March 13, 1934. C. RIES 1,950,630

WASHING MACHINE

Filed July 18, 1931 2 Sheets-Sheet 1

FIG. I.

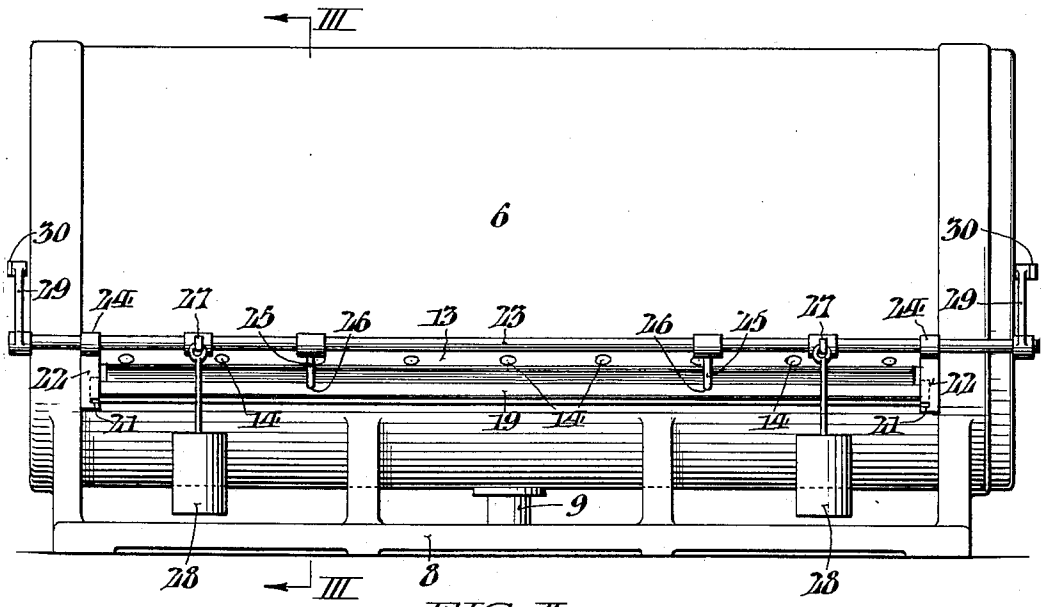
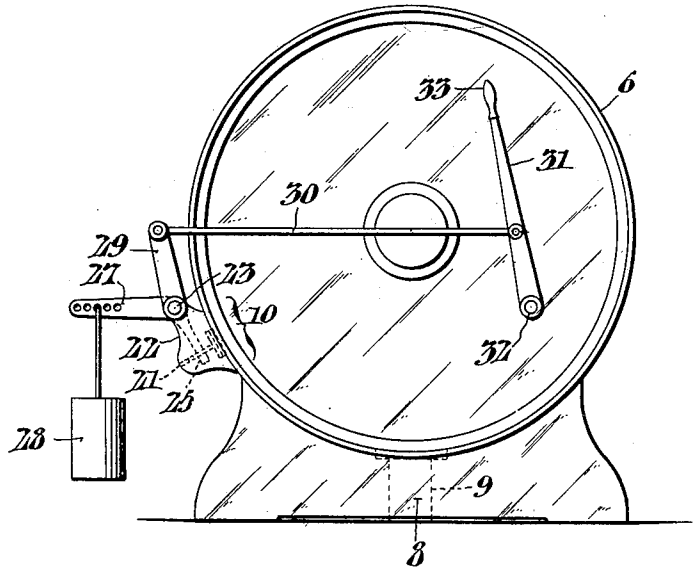


FIG. II.



WITNESSES

John C. Bergner

Thomas W. Kerr, Jr.

INVENTOR:
Charles Ries

BY Fraser & Paul

ATTORNEYS.

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FIG. III.

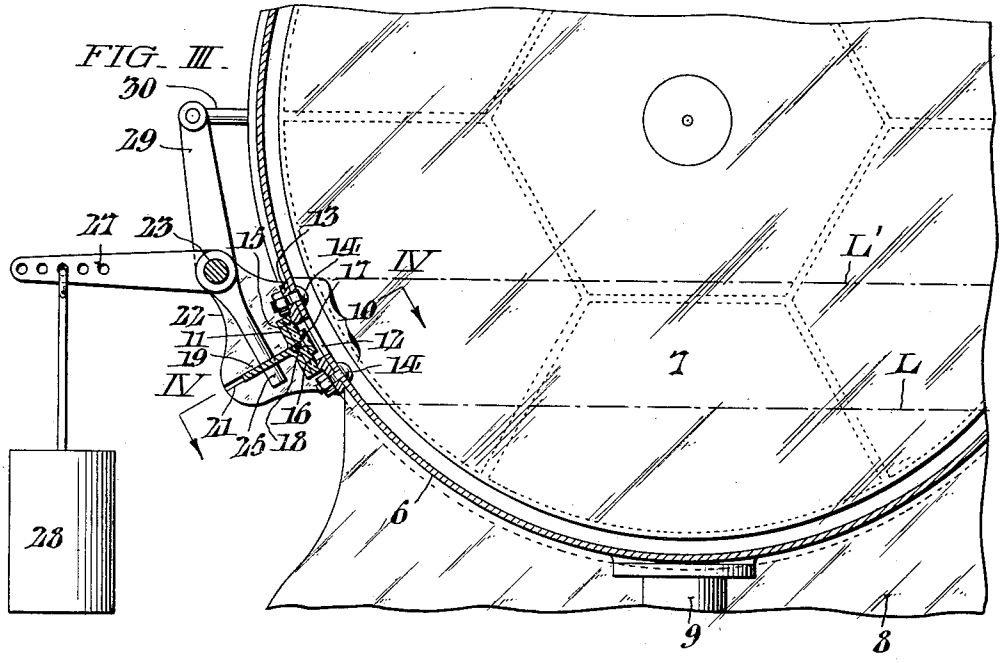


FIG. IV.

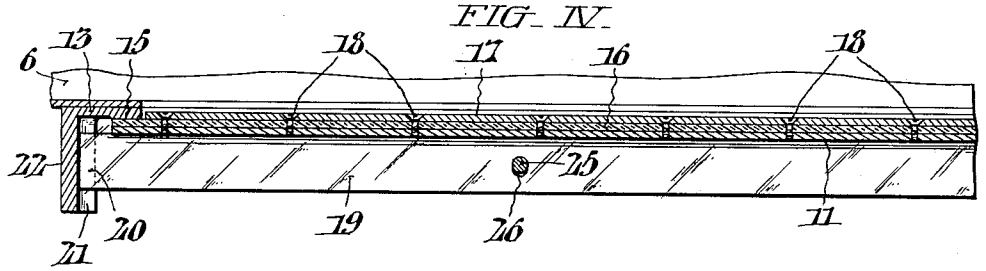
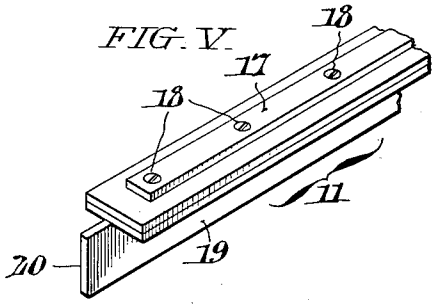


FIG. V.



WITNESSES

John C. Bergner

Thomas W. Kerr, Jr.

INVENTOR:
Charles Ries
BY Fraley & Paul
ATTORNEYS.

Patented Mar. 13, 1934 1,950,630

UNITED STATES PATENT OFFICE

1,950,630

WASHING MACHINE

Charles Ries, Philadelphia, Pa.

Application July 18, 1931, Serial No. 551,612

8 Claims. (Cl. 68—18)

This invention relates to washing machines; and it has reference more particularly to washing machines of the horizontal rotary drum type such as are used in commercial laundries.

Ordinarily, after the washing of each batch of clothes in a machine of the type specifically referred to, the soap water is drained off through an outlet provided for that purpose in the bottom of the machine casing. Fresh hot water is then introduced, and the machine run again for a short period to rinse the washed clothes. This rinse water is likewise afterwards drained through the same bottom outlet aforementioned before the clothes are finally removed from the machine. Incident to draining of the rinse water, the insoluble scum floating in the upper strata settles into the clothes as well as on the walls of the machine casing; and before the machine is used for the next washing, several additional charges of hot water must ordinarily be introduced and the machine run idly for successive periods to effect removal of the clinging scum as far as this is possible of accomplishment. Rinsing and flushing under these conditions is uneconomical in that it incurs excessive wastage of the hot water as well as power, and moreover entails periods of protracted idleness of the machine between successive washing operations.

The main object of my invention is to overcome the several drawbacks above pointed out. In other words, I aim to secure a much cleaner and more sanitary wash than possible heretofore with greater economy in the use of the hot rinse water. This I attain through provision in connection with the washing machine of a novel scum drain or auxiliary valve means whereby, upon completion of a washing operation, the upper strata of the soap and rinse waters containing the insoluble floating scum, can be released previous to draining of the machine through the usual bottom outlet, the said scum being thereby prevented from settling in the washed clothes or adhering to the sides of the machine casing, so that subsequent separate rinsing of the machine may be dispensed with.

Other objects and attendant advantages of my invention will be manifest from the detailed description following in coordination with the attached drawings, wherein Fig. I is an elevation of the rear side of a commercial laundry washing machine, conveniently embodying the present improvements.

Fig. II shows an end view of the machine.

Fig. III is a fragmentary cross sectional view, taken as indicated by the arrows III—III in Fig. I, and drawn to a larger scale.

Fig. IV is a fragmentary detail sectional view, taken as indicated by the arrows IV—IV in Fig. III, and featuring my improved auxiliary scum discharging valve; and

Fig. V shows a fragmentary perspective view of the valve.

The washing machine which I have chosen for convenience of illustrating my invention, is of the horizontal rotary drum type such as is extensively used in commercial laundries, the cylindric shell or casing of the machine being indicated at 6, and its enclosed revolving multi-compartment drum at 7. As usual, the casing 6 is supported by a base 8, and provided, centrally of its bottom, with an outlet 9 through which the wash water may be drained from the machine, the said outlet being controllable by a suitable manually operable valve means, not illustrated.

The novel auxiliary valve means whereby I am enabled to release the insoluble scum-carrying upper strata of the water before complete drainage of the machine through the bottom outlet 9 after each washing operation, is comprehensively designated by the numeral 10. As shown, this valve means comprises a valve 11, which, in the present instance, is made from bar metal of T cross section, see Figs. III and V; and said valve is adapted to cooperate with an elongate longitudinally extending port 12 cut into the shell or casing 6 at a level well above the bottom outlet 9 and preferably at the rear side of the machine as illustrated. From Figs. III and IV it will be noted that the port 12 is surrounded by a frame 13 which has the form of an open oblong casting and which is secured to the casing 6 by screw bolts 14. As shown, this frame 13 affords a finished seat 15 for a gasket of rubber 16 on the contiguous face of the valve 11, the said gasket 16 being retained by a metallic bar 17 which is apertured at suitable intervals for passage of screws 18 that take into the valve 11, see Figs. III, IV and V. At the ends, the central web 19 of the valve 11 is extended, as exemplified at 20 in Fig. V, for capacity to engage guide grooves 21 in brackets 22 formed integrally with the rectangular frame 13 at opposite ends. By virtue of this arrangement it will be evident that the valve 11 is definitely guided radially of the casing 6 incident to movement toward and away from the discharge port 12. As here shown, the port 12 extending along the casing 6 is substantially coextensive with

the casing in length, so as to permit free and rapid discharge of suds, scum and water, and the movable valve 11 seats externally over the port 12 against the seat 15 afforded by the frame 13, and is thus urged outward away from the seat and port by the outward pressure of the water.

The means provided for actuating the auxiliary valve 11 includes a horizontal rock shaft 23 which is journalled in bearings 24 afforded by the brackets 22 of the valve frame 13. Secured to the shaft 23 are a pair of fingers 25 which engage openings 26 in the flange 19 of the valve 11 with a working fit. In the intervals between the bearings 24 and the fingers 25, the rock shaft 23 has secured to it, horizontally-projecting arms 27 to the ends of which weights 28 are hung, the latter functioning to yieldingly hold the gasketed face of the valve 11 fluid tight against the seat 15 on the valve frame 13. Also secured to the shaft 23, at opposite ends, are upwardly, reaching arms 29 which are coupled, by means of horizontal links 30, with operating levers 31, the latter having fulcrum support at 32 on the ends of the machine casing 6, and being provided at their tops with grasp handles 33. As a consequence of this arrangement, the auxiliary valve 11 may obviously be operated from either end of the machine simply by pulling the handle 33, with attendant withdrawal of the valve 11 from the port 12 against the action of the weights 28.

In the use of the machine, the casing is charged with soap water to the level indicated at L in Fig. III and the drum, filled with clothes, is rotated in the usual manner to effect washing. After the lapse of the time period requisite to proper washing, the soap water is drained from the machine through the bottom outlet 9 as ordinarily. The machine is then filled with fresh hot water to the level indicated at L' in Fig. III and again set in motion for a time for the purpose of rinsing the clothes. After this has been accomplished, the auxiliary valve 11 is opened to permit discharge of the upper strata of the wash water with attendant disposal of all the floating insoluble scum which is thereby prevented from settling into the wash or adhering to the sides of the casing 6. After release of the scum as just explained, the bottom discharge outlet 9 is opened to completely drain the remaining rinse water from the machine.

From the foregoing it will be seen that my invention is highly advantageous in that it insures more clean and sanitary washing of clothes with use of a minimum amount of water and power in the process, and with material reduction in the idle periods of the machine between successive washings.

Having thus described my invention, I claim:

1. Scum drain means for a horizontal washing machine casing, including an elongate closure member cooperative with a longitudinal discharge port in the machine casing, said port being located at a level above the bottom of said casing, and extending along the casing; and means for moving the closure member toward and away from the port.

2. Scum drain means for a horizontal washing machine casing, including an elongate closure member cooperative with a longitudinal discharge port in the machine casing, said port being located at a level above the bottom of said casing; weight means for normally holding the closure member fluid tight over the port; and means for actuating the closure member.

3. Scum drain means for a horizontal washing machine casing, including an elongate closure member cooperative with a longitudinal discharge port in the machine casing, said port being located at a level above the bottom of said casing; means for definitely guiding the closure member in its movement toward and away from the port; and means for actuating the closure member.

4. Scum drain means for a horizontal washing machine casing, including an elongate closure member cooperative with a longitudinal discharge port in the casing, said port being located at a level above the bottom of said casing; means for engaging opposite ends of the closure member to guide it definitely incident to movement toward and away from the port; and means for actuating the closure member.

5. Scum drain means for a horizontal washing machine casing, including an elongate closure member cooperative with a longtiudinal discharge port in the casing, said port being located at a level above the bottom of said casing; means for definitely guiding the closure member incident to movement toward and away from the port; weight means to normally hold the closure member fluid tight in closed position over the port; and means for actuating the closure member in opposition to the weight.

6. Scum drain means for a horizontal washing machine casing, including an elongated closure member cooperative with a longitudinal discharge port in the machine casing, said port being located at a level above the bottom of said casing, means for definitely guiding the closure in its movement toward and away from the port, and means for actuating the closure member.

7. Scum drain means for a horizontal washing machine casing, including elongated closure means cooperative with longitudinal discharge port means in the machine casing, said discharge port means being located at a level above the bottom of the casing and being substantially coextensive therewith in length, and means for moving said closure means toward and away from said discharge port means.

8. Scum drain means for a horizontal washing machine casing, including elongated closure means externally seating over and movable relative to longitudinal discharge port means in the side of the machine casing, at a level above the bottom of the casing, and means for moving said closure means toward and away from said discharge port means.

CHARLES RIES.