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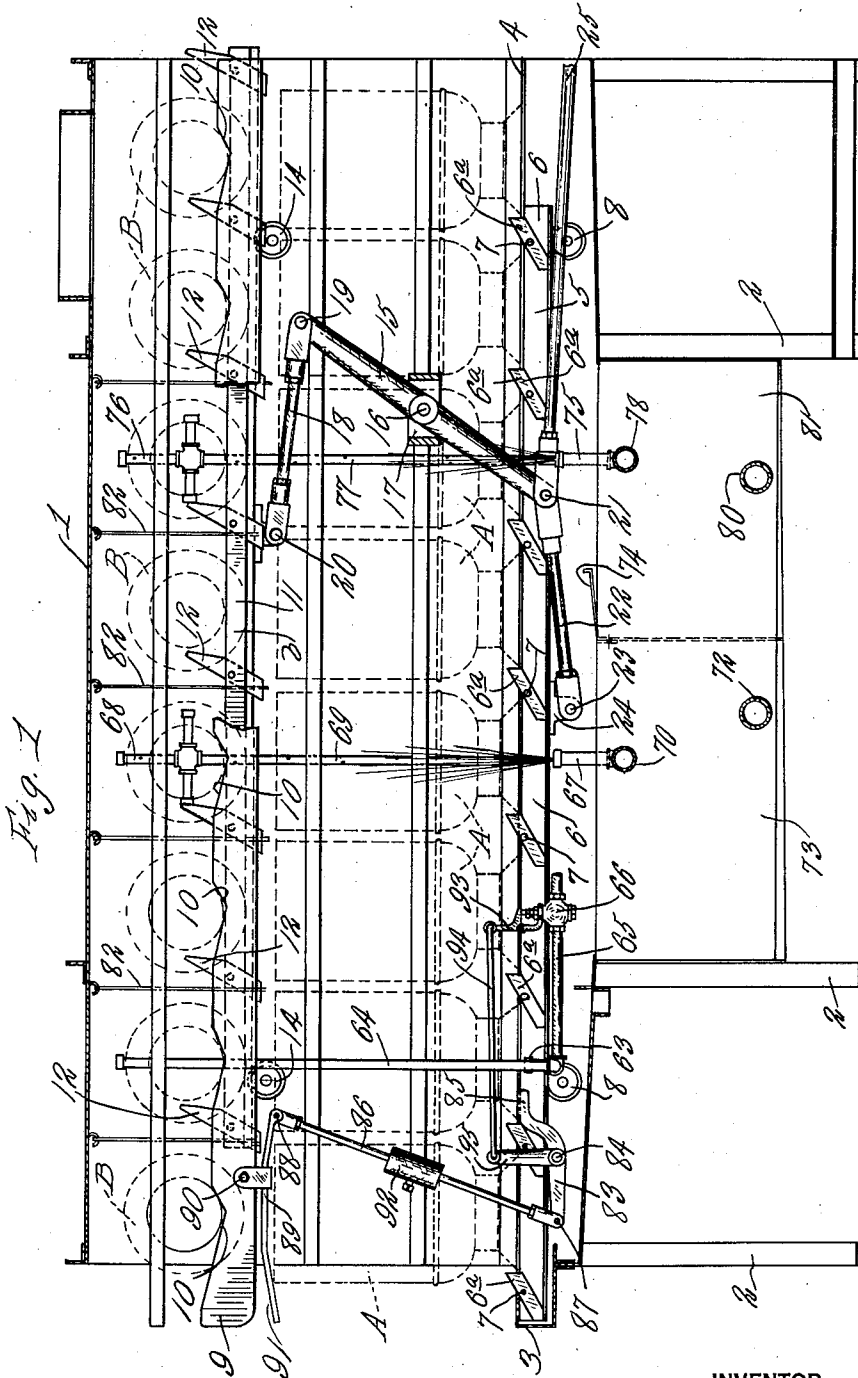
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1,845,313

CAN WASHING MACHINE

Filed April 23, 1930

3 Sheets-Sheet 1



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Fig. 3

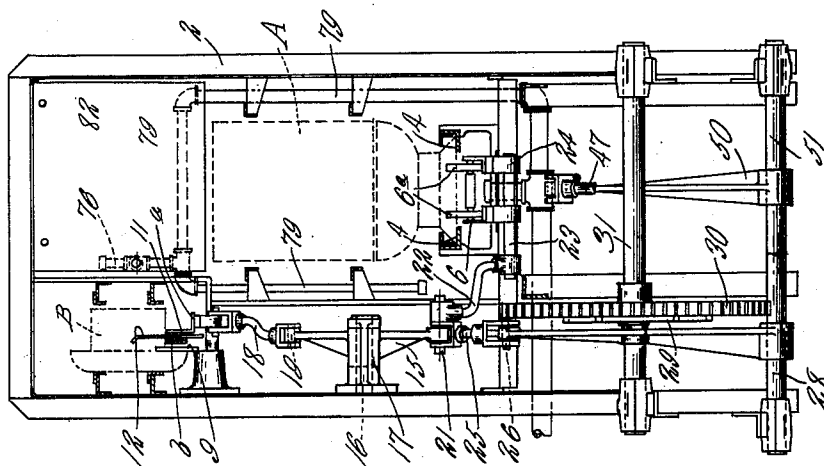
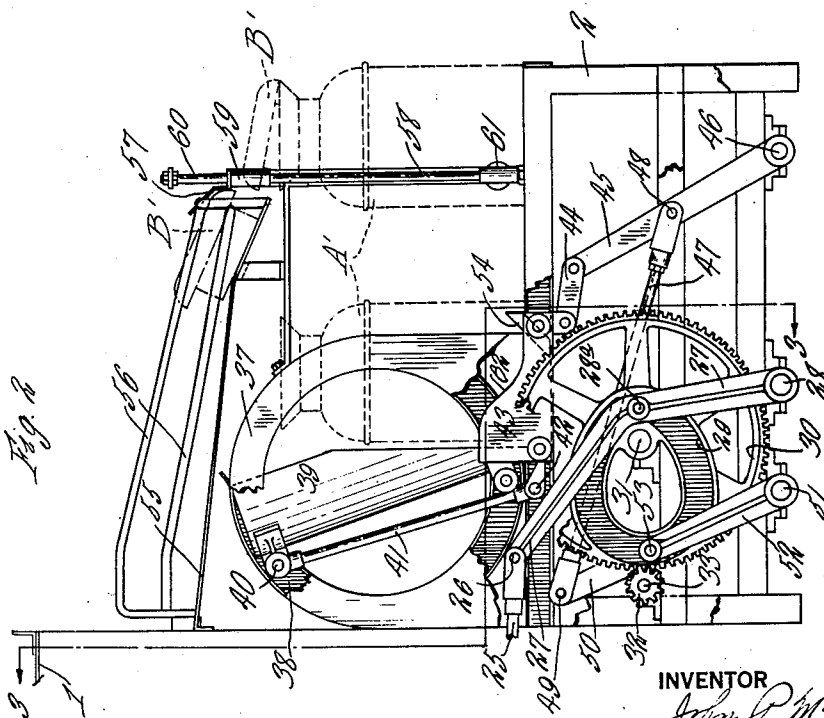


Fig. 4



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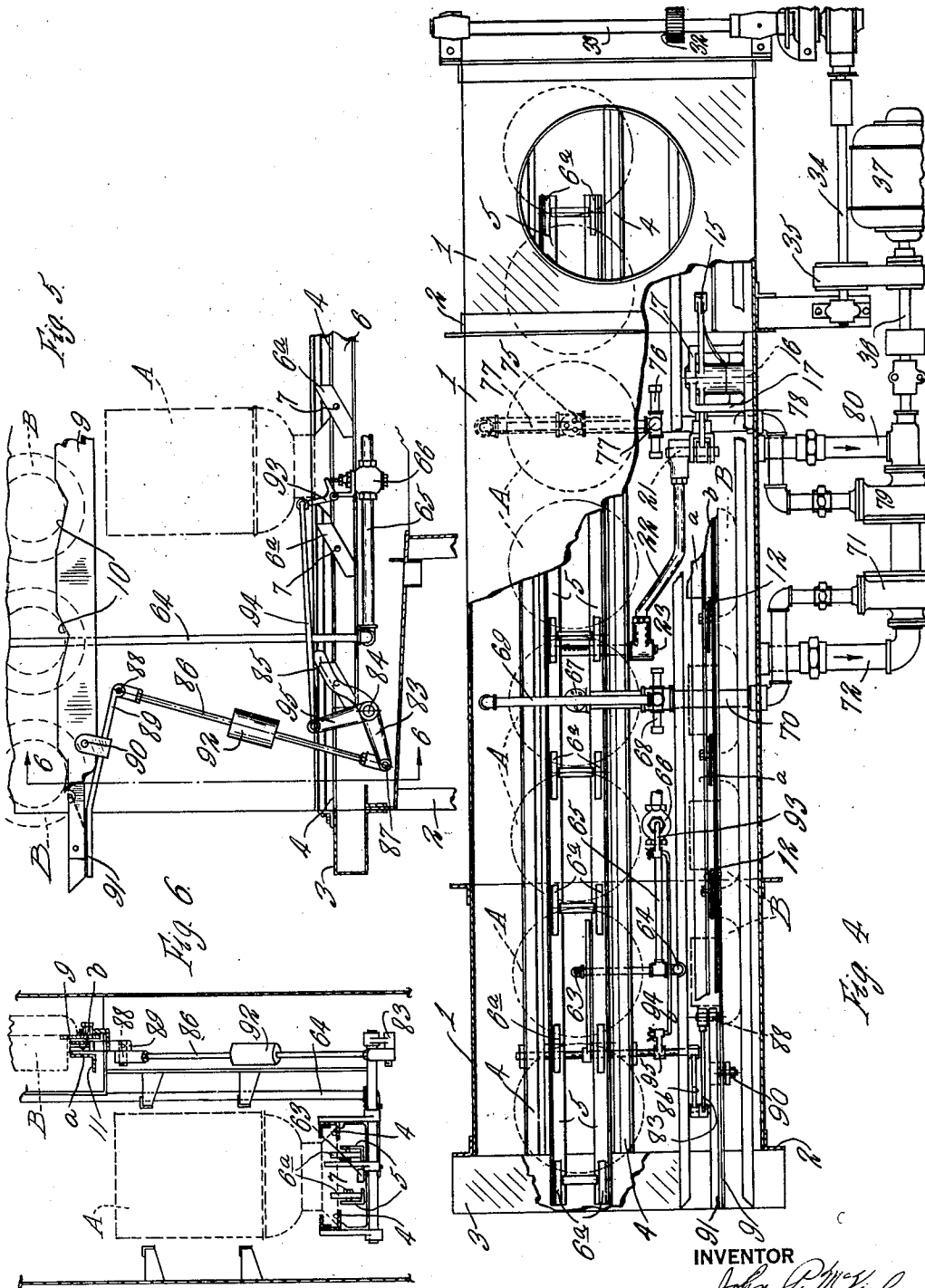
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CAN WASHING MACHINE

Filed April 23, 1930

3 Sheets-Sheet 3



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CAN WASHING MACHINE

Application filed April 23, 1930. Serial No. 446,525.

This invention relates to washing machines for milk cans and covers and similar articles.

An object of the invention is to provide an improved washing machine of this type which will avoid the danger of mixing the cans and covers; which will be as completely automatic as possible; which will require a minimum of power to operate; with which the covers and cans will always reach the discharge position in proper relation to one another to facilitate the assembly of the cover on the can, and which will be relatively simple, efficient, compact and inexpensive.

Another object of the invention is to provide improved and automatic means for starting the covers and cans in a desired relation to one another through the washing process; with which the fluid treating medium may be controlled to any desired extent automatically by the cans.

Various other objects and advantages will be apparent from the following description of an embodiment of the invention, and the novel features will be particularly pointed out hereinafter in connection with the appended claims.

In the accompanying drawings:—

Fig. 1 is a longitudinal sectional elevation of one part of a machine constructed in accordance with this invention;

Fig. 2 is a similar elevation of the other end of the machine, the portion of the machine shown in Fig. 2 forming a continuation of the portion of the machine shown in Fig. 1 when figures are arranged end to end, with Fig. 1 at the left of Fig. 2;

Fig. 3 is a transverse, sectional elevation of the same, the section being taken approximately along the line 3—3 of Fig. 2;

Fig. 4 is a plan, partly in section of the portion of the machine shown in Fig. 1;

Fig. 5 is a longitudinal, sectional elevation somewhat schematic, and showing the mechanism at the left end of Fig. 1 in a different operative position; and

Fig. 6 is a transverse, sectional elevation of certain parts of the same, with the section taken approximately along the line 6—6 of Fig. 5.

In the illustrated embodiment of the in-

vention a tunnel like casing 1 is supported upon a suitable base frame 2, and the cans to be washed are inserted in one end, which is the end at the left in Fig. 1, and discharged from the opposite end (the right hand end in Fig. 2), it being understood that Fig. 2 is a continuation of the right hand end of Fig. 1. The cans A, shown in dash lines in the drawings, are inserted at the entrance end of the casing 1, in an inverted position. The inverted cans are placed first upon the shelf 3 which forms a forward continuation of the can guide 4, Figs. 1, 4, 5 and 6.

The can guide may be of any desired construction and forms a trackway along which the cans may be slid while in an inverted position. The guide has an open space between its side limits through which propelling means may engage the cans and propel them along the trackway. This propelling means may include a pair of the dog bars 5, such as angle strips arranged as shown in Fig. 6, with the lower horizontal arms extending toward one another. Suitable dogs or pawls 6a are pivoted by pins 7 to the dog bars, and are gravity operated into the inclined positions shown in Figs. 1 and 5, with the heavy or overweighted ends of the dogs riding upon the horizontal arms of the dog bars 5.

The elevated ends of the dogs 6a project upwardly through the can guide or trackway, so as to engage with the open ends of the cans when the dog bars are given an endwise movement. The dog bars are mounted for endwise movement or reciprocation in any suitable manner, such as by suitable rollers 8 carried by the frame and arranged at intervals between the ends of the dog bars, as shown in Fig. 1. Hence when the dog bars are reciprocated endwise in one direction, which would be to the right in Fig. 1, the elevated ends of the dogs will engage with the lower or open ends of the cans and push them along the can guide a distance corresponding to the endwise movement of the dog bars.

During the return reciprocation or movement of the dog bars, the elevated ends of the dogs 6a will be cammed downwardly by

the cans, and will ride under the cans and then be automatically elevated into the positions shown in Fig. 1 ready to push succeeding cans along the can guide.

- 5 In the upper part of the casing 1, the covers B, shown in dash lines in the drawings, may roll along a cover guide 9 which extends endwise of the casing 1 above, and at one side of, the cans as shown in Fig. 6.
- 10 The cover guide 9 is secured in any suitable manner to the casing 1, and at intervals along its upper edge is provided with shallow notches 10 into which the covers roll and are temporarily retained. The notches 10
- 15 represent different steps or positions in the travel of the covers B along the guide 9. A dog bar 11 is provided adjacent and at one side of the cover guide 9, and may include an angle member *a* and a flat bar *b* arranged
- 20 side by side and slightly spaced from one another by suitable spacing means.

- Cover propelling dogs 12 are pivoted between the bar *b* and the angle member *a* by suitable pins 15, and are gravity operated
- 25 into inclined positions shown in Fig. 1, as usual heretofore. The dogs 12 and the dog bar 11 have cooperating parts which limit the upward movement of the dogs to the inclined positions shown in Fig. 1. The dog
- 30 bar 11 is mounted upon rollers 14 of the casing (Fig. 1) so as to reciprocate endwise like the dog bars 5. When the dog bar 11 moves to the right, in Fig. 1, the dogs 12 will push the covers out of the notches 10 and roll them
- 35 along the cover guide into the next succeeding notches 10. During the opposite or return movement of the dog bar 11, the dogs 12 will idle beneath the covers and then will be operated upwardly by gravity into the
- 40 positions shown in Fig. 1.

- A lever 15 (Figs. 1, 3, and 4) is pivoted at 16 in a bearing frame 17 carried by a side wall of the casing 1, Figs. 1 and 4. A link 18 is pivoted by pin 19 to the upper end of the lever 15. The link 18, at its other end,
- 45 is pivoted by pin 20 to the depending bracket or ear on the dog bar 11. The lower end of the lever 15 is pivoted by a pin 21 to one end of a link 22, the other end of the link 22
- 50 being pivoted by a pin 23 to an ear or bracket 24 (Fig. 1) which depends from the dog bars 5. The arrangement of the links 18 and 22 with respect to the lever 15 is such that the can and cover dog bars will always
- 55 move in opposite directions, so that when the can dog bars are propelling the cans forwardly through the casing 1, the cover dog bar will be returning idly to new propelling position, and vice versa.

- 60 The cans and covers will therefore be moved alternately in what may be termed a half step relation to one another, so that the power required to reciprocate the cans and covers will never exceed that required to feed
- 65 the cans forwardly alone because the cans

are heavier than the covers. By reason of this alternative feeding of the cans and covers the load is equalized somewhat and a smaller motor may be utilized as the driving means which reduces the cost of operation.

In order to oscillate the lever 15 a link 25 may be pivoted on the pin 21 at the lower end of the lever. The opposite end of the link 25, see Fig. 2, is pivoted by a pin 26 to one end of a lever or cam arm 27. The arm 27 is pivoted at 28 to frame 2 and between its ends carries a roller or follower (not shown) which is mounted on a pin 28 of the lever. The roller or follower runs in a cam groove 29 provided on a gear 30, which is mounted for rotation upon a shaft 31, Figs. 2 and 3. A pinion 32, Figs. 2 and 4, meshes with and drives the gear 30 and is fixed upon a drive shaft 33.

The shaft 33 is rotatably supported in the frame 2 and is driven from a shaft 34, the latter being driven by belting 35 from the shaft 36 of a suitable motor 37. The cam groove 29 is eccentric with respect to the shaft 31 of the gear 30, and consequently as the gear 30 rotates, the cam groove will cause oscillation of the arm 27, and through it and the link 25 will cause oscillation of the of the lever 15 and reciprocation of the cam and cover dog bars. The arm 27 and the roller carried by the pin 28 together, therefore, may be considered as a cam follower for the cam groove or cam 29.

The frame or base 2 of the machine extends beyond the casing 1, as shown in Figure 2, and may mount suitable cam upending or reversing mechanism and cover applying means. The cam upending and cover applying mechanism, shown in Fig. 2, except for the manner of supplying operative power, forms the subject matter of a pending application of Charles Sperraz, Serial Number 344,824, filed March 6, 1929, to which reference may be had for a complete disclosure.

Such can upending mechanism includes 111 a pair of circular channels 37 and 38, Fig. 2, which are aligned with and open toward one another. A cradle 39 is provided adjacent its opposite ends with rollers which run in the channels 37 and 38, so as to floatingly mount 111 the cradle 39 for oscillation. One end of the cradle 39 is pivotally connected by a pin 40 to a link 41, the other end of which is pivotally connected by a pin 42, to a carriage 43 which reciprocates in a direction endwise of the casing 1, at approximately the same level as the can guide in the casing 1. The carriage 43 is connected by a link 44 to one end of an arm 45 which is pivoted at 46 to the frame 2. Another link 47 is pivoted by pin 121 48 to the arm 45, and at its other end is pivoted by pin 49 to one end of an arm 50 which is fastened on a shaft 51.

The shaft 51 is rotatably mounted in suitable bearings of the frame 2, and also car- 131

ries and rotates an arm 52 having at its free end a pin 53 of a follower roller, also running in a cam groove 29 but at a point opposite the follower roller of the arm 27. The rotation of the cam having the groove 29 with the gear 30 will thus also cause oscillation of the arms 52 and 50, and through the link 47 will cause oscillations of the arm 45. The arm 45, through the link 44, causes reciprocations of the carriage 43 in a direction endwise of the casing 1. As the carriage 43 reciprocates it acts through the link 41 to oscillate the cradle 39 from a position in which it receives the inverted cans from the can guide 4, (which it will occupy when the carriage 43 is at the right hand end of its reciprocation), to the position shown in Fig. 2, the cradle 39 will have reversed the can and deposited it in an upright position upon the upper surface of the extension of the frame 2.

The carriage 43 is provided with a gravity operated dog 54 which, when the carriage is in the position shown in full lines in Fig. 2, will engage within the recessed bottom of an upright can, the dog 54 being gravity operated into the inclined position shown in Fig. 2, so that its upper end may idle beneath the cans when the carriage 43 is moving toward the left in Fig. 2. When the carriage 43 reciprocates toward the right, in Fig. 2, the dog 54 by engaging in the recessed bottom of the upright can will push the can along the upper surface of the frame extension 2 into the position shown at A', in which position the can receives its cover in the manner described and claimed in said copending application.

The covers discharged from the cover guide 9 are received upon a downwardly inclined runway 55 having side guide rails 56 which turn the rolling can cover into an upright position at B' in Fig. 2, adjacent the lower end of the runway. The cover may be stopped at the lower end of this runway by a gate 57 which is carried by an inverted U-shaped frame 58.

The frame 58 carries sleeves 59 which slide vertically on posts 60 that project upwardly from the frame 2.

The frame 58, at its lower end, is provided with a roller 61 which is engaged by an inclined cam surface 62 mounted on the carriage 43, so that as the carriage moves to the right, in Fig. 2, the cam surface 62 will engage with the roller 61 and cam it upwardly, thereby elevating the frame 58 and the gate 57 to release the cover B' which thereupon falls upon the open end of the upright can A'. Suitable means, not shown, then remove the can and its cover as usual heretofore.

During their travel through the casing 1, the cans and their covers are washed or otherwise cleansed or treated in any desired manner. For example when the cans and covers reach the second position, shown in dash lines

in Fig. 1, they may be subjected to a preliminary rinse treatment, the cans being subjected to a rinse liquid spray from a nozzle 63 (Figs. 1 and 4) disposed beneath the can guide. A branch pipe 64 extends upwardly adjacent the inner face of the cover, which is disposed edgewise in a vertical plane, and is provided with spray apertures that discharge a plurality of small jets in different directions against the cover. The nozzle 63 and pipe 64 are supplied with preliminary rinse water through a pipe 65 which is controlled by a valve 66.

In the third step or position, the cans and covers may drain, and in the fourth position they may be subjected to a cleansing spray of soap, caustic solution or other detergent. When the cans are in this fourth position, they are directly over a nozzle 67 that direct the jets of cleansing solution upwardly into the inverted cans, and the covers are similarly subjected to a series of jets of the cleansing solution from a cross-shaped spray device 68. The device 68 is connected to pipes 69 which extend downwardly along opposite sides of the cans and have a plurality of apertures through which a plurality of small jets of the cleansing solution are discharged against the outer sides of the can.

The pipes 69 and the nozzle 67 are connected to a supply pipe 70 leading to a pump 71 driven from the motor shaft 36, the suction or intake side of the pump 71 being connected by a pipe 72 to the bottom of a supply tank 73 mounted in the frame 2 beneath the cans in positions 3, 4, and 5, so that the cleansing solution may drain into the tank 73 and be used over and over by the pump 71. When the cans and covers are in the fifth position shown in Fig. 1, they may drain off excess cleansing solution. A guard 74 (Fig. 1), may be provided to divert such drainage into the tank 73.

When the cans and covers are in the sixth position shown in Fig. 1, they are subjected to a rinsing operation. In this position the cans are directly over a nozzle 75 that directs clean rinse water upwardly into the cans, and the covers are subjected to a rinse spray from a nozzle device 76 which is similar to the device 68. Pipe 77 which supplies the nozzle device 76 with the rinsing liquid extends along opposite sides of a can in this position, and is provided with apertures discharging jets of the rinsing liquid against the sides of the cans and covers to remove all of the cleansing solution which remains on the cans and the covers.

The pipe 77 and nozzle 75 are supplied with rinsing liquid through a pipe 78 which is connected to the discharge side of a pump 79. The pump 79 is driven by a motor shaft 36, and at its intake side is connected by a pipe 80 to the bottom of a tank 81 which contains a supply of the rinsing liquid such as clean

water. In succeeding positions (Fig. 1) the cans and covers may be subjected to any other treatments desired, such as final rinsing, sterilizing and drying operations, as usual in can washing machines. Suitable baffle plates 82, Figs. 1 and 3, may be suspended from the upper wall of the casing 1 above the cans so as to limit the splashing of the spray which misses the cans or is deflected by them.

It is desirable that the cans and covers be delivered at the delivery end in proper sequence, so that each can will receive its own cover. To insure this it is desirable to start the cans and their covers in a definite relation to one another at the starting end. Accordingly a lever 83 is pivoted at 84 beneath the can dog bars, and one arm or end 85 of this lever extends upwardly through the can guide into a position to be depressed or rocked by the lower ends of the cans as the latter move along the can guide. For convenience the end 85 of lever 83 is disposed in a position to be depressed by a can in the second position from the starting end, as shown in Fig. 1.

A link 86 is pivoted at one end by a pin 87 to the other end or arm of the lever 83. The other end of the link 86 is pivoted by a pin 88 to a cam lever 89, which is pivoted at 90 to the cover guide 9. The cam lever 89 has a cam tail 90 which is normally in a lowered position, shown in Fig. 1, when the lever 83 is operated by a can in the second step or position in the machine. When the cam tail 91 is in lowered position, as shown in Fig. 1, the first dog 12 of the cover propelling means will clear the tail 91 and be unaffected thereby. When there is no can in the second position however, a weight 92 carried on the link 86 will rock the lever 83 in a position to elevate the end 85 upwardly through the can guide, as shown in Fig. 5.

During such movement, the cam tail 91 is elevated into a position in which it engages with the lower end of the first dog 12 of the cover propelling means, and holds that dog 12 free of the covers during the movement of this dog 12 into a position ready to engage a cover in the first position on the guide 9, and also during the movement of the dog in a propelling direction until it has cleared any cover that may be in the first position. So long as there is no can in the second position on the can guide, the first dog 12 of the cover dog bar will be held in an ineffective position, so that it cannot advance the cover out of the first position on the guide 9. The cover in first position will therefore remain stationary until its related can reaches the second position on the can guide and then they will travel through the machine in a definite relation to one another, the cover reaching the delivery end at just the time necessary to fall upon the upended can A', and the gate 57 check-

ing the cover if it arrives too soon to fall upon the can.

In order to avoid waste of the preliminary rinse water, the valve 66, Fig. 1, may be operated by a bell crank lever 93 which is pivoted on a bracket extending from the valve. A link 94 connected to this bell crank is also connected to an upstanding arm 95 fixed on the pivot 84 so as to rock with the lever 83.

The jets of preliminary rinse water, which are effective upon the cans and covers in their second positions, will therefore not be in action unless there is a can in second position on the can guide. A can moving into second position on the can guide depresses the end 85 of lever 83, and in doing so turns on the preliminary rinse so long as the can remains in that position and permits actuation of the cover out of first position, it being remembered that the cover is actuated forward out of its first position while the can is stationary in second position. The covers travel into second position while the can in second position is stationary, and hence both the can and can cover are subjected to the preliminary rinse.

The operation of this machine would appear to be obvious from the foregoing description, but will be briefly summarized. The motor 37 is started in operation, and the pump 71 and 79 are thereby operated to spray the washing solution and the second rinse continuously. Through the pinion 32 the gear 30 will be continuously rotated, and through it the cam having the groove 29 will be rotated. The cam groove causes oscillation of the arms 27 and 52. The arm 27 causes reciprocations of the can and cover dog bars alternately, and the arm 52 causes reciprocations of the delivery carriage 43 and the oscillations of the upending cradle 39. The cans are placed in succession upon the can guide at the starting end. After each can is placed upon the can guide at the starting end, its cover is placed in the first notch on the guide 9.

The can dog bars move forwardly first, and push the can into second position during which the cover dog bar moves idly into a driving position. During the return movement of the can dog bars, the cover dog bars will move the covers forwardly. The depression of the lever 83 by the can in second position, permits the operation of the cover out of first position on its guide, so that the covers will move through the machine a half step back of the related can. When the can moves into second position the depressed lever 83 will cause actuation of the valve 66 to turn on the preliminary rinse liquid while the can remains in second position.

After the cans and covers move through the machine where they are cleansed, the cans are upended and the covers applied, as described and claimed in the pending application of

said Sperraz. As the delivery carriage 43 moves the can into final position A', the carriage operates the gate 57 to release the cover so that the cover may fall upon the can.

It will be obvious that various changes in the details, which have been herein described and illustrated in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

Claims:

1. A washing machine for milk cans and the like comprising a trackway over which the cans may be moved in an inverted position, a cover trackway along which the covers may be moved, a reciprocating dog bar associated with the can trackway and reciprocating in a direction lengthwise of that trackway, a dog bar arranged adjacent the cover trackway and reciprocating in a direction lengthwise of the cover trackway, pivoted dogs carried by each dog bar and operable upon the cans and covers to propel them along their trackways, step by step, during successive reciprocations of said dog bars, and means connected to said dog bars for causing reciprocation of said dog bars with the can propelling dog bars moving forwardly when the cover propelling dog bar is moving rearwardly, and vice versa, whereby the cans and covers will be moved alternately in succession, step by step.

2. A washing machine for milk cans and the like comprising a trackway for the cans and a trackway for the can covers running parallel to one another, reciprocating means associated with each trackway for propelling the cans and covers step by step along the trackways, and means for operating said reciprocating means simultaneously in opposite directions, whereby the cans and covers will be fed along the trackways step by step in alternate movements.

3. A washing machine for milk cans and the like comprising a trackway for the cans and a trackway for the can covers running parallel to one another, reciprocating means associated with each trackway for propelling the cans and covers step by step along the trackways, means for operating said reciprocating means simultaneously in opposite directions, whereby the cans and covers will be fed along the trackways step by step in alternate movements, and means associated with the starting end of said can trackway and operable upon the cover feeding means for normally preventing actuation by said reciprocating means of any cover in starting position on said trackway, and having a controlling member in a position for operation by a can in a desired position on said can trackway for operation to permit actuation of a cover from starting position, whereby said covers and cans will be propelled along

their trackways in a definite step by step relation to one another.

4. A washing machine for washing milk cans and their covers and the like, comprising a trackway along which can members may be moved, a second trackway along which the cover members may be moved, feeding means associated with each trackway for propelling the can and cover members along the same in succession, and means associated with both of said trackways adjacent the starting ends thereof for preventing initial movement of the members on one of said trackways until there is a member in a desired position on the other trackway, whereby the can and cover members will be conveyed along said trackways in a desired relation to one another.

5. A washing machine for washing milk cans and their covers and the like, comprising a trackway along which can members may be moved, a second trackway along which the cover members may be moved, feeding means associated with each trackway for propelling the can and cover members along the same in succession, and means associated with both of said trackways adjacent the starting ends thereof for preventing initial movement of the members on one of said trackways until there is a member in a desired position on the other trackway, whereby the can and cover members will be conveyed along said trackways in a desired relation to one another, and means for operating said feeding means of both trackways alternately in propelling directions.

6. A washing machine for milk cans and their covers, comprising a trackway along which the cans may travel, a trackway running in the same direction and along which the covers may travel, reciprocating bars extending along the trackways, means mounting said bars for reciprocating movements in directions endwise of the trackways, dogs carried by each bar and operable upon the cans and covers, whereby the cans and covers will be propelled step by step along their trackways by the reciprocations of said bars, a member movable into and out of a position in which it prevents engagement of a cover in a desired position by one of said dogs, and means yieldingly urging said member into a position in which it prevents operation of a cover by said dog bar, said urging means having an element extending into the path of travel of said cans, whereby a can within a predetermined section of said trackway will operate said element into a position in which said one dog bar may be effective on said covers, and the covers moved along their trackways in a desired relation to said cans.

7. A washing machine for milk cans and their covers, comprising a trackway for said cans, a trackway for covers, a bar having pivoted feeding dogs thereon associated with

each trackway and mounted for reciprocation endwise, whereby the covers and cans will be fed step by step along their trackways, a member disposed in the path of travel of said cans along the trackway and operable by the cans in succession when the cans are in a predetermined section of said trackway adjacent the starting end thereof, and means controlled by said member for preventing the operation of a cover out of a starting position on its trackway until a can operates said member, whereby said cans and covers will travel in a desired relation to one another along said trackways.

8. A washing machine for milk cans and their covers, comprising a trackway for said cans, a trackway for said covers, means for feeding said cans and covers along their trackways and including a bar reciprocating endwise of the cover trackway and having pivoted dogs for engaging and feeding said covers step by step along their trackway, a lever having an arm extending into the path of travel of said cans along the can trackway, whereby when a can is passing through a certain section of the can trackway, said lever will be rocked in one direction, a cam arranged adjacent the starting end of the cover trackway and operable into and out of a position in which it holds the pivoted dog engaging the first cover on the trackway in a position in which it is inoperative to propel said first cover out of starting position, means connecting said cam and said lever, whereby when said lever is operated by a cam said cam will be held in a position in which it is inoperative on said dog, whereby the movement of the can through said section will permit actuation of a cover from starting position, and means yieldingly urging said lever in a direction to place said arm in the path of said cans.

9. A washing machine for milk cans and their covers, comprising a trackway for said cans, a trackway for said covers, means for feeding said cans and covers along their trackways and including a bar reciprocating endwise of the cover trackway and having pivoted dogs for engaging and feeding said covers step by step along their trackway, a lever having an arm extending into the path of travel of said cans along the can trackway, whereby when a can is passing through a certain section of the can trackway, said lever will be rocked in one direction, a cam arranged adjacent the starting end of the cover trackway and operable into and out of a position in which it holds the pivoted dog engaging the first cover on the trackway in a position in which it is inoperative to propel said first cover out of starting position, means connecting said cam and said lever, whereby when said lever is operated by a can said cam will be held in a position in which it is inoperative on said dog, whereby the movement

of the can through said section will permit actuation of a cover from starting position, means yieldingly urging said lever in a direction to place said arm in the path of said cans, and means controlled by said lever for controlling the activity of said treating means, whereby said treating means will be effective only when a can is in said section of the trackway.

10. A washing machine for milk cans and their covers, comprising a trackway along which the cans may be conveyed in succession, a trackway along which the covers may be conveyed in succession, said trackways running in the same direction and adjacent one another, feeding means associated with each trackway for feeding the cans and covers along the trackway step by step, means connecting said feeding means for causing alternate operation of said feeding means in conveying directions, can reversing mechanism arranged along the can trackway for reversing the cans after they reach a predetermined position, means for propelling the cans along the trackway after being reversed, and discharge mechanism connected to the discharge end of the cover trackway for directing the covers in succession, as they leave the cover trackway, upon the reversed cans traveling along the can trackway.

11. A washing machine for milk cans and covers comprising a trackway along which the cans may be conveyed in an inverted position, feeding means associated with one section of said trackway for propelling the cans step by step along said section, can reversing mechanism arranged at the discharge end of said section of trackway for receiving the inverted cans, upending them, and discharging them upon another trackway section, feeding means associated with the second trackway section for propelling the upended cans away from said upending mechanism, a cam, a pair of followers operated by said cam and connections from said followers to both of said feeding means for causing operations of both of said feeding means in a desired relation to one another.

12. A washing machine for milk cans and covers comprising a trackway along which the cans may be conveyed in an inverted position, feeding means associated with one section of said trackway for propelling the cans step by step along said section, can reversing mechanism arranged at the discharge end of said section of trackway for receiving the inverted cans, upending them, and discharging them upon another trackway section, feeding means associated with the second trackway section for propelling the upended cans away from said upending mechanism, a cam, a pair of followers operated by said cam, connections from said followers to both of said feeding means for causing operations of both of said feeding means in a desired re-

lation to one another, and means connecting said upending mechanism with one of said feeding means, whereby said upending mechanism will be operated in a desired relation to the operations of said feeding means.

5 13. A washing machine for milk cans and their covers, comprising a trackway along which the cans may travel, a trackway along which the covers may travel, feeding means
10 associated with each trackway and reciprocating endwise of said trackways to feed the cans and covers along their trackways, a lever, connections between said lever and each of
15 said feeding means for causing concurrent reciprocations of said feeding means in opposite directions, whereby the cans and covers will be moved forwardly by alternate
20 steps, and means for operating one of said feeding means and through said lever the other feeding means.

14. A washing machine for milk cans and their covers, comprising a trackway along which the cans may travel, a trackway along which the covers may travel, feeding means
25 associated with each trackway and reciprocating endwise of said trackways to feed the cans and covers along their trackways, a lever, connections between said lever and each of
30 said feeding means for causing concurrent reciprocations of said feeding means in opposite directions, whereby the cans and covers will be moved forwardly by alternate
steps, a continuously rotating cam, a follower operated by said cam, and means connecting
35 said follower to one of said feeding means for reciprocating it and through said lever causing reciprocation of the other feeding means.

15. A washing machine for milk cans and their covers, comprising a guide along which the cans may travel, a guide along which the
40 covers may travel, feeding means associated with each guide for propelling the cans and covers along their guides, and means for operating said feeding means alternately in
45 propelling directions.

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