(No Model.) 3 Sheets—Sheet 1.

W. J. CORKRAN.

CAN LABELING MACHINE.

No. 606,049. Patented June 21, 1898.

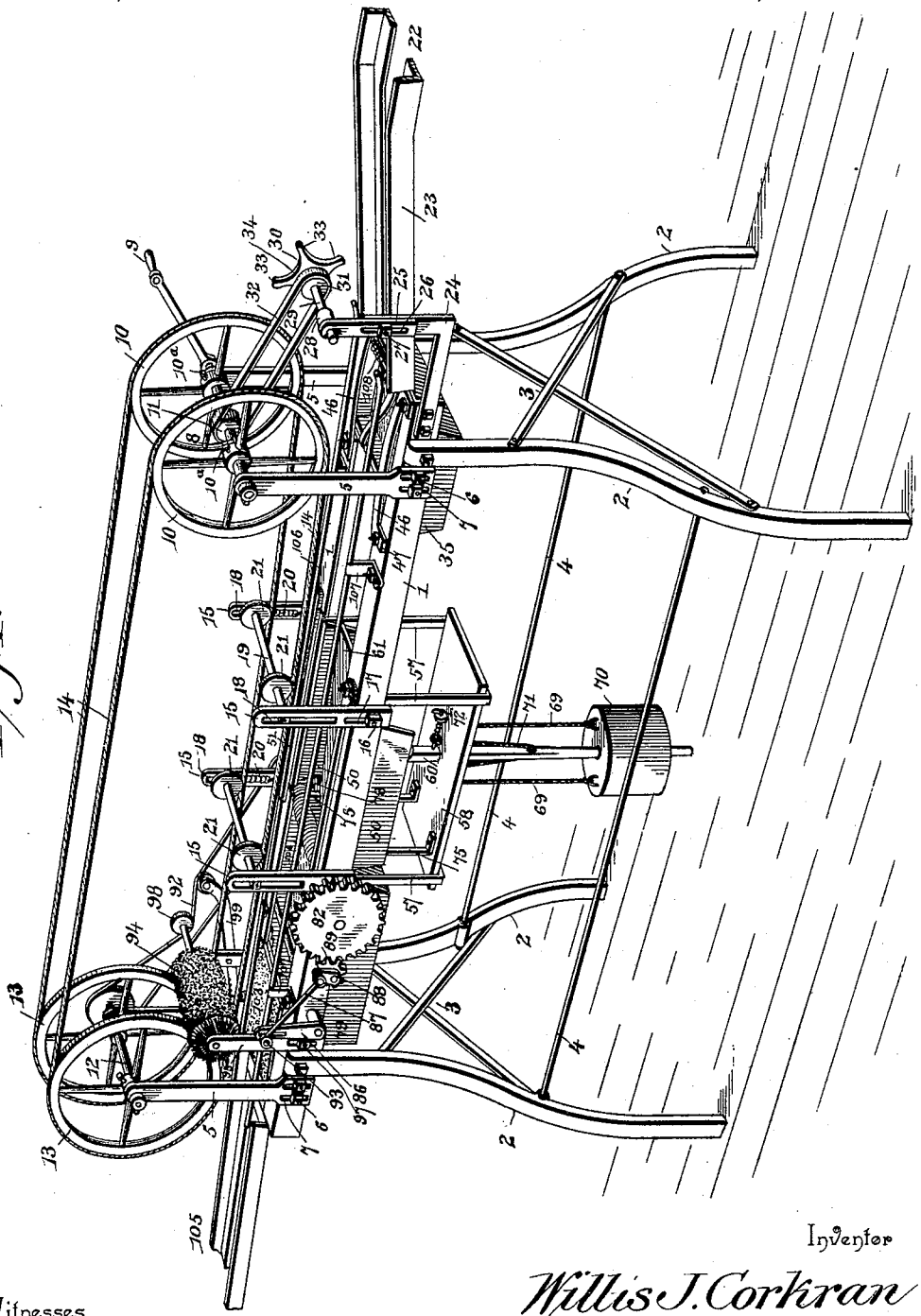


Fig. 1.

Witnesses
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Edwin Cruse.

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By Its Attorneys,
C. A. Snow & Co.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

W. J. CORKRAN.

CAN LABELING MACHINE.

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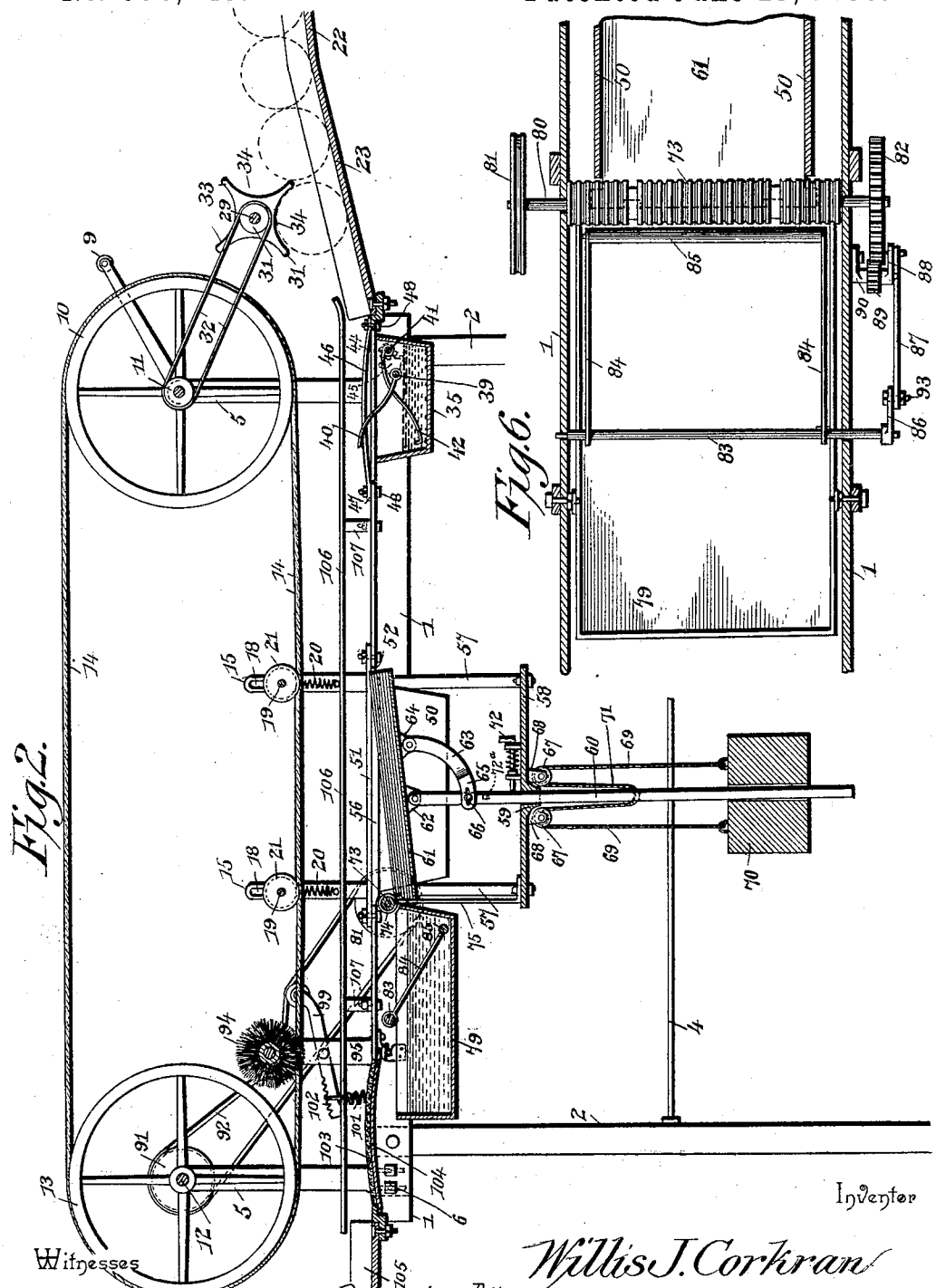


Fig. 2.

Fig. 6.

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(No Model.) 3 Sheets—Sheet 3.

W. J. CORKRAN.

CAN LABELING MACHINE.

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Fig. 3.

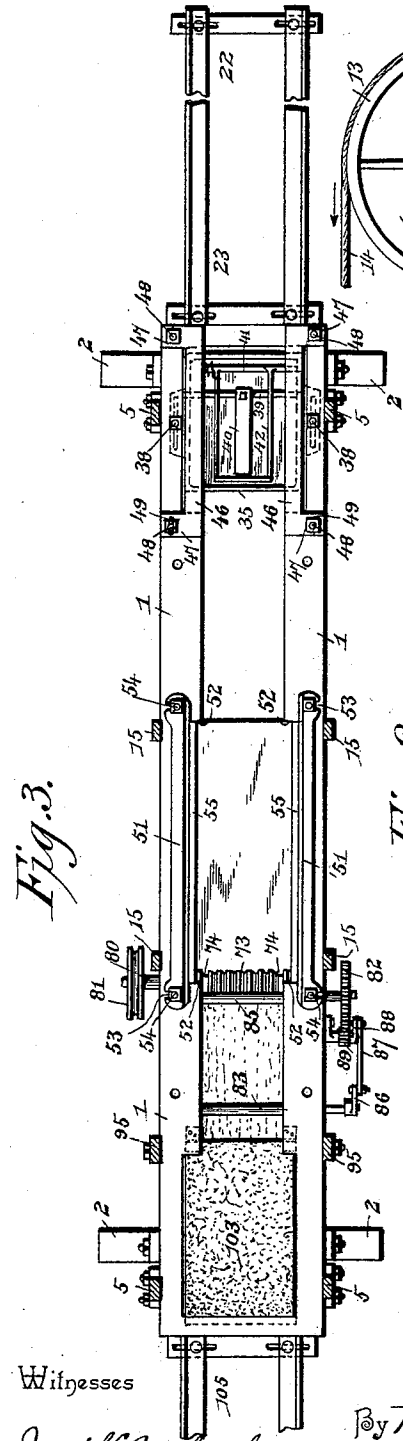


Fig. 5.

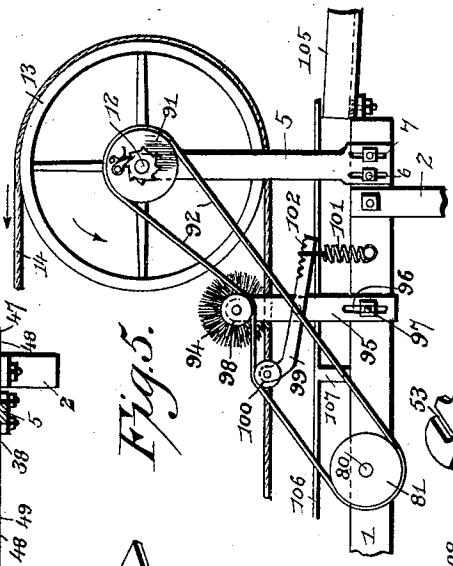


Fig. 9.

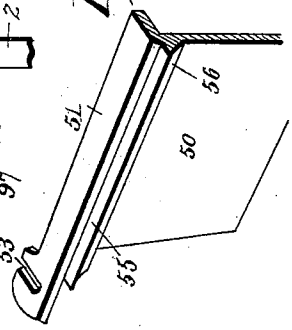


Fig. 8.

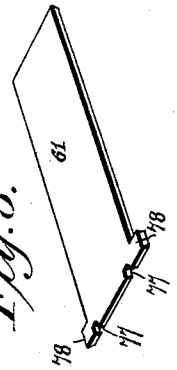


Fig. 7.

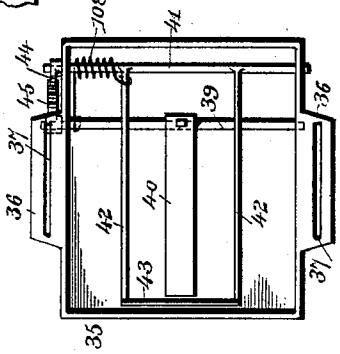
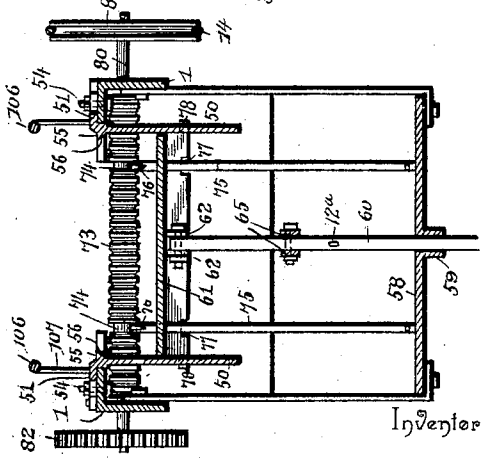


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIS J. CORKRAN, OF HAMBLETON, MARYLAND.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 606,049, dated June 21, 1898.

Application filed May 29, 1897. Serial No. 638,759. (No model.)

To all whom it may concern:

Be it known that I, WILLIS J. CORKRAN, a citizen of the United States, residing at Hambleton, in the county of Talbot and State of Maryland, have invented a new and useful Can-Labeling Machine, of which the following is a specification.

This invention relates to can-labeling machines in which the unlabeled cans are successively fed in at one end of the machine and caused to roll through it, during which movement each can will pick up a separate label, which will be wrapped around the can and pasted at its meeting edges to cause it to retain its position on the can.

The object of the invention is to improve the structure of machines of this character, whereby the several parts of the machine may be adjusted to suit cans of different sizes and the general operation of the machine will be greatly improved.

The invention will be fully described hereinafter and the novel features thereof pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the machine. Fig. 2 is a vertical longitudinal section. Fig. 3 is a plan view. Fig. 4 is a vertical transverse section through the label-holder and that part of the machine to which it is attached. Fig. 5 is a side elevation of a portion of the rear end of the machine, looking at the opposite side of the machine from that shown in Fig. 1. Fig. 6 is a plan view, on an enlarged scale, of the pasting devices. Fig. 7 is a plan view, on an enlarged scale, of the cementing devices at the front end of the machine. Fig. 8 is a perspective view of the label-support. Fig. 9 is a perspective view of a portion of one of the sides of the label-holder.

Similar reference-numerals indicate similar parts in the several figures.

The frame of the machine consists of two parallel angle-bars, (indicated by 1,) which are supported at their respective ends by the legs 2, which latter are suitably braced together by the cross-braces 3 and the tie-rods 4. At each end of the machine a pair of vertical standards 5 are adjustably secured at their lower ends to the bars 1 by means of bolts 6, which pass through slots 7 in the standards into the bars 1. A shaft 8 is journaled in the upper ends of the front standards 5, and to one end of this shaft a crank-handle 9 is secured. This shaft also carries a pair of grooved pulleys 10 and also a small belt-pulley 11, the latter being intermediate the pulleys 10. The grooved pulleys 10 are adjustable on the shaft toward or away from each other and are secured in their adjusted position by means of set-screws 10^a, which work in their hubs, to engage the shaft and lock them in position. The rear pair of standards 5 also support at their upper ends a shaft 12, which carries a pair of grooved pulleys 13, similar to the pulleys 10, and over these pulleys 10 and 13 the endless belts 14 travel. These pulleys 13 are also adjustable toward and away from each other on their shaft in the same manner as already described of the pulleys 10. The function of the belts 14 is to engage the upper surface of the can and cause it to roll from the front to the rear end of the machine.

15 indicates standards which are adjustably secured at their lower ends to the bars 1 at points intermediate the standards 5 by means of bolts 16, which pass through slots 17 in the lower ends of said standards into the bars 1. The upper ends of these standards are slotted, as indicated at 18, for the reception of the ends of shafts 19. Springs 20 are connected at their upper ends to the shafts 19 and at their lower ends to the standards 15 and tend normally to draw the shafts downwardly. Each of the shafts 19 carries a pair of grooved rollers 21, which engage the belts 14 and tend to hold them down in engagement with the cans.

22 indicates a trough or way in which the cans are placed to be fed into the front end of the machine. The forward end 23 of this trough inclines downwardly in order that the cans may move at a considerable speed in entering the machine.

24 indicates a bracket which is secured to one of the bars 1 and extends outwardly therefrom. The vertical arm of this bracket is made in two sections, the upper one 25 of which is provided with a slot 26, through which a bolt 27 passes into the other section for the purpose of enabling the upper section to be vertically adjusted. The upper section is provided with a boss 28 at its upper end, in which a spindle 29 is supported. This

spindle carries a separator 30, which is provided with an integral pulley 31, over which pulley and the pulley 11 an endless belt 32 travels. The separator is provided with four arms, (indicated by 33,) and the space between these arms is concave, as indicated at 34, to fit over a can, as clearly indicated in Fig. 2. It is obvious, therefore, that as the shaft 8 is rotated by means of the crank-handle 9 the separator will also be turned and permit the cans to move down the incline 23 one at a time, and that the impetus of the can in moving down the incline 23 will carry it under the belts 14, which thereafter will cause it to move through the machine.

35 indicates a cement-receptacle, which is provided with flanges 36 at its upper edge, and these flanges are supported by the bars 1. Each flange is provided with an elongated slot 37, through which bolts 38 pass into the bars 1 and by means of which the receptacle 35 may be adjusted longitudinally of the machine.

39 indicates a shaft which is journaled in the sides of the receptacle and extends transversely of the machine. An arm 40 is secured at one end to the shaft 39, about midway its length, and this arm is curved upwardly to project above the upper face of the bars 1, in order that its outer end may be engaged by the can as it passes over the cement-receptacle and be depressed and thereby rock the shaft 39 in its bearings. Another shaft 41 is also journaled in the sides of the receptacle 35 and extends parallel to the shaft 39, but is in a higher horizontal plane than the shaft 39. From the shaft 41 two parallel spaced arms 42 extend forwardly toward the front end of the receptacle, and these arms are connected at their front ends by a cross-bar 43, which projects upwardly above the plane of the said arms. The arms 42 are curved downwardly and extend above the shaft 39, in order that they may be free to swing upwardly. Each of the shafts 39 and 41 projects beyond the receptacle at one end, and the shaft 41 carries on its projecting end a small pinion 44, which meshes with a segmental gear 45, secured on the projecting end of the shaft 39. The segmental gear 45 and the pinion 44 are so proportioned that a slight downward movement of the arm 40 will cause the segmental gear 45 to turn the pinion 44 sufficiently to throw the cross-bar 43 upwardly to a sufficient extent to bring it in contact with the surface of the can that is rolling over the arm 40, and the cross-bar 43 will thereby deposit a narrow line of cement upon the can.

On each side of the cement-receptacle 35 an upwardly-bowed spring 46 is arranged in such manner that the ends of the can will roll over them in its passage across the cement-receptacle. Each end of these springs is laterally extended, as indicated at 47, and bolts 48 pass through these lateral extensions into the bars 1 to secure the springs in position. At one end of each spring these lateral extensions are provided with elongated openings 49, through which the bolts 48 pass, in order to permit the springs to yield when the cans pass over them. The object of these springs 46 is to afford a yielding support for the can on its entrance to the machine and thereby permit the belt-pulleys 10 to be adjusted low enough to cause the belts 14 to exert sufficient pressure on the cans to move them positively through the machine.

The sides of the label-chamber are indicated by 50, and these sides are provided at their upper edges with flanges 51, which flanges are supported upon the upper face of the bars 1. The bars are recessed, as indicated at 52, for the reception of these sides. Each flange 51 is provided at its ends with an open-ended slot 53, which extends transversely of the machine, and through these slots bolts 54 pass into the bars 1 to secure the sides in position. By this construction the sides may be adjusted toward or away from each other to suit labels of different widths. At its inner edge each of these flanges 51 is rabbeted, as indicated at 55, and these rabbets serve as guides for the ends of the can. The flanges 51 also overhang the inner faces of the sides 50 and are undercut, as indicated at 56, to form an inclined face, for a purpose to be hereinafter referred to.

57 indicates hangers which are secured at their upper ends to the bars 1 and support a plate 58, which is provided centrally with a downwardly-projecting boss 59, which is perforated for the passage of a rod 60. This rod carries at its upper end the plate 61, on which the labels are supported. The rod is pivoted between spaced ears 62, which project downwardly from the lower face of the plate 61, in order that the plate may be tilted to give it the desired inclination.

63 indicates a link which is pivoted at its upper end to an ear 64, projecting from the under side of the plate 61, and is provided at its other end with spaced ears 65, which straddle the rod 60 and are connected thereto by means of a bolt 66, which passes through the said ears and the rod. The openings in the spaced ears through which the bolts 66 pass are elongated, as indicated at 66^a, in order that the inclination of the plate 61 may be changed, as is sometimes necessary to accommodate labels of varying lengths. The link is so arranged that the forward end of the plate 61 is lower than the other end. Pulleys 67 are journaled between spaced ears 68, which project downwardly from the plate 58, and over these pulleys a rope 69 passes, and this rope is connected at each end to a weight 70, which is perforated for the reception of the rod 60, and a loop 71, which is formed in the rope 69, passes through an opening in the rod. The weight 70 therefore normally tends to elevate the rod 60 and thereby effects the feeding upward of the labels as they are separately removed by the cans.

72 indicates a spring-actuated bolt supported on the plate 58 to engage a notch 72^a in the bolt 60 for the purpose of holding the rod in its depressed position when it is necessary to put a new supply of labels on the plate 61.

The paste-applying roller is indicated by 73, and this roller is located at the front end of the label-holding devices in such manner that the forward ends of the labels will project beneath it. Near each of its ends the paste-roller 73 is provided with an annular groove 74, into which the upper ends of two vertical bars 75 project. These upper ends are bent over and pointed, as indicated at 76, (see Fig. 4,) and these points are adapted to engage the extreme forward end of the labels, and their function is to prevent more than one label being drawn out by a can in its passage over them. The forward end of the plate 61 is provided with recesses 77 for the reception of these rods 75, and the plate is also provided with lateral extensions at its forward end, as indicated at 78, in order that the forward ends of the widest labels may be held up into close engagement with the paste-roller. The sides 50 of the label-holder fit behind these projections 78, and the sides may therefore be adjusted close into the narrowest part of the plate 61 to accommodate the narrow labels, or they may be moved away from it to accommodate wider labels. The lower ends of the rods 75 are firmly secured to the plate 58.

From the foregoing description it will be seen that the forward ends of the labels are held against upward movement by the pasting-roller 73, and the opposite ends will be held against upward movement by the overhanging inclined faces 56, which will offer sufficient resistance to prevent the labels being moved up by the action of the weights 70, but which will permit the top label to be separately withdrawn when the cement on the can is brought into contact with it. The cement-box will be so adjusted that after the cement is applied to the can the can will make one complete revolution before the line of cement on it will be brought into contact with the end of the label adjacent to the cement-receptacle. As the cement-receptacle may be adjusted longitudinally of the machine, it is evident that the distance between it and the labels can be regulated to suit cans of different diameters, so that no matter what the size of the can only one revolution thereof will be required to bring it into proper position to take up the label.

The paste-receptacle is indicated by 79 and extends forwardly in advance of the label-receptacle. The paste-roller 73 is carried by a shaft 80, which is journaled in suitable bearings in the bars 1 and projects beyond them at each end. This shaft carries at one end a belt-pulley 81 and at its other end a gear-wheel 82.

83 indicates a shaft which extends above the sides of the paste-receptacle and is journaled in the bars 1, and just within the paste-receptacle at each end of the shaft 83 arms 84 extend from it and carry at their outer ends a roller 85, the function of which is to convey paste to the pasting-roller 73. On the side of the machine on which the gear-wheel 82 is located the shaft 83 projects outwardly and carries a crank-arm 86, which is connected by a link 87 to a crank 88 on a pinion 89, which meshes with the gear 82. This pinion 89 is journaled on a stub-shaft 90, which projects outwardly from the bar 1. As the paste-roller is rotated the pinion 89 will also rotate, and thereby impart a rocking movement to the shaft 83, which will cause the roller 85 to be brought into contact with the paste-roller 73 and apply the paste to the latter.

The shaft 12 projects at one end beyond its bearings and is provided with a belt-pulley 91, which is of the same diameter as the belt-pulley 81 on the shaft 80, which carries the paste-roller 73.

92 is an endless belt which travels over the pulleys 91 and 81 and imparts motion to the latter.

All the positively-driven mechanism in the machine derives its movement from the positively-driven shaft 8, and as each revolution of the shaft 8 will cause the separator 30 to feed four cans into the machine it is obvious that the paste-roller 73 will make a complete revolution while four cans are fed into the machine. The gear-wheel 82 and the pinion 89 are so proportioned that the pinion will make four revolutions while the gear is making one revolution, and consequently the roller 85 will be moved into contact with the paste-roller four times while the latter is making a complete revolution, and the paste will therefore be applied to the roller every time a can passes over the labels to remove one from the label-holding devices. It is obvious, therefore, that the paste will be applied uniformly to the paste-roller and only the desired quantity will be deposited on the upper label. The wrist-pin 93 on the crank-arm 86 is adjustable in order that the roller 85 may be forced into contact with the paste-roller with a greater or less degree of pressure, as may be desired. This adjustment is necessary to suit the varying conditions of the paste.

94 indicates a brush which is journaled in standards 95, which are adjustably secured at their lower ends to the bars 1. The standards are provided with elongated openings 96, through which the securing-bolts 97 pass into the bars 1. The function of this brush is to smooth down the pasted edge of the label upon the other edge. This brush is driven in the opposite direction to that in which the cans travel by means of a small belt-pulley 98 on one end of the brush, under which the belt 92 works. 99 indicates a lever which is pivoted on the standard 95, which supports

the brush 94 on that side of the machine on which the pulley 98 is located, and this lever carries at one end a pulley 100, which engages the belt 92, and the other end of the lever is connected by a spring 101 to the side bar 1 in order to regulate the tension of the belt 92. The connection of the spring 101 to the lever is adjustable by means of the notches 102, formed in the lever, and with which notches the hook on the upper end of the spring engages.

103 indicates a pad which is supported by a bowed plate-spring 104, the latter being secured to the frame of the machine in any suitable manner, and this pad is located directly beneath the pulleys 13 at the delivery end of the machine, and its function is to finally smooth out the pasted edges of the label. The pad is removably connected to the spring in any suitable manner in order that it may be renewed whenever it may be desired. A delivery-trough 105 leads from this pad to convey the labeled cans to any convenient point.

In order to guide the cans through the machine, I provide at each side thereof a guide-rail 106, which is supported by a series of brackets 107, which are adjustably secured at their lower ends upon the bars 1 by a slot-and-bolt connection in order that they may be moved toward or away from each other to suit cans of different lengths. These rails extend from end to end of the machine.

In operation the belt-pulleys 10 and 13 will be adjusted so that the space between the belts 14 as they pass under the said pulleys and the springs 46 at the receiving end of the machine and the spring-supported pad 103 at the delivery end of the machine will be somewhat less than the diameter of the cans to be labeled, and the idle-pulleys 21 will also be so adjusted as to bring the lower sections of the belts downwardly, so that the space between them and the bottom of the guideway will also be somewhat less than the diameter of the cans to be labeled. The springs 46 will yield downwardly and permit the cans to be moved forward by the belts, as will also the spring-supported pad at the delivery end of the machine. The springs 20, which normally hold the pulleys 21 downwardly, will also yield in an upward direction sufficiently to permit the cans to move freely along; but at the same time the pressure of the belts 14 upon the cans will be sufficient to hold them in the guideway and move them along in a positive and uniform manner. As a can enters the machine it will engage the arm 40 and depress it, thereby causing the cross-bar 43 to be elevated from the cement-receptacle and apply a thin line of cement to the can. As soon as the can passes off from the arm 40 the spring 108, which is coiled around the shaft 41 and connected at one end to one of the arms 42 and at its other end to a fixed part of the receptacle, will automatically return the cross-bar 43 to the bottom of the cement-receptacle. After the can has made one complete revolution the line of cement will be brought just opposite the ends of the labels nearest to the cement-receptacle and the extreme end of the upper label will adhere to the cement, and be thereby withdrawn from between the sides 50 of the label-supporting devices, and on the further movement of the can the label will be wound around it and be withdrawn from beneath the pasting-roller, which in the meantime will have deposited a sufficient quantity of paste upon this end of the label. The can will then be moved forwardly beneath the brush 94, which will cause the pasted end of the label to adhere to the other part of the label with which it is in engagement, and in the still further movement of the can the spring-supported pad will smooth out the pasted edges and give them a smooth and finished appearance.

From the foregoing description it will be seen that the belt-pulleys 10 and 13 may be vertically adjusted in order to bring the belts 14 in proper position relative to the bed of the machine to engage cans of varying diameters; also, that the cement-receptacle may be adjusted longitudinally of the machine to bring it into the proper position relative to the ends of the labels in order that cans of different diameters will engage the labels at the proper time to pick them up. The brush can also be vertically adjusted to suit cans of different diameters and the guide-rails and the sides of the label-holder may be adjusted toward or away from each other to suit cans of different lengths. All these adjustments may be quickly and easily effected, and the machine is therefore rendered available for labeling cans of almost any size in common use.

It will be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what I claim is—

1. In a can-labeling machine, the combination with a guideway along which the cans move, of vertically-adjustable belt-pulleys supported to revolve at each end of the guideway, spaced upwardly-bowed springs in the guideway below the pulleys at the receiving end of the machine to form a yielding support for the ends of the can at its entrance below the belt-pulleys, a cement-receptacle supported below said springs, devices to apply cement to the can between the springs as the can rolls over them, an upwardly-bowed, spring-supported smoothing-pad below the pulleys at the delivery end of the machine, vertically-adjustable and spring-controlled idle-pulleys intermediate the belt-pulleys, endless belts traveling around said belt-pulleys and under the idle-pulleys, label supporting and guiding devices, and paste-applying devices, substantially as described.

2. In a can-labeling machine, the combination with the guideway, label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, a pair of horizontal rods journaled in the sides of the receptacle, an arm connected to one of said rods and extending above the guideway in the path of the moving cans, a cement-applying bar connected to the other horizontal rod within the receptacle, a spring to normally hold the bar in the cement, and gearing connecting the two horizontal rods to elevate the cement-applying bar into contact with the can when the said arm is depressed by the same can, substantially as described.

3. In a can-labeling machine, the combination with the guideway, the label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, a shaft journaled in the receptacle transversely of the machine, a segmental gear on one end of the shaft, an arm rigidly secured to said shaft and extending above the guideway in the path of the moving cans, a second shaft also journaled in the receptacle parallel to the first shaft, a pinion on the second shaft meshing with the said segmental gear, spaced arms rigidly secured to the second shaft and extending parallel with the said arm on opposite sides thereof, a cement-applying bar connecting the forward ends of said spaced arms, and a spring to normally hold said cement-applying bar depressed, substantially as described.

4. In a can-labeling machine, the combination with a paste-applying roller, of a label-supporting plate, a vertical bar to the upper end of which the plate is pivoted, an adjustable link connected to said bar and plate to hold the plate in an inclined position, the depressed end of said plate projecting below the paste-roller, and guide-plates on each side of said supporting-plate to engage the side edges of the labels, each of said guide-plates having an inwardly-projecting flange at its upper edge the inner face of which inclines downwardly and outwardly, and a weight to elevate said bar, the construction being such that the labels will be held against upward movement at one end by the paste-roller and at their other ends by the inclined faces of said flanges, substantially as described.

5. In a can-labeling machine, a label-supporting plate, a bar pivoted at its upper end to said plate and supported in suitable guides to have vertical movement, a link pivoted at its upper end to said plate and adjustably connected at its lower end to the said bar whereby the inclination of the plate may be varied, pulleys connected to a fixed support, a weight, and a rope running over said pulleys and connected to the weight and bar, substantially as described.

6. In a can-labeling machine, a label supporting and guiding mechanism consisting of a vertically-movable plate on which the labels are supported, and side plates each having a flange at its upper end projecting on each side thereof, said flanges being rabbeted at their inner edge to form a guideway for the cans and the outwardly-projecting parts being adapted to rest on the frame of the machine, means to adjustably secure the said flanges to the frame, and the inwardly-projecting parts of said flanges having their inner edges inclined downwardly and outwardly, substantially as and for the purpose described.

7. In a can-labeling machine, the combination of a revoluble pasting-roller beneath which the forward ends of the labels are supported, a paste-receptacle, a rock-shaft, a paste-applying roll connected to said rock-shaft within the said receptacle and adapted to engage the pasting-roller, and suitable means to rock the shaft to apply paste to the pasting-roller at each quarter-revolution of the latter, substantially as described.

8. In a can-labeling machine, the combination of a revoluble pasting-roller beneath which the forward ends of the labels are supported, a paste-receptacle, a shaft journaled in the frame of the machine, a crank on one end of the shaft, a gear-wheel on one end of the pasting-roller shaft, a pinion journaled on a stub-shaft and meshing with said gear, the teeth on the gear being four times as many as those on the pinion, a crank on the pinion, a link connecting the said cranks, arms extending from said shaft into the paste-receptacle, a paste-applying roll carried by said arms and adapted to engage the pasting-roller, and means to revolve the pasting-roller, substantially as described.

9. In a can-labeling machine, the combination of a vertically-movable inclined plate on which the labels are supported, a revoluble pasting-roller beneath which the labels project at one end, said roller having an annular groove near each end, and vertical bars supported at their lower ends by the machine-frame and fitting in said grooves at their upper ends, the said upper ends being bent over and pointed to engage the ends of the labels, substantially as and for the purpose specified.

10. In a can-labeling machine, the combination with can-propelling belts, label supporting and guiding devices, and a pasting mechanism, of a brush mounted to revolve in advance of the pasting mechanism in an opposite direction to the movement of the can, and adapted to engage the pasted edge of the label, a smoothing-pad in advance of the said brush, and an upwardly-bowed spring to which said pad is removably attached, substantially as described.

11. In a can-labeling machine, the combination of shafts journaled in vertical standards at each end of the machine, a pair of belt-pulleys on each shaft, means to adjust the said pulleys longitudinally of their shafts,

can-propelling belts traveling over said pulleys, a smoothing-pad below the belt-pulley at the delivery end of the machine, means to positively rotate one of said shafts, a revolving can-separator at the receiving end of the machine, a revolving brush near the delivery end of the machine, and a revolving paste-roller intermediate said separator and brush, and belt-and-pulley connections between said shafts and the can-separator, pasting-roller, and the brush, to transmit movement from the former to the latter, substantially as described.

12. In a can-labeling machine, the combination with the guideway, the label-supporting devices and the endless propelling-belts, of a cement-receptacle supported below the guideway at the receiving end of the machine, means to adjust the receptacle longitudinally of the guideway toward or away from the label-supporting devices, a pair of horizontal rods journaled in the sides of the receptacle, an arm connected to one of said rods and extending above the guideway in the path of the moving cans, a cement-applying bar within the receptacle connected to the other horizontal rod, gearing connecting the two horizontal rods to each other to elevate the cement-applying bar when the said arm is depressed, and means to normally hold the cement-applying bar in the cement, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIS J. CORKRAN.

Witnesses:
JOHN H. SIGGERS,
HAROLD H. SIMMS.