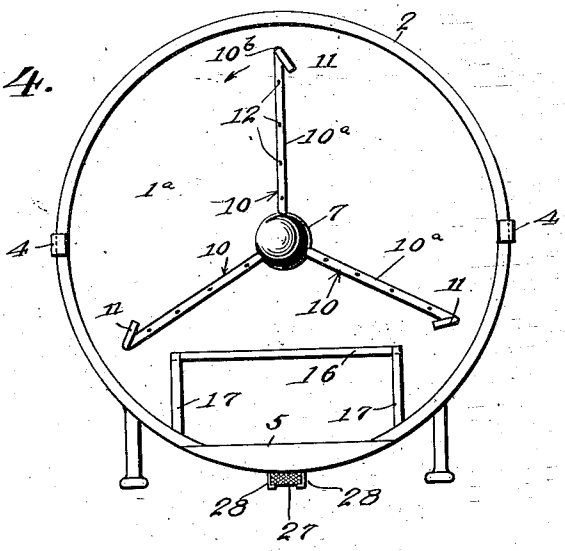
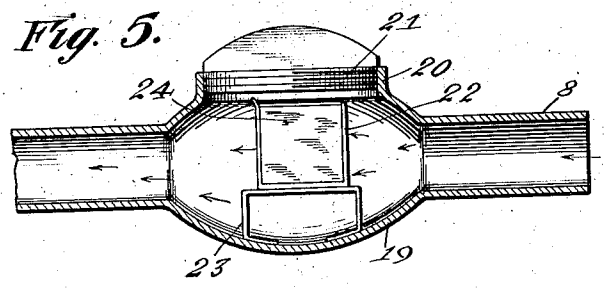


Fig. 5.



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UNITED STATES PATENT OFFICE.

TRUSTIN C. HICKS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO HICKS-OBENOUR COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF DELAWARE.

DISHWASHING MACHINE.

Application filed October 17, 1919, Serial No. 331,381. Renewed May 11, 1921. Serial No. 468,584.

To all whom it may concern:

Be it known that I, TRUSTIN C. HICKS, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Dishwashing Machines, of which the following is a specification.

This invention relates to washing machines, and more particularly to a machine adapted for washing dishes, knives, forks, and similar articles.

One of the main objects of the invention is to provide a machine of the character stated of simple construction and operation which is well adapted for domestic use and will effectually and quickly wash dishes and similar articles. A further object is to provide a machine having means for supporting the dishes and a washing member so associated therewith as to direct a plurality of sprays of water or a washing solution against the dishes from all directions so as to insure thorough washing thereof, this washing member being movable in a rotary path about the dish supporting means. Another object is to provide a machine having means for supplying a detergent for a predetermined period of time so as to form a solution for washing the dishes, after which the dishes may be rinsed by clear water. Further objects will appear from the detailed description.

In the drawings:—

Figure 1 is a side view of a machine constructed in accordance with my invention.

Figure 2 is a central longitudinal vertical section through the machine.

Figure 3 is a detail section through the spray head and associated parts.

Figure 4 is an end view of the machine open.

Figure 5 is a detail section through the soap containing casing.

In constructing the machine I provide a casing 1 of any preferred size and construction. This casing is open at one end, being closed by a slidable door or closure member 3 which is preferably of glass and which is held in operative relation to the front end of the casing by angle members secured to the casing and by an angle strip 5 positioned at the forward end of the bottom 6 of the casing 1. As will be understood, any other suitable or preferred closure means may be employed. A spherical spray head 7 is rotatably mounted at the central portion of the back wall 1^a of the casing upon a section of pipe 8 secured through a nipple 9 projecting from the outer face of back wall 1^a. A plurality of spray arms 10 of tubular construction radiate from head 7 and are in direct communication therewith. Each of these arms is of substantial L shape, the shorter element 10^a thereof being disposed radially of head 7 and the longer element 10^b disposed in a horizontal plane and extending substantially the full interior length of casing 1. Horizontal element 10^b of arm 10 is provided at its forward end with an inbent element 11 which is disposed at such an angle to element 10^a as to cause rotation of this arm about the axis of spray head 7. As will be understood, the elements 11 of the various arms 10 are so related as to cause rotation of the spraying member, composed of head 7 and arms 10, in a counter-clockwise direction as considered in Figure 4 of the drawings. The shorter element 10^a of arm 10 is provided with a plurality of forwardly directed perforations 12 and the longer element 10^b is provided with a plurality of similar perforations 13 which are so disposed as to direct streams or sprays of solution inwardly toward the axis of head 7. Also, the element 11 is provided with a perforation 14 which directs a stream of water inwardly at an inclination toward the head 7. The perforations of elements 10^a and 10^b of alternate arms 10 are relatively staggered to insure contact of the water or solution with the entire surface of each article to be washed.

The head 7 and arms 10 constitute a spray reel which rotates on a horizontal axis about dish supporting means to be described.

The dishes to be washed are placed in a suitable tray 15 preferably of woven wire construction which is supported by a horizontally disposed U-shaped supporting frame 16 the forward ends of the arms of which are connected by vertical elements 17 to the forward ends of arms 18 secured to the inner face of bottom 6 of the casing. The arms 18 are spaced away from the arms of frame 16 such a distance as to permit ready passage beneath frame 16 of the longer elements 10^b of the spray arms during rotation of the spraying member.

As clearly shown in Figure 2, the inner end of the frame 16 is spaced from the inner end wall of the casing 1 in order to afford a space, indicated by 50 in Figure 2 for the movement of the conduit elements 10^a about the axis of the head 7.

Pipe 8 is provided with a substantial ellipsoidal enlargement forming a soap receiving casing 19 which is provided with an integral neck 20 receiving a screw threaded closure plug 21. Within this casing is provided a resilient U-clamp 22 supported by a U-bracket 23 the lower ends of the arms of which are secured to the casing 19. Clamp 22 is adapted to receive and secure a block of soap 24 or other suitable detergent. In practice, I prefer to employ a one-inch tube of any suitable washing soap. After the soap has been placed in clamp 22 and closure plug 21 secured in position, the pipe 9 may be connected by a suitable length of rubber tubing or hose 25 to a water faucet of ordinary type. In practice, the washing machine is placed upon a draining board or other suitable support so as to slightly overhang a sink A. When the water is permitted to flow through tube 25 under pressure, this tube being preferably connected to the hot water faucet, it passes through chamber 19 so as to dissolve the soap, the detergent solution thus produced then flowing into head 7 and through the spray arms 10 so as to cause rotation of these arms and the head at moderate speed (about 200 R. P. M.). The solution is projected from the arms 10 in all directions against the dishes and other articles supported by the tray 15, the dishes being preferably set at a slight inclination and at an angle to the longitudinal axis of the casing 1, though this is not at all essential. During the rotation of the spraying or washing member, the solution is projected in a great number of fine streams and at high velocity against the dishes from all possible angles and insures quick and thorough washing thereof. Since the washing member rotates completely about the tray containing the dishes, the articles to be washed are enclosed within a practically continuous cylinder of water composed of a great number of fine streams projecting at high velocity and completely covering the entire surface of each article, these sprays or streams being wiped across the articles due to the circular path of travel of elements 10^b of the arms 10 so as to more effectively remove particles of food and other materials adhering to the dishes. The washing solution, together with the food particles removed from the dishes, escapes through an outlet opening 26 provided through bottom 6 of the casing at the rearward end thereof. A woven wire cup or basket 27 of fine mesh is supported immediately beneath this opening, by means of spaced angle members 28 depending from bottom 6, and serves to retain food particles, grease, and similar materials which it is not desirable to have flow into sink A. I have found that, in practice, a one-inch cube of "white naphtha" soap placed in clamp 22 will be completely dissolved in approximately one minute by hot water flowing through casing 19. By placing the articles to be washed in the tray within casing 1, and then permitting the water to run for approximately one minute and a half, the dishes are first thoroughly washed and cleansed by the detergent solution formed by the dissolving of the soap, and are then thoroughly rinsed to remove any trace of the soap by the clear water which is permitted to flow approximately one-half a minute after the dissolving of the soap. In this respect, the machine may be considered semi-automatic in that by placing a cube of soap of a known size in the clamp 22 and then permitting the water to run for a predetermined period, the dishes may first be washed with a detergent solution and then effectually rinsed.

As will be understood, it may be found desirable in practice to resort to slight variations in details of construction and arrangement of the different parts of my invention, and I intend to include all such variations, as fall within the scope of the appended claims, in this application, in which a preferred form only of my invention is disclosed.

What I claim is:

1. In a dish washing machine, a casing having a side wall and an inner end wall, horizontally disposed dish supporting means projecting into the casing and spaced away from the side wall and the inner end wall thereof, a spray reel mounted to rotate on a horizontal axis about the dish supporting means and through the spaces between said supporting means and the side and inner end walls of the casing, said reel having perforations for discharging liquid supplied thereto under pressure inwardly toward the supporting means, and means for supplying liquid under pressure to said reel, the reel being provided with means for rotating the same by the liquid supplied thereto under pressure.

2. A dish washer comprising a casing, means for supporting dishes within said casing, a conduit mounted within said casing for rotation about said dish-supporting means upon a substantially horizontal axis, and means for supplying fluid under pressure to said conduit, said conduit having perforations therein for directing said fluid toward said dish-supporting means.

3. A dish washer comprising a casing, means within said casing for supporting dishes, said supporting means being spaced from the sides and one end wall of said

casing, a conduit arranged to rotate about said dish-supporting means upon a substantially horizontal axis and to pass through the space between said supporting means and the walls of said casing, and means for supplying fluid under pressure to said conduit, said conduit having perforations therein for projecting fluid toward said dish-supporting means from the various positions assumed by said conduit during rotation thereof and being provided with means for rotating the conduit by the fluid supplied thereto.

In testimony whereof I affix my signature.

TRUSTIN C. HICKS.