

F. COATES.
BOX LABELING MACHINE.
APPLICATION FILED MAR. 8, 1910.

1,012,191.

Patented Dec. 19, 1911.

7 SHEETS-SHEET 1.

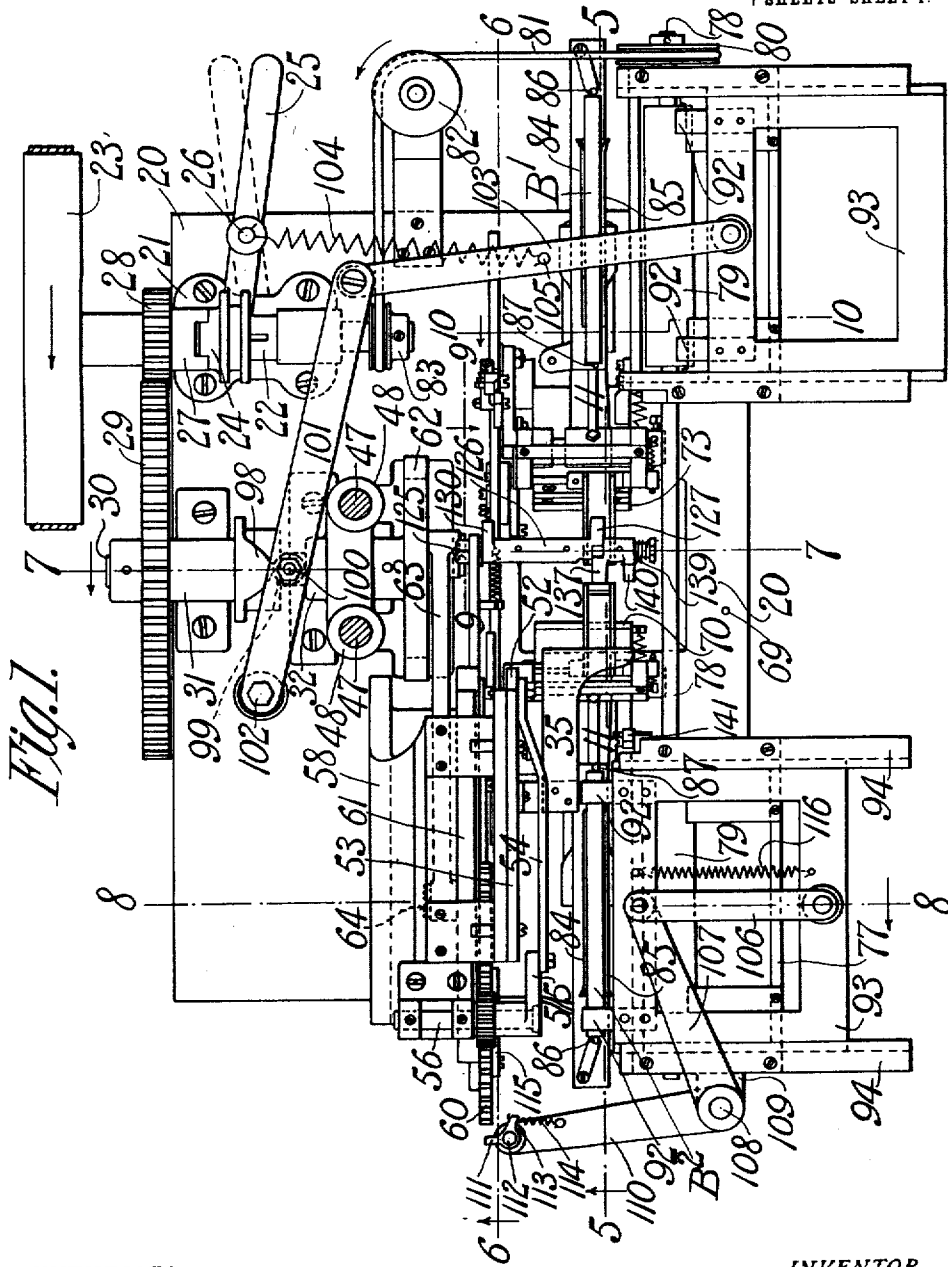


Fig. 1.

WITNESSES:

H. L. Sprague

R. M. Hawley

INVENTOR,

Frederick Coates,

BY

J. S. Bell
ATTORNEY.

7 SHEETS—SHEET 2.

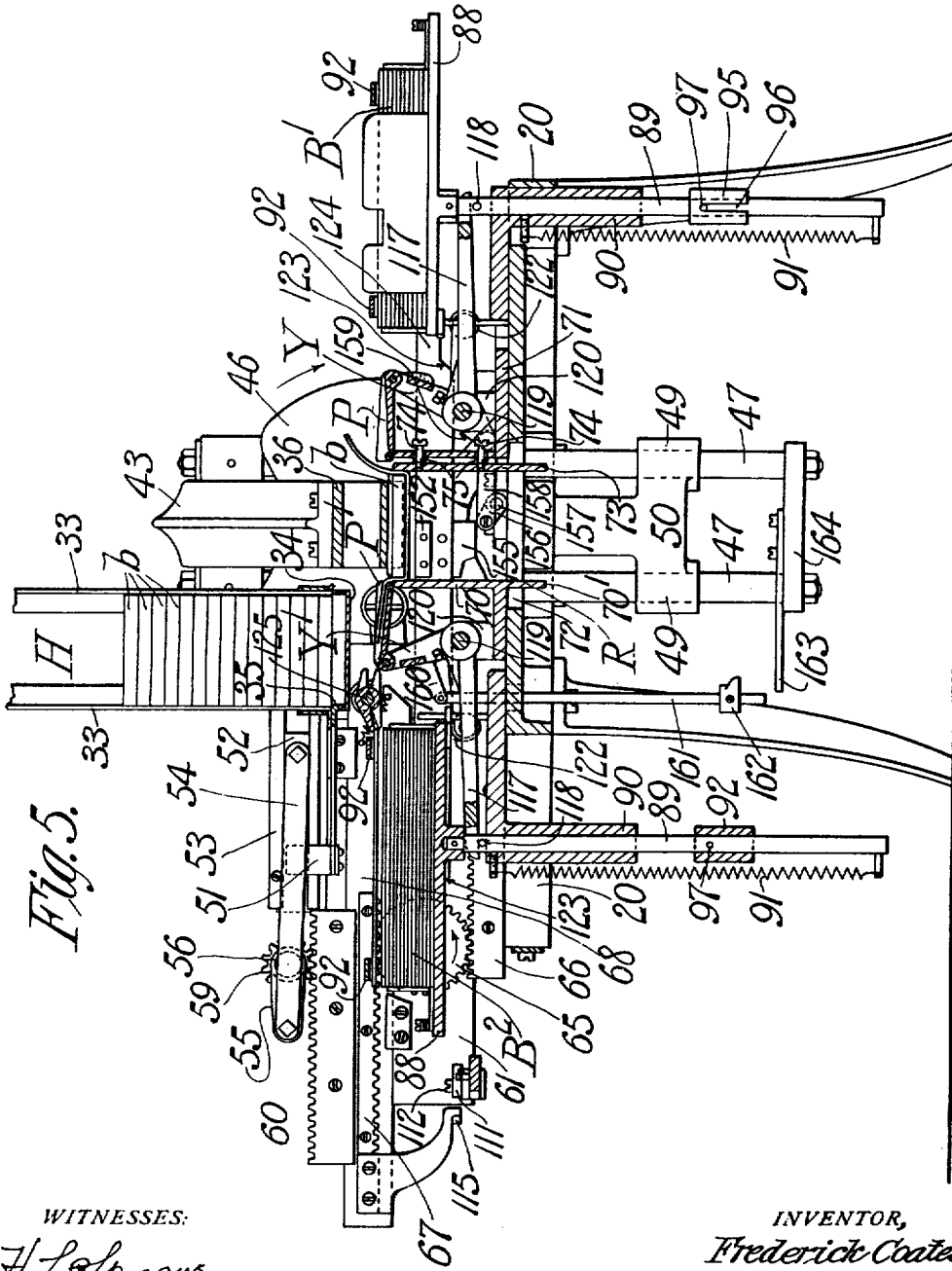


ATTORNEY.

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7 SHEETS—SHEET 3.



WITNESSES:

H. L. Sprague
R. M. Mowry

INVENTOR,

Frederick Coates,

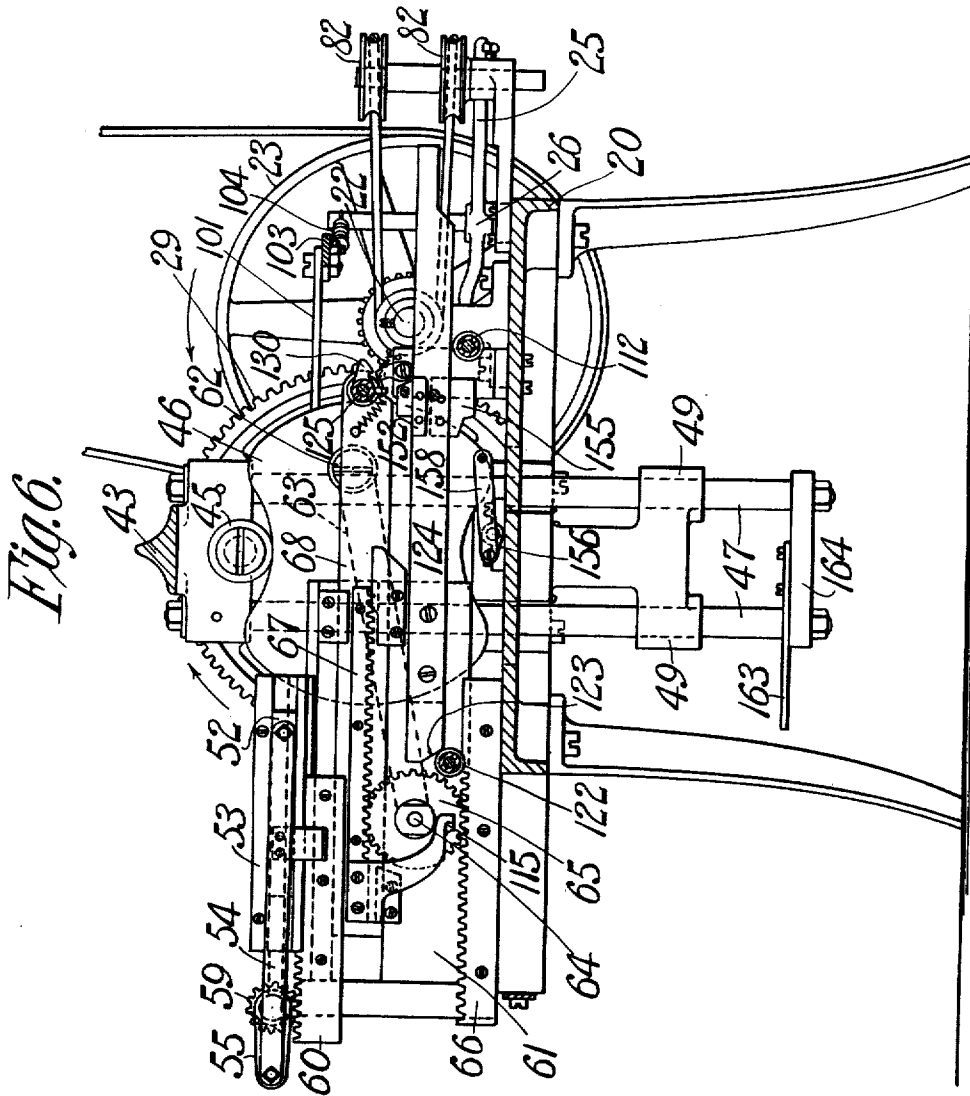
BY

W. H. Hume,
ATTORNEY.

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Patented Dec. 19, 1911.

7 SHEETS—SHEET 4.



WITNESSES:

F. L. Sprague

R. M. Mowry

INVENTOR,

Frederick Coates,

BY

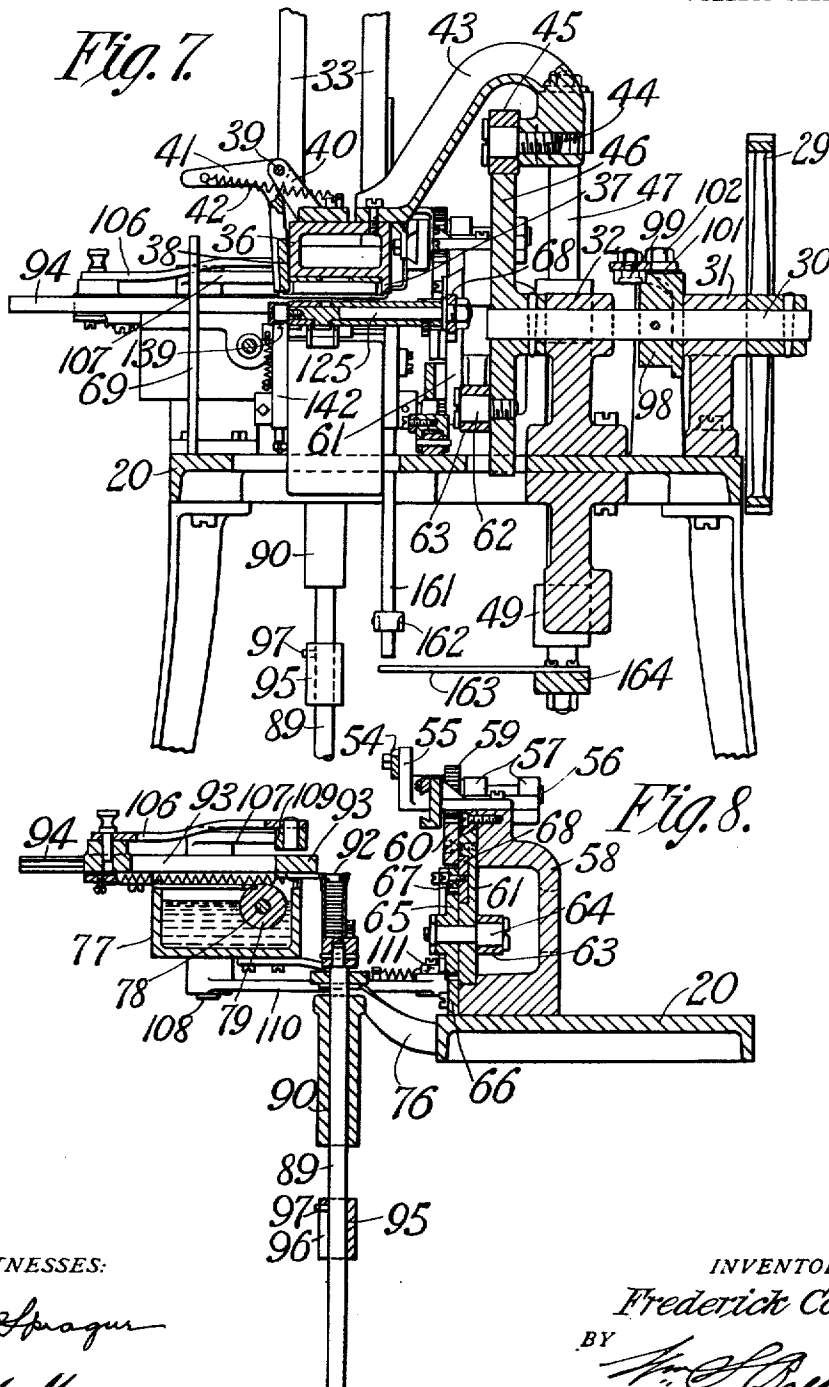
W. J. Bellman
ATTORNEY.

F. COATES.
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7 SHEETS—SHEET 5.



WITNESSES:

H. L. Sprague

R. M. Mowry

INVENTOR,

Frederick Coates,

BY

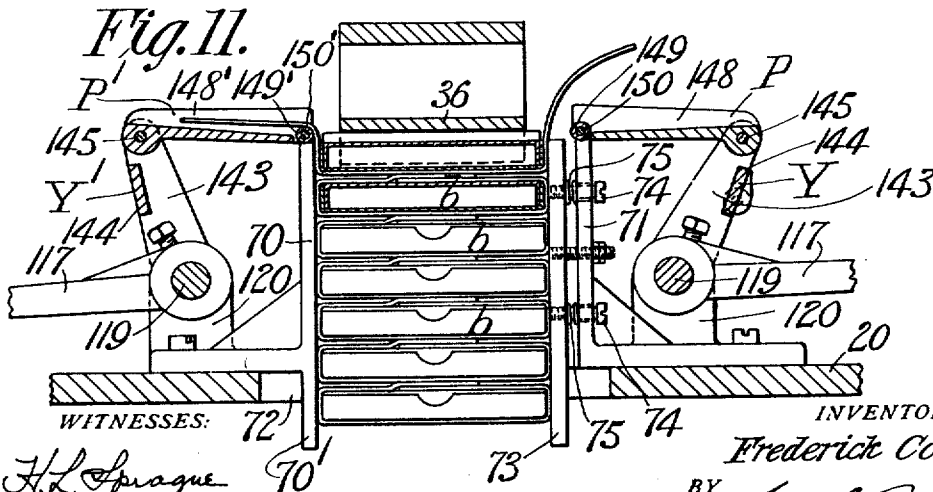
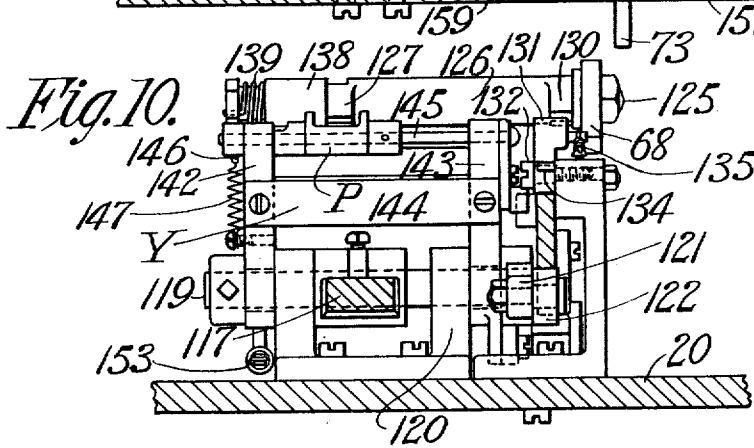
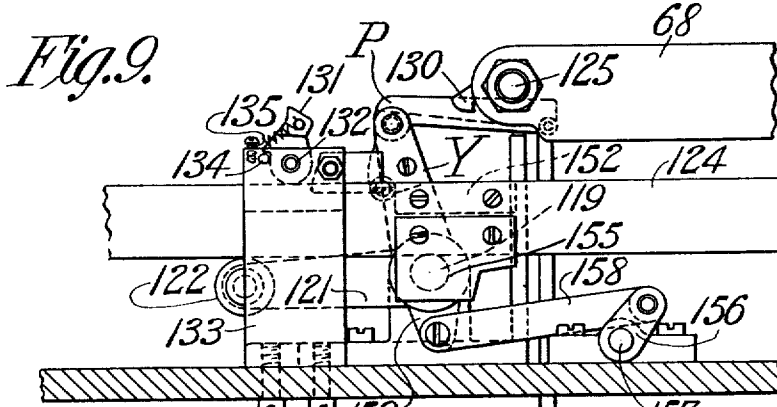
J. C. Bellone
ATTORNEY.

F. COATES.
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Patented Dec. 19, 1911.

7 SHEETS—SHEET 6.



WITNESSES:

H. L. Sprague
R. M. Mowry

INVENTOR.

Frederick Coates

BY

W. J. Bellum
ATTORNEY.

F. COATES.
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7 SHEETS—SHEET 7.

Fig. 13.

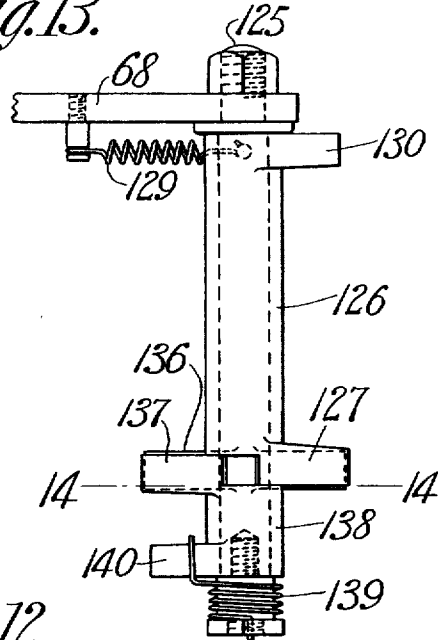


Fig. 14.

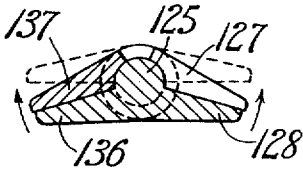
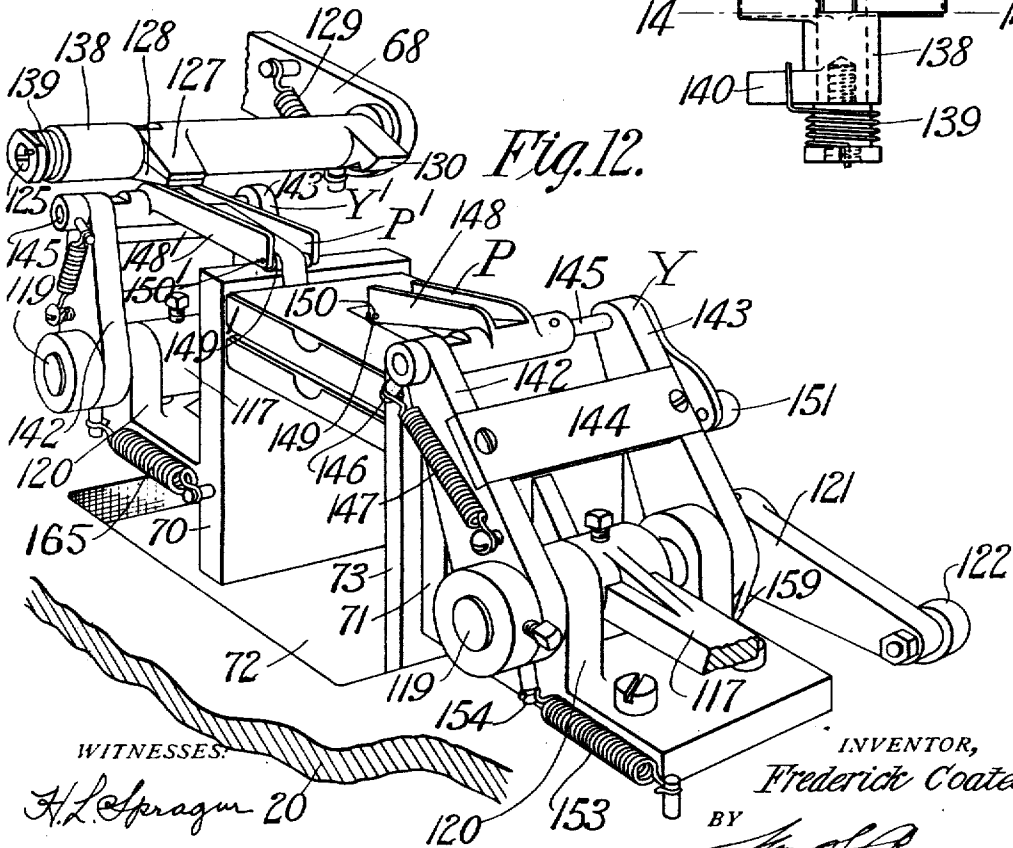


Fig. 12.



WITNESSES:

H. L. Sprague 20

R. M. Mowry.

INVENTOR,

Frederick Coates,

BY

ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDERICK COATES, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO F. N. BURT COMPANY LIMITED, OF TORONTO, CANADA, A CORPORATION.

BOX-LABELING MACHINE.

1,012,191.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed March 8, 1910. Serial No. 548,031.

To all whom it may concern:

Be it known that I, FREDERICK COATES, a citizen of the United States of America, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Box-Labeling Machines, of which the following is a full, clear, and exact description.

This invention relates to box labeling machines, and more especially to that class thereof in which the labels are applied to the boxes so as to partially or fully surround the same, while at the same time such labels are gummed so that they may adhere to the boxes.

More particularly the present machine is intended to apply narrow labels or bands to cigarette boxes and similar devices which are gummed onto the box itself at one point thereof and which must be broken before the box itself can be opened.

The present machine may be considered to be an improvement on the one described and claimed in a patent issued to me numbered 940,674 and dated November 23, 1909, and to which reference may be had.

While the machine disclosed by the patent just mentioned comprises a pile of labels disposed at one end of the machine, which labels are pulled one by one into position to be gummed onto the box ready to receive it, the present machine comprises two of such piles disposed at opposite sides of a chute through which the boxes are fed one by one, and also a mechanism which is so arranged that first a blank will be taken from one pile and pulled across the path of the box, and subsequently a blank will be taken from the other pile and pulled across the path of the next succeeding box. It will thus be seen that the capacity of the machine is materially increased over that of the former.

Briefly stated, the present machine comprises what may be termed a "hopper" into which the boxes to be labeled are stacked and from which the lowermost box is pushed outward into engagement with a plunger whereby each box will be frictionally held or supported while a label band will be pulled into position beneath the box. In the preferred form each label is gummed substantially at both ends thereof, and as the plunger with the box descends into a trough,

the underside of the box will first come in contact with the upper surface of the label and during the continuation of the downward movement of the box, the band will be pulled with its ends around the side edges of the box, whereupon mechanism comes into operation whereby first one of the free and gummed ends of the band will be brought and smoothed over the top surface of the box, so that the band will adhere thereto, it being understood that the plunger which had carried the box downward, has again returned to its upper position so as to leave the path clear for the band-applying mechanism to operate. After one end of the band or label has thus been stuck onto the box, a similar mechanism operates on the other free end of the label and brings the same into contact with the top surface of the box, and in the present instance the labels are of such length that the second or last named end will overlap the end already stuck on the box. The several boxes after being branded in the manner above described are forced downward one on top of the other into a retainer which is adapted to retain a number of the boxes frictionally and in such a manner that each additional box pushed into the top of said retainer will move all the preceding boxes downward, so that it will be seen that each box will serve as a means for pressing the label of the preceding box firmly in place and will hold it there for a certain length of time which is generally sufficient to set the gum, so that when the lowermost box finally drops out of the retainer, the label band is practically permanently attached thereto.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

The invention has been clearly illustrated in the accompanying drawings in which similar characters denote similar parts, and in which—

Figure 1 is a plan view of a box-banding machine embodying my invention. Fig. 2 is a front view thereof. Figs. 3 and 4 illustrate in different positions the operation of the label gripping mechanism to be herein-after referred to. Fig. 5 is a longitudinal

section on line 5, 5 of Fig. 1 and illustrates the action of the label-picker. Fig. 6 is a longitudinal section on line 6, 6 of Fig. 1. Fig. 7 is a vertical cross section on line 7, 7 of Fig. 1. Fig. 8 illustrates one of the gumming mechanisms by a section taken on line 8, 8 of Fig. 1. Fig. 9 is a rear view of one of the devices whereby one end of the gummed band is actuated, taken on line 9, 9 of Fig. 1. Fig. 10 is a cross section on line 10, 10 of Fig. 1 on an enlarged scale, and illustrates the band-picker. Fig. 11 is a vertical longitudinal section of the box-receiver and retainer, together with the mechanism for applying the free ends of the label thereto, taken on line 11, 11 of Fig. 1. Fig. 12 shows in perspective view the manner in which the label or band is applied to the box. Fig. 13 is a top view of the compound label-gripper whereby labels are taken from opposite ends of the machine, and Fig. 14 is a section of the nippers taken on line 14, 14 of Fig. 13.

In the drawings, the numeral 20 denotes the bed-plate or base of the machine on which all of the coacting parts for the various operations of gumming and moving the supplied labels, the conveyance of the boxes, and the wrapping of the labels thereon, are mounted, and this bed-plate may be supported by suitable legs as preferred. Journalled in a bearing 21 near the right hand end of the machine is the main driving shaft 22 carrying a pulley 23 to which power may be imparted from any convenient source. Splined to the shaft 22, is a clutch-member 24 which may be shifted longitudinally by a hand-lever 25 fulcrumed at 26 on the bed-plate, and said clutch-member is adapted to be thrown into engagement with the clutch hub 27, of a pinion 28 loosely mounted upon the shaft 22 and in engagement with a gear secured upon the main operating shaft 30 of the machine. The shaft 30 is journalled in bearings 31, 32 (see Fig. 7) secured upon the bed-plate of the machine, and it carries at its forward end a device for operating the plunger of the machine whereby successive boxes are forced downward to stretch labels around them, respectively, as will hereinafter be described.

Referring first to the box supply mechanism it will be seen by referring to Figs. 2 and 5 that a hopper H is provided for receiving a number of boxes, this hopper consisting preferably of vertical corner-guides between which said boxes may be held in stack and into which loaded boxes may be fed by hand or carried by suitable mechanism not shown.

The right and left hand sides of the corner guides 33 are cut away in the manner shown in Fig. 5, and the hopper in its entirety is closed at its bottom by a shelf 34 toward which the boxes *b* gravitate, and a

pusher 35 is provided for pushing the lowermost box in the hopper out from under the remaining boxes therein and into the plunger previously referred to. This plunger is placed at the side of the hopper H and consists in its preferred form (see Fig. 7) of a receiving-member 36 having a rear downwardly extending flange 37 against which each incoming box can rest and which in conjunction with a spring actuated clapper or plate 38 serves as a means for frictionally retaining each incoming box. The clapper 38 is pivoted on a stud 39 in a bracket 40 and has an arm 41 which may be normally actuated by a spring 42 to close the clapper and move the same toward the flange 37, above described. The receiving member 36 is secured to the lower end of a yoke 43 which has a stud 44 for pivotally supporting a roller 45 which latter is adapted to be operated by a cam 46 secured upon the inner end of the driving shaft 30 above mentioned, and said yoke is guided for vertical movement by a pair of guide-rods 47 which are rigidly secured to said yoke and which are adapted to slide through lugs 48 preferably forming a part of the bearing 32 above mentioned, and also through bearings 49 provided on a bracket 50 which may be secured to the underside of the bed-plate 20.

The cam 46 is so formed that during each rotation of the shaft 30, the plunger, or more particularly speaking, the yoke 43 will be vertically moved twice, so that, in other words, two boxes will be operated upon by the plunger for each rotation of the shaft 30, the operation of the yoke 43 being normally gravitative, while the cam 46 serves for the purpose of positively raising the same to its proper position ready to receive a box from the feeding-in mechanism of which the pusher 35, above described, forms a part. The pusher 35 consists substantially of a comparatively thin plate having its forward end bent, as shown in Fig. 5, while its rear end is attached to a block 51 which in turn is secured to a feed-slide 52 mounted for sliding movement in a bearing 53 secured to the bed 20 in any convenient manner.

Reciprocatory movement is imparted to the slide 52 by the same mechanism whereby the label transfer is accomplished, the feed-slide 52 being connected by means of a link 54 with the free end of a crank 55 secured upon an oscillatory shaft 56 which is journalled in bearings 57 (see Fig. 8) secured to, or forming a part of, a bracket 58 secured to the bed 20. The shaft 56 also carries a pinion 59 the teeth of which are in engagement with a rack 60, which is attached to a slide 61 mounted for movement in ways provided therefor in the bracket 58. The slide 61 constitutes the principal acting

element of the label transfer mechanism, and it is actuated by a crank 62 secured upon the front end of the shaft 30. I transfer the movement of the crank 62, by a connecting-rod 63, to a stud 64 which is held in the slide 61, and upon which is journaled a pinion 65 one side of which engages and travels along a stationary rack 66, while its diametrically opposite teeth engage with a rack 67 which is attached to the picker-bar 68 which carries suitable devices for picking labels from opposite sides of the table, or bed, successively, and bringing the same into proper position beneath the plunger above described.

From the foregoing it will be seen that while the slide 61 is moved bodily by the crank pin 62 for an amount exactly equal to the throw of said crank-pin 62, yet the picker-slide 68 will, by virtue of the pinion 65 be moved double the distance of the crank throw or of the movement of the slide 61, a feature which in the present instance is provided for the reason that the label-pickers have to travel between the piles of labels a distance which would otherwise require an abnormal length of crank to accomplish the desired result, and it should be noted that by means of compound gearing instead of the single pinion 65, above referred to, I am enabled to vary the amount of movement of the picker-slide relatively to that of the main slide 61 as circumstances may require. Furthermore, it should be noted that during the movement of the main slide 61 in one direction as caused by the travel of the crank 62 for a distance of 180°, the crank 55 whereby the pusher 35 is actuated will make one complete revolution thus causing the pusher 35 to make a complete reciprocation which latter results in first pushing the lowermost box in the hopper H into contact with the plunger and then returning to its retracted position, shown in Fig. 5.

It may be stated at this time that in Fig. 2 the plunger is shown in its uppermost position and also the pusher-crank 55 is illustrated as having arrived nearly at its right hand movement, or in other words, that it has nearly completed its operation of pushing a box beneath the plunger; while in Figs. 5 and 6 the pusher is in position to permit a new box to drop in front thereof, while the plunger is in its lowermost position as controlled by the cam 46.

Referring again to Fig. 7, means are provided whereby the clapper 38 will be opened as soon as the plunger has descended far enough to bring the box contained therein into contact with the label previously pulled under the same, these means consisting of an abutment shown herein as a rod 69 which may be suitably held on the base-plate 20 and the upper end of which is adapted to

be engaged by the end of the arm 41 descending with the plunger, so that consequently the box contained in the plunger will be released from the plunger and will remain in the position shown in Fig. 5 in which it will be noted that the box with the main body of the label beneath it has been pushed into a retainer chute designated herein by R. This chute consists substantially of a pair of brackets 70, 71 (see Figs. 11 and 12) forming a passage which is preferably open at the front and rear so that the progress of the successively descending boxes may be readily seen by the operator.

In order to prevent the boxes from dropping through, and also in order to retain a number of boxes therein, the bed 20 is provided with an aperture through which the ledge 70' of bracket 70 projects downwardly and within which is also disposed a plate 73 which coöperates with the ledge 70' to clamp boxes between them and which is, furthermore, held in conjunction with the bracket 71 by studs 74, while springs 75 may serve for pushing the plate 73 toward the bracket 70 so as to obtain the required frictional contact against the sides of the boxes in the chute, this friction being sufficient to hold the boxes within the chute, and also so as to require considerable downward push on the part of the plunger, so that hence the labels previously banded around the boxes will be brought into firm contact therewith, and a perfect union will result. From the foregoing, it will be understood that the boxes to be banded are first gravitating in the hopper, they are then pushed one by one under the plunger sidewise, and are then carried downward and into the chute by the downward movement of the plunger.

As above stated, the present machine comprises two supplies or piles of labels disposed at opposite sides of the plunger chute, respectively, mechanism being provided coöperative with both piles of labels so as to first take a label from one pile, and subsequently take a label from the other pile, the labels being withdrawn from these piles alternately. Now in order to permit the gripping mechanism to pull labels from these respective piles, means are provided whereby the top label of each pile is slightly raised from the pile so as to enable the nippers to catch hold of the end of each label preparatory to its travel beneath the plunger, and in the present instance I take advantage for this purpose of the mechanism whereby the ends of the label are gummed, this gumming mechanism being clearly illustrated in Figs. 1 and 8 of the drawings, Fig. 8 showing a cross section of the same on line 8, 8 of Fig. 1, but it should be understood that the construction and organization of both gumming devices dis-

posed at the opposite ends of the machine are substantially the same, although the means whereby these gumming mechanisms, respectively, are actuated are slightly different as shown in Fig. 1.

Supported by a bracket 76 attached to the front of the base plate 20, is a gum-box 77 in the walls of which is journaled a shaft 78 extending from end to end of the machine and carrying rollers 79 partially immersed in the gum in the boxes 77. At its right hand end the shaft 78 has a grooved-pulley 80 which is driven by a band 81 passing over intermediates 82 and actuated by a grooved-pulley 83 secured to the main pulley-shaft 22 above mentioned, so that in this manner the shaft 78 with the gum rollers 79 is continuously driven.

The two piles of labels are herein indicated by B¹ and B², and are contained in troughs consisting of side walls 84, 85, while end gages 86, 87 may be employed to position the blanks longitudinally. These troughs 84, 85 are supported on base-plates 88 (see Fig. 5) which are provided with substantially central hubs for the purpose of securing the same to vertical rods 89 which are guided in brackets 90 secured to the base-plate 20 of the machine and are mounted for vertical movement therein, the organization being such that resilient means such as springs 91 are employed for the purpose of normally raising the plates 88, while, on the other hand, positive means are employed for throwing the plates 88, together with the piles of blanks contained thereon, slightly downward so as to leave the uppermost blank suspended on the lower gummed surfaces of the gummers such as are indicated for instance in Fig. 8 and which comprise gum-pads 92 carried on the end of a reciprocatory frame 93 movable laterally of the machine and in ways 94 so as to bring their lower surfaces into contact with the gumming rollers 79, above mentioned. It should be understood that the frame 93 is movable horizontally only as controlled by a certain mechanism to be hereinafter described, so that after the lower faces of the pads have been supplied with gum by the roller 79, the frame 93 will be moved forward directly over the blank-pile whereupon said blank-pile is permitted to rise to bring the uppermost blank into contact with the gumming pads, after which the blank-pile is again depressed thus leaving the label suspended on the pads and in position to be engaged by the nippers which will then pull the label into position beneath the plunger and the box contained therein.

Means are provided on each of the label holding plates 88, or more particularly speaking, on the rods 89 connected therewith for the purpose of retaining said plates

in their depressed condition for the purpose of loading the same with fresh piles of blanks when required, these means consisting substantially of collars 95 having slots 96 within which are disposed pins 97 securely held in the rods 89, these slots permitting the collars 95 to assume positions as indicated in Fig. 5, which position will enable the springs 91 to raise the plates 88 until the lower face of the collar 95 abuts against the underside of the brackets 90. If it is now desired to maintain either one of the plates 88 in its depressed condition, the collar 95 may be raised until the slot 96 is clear of the pin 97, and a slight turning movement of said collar will then keep the same in position above the pin 97 and substantially with its upper face in engagement with the underside of the bracket 90, so that consequently, the plate 88 cannot rise as will be readily understood.

Referring to Fig. 1, it will be seen that the mechanisms for operating the gumming slides 93 are different in their nature, the right hand slide being operated by a cam 98 secured on the shaft 30 and in engagement with a roller 99 journaled on a stud 100 which is fixed in a lever 101. This lever is pivoted at 102 to the base-plate of the machine and its free end is connected by means of a link 103 with the slide 93 disposed at the right hand side of the machine, so that the rotation of the shaft 30 will by virtue of the shape of the cam 98 impart a rapid reciprocatory movement to the slide 93 which has its greatest dwell in its inward position. While the cam 98 serves to push the slide 93 outward in a positive manner, a spring 104 attached to the lever 103 as at 105 serves to pull the slide 93 inward and into position above the pile of blanks.

The gumming-slide 93 disposed at the left hand end of the machine is preferably actuated by the movement of the picker-bar 68 and in a manner substantially as shown in Figs. 1, 3, 5 and 6, the slide 93 being connected by a link 106 to a lever 107 which is pivoted at 108 on a bracket 109 secured to the base-plate 20, or more particularly speaking, to the ways 94 above mentioned. The pivot spindle 108 is journaled in the bracket 109 and carries at its lower end an arm 110 having at its rearward free end a by-pass dog 111 which is pivoted at 112 on the lever 110 and comes normally to a position shown in Fig. 1 by engaging an abutment pin 113 on the lever as caused by a spring 114. The end of the dog 111 projects into the path of a finger 115 attached to the picker-bar 68, so that when said picker-bar moves toward the lever as seen in Fig. 1, the by-pass 111 will permit said finger 115 to slide by without disturbing the lever 110 and the gumming slide 93 connected therewith. On the other hand, when the finger

115 is actuated by the movement of the picker-bar toward the right as seen in Fig. 1, said finger 115 will actuate the by-pass 111 and move the lever 110 so as to positively move the left end gumming slide 93 outward and against the action of a spring 116 which latter becomes effective in quickly returning the slide 93 toward its inward position shown as soon as the finger 115 has passed beyond the engagement with the by-pass 111.

As above stated each of the label-carrying plates 88 is positively depressed for a small amount so as to leave the uppermost label suspended from the gummed pads, and this depressing mechanism is substantially alike in both instances, and consists substantially of a lever 117 bifurcated at its free end to straddle a rod 89 and to contact with a pin 118, said lever 117 being secured to a shaft 119 which is journaled in a bracket 120 secured to the base-plate 20 of the machine (see also Fig. 12). At its rear end, the shaft 119 carries an arm 121 rigidly secured thereto and having at its free end a roller 122 which is adapted to be engaged at its upper surface by an inclined cam face such as is shown at 123 on a bar 124 constituting a part of the main slide 61, it being understood that two of such cam-faces 123 are provided to act upon the cam-rollers 122 of both table depressing mechanisms, respectively, Fig. 5 illustrating the left roller 122 depressed and riding along the level lower surface of the cam 123, while the cam-roller 122 at the right hand end of the machine is free from contact with the cam-face, and the table 88 is consequently in its high position.

It will be noticed by referring to Fig. 5 that the uppermost label is suspended on the pads 92 and that there is a slight space between this label and the rest of the pile on the table 88, so that when this condition exists, the nippers whereby the label is pulled from the pads and across the underside of a box contained in the plunger, may freely engage the very end of the label somewhat in the manner shown in Fig. 5, the particular construction of the nipper mechanism being clearly shown in Figs. 12 to 14 inclusive.

As before stated, the nipper mechanism comprises the bar 68 which is reciprocated by the pinion 65 above mentioned. Rigidly connected to said bar 68, is a stud 125 on which is mounted a sleeve 126 which at its front end carries a sleeve-jaw 127 rigidly connected thereto and coöperative with a stationary-jaw 128 secured to or forming a part of the bolt or stud 125. While a spring 129 may serve for the purpose of bringing the jaws 127 and 128 together, the jaw 127 is positively opened by a cam-arm 130 attached to or forming a part of the sleeve 126

at the rear end thereof. During the movement of the bar 68 toward the right, the cam-arm 130 will finally come into engagement with a by-pass cam 131 (see Fig. 9) which latter is pivoted at 132 on a bracket 133 secured to the frame of the machine and held in its normal position shown in Fig. 9, and in engagement with a stop-pin 134 by means of a spring 135. This organization will result in swinging the cam-arm 130 as it travels upward upon the cam-face 131, to open the jaw 127 into position shown in dotted lines in Fig. 14 until the drop-off notch in the cam-lever 130 has reached a position, so that the cam-lever can drop over the edge of the cam 131 and the jaws 127, 128 will then be closed by the spring 129. When the bar 68 now returns to the other side of the machine, the by-pass abutment 131 will be simply swung out of the way without in any way interfering with the gripping action existing between the jaws, the position of the several elements being substantially shown in Fig. 6 in which the picker-bar is illustrated as not having as yet fully arrived in its right hand position and the cam-arm 130 is almost ready to drop. From the foregoing, it should be understood that the nippers just described pertain to and act only upon the labels which are supplied at the right hand end of the machine. Similar nippers are arranged to act and feed labels from the left hand end of the machine, these nippers consisting of a stationary jaw 136 attached to or forming a part of the stud 125 above mentioned and coöperative with a movable jaw 137 which is mounted upon a sleeve 138 which may be opened to the position shown in dotted lines in Fig. 14 and against the action of the spring 139 whereby such jaws are normally closed. The sleeve 138 is provided with a cam-arm 140 (see also Fig. 2) adapted to engage a by-pass abutment 141 which is similar in construction and operation to the by-pass 131 previously described, and as clearly shown in Figs. 3 and 4 in which the cam-arm 140 is shown in its different positions corresponding to the open and closed position of the nippers, respectively.

Each label is drawn across the top opening of the retainer R while a new box to be labeled is inserted into and held in suspension within the plunger, the label consisting simply of a strip of flat paper or material stretched out for its full length and resting with its ends in troughs preferably formed in the devices whereby the ends of said labels are ultimately turned over the edges of the box, respectively, and whereby also the gum-portions of the labels will be pressed so as to envelop the box in a tight manner. These ironing devices serve also for the purpose of stretching the band or label around the box substantially in the

manner shown in Fig. 12, in which the construction and manner of operation is clearly illustrated. Loosely journaled on the shaft 119 (at each side of the machine) are a pair of arms 142, 143 which are connected by a tie 144 so as to constitute a rigid structure or yoke which may be rocked in its entirety on said shaft 119. At its free end the yoke Y carries a spindle 145 which at its outer end has a lever 146 attached to one end of a spring 147 whereby said spindle is rotated to bring the ironing device or presser P into forcible contact with the label, while the yoke Y in its entirety may be swung around the axis of the shaft 119 in a manner to be hereinafter described.

Referring to Fig. 12 it will be noted that the yoke Y' is in its normal or retracted position, while the yoke Y has turned the label around the edge of the box and is just on the point of bringing the gummed face of the label into contact with the box itself, the presser P comprising an arm 148 which is trough-shaped to receive the label in its flat condition and which at its free end carries a roller 149 loosely journaled on a spindle 150. Likewise, the yoke Y' has a trough-shaped arm 148' with a roller 149' journaled on a spindle 150'. In Fig. 12 a pair of boxes are shown held within the retainer, the uppermost box having just been pushed downward by the plunger which action will bend the middle portion of the label around the rollers 149, 149', so that its ends are still lying within the troughs 148, 148', respectively. The plunger having then again risen, the yoke Y has been rocked to bring the arm 148 with the roller 149 toward the center of the box thus swinging the right hand end of the label around the edge and into contact with the bottom of the uppermost box, while at the same time the yoke Y' has remained in its original position but is now ready to perform its function in swinging the left hand end of the label around the left edge of the box and bringing the gummed end-portion thereof into position to overlap the end already gummed on the box and subsequently pressing the same into cohesive contact. Of course, it follows that each label has to be treated in exactly the same manner, and irrespective of the fact whether such label comes from the pile disposed at the right hand end of the machine or on the left. Consequently, means are provided for operating the yokes in the sequential manner above described, these means comprising a cam-roller 151 and adapted to be engaged by a cam-plate 152 on the slide 124 for the purpose of throwing the yoke Y, or more particularly, the arm 143 thereof outwardly and against the action of a spring 153 attached to a stud 154 carried by the arm 142 of the yoke Y, so as to insure the retraction of the latter, to-

gether with the presser P before the plunger descends. In order to retract the yoke Y when the nippers cooperate with the pile of labels at the left hand side of the machine, the slide 124 is provided with a cam 155 adapted to ride over a roller carried on an arm 156 which is pivoted at 157 on a stationary bracket attached to the bed of the machine and the free end of which is connected by a link 158 with an arm 159 forming a part of the yoke-arm 143. While the right hand presser is thus taken care of, the left hand presser connected with the yoke Y' is actuated directly from the plunger as clearly shown in Fig. 5, in which the yoke Y' has a side extension 160 to which is articulated the upper end of a rod 161 which carries a collar 162 adjustably held thereon and adapted to have its underside engaged by a bunter 163 carried by the tie 164 whereby the guide rods 47 of the plunger are connected at their lower ends. Sufficient clearance is left between the bunters 163 and the underside of the collar 162, so that the plunger may rise sufficiently to clear the presser P' of the yoke Y' as the latter is swung inwardly and follows up the presser P as the latter retracts to its outward position. A spring 165 cooperates in returning the yoke Y' to its outer position.

The operation of the machine is as follows: A sufficient quantity of blank-labels B' and B² being disposed within the holders at the opposite ends of the machine, the rotation of the shaft 30 (see Fig. 1) will result in moving the right hand gumming slide to bring the pads 92 thereof directly over the blank-pile B' which then is caused to ascend by its raising-spring 91 to bring the uppermost label into contact with the gumming pads. The table 88 is then again slightly depressed leaving the blank-label attached to these pads so that then the nipper-jaws 127 and 128 may first straddle the end of the label and at the final movement of the bar 68, nip the end of the blank whereupon the bar 68 is moved from right to left thus drawing the label across the upper open end of the retainer or chute R. During this time the plunger has been in its highest position and the pusher 35 has pushed the lowermost box in the hopper into the plunger, it being understood, however, that preferably all the boxes are placed in the hopper bottom side up so that the label will be gummed to the bottom of the box. The plunger will now descend bringing the box into engagement with the top surface of the flat lying label and push said box into the receiver R thus partially folding both ends of the label around the side edges of the box which latter will now be frictionally held within the retainer and released from the plunger by virtue of the movement of the clapper. The plunger now

rises and the right hand yoke Y will then be swung with its presser toward the left thus folding the right hand end of the label over the box and pressing the gummed surface thereof into cohesive contact therewith. As soon as the yoke Y returns to its normal position, the yoke Y' is swung with its presser P' inwardly to fold the left hand end of the label around the left edge of the box and subsequently bring the gummed end to overlap and into contact with the gummed right hand label end already on the box. The yoke Y' then returns, and the picker-bar 68, which in the meantime has rested in its left hand position as shown in Fig. 5, will now take a label from the left hand pile B² which has been operated in the same manner as the pile B' previously mentioned, and the action of the plunger and the folders is then repeated as before, it being understood that each downward movement of the plunger will deposit another box into the retainer which is adapted to hold a number of boxes so that each box freshly entering the retainer will serve as a means for pressing the freshly gummed label of the preceding box firmly into place thereon, so that when the box finally emerges from the bottom of the retainer, the gum of the label is practically set and dried.

It is, of course, obvious that the feeding-in mechanism can take place comparatively rapidly and without experiencing any difficulty of the operation either of its own mechanism or of that of the plunger, the speed of the latter being practically controlled by the speed with which labels can be positioned beneath the plunger. By incorporating in a machine of this character two piles of labels disposed at opposite ends of the machine and by providing a single mechanism whereby blank-labels will be taken from said piles, respectively, in an alternate manner, or in other words first from one pile and then from the other pile, it clearly follows that the capacity of the machine will be greatly enhanced, doubled as against that of my former machine above referred to.

Many changes may be made in the construction and organization of the several component parts and mechanisms of the machine without departing from the spirit of the invention, and I wish it to be distinctly understood that I do not confine myself to the particular construction and organization of the nipper mechanism above described, or to the means whereby the blank-tables are actuated to bring the blank-labels into position to be nipped and carried into place.

I claim:

1. In an apparatus of the character described, in combination, means for carrying and gripping articles to be labeled, a plu-

rality of label supplies, and means for labeling the articles severally from said supplies comprising means for folding labels on the articles.

2. In an apparatus of the character described, in combination, means for supporting and gripping articles to be labeled, a plurality of label supplies, and means for labeling the articles alternately from said supplies.

3. In an apparatus of the character described, in combination, means for moving boxes non-rotatably, a pair of label supplies, and means for transferring labels from the label supplies alternately into the path of the boxes.

4. In an apparatus of the character described, in combination, means for supporting a stack of boxes, means for removing the boxes one by one from said stack, a pair of label supplies, and means for transferring labels from said supplies alternately into the path of the boxes, respectively.

5. In an apparatus of the character described, in combination, means for supporting a stack of articles to be labeled, means for removing the articles one by one from said stack and gripping the same, a pair of oppositely disposed label supplies, and means for labeling the articles from said supplies alternately.

6. In an apparatus of the character described, in combination, means for moving boxes, a pair of label supplies disposed on opposite sides of the path of said boxes, and means for transferring labels from the label supplies alternately into the path of the boxes.

7. In an apparatus of the character described, in combination, means for moving boxes, a plurality of label supplies, and means adapted to transfer labels from said supplies alternately into the path of the boxes comprising label gripping mechanism.

8. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes comprising a picker-bar, nippers carried on said bar, and means for actuating said picker-bar to take labels from said supplies alternately.

9. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes comprising a picker-bar, a pinion in engagement with said bar, a stationary rack also engaging said pinion, nippers carried on said bar, and means for moving said pinion to actuate said bar for taking labels from said supplies, respectively.

10. In a machine of the character described, in combination, box feeding mecha-

nism, a plurality of label supplies, and mechanism adapted to transfer labels from the supplies to the boxes alternately, comprising a reciprocatory label carrier, and means whereby a box is fed for each movement of the carrier.

11. In a machine of the character described, in combination, means for feeding boxes, a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a rack and pinion device for operating said bar, and a rotative crank connected with said pinion for reciprocating the same.

12. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes comprising a picker-bar, a rack and pinion device for operating said bar, and a rotative crank connected with said pinion for reciprocating the same for the purpose set forth.

13. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes comprising a pair of nippers, and means for independently operating said nippers to take labels from said supplies alternately.

14. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes comprising nippers coöperable with said label supplies, respectively, means for positively opening said nippers, and a spring for closing said nippers for engaging labels from the supplies, respectively.

15. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-piles disposed at opposite sides thereof, a label-transfer mechanism comprising a pair of opposed and independent nippers, means for shifting said nippers into coöperation with said piles, respectively, means for positively opening said nippers, and a spring for closing said nippers for taking labels from said piles alternately.

16. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label supplies, means for depressing said label supplies independently of each other, resilient means for raising said supplies, and mechanism for transferring labels from said supplies alternately into coöperative relationship with the box supply mechanism.

17. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-piles, means

for vertically moving said piles alternately, means adapted to hold said label-piles in their lowermost position, and mechanism adapted to transfer labels from said piles to the boxes alternately upon the release of the piles from their holding means.

18. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a plurality of nippers carried by said bar, each nipper comprising a nipper jaw fixed relatively to the bar and a movable jaw, means adapted to actuate the bar to move the nippers to gripping position relatively to the label supplies and means to operate the nipper jaws to cause them to grip a label when in gripping position.

19. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a plurality of nippers carried by said bar, each nipper comprising a nipper jaw fixed relatively to the bar and a movable jaw, means adapted to actuate the bar to move the nippers to gripping position relatively to the label supplies, means adapted to cause one pair of nipper jaws to grip a label and means adapted to cause another pair of jaws to release a label gripped thereby.

20. The combination with a box-feeding mechanism, and a pair of label-piles disposed at opposite sides thereof, of a pair of gumming mechanisms for applying gum to the uppermost label of each pile, and a label-transfer mechanism for taking labels from said piles alternately into coöperative relationship with the box feeding mechanism.

21. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-piles disposed at opposite sides thereof, of a pair of gumming mechanisms each comprising a gumming slide, means for moving said gumming slides over the label-piles, means for raising said piles to bring the topmost label of each pile into contact with the gumming slide, and a label-transfer mechanism for taking labels from said gumming mechanism into coöperative relationship to the box supply mechanism.

22. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-piles disposed at opposite sides thereof, of a pair of gumming mechanisms each comprising a gumming-slide, cams for projecting said slides over the label-piles, means for raising said piles to bring the uppermost label into

contact with the slide, and a label-transfer mechanism for removing the gummed labels from said gumming slides into coöperative relationship with the box-supply mechanism.

23. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-piles disposed at opposite sides thereof, of a pair of gumming mechanisms each comprising a gumming slide having a pair of gummed pads, means for moving said slides to bring the pads over the label-piles, means for raising said piles to bring the uppermost labels into contact with the gummed pads, respectively, and a label-transfer mechanism for removing the gummed labels from the pads into coöperative relationship with the box-supply mechanism.

24. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a pair of gumming mechanisms, a label-transfer mechanism for bringing gummed labels successively into coöperation with the boxes, and means for folding the opposite ends of each label around the box.

25. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a pair of gumming mechanisms, a label-transfer mechanism for bringing the gummed labels successively into coöperation with the boxes, a pair of pressers for folding the opposite ends of labels around the boxes, and means for reciprocating said pressers.

26. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a pair of gumming mechanisms, a label-transfer mechanism for bringing the gummed labels successively into coöperation with the boxes, spring actuated pressers for tightly folding the gummed ends of the labels around the boxes, and means for reciprocating said pressers.

27. In a machine of the character described, the combination with a box-supply mechanism, of a pair of label-supplies disposed at opposite sides thereof, of a pair of gumming mechanisms, a label-transfer mechanism comprising a picker-bar, a pair of pressers for folding the opposite ends of the label around the box, and means controlled by said picker-bar for reciprocating said pressers.

28. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a retainer comprising a spring-pressed plate as one of its walls, a label-transfer mechanism for

bringing labels successively over said retainer, and a plunger adapted to receive a box from the supply mechanism and for carrying the same into contact with the label and subsequently into the retainer.

29. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a retainer comprising a spring-pressed plate as one of its walls, a label-transfer mechanism for bringing labels successively over said retainer, and a plunger adapted to receive a box from the supply mechanism and for carrying the same into contact with the label and subsequently into the retainer, said plunger comprising means for frictionally holding a box therein, and means for releasing the box therefrom.

30. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a retainer comprising a spring-pressed plate as one of its walls, a label-transfer mechanism for bringing labels successively over said retainer, and a plunger adapted to receive a box from the supply mechanism and for carrying the same into contact with the label and subsequently into the retainer.

31. In a machine of the character described, the combination with a box-supply mechanism, and a pair of label-supplies disposed at opposite sides thereof, of a box retainer comprising means for frictionally holding a series of boxes therein, a label-transfer mechanism for bringing labels from said supplies alternately over the retainer, and a plunger adapted to receive a box from the supply mechanism, and means for actuating said plunger to bring the box with the label into the retainer.

32. In a machine of the character described, the combination with a box-supply mechanism, and a plunger adapted to receive a box therefrom, and a feeding-in mechanism for bringing boxes successively into the plunger, of a retainer-chute, a pair of label-supplies disposed at opposite sides thereof, a label-transfer mechanism comprising nippers, and means for independently operating said nippers to take labels from said supplies alternately.

33. In a machine of the character described, the combination with a box-supply mechanism, and a plunger adapted to receive a box therefrom, and a feeding-in mechanism for bringing boxes successively into the plunger, of a retainer-chute, a pair of label-supplies disposed at opposite sides thereof, a label-transfer mechanism comprising nippers, means for independently operating said nippers to take labels from said supplies alternately, and means for reciprocating said plunger to deposit a box

with its label into said retainer and to forcibly move the previous box in the retainer with the second box.

34. In an apparatus of the character described, in combination, means for moving boxes, a pair of label supplies, and reciprocatory mechanism adapted to transfer a label into coöperative relation to a box in its movement in each direction.

35. In an apparatus of the character described, in combination, means for moving boxes, a pair of label supplies disposed on opposite sides of the path of said boxes, means for transferring labels from the label supplies alternately into the path of the boxes, and means for folding the labels on the boxes and securing the same thereon.

36. In an apparatus of the character described, in combination, means for moving boxes, a plurality of label supplies, means adapted to transfer labels from said supplies alternately into the path of the boxes, comprising label gripping mechanism, and means for folding the labels on the boxes.

37. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a plurality of nippers carried by said bar, each nipper comprising a nipper jaw fixed relatively to the bar and a movable jaw, by-pass cams, means adapted to actuate the picker bar to move the nippers to gripping position and cause the by-pass cams to open the nippers, and means to close the nippers.

38. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a plurality of nippers carried by said bar, each nipper comprising a nipper jaw fixed relatively to the bar and a movable jaw having a cam arm, by-pass cams, means adapted to actuate the picker bar to move the nippers to gripping position and cause the cam arms to coöperate with the by-pass cams to open the grippers and permit them to close.

39. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, a plurality of relatively

fixed nipper jaws carried thereby, a plurality of movable nipper jaws carried thereby and adapted to coöperate with the fixed jaws respectively, means to yieldingly close the respective pairs of nippers, a cam arm carried by each movable jaw, by-pass cams, means adapted to actuate the bar to move the nippers to label-gripping position and cause the cam to contact and pass the coöperative portion of the by-pass cams.

40. In a machine of the character described, the combination with a box supply mechanism, of a pair of label supplies, mechanism adapted to transfer labels from the supplies into the path of the boxes, comprising a picker bar, pairs of fixed and movable normally closed nipper jaws carried thereby, a pair for each label supply, devices located adjacent each label supply adapted to open one pair and permit it to close and to open another pair, and means to actuate the bar to move the nippers into coöperating engagement with said devices.

41. In a machine of the character described, in combination, means for supporting articles to be labeled, a plurality of label supplies, an open retainer, comprising a spring-pressed wall, a plunger adapted to move toward and from the retainer and comprising relatively movable walls adapted to yieldingly grip a box, means for successively delivering boxes from the support to the plunger, a pair of label supplies oppositely disposed relatively to the retainer, a picker bar, pairs of nipper jaws carried by the bar and adapted to feed labels alternately from the supplies across the opening in the retainer, folding devices disposed outside the walls of the retainer, means adapted to cause the reciprocation of the picker bar to carry the nippers into label-gripping position relatively to the label supplies respectively, means adapted to cause the nippers to grip a label of each supply, whereby as the picker bar moves, said label will be drawn across the opening in the retainer, means to cause the release of said label from the nippers and means to successively operate the plunger to carry the boxes against a label and therewith into the retainer.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

FREDERICK COATES.

Witnesses:

G. R. DRISCOLL,
WM. S. BELLWS.