

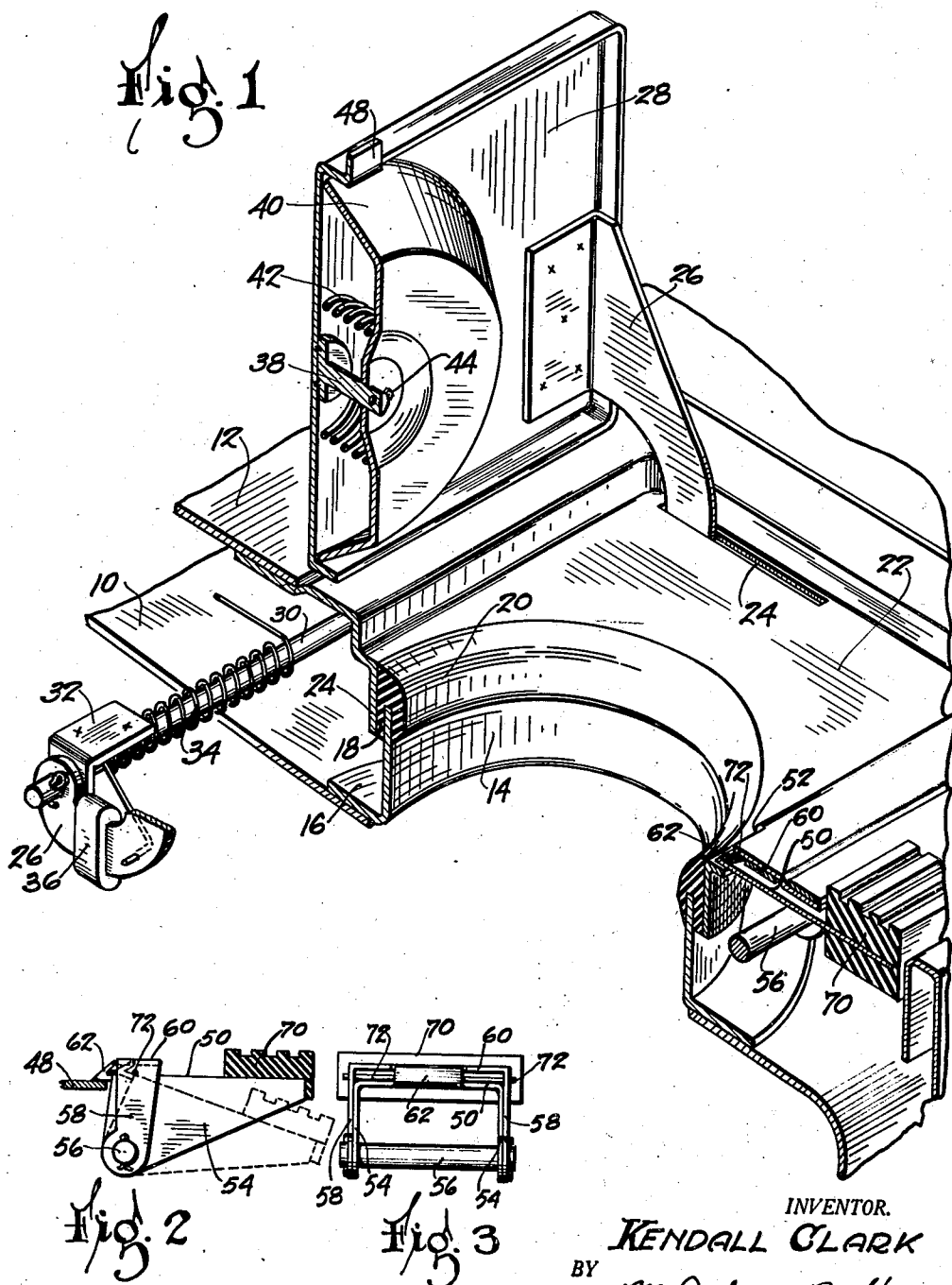
Sept. 2, 1941.

K. CLARK

2,254,515

WASHING MACHINE

Filed June 10, 1937



INVENTOR.
KENDALL CLARK
BY *McConkey & Booth*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,254,515

WASHING MACHINE

Kendall Clark, South Bend, Ind., assignor to
Bendix Home Appliances, Inc., Detroit, Mich., a
corporation of Delaware

Application June 10, 1937, Serial No. 147,424

11 Claims. (Cl. 220—32)

This invention relates to machines such as washing machines and the like, and particularly to providing therefor a normally-sealed opening for introducing material such as soap.

An object of the invention is to provide an effective construction adapted to be made up mainly of stampings, so that it can be made economically by mass-production methods. Another object is to provide a construction in which the parts yieldingly seal tightly together without requiring any high degree of accuracy in manufacture.

In the arrangement illustrated, the machine has a pivoted door provided with a closure normally yieldingly seated against a sealing member, and various features of novelty relate to the construction and arrangement of the parts of the door and the sealing means and of the means for normally latching it closed.

The above and other objects and features of the invention will be apparent from the following description of the illustrative embodiment shown in the accompanying drawing, in which:

Figure 1 is a perspective view, broken away in vertical section centrally of the door, of the top part of a washing machine; and

Figures 2 and 3 are respectively side and front elevations of a novel latch used for holding the door closed.

The invention is shown embodied in the soap door of an automatic washing machine, the particular machine illustrated being fully described in application No. 129,412, filed March 6, 1937, by Adiel Y. Dodge.

The machine includes spaced top members 10 and 12, both which are substantially horizontal and parallel so far as they relate to the present invention. Member 10 is the top of a cylindrical stationary tub arranged with its axis horizontal and member 12 is a flat detachable panel forming a removable top for the machine. Some of the constructions described below are of especial utility in cooperative relationship to two separable members such as those illustrated, in that there are no parts to unfasten or detach when separating the members 10 and 12, while yet all the parts automatically assume the desired relationship when members 10 and 12 are put back together again, without fastening or adjusting anything.

The tub member 10 is shown formed with a circular opening, surrounded by a tubular flange 14, shown formed on a separate stamping 16 permanently welded to the member 10. The flange 14 has seated on its upper edge an annular

rubber seal or gasket 18, having a cylindrical external surface, and formed with an upwardly-facing inclined surface or seat 20.

The upper or panel member 12 is formed with a rectangular opening alined with the opening in the tub member 10, and over which is arranged a stamping 22 having its margin permanently welded to the under face of the panel member 12. The member 22 is centrally formed with a tubular flange 24 encircling the flange 14, and which normally fits over and seals against the cylindrical exterior of the sealing member 18. The central portion of the stamping 22 is depressed sufficiently so that the door described below closes flush with the top of the panel member 12.

The member 22 is slotted at opposite sides at 24 for a pair of curved hinge arms 26, formed as steel stampings having their upper ends intumed and spot-welded or otherwise secured to the lower face of a rectangular and peripherally-flanged stamped steel door 28. The lower ends of the arms 26 are pivotally mounted on a hinge rod 30 arranged between the members 10 and 12 and carried by two stamped brackets 32 arranged at its ends and spot-welded or otherwise secured to the lower face of the upper member 12.

Torsion coil springs 34 sleeved on the ends of the hinge rod 30 have their inner ends bearing against the lower face of the member 12 or of the margin of the stamping 22, and have their outer ends hooked into holes through the hinge arms 26; these springs are tensioned sufficiently to raise the door 28 to its upper position, as illustrated, whenever the latch described below is released. The arms 26 are shown as having rubber rings 36 sleeved thereon; when the door 28 is open these engage the lower face of member 22, and serve as stops determining the open position of the door.

The door 28 has welded or otherwise mounted thereon a pin 38 projecting perpendicularly from its lower face, and extending through a central opening in a cup-shaped stamped closure 40. A spring 42 is compressed between the door 28 and the closure 40, urging the latter downwardly as far as permitted by a stop such as a cotter pin 44 carried by the end of the pin 38. The periphery of the closure 40 is conical, and when the door 28 is closed the closure seats tightly and yieldingly into the inclined seat on the sealing member 20.

The door 28 is shown formed with a tongue or flange 46, serving as a catch engaged (when

the door is closed) by a novel latch to hold the door closed against the resistance of springs 34. The latch consists of the forward edge of a latch plate 50, projecting through a cutout 52 in the member 22 for engagement with catch 48.

The latch plate 50 is mounted on the lower face of member 12, for example by having its sides turned downwardly to form arms 54 connected by means such as a pivot pin 56 to arms 58 on a bracket 60 overlying the latch plate 50 and spot-welded or otherwise secured to the lower face of the member 22. The latch plate 50 is shown with an upwardly-turned flange 62 which forms a stop engaging the edge of bracket 60 to limit releasing movement of the latch.

The latch plate 50 may be perforated and have a phenol-type plastic operating button 70 molded permanently thereon. The operating part 70 is thick enough to project upwardly through an opening in the panel member 12.

It will be noted that depressing the part 70 swings the latch plate 50 back to release the catch 48, whereupon the springs 34 swing the door to open position. After feeding the desired amount of soap powder or other material into the washing machine, the operator closes the door 28 again, whereupon the latch again engages a catch 48.

The latch plate 50 may be provided with a suitable spring urging it into locking position. The one shown is a bowed piece of spring wire 72 arranged between the latch plate 50 and the bracket 60, with its ends projecting through holes in the arms 58 and with its bowed central portion engaging the back of the flange 62.

While one illustrative embodiment has been described in detail, it is not my intention to limit the scope of the invention to that particular embodiment, or otherwise than by the terms of the appended claims.

I claim:

1. A washing machine or the like comprising a top wall having an opening for the introduction of material such as soap and provided with an upstanding flange surrounding said opening and with a yielding sealing member mounted on the edge of said flange, a top panel having an opening registering with the first opening and provided with a downwardly projecting flange fitting around and peripherally contacting said seal and encircling the first flange, a door pivotally mounted on said panel, a closure carried by said door and engageable with said sealing member, a spring between the door and closure and which urges the closure against the sealing member when the door is closed, a spring urging the door open, and a latch for holding the door closed.
2. A washing machine or the like comprising a top wall having an opening for the introduction of material such as soap and provided with an upstanding flange surrounding said opening and with a yielding sealing member mounted on the edge of said flange, a top panel having an opening registering with the first opening and provided with a downwardly projecting flange fitting around and peripherally contacting said seal and encircling the first flange, a door pivotally mounted on said panel, a closure carried by said door and engageable with said sealing member, and a spring between the door and closure and which urges the closure against the sealing member when the door is closed.
3. A washing machine or the like comprising spaced members having aligned openings and

formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a door mounted on the top one of said members, and a closure yieldingly mounted on the door and engageable with said seat.

4. A washing machine or the like comprising spaced members having aligned openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a door mounted on the top one of said members, a spring urging said door open, a latch for holding said door closed, and a closure yieldingly mounted on the door and engageable with said seat.

5. A washing machine or the like comprising spaced members having aligned openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a door mounted on the top one of said members, a spring urging said door open, a latch for holding said door closed, and a closure carried by the door and engageable with said seat.

6. A washing machine or the like comprising spaced members having aligned openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a closure engageable with said seat, a spring yieldingly holding the closure against the seat, and a member taking the reaction of the spring and connected to the closure and movable to shift the closure away from the seat.

7. A washing machine or the like comprising spaced members having aligned openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a conical closure engageable with and fitting within said seat, a spring yieldingly holding the closure against the seat, and a member taking the reaction of the spring and connected to the closure and movable to shift the closure away from the seat.

8. A washing machine or the like comprising spaced members having aligned openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a door mounted on the top one of said members, a latch for holding said door closed, a closure carried by the door and engageable with said seat and a spring engaging the door and the closure for yieldingly pressing the closure onto the seat, said closure being a cup-shaped conical part fitting within the inclined seat.

9. A washing machine or the like comprising spaced members having alined openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a pivot rod between said members at one side of said flanges, a door having hinge arms passing through slots in the upper member and pivoted on said rod, means on the door for sealing engagement with said seat, coil springs sleeved on the rod and acting in torsion on said arms to open the door, and a latch for holding the door shut.

10. A washing machine or the like comprising spaced members having alined openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the

opening through the inner flange, a pivot rod between said members at one side of said flanges, a door having hinge arms passing through slots in the upper member and pivoted on said rod, means on the door for sealing engagement with said seat, means acting yieldingly on said arms to open the door, and a latch for holding the door shut.

11. A washing machine or the like comprising spaced members having alined openings and formed with flanges surrounding the openings and projecting toward each other and one of which encircles the other, a member of yielding material forming a seal between said flanges and having an upwardly-facing inclined seat for the opening through the inner flange, a pivot rod between said members at one side of said flanges, a door having hinge arms passing through slots in the upper member and pivoted on said rod, and means on the door for sealing engagement with said seat.

KENDALL CLARK.