

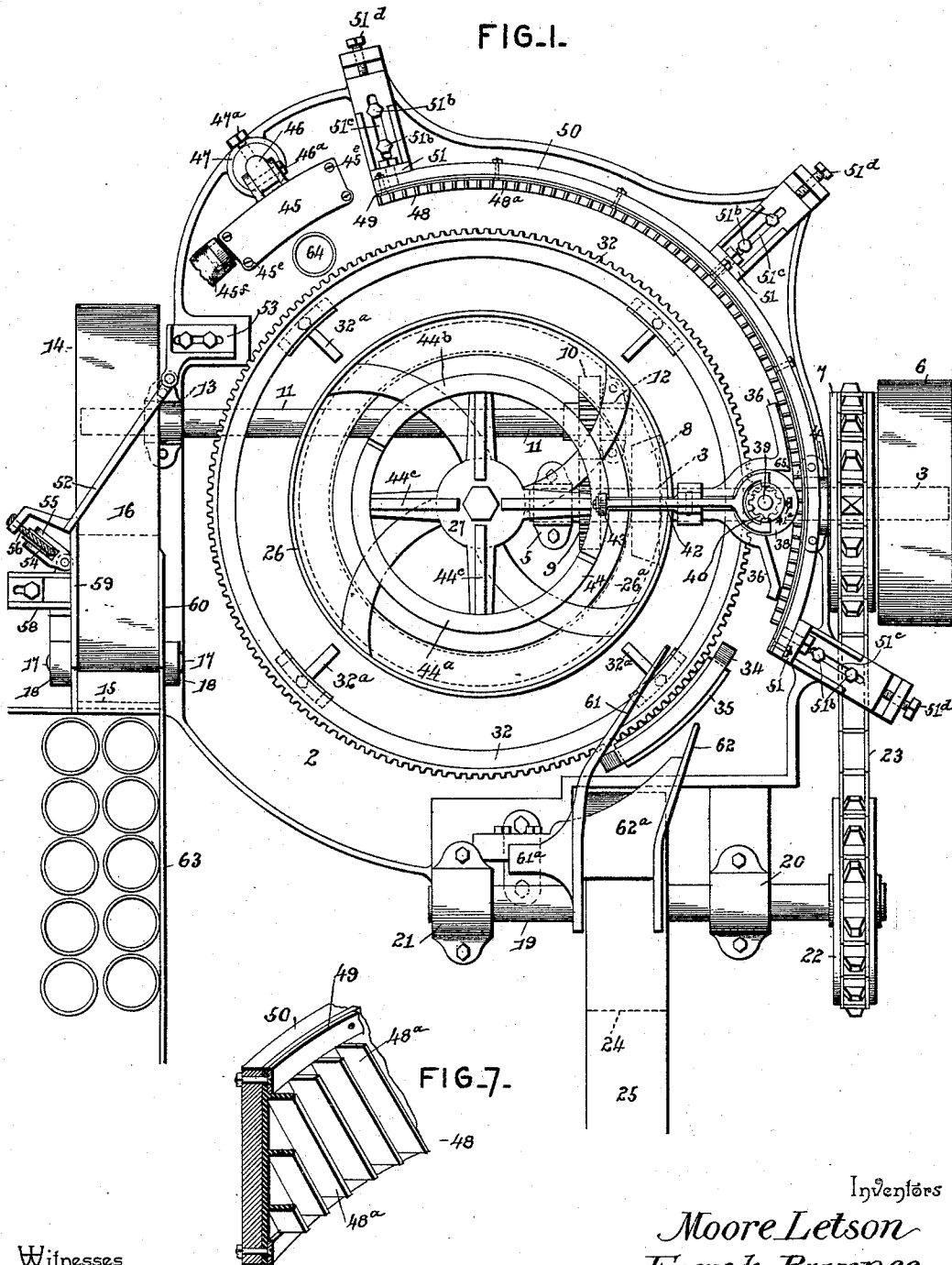
(No Model.)

3 Sheets—Sheet 1.

M. LETSON & F. BURPEE. CAN WASHER.

No. 525,022.

Patented Aug. 28, 1894.



Witnesses
Jas. K. McArthur
J. S. [Signature]

By their Attorneys.

Inventors
Moore Letson
Frank Burpee
C. A. Snow & Co.

(No Model.)

3 Sheets—Sheet 2.

M. LETSON & F. BURPEE. CAN WASHER.

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FIG. 2.

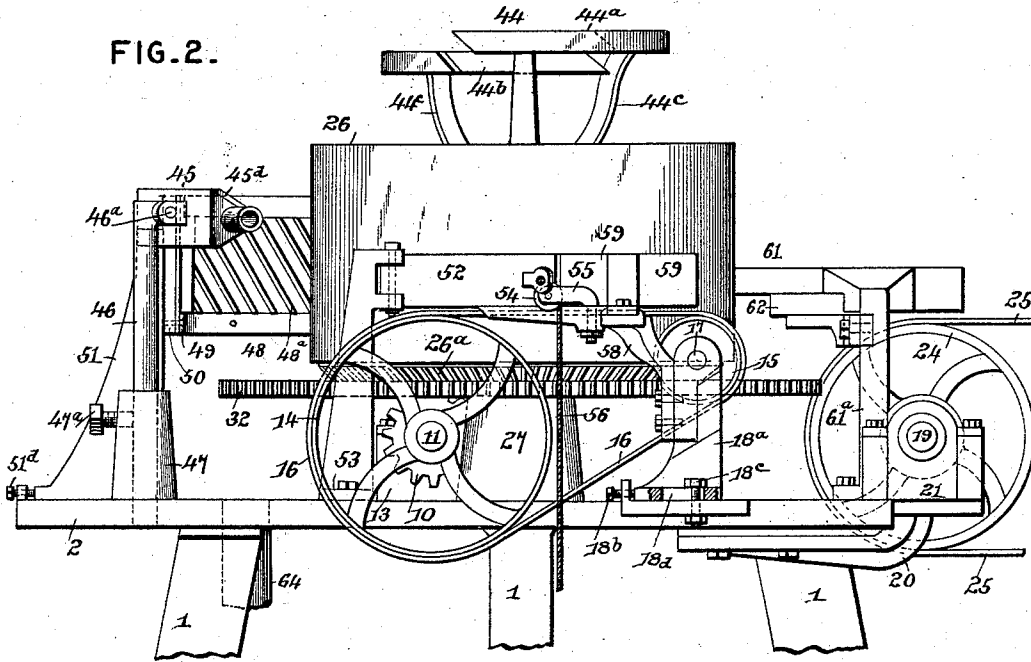
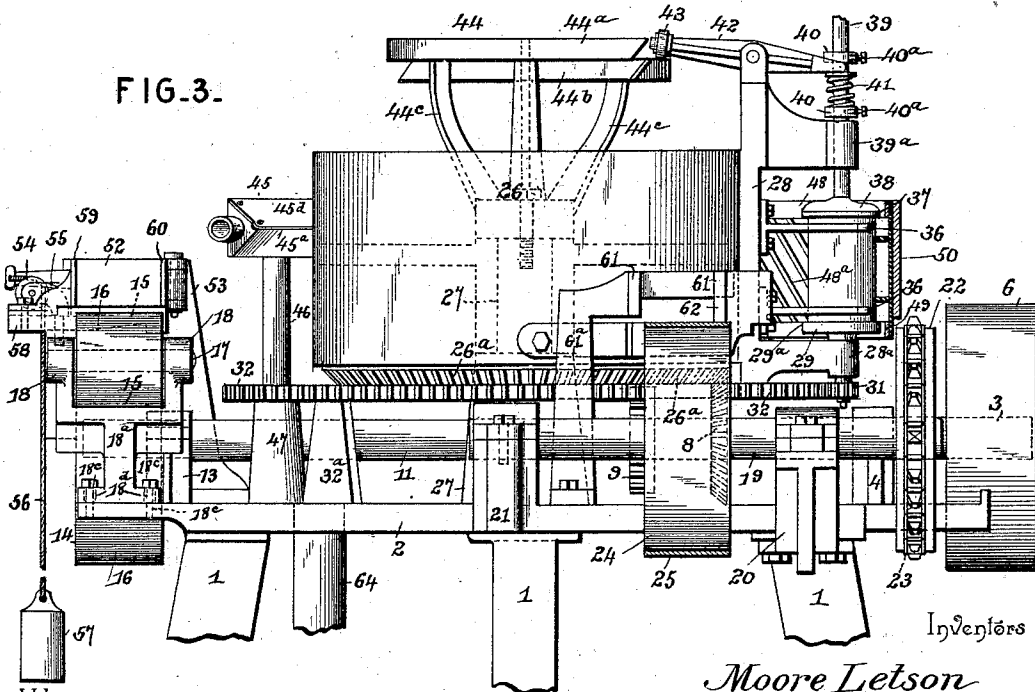


FIG. 3.



Inventors

Moore Letson
Frank Burpee

By their Attorneys.

Chas. Snow & Co.

Witnesses

Jas. H. McLathran
[Signature]

(No Model.)

3 Sheets—Sheet 3.

M. LETSON & F. BURPEE.
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FIG. 4.

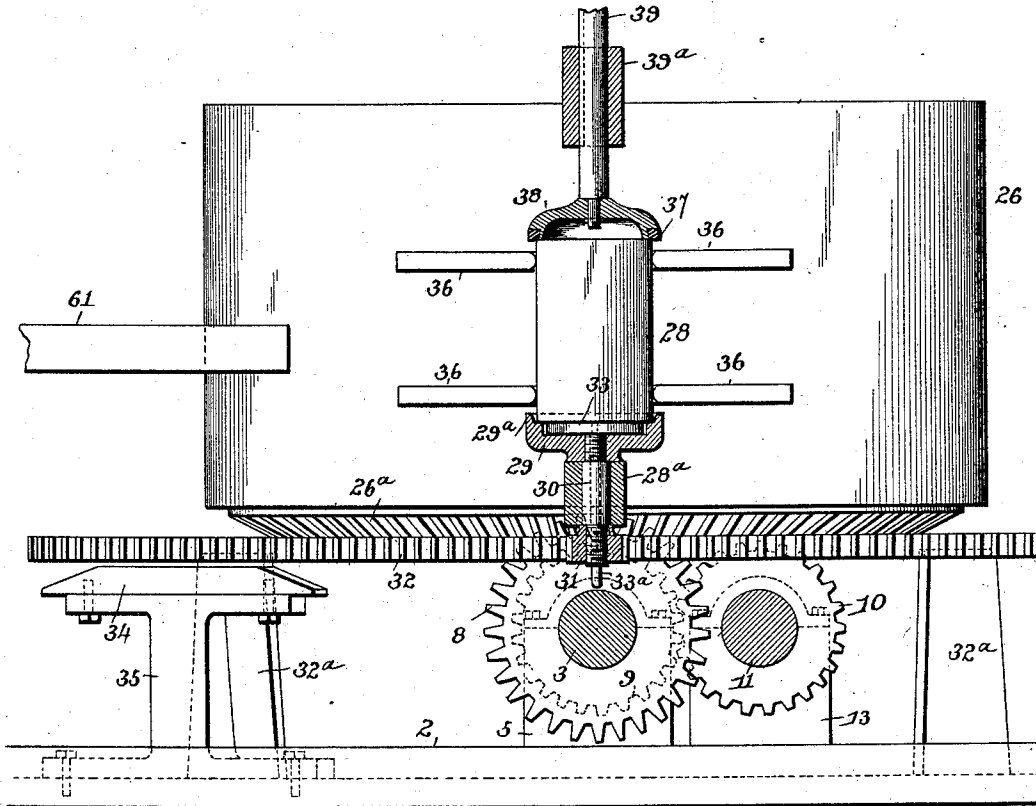


FIG. 5.

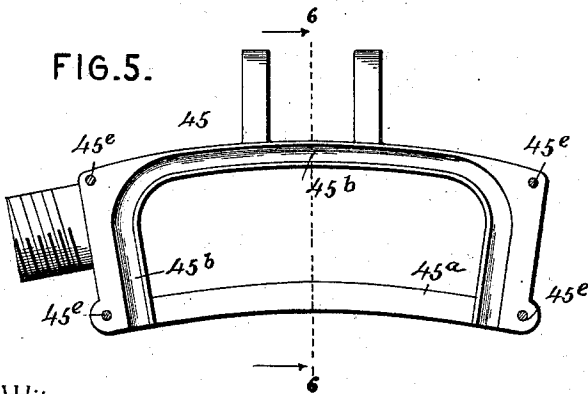
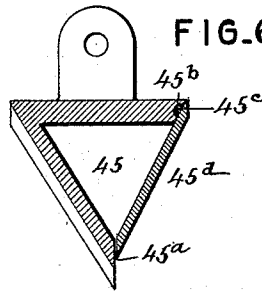


FIG. 6.



Witnesses

Jas. H. McLathran
[Signature]

By their Attorneys.

Moore Letson
Frank Burpee

C. Snow & Co.

Inventors

UNITED STATES PATENT OFFICE.

MOORE LETSON AND FRANK BURPEE, OF NEW WESTMINSTER, CANADA.

CAN-WASHER.

SPECIFICATION forming part of Letters Patent No. 525,022, dated August 28, 1894.

Application filed February 28, 1894. Serial No. 501,824. (No model.)

To all whom it may concern:

Be it known that we, MOORE LETSON and FRANK BURPEE, subjects of the Queen of Great Britain, residing at New Westminster, in the county of Westminster and Province of British Columbia, Canada, have invented a new and useful Can-Washing Machine, of which the following is a specification.

Our invention relates to a can-washing machine adapted for use in canning establishments for removing the grease and other foreign substances with which the exterior surfaces of the cans become covered in the process of filling, the removal of such foreign substance being necessary previous to securing the caps upon the cans in order to insure the adhesion of the solder or cement.

The object of the invention is to provide a compact and efficient machine which will receive the cans, cover the same temporarily to prevent the escape of the contents thereof, carry them through a jet of hot water or other cleansing agent, remove the surplus water and dry the surfaces of the cans, and finally transfer them to a continuously moving carrier, whereby they are transported to the table where the caps are applied.

In carrying out our invention we employ certain novel construction, combination and arrangement of devices which will be fully described hereinafter and specifically pointed out in the claims.

In the drawings: Figure 1 is a plan view of a machine embodying our invention. Fig. 2 is a side view looking at the inlet or receiving side of the machine. Fig. 3 is a similar view looking at the discharge side of the machine. Fig. 4 is a side view opposite to Fig. 1, partly broken away to show the construction of the can-holder and co-operating parts. Fig. 5 is a detail plan view of the water-box. Fig. 6 is a detail transverse section of the same on the line 6—6 of Fig. 5. Fig. 7 is a detail sectional perspective of the mat.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the legs or standards, upon which is supported the base 2, 3 represents the driving-shaft journaled in the bearings 4 and 5, and keyed on this shaft are a driving pulley 6, a sprocket-wheel 7, a bevel gear 8, and

a spur gear 9, said spur gear being arranged to mesh with a corresponding spur gear 10, which is fixed to a shaft 11 journaled in the bearings 12 and 13. Fixed to the opposite end of the shaft 11 is a pulley 14, connected to a smaller idle pulley 15, by a carrier belt 16, the upper side of which is arranged in a horizontal plane for a purpose hereinafter explained. The pulley 15 is carried by a shaft 17, journaled in the bearing 18. Said bearing is formed in the arms of a bifurcated casting 18^a, which is secured to the base 2 and is capable of horizontal adjustment to take up looseness of the belt, such horizontal adjustment being accomplished by means of an adjusting screw 18^b and the locking bolts 18^c which pass through slots 18^d in the lower end of said casting.

19 represents a shaft journaled in the bearings 20 and 21, and carrying a sprocket-wheel 22 which receives motion from the sprocket-wheel 7 by means of the connecting chain 23, and 24 represents a pulley fixed to the shaft 19 to operate the carrier belt 25, by which the cans are carried from the delivery or discharge way of the machine to the table (not shown), where the caps are applied.

26 represents a rotary carriage which is journaled upon the vertical gudgeon 27, and is provided in its under side with peripheral gear-teeth 26^a, which are engaged by the bevel gear 8, whereby motion is communicated from the driving shaft to the carriage. Secured to the side of the rotary carriage is a can-holder 28, having a base 29, which extends out horizontally and is provided with a peripheral up-standing rim 29^a, to receive the bottom of a can and prevent lateral displacement thereof. Said base is carried by an arm 28^a, at the lower end of the holder, and is provided with a vertical spindle 30, mounted rotatably in said arm, said spindle being provided at its lower end with a pinion 31, which engages a circular horizontal rack 32, supported upon standards 32^a, projecting upward from the base. The base 29 and pinion 31 are secured to the spindle 30 by means of left-hand threads, whereby the rotary motion imparted to the pinion during the operation of the machine is conveyed through the spindle to the base 29 without detaching said parts. Fitted in a cavity in the base 29 is a small

disk 33, provided with a spindle 33^a, which extends downward through an axial bore in the spindle 30 and projects at its lower end below the under side of the pinion 31, for a purpose hereinafter described.

34 represents a beveled or cam block fastened to a casting 35, which is supported upon the base 2. The holder 28 is provided, in addition to the above mechanism, with guards 36, which embrace the sides of a can and extend in front and in rear thereof.

37 represents a rubber ring or collar, sprung over the edge of the cap 38, which is revolvably mounted upon the lower extremity of a vertically-slidable stem 39, said stem being fitted for vertical movement in a guide 39^a, projecting from the upper end of the holder 28, whereby said guide is arranged in alignment with the axis of the spindle 30. This cap is adapted to fit over the top of the can as it passes through the machine and form a temporary cover therefor to prevent the escape of the contents. The stem 39 is provided above the guide 39^a with spaced collars 40, which are provided with set-screws 40^a, whereby they may be adjusted longitudinally upon the stem. 41 represents a spring coiled upon the stem between said collars; and 42 represents a lever for raising and lowering said stem and provided at its inner end with an antifriction roll 43, which travels upon the circular cam 44. The outer end of said lever bears against the under side of the upper collar 40 and the upper end of the spring 41, whereby when said outer end of the lever is elevated the cap 38 is raised and when said end of the lever is depressed the cap is lowered. By adjusting the lower collar 40, the tension of the spring 41 may be elevated to vary the pressure of the cap upon the top of the can. This cam is provided with upper and lower rims 44^a and 44^b, arranged in different horizontal planes, and each one hundred and eighty degrees in length, or extending around one-half of the entire circle. The beveled ends of these segmental rims are arranged in juxtaposition, whereby, as the antifriction roller 43 is carried around by the can holder it travels alternately upon the under surface of the rim 44^a, thereby elevating the cap 38, and upon the upper surface of the rim 44^b, thereby depressing the cap 38. This cam is supported in a fixed position by a spider 44^c, which is secured to the upper end of the gudgeon 27.

45 represents a water-box, supported by the standard 46, which is fitted in a vertical socket 47, formed on the base 2 and held in the desired vertical adjustment by means of a set-screw 47^a. The box 45 is secured to the upper end of the standard 46 by means of a transverse bolt 46^a, and is substantially triangular in transverse section, with a narrow slot or vent 45^a at one angle to allow the water to escape in the form of a narrow blade or stream. The body-portion of this box is provided at its upper edge with a groove 45^b,

in which is fitted a rubber gasket 45^c, and the removable cover 45^d bears upon said gasket, whereby by means of the adjusting bolts 45^e the width of the vent 45^a may be regulated to throw a stream of the desired volume. A flexible supply-pipe 45^f is connected to one end of the water-box, as shown clearly in the drawings, and inasmuch as said supply-pipe is flexible the box may be vertically adjusted as may be required to apply the stream of water to any part of the surface of a can.

48 represents a segmental rubber mat for drying the cans after having passed the water-box, said mat being held in place by means of metallic bands 49, arranged at the upper and lower edges of the mat and securing the same to a curved frame 50, which is carried by standards 51. The rubber mat is provided upon its inner surface with a series of spaced parallel inclined webs 48^a, which come in contact with the surface of the can from the top to the bottom thereof; and as the can is rotated while in contact with the mat, it will be understood that the water is removed effectively from its surface. The standards 51 are held in place by locking-bolts 51^b, which engage slots 51^c therein, and adjusting bolts 51^d are employed to arrange the standards in the desired positions to insure the required pressure of the mat at all points upon the cans.

52 represents a guiding arm, which is pivotally connected to an adjustable standard 53, bolted to the base 2, and connected to the free end of this guiding arm is a cord 56, which extends over a direction-pulley 54, mounted in a bracket 55, which is pivotally secured to a casting 58, which is bolted to the casting 18^a, the other end of said cord being attached to a weight 57, whereby the guiding arm is normally held in the position shown in Fig. 1, in which its free end bears against the extremity of a guard 59, which forms an upstanding part of the casting 58, and which extends longitudinally along the outer edge of the belt 16 to prevent the lateral displacement of the cans as they are carried by said belt to the inlet or receiving way of the machine. Said casting 58 extends horizontally under an intermediate portion of the belt 16 to support the same in a horizontal position and prevent sagging by the weight of the superimposed cans; and from the inner edge of this horizontal portion rises a guard 60, which is arranged opposite to the guard 59 to prevent displacement of the cans in that direction. 61 represents a guide, held in place by a standard 61^a secured to the base 2 and arranged to engage the cans after their release from the can holder, and guide the same to the carrier belt 25, and 62 represents an opposite guide provided with a horizontal extension or platform 62^a, which bridges the interval between the base 29 and the belt 25, and supports the cans during their passage between the guides. The extension or platform 62^a is extended beyond the guide 61 and

is bolted to the standard 61^a. 64 represents an outlet to carry off the waste-water.

63 represents the receptacle in which the cans are placed preparatory to washing, and from which they are pushed by hand to the feeding belt 16. As they are moved forward by means of this belt they are guided and held from lateral displacement by the parallel guards 59 and 60, and when they reach the yielding guide 52 they are moved laterally until received by the can holder 28. It will be understood that while in the drawings we have illustrated only one can holder, similar holders will be arranged at intervals around the periphery of the rotary carriage at such relative distances that the guards 36 will be in contact at their extremities, thus forming a continuous guard except at the points of entrance to the holders, such guard preventing the crowding of the cans as they leave the belt 16, whereby only a single can enters each holder. When a holder reaches a position opposite the space between the guard 60 and the guiding arm 52 a can passes thereinto and immediately the said space between the guard 60 and the arm 52 is closed to prevent the entrance of other cans by the portion of the guard 36, which is arranged between the holder just occupied and the succeeding holder. The function of the yielding guide arm 52 is to prevent the crushing or bending of the sides of a can when it comes between the acute-angled portion 65 of the guard 36 and said arm. After entering the holder the can is carried in front of the water spray, and as the holder is rotated by the meshing of the pinion 31 with the stationary rack 32, all portions of the surface of the can are treated with the hot water or other cleansing agent forming such spray. It will be understood that, as soon as the can has been received in the holder it is covered by the depression of the cap 38, actuated by the rocking-lever 42 and the cam 44. After passing the spray the can is rotated in contact with the drying mat 48, and after leaving the latter the temporary cap 38 is elevated in the manner before described, and the lower end of the stem 33^a engages the beveled surface of the block 34 and is elevated, thus raising the bottom of the can above the plane of the rim on the base 29, whereby, when the side of the can comes in contact with the curved guide 61 it is moved laterally from said base to the platform 62^a, and is then pushed forward by succeeding cans to the carrier belt 25, and is carried as before mentioned to the table where the lids are applied.

The various members comprising the mechanism are, as described, provided with means for adjustment to take up wear and adapt the device to wash cans of different sizes. The caps 38 and bases 29 are adapted to be replaced by corresponding parts suited to different sizes and shapes of cans, the guards 36 are similarly replaceable, the spindle 39

is adjustable to suit different heights of cans; the guard 59 and standard 53 carrying the yielding arm 52, the mat 48 and guard 62 are all laterally adjustable to suit the width or diameter of the cans; and as before described, the water-box 45 is vertically adjustable by means of its standard 46, thus adapting all the parts to the special size and shape of the cans which are to be treated.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described our invention, what we claim is—

1. In a machine of the class described, the combination of a rotary carriage, means for operating the same, a can-holder mounted upon the carriage, a pinion on the can-holder engaging a stationary annular rack, and spraying and drying devices, substantially as specified.

2. In a machine of the class described, the combination of a rotary carriage, means for operating the same, a can-holder mounted upon the carriage and having a rotary base, a pinion on the base of the can-holder engaging a stationary rack located within the circle described by the can-holder, whereby the can-holder is rotated in the same direction with the carriage, a spraying device, and a drying mat arranged outside of the path of the holder to bear against the outer side of the can, substantially as specified.

3. The combination with a rotary carriage, a spraying nozzle and drying mat, of a feeding belt to convey the cans to the carriage, a carrier belt to receive the cans after leaving the carriage, and a stationary guide arranged in juxtaposition to said carrier belt to guide the cans to the latter, substantially as specified.

4. The combination with a rotary carriage, means for operating the same, and stationary washing and drying devices, of a can holder fixed to the carriage, a temporary cap adapted to cover and close a can when arranged in said holder, and means for operating said cap, substantially as specified.

5. The combination with a rotary carriage, and means for operating the same, and stationary washing and drying devices, of a can holder mounted upon said carriage and provided with a revoluble base to support a can, a temporary cap to cover and close the top of the can, and means for rotating said base, substantially as specified.

6. The combination with a rotary carriage and means for operating the same, and washing and drying devices arranged in operative relation with said carriage, of a can holder mounted upon the carriage, a temporary cap adapted to cover and close the can supported by said holder, a lever connected to the stem of said cap, and a cam arranged in operative

relation with the lever whereby the cap is alternately raised and lowered to engage and release the can, substantially as specified.

7. The combination with a rotary carriage and means for operating the same, and washing and drying devices arranged in operative relation with the carriage, of can holders mounted upon said carriage and provided with revoluble bases to support the cans, means for rotating said bases, vertically-movable disks arranged in cavities in the bases, means for elevating said disks, and a guide to engage the cans and move them laterally from the bases, substantially as specified.

8. The combination with a rotary carriage and means for operating the same, and washing and drying devices arranged in operative relation with the carriage, of can holders mounted upon the carriage and provided with revoluble bases to support the cans, disks seated in cavities in the said bases, means for rotating the bases, a fixed cam block to engage the stems of said disks to elevate the same and the superimposed cans, and a guide to remove the cans from the bases, substantially as specified.

9. The combination with a rotary carriage and means for operating the same, and washing and drying devices arranged in operative relation with the carriage, of can-feeding devices having a continuously-moving belt, can holders mounted upon the carriage and provided with guards, and a guiding arm arranged to direct the cans successively into the holders, substantially as specified.

10. The combination with a rotary carriage and means for operating the same, and washing and drying devices, of feeding mechanism having a continuously-moving belt to convey the cans to the carriage, can holders mounted upon the carriage and having lateral guards, and a yielding guide arm arranged to direct the cans into the holders and adapted to yield to prevent injury thereto, substantially as specified.

11. The combination with a carriage and means for operating the same, and washing and drying devices, of a feeding mechanism having a continuously-moving belt, outer and inner parallel guides arranged at the opposite edges of said belt, a pivotal guiding arm, and means for holding the free end thereof in contact with the outer of the parallel guides, and can holders mounted upon the carriage and adapted to receive the cans from the feeding mechanism, substantially as specified.

12. The combination with a rotary carriage and means for operating the same, can holders mounted upon said carriage, and feeding mechanism to convey the cans into said holders, of a washing device having a water-box provided with an elongated spray-opening, means for adjusting the width of said opening, and a drying device arranged in operative relation with the carriage, substantially as specified.

13. The combination with a rotary carriage and means for operating the same, can holders mounted upon the carriage, feeding mechanism arranged to convey the cans into said holders, and a washing device arranged in operative relation with the carriage, of a drying device consisting of a segmentally-disposed mat provided with outstanding webs, and means for adjusting said mat to the desired distance from the carriage, substantially as specified.

14. The combination with a rotary carriage and means for operating the same, can holders mounted upon said carriage and having revoluble bases provided with means for operating the same, feeding mechanism arranged to supply the cans and convey them into said holders, and a washing device arranged in operative relation with the carriage, of a drying device consisting of a segmentally-disposed mat provided with inclined outstanding webs to contact with the side surfaces of the rotating cans, and means for adjusting the mat toward and from the carriage, substantially as specified.

15. The combination with a rotary carriage and means for operating the same, washing and drying devices arranged in operative relation with the carriage, and can holders mounted upon the carriage, of a guide to engage and guide the cans from the holders, an opposite guide, a platform arranged between said guides to receive the cans from the holders, and means for conveying the cans from said platform, substantially as specified.

16. The combination of a base provided with an upright gudgeon, a rotary carriage mounted upon said gudgeon, a driving-shaft mounted in bearings upon the base and connected by gearing to the said carriage, can holders mounted upon the carriage and having a rotary base, a fixed circular rack arranged to engage a pinion carried by said rotary base, and stationary washing and drying devices arranged in operative relation with the carriage, substantially as specified.

17. The combination of a base having a vertical gudgeon, a rotary carriage mounted upon said gudgeon, a driving-shaft geared to the carriage, washing and drying devices arranged in operative relation with the carriage, a cam having a spider secured to the gudgeon, can holders mounted upon the carriage and provided with revoluble bases, means for rotating the bases of the can holders, vertically-slidable stems mounted in guides carried by said holders, rotary caps carried by the stems to cover and close the cans, levers loosely connected to said stems and arranged in operative relation with the said cam, and springs provided with adjusting devices to vary the pressure of the caps upon the cans, substantially as specified.

18. The combination with the rotary carriage, and means for operating the same, of

can-holders each provided with a rotary base,
a vertically-movable cap, and a packing-ring
removably fitted on said cap to bear upon the
upper edge of a can, spraying devices, and
5 operating connections for the can-holders,
substantially as specified.

In testimony that we claim the foregoing as

our own we have hereto affixed our signatures
in the presence of two witnesses.

MOORE LETSON.
FRANK BURPEE.

Witnesses:

F. MCLENNAN,
WM. CARGILL.