

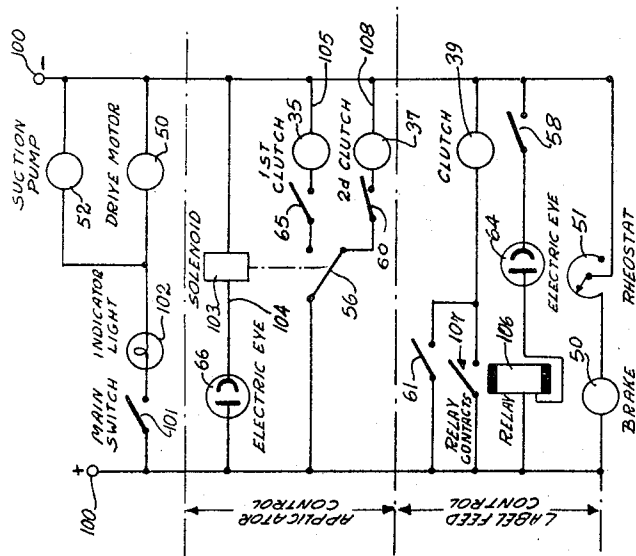
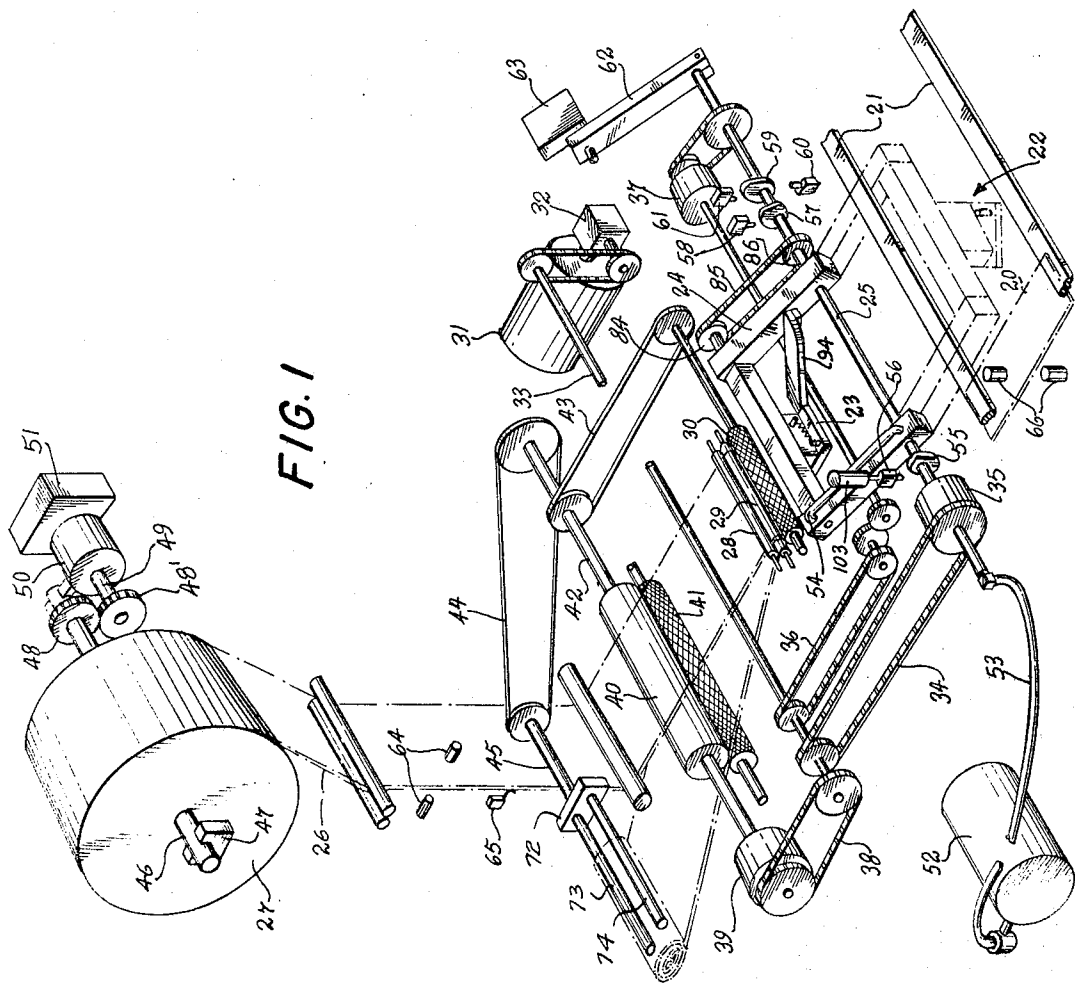
Feb. 18, 1969

E. E. MESSMER
LABELING MACHINE

3,428,509

Filed Oct. 27, 1964

Sheet 1 of 6



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Feb. 18, 1969

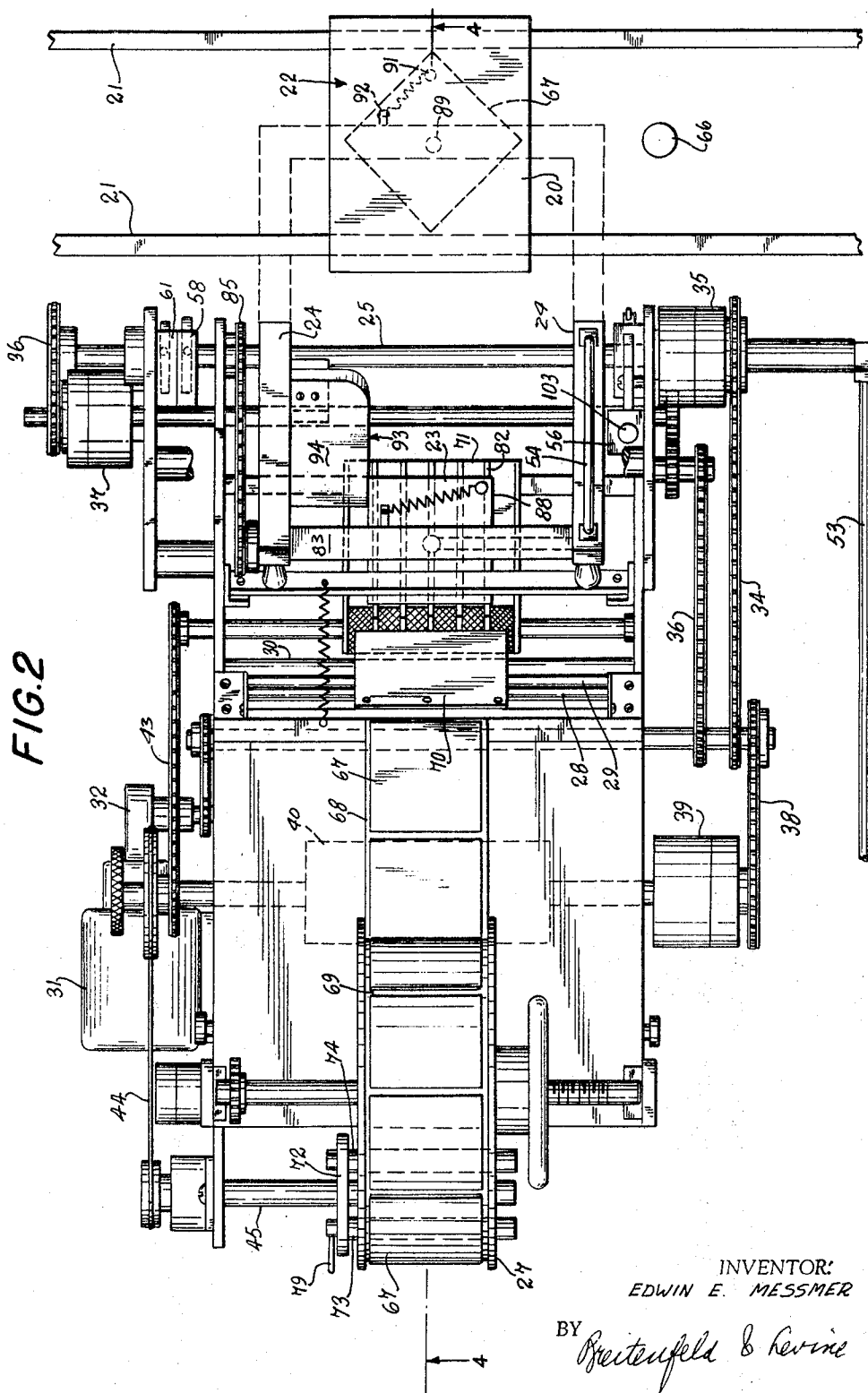
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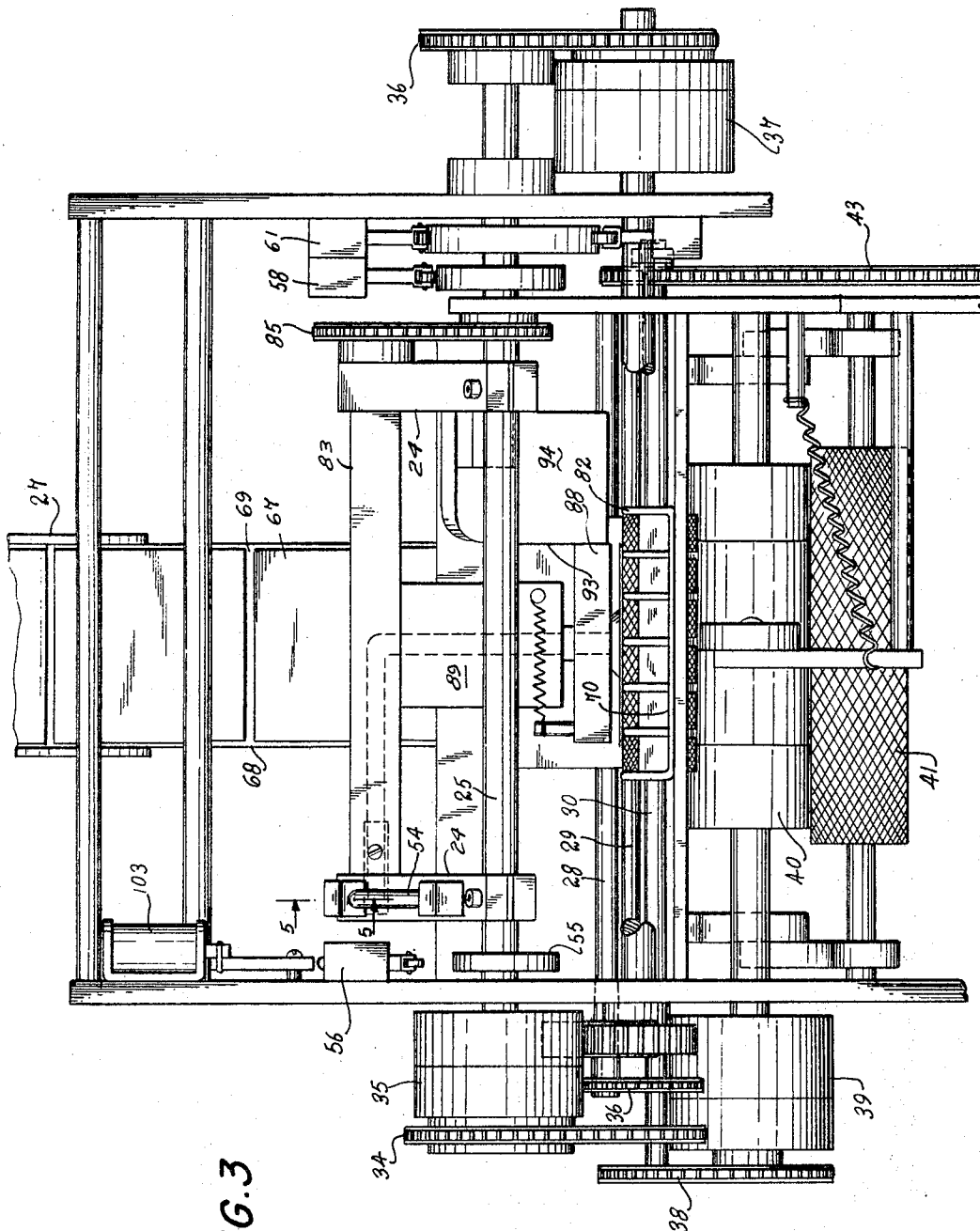


FIG. 3

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3,428,509

LABELING MACHINE

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FIG. 6

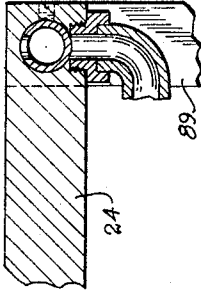


FIG. 5

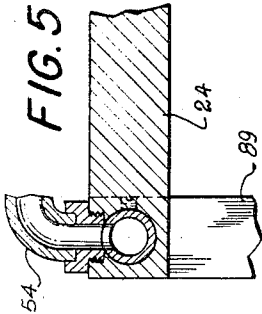
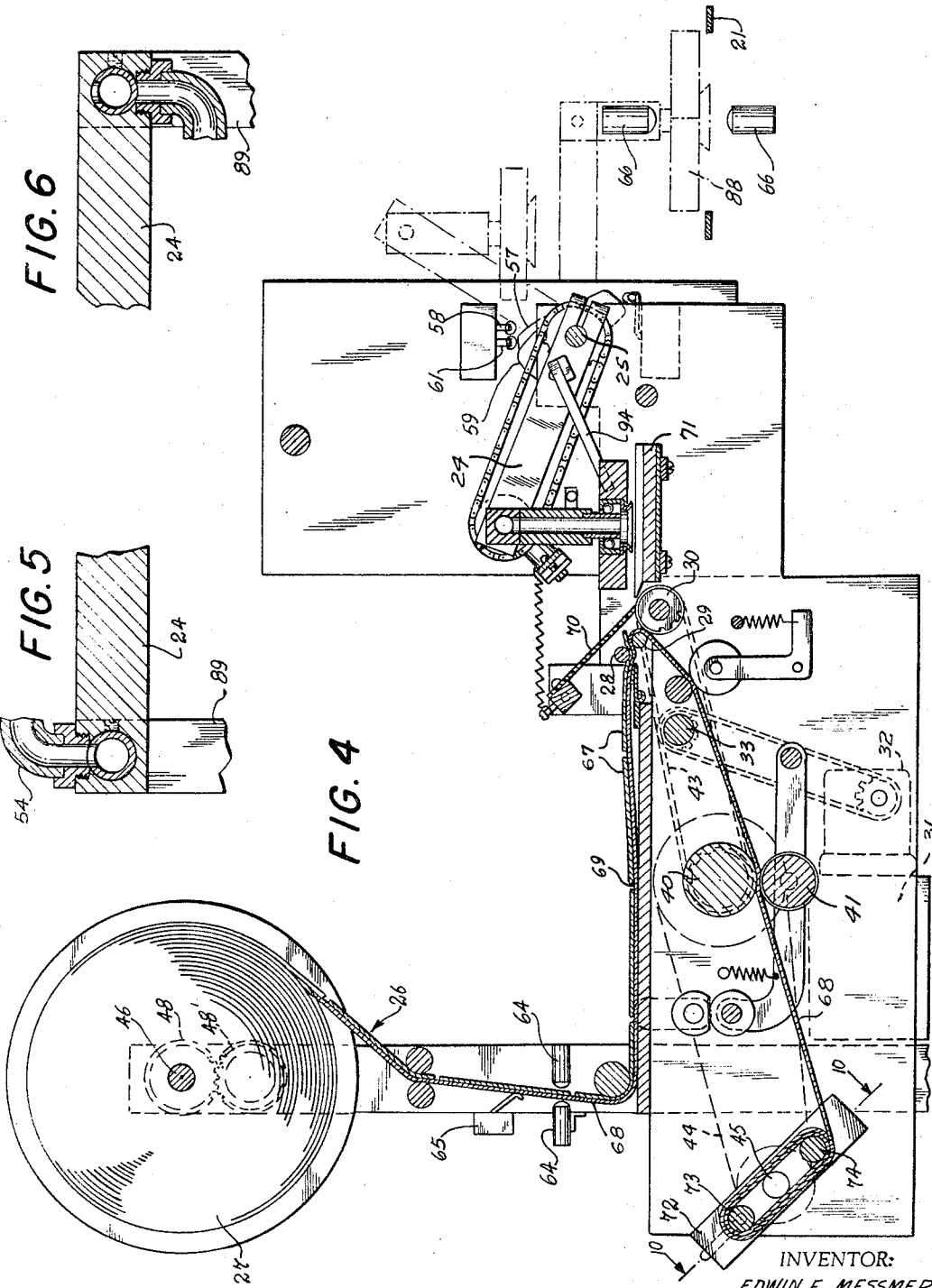


FIG. 4



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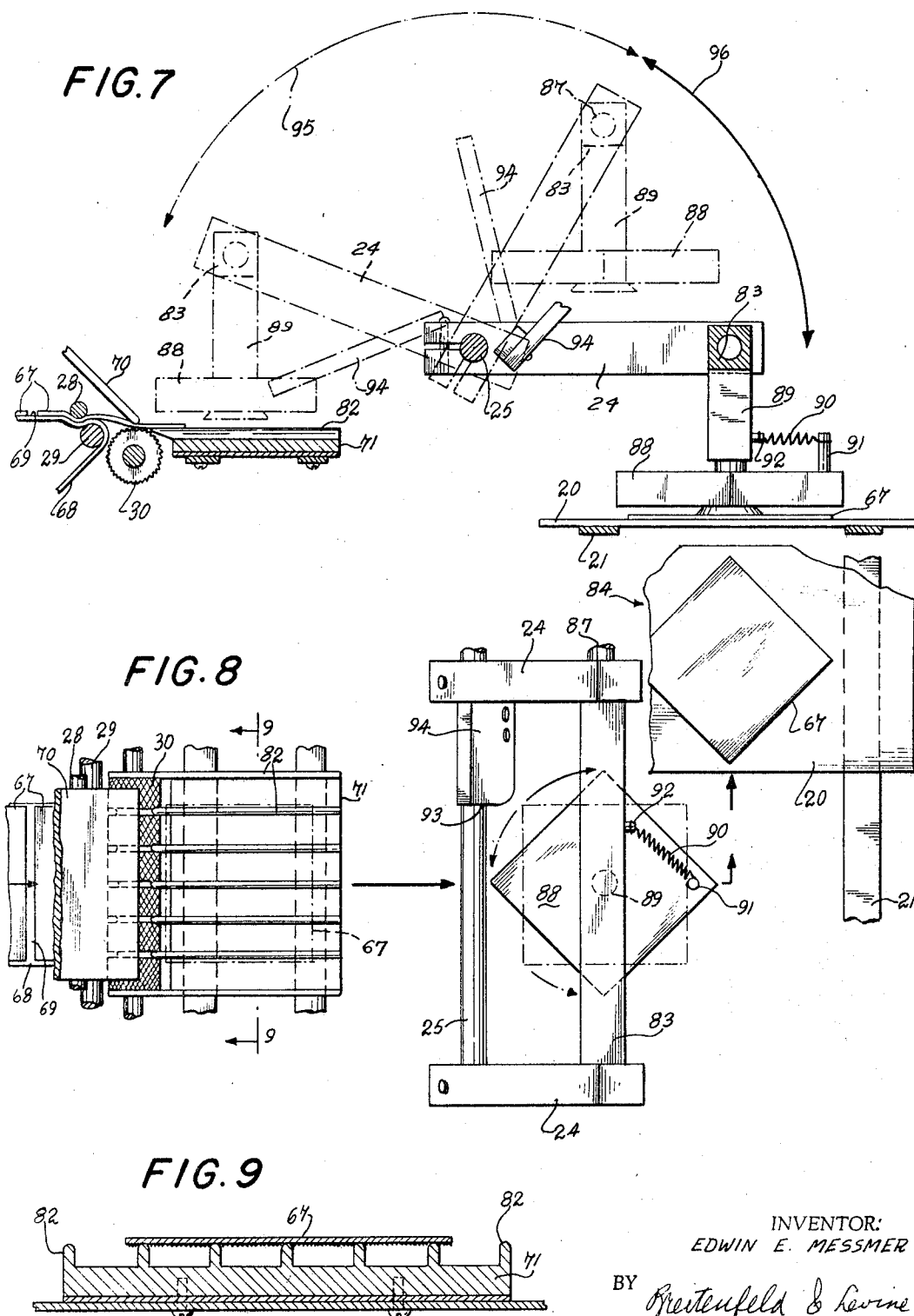
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Sheet 5 of 6



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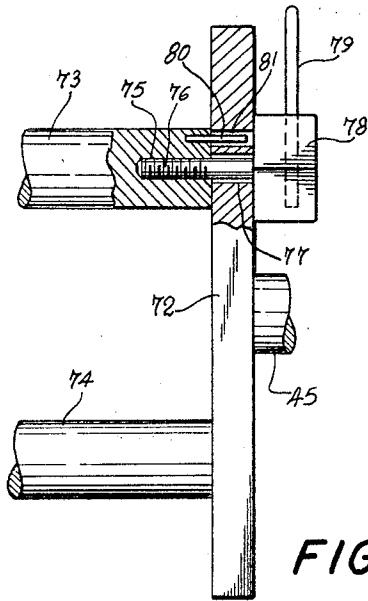


FIG. 11

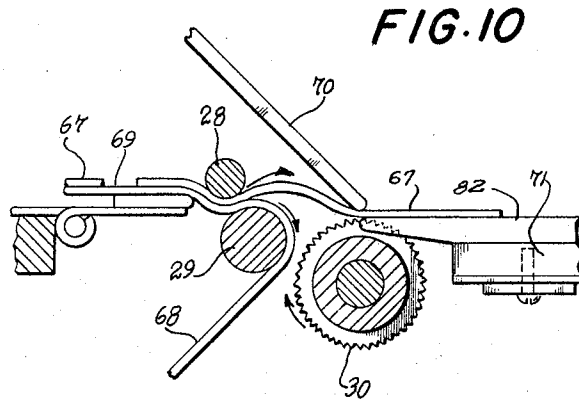


FIG. 10

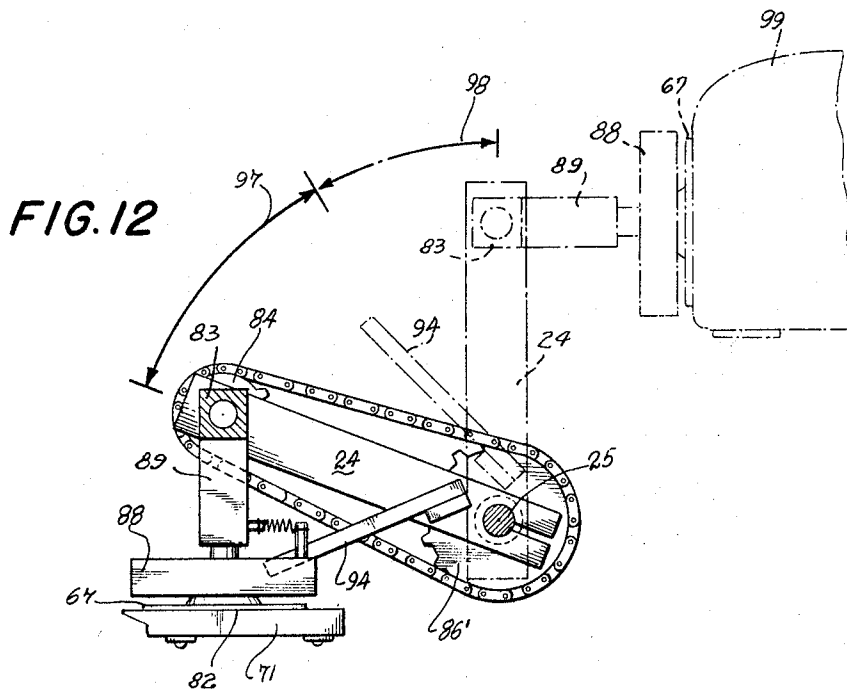


FIG. 12

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3,428,509

LABELING MACHINE

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U.S. Cl. 156—361

17 Claims

Int. Cl. B65h 25/10

ABSTRACT OF THE DISCLOSURE

Labeling apparatus includes frame pivotable on fixed axis between label pick-up station and applying station, and an applicator carried by frame and pivotable on an axis parallel to fixed axis in response to movement of frame. Motion transmitted to frame via electric clutches. Labels mounted in series on backing strip; strip moves between rollers to kink labels, knurled roller pulls each label from strip and delivers label to pick-up station defined by a platform formed by spaced parallel rails.

This invention relates generally to labeling machines, and has particular reference to apparatus for applying labels to articles of merchandise or the like.

It is a general object of the invention to provide a number of improvements in a machine of the general type in which there is a means for making labels successively available at a label pick-up station, a means for conveying articles in succession to a label applying station, and a means operative between these stations for transferring labels in succession to the label applying station and there applying them to the articles.

It is a more specific object of the invention to provide improvements in the applicator which functions between the label pick-up station and the label applying station.

Another object is to provide improvements in the means for feeding labels in continuous strip form from a supply thereof to the label pick-up station, and in the means for successively making individual labels available, supporting them on a novel type of platform, and efficiently coping with the backing or other part of the continuous strip on which they were made available.

A further objective of the invention is to provide improved automatic electrical controls whereby the desired and proper sequential series of operations is assured, and whereby non-functioning and loss of time and materials is avoided. In this connection it is an object of the invention to provide a simplified means for automatically halting the operation of the machine in case the supply of labels is exhausted, or in case an article to be labeled fails to present itself at the label applying station.

Among the features of the improved applicator is a supporting frame mounted for swinging movements in a special manner through a selected arc, and a unique way of pivoting the applicator to the frame so that the applicator itself is adapted to swing back and forth through a selected arc relative to the supporting frame. This mode of operation and functioning makes it possible to apply labels in a variety of ways to a variety of different kinds of articles. For example, a label can be simply applied to a flat article such as an envelope lying in a substantially horizontal plane, or a label can be applied to the vertical end wall of a product such as a loaf of bread or the like; and if desired the label can be turned in its own plane during the label applying procedure, so that it will have a predetermined orientation with respect to the article to which it is applied.

It is a general objective of the invention to provide features which make the apparatus thoroughly practicable,

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manufacturable at relatively low cost, composed of simple component parts and elements, unusually staunch and rugged in operation, and reliable in fulfilling its contemplated purposes. Additionally, the improved apparatus lends itself readily to servicing and to adjustments that permit it to be applicable to various uses.

These objects and advantages, and such other advantages as may hereinafter be pointed out, are capable of achievement in a machine of the character illustrated by way of example in the accompanying drawings, in which—
FIG. 1 is a schematic view depicting the essential parts of the machine and their general relationships to one another;

FIG. 2 is a plan view of the apparatus;

FIG. 3 is an end view of the apparatus as viewed from the right-hand end of FIG. 2;

FIG. 4 is a cross-sectional view substantially along the line 4—4 of FIG. 2;

FIG. 5 is a fragmentary enlarged cross-sectional view substantially along the line 5—5 of FIG. 3;

FIG. 6 is a view of the parts shown in FIG. 5 after completion of a swinging movement thereof;

FIG. 7 is a fragmentary cross-sectional view and diagram, substantially in the direction of FIG. 4, illustrating one mode of operation of the machine;

FIG. 8 is a top view of the apparatus depicted in FIG. 7, with the applicator in the intermediate dot-dash position shown in FIG. 7;

FIG. 9 is an enlarged cross-sectional view substantially along the line 9—9 of FIG. 8;

FIG. 10 is an enlarged fragmentary detail substantially in the same direction as FIGS. 4 and 7;

FIG. 11 is a greatly enlarged fragmentary view, partly in section, of a detail of the take-up device;

FIG. 12 is a diagram similar to FIG. 7, illustrating a modified mode of operation; and

FIG. 13 is a wiring diagram.

In FIG. 1, it is to be understood that the parts are shown in an exaggerated and simplified relationship, and that many parts of the framework and of the elements depicted are omitted for the sake of simplicity of illustration.

By way of example, a substantially flat article 20 is shown supported on a conveyor composed of a pair of parallel belts 21 by means of which it is conveyed to a labeling station designated by the reference numeral 22. Mounted for movement toward the article 20, when it is at the labeling station 22, is an applicator 23 pivotally supported on a frame 24 mounted for swinging movement on a shaft 25. The frame 24 moves back and forth from the position shown in full lines to the position shown in dot-dash lines. In the full-line position, the applicator 23 presents a suction face to a label that has been made available at a label pick-up station.

Labels may be made available in any of a variety of ways, and in the apparatus illustrated the label supply is in the form of a continuous strip 26 composed of a translucent continuous backing on the face of which a plurality of labels are adhesively held in adjacent sequence. The strip 26 may be caused to emanate from a supply roll 27 and after passing through a series of appropriate guide rollers the strip reaches the series of rollers 28, 29 and 30 by means of which the labels are successively peeled from the backing and delivered to the label pick-up station.

The chief elements of the driving mechanism are the main driving motor 31, transmitting its power through a reduction gear assembly 32 to a shaft 33. By a transmission chain or equivalent mechanism 34 the power of the main drive shaft 33 is transmitted to the shaft 25 via an electrically controllable clutch 35. A similar transmission 36 leads to a second electrically controllable clutch 37 by means of which a reverse rotation can be imparted to

the shaft 25. A third transmission 38 from the main drive shaft 33 leads to an electrically controllable clutch 39 through which power is transmitted to the roller 40 which, in cooperation with the adjacent roller 41, pulls rearwardly upon the backing of the continuous strip 26, after this backing has passed around the guide roller 29.

The roller 40 is mounted on a shaft 42 from which a transmission 43 leads to the shaft of the roller 30, and a transmission 44 leads to the spindle 45 of a take-up device upon which the withdrawn backing, pulled upon by the roller pair 40, 41, is wound.

The supply roll 27 is preferably mounted upon a shaft 46 readily applicable to and removable from a pair of open bearings 47 (the opposite one not being visible in FIG. 1). The shaft 46 preferably carries a gear 48 meshing with a gear 48' mounted on a shaft 49 emanating from an electric brake 50 whose retarding effect may be regulated by a rheostat 51.

A suction pump or equivalent mechanism 52 is connected by an appropriate conduit 53 to a pipe extending axially through the shaft 25, then through piping 54 and other appropriate passages to the exposed label-engaging face of the applicator 23.

For purposes hereinafter to be described in detail, the shaft 25 carries a cam 55 cooperating with a switch 56, a cam 57 cooperating with a switch 58, and a cam 59 cooperating with a pair of switches 60 and 61.

The shaft 25 may also carry an arm 62 at the end of which a yieldable pressure element 63 is mounted.

Also for purposes to be hereinafter explained, an electric eye mechanism 64 is associated with the strip 26 in a region prior to the label pick-up station, and an electric switch 65 is similarly arranged in association with this strip, having a feeler adapted to sense the presence or absence of the strip 26.

Associated with the conveyor of the article or articles 20 is another electric eye device 66.

Referring now to FIGS. 4, 7, 8, 9 and 10, it will be observed that a succession of labels 67 are arranged to the upper face of a translucent backing 68, these labels being slightly spaced apart as indicated most clearly at 69 in FIG. 10. The labels 67, along with the backing 68, constitute the continuous "label strip" designated by the reference numeral 26. This strip passes beneath the roller 28 and the backing alone then passes around the roller 29. The roller 30 is slightly larger and has a roughened or knurled surface. Cooperating with the latter is a pressure or guidance plate 70. The effect of this is to separate the adhesively held labels 67 successively from the carrying strip or backing 68. More particularly, the roller 28 exerts a pressure which has a kinking effect, thereby facilitating the separation or lifting of the leading edge of each label 67; the roller 29 then severely and sharply reverses the direction of movement of the backing 68, leaving the label 67 free to continue advancement in the original direction. Almost immediately the knurled roller 30, in cooperation with the plate 70, engages the freshly-released label and moves it forwardly onto the platform 71. If the roller 30 is rotated so that its linear speed is slightly greater than the linear speed of the strip 26, the action is facilitated, because the spacing 69 between successive labels 67 on the backing 68 can be held to a minimum, yet adhesion or other undesirable interference of one label with the next is avoided.

The withdrawn and now useless backing 68 is pulled by the rollers 40, 41 and wound onto the take-up device mounted on the spindle 45. This is depicted on an enlarged scale in FIG. 11. A plate 72 is carried by the spindle 45 at right angles to the spindle axis. Projecting from this plate and extending in a direction substantially parallel to the spindle axis is a pair of pins 73 and 74. These pins are offset with respect to the spindle 45, and thus constitute a mandrel upon which the backing 68 may be wound. The winding is facilitated by the rotation of the shaft or spindle 45 through the transmission 44.

When a mass of wound backing is to be separated from the mandrel, one of the pins 73, 74 is adjustable into a converging relation to the other, thus facilitating the withdrawal of the wound mass. To accomplish this, the spindle 45 has been shown with an internally threaded bore 75 adjacent to the plate 72. Cooperating with this bore is a threaded element 76 projecting through an enlarged opening 77 in the plate 72 and terminating in an enlarged head 78. A pin 79 may project from this head to facilitate its manipulation. When the head 78 is rotated to tighten the engagement between the stud 76 and the bore 75 in the pin 73, the latter is pressed tightly and rigidly against the plate 72. However, by slightly loosening the interengagement between the threads 75 and 76, the pin 73 is allowed to assume an oblique disposition in convergent relation to the pin 74, because of the enlarged opening 77. The loosening and tightening of the element 78 is a rapid and simple procedure, as will be readily understood. A positioning element 80 may advantageously be provided on the end of the pin 73 for accommodation within a recess 81 in the plate 72, to prevent undesirable rotation of the pin 73 during the tightening and loosening of the part 78.

FIG. 9 depicts the preferred construction of the platform 71 upon which the labels are successively laid at the label pick-up station. It will be observed that the platform is formed with a series of spaced parallel ribs 82 presenting rounded attenuated edges at the supporting surface. In this way, a label 67, adhesive face down, can be efficiently supported on the platform 71 without danger of undesired adhesion of the label to the platform. The ribs 82 extend in the direction of advancement of the labels.

The applicator assembly and its mode of operation will now be described. It will be noted that the frame 24 consists of a pair of parallel arms extending radially from the shaft 25. These arms are rigidly secured to the shaft 25, so that they move through a predetermined arc corresponding to the arcuate back-and-forth rotations of the shaft 25. At their outer ends, the arms of the frame 24 support between them a bar 83 pivotally journaled in the frame 24. One of the journals is extended and supports a gear 84. A chain 85 extends from this gear to a stationary non-rotatable gear 86 mounted in coaxial relation to the shaft 25.

The journaling of the bar 83 between the two arms of the frame 24 is preferably achieved by means of a shaft 87 extending the full distance between the frame arms, since part of this shaft will be used, in any case, as a conduit for the furnishing of suction to the applicator face.

Rigidly supported on the bar 83 is the applicator post 89, which has been shown in the form of a substantially rectangular element. The applicator 88 (which may be of square shape as shown) is mounted on the post 89 in such a way that rotative movements along an axis perpendicular to the axis of the shaft 87 are possible. These rotative movements are indicated by the dot-dash lines in FIG. 8. The applicator 88 is constantly urged by a spring 90 into the full-line position. The spring extends between a pin 91 on the applicator 88 to a pin 92 on the post 89. The rotative movements of the applicator 88 are controlled not only by the spring 90 but by the edge 93 of a cam plate 94 secured to the frame 24. This cam plate extends at a selected angle with respect to the frame arms 24, as best shown in FIGS. 7 and 12.

Because of the pivotal arrangement of the applicator 88 on the frame 24, it is free to move through a predetermined arc of its own during each back-and-forth movement of the frame 24. At the same time, it is movable about the perpendicular axis extending through the post 89. The arcuate movement about the axis of the shaft 87 is controlled by the relative sizes of the gears 84 and 86. When these gears are of the same size as shown in FIG. 1, and as assumed to be the case in FIG. 7, the

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arc of swinging movement of the applicator 88, relative to the frame 24, is exactly the same as the arc of swinging movement of the frame 24 itself. As a result, the applicator 88 in its rest position (shown at the left of FIG. 7) presents its suction face downwardly to the label on the supporting platform 71 at the label pick-up station, and during the arcuate swing of the frame 24 the applicator retains this disposition so that when it reaches the label applying position (shown at the right of FIG. 7) it presents the engaged label downwardly upon the article 20. During this movement (from the label pick-up station to the label applying station) the suction of the applicator face is gradually cut off, as indicated in FIGS. 5 and 6, so that when the label applying position is reached (FIG. 6) the label is free to cling to the article to which it is applied. The valving action of FIGS. 5 and 6 results from the relative movement of the bar 83 (and post 89) with respect to the frame 24.

Another occurrence during this relative movement is that the edge of the applicator 88 is engaged by the cam 93 during part of its movement, and disengaged during the remainder of its movement. The arc designated 95 in FIG. 7 indicates the period during which the cam edge 93 is effective to retain the applicator in the dot-dash position shown in FIG. 8; while the arc designated 96 in FIG. 7 depicts the period during which the applicator 88 has moved beyond the cam edge 93 and is therefore swung into the full-line position of FIG. 8 by virtue of the urge of the spring 90. The effect of this is to allow the label to be rotated during its period of transportation to the label applying position. Thus the label can be applied to the article 20 in any desired orientation regardless of its orientation at the label pick-up station. By appropriately extending the edge of the applicator 88 which encounters the cam edge 93 or by appropriate angularity of the cam, the relative durations of the arcs 95 and 96 can be controlled; and by providing any appropriate limiting means to the pulling action of the spring 90 the extent of rotation of the label can be controlled. Should no rotation at all be desired, the spring 90 and cam 94 can be omitted, whereby the applicator will undergo no rotative movement during its travel from the label pick-up station to the label applying station.

Should it be desired to apply the label to a vertical surface, as indicated in FIG. 12, or in fact to any surface other than a horizontal surface as shown in FIG. 7, the ratio of gear diameters 84 and 86 is appropriately changed. This can be attended to by replacing the fixed gear 86 with one of larger or smaller diameter, or by replacing the gear 84 in a similar way, or both. By way of example, FIG. 12 shows gear 84 substantially smaller than gear 86'. As a result, while the frame 24 moves through an arc less than 90° (i.e., from the full-line to the dot-dash positions of FIG. 12), the applicator 88 moves through a full 90° arc between its rest position (full line) and the label applying position (dot-dash line).

In FIG. 12, also, the arc 97 indicates the period during which the edge of the applicator 88 is in rubbing contact with the cam 94, and the arc 98 indicates the period during which it has been freed from the action of the cam.

The pressure element 63 (FIG. 1) is useful in connection with the application of a label onto a vertical plane, as indicated in FIG. 12. By properly locating the arm 62 on the shaft 25, relative to the extent of advancement of the conveyor 21 between labeling operations, the pressure element 63 can be caused to press against the previously-applied label, thus contributing to its firm adherence to the article (e.g., the article designated 99 in FIG. 12) to which it has been applied.

The electrical controls are best indicated in FIG. 13, in which those elements hereinbefore referred to are designated by the same reference numerals.

Appropriate power is furnished to the machine through

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contacts or connectors 100. The driving motor 50 and the suction pump 52 are arranged in a circuit which includes the main switch 101 and (if desired) an indicator light 102.

The switch 56, actuated by the cam 55, is a single-pole double-throw switch. It is actuated also by the solenoid 103. Thus, whenever an article 20 approaches the label applying station, a circuit 104 is closed by means of the electric eye 66, whereby the solenoid 103 is energized. This actuates the switch 56 to close the circuit 105 through the first clutch 35. The completion of this circuit is dependent, also, upon closure of the switch 65, which takes place only if a label strip 26 is available and is feeding toward the label pick-up station. Actuation of the clutch 35 commences rotation of the shaft 25 to move the applicator 23 from the label pick-up station toward the label applying station.

As the rotation of the shaft 25 commences, the cam 59 acts upon the switch 61 to close a circuit through clutch 39, thereby initiating advancement of the label strip 26. The objective is to place the next available label onto the platform at the label pick-up station prior to the return to that station of the applicator which is now on its way to the label applying station.

Assuming that a label moves into a position to activate the electric eye 64, a closure of the switch 58 by the cam 57 completes a circuit through a relay 106 (not shown in FIG. 1). This relay closes the relay contacts 107 thereby maintaining the clutch 39 in activated condition notwithstanding the fact that the switch 61 has been activated only momentarily and reopens as soon as the cam 59 passes it.

As soon as the frame 24, along with the applicator 23, has reached the label applying station, the cam 55 becomes effective to move the switch 56 to the position shown in FIG. 13, in which circuit 105 is broken and circuit 108 is closed. Switch 60 is so positioned that it is normally closed and is opened only when the applicator returns to its rest position. Thus, the clutch 37 becomes energized and is effective to rotate the shaft 25 in reverse direction to return the applicator to the rest position. As soon as that position is reached, the switch 60 is activated by the cam 59, thereby breaking circuit 108 and deactivating clutch 37. The mechanism is thus returned to its original state and the operation can be repeated provided (as before) that an article 20 is intercepting the beam of the electric eye 66, and that labels are available to activate the electric eye 64.

The switch 58 is provided to prevent the electric eye 64 from energizing the relay 106 in the event that a slight override of the strip 26 inadvertently interposes a label within the beam of the electric eye 64. Thus, the electric eye 64 is not by itself sufficient to initiate label advancement. It requires, also, that the applicator shall have commenced its movement away from the label pick-up station.

It will be obvious to those skilled in the art that numerous changes in the details described and illustrated, both mechanical and electrical, may be made without necessarily departing from the spirit and the scope of the invention as expressed in the appended claims.

What is claimed is:

1. In a labeling machine in which there is a supply of labels, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:

- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,

- (C) means for moving the frame through a selected arc, and
- (D) means responsive to movement of the frame for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame, whereby a label carried by the applicator may be applied to an article surface located in any plane containing a line parallel to said axes.
2. In a labeling machine in which there is a supply of labels, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:
- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame, the applicator also being mounted for rotative movements about an axis perpendicular to its pivot axis, and
- (E) means for rotating said applicator about said perpendicular axis during each back-and-forth movement thereof.
3. The combination of elements defined in claim 2, in which said means (E) comprises
- (a) a spring for urging the applicator toward a normal position, and
- (b) a cam interposed in the path of said applicator for encounter thereby to move the applicator against the urgency of said spring.
4. The combination of elements defined in claim 3 in which said cam is carried by said frame.
5. In a labeling machine in which there is a supply of labels, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:
- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc, and
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame, said means comprising
- (a) a shaft journaled in the frame and supporting the applicator,
- (b) a gear on said shaft,
- (c) a stationary gear coaxial with the frame pivot axis, and
- (d) transmission means between said gears.
6. In a labeling machine in which there is a supply of labels, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:
- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,

- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc, said means comprising
- (a) an electric motor,
- (b) a shaft on which said frame is supported,
- (c) a first clutch between said motor and shaft, and a transmission for rotating said shaft in one direction when the clutch is engaged, and
- (d) a second clutch between said motor and shaft, and a transmission for rotating said shaft in reverse direction when the clutch is engaged; and
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame.
7. The combination of elements defined in claim 6, in which said first clutch is electrically controllable, and there is
- (G) a circuit for energizing it, including
- (a) a switch controlled by the availability of a label, and
- (b) a switch controlled by the approach to the labeling station of an article to be labeled.
8. The combination of elements defined in claim 6, in which said second clutch is electrically controllable, and there is
- (H) a circuit for energizing it, including
- (a) a normally closed switch opened by means movable with the applicator whenever it is at one end of its back-and-forth movement, and
- (b) a switch activated by means movable with the applicator when it reaches the other end of its back-and-forth movement.
9. In a labeling machine in which there is a supply of labels, a label pick-up station, means for marking labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:
- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc between a rest position at the label pick-up station and a label applying position at the label applying station, said means comprising
- (a) an electric motor,
- (b) a shaft on which said frame is supported,
- (c) a first electric clutch between said motor and shaft for moving the shaft to that the applicator moves from rest position to label applying position, and
- (d) a second electric clutch between said motor and shaft for moving the shaft so that the applicator returns to rest position,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame,
- (E) a circuit for energizing said first electric clutch, including
- (a) a switch controlled by the approach to the labeling station of an article to be labeled, and
- (F) a circuit for energizing said second electric clutch, including,
- (b) a switch activated by means movable with the applicator when it reaches the label applying position.
10. The combination of elements defined in claim 9, in which said switches (a) and (b) are defined by a single-pole double-throw switch.
11. In a labeling machine in which there is a supply of labels in the form of a continuous strip on which the

labels are arranged in sequence, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:

- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame,
- (E) electrically controlled means for advancing the label strip toward the label pick-up station, and
- (F) circuitry for energizing means E, including
 - (a) a switch controlled for momentary activation by commencement of movement of the frame,
 - (b) a circuit for continuing the advancement of the label strip only if an available label is carried by it, and for discontinuing the advancement after passage of a single label,
 - (c) a switch in circuit (b) controlled for momentary activation by movement of the frame shortly after commencement of said movement, and
 - (d) a relay in circuit (b) for maintaining the label strip advancing means (E) energized after switch (a) is deactivated.

12. The combination of elements defined in claim 11 wherein said circuit (b) is an electric-eye circuit.

13. In a labeling machine in which there is a supply of labels in the form of a continuous strip on which labels are arranged in sequence, said strip comprising a continuous backing on which the labels are adhesively held and from which they may be successively peeled, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:

- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame,
- (E) means at the label pick-up station for peeling the labels successively from the backing, comprising
 - (a) means for sharply reversing the direction of movement of the backing,
 - (b) means directly in advance of said reversing means for kinking the label strip to facilitate separation of the leading edge of each label, and
 - (c) means for immediately engaging each separated label and continuing its advancement in the original direction.

14. The combination of elements defined in claim 13 wherein said means (c) is a rotatable knurled roller.

15. The combination of elements defined in claim 13 wherein said means (d) is a roller, and including means for rotating said roller so that its surface speed exceeds the speed of advancement of said labels toward the label pick-up station.

16. In a labeling machine in which there is a supply of labels in the form of a continuous strip on which the labels are arranged in sequence, said strip comprising a

continuous backing on which the labels are adhesively held and from which they may be successively peeled, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:

- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame, and
- (E) a platform at the label pick-up station for receiving each label, adhesive face down, after it is peeled from the backing, said platform comprising a series of spaced parallel rails presenting attenuated edges in the plane of the platform, said edges extending in the direction of label advancement.

17. In a labeling machine in which there is a supply of labels in the form of a continuous strip on which the labels are arranged in sequence, said strip comprising a continuous backing on which the labels are adhesively held and from which they may be successively peeled, a label pick-up station, means for making labels successively available at said pick-up station, a label applying station, means for conveying articles successively to said labeling station, and means mounted for movement between said stations for transferring labels in succession to the label applying station and there applying them to said articles:

- (A) a frame mounted for back-and-forth swinging movement upon a fixed axis,
- (B) an applicator pivotally carried by said frame on an axis parallel to said fixed axis,
- (C) means for moving the frame through a selected arc,
- (D) means for moving the applicator itself back-and-forth through a selected arc relative to the frame during each back-and-forth swing of the frame, and
- (E) a take-up device for receiving the backing in wound condition after the labels are successively peeled from it, said device comprising
 - (a) a spindle,
 - (b) a plate carried by the spindle at right angles to it,
 - (c) a pair of spaced pins projecting from said plate substantially parallel to the spindle but offset therefrom to define a take-up mandrel, and
 - (d) means for adjusting at least one of said pins into convergent relation to the other to facilitate withdrawal from the device of an accumulated mass of wound backing.

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