

Apr. 10, 1923.

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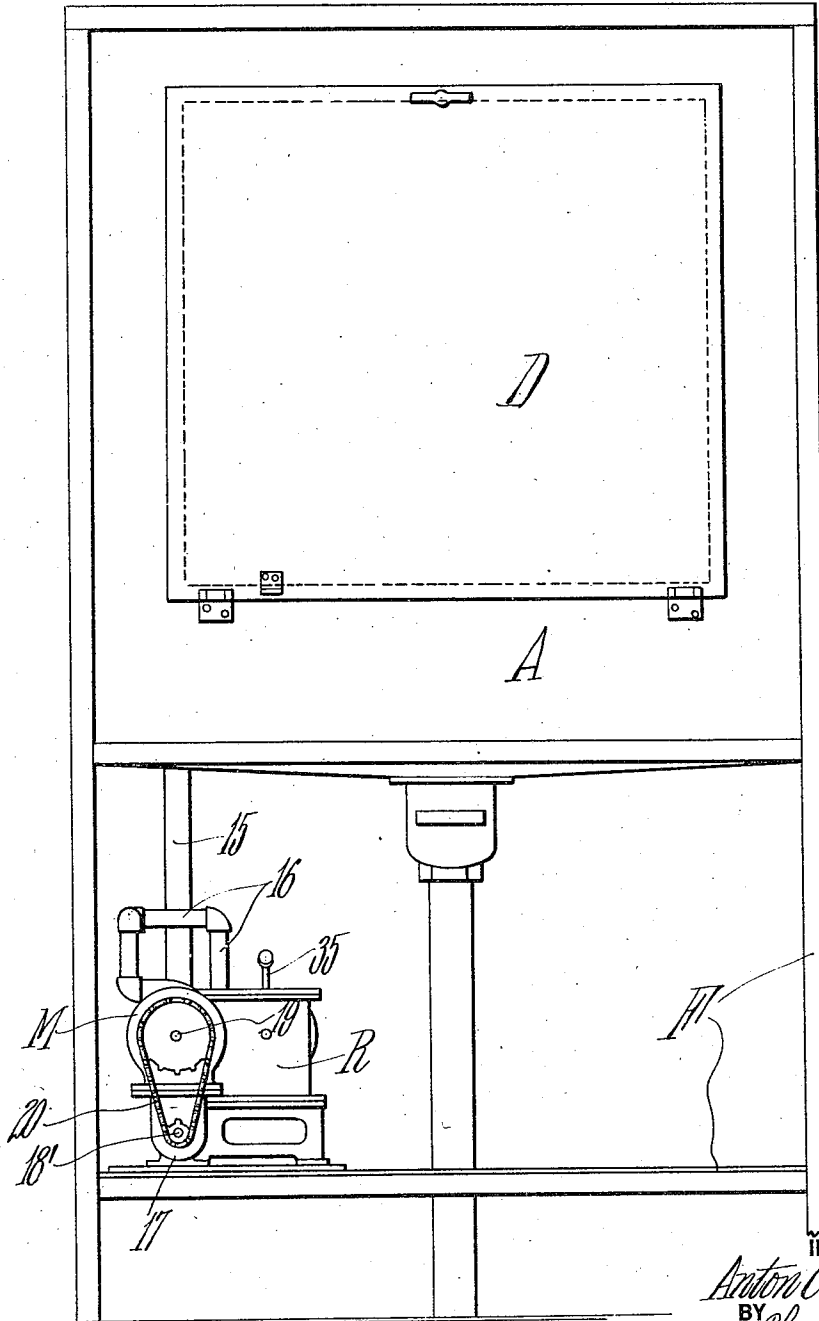
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WASHING MACHINE

Filed Aug. 29, 1919

2 sheets-sheet 1

Fig. 1.



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Fig. 3.

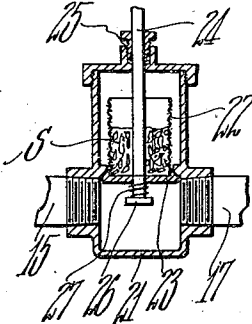


Fig. 4.

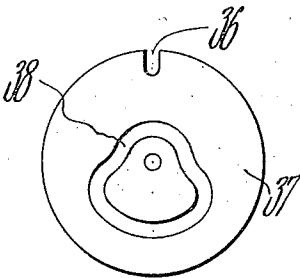


Fig. 5.

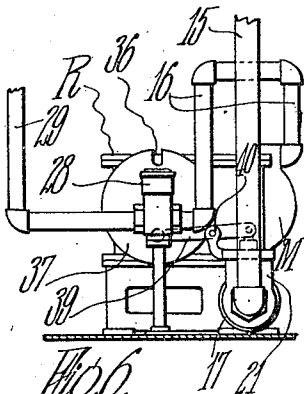


Fig. 6.



Fig. 6.

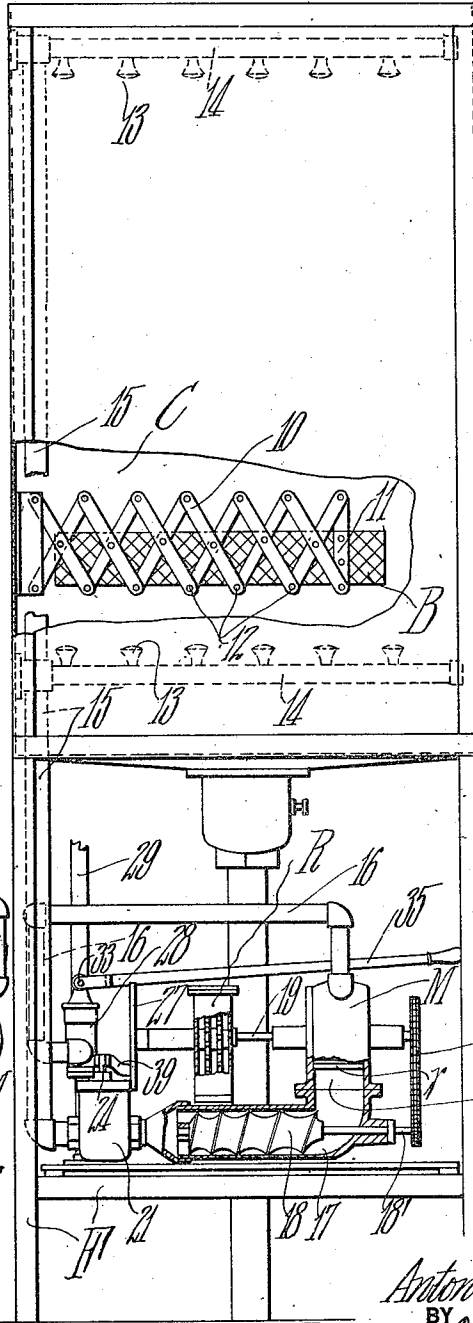
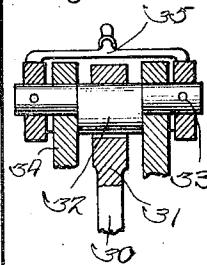


Fig. 7.



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UNITED STATES PATENT OFFICE.

ANTON C. SCHMELZER, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CENTURY MACHINERY CORPORATION, OF HOLYOKE, MASSACHUSETTS, A CORPORATION OF DELAWARE.

WASHING MACHINE.

Application filed August 29, 1919. Serial No. 320,718.

To all whom it may concern:

Be it known that I, ANTON C. SCHMELZER, born in Hungary of Hungarian parents, now believing myself to be a citizen of that country, and having formally declared my intentions of becoming a citizen of the United States of America, in conformance with the United States immigration laws, and now residing at Springfield, in the county of Hampden and State of Massachusetts, United States of America, have invented certain new and useful Improvements in Washing Machines, of which the following is a specification.

This invention relates to washing machines, and more particularly to machines for washing and rinsing or sterilizing drinking glasses, dishes and like articles.

An object of the invention is to provide, in a washing machine, mechanism which may be manually set in motion to start the washing operation and which thereafter automatically stops such operation and then starts and stops the rinsing operation, thereby automatically limiting the duration of each operation to predetermined intervals.

Another object of the invention is to provide in a washing machine, pumping means for the washing and rinsing water, of a motor to drive said means, the motor being a water motor and characterized in that it uses the water subsequently forced by the pumping means. Thus, no extra cost for motive power is necessary.

Another object of the invention is to provide in combination with a single means for supplying water to the machine, a feeding device to supply soap or the like to the water in said means during a predetermined interval and to later cut off the supply of soap, so that both washing and rinsing water may be fed through the same means.

A further object of the invention is to provide in a washing machine generally improved mechanical structure.

Other objects and advantages will appear in the following description and in the illustrative embodiment of the invention in the accompanying drawings, in which—

Fig. 1 is a front elevational view of a washing machine embodying the invention;

Fig. 2 is a side elevational view thereof, partly in section;

Fig. 3 is a detail sectional view illustrative of the means for feeding soap, or the like, to the machine;

Fig. 4 is a detail view of a cam for controlling and automatically timing the washing and rinsing operations;

Fig. 5 is a fragmentary elevational view of the left lower end of Fig. 2; and

Fig. 6 is a detail view of a part of the control valve.

Fig. 7 is an enlarged sectional detail of the parts shown in Fig. 6, showing also the lever for operating the valve, the plane of the section being at right angles to the length of said lever.

Referring to these drawings; the machine includes a casing A supported by a suitable frame F. Casing A affords a washing compartment C, access to which is had by the opening of a door D. The latter is hinged along its lower edge and opens to a horizontal position, as indicated by dotted lines in Fig. 2, in which position the door forms a shelf to receive the basket B of wire mesh, within which the articles to be washed are placed. The basket B is arranged between and supported by a pair of "lazy-tongs" 10, being fastened to the outer end upright links 11 thereof and being supported by the lower series of pivot pins 12. Each lazy-tong 10 is secured at its other end to the rear wall of casing A. Consequently, the basket B is supported for substantially horizontal sliding movement and may readily be pulled outwardly from the compartment C into an accessible position in which it overlies door D. The basket B, however, is, obviously, held against removal from the machine.

Within the compartment C are a plurality of nozzles 13 arranged in upper and lower sets, so as to direct water from above and below the basket B. The nozzles 13 may be of any suitable type and are connected at spaced intervals to and along pipes 14. There are, of course, a plurality of pipes 14 extending across the casing, but, inasmuch as the present invention is not primarily concerned with the construction and arrangement of the nozzles, detailed description and illustration thereof is unnecessary to an understanding of the invention. It will suffice to state that there are a large number of nozzles arranged in upper and lower

sets and that both sets are supplied with water from a common pipe 15, which extends downwardly below casing A for connection to mechanism arranged therebelow and supported by frame F.

Such mechanism includes a water motor, conventionally represented at M. Water enters motor M through a pipe 16 and turns the rotor *r* thereof in the known way, the water subsequently emerging through an outlet *o* in the lower side thereof into a cylindrical casing 17, all as clearly indicated in Fig. 2. In this casing, a screw 18 is revolvably mounted and this screw is driven from the shaft 19 of rotor *r* by a chain 20 and suitable sprockets. As shown in Fig. 1, the screw shaft 18' is driven at much higher speed than the rotor *r* and thus the water, after leaving the water motor, is increased in velocity before being delivered into the described pipe 15.

The outlet end of casing 17 is not, however, connected directly to pipe 15. Rather, there is interposed between these elements a casing 21, which is best shown in Fig. 3. The lower part of casing 21 affords communication at all times between the casing 17 and pipe 15. In the upper part of casing 21, however, there is provided a tubular basket 22 of wire mesh, within which soap, preferably in cake form, may be placed, as indicated at *s*. The basket 22 has a solid bottom plate 23, which is formed to coact with parts of casing 21 to act as a valve and close off the upper from the lower part of the casing. That is, with the parts positioned, as shown in Fig. 3, water passing from casing 17 to pipe 15 will not acquire any soap, but when basket 22 is lowered into the lower part of the casing the water from casing 17 will necessarily pass through basket 22 and dissolve some of the soap *s*, which will then be carried in suspension into and through the pipe 15 to the nozzles 13. The basket 22 is supported by a rod 24 which is slidably mounted in casing 21 and emerges from the upper end thereof through a suitable stuffing box, indicated conventionally at 25. Rod 24 has a collar 26 on its lower end and, between such collar and the valve plate 23, is interposed a spring 27. Thus, the movement of rod 24, which is of fixed degree as will appear, may be made greater than that necessary to seat the valve plate 23, the excess movement being permitted by the interposed spring 27. This arrangement insures that the valve plate 23 will always seat even after an appreciable degree of wear has occurred between the coating parts.

The inlet pipe 16 is connected to a valve 28 and from this valve a main inlet pipe 29 extends to a suitable supply of hot water (not shown). Valve 28 is of the well-known self-closing type and has been illustrated merely in conventional form. The valve in-

cludes a stem 30 (Fig. 6) carrying on its upper end an eccentric strap 31. An eccentric 32 is mounted within this strap and fixed to a shaft 33 mounted in and between spaced straddle lugs 34. A long lever 35 has a forked end to straddle lugs 34 and the shaft 33 is fixed in such forked end. Therefore, an upward swinging movement of lever 35 will turn eccentric 32 and open the valve. The weight of the lever, when released, combined with the usual self-closing spring in the valve will insure an automatic closing of the latter.

The lever 35 is adapted to engage in a radial notch 36 (Fig. 5) formed in a disk 37 and when in such notch, the valve 28 is closed. The disk 37 is rotated from the shaft 19 through the intermediary of a gear reducing mechanism which is represented conventionally at R in Fig. 2. The arrangement is such that disk 37 revolves at very slow speed and makes one revolution only during the interval necessary to perform both the washing and the rinsing operation. This interval may be gauged as desired by the mechanism R and may, for example, be one minute or some such relatively small interval. In one face of disk 37, there is provided a cam path 38 which is arranged to actuate a lever 39 pivoted intermediate its ends at 40 and connected at its free end to the described stem 24 of the soap container. The cam path 38 is so designed as to hold stem 24 in lifted position when disk 37 is at rest and, shortly after the disk revolves, to lower stem 24 and hold it lowered for a predetermined interval and thereafter to raise the stem before the one revolution of disk 37 is completed and hold it in raised position for a predetermined interval.

In operation, after the articles to be washed have been placed in basket B and the basket pushed into casing A and door D closed, the operator merely lifts lever 35. This simultaneously opens valve 28 and releases disk 37 for rotation. Upon the opening of valve 28, water immediately passes to motor M and the motor causes disk 37 to revolve. A release of lever 35 then allows lever 35 to drop upon the periphery of disk 37, which prevents valve 28 from closing. Then the water used by motor M is discharged in casing 17 and then propelled at increased speed by screw 18. The water is discharged into pipe 15 through the casing 21 and, the cam 38 having lowered the soap containing basket 22, the water, being hot, dissolves some soap and carries it in suspension into the compartment C. After the elapse of a predetermined time, the cam 38 raises stem 24 until valve plate 23 seats and thereafter clean hot water is forced through the nozzles 13 into compartment C to effect the rinsing function. The rinsing continues for a definite interval which is terminated when notch 36 comes under lever 35, the lat-

ter dropping into the notch to prevent further rotation of disk 37 and at the same time closing valve 28.

The invention has been disclosed herein, in an embodiment at present preferred, for illustrative purposes, but the scope of the invention is defined by the appended claims rather than by the foregoing description.

What I claim is—

1. In a washing machine, a washing compartment, an inlet conductor to supply water thereto, a movably mounted containing device for soap or the like, and means controlled by the flow of the water to move said device into the path of the water passing through said conductor and to later move the device out of such path.

2. In a washing machine, a compartment to receive the articles to be washed, a pipe through which the water is passed into said compartment, a casing interposed in said pipe outside of said compartment, containing means for soap or the like movably mounted in said casing and movable into and out of the path of the water passing through said pipe.

3. In a washing machine, a washing compartment, a water inlet conductor therefor, a containing device for soap or the like mounted to move into and out of the path of the water flowing through said device, and a driven timing element arranged to move said device into said path and hold it there for a predetermined interval and to subsequently move the device out of said path and hold it there for another predetermined interval, whereby both washing and rinsing water may be supplied to said compartment through the same conductor.

4. In a washing machine, a washing compartment, a water inlet conductor therefor, a water motor to which water is supplied and from which such water passes to said conductor, a valve to control the supply to said motor, manually operable means to open said valve, means for closing said valve, and means driven by said motor to force the water through said conductor.

5. In a washing machine, a washing compartment, a water inlet conductor therefor, a water motor to which water is supplied and from which such water passes to said conductor, a valve to control the supply to said motor, manually operable means to open said valve, timing mechanism driven by said motor and operable to automatically close said valve after a predetermined interval, and means driven by said motor to accelerate the velocity of the water as it leaves the motor.

6. In a washing machine, a washing compartment, a water inlet conductor therefor, a water motor to which water is supplied

and from which such water passes to said conductor, a valve to control the supply to said motor, manually operable means to open said valve, timing mechanism driven by said motor and operable to automatically close said valve after a predetermined interval, and means controlled by said mechanism to feed soap or the like to the water in said conductor during a part of said interval.

7. In a washing machine, a washing compartment, a water inlet conductor therefor, a driven timing element automatically operable to stop the flow of water in said conductor after a predetermined interval and operable to feed soap or the like to the water in said conductor during a part of said interval.

8. In a washing machine, a washing compartment, an inlet conductor therefor, a self-closing valve associated with the conductor, manually operable means to open said valve, a motor driven by the water passing through said conductor, and means driven from the motor at relatively slow speed to hold said valve in open position and to permit said valve to automatically close after a predetermined interval.

9. In a washing machine, a washing compartment, an inlet conductor therefor, a self-closing valve associated with the conductor, manually operable means to open said valve, a motor, means driven at relatively high speed from said motor to accelerate the velocity of water through said conductor, and means driven by the motor at relatively slow speed to hold said valve in open position and to permit said valve to automatically close after a predetermined interval.

10. In a washing machine, a washing compartment, a water inlet conductor therefor, a water motor to which water is supplied and from which such water passes to said conductor, a valve to control the supply to said motor, manually operable means to open said valve, timing mechanism driven by said motor and operable to automatically close said valve after a predetermined interval, and means driven from said motor to accelerate the velocity of the water received therefrom through said conductor.

11. In a washing machine, a washing compartment, an inlet conductor to supply water thereto, a valve for controlling the admission of water to said inlet, means for opening and automatically closing said valve, a movably mounted soap containing device associated with said conductor, and means for moving said device into the path of the water passing through said conductor and for moving said device out of said path before said valve is closed.

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