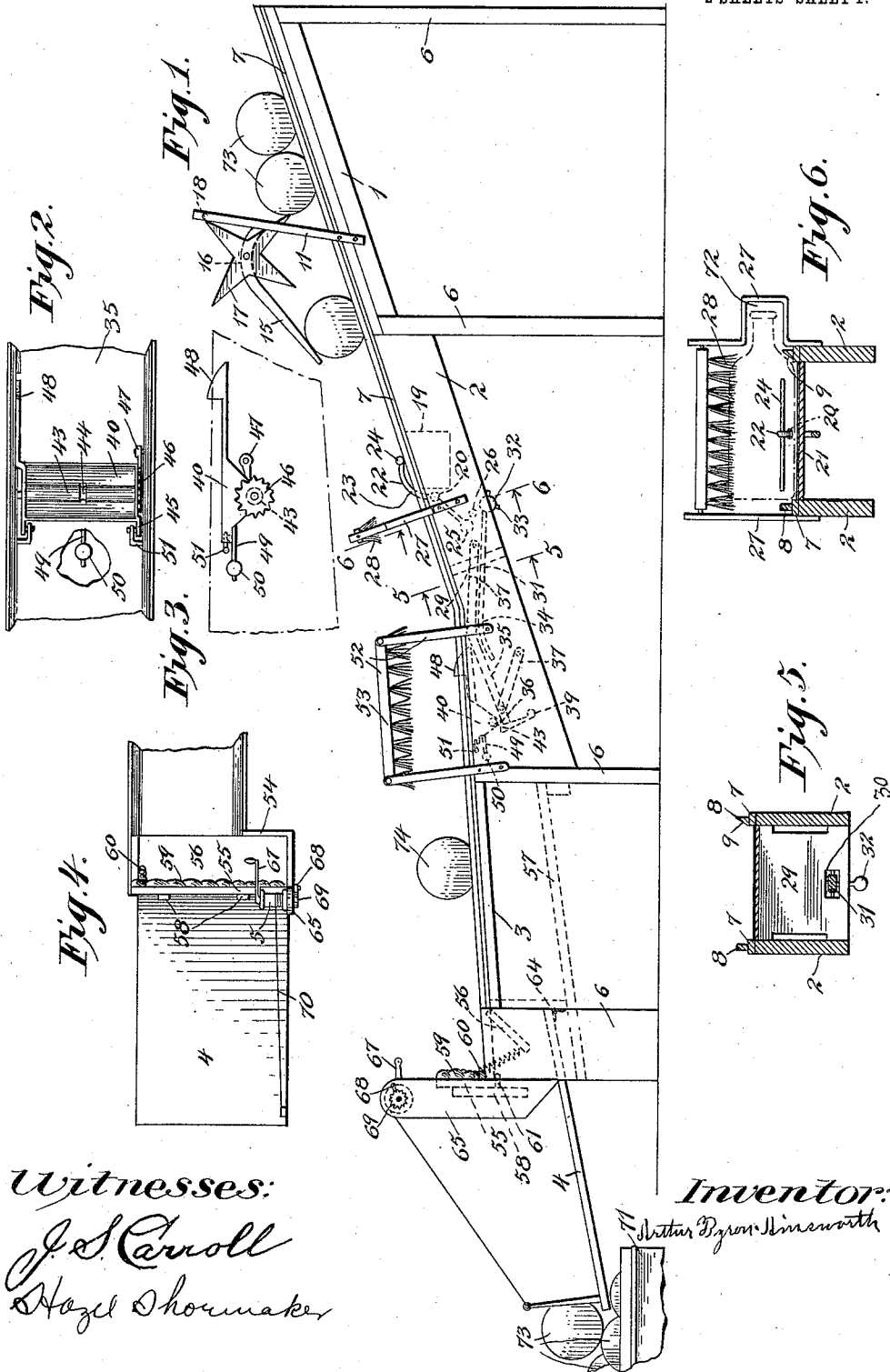


A. B. AINSWORTH.
GRAVITATION LABELING MACHINE.
APPLICATION FILED JAN. 2, 1912.

1,062,267.

Patented May 20, 1913.

2 SHEETS—SHEET 1.



Witnesses:

J. S. Carroll
Hazel Shoemaker

Inventor:

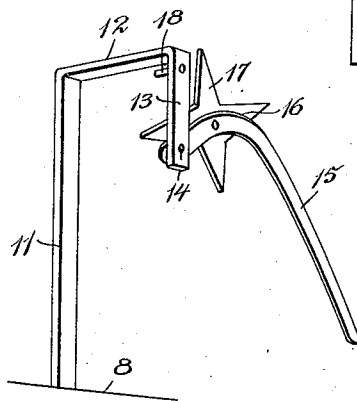
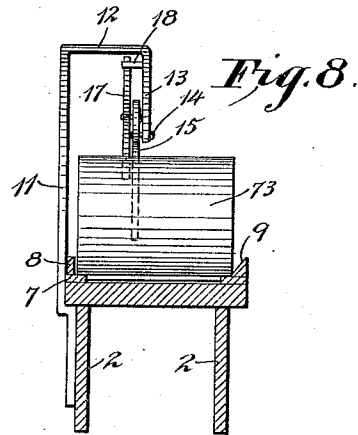
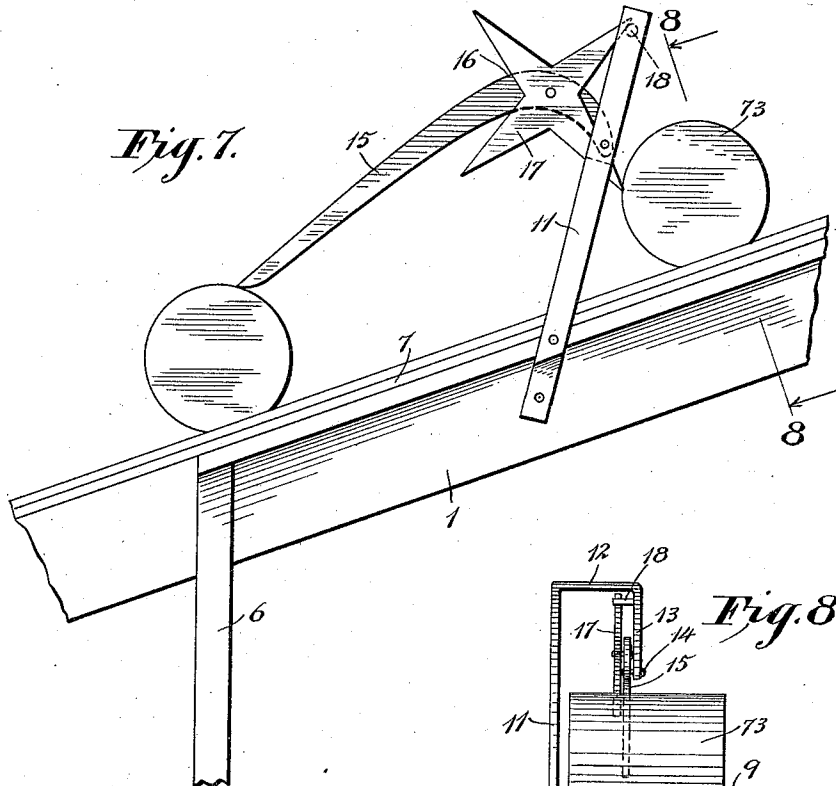
Arthur Byron Ainsworth

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UNITED STATES PATENT OFFICE.

ARTHUR BYRON AINSWORTH, OF LEAVENWORTH, KANSAS.

GRAVITATION LABELING-MACHINE.

1,062,267.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed January 2, 1912. Serial No. 669,144.

To all whom it may concern:

Be it known that I, ARTHUR BYRON AINSWORTH, a citizen of the United States, residing at Leavenworth, in the county of Leavenworth, State of Kansas, have invented certain new and useful Improvements in Gravitation Labeling-Machines, of which the following is a specification, references being had to the accompanying drawings.

The device forming the subject matter of this invention, is a machine for applying paste to rolling cans, jars, bottles, and all other vessels of similar shapes, also for applying paste to labels, the construction being such that as the vessel rolls along, the vessel will pick up a label from a label holder, the label being wrapped about the vessel as the vessel rolls.

The objects of the invention are to provide novel means for applying paste to the vessel, to provide novel means for applying paste to the label, to provide novel means for applying the label to the vessel, to provide novel means for limiting the passage of vessels through the machine, to provide novel means for putting the vessels into a receptacle, and to greatly increase the number of vessels which can be labeled within a given time, thereby greatly decreasing the cost of labeling vessels.

In the drawing: Figure 1 is the side elevation embodying my invention. Fig. 2, is a detail plan view of a paste applying means, which applies the paste to the rear ends of the labels. Fig. 3, is a side elevation of the same. Fig. 4 is a plan view of the rear end of the device. Fig. 5 is a section taken on the line 5—5 of Fig. 1. Fig. 6 is a similar section taken on the line 6—6 of the Fig. 1 and the directions of the arrows are shown. Fig. 7 is an enlarged detail side elevation of the forward end of the machine. Fig. 8 is a section taken on the line 8—8 of Fig. 7, and Fig. 9 is a detail perspective view of the bottle controlling apparatus.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed with-

out departing from the spirit of the invention.

In carrying out the invention, a supporting structure is provided, the whole of wood, or of metal, or of both, the same comprising a table 1, to the rear of which are sideboards 2, of wood or metal, (but I will refer to them hereinafter as boards) constructed in one or more pieces as may be desired and, a chute 3 being located to the rear of the side boards 2, also constructed in one piece as may be desired. Hingedly connected underneath the rear end of the chute 3 is a tail board 4, provided with an operating windlass 5, whereby the tail board may be raised or lowered. The structure hereinafter described may be supported upon legs 6, or in any other desired manner, giving the structure the proper slant, that the vessels will roll with the speed desired. Extending along and fastened on top of the side boards 2, are metal tracks 7, there being a railing 8, constructed at right angle with the left track 7 on top of the left side of said track, the right track being constructed slanting to the top of the right side of the railing of same, forming bevel 9, along which tracks the vessels are adapted to roll. At this point it may be stated that the end of the machine in which the vessels are placed, will be considered the forward end, the end of the machine from where the vessels are removed, being considered the rear end, from the forward end facing the rear, the right hand will be considered the right side of the machine, and the left hand being considered the left side, and descriptive terms will be selected accordingly.

Fixed to and rising from, the left side of near the rear of the table 1, is a standard 11, having a transverse arm 12, extending to a point near center of the table 1, the arm 12, having a perpendicular arm 13, constructed downwardly about one third the distance to the table board 1, upon which is fulcrumed at 14, (at the lower end of the arm 13) a rearwardly extending lever 15, with short sudden convex curve on top 16, near the forward end of the lever 15, (the rear end of which normally rests on the rear end of the table board 1). Journaled for rotation upon the lever 15, to the rear of its fulcrum point 14, and near the top of the curve 16, is a star wheel 17, of four arms. The arms of the star wheel are adapted to en-

gage, successively, under conditions which will be pointed out hereinafter, a stop pin 18, outstanding from near the top of arm 13.

The machines are intended to be of many sizes, according to the different sized vessels to be labeled, the different parts in size being made accordingly. For an example: Side boards 2 may be made 45 inches long of one by six inch boards four and one half inches apart. From a point two thirds distant from the forward end, the remaining one third is gradually built up where the sides are 10½ inches at the rear end of the side boards 2. At spaced points the side boards 2 are connected by transverse partitions.

Supported between the side boards 2, ten inches to the rear of the forward end of the same, and located below the tracks 7, is a paste pot 19, six inches long, four and one-half inches wide, and two and one-half inches deep at the rear end, the top of the rear end being one-half inch below the tracks 7. Fulcrumed upon a rod 20, the ends journaled on boxing 21, the boxing connected to the side boards 2, twenty inches below the forward end, is an arm 22, extending longitudinally of the machine, formed in convex curve 23, extending one and one-fourth inches above the tracks 7, and provided at its forward end with a transverse rod 24, the length being the width of the labels, and adapted to dip into the paste pot 19. The rod 24 lies in the path of the vessels, as the same roll along the tracks 7, so that each passing vessel will strike the rod 24, and thrust the same downwardly into the paste pot 19, as it rolls over the arm 22, and over the curve 23. The rod 24 is normally maintained uplifted, by means of a weight 25, (to the rear of the rod 20) secured to the rear end of the arm 22, the arm being curved so that the weight 25 will occupy a depressed position. A cross bar 26, connecting the side boards 2, serves as a stop for the weight 25, to prevent the rod 24 from being elevated to too great a height, a contingency which would impede unduly, the passage of the vessels along the tracks 7. Supported by the side boards 2, to the rear of the paste pot 19, is a frame 27, supporting a brush 28, adapted to wipe over the vessels, as the same roll along the tracks 7.

A partition 29 extends transversely of the frame between the sideboards 2 adjacent intermediate portion thereof and has formed along its marginal edges a pair of vertically extending slots for receiving the links 37, which will be hereinafter more fully described. Formed in central portion of this partition 29 and adjacent to the lower extremity thereof is a transversely extending slot 30, in which is fulcrumed a lever 31, extending longitudinally of the machine between the sideboards 2. At its forward end,

the lever 31 carries, slidably, a counterweight 32, maintained in place by means of a set screw 33, or in any other desired manner. The rear end of the lever 31 is curved at 34, so as to bear with an upward pressure, against the lower face of the label board 35, (the thicker the bunch of the labels, the nearer will the weight be to the fulcrum 30) which is 14½ inches long, and practically filling the space between the side boards 2, the forward end being 2¼ inches to the rear of the partition 29, normally of the same height as the tracks 7, and the rear end of the label board is three inches below the tracks 7, and is normally held in that position by means of outstanding pins 36, connected to the side boards 2, at the rear corners of the label board 35, bearing with an upward pressure against the outstanding pins 36. The label board 35 is disposed longitudinally of the machine, and is pivotally connected with the side boards 2 by means of links 37, the construction being such that the label board or holder 35 may rise and fall, and at the same time, have a movement longitudinally of the machine. The links 37, four in number and of equal length, each at the rear end is connected pivotally in a slot with sides of the label board 35 at each corner, all slanting with the same degree downwardly to the forward end, and pivotally connected to the side boards 2, the forward two, passing through the slots at sides of partition 29. The labels which are placed upon the label holder 35 are maintained in place thereon by means of an upright arm with a short hook knife 38, on the end, the lower end of which is resiliently secured upon a bar 39, connecting the side boards 2. The center of the rear end of the margin of the labels, bearing with an upward pressure against the downward edge of the knife 38.

The invention further includes a paste pot, denoted by the numeral 40, provided with outstanding arms 41, to the rear, pivotally connected with the side boards 2. The paste pot 40 is located above the label holder 36, and adjacent to the rear end thereof, it being three inches wide at the top, being constructed with slanting sides inwardly, the length being the same as the width of the labels, extending transversely of the machine. The bottom of the paste pot 40 is open, and is normally nearly closed by a transverse metal roller 43, there being small openings between the roller 43 and the bottom of the sides of the paste pot 40. The roller 43 has a journaled groove 44, around the center, and journaled ends connected to boxing 45, in the lower ends of the paste pot 40. Connected to the end of the left journal of the roller 43, and on the left side of the left end of the paste pot 40, is a toothed wheel 46, occupying a mortise in the left side board 2. A pawl 47, is adjacent to the

left end of the paste pot 40, and pivotally connected to a metal plate, which is connected to left side board 2. The rear end of the pawl 47 engages successively, the teeth of the toothed wheel 46, and the pawl 47 is normally held in proper position by gravitation. The paste pot 40, has an eight inch arm 48, on the left side extending forward to nearly a point at the end, the arm extending along the left side of the label board 35, and directly over a mortise in the left side board 2, and track 7 adjacent, the wood being protected by metal plate connected to the left side of the mortise to the left side board 2. The construction of the arm 48, is such that from the forward end rearwardly it gradually rises for a distance of $3\frac{1}{2}$ inches where there is an offset, the rise representing about $22\frac{1}{2}$ degrees relative to the tracks 7. The arm 48 is normally held in position, the paste pot 40 is normally held level and the metal roller 43 is normally held off of the rear end of the labels, by an arm 49, connected by rivet to the rear side, adjacent the top of the paste pot 40, extending longitudinally and rearwardly about three inches. At its rear end the arm 49 carries, slidably, a counterweight 50, maintained in place by means of a set screw, or in any other desired manner. The forward side of the paste pot 40, also the arm 47, is prevented from being raised higher by the weight 50, than on a level with the rear end, by means of outstanding stop pins 51, connected to the side boards 2, where the squared ends of the arms 41 near the top, will come in contact with them.

Supported upon and near the rear end of the side boards 2 is a double frame 52, carrying a reversible brush 53, the length being the same as the length of the labels longitudinally, and the width the same transversely as the labels. Fixed upon the sides of the chute portions 3 of the structure are railings 54, connected at the rear with an extended upright partition 55, which also extends considerably to the right, and a very little to the left, equally with the extensions of a trap door 56, located in front of the partition 55, hingedly connected at the forward side with the bottom of the chute 3. The right railing 54, is constructed with an offset to the left at right angle, at the forward side of the trap door 56, then constructed at right angle rearwardly over the left end of the trap door 56, near the margin thereof. The extended space to the left is provided for the long constructed necks of vessels to occupy within the railing. The chute 3 is further strengthened by a board 57, connected by a pair of forward legs and the rear legs, the rear legs being directly under and connected to the ends of the partitions 55, the board 57 being below the chute 3 several inches. The partition 55 is further supported by

braces 58, connected to rear side of same and to the rear end of the chute 3. The partition 55 is cushioned at 59, on its forward side. The trap door 56 is normally maintained in position by means of coil steel springs 60, the upper ends being connected to the forward marginal ends of the partition 55, the lower ends of said springs being connected to the rear marginal ends of the trap door 56. The trap door 56 may be converted into a nongivable door, to hold thereon, breakable vessels, by means of a transverse arm 61, connected pivotally underneath the upright partition 55 and turned longitudinally of the machine underneath the trap door 56, holding same on level with bottom of chute 3.

The tail board 4 is hingedly connected underneath the chute 3 to an upright partition 64, the partition 64 connecting the board 57 and the bottom of the chute 3 adjacent the forward end of the trap door 56. Supported by the rear end of the chute 3 connected to the partition 55 at the ends, is a frame 65 supporting the windlass 5, the ends of axle of the windlass 5, being journaled in boxing 66, in the frame 65, and the windlass 5 being operated by a crank 67, normally held in position by a pawl 68, pivotally connected at the base or forward end, to the side of the frame 65, the pawl normally held in position by gravitation, the rear end engaging the teeth 69, on the outer rim of the windlass 5, there being a cord 70, the forward end of which fastened around the windlass 5, the rear end of the cord being connected to the upper part of the frame 62. Under the rear end of the tail board 4 is a receptacle 71, to catch and hold the nonbreakable vessels. Constructed in the right side of each frame of the side boards portion 2 of the structure, is a recess to permit long outstanding necks of bottles and other vessels having similar necks to pass through, the outstanding necks reaching beyond and clearing all right railings in passing rearwardly to the trap door 56, and in passing along the tail board 4, to the receptacle 71.

The operation of the device is as follows:—

A series of vessels, denoted generally by the numeral 73, is placed upon the table 1. One vessel, denoted specifically by the numeral 74, as it rolls along the center, then will engage the rear portion 15 of the lever, elevating the lever, and, at the same time, elevating the star wheel 17, so that one of its arms engages with the stop pin 18. The star wheel will thus be prevented from rotating, and serves to hold back the vessel 73. When the vessel 74 has passed beyond the rear end of the lever 15, permitting the rear end of the lever 15 to drop, the arm of the star wheel will move from engagement with the stop pin 18, whereupon another vessel will be permitted to roll along, and to as-

sume the position and operates the lever 15, the star wheel 17 and its arm with the stop pin 18, as did the previous vessel. By the foregoing operation, the vessels will be prevented from crowding too fast, through the machine. In going through, the vessel will come in contact with the bevel 9, forcing the vessel to the right against the railing 8, in its entire passage through the side boards 2, the vessel coming in contact with all the following accurately, not varying in the least with each and every vessel, to wit: the transverse rod 24, the brush 28, the labels on the label holder 35, the arm 48, and the reversible brush 53. After moving out of engagement with the lever 15, the vessel, rolling along the tracks 7, will come into engagement with the rod 24, and a small quantity of paste will be applied to the vessel. As the vessel rolls along, it will roll over the elevated curve 23, and will depress the rod 24 into the paste pot 19, so that the rod will receive a fresh supply of paste, to be applied to the next succeeding vessel. The vessel, after having passed by the paste pot 19, will pass by and beneath the brush 28, which will spread out the paste upon the vessel. The vessel, rolling along the track 7, to the rear of the brush 28, will ultimately come in contact with the labels which are upon the label holder 35, the pasted portion of the vessel picking one end of the label from the label holder 35, and winding the label around the vessel, as the vessel rolls along the tracks 7. The vessel, striking the forward end of the arm 48, will depress it into a recess formed in the left side boards 2, at the same time depressing the paste pot 40, and at the same time depressing the roller 43, upon the rear end of the labels, from which a small quantity of paste will be applied to the rear end of the label on top of the said labels upon the holder 35. The roller 43 is turned one notch by the rear end of the ratchet 47, which engages the toothed wheel 46. At this time, knife 38 will rest within the groove 44, in center of the roller 43.

The vessel, rolling along to the rear of the arm 48, releases same. The said arm, the paste pot 40 and the roller 43, are raised to their normal position, by the weight 50. The labels upon label holder will then be held in place, only, by the hook knife 38, and the rolling vessel causing the labels to be cut free from the holder of the knife 38 as it passes on down the chute.

From the foregoing it will be seen that the rear end of the label will receive a supply of paste from the paste pot 40, so that the rear end of the label may be secured to the vessel, as the vessel rolls along the track. The vessel, passing beneath the brush 53, will be engaged by the brush, a little to the rear of the forward end of the

label, continuing to be engaged one revolution of the vessel, the brush serving to hold the label to the vessel closely and evenly and smooth down the rear end of the label to the vessel.

Having thus described the invention, what is claimed is:—

1. A device of the class described comprising a supporting structure; a label holder yieldably supported therein; a paste pot pivotally connected to the supporting structure, a metal roller mounted therein and adapted to rest upon the label holder, adjacent to the rear end thereof; means upon the paste pot, engageable by a rolling vessel, to lift the metal roller of the paste pot free of the label holder; and means for applying paste to the vessel before the vessel arrives at the forward end of the label holder.

2. A device of the class described comprising a supporting structure; a label holder pivotally supported therein; a paste pot pivotally carried by the supporting structure, the roller of which extending below is adapted to rest upon the rear end of the label holder; means carried by the paste pot, and engaged by a rolling vessel, to lift the roller of the paste pot free of the label holder; a roller operating in the paste pot and controlled by a rolling vessel, to admit paste upon a label holder; and means for applying paste to the vessel, before the vessel reaches the forward end of the label holder.

3. A device of the class described comprising a supporting structure; links pivoted to the supporting structure; a label holder pivotally carried by the links; a lever fulcrumed intermediate its ends in the supporting structure, and adapted to bear at one end against the label holder, to uphold the same yieldingly; a hook-shaped member fixed with respect to the supporting structure, and overhanging the rear end of the label holder, to hold the labels thereon; means for applying paste to the rear end of the labels which are upon the label holder; and means for applying paste to a rolling vessel, before the vessel passes the forward end of the label holder.

4. A device of the class described comprising a supporting structure; a lever fulcrumed thereon; a star wheel journaled for rotation upon the lever; a stop upon the supporting structure, adapted to engage one arm on the star wheel, whereby the star wheel will be held rigid, to serve as a stop for vessels rolling along the supporting structure, the lever being liftable by a passing vessel, to cause the star wheel to engage with the stop; means for applying paste to the vessel, after the same has passed free of the lever; means for applying one end of the label to the pasted portion of the vessel; and means for applying paste to the other end of the label.

5. In a device of the class described, comprising a supporting structure along which a vessel is adapted to roll, means for applying paste to the vessel, a label supporting
5 frame adapted to contact with said vessel, a paste holder adjacent to one end of said label holder, a roller mounted in said paste holder to engage one end of the said labels mounted upon the label holder, the said vessel adapted
10 to depress said paste holder and a ratchet mechanism adapted to engage said roller to turn the same substantially as described.

6. A device of the class described comprising a supporting structure along which ves-

sels are adapted to roll, a label holder 15 mounted upon said structure, a paste holder mounted within said structure adjacent one end of said label holder, a weight for normally holding said paste holder in a raised position, and an arm extending longitudi- 20 nally from said paste holder whereby when the vessels contact with said arm, the paste holder will be depressed, substantially as and for the purpose described.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
