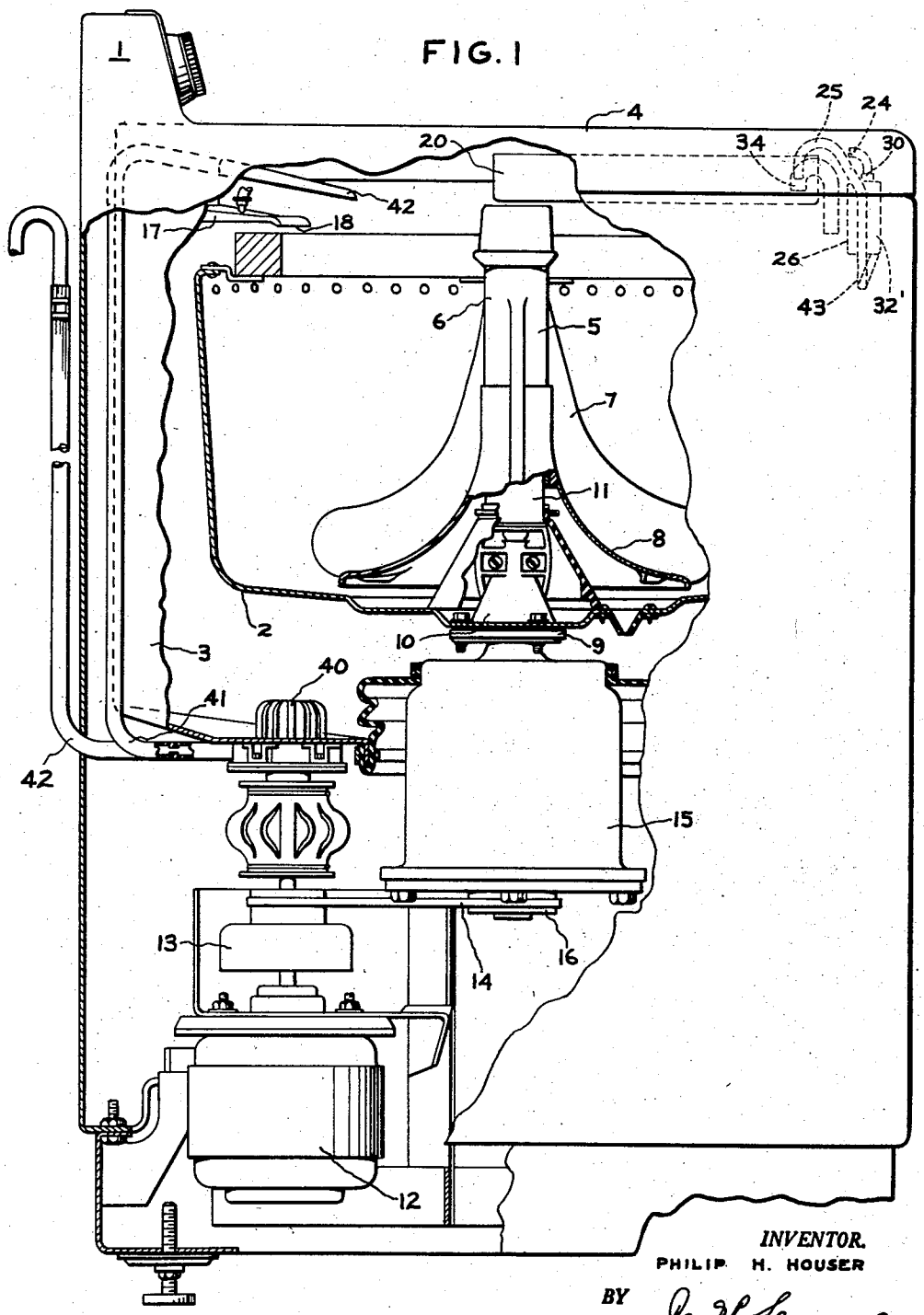
April 21, 1959 P. H. HOUSER 2,882,707

SYPHON ARRANGEMENT FOR CLOTHES WASHING MACHINE
RINSING AGENT DISPENSER

Filed Jan. 6, 1958 4 Sheets-Sheet 1

FIG. 1



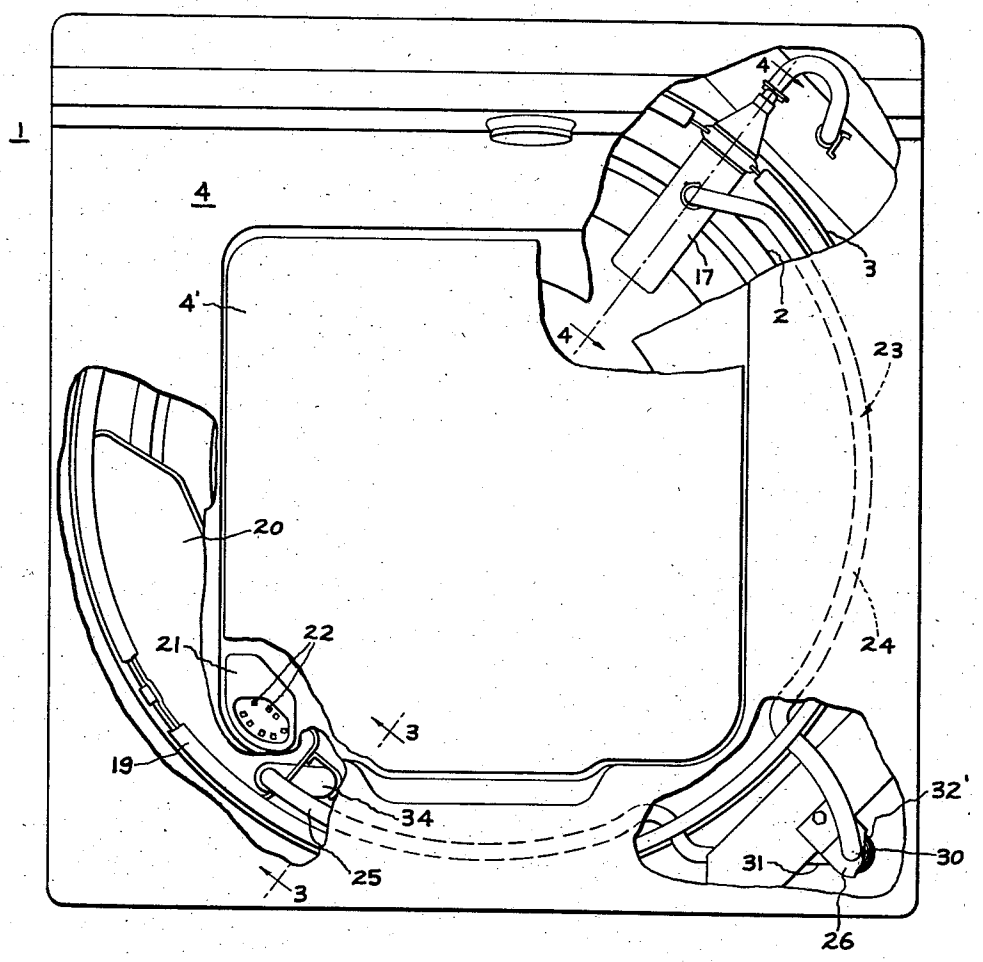
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SYPHON ARRANGEMENT FOR CLOTHES WASHING MACHINE
RINSING AGENT DISPENSER

Filed Jan. 6, 1958 4 Sheets-Sheet 2

FIG. 2



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SYPHON ARRANGEMENT FOR CLOTHES WASHING MACHINE
RINSING AGENT DISPENSER

Filed Jan. 6, 1958 4 Sheets-Sheet 3

FIG. 3

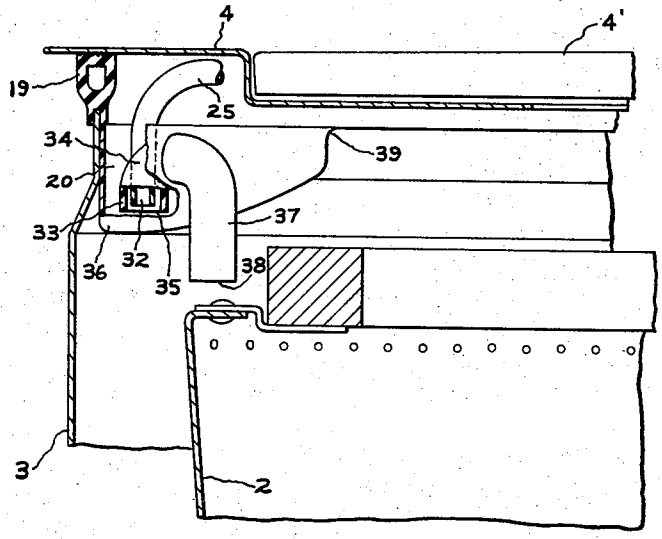
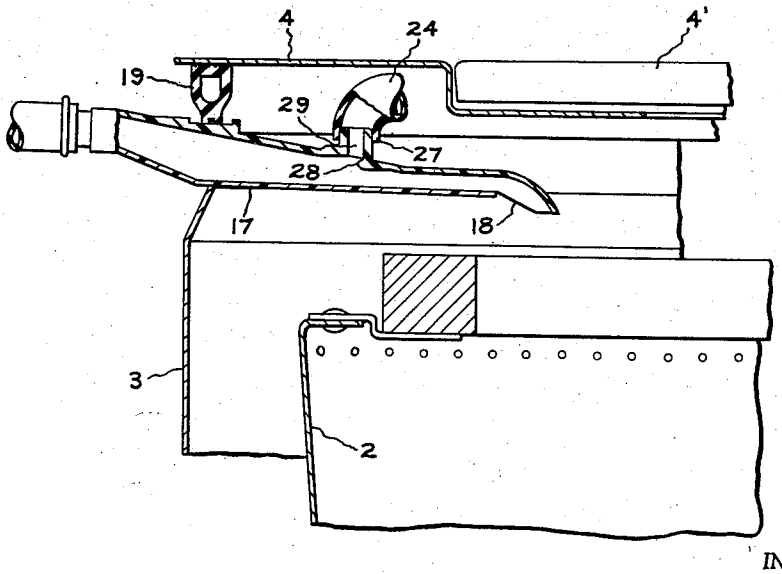


FIG. 4



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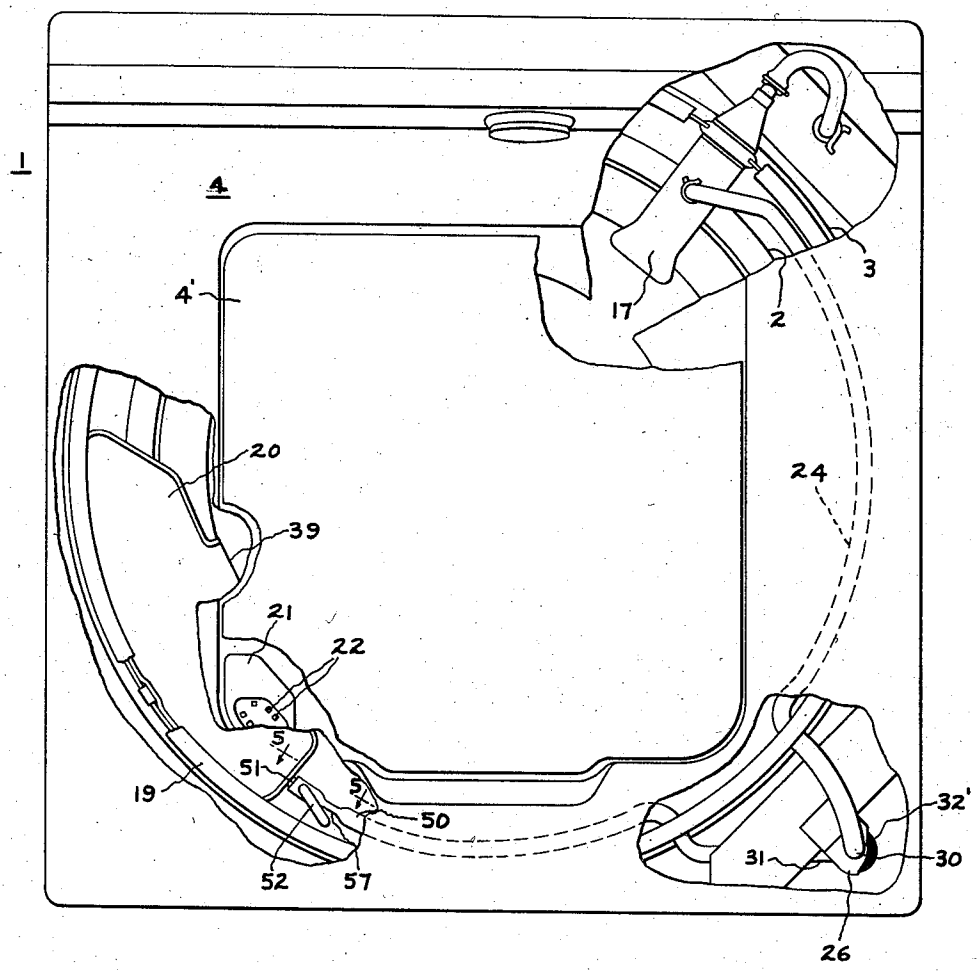
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SYPHON ARRANGEMENT FOR CLOTHES WASHING MACHINE
RINSING AGENT DISPENSER

Filed Jan. 6, 1958 4 Sheets-Sheet 4

FIG. 6



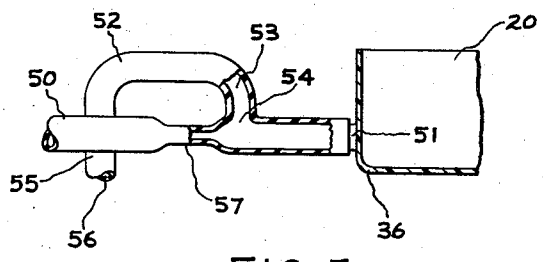


FIG. 5

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United States Patent Office 2,882,707
Patented Apr. 21, 1959

2,882,707

SYPHON ARRANGEMENT FOR CLOTHES WASHING MACHINE RINSING AGENT DISPENSER

Philip H. Houser, Louisville, Ky., assignor to General Electric Company, a corporation of New York

Application January 6, 1958, Serial No. 707,372

7 Claims. (Cl. 68—207)

This invention relates to automatic washing machines of the type which provide for automatically introducing a rinsing agent into the clothes basket of the machine at the proper time, and more particularly to such machines where a syphon arrangement is used to empty the receptacle used for the rinsing agent.

Automatic clothes washing machines customarily proceed through a sequence of operations in order to wash, rinse and dry the clothes. The sequence ordinarily includes a washing operation, a first liquid extraction operation, a rinse operation in which the clothes are rinsed in clean water, and a final extraction operation in which the rinse water is removed from the clothes. Depending upon the type of machine, the action within any given operation may be slightly different, as for example, some machines include a two stage initial extraction operation in order to avoid suds locking of the basket, and other machines include a spray rinse during the rinsing operation in addition to the customary submersion rinse. But the general sequence of washing, extracting, rinsing and then extracting again is used in almost all automatic washing machines.

In order to obtain the most desirable results from these machines it has been found advantageous that a treating agent be added to the rinse water during the rinsing operation. Various treating agents such as water softeners and fabric softeners, hereinafter referred to generally as rinsing or rinse agents, may be added to the rinse water to produce different results. If a water softener is added, a better rinsing action is obtained leaving less detergent in the clothes. The water softener removes mineral constituents in the rinse water which would otherwise react with part of the detergent and retain it in the clothes. As a result, less graying and yellowing of the clothes occurs. If a fabric softener is added to the rinse water, a softer feeling is imparted to the clothes, the softener leaving a film on the clothes and making them easier to iron. Further, there is a tendency with such softeners to prevent electrostatic charges from being formed on synthetic fabrics.

In an automatic washing machine, it is of course desirable that the rinsing agent be added automatically, that is, that the rinsing agent be introduced into the clothes basket from a suitable receptacle within the machine housing at the proper time during the washing operation without the operator at that time having to do anything additional. A suitable arrangement for achieving this result is described and claimed in application Serial Number 692,075, filed on October 24, 1957, by William R. Buechler, and assigned to the General Electric Company, the assignee of the present invention. In that application, the specific machine illustrated shows the use of a syphon in order to conduct a mixture of liquid and rinse agent at the proper time from the rinse agent receptacle to the basket and tub. In order to be fully effective, a syphon must have the leg in communication with the receptacle extending down quite close to the bottom of the receptacle so that most of the liquid in the receptacle will

have been removed before the flow is broken by air being permitted to enter the syphon. Because the rinse agents presently available are generally of a rather viscous nature in their pure form, and tend to leave deposits, the fact that the syphon necessarily has its opening adjacent the lowest part of the receptacle has been found to result in undesirable clogging around the opening of the syphon. In addition, while it is quite desirable to have the mixture of rinse agent and water imparted directly onto the clothes to start with, the dregs of the agent from the bottom of the receptacle may do more harm than good if directly released onto the clothes.

Accordingly, it is an object of this invention to provide a new and improved rinse agent dispenser which includes a novel syphoning arrangement which permits the automatic dispensing of rinse agent without undesirable clogging of the opening of the syphon.

The invention further provides as one of its objects the provision of a construction which will afford a flow of rinse agent mixed with water directly onto the clothes and will at the same time cause dregs in the rinse agent receptacle to be flushed out, but not directly onto the clothes.

Yet another object of the invention is to provide a dispenser of the type where the dispenser is substantially completely emptied through a syphoning arrangement without any possibility of undesirable clogging building up, so that the completely automatic nature of the device is retained without the difficulties previously encountered.

In one aspect of this invention, I provide a washing machine having an automatically controlled cycle which includes washing and rinsing operations and a container in which the articles to be washed are to be retained during these operations. Cleaning and rinsing liquid supply means are provided also and include a conduit which extends into cooperative relation with the container to supply liquid thereto. A receptacle for a suitable rinse agent is positioned above the container and a second conduit is provided which communicates at one end with the supply conduit and at the other end with the receptacle. The first end of the second conduit is arranged in the supply conduit so as to divert part of the flow of liquid in it, and cause flow through the second conduit when flow is provided through the first conduit. Valve means are provided in the second conduit so as to make the flow therethrough dependent upon the position of the valve means. The valve is closed for the washing operation and is open for the rinsing operation so that during rinsing the liquid flows into the receptacle and mixes with the rinse agent provided therein.

In order to get the mixture substantially completely out of the receptacle there is provided a tube member which is formed into a syphon, with its short leg extending into communication with the receptacle and its long leg extending into cooperative relation with the container so as to supply liquid thereto. In accordance with my invention, the other end of the second conduit is arranged to be in communication with the short leg of the syphon, i.e., flow from the conduit serves to clean off the inlet of the syphon. With this construction, the opening, or inlet, of the short leg of the syphon is cleaned off and the dregs are flushed away by the force of the liquid each time that liquid is brought into the second conduit. When no liquid is being brought into the second conduit, it is closed so as to be sealed and thereby permit the syphon to function in its accustomed manner. With this arrangement, while the conduit does not interfere with the proper operation of the syphon it does have the positive effect of cleaning off the opening of the syphon and cleaning out the bottom of the receptacle adjacent the syphon so that clogging is substantially inhibited.

The features of the invention which are believed to be novel are set forth with particularity in the appended claims. The invention itself however, both as to organization and method of operation together with further objects and advantages thereof may best be understood by references to the following description taken in connection with the accompanying drawing.

In the drawings:

Fig. 1 is a side elevational view of a clothes washing machine including a rinse agent dispenser having my novel syphon arrangement, the view being partially broken away and partially in section in order to show details;

Fig. 2 is a plan view of the washing machine of Fig. 1 including the improved syphon arrangement, also partly broken away to show details;

Fig. 3 is an enlarged view along line 3—3 in Fig. 2;

Fig. 4 is an enlarged sectional view along line 4—4 in Fig. 2;

Fig. 5 is a fragmentary sectional view illustrating a second embodiment of the invention; and

Fig. 6 is a plan view of a washing machine including the embodiment of Fig. 5, partly broken away to show details, and drawn to a smaller scale than is Fig. 6.

Referring now to Fig. 1, I have shown therein an agitator-type clothes washing machine 1 having a clothes basket 2 disposed within an outer imperforate tub or casing 3, the tube and basket together forming, in effect, a container for the clothes and washing liquid. The tub 3 is mounted within an appearance cabinet 4 which includes a hinged cover 4 (Fig. 2) for providing access to the clothes basket. At the center of basket 2 there is positioned a vertical axis agitator 5 which includes a center post 6 and a plurality of radially extending vanes 7. The agitator is further provided with an outwardly and downwardly flared skirt 8 to which the vanes 7 are joined at their lower ends.

Both the clothes basket 2 and agitator 5 are rotatably mounted. The basket is mounted on a flange 9 of a rotatable hub 10 and the agitator 5 is mounted on a shaft which extends upwardly through portion 11 of hub 10 and center post 6. The agitator is secured to the shaft by any suitable means (not shown). During the cycle of operation of machine 1 the agitator is first oscillated back and forth within basket 2 to wash the clothes therein, then after a predetermined period of this washing action the basket is rotated at high speed to extract centrifugally the washing liquid and discharge it into the outer tub 3. Following this extraction operation, a supply of clean liquid is introduced into the wash basket for rinsing the clothes, and the agitator is again oscillated. Finally, the basket is once more rotated at high speed to extract the rinse water and discharge it into the outer tub. The basket 2 and agitator 5 may be driven by any suitable means as the drive means forms no part of the present invention. However by way of example, I have shown them as driven from a reversible motor 12 which drives the basket and the agitator through a drive including a clutch 13 mounted on the motor shaft. The clutch allows the motor to start without load and then picks up the load as it comes up to speed. A suitable belt 14 transmits power to transmission assembly 15 through pulley 16. Thus, depending upon the direction of motor rotation, pulley 16 of transmission 15 is driven in opposite directions.

Transmission 15 is so arranged that it supports and drives both the agitator drive shaft and the basket mounting hub 10. When motor 12 is rotated in one direction, the transmission causes the agitator 5 to oscillate within basket 2. Conversely, when motor 12 is driven in the opposite direction the transmission drives the wash basket 2 and the agitator 5 together at high speed for centrifugal extraction. While the drive mechanism forms no part of the invention reference is made to the copending application of James R. Hubbard et al., Serial No. 420,594, filed April 2, 1954 (now Patent No. 2,844,225) and

owned by the General Electric Company, the assignee of the present application. That application discloses in detail the structural characteristics of a transmission assembly suitable for use in the illustrated machine.

In order to introduce washing and rinsing liquid into basket 2, a suitable conduit 17 is provided having an outlet opening 18 over the basket so that liquid (normally water) introduced into conduit 17 flows out through opening 18 into the basket. As shown, conduit 17 is arranged to enter the tub through an opening formed between the top of the tub and a gasket member 19 (Fig. 3) which seals the space between tub 3 and the top of cabinet 4. The liquid may be supplied through suitable controlled valves in the usual manner, as is well known in the art, and will not be further described herein.

A receptacle member 20 is positioned above basket 2. Preferably, as shown, this is effected by mounting receptacle 20 above the basket to any suitable relatively stationary portion of the washing machine such as tub 3. As best appears in Fig. 3, the receptacle extends directly beneath lid 4' so that when the lid is moved to its open position a suitable rinse agent may be introduced into receptacle 20. This is preferably effected by providing a recessed portion 21 (Fig. 2) of cabinet 4 directly beneath the lid, with openings 22 being provided therein so that when the lid is lifted prior to conducting a washing operation a suitable amount of rinse agent may easily be poured into recessed portion 21 so that it will flow through openings 22 into receptacle 20.

A conduit 23 is provided which has two separate portions 24 and 25. Conduit portion 24 extends between conduit 17 and a valve 26, as will be further explained, and conduit portion 25 extends between valve 26 and receptacle 20. One end 27 (Fig. 4) of conduit portion 24 extends into conduit 17 upstream of opening 18 and is suitably formed in the general manner of a scoop so as to divert part of the flow of liquid through conduit 17 and cause it to enter and pass through conduit portion 24. As shown in Fig. 4, end 27 of conduit portion 24 is formed in the instant embodiment as an unevenly divided fork 28 in conduit 17, with one side leading to opening 18 and the other to opening 29, and with conduit portion 24 in the form of a hose secured over outlet 29 of conduit 17. At its other end 30 (Figs. 1 and 2), conduit portion 24 leads into the valve 26, controlled in the usual manner by a solenoid 32' secured within the same housing, which is arranged in the control circuit of washing machine 1 so that it closes the conduit 23 during the flow of water through conduit 17 preparatory to a washing portion of the cycle and opens conduit 23 during flow through conduit 17 for a rinsing portion of the cycle. A suitable circuit for effecting this, and which illustrates the basic control operations of a typical washing machine embodying rinse agent dispensers of the type under discussion here is described and claimed in the aforementioned Buechler application.

The other conduit portion 25 has one end 31 connecting with valve 26 and its other end 32 extending into cooperative relation with receptacle 20 in a specific manner to be described hereinafter. It will readily be observed that with valve 26 closed, no liquid will enter receptacle 20 through the portions 24 and 25 of conduit 23 despite flow through conduit 17. However, when valve 26 is opened in response to a predetermined condition of the valve control solenoid 32' flow through conduit 17 will cause liquid to be scooped up by the forked construction 28 and this liquid will then pass through opening 29 into conduit portion 24, through the valve 26 and conduit portion 25 into receptacle 20.

In accordance with this invention, the end 32 of conduit portion 25 is in communication with the short leg 33 of a syphon 34. Specifically, in the first embodiment shown, the syphon 34 is arranged with its short leg 33 having its opening 35 positioned adjacent the lowest part 36 of receptacle 20. Conduit portion 25 passes through the wall

of syphon 34 so that its end 32 terminates actually within the syphon leg 33 and preferably, as shown, with its outlet directed in the same direction as the inlet 35 of the syphon. The other leg 37 of the syphon is brought out of the receptacle 20 so that its opening 38 is in position to discharge liquid to a point where it can act on the clothes; in the first embodiment, as shown, opening 38 is arranged to discharge into the tub, while an overflow lip 39 on receptacle 20 is positioned so that liquid flowing thereover will discharge into basket 2. It will be observed that the highest point of the syphon is below the liquid level that may be reached in the receptacle 20.

It can be seen that when liquid is flowing through conduit portion 25 into receptacle 20 the receptacle will tend to fill up. Normally, the receptacle has already been provided with a suitable amount of a rinse agent so that the liquid flowing in through conduit portion 25 mixes with the rinse agent within receptacle 20. The liquid flow through conduit portion 25 into the lowest portion of receptacle 20 has a cleanings effect which tends to prevent any clogging. In addition, the fact that the liquid from the conduit must flow out through the syphon inlet 35 also has a cleansing action on this orifice of relatively restricted diameter: each time there is flow through conduit portion 25 the syphon opening is cleaned off.

The flow through the conduit portion 25 has an aspirating effect with tends to decrease the pressure of the liquid at the inlet 35 of the syphon. This prevents the syphon from starting operation while liquid is flowing through conduit portion 25. As a result, yet a further advantage is obtained from this invention since, with the syphon being maintained inoperative because of flow in conduit portion 25, overflow at lip 39 of receptacle 20 will occur and the mixture of rinse agent and liquid will be poured directly onto the clothes within basket 2, which is desirable. However, the dregs within the receptacle 20, which may remain in small quantities from the previous operation, should preferably receive some circulation with a large amount of liquid before coming into contact with the clothes. This invention provides such a result. Once flow of rinsing liquid into basket 2—and consequently flow through conduit portion 25—is stopped, the syphon 34 then operates and the last of the mixture of liquid and rinse agent starts to flow out up through the short leg 33 of the syphon and down through the long leg 37 into the tub 3. Because they are thus put into the tub, the dregs of the mixture will, before they reach clothes in basket 2 if they do so at all, be recirculated by a suitable recirculation system which may be provided, for instance, by a pump 40 provided in tub 3 and discharging into a conduit 41 during washing and rinsing operations so that the liquid is brought back through a nozzle 42 to the basket. The pump 40 may also be arranged so that upon reverse direction of rotation of motor 12, as has been stated to be the fact for spinning the basket, the pump 40 will discharge into a conduit 42 instead of conduit 41 so that liquid may be discharged to a stationary tub or drain line. Such a pump is, for instance, described in detail and claimed in a copending application Serial No. 468,460, filed November 12, 1954, by John Bochan and owned by the General Electric Company.

In accordance with the foregoing, the very end of the mixture of rinse agent and detergent, which may pull some of the dregs from the bottom of receptacle 20 with it, gets discharged into the tub 3 rather than directly into the basket 2. However, as stated above, there will be very little such residue formed because of the flushing and cleansing action of the outlet 32 of conduit portion 25 each time liquid is discharged therethrough during a rinsing operation.

Thus, during operation of the machine, such as is fully described in the aforementioned Buechler application, There will be no effect on the rinse agent receptacle or the rinse agent therein during the wash and spin sequences. However, during the rinsing operation liquid will flow through conduit 23 and outlet 32, flushing out the bottom of the receptacle 20 and cleaning off the inlet 35 of syphon 34 as it mixes with the rinse agent in the receptacle. After the liquid reaches the top of the receptacle 20 it will flow out directly into the basket 2 through the means of overflow lip 39, since the aspirating effect of liquid still being fed through conduit 25 will preclude the syphon from starting into action. When liquid ceases to flow through conduit 23, the syphon takes effect and passes the remaining mixture within receptacle 20 out through syphon 34 and through syphon leg 37 into tub 3, so that at the end of the rinsing operation the syphon has been substantially emptied and cleansed.

It is of course necessary to provide a seal in conduit 23 so that during the syphoning action there is no outlet to atmosphere through conduit portion 25. This may be very conveniently provided by a downwardly extending loop 43 in conduit portion 25, so that when the liquid ceases to be supplied from conduit 17 a predetermined amount will remain at the loop 43 and provide a seal.

Referring now to Figs. 5 and 6 of the drawings, the second embodiment of the invention will be described using like numerals for parts which are the same as those described in the embodiment of Figs. 1 to 4. As before, a machine 1 is provided with a basket 2 and a tub 3, with an agitator 5 operative within the basket. Again, the rinse agent dispensing construction provides a conduit portion 24 which taps into conduit 17, and a valve 26 which is open to permit flow through conduit portion 24 during the rinsing operation of the machine and closed to prevent flow therethrough during the washing portion of the sequence. Also, as before, a suitable receptacle 20 is provided with, preferably, an overflow lip 39 provided directly over the basket. In this embodiment, a conduit portion 50 opens at 51 into the receptacle at a point close to the lowermost portion 36 thereof. A syphon member 52 is provided having a short leg 53 with an inlet 54 which is in communication with the conduit portion 50 closely adjacent opening 51. Thus, in effect, the short leg 53 of the syphon 52 is in communication with the interior of receptacle 20 adjacent the lowermost point thereof. The other longer leg 55 of the syphon preferably is arranged as before so that it extends over the space between the basket 2 and the tub 3 so that the outlet 56 of syphon 52 is in position to discharge directly into the tub. It will be observed that flow through conduit portion 50, in the same fashion as was described in connection with conduit portion 25 of the first embodiment, will serve to clean off the opening 54 of the syphon so as to prevent clogging thereof.

The aspirating effect in the construction of Figs. 5 and 6, as thus far described, is not as pronounced as that in the construction of Figs. 1 to 4, that is, flow through conduit portion 50 has less of a tendency to create a pressure drop at the opening 54 of the syphon. This effect can readily be substantially restored by simple pressure reducing means such as restriction 57 in conduit 50. The well-known effect of a decrease in pressure at the outlet of the restriction will therefore provide an area of decreased pressure directly where the opening 54 of syphon 52 communicates with conduit 50. This, therefore, again provides the same aspirating effect as the construction of Figs. 1 and 4 so that during flow through conduit portion 50, the tendency is for the liquid to fill the receptacle and overflow out of it over lip 39 directly into the basket, and only when flow through conduit 50 stops does the syphon become effective to pass liquid out through its opening 56 into the space between the tub and the basket.

The construction of Figs. 5 and 6 thus provides a second embodiment of the invention illustrating the basic concept.

It can be seen from the foregoing that the invention provides a self cleaning arrangement for a rinse agent receptacle which is entirely automatic in that the operator

has nothing required of her except for insertion of the rinse agent in the receptacle.

While in accordance with the patent statutes I have described what at present are considered to be the preferred embodiments of my invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and I therefore aim in the appended claims to cover all such changes and modifications as fall within the true spirit of this invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing supply means including a conduit extending into cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arrange in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with its short leg extending into communication with said receptacle and its long leg extending into cooperative relation with said container to supply liquid thereto, the highest point of said tube member being below the liquid level reached within said receptacle, said other end of said second conduit communicating with the short leg of said syphon to direct the liquid flow therein directly over the opening to said short leg before the flow emerges into said receptacle to effect a cleansing action on the opening to said short leg, and means for effecting a seal in said second conduit when liquid ceases to flow therethrough.

2. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing liquid supply means including a conduit extending into cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with its short leg extending into said receptacle and its long leg extending into cooperative relation with said container, the highest point of said tube member being below the liquid level reached within said receptacle, said other end of said second conduit terminating within the short leg of said syphon to discharge a stream of liquid toward the open end of said short leg to effect a cleansing action on said open end, and means for effecting a seal for said second conduit when liquid ceases to flow therethrough.

3. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing liquid supply means including a conduit extending into cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with its short leg extending into said receptacle and its long leg extending into cooperative relation with said container, the highest point of said tube member being below the liquid level reached within said receptacle, said other end of said second conduit terminating within the short leg of said syphon to discharge a stream of liquid towards the open end of said short leg to effect a cleansing action on said open end, and said second conduit having a generally vertically disposed loop formed therein to provide a liquid seal when liquid ceases to flow therethrough.

4. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing liquid supply means including a conduit extending into a cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle and mixes with rinse agent therein, a tube member formed into a syphon with its short leg extending into said receptacle and its long leg extending into cooperative relation with said container to supply liquid thereto, the inlet to said short leg of said syphon being positioned adjacent the lowest portion of the interior of said receptacle and the highest point of said tube member being below the liquid level reached within said receptacle, said other end of said second conduit terminating within the short leg of said syphon to discharge a stream of liquid toward the inlet of said short leg thereof to effect cleansing of said syphon inlet and of the bottom of said receptacle, and means for effecting a liquid seal in said second conduit when liquid ceases to flow therethrough.

5. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a clothes basket, a tub surrounding said basket and having passages interconnecting it with said basket, cleaning and rinsing liquid supply means including a conduit extending into cooperative relation with said basket and tub to supply liquid thereto, a receptacle for a rinse agent positioned above said clothes basket and having an overflow lip formed at an edge thereof directly over said basket, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with a short leg extending into said receptacle to a point adjacent the lowermost interior portion thereof and its long leg extending into cooperative relation with said tub to supply liquid directly thereto, said other end of said second conduit terminating within the short leg of said syphon to discharge a stream of liquid toward the inlet of said short leg thereof to effect cleansing of said syphon inlet end of the bottom of said receptacle, said receptacle being so proportioned

to the flow therein that the mixture of liquid and rinse agent rises to a level above the uppermost part of said tube member, flow from said second conduit having an aspirating effect on said syphon and preventing flow through said syphon so that the mixture flows into said basket over said overflow lip until the liquid ceases to flow through said second conduit whereupon said syphon discharges the remainder of the mixture of liquid and rinse agent from said receptacle into said tub.

6. In a washing machine having an automatically controlled cycle including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing liquid supply means including a conduit extending into cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for a rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with its short leg communicating with said second conduit upstream of, and adjacent the outlet thereof to said receptacle and its long leg extending into cooperative relation with said container, the communication of said short leg with said second conduit causing flow through said second conduit to tend to clean away any residue tending to collect about the inlet to said short leg, the highest point of said tube member being below the liquid level reached within said receptacle, and means for effecting a liquid seal for said second conduit when liquid ceases to flow therethrough.

7. In a washing machine having an automatically controlled cycle, including washing and rinsing operations, a container for articles to be washed, cleaning and rinsing liquid supply means including a conduit extending into cooperative relation with said container to supply liquid thereto, a receptacle for a rinse agent positioned above said container, a second conduit communicating at one end with said supply conduit and at its other end with said receptacle adjacent the bottom thereof, said one end of said second conduit being arranged in said supply conduit to divert flow of part of the liquid in said first conduit through said second conduit to said receptacle upon flow through said first conduit, valve means closing said second conduit for the washing operation, means for opening said valve for the rinsing operation whereby the liquid flows into said receptacle to mix with rinse agent therein, a tube member formed into a syphon with its short leg extending into communication with said second conduit adjacent the outlet thereof into said receptacle and its long leg extending into cooperative relation with said container to supply liquid thereto, the highest point of said tube member being below the liquid level reached within said receptacle, means providing a pressure reducing restriction in said second conduit and said syphon communicating therewith directly at the outlet of said restriction thereby to cause the liquid flow through said second conduit to effect a cleansing action on said open end of said short leg and to prevent flow through said syphon while flow through said second conduit continues, and means for sealing said second conduit when liquid ceases to flow therethrough.

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