

Nov. 22, 1932.

H. L. QUACKENBUSH

1,888,435

WASHING MACHINE

Filed March 25, 1932

FIG. 1.

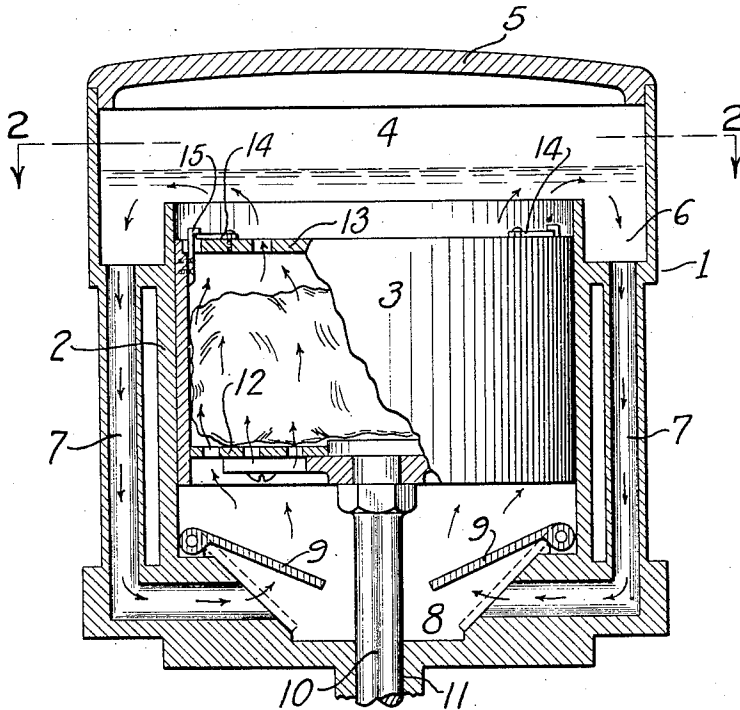
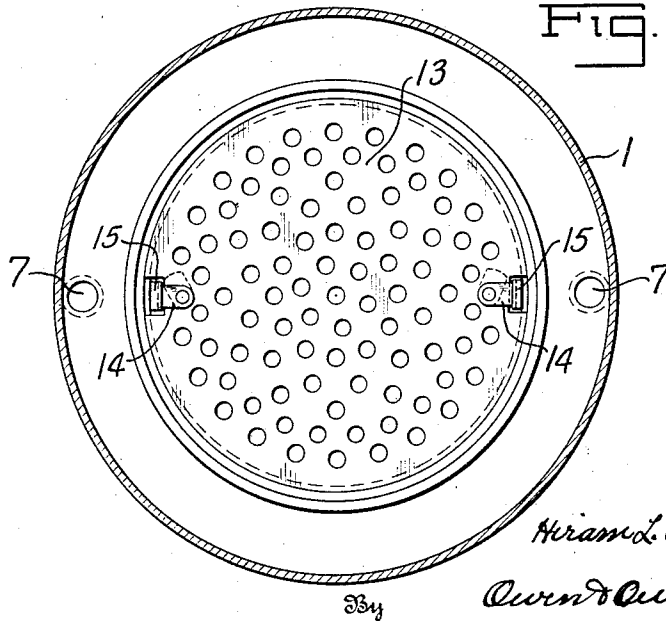


FIG. 2.



Inventor

Hiram L. Quackenbush

By

Quinn & Owen,

Attorneys

UNITED STATES PATENT OFFICE

HIRAM L. QUACKENBUSH, OF MONROE, MICHIGAN

WASHING MACHINE

Application filed March 25, 1932. Serial No. 601,217.

This invention relates to clothes washing machines, and has for its object the provision of a machine of this character having certain novel features of construction, whereby clothes and articles of the most delicate material, such for instance, as fine silks, linens and laces may be easily, quickly and effectively washed without any beating, twisting or rubbing action, the cleansing being effected solely by forcing the cleaning and rinsing liquids through the articles.

The invention is fully described in the following specification, and one embodiment thereof illustrated in the accompanying drawing, in which—

Figure 1 is a central vertical section of a part of a washing machine embodying the invention, with parts in full, and Fig. 2 is a section on the line 2—2 in Fig. 1.

Referring to the drawing, 1 designates the body member of a washing machine embodying the invention, which body may be supported or mounted in any suitable manner (not shown), as the mounting means forms no part of the invention.

The body 1 forms a cylinder 2 in which a clothes-receiving container 3 is reciprocally movable in the manner of a plunger. The body 1 also forms, in its top, a liquid-receiving chamber 4 into which the top of the cylinder 2 opens. The top of the chamber 4 is closed by a removable cover 5, and a trough 6 is preferably provided around the lower edge portion of said chamber by extending the upper end wall of the cylinder 2 a distance up into the chamber, which for this purpose is of greater diameter than the cylinder.

The trough 6 at intervals therearound is in communication with the lower end of the cylinder 2 through passages 7, two being shown in the present instance, which extend from the bottom of the trough 6 down at the outer sides of the cylinder 2 and into the receiving chamber designated 8 at the lower end of the cylinder 2. The passages 7 are provided with check-valves 9 located in the present instance within the chamber 8 and adapted to close under pressure in said chamber and to open under suction action therein. It is thus apparent that when the

clothes-container 3 is moved downwardly, a pressure is created in the chamber 8 to effect a closing of said valves, and when the container is moved upwardly, a suction is created in said chamber to effect a drawing of liquid therein from the chamber 4 through the passages 7.

The container 3 is attached to the upper end of a reciprocally movable operating rod 10, which extends down through a bearing opening 11 in the bottom of the cylinder 2 and is connected to any suitable operating means (not shown), as is common in washing machines having reciprocating clothes containers. The bottom 12 and top 13 of the container 3 are perforated or of foraminous construction to permit the passage of liquid therethrough while at the same time retaining in the container the articles being washed. The top 13 is removable to permit the insertion of articles into the container and their removal therefrom, and is provided with any suitable means for preventing opening of the top under internal pressure. Such means, in the present instance, comprises latch members 14 on the cover engaging catch members 15 secured to the side walls of the container.

In the use of my washing machine, the clothes or other articles to be washed are placed in the container 3, after which the top 13 of the container is secured in position and the cover 5 placed in position on the top of the chamber 4. It will be understood, of course, that the washing or cleansing liquid may be placed in the machine either before or after the clothes have been placed in the container, a sufficient amount being used to reach a level substantially half way up in the cylinder. It will be understood, however, that the quantity of the liquid used may be varied to suit the conditions. The operating parts of the machine, which effect a reciprocation of the container 3, are then operated, and upon each down stroke of the container, a substantial portion of the liquid in the bottom of the cylinder 2 is forced up through the container and articles therein into the upper compartment 4, due to the valves 9 closing the by-passes 7 during this movement of the container. Upon each up stroke of the container, the

valves 9 are opened by inward pressure and the liquid in the upper compartment 4 is permitted to flow back into the lower portion of the cylinder. A portion of the liquid in the compartment 4 will also return to the bottom of the cylinder through the container and clothes. This return action of the liquid through the clothes is not as forceful, however, as the upward movement of the liquid through the container during a down stroke thereof, inasmuch as in the latter case all of the liquid in the bottom of the cylinder, which is disposed by the container 3, is caused to pass through the container and the articles therein due to the closing of the valves 9. After the articles being washed have been thoroughly cleaned, the cleansing liquid may be removed and a rinsing liquid placed in the machine, and a thorough rinsing of the clothes in the same manner as the washing action.

It is apparent with this machine, that all pounding, rubbing and twisting of the clothes, or other articles being washed and rinsed, which customarily takes place in the washing and rinsing of clothes, is eliminated, and that the only pressure brought to bear on the clothes is the pressure of the liquid in its passage through the container. This enables the most delicate of articles to be washed without tearing or distorting the texture thereof.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is:

1. In a washing machine, means forming a vertically disposed cylinder with liquid-receiving compartments at the top and bottom thereof and with communicating passages therebetween without the cylinder, check-valve means in connection with said passages and opening inwardly relative to the bottom compartment, the upper compartment having a trough in its bottom surrounding the upper end of the cylinder and from which said passages lead, and a clothes-container of the plunger-type reciprocally movable in said cylinder and having foraminous bottom and top members through which the liquid in the bottom compartment is required to pass to the upper compartment upon a down stroke of the container.

2. In a washing machine, means forming a vertically disposed cylinder and compartments at the upper and lower ends of the cylinder, both open to the cylinder and the upper compartment being of greater diameter than the cylinder and having a trough formed around its outer lower edge by extension of the cylinder wall into said upper compartment, there being communicating

passages between said trough and the lower compartment, check-valves associated with said passages adapted to close the same under pressure in the lower compartment, and a clothes-container having foraminous top and bottom walls reciprocally movable in said cylinder lengthwise thereof and adapted to operate the check-valves for closing the communication between the bottom and top compartments through the cylinder when moved in one direction except for the communication provided through the container.

In testimony whereof I have hereunto signed my name to this specification.

HIRAM L. QUACKENBUSH.

85

90

95

100

105

110

115

120

125

130