July 9, 1940. W. D. KIMBALL ET AL 2,206,964

CAN LABELING MACHINE

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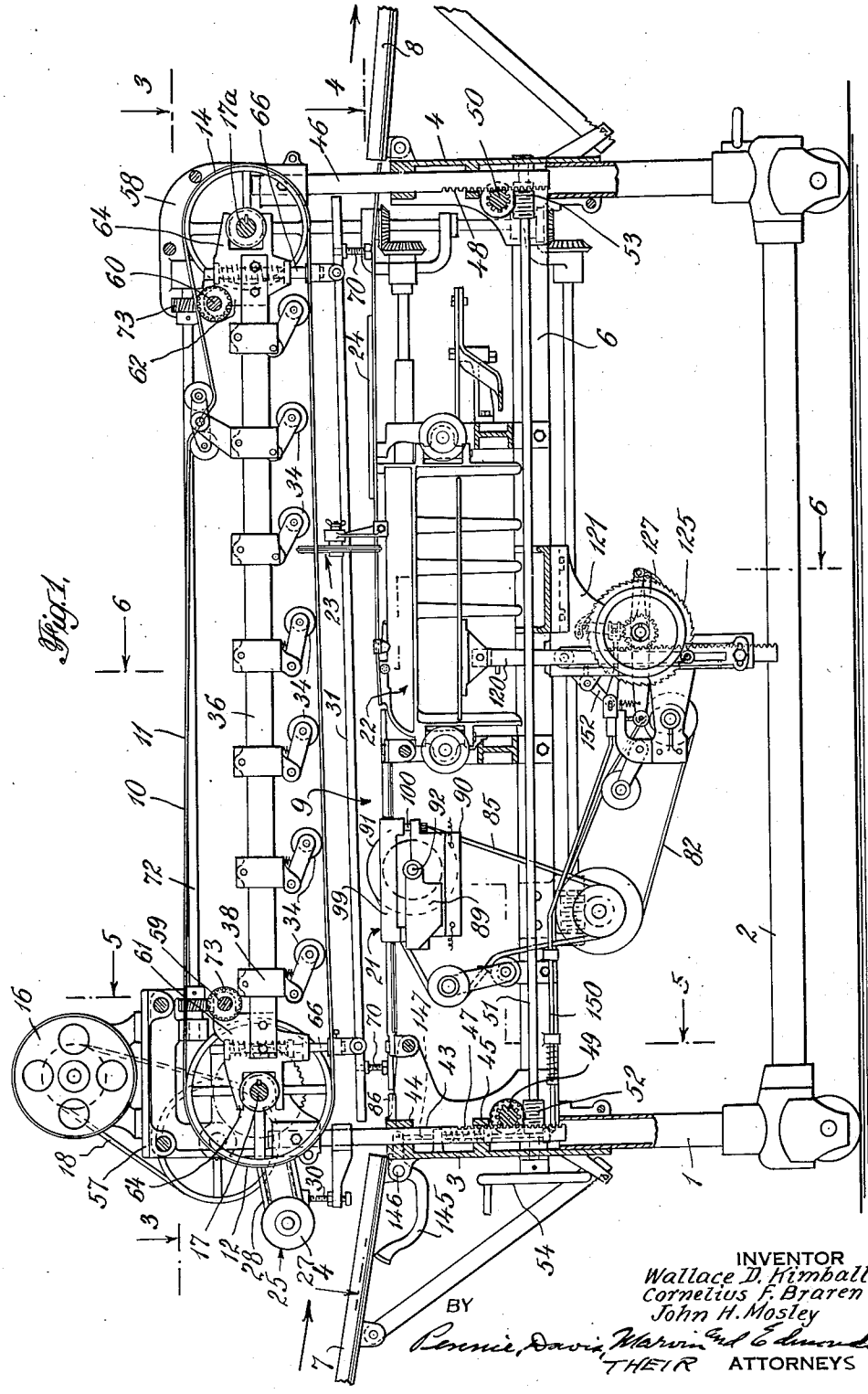


Fig. 1.

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CAN LABELING MACHINE

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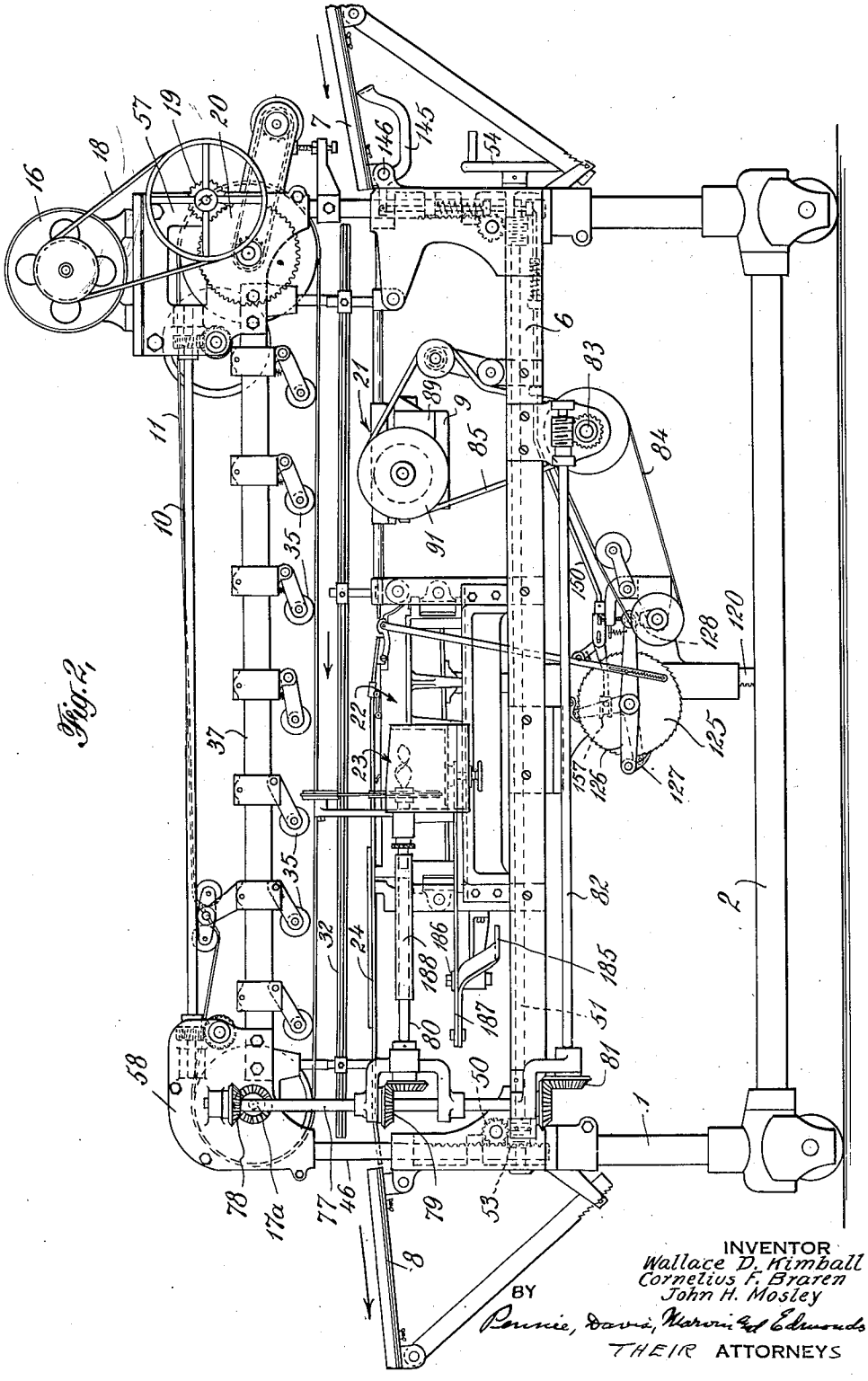


Fig. 2.

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July 9, 1940. W. D. KIMBALL ET AL 2,206,964

CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 3

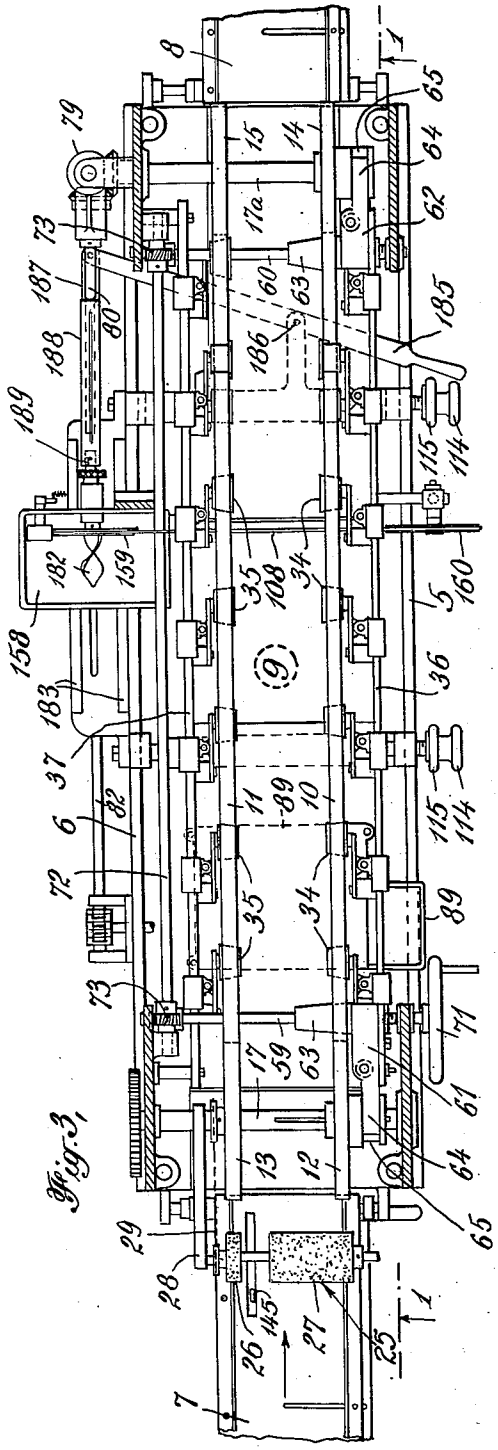


Fig. 3.

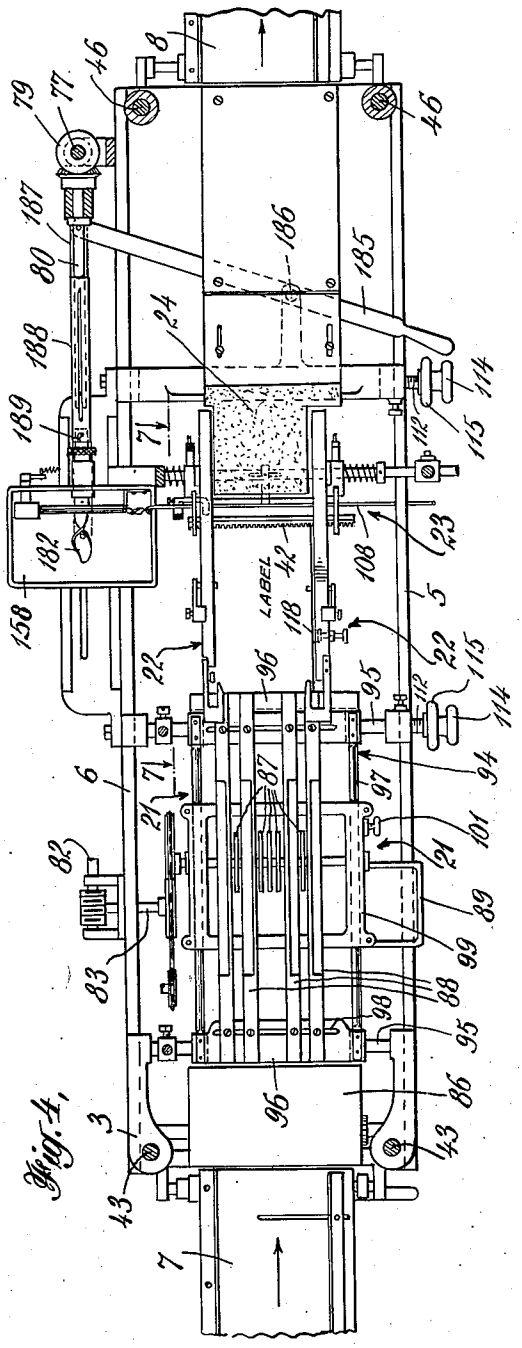


Fig. 4.

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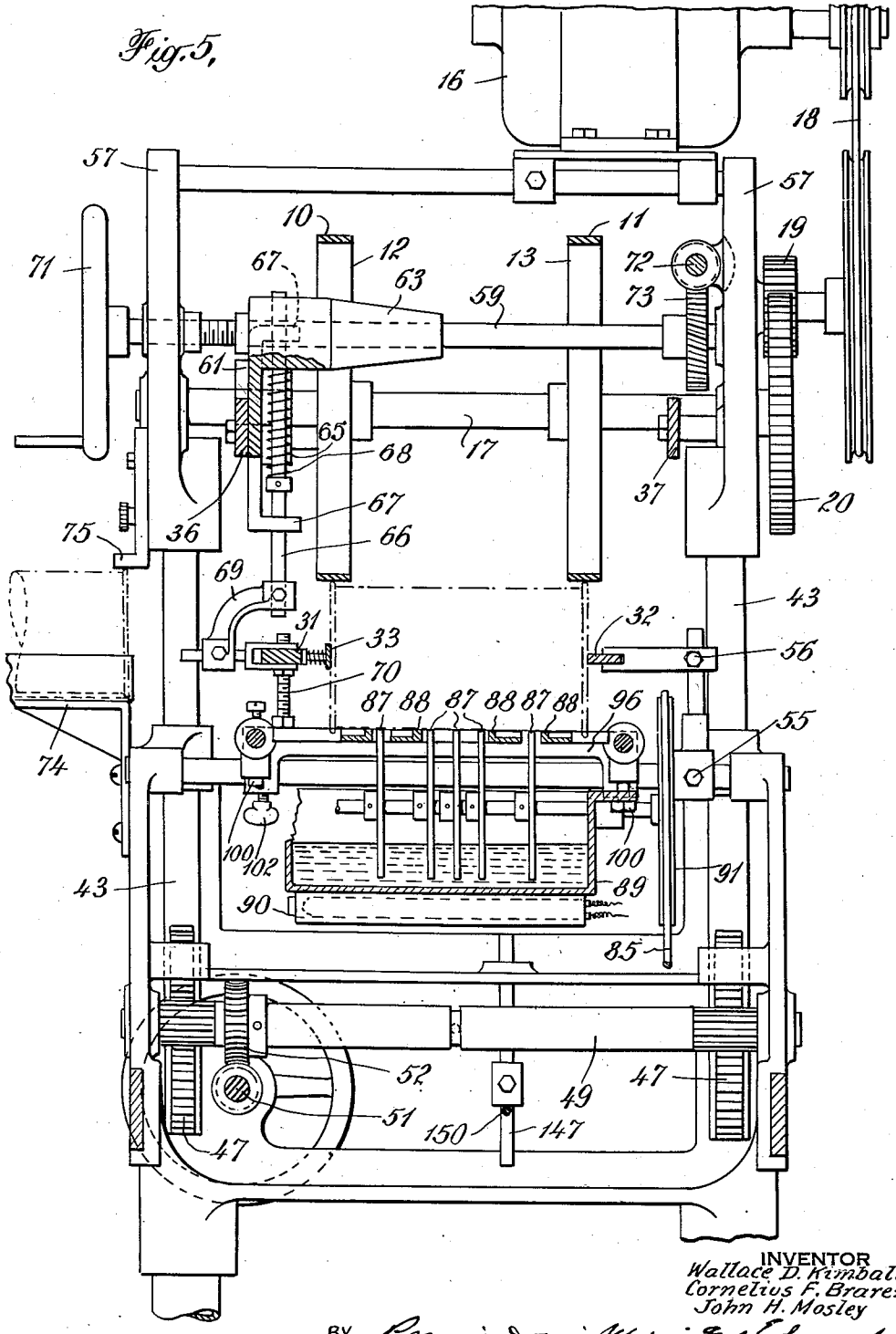
BY Pennie Davis, Marvin and Edmonds
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July 9, 1940. W. D. KIMBALL ET AL 2,206,964

CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 4

Fig. 5,



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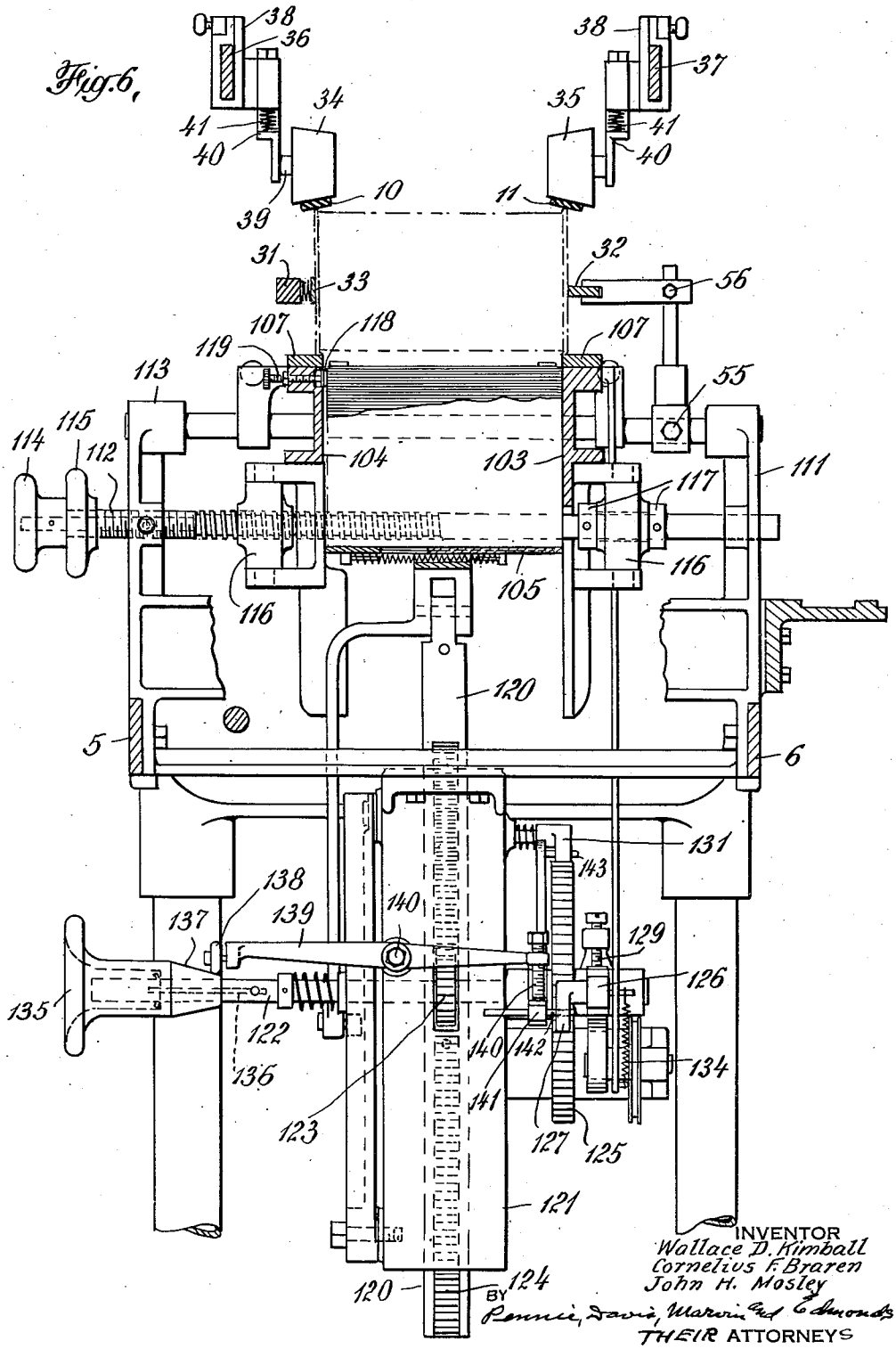
BY Bennie, Davis, Marvin & Edmonds
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CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 5

Fig. 6.



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CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 6

Fig. 7,

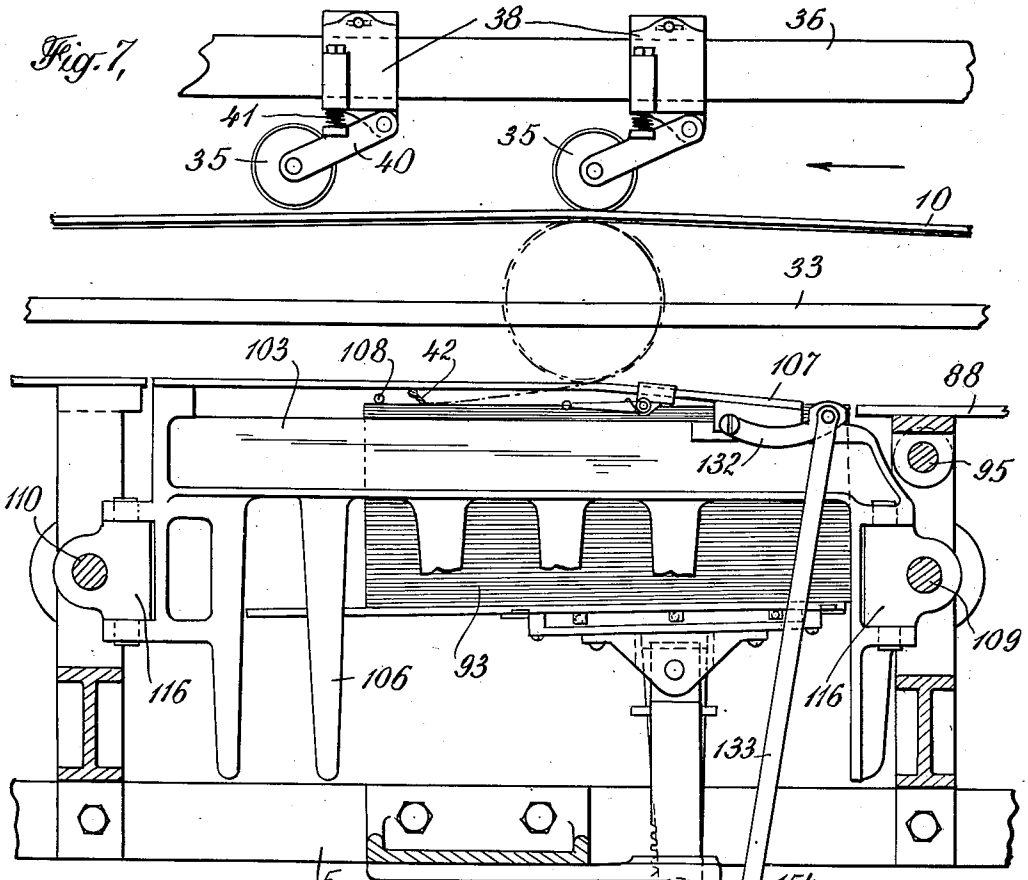
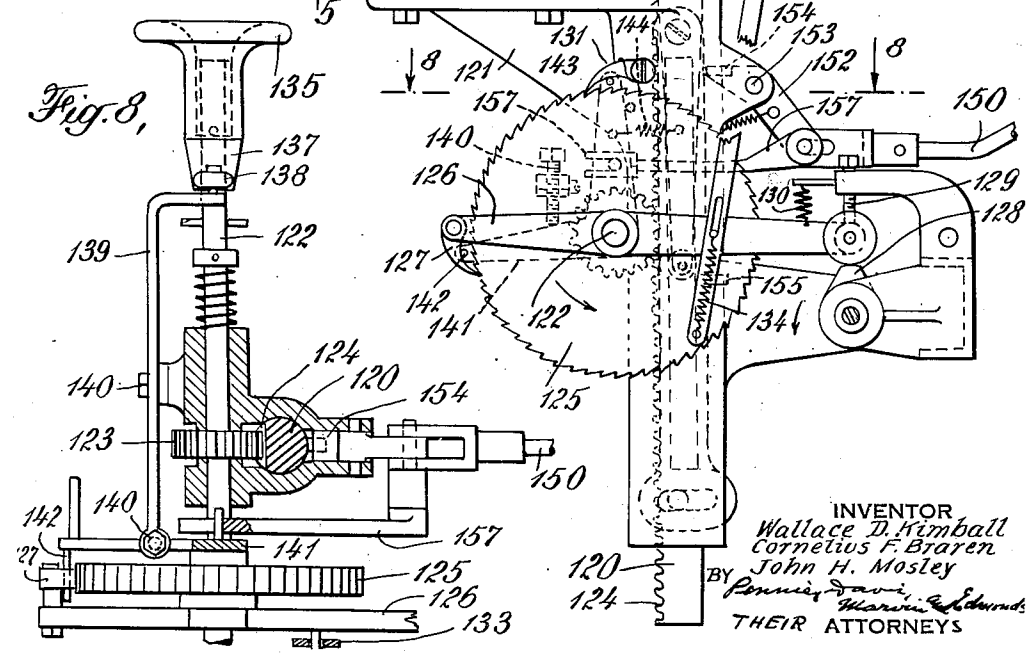


Fig. 8,

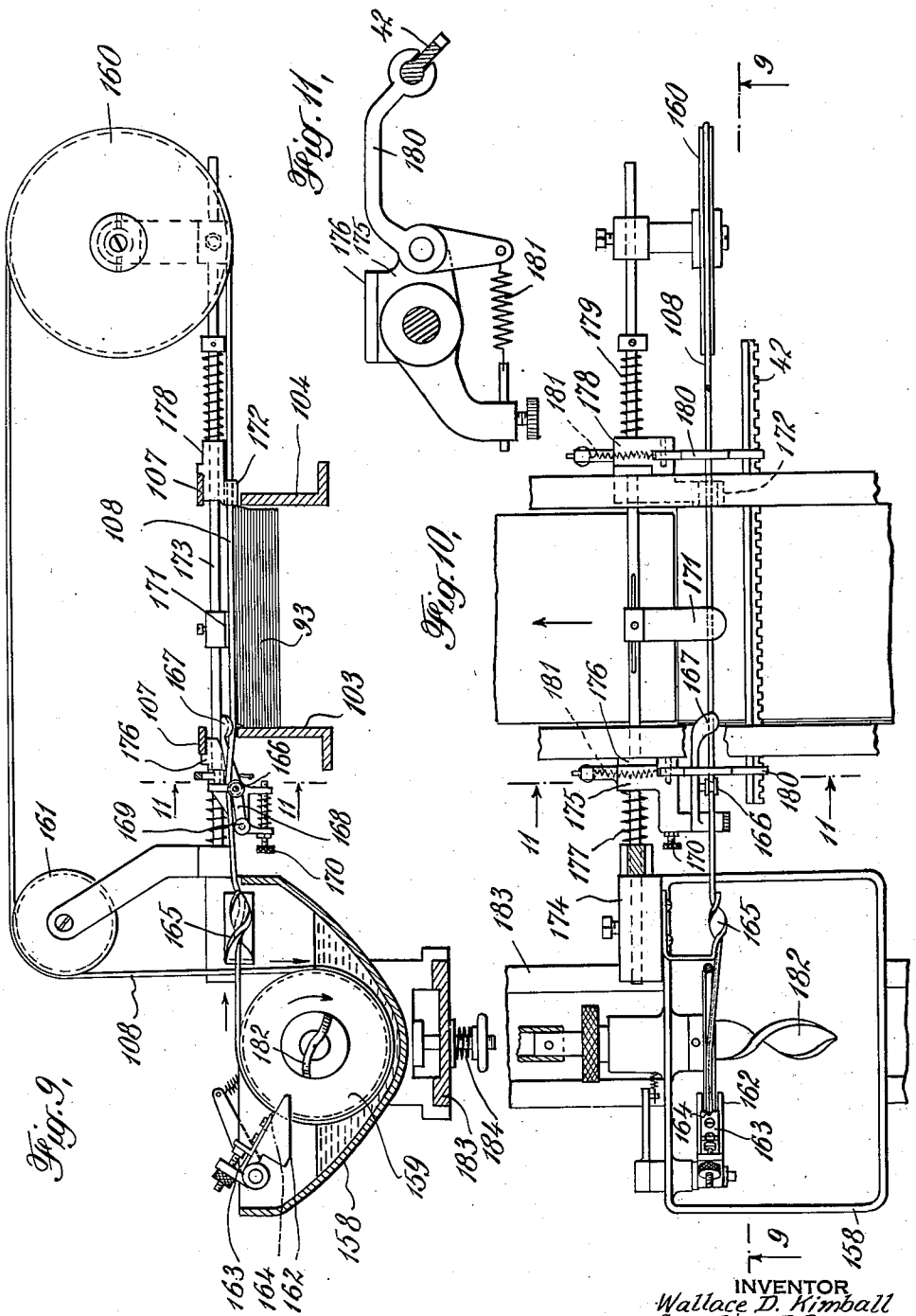


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CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 7



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July 9, 1940. W. D. KIMBALL ET AL 2,206,964

CAN LABELING MACHINE

Filed Jan. 9, 1937 8 Sheets-Sheet 8

Fig. 12,

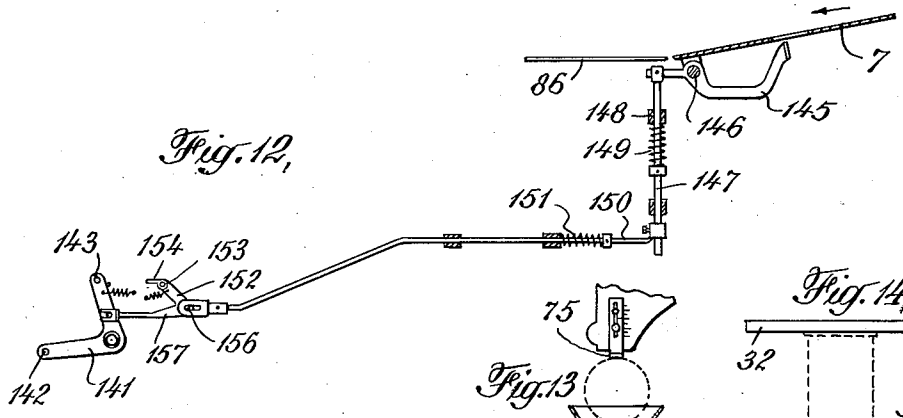


Fig. 13,

Fig. 14,

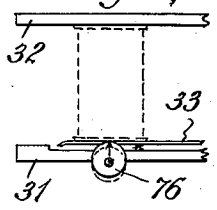


Fig. 15,

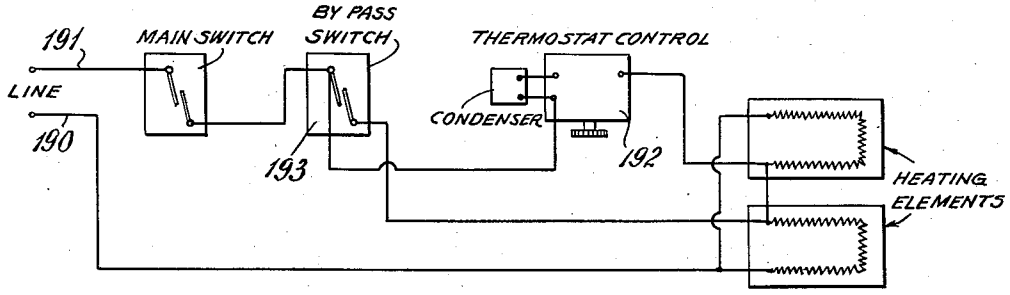


Fig. 16,

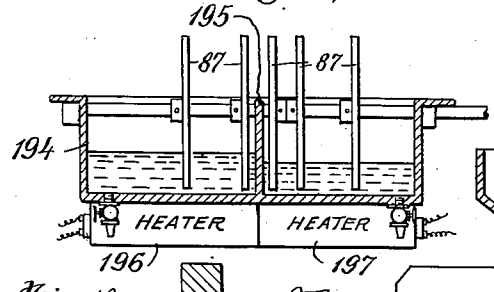


Fig. 17,

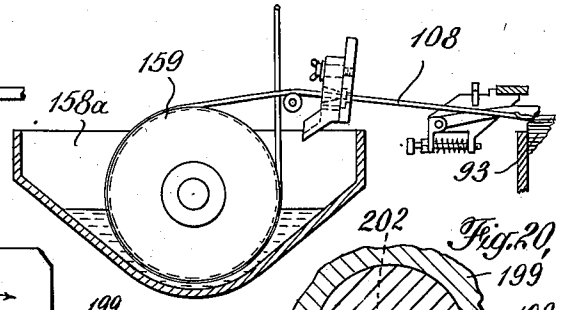


Fig. 18,

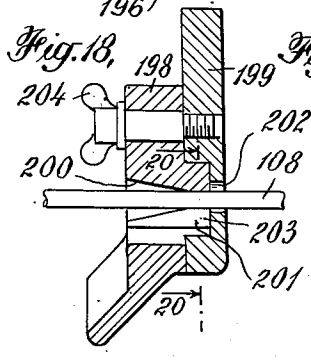


Fig. 19,

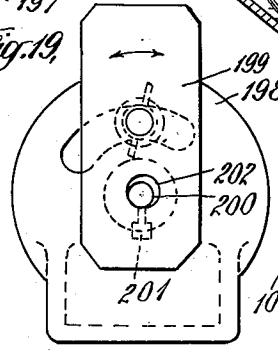


Fig. 21.

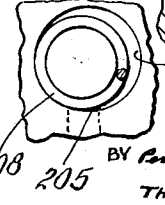
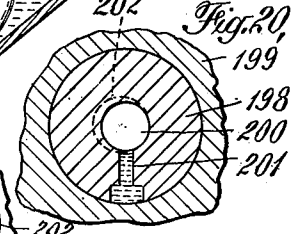


Fig. 20,



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Patented July 9, 1940 2,206,964

UNITED STATES PATENT OFFICE

2,206,964

CAN LABELING MACHINE

Wallace D. Kimball, Jackson Heights, Cornelius I. Braren, Jamaica, and John H. Mosley, Long Island City, N. Y., assignors to Standard-Knapp Corporation, Long Island City, N. Y., a corporation of New York

Application January 9, 1937, Serial No. 119,886

34 Claims. (Cl. 216—58)

This invention relates to machines for labeling cans, bottles and the like, and has for its object the provision of an improved labeling machine. More specifically, the invention aims to provide a labeling machine which will more neatly and more uniformly apply the labels, which is capable of use for labeling a diversity of articles, which will operate continuously with a lower percentage of shut-down time for replenishing the label supply, which will better control the application of the adhesives, and which is of more rugged construction and will remain in operation for longer periods of time without servicing, other than lubrication, than labeling machines as heretofore constructed.

In certain industries, such, for example, as in paint or pigment manufacture, the products are manufactured and placed in stock in unlabeled cans varying in size both as to diameter and height. Such products are frequently ordered in small quantities and in variety. A single order may call for, say, 40 one-pound cans of one color, 60 one-half pound cans of the same or a different color, 30 two-pound cans and 50 five-pound cans.

To meet the requirements of a manufacturer or distributor in filling such orders the machine must be capable of adjustment to cans varying considerably in diameter and height. There are many adjustments which must be made to adapt the machine to a can of a different diameter. Thus, for example, the driving belts which propel the cans to the machine must be raised or lowered; the gum pot must be shifted; the lap end paste applying mechanism must be shifted; the remainder of the stack of labels for the previous batch must be removed from the machine and a new stack of labels of different length inserted; the new stack of labels must be adjusted in such position that the labels will not be crooked when they are wrapped around the cans; and the seaming pad must be adjusted lengthwise to proper position to press the lap end of the label against the can.

When there is a change to a can of different height (and this nearly always occurs simultaneously with change in diameter), it is necessary to shift the driving belts closer together or farther apart; to make a similar shift of the guide rails for guiding the cans through the machine; to adjust the gum application discs so as to apply the spots of pick-up gum in proper position with respect to the ends of the can; to shift the position of the stack of labels so as to center the label on the new height of can; usually to replace the old stack of labels with a new stack of different width, and if this is done, it is necessary to adjust the label stack guides so that the label will not be crooked when applied.

It is important that these adjustments be made quickly. To this end, it is desirable, if not necessary, that these adjustments be made, as nearly as possible, from one point, or at least from one side of the machine, and one of the principal objects of the present invention is to arrange the various parts of the machine in such manner that this sort of adjustment may be accomplished.

It is customary, many times, to apply labels bearing the name of the purchaser and furthermore it is not unusual for these labels to be supplied to the manufacturer or distributor by the purchaser so that the labels may lack uniformity in size, shape and kind of paper from which they are made. For these reasons and for the reasons mentioned above, another object of the invention is to facilitate the removal of the old label stack and the insertion of a new one, and the ready adjustment of the new stack with respect to the can track so that the labels will be properly applied.

In numerous installations of labeling machines, the machine will be operated continuously for hours and perhaps days without changing the size of the can which is being labeled. In such cases reduction of the shut-down time necessary for the replenishing of the label stack becomes important. Hence it is an important object of the invention to provide mechanism to enable this replenishing to be done in the shortest possible space of time.

Cans to be labeled in a packing plant vary in temperature. They are placed in a retort basket and subjected to a cooking process, afterwards being cooled in a canal of water. The outside cans contained in the basket or crate are cooled to a greater degree than the cans at the center. The cans are passed from the cooling operation to the labeling machine and the wide difference in the temperature of the cans, varying as much as 75° to 100° F., has heretofore given difficulty on account of the failure of the pick-up gum to cause the labels to stick to the cans. In order to cause the front end of the label to adhere to the can sufficiently to draw the uppermost label from beneath the curling bar without fail, the pick-up gum should harden, or set, almost instantaneously. If the cans to be labeled are at a high temperature, that is to say, above about 75° F. the time required for the setting of the pick-up gum is increased to such an extent that the front end of the label may not stick to the surface of the can tight enough, resulting in cans being discharged from the label machine without having labels upon them, and requiring the shutting down of the machine in order to clear the unapplied labels. Our present invention aims also to overcome this difficulty and provide a machine which is capable of labeling cans of widely varying temperatures and eliminate the possi-

bility of cans passing through the machine unlabeled.

Among other features of our invention is the provision for better control of the application of the paste to the lap end of the label.

Our invention will be better understood from a consideration of the accompanying drawings which illustrate, by way of example, a labeling machine embodying the features of our invention. In these drawings:

Fig. 1 is a view partly in side elevation looking from the front side of the machine, that is, the side from which the operator adjusts the machine and replenishes the stack of labels, and partly in vertical section taken on the line 1—1 of Fig. 3;

Fig. 2 is a similar view taken from the opposite or rear side of the machine;

Figs. 3 and 4 are views in horizontal section taken on the lines 3—3 and 4—4, respectively, of Fig. 1;

Fig. 5 is an enlarged vertical transverse section taken on the line 5—5 of Fig. 1 through the pick-up gum applying mechanism and showing details of mechanism for adjusting the can-propelling belts and can guides for cans of different height and diameter;

Fig. 6 is a similar section taken on the line 6—6 of Fig. 1 through the label stack support and feeding mechanism;

Fig. 7 is an enlarged vertical longitudinal section showing further details of the label stack support and feeding mechanism;

Fig. 8 is a horizontal section taken on line 8—8 of Fig. 7;

Figs. 9 and 10 illustrate the mechanism for applying paste to the lap ends of the labels, Fig. 9 being a vertical transverse section taken on lines 9—9 of Fig. 10, and Fig. 10 being an enlarged plan view of this part of the machine;

Fig. 11 is a vertical section taken on line 11—11 of Fig. 10 showing a detail;

Fig. 12 is a view partly in side elevation and partly in section of the mechanism for stopping the cans at the entrance to the machine when the supply of labels has been used up;

Figs. 13 and 14 are detailed views illustrating the manner of setting the machine for can diameter and height;

Fig. 15 is a diagram of the electrical connections for the gum pot heating mechanism;

Fig. 16 is an enlarged transverse section of a modified form of pick-up gum pot for use in labeling hot and cold cans simultaneously; and

Figs. 17 to 21, inclusive, are detailed views showing a modified form of mechanism for controlling the amount and position of paste on the paste belt for the lap end pasting mechanism.

Referring now to the accompanying drawings, the frame of the machine comprises four upright hollow posts 1, the two end posts at each end being joined at the bottom by a cross member, and these two cross members being connected centrally by a single horizontal strut 2. The two posts 1 at the entrance end of the machine, which is the left hand end as viewed in Fig. 1, are joined by a casting 3, and the two posts 1 of the opposite end by a casting 4. These castings are connected together by side bars 5 and 6.

The cans enter the machine from the left on a feed chute 7 and leave at the right by a similar chute 8 after having the labels applied to them. The cans roll through the machine in the customary manner on a runway indicated generally by numeral 9 being propelled along the runway by the lower reaches of a pair of endless belts 10 and 11. These belts are carred on pulleys 12 and 13 at the entrance end of the machine and on pulleys 14 and 15 at the discharge end. The feed belts are driven by an electric motor 16 mounted on top of the machine at the entrance end and arranged to drive the shaft 17 upon which pulleys 12 and 13 are mounted, through a belt 18, a pinion 19 and a gear 20.

Arranged along the runway 9 are the pick up paste applying mechanism indicated generally by numeral 21, the label receptacle and feed mechanism indicated generally by numeral 22, the lap end pasting mechanism indicated by numeral 23, and the seaming pad 24. By means of these instrumentalities a row of spots of pick-up gum is applied to the cans as they roll over the mechanism 21. On the next revolution these spots make contact with the front ends of the uppermost label contained in the label receptacle 22, the label adheres to the surface of the can and as the can continues to roll forward over the label stack the label is wrapped around the can, the rear end or lap end of the label having paste applied thereto by the mechanism 23. As the can continues over the seaming pad 24 the rear end of the label is smoothed down against the can overlapping slightly the front end of the label.

The cans on the feed chute 7 are normally in contact with one another, and are spaced apart by the spacing mechanism 25 which comprises two friction surfaced rolls 26 and 27. These rolls are mounted upon a shaft which is carried by an arm 28 pivoted on shaft 17. These rolls are driven at slow surface speed by means of a chain 29 from shaft 17. They rise slightly as each can passes beneath them, lifting the arm 28 away from an adjustable stop 30 which is adjusted correctly for the diameter of the can being labeled.

The cans are guided along the runway 9 by means of guide bars 31 and 32, guide bar 31 having a yieldingly mounted face 33 for engaging the cans. The lower reaches of the feed belts 10 and 11 are urged into engagement with the cans by means of two series of spring pressed rollers 34 and 35, respectively. These two series of rollers are mounted upon two longitudinally extending bars 36 and 37, respectively.

Each of the rollers of each series is independently mounted upon a bracket 38 which is adjustable in position on its supporting bar. The roller is carried preferably on a ball bearing which is secured to a short pin 39 which projects laterally from a short lever 40 pivoted to bracket 38 and biased downwardly by means of a spring 41. By this construction the pressure of the roller against the belt is not affected by a change in lateral adjustment of the feed belts with respect to one another for cans of different height as is the case in machines heretofore made.

The feed belts 10 and 11 are arranged to operate upon the shoulders or beads (if any) of the cans, and at the entrance end of the machine it is desirable that the belts be tilted, as shown in Fig. 6, away from the body of the can in order to prevent the possibility of the belts becoming smeared with pick-up gum. Accordingly the first three pairs of rollers 34 and 35 are tapered, as shown in Figs. 6 and 3. As soon, however, as the can progresses to a point nearly over the center of the label feed mechanism 22 where the label has been picked up and its wrapping about the can has commenced, it is desirable to tilt or turn the feed

belts 10 and 11 in the opposite direction so as to cause their inner edges to press against the label and thereby assist the pick up gum in causing the label to adhere to the can. This is particularly desirable as the can reaches the point where the label is being drawn from beneath the curling bar which is indicated by reference numeral 42 (see Fig. 7) as the friction of the curling bar with the label is considerable. For this reason the fourth and succeeding pairs of presser rollers 34 and 35 are tapered in the opposite direction as may be seen in Fig. 3.

In order to provide for the vertical adjustment of the belts 10 and 11 so as to accommodate cans of different diameter, the upper part of the labeling machine is supported upon four round vertical posts, two at each end, mounted for vertical movement. These posts 43 at the entrance end of the machine are vertically slidable in guides 44 and 45 in casting 3, while the posts 46 at the discharge end of the machine are similarly mounted in the casting 4. The lower portions of the two posts 43 are provided with rack teeth 47 and the lower portions of posts 46 with rack teeth 48. A horizontal shaft 49 is mounted for rotation in the frame casting 3 and provided at each end with pinion teeth for engaging the rack portions 47 of each of the posts 43.

A similar cross shaft 50 is provided with pinion teeth for engaging the racks 48 at the discharge end of the machine. Cross shafts 49 and 50 are rotated simultaneously by means of a longitudinal connecting shaft 51 and worm gearing 52 and 53. By rotating a hand wheel 54 provided on the front end of shaft 51 all four of the vertical posts 43 and 46 may be raised or lowered simultaneously, thereby causing the feed belts 10 and 11, the presser rollers 34 and 35 and the spacing mechanism 25—30 to be raised or lowered simultaneously and uniformly.

In carrying out the idea of providing a labeling machine which is not only capable of labeling cans of widely differing diameter and height, but which also can be changed over from operation on one size of can to operation on another size of can with the smallest amount of effort and in the shortest possible space of time, the present machine is constructed upon the principle of having the parts on one side of the machine remain in fixed position and obtaining adjustment for differences in can height by shifting the parts on the opposite side of the machine. The parts on the rear side of the machine are fixed and those on the front side of the machine are made adjustable. Thus the spacing roll 26, feed belt 11 and presser rollers 35 are fixed in lateral position and never shifted when changing the machine over to handle a different size of can. Guide rail 32 also falls in this category except for the fact that in case it should be desired to change the machine over from operating upon a standard shape can, such as illustrated in the drawings, to a special type of can, such, for example, as a can having a conical top, or a bottle, guide 32 may be more or less permanently changed in its position by loosening the clamping screws 55 and 56 and resetting them after the guide has been shifted to the desired new position.

Inasmuch as the pulleys 13 and 15 for the laterally fixed feed belt 11 are not shifted horizontally they are solidly keyed to their respective shafts 17 and 17_a. These shafts are journaled, preferably in ball bearings, in frame structures 57 and 58, respectively, which are mounted upon the upper ends of the vertically adjustable posts 43 and 46, respectively. Likewise supporting bar 37 for the laterally fixed series of presser rollers 35 is secured in fixed position at its opposite ends upon the frame structures 57 and 58.

The manner in which the laterally adjustable supporting bar 36 for the other series of presser rollers 34, and the pulleys 12 and 14 for the laterally adjustable feed belt 10 are adjusted is as follows:

In each of the frame structures 57 and 58, respectively, there is mounted a supporting and adjusting shaft. This shaft in frame 57 is indicated by reference numeral 59 (Fig. 3) and in frame 58 by reference numeral 60, these shafts being fixed against longitudinal movement. Bar 36 is secured at its respective ends to members 61 and 62 which are arranged in threaded engagement with the threaded front ends of shafts 59 and 60. These members also are provided with extensions 63 which closely fit the shafts 59 and 60 in order to support the members thereon without rocking movement. The outer ends of members 61 and 62 are each furnished with a pair of forked arms 64 which engage the grooved hubs 65 of the pulleys 12 and 14 for the laterally adjustable feed belt 10. These pulleys are slidingly keyed upon their respective shafts 17 and 17_a and are shifted laterally by the forked arm 64 simultaneously with the adjusting movement of the bar 36 and the presser rollers 34.

The laterally adjustable guide rail 31 is also attached to members 61 and 62 thereby making it adjustable simultaneously with the feed belt 10 and the presser rollers 34. This guide rail, however, is not adjustable in the vertical direction with the feed belts and the presser rolls. To mount guide rail 31 in this manner a rod 66 is mounted for vertically sliding movement in a pair of lugs 67 on member 61 (Fig. 5). This rod is biased downwardly by means of a helical spring 68.

A similar rod 66 is similarly mounted upon member 62 at the opposite end of the machine. Upon the lower ends of each of the two rods 66 brackets 69 are secured (Fig. 5), and the rail 31 is carried by these brackets. Springs 68 on rods 66 urge the rail downwardly at all times and in order to position the rail at the proper height above the runway, the rail is provided with stop screws 70, the lower ends of which bear upon the can runway. By means of this mounting of rail 31 the adjustment of the rail for different height cans simultaneously with the adjustment of the feed belt 10 and the presser rollers 34 is provided while the guide rail is permitted to remain in the same relative position to the can runway regardless of the adjustment of the feed belts and presser rollers for cans of different diameter.

This is an important consideration since the proper place to guide the cans is below the center line of the cans, and if the guide is arranged to be adjusted upwardly and downwardly as the feed belts are adjusted, then if the can guide is placed at the right height for small cans, it will be raised too high when the machine is adjusted for cans of large diameter.

The simultaneous lateral adjustment, for different height cans, of the feed belt 10, the presser rollers 34 and guide rail 31 is accomplished by turning a hand wheel 71 on the front end of shaft 59. The rotation of shaft 59 is communicated to shaft 60 by means of a longitudinal shaft 72 and helical gearing 73.

This arrangement places the hand wheel 71

for effecting adjustment for can height close to the hand wheel 54 for effecting adjustment for can diameter.

One of the features of the present invention is the setting of the machine for can diameter and can height by means of a sample of the cans which are to be labeled by the machine, instead of setting the machine, as heretofore, by attempting to follow printed instructions which state, for example, that for a certain number or size of can, pointer A should be set so and so, and pointer B in such a way, etc. Accordingly the machine is provided on the outside close to the two adjusting hand wheels 54 and 71, with a cradle 74 (Figs. 5 and 13) which is adapted to receive cans of the range of diameter for which the machine is intended. This cradle is mounted upon a part of the fixed frame of the machine and above the cradle and carried by the vertically adjustable frame member 57 is a can gauging device 75. For convenience in manufacture, this gauging device is mounted for limited vertical adjustment, as indicated. This, however, is for the purpose of setting the gauging device during the manufacture of the machine, and after the device has once set it is not moved thereafter.

In using this gauging mechanism, a sample can is placed in cradle 74 and hand wheel 54 on shaft 51 is adjusted to bring gauging device 75 to a position where the sample can can just be rolled underneath the gauging device. The feeding belts 10 and 11 and presser rollers 34 and 35 will then be correctly adjusted to operate upon cans of the same diameter as the sample.

Simultaneously the machine is adjusted as to can height through the use of a sample can. For this purpose there is mounted upon the laterally adjustable guide rail 31 adjacent the entrance end of the machine in a position where the operator can conveniently view the same and at the same time manipulate hand wheel 71, a gauging disc 76 (Fig. 14). This gauging disc is eccentrically mounted near the front end of rail 31 and is provided with an arrow, as indicated, so that it will be readily apparent when the disc is in gauging position.

With the disc in this position a sample can is placed by hand between the guide rails, and hand wheel 71 is turned to bring the edge of the disc into contact with the end of the can. When the adjustment is such that the can will just roll between rail 32 and the edge of the gauging disc, the guide rails, driving belts 10 and 11 and presser rollers 34 and 35 are properly spaced to operate upon a can of the same height as the sample.

The drive for the pick-up paste mechanism 21, the label feed mechanism 22 and the lap end paste mechanism 23 is shown in Fig. 2. A shaft 77 is journalled vertically at its lower end on one of the fixed side bars, and at its upper end on the vertically adjustable frame structure 58. It is rotated by bevelled gearing 78 from the rear end of shaft 17a, this gearing being slidably keyed to shaft 77 to permit of the vertical movement of frame structure 58 for the adjustment of the machine parts for cans of different diameters.

About midway of shaft 77 is a second bevelled gearing 79 which rotates a shaft 80 for the lap end paste applying mechanism. At its lower end a third set of bevelled gearing 81 drives a horizontal shaft 82 which drives at its front end through a worm reducing gear, a cross shaft 83.

On this cross shaft there are two pulleys, one for a belt 84 to drive the label feed mechanism and one for a belt 85 to drive the pick-up paste applying mechanism.

As the cans enter the machine from the feed chute 7 they enter between the guide rails 31 and 32 and pass over a plate 86 usually slightly inclined, and thence over the pick-up paste applying mechanism 21. It is desirable to roll cans on their beads as much as possible, since there is less likelihood of their being dented. Since, however, the beads vary somewhat in thickness, in order to bring the cans uniformly into contact with the discs 87 for applying the pick-up gum, the cans, after leaving plate 86 pass onto rails 88 forming a part of the gum applying mechanism which are located between the beads of the can, as may be seen in Fig. 5, so that the body of the can rests upon these rails. The upper surface of these rails are so positioned with respect to the discs 87 that the adhesive thereon will be applied to the can in the form of a series, or row, of spots as the can rolls forward.

This adhesive is contained in a receptacle 89 into which the rotating discs dip and which is preferably heated by means of a heater 90. The discs are rotated by belt 86 which passes over a pulley 91 on shaft 92 on which the discs are fixed.

On the next revolution of the can after leaving the adhesive applying discs 87, the row of adhesive spots picks up the front end of the uppermost label which is contained in a stack, or supply, of labels 93 in the label receptacle 22. This row of spots of adhesive should pick up the label close to its front end, and it is therefore necessary when changing the machine to operate on cans of different diameter that the position of the adhesive applying discs 87 be correspondingly changed. Also when changing the machine for labeling cans of a substantially different height it is necessary to shift the adhesive applying discs 87 laterally since it is desirable that the spots of adhesive be distributed uniformly from end to end of the can.

In order to provide for these features of adjustment, we have mounted a supporting frame 94 upon two transverse rods 95, one adjacent the plate 86 and the other adjacent the label receptacle 22, both being secured to the side bars 5 and 6. The frame 94 comprises two end members 96 joined by two side members 97. The rails 88 extend between the end frame members 96 and may be adjusted in position thereon, as indicated by the slots and screws 98. It is seldom necessary, however, to adjust these rails on the members 96 once the machine is set up for the various sizes of cans which are to be labeled by it for reasons which will appear presently.

The gum receptacle 89 is suspended from a rectangular frame 99 by means of cap screws 100 tapped into frame 99. The frame may be raised and lowered by means of these cap screws 100 in order to adjust the height of the gum discs 87 with respect to the rails 88. The frame 99 is arranged to be shifted by hand along the side members 97 of frame 94 for the pumpose of properly positioning the gum discs 87 with respect to the label receptacle so that the can will make just one revolution between the gum discs and the front end of the label. It may be fixed in this position by means of a thumb screw 101. This mounting permits the gum discs to be adjusted longitudinally of the machine independently of rails 88 in order to adjust for cans of

different diameter, but enables the gum discs and the rails to be simultaneously adjusted in the lateral direction without changing their relationship, in order to adjust the machine for cans of different height.

When making this adjustment thumb screws 102 in each end of the end frame members 96 are loosened and the entire assemblage is shifted transversely. If, for example, the machine is to be readjusted from the position shown in the drawings so as to label cans very much smaller in height, the frame 97 may be shifted to the right, as shown in Fig. 5 until only a portion of the five gum discs 87 shown in the drawings remain to the left of fixed can guide 32. It will be understood that a greater or less number of gum discs 87 may be mounted on the gum disc shaft, and their spacing and alinement can be varied to a considerable extent.

In order to facilitate adjustment of the machine for different height cans with the least movement of the gum discs toward one side or the other, rails 88 are cut away or recessed, as shown in Figs. 5 and 4 in order to permit the beads of the can to operate close to certain of the discs. With an extremely short can the gum might, for example, be applied by means of the three centrally located discs 87 with the can beads running in the recess of the two rails adjacent to these three discs.

The label receptacle indicated generally by numeral 22 in Figs. 1 and 2 and 4 is illustrated in greater detail in Figs. 6, 7 and 8. In this mechanism there is a rear label guide 103, a front label guide 104 and a label plate 105 upon which the stack of labels rests and which is arranged to move upwardly in order to feed the stack of labels as they are successively removed by the cans from the top of the stack. The rear label guide 103 is provided with depending fingers 106, whereas the front label guide is cut away at its lower portion in order to permit the insertion of the stack of labels onto plate 105.

As the can approaches the label stack it leaves the rails 88 and after picking up the label at the extreme right hand end of the label receptacle, as viewed in Fig. 7, the can again rolls along a pair of rails 107 which support the can upon its beads, as may be seen in Fig. 6. Rails 107 are supported by and in spaced relation to the tops of label guides 103 and 104 (Fig. 7). The curling bar 42 and the paste applying belt 108 extend crosswise of the machine beneath rails 107 and in contact with the label stack near its rear end.

The label guides 103 and 104 are supported upon two transverse rods 109 and 110 which are both rotatable and shiftable longitudinally. At their rear ends each of these rods is journalled for such movement in frame members 11 which extend upwardly from the side bars 6 of the frame. The opposite ends of these rods are rotatably supported in threaded sleeves 112 which are threaded into holes tapped into brackets 113 similar to brackets 111 but on the front side of the machine. The rods 109 and 110 are provided with turning handles 114 and the sleeves 112 with handles 115.

The rear label guide 103 is hinged at each end as shown in Figure 7 to parts 116, and supported by means of these parts on rods 109 and 110. The rods pass through apertures in parts 116 and are provided on each side thereof with collars 117 so that when the rods are rotated by turning handles 114 the label guide 103 is not shifted laterally. When, however, the threaded sleeves 112 are rotated by turning handles 115 the rods 109 and 110 are shifted lengthwise and thus move the guide 103 transversely of the machine.

The front label guides 104 are mounted in a similar manner to guide 103 on rods 109 and 110 except that the hinged parts 116 are in threaded engagement with the rods, the forward portions of which are threaded for this purpose. Consequently the turning of handles 115 shifts both of the label guides 103 and 104 bodily without changing their spacing, while when handles 114 are turned the front label guide 104 is shifted with respect to rear label guide 103 for the purpose of enabling the machine to receive a different height (width) of label or otherwise. It is important that the labels be supported in the label receptacle in such position that as they are wrapped about the cans they will not only be evenly spaced between the ends of the cans, but will not be crooked. The adjusting mechanism just described provides for adjusting the opposite ends of the label stack independently so that the labels will be accurately applied to the cans. In addition the rear label guide, when once adjusted, may be left in fixed position, and when it is necessary to change to a different height of label the adjustment is accomplished entirely by moving the front label guide.

On account of the fact that labels come from different sources, are made of different qualities of paper and go through different printing processes they vary considerably in size, in tendency to curl in one direction or the other, and in tendency to shift with respect to one another while in the stack. For example, a few labels in a stack may be shifted sidewise out of alignment with the remainder of the stack, or they may actually be of greater height than the remainder of the labels. In order to insure that all the labels will be correctly applied to the cans the device shown in the upper part of Figure 6 is provided.

This comprises a button-shaped member 118 which is mounted within a recess in the front label guide 104 near the front end thereof (see Fig. 4). It is also mounted close to the top of the label guide as shown in Figure 6 and is adjustable by means of a knurled screw 119. The outer edge of button 118 is bevelled, and as the labels are fed upwardly between the guides the labels, as they approach the top of the stack, will be forced by means of this button over against the rear label guide 103, it being customary to adjust and set the spacing of the label guides to accommodate the widest label in the pack so that the average height (width) labels are a loose fit between the two label guides. When the extra wide label or labels arrive at the button 118 their edges bend downwardly in order to pass the button, but their opposite edges, being in contact with the rear label guide, cause the labels to be accurately positioned on the cans.

Referring now to the feeding mechanism, for feeding the stack of labels upwardly, the label supporting part 105 is mounted upon the upper end of a vertical movable rod 120 which is arranged to slide in guides in a bracket 121 which is secured to the side bars 5 and 6. A transverse shaft 122 is arranged in suitable bearings in the bracket 121 and at the center thereof is a pinion 123 which engages rack teeth 124 on one face of the rod 120.

On the rear portion of shaft 122 there is keyed a ratchet wheel 125, and alongside of this wheel and mounted for oscillation on shaft 122 there is a pawl lever 126. This lever carries on its

outer end a pawl 127 and on its opposite end is arranged to be engaged by a cam 128, whenever the feed mechanism about to be described is in position to cause upward feeding of the label stack. This lever is biased upwardly away from cam 128 and against an adjustable stop 129 by means of a helical spring 130. A holding pawl 131 is arranged at the top of ratchet wheel 125 and mounted on bracket 121.

The feed control mechanism comprises a lever 132 and a link 133, together with its connections with the pawl lever 126. Lever 132 is mounted on the side of label guide 103 and has a rounded surface arranged in the path of the can close to the side of the label stack. As long as the top of the label stack is high enough it will support the can out of contact with the end of lever 132. When, however, due to the removal of the labels, the top of the stack is lowered somewhat, the can will strike lever 132 and force link 133 downwardly.

This causes the helical spring 134, by which the lower end of link 133 is connected to pawl lever 126, to be placed under tension. When the end of lever 132 is depressed sufficiently the tension of spring 134 will draw the right-hand end of lever 126 downwardly against the tension of spring 130 until the roller on the end of the lever is within the path of cam 128. This downward movement of the right-hand end of lever 126 raises pawl 127 and if the movement is sufficient pawl 127 will fall behind the next tooth of ratchet 125. Then on the next rotation of cam 128 the ratchet wheel will be fed forward in the direction of the arrow a distance of one tooth and this will cause the shaft 122 to be rotated slightly and the label stack elevated correspondingly.

Shaft 122 is provided with a hand-wheel 135 by means of which the elevation of the label stack may be adjusted manually at the start of operations. In order to replenish the label stack, it is necessary to lower supporting plate 105, and in order to do this it is necessary to release pawls 127 and 131. In many installations the labeling machines are operated continuously at high speed and it is important to be able to lower plate 105, insert a new stack of labels and get the machine back in operation as quickly as possible.

With this in mind, we have arranged to release pawls 127 and 131 by shifting handle 135 bodily on shaft 122. Accordingly handle 135 is keyed with a slidable key 136 to this shaft. The inner end of handle 135 is formed with a conical surface 137 upon which operates a roller 138, this roller being mounted upon the outer end of a lever 139 which is pivoted at 140 to bracket 141. The opposite end of this lever is placed, by means of a screw 140, in adjustable engagement with one arm of a double lever 141. Double lever 141 is shown in dotted lines in Fig. 7 and carries on one of its arms a pin 142 which is adapted to engage pawl 127, and on the other of its arms a pin 143 for engaging pawl 131. The lever is biased to the non-pawl lifting position by means of a helical spring 144.

Hence when the handle 135 is pushed inwardly, as viewed in Fig. 6, lever 139 will be rocked about its pivot and in turn will rock double lever 141 thereby releasing both of the pawls. The control of the label supporting plate 105 is then entirely manual and by rotating handle 135, the support may be quickly dropped to its lowermost position. A new stack of labels is then placed upon it and by turning handle 135 in the opposite direction, the top of the new stack is elevated into proper relation to the can run-way; handle 135 is then shifted outwardly to its original position and pawls 127 and 131 drop back into engagement with the ratchet wheel 125. The machine is started up again and the feeding of the labels continues.

It is important to stop the feeding of the cans through the labeling machine should the supply of labels become exhausted, in order that "shiners," that is, unlabeled cans, may not pass on along the can feed line to the carton packing and filling machine which is usually the next machine in the line to the labeling machine. To accomplish this, there is placed at the entrance of the can run-way a can stop lever 145, which is pivoted at 146, and which in normal position lies below the feed chute 7, but may be rotated about its pivot to bring the end upwardly through an opening in the bottom of feed chute 7 to a position where it will stop the advance of the cans (see Fig. 12).

Lever 145 has a projection on the inner side of pivot 146 to which is attached a vertical holding rod 147. This rod is arranged to slide in a pair of lugs 148 on the inside of frame member 3. It is biased downwardly by means of a spring 149 but is held in elevated position by means of a latch rod 150 which engages beneath a collar on the lower end of rod 147. This latch holds spring 149 compressed and stop lever 145 in its lowered position.

The latch rod 150 extends horizontally through appropriate sliding supports to the bracket 121 for the label feeding mechanism. It is urged into engaging position with rod 147 by means of a spring 151 and is withdrawn from the latch collar by mechanism associated with bracket 121.

This mechanism comprises a lever 152 which is pivoted at 153 on the forward side of bracket 121 and which has a tail portion extending through an aperture in this bracket adjacent the surface of supporting rod 120 for the label supporting plate 105. This tail portion is indicated by numeral 154 and is shown in dotted lines in Fig. 7. It is also shown in Fig. 12.

A pin 155, shown in dotted lines in Fig. 7, is so positioned on rod 120 that when the supporting plate 105 has been elevated to a point where the label stack is nearly exhausted, this pin engages the tail portion 154 of lever 152 and rotates the lever about its pivot thereby causing a pin 156 to retract locking rod 151 and permitting spring 149 to raise stop lever 155 so as to stop the feeding of the cans. As soon as plate 105 is lowered to receive a new stack of labels, pin 155 releases lever 152 but stop lever 155 remains in its elevated position until reset by hand.

The actuation of lever 152 by pin 155 performs a second important function, namely, the releasing of the feed pawls 127 and 131 from engagement with ratchet 125, inasmuch as the driving motor 16 continues in operation. This is accomplished by means of a link 157 which is pivoted upon pin 156 and provided with a forked end for engaging a pin which is secured to the upper lever of double pawl lifting lever 141.

The mechanism for applying paste to the lap or rear ends of the labels will now be described (see Figs. 9 and 10). This mechanism includes the paste belt 108 which is preferably made of a closely spaced helix of highly resilient wire and which carries paste from a paste receptacle 158 on to the upper-most label of the stack. Paste

belt 108 travels around a driven pulley 159 within the paste receptacle and thence directly across the top of the label, then over a pulley 160 on the opposite or front side of the machine and then returns over a guide pulley 161 to the driving pulley 159.

Cooperating with pulley 159 is a device for removing the surplus paste from the belt as it leaves the pulley. This device consists of scraping members 162 operating at the sides of the pulley and an adjustable blade 163 which scrapes the paste from the face of the pulley and from the wire belt. The scraping edge of this blade is provided with a small groove 164 at its center of such a shape as to leave a narrow bead of paste on the center of the top of the belt as it leaves the pulley. Between pulley 159 and the label stack 93 is a twisting device 165 by means of which the bead of paste is shifted around from the top side of the paste belt 108 to the center of the bottom of the belt in position to be applied to the labels. This twister also prevents the lower reach of the belt from contact with the returning reach of the belt approaching pulley 159.

As the lower reach of the belt approaches the label stack, it passes over a grooved guiding pulley 166, which is elevated slightly above the level of the stack and then beneath a rounded shoe 167 by which it is pressed on to the surface of the upper-most label close to the edge of the label but without causing the belt to deposit its paste upon the edge of the label stack. Roller 166 and shoe 167 of this belt control device are both carried upon a short lever 168 which is pivoted at 169, and it is adjustable by means of a knurled screw 170.

When handling labels which tend to curl downwardly at the center, a finger 171 is arranged above the belt at the center of the stack in order to keep the belt in contact with the label.

At the trailing edge of the label stack 93 there is a positioning shoe which engages the upper few labels of the stack just above the edge of the label guide 104 close to belt 108. In this way the tendency for the pull of the belt to cause the upper labels of the stack to fan toward the right as viewed in Fig. 9 is prevented, and these labels are held in proper alignment.

The belt controlling device at the leading side of the label stack, and the positioning shoe 172 at the trailing side, together with belt pulley 160 are all mounted upon a single horizontal bar or rod 173 which extends transversely of the can run-way and is secured in a socket 174 on one side of the paste receptacle 158. Hence when it is desired to adjust the position of application of the lap end paste for labels of different length, the shifting of the paste receptacle longitudinally of the machine simultaneously shifts the entire belt supporting and controlling mechanism.

In addition, provision is made for the automatic adjustment of the belt controlling device and the label positioning shoe with the adjustment of the label guides 103 and 104 when it is desired to change the machine for operation on cans of different height. For this purpose lever 168 which carries the belt controlling devices is supported on a member 175 which is provided with a shoulder 176 for engagement with the side of one of the rails 107 and is urged into constant contact with this rail by means of a helical spring 177 in all positions of adjustment of the rail and label guide 103.

Similarly the label positioning shoe 172 is supported on a member 178 which also has a shoulder engaging the side of rail 107 and is held in contact therewith by a spring 179 in all positions of adjustment of this rail and label guide 104.

The curling bar 42 is supported by means of arms 180, one of which is pivoted to member 176 and the other of which is pivoted to member 178. These arms 180 are urged downwardly by means of tension springs 181. The curling bar is loosely carried in the ends of arms 180 so as to permit these arms to be adjusted laterally with respect to one another. The paste receptacle 158 is equipped with an auger feeding device 182 for agitating the stiff paste and feeding it toward the pulley 159.

As is mentioned above, adjustment of paste belt 108 with respect to the label stack is accomplished by shifting paste receptacle 159. In order to permit this, the lower part of the paste receptacle is arranged to fit slidably upon a pair of ways 183 (see Figs. 9 and 3). Also an adjustable friction device 184 is provided to keep this mechanism in the position to which it is adjusted. This mechanism is adjusted entirely from the front side of the machine by means of a shifting lever 185, shown in Fig. 3, which is pivoted at 186 on the frame of the machine, and whose rear end is pivoted to a link 187 which is connected to the paste receptacle 158. In order that shaft 80 may drive the lap end pasting mechanism in all positions of adjustment, this shaft, as shown in Fig. 2, is provided with a telescoping sleeve 188 which is slidably keyed thereto. This sleeve is connected to the outer end of the shaft upon which pulley 159 is mounted by means of a bayonet type releasable connection 189, so that when it is desired to remove the paste receptacle 158 for cleaning purposes, the driving shaft may be readily disconnected therefrom.

The gum which is used in the pick-up gum receptacle 89 is extremely viscous when cold, and has to be heated for use. It is desirable to be able to heat this material up to the proper operating temperature in as short a time as possible. For this reason we have provided the heating connections shown in Fig. 15. The heating elements for heater 90 of the pick-up gum receptacle 89 are shown at the right hand end of this figure. These elements are connected in parallel with the line conductors 190 and 191 through a thermostat control mechanism 192 which is adjustable to maintain the desired temperature. The heating elements are of high wattage so as to produce extremely rapid heating and during the heating up period the thermostatic control 192 is short-circuited by means of a by-pass switch 193. After the heating up period, by-pass switch 193 is opened and the operation is continued under thermostatic control.

The fact that in some cases cans which are at a high temperature may be fed to the labeling machine along with cold cans, was mentioned above. It is necessary that the pick-up gum set sufficiently to cause the label to be wrapped about the can without being displaced, in the short space of time during which the can is rolling from the pick-up gum application discs to the front end of the label stack. Consequently the pick-up gum must set almost instantaneously. The pick-up gum is applied to the cans while hot. For labeling cold cans a slow setting gum should be used while for labeling hot cans a quick setting gum should be employed. In a modified

form of pick-up gum receptacle, shown in Fig. 16, we have provided for the simultaneous application to each can spots of gum of two different consistencies, so that each can, whether hot or cold, will always be supplied with pick-up gum which will set quickly and cause the label to adhere thereto firmly.

In this figure the pick-up gum receptacle 194 is provided with a partition 195 dividing the receptacle into two separate parts in one of which may be placed a quick setting gum, and in the other a slow setting gum. This receptacle is provided with the usual pick-up gum applying discs and is also preferably provided with separate heaters 196 and 197 so that the two different gums may be maintained at different operating temperatures, if desirable.

In Figs. 17 to 21, inclusive, we have shown a modified device for controlling the amount of paste carried forward by the lap end paste belt 108. This device is mounted between pulley 159 and the label stack 93. The device consists of two plates 198 and 199 mounted adjacent one another, and in adjustable relationship. Plate 198 is provided with a converging aperture 200, which at its smaller end is substantially the same diameter as the round belt 108. At the bottom of this circular aperture there is a slot 201 through which the paste removed from the belt by the converging-aperture 200 may be discharged and returned to the paste receptacle 158*a*.

The outer and adjustable plate 199 has an aperture 202 which is circular and slightly larger in diameter than the belt 108. If the bottom edge of aperture 202 is made to register with the bottom edge of aperture 200, the slot 201 will be completely closed and no paste will be carried forward by the belt. If, however, the lower edge of aperture 202 is lowered slightly from the belt, a bead of paste of the width of slot 201 will be formed on the belt.

In order to control the adjustment of the lower edge of aperture 202, plate 199 is mounted on plate 198 so that it can be oscillated about a center which is concentric with aperture 200 and eccentric with aperture 202, the lower edges of these apertures being substantially in registry in one position of adjustment of the two plates. Thus, plate 199 rotates about a circular boss 203, the center of which is located as just described, and plate 199 may be located in adjusted position by means of a wing nut 204.

Fig. 21 shows the parts adjusted for permitting a minimum bead of paste to be carried forward on the belt. This bead is represented in cross section by the substantially triangular black area 205. It will be understood that when circular aperture 202 is shifted to the left by rotating plate 199, the size of this bead of paste will be increased.

The term "can," as used in this specification and in the claims following, will be understood to include not only metal or treated paper containers which are included within the ordinary meaning of this term, but also bottles and other round containers.

We claim:

1. In a labeling machine, a can runway, a feed belt positioned above the runway for rotating the cans along the same, means for adjusting said belt vertically with respect to the runway, and a gauging device associated with the adjusting means adapted to receive a can of the diameter which it is desired to label, the gauging device including a fixed member and a member movable vertically with the feed belt whereby when a can is gauged for diameter in the gauging device, the feed belt is correctly positioned with respect to the can runway to adapt the machine to operate upon cans of the diameter gauged.

2. In a labeling machine, a can runway, can guides extending along the runway, one of said guides having a yieldingly mounted can engaging member, means for relatively adjusting the spacing of the can guides to accommodate cans of different heights, and a displaceable can gauging member attached to one of said guides, said member when in gauging position being adapted to engage an end of a can placed on the runway with its opposite end against the guide therefor, and indicate the correct operating spacing of the can guides for that height of can.

3. In a can labeling machine, a can runway, means for feeding cans along the same, the can runway having associated therewith mechanism for applying adhesive to the cans, means for causing a label to be picked up thereby and wrapped about the can, means for applying adhesive to the lap end of the label and means for pressing the label against the surface of the can, the mechanism for applying adhesive to the cans comprising an adhesive receptacle having adhesive applying means and can supporting tracks, the said means and tracks being adjustable simultaneously in the lateral direction to provide for applying the adhesive to cans of different heights.

4. In a can labeling machine, a can runway, means for feeding cans along the same, and adhesive applying mechanism associated with the runway comprising a frame structure adjustable laterally with respect to the runway, and carrying a plurality of parallel can tracks for supporting the cans while the adhesive is being applied thereto, and an adhesive receptacle having adhesive applying rolls extending upwardly between the can tracks, and mounted for adjustment in the direction of the can runway upon said frame structure.

5. In a can labeling machine, a can runway, means for feeding cans along the same, and pick-up adhesive applying mechanism associated with the runway including a pair of adhesive receptacles and applying devices arranged side by side laterally of the runway for adhesive adapted for hot and cold cans respectively.

6. In a can labeling machine having a frame, a can runway and pasting appliances, a label receptacle adjacent the runway comprising a pair of parallel spaced shafts extending transversely of the runway and journaled at their rear ends in the frame of the machine to permit rotation and bodily movement of the shafts transversely of the runway, a rear label guide attached at each end to one of the shafts and arranged to move therewith transversely of the runway, a front label guide arranged at each end in threaded engagement with one of said shafts, a journal member for the front portion of each of said shafts arranged in threaded engagement with the frame of the machine, a handle for each of said journal members whereby they may be turned independently to shift the shafts bodily and adjust simultaneously the corresponding ends of the two label guides transversely of the runway, and a handle for each of the shafts whereby they may be turned to adjust independently each end of the front label guide with respect to the rear label guide.

7. In a can labeling machine having a can runway and pasting appliances, a label receptacle having guides adjustable with respect to each other to accommodate stacks of different height labels, means for feeding the label stack upwardly as labels are removed from the top thereof, and a narrow adjustable guiding device arranged near the leading or pick-up end of one of the label guides for urging the upper portion of the label stack against the opposite label guide as the label stack is fed upwardly.

8. In a can labeling machine having a can runway and pasting appliances, a label receptacle having guides adjustable with respect to each other to accommodate stacks of different height labels, means for feeding the label stack upwardly as the labels are removed from the top thereof, a disc having its inner edge bevelled mounted near the top of the pick-up end of the front label guide so that the bevelled end thereof will urge the labels toward the rear label guide as the stack is fed upwardly, and means for adjusting said disc transversely of the can runway.

9. In a can labeling machine having a runway and pasting appliances, means for supporting a stack of labels beneath the runway, means for feeding the support upwardly as the labels are removed from the top of the stack and applied to the cans including manually operated means for lowering and raising the label support in order to adjust or replenish the supply of labels, and mechanism actuated by said manually operated means for interrupting at will the automatic feed mechanism during the replenishing or adjustment of the label supply.

10. In a can labeling machine having a runway and pasting appliances, means for supporting a stack of labels beneath the runway, means for feeding the support upwardly as the labels are removed from the top of the stack and applied to the cans including manually operated means for lowering and raising the label support in order to adjust or replenish the supply of labels, and mechanism actuated by said manually operated means including a handle shiftable without changing the level of the label support, and mechanism operated by said shifting movement for interrupting the automatic upward feed of the labels.

11. In a can labeling machine having a runway and pasting appliances, means for supporting a stack of labels beneath the runway, a ratchet wheel and pawl mechanism coacting therewith for automatically feeding the label support upwardly as the labels are removed from the top of the stack and applied to the cans, the shaft and ratchet wheel being rotatable independently of the pawl mechanism to shift the label support manually, a handle for turning said shaft mounted thereon in non-rotatable longitudinally slidable relation with respect thereto, a lever operatively connected with the pawl mechanism for releasing the same from the ratchet wheel, and means for actuating said lever including a cam surface on said handle whereby when the handle is slid in one direction on the shaft the pawl mechanism is disengaged from the ratchet wheel and when the handle is slid in the opposite direction the pawl mechanism is re-engaged with the ratchet wheel.

12. In a can labeling machine having a can runway and pasting appliances, a label receptacle associated with the runway having a label support movable vertically therein, means for feeding the support upwardly as the labels are removed therefrom and applied to the cans, a can stopping device arranged in the can runway, and means actuated by the movement of the label support to a predetermined elevation for moving the can stop into operative position so as to prevent the feeding of cans when the supply of labels on the label support is reduced to a predetermined amount.

13. In a can labeling machine having a runway and pasting appliances a label receptacle associated with the runway, means for feeding upwardly a stack of labels within the receptacle as the labels are removed from the top of the stack and applied to the cans, the label receptacle including a pair of label guides for the side edges of the label stack, means for adjusting the guides relatively to each other to accommodate labels of different height, and spring separator fingers at the pick-up end of the label receptacle for causing the labels to be removed one at a time from the top of the label stack, said separator fingers being mounted one upon each of the label guides and adjustable therewith whereby the separator fingers are maintained in the same relative position to the edges of the label independently of the height of the label.

14. In a can labeling machine having a can runway and means for feeding the cans along the same, the runway having associated therewith pick-up adhesive applying mechanism, a label stack support and lap end pasting mechanism, the latter comprising a paste receptacle, a paste applying belt adapted to carry paste from the receptacle and apply it to the lap end of the uppermost label, a common framework for supporting the paste receptacle and paste belt, and means carried by said framework for supporting a curling bar in contact with the uppermost label of the stack, and means for shifting the framework lengthwise of the runway to adjust simultaneously the position of the paste belt and curling bar for labels of different length.

15. In a can labeling machine having a can runway and means for feeding cans along the same, a label stack support having guides for the label adjustable relative to one another to accommodate labels of different height, a paste receptacle mounted for adjustment lengthwise of the runway, a paste applying belt for applying paste to the lap end of the labels, means for supporting the same carried by the paste receptacle, a pair of rails forming a part of the runway extending over the label receptacle and adapted to support a can while the uppermost label is being wrapped around the same, said rails being laterally adjustable for cans of different height, a bar extending transversely of the runway and supported by the paste receptacle, a belt directing device at the leading side of the label stack for causing the belt to move into contact with the uppermost label to apply adhesive thereto, a label positioning shoe for engaging the trailing edges of the upper labels of the stack near the point where the belt leaves the stack, the belt directing device and the label positioning shoe being slidably mounted upon said bar and yieldingly urged into engagement with the respective rails to cause the same to be adjusted simultaneously therewith when said rails are adjusted for cans of different height.

16. In a can labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to hold a stack of labels beneath the runway, the runway including a pair of rails for supporting the can

above the label receptacle as the uppermost label is being wrapped about the can, these rails being laterally adjustable relative to one another to accommodate cans of different height, a lap end paste applying mechanism including a belt for applying a strip of paste across the trailing end of the uppermost label of the stack, a belt directing device at the leading side of the label stack, a label positioning shoe at the trailing side of the label stack and located near the paste belt as it leaves the stack, and means for mounting the belt directing device and the label positioning shoe in transversely yielding engagement with the respective runway rails, whereby the belt directing device and label positioning shoe are adjusted simultaneously with the rails.

17. In a can labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to hold a stack of labels beneath the runway, the runway including a pair of rails for supporting the can above the label receptacle as the uppermost label is being wrapped about the can, these rails being laterally adjustable relative to one another to accommodate cans of different height, a lap end paste applying mechanism including a belt for applying a strip of paste across the rear end of the uppermost label of the stack, a belt directing device at the leading side of the label stack, a label positioning shoe at the trailing side of the label stack and located near the paste belt as it leaves the stack, and means for adjusting the paste belt directing device and the label positioning shoe for different height labels simultaneously with the adjustment of the runway rails.

18. In a can labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to hold a stack of labels beneath the runway, a lap end paste applying mechanism including a paste receptacle and a belt said belt extending transversely of the runway, a common support at the rear side of the machine for the paste receptacle and paste belt providing for adjustment of the same lengthwise of the runway, and means operable from the front side of the machine for moving the paste receptacle and belt along said support in order to adjust the point of application of the paste with respect to the label stack.

19. In a can labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to support a stack of labels adjacent the runway, and a lap end paste mechanism comprising a paste receptacle, a round paste belt for transferring paste from the receptacle to the outermost label of the stack, means for providing a bead of paste on the belt, and means coacting with the belt just prior to its engagement with the label for positioning the bead of paste on the side of the belt towards the label so as to cause the bead of paste to be deposited on the label.

20. In a can labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to support a stack of labels beneath the runway, and a lap end pasting mechanism comprising a paste receptacle, a round paste belt for conveying paste from the receptacle to the labels, means for directing the outgoing reach thereof into contact with the uppermost label of the stack, means for providing a bead of paste along the upper side of the belt as it leaves the paste receptacle, and means for turning the bead of paste to the lower side of the belt so as to cause the bead of paste to be deposited upon the label.

21. In a can labeling machine, a lap end pasting mechanism comprising a round belt for carrying paste into contact with the uppermost label of the label stack, and mechanism for controlling the amount of paste carried to the label by the belt comprising a pair of plates mounted adjacent one another and having apertures through which the belt successively passes, the aperture of the first plate being circular in form and of substantially the same diameter as the belt but having a slot at its lower side whereby a surplus of paste previously applied to the belt will be substantially all removed except for a bead of paste at the lower side formed by said slot, the aperture in the second plate being larger than the belt, the lower edge of the aperture being so positioned that as the plates are adjusted with respect to one another it will remove a greater or lesser amount of the bead of paste remaining on the belt after passing through the first plate.

22. In a labeling machine as claimed in claim 1 a fixed member constructed as a cradle adapted to support and retain therein a can lying in rolling position upon its side.

23. In a labeling machine, a can runway, can guides extending along the runway, means for relatively adjusting the spacing of the can guides to accommodate cans of different heights, and a displaceable can-gauging member attached to one of said guides, said member when in gauging position being adapted to engage an end of a can on the runway with its opposite end against the guide therefor and indicate the correct operating spacing of the can guides for that height of can.

24. In a labeling machine as claimed in claim 23, a displaceable can-gauging member comprising a rotatable disc ecccentrically mounted on one of the can guides.

25. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, two pairs of pulleys rotatably mounted in the frame at each end of the machine for carrying the feed belts, one pulley of each pair being laterally shiftable, a pair of parallel threaded transverse rods mounted for rotation in the frame one at each end of the machine, hanger assemblies carried by the transverse rods and engaged with the threaded portions thereof, said assemblies including a supporting bar extending between the hangers and carrying presser rollers for one of the feed belts, means for simultaneously rotating the threaded rods to adjust the position of the presser rollers transversely with respect to the can runway, and means for connecting the respective assemblies with said laterally shiftable pulleys for shifting the same.

26. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, two pairs of pulleys rotatably mounted in the frame at each end of the machine for carrying the feed belts, one pulley of each pair being laterally shiftable, a pair of parallel threaded transverse rods mounted for rotation in the frame one at each end of the machine, hanger assemblies carried by the transverse rods and engaged with the threaded portions thereof, said assemblies including a supporting bar extending between the hangers and carrying presser rollers for one of the feed belts, means for simultaneously rotating

the threaded rods to adjust the position of the presser rollers transversely with respect to the can runway, means for connecting the respective assemblies with said laterally shiftable pulleys for shifting the same, a pair of guide members for guiding the cans as they roll along the runway, and connecting means between one of said guide members and said hanger assemblies for causing the shifting of said guide member laterally simultaneously with the adjustment of said assemblies.

27. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, two pairs of pulleys rotatably mounted in the frame at each end of the machine for carrying the feed belts, one pulley of each pair being laterally shiftable, a pair of parallel threaded transverse rods mounted for rotation in the frame one at each end of the machine, hanger assemblies carried by the transverse rods and engaged with the threaded portions thereof, said assemblies including a supporting bar extending between the hangers and carrying presser rollers for one of the feed belts, means for adjusting said hanger assemblies vertically, means for simultaneously rotating the threaded rods to adjust the position of the presser rollers transversely with respect to the can runway, a pair of guide members for guiding the cans as they roll along the runway, and connecting means between one of said guide members and said hanger assemblies, said connecting means maintaining the guide at a constant elevation above the runway when the hanger assemblies are adjusted vertically, and causing the shifting of said guide laterally when said assemblies are adjusted laterally.

28. In a can-labeling machine having a can runway and means for feeding cans along the same, a label receptacle adapted to support a stack of labels beneath the runway, and a lap end paste mechanism comprising a paste receptacle disposed at one side of the label receptacle, a belt for conveying paste from the receptacle to the uppermost label of the stack and means for guiding the paste belt in an outgoing reach and an incoming reach, the said reaches respectively leaving and returning to the paste receptacle through the top thereof, means for crossing the said reaches of the belt and carrying the outgoing reaches into contact with the adjacent side of the uppermost label, means for providing a bead of paste along the outgoing reach, and means for preventing the incoming reach from displacing the bead of paste from the outgoing reach at the point where the reaches cross.

29. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, two pairs of pulleys rotatably mounted in the frame at each end of the machine for carrying the feed belts, one pulley of each pair being laterally shiftable, means for adjusting the pulleys vertically with respect to the runway to accommodate cans of different diameter, means for laterally adjusting the laterally shiftable pulley of each pair simultaneously so as to accommodate cans of different height, a pair of guide members for guiding the cans as they roll along the runway, and connecting means between one of said guide members and said lateral adjusting means, said connecting means maintaining the guide at a constant elevation above the runway when the pulleys are adjusted vertically and causing the shifting of said guide laterally when said pulleys are adjusted laterally.

30. In a labeling machine, the combination of a can runway, a pair of feed belts positioned above the runway for rotating the cans along the same, means for adjusting the belts vertically with respect to the runway to accommodate cans of different diameter, means for adjusting one of said belts laterally to accommodate cans of different height, a pair of guide members for guiding the cans as they roll along the runway, and connecting means between one of said guide members and said lateral adjusting means, said connecting means maintaining the guide at a constant elevation above the runway when the belts are adjusted vertically and causing the shifting of said guide laterally when said one of the belts is adjusted laterally.

31. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, two pairs of pulleys rotatably mounted in the frame at each end of the machine for carrying the feed belts, one pulley of each pair being laterally shiftable, a pair of parallel threaded transverse rods mounted for rotation in the frame at each end of the machine, members carried by the transverse rods and engaged with the threaded portions thereof, means for connecting said members with said laterally shiftable pulleys for shifting the same, and means for simultaneously rotating the threaded rods to adjust the position of said pulleys and the feed belt carried thereby to accommodate cans of different height.

32. In a labeling machine, the combination of a frame, a can runway supported thereon, a pair of feed belts positioned above the runway for rotating the cans along the same, a pair of parallel threaded transverse rods mounted for rotation in the frame one at each end of the machine, hanger assemblies carried by the transverse rods and engaged with the threaded portions thereof, said assemblies including a supporting bar extending therebetween and carrying presser rollers for one of the feed belts, and means for simultaneously rotating the threaded rods to adjust the position of the presser rollers transversely with respect to the can runway.

33. In a labeling machine, a can runway, a pair of feed belts positioned above the runway for rotating the cans along the same, a pair of can guide members for guiding the cans as they roll along the runway, and means for adjusting one of said belts and its corresponding guide, said adjusting means providing for simultaneous adjustment of the belt and guide in regard to can height, and for independent adjustment of said belt and guide in regard to can diameter.

34. In a labeling machine, a can runway, a pair of feed belts positioned above the runway for rotating the cans along the same, a pair of can guide members for guiding the cans as they roll along the runway, and means for adjusting one of said belts and its corresponding guide, said adjusting means providing for simultaneous adjustment of the belt and guide in regard to can height and for maintaining constant the adjustment of the guide with respect to the can runway when adjusting for can diameter.

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