

No. 663,142.

Patented Dec. 4, 1900.

F. WARNING.

MACHINE FOR CLEANING LYE FROM THE EXTERIOR OF LYE CONTAINING CANS.

(Application filed Aug. 31, 1900.)

(No Model.)

3 Sheets—Sheet 1.

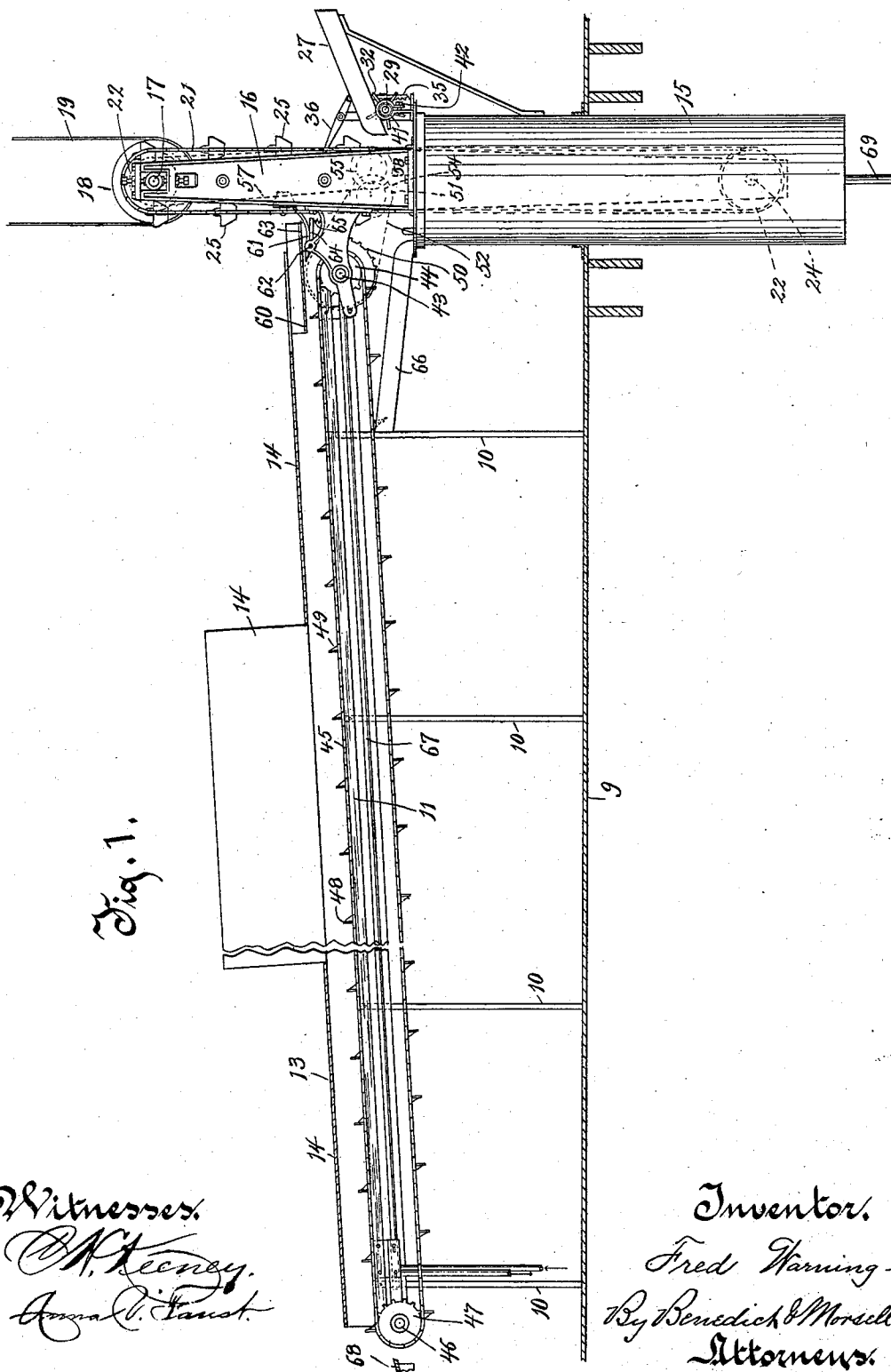


Fig. 1.

Witnesses.

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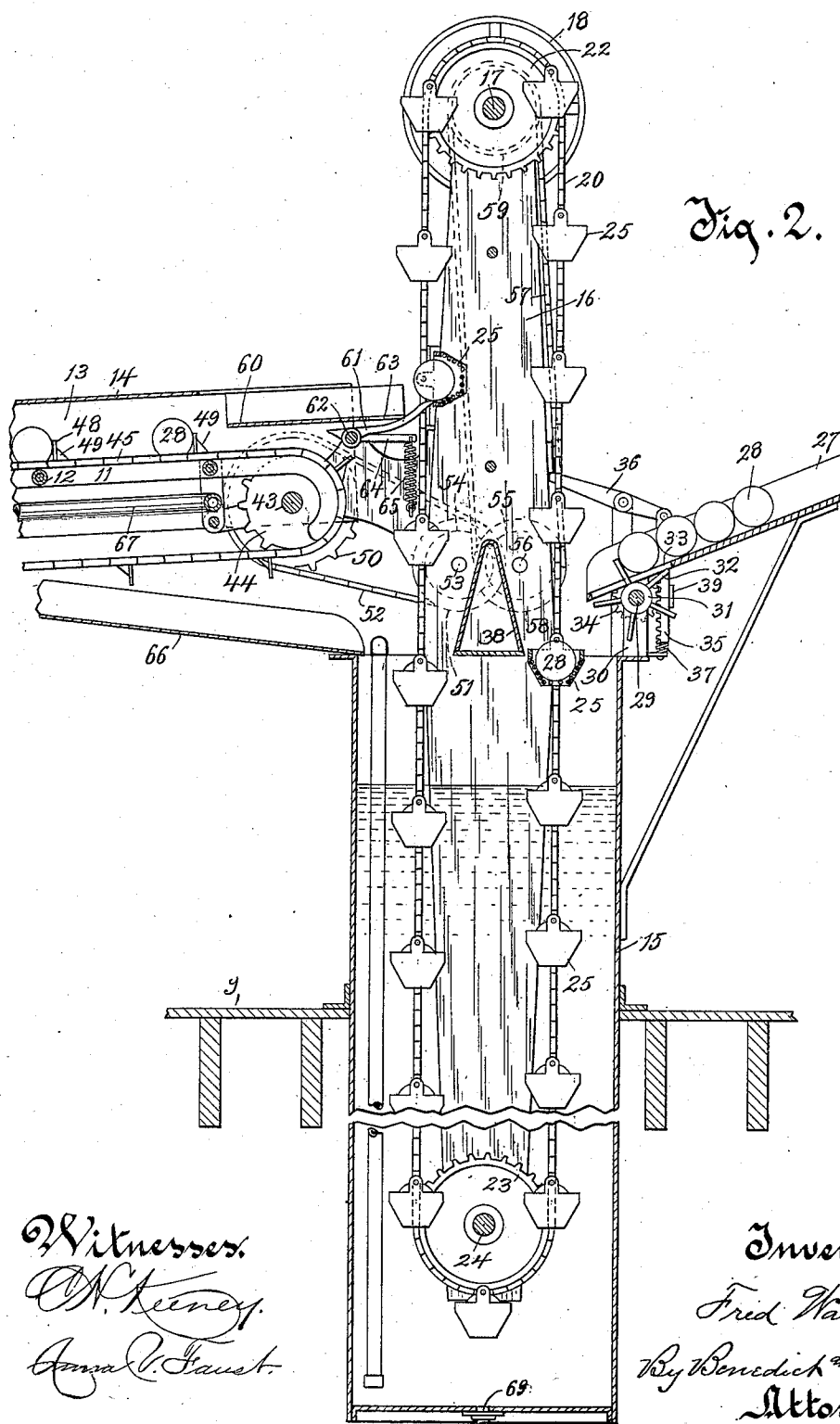
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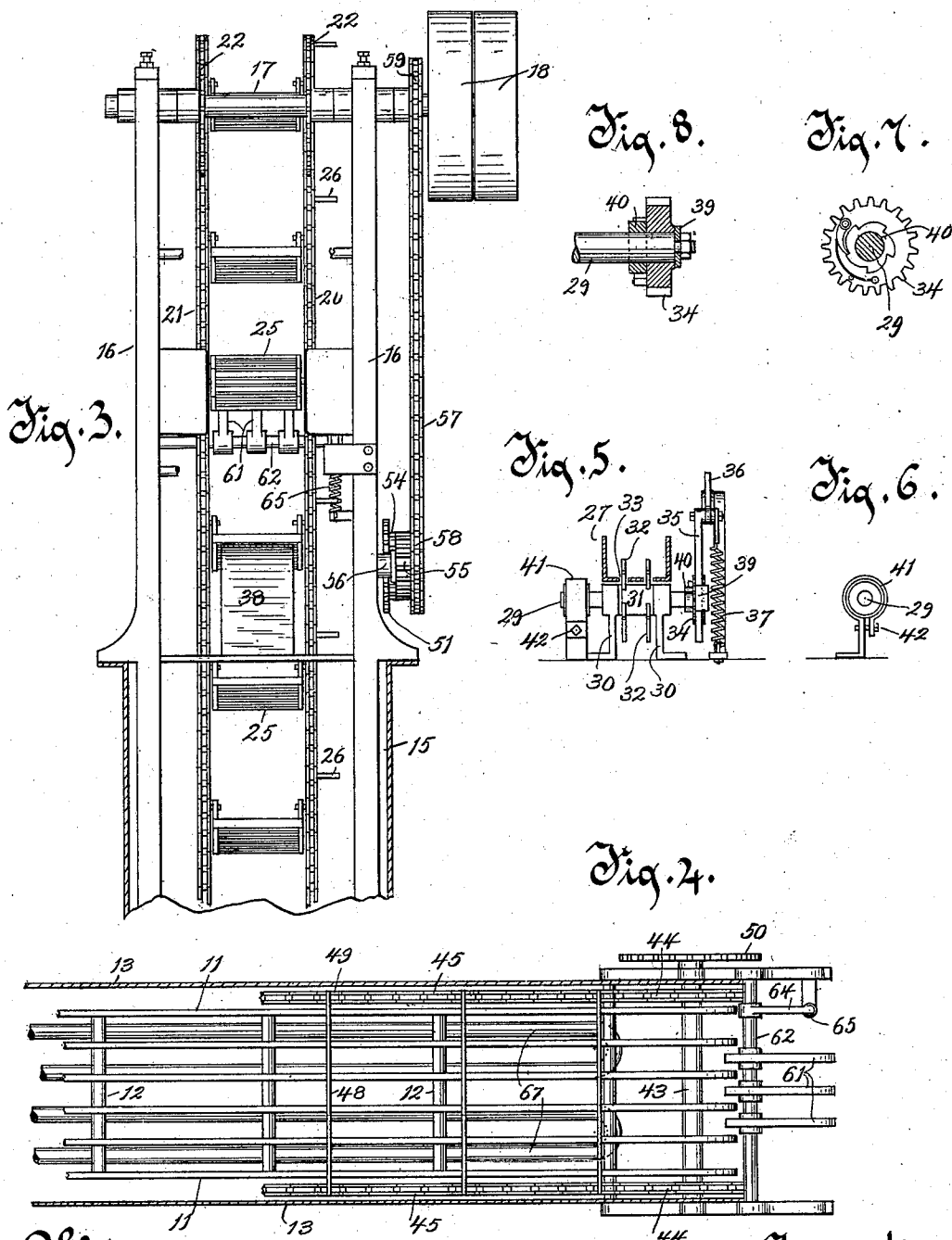
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3 Sheets—Sheet 3.



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MACHINE FOR CLEANING LYE FROM THE EXTERIOR OF LYE-CONTAINING CANS.

SPECIFICATION forming part of Letters Patent No. 663,142, dated December 4, 1900.

Application filed August 31, 1900. Serial No. 28,669. (No model.)

To all whom it may concern:

Be it known that I, FRED WARNING, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Machines for Cleaning Lye from the Exterior of Lye-Containing Cans, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in machines for cleaning lye from the exterior of lye-containing cans.

When cans are filled with lye, it is almost invariably the case that some of the lye gets on the exterior of the cans, and if this lye is not removed it has the effect of rusting the cans and also of spoiling any labels pasted on the outside of the cans. It has been customary heretofore to wash off the lye on the exterior of the cans by hand. This is not only a long and tedious operation, but also an ineffective one.

It is the object of my invention to provide mechanism of such character as to effectually and automatically remove any lye which may be on the exterior of the cans; and with this primary object in view the invention consists of the devices and parts or their equivalents, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a side elevation of the machine, parts broken away and in section. Fig. 2 is a front elevation with parts in vertical section. Fig. 3 is a view at right angles to Fig. 2. Fig. 4 is a plan view of a part of the carrier. Fig. 5 is a detail view of the feeding mechanism, and Figs. 6, 7, and 8 are details of portions of Fig. 5.

Referring to the drawings, the numeral 9 indicates a floor or base having extending upwardly therefrom a series of posts or uprights 10, which support a suitable framework, said framework consisting of a series of longitudinal slats 11, transverse connecting-bars 12, and side pieces 13 13. The side pieces support a series of hinged top pieces or covers 14.

At one end of the framework is arranged a large cylinder 15, a portion of said cylinder preferably extending through the floor or

base. From the upper end of this cylinder extend upwardly two uprights or standards 16 16, and in the upper ends of these standards is journaled a shaft 17, said shaft having upon one of its ends the belt-pulleys 18 18, around which a belt 19, extending from any suitable source of supply, is passed. A suitable endless conveyer is arranged within the cylinder and is driven by the shaft 17. This conveyer preferably consists of two endless chains 20 and 21. These chains pass around sprocket-wheels 22 22, mounted on the shaft 17, and also around sprocket-wheels 23, mounted on a shaft 24, journaled in the lower ends of the uprights 16, which extend down into the cylinders. These chains have suspended tiltably therebetween a series of buckets 25, said buckets being preferably constructed with solid end pieces and with slotted side and bottom pieces, as clearly shown in Figs. 2 and 3, Fig. 2 showing one of the buckets in transverse section. The chain 20 has projecting laterally therefrom and at desired distances apart a series of fingers 26.

Leading to the upper open end of the cylinder is an inclined trough 27 for feeding the cans 28 to the cylinder. This trough is adapted to feed the cans successively to different buckets as said buckets are brought in position to receive the cans. Any suitable means for accomplishing this purpose may be provided; but I prefer to employ the mechanism illustrated in the accompanying drawings, wherein I show a short shaft 29, journaled in suitable uprights 30 30, said shaft having mounted fast thereon between the uprights a hub 31, from which project radially two sets of fingers 32 32, said fingers adapted to extend into openings 33 33, provided therefor in the trough. On one end of the shaft 29 is mounted a pinion 34, said pinion being engaged by a rack-bar 35. This rack-bar is pivotally connected at its upper end to a rocking beam 36, the inner end of said rocking beam being in position to be engaged by the projectings finger 26. A coiled spring 37 acts to normally hold the rack-bar in its lowered position. In the operation of this mechanism when one of the fingers 26 contacts with the inner end of the beam 36

said beam is turned on its pivot, and the rack-bar is thereby raised against the action of the spring 37 and the pinion 34 rotated, and consequently the radial fingers 32 also rotated. These fingers then engage one of the cans and force said can into the bucket which is below the inner end of the trough. An inclined guard 38 insures the passing of the can into the bucket. Inasmuch as there is one of the projecting fingers 26 for each bucket it is obvious that as each bucket is brought to proper position below the inner end of the feeding-trough one of the cans is deposited in said bucket. The moment a finger 26 disengages from the rocking beam 36 the coiled spring 37 returns the rack-bar to its normal position. When the rack-bar is raised or lowered by the rocking beam 36, the teeth of said rack-bar are held in engagement with the teeth of the pinion by means of an angle-plate 39, adjacent to the outer edge of the rack-bar, said plate extending from the shaft 29 and loose thereon. It will be understood that the pinion 34 is loose on the shaft 29. A ratchet-wheel 40, however, is mounted fast on the shaft 29, and a pawl pivoted to the pinion 34 is in engagement with the teeth of this ratchet-wheel. When, therefore, the rack-bar is raised, the pinion, ratchet-wheel, and the shaft 29 are locked to rotation together. On the down movement of the rack-bar, however, the pinion runs loose on the shaft. In order to prevent rotation of the shaft 29 by reason of friction on this down movement of the rack-bar, I prefer to provide a friction-brake 41, consisting of an upwardly - extending strap, which is bent around a boss formed on the shaft and is then clamped more or less tightly thereto by means of a bolt 42.

Mounted in the side pieces of the frame at the forward end of said frame is a transverse shaft 43. Upon this shaft are mounted two sprocket-wheels 44 44, and around these sprocket-wheels pass endless sprocket-chains 45 45. At the rear end of the frame is another transverse shaft 46, having mounted thereon sprocket-wheels 47 47, around which the endless chains 45 also pass. These endless sprocket-chains 45 form an endless carrier. Any other desired form of endless carrier may of course be employed; but the construction herein shown is a preferred arrangement. Each sprocket-chain 45 has also projecting therefrom at regular intervals a series of fingers 48, extending across from one chain to the other and secured to lugs 49. Motion may be imparted to the shaft 43 by any desirable means; but I prefer to mount on the other end of this shaft a sprocket-wheel 50, which is connected to another sprocket-wheel 51 by means of a sprocket-chain 52. This sprocket-wheel 51 is mounted on a short shaft 53, said shaft projecting from one of the uprights 16. The shaft 53 has also mounted thereon a gear-wheel 54, and this gear-wheel is in mesh with another gear-wheel 55, mounted upon a short

shaft 56, said short shaft also projecting from one of the uprights 16. Shaft 56 is connected to the main shaft 17 by means of a sprocket-chain 57, passing around a sprocket-wheel 58 on the shaft 56 and also around a sprocket-wheel 59 on the shaft 17. From this it will be observed that the rotation of the main shaft 17 is conveyed to the shaft 56 by the sprocket-chain 57, the rotation of shaft 56 to shaft 53 by the intermeshing of the gear-wheels 55 and 54, and the rotation of shaft 53 is conveyed to the shaft 43 by means of the sprocket-chain 52. At the forward end of the framework or casing of the conveyer is also located a receiving-trough 60 for the cans. When the buckets are successively brought to a position in line with the receiving end of this trough, it is necessary that said buckets should be tilted in order to discharge the cans into the receiving-trough. Any desired form of tilting mechanism may be employed for this purpose; but I prefer to use the arrangement shown on the accompanying drawings, wherein I provide a series of levers 61, mounted fast on a transverse shaft 62. The bottom of the receiving-trough at its forward end is slitted, as indicated by the numeral 63, in order to provide for the free up movement of these levers. The shaft 62 has also fast thereon and projecting therefrom an arm 64, and to the end of this arm is connected a coiled spring 65, the lower end of said spring being connected to a fixed part. In the operation of this discharging mechanism when a bucket reaches a point in line with the receiving end of the trough the upper edge of one side of the bucket will contact with the free ends of the levers 61, and these levers will cause the bucket to swing, as clearly shown in Fig. 2, the swinging being to such an extent as to cause the can to roll out of the bucket onto the levers and into the trough 60.

Beneath the forward end of the framework is a trough 66. Also extending longitudinally of the framework or casing of the endless carrier and intermediate of said carrier lengthwise is a steam-coil 67.

In the operation of my improved invention the cans are placed in the feed-trough 27, as shown in Fig. 2, and said cans are successively fed into the buckets in the manner hereinbefore fully explained. The cylinder 15 is partially filled with water, as shown in Fig. 2, and as the endless carrier carries the buckets downwardly said buckets are submerged in the water, and any lye on the exterior of the cans is removed therefrom by the action of the water. This water is advisably heated by means of a steam-coil, as shown in Fig. 2, and additional heat is imparted thereto from the hot lye on the exterior of the cans. The cans after passing through the water are then carried up to a position for discharge and are discharged into the receiving-trough 60 in the manner hereinbefore clearly pointed out. From the re-

ceiving-trough the cans are deposited on the endless carrier and are carried along by the projecting fingers 48 of said carrier. When the cans reach the rear open end of the frame-work, they pass off of the endless carrier onto a suitable receiving-table 68. As the cans are carried along by the endless carrier they are subjected to the heat of the steam-coil 67, and this thoroughly dries the cans. Any drippings from the cans when they are first deposited upon the endless carrier are caught by the trough 66, and this trough reconducts said drippings back to the cylinder 15. The said cylinder 15 is also provided with a discharge-pipe 69, so that the water in the cylinder may be emptied at any time and a new supply introduced therein.

What I claim as my invention is—

1. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in said cylinder, buckets connected to the conveyer, a delivering-trough, mechanism acting successively on the cans in the trough so as to force a can into a bucket as each bucket is brought into position to receive a can, and a guard in position to prevent a can from rolling out of a bucket when a can is deposited in the bucket.

2. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in said cylinder, buckets connected to the conveyer, a delivery-trough, a hub having a series of fingers radiating therefrom and extending into the trough and engaging a can, and means for intermittently rotating the hub so as to force a can from the trough into a bucket which has been brought into position to receive said can.

3. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying cans through the water contained in said cylinder, said conveyer provided, at intervals apart, with projecting pins, buckets connected to the conveyer, a delivery-trough, a shaft having a hub mounted thereon, said hub provided with a series of fingers radiating therefrom and extending into the trough and engaging a can, a pinion loose on the shaft, a rack-bar engaging the teeth of the pinion, a rocking beam having the rack-bar pivoted to one end thereof, and having its opposite end in position to be engaged by the projecting fingers of the conveyer, and means for clutching the pinion fast to the shaft on the movement of the rack-bar in one direction, and for allowing said pinion to run loose on the shaft upon the movement of said rack-bar in the opposite direction.

4. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a

conveyer for conveying cans through the water contained in said cylinder, said conveyer provided, at intervals apart, with projecting pins, buckets connected to the conveyer, a delivery-trough, a shaft having a hub mounted thereon, said hub provided with a series of fingers radiating therefrom and extending into the trough and engaging a can, a pinion loose on the shaft, a ratchet-wheel fast on the shaft, a pawl pivoted to the pinion and engaging the teeth of the ratchet-wheel, a spring-controlled rack-bar engaging the pinion, and a rocking beam, having the rack-bar pivoted to one end thereof, and having its opposite end in position to be engaged by the projecting fingers of the conveyer.

5. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and discharging the cans therefrom.

6. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and thereby discharging the cans therefrom, and a carrier for receiving the cans as they are discharged from the buckets, and conducting the said cans to a place of deposit.

7. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, means, after the buckets have passed through the water, for tilting said buckets and thereby discharging the cans therefrom, a trough to receive the cans as they are discharged, and a carrier adapted to receive the cans from the receiving-trough, and conducting said cans to a place of deposit.

8. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conducting cans through the water contained in the cylinder, a carrier for receiving the cans from the cylinder, and for conducting said cans to a place of deposit, and a drip-trough beneath the carrier and adapted to convey any water which may drip from the cans back to the water-containing cylinder.

9. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, a carrier for receiving the cans from the cylinder, and

conducting said cans to a place of deposit, and a heating apparatus for heating the cans as they are carried along by the carrier.

10. In a machine for cleaning lye from the exterior of lye-containing cans, the combination of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, a shaft, a tilting lever or levers extending therefrom and adapted to act on a bucket, after said bucket has passed through the water, and thereby tilt the bucket so as to discharge the can therefrom, and means for returning the tilting lever or levers to its or their normal position.

11. In a machine for cleaning lye from the exterior of lye-containing cans, the combina-

tion of a water-containing cylinder or tank, a conveyer for conveying the cans through the water contained in the cylinder, buckets pivotally suspended from the conveyer, a shaft, a tilting lever or levers extending therefrom and adapted to act on a bucket, after said bucket has passed through the water, and thereby tilt the bucket so as to discharge the can therefrom, an arm extending from the shaft, and a coiled spring having one end connected to the arm and its opposite end connected to a fixed part.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:

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