Dec. 2, 1941. J. F. HUEBSCH 2,264,846

WASHING MACHINE

Filed May 2, 1940 3 Sheets-Sheet 1

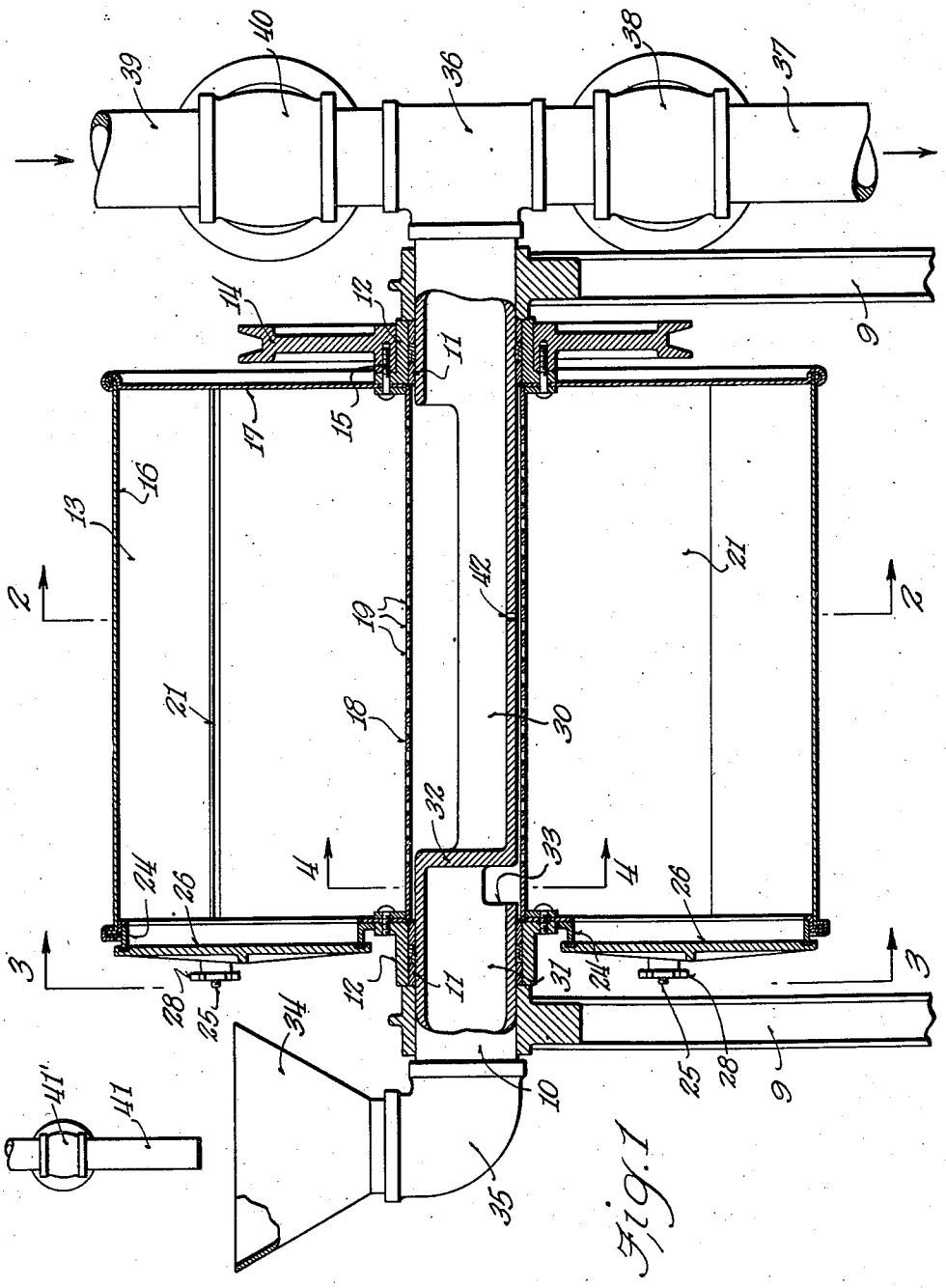


Fig. 1

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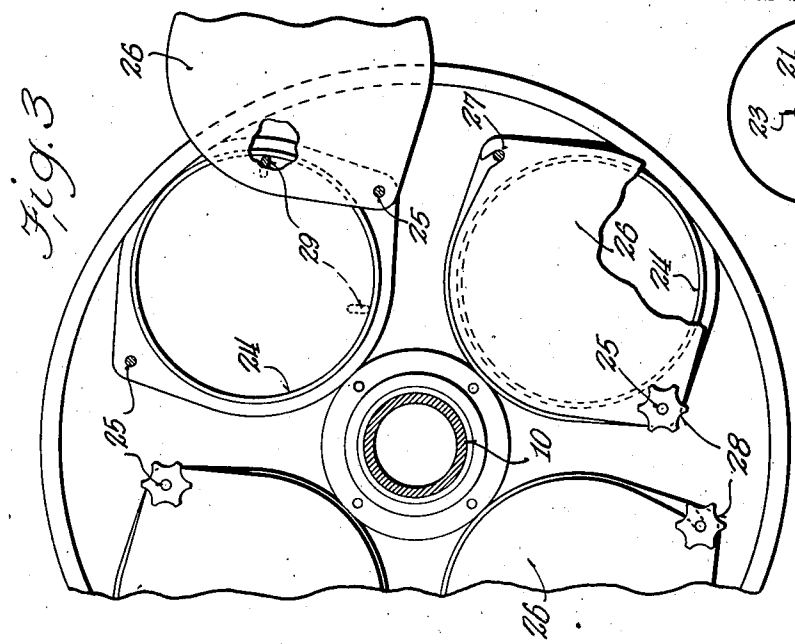
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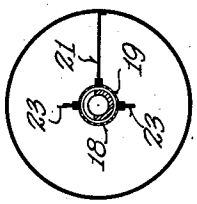
Charles Francke
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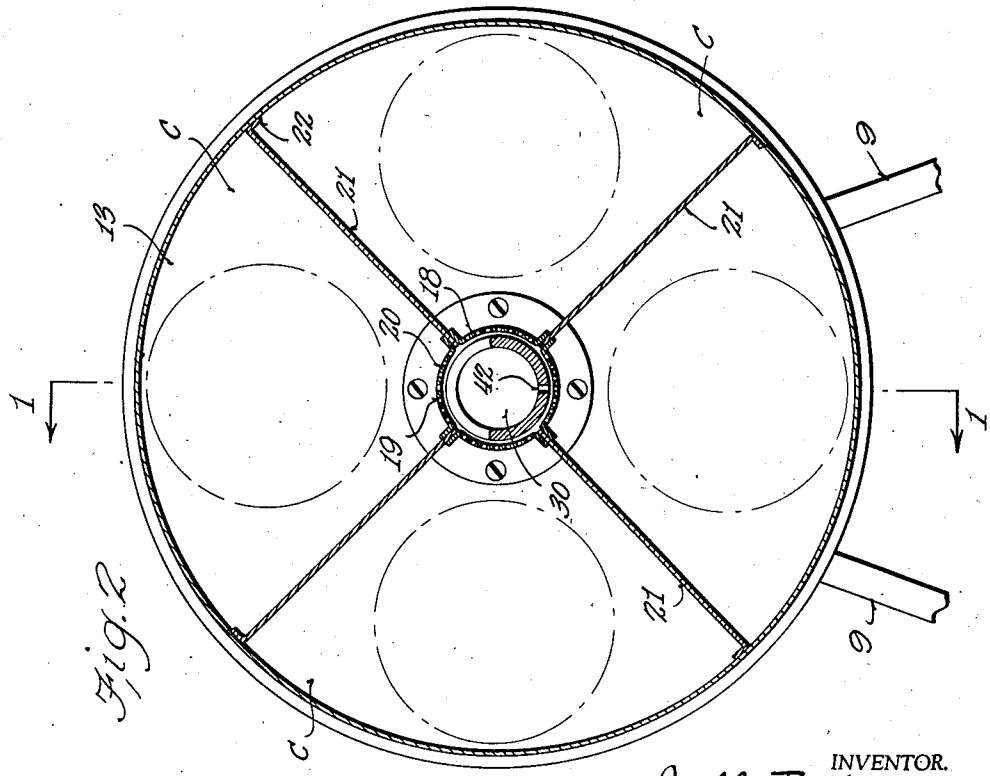
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WASHING MACHINE

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WASHING MACHINE

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Fig. 6

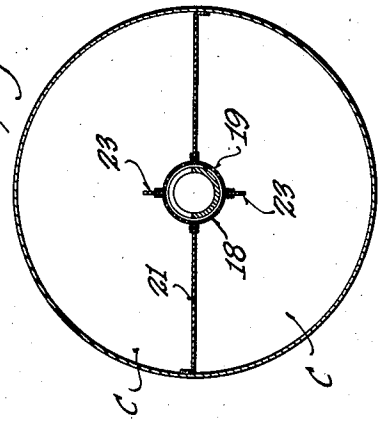


Fig. 8

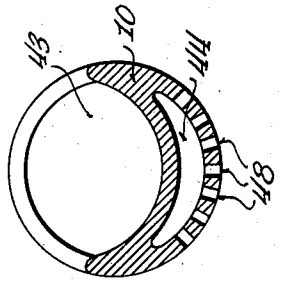


Fig. 5

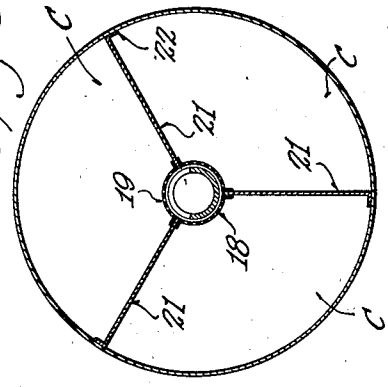


Fig. 7

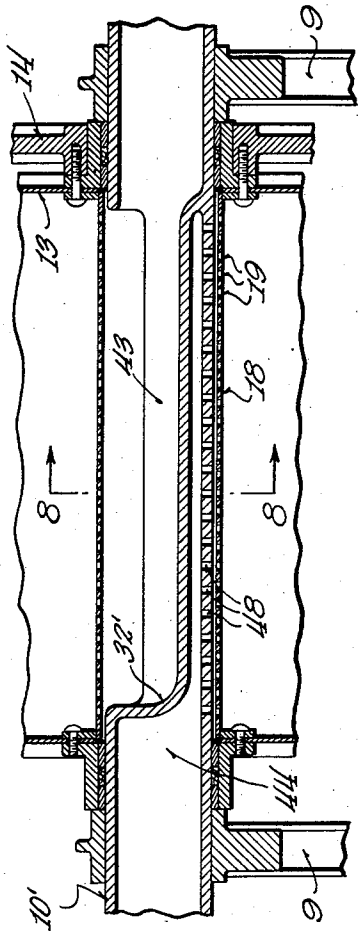
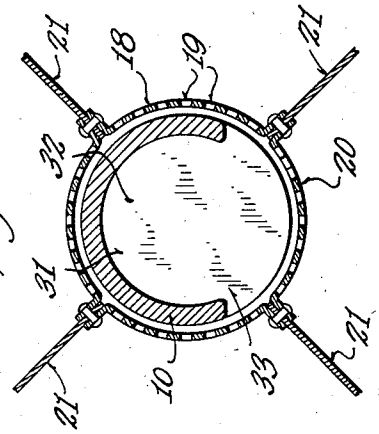


Fig. 4



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Patented Dec. 2, 1941 2,264,846

UNITED STATES PATENT OFFICE

2,264,846

WASHING MACHINE

Joseph F. Huebsch, Miami, Fla., assignor to Huebsch Manufacturing Company, Milwaukee, Wis., a corporation of Wisconsin

Application May 2, 1940, Serial No. 332,939

8 Claims. (Cl. 68—17)

The invention relates to laundry washing machines, and while of particular utility in a compartment type machine, is not necessarily limited thereto.

The main object of the invention is to provide a laundry washing machine of the above type in which the usual stationary outside shell has been eliminated and in which the introduction of water and washing materials is accomplished in a simple manner and in which the material being washed may be subjected to a continuous rinse if desired. More particularly, the invention embodies a supporting frame which includes a hollow transversely disposed member upon which the clothes carrying compartmented drum is mounted for rotation, this drum communicating with said member as herein after described whereby water and washing material may be readily introduced into the compartments of said drum and spent washing solution removed therefrom, the control of the introduction of the water and of the release of the spent washing solution or waste liquid being preferably from the same end of the machine.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings:

Fig. 1 is a vertical sectional view through a machine embodying the invention taken on the line 1—1 of Fig. 2;

Fig. 2 is a transverse vertical sectional view taken on the line 2—2 of Fig. 3;

Fig. 3 is a detailed transverse vertical sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a detailed vertical sectional view taken on the line 4—4 of Fig. 1;

Fig. 5 is a detailed sectional view through the drum of the machine showing certain modifications;

Fig. 6 is a view similar to Fig. 5 showing other modifications;

Fig. 7 is a detailed sectional view through the central hub structure of the machine showing certain modifications;

Fig. 8 is a detailed sectional view taken on the line 8—8 of Fig. 7;

Fig. 9 is a detailed sectional view similar to Fig. 5 through the drum of the machine showing certain modifications.

Referring to the drawings, the numeral 9 designates uprights forming part of a frame, and 10 a hollow transverse pipe-like member mounted at its end portions in said uprights and having bearing bushings 11 mounted thereon upon which the hub collars 12 of a laundry carrying drum 13 are rotatably mounted, one of the hub collars having a pulley 14 secured thereto by the drum bolts 15.

The drum 13 is a hollow cylindrical shell having its siding 16 and ends 17 formed of sheet metal and provided with a tubular center or drain board member 18 which is provided with a plurality of small drain openings 19. This central member may be formed of a plurality of segmental sections 20 joined together to form a tube, as shown in Figs. 2 and 4, and also riveted or otherwise suitably joined to the inner ends of sheet metal partitions 21 which at their outer edges 22 are secured to the periphery of the drum. The drum may have partitions 21 dividing it into a plurality of compartments C, for example four as shown in Figs. 1 to 4, three as shown in Fig. 5, and two as shown in Fig. 6. Where two partitions are used, stop members 23 extend radially outwardly from the central portion of the drum between the partitions to prevent undue shifting of the contents of the compartments formed by said partitions and to act as a drain to facilitate faster draining of the fluid when the device is in operation. The drum may also be formed to provide one large compartment as shown in Fig. 9, which construction is the same as Fig. 6 except one of the partitions 21 is omitted and the other partition acts as a lifting member to carry the laundry from a lower to an upper position during the washing operation. The apertured tube 18 at the center of the drum forms a protective screen over the inlet and drain passage formed by the pipe 10 as hereinafter described.

For providing access to each of the compartments, door-covered openings are provided at one end of the drum, said openings including a closure collar member 24 secured by screws 25 to the end portion of the drum and having the door 26 slidably mounted over the outer end thereof and pivoted at one end about one of the fastening screws 25 and the other end 27 being of hooked form and engageable with the other screw 25. Both of these ends are clamped or held in position by hand nuts 28. Loosening one of these nuts permits the cover to be swung to an open position, as shown in Fig. 3, in which position a lug 29 on said door engages the side of the collar member 24.

As shown in Figs. 1 to 6, the hollow member 10 is formed to provide two passages 30 and 31 separated by a partition 32. The passage 30 is cut away to about half its diameter on top to form

a trough which extends along the greater part of the length of the hub or central portion of the drum 13 which communicates with it through the screened tube 18. The passage 31 has a downwardly directed opening 33 for allowing a washing solution, introduced at its outer end from a vertically disposed funnel 34 or other suitable enlargement connected to said end by an elbow pipe fitting 35, to flow into the compartments in the drum through the openings 19 in its hub portion. The outer end of the passage 30 is connected to the center passage of a T-pipe fitting 36, one leg of the T connected to a waste pipe 37 directed downwardly and controlled by a suitable shut off valve 38, the other leg directed upwardly and connected to a water supply pipe 39 controlled by a suitable valve 40.

With this construction opening the valve 40 allows water to flow into passage 30 and from thence through the apertured segments 18 into the compartments of the drum, and introduction of washing supplies or materials, such as powdered soap, into the funnel 34 assisted by a stream of water from a pipe 41 controlled by a valve 41' and discharging into said funnel causes the washing supplies to be carried into the hub portion of the drum and into the compartments associated with said hub portion, it being noted that the tubular member 10 is spaced from the apertured tubular hub portion of the drum so that the washing solution will readily drain into the compartments of the drum as it revolves. It will also be noted that the passage 31 permits the release of air from the drum when water is being introduced into or drained from the compartments thereof. The passage or trough portion 30 is provided with a small drain opening 42 so as to prevent any accumulation of unused soap or supplies in the trough and to provide for the circulation and the draining of fluid in the trough, but this opening 42 is so small that it does not interfere with the ready draining of the waste solution or the rinse water through the passage 30 to the drain pipe 37 when the valve 38 is open. For draining the compartments it will be noted that when any of the compartments are disposed above the trough portion 30, the water or washing liquid therein will flow through the screened portion 18 into said trough, and then if the valve 38 is open, this liquid may be allowed to flow down the drain, and this action may take place while the drum 13 is revolving, and in this connection after the washing is completed, the valve 40 may be opened to admit fresh water into the compartments and thus rinse the clothes contained therein, and thereafter while the drum is revolving, the valve 38 may be opened to drain off this rinse water before opening the doors 26 to the compartments to remove the clothes therefrom.

In order to provide for a greater distribution of the washing supplies and rinse water through the tubular support for the drum I have shown in Figs. 7 and 8 a tubular support 10' whose separating partition 32' is formed to extend for almost the entire length of the drum to divide said support into the passages 43 and 44 which correspond in function to the passages 30 and 31 of the first described construction, it being noted that the bottom of the passage 44 is provided with a plurality of openings 45 through which the washing solution may flow into the then lower compartment C of the drum.

Where it is desired to operate the machine with a continuous rinse, the pipe 39 with its valve is not used, but the rinse water is introduced by opening the valve 41' and allowing water to flow through the pipe 41 into the funnel 34 and the connections heretofore mentioned so as to allow water to flow into the lower part of the drum either through the opening 33 or the apertured passage 44 while the rinse water is drained from the drum through the pipe 37, the valve 38 being open. Thus rinse water introduced into the clothes while passing below the support 10 is allowed to drain from the clothes into the trough 30 or 43 while the clothes are carried by the drum above said support, and in this connection the forms of the support shown in Fig. 8 wherein the apertured passage 44 extends across the drum for the greater portion of its length is of particular advantage in the distribution of the rinse water over the material in the drum.

It is also to be noted that during the washing operation as the drum revolves some of the water carried with the laundry to the upper portion of the drum will flow into the trough 30 or 42 and overflow the same and will then flow through the then lower sets of openings 19 into the lower portion of the drum so that the laundry at the lower portion of the drum is being continuously sprinkled with washing liquid.

It will also be noted that charging of the supplies into the drum may be accomplished while the drum is rotating and that opening or closing of the valves 40', 41', and 38 are under the control of the operator to respectively admit fresh or rinse water into the compartments or to allow the rinse water or waste water to drain therefrom.

The drive for the drum may be through any suitable source of power connected by belt with the pulley 14.

I desire it to be understood that this invention is not to be limited to any specific form or arrangement of parts except in so far as such limitations are contained in the claims.

What I claim as my invention is:

1. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support, a drum mounted to revolve about said support and provided with compartments, for the material to be washed, open at their inner ends for communication with the interior of said support, means dividing said support into spaces extending to opposite ends thereof, said spaces having outlet openings with which the inner ends of said compartments communicate as said drum revolves, means for introducing washing supplies into one of said spaces, means controlled by the operator for introducing fresh water into the other of said spaces, a valve controlled drain also in communication with said last named space, and means for rotating said drum.

2. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support having a partition dividing it into compartments communicating with opposite ends thereof, one of said compartments being open at the top and the other at the bottom, means connected with one of the ends of said support for introducing washing supplies into the compartment at the bottom, a water supply pipe and a water drain pipe connected to the outer end of the other compartment, valves for controlling said pipes, a compartmented drum, for receiving the material to be washed, journalled to revolve on said support and having a perforated hub portion, concentric with said sup-

port for establishing communication between the compartments in said drum and the openings to the compartments in said support.

3. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support adapted to provide a horizontally extending trough, a drum mounted to revolve about said support and provided with compartments, for the material to be washed, open at their inner ends for communication with and discharge into said trough as the drum revolves, means for revolving said drum, means for controlling the introduction of water into the compartments of said drum through said trough, and means for controlling the release of waste washing liquid from said trough.

4. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support extendable through a drum and beyond the same and adapted to provide a horizontally extending trough extending the greater length of the drum, a drum mounted to revolve about said support and provided with compartments, for the material to be washed, open at their inner ends for communication with and discharge into said trough as the drum revolves, means for revolving said drum to permit the uppermost compartment to drain into said trough, and means for controlling the release of waste washing liquid from said trough.

5. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support having a partition dividing it into upper and lower compartments extending lengthwise of said support, the upper compartment being open at its top to form a trough, the lower compartment having an apertured bottom, a drum mounted to revolve about said support and provided with compartments, for the material to be washed, open at their inner ends for communication with the compartments in said support as the drum revolves, means for rotating said drum, means for supplying washing supplies to the lower compartment, means controlled by the operator for introducing fresh water into said trough, and a valve controlled drain also communicating with said trough.

6. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support having an opening in its side to the interior thereof, a drum, for the material to be washed, mounted to revolve about said support and having a hub strainer means communicable through said opening with the interior of said support, means dividing said support into spaces communicating respectively with the upper and lower portions of the drum and extending to the opposite ends thereof, means controlled by the operator for introducing water into the space communicating with the lower portion of the drum, and means controlled by the operator for draining waste liquid from the space in said support communicating with the upper portion of the drum.

7. In a washing machine, the combination of a supporting frame including a hollow horizontally disposed support having a partition dividing it into upper and lower compartments extending lengthwise of said support, a drum, for the material to be washed, mounted to revolve about said support and having a hub portion formed to allow washing liquid to pass between said drum and said support as the drum revolves, the upper compartment being open at its top to form a trough extending substantially the length of the axis of the drum, the lower compartment having an apertured bottom extending substantially the length of the axis of the drum, means for rotating said drum, means controlled by the operator for introducing water into the compartment communicating with the lower portion of the drum, and means controlled by the operator for draining waste liquid from the compartment in said support communicating with the upper portion of the drum.

8. In a washing machine, the combination of a supporting frame including a pipe partitioned near one end and apertured to form an upwardly opening trough extending the greater proportion of the length of said pipe and a downwardly opening passage, a drum, for the materials to be washed, mounted to revolve about said pipe and having a perforated hub portion surrounding said pipe at its trough portion and said passage, means for revolving said drum to permit the uppermost portion of said drum to drain into said trough, means for controlling the release of waste liquid from said trough, and means for supplying liquid to said downwardly opening passage.

JOSEPH F. HUEBSCH.