

March 23, 1943.

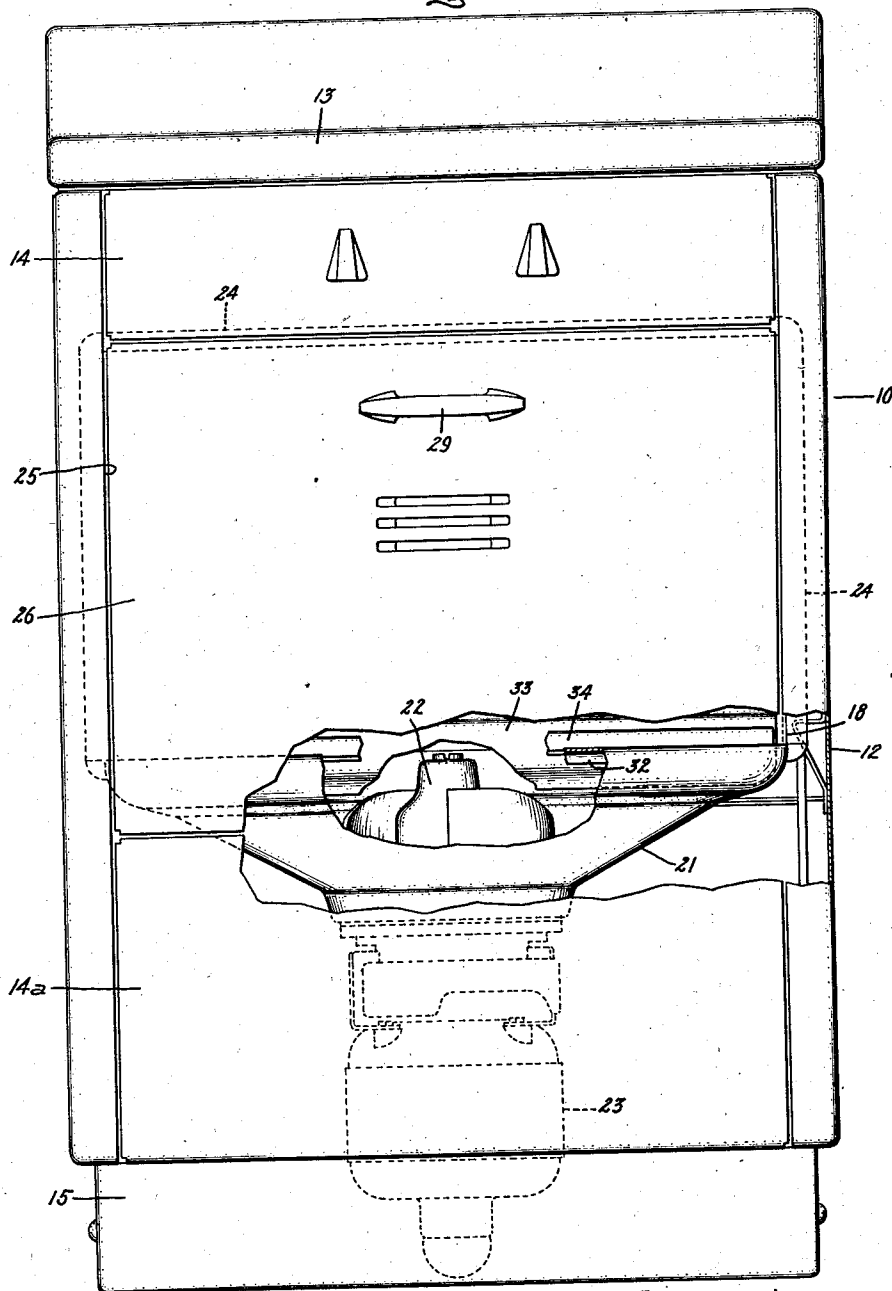
F. A. WALKER
WASHING APPARATUS

2,314,673

Original Filed Aug. 27, 1937

3 Sheets-Sheet 1

Fig. 1.



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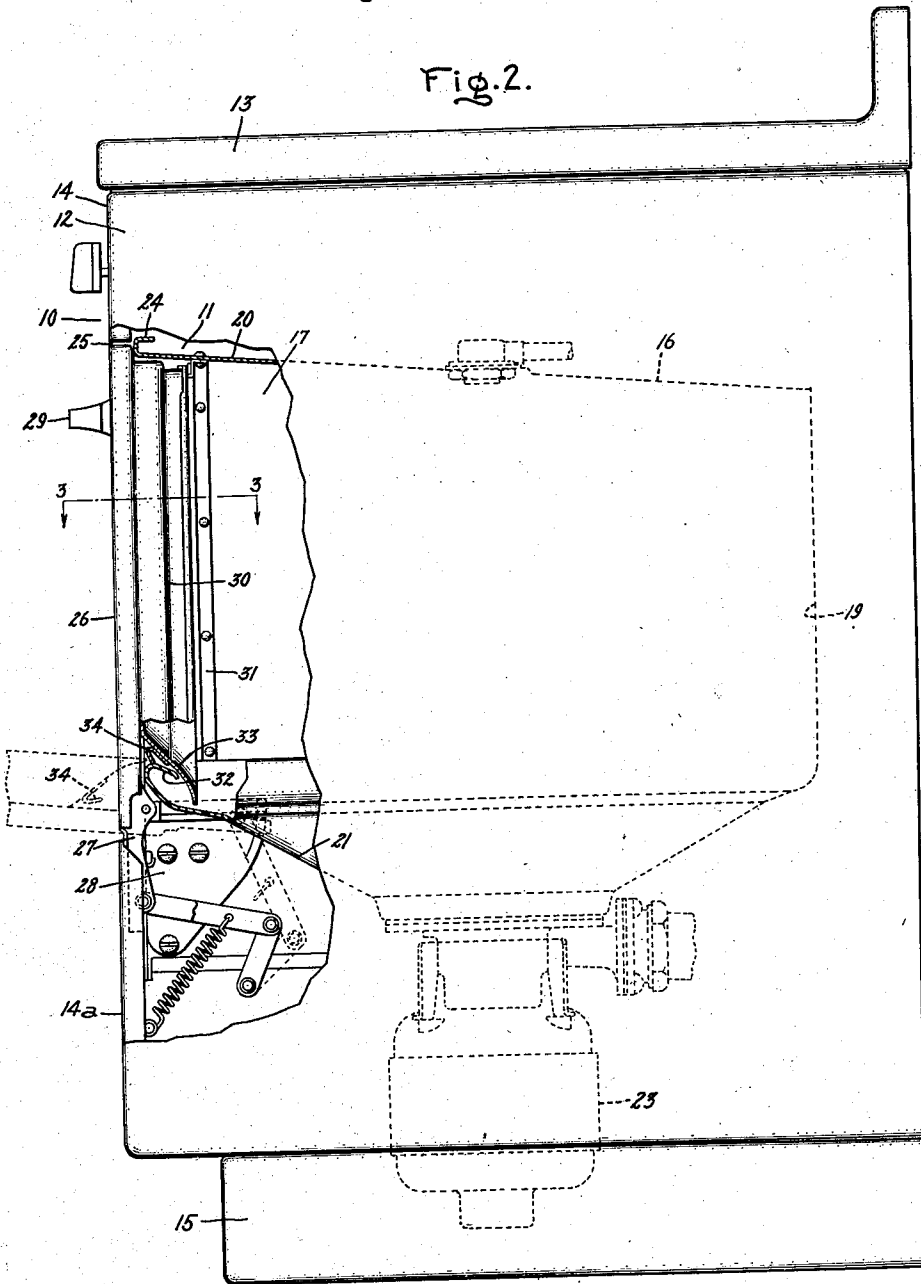
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Fig. 3.

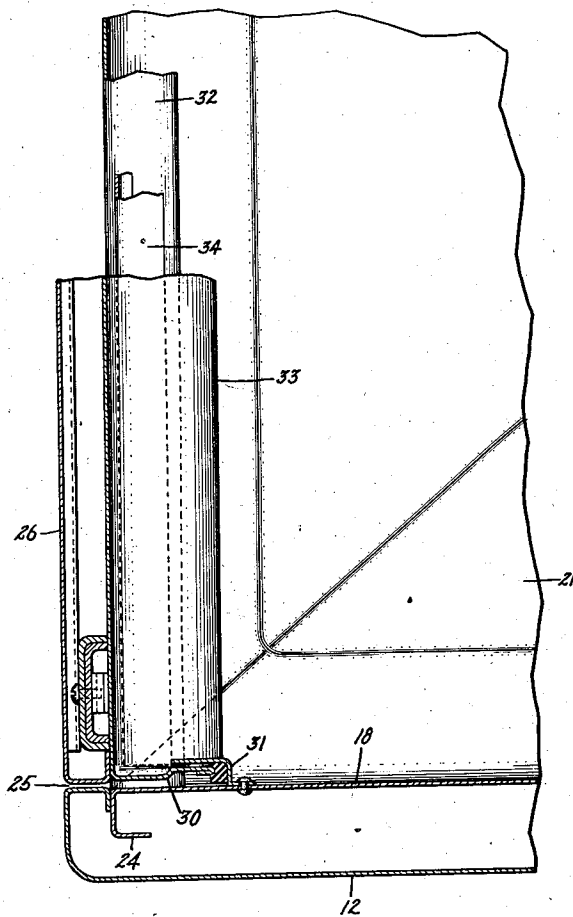
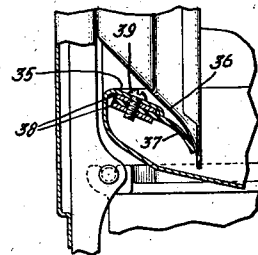


Fig. 4.



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UNITED STATES PATENT OFFICE

2,314,673

WASHING APPARATUS

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Original application August 27, 1937, Serial No.
161,257. Divided and this application March
13, 1941, Serial No. 383,076

5 Claims. (Cl. 220—32)

This invention relates to washing apparatus, more particularly to dishwashing apparatus, and it has for its object the provision of improved apparatus of this character.

This invention is particularly applicable to dishwashing apparatus provided with a vat which has a front opening therein through which dishes and the like are loaded into the vat for washing, and removed from the vat after they have been cleaned; and it is especially useful in apparatus of this character which is provided with a door for the front opening that is arranged to swing on its lower axis between a substantially vertical closed position and a substantially horizontal open position. And it contemplates the provision of improved means for sealing the door at its lower edge when it is closed.

In accordance with this invention in one form thereof, the door is provided with a bottom section extending between the side edges of the door, and inwardly and downwardly into the vat so that it always covers the lower edge of the front opening, irrespective of the position of the door. The vat is provided with a lip under this section which extends inwardly and downwardly substantially through the full width of the opening. In one form of this invention, the bottom section of the door carries a flexible sealing guard which yieldingly engages the lip on the vat when the door is closed so as to close and seal the space between the lip and the door bottom. In another form of this invention, this space is closed and sealed by a flexible sealing strip secured to the lip on the vat so as to extend inwardly to yieldingly engage the bottom section of the door when the door is closed.

This application is a division of my copending application, Serial No. 161,257, filed August 27, 1937, now Patent No. 2,257,436, dated September 30, 1941, and is assigned to the same assignee as that application.

For a more complete understanding of this invention, reference should be had to the accompanying drawings in which Fig. 1 is a vertical front elevation of dishwashing apparatus embodying this invention, parts being broken away so as to illustrate certain details of construction; Fig. 2 is a vertical central sectional view taken through the washing apparatus of Fig. 1; Fig. 3 is a fragmentary sectional view taken through the line 3—3 of Fig. 2, and looking in the direction of the arrows, Fig. 3 being drawn to a larger scale than Figs. 1 and 2; and Fig. 4 is a fragmentary view of a modified form of this invention, portions being shown in section so as to illustrate certain details of construction.

Referring more particularly to Figs. 1-3, this

invention has been shown in one form as applied to a front opening dishwasher having a cabinet 10 of rectangular form. As shown, this cabinet has side walls 11 and 12, and a top wall 13. At the front, upper and lower panels 14 and 14a are provided. At the bottom, the cabinet is supported upon a suitable base 15.

Mounted within the cabinet is a vat 16 which also is substantially rectangular having side walls 17 and 18, a rear wall 19, a top wall 20 and a bottom wall 21. The side walls 17 and 18 of the vat are positioned relatively close to the corresponding side walls of the cabinet, as shown in Fig. 3, while the remaining walls of the vat are spaced a considerable distance from the corresponding walls of the cabinet. The vat is supported in the cabinet in any suitable way, as described in my above-mentioned copending application.

Mounted within the vat is a suitable water distributing impeller 22 which is driven by means of a suitable electric motor 23 positioned below the bottom wall 21 of the vat. As fully pointed out in my above-mentioned copending application, the vat is provided with a suitable open-work dish and utensil supporting tray (not shown) for receiving the dishes and utensils to be cleansed by the action of the cleansing liquid circulated in the vat by the impeller.

The vat 16 is open at the front, and the outer edges of its two side walls and of the top wall surrounding the front opening are flanged outwardly and thence turned backwardly upon themselves, as shown in Figs. 2 and 3. These outwardly extending flanges define a marginal face 24 at the sides and top of the opening. The cabinet 10 at the front is provided with an opening 25 between the upper and lower panels 14 and 14a and opposite the front opening in the vat. This opening 25 is closed by means of a door 26 which is hinged at its lower edge to swing on a horizontal axis outwardly from a vertical closed position, as shown in full lines in Figs. 1 and 2, to a substantially horizontal open position shown in dotted lines in Fig. 2. The door is provided with hinge arms 27 which are pivotally mounted on hinge brackets 28. As shown, when the door is closed the top and side marginal edges of the door substantially abut the marginal flange 24. The door is provided with a suitable handle 29.

Preferably, the door will be sealed at the sides and top by the sealing means described and claimed in my above-mentioned copending application. Briefly, this means comprises an inwardly extending flange 30 provided at the sides and top of the door, and which is received in suitable seats defined by flanges 31 provided on the side walls and across the top of the vat, as shown more clearly in Figs. 2 and 3.

The door is sealed at the bottom, in accordance with this invention, by means of a lip 32 formed on the bottom wall 21 of the vat projecting into it and extending across the lower edge of the front opening thereof from one side to the other of the vat. This lip is inclined downwardly somewhat, as more clearly shown in Fig. 2. The door at the bottom is provided with a lip 33 extending crosswise of the door from side to side, and curved inwardly and downwardly of the vat at an angle to the lip 32 so that a portion thereof lies close to the inner edge of the lip 32 when the door is closed, as clearly shown in Fig. 2. This lip 33 extends down over the lip 32 and is relatively elongated so that irrespective of the position of the door between its fully opened and fully closed positions, it will overlies at least a part of the lip 32. Also carried by the bottom of the door is a flexible sealing member 34 which is formed of a hairpin-shaped spring that has one leg rigidly secured to the under side of the door section 33 and its other leg arranged yieldingly to engage the top surface of the lip 32 when the door is closed. This closes the space between the bottom of the door and the lower edge of the front opening of the vat, and effectively seals the door at the bottom when the door is closed. It will be observed that the spring member 34 in no way interferes with the opening and closing movements of the door, since when the door is opened it merely moves outwardly away from the lip 32, and when the door is fully closed it yieldingly engages the upper surface of the lip 32.

In Fig. 4, there is illustrated a modified form of this invention. As shown, in this form there is located between the intumed lip 35 provided on the bottom wall of the vat and the inwardly extending lip 36 provided on the door, a flat flexible rubber strip 37. This strip 37 is rigidly secured to the lip 35 and extends crosswise of the vat from side to side. As shown, this flexible strip is sandwiched between metallic strips 38, and the assembly of the strips 37 and 38 is secured to the lip 35 by means of screw fastening devices 39. The flexible strip 37 yieldingly engages the lip 36 when the door is closed, as shown in Fig. 4, so as to close the space between the lip and the door, and to seal the door at the bottom.

While I have shown particular embodiments of my invention, it will be understood, of course, that I do not wish to be limited thereto since many modifications may be made, and I, therefore, contemplate by the appended claims to cover any such modifications as fall within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In dishwashing apparatus, a vat forming a washing chamber having a front opening therein, a door for closing said opening, hinge means mounting said door for swinging movement from a vertical closed position to a horizontal open position on a fixed axis adjacent the lower edge of said door, a lip on said vat substantially parallel to said axis projecting downwardly into said vat and extending across the lower edge of the front opening thereof from one side to the other, and a lip on said door substantially parallel to said axis extending crosswise of the door from side to side, said second named lip curving inwardly and downwardly into said vat above said first lip when said door is closed so that a portion thereof lies close to but spaced from the inner end of said first lip, and said second lip

being relatively elongated so that it will overlies at least a part of said first lip substantially throughout the full movement of said door between its fully open and fully closed positions.

2. In dishwashing apparatus, a vat forming a washing chamber having a front opening therein, a door for closing said opening, hinge means mounting said door for swinging movement from a vertical closed position to a horizontal open position on a fixed axis at the lower edge of said door, the vat having a lip extending inwardly and downwardly and substantially through the full width of said opening and the door bottom extending inwardly and downwardly into the vat over said lip in spaced relation with it, and a guard carried by said door yieldingly engaging said lip when the door is closed to close and seal the space between said lip and door bottom.

3. In dishwashing apparatus, a vat forming a washing chamber having a front opening therein, a door for closing said opening, hinge means mounting said door for swinging movement from a vertical closed position to a horizontal open position on a fixed axis at the lower edge of said door, the bottom of the door extending inwardly and downwardly into the vat so as to always cover the lower edge of said opening in spaced relation with it, irrespective of the position of the door, and a flexible sealing strip secured to said vat at the lower edge of said opening extending inwardly and yieldingly engaging said inwardly extending portion of the door when the door is closed.

4. In dishwashing apparatus, a vat forming a washing chamber having a front opening therein, a door for closing said opening, hinge means mounting said door for swinging movement from a vertical closed position to a horizontal open position on a fixed axis adjacent the lower edge of said door, a lip on said vat substantially parallel to said axis projecting downwardly into said vat and extending across the lower edge of the front opening thereof from one side to the other, a lip on said door substantially parallel to said axis extending crosswise of the door from side to side, said second named lip curving inwardly and downwardly into said vat above said first lip when said door is closed so that a portion thereof lies close to but spaced from the inner end of said first lip, and a flexible sealing member carried by one of said lips and yieldingly engaging the other when said door is closed to seal the space between said lips.

5. In dishwashing apparatus, a vat forming a washing chamber having a front opening therein, a door for closing said opening, hinge means mounting said door for swinging movement from a vertical closed position to a horizontal open position on a fixed axis adjacent the lower edge of said door, a lip on said vat substantially parallel to said axis projecting downwardly into said vat and extending across the lower edge of the front opening thereof from one side to the other, a lip on said door substantially parallel to said axis extending crosswise of the door from side to side, said second named lip curving inwardly and downwardly into said vat and spaced above said first lip when said door is closed, and a flexible sealing member carried by one of said lips and yieldingly engaging the other when said door is closed so as to seal the space between said lips.