F. L. SHELOR.

BOTTLE LABELING MACHINE.

APPLICATION FILED MAR. 14, 1918.

1,413,795.

Patented Apr. 25, 1922.

8 SHEETS—SHEET 1.

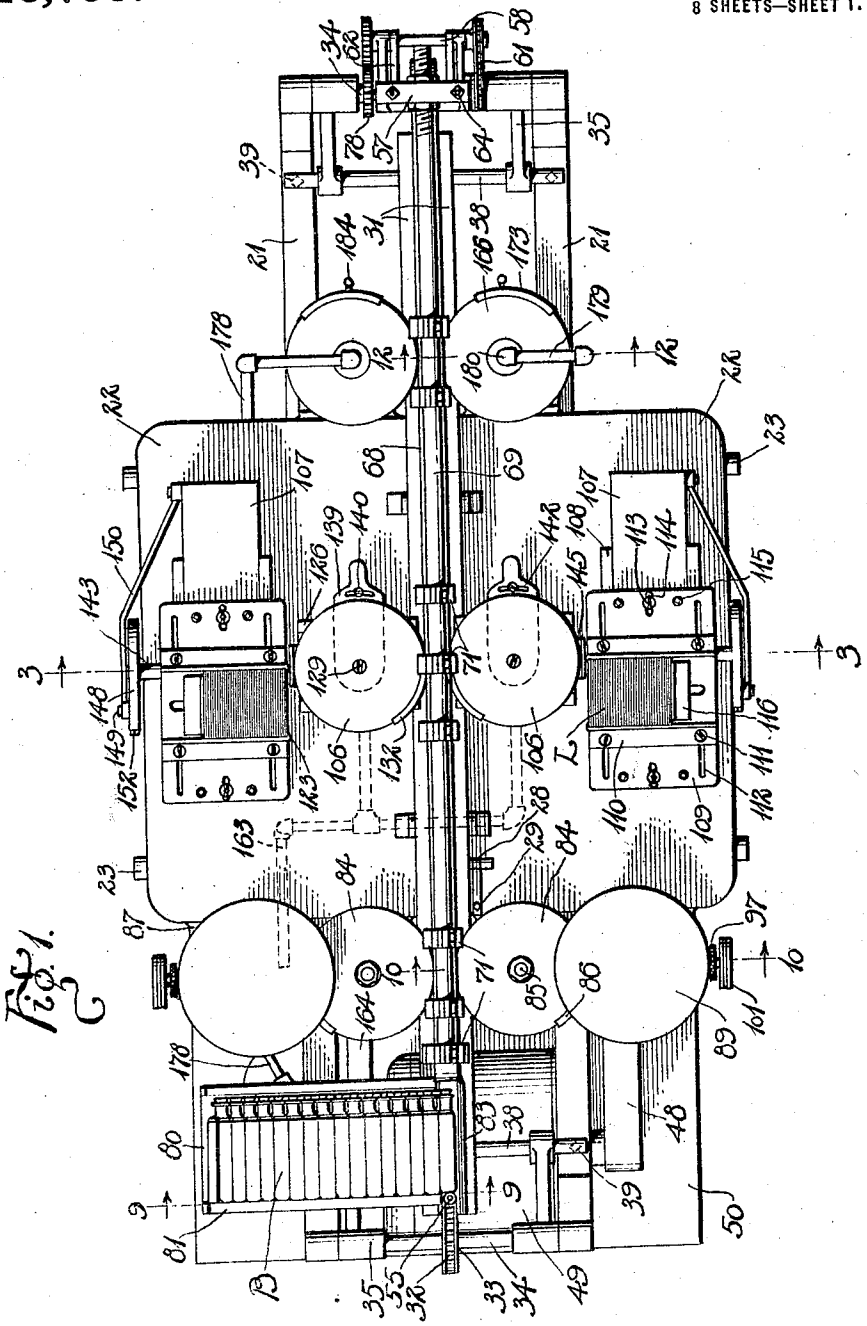

Fig. 1.

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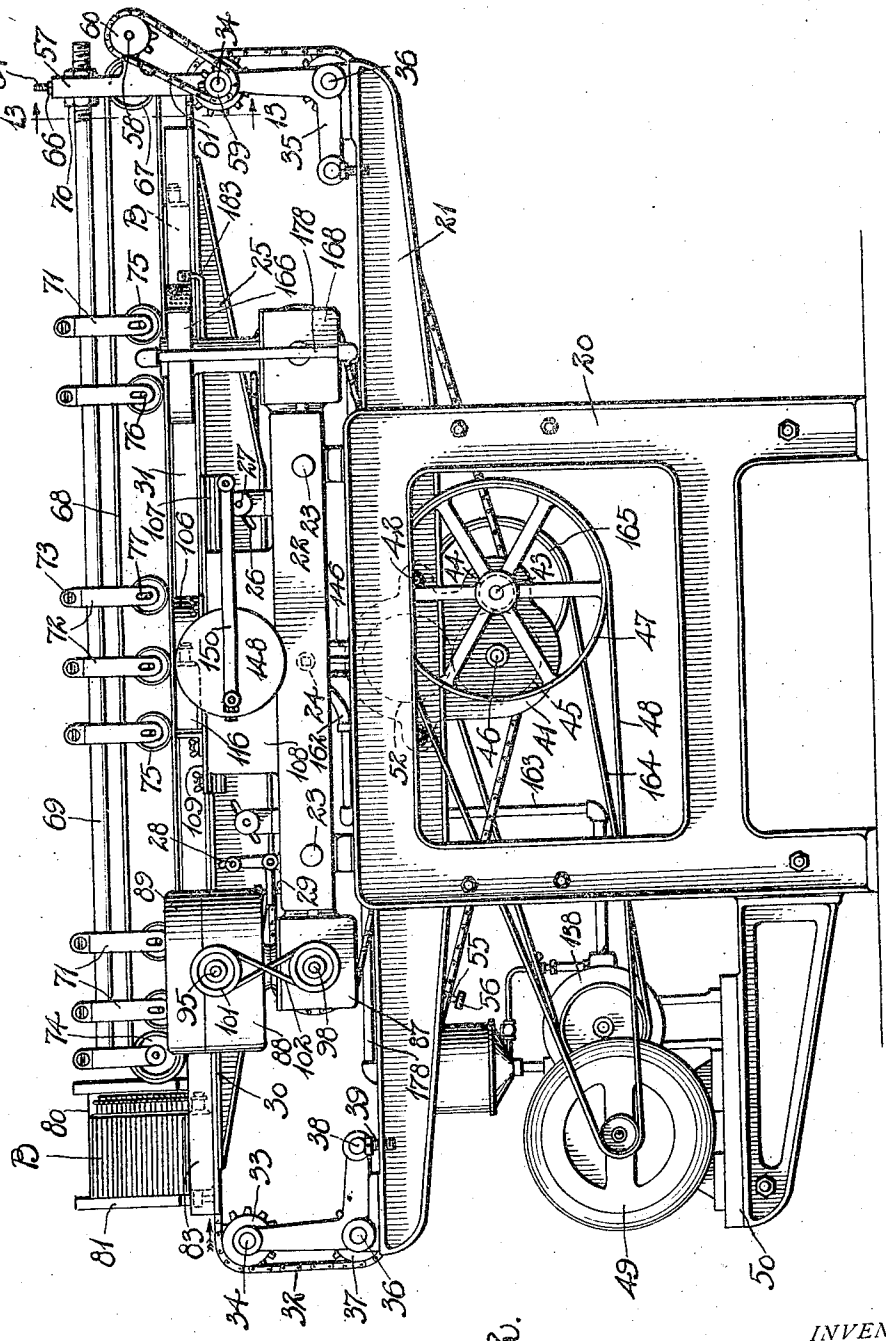
8 SHEETS—SHEET 2.



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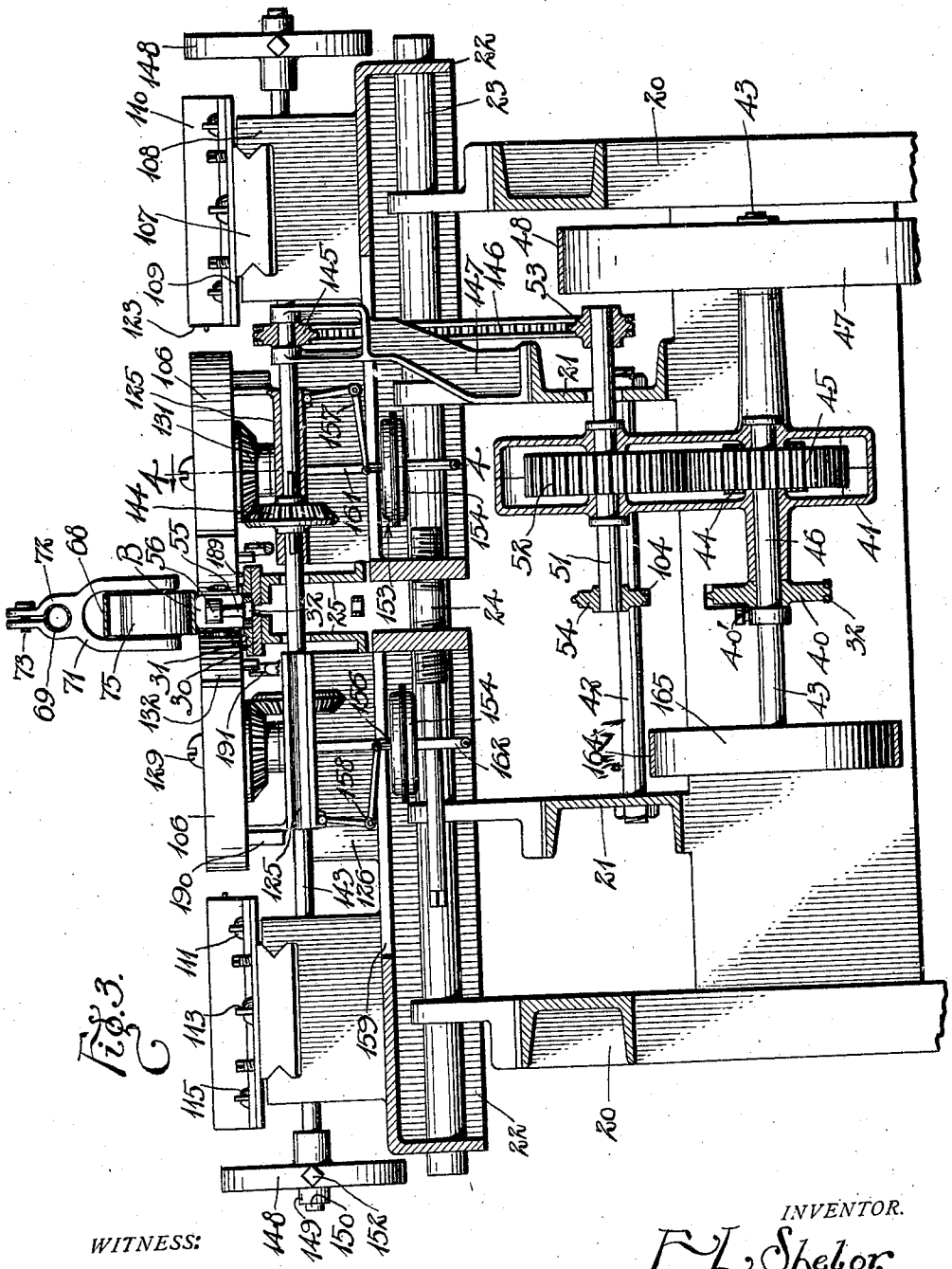

Fig. 3.

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8 SHEETS—SHEET 4.

Fig. 4.

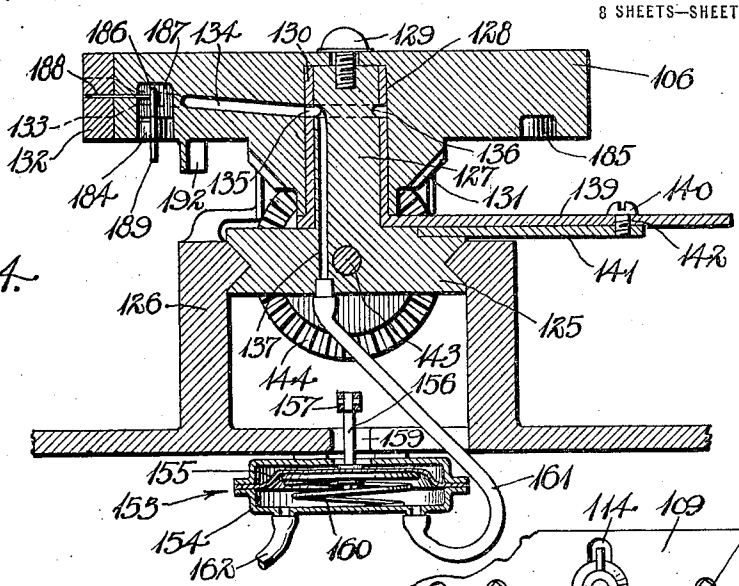
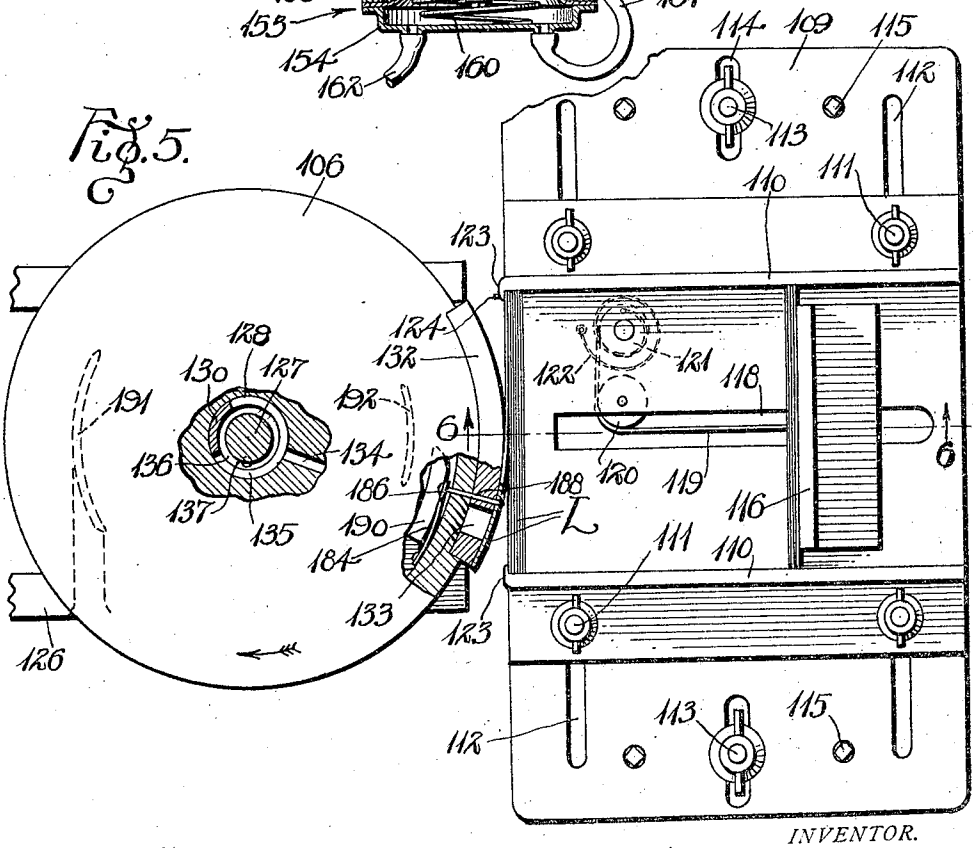


Fig. 5.



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8 SHEETS—SHEET 5.

Fig. 6.

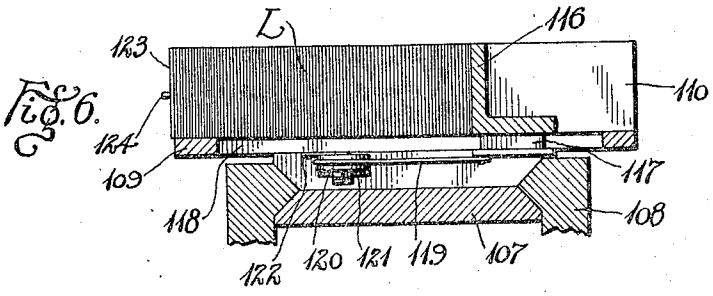

Fig. 7.

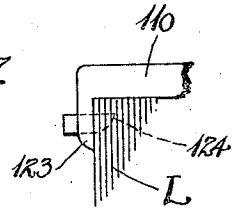

Fig. 8.

Fig. 9.

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8 SHEETS—SHEET 6.

Fig. 10.

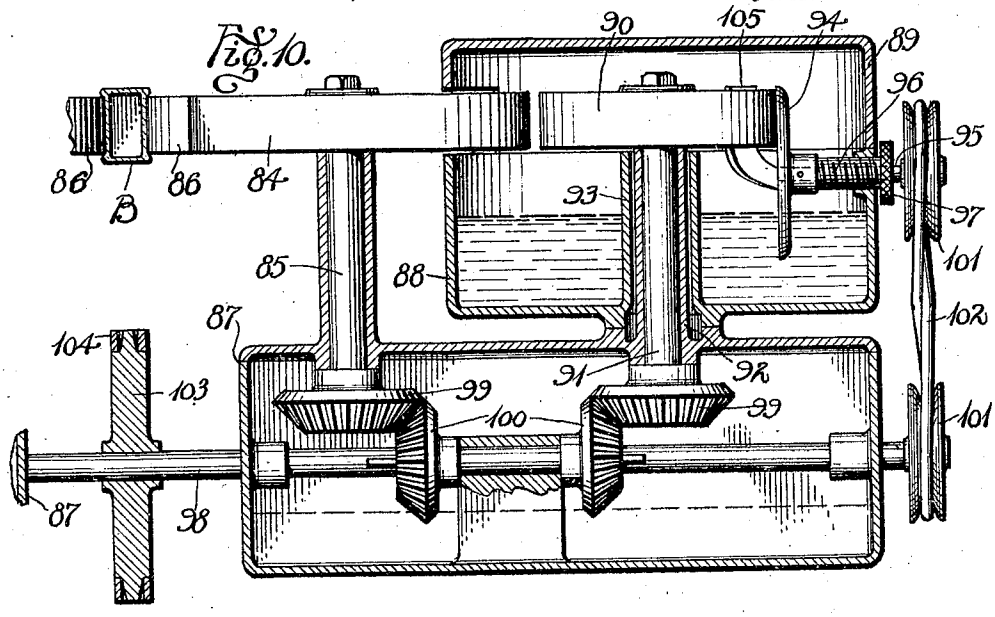
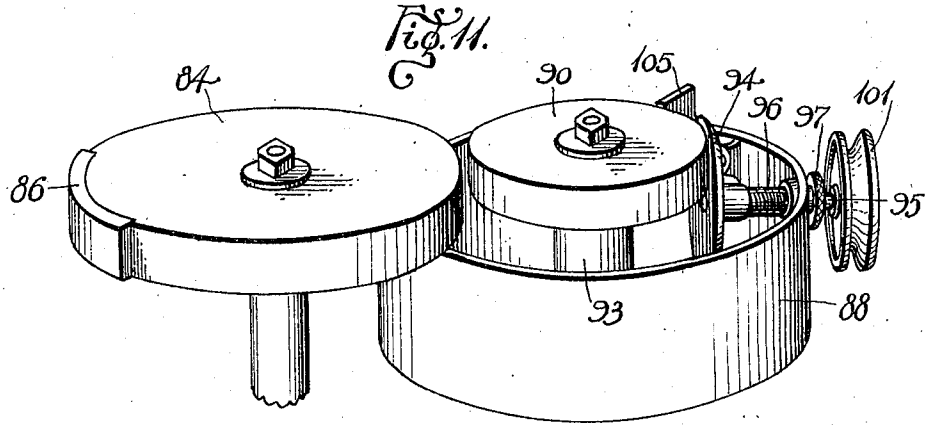


Fig. 11.



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8 SHEETS—SHEET 7.

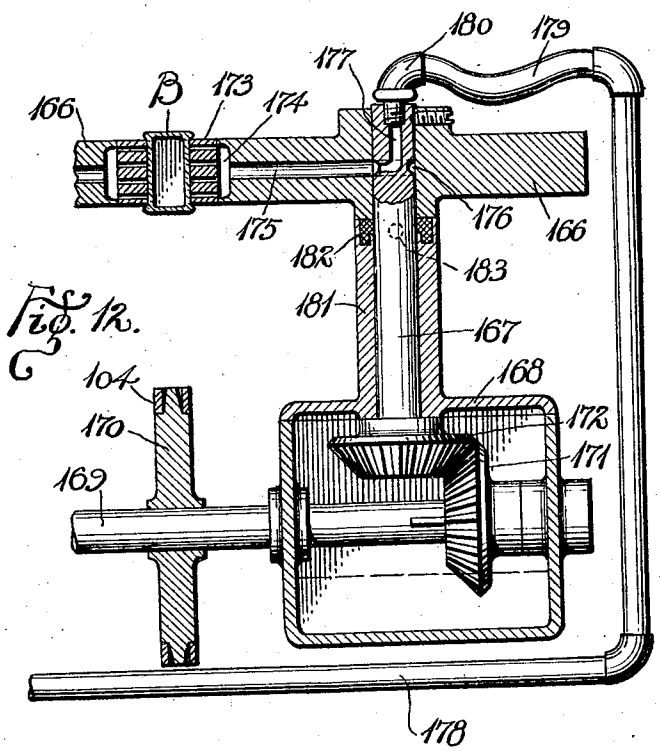

Fig. 12.

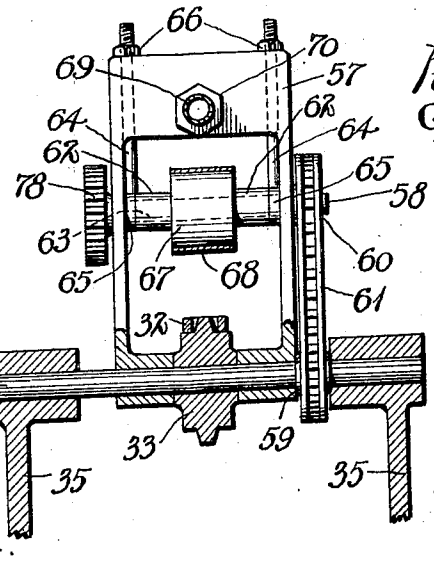

Fig. 13.

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8 SHEETS—SHEET 8.

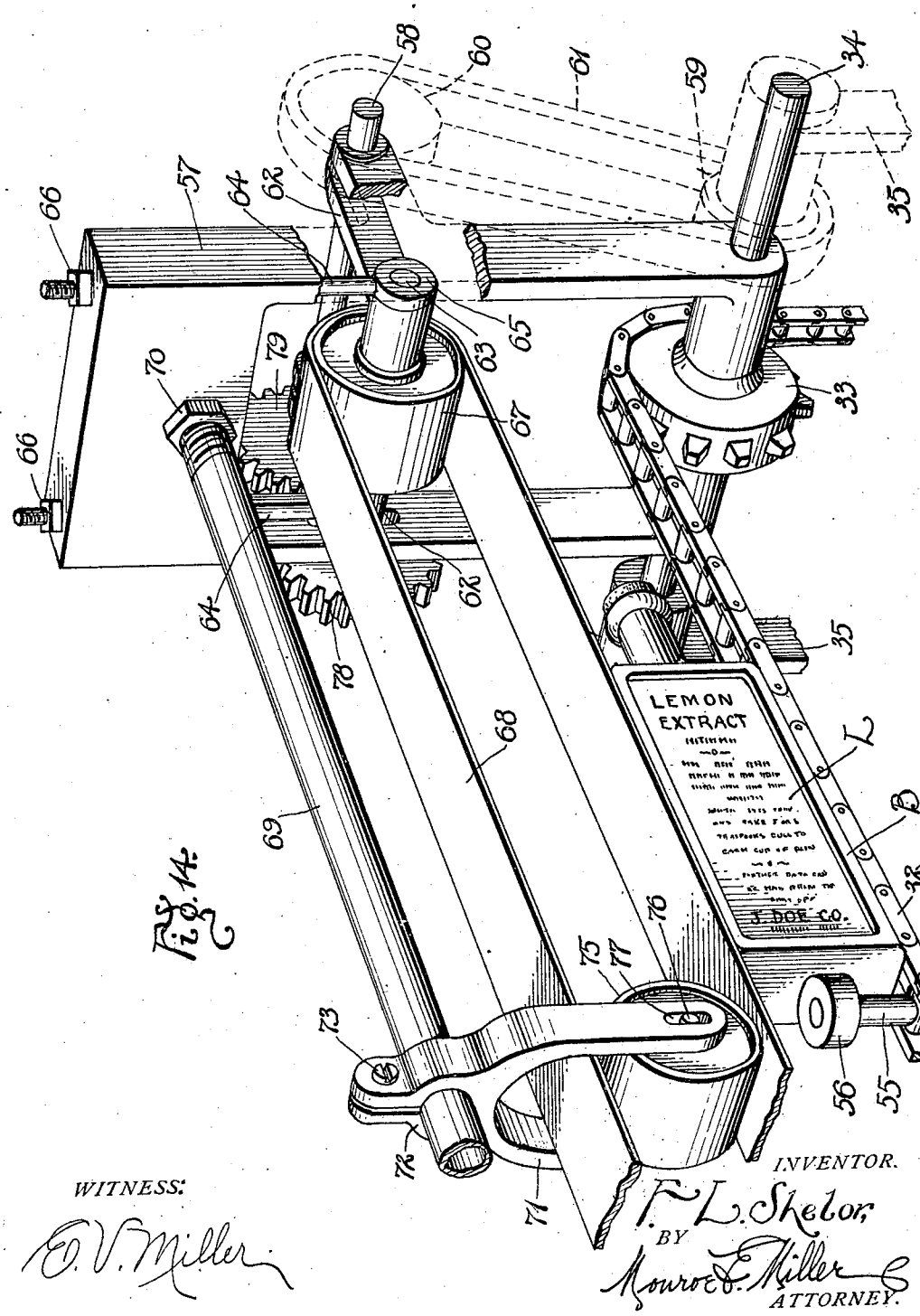

Fig. 14.

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UNITED STATES PATENT OFFICE.

FREDERICK L. SHELOR, OF SALEM, VIRGINIA, ASSIGNOR TO INTERNATIONAL FILLER CORPORATION, OF PETERSBURG, VIRGINIA, A CORPORATION OF VIRGINIA.

BOTTLE-LABELING MACHINE.

1,413,795. Specification of Letters Patent. Patented Apr. 25, 1922.

Application filed March 14, 1918. Serial No. 222,438.

To all whom it may concern:

Be it known that I, FREDERICK L. SHELOR, a citizen of the United States, and resident of Salem, in the county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Bottle-Labeling Machines, of which the following is a specification.

The present invention relates to a machine for applying labels or similar slips to bottles or other like objects, and aims to provide an improved machine of such nature which will be automatic in operation, adjustable to accommodate various sizes of bottles and labels, and thoroughly efficient and practical.

The invention has for its more specific objects, the provision of such a machine, which has (1) novel means for conveying the bottles through the machine, to regulate their relative position when operated on, and to properly guide and carry the bottles, (2) a novel magazine for the bottles to automatically supply them to the conveyor, (3) novel paste applying devices for applying the paste to the bottles in an efficient manner before the labels, so that the labels need not contain an adhesive, (4) novel label applying devices for feeding the labels to and applying them against the bottles in an efficacious manner, and (5) novel ironing and drying devices for the labels after being applied, to iron out the labels and dry them and thus complete the process.

A still further object of the invention is the provision of a label or sheet feeding and applying device of novel construction and operation, so as to assure the proper picking of the labels from their magazine and the application thereof to the bottles, the device being so arranged that the refusal of a label or sheet will not permit the device to touch the pasted surface of the bottle or other object meant for the label, which if it occurred would gum up the device and cause trouble.

With the foregoing and other objects in view, which will be apparent as the invention is better understood, the invention resides in the construction and arrangement of parts hereinafter described and claimed, it being understood that changes within the scope of the appended claims can be made without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of the machine;

Figure 2 is a side elevation thereof;

Figure 3 is an enlarged cross section on the line 3—3 of Figure 1;

Figure 4 is an enlarged section on the line 4—4 of Figure 3, showing details of the label applying device;

Figure 5 is a plan view of said device, parts being broken away;

Figure 6 is a section of the label magazine, on the line 6—6 of Figure 5;

Figure 7 is a detail view of the label retarding means;

Figure 8 is an elevation of the means for operating the label magazine;

Figure 9 is an enlarged section of the bottle magazine, on the line 9—9 of Figure 1;

Figure 10 is an enlarged section of one paste applying device, on the line 10—10 of Figure 1;

Figure 11 is a partial perspective view of said device;

Figure 12 is an enlarged section of one ironing and drying devices, on the line 12—12 of Figure 1;

Figure 13 is a section, on an enlarged scale, on the line 13—13 of Figure 2;

Figure 14 is a perspective view of the delivery end of the machine.

The machine embodies a suitable frame 20 having the parallel beams 12 extending longitudinally, and having also a pair of tables or supporting members 22 at the opposite sides of the longitudinal median plane and slidable laterally on the rods 23 mounted transversely on the frame. An adjusting screw 24 connects the tables 22, having right and left hand threads for moving said tables toward and away from one another, to obtain the desired adjustment.

The operating mechanism mounted on the frame comprises the bottle conveyor, bottle magazine, paste applying devices, label applying devices, and label ironing and drying devices, which will be described in detail, under captions with such titles, in the order mentioned.

Bottle conveyor.

This conveyor, said term meaning the entire conveying device, includes an adjustable guide for the bottles, comprising a pair

of parallel longitudinal rails 25 above the adjacent portions of the tables 22. These rails are adjustable transversely with the tables, and are also adjustable up and down by being provided with the inclined slots 26 for pins 27 carried by the tables, so that the longitudinal adjustment of said rails will raise or lower them to suit the needs. The longitudinal movement of said rails is obtained by means of a bell crank lever 28 fulcrumed to one table 22 and having its upstanding arm connected with the rails, while the other arm has an adjusting screw 29 resting on the table. By turning the screw in opposite directions, this will raise the rails or allow them to lower. Secured in any suitable manner on the rails 25 are strips 30 of fiber or like material, and angle irons 31 are in turn secured on said strips, thereby forming a guide channel for the bottles, of which the strips form the bottom and the angle irons or flanges, the sides. An endless conveyor chain 32 passes longitudinally over the strips within the channel to carry the bottles thereon, and said strips form a noiseless support for the chain, and also reduce friction. It will be seen that by adjusting the tables 22 toward and away from one another, this will decrease or increase the width of the guide channel for different sizes of bottles. The conveyor can thus be adapted for different widths of bottles, and the guide channel is adjustable vertically when labeling bottles of different sizes.

The sprocket chain 32 passes over sprocket wheels 33 at the ends of the machine beyond the ends of the guide channel and said wheels are mounted on transverse shafts 34, each of which is carried by and journaled in the upstanding arms of a pair of bell crank levers 35 fulcrumed on a transverse shaft 36 below the respective shaft 34. The shafts 36 at the opposite ends of the frame are mounted on the ends of the beams 21, and idler sprocket wheels 37 are carried by said shafts 36 for the passage of the chain 32 thereunder. The other arms of the levers 35 project toward the center of the machine, and a cross rod 38 is secured to said arms of each pair of levers and rests on adjusting screws 39 threaded downwardly into the beams 21. Thus, by raising the screws 39 at one end and lowering them at the other end, the levers 35 can be swung to adjust the shafts 34 and their sprocket wheels 33 longitudinally of the machine to adjust the upper run of the chain 32 in the guide channel, and thus obtain an accurate adjustment of the chain with respect to the devices which it passes without disconnecting the chain from the actuating means.

The driving mechanism for the conveyor chain includes a sprocket wheel 40 under which the chain 32 passes. A gear case 41 is suspended from a pair of cross rods 42 secured to the beams 21, and a drive shaft 43 is journaled through said case, and has a pinion 44 thereon within the case meshing with a gear wheel 45 also within the case and secured on a counter shaft 46 journaled through the case. The sprocket wheel 40 is secured on the shaft 46 for angular adjustment by means of a set screw 40′ in order that the sprocket wheel 40 can be adjusted angularly for setting the chain 32 ahead or behind, a more minute adjustment being obtained by means of the levers 35 and screws 39 as above indicated. A pulley wheel 47 secured to the shaft 43 is connected by a belt 48 or other means with an electric motor 49 or other prime mover, which is preferably mounted on a shelf or bracket 50 carried by the frame 20. A second counter shaft 51 is journaled through the case 41 above the shaft 46 and has a gear wheel 52 secured thereon within the case and meshing with the gear wheel 45 to be driven thereby. Secured on the opposite protruding ends of the shaft 51 are sprocket wheels 53 and 54 for actuating other sprocket chains as will hereinafter appear. The case 41 can contain lubricant in which one or more of the gears dip to keep the mechanism lubricated.

At equally spaced intervals, the conveyor chain 32 is provided with fingers or studs 55 projecting therefrom and having heads or collars 56 of rubber or equivalent material thereon. To contact with the rear ends or bottoms of the bottles and move them along the guide channel, said fingers projecting upwardly within said channel.

The conveyor also includes means for holding the bottles down on the conveyor chain 32 and retarding the bottles slightly to hold them firmly against the fingers 55. Such means includes an arch or yoke 57 mounted for oscillation on the shaft 34 at the forward end of the machine, and carrying the shaft 58 driven from said shaft by means of sprocket wheels 59 and 60 on the shafts 34 and 58, respectively, and a chain 61 connecting said wheels. The wheel 60 is slightly larger in diameter than the wheel 59 so that the shaft 58 rotates at a slightly less speed than the shaft 34. A pair of arms 62 are mounted for oscillation on the shaft 58 and project within the arch 57 and carry a shaft 63 suspended from hangers 64 having bearings 65 at the lower ends for said shaft 63. Said hangers extend upwardly through the top of the arch and adjusting nuts 66 are threaded on the hangers and seat on the arch, whereby the hangers and shaft 63 can be adjusted upwardly and downwardly by turning the nuts 66. A pulley wheel 67 is secured on the shaft 63 between the arms 62 and an endless belt 68 passes around pulley wheel 67 and extends longitudinally over the guide channel and upper run of the chain 32. In order to support the belt 68,

a rod or tube 69 extends through the upper portion of the yoke 57 and is secured thereto by means of nuts 70 threaded on the rod and bearing against the opposite sides of the yoke. Arch-shaped hangers 71, of which there may be any suitable number, are suspended from the rod 69, said hangers having pinch clamps 72 embracing the rod 69 and made fast thereon by means of screws 73 or the like. The hangers 71 straddle the belt 68, and a pulley wheel 74, of substantially the same diameter as the pulley wheel 67, is journaled within that hanger 71 at the free or rear end of the rod 69 remote from the arch 57, and the belt 68 passes over said pulley wheels at the limits of its travel. Smaller intermediate pressure whels 75 located between the upper and lower runs of the belt 68 are mounted for rotary and vertical movements within the remaining hangers 71, the axles 76 of said pressure wheels projecting within vertical slots 77 in the limbs of the hangers. By loosening the clamps 72, the hangers 71 and pressure wheels 75 can be distributed to the desired longitudinal points, in order that the pressure of the wheels 75 on the lower run of the belt 68 will be at such points most needed to hold the bottles down firmly on the conveyor chain 32. The bottles are carried between the upper run of the chain 32 and lower run of the belt 68, and the weight of the wheels 75 presses the belt 68 downwardly to rest firmly on the bottles. The shaft 63 has a gear wheel 78 secured thereto meshing with a gear wheel 79 secured to the shaft 58, in order to drive the belt 68. The arms 62 constrain the shaft 63 for arcuate vertical adjustment to hold the gear wheels 78 and 79 in mesh. As above stated, the shaft 58 rotates at a slightly slower velocity than the shaft 34 to which it is connected, and consequently, the belt 68 moves slightly slower than the chain 32, but in the same direction forward to convey the bottles. The belt 68 is traveling at a slightly less velocity than the chain 32 and in pressing on the bottles, retards the bottles slightly on the chain 32, and thus holds the bottles firmly against the fingers 55, to prevent the bottles being displaced.

The arch 57 in carrying the rod 69 and other parts which support the belt 68, enables said belt to be raised and swung out of the way, with the arch 57, which can turn on the shaft 34. In this manner, the belt 68 can be swung upwardly to uncover the guide channel, and thus give access to the bottles and conveyor chain therein.

Bottle magazine.

The bottle magazine, shown in detail in Figure 9, for feeding the bottles one at a time to the conveyor, embodies an inclined chute having the bottom 80 and sides 81. The bottles B are placed transversely in the magazine, side by side, to gravitate down the chute into the guide channel. The magazine is located at the rear end of the guide channel at one side thereof and the lower end of the bottom 80 of the chute extends within the opening 82 in one side flange or angle iron 31 of the channel, so that the lowermost bottle slides transversely into the channel. That side flange 31 of the channel opposite to the magazine has its upper edge bent slightly outward, as at 83, adjacent to the magazine to accommodate the lowermost bottle. As the fingers 55 move rearwardly into the channel, they contact with the lowermost bottles of the magazine one at a time, and said fingers moving past the magazine, carry the bottles with them. The bottles after leaving the magizine come to rest on the chain 32 snugly between the flanges 31, with their sides vertical. As the lowermost bottle of the magazine is removed, the remaining bottles slide downwardly one step in the magazine or chute for the next finger 55. The magazine is secured to the guide channel, or rather to one side thereof, so as to remain in fixed position relative thereto.

Paste applying devices.

The paste applying devices, one of which is shown in detail in Figures 10 and 11, are located at the opposite sides of the guide channel next in front of the bottle magazine and are carried by the tables 22. Each of these devices includes a paste applying wheel 84 at one side of the guide channel, secured to the upper end of a vertical shaft 85, and a curved paste pad 86 is secured to the periphery of the wheel 84 at one point thereof to contact with one side of the bottle, while the remainder of the peripheral surface of the wheel 84 does not touch the bottle. Each paste applying device includes a gear case 87 carried by the rear edge of the respective table 22, whereby said devices are adjusted toward and away from one another as the guide channel is made narrower or wider, and thus assure of the proper contact of the paste pads 86 with bottles of various sizes. The shaft 85 of each device is journaled through the top of the case 87. A paste pot 88 is mounted on the case 87 at the outer side of the shaft 85 and has a removable cover 89, through an opening of which the outer portion of the wheel 84 extends to overhang the paste pot. A paste transferring wheel 90 is rotatable in the same horizontal plane as the wheel 84, and is secured to the upper end of the vertical shaft 91 above the paste in the pot. The shaft 91 is journaled in an upstanding bearing 92 carried by the top of the case 87, and the bottom of the pot 88 has an upstanding sleeve 93 forming an inner wall for the

pot surrounding the bearing 92 and shaft 91. A paste elevating disk 94 rotatable in a vertical plane is secured to the inner end of a horizontal shaft 95 journaled through an adjustable bushing 96 threaded through the outer wall of the pot 88. The bushing 96 bears at its inner end against the hub of the paste elevating disk 94, and presses the face of the disk 94 against the periphery of the wheel 90, and the pressure can be regulated by adjusting the bushing 96, which has a knob 97 at its outer end. The disk 94 contacts with the wheel 90 above the center of said disk, and the lower portion of the disk dips in the paste, so that the rotation of the disk elevates a film of paste on the face thereof and spreads it on the periphery of the transferring wheel 90, which is so spaced from the paste applying wheel 84, that only the paste pad 86 contacts with the wheel 90 to receive paste therefrom.

The actuating mechanism of the paste applying devices includes a transverse shaft 98 journaled through the gear cases 87, and bevel gears 99 secured to the lower ends of the shafts 85 and 91 within the cases 87 mesh with similar gears 100 feathered on the shaft 98, so that the wheels 84 and 90 are rotated in the proper direction. The gears 100 dip in lubricant in the gear cases 87 to lubricate the mechanism. Pulley wheels 101 are secured to the outer ends of shafts 95 and remote ends of the shaft 98, and belts 102 pass over said pulley wheels to rotate the paste elevating disks 94 properly. A sprocket wheel 103 is secured on the shaft 98 at the center thereof, and a sprocket chain 104 passes over said sprocket wheel and under the sprocket wheel 54 above described, to be operated thereby and therefore operate the paste applying devices as the conveyor chain is moved.

A suitable wiper 105 is preferably mounted in each paste pot 88 to wipe the surplus paste from the transfer wheel 90, so that only a desired thin film of paste is transferred to the bottle, for purpose of economy and to prevent the machine being gummed up.

It will be apparent that the paste applying devices operate in harmony with the conveyor chain 32, so that the pads 86 contact with the bottles as they pass between said devices, and thus apply the paste to the opposite sides thereof within areas bounded by the outlines of the pads or within depressions in the bottles. The peripheries of the transfer wheels 90 are kept supplied with paste by the elevating disks 94, and the pads 86 in contacting with the wheels 90 are replenished with paste for each bottle.

Label applying devices.

The label applying devices, shown in detail in Figures 3 to 8, inclusive, are located at the opposite sides of the guide channel forwardly of the paste applying devices, and each of the label applying devices includes a label applying wheel 106 rotatable in the horizontal plane of the wheels 84 and 90 at one side of the guide channel, with its periphery spaced from the bottles so as not to contact therewith. Each label applying wheel 106 is supplied with labels one at a time from a label magazine carried by a slide 107 movable longitudinally at one side of the machine in a guide 108 mounted on the respective table 22. The two label applying devices are carried by the tables 22 to be adjusted like the paste applying devices for accommodating bottles of different sizes. The label magazine of each label applying device includes a bottom plate 109 on the slide 107, and forming the bottom of the magazine, and transverse angle irons 110 on the plate 109 forming the sides of the magazine in which the stack of labels L are placed. The label magazine is adjustable in width due to the fact that the angle irons or sides 110 thereof are adjustably clamped on the plate 109 by bolts 111 working in slots 112, thus enabling labels of different lengths to be used. The plates 109 are secured for longitudinal adjustment on the slides 107 by means of bolts 113 working in slots 114, thus enabling the magazines to be adjusted relatively to said slides and label applying wheels. In this way, each magazine can be adjusted for labels of different sizes, and to cooperate properly with the wheel 106. The magazine is adjustable vertically, and one way of accomplishing this is to have supporting screws 115 threaded downwardly through the plate 109 and resting on the slide 107 to raise and lower said plate, the bolts 115 being loosened to permit such adjustment and then being tightened to hold the plate 109 down, as well as in its longitudinal adjustment.

The labels L are advanced in the magazine toward the wheel 106 by a follower 116 movable on the plate 109 between the sides 110 of the magazine, said follower being behind the stack of labels and having a lower lug 117 working in a slot 118 in the plate 109. The follower 116 is advanced with the desired pressure by a cord or flexible element 119 attached to the lug 117 and passing around a guide sheave 120 hung for rotation from the plate 109 at one side of the slot 118, said cord passing to and being wound on a drum 121 also hung for rotation from the plate 109. A spring 122 serves to rotate the drum to wind the cord thereon and thus advance the follower, and said follower can be readily moved back for introducing more labels into the magazine as needed. In this manner, the labels are advanced with a uniform pressure, with the ends of the first or

foremost label bearing against retainer flanges or lips 123 at the inner ends of the magazine sides 110. One lip 123 has a knife point 124 engaged therethrough and sticking into several of the foremost labels, so that they will only be withdrawn one at a time. It is only necessary to have one of said detent points at that side of the magazine away from which the rear end of the label is pulled.

The label applying wheel 106 at each side of the guide channel is carried for transverse movement toward and away from the guide channel at any adjustment of the table 22, by a slide 125 movable in a guide 126 on the respective table. This slide 125 has an upstanding pintle or post 127 on which the wheel 106 turns, said wheel having a lower central recess 128 receiving said post. A screw 129 or other fastening means holds the wheel 106 on the post, on which a sleeve 130 is fitted within and below the wheel 106. The wheel 106 has a lower bevel gear 131 rotatable around the valve 130 with the wheel, and an arcuate label pad 132 is secured to the wheel 106 at one point of its periphery and has an opening 133 near its forward end communicating with a passage 134 in the wheel 106 controlled by said valve 130. Said valve has an arcuate port 135 of suitable length with which the passage 134 registers during the movement of the pad from the label magazine to the bottle. The post 127 has an annular groove 136 with which the port 135 communicates at all times, and a passage 137 leads from the groove 136 downwardly in the post 127 through the slide 125 for the exhaustion of air by a pump 138. The valve 130 is provided at its lower end with a radial arm 139 for adjusting said valve angularly, and said arm is secured for adjustment by a screw 140, or the like, on an arm 141 fastened to and projecting from the slide 125, the arm 139 having a slot 142 for the screw.

The operating mechanism for the label applying devices includes a transverse shaft 143 journaled longitudinally through slides 125 and having bevel gears 144 feathered thereon within openings in the slides and meshing with the bevel gears 131 to rotate the label applying wheels 106. The shaft 143 is operated by a sprocket wheel 145 secured thereon and connected by a sprocket chain 146 with the sprocket wheel 53 above described. The sprocket wheel 145 is held in position by a bracket 147 secured to one of the beams 21. The slides 107 of the label magazines are reciprocated by means of crank disks 148 secured to the ends of the shaft 143 at the opposite sides of the machine and having radially adjustable wrist pins 149 connected by connecting rods 150 with the slides 107. The wrist pins 149 are carried by blocks 151 movable in radial slots in the disks 148 and adjusted by means of screws 152. The wrist pins 149 can therefore be so adjusted that when the forward ends of the pads 132 move adjacent to the foremost labels in the magazines, said magazines will be moving toward the rear of the machine at precisely the same speed as the pads 132, in order that the pads and labels will be brought together properly and started to move at the same velocity when brought together. This will assure the proper transferring of the labels to the label applying wheel 106, because as the pads 132 and labels are brought together, the passages 134 are in registration with the ports 135, thus opening the air suction conduits and creating partial vacuums at the mouths of the ports or openings 133 which draws the forward ends of the foremost labels of the magazines, to the foreward ends of the pads 132 as they are brought together. The labels are then held against the pads by the air suction, and the labels will close the ports 133. The labels in being held against the pads 132 will be carried therewith and stripped lengthwise from the label magazines from which the pads move in circular paths to the bottles and thence back to the magazines. The forward ends of the labels are thus drawn against the label pads by the air suction when said pads and label magazines move in unison, and then when the pads leave the magazines, the rear ends of the labels will be pulled from the magazines out of engagement with the detaining means or points 124.

Each of the label applying devices includes automatic means for preventing the pads 132 from being gummed up, such as by shifting the slide 125 and label applying wheel 106 to and from label-applying position, and for this purpose there is employed an air-suction contrivance 153 hung from each table 22 below the respective slide 125, having a casing 154 in which a diaphragm 155 is clamped between the sections thereof. A stem 156 is secured to the diaphragm and projects upwardly through an opening in the top of the casing 154, and said stem is pivoted to one arm of a bell crank lever 157 fulcrumed at 158 on the table 22 and having its other arm engaging the respective slide 125. A spring 160 within the casing 154 raises the diaphragm 155 and stem 156, and when free to do so, swings the lever 157 to move the slide 125 away from the conveyer and toward the respective label magazine. A tube 161 is connected to the bottom of the casing 154 and slide 125 to establish communication between the passage 137 and the casing below the diaphragm, and a second tube 162

is connected to the bottom of said casing in communication therewith below the diaphragm, and the two tubes 162 are connected to a pipe 163 leading to the exhaust side of the pump 138. This pump is connected by a belt 164 with a pulley wheel 165 on the drive shaft 42 to be operated thereby.

To prevent the label slipping on the pad 132, a leaf spring 184 is secured to the outer wall of a lower annular groove 185 in the wheel 106, and said spring has an upstanding ear 186 in a recess 187 in said wheel, to which ear a pin 188 is secured. Said pin slides in the wheel and pad 132 and its point is projectable from the periphery thereof, but normally retracted behind the peripheral surface by the tension of the spring. The pin 188 is projected before the label is pulled from the magazine with the pad, and this is done by a depending lug 189 of the spring 184 passing a cam 190 on the slide 125 at the proper time. Thus, when the lug 189 strikes and wipes past the cam 190, the pin 188 is pushed outwardly and will prick through the label and thus prevent it slipping on the pad 132 when the label is pulled from the magazine.

The wheel 106 has a depending lip 192 to pass on opposite sides of a flange 191 supported by the guide 126. This flange 191 and lip 192 prevent the wheel 106 from moving over toward the bottle when a label is refused.

The operation of the label applying devices is briefly described as follows: As the wheels 106 rotate and the pads 132 thereof move toward the label magazines, said magazines are moved rearwardly of the machine in the same general direction as said pads move when passing said magazines, and the passages 134 come into registration with the ports 135 before the forward ends of the pads meet the forward ends of the labels, thus drawing said labels to and carrying them with the forward ends of said pads to strip the labels from the magazines, the pins 188 being projected to prevent slipping of the labels. When the labels are drawn against the pads 132, this immediately closes the ports 133 and shuts off the inflow of air, and consequently there will be a further reduction in pressure within the casings 154 below the diaphragms 155, overcoming the resistance of the springs 160, which hold the label applying wheels 106 toward the label magazines, while air is let into the ports 133. Therefore, the diaphragms 155 being drawn downwardly will pull the stems 156 with them, and swing the levers 157 so as to move the slides 125 toward the guide channel to bring the label applying wheels 106 to label applying position. As the bottle moves between the label applying wheels 106, the pads approach the bottle, and the labels carried by the pads are therefore laid in fixed relation against the pasted areas of the sides of the bottle or in the depressions thereof with which the arcuate pads move with a rolling motion. When the forward ends of the labels have been brought against the pasted sides of the bottle, so as to stick thereto, the passages 134 reach the ends of the ports 135 and the air suction is cut off, thereby releasing the labels from the pads. The pads 132 press the labels against the bottle over the areas which were covered by paste by the paste applying devices, and the valve 130 now cutting off the air will retain the wheels 106 in applying position. As the bottle leaves the label applying devices, the pads are again moved to the label magazines to repeat the operation for the next bottle, the air passages being again opened so that the springs 160 act to return to wheels 106 toward the magazines. It will be apparent that when the air suction is cut off, after the labels are started into contact with the bottle, the partial vacuum in the casings 154 is maintained, the valves 130 shutting off the inflow of air until the rear ends of the pads 132 leave the bottles to properly apply the labels. At this time, the passages 134 in reaching the forward ends of the ports 135 will establish the flow of air, thereby relieving the vacuum in the casings 154 so that the springs 160 again assert themselves and move the slides 125 and wheels 106 toward the label magazines, to pick up the next labels and repeat the operation, as above indicated.

A safety feature resides in the movement of the wheels 106 automatically into and out of label applying position. Should either of the wheels 106 refuse to pick up the label from the magazine, the port 133 will remain open, and the spring 160 will therefore hold the slide 125 and wheel 106 out of applying position, the lip 192 therefore passing along the inner side of the flange 191 when the valve 130 shuts off the air, so that the pad 132 will not contact with the bottle and paste thereon, thus preventing the pad 132 from being gummed up by the refusal of the label. When the wheel 106 moves to applying position, it does so before the lip 192 reaches the flange 191 and the lip therefore moves along the convex side of the flange, but when a label is refused, the wheel 106 remains in label receiving position, and before the valve 130 shuts off the air, the lip 192 has moved to overlap the concaved side of the flange 191 which will prevent the diaphragm 155 from moving the wheel 106 without a label against the bottle.

In the present machine, the paste is applied to the objects, and the labels are then applied to the objects, whereby said objects

carry the paste to bring it into contact with the labels, and the safety device will prevent the paste from contacting with the label applying means, and this holds good just the same if the objects carrying the paste are considered part of the means for applying the paste to the labels.

The paste applying devices can also be used for applying moisture when previously gummed labels are used, and in this respect paste and water or other liquids to cause the adherence of the labels and objects are equivalents of one-another.

When labels of different sizes are used, the magazine sides 110 and plates 109 are adjustable for the length of the labels and relative longitudinal position thereof, and the labels are adjustable upwardly and downwardly by means of the screws 115, in order that the labels will rest against the pads 132 with an equal margin all around, to thereby properly present the labels to the bottles. This longitudinal positioning of the magazine plates 109 with respect to the slides 107, and the vertical adjustment of the magazine plates toward or away from the slides, will serve to accurately regulate the respective longitudinal and lateral positions of the labels when applied to the bottles. Thus, if the label magazines are adjusted longitudinally, this will change the relative longitudinal positions that the labels are carried by the pads 132, and by raising and lowering the label magazines, this will adjust the vertical or transverse positions of the labels on said pads, so that the labels will be applied accordingly to the bottles.

Label ironing and drying devices.

Devices are employed (one of which is shown in detail in Figure 12) for ironing out the labels on the bottles and drying them to set the paste. These devices are disposed at the opposite sides of the guide channel forwardly of the label applying devices and are also carried by the tables 22 for adjustment therewith, the same as the paste and label applying devices. Each of the ironing and drying devices includes a wheel 166 rotatable in the horizontal plane of the wheels 84, 90 and 106 at one side of the guide channel, and this wheel 166 is secured upon the upper end of a vertical shaft 167 projecting through the top of a gear case 168 carried by the forward edge of the respective table 22, which can contain lubricant. A transverse actuating shaft 169 is journaled through the two gear cases and has a sprocket wheel 170 secured thereon over which the sprocket chain 104 passes. A bevel gear 171 is feathered on the shaft 169 within each gear case 168 and meshes with a similar gear 172 secured to the lower end of the respective shaft 167 for driving the wheel 166.

An arcuate ironing member 173 is secured to the periphery of each wheel 166 and is apertured to provide jets of heated air. The wheel 166 has a chamber 174 behind the member 172, and a passage 175 extending from said chamber and communicating at its inner end an annular groove 176 in the shaft 167. The shaft 167 has a passage 177 leading from its upper end to the groove 176, and a coupling 180 is swiveled to the upper end of the shaft 167 to remain stationary and communicate with the passage 177. A heated air supply pipe 178 communicates with the exhaust side of the pump 138, and the air can be heated in any desirable or well known manner. The two branches of the pipe 178 which project upwardly at the sides of the wheels 166 are connected by flexible tubes 179 to the couplings 180, whereby the heated air is delivered by way of the passages 177, grooves 176 and passages 175 to the chambers 174 and thence through the apertures of the ironing members 173. The wheels 166 are so arranged that the members 173 have a rolling contact with the labels on the bottles as they pass between the wheels 166, to thus iron out the labels against the bottle and at the same time, the jets of heated air in impinging against the labels will dry them and complete the several steps of the process. The bottles then pass from the forward end of the conveyor. The air jets prevent the labels from sticking to the ironing members.

The gear cases 168 have upstanding bearings 181 in which the shafts 167 are journaled and extend to the hubs of the wheels 166, the upper ends of the bearings 181 being provided with annular pockets 182 containing absorbent fillings or padding for holding lubricant to lubricate the parts. Lubricant can be supplied to said pockets by means of feed tubes 183 communicating therewith, attached to the bearings 181 and projecting from under the wheels 166.

Summary.

From the foregoing taken in connection with the drawings, it is obvious that the tables 22 can be adjusted for accommodating various sizes of bottles, such adjustment of the tables automatically adjusting the guide channel, paste applying devices, label applying devices, and label ironing and drying devices simultaneously. By adjusting the rails 25 upwardly and downwardly, the upper run of the conveyor chain 32 can be raised or lowered so that bottles of different sizes will pass the devices properly to place the labels evenly thereon transversely. The relative position of the conveyor chain with respect to the devices which it passes is also

adjustable, as above explained, for the proper longitudinal positioning of the labels on the bottles. The belt 68 is also adjustable vertically through the adjustment of the hangers 64 and the mounting of the arch 57, rod 69 and pressure wheels 75. Furthermore, the position of the labels longitudinally and transversely or vertically with respect to the bottles can be readily adjusted by adjusting the label magazines longitudinally and vertically with respect to the slides 107 carrying such magazines, and providing for accurate and quick adjustments in addition to the others provided as hereinbefore mentioned. Although with the present machine, the labels can be applied to opposite sides of the bottles, the devices at one side can be rendered inoperative or eliminated when the labels are to be applied to one side only, and the parts cooperating with the bottles can be readily altered or interchanged to accommodate bottles whose sides are flat or curved.

The operation is continuous in that the bottles are continually moved in the guide channel and operated on in succession by the devices they pass. This machine therefore provides for the economical and efficient labeling of the bottles.

Having thus described the invention, what is claimed is:

1. A labeling machine embodying means for conveying objects with a continuous movement, paste applying means operable in harmony with the conveying means and having a paste pad arranged to meet the passing objects while moving and apply paste to the desired areas thereon bounded by the outline of the pad, and label applying means also operable in harmony with the conveying means in fixed relation with the paste applying means and arranged to apply labels in fixed relation to said areas of the passing objects while moving.

2. A labeling machine embodying means for conveying objects with a continuous movement; paste applying means operable in harmony with the conveying means and having an arcuate paste pad arranged to meet and having rolling contact with the passing objects and apply paste to the desired areas thereon bounded by the outline of the pad, and label applying means also operable in harmony with the conveying means in fixed relation with the paste applying means and having an arcuate label pad arranged to apply labels in fixed relation to said areas of the passing objects with a rolling motion.

3. A labeling machine according to claim 1 and also having in combination, ironing means operable in harmony with the conveying means and arranged to iron the labels on said areas when the objects are passing.

4. A labeling machine according to claim 2 and also in having in combination, ironing means operable in harmony with the conveying means and having an arcuate ironing member arranged to have a rolling contact with the labels as the objects move past.

5. A labeling machine embodying means for conveying objects with a continuous movement, label applying means operable in harmony with the conveying means to apply labels to the passing objects while in motion, means for adjusting the conveying means and label applying means transversely relatively to one another to regulate the positioning of the labels on the objects transversely of the conveying means, and means for adjusting the conveying means and label applying means longitudinally relatively to one another to regulate the positioning of the labels on the objects longitudinally of the conveying means.

6. A labeling machine embodying opposite paste applying means adjustable toward and away from one another, opposite label applying means adjustable similar to said paste applying means, and adjustable means for conveying objects in the desired relative position between said means in succession.

7. A labeling machine embodying opposite paste applying means adjustable toward and away from one another, opposite label applying means adjustable with said paste applying means, opposite means for ironing the labels and drying the paste, and means for conveying objects between said means in succession.

8. A labeling machine embodying means for guiding and conveying objects with a continuous movement, label applying means operable in harmony with the first named means to apply labels to the passing objects while in motion, means for actuating said means, and means for the adjustment of the first named and second named means relatively transversely of the first named means for regulating the positioning of the labels on the objects accordingly, and for the adjustment of said means longitudinally of the first named means without interfering with their operative connection with the actuating means for regulating the positioning of the labels on the objects accordingly.

9. A labeling machine embodying means for conveying objects with a continuous movement, label applying means to apply labels to the passing objects while in motion, means for actuating said means, and means for adjusting the first-named and second named means relatively longitudinally of the conveying means without disconnecting them from the actuating means.

10. A labeling machine embodying a pair of movable conveying means for conveying objects, label applying means for operating

on the objects conveyed, one of said conveying means having fingers to move the objects ahead of them, and the other moving at a slower velocity to retard the objects and keep them against said fingers.

11. A labeling machine embodying conveying means having fingers to move objects ahead of them, label applying means for operating on the objects conveyed, and means movable in the direction of said conveying means for exerting pressure on the objects and having a slower velocity to retard the objects and keep them against said fingers.

12. A labeling machine embodying a movable conveying means for objects, having fingers to move the objects ahead of them, label applying means to operate on the objects as they are conveyed, a flexible element above said conveying means to rest on the objects and movable in the direction of the conveying means at a slower velocity, and pressure members bearing on said flexible element.

13. A labeling machine embodying movable conveying means for objects, label applying means to operate on the objects as they are conveyed, a flexible element above said conveying means to rest on the objects and movable in the direction of the conveying means, a longitudinal supporting member, and pressure members adjustable along the supporting member to bear on the flexible element at different positions.

14. A labeling machine embodying movable conveying means for objects, label applying means to operate on the objects as they are conveyed, a pressure and retarding belt mounted above the conveying means to have one run bear on the objects, means for actuating the conveying means and belt to move in the same direction, with the belt traveling at a slightly less velocity than the conveying means, and adjustable means for applying pressure on said run of the belt at the points desired.

15. A label machine embodying movable conveying means for objects, label applying means to operate on the objects as they are conveyed, a supporting member above said conveying means movable out of the way, a belt supported by said member to bear on the objects, and pressure members adjustable longitudinally of said member to rest on the belt at different points.

16. A labeling machine embodying movable conveying means for objects, label applying means to operate on the objects as they are conveyed, a longitudinal supporting member above the conveying means swingable upwardly, a belt suspended from said member to have its lower run bear on the objects, means for driving the conveying means and belt, hangers adjustable along the supporting member, and pressure wheels carried by said hangers to rest on said run of the belt.

17. A labeling machine embodying a guide for objects, endless conveying means working in the guide, label applying means to operate on the objects conveyed, means for operating said conveying means and label applying means, and means for adjusting said conveying means longitudinally relatively to its operative relation with the label applying means without disconnecting it from the operating means to regulate the positioning of the labels on the objects.

18. A labeling machine embodying a guide having relatively adjustable sides to adjust its width, endless conveying means for objects working in the guide, label applying means working through one side of the guide to operate on the objects, and means for raising and lowering the guide relatively to the label applying means.

19. A labeling machine embodying label applying means, a guide for guiding objects past said means and having two adjustments, one for objects of different sizes and another for changing the position of the objects relatively to said means transversely of the guide, an endless conveyor for advancing the objects in the guide, and means for adjusting said conveyor longitudinally to regulate the longitudinal positioning of the labels on the objects.

20. A labeling machine embodying a pair of tables adjustable toward and away from one another, a guide having sides carried by the tables for adjustment therewith, and supported for vertical adjustment to raise and lower the guide, endless conveying means working in the guide for advancing objects therein, and label applying means carried by the tables to operate on the objects.

21. A labeling machine embodying a pair of tables adjustable toward and away from one another, a pair of rails supported by the tables for vertical adjustment, strips carried by the rails forming the bottom of a guide, sides for the guide carried by the rails, conveying means working in the guide on said strips, and label applying means carried by the tables to operate on the objects conveyed.

22. A labeling machine embodying a guide, an endless conveying means traveling in the guide, label applying means to operate on objects conveyed in the guide, the conveying means having fingers to advance the objects, means for operating the label applying means and conveying means simultaneously, and adjustable members beyond the ends of the guide over which the conveying means passes and movable longitudinally to adjust the conveying means.

23. A labeling machine embodying a guide

having relatively adjustable sides to adjust its width, conveying means for advancing objects in the guide, an inclined chute carried by one side of the magazine for delivering objects transversely into the guide, said side of the guide having an opening for the passage of the objects from said chute into the guide, and label applying means adjustable with one side of the guide to operate on the objects conveyed.

24. A labeling machine embodying a guide having sides, conveying means for advancing objects in the guide, an inclined chute extending from one side of the guide for delivering objects into the guide, label applying means to operate on the objects conveyed, the other side of the guide being inclined outwardly opposite to the chute for the objects to bear against when entering the guide from the chute, and the last mentioned side being arranged to bring the object upright when conveyed away from the chute.

25. A labeling machine embodying a guide having adjustable sides to adjust its width, conveying means for objects working in the guide, a magazine adjustable with one side of the guide for delivering objects onto the conveying means in the guide, and label applying means adjustable with one side of the guide to operate on the objects while conveyed.

26. A labeling machine embodying a guide having adjustable sides to adjust its width, conveying means for objects working in the guide, a chute adjustable with one side of the guide for delivering objects transversely in a longitudinal position onto the conveying means in the guide, the other side of the guide being inclined outwardly opposite to the chute, and label applying means to operate on the objects while conveyed.

27. A labeling machine embodying conveying means for objects, paste applying means having an arcuate paste pad to have a rolling contact with the objects while conveyed to apply an area of paste thereto bounded by the outline of the pad, label applying means arranged to meet and move with the passing objects for applying labels in fixed relation to the pasted areas of the objects while conveyed, and operating means for operating the paste and label applying means in harmony with the conveying means, so as to apply the paste and labels to predetermined areas of the objects while conveyed, in fixed relation.

28. A labeling machine embodying means for conveying objects with a continuous motion, paste applying means having a rotary arcuate paste pad to have a rolling contact with the objects while conveyed to apply an area of paste thereto, label applying means having a rotary arcuate label pad for applying labels to the pasted areas of the objects with a rolling contact, and operating means for rotating the paste and label pads so as to apply the paste and labels to the objects while conveyed, in fixed relation.

29. A labeling machine embodying conveying means for objects, a rotary paste applying wheel having a paste pad to contact with the moving objects, a paste pot, a paste elevating disk, a paste transferring wheel having its periphery bearing against the face of said disk and arranged for the contact of the pad with its periphery, and means for applying labels to the pasted areas of the objects.

30. A machine having a rotary device with air suction means for drawing a sheet thereto in one position and carrying same to another position into contact with paste, and means operable automatically for shifting said device and preventing said device from contacting with the paste depending on the drawing of a sheet to said means.

31. A machine having sheet supplying means, a rotary device with air suction means to pass and draw sheets from said supplying means and to pass and carry the sheets into contact with paste, and shiftable means controlled by the drawing of a sheet to said air suction means and operable to shift said device whereby the paste and sheet contact when a sheet is carried by said device and the paste and device are spaced apart when a sheet is not drawn to said device.

32. A machine embodying sheet transferring and applying means, and a sheet magazine movable a short distance with said means for feeding a sheet thereto, the transferring means being operable to draw the forward end of a sheet from the magazine by air suction and subsequently deliver said sheet to means for receiving same, and also having means for preventing said forward end of the sheet from slipping when drawn to the transferring means so that the sheet is properly positioned for delivery, and the magazine having means to penetrate two or more of the foremost sheets at their rear ends in the magazine to prevent more than one being pulled out at a time.

33. A machine embodying a shiftable rotatable label wheel having an air suction port for drawing a label to the wheel to carry the label to applying position, means controlling the shifting of said wheel depending upon the taking of a label thereby, whereby the wheel is in applying position when a label is carried thereby and is not in such position when a label is not taken thereby, means for shutting off air suction through said port when the port reaches applying position and during part of the movement of the port away from applying position, a lip carried by said wheel, and an arcuate flange arranged for the movement of the lip on opposite sides

thereof during the movement of the port to and from applying position and preventing the wheel shifting to applying position in the absence of a label when the air suction through said port is shut off.

34. A machine embodying a sheet magazine, sheet transferring and applying means having a sheet pad provided with an air suction port for taking a sheet from the magazine when the pad passes it to deliver said sheet to means for receiving it, a normally retracted pin projectable from said pad to prick the sheet and prevent slipping thereof relatively to the pad so that the sheet is properly positioned for delivery, and means for projecting said pin when the pad leaves the magazine.

35. A machine embodying a rotary sheet transferring and applying wheel for receiving and delivering sheets, a slide, a sheet magazine carried by the slide and embodying an adjustable bottom and adjustable sides, said wheel having an air suction port to pass the magazine, means for rotating said wheel and reciprocating the slide to move the magazine with the wheel when the port passes the magazine so that the sheet is properly positioned on the wheel for delivery, and means for advancing the sheets in the magazine.

36. A machine embodying a sheet magazine, sheet transferring and applying means having a portion movable past the magazine and having an air suction port for drawing the forward end of the label from the magazine, the transferring means having means to engage the forward end of the sheet to prevent it from slipping, means for advancing the sheets in the magazine, and means for penetrating the sheets at their rear ends in the magazine to prevent more than one being withdrawn by the transferring means at one time.

37. A machine embodying a sheet magazine, sheet transferring and applying means having a portion movable past the magazine and provided with an air suction port for drawing the forward end of a sheet from the magazine, means carried by the transferring means to prick the sheet drawn thereto, means for advancing the sheets in the magazine, and means carried by the magazine, for penetrating two or more of the foremost sheets therein at their rear ends so that they will only be withdrawn one at a time from the magazine by the transferring means.

38. A machine embodying sheet supplying means, sheet tranferring means operable for taking sheets from said means and applying them to objects, means for supplying paste to paste the labels to the objects, said transferring and paste supplying means continuing their transferring and paste supplying movements whether or not a sheet is taken from the supplying means by the transferring means without stopping or interrupting the operation, and means for preventing the application of paste to the transferring means depending on the taking of a sheet from the supplying means so that when a sheet is not taken from the supplying means by the transferring means no paste is applied to the transferring means.

39. A machine having sheet supplying means, means for conveying objects in succession with a continuous movement, means operable in a circuitous path to move past the sheet supplying means for drawing a sheet therefrom and carry it to apply the sheet to the object during movement of said means and object, means operable for applying paste to the objects, and means for preventing the contact of said objects and third named means in the absence of a sheet on the third named means depending on the taking of a sheet from the supplying means.

40. A machine having means for conveying objects, label receiving and applying means cooperable therewith, means for supplying paste to paste the labels to the objects, said means all operating without interruption irrespective of the taking of a label by the applying means, and means operable for preventing the applying means and paste contacting depending on the taking of a label by the applying means.

41. A machine having means for conveying objects, label receiving and applying means cooperable therewith, means for supplying paste to paste the labels to the objects, said means operating without interruption irrespective of the taking of a label by the applying means, the applying means and the means which bears the paste before contacting with the labels being movable to and from one another, and means controlled by the taking of a label by the applying means for moving said means during operation to bring the labels into position to contact with the paste and to separate the paste and applying means when a label is not taken by the applying means.

42. A machine having means for conveying objects with a continuous movement, label receiving and applying means cooperable therewith to apply labels to the objects during movement, means for supplying paste to paste the labels to the objects, and means for preventing the applying means and paste contacting depending on the receiving of a label by the applying means.

43. A machine embodying sheet transferring means, object conveying means, said means being movable to and from each other so that the transferring means can apply sheets to the objects, and means controlling the relative position of said means depending upon the reception of sheets by the transferring means and operable automatically so that when a sheet is received by the

transferring means, the two first named means are in position for the contact of the sheet and object, and when a sheet is not received by the transferring means, the two first named means are separated so that the transferring means and object do not contact.

44. A machine embodying means operable for receiving and tranferring sheets and movable during operation to and from sheet applying position, and means operable whereby said means is not in applying position when a sheet is not received thereby and is in such position when a sheet is received.

45. A machine embodying means operable for receiving and transferring sheets and movable during operation to and from applying position, and means operable for moving said means during operation to and from applying position depending on the taking of a sheet thereby.

46. A machine embodying sheet transferring means for receiving sheets and transferring them and shiftable during operation to contact with paste during the transfer of the sheets, and means controlling the shifting of said means depending on the taking of a sheet thereby, whereby the transferring means during operation is in position to bring the sheet into contact with the paste when a sheet is taken thereby, and is not in such position when a sheet is not taken.

47. A machine embodying sheet transferring means for taking sheets and transferring them one at a time from one point to another and shiftable to and from pasting position while in the motion of transferring sheets, and means operable whereby the said means assumes pasting position while in such motion when a sheet is carried thereby and assumes a non-pasting position while in such motion when a sheet is not taken thereby.

48. A machine embodying a magazine for sheets, sheet transferring means shiftable during operation to and from a position to bring the sheets into contact with paste, and means operable to move said means to and from said position during operation depending on the taking of a sheet from said magazine.

49. A machine embodying means for receiving a sheet and applying it to the pasted area of an object to be labeled, and means operable without interrupting the operation of the machine for preventing said means from contacting with said object depending on the receiving of a sheet by the first named means.

50. A machine embodying sheet supplying means, sheet transferring means for taking sheets therefrom and applying them to objects having paste thereon, said transferring means being shiftable to and from applying position, and means for determining whether or not the transferring means shall be in such position depending on the taking of a sheet from the supplying means.

51. A machine having label supplying means, continuously movable air suction means movable past one point for taking labels from said supplying means and appling them to objects while they are in motion, means for supplying paste to paste the labels to the objects, and means operable whereby the contact of said second-named means and paste is avoided when a label is not taken by said means depending on the taking of a label by the second named means.

52. A labeling machine embodying label applying means having an air suction port to take a label from a magazine and apply it to the pasted area of an object, said means being shiftable to and from label applying position, and means for moving said means to label applying position depending on the closure of said port by a label.

53. A labeling machine embodying a label magazine, label applying means having a member movable past the magazine and provided with an air suction port to take a label from the magazine for applying it to the pasted area of an object, and means operable for preventing said member from contacting with said area when a label is not taken from the magazine to close said port.

54. A labeling machine embodying a rotary label applying means operable to take a label from a magazine and apply it to the pasted area of an object, and means operable during the operation of said means to prevent it from contacting with said area when a label is not taken thereby from the magazine.

55. A labeling machine embodying rotary label applying means shiftable to and from label applying position and operable to take a label from a magazine and apply it to the pasted area of an object, and means for shifting said means to label applying position depending on the taking of a label from the magazine.

56. A labeling machine embodying a labeling magazine, label applying means having a rotary label applying member to move past the magazine for taking a label therefrom and applying it to the pasted area of an object, said member being movable to and from label applying position, and means for moving said member to label applying position depending on the taking of a label from the magazine.

57. A labeling machine embodying a labeling magazine, label applying means having a rotary label applying member to move past the magazine for taking a label therefrom and applying it to the pasted area of an object, and means for preventing said

member from contacting with said area when a label is not taken from the magazine.

58. A labeling machine embodying rotary labeling applying means having an air suction port to take a label from a magazine for applying it to the pasted area of an object, and means for preventing said means from touching said area when a label is not taken from the magazine to close said port.

59. A labeling machine embodying rotary label applying means having an air suction port to take a label from a magazine for applying it to a pasted area of an object, said means being shiftable to and from label applying position, and means for shifting said means to label applying position depending on the closure of said port by a label.

60. A labeling machine embodying a label magazine, label applying means having a rotary label applying member provided with an air suction port to pass the magazine and take a label therefrom for applying it to the pasted area of an object, and means for preventing said member from touching said area when a label is not taken from the magazine to close said port.

61. A labeling machine embodying a label magazine, label applying means having a rotary label applying member provided with an air suction port to take a label from the magazine for applying it to the pasted area of an object, said member being shiftable to and from label applying position, and means for shifting said member to label applying position depending on the closure of said port by a label.

62. A labeling machine embodying label applying means having an air suction port to take a label from a magazine for applying it to the pasted area of an object, said means being shiftable to and from label applying position, air suction means communicating with said port, and suction operated means communicating with the air suction means for shifting the label applying means to label applying position when a label closes said port.

63. A labeling machine embodying a label magazine, rotary label applying means having an air suction port to pass the magazine and take a label therefrom for applying it to the pasted area of an object, said means being shiftable to and from label applying position, air suction means communicating with said port, and suction operated means communicating with the air suction means for shifting the label applying means to label applying position when a label closes said port.

64. A labeling machine embodying a label applying means having an air suction port to take a label from a magazine for applying it to the pasted area of an object, said means being shiftable to and from label applying position, air suction means communicating with said port, suction operated means communicating with the air suction means for shifting the label applying means to label applying position when a label closes said port, means for cutting off the air suction from said port when it reaches the object, and means operable to prevent the cutting off of air suction from said port from moving the label applying means to label applying position when said port is not previously closed by a label.

65. A labeling machine embodying a label magazine, rotary labeling applying means having an air suction port to pass the magazine and take a label therefrom for applying it to the pasted area of an object, said means being shiftable to and from label applying position, air suction means communicating with said port, suction operated means communicating with the air suction means for shifting the label applying means to label applying position when a label closes said port, means for cutting off the air suction from said port when it reaches the object, and means operable to prevent the cutting off of air suction from said port from moving the label applying means to label applying position when said port is not previously closed by a label.

66. A labeling machine embodying a slide movable to and from label applying position, label applying means carried by the slide for taking a label from a magazine and applying it to the pasted area of an object, and means for operating the slide controlled by the feeding of a label to the aforesaid means.

67. A labeling machine embodying a slide movable to and from label applying position, rotary label applying means carried by the slide for taking a label from a magazine and applying it to the pasted area of a moving object, and means for operating the slide controlled by the feeding of a label to the aforesaid means.

68. A labeling machine embodying a slide movable to and from label applying position, a movable label applying member carried by said slide for taking a label from a magazine and applying it to the pasted area of an object, and means for operating the slide controlled by the feeding of a label to the aforesaid member.

69. A labeling machine embodying a slide movable to and from label applying position, a rotary label applying wheel carried by said slide, a label magazine, the wheel being arranged to take a label from the magazine and apply it to pasted area of a moving object, and means for operating the slide controlled by the feeding of a label to said wheel.

70. A labeling machine embodying a slide

movable to and from label applying position, label applying means carried by the slide and having an air suction port to take a label from a magazine and apply it to the pasted area of an object, and means for operating the slide controlled by the closing of said port by a label.

71. A labeling machine embodying a slide movable to and from label applying position, rotary label applying means carried by the slide and having an air suction port to take a label from a magazine for applying it to the pasted area of a moving object, and means for operating the slide controlled by the closing of said port by a label.

72. A labeling machine embodying a slide movable to and from label applying position, a movable label applying member carried by said slide and having an air suction port to draw a label thereto for applying it to the pasted area of an object, a label magazine past which said port moves, and means for operating the slide controlled by the closing of said port by a label.

73. A labeling machine embodying a slide movable to and from label applying position, a rotary label applying wheel carried by said slide and having an air suction port to draw a label thereto for applying it to the pasted area of a moving object, a label magazine past which said port moves, and means for operating the slide controlled by the closing of said port by a label.

74. A labeling machine embodying a slide movable to and from label applying position, label applying means carried by said slide and having an air suction port to take a label from a magazine for applying it to the pasted area of an object, air suction means communicating with said port, and suction operated means for moving the slide to applying position when the port is closed by a label.

75. A labeling machine embodying a slide movable to and from label applying position, rotary label applying means carried by the slide and having an air suction port to take a label from a magazine for applying it to a moving object, air suction means communicating with said port, and suction operated means communicating with said air suction means for moving the slide to applying position when said port is closed by a label.

76. A labeling machine embodying a slide movable to and from label applying position, a movable label applying member carried by the slide and having an air suction port to draw a label thereto for applying it to the pasted area of an object, a label magazine past which said port moves, air suction means communicating with said port, and suction operated means communicating with said air suction means for moving the slide to applying position when a label closes said port.

77. A labeling machine embodying a slide movable to and from label applying position, a rotary label applying wheel carried by the slide, a label magazine, said wheel having an air suction port to pass the magazine and take a label therefrom for applying it to the pasted area of a movable object, air suction means communicating with said port, and suction operated means for moving the slide to applying position when said port is closed by a label.

78. A labeling machine embodying a slide movable to and from label applying position, label applying means carried by said slide and having an air suction port to take a label from a magazine for applying it to the pasted area of an object, air suction means communicating with said port, suction operated means communicating with said air suction means for moving the slide to applying position when the port is closed by a label, means for cutting off the air suction from said port when it reaches the object, and means for preventing the cutting off of air suction from moving the slide to applying position when a label is not previously drawn to said port.

79. A labeling machine embodying a slide movable to and from label applying position, rotary applying means carried by the slide, a label magazine, said label applying means having an air suction port to pass the magazine for taking a label therefrom for applying it to a moving object, air suction means communicating with said port, suction operated means communicating with said air suction means for moving the slide to applying position when a label closes said port, means for cutting of air suction from said port when it reaches the object, and means for preventing the cutting off of air suction from moving the slide to applying position when a label is not previously drawn to said port from the magazine.

80. A labeling machine embodying a slide movable to and from label applying position, a movable label applying member carried by the slide, a label magazine, said member having an air suction port to pass the magazine and take a label therefrom for applying it to the pasted area of an object, air suction means communicating with said port, suction operated means communicating with said air suction means for moving the slide to applying position when a label closes said port, means for cutting off the air suction from said port when it reaches the object, and means for preventing the cutting off of air suction from moving the slide to applying position when a label is not previously drawn to said port from the magazine.

81. A labeling machine embodying a slide movable to and from label applying position, a rotary label applying wheel carried by the

slide, a label magazine, said wheel having an air suction port to pass the magazine and take a label therefrom for applying it to a moving object, air suction means communicating with said port, suction operated means communicating with air suction means for moving the slide to applying position when a label closes said port, a valve for cutting off the air suction from said port when it reaches the object, and means for preventing the cutting off of air suction from moving the slide to applying position when a label is not previously drawn to said port from the magazine.

82. A labeling machine embodying conveying means, label applying means cooperable therewith, and means operable in harmony with said conveying means and movable with the passing objects to iron the labels against the objects conveyed and simultaneously applying air thereto at the point of ironing

83. A labeling machine embodying conveying means, label applying means cooperable therewith, and means operable to iron the labels against the objects conveyed with a rolling contact and applying air to the labels at such rolling contact.

84. A labeling machine embodying conveying means for objects, means for applying labels to the objects, and means operable in harmony with the conveying means and having an arcuate ironing member to meet the objects and arranged to have a rolling contact with the labels to iron them against the objects.

85. A labeling machine embodying conveying means for objects, means for applying labels to the objects, and means having a rolling contact with the labels to iron them against the objects, and having air outlet means at such rolling contact to direct air against the labels.

86. A labeling machine embodying conveying means for objects, means for applying labels to said objects, and rotary means having an arcuate pad operated in harmony with the conveying means to meet the objects for ironing the labels with a rolling contact and heating them at such point of contact of the pad.

87. A labeling machine embodying conveying means for objects, means for applying labels to the objects, a rotary member having an arcuate ironing member to have a rolling contact with and iron the labels against the objects, the ironing member being apertured for the outlet of air, and means for supplying air to said rotary member to discharge through said ironing member.

88. A machine having sheet supplying means, means for conveying an object for receiving a sheet, means for supplying paste to the object as it passes one point, means for taking a sheet from the supplying means and applying it to the object as it passes another point, and means for preventing the contact of the applying means with paste in the absence of a sheet on the applying means depending on the taking of a sheet by the applying means.

89. A machine having means for holding an object, means for receiving a sheet and applying it to the object, means for supplying paste to the object independent of the second named means to paste the object and sheet together, and means operable automatically for preventing the second named means and paste from touching when the second named means does not receive a sheet.

90. A labeling machine comprising a rotary label wheel having a label pad with an air suction port therein, means for conveying an object past said wheel for the rolling contact of said pad therewith to apply the label to the object, a movable label magazine past which said pad is movable, means for shutting off the air suction through said port when it reaches the object and during part of the movement of the port from such position to the magazine, and means for moving the magazine with said pad when it approaches the magazine, for transferring a label from the magazine to said pad by the air suction through said port.

91. In a machine of the character described, a slide, a label magazine movable with the slide, a label wheel having means for picking a label from the magazine in different longitudinal and transverse positions of the label relatively to said means and carrying it for application to an object, means for reciprocating said slide for the movement of the magazine with said picking means, and means for the adjustment of the magazine relatively to the slide in different directions to regulate the longitudinal and transverse positioning of the labels when applied to the objects.

92. In a machine of the character described, a slide, a label magazine, a label wheel having an air suction port for picking a label from the magazine in different longitudinal and transverse positions of the label relatively to said port and carrying it for application to an object, means for reciprocating the slide for the movement of the magazine with said port for the picking of a label from the magazine, and an adjustable connection between said magazine and slide including means for the adjustment of the magazine relatively to the slide in different directions independently, whereby to position the labels longitudinally and transversely when applied to the objects.

In testimony whereof I set my hand this 22 day of Feb., 1918.

FREDERICK L. SHELOR.