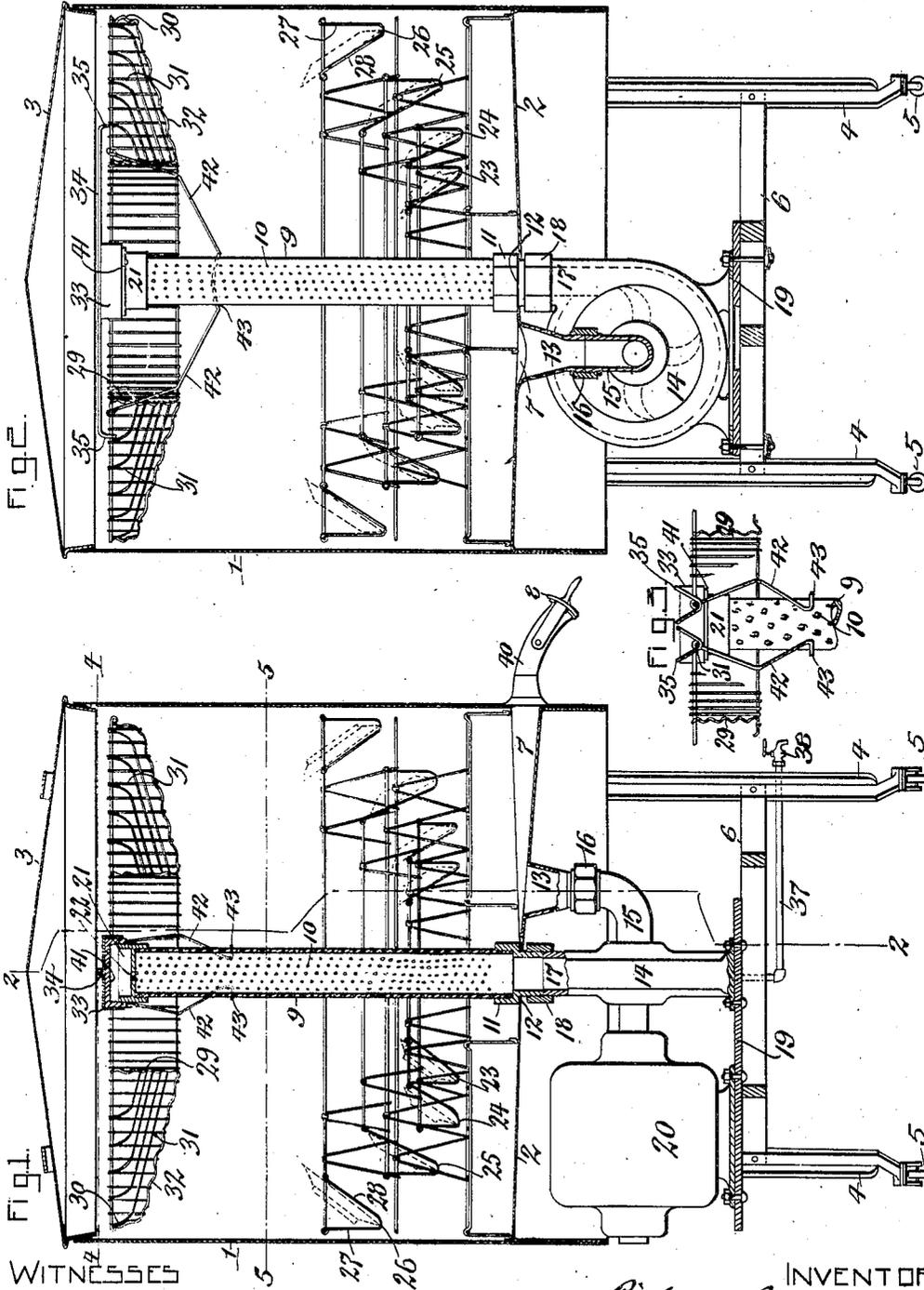


R. CARY & G. W. HEWITT.  
 DISH WASHING MACHINE.  
 APPLICATION FILED MAR. 12, 1914.

1,206,206.

Patented Nov. 28, 1916.

2 SHEETS—SHEET 1.



WITNESSES  
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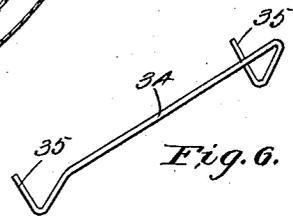
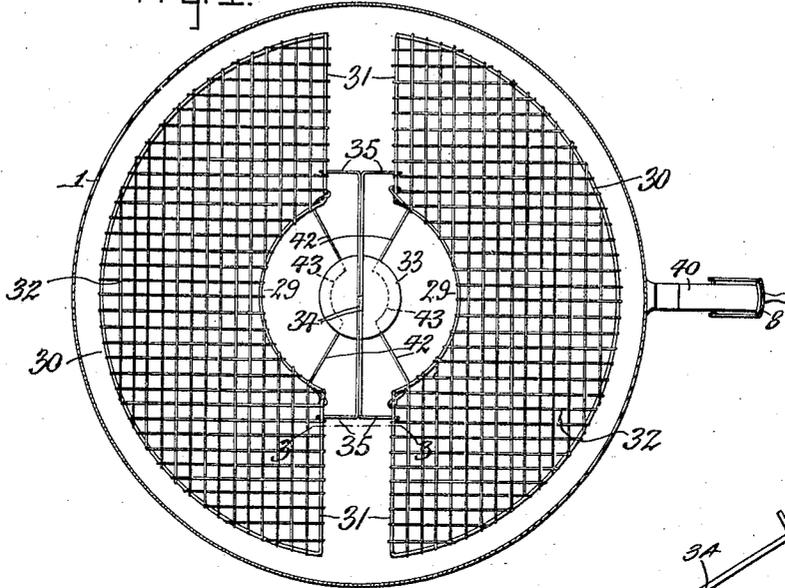
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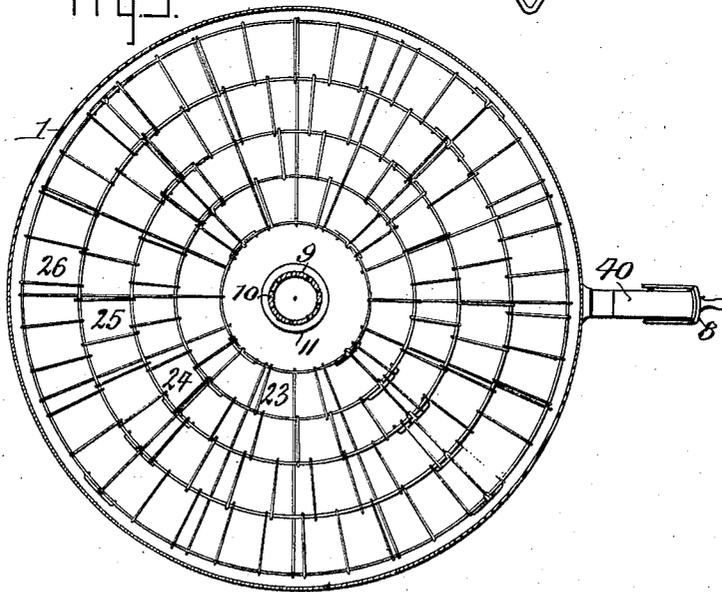
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 2 SHEETS—SHEET 2.

Fig. 4.



Figs.



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# UNITED STATES PATENT OFFICE.

RICHARD CARY AND GEORGE W. HEWITT, OF NIAGARA FALLS, NEW YORK.

## DISH-WASHING MACHINE.

1,206,206.

Specification of Letters Patent.

Patented Nov. 28, 1916.

Application filed March 12, 1914. Serial No. 824,173.

*To all whom it may concern:*

Be it known that we, RICHARD CARY and GEORGE W. HEWITT, citizens of the United States, residing at Niagara Falls, in the county of Niagara 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 the like and more particularly to a machine of this character in which the water for washing the dishes is circulated by power.

It is the object of this invention to provide a machine of this character which is simple, durable and inexpensive in construction, which can be easily and conveniently operated with a minimum expenditure of power, which is provided with means for supporting the dishes so that thorough cleaning of the same is always insured and the parts can be readily dismembered for thoroughly cleaning the machine and easily assembled for putting the machine in working condition.

In the accompanying drawings: Figure 1 is a vertical section of the machine embodying our invention taken lengthwise of the axis of the pump and its motor and the discharge spout of the tank. Fig. 2 is a vertical section taken at right angles to Fig. 1 and substantially on line 2-2 of said figure. Fig. 3 is a fragmentary vertical transverse section of the machine taken in line 3-3, Fig. 4. Figs. 4 and 5 are horizontal sections taken in the correspondingly numbered lines in Fig. 1. Fig. 6 is a detached perspective view of the supporting means for one of the rack sections.

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

The tank, reservoir or chamber of the machine which is adapted to receive the dishes and other articles to be cleaned preferably comprises an upright cylindrical body 1, a bottom 2 secured to the lower part of the body at a distance from its lower edge and a removable cover or lid 3 whereby the upper end of the body may be opened and closed to permit of introducing the racks, dishes and water into the tank or removing the same therefrom, and to close the

upper end of the tank during the operation of washing the articles. This tank or chamber may be supported in any suitable manner so that it may be moved about, if this is desired, the means for this purpose shown in the drawings consisting of a carriage having a plurality of upright legs 4 secured at their upper ends to the body of the tank and provided at their lower ends with rollers 5 adapted to rest on the floor and a horizontal cross piece 6 connecting the legs below the tank.

The bottom of the tank is preferably constructed so that it slopes toward the center thereof and for convenience in emptying the tank a gutter 7 is formed in the bottom thereof which gutter extends from the central part to the periphery of the bottom and opens into a valved spout or discharge spout 40 of any suitable and well known construction. As shown in Figs. 1, 4 and 5 the closure for this spout consists of a vertically swinging gate 8 pivoted on the spout to move across the outer end thereof. When this gate is closed the washing water is confined within the tank but when this gate is opened the water and any material which has been removed from the dishes during the washing operation is permitted to flow from the tank through the gutter and spout into a receptacle or elsewhere.

In its general organization this machine is designed so that the dishes and other articles to be cleaned are stacked in the upper and lower parts of the tank and a water circulating device is provided which takes the water from an outlet in the bottom of the tank and returns the same in the form of a spray from the central part of the tank in all directions toward the side wall or body thereof so that all the dishes stacked within the tank are exposed to the washing effect of the spray of water. After the water strikes the dishes and again drops toward the bottom of the tank it is again taken up and sprayed over the dishes, this operation continuing until the dishes have been subjected to the washing action of the spray of water a sufficient length of time to thoroughly clean the same.

Although the water may be thus circulated and delivered into the tank in the form of a spray by various means those shown

in the drawings are suitable and are constructed as follows:

9 represents an upright water delivery or spray pipe or column arranged centrally within the tank and provided with a plurality of spray openings 10 through which the water delivered under pressure into the interior of the spray pipe or column is delivered laterally or radially in all directions from the spray pipe into the tank and toward the wall thereof. This spray pipe may be supported by any suitable means, for instance, by screwing its lower end into the upper end of a coupling nipple 11 which latter projects with its lower reduced part through an opening formed in the central part of the tank bottom and forms a downwardly facing shoulder 12 on this nipple which engages with the upper side of the bottom and is secured thereto by brazing, soldering or any other suitable means.

13 represents a water return spout which preferably opens at its upper end into the lower part of the tank at the inner end of the gutter although, if desired, this return spout may be otherwise located.

14 represents the casing of a centrifugal pump which is arranged below the bottom of the tank and has its eye provided with an inlet pipe 15 which is detachably connected by a union 16 with the return spout 13 while the tangential outlet 17 of the pump casing is connected by means of a union 18 with the lower end of the coupling nipple 11 of the spray pipe. This pump is preferably arranged with its axis horizontal and mounted upon a platform or table 19 which is detachably mounted upon the cross piece of the carriage. During the operation of this pump the water is withdrawn from the lower part of the tank through the return spout into the pump casing and discharged from the outlet of the latter into the spray pipe so that the water issues from the latter in the form of a spray and strikes the dishes which have been stacked within the tank.

The pump may be operated by any suitable means, either manually or by power, but for convenience and simplicity of construction as well as economy it is preferable to employ for this purpose an electric motor 20 which is mounted upon the platform 19 below the tank and operatively connected with the shaft of the pump, as shown in Figs. 1 and 2.

For convenience in introducing soap or other detergent or cleaning agent into the water for the purpose of producing suds or other cleaning effect which will promote the washing of the dishes, means are provided for supplying a semi-liquid or paste soap within the perforated spray pipe or column so that the water becomes thoroughly mixed with this cleaning agent before issuing from the spray pipe and striking the dishes. The preferred means for this purpose which are

shown in Figs. 1, 2 and 3 consist of a cup 21 mounted on the upper end of the spray pipe and provided in its bottom with an outlet opening 22 leading from the interior of this cup to the interior of the spray pipe, and a cap or cover 41 adjustably connected with the upper end of the cup preferably by a screw joint, as shown in Fig. 1 or by any other suitable means. The interiors of this cup and cover are filled with soap paste and upon screwing the cover downwardly upon the cup some of the soap is squeezed out of the outlet opening 22 in the bottom thereof into the spray pipe where it is mixed with the water delivered into the spray pipe by the pump and caused to become thoroughly mixed with this water and form suds which operate to effectively clean the dishes or other articles as the water issuing from the spray pipe strikes the same.

The means for stacking or supporting the dishes within the tank so that they receive the washing effect of the spray most advantageously preferably comprises a lower rack which is mounted in the lower part of the chamber and adapted to support the large dishes, and an upper rack arranged in the upper part of the tank and adapted to receive the silverware and glassware, such as drinking glasses. The lower rack, as shown in Figs. 1, 2 and 5, is preferably constructed of wire so as to form a plurality of annular grooves or seats 23, 24, 25, 26 arranged concentrically around the water delivery pipe. The two annular seats 23, 24 nearest the center of the rack are lowest and on the same level while the intermediate annular seat 25 is arranged at somewhat higher level than the lower seats and the outermost annular seat 26 is arranged at a still higher level than the intermediate seat 25. Each of these annular seats has its outer wall 27 arranged vertically or nearly so while the inner wall 28 thereof is inclined at an angle toward the center of the tank and the spray pipe. Owing to this construction of these seats of the lower rack any dishes which are placed in these seats are tipped inwardly at their upper ends, as shown by the representation of these dishes in dotted lines in Figs. 1 and 2, and it is therefore practically impossible to stack the dishes on this rack in any other than an inwardly inclined position. By this means the spray of water from the delivery pipe is caused to strike all of the dishes on the lower rack at an angle which causes the water spray to be deflected downwardly and remove all the material from the dishes in a comparatively short time and without necessitating any particular care in placing the dishes on the lower rack except that it is desirable to have the soiled sides of the dishes facing the spray. Furthermore, this construction of these seats insures quick and complete draining of the water from the

ishes. This lower rack rests loosely upon the bottom of the tank and may be readily removed when a thorough cleaning of the interior of the tank and other parts is required.

The upper rack, which is also preferably constructed of wire, is arranged in the upper part of the tank and is preferably constructed in the form of two sections or baskets each of which is of substantially segmental or semi-circular form and comprises an inner curved wall 29, an outer curved wall 30, transverse walls 31 connecting the ends of the inner and outer walls respectively and a bottom 32 connecting the lower edges of said walls and sloping from the outer wall downwardly toward the inner wall. These two sections of the upper rack are arranged on opposite sides of the spray pipe within the upper part of the tank and are adapted more particularly for supporting silverware and drinking glasses or the like which are placed upon the bottom of each rack section so that they are arranged substantially radial and with their open ends facing inwardly so that the spray of water issuing from the spray pipe will strike the interior of the glasses as well as the exterior thereof and thoroughly cleanse the same. These two rack sections may be removably supported within the tank in various ways but preferably by means whereby they are removably mounted on the upper end of the spray pipe. The preferred means for this purpose which are shown in the drawings comprise a supporting cap 33 which engages removably over the cover of the soap cup, and two horizontal supporting rods 34 which are secured side by side to the top of the supporting cap by soldering or otherwise so that the opposite ends of these rods project beyond opposite sides of the supporting cap, and laterally projecting hooks 35 arranged at opposite ends of each supporting rod, the hooks of each rod being adapted to removably engage the adjacent transverse walls of one of the upper rack sections.

In order to sustain each of the upper rack sections in its proper operative position a brace is provided extending from this section to the spray pipe. In its preferred form this brace comprises two arms 42 having their upper ends connected with the upper edges of the transverse walls of an upper rack section on diametrically opposite sides of the same and a curved cross bar 43 connecting the lower ends of the arms 42 and engaging removably with the adjacent outer side of the spray pipe below the underside of this rack section. The brace arms preferably bear with their upper parts against the adjacent transverse walls of the respective upper rack section so that when the cross bar of the brace engages with the spray

pipe the respective upper rack section will be held in its proper position on the hooks 35 relatively to the spray pipe to permit the spray of water to properly enter the open ends of the glassware supported upon the upper rack section and thoroughly clean the same.

During the operation of the machine an effective spray of water is delivered by the pipe 9 against the dishes and silverware contained within the upper and lower racks so that they are thoroughly cleaned in a comparatively short time and after being thus cleaned the soiled water may be conveniently removed from the tank through the drain spout 40 and fresh hot water thrown over the dishes so that they will become dry without the necessity of wiping them for this purpose.

If desired, the dishes after being washed may be removed from the tank with the racks in which they are supported and other dishes which have been previously stacked in extra racks may be introduced into the tank, thereby permitting the machine to be used continuously and increasing the capacity of the same where this is desired.

Any water contained in the casing of the pump may be removed therefrom through a drain pipe 37 connected with the lower part of the pump casing and having a drain cock 38.

This machine contains no complicated or delicate parts which are liable to get out of order during ordinary use, the same can be produced at comparatively low cost and it operates to clean dishes effectively, quickly and economically.

We claim as our invention:

1. A dish washing machine comprising a washing chamber, an upright water delivery pipe arranged within said chamber, and means for supporting articles to be washed comprising a rack arranged within the chamber, and a cross bar mounted on the upper end of said delivery pipe and provided at its opposite ends with hooks adapted to engage with the adjacent parts of said rack.

2. A dish washing machine comprising a washing chamber, an upright water delivery pipe arranged within said chamber, and means for supporting articles to be washed comprising a rack arranged within the chamber, and a cross bar mounted on the upper end of said delivery pipe and provided at its opposite ends with hooks adapted to engage with the adjacent parts of said rack and a brace extending from said rack to the water delivery pipe below the rack.

3. A dish washing machine comprising a washing chamber, an upright water delivery pipe arranged within said chamber, and means for supporting articles to be washed comprising a rack arranged within the

chamber, and a cross bar mounted on the upper end of said delivery pipe and provided at its opposite ends with hooks adapted to engage with the adjacent parts of said rack  
5 and a brace comprising two arms having their upper ends connected with the upper part of said rack and their upper parts engaging with the inner wall of said rack and a cross bar connecting the lower ends of said

arms and engaging with the side of said 10 water delivery pipe below said rack.

Witness our hands this 11th day of March, 1914.

RICHARD CARY.  
GEORGE W. HEWITT.

Witnesses:

MARTIN M. HELD,  
D. L. DORMUS.