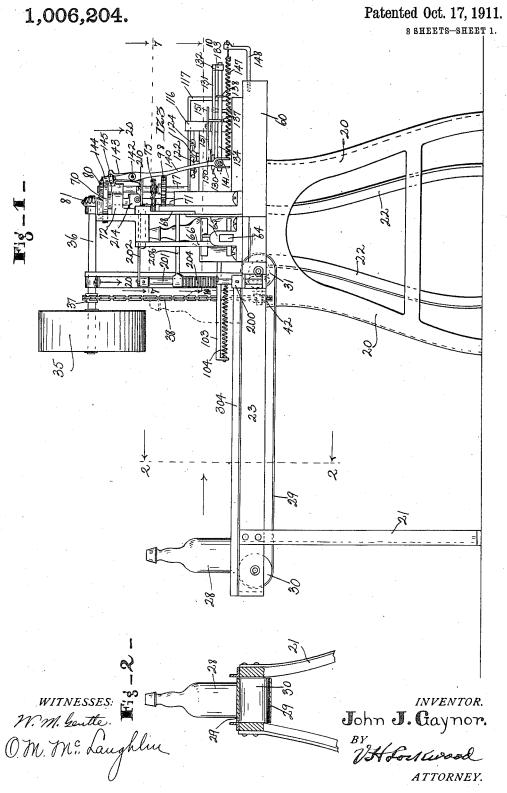
J. J. GAYNOR.

LABELING MACHINE.

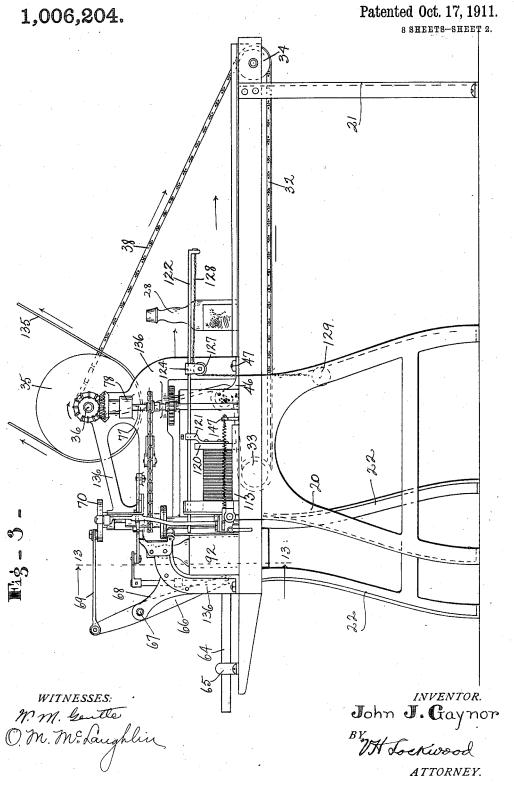
APPLICATION FILED NOV. 4, 1910.



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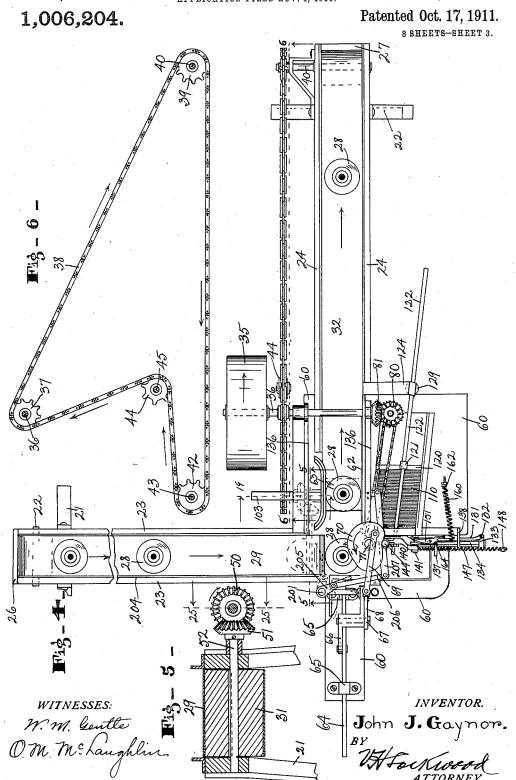
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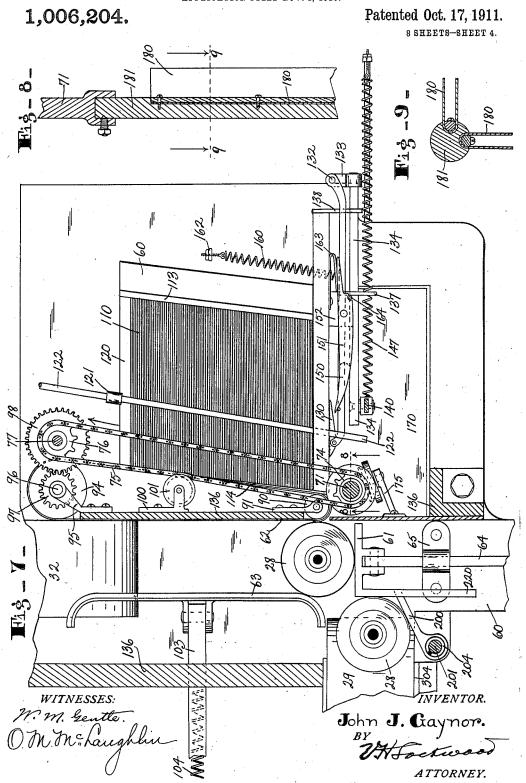
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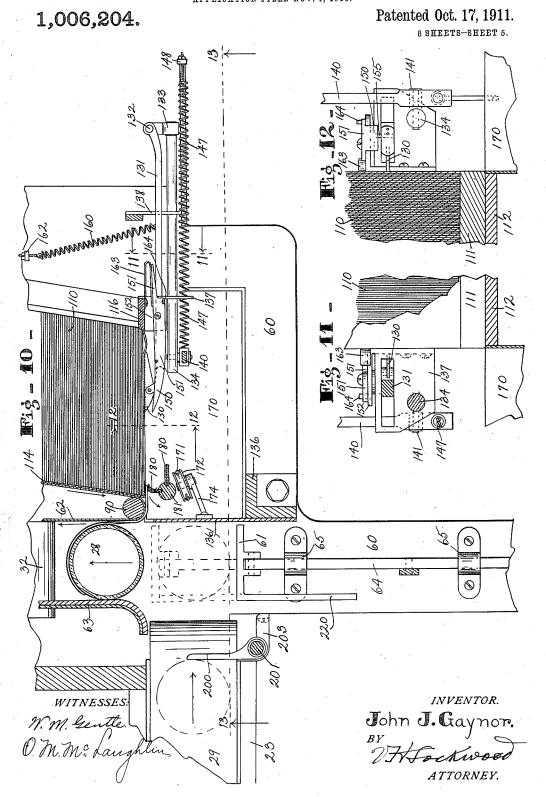
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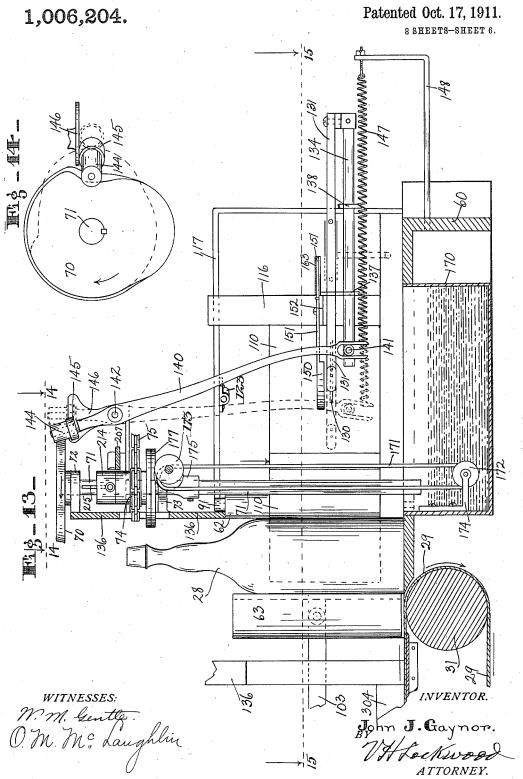
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1,006,204.

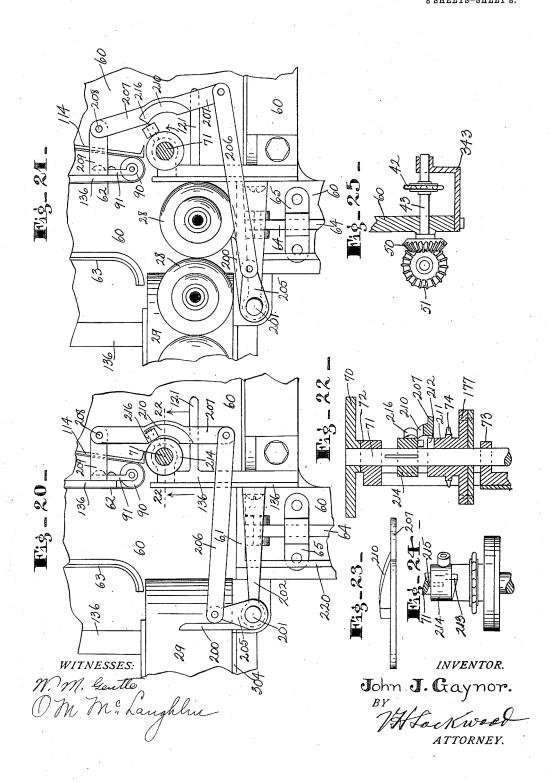
Patented Oct. 17, 1911.

WITNESSES: -00 M.M. Gentle = O.M. M. Laughlin INVENTOR. 911 ATTORNEY.

J. J. GAYNOR. LABELING MACHINE. APPLICATION FILED NOV. 4, 1910.

1,006,204.

Patented Oct. 17, 1911.
8 SHEETS-SHEET 8.



UNITED STATES PATENT OFFICE.

JOHN J. GAYNOR, OF INDIANAPOLIS, INDIANA.

LABELING-MACHINE.

1,006,204.

Specification of Letters Patent.

Patented Oct. 17, 1911.

Application filed November 4, 1910. Serial No. 590,689.

To all whom it may concern:

Be it known that I, John J. Gaynor, of Indianapolis, county of Marion, and State of Indiana, have invented a certain useful Labeling-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to

the accompanying drawings.

The primary object of this invention is 10 to provide a machine for affixing labels to bottles, cans and the like in an upright position; that is, the bottles and cans are fed to and through the machine constantly in an upright position, and the labels applied 15 thereto vertically while in such position. Therefore, the label is always applied to the bottle or can in the true position and the labels will be absolutely uniform.

Another feature of the invention is the 20 provision of a machine to which the bottles or cans do not have to be fed regularly. They may be put on the conveyer in bunches and yet the machine will apply the labels to the bottles or cans one after the other the 25 same as if they were fed at regular inter-

vals

Another feature of the invention consists in automatically regulating the operation under the control of the bottle or can being 30 fed to the machine, so that the label feeding and paste applying apparatus does not operate when there is nothing to apply a label to.

Another feature of the invention consists

in dispensing with paste rollers.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is a front elevation of the machine. Fig. 2 is a section on 40 the line 2—2 of Fig. 1. Fig. 3 is an elevation of the right-hand side of Fig. 1. Fig. 4 is a plan view of the machine with a portion broken away. Fig. 5 is a section on the line 5—5 of Fig. 4. Fig. 6 is a section on 45 the line 6—6 of Fig. 4 with parts omitted. Fig. 7 is a section on the line 7—7 of Fig. 1 showing a label being started on a bottle. Fig. 8 is a section on the line 8—8 of Fig. 7 with parts omitted. Fig. 9 is a section on 50 the line 9—9 of Fig. 8. Fig. 10 is the same as a portion of Fig. 7 showing the label partially on a bottle and paste being applied to the rear edge. Fig. 11 is a section on the line 11—11 of Fig. 10. Fig. 12 is a section

on the line 12—12 of Fig. 10. Fig. 13 is a 55 section on the line 13—13 of Fig. 10. Fig. 14 is a plan view of the cam mechanism of the machine viewed from the line 14-14 of Fig. 13, an altered position being shown by dotted lines. Fig. 15 is a section on the line 60 15—15 of Fig. 13. Fig. 16 is the same as Fig. 15 with the feeding mechanism in altered position. Fig. 17 is a perspective view of a post shown at the right-hand end of the labels in Fig. 15, the same being partially broken away. Fig. 18 is a perspective view of the plate shown at the left-hand end of the labels in Fig. 15, the same being partially broken away. Fig. 19 is a section on the line 19—19 of Fig. 4. Fig. 20 is a horizontal section on the line 20—20 of Fig. 1, showing the central portion of the machine with the parts in position when no bottles or cans are being labeled. Fig. 21 is the same showing the parts in the positions 75 while the bottles or cans are being labeled. Fig. 22 is a vertical section on the line 22-22 of Fig. 20. Fig. 23 is a side elevation of the clutch operating lever. Fig. 24 is a side elevation of the clutch mechanism, parts being broken away. Fig. 25 is a section on the line 25—25 of Fig. 5.

There is a horizontal L-shaped frame supported at suitable working distance above the floor by an upright frame 20 at the cor- 85 ner of the L-shaped frame, and legs 21 at one end and legs 22 at the other end, see Figs. 1 and 3. The horizontal frame is made up of side bars 23 for one branch of the frame and bars 24 for the other branch of the 90 frame. They are connected by end plates 26 and 27, respectively. The horizontal frame may be integral or not, as desired. The bottles 28 or things to be labeled are carried to and through the machine in an upright 95 position, as shown in Figs. 1 and 4. They are carried to the labeling part of the machine by an endless conveyer 29, see Fig. 1, which is carried on rollers 30 and 31 mounted in the side bars 23, the latter roller being 106 near the corner of the frame. After the label has been applied to the bottle or other article, it is carried away from the labeling part of the machine by another endless conveyer 32, which is mounted on similar roll- 105

ers 33 and 34, see Fig. 3.

The conveyers 29 and 32 are driven by means appearing in Fig. 4. Power is ap-

plied from any suitable source through the belt 135 to the pulley 35 on the shaft 36 mounted transversely in a pair of side frames 136 which carry a sprocket wheel 37, see Fig. 6, by which the chain 38 is driven. This chain 38 extends about a sprocket wheel 39 on the shaft 40 of the roller 27. The shaft 40 is mounted transversely in the righthand end of the frame, as shown in Fig. 4, 10 with the outer end supported by the bracket 41 extending from the side bar 24 of the Said chain also travels over a sprocket wheel 42 on a shaft 43 mounted in a box 343 secured to the frame 136, see Fig. 15 20. The chain 38 is tightened by the tightener wheel 44 which is mounted by the spindle 45 in the block 46 adjustably mounted on the frame bolt 47.

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The shaft 43 carries a bevel wheel 50, see 20 Fig. 5, which meshes with a bevel wheel 51 on a shaft 52 mounted transversely in the side bars 23 and which carries the roller 31 which drives the conveyer 29. As seen in Fig. 7, the bottle is conveyed by the belt 29 25 and discharged on the stationary table 60 and then is pushed by the plunger 61 into position to be engaged by the belt 62 and turned against the guide plate 63 until it reaches the conveyer 32. While it is being 30 moved by the belt 62 the label is being applied, and when it reaches the conveyer 32 it has been labeled.

The plunger 61 slides loosely on the table 60 and is pivoted to the end of the plunger 35 rod 64, which moves through the guides 65 secured on the table 60, as seen in Fig. 4. It is reciprocated by the lever 66, which is fulcrumed at 67 to the arm 68 from the frame 136, as shown in Fig. 3. The plunger 40 rod 64 is pivoted to the lower end of the lever 66, and at the upper end of the lever 66 the connecting rod 69 is pivoted, which is operated by the cam disk 70. The cam disk 70 is secured on the upper end of a shaft 71, 45 see Figs. 13 and 14, which is mounted vertically in brackets 72 and 73 from the side frame 136. The shaft 71 is driven by the sprocket wheel 74 and chain 75, see Figs. 7 and 13. The chain 75 is driven by the sprocket wheel 76 on the shaft 77 mounted in the bearing 78 in the frame 136 and in the table 60, see Figs. 3 and 7. Said shaft carries a bevel gear 80 on its upper end, see Fig. 4, which meshes with a bevel gear 81 on the shaft 36 and is thereby driven.

The belt 62 engages the side of the bottles, and for that purpose travels at one end on a roller 90, see Fig. 7, which is mounted on a bracket 91 secured to the plate 92, which 60 extends up from the frame of the machine for a short distance, as shown in Fig. 3, and also on the roller 94 mounted in the arms 95 secured to the other end of said plate 92. The roller 94 is on a shaft 96 which carries 65 a pinion 97 meshing with the gear 98 on the

shaft 77 and is driven thereby. Said belt 62 moves along the inner surface of the plate 92, as shown in Fig. 7, so as to be in frictional engagement with the peripheries of the bottles or cans and cause them to revolve 70 as they are moved along. An idler 101 is carried by the arm 100 for the belt 62, see Fig. 7. As the belt 62 moves a bottle, the other side of the bottle bears against the guide plate 63 mounted on the end of a hori-75 zontal bar 103, which is reciprocable through the frame 136, see Fig. 19, and is forced inwardly by the spring 104 which is connected at its outer end to the outer end of a bar 103 and at its inner end to the frame 136. The 80 guide plate 63 slides or rests on the table 60.

The labels 110 are supported edgewise in a holder formed of a removable wooden plate 111 which is placed on a metal plate or table 112, see Fig. 11, and along the rear 85 side a bar 113 guides one end of the labels, and a copper plate 114 guides the other end of the labels. The bar 113 and plate 114 are secured to the metal bottom 112. The plate 114 has an in-turned lip 115 for the 90 advancing labels to engage at one end, and at the other end they engage the inclined surface of the post 116. Said post is secured at its bottom to the plate 112 and at the top to the bar 117, see Fig. 13. This 95 bar is partly vertical and partly horizontal, the vertical portion extending from the plate or table 112.

A follower 120, see Fig. 3, feeds the labels, said follower being mounted on an arm 121 100 which is secured to a rod 122 which reciprocates through the guide 123 on the bar 117 and the guide 124 secured to the frame 136. In the latter guide a sheave wheel or pulley 127 is mounted, and a chain 128 105 passes over it and is connected to the outer end of the rod 122, and the other end of said chain carries a weight 129, said weight tending to move said rod 122, and, therefore, the follower 120, to push the labels.

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The advancing label is fed by the feed plate 130, which is fulcrumed on an arm 131, see Fig. 15, which is fulcrumed at 132, see Fig. 7, to the bracket 133 secured on the rod 134. The rod 134 reciprocates in the arms 115 137 and 138, the former of which extends from the vertical portion of the bar 117, see Fig. 7, and the latter of which extends from the post 116, see Fig. 15. The rod 134 is actuated by the rocking lever 140, 120 which is yoked at its lower end to engage the pin 141 in the rod 134. The lever 140 is fulcrumed at 142 between its ends to the bracket 143, see Figs. 1 and 13, which extends from the frame 136. The upper end 125 of the lever 140 is actuated by the cam 70 whose periphery is engaged by the roller 144 on the lever 140. There is also another roller 145 cn the lever 140 which bears against a plate 146, which is secured to the 136 1,006,204

The return movement of the bracket 143. rod 134 is caused by the spring 147, one end of the spring being connected to the lower end of the lever 140 and the other end to an 5 arm 148 which extends from the table 60. When the lever 140 is actuated by the cam 70, the feed plate 130 frictionally engages one of the labels and pushes it forward. A cam 150 is secured on the end of a rod 151, which is fastened to a plate 152 from the post 116, see Figs. 10 and 13. The cam 150 projects below the bar 151 and is pointed on one end and widened backwardly therefrom for some distance. A pin 155 on the 15 rod 131 engages said cam on its return movement from the full line position shown in Fig. 16 to the dotted line position therein and travels along the outer surface of the cam, which forces the feed plate 130 away 20 from the labels until after the rod 131 is moved to the right far enough to cause the pin to pass around the right-hand end of the cam 150 from the position shown in dotted lines in Fig. 16 to the dotted line po-25 sition shown in Fig. 15, whereupon the plate comes in engagement with the label. The still further movement to the right of the rod 131 causes the plate 130 to move from the dotted line position shown in Fig. 15 to 30 the full line position, and such movement causes a slight movement of the outer label to the right hand, as indicated in Fig. 15, whereby the left-hand edge of the label is disengaged from the lip 115 on the plate 35 114, and put in position to be fed forwardly to the bottle.

The movement just described is caused by the spring 147 and then the cam 70 begins to act on the lever 140 and causes the 40 rod 131 and plate 130 to be moved from the right-hand position shown in Fig. 15 toward the left, and such movement of the plate feeds the outer label forwardly around a portion of the conveyer 62 which 45 passes about the pulley 90, and it comes in engagement with the bottle and is caught between the bottle and the belt 62 and moves with the belt and bottle as the bottle is turned, from the position shown in Fig. 7 50 to that shown in Fig. 10. The feed plate is held against the labels by the spring 160 which is fastened to the rod 131 at one end and at the other end to the post 162 on the table 60. The right-hand end of the cam 55 lever 151 is pushed outwardly by a spring 163 until it is stopped by a stop 164 in the plate 152. The spring 163 is fastened at one end to the lever 151 and at the other end to the post 116, and that renders the end of 60 the lever 151, on which the cam is mounted, yielding.

The pasting device includes a paste tank 170 connected with the table 60 and below the level of the top thereof. The paste is 65 lifted by a belt 171 which operates verti-

cally over pulleys 172 and 173. The former pulley is mounted in the paste tank 170 on a bracket 174. The other pulley is mounted on the bracket 175, which is secured to one of the frames 136, see Fig. 7. The belt 171 70 is operated by a friction disk 177 engaging the upper pulley 173, as shown in Fig. 13, said disk being secured on the shaft 71, see Fig. 7. As the belt 171 operates, the upwardly moving portion thereof carries paste 75 with it, which is transferred from the belt to vertically extending brushes 180, which are secured to a shaft 181, see Figs. 9, 10 and 13. The shaft 181 is secured to the lower end of the shaft 71, as shown in Fig. 80 8, and is actuated thereby and is close enough to the label holder for the brushes to engage the outer label and apply paste thereto, see Fig. 10. There are two of the brushes 180 secured so that one of them 85 will apply paste to the advance edge of the label and the other brush will apply paste to the rear edge of the label. The paste applied to the advance edge of the label causes the label to adhere to the bottle as soon as it 90 is fed to the bottle, and thus the label is drawn around the bottle, as shown in Fig. 10, while the label is being forced outwardly by the pusher. The parts of the machine are geared with relation to each other so that 95 they will cooperate at the right time as specified.

The label feeding means in the machine is thrown into and out of operation automatically by the bottles or cans passing 100 through the machine to be labeled, so that when no bottle or can is in position to be labeled, the label affixing means will not be in operation. This mechanism is shown

most clearly in Figs. 20 to 24.

As the bottle moves along to the label affixing machine over the conveyer 29, it engages the trip arm 200, see Fig. 10, which is secured to the shaft 201, see Fig. 1, which has bearings at its upper end in the bar 202, 110 and at its lower end in a bar 203 secured to the table 60, and the spring 204 is coiled about said shaft in order to return the arm 200 to its normal position across the conveyer 29. It is stopped in its return move- 115 ment by an upwardly projecting plate or angle iron 304 from the side bar 23, so that the bottle pushes the arm 200 from the position shown in Figs. 10 and 20 to the position shown in Fig. 21 against the action of said 120 spring, see also Fig. 1. Above the spring 204, which surrounds the shaft 201, a crank 205 is secured, see Fig. 20, from which a connecting bar 206 extends to a clutch actuating lever 207, which is fulcrumed at 208 125 to an arm 209 projecting from one of the frames 136. The clutch actuating lever 207 has an upwardly projecting cam 210, see Fig. 23, which is curved, as shown in Figs. 20 and 21. When the clutch actuating lever 130

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207 is in its normal or idle position, as shown in Fig. 20, due to the action of the spring 204, said lever will be against the clutching end of the hub 211 of the sprocket wheel 74, see Figs. 13 and 20. Said sprocket wheel hub 211 has a notch or shoulder 212 adapted to be engaged by a pin 213 from a sliding clutch member 214. The sprocket wheel hub 211 is loosely mounted on the shaft so as 10 to freely rotate when not clutched by the part 214, as seen in Fig. 22, but when the member 214 is in clutching position, as shown in Fig. 24, power will be transmitted from the sprocket wheel to the shaft 71, as 15 there is a spline or key 215 in the shaft 71 which engages the clutch member 214. The clutch member 214 has a roller 216 projecting from it, see Figs. 20 and 22, adapted to ride up over the cam 210, and that enables the cam to disengage the clutch, and when thus disengaged, no power is transmitted from the sprocket wheel 74 to the shaft 71, and hence the label feeding and pasting means do not operate. As soon as the plunger 61 25 pushes the bottle out of engagement with the trip arm 200, the spring 204 will return said trip arm and said clutch mechanism to the position shown in Fig. 20. But by the time the clutch member 214 and shaft 71 have 30 made a revolution so that the roller will ride upon the cam 210 and throw the clutch out of operation, the bottle will have been moved far enough from the position shown at the right-hand end of Fig. 21 to be engaged by 35 the belt 62 to continue the further movement of the bottle, as shown in Fig. 7. The label feeding means and the paste applying means then stop, but the belt 62 runs all the time, and, therefore, turns the bottle 40 and causes the label to be applied thereto in the manner heretofore explained. Therefore, the label feeding means and paste applying means are automatically controlled by the bottles or cans being labeled. When 45 there is none going into the machine, said parts will not operate, but as soon as the bottle or can is fed into the machine, it will throw said parts into operation as explained.

An arm 220 extends backwardly from one 50 side of the plunger 61 to stop succeeding bottles or cans, and hold them back on the conveyer 29 until the advancing bottle has been pushed to the position shown in Fig. 7 and the plunger 61 has returned to the 55 position shown in Fig. 10. This enables the bottles to be placed on the conveyer 29 in any way, in bunches or irregularly, and they would not need to be spaced at all. The conveyer 29 will feed them up against the 60 arm 220 and then the advance bottle will pass said arm and in position in front of the plunger, one at a time. When the bottles follow each other in quick succession, as shown in Fig. 21, the trip 200 will be in 65 actuated position practically all the time,

and the clutch mechanism will be causing the shaft 71 to operate all the time.

While a round bottle is herein shown, the machine will affix labels to square boxes or cans, and in that event the box or can is fed 70 across the table entirely by the plunger 61 instead of only partially.

I claim as my invention:

1. A labeling machine including a table, a conveyer for conveying bottles or the like 75 to the table, a second conveyer extending from said table at a right-angle to said first conveyer for conveying bottles or the like from the table after they have been labeled, a plunger for moving the bottles or the like so on said table from their position after leaving the first conveyer toward the second conveyer, and means for moving the bottles or the like after they leave said plunger to the second conveyer and applying the label 85 thereto while being so moved.

2. A labeling machine including a table, a conveyer for conveying bottles or the like to the table, a second conveyer extending from said table at a right-angle to said first 90 conveyer for conveying bottles or the like from the table after they have been labeled, a plunger for moving the bottles or the like on said table from the position after leaving the first conveyer toward the second con- 95 veyer, a guide plate at one side of the table leading to said second conveyer, a horizontally moving vertical belt at the other side of the table in position to engage the sides of the bottle or the like after it has left said 100 plunger and turn it and move it toward said second conveyer, and means for feeding a label between said belt and bottle.

3. A labeling machine including a table, a conveyer for conveying bottles or the like 105 to the table, a plunger for moving the bottle or the like on said table from said conveyer, means for affixing the labels to the bottles or the like while moving on the table and means movable into and out of position 110 above the conveyer for stopping the bottles or the like on said conveyer and holding them back while the advance bottle or the like is being moved by the plunger into labeling position.

labeling position.

4. A labeling machine including a table, a conveyer for conveying bottles or the like to the table, a plunger for moving the bottle or the like on said table from said conveyer, means for affixing the labels to the bottles or the like while moving on the table and means connected with said plunger for holding back the bottles or the like on said conveyer until the advance bottle or the like has been moved by the plunger into labeling 125 position.

5. A labeling machine including a table over which bottles or the like may be moved, means for holding the labels in a vertical position, means for feeding said labels one 130

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at a time edgewise to the labeling position, means for applying paste to the advance edge of the label before it is moved and to the rear edge while it is being moved, and 5 means for affixing the labels vertically to the bottle or the like after being pasted.

6. A labeling machine including a table over which bottles or the like may be moved, means for holding the labels in a vertical 10 position, means for feeding said labels one at a time edgewise to the labeling position, a vertical shaft located near said labels, vertical brushes on said shaft in position to engage the advance and rear ends of the labels, means for applying paste to said brushes as the shaft revolves, and means for affixing the labels vertically to the bottle or the like.

7. A labeling machine including a table 20 over which bottles or the like may be moved, means for holding the labels in a vertical position, means for feeding said labels one at a time edgewise to the labeling position, a vertical shaft located near said labels, ver-25 tical brushes on said shaft in position to engage the advance and rear ends of the labels, a paste tank, and a vertically operated belt running in said paste tank and extending up parallel with and near said 30 shaft in position to engage said brushes and

apply paste thereto.

8. A labeling machine including a table over which bottles or the like may be moved, means for holding the label in a vertical 35 position, means for feeding the labels one at a time edgewise, a vertical roller between the label holding means and the labeling position of the bottle or the like and flush with the forward edge of a label holding means, 40 and a belt movable horizontally about said roller and in position to engage the label as it is fed forward and force it against the bottle or the like and feed the latter for-

9. A labeling machine including a table over which bottles or the like may be moved, means for holding the label in a vertical position provided with side pieces at the label feeding end with projections overlapping 50 the advance label, a follower for pressing the labels toward said projections, feeding means adapted to engage the advance label during its return movement and release the advance edge of said label from said pro-55 jection and for feeding the label to the labeling position in the forward movement of said label feeding means, and means for affixing the label to the bottle or the like after it has been fed to the labeling position.

10. A labeling machine including a table over which bottles or the like may be moved, means for holding the label in a vertical position provided with side pieces at the label feeding end with projections overlapping 65 the advance label, a follower for pressing the

labels toward said projections, a reciprocatory feeding means, means for guiding said feeding means so that it will engage the advance label during its return movement and release the advance edge of said label from 70 said projection and for feeding the label to the labeling position in the forward move-ment of said label feeding means, and means for affixing the label to the bottle or the like after it has been fed to the labeling position. 75

11. A labeling machine including a table over which bottles or the like may be moved, means for holding the label in a vertical position provided with side pieces at the label feeding end with projections overlapping the 80 advance label, a follower for pressing the labels toward said projections, a feeding plate, a rod to which the feeding plate is pivoted at one end, reciprocatory means to which the other end of the rod is pivoted, 85 a pin projecting vertically from said rod, a rocking cam guide bar, a cam guide projecting from said bar in position to be engaged by said pin for moving said feeding plate, as it reciprocates, away from the labels, a 90 spring for drawing said rod toward the labels for holding the feeding plate against the advance label when said pin is free from said cam guide, and means for affixing the label to the bottle or the like after it has 93 been fed to the labeling position.

12. A labeling machine including a table over which bottles or the like may be moved, means for holding the label in a vertical position provided with side pieces at the label 100 feeding end with projections overlapping the advance label, a follower for pressing the labels toward said projection, a feeding plate, a rod to which the feeding plate is pivoted at one end, reciprocatory means to 105 which the other end of the rod is pivoted, a pin projecting vertically from said rod, a rocking cam guide bar, a cam guide projecting from said bar in position to be engaged by said pin for moving said feeding 110 plate, as it reciprocates, away from the labels, a spring tending to move said cam guide bar so as to force the cam guide toward the labels, a stop for limiting such movement, a spring for drawing said rod 115

toward the labels for holding the feeding plate against the advance label when said pin is free from said cam guide, and means for affixing the label to the bottle or the like after it has been fed to the labeling position. 120

13. A labeling machine including a table over which bottles or the like may be moved, means for moving the bottles in a vertical position, means for holding the label in a vertical position provided with side pieces 125 at the label feeding end with projections overlapping the advance label, a follower for pressing the labels toward said projections, a feeding plate, a rod to which the feeding plate is pivoted at one end, a lever 130

for giving said rod the feeding movement, a cam for actuating said label, a common means for driving said cam and moving the bottle or the like into labeling position, a 5 spring for returning said rod, and means for affixing the label to the bottle or the like after it has been fed to the labeling position.

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In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

JOHN J. GAYNOR.

Witnesses:

Louis F. Bruhns, Patrick F. O'Connor.