L. P. PEREW & U. J. ROGERS.

DISH WASHING MACHINE.

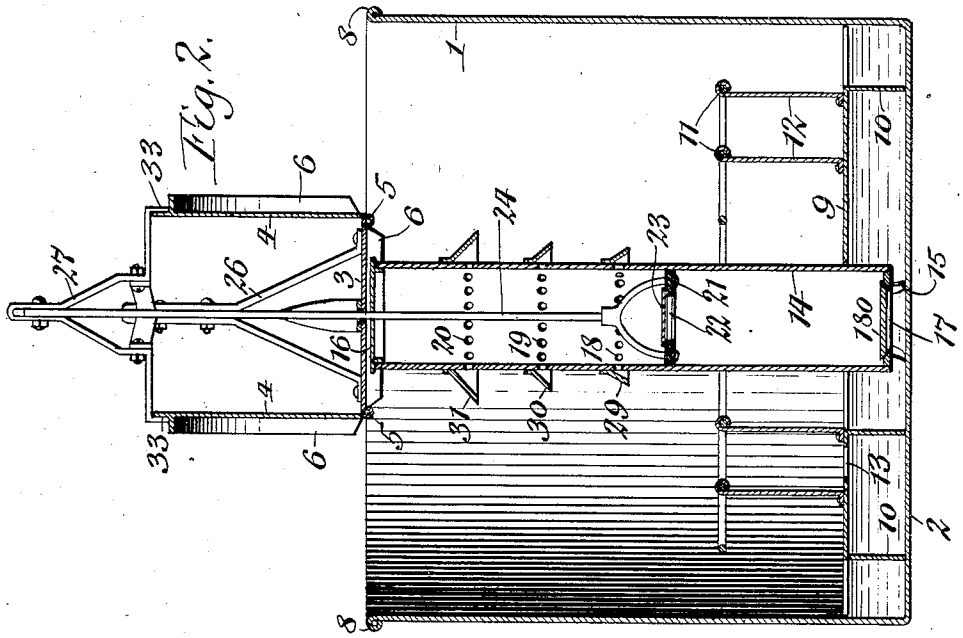
APPLICATION FILED JUNE 19, 1911.

1,039,794.

Patented Oct. 1, 1912.

2 SHEETS—SHEET 1.

Fig. 2.



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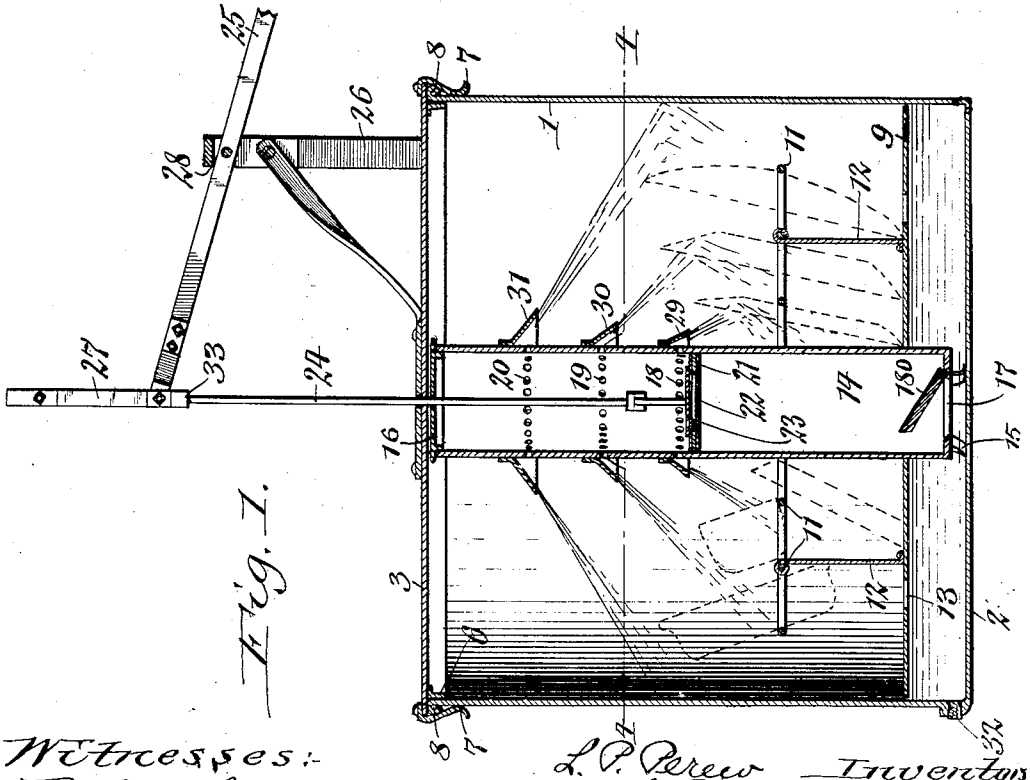

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Fig. 3.

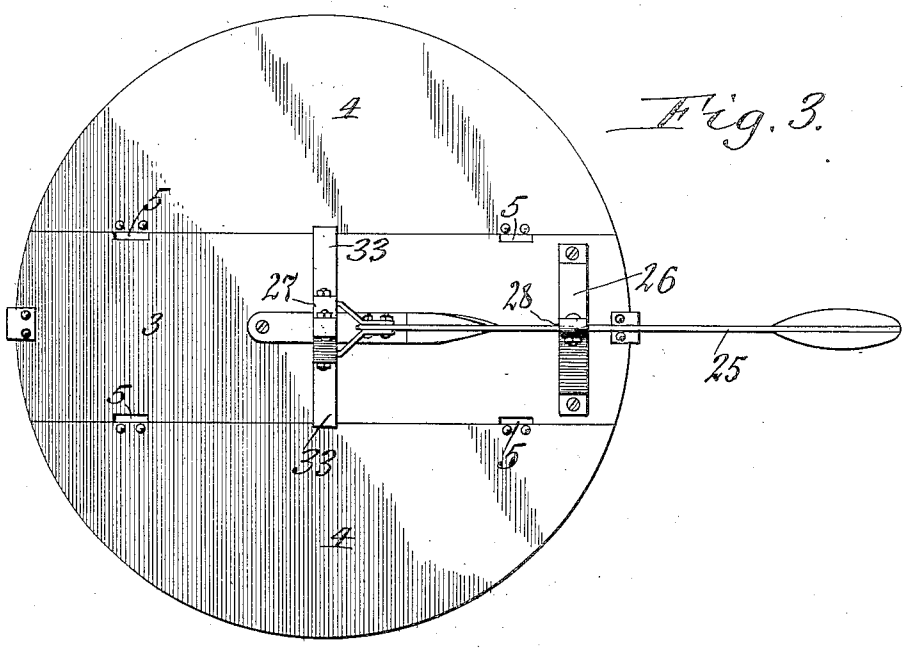
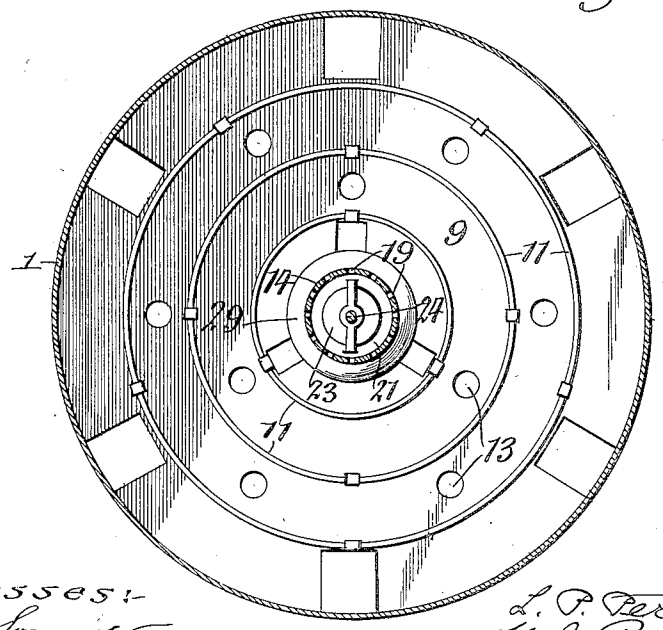


Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS P. PEREW, OF NORTH TONAWANDA, AND ULYSSES J. ROGERS, OF TONAWANDA, NEW YORK, ASSIGNORS TO THE KITCHENETTE COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

DISH-WASHING MACHINE.

1,039,794. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed June 19, 1911. Serial No. 633,968.

To all whom it may concern:

Be it known that we, LOUIS P. PEREW, a citizen of the United States, residing at North Tonawanda, in the county of Niagara and State of New York, and ULYSSES J. ROGERS, a citizen of the United States, residing at Tonawanda, in the county of Erie and State of New York, have invented new and useful Improvements in Dish-Washing Machines, of which the following is a specification.

This invention relates to a machine for washing dishes and has the object to provide a machine for this purpose which can be produced at comparatively low cost, which will permit dishes of various kinds to be thoroughly and rapidly cleaned and which can be readily dismembered so that all parts of the machine can be cleaned after the same has been used and maintained in a sanitary condition.

In the accompanying drawings consisting of 2 sheets: Figure 1 is a vertical longitudinal section of our improved dish washing machine showing the cover on the tank in its lowered or closed position and the plunger of the pump in its highest position. Fig. 2 is a vertical transverse section showing parts of the cover of the washing tank or basin elevated into their open position and held by the mechanism which forms part of the water circulating pump. Fig. 3 is a top plan view of the machine corresponding to Fig. 1. Fig. 4 is a horizontal section in line 4—4, Fig. 1.

Similar numerals of reference indicate corresponding parts throughout the several views.

The washing tank or basin of this machine comprises an upright wall or body 1 of cylindrical form having a tight bottom 2 at its lower end and a removable cover at its upper end which comprises a central normally fixed section 3 extending diametrically and lengthwise across the top of the body and two movable side sections 4, 4, which extend over the top of the body on opposite sides of the central section and each side section being pivotally connected at its inner edge by hinges 5 with one of the longitudinal edges of the central section so that this side section can swing down into a horizontal position for closing the adjacent part of the top of the tank, as shown in Fig. 3, or turned upwardly into a vertical position for uncovering this part of the tank, as shown in Fig. 2. This cover may be held in place on top of the body of the tank by any suitable means but preferably by the means which are shown in the drawings and have been found suitable and which comprise flanges 6 depending from the cover sections and engaging with the inner side of the tank body and spring clips or catches 7 secured to opposite ends of the central cover section and engaging with the outer side of a bead 8 at the upper edge of the body, as shown in Fig. 1.

Within the lower part of the tank is arranged a rack which supports the dishes which are to be washed. This rack may be variously constructed but preferably comprises a horizontal platform 9 of sheet metal which is provided with depending legs 10 whereby the same is supported upon the bottom of the tank, and a plurality of concentric rings 11 of different diameter arranged horizontally in line above the platform and each supported by a plurality of posts or standards 12 from the platform. The feet of the platform are preferably formed integrally therewith by cutting or stamping the same from the same sheet of metal and turning the same downwardly relatively to that portion which forms the platform. The several parts of the rack are so connected with each other that they are removable together from the tank for cleaning them after the operation of washing the dishes has been completed and the machine is ready to be set away. The water for washing the dishes is placed in the lower part of the tank and preferably at such a level that it does not arise above the top of the platform.

While the dishes are stacked on the rack the water is lifted from the lower part of the tank and sprayed over the top of the dishes and then falls back again to the lower part of the tank together with the particles which have been removed from the dishes. The return of the water to the lower part of the tank is facilitated by means of openings 13 formed at suitable places in the platform through which the water passes in its descent.

The preferred means for elevating the wa-

ter from the lower part of the tank and spraying the same over the dishes are preferably constructed as follows: 14 represents the upright cylinder of a pump which is arranged at its lower end in a central opening formed in the platform and supported removably at its lower end on the bottom of the tank by means of legs 15 projecting downwardly from the lower ends of the pump cylinder and engaging with the bottom of the tank, thereby forming a clear space between the lower end of the pump cylinder and the bottom of the tank. The upper end of the pump cylinder is closed by a head 16 and extends to the top of the tank. At its lower end the pump cylinder is provided with an inlet port 17 which is controlled by a vertically swinging clack valve 180 which swings downwardly to close the inlet port and upwardly to open the same. At different elevations the upper part of the pump cylinder is provided with a plurality of annular rows of water discharge or outlet openings 18, 19, 20, the several rows being preferably spaced equal distances apart, or nearly so, and each row having its openings extending all the way around the pump cylinder. 21 represents a vertically movable pump plunger arranged within the pump cylinder and provided centrally with a port 22 which is controlled by a vertically swinging clack valve 23 which swings downwardly on the plunger to close the plunger port and upwardly to open the same. Upon lowering the plunger the inlet valve is closed and the plunger valve is opened, whereby the water within the cylinder passes from the lower part thereof through the plunger and into the cylinder above the plunger. Upon raising the plunger its valve closes so that the water above the plunger is lifted and discharged laterally in all directions through the outlet openings upon the dishes arranged upon the rack in the tank and at the same time the inlet valve is raised and water passes from the tank into the lower part of the cylinder preparatory to being lifted by the plunger. Upon reciprocating the plunger in this manner a continuous circulation of water is maintained in the machine. The raising and lowering of the plunger is effected preferably by means of an upright pump rod 24 passing through corresponding openings formed in the central section of the tank cover and the head of the pump cylinder and connected at its lower end with the plunger, a vertically swinging rock lever 25 pivoted between its inner and outer arms on a standard 26 secured to the upper side of the central cover section on one side of the center thereof, and a link 27, preferably of bifurcated form connecting the inner arm of the operating rock lever with the upper end of the pump rod. Upon oscillating the rock lever by taking hold of the handle on the outer arm thereof the plunger is raised and lowered. The stroke of this lever is so determined that the upward movement of the plunger is arrested before the plunger reaches the lowermost row of outlet openings, this being effected by a stop 28 formed on the upper part of the standard in position to be engaged by the inner arm of the rock lever, as shown in Fig. 1. By this means the plunger is prevented from passing above the lower set of outlet openings which otherwise would permit air to enter the cylinder below the plunger and interfere with the operation of the pump. Although the number of rows of openings which are formed in the pump cylinder may be varied three of such rows, as shown in Figs. 1 and 2 of the drawings, have been found satisfactory in practice.

In the absence of any provision to prevent it the water issuing from the outlet openings of the pump cylinder would all be thrown horizontally against the inner side of the wall of the tank and thus reach only the dishes stacked near this wall while those dishes arranged near the center of the tank would receive insufficient water to properly clean them as rapidly as the remaining dishes in the tank. In order to distribute the water issuing from the several rows of openings of the cylinder uniformly over all of the dishes within the tank annular deflectors 29, 30, 31, are arranged upon the exterior of the pump cylinder, one of such deflectors being arranged immediately above each row of outlet openings, as shown in Figs. 1 and 2. Each of these deflectors is of downwardly flaring conical form and the several deflectors are constructed of progressively greater flare from the lowermost one to the uppermost one. In other words, the surface of the lowermost deflector 29 approaches most nearly to a vertical line while the intermediate deflector has a greater flare outwardly or departure from a vertical line than the lower deflector and the uppermost deflector has the greatest flare or departure from a vertical line. By thus varying the angle of the flare of the several deflectors the water issuing from the lowermost set of outlet openings in the cylinder upon striking the lowermost deflector will be directed downwardly in a direction more nearly parallel with the axis of the pump cylinder and thus strike the dishes arranged on the rack adjacent to the center of the tank, while the water issuing from the central or intermediate row of outlet openings upon striking the underside of the intermediate deflector will be directed downwardly at an angle less parallel to the axis of the pump cylinder and strike the dishes arranged on the rack between the central part of the tank and the wall there-

of, and the water issuing from the uppermost set of openings upon striking the underside of the uppermost deflector will be directed against the wall of the tank and strike the outer side of the dishes arranged adjacent to the wall of the tank. As the water strikes the wall of the tank and the dishes it is deflected from one dish to another, as it descends, thereby removing the particles of food clinging thereto and carrying them downwardly through the platform to the bottom of the tank.

In order to expedite the washing operation the water is heated either before being introduced into the tank or the same may be heated while washing the dishes by setting the tank on top of a stove or other heating apparatus at this time. The dishes are retained in the tank and the pump is operated for circulating the water so as to subject the dishes to the cleaning action of the water for a sufficient length of time to thoroughly clean the same, this being governed by the condition of the dishes and the character of the particles adhering thereto. After the dishes have been thus washed they are preferably allowed to remain on the rack within the tank until they have thoroughly drained and they may then be removed for drying the same by means of a towel or hot water may be poured over the same which will cause the dishes to dry themselves by reason of the heat stored in the same. The dish water may be conveniently removed from the tank without tipping the same through a drain opening which is formed near the bottom thereof and which is normally closed by a plug 32 or stopper, as shown in Fig. 1.

Means are provided for holding the side cover sections open to permit of conveniently introducing the dishes into the tank or removing the same therefrom which means are preferably combined with the pump operating device by providing the lower ends of the members of the bifurcated link with two catches 33, 33. During the operation of the machine these catches rise and fall idly with the link. When it is desired to hold the side cover sections in an open position the link is raised into its highest position, as indicated in Fig. 1. The two side cover sections are then raised into a vertical position and then the link is lowered sufficiently to engage the catches with the upper edges of the side cover sections, as shown in Fig. 2, whereby these sections are held open and permit the attendant to freely introduce the dishes into the tank or remove the same therefrom.

After the washing operation the several parts of the machine may be readily dismembered so as to render all of them accessible for thorough cleaning and leaving the machine in a perfectly sanitary condition.

The machine as a whole has but few parts all of which are of comparatively simple construction and not liable to get out of order and it also has a large capacity in proportion to the amount of space which it occupies.

We claim as our invention:

A dish washing machine comprising a tank, a cover for said tank having a normally fixed section extending diametrically across the top of the tank and two vertically swinging sections pivoted on opposite sides of the fixed section, a pump cylinder arranged in the tank, a plunger arranged in the cylinder, a rod connected with the plunger, a lever pivotally mounted on the fixed cover section, and a link connecting said rod and lever and provided with catches for holding said movable cover sections in an open position.

Witness our hands this 31st day of May, 1911.

LOUIS P. PEREW.
ULYSSES J. ROGERS.

Witnesses:
THEO. L. POPP,
ANNA HEIGIS.