

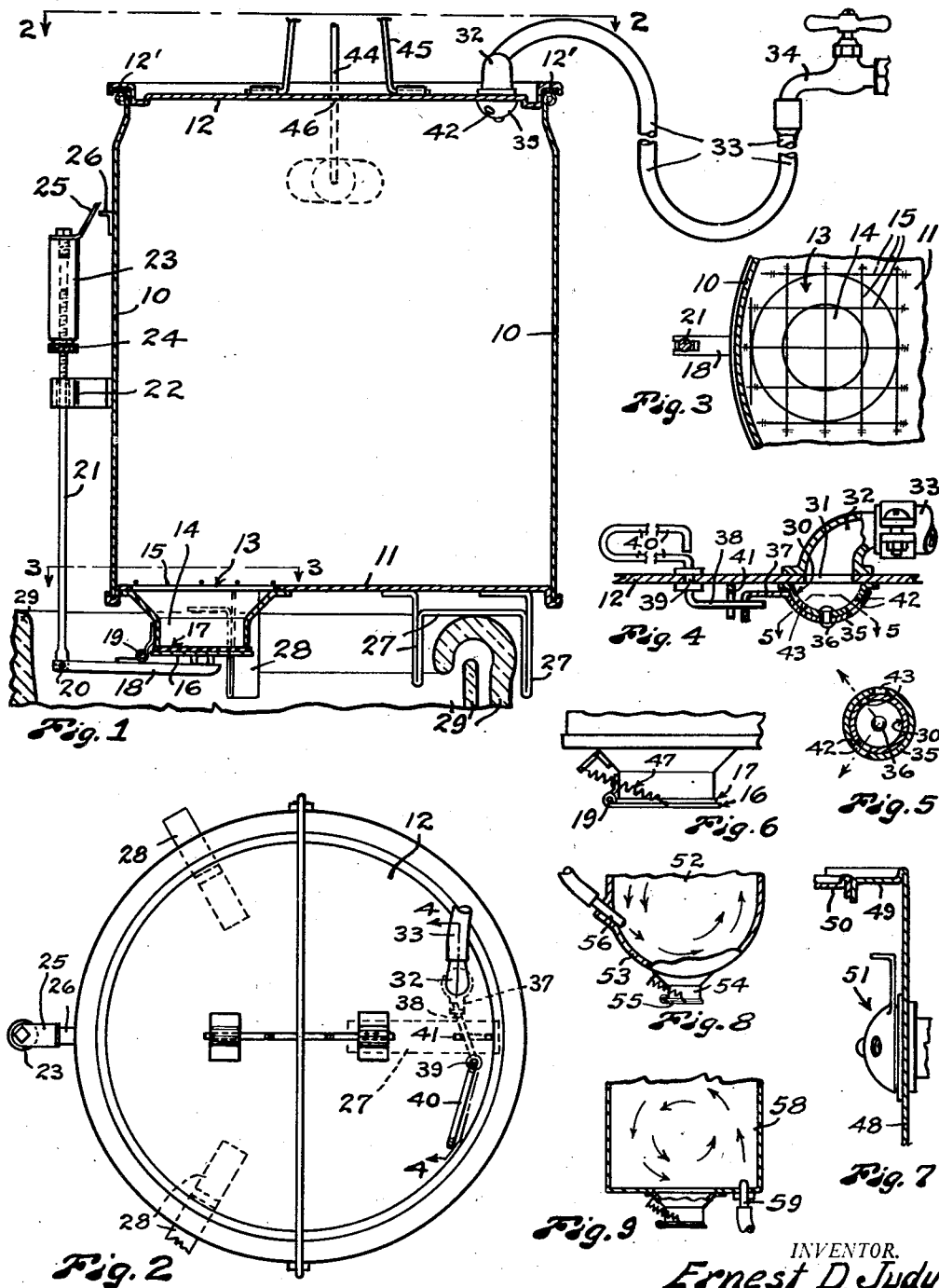
Sept. 14, 1943.

E. D. JUDY

2,329,623

CLOTHES WASHER

Filed Oct. 24, 1939



INVENTOR.
Ernest D. Judy
BY *Fred G. Matheny*
ATTORNEY

UNITED STATES PATENT OFFICE

2,329,623

CLOTHES WASHER

Ernest D. Judy, Port Angeles, Wash., assignor of
one-third to Henry S. Labisky, Seattle, Wash.

Application October 24, 1939, Serial No. 300,951

7 Claims. (Cl. 68—181)

This invention relates to clothes washers.

An object of this invention is to provide an efficient and inexpensive portable clothes washer especially designed for washing infants' garments such as diapers and like apparel.

Another object is to provide a clothes washer of this type which has means for supporting it over a water closet bowl and which has discharge means positioned to discharge into the bowl and adapted for the continuous discharge of water and solids that are washed or rinsed out of the clothes in the washer.

Another object is to provide a clothes washer of this type that is free from agitators and like mechanical operating parts and in which the clothes are washed and rinsed and agitated in the washer solely by the action of one or more jets of water delivered into the washer in such a manner as to impart a rotary or tumbling motion to the clothes therein.

Another object of the invention is to provide a clothes washer of this type having a discharge valve normally adapted to be opened by water pressure within the machine but which may be fastened in a closed position if desired.

Another object is to provide means for selectively directing jets of water of different size into the washer.

Another object is to provide a clothes washer of this type that may be used as a receptacle to receive soiled garments which may then be conveniently washed in said receptacle without further handling and without mixing them with other clothes, and further, to provide a clothes washer of this type that is sanitary and substantially odor proof when in use.

Other objects will be apparent from the following description and appended claims.

In the accompanying drawing:

Figure 1 is a view in vertical section of a clothes washer constructed in accordance with this invention, parts being shown in elevation.

Fig. 2 is a plan view looking down on the same in the direction indicated by arrows 2—2 of Fig. 1.

Fig. 3 is a fragmentary view partly in plan and partly in section taken substantially on broken line 3—3 of Fig. 1.

Fig. 4 is a fragmentary sectional view on a larger scale than Fig. 1, taken substantially on broken line 4—4 of Fig. 2 and showing water jet control means.

Fig. 5 is a sectional view on broken line 5—5 of Fig. 4.

Fig. 6 is a fragmentary elevation showing an application of spring means instead of weight means for counterbalancing a valve.

Fig. 7 is a fragmentary sectional view showing a modified form of container and cover therefor and showing water jet delivery means connected with the side of the container instead of with the cover.

Fig. 8 is a fragmentary sectional view of a modified form of clothes washer in which the clothes are caused by the force of the water jets to rotate or tumble about a substantially horizontal axis.

Fig. 9 is a fragmentary sectional view of another modified form of the invention in which the clothes rotate about a horizontal axis.

Like reference numerals designate like parts throughout the several views.

This clothes washer comprises a receptacle having side walls 10, a bottom 11, and a removable cover 12.

The bottom 11, has an opening 13 therein that communicates with the interior of a sump 14. The opening 13 is preferably positioned to one side of the center of the receptacle. The sump 14 is preferably of smaller diameter at the lower end and has an expanding upper end portion that registers with the opening 13. Preferably a coarse screen 15, or like guard member, is provided over the opening 13 to prevent pieces of cloth in the machine from dropping into the sump. I find that a screen 15 of about one inch mesh is suitable for this purpose.

A flap valve 16 having a gasket 17 of sealing material such as rubber is secured to a lever arm 18 and adapted to close the lower end of the sump 14. The lever arm 18 is pivoted by hinge means 19 to the housing of the sump 14. The outer end of the lever arm 18 is connected by a pivot 20 with an upright rod 21 that extends through a loosely fitting guide 22 and has a weight member 23 removably threaded onto the upper end portion thereof. A lock nut 24 is provided to hold the weight member 23 in different adjusted positions. 25 is a spring latch member secured to the upper end portion of the weight member 23 and adapted to be engaged beneath a lug 26 on the side 10 of the washer. When the clothes washer is in use the spring latch member 25 will ordinarily be disengaged as respects the lug 26 and the rod 21 will be free to move up and down to allow the flap valve 16 to be opened by the pressure of the water thereon. If the spring latch member 25 is manually engaged with

the lug 26 the valve 16 will be held closed thus preventing any discharge from the sump 14.

The head of water required to open the valve 16 will depend on the weight of the member 23 and different weights may be used in accordance with the head to be maintained. Adjustment of weight member 23 up and down on rod 21 provides for positioning the spring latch 25 so that the valve 16 will be held tightly closed when the latch member 25 is engaged under the lug 26.

In Fig. 6, I have shown a tension spring 47 applied to the flap valve 16 in such a manner as to yieldingly urge said valve closed and at the same time allow said valve to be opened by a predetermined water pressure.

To facilitate supporting this clothes washer on a water closet bowl so that the discharge from the sump 14 will be into the bowl, a bracket 27 of inverted U shape and two other brackets 28 of inverted L shape are provided at angularly spaced intervals on the bottom 11 of the receptacle. A fragment of a water closet bowl 29 is shown in Fig. 1. The U shaped bracket 27 fits over the front portion of this bowl 29 and the L shaped brackets 28 engage within and rest on said bowl. These brackets 27 and 28 serve as legs to support the washer when it is placed on a flat surface.

Devices are provided for directing one or more jets of water into the clothes receptacle in a downwardly inclined generally tangential direction to thereby loosen up and agitate the clothes and to impart a rotary movement to the clothes in the clothes receptacle. These jet devices preferably include means for selectively directing water jets in opposite directions to provide for reversing the direction of travel of the clothes.

Various different types of jet control means may be used. One type that I have operated successfully is shown in Figs. 1, 2, 4 and 5. It comprises a semi-spherical shell 30 secured to the under side of the cover 12 in registration with an opening 31 in said cover. The opening 31 communicates with a fitting member 32 on the outer side of the cover. The shell 30 and fitting member 32 are welded or soldered or otherwise fixedly secured to the cover 12. A flexible liquid conduit hose 33 is provided for connecting the fitting 32 with a source of supply of water under pressure as with a faucet 34.

Another semi-spherical shell member 35 is mounted for oscillation on the shell 30 by suitable pivot means such as rivet 36 and is adapted to be angularly moved by a lever 37 that engages with an arm 38 on the shell 35. The lever 37 has a fulcrum portion 39 pivoted in the cover 12 and has a handle portion 40 external to the cover by which it may be turned to oscillate the outer shell 35 on the inner shell 30. Stop means 41 is provided for limiting angular movement of the lever in both directions.

Two larger jet openings 42 are provided in the shell members 30 and 35 at one side of a plane passing through the center of the shell members and the center of the receptacle, see Figs. 4 and 5, and two smaller jet openings 43 are provided in said shell members at the opposite side of said plane. Angular movement of shell member 35 will selectively position either set of jet openings in registration and will close the other set of jet openings. When jet openings 42 are in registration they will direct a jet of water at a downward angle and in a generally tangential direction into the clothes receptacle to produce rotation of water and clothes in one direction. Similarly,

when jet openings 43 are in registration and jet openings 42 closed a jet of water will be directed at a downward incline and tangentially in an opposite general direction to produce rotation of the water and clothes in an opposite direction. The openings 42 and 43 preferably are positioned so that when the shell member 35 is moved from one position to the other position one set of said openings will begin to open before the other set of said openings is completely closed thereby preventing the building up of high water pressures in the shell 30 and hose 33.

The lines along which the jets of water are directed may vary considerably as long as the jets are directed downwardly onto the clothes and sufficiently to one side of the center of the receptacle to produce rotation of the water and clothes.

Directing the water downwardly helps to drive solids to the bottom of the receptacle. The water and clothes rotate about the upright central axis of the receptacle and the sump 14 is positioned in the bottom and preferably at a point removed from the center and is in the path of the solid matter which will tend to move toward the outer walls of the receptacle and will collect in the sump.

Preferably the clothes receptacle is of less diameter at the top and so that the rotating water will be less liable to tend to spill over the top of said receptacle. Also the cover 12 preferably has a gasket 12' that seats on the top edge of the receptacle and said cover is held down by suitable means such as a bail 44 on the receptacle that engages with a folding hold down member 45 on the cover as shown in Fig. 2.

A small air vent opening 46 is preferably provided in the cover 12 to relieve air pressure in the container.

In Fig. 7, I have shown certain modifications of the invention in which a clothes receptacle 48, corresponding to the receptacle 10-11 of Figs. 1 to 5, is provided at its upper end with a lip 49 that extends inwardly and then downwardly to form a baffle for intercepting water that tends to rise along the side of the container and to provide means for receiving a lid 50 which fits tightly therein and is retained in place by friction. Also Fig. 7, shows a jet control means, indicated generally by 51, carried by the upper portion of the receptacle instead of by the cover. The jet control means 51 is not described in detail as it is similar to the jet control means of Figs. 1 to 5 except that the operating lever is omitted and jet control means 51 is moved from one position to another by reaching into the receptacle 48 grasping the device with the fingers and adjusting it.

In Fig. 8, I show a modified form of this washer comprising a receptacle 52 having a rounded bottom portion 53 provided with a sump 54 that has a pressure operated dump valve 55. Water jet delivery means 56 are directed into the lower portion of the receptacle 52 in such a manner that when one or more jets of water are discharged therefrom the clothes and water in the receptacle 52 will be given a rotary motion about a horizontal axis as indicated by the arrows and the clothes thereby agitated and washed while the solids together with water will be discharged from the valve 55.

Fig. 9 shows a modified form of the invention similar to Fig. 8, except that the bottom of the receptacle 58 thereof does not need to be rounded but may be of any shape and a jet means 59 is directed upwardly through the bottom of the

receptacle 58, preferably to one side of the center of the same to produce rotation of the water and clothes as indicated by the arrows.

In the operation of this clothes washer the soiled diapers or like articles, usually each rolled or folded up, are placed in the clothes receptacle and the washer positioned on a water closet bowl or the like so that the discharge from the sump 14 will be taken care of. With the latch member 25 disengaged and the proper water supply connections made, preferably cold water under pressure is first admitted to tumble and agitate the garments and loosen therefrom substantially all solid matter. This solid matter will settle into the sump 14 and be discharged past the valve 16. Preferably the larger jet openings 42 are used first, and the smaller jet openings 43 may be used alternately with the larger openings 42 to reverse the direction of movement of the clothes and water in the receptacle. After washing in this way long enough to remove and discharge all solids, the cold water will be shut off, the cover 12 removed, soap introduced into the clothes receptacle and hot water admitted through the smaller jet openings to complete the washing. All wash water may then be drained out of the clothes receptacle by manually holding the flap valve 16 open, after which the clothes may be rinsed by admitting more water and will be ready to wring and dry when they are taken out of the machine.

If it is desired to soak the clothes at any time the flap valve may be latched in a closed position and water introduced into the receptacle.

The washer will operate in substantially the same manner as hereinbefore described if the jet control means enters through the side of the clothes receptacle, as shown in Fig. 7.

The washer shown in Fig. 8, operates in substantially the same manner except that the clothes rotate about a horizontal axis.

The foregoing description and accompanying drawing clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that changes may be made within the scope and spirit of the following claims.

I claim:

1. A clothes washer for washing clothes carrying solid matter comprising a clothes receptacle of generally cylindrical shape; water inlet means positioned to direct water into said clothes receptacle in a generally tangential direction to thereby set up and maintain a whirling motion of the water in said receptacle; a discharge opening in the bottom portion of said receptacle positioned in the path of the whirling water therein; a pressure operated discharge control valve for said discharge opening; and means yieldingly urging said discharge control valve closed whereby said discharge control valve will be opened by pressure of the water thereon to provide for a discharge of solid matter carried by the water.

2. A clothes washer for washing clothes carrying solid matter comprising a clothes receptacle of generally cylindrical shape; water inlet means positioned to direct water into said clothes receptacle in a generally tangential direction to thereby set up and maintain a whirling motion of the water in said receptacle; an open topped sump in the bottom portion of said receptacle near the periphery thereof in the path of solid matter moving with the water in the lowermost peripheryward portion of said receptacle, whereby said solid matter will be caught in said sump; and

and pressure operated discharge control valve means in the bottom portion of said sump arranged to be opened by pressure thereon of water in the receptacle to provide for discharge of solid matter from said sump during the operation of the washer.

3. A clothes washer for washing clothes carrying solid matter comprising a clothes receptacle of generally cylindrical shape; water inlet means positioned to direct water in two substantially opposite generally tangential directions into the upper portion of said receptacle to selectively rotate liquids and solids in said receptacle first in one direction and then in an opposite direction; control means for said water inlet means controlling the direction of the discharge of water therefrom and thereby providing for reversal of the direction of whirl of the liquids and solids in said receptacle; an open topped sump in the bottom portion of said receptacle near the periphery thereof in the path of solid matter moving with the water in the lowermost peripheryward portion of the receptacle whereby said solid matter will be caught in said sump; a pressure operated discharge control valve in the bottom portion of said sump; and means yieldingly holding said discharge control valve closed whereby said valve will be opened by pressure thereon of the water in said receptacle to provide for a discharge of solid matter therefrom.

4. A clothes washer for washing clothes carrying solid matter comprising a clothes receptacle of generally cylindrical shape; water inlet means positioned to direct water in two substantially opposite generally tangential directions into the upper portion of said receptacle to selectively rotate liquids and solids in said receptacle first in one direction and then in an opposite direction; control means for said water inlet means controlling the direction of the discharge of water therefrom and thereby providing for reversal of the direction of movement of the liquids and solids in said receptacle; a discharge opening in the bottom portion of said receptacle near the periphery thereof in the path of movement of solid matter that is moving with the water in the lowermost peripheryward portion of said receptacle; a pressure operated discharge control valve for said discharge opening; and means yieldingly holding said discharge control valve closed whereby said discharge control valve will be opened by pressure thereon of the water in said receptacle to provide for a discharge of solid matter during the operation of the washer.

5. A clothes washer for washing clothes carrying solids comprising a tub of generally cylindrical shape; continuous water supply means constructed and arranged to impart rotary motion to the contents of said tub to separate the solids from the clothes and cause said solids to move rotatively in the bottom portion of said tub adjacent the periphery thereof; an open topped sump in the bottom portion of said tub adjacent the periphery thereof in the path of said rotatively moving solids; a pressure operated discharge control valve for solids and water in the bottom portion of said sump; and yieldable valve closing means yieldingly urging said pressure operated discharge control valve closed, said valve closing means being yieldable to a pressure on said valve of a head of water in said tub less than the depth of said tub providing for the escape of solids past said valve and maintaining the water level in said tub below the top of said tub.

6. A clothes washer for washing clothes carrying solids comprising a tub of generally cylindrical shape; continuous water supply means constructed and arranged to impart rotary motion to the contents of said tub to separate the solids from the clothes and cause said solids to settle to the bottom of said tub and move rotatively therein near the periphery of the tub; a discharge opening in the bottom portion of said tub adjacent the periphery thereof in the path of said rotatively moving solids; a pressure operated discharge control valve for solids and water positioned to close said opening; and yieldable valve closing means yieldingly urging said pressure operated discharge control valve closed, said valve closing means being yieldable to a pressure on said valve of a head of water in said tub less than the depth of said tub providing for the escape of solids past said valve and maintaining the water level in said tub below the top of said tub.

7. A clothes washer for washing clothes carrying

solids comprising a tub of generally cylindrical shape; continuous supply directionally reversible water inlet means connected with said tub, constructed and arranged to impart reversible rotary motion to the contents of said tub to separate the solids from the clothes and to move said solids rotatively in the bottom portion of the tub adjacent the periphery thereof; an open topped sump in the bottom portion of said tub adjacent the periphery thereof in the path of said rotatively moving solids; a pressure operated discharge control valve for solids and water in the bottom portion of said sump; and yieldable valve closing means yieldingly urging said pressure operated discharge control valve closed, said valve closing means being yieldable to a pressure on said valve of a head of water in said tub less than the depth of said tub providing for the escape of solids past said valve and maintaining a water level in said tub below the top of said tub.

ERNEST D. JUDY.