

Aug. 27, 1957

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2,804,303

CONTINUOUS LABEL FEED MECHANISM

Filed Nov. 4, 1954

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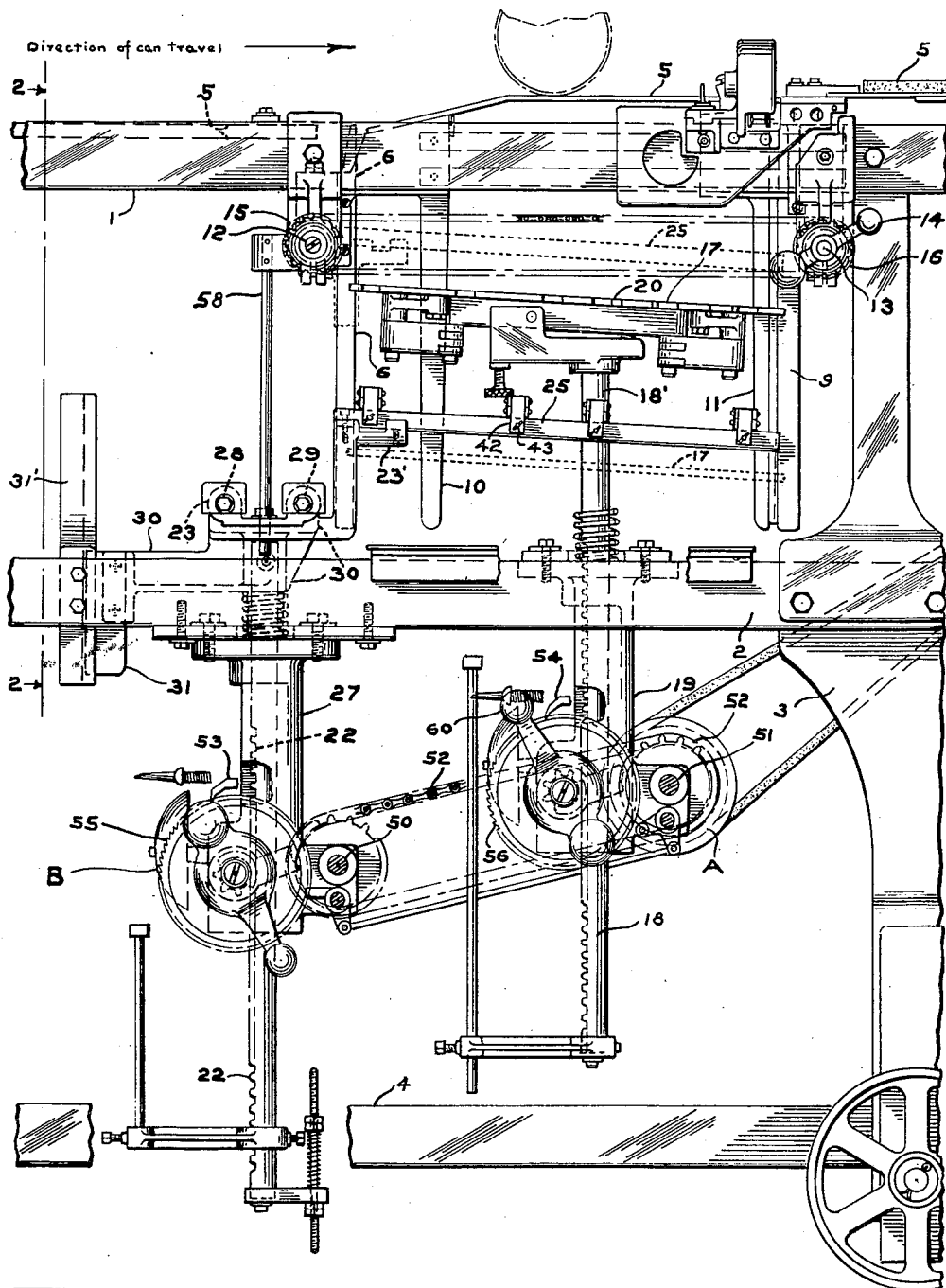


FIG. 1.

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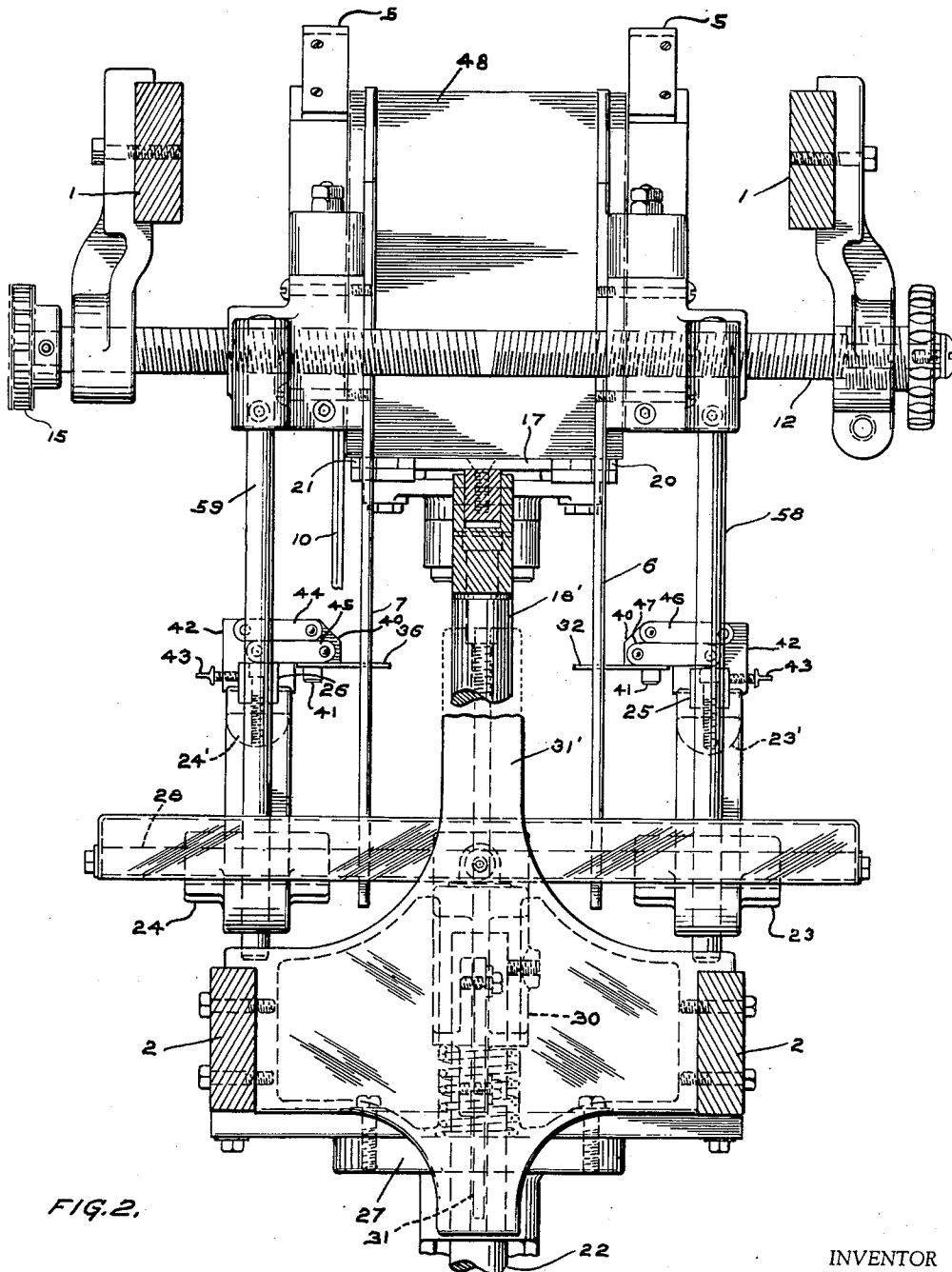
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CONTINUOUS LABEL FEED MECHANISM

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5 Sheets-Sheet 2



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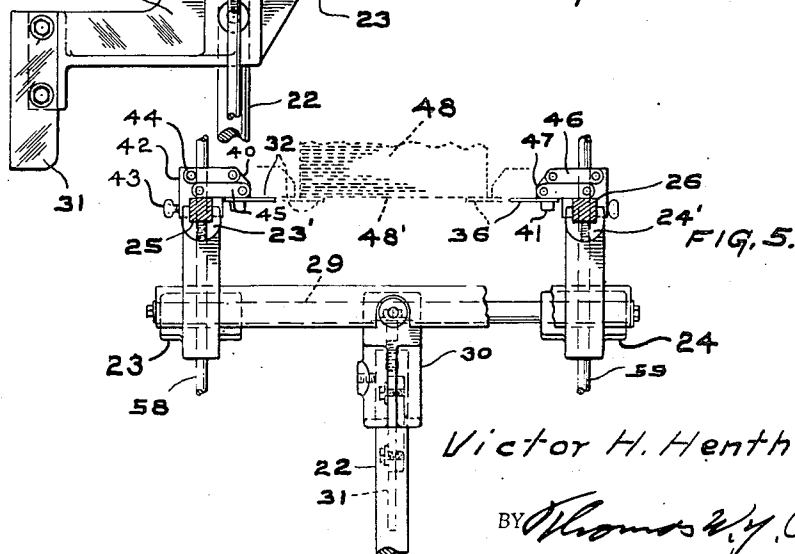
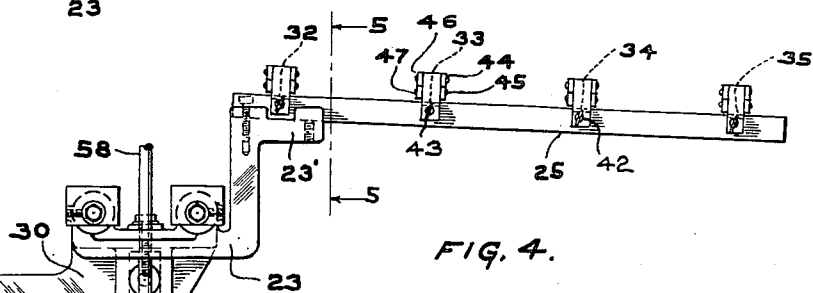
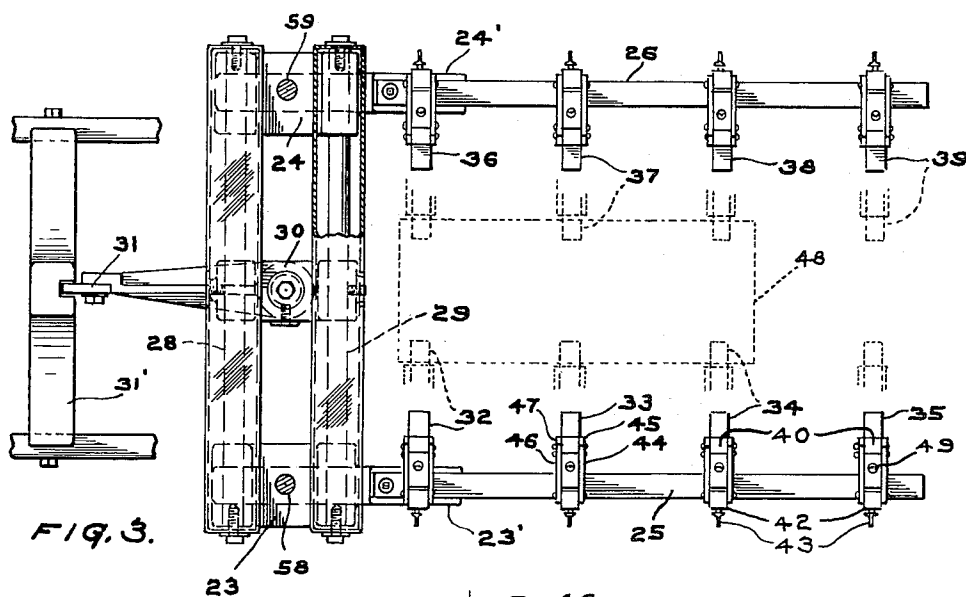
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5 Sheets-Sheet 4

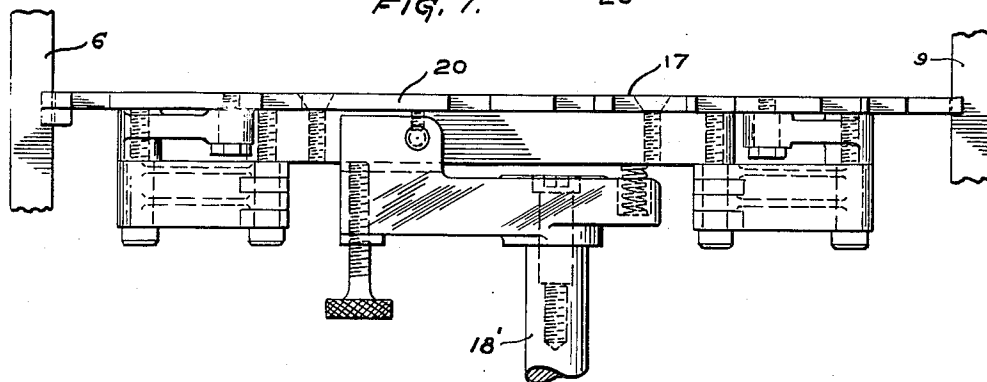
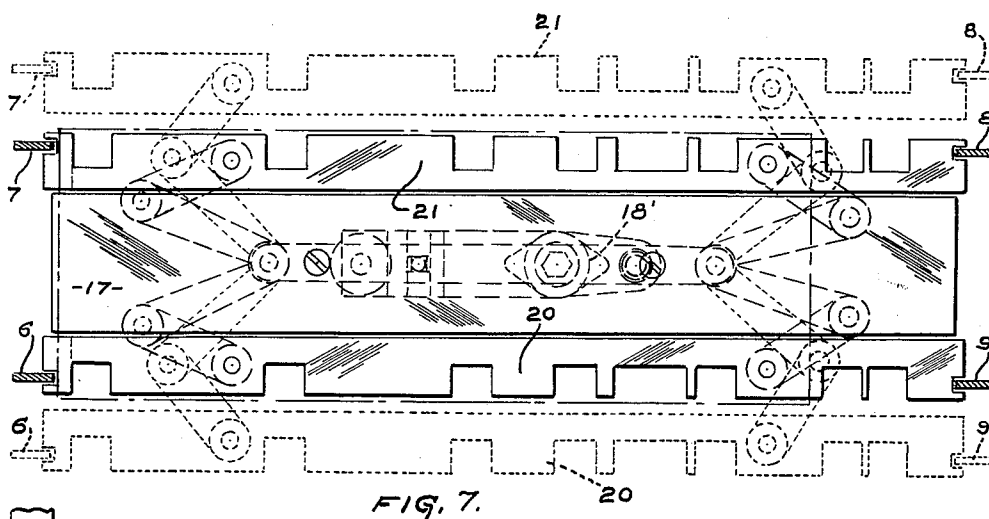


FIG. 6.

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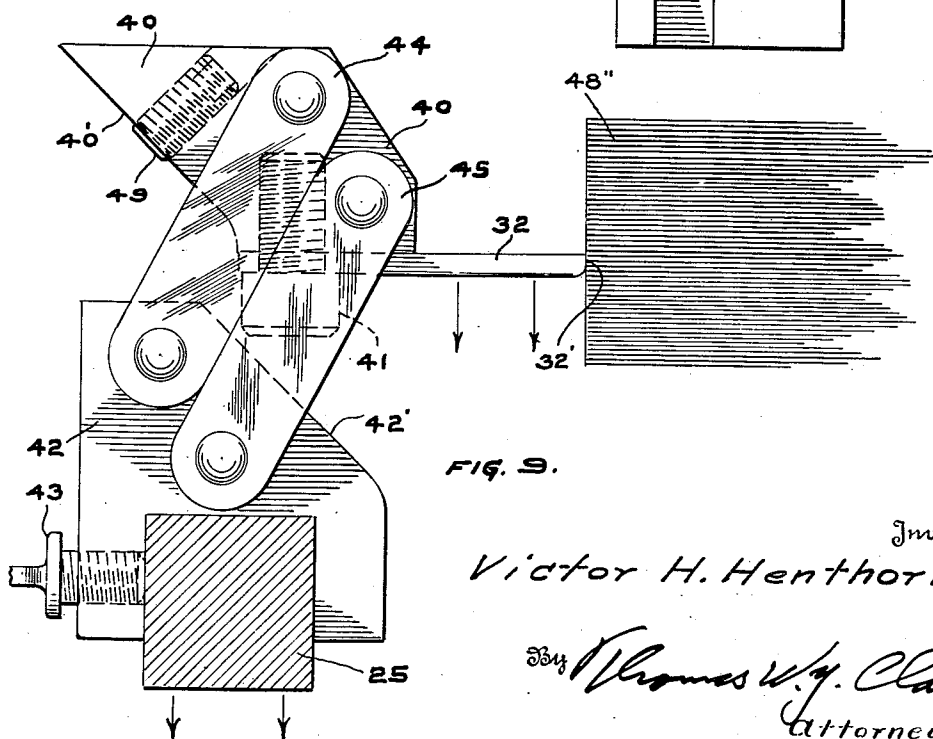
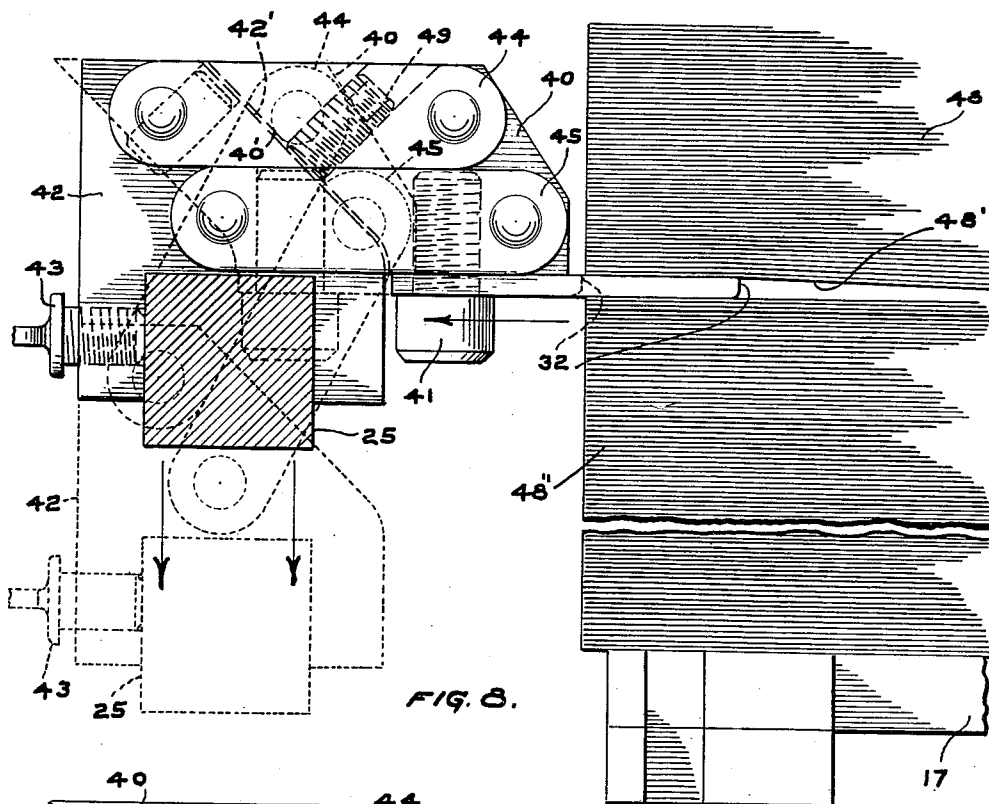
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CONTINUOUS LABEL FEED MECHANISM

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5 Sheets-Sheet 5



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1

2,804,303

CONTINUOUS LABEL FEED MECHANISM

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Application November 4, 1954, Serial No. 466,775

17 Claims. (Cl. 271—62)

The present invention relates to an improved label feeding mechanism of the type employed with labeling machines adapted to label cylindrical containers or other cylindrical articles.

In this type of labeling machine the containers or other articles roll through the machine over a substantially horizontal track or bed where they pick up a label by means of an adhesive applied to the cylindrical side of the container after which the label is wrapped about the container and secured to the side of the container or at the opposite end of the label by a suitable adhesive. This general type of machine is shown in the patent to C. H. Neer, No. 2,185,947, dated January 2, 1940.

In general, these machines are provided with horizontal belts which contact the upper sides of the containers and roll them through the machine. Located beneath the bed of the machine over which the containers roll is a pack of labels supported adjacent the bed in position so that when a container passes over the pack of labels the adhesive which has been previously picked up by the rolling container comes in contact with the top of the pack picking up the uppermost label, which is wrapped and secured about the cylindrical surface of the container. As the labels are picked off the top of the pack by the containers the remaining labels are fed, or pushed upwardly toward the bed in order that the successive containers will also pick up corresponding labels. It is with this type of machine that the present improved feeding means is most useful.

The primary object of the invention is to provide an improved mechanism to maintain a constant supply of labels in the label feeding means, eliminating the necessity of stopping the labeling operation for replenishing labels as is required when a continuous feeding unit is not incorporated in the labeling machine.

Another object of the invention is to provide an improved label engaging element for the secondary label supporting means.

A further object of the invention is to provide a more efficient and simple arrangement for supporting the label engaging elements of the secondary label supporting means.

Still another object of the invention is to adjust automatically the label engaging means of the secondary label supporting means.

With the above and other objects in view, the invention consists in the novel combination, construction and arrangement of parts shown in the preferred embodiment in the accompanying drawings forming part hereof and described hereinafter and in which:

Figure 1 is fragmentary side elevational view of the center portion of the container labeling machine showing the improved label feeding mechanism.

Figure 2 is a fragmentary transverse view taken on line 2—2 of Figure 1.

Figure 3 is a plan view of the secondary label supporting carrier and label supporting elements.

2

Figure 4 is a side elevational view of the secondary label carrier shown in Figure 3.

Figure 5 is a transverse sectional view on line 5—5 of Figure 4.

Figure 6 is a side elevational view of the primary label carrying table.

Figure 7 is a top plan view of the same.

Figure 8 is an enlarged fragmentary sectional view taken transversely of one of the supporting arms, showing in elevation one of the secondary label engaging elements.

Figure 9 is an enlarged view similar to Figure 8 showing the label engaging element in withdrawn position.

Similar numerals refer to similar parts throughout the several views.

In the drawings only certain parts of the machine are shown to show the relationship between the machine proper and the label feeding means.

Referring first to Figure 1, the machine is provided with longitudinally extending substantially parallel frame members 1, for the upper members, and 2 for the lower members. The upper surfaces of the frame members 1 support a track or runway 5 for the containers. The frame members 2 are spaced downwardly from the frame members 1 and support the label pack support and feeding means. The frame members are supported upon legs 3, and extending across the bottom of the machine and secured to the legs are braces, one of which is shown at 4.

Positioned between the upper frame members 1 and adjacent the center of the labeling machine are guide members 6, 7, 8, and 9, which are adjustable relative to the width of the runways. The supports for the rear two of these guides carry label guides 10 and 11, and guides 6 and 7 also serve as end label guides.

The guides are adjustable laterally of the machine by a pair of threaded screws 12 and 13, each threaded through half its length in a right hand direction and in the other half, in a left hand direction. The screw 13 is rotatable by the crank handle 14. The screws have fixed thereto the sprockets 15 and 16 and about the sprockets is trained a chain whereby the screw 12 is also rotated by the crank handle 14. This, as previously mentioned, adjusts the guides at both ends to the proper width.

Referring first to the primary label pack supporting means, which comprises a table 17, a toothed rack 18 has an extension 18' which is fixedly secured to the table 17, and a housing and guide member 19 for slidably receiving the rack 18. The rack and supporting member 19 are directly below the table member 17 and member 19 is secured to the upper side of the members 2. The upper surface of the table 17 is provided with adjustable side edges 20 and 21, adjusted by guides 6, 7, 8 and 9. The label supporting means is moved up and down, or reciprocated, either by power or manually, normally the routine feeding movement of the label supporting means is done automatically and by power generally taken from one of the driving shafts of the machine. The feed operating unit for operating the primary label pack support is designated by the letter A which is hereinafter briefly described.

The secondary label supporting means comprises a toothed rack 22, adjustable rigid brackets 23 and 24, a pair of horizontal members 25 and 26 and a rack guide housing 27 having its upper end secured to the under side of the frame members 2 and its lower end supporting a feed operating unit B which is substantially the same as unit A for feeding the secondary label supporting means. The brackets 23 and 24 are horizontally slidably mounted on rods 28 and 29 which in turn are mounted in a bracket 30 having a shoe 31 adapted to slide along the fixed grooved guide bar 31' attached to the frame of the machine in order to keep the label support in a definite plane

when vertically reciprocated by the operating means B. The bracket 30 is fast to the top of rack rod 22.

The brackets 23 and 24 have L-shaped arms 23' and 24' extending upwardly and outwardly as shown in Figure 3. Upon these L-shaped members are fixedly secured the supports 25 and 26 as shown in Figures 3 and 4. On these members 25 and 26 are individual automatic retractable label engaging elements 32 to 39 inclusive, which are adapted to engage the bottom of the label pack as the secondary label supporting means is raised into operating position.

The arms 25 and 26 are also adjustable on the arms 23' and 24' to give the members 25 and 26 a slight angle to the horizontal so that the label engaging elements of the secondary label supporting means may be of the same slope as the table 17 constituting the primary label supporting means.

The label engaging elements carried by the arms 25 and 26 are shown in detail in Figures 8 and 9. The engaging element itself, for example 32, is mounted upon a movable block support 40 by a cap screw 41. A corresponding stationary block support 42 is mounted on the arm 25 by the set screw 43. The supports 40 and 42 are preferably of the same width and are connected by parallel links 44 to 47 inclusive. The action of these units is illustrated in Figures 8 and 9. Normally the label engaging element is in the position shown in Figure 8. As long as the secondary label supporting means is moving upwardly the label engaging means remains in a laterally extended position, or as long as it is out of contact with the label pack it will by gravity move to its extended position.

However, when the secondary label supporting means begins its movement downwardly as shown by the dotted lines in Figure 8, after the primary label supporting means and its new pack 48' has been moved up, the outer ends of the links stay in their then location for a short period, as shown in Figure 8, but this downward action withdraws the engaging element 32 in a horizontal line parallel with the bottom surface 48' of the label pack 48. The member 32 will remain in withdrawn position as at 32' as long as it is passing the label pack, after which it will drop automatically into extended position to engage the labels upon its next upward movement. In order to adjust the height of the engaging element 32 relative to the support 42, there is provided a set screw 49 which will engage the surface 42' of the support 42, thereby off-setting the faces 40' and 42' of the two supports 40 and 42 and relatively raising the engaging element 32. This adjustment is particularly adapted for labels having raised, or embossed surfaces in order to give the label pack an even top surface.

The feeding units A and B are operated from a convenient power shaft from the machine to one, or the other of the shafts 50 and 51. Upon these shafts are sprockets about which a chain 52 is trained and upon these shafts 50 and 51 are cams which intermittently operate ratchets 55 and 56 through driving pawls, not shown, and holding pawls 53 and 54 which engage ratchet wheels 55 and 56 as shown. These ratchet wheels are mounted upon shafts which also carry small pinions so positioned as to engage the toothed racks 18 and 22, all as shown in the above noted patent, these details forming no part of the present invention.

Mounted to move transversely with the individual guides 6 and 7 are a pair of rods 58 and 59 extending downwardly from the supports of guides 6 and 7 and they are transversely adjustable therewith. These rods 58 and 59 slide very easily through members 23 and 24 and whenever an adjustment is made by rotating the crank handle 14, the movement of the respective upper supports for the guides 6 and 7 also moves the arm members 25 and 26 carrying the label pack engaging elements of the secondary label pack supporting means.

In operation, an initial pack of labels is placed on the table of the primary label supporting table 17. The support is manually operated by the handle 60 to advance the

pack up to the runway of the machine, after which the handle may be manipulated to engage the ratchet wheel and pawl power feeding means which continues to advance the pack as the labels are removed from the top by the containers. When the initial pack has been somewhat depleted the secondary feeding means is moved up beneath the pack, the label engaging elements moving through the slots at the edges of the table 17 supporting the pack which is then carried by the primary supporting means and into engagement with the under surface 48' of the pack to support and urge the remainder of the initial pack upward toward the runway. After the secondary label engaging elements are in contact with the label pack, the primary label supporting means is lowered by disengaging the crank handle 60 from the power drive and upon the table is then placed a new pack of labels. The new pack is then moved up toward the bottom of the pack previously described. When the new label pack comes in contact with the feeding pack the primary automatic feed is thrown in operation. At this time the secondary label supporting means is withdrawn. The withdrawing of the secondary means is substantially the same as that described for the primary means and the power mechanism forms no part of the present invention. As the fixed portion of the secondary supporting means is lowered, see dotted lines Figure 8, the pack engaging elements 32 to 39 on the arms 25 and 26 retain their relative position with the pack and are withdrawn horizontally by the action of the link members 44 to 47. The label engaging elements 32-39 then move down the outside of the pack as shown in Figure 9. After the lip or inside edge of the elements reach a point below the bottom of the pack they automatically move to their outward position. The label engaging elements are then again moved below the table of the primary label supporting means and the same operation is repeated in order to free the table of the primary supporting means of the label pack so that it may again be lowered to receive a fresh pack of labels.

It is to be understood that the structure herein illustrated may be modified in various ways without departing from the invention set forth in the appended claims.

What is claimed as new and is desired to be secured by Letters Patent is:

1. In a pack feeding mechanism for a labeling machine, a primary feed including a table for normally advancing the pack, a secondary feed including pivoted members at opposite sides of the path of travel of the table, mounting means for each of said pivoted members, means to move said mounting means together on paths parallel to the table path, means actuating said table and said mounting means in the direction of feed, said mounting means supporting said members to support the pack when moved in the direction of feed and said members each automatically retracting themselves with respect to said mounting means from supporting position upon movement in the reverse direction, means for retracting said table from supporting and feeding relation to the pack so that an additional pack may be placed thereon while the first-mentioned pack is being advanced by the secondary feed and means for advancing the table so that the additional pack is disposed in succeeding relation to the first-mentioned pack.

2. In a paper feeder, the combination of a primary travelling pack feeder and its carrier and a secondary travelling pack feeder and its carrier, means to operate said carriers in parallel paths to move the feeders to raise a single pack in the same path, the secondary feeder comprising pivoted means mounted on its carrier and supporting the pack edges and means to withdraw the pivoted means from pack supporting relation while maintaining the parallel paths of the carriers by reversing the travel of the secondary feeder carrier from raising to lowering direction.

3. The feeder of claim 2 including means to support the pivotal means normal to their path of travel and to

5

retain them normal to their path of travel during their withdrawal from pack supporting relation.

4. The feeder of claim 2 including means to adjust and maintain the secondary feed surface substantially parallel to the primary feeder surface.

5. The feeder of claim 2 including means to vary the width of the secondary feeder and primary feeder surfaces for packs of different widths.

6. A pack feeding mechanism for a labeling machine comprising a main feed normally advancing the pack and an auxiliary feed for advancing the pack during non-operation of the main feed, said auxiliary feed including bearings on either side of the main feed movable parallel to the main feed movement and pivoted members on said bearings and means to hold the members in pack supporting position when advancing the pack, said members automatically retracting themselves from the pack when moved in the reverse direction, and means to advance and reverse said bearings.

7. A label feeding mechanism for feeding individual labels from a label pack in a labeling machine, comprising a primary label supporting means having a label carrying table on the upper end thereof, a rigid secondary label supporting means having a plurality of automatic independently retractable label engaging elements carried on its upper end, both the carrying table and the engaging means being adapted to support the label pack alternately within the same area, means for moving the primary label support in both directions along a fixed path, said primary label supporting means being normally disposed in supporting relation to the pack, means for moving the secondary label supporting means in both directions along a fixed path parallel to that of the primary label supporting means and in supporting relation with the pack, the secondary label supporting means moving the label engaging elements past the primary label carrying table to engage the under side of the label pack, the table and the engaging elements carried on the respective label supporting means being formed to by-pass each other as they are moved in and out of label engaging relation.

8. In a mechanism as claimed in claim 7 in which each of the label engaging elements of the secondary label supporting means are moved automatically by their own weight in position to engage the under side of the label pack when the label supporting means is moved below the label pack.

9. In a mechanism as claimed in claim 7 in which the label engaging elements of the secondary label supporting means are automatically carried in position to engage the under side of the label pack when the label supporting means is below the label pack and means for automatically withdrawing the label engaging elements as the direction of movement of the secondary label supporting means is changed.

10. In a mechanism as claimed in claim 7 in which the label engaging elements carried on the secondary label supporting means are carried upon parallel link members having one end linked to the label engaging unit and their opposite ends linked to a fixed stationary member in such manner as to always support the pack engaging element in a plane parallel with the bottom of the pack.

11. In a mechanism as set forth in claim 7 in which a manual adjustment is provided to change the normal height of the link members whereby the label engaging elements may be individually adjusted for their relative height with respect to the other label supporting elements.

6

12. In a label pack feeding mechanism for cylindrical container labeling machines including a runway comprising an adjustable label guide adjacent the sides of the runway, a primary movable label supporting means having a label carrying table on the upper end thereof, an adjustable and movable secondary label supporting means having label engaging elements on the upper end thereof, both label supporting means being adapted to support the label pack alternately within the same area and to pass one another in either direction, means for moving the primary label support along a fixed path, said primary label supporting means being normally disposed in supporting relation to the pack, means for moving the secondary label pack supporting means along a fixed path in supporting relationship with the pack and parallel to the movement of the primary label supporting means, means connecting the label guide with the secondary label supporting means for adjusting the secondary label supporting means when adjustment is made in the label guide.

13. In a mechanism as claimed in claim 12 in which the means connecting the label guide and the secondary label supporting means are fixed to the label guide and slidably connected with the secondary label supporting means for adjusting the upper portion of the label supporting means carrying the label engaging elements.

14. In an attachment for a labeling machine for supporting label packs comprising, a first support secured to a vertically movable supporting arm, an adjacent laterally movable support, the supports having adjacent surfaces, a pair of closely associated parallel links having one of their ends vertically pivotally connected to the first support and their other ends vertically pivotally connected to the laterally movable support, the links being of a length to move the adjacent surfaces of the two supports in close proximity to each other when the laterally movable supports is moved to rest, a label engaging member secured to the laterally movable support in a horizontal position to extend outwardly from the movable support in substantially the same plane through the lateral travel of the movable support.

15. In a device as set forth in claim 14 in which means are provided to space apart the adjacent surfaces of the two supporting elements, thereby raising the label engaging member relative to the first support.

16. A label pack supporting element adapted to be used with a label supporting means including a fixed arm for supporting a pair of connected block supports, one of which is fixed to the said arm and the other being adapted to move in a horizontal path from a lateral extended position at one side of the stationary support to a withdrawn position over the top thereof as the stationary support is moved downward from the movable support, means pivotally connected with the two supports for maintaining them in parallel relationship during relative movement, a label engaging element fixedly secured to the movable support for engaging the said label pack when in lateral extended position and disengaged therefrom when in withdrawn position.

17. In a device as claimed in claim 16 including means to adjust the lateral vertical position of the movable support relative to the stationary support.

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