

Dec. 11, 1923.

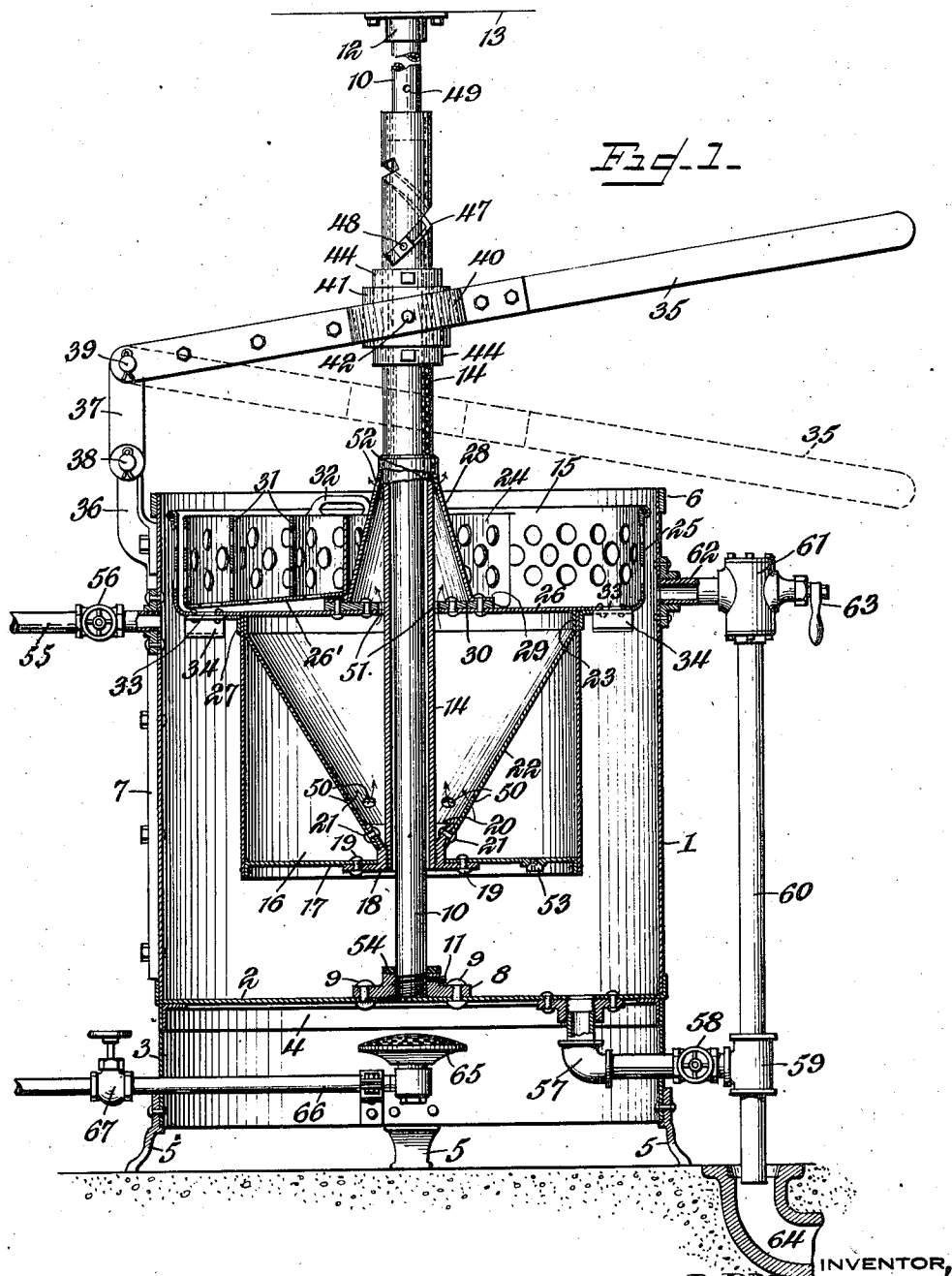
1,477,068

D. P. MAGANN

DISHWASHING MACHINE

Filed April 13, 1921

2 Sheets-Sheet 1



WITNESSES

Charles H. Curand
Harry E. Seidel

BY

D. P. Magann,
E. J. Siggus

ATTORNEY

Dec. 11, 1923.

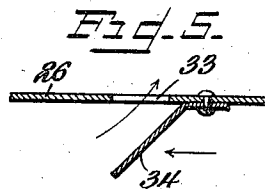
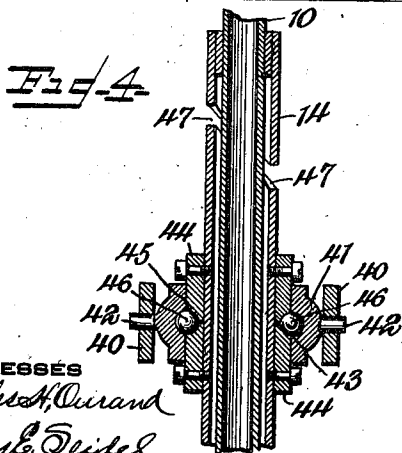
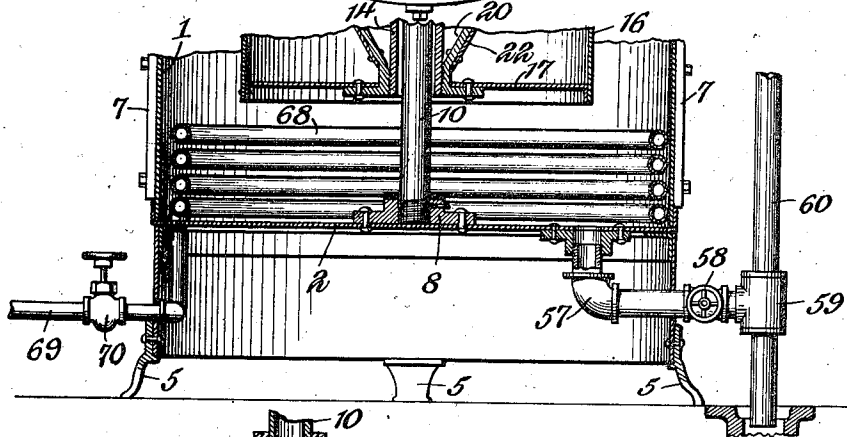
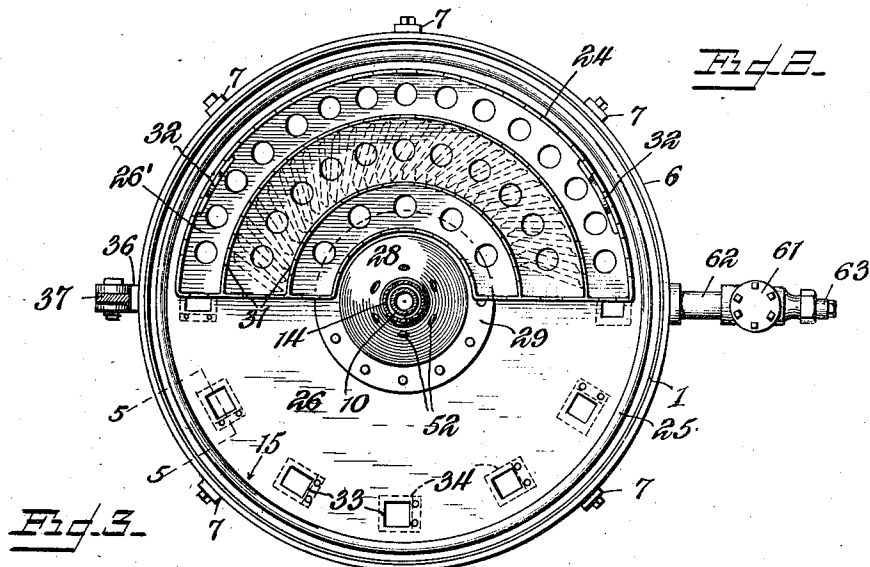
1,477,068

D. P. MAGANN

DISHWASHING MACHINE

Filed April 13, 1921

2 Sheets-Sheet 1



WITNESSES
Charles A. Curand
Harry E. Seidel

D.P. Magann,
INVENTOR,

BY

E. G. Siggers

ATTORNEY

Patented Dec. 11, 1923.

1,477,068

UNITED STATES PATENT OFFICE.

DOUGLAS PLEASANT MAGANN, OF ROANOKE, VIRGINIA, ASSIGNOR OF ONE-HALF TO
DAVID E. ARGENBRIGHT, OF ROANOKE, VIRGINIA.

DISHWASHING MACHINE.

Application filed April 13, 1921. Serial No. 461,173.

To all whom it may concern:

Be it known that I, DOUGLAS P. MAGANN, a citizen of the United States, residing at Roanoke, in the county of Roanoke and State of Virginia, have invented a new and useful Dishwashing Machine, of which the following is a specification.

This invention relates to a washing machine and is more particularly directed to a machine for washing and rinsing dishes.

An object of the invention is to provide an improved supporting means for the dish container which by reason of its buoyancy will always maintain the dishes at a predetermined height above the level of the cleansing bath when the machine is at rest.

Another object of the invention is to provide means for increasing or decreasing the lifting power of the buoyant supporting means for the dishes, which will be proportionate to the weight of the dishes in the dish container.

Another object of the invention is to provide the buoyant supporting means for the dish container in the form of a flotation chamber and having means for relieving pressure within the chamber when the cleansing bath is heated.

A further object of the invention is to provide a buoyant supporting means for the dish container which will assist the operator in raising the dishes from the cleansing bath and necessarily decrease the amount of work required to operate the machine.

The invention still further contemplates a novel operating means for the dish container in which friction between the elements of the operating parts is at a minimum.

The present machine is used for washing and rinsing dishes in a tub provided with a cleansing bath in such a manner that water is not only forced through the dishes laterally but in an upward whirling motion so that all portions of the dishes are thoroughly washed and treated by a powerful surging movement of the bath.

A buoyant chamber secured to the dish container not only maintains the container at a predetermined height above the level of the cleansing bath in the tub, but acts as a means for aiding the operator in lifting the dishes from the water so that little effort on the part of the operator is required to elevate the dishes. Furthermore, since

the buoyant chamber occupies a great deal of the space of the tub and is not in communication with the cleansing bath it will displace the bath and force same upwardly, through, and above the dishes.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing in the drawing, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings,

Fig. 1 is an elevation of a washing machine partly in section disclosing the flotation chamber secured to the dish container and a form of heating means placed below the tub.

Fig. 2 is a plan view of the washing machine with a section of the dish tray or container removed.

Fig. 3 is a fragmentary view of the tub in section showing another form of heating means.

Fig. 4 is a fragmentary view in section of the bearing for the operating means.

Fig. 5 is a section along the line 5—5 of Fig. 2, showing the deflecting blade for driving the cleansing bath through the dish container.

The machine comprises a tub 1 having a bottom 2, mounted upon a cylindrical base 3, by means of a flanged ring 4. The cylindrical base is provided with feet 5 for supporting the tub upon the floor of a room. The top of the tub is reinforced by a hoop 6 and the sides, by strips 7 which are bolted to the outside of the tub at spaced intervals.

Supported centrally of the bottom of the tub by means of an internally threaded flanged plate 8 which is secured to the bottom by rivets 9, is a hollow rod 10 having a threaded portion at its lower end screwed into the internally threaded portion of the plate. A screw 11 passing through the plate 8 prevents the hollow rod 10 from turning in the plate. The upper end of the rod is secured in position in any manner, as by means of a flanged plate 12 on the ceiling 13.

Slidably and rotatably mounted upon the rod 10 is a long sleeve 14 carrying the main tray 15 and the flotation chamber 16. The chamber 16 is cylindrical in form and provided with a bottom 17 which is secured to a flanged hub 18 by means of rivets 19. The hub 18 is internally threaded, the threads engaging with threads formed upon the lower end of the sleeve 14. A cone-shaped extension 20 of the hub projects upwardly upon which is secured by means of rivets 21 a reinforcing cone-shaped member 22. The upper end of the reinforcing member 22 has a cylindrical formation 23 which is secured in any manner to the chamber 16.

The main tray or dish container 15 is formed in sections 24, and which sections are adapted to hold the dishes within the washing machine, is provided with an up-standing, perforated, cylindrical rim 25 and a bottom 26 which forms the top of the flotation chamber 16. The bottom 26 is secured to the top of the flotation chamber in any manner, and the connection between the two members is reinforced by an annular bracket 27.

A conical hub 28, surrounding the sleeve 14 and secured at its upper end to said sleeve, is flanged at its base portion, the flange 29 being connected to the bottom of the dish container by means of rivets having a reinforcing ring 30 interposed between the flange and the base.

The dish container which carries the dishes is divided into three sections by means of the semi-circular perforated members 31 and are provided with handles 32 in order that the sections may be removed. It will be seen from an inspection of Fig. 1 that the perforated base 26' of the sections slants upwardly towards the center and rests upon the flange 29 of the conical hub 28 while the periphery of the sections rests upon the bottom 26 of the container. It will be seen that a space is provided between the base of the sections and the bottom of the container in order that the cleansing bath will more readily find access to the dish container from the tub. The bottom of the dish container has a series of radial perforations 33 and a number of inclined deflecting blades 34 radially disposed around the bottom of the dish container and disposed below and at one side of the perforations so that they will give to the cleansing bath an upward and whirling motion through the dishes. These blades are disposed at an angle of 45°.

An operating arm 35 is connected to a bracket 36 mounted on the tub 1 by means of a link 37 having pivotal connections 38, 39, respectively, with the bracket and the operating lever. The operating arm 35 is provided with a yoke 40 which surrounds a ring 41 having the diametrically disposed

pins 42 projecting outwardly therefrom and passing through the diametrically disposed perforations in the yoke 40. This ring 41 forms the outer casing for a bearing 43. The bearing 43 comprises the members 44 of a split ring which is secured to the sleeve 14 and provided with a race 45 in which are located the anti-friction elements 46.

The sleeve 14 has a spiral slot 47 in which a pin 48 on the rod 10 is adapted to operate for creating a reciprocating and rotary motion to the sleeve 10 when the operating arm 35 is moved upwardly or downwardly. A perforation 49 is placed at a point in the rod 10 so that when the flotation chamber and dish container are raised from the tub 1 in order to clean the tub, they may be held at this point by placing a pin in the perforation 49 beneath the bottom of the flotation chamber.

I have provided a means for relieving the flotation chamber 16 of pressure from the air within when the chamber is heated. I have perforated the reinforcing cone 22 at 50 so that air from the flotation chamber may escape into this cone. Perforations 51 in the bottom of the dish container 15 and the annular reinforcing member 30, and also perforations 52 in the upper portion of the hub 28, permit expanded air to pass to the outside.

The perforations 52 are placed at such a height above the level of the cleansing bath in the tub that they will not permit the cleansing bath escaping into the flotation chamber 16.

The flotation chamber is of such dimensions that it will readily support the dishes above the level of the cleansing bath. The weight of the dishes will always be slightly less than the buoyancy of the chamber 16 in order that little effort will be required by the operator to raise the lever after the dishes have been immersed because of the superior buoyancy of the member 16. The size of the flotation chamber 16 is such that as the chamber is lowered into the water it will readily raise and force the water upwardly, through and above the dishes in the dish container.

If at any time it is found that the lifting power of the chamber 16 is greater than is desired, a plug 53 in the bottom of the chamber may be opened to permit sufficient quantity of the bath to enter the chamber to lessen its lifting power and consequently support the dishes at a height which is more desirable.

A rubber buffer 54, surrounding the rod 10 and resting on the plate 8, receives the shock of the chamber if the said chamber is lowered far enough to reach that portion of the tub.

An inlet pipe 55 provided with a cock 56 admits water to the tub 1. A drain 57, con-

trolled by a cock 58, is used to draw off the water from the tub. Connected with this drain by a T joint 59 is a pipe 60 having at its upper end a connection 61 which provides a grease trap for collecting the grease which escapes through the overflow pipe 62. The valve 63 controls the overflow. The pipe 60 may be connected with a drain such as 64.

Any manner of heating may be employed for heating the cleansing bath in the tub 1, such as a gas burner 65 fed from a conduit 66 controlled by the valve 67. A modification of the heating device is shown in Fig. 4, in which a steam coil 68 is shown, placed in the bottom of the tub 1 and connected with a feed pipe 69 and controlled by the valve 70.

The operation of the device is as follows:—The operator having filled the sections of the dish container with dishes, places these sections which are of semicircular form in the dish container 15. The tub 1 is filled to a predetermined height with the cleansing bath. The operator grasps the handle 35, and by a reciprocating movement, forces the yoke downwardly, carrying with it the bearing 43 and likewise the sleeve 14. As the sleeve travels downwardly, the pin 48 which is secured on the rod 10, the free end of it being disposed in the spiral slot 47, causes the sleeve 14 to rotate, likewise rotating the dish container and the flotation chamber 16. These two movements, the downward movement and the rotary movement, of the chamber 16 and the dish container causes the cleansing bath to be forced upwardly around the dishes and over the dishes by means of the blades 34 and the displacement of the cleansing bath by the flotation chamber 16. The rotary motion of the dish container causes the radially disposed blades 34 to force the water in a surging and violent manner among the dishes, thereby thoroughly cleansing them. As the arm 35 is returned, that is with the aid of the lifting power of the chamber 16, water is drawn backwardly through the dishes and the perforations of the dish container. A continued reciprocation of the arm 35 thoroughly cleans the dishes and they are now ready for the rinsing bath. It is preferable, in this construction, to employ in conjunction with the washing machine a rinsing machine of the same type as the washing machine. The sections, after the dishes have been thoroughly washed, are removed from the dish container of the washing machine and placed in the dish container of the rinsing machine, and the same operation, that is of reciprocating the lever 35, is carried on.

If, in filling the dish container with a certain number of dishes, it is found that the dish container rides too high above the cleansing bath, or, in other words, that the

lifting power of the flotation chamber 16 is too great, the plug 53 may be removed to allow a definite quantity of the bath to enter the chamber in order to reduce the lifting power of said chamber.

As the grease collects upon the surface of the cleansing bath, the valve 56 may be opened to allow more of the bath into the tub to elevate the level of the bath and allow some of the bath and the grease which has collected on the surface of the bath to pass out into the grease trap 61. In order to drain the contents of the tub 1, the valve 58 is opened to permit the bath to be disposed of in the drain or sewer 64.

This invention may be considered as a sterilizing machine, as the operator may submerge the dishes in boiling water without danger of scalding the operator.

What is claimed is:

1. In a dish washing machine, a dish container, buoyant means for supporting the dish container, and means for imparting motion to the dish container.

2. In a dish washing machine, a dish container, buoyant means connected to the bottom of the dish container for supporting the same, and means for imparting motion to the container and to the buoyant means.

3. In a dish washing machine, a tub having a heated cleansing bath, a dish container, buoyant means for supporting the dish container, means for imparting motion to the dish container, and means for relieving pressure in said buoyant means when said buoyant means becomes heated.

4. In a dish washing machine, a dish container, buoyant means connected to the dish container for supporting the container at a predetermined elevated position, means for imparting motion to the container and buoyant means, and means for regulating the lifting power of the buoyant means.

5. In a dish washing machine, a dish container, buoyant means connected to the dish container for supporting the same in an elevated position, and means for imparting both a rotary and a reciprocatory movement to the container and the buoyant means.

6. In a dish washing machine, a dish container, buoyant means connected to the dish container for supporting the same in an elevated position, means for imparting motion to the container and buoyant means, means for relieving pressure in said buoyant means, and means for regulating the lifting power of the buoyant means.

7. In a dish washing machine, the combination of a tub adapted to contain a cleansing bath, a dish container, and a buoyant supporting means for the container cooperating with the cleansing bath to maintain the dishes above the bath when the machine is at rest.

8. In a dish washing machine, the com-

4
bination of a tub adapted to contain a
cleansing bath, a dish container, a flotation
chamber connected to the bottom of the
dish container, and means for raising and
5 lowering the dish container and chamber,
the flotation chamber maintaining the dish
container above the bath when the machine
is at rest.

9. In a dish washing machine, the com-
10 bination of a tub adapted to contain a cleans-
ing bath, a dish container, a flotation cham-
ber connected to the bottom of the dish
container, means for imparting a recipro-
catory motion to said container and cham-
15 ber, and means provided in said chamber
to admit a portion of the bath to the cham-
ber to decrease the buoyancy thereof.

10. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
20 ing bath, means for heating the tub, a dish
container, a flotation chamber connected to
the bottom of the dish container, means for
imparting a reciprocatory motion to said
container and chamber, said chamber having
25 openings leading therefrom to the outer air
for relieving the pressure therein.

11. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
ing bath, a dish container, buoyant means
30 connected with said container and cooperat-
ing with the cleansing bath to maintain the
dishes in said container above the bath when
the machine is at rest, means for imparting
reciprocatory motion to said container and
35 buoyant means, and means on the container
for causing the bath to pass in an upward
and angular direction through the dishes.

12. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
40 ing bath, a dish container, a buoyant sup-
port for the container, means for imparting
a rotary motion to the support, and means
for rotating and driving portions of the
bath through the container.

13. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
ing bath, a dish container, a buoyant sup-
port connected to said container and co-
operating with the cleansing bath to assist
50 in elevating the dish container above the
bath, a rod upon which said container and
support are movable, and means connected
to the support and revolvably mounted on the
rod for imparting both vertical and rotary
55 motion to the container and support.

14. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
ing bath, a container for soiled dishes, means
for floating said container in the bath, a rod
60 passing through the container and floating
means, and means slidably mounted on the
rod for reciprocating and rotating simulta-
neously the container and the floating means.

15. In a dish washing machine, the com-
65 bination of a tub adapted to contain a cleans-

ing bath, a perforated container for soiled
dishes, buoyant means for floating said con-
tainer in the bath, a rod passing through the
container and floating means, means
70 slidably mounted on the rod for reciprocating
and rotating simultaneously the con-
tainer and the floating means, and means for
actuating said slidable means.

16. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
75 ing bath for the dishes, a container for
the dishes, means for supporting the con-
tainer comprising a hollow body having a
closed bottom resting on the bath, a reinforcing
means for the hollow body formed with-
80 in and secured to the bottom and sides of
said body, and a top for the hollow body
forming the bottom of the dish container.

17. In a dish washing machine, the com-
bination of a tub adapted to contain a cleans-
85 ing bath for the dishes, a dish container,
buoyant means for supporting the dish con-
tainer, a rod supported within the tub and
passed through the container and buoyant
means, a sleeve slidably mounted on the rod
90 and secured to the buoyant means and con-
tainer, and means connected with the sleeve
for causing simultaneously a rotating and
reciprocating movement to the dish con-
tainer and the buoyant supporting means. 95

18. In a dish washing machine, the com-
bination with a tub and a container for
dishes, of an operating means, comprising a
sleeve secured to the container, a rod on
which said sleeve is slidably and rotatably
100 mounted, a pin on said rod, a spiral slot in
the sleeve to receive the pin, a split ring
secured to the sleeve, a ring mounted on the
split ring, a race provided between the split
ring and the second-mentioned ring, anti-
105 friction elements located in the race, and
a lever pivotally mounted on the second-
mentioned ring for actuating the sleeve and
the container.

19. In a washing machine, the combina-
110 tion of a tub and a container for dishes
adapted to be rotated and reciprocated in
said tub, with an operating means for the
container comprising a lever pivoted to the
tub, a vertical rod secured to the tub, a
115 sleeve having a spiral slot rotatably and
slidably mounted on the rod, a ball bearing
connection between the lever and the sleeve,
and a pin on the rod operating in said spiral
slot to cause a reciprocating and rotating
120 movement of the sleeve when the lever is
operated.

20. In a dish washing machine, a tub, a
dish container, a flotation chamber secured
to the bottom of the dish container and being
125 of less diameter than the same, said con-
tainer having openings in the bottom be-
yond the connection of the said chamber
thereto.

21. In a dish washing machine, a tub, a 130

dish container, a flotation chamber secured to the bottom of the dish container and being of less diameter than the same, said container having openings in the bottom beyond the connection of the said chamber thereto, and inclined blades extending from the container bottom below the openings.

22. In a dish washing machine, a tub, a dish container, a flotation chamber secured to the bottom of the dish container, said bottom constituting the top of the chamber, and a cone-shaped member arranged within the chamber and secured at the top and bottom thereto.

23. In a dish washing machine, a dish

container having its bottom provided with perforations, and inclined rigid blades depending from the bottom below and at one side of the perforations.

24. In a dish washing machine, a dish container consisting of a perforated bottom and a perforated rim, a series of semi-circular removable sections supported within the container, with the bottom of the sections supported above the bottom of the container.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

DOUGLAS PLEASANT MAGANN.