May 13, 1941. J. R. ATKINS ET AL 2,241,940

WASHING MACHINE

Filed Feb. 29, 1940 2 Sheets-Sheet 1

Fig. 1

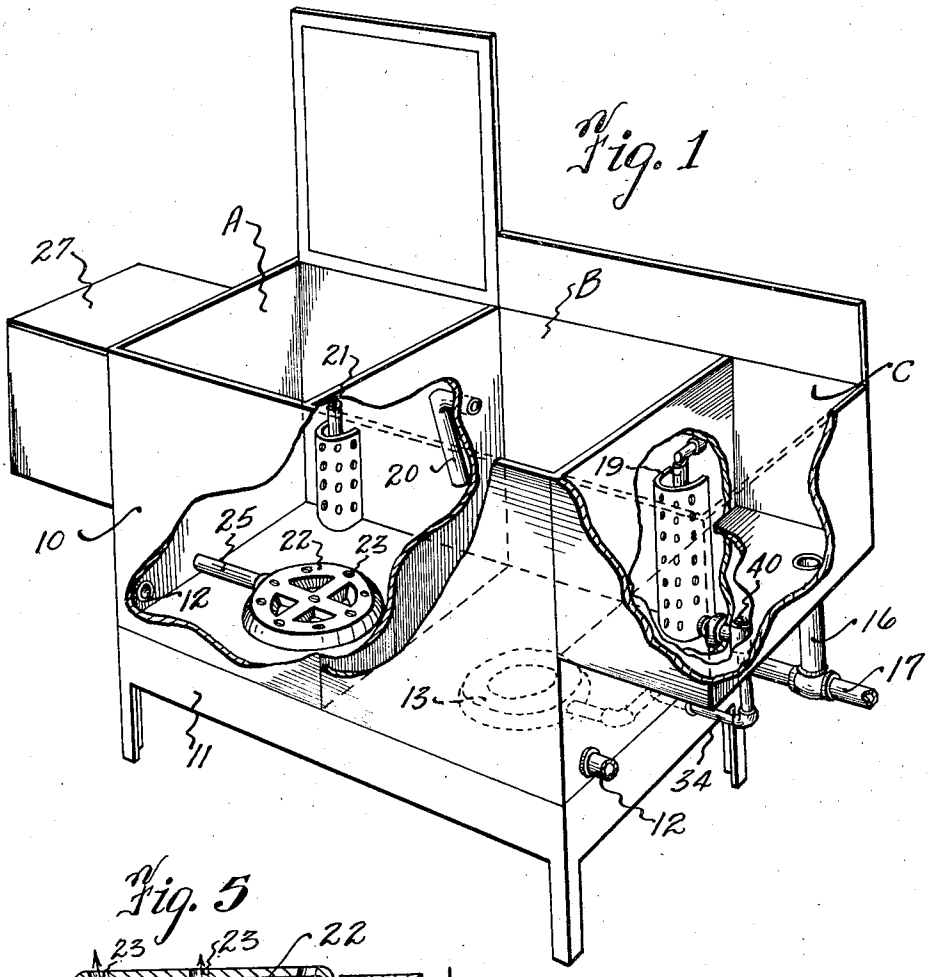


Fig. 5

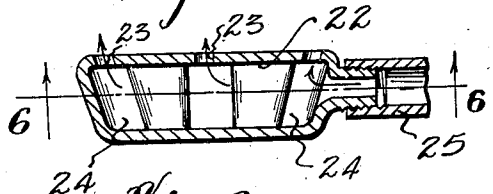
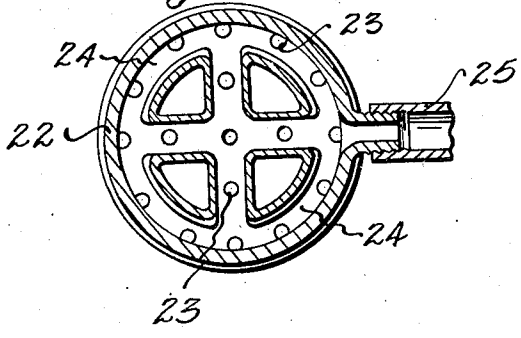


Fig. 6



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Fig. 2

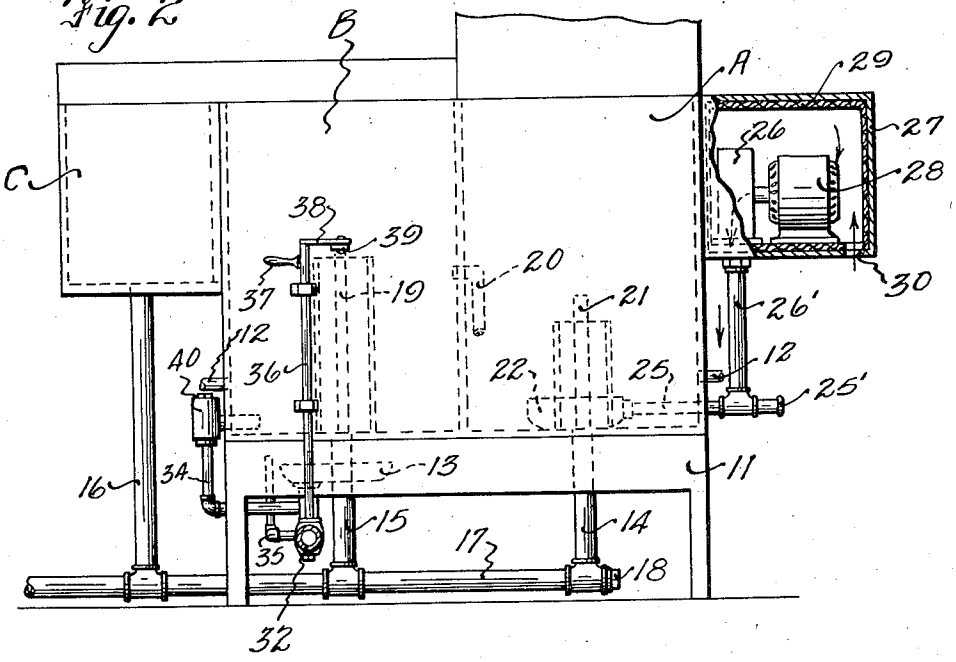


Fig. 3

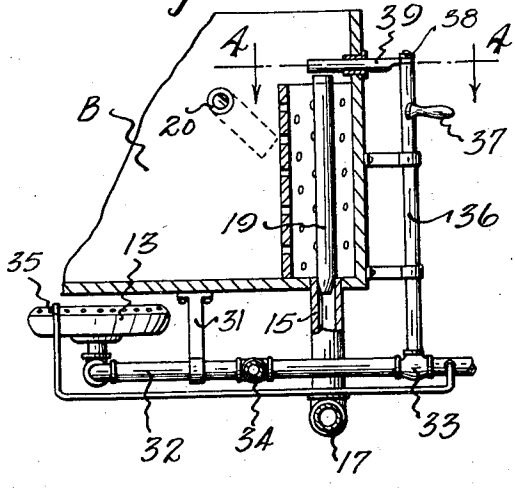
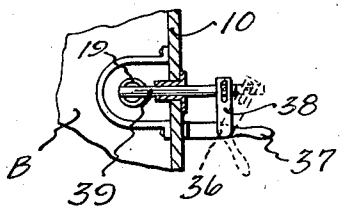


Fig. 4



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UNITED STATES PATENT OFFICE

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WASHING MACHINE

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Application February 29, 1940, Serial No. 321,548

2 Claims. (Cl. 259—95)

This invention relates to new and useful improvements in washing machines.

One object of the invention is to provide an improved washing machine which is constructed so that air or steam under pressure may be directed or forced into a container of water in intimate contact with articles to be washed whereby said articles will be thoroughly cleansed, due to the vacillating effect produced on the water by the air or steam without manual effort.

Another object of the invention is to provide a dishwashing machine including containers within which the dishes are confined, due to the means for discharging air or steam into the container and to contact with the dishes, whereby the pressure of the air or steam is sufficient to perform the washing operation, an auxiliary pressure means need not be employed.

Another object of the invention is to provide a machine of the character described wherein hot water or other rinsing fluid is confined within one of the containers whereby said dishes may be immersed therein to perform the rinsing operation.

Another object of the invention is to provide an overflow drain system whereby impurities in and on the fluid within the machine are constantly removed.

Still another object of the invention is to provide a washing machine which not only thoroughly cleanses dishes, silver and the like, but also sterilizes the same.

A still further object of the invention is to provide manually operated means controlling the main outlet of the device as well as an auxiliary burner beneath one receptacle of said device whereby said burner is rendered inoperative at such time as the water is drained therefrom to avoid damage to the machine.

Another object of the invention is to provide a thermostat control for an auxiliary burner placed beneath the rinsing vat of the machine whereby said rinsing water is maintained at a constant temperature.

A construction designed to carry out the invention will be hereinafter described together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown, and wherein:

Figure 1 is a perspective view of a dishwashing machine constructed in accordance with the present invention.

Figure 2 is a view partly in elevation and partly in section showing the rear working side of said machine and the details of the motor housing.

Figure 3 is an enlarged detailed vertical section showing the combination drain and burner control.

Figure 4 is a detailed sectional view taken on the lines 4—4 of Figure 3.

Figure 5 is a transverse vertical sectional view of the agitator, and

Figure 6 is a horizontal cross-sectional view taken on the lines 6—6 of Figure 5.

In the drawings, the numeral 10 designates the body of the washing machine constructed in accordance with the present invention and which body is comprised of three vats or containers A, B, and C. The body is mounted upon a suitable base 11. Fluid inlets 12 are provided and communicate with the respective vats. It is to be noted that the incoming fluid is preheated whereby, for example, the fluid entering the vat A attains a temperature of 140° while the fluid in the vat B reaches a temperature of 190° due to the burner 13 disposed beneath this vat B.

The vat C is employed for washing glasses in soapy water immersed in vat B and sterilized and dried without the aid of toweling.

By observing Figure 2, it may be seen that the vats A, B, and C are provided with drain pipes 14, 15, and 16, respectively, which pipes communicate with the main drain line 17.

Particular attention is called to the fact that a clean-out plug 18 is provided in the pipe 17 whereby the line may be cleaned by an inexperienced person. An overflow pipe 19 is provided in the extreme upper end of the drain pipe 15 while a communicating overflow pipe 20 is provided in the wall separating the vats A and B. A third overflow pipe 21 is provided in the drain pipe 14 similar to the pipe 19 in the line 15. The overflow 21 is on a lower horizontal plane than the communicating overflow 20, while this overflow is on a lower horizontal plane than the overflow 19. As the vat A is the washing vat, the water in this vat will tend to be dirtier than the water in the rinsing vat B. As grease floats upon water the grease or "scum" on top of the water in the vat B will be drained from said vat and will flow through the communicating line 20 to the vat A while undesirable impurities floating upon the water in the vat A will be draining therefrom through the medium of the overflow 21. Thus, as clean water is at all times entering the vats the water must be continually moved and due to the disposition of the overflow

pipes this water will at all times remain free from any grease or food particles floating thereon.

Centrally disposed in the bottom of the vat A is an agitator 22 which agitator is provided with openings 23 in the top side thereof which openings communicate with the interior passage 24 of the agitator. The agitator is suitably connected to an air line 25 which line passes through the outer wall of the body 10 and is connected to a pipe 26' of a larger diameter than the pipe 25 to produce a nozzling effect; the pipe 26' is connected at its opposite end to the exhaust side of a pump 26 disposed within a housing 27 mounted upon the outer wall of the body 10 adjacent to the vat A. The pump or blower 26 is operated by a motor 28. The housing 27 is closed and insulated interiorly by felt 29 to reduce the noise produced by the blower during the operating periods thereof. An opening 30 is provided in the under side of the housing whereby the fan may draw air from without said housing into the interior thereof and pass said air under pressure into the pipe 25 to the agitator 22. This air under pressure enters the opening 24 in said agitator. As this air is exhausted from the agitator it serves to impart sufficient motion to the water within the vat A whereby said water may thoroughly wash the articles.

The burner 13 beneath the rinsing vat B is suitably supported thereunder by means 31 while a fuel inlet line 32 is connected to said burner. A cut-off valve 33 is provided in the line 32 while a thermostat line 34 is connected in the line 32 intermediate the burner 13 and the valve 33. The pilot light 35 is provided immediately adjacent to burner 13 and is connected in the line 32 adjacent the inlet side of the valve 33 whereby said pilot light will burn at all times. A vertical actuating rod 36 is connected to the valve 33 and operated by means of a handle 37. A horizontal arm 38 is fixedly secured to the extreme upper end of the rod 36 and is pivotally connected to a slidable pin 39 which pin extends through the rear wall of the vat B and passes over the top of the overflow pipe 19.

By observing Figure 3, it may be seen that with the pin 39 in the position shown it would be impossible to remove the overflow pipe 19 to allow the liquid in the vat to drain through the drain pipe 15. At such time as the lever 37 is operated as shown in dotted lines in Figure 4, it may be seen that the rod 36 would be rotated to withdraw the pin 39 through the medium of the pivotal connection 38. Upon rotation of the rod 36 the valve 33 will be operated to close the same thereby cutting off the fire of said burner.

Thus, with this arrangement it would be impossible to drain the vat B and still allow a fire to burn beneath the empty vat to destroy the bottom thereof and render the device inoperative.

A thermostat 40 is secured to the line 34 and serves to control the temperature of the fluid within the rinsing vat B. This thermostat and the operation thereof is so well known that it is believed that a detailed description of the same is unnecessary. It is to be noted that a clean-out plug 25' is provided in the line 25 whereby this line may be cleaned out in the event that during inoperative periods of the fan 26 particles of foreign matter may settle and enter the agitator and eventually stop the pipe 25.

In operation, the dishes are deposited in a conventional wire basket (not shown) and then immersed in the liquid in the vat A. The motor 28 is then started to operate the blower 26 and force air to the agitator 22. The water is then set into motion which motion is such that the dishes are thoroughly washed only by the moving water. The motor is then cut off and the basket (not shown) containing the dishes is removed from the vat A and submerged in the fluid within the vat B for rinsing and sterilizing. The basket is then removed from the vat B and placed in any desirable place for the dishes to dry. Attention is called to the fact that in using this machine the dishes are at no time touched by the operator and as the temperature of the rinsing fluid in vat B is sufficient to cause the dishes to dry quickly after being rinsed.

In washing silverware, it would not be necessary to dry the same, but as the water evaporates a small chemical deposit is left, in some cases, on the silver to form spots thereon and therefore, while it is not necessary, it is desirable to towel the silver.

The foregoing is a complete mechanical washing machine and sterilizer having many new features which are very simple in operation and utilizing only one moving part which part is a motor. In the event the motor fails to operate it is necessary only to turn off the gas to the burner 13 and to reduce the temperature of the water by adding cold water and the dishes or other articles may then be washed by hand in the usual manner till such time as the required repairs are made. Further, water is first used in the vat B and then carried into the vat A to the drain. Thus the water entering the vat B is used twice due to the overflow system hereinbefore described. Attention is called to the fact that in the event steam is used for power there would obviously be no moving parts which system would eliminate the use of a motor.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. In a washing machine, a washing vat having an overflow, a water agitating means in said vat, said means comprising a substantially circular body having a circular air conduit formed therein, a pair of intercrossing passages communicating with said circular conduit at their ends, said latter conduit and passages having a plurality of apertures for the release of air under pressure, a common, restricted air inlet to said conduit and passages, a pipe connected to said inlet, insulated means for supplying air under pressure into said pipe intermediate its ends and a cleaning plug removably disposed at the free end of said pipe.

2. In a washing machine, a washing vat having an overflow, a water agitating means in said vat, said means comprising a substantially circular body having a circular air conduit formed therein, a pair of intercrossing passages communicating with said circular conduit at their ends, said latter conduit and passages having a plurality of apertures for the release of air under pressure, means for supplying air under pressure into said water agitating means and a cleaning plug removably disposed at the free end of said pipe.

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