

May 16, 1933.

I. H. KENDALL

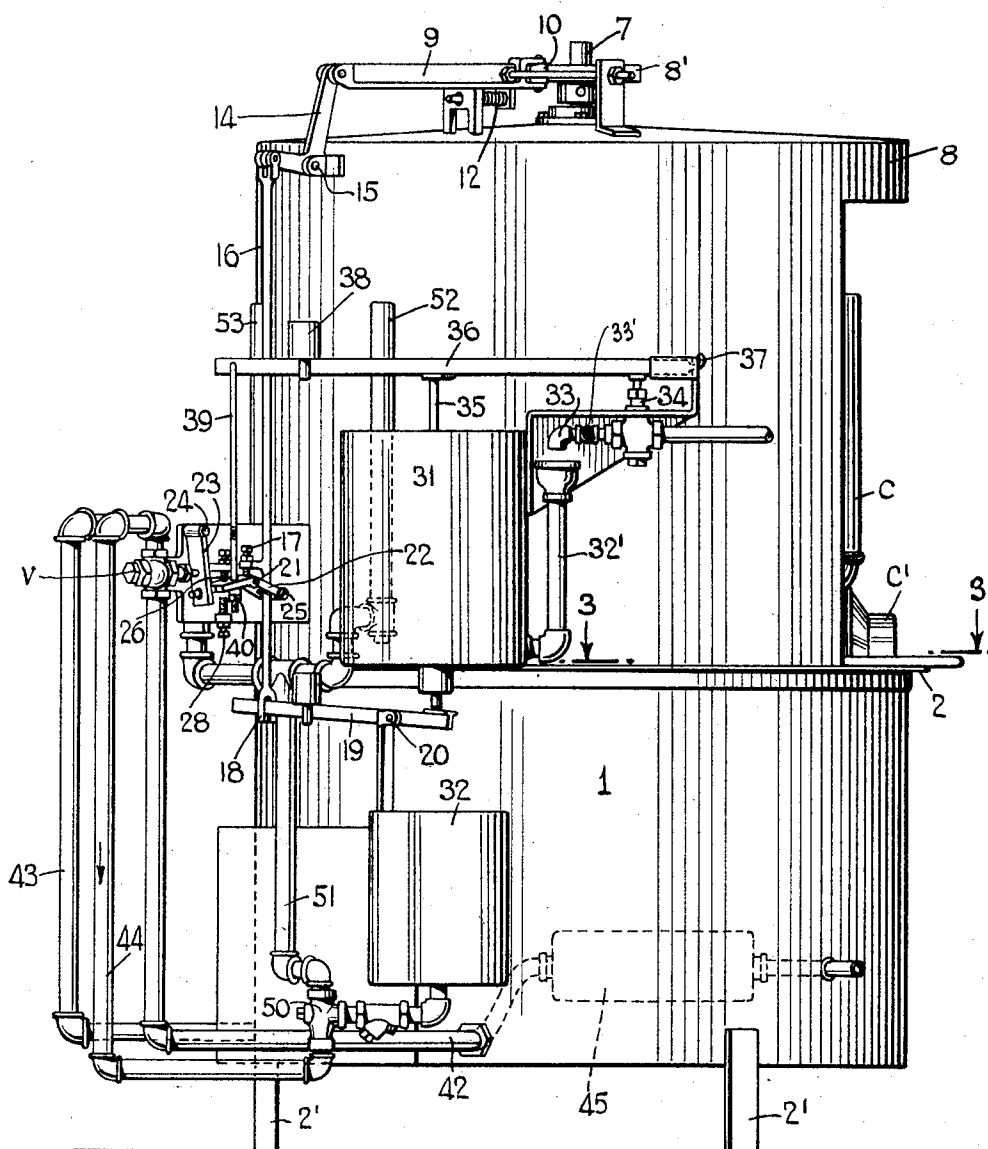
1,909,835

CAN WASHING MACHINE

Filed Jan. 30, 1930

3 Sheets-Sheet 1

Fig. 1.



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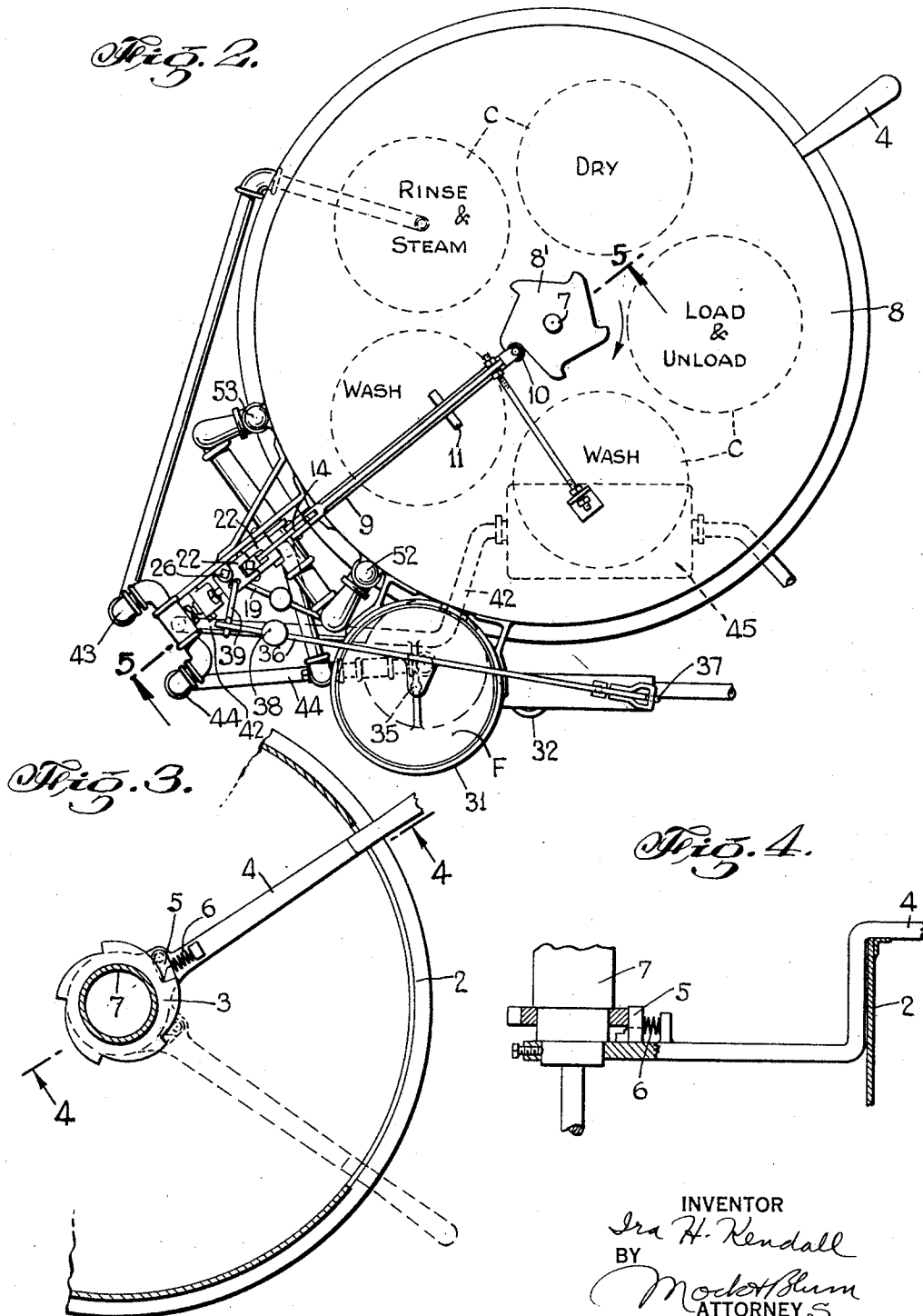
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Fig. 5.

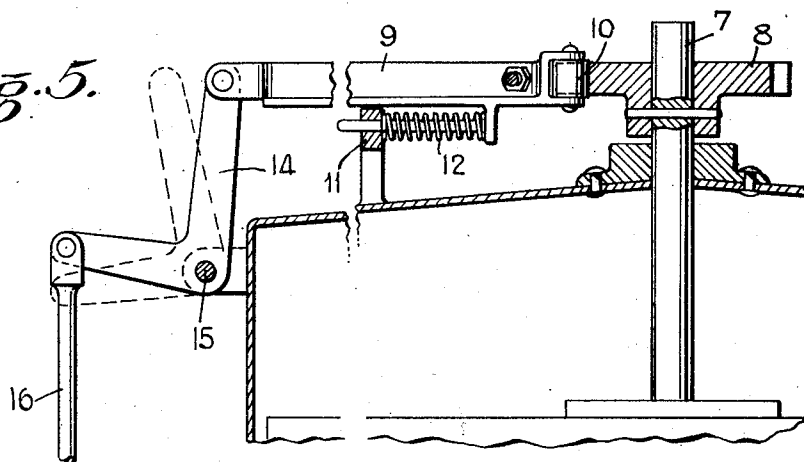
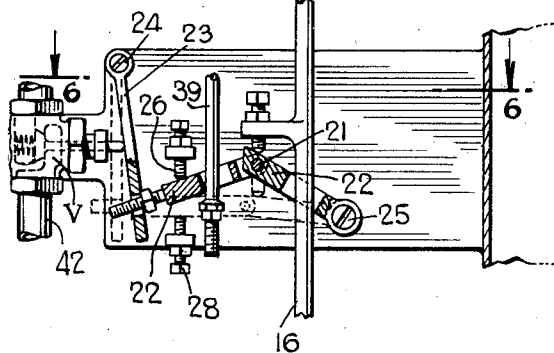


Fig. 6.

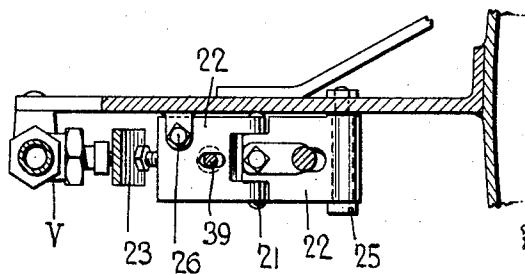
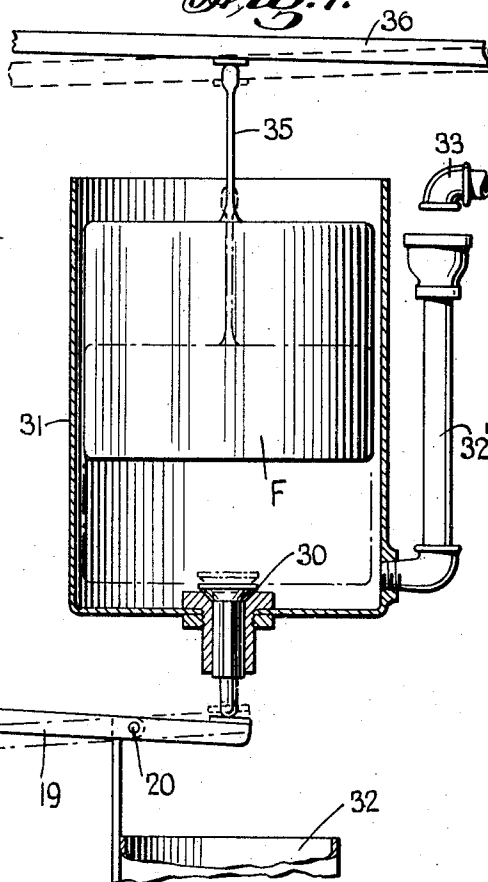


Fig. 7.



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CAN WASHING MACHINE

Application filed January 30, 1930. Serial No. 424,481.

My invention relates to a new and improved can washing machine, although the invention may be utilized for washing any other form of receptacle or object.

One of the objects of my invention is to provide a machine which may be operated by hand, and which will have an automatic time control incorporated therein.

Another object of my invention is to provide a machine which may be operated by hand and which shall include a jet or jets whereby the can or other object can be subjected to the action of steam.

Another object of my invention is to provide a machine of this type in which the supply of steam shall be regulated by an automatic time control, so that steam will not be wasted if a careless attendant neglects the machine. While the automatic time control is particularly valuable in controlling the supply of steam, it can also be used for controlling the supply of any other fluid which is supplied to the machine.

Another object of my invention is to provide a machine of this type in which the time control is hydraulic.

Another object of my invention is to provide a machine of this type in which the time control is set into operation at each actuation of the machine.

Another object of my invention is to provide a simple and efficient machine having a minimum number of parts, and which can be manufactured at relatively low cost.

Other objects of my invention will be set forth in the following description and drawings which illustrate a preferred embodiment thereof, it being understood that the above general statement of the objects of my invention is intended merely to generally explain the same and not to limit it in any manner.

Fig. 1 is a side elevation.

Fig. 2 is a top view.

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

Fig. 4 is a sectional view on the line 4—4 of Fig. 3. This figure shows a detail of the actuating handle.

Fig. 5 is a sectional view on the line 5—5 of Fig. 2.

Fig. 6 is a sectional view on the line 6—6 of Fig. 5.

Fig. 7 is a detail view partially in section showing the float.

The disclosure of this application is mainly directed to the time control mechanism, as the details of the mechanism whereby steam, hot water, or any other fluid is supplied to the apparatus, may follow any previously known device, including various devices which I have put on the market in the United States and which are illustrated in several co-pending applications. For this reason the details of the turntable whereby the cans are moved to the various steps to be washed, rinsed, steamed, etc., are not shown. Details of the nozzles for supplying steam, hot water, hot air, etc. are also not shown, as the invention is not directed to such features per se, and such features have already been disclosed in co-pending applications, or in machines put on the market.

The device comprises a casing 1 mounted upon legs 2'. The casing 1 is provided with an open portion 2 at which the operator stands in order to insert and remove cans. The cans C and the covers C' are mounted on a turntable which is provided with a ratchet wheel 3 mounted upon a suitable shaft. The ratchet wheel 3 is intermittently turned by a handle 4 provided with a pawl 5, having a spring 6. The handle 4 is manipulated by the attendant. The ratchet wheel 3 is provided with an upstanding tube 7 which projects through the top portion 8 of the casing 1. At its top the tubular shaft 7 is provided with a ratchet 8'. The ratchet 8' is adapted to outwardly slide a rod 9, which is provided with a roller 10. The rod 9 is slidably mounted on a bearing or bearings 11, and a spring 12 is provided for keeping the roller 10 in contact with the ratchet 8'. Hence, each complete stroke of the handle 4 causes the rod 9 to be reciprocated. The rod 9 actuates a bell-crank lever 14 which is pivotally connected at 15 to the casing 1. The bell-crank lever 14 reciprocates a vertical rod 16. This rod 16 is provided with an adjust-

able screw 17 connected to a lug thereof, and the rod 16 is also provided at its bottom with a yoke 18 which passes around the lever 19, which is pivotally connected at 20 to the casing 1. The adjustable screw 17 is adapted to press upon the hinge portion 21 of a pair of toggle arms 22. One of said toggle arms is pivotally connected at 25 to the casing 1. The rod 16 passes through a slot in the last mentioned toggle arm 22. The other toggle arm 22 has an extension which passes through an opening in the lever 23, which is pivotally connected at 24 to a bracket which is connected to the casing 1. Hence, when the rod 16 descends, it causes the lever 23 to be turned in the clockwise direction. An adjustable screw 26 may be connected to the bracket before mentioned, so as to limit the upward movement of the toggle arms 22, and a corresponding adjustable screw 28 may be provided to limit the downward movement of said toggle arms.

The downward movement of the rod 16 first actuates the toggle arms 22 and the lever 23, and it then causes the lever 19 to be turned in the counterclockwise direction. When the lever 19 is thus turned from the position shown in Fig. 1, to the dotted line position shown in Fig. 7, it opens the valve 30 which is located at the bottom of the control chamber 31. The valve 30 is normally kept closed by its own weight and by the weight of the water in the control chamber 31. The control chamber 31 is also provided with a float F having an upstanding rod 35 which abuts the lever 36, for a purpose to be later specified.

The stem of the valve 30 can be provided with large recesses so that the valve 30 is a quick-acting valve which permits the water in the control chamber 31 to drain out therefrom very rapidly.

Hence, although the lever 19 is raised for a short period, the water in the chamber 31 drains out so rapidly, that the float F is free to descend to reseal the valve 30. If desired, the stem of the valve 30 could have a certain frictional fit so as to keep said valve 30 raised after the same has been opened by the lever 19 until the float F descends to reseal the valve 30. Likewise, if desired, the valve 30 could be provided with a spring catch of sufficient strength to keep it in the open position after the said valve has been forced to said open position by the lever 19, until the float F descends to reseal the valve 30.

The control chamber 31 receives its water supply from a pipe 32' having its inlet below a supply pipe 33 having valve 33' which is connected to any suitable source of water, so that a stream of regulated velocity enters the pipe 32'. The pipe 33 is controlled by an ordinary poppet valve 34 which can be held in the open position by a lever 36 pivotally mounted at 37 and provided with an adjust-

able weight 38. Hence, when the float F descends so that its rod 35 no longer touches the lever 36, said lever 36 can turn downwardly to open the valve 34. However, when the float F is raised by the inflow of water into the control chamber 31, the valve 34 is permitted to close, because the lever 36 is raised. The float F has a diameter which is nearly the same as the diameter of the chamber 31. Hence, when enough water has entered the control chamber 31, to raise the float F from the valve 30, the pressure of said water is sufficient to hold the valve 30 in the closed position.

The lever 36 is provided with a depending rod 39 pivotally mounted thereto, and said rod 39 has an adjustable member 40 which is adapted to raise the toggle arms 22 so that the lever 23 is then free to turn in the counterclockwise direction.

When the lever 23 is turned in the clockwise direction by the toggle arms 22, this opens the control valve V through which steam or other fluid is supplied to the apparatus. This valve V is kept open for a regulable and pre-determined period of time, that is, until the float F moves the lever 36 back to its horizontal position shown in Fig. 1. When this has been done, the valve V is free to close, because the lever 23 is no longer being pressed against its stem. The valve V cannot be opened until the handle 4 is again manipulated by the attendant to actuate the turntable for another fraction of a revolution. Hence, even if a careless attendant neglects the machine for a considerable period of time, there is no waste of steam or other fluid, because the time control mechanism is set into operation by each actuation of the machine, and a supply of steam or other fluid is cut off after a pre-determined period of time, until the machine is again actuated.

The water which drains from the control chamber 31 falls into the collecting chamber 32.

Steam is supplied to a tank 45 so that the steam condenses into hot water in said tank 45, as long as the steam cannot pass out of said tank. This condensing tank 45 is connected to an outlet pipe 42, which is controlled by the valve V. Said outlet pipe 42 is connected to branch pipe 43, and this is connected to the station marked "Rinse and steam" in Fig. 2. The steam pressure operates to first force the hot water into the interior of the can at this station, and live steam is then forced into the interior of the can at this station.

The outlet pipe 42 is also connected to the branch pipe 44, and this is connected to the ejector 50 which withdraws the clean water from the collecting chamber 32, and forces it upwardly through the pipe 51 through the outside washing heads 52 and 53. The clean

hot water thus produced is sprayed upon the outsides of the receptacles or their covers.

As diagrammatically illustrated in Fig. 2, the cans are passed through two stations at which they are washed, they are then moved to another station at which they are rinsed and steamed, and they are finally dried and then moved back to the original station or position in which a clean and dried can is unloaded, and another can is inserted into the machine.

The stem of the valve V is provided with a spring so that the member 23 is normally in the position shown in Fig. 5.

It will be noted that when the rod 16 is caused to descend by the movement of the actuating means 4, that the valve V is opened and it remains in open position because the toggle arms 22 are then moved to a position which is substantially horizontal or else they are moved below the horizontal position. The force of the spring of the valve V is then insufficient to move the toggle arms reversely in order to close said valve, even when the rod 16 moves upwardly. The rod 39 acts to reseal or reset the valve V in its original closed position by upwardly moving the toggle arms 22. The resetting device is operated by the time control mechanism, which consists of the parts previously described.

While I prefer to cause the valve V to be automatically opened when the conveyor on which the receptacles or the like are mounted is given an intermittent movement, my invention by no means is to be limited to this feature. An important feature of the invention is that after the valve or valves V are opened, they are held open until they are caused to be automatically closed by the control mechanism. It will be noted that the closing of the valve V is produced by a time control device whose action is independent of the cessation of the movement of the conveyor or turntable on which the cans are mounted. This is an important feature of my invention because it is especially designed for use in machines in which the turntable or the like is manually operated. Since the conveyor is intermittently and manually operated, a time control device would be of no value if it shut off the supply of fluid after a predetermined number of intermittent movements of the conveyor.

I have shown a preferred embodiment of my invention, but it is clear that numerous changes and omissions can be made without departing from its spirit.

I claim:

1. An apparatus for washing receptacles comprising a conveyor for said receptacles, actuating means adapted to actuate said conveyor, a supply pipe adapted to supply fluid to the apparatus, a control valve for said pipe, a time control apparatus for said valve,

and connecting means between said actuating means and said time control device adapted to automatically set said time control device into operation, said time control device being constructed and adapted to operate independently of the cessation of the movement of the conveyor.

2. In an apparatus for washing receptacles, the combination of a supply pipe adapted to supply fluid to said apparatus, a control valve for said pipe, a conveyor for the receptacles, actuating means adapted to actuate said conveyor, connecting means between said valve and said actuating means and adapted to open said valve and to keep it open when said actuating means are moved, and a resetting device adapted to cause the closing of said valve, said resetting device being operated by a time control mechanism.

3. In an apparatus for washing receptacles, the combination of a pipe adapted to supply fluid to said apparatus, a control valve for said pipe, mechanism including a pair of toggle arms and adapted to force said valve to the open position, actuating means adapted to actuate said toggle arms, to cause said valve to be opened, said actuating means being effective to force said toggle arms into a position in which they remain after the actuating force has ceased so that said valve is thereby held in the open position, and a resetting device adapted to move said toggle arms back to their original position, and a time control mechanism adapted to operate said resetting device.

4. An apparatus for washing receptacles or the like comprising a conveyor for said receptacles, actuating means adapted to actuate said conveyor, a supply pipe adapted to supply fluid to said apparatus, a control valve for said pipe, valve-operating means for said control valve and operated by said actuating means, a float chamber having a float therein, a water-supply pipe connected to said float chamber, said water-supply pipe having a valve therein, said float chamber having a drain valve independent of said float, an unseating device for said drain valve operable by said valve-operating means, and a member operable by the upward movement of said float in said float chamber when water is admitted therein to reset said valve-operating means and to close said control valve, and another member operable by the downward movement of said float to open the valve of said water-supply pipe.

5. An apparatus for washing receptacles comprising a conveyor for said receptacles, manually operated means for intermittently moving said conveyor in the same direction, a supply pipe adapted to supply fluid to the apparatus, a control valve for said pipe, a time control apparatus for said valve, means connected to said operating means and adapted to automatically open said control valve

and to automatically set said automatic time
control device into operation at each inter-
mittent movement of said conveyor, said con-
trol device being adapted to automatically
close said valve at the expiration of a prede-
termined time interval after each intermit-
tent operation of said conveyor, said time con-
trol device being constructed and adapted to
operate independently of the cessation of the
movement of the conveyor.

In testimony whereof I affix my signature.

IRA H. KENDALL.