Nov. 17, 1936. L. J. WILLIAMS 2,061,180

ASSEMBLY MECHANISM FOR CAN AND COVER WASHING MACHINES

Filed March 26, 1932 3 Sheets-Sheet 1

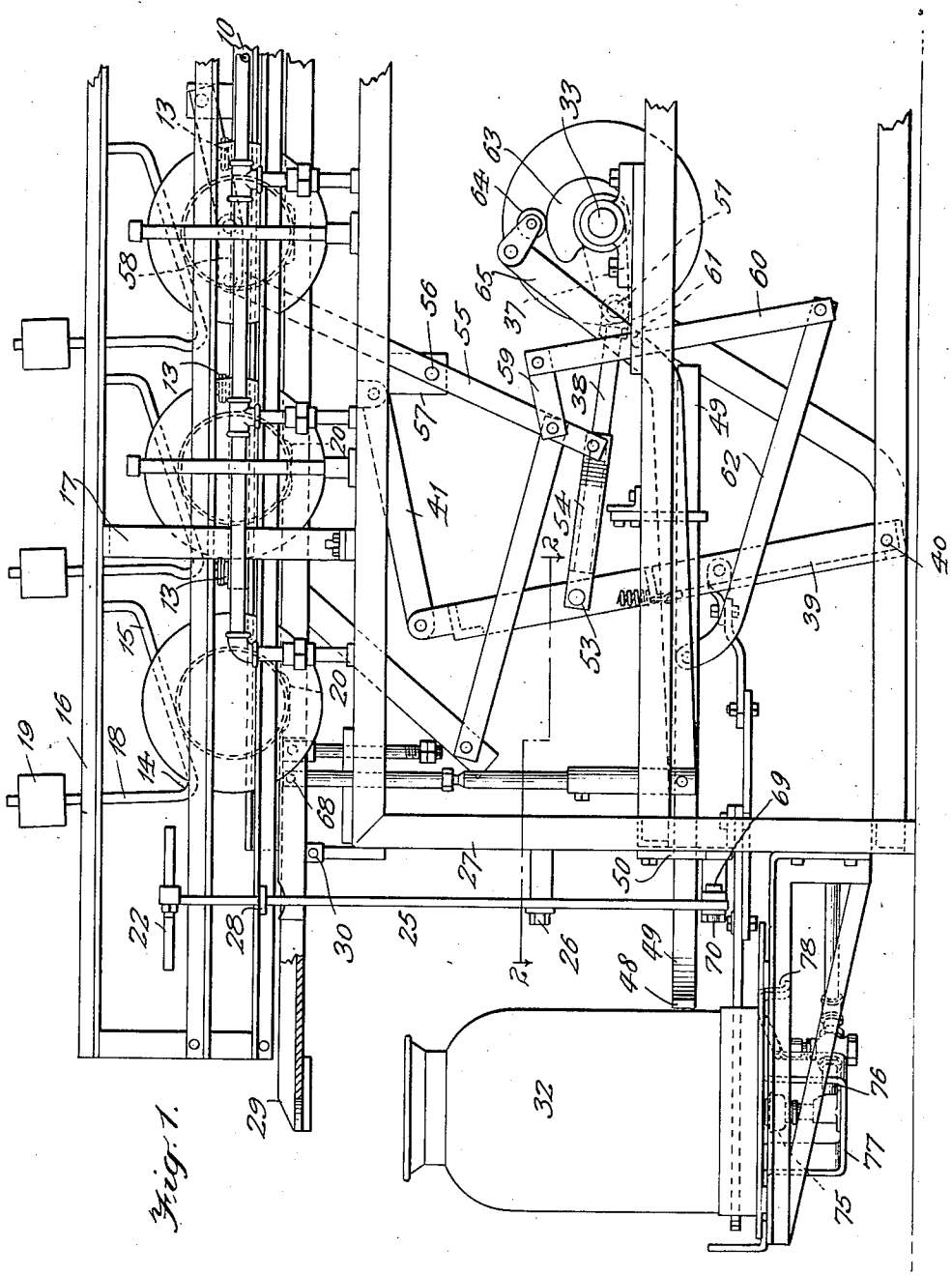


Fig. 1.

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Filed March 26, 1932 3 Sheets-Sheet 2

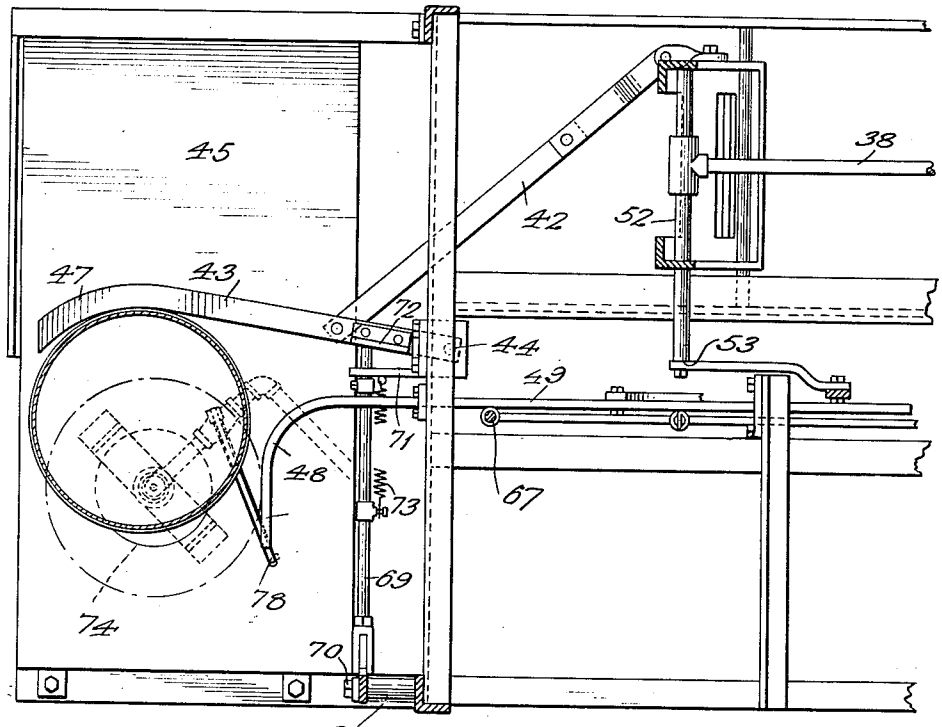


Fig. 2.

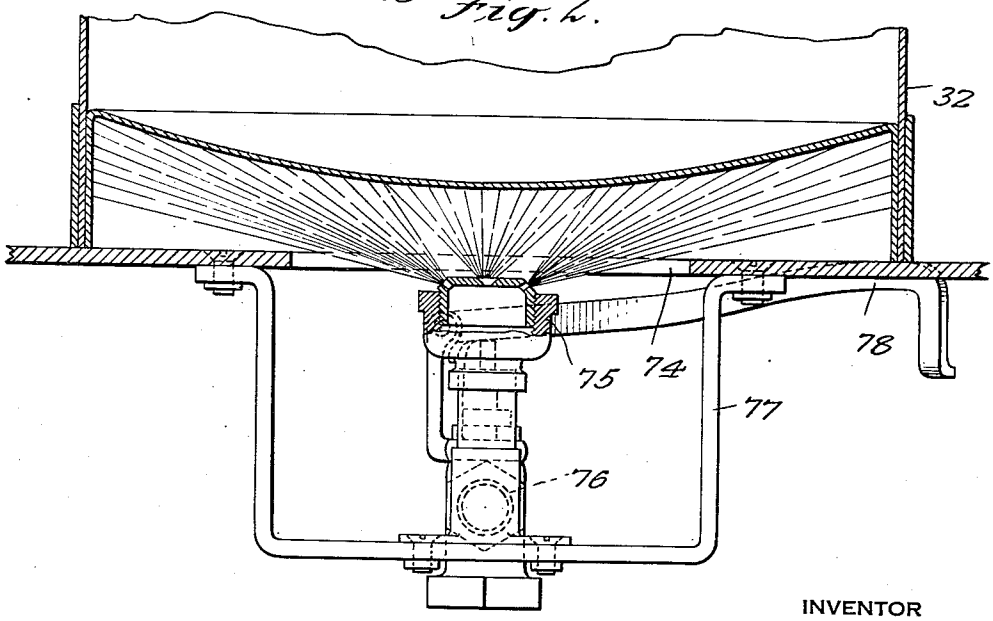


Fig. 5.

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Filed March 26, 1932 3 Sheets-Sheet 3

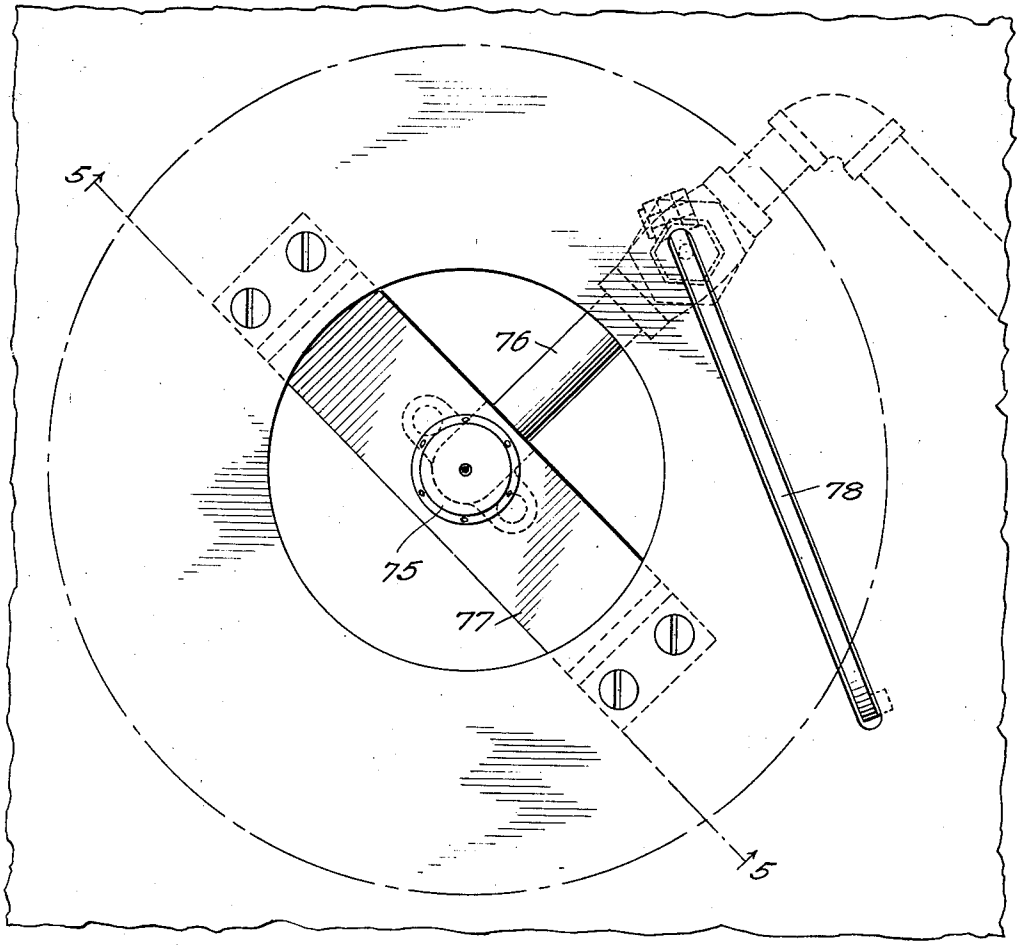


Fig. 3.

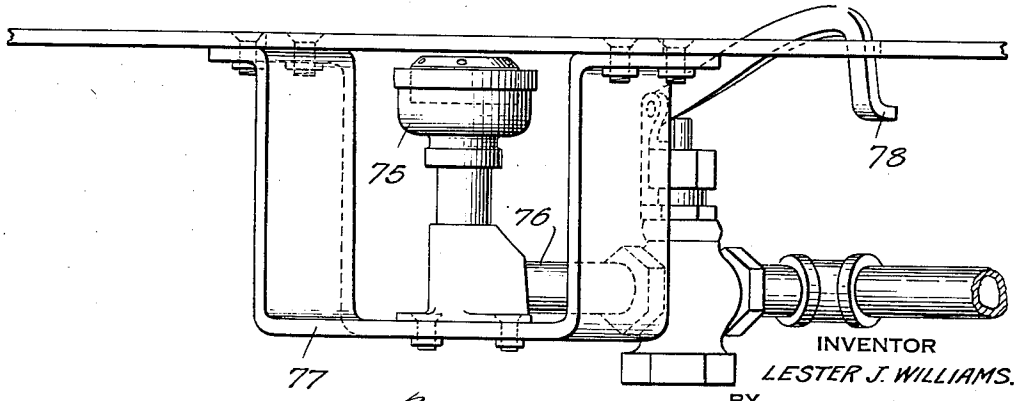


Fig. 4.

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Patented Nov. 17, 1936

2,061,180

UNITED STATES PATENT OFFICE

2,061,180

ASSEMBLY MECHANISM FOR CAN AND COVER WASHING MACHINES

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Application March 26, 1932, Serial No. 601,397

1 Claim. (Cl. 141—7)

This invention relates to can and cover washing mechanism and more especially to improved mechanism for delivering the covers after washing upon the tops of milk can bodies which have been advanced and washed in generally parallel relation to the covers and then moved to a position to receive a cover and the can bottom subjected to a final rinsing, to remove the matter accumulated when the can is moved to cover-receiving position, after which the can with its applied cover is pushed from the platform.

The present invention is a continuation in part of the application of Lester J. Williams, Serial No. 468,184 filed July 15, 1930, and patented October 22, 1935, as Patent Number 2,017,880, which relates more particularly to the mechanism for advancing and washing the cans and covers, while the present invention has more special reference to the mechanism for assembling the can and covers and rinsing the can bottom on a delivery platform.

While one embodiment of the invention is shown in the drawings accompanying this application and forming part thereof, it is to be understood that such embodiment is merely illustrative of the underlying principles of the invention so as to afford a clear understanding of the principles of the invention to those skilled in the art and is not intended as limiting the invention to the specific forms of mechanism disclosed herein.

In said drawings:

Fig. 1 is a partial side elevation of the invention showing more particularly the manner in which the can covers are advanced and applied to the cans and the cans finally rinsed.

Fig. 2 is a section of Fig. 1 on the line 2—2.

Fig. 3 is an enlarged fragmentary top plan view of the platform and mechanism for applying the final rinsing to the can bottom.

Fig. 4 is a side elevation of the mechanism shown in Fig. 3, and

Fig. 5 is a section of Fig. 3 on the line 5—5 with a fragmentary can in position to receive the final rinsing.

Continuing by way of a more detailed description, the can bodies are advanced in a linear direction and the can tops are advanced in a generally similar manner and in a parallel path at one side of the path of the can bodies, as disclosed in the copending application, Serial Number 468,184.

For advancing the covers step by step from the feed end of the machine in which they may be placed by hand, there is a longitudinal, horizontal slide 10 which as shown, is of channel section, inverted, and slidingly supported by suitable rail and angle brackets. At suitable intervals, corresponding to the spacing of the spray pipes, this slide has pivotally mounted feed pawls or pushers 13 extending laterally, and when the slide is reciprocated in the forward direction advance the covers, and when reciprocated in the opposite direction snap past the collars of the next rearward covers and re-engage with them for further advance; and in an obvious way, return movement of the covers is prevented. The can covers are also definitely retained in washing positions by pawls or detents, consisting as here shown of the angular portions 14 of bars 15 which may be pivotally connected or loosely mounted and held by stops between longitudinal rails 16 supported on the cross members of the U-brackets 17. These detent bars also have upwardly extending portions 18 provided with weights 19, so that the angular portions of the detents are held in engagement with the can collars and force these collars down into the depressions or notches 20 and into engagement with suitable levers controlling the washing of the covers; and when the covers are advanced the detents are raised to permit such movement and drop behind the covers preventing return movement. The manner in which the cans and covers are advanced is more particularly the subject matter of the copending application.

As each cover passes beyond the last detent bar 15 it is brought opposite a pushing or tilting member 22 carried by a short horizontal arm removably or adjustably secured to the upper end of a lever 25 fulcrumed at 26 on a frame upright 27. At this time the cover is also located above a tilting plate or table 29 which is pivotally mounted at 30 on a bracket secured to the main frame. When the cover is brought over the tilting table, lever 25 is oscillated (by means to be described) whereupon the pushing or tilting member 22 engages the upper portion of the top and tilts the cover so that it falls by gravity in right-side-up position on the tilting table and then in the next action of the machine the table 29 is tilted and the cover slides by gravity down upon the top of a can body 32 which has been washed and moved laterally in right-side-up position to receive the cover by means also to be described.

For operation of the various feeding or can body and cover handling devices, there is a primary driving member in the form of a transverse shaft 33 which may itself be driven in any convenient way and connected to the primary driven shaft by a suitable gearing. On one end of the

main drive shaft is a crank 37 connected to a link 38 at 51 and thereby to an oscillating frame 39 pivotally mounted at 40 in a position below the line of advance of the can bodies. The upper end of this oscillating frame is connected, as by links 41 to slides or other devices for advancing the can bodies. This frame is also connected by means of an angularly located link 42 (best shown in Fig. 2) to a lever 43 fulcrumed at 44 and arranged to swing in a horizontal plane to sweep the can bodies which have been righted laterally to a position below the tilting table 29 above referred to. In this lateral movement the can bodies slide in right-side-up position on a table 45 at the discharge end of the machine. Lever 43 has a curved end 47 to engage a segment of the can body and when the can body is in final position, it is brought against the transversely directed end portion 48 of a locating and ejecting bar 49 which is mounted to reciprocate, longitudinally of the machine, in guide 50 and affords means to position the can and to eject the can and cover as will be readily understood.

Link 38 above referred to, for oscillating frame 39 is connected to a transverse bar 52 in the frame, and the inwardly extending end 53 of this bar is connected by a link 54 to the lower end of an upright lever 55. This lever is fulcrumed at 56 on a frame bracket 57 and its upper end is connected by a link 58 to the can cover feed slide 10 so that the can covers are advanced, step by step, coordinately with the can bodies moving in a parallel line. Lever 55 is also connected by a short link 59 to the upper end of another upright lever 60, fulcrumed at 61 and having its lower end connected by a link 62 to the push rod 49 so that that rod is reciprocated, in proper relation to the feed actions, whereupon the angularly bent locating and pushing member 48 of the rod positions the can over the final rinsing unit and then ejects the can body with the cover located thereon rearwardly from the table 45.

For operating the tilting table 29, the main drive shaft 33 has a cam 63 cooperating with a cam roll 64 on one end of a lever 65 fulcrumed at 61 and connected at its rearward end by an adjustable link 67 to the tilting table at 68 so that the table is oscillated at proper times in relation to the cover feed movements.

The lever 25 carrying the push member 22 to tilt the covers to horizontal position, is operated by lever 43 through a push rod 69 pivotally connected to the lower end of lever 25 at 70. This push rod is guided in a hole in a bracket 71 and its end is engaged by a flange 72 on lever 43 and held in such engagement by a spring 73 so that when lever 43 is oscillated to position the can body, as shown in Fig. 2, the tilting member 22 is also actuated to tilt the can cover to horizontal position on table 29 and the table is then actuated as previously referred to and shown in Fig. 1 to deliver the cover on top of a can body.

The table 45 has a preferably circular opening 74 located in the final position to which the can is brought on operation of lever 43 and slight movement of push rod 49, and is of smaller diameter than the diameter of the can. Below this opening and preferably concentric therewith there is located a spray nozzle having a spray head 75 and an inlet 76, the spray nozzle being supported for instance in a frame 77 secured to the bottom of table 45 in any convenient manner, the spray nozzle 75 being so located that when its valve is opened, the spray will pass through the opening 74 and rinse the can bottom to remove the slime from the can bottom picked up on platform 45. The spray from nozzle 75 is controlled by an arm 78 having a portion projecting above the platform 45 and which is depressed to a position where the valve is opened as the can is swept by the arm 43 from its position opposite to the mechanism for advancing the can bodies and brought to a position over the spray nozzle 75 as will be readily understood from Figs. 1, 2 and 4. The can in righted position with its applied cover is, after rinsing the can bottom, pushed from platform 45.

I claim:

In a machine of the character described, the combination of means to advance a plurality of inverted cans in horizontal rectilinear direction, a horizontal platform located below the line of advancing can tops of the inverted cans for receiving said cans in upright position and having a can bottom washing opening, means to advance a line of covers, means comprising a can engaging arm having a curved end to sweep a can in upright position across the platform to a position over said opening to receive a cover, means to drop one of said covers on the can in said position, a spray nozzle centered below said opening and having a valve lever, the nozzle being of an appreciably less horizontal area than said opening and having angled discharge apertures to wash the entire surface of the bottom of the can through said opening when the can is over said opening, said lever extending into the path of the can being swept across the platform to be engaged thereby, means comprising a reciprocating ejecting bar having a transversely directed end portion, the latter being located at one side of the edge of the washing opening when retracted to cooperate with the can engaging arm to center the can over the opening, and means to advance the ejecting bar to push the can with the applied cover away from said washing position.

LESTER J. WILLIAMS.