

May 17, 1927.

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1,629,155

BOTTLE WASHING MACHINE

Original Filed Oct. 13, 1923

3 Sheets-Sheet 1

Fig. 1

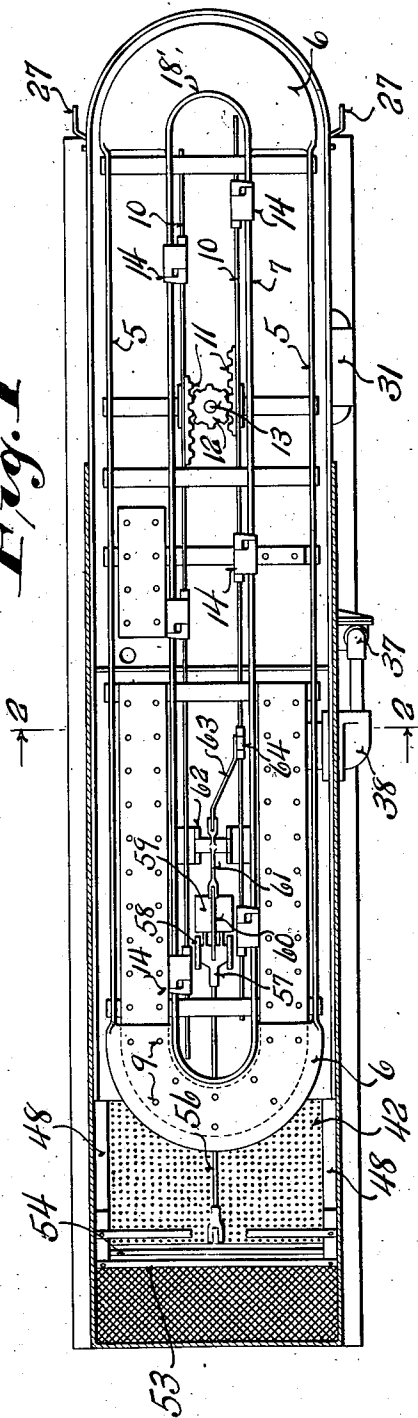
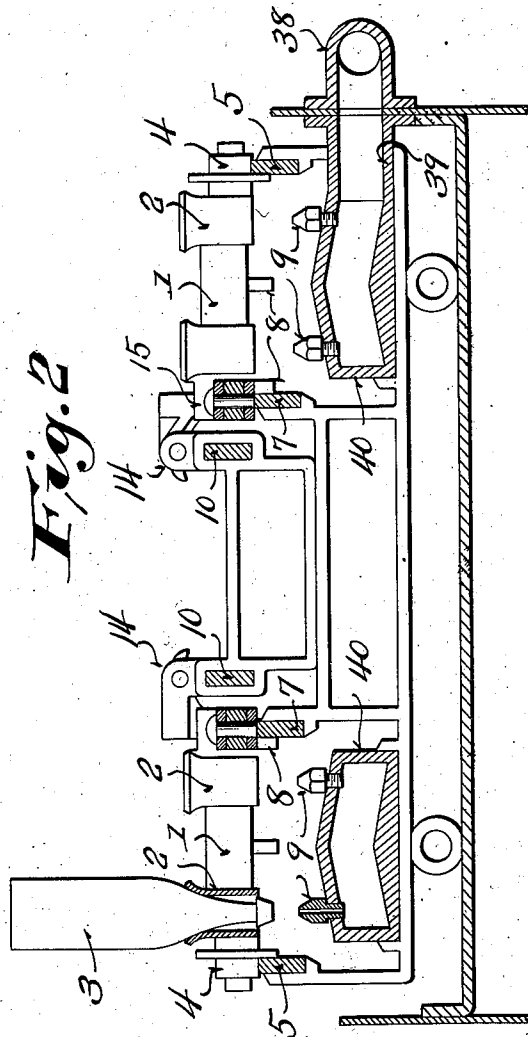


Fig. 2



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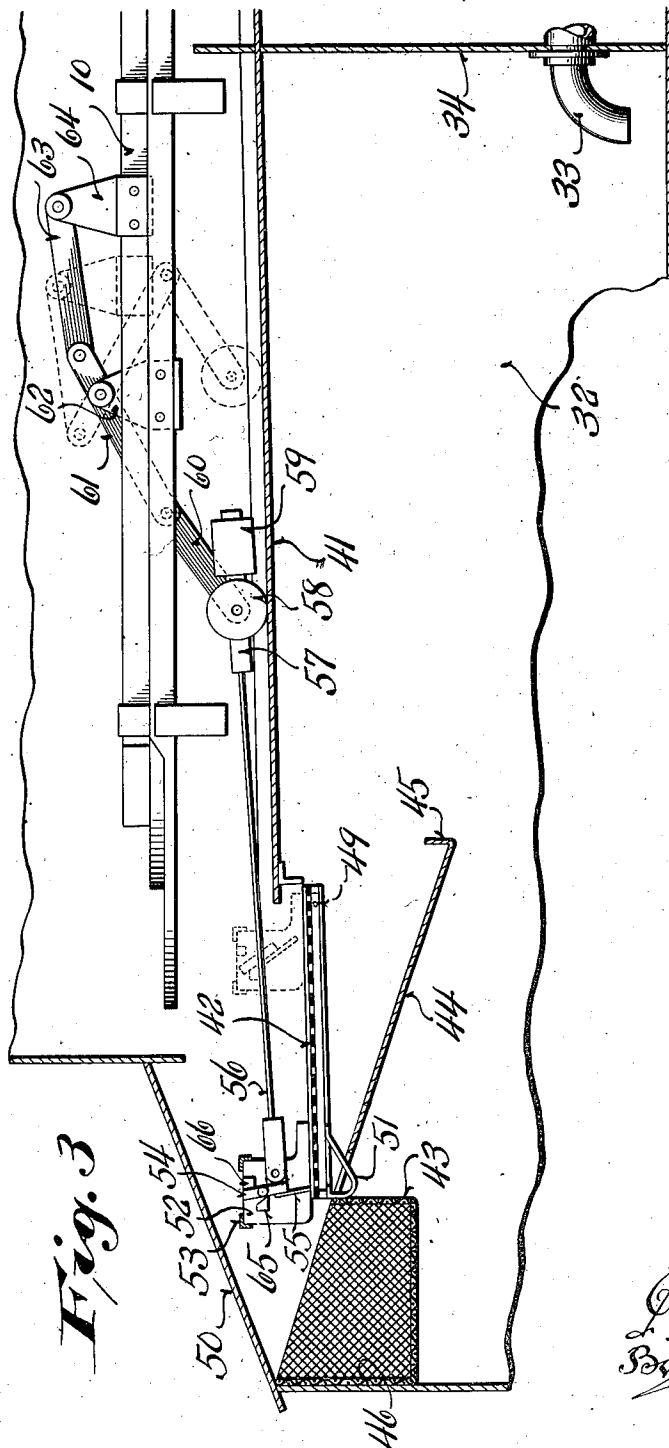
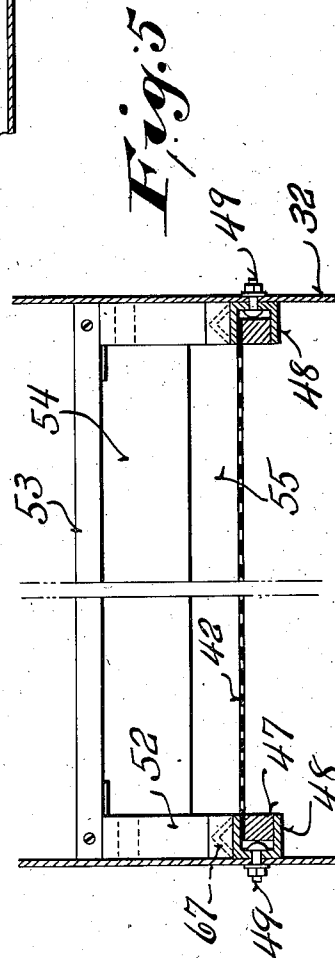
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BOTTLE WASHING MACHINE

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3 Sheets-Sheet 2



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BOTTLE WASHING MACHINE

Original Filed Oct. 13, 1923 3 Sheets-Sheet 3

*Fig. 4*

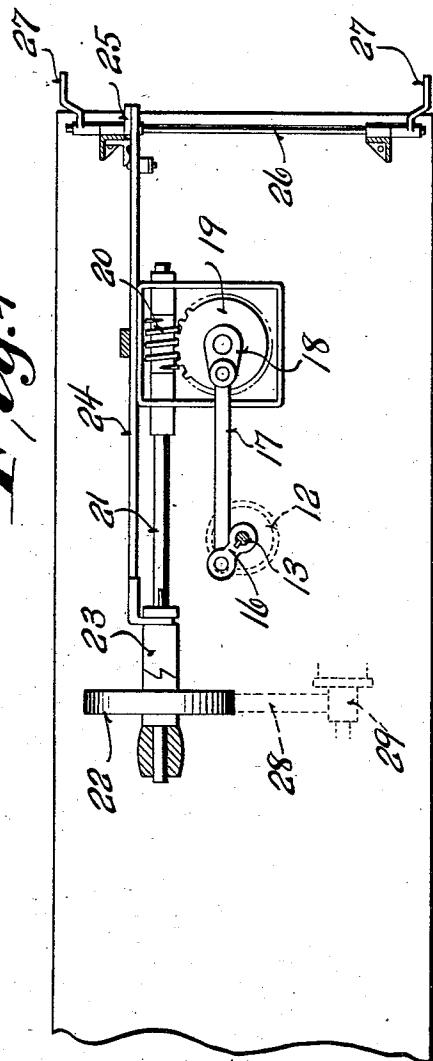
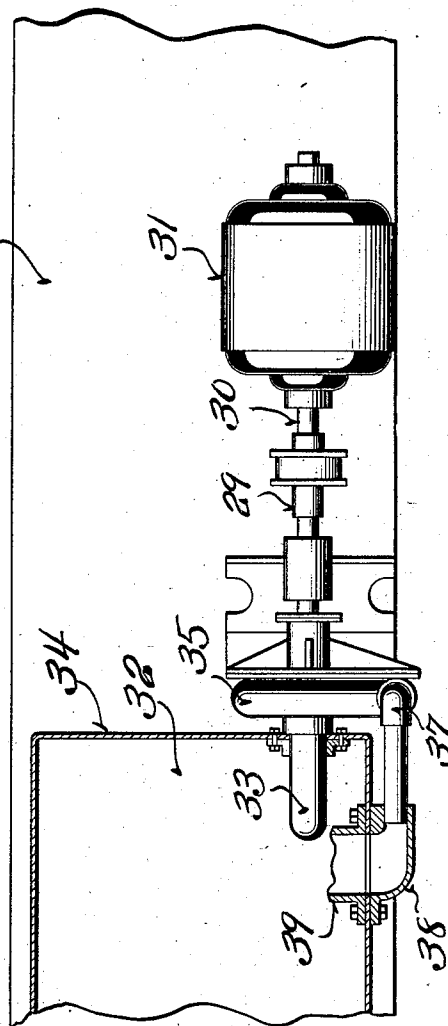


*Fig. 6*



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## UNITED STATES PATENT OFFICE.

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## BOTTLE-WASHING MACHINE.

Original application filed October 13, 1923, Serial No. 668,352. Divided and this application filed November 24, 1924. Serial No. 751,938.

This invention relates to bottle washing machines and is a division of my application Serial No. 668,352, filed October 13, 1923, for bottle washing machines.

5 Objects of this invention are to provide a bottle washing machine in which provision is made for collecting the labels in a suitable receptacle, in which means are provided for preventing the labels from clog-  
10 ging the machine, and preventing the return of the cleansing liquid to the reservoir, in which accumulation of dirt in the spraying means is prevented, and in which means are provided for withdrawing the cleansing  
15 liquid from the reservoir and returning it thereto without causing undue agitation of the liquid in the reservoir.

Further objects are to provide a bottle washing machine in which means are pro-  
20 vided for catching the labels, in which this means is readily removable to permit dumping of the labels, and to provide a machine having a screen over which the liquid passes and to so construct the screen and the hold-  
25 ing means therefor that the screen may be rocked to a readily accessible position and easily removed.

Further objects are to provide a bottle washing machine which is a unitary struc-  
30 ture, and in which the electric motor and pump and associated parts are contained within the outline of the machine to thus provide a machine which is narrow and may be readily passed through the usual size of  
35 doorways without requiring subsequent assembling.

An embodiment of the invention is shown in the accompanying drawings, in which:—

40 Figure 1 is a plan view of the bottle washing machine, such view being partly in section and showing the machine with the conveyor removed for the sake of clearness.

Figure 2 is a fragmentary transverse sectional view on the line 2—2 of Figure 1.

45 Figure 3 is an enlarged sectional elevation of the rear portion of the machine.

Figure 4 is a detail of a portion of the driving mechanism of the conveyor.

50 Figure 5 is a sectional detail showing the manner of mounting the removable screen.

Figure 6 is a plan view partly in section of a part of the lower portion of the machine showing the motor and pump and a portion of the reservoir.

The upper spraying means for the bottles 55 may be of any desired type and has been omitted from the drawings for the sake of clearness, as such means need not be specially constructed to cooperate with the machine and, as stated, any satisfactory or  
60 usual type of upper spraying means may be employed. The machine comprises a conveyor composed of a plurality of individual links 1 which are provided with bottle re-  
65 ceiving portions 2 adapted to receive the inverted bottles 3, as indicated in Figure 2.

The conveyor is carried by means of flanged rollers 4 at the outer ends of each of the links which travel upon outer tracks 5  
70 throughout the straight stretches of the machine, and which run on flat semi-circular or annular members 6 at the ends of the machine, as shown in Figure 1. The inner ends  
75 of the links 1 slide upon tracks 7 (see Figures 1 and 2) and are equipped with lugs 8 which, together with the flanged rollers 4, correctly position the conveyor. The inner track 7 is continued completed around the machine, as shown in Figure 1, and is provided with curved end portions 18'.  
80

The bottles are advanced in a step by step manner and during their dwell or quiet periods are positioned directly over the  
nozzles 9.

The advancing means for the conveyor or  
85 feeding means may comprise a pair of parallel sliding rods 10 which are oscillated in opposite directions by means of racks 11, and an intermediate pinion 12 (see Figure 1), the racks 11 being secured to the rods  
90 10, and the pinion 12 being rigidly secured to a vertical shaft 13. The rods 10 are provided with dogs, indicated generally at 14, at a plurality of points along their length, and such dogs are adapted to en-  
95 gage projecting portions 15 (see Figure 2) of the links 1 and to thus transmit a step by step motion to the conveyor and to engage the conveyor at a plurality of points on its forwardly and rearwardly traveling  
100

stretches to thus minimize stresses, as described in greater detail, in my above noted application.

The vertical shaft 13 is continued downwardly to the lower portion of the machine and is provided with a rock arm or crank 16, as shown clearly in Figure 4. This crank is connected by means of a pitman 17 to a continuously rotating crank 18 driven by a worm wheel 19. The worm wheel 19 is driven by a worm 20 rigidly mounted upon a horizontal shaft 21. This shaft is provided with a loosely mounted pulley 22 and is adapted to be rigidly connected with the pulley by means of a clutch 23. The clutch 23 is controlled in any suitable manner as by means of a link 24 operated by a lever 25 carried by a rock shaft 26. This rock shaft is provided with hand levers 27 at opposite sides of the machine so that the operation of the conveyor may be controlled from either side of the machine.

The pulley 22 is connected by means of a belt 28 with a small pulley 29 carried on the shaft 30 of an electric motor 31 (see Figures 4 and 6).

The washing system for the machine comprises a reservoir 32 located in the lower portion of the rear part of the machine, as shown in Figures 3 and 6. This reservoir is provided with a downwardly turned outlet pipe 33 which passes through the front wall or front vertical partition 34 of the reservoir and into the inlet portion of a centrifugal pump 35 (see Figure 6). This pump is directly connected to the electric motor 31, as shown in Figure 6, and it is to be noted that the pump and motor are set within the outline of the machine upon the base plate or bed plate 36 thereof, and thus do not require additional weight for the machine. The outlet portion 37 of the pump communicates with a fitting 38, such fitting being bolted through the side walls of the machine to the inlet fitting 39 of the lower header 40 (see Figures 2 and 6). The header 40 is provided with a plurality of nozzles 9 (see Figure 2) which project streams of water upwardly into the inverted mouths of the bottles 3. It is to be noted from Figure 1 that this header is substantially U-shaped, and that the water or other cleansing liquid is passed into the header by means of the pump at one end thereof and sweeps continuously around the header, thus carrying with it and discharging from point to point any dirt that may be carried by the water and by this action prevents the formation of quiet places or zones in the header with the consequent depositing of sediment at these points. It is of course to be understood that the other end of the header 40 is closed. As previously stated, an upper header or spraying means is provided but

is not shown in the drawings as the upper spraying means may be of any usual or accepted type. The waste water from the machine flows along the rearwardly slanting partition 41 (see Figure 3) and discharges on to a screen 42 (see Figures 1 and 3). This screen is tilted downwardly towards the rear and any liquid or material which is not passed through the apertures in the screen is discharged into a wire basket 43 which is removably held at the rear of the machine.

Immediately below the screen a forwardly and downwardly slanting deflector plate 44 is provided and is equipped with an up-turned ledge 45 at its lowest end. This plate provides a sheet like stream of returning water and the ledge prevents the stream from acquiring such velocity as to stir up the liquid in the reservoir 32, but allows the liquid to flow into the reservoir with its velocity materially reduced. It is necessary, as shown in Figure 3, to provide a basket with a high rear wall 46 to insure the retention of any material washed downwardly from the screen 42. It thus becomes necessary to provide additional means for permitting the ready removal of the screen.

As may be seen from Figures 3 and 5, the screen 42 is carried by a reinforcing frame 47 which is slidably carried within side channels 48 pivoted, as indicated at 49, to the side walls of the machine. In this way the screen may be readily removed by rocking the channels 48 upwardly until the line of such channels is above the rear wall 46 of the basket and above the adjacent portion of the machine. When in this position, the screen may be readily slipped from the channels and may be cleaned. Of course it is understood that the flap or cover 50 (see Figure 3) is readily removable to provide access to this portion of the apparatus. If desired, a spring latch 51 may be carried by the frame 47 and contact with the basket 43.

It frequently happens that in bottle washing machines the labels clog any screen mechanism that may be provided. This defect in the operation of the machines as heretofore constructed, is wholly overcome in the practise of this invention by providing a wiper adapted to travel back and forth across the screen and to sweep the labels and trash rearwardly therefrom and into the screen basket. This wiper consists of a pair of side members 52 adapted to travel upon the channel members 48, as shown in Figures 1, 3 and 5. These side members are connected by transversely extending bars 53 so that in effect a cross head is formed.

A flap consisting of a main body portion 54 and a rubber or other strip 55 (see Figure 3) is pivotally mounted adjacent its

ends between the end members 52. The body portion 54 of this flap is hinged to the outer end of a pitman 56. The inner end of the pitman is pivotally carried by a small truck 57 provided with wheels 58 which travel upon the partition 41. The forward end of this pitman is provided with a counter balance 59 so that the rear end of the pitman does not press downwardly upon the pivotal joint with the flap 54. This truck is connected by means of a short link 60 (see Figure 3) with the lower end of a lever 61 which is pivotally carried by brackets 62 secured to stationary portions of the machine body. The upper end of the lever 61 is connected by means of a link 63 with a bracket 64 attached to one of the oscillatory rods 10.

It will be seen, therefore, that as the rod 10 reciprocates, the lever 61 will be rocked back and forth between its full line and dotted line positions, as indicated in Figure 3, and consequently the pitman 56 will be drawn back and forth. When the pitman is drawn inwardly the flap 55 is raised by rocking the main flap 54 about its pivot point, as indicated in dotted lines in Figure 3, thus causing its upper end to contact with the stop 65. Thus while the crosshead is being retracted the flap is in elevated position and does not draw the labels or trash inwardly along the screen 42. However, when outward motion is imparted to the pitman, the flap immediately rocks downwardly and its rubber or other lip 55 wipes outwardly across the screen 51 and thus wipes or pushes the labels or other trash from the screen 42 into the basket 43. When the flap is rocked downwardly into its full line position, as shown in Figure 3, its upper end contacts with the stop 66 thus preventing further rocking motion of the flap. In this way clogging of the screen mechanism is wholly avoided by this invention.

It may be further advantageous to provide a definite track for the cross head to slide upon. This is readily accomplished by providing tracks such as the inverted V-shaped tracks 67 shown in dotted lines in Figure 5. These tracks or rails may be secured to the upper sides of the channel members 48.

It will be seen that a bottle washing machine has been provided in which all danger of clogging of the machine by labels or trash has been avoided, and a free flow of the returning liquid has been insured.

It will further be seen that a bottle washing machine has been provided in which collection of dirt in the spray headers is wholly avoided, and in which stirring up of sediment in the reservoir by the returning liquid is prevented.

It will further be seen that positively operated screen wiping or cleaning means have been provided for keeping the slanting screen free of labels and trash and insuring

free and uninterrupted straining of the liquid.

Although the invention has been described in considerable detail, it is to be understood that the invention may be variously embodied and is, therefore, to be limited only as claimed.

I claim:

1. In a bottle washing machine, the combination of a reservoir for a cleansing liquid, liquid spraying means, means for drawing said liquid from said reservoir and supplying it to said spraying means, means for passing label bearing bottles through the spray, a screen over which the used liquid bearing labels is passed, a carriage adapted to travel across said screen, means for reciprocating said carriage, a wiper carried by said carriage, and means for raising and lowering said wiper on the inward and outward motion, respectively, of said carriage.

2. In a bottle washing machine, the combination of a reservoir for a cleansing liquid, means for drawing liquid from said reservoir and spraying it, means for passing label bearing bottles through the spray, a screen over which the used liquid bearing labels is passed, a carriage adapted to travel across said screen, a wiper pivotally carried by said carriage and adapted to wipe across said screen on the outward motion of said carriage, a link pivoted at one end directly to said wiper for reciprocating said carriage and for rocking said wiper upwardly on the return stroke of said carriage and for rocking said wiper downwardly on the forward stroke of said carriage, and means for reciprocating said link.

3. In a bottle washing machine, the combination of a reservoir for a cleansing liquid, means for drawing liquid from said reservoir and spraying it, means for passing label bearing bottles through the spray, a screen over which the used liquid bearing labels is passed, a carriage adapted to travel across said screen, a wiper pivotally carried by said carriage and adapted to wipe across said screen on the outward motion of said carriage, a link pivoted at one end of said wiper for rocking said wiper and reciprocating said carriage, means for counter balancing the other end of said link, and means for reciprocating said link.

4. In a bottle washing machine having a discharge portion for the cleansing fluid, the combination of a screen having its inner end adjacent said discharge portion, said screen being downwardly slanting towards its outer end, a straining basket located adjacent the outer end of said screen and having its outer side extending upwardly above the outer end of said screen, and pivotally mounted channels removably carrying said screen.

5. In a bottle washing machine, the combination of a reservoir for a cleansing liquid, liquid spraying means, means for drawing said liquid from said reservoir and supplying it to said spraying means, means for passing label bearing bottles through the spray, a screen over which the used liquid bearing labels is passed, a carriage adapted to travel across said screen, means for reciprocating said carriage, a wiper carried by said carriage, and means for raising and lowering said wiper on the inward and outward motion, respectively, of said carriage.

nation of a discharge portion for the cleansing liquid, a pair of channels having their inner ends pivoted adjacent said discharge portion, a reenforcing frame slidably carried by said channels, a screen secured to said frame, and a straining basket located adjacent the outer end of said screen and having its outer side extending upwardly above the outer edge of said screen.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

JOHN R. DOSTAL.