

Feb. 6, 1940.

N. J. PETERS
ROTARY CAN WASHER
Filed Nov. 9, 1938

2,189,451

3 Sheets-Sheet 1

FIG. 1.

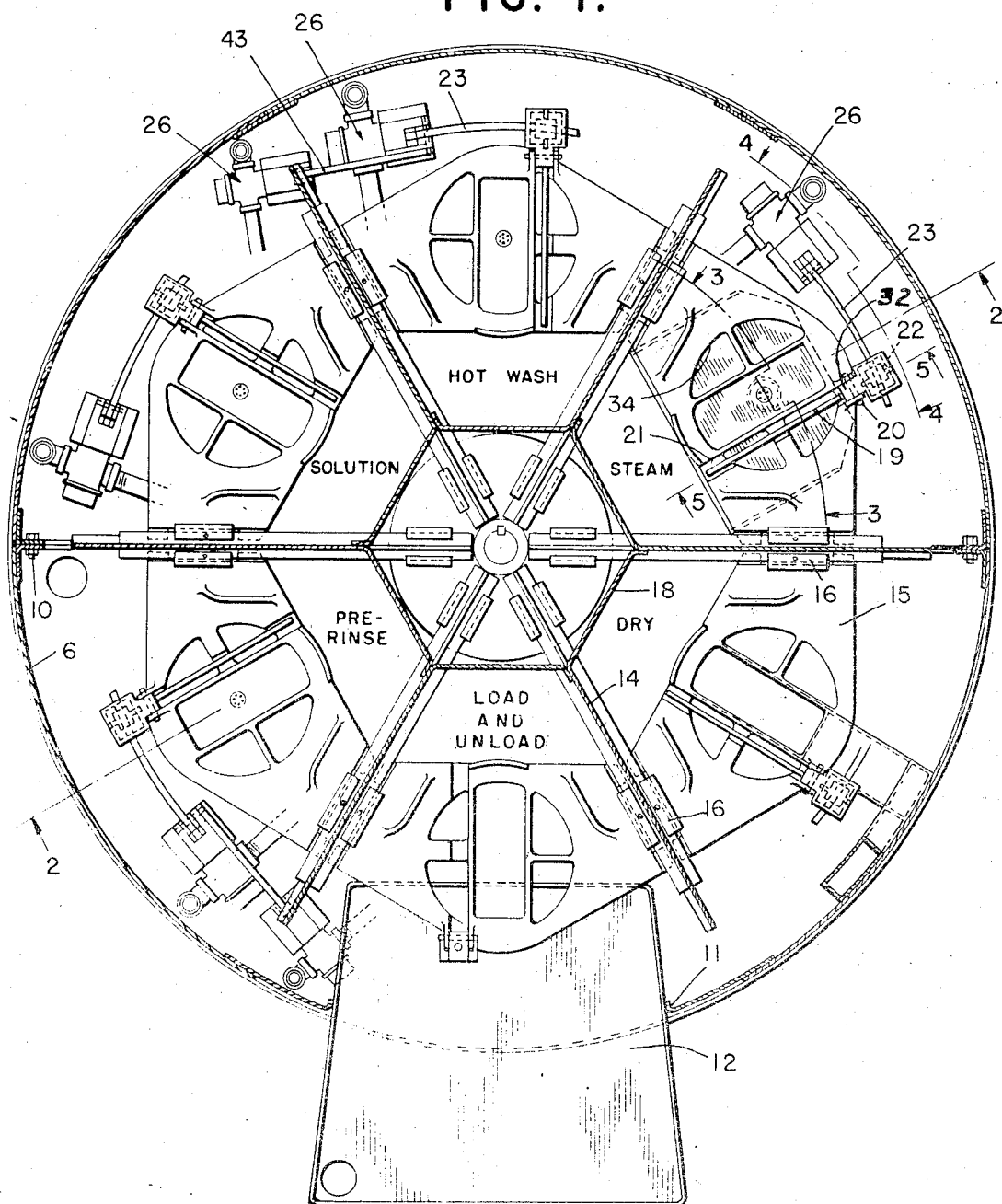
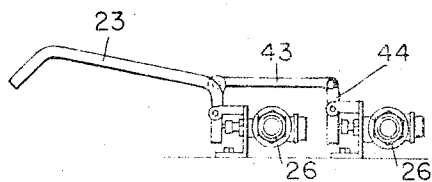


FIG. 7.



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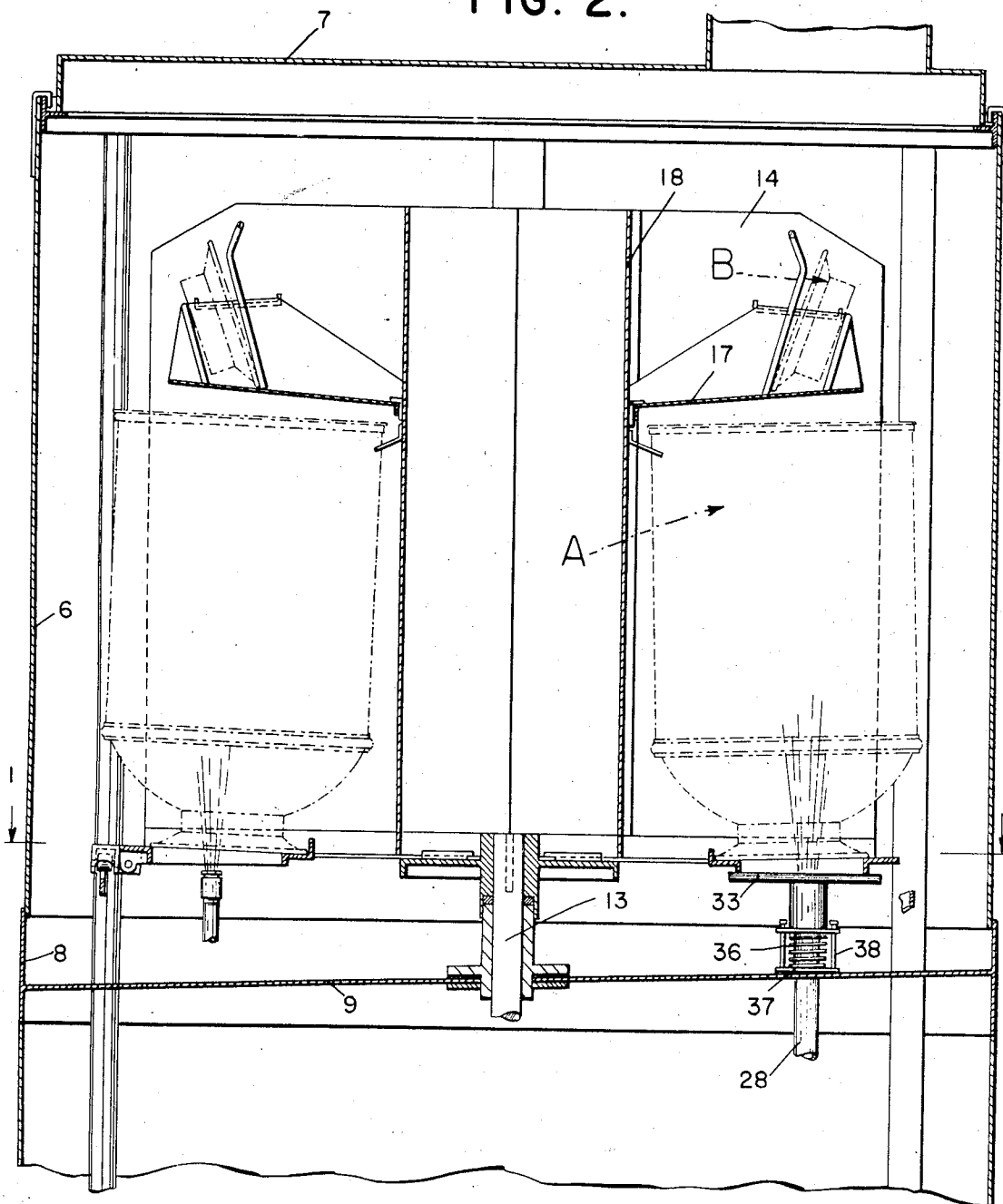
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FIG. 2.



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FIG. 3.

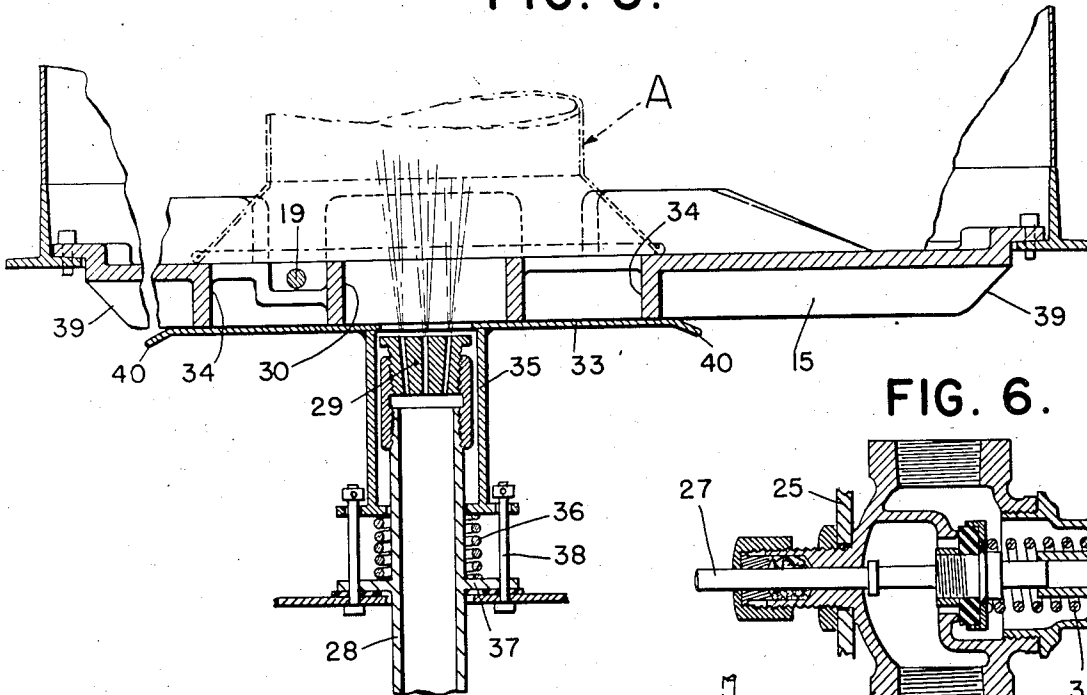


FIG. 6.

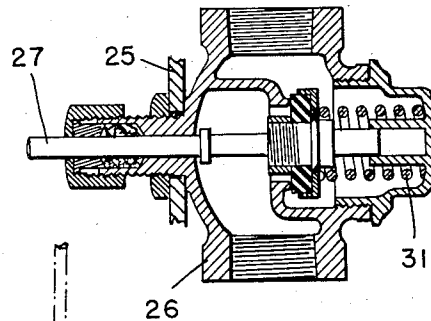


FIG. 5.

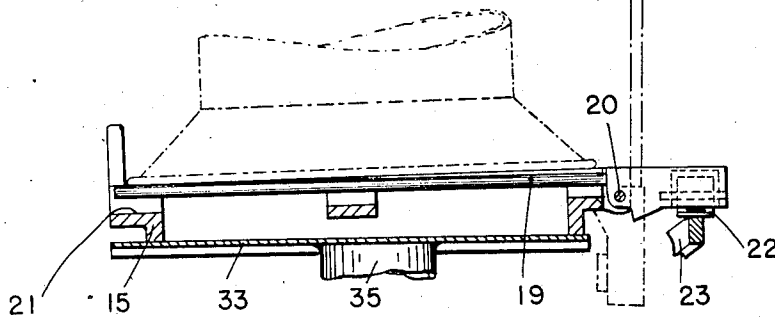
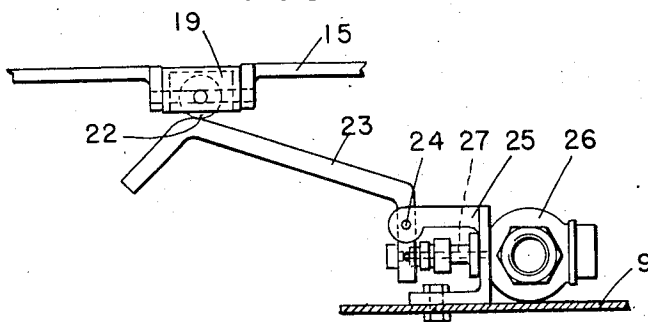


FIG. 4.



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ROTARY CAN WASHER

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a corporation of Wisconsin

Application November 9, 1938, Serial No. 239,627

3 Claims. (Cl. 141—7)

The invention relates to container washing machines and more particularly to a machine of the rotary type for washing milk cans and similar containers.

Rotary washing machines in which the cans or containers are cleaned as they are carried within a housing and rotated from one treating station to another are well known in the art, and it is also well known to operate the valves for controlling the washing or rinsing fluid as the carrier moves into its different operating positions. One object of the present invention is to provide a new and improved mechanism for automatically controlling the fluid control valves which is of simple construction and has the particular advantage in that it may be used in connection with different sizes and weights of cans without the use of special attachments.

A further object of the invention is to associate with the steaming stage a closure plate for the can support which acts in conjunction with the valve controlling lever to prevent as little escape as possible of steam from the mouth of the can during the steaming operation.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings:

Fig. 1 is a horizontal sectional view through a rotary washing machine embodying the invention;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a detailed sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a detailed sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a detailed sectional view taken on the line 5—5 of Fig. 1;

Fig. 6 is a detailed sectional view through the valve shown in Fig. 4;

Fig. 7 is a detailed view of one of the double valve arrangements.

Referring to the drawings, the numeral 6 designates a cylindrical metal outer shell having a top 7 mounted thereon to form a casing or housing and extending into the upstanding flange 8 of a bottom section having a sloping bottom 9. The casing structure thus provided is preferably formed in half sections which are secured together by bolts 10. The casing has an opening 11 formed therein for loading and unloading cans and covers onto and from a rotatable carrier, a drip pan 12 being removably secured to said casing at the bottom of said opening.

The carrier includes a vertically disposed shaft 13 centrally mounted in said casing and having a plurality of radially disposed partitions 14 secured thereto, said partitions having can supports 15 slidably mounted on angled brackets 16 secured to said partitions. Can cover supports 17 are detachably mounted on plates 18 welded or otherwise suitably secured to said partitions 14. The shaft 13 extends down into the bottom section and is there connected up with any suitable prime mover through drive connections, such as a Geneva tooth gearing or other suitable mechanism for imparting a step by step rotary movement to said shaft 13, so that the carrier with the cans A and covers B is advanced through the various treating stations which are indicated in Fig. 1 as Prerinse, Solution, Hot wash, Steam, and Dry. At each of these stations one or more valves controlling a treating fluid is opened automatically by the carrier as it moves into treating position and closed as it moves out of treating position. While in the "prerinse" and "hot wash" positions two valves are controlled, there is one actuator for both valves, and since the actuators in each instance are similarly operated, a detailed description of one will suffice, and in this connection we have shown in detail the actuator and valve mechanism for the steaming treatment of the can, which will now be described.

A trip lever 19 is pivotally mounted at 20 intermediate its ends on each can support 14 to project upwardly above said support and swings down into a groove 21 provided in its support, the lower end of said lever being of a size to substantially fill the end of said groove and project beyond the same to provide a support for a roller 22. With this arrangement when the can is placed on the support, the lever is folded or swung down beneath the neck of the can as shown in Fig. 5, the upper end of said lever swinging inwardly toward the shaft of the carrier.

With the trip lever in a depressed position, the movement of the carrier brings the roller 22 of said lever into engagement with the valve operating lever 23 which is pivotally mounted on a pin 24 carried by a bracket 25 suitably mounted on the casing bottom 9.

The bracket 25 is secured to the valve casing 26 having a valve 27, shown in detail in Fig. 6, mounted therein controlling the passage of steam to a pipe 28 which is provided with a spray nozzle 29 which is adapted to deliver steam upwardly through the opening 30 in the plate 15 into the can A which rests in inverted position

on said plate. The valve 27 is normally held closed by a spring 31. The lever 23 is of the bell crank type whose lower end engages the exposed end of the stem of the valve.

5 In order to prevent a too quick escape of steam from the can and actually permit the building up of pressure therein so as to improve the sterilizing treatment, the end 32 of the valve lever is formed to fit closely in one end of the slot 21, and an annular plate 33 is normally
10 spring pressed upwardly against the underside of the support 15 and acts to close off the openings 34 in said support. The plate 33 has a collar 35 welded or otherwise secured thereto
15 and moved upwardly by the spring 36 which seats on a flange 37 on the pipe 28, said plate being limited in its upward movement by bolts 38 whose shanks extend loosely through said collar. Either the support or the plate may have a bevelled edge so as to cam said plate 32 downwardly
20 as said support moves to its different treating positions. As shown, the support 15 has bevelled ends 39, and the plate has bevelled ends 40.

25 Thus with the present arrangement as each can is carried by its support 15 over the steam nozzle 29, the plate 33 is depressed against the action of the spring 36 and moves up against the support 15, and at the same time the lever
30 19, held down by the can, engages by its roller 22 with the lever 23 which is then moved down and acts to move the valve 27 inwardly to open the same and thus admit steam into the nozzle 29. During the dwell period of the carrier the
35 steam stays on, and then as the carrier again moves to advance the can to the next station, the roller 22 moves out of engagement with the lever 23, and the spring 31 closes the valve, and at the same time the plate 33 slides off the support 15.

It will be noted that in the hot wash and prerinse stations there are two valve mechanisms provided, but both are operated by a
45 common lever 23 which operates one of the valves in the same way as that described in connection with the steam valve and is operatively connected above its pivot with the second valve by a link 43 and a lever 44, as shown more particularly in Fig. 7, so that when the lever 23 is operated, the lever 44 will also be operated.

50 It will be noted that the use of the lever 19 in conjunction with the steam plate 33 prevents a too quick escape of steam from the can while the steam valve is open, and it is also to be
55 noted, because of the type of lever 19 used and its mounting on the plate 15, that any sized can may be used in the machine so long as its weight is sufficient to hold down the lever.

60 I desire it to be understood that this invention is not to be limited to any particular form

or arrangement of parts except in so far as such limitations are included in the claims.

What I claim as my invention is:

1. In a can washing machine of the type described, the combination of a casing, a carrier
5 rotatable in said casing to different treating stations therein, a valve for controlling the delivery of steam to the can at one of said stations, and means for automatically operating said valve comprising a trip lever pivotally mounted on said
10 carrier and held in operative position by the can on said carrier, means engaged by said lever for operating said valve, said carrier being provided with a grill forming passages communicable with the interior of a can mounted thereon in
15 inverted position and provided with a groove communicating with one of said passages and adapted to receive said lever, a steam discharge nozzle controlled by said valve and delivering steam through one of said passages in the carrier, and a plate movable to close off those passages not aligned with said nozzle when said
20 steam valve is open, said lever acting to prevent the ready escape of steam from said grill through said groove.

2. In a can washing machine of the type described, the combination of a casing, a carrier rotatable in said casing to different treating stations therein, said carrier having a plurality of
30 can supports, a valve for controlling the delivery of treating fluid at one of said stations, each of said can supports having a groove, a lever intermediately pivotally mounted on each can support and adapted to have its upper end swung
35 down into said groove by a can placed on said support to bring its other end to a valve operating position, and a valve operating lever acting to swing said other end of said lever on said carrier upwardly to move the said upper end
40 of said first named lever against said can support to permit said first named lever acting as a fixed member and independent of the can to move said valve lever to operate said valve as said carrier moves into and out of the treating station provided with said valve.

3. In a can washing machine of the rotary type, the combination of a casing, a carrier rotatable in said casing to different treating stations therein and including a plurality of can supports having openings therein, a steam nozzle at one of
50 said stations, a plate slidably mounted relative to said nozzle, means for normally urging said plate upwardly against a can support when said support is positioned over said nozzle, a valve controlling the supply of steam to said nozzle, and means for controlling said valve including a member mounted on each of said supports and having its position controlled by the can.

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