

[54] LABEL APPLYING DEVICE

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[51] Int. Cl. B44c 3/00, B32b 35/00

[58] Field of Search 156/584, 541, 542

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[57] ABSTRACT

A device for applying a label from a supply of label stock in a predetermined position on an object. The device includes a first frame for positioning and supporting the object, and for movably mounting a second frame. The second frame is manually movable over the object on the first frame to dispense a label to the object from label dispensing means operated by relative movement of the frames and to press the dispensed label into engagement with the object on the first frame. The label dispensing means includes a novel indexing means for positioning the next label to be dispensed in a predetermined position on the second frame for a subsequent label application.

6 Claims, 6 Drawing Figures

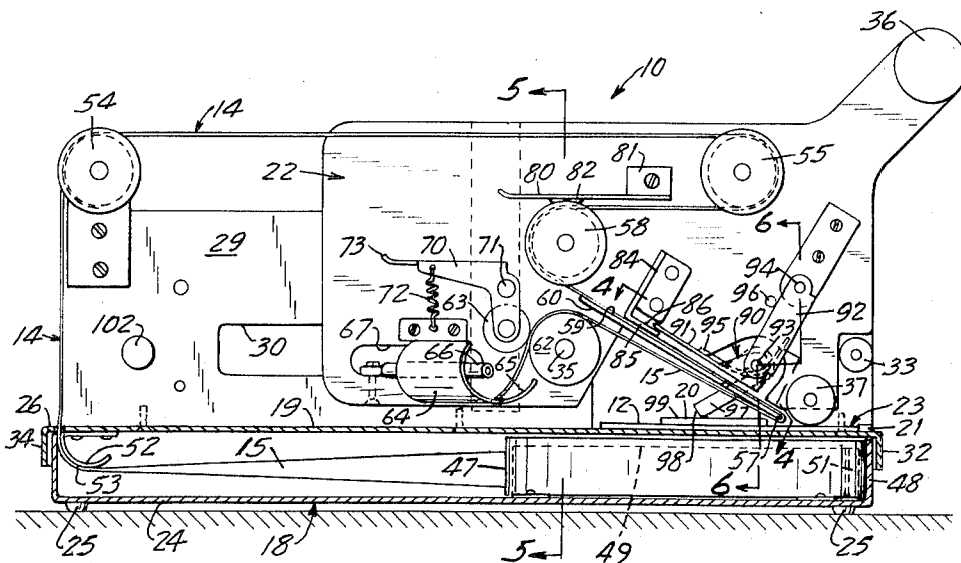


FIG. 1

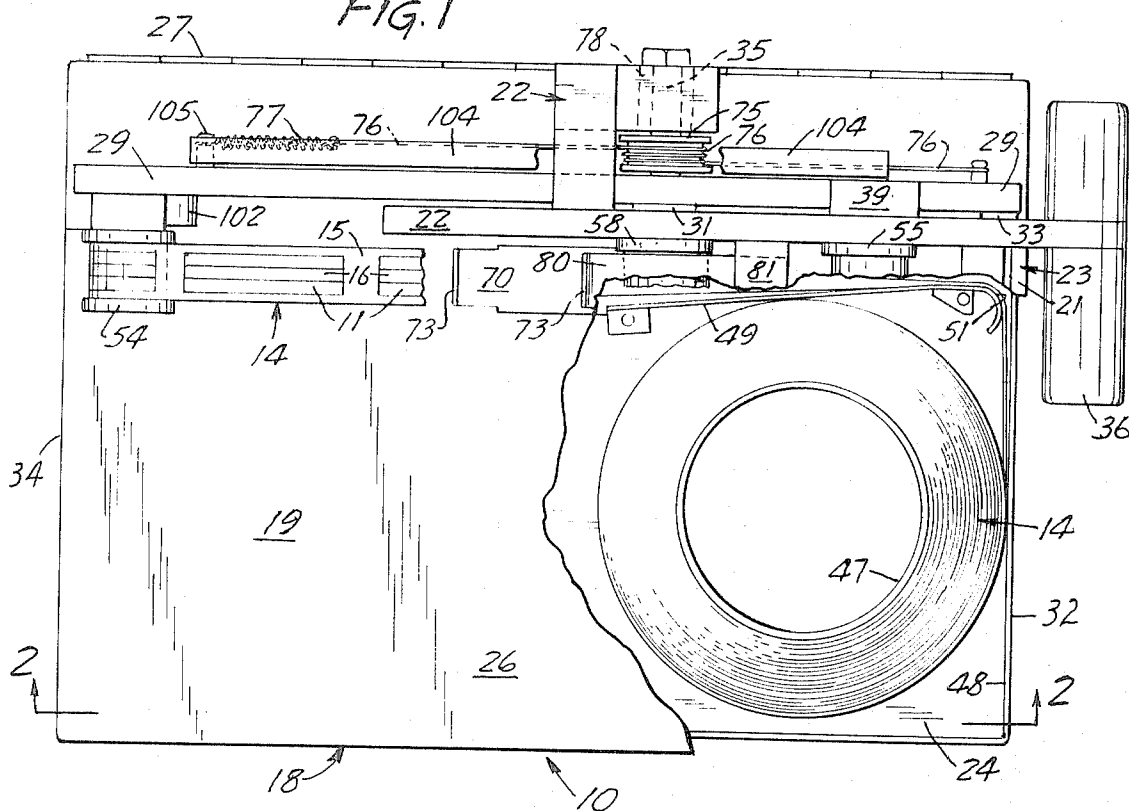
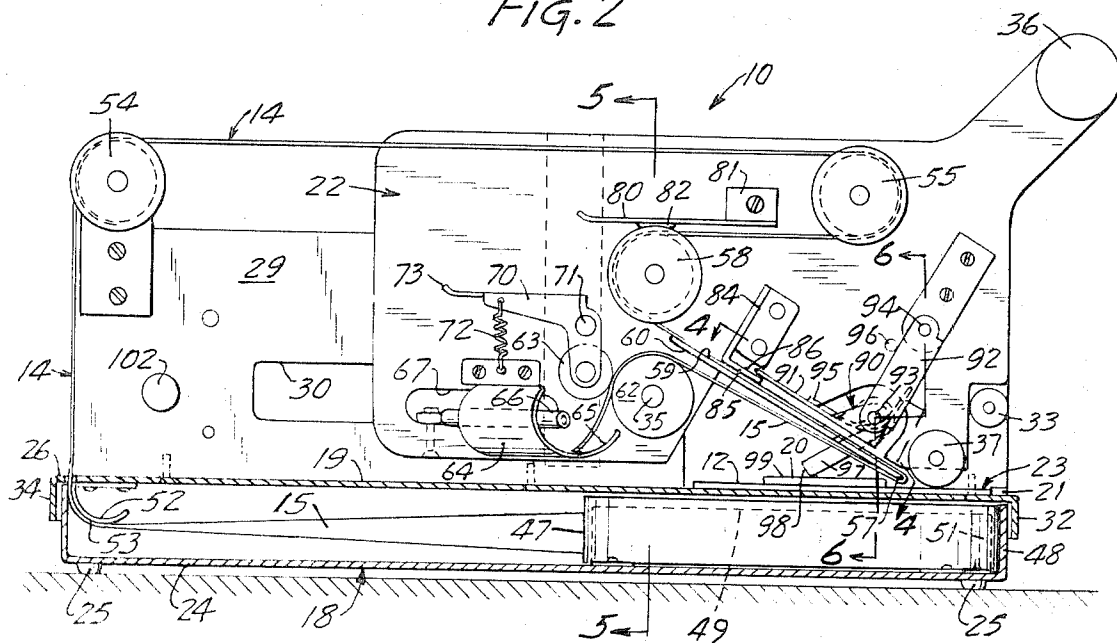


FIG. 2



SHEET 2 OF 2

FIG. 3

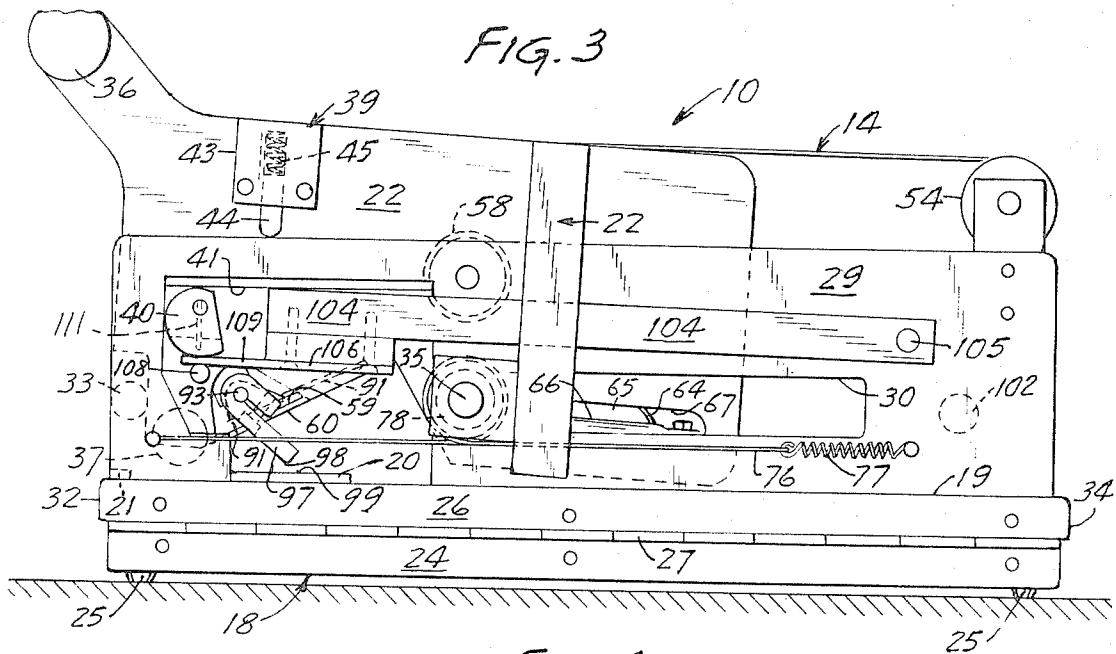


FIG. 4

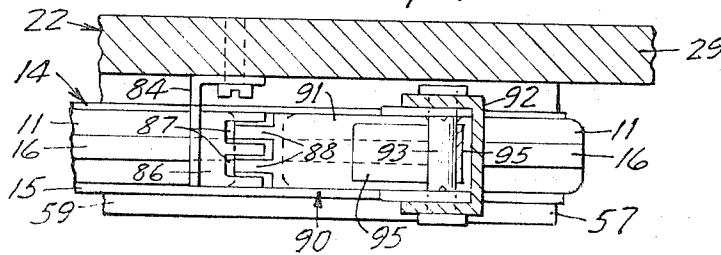


FIG. 5

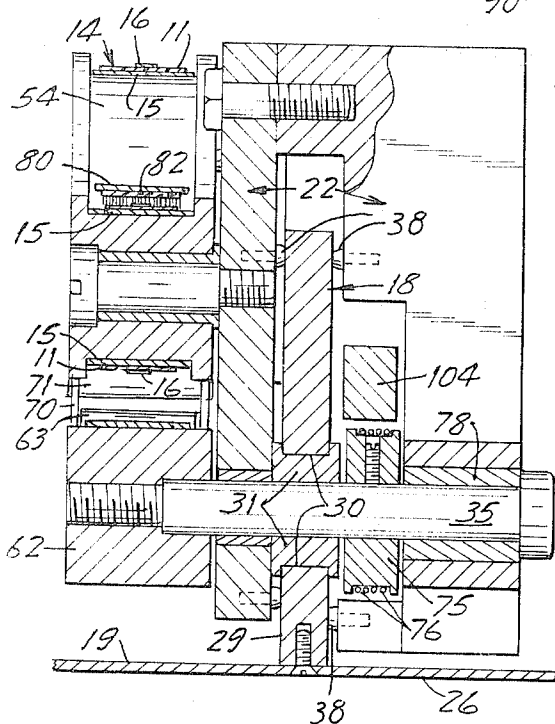
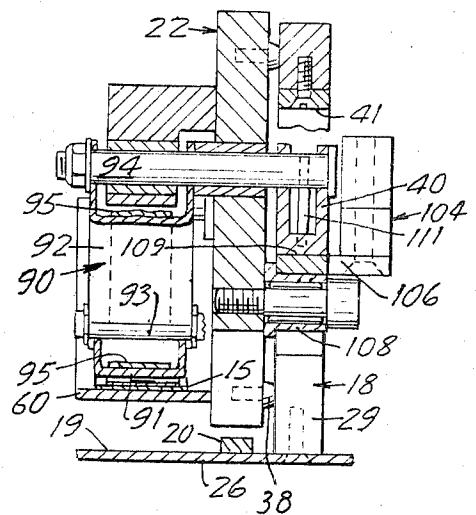


FIG. 6



LABEL APPLYING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to label dispensing devices which apply the dispensed label to an object, and in one aspect to manually operated label applying devices which will apply a label in a predetermined position on an object inserted in the device.

Certain peripheral equipment used in conjunction with computers to directly record and/or analyze periodic business transactions requires the application of a strip of magnetically encodable material to an object, such as a bank passbook or credit card, used by the customer to complete the transaction. The magnetizable strip, which can be incorporated into a label adhered to the object by a pressure sensitive adhesive, must be located in a precise predetermined position on the object (typically within plus or minus 0.015 inch) so that when the object is positioned in the peripheral equipment the magnetizable strip is properly oriented to receive information or afford reading of information magnetically encoded thereon. It is desirable to have labels including the magnetic strips applied to existing objects, such as credit cards or passbooks, by clerks or tellers in business establishments to adapt existing objects to newly acquired peripheral equipment of the type described. Thus to apply these magnetic strips there is required a simply operated device which will accurately apply the magnetic strip to the object.

The prior art is replete with devices for the seriatim dispensing of labels from label stock comprising a supply of labels adhesively carried in spaced relationship on a liner. Many of the prior art devices such as the devices disclosed in U.S. Pat. Nos. 3,029,979, 3,186,589 and 3,653,539 are designed to dispense a label in a position where a user may easily separate the label from the liner and manually apply it to an object. Because of potential human error and other difficulties in manually precisely positioning a label on an object, however, manual application of labels does not insure the uniform accuracy of position for the magnetic strips required by the peripheral equipment.

Other devices such as those disclosed in U.S. Pat. Nos. 3,039,516 and 3,405,021 are designed for seriatim application of labels on objects moving along a conveying line. These devices, however, generally are not designed to provide the accuracy of placement of a label on objects required for positioning magnetic strips on objects, and are sufficiently non-portable and complex that they are not adaptable for use by clerks or tellers in business establishments.

SUMMARY OF THE INVENTION

The present invention provides a label applying device which is useful for the seriatim application of labels from a supply of label stock. The device applies labels with sufficient accuracy that it is suitable for applying labels including a magnetizable strip to objects to be processed with peripheral equipment of the type previously described. Additionally, the label applying device is adaptable for manual operation so that an operator may apply a label to an object manually positioned in a first frame on the device by simply pivoting a second frame to engage the object, moving the second frame from a first to a second position across the

object, and returning the second frame to its first position.

According to the present invention there is provided a device useful for applying a label to an object from label stock comprising a supply of labels adhesively carried in spaced relationship of a liner. The device comprises a first frame including means for locating the object in a predetermined position, and a second frame. The frames are mounted for relative movement between first and second relative positions. The device includes means for supporting a supply of label stock; and label dispensing means mounted on the second frame for dispensing a label from the label stock to a predetermined position on the object upon relative movement of the frames. The label dispensing means include means defining a path for said label stock along the second frame; separating means along the path for separating a label from the label stock upon movement of the liner of the label stock past the separating means; indexing means for positioning a label to be dispensed at a predetermined position along the path and in a predetermined relationship with the locating means on the first frame when the frames are in the first relative position; and drive means operated by relative movement of the frames for driving a label to be dispensed along the path past the separating means at the same rate of movement as the rate of relative movement of said frames to dispense the label at a predetermined position on the object. The device also includes means for pressing the dispensed label into contact with the object on the first frame during relative movement of the frames to dispense the label.

BRIEF DESCRIPTION OF THE DRAWING

The invention will further be described with reference to the accompanying drawing wherein like numbers refer to like parts in the several views, and wherein:

FIG. 1 is a horizontal plan view of a label applying device according to the present invention with certain parts broken away to show detail of the means on the device for storing a supply of label stock;

FIG. 2 is a front elevational view of the device in FIG. 1 shown partially in section taken approximately along lines 2—2 of FIG. 1;

FIG. 3 is a rear elevational view of the device shown in FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view taken approximately along the lines 4—4 of FIG. 2;

FIG. 5 is an enlarged fragmentary vertical sectional view taken approximately along the lines 5—5 of FIG. 2; and

FIG. 6 is an enlarged fragmentary vertical sectional view taken approximately along the lines 6—6 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIGS. 1, 2, and 3, there is shown a device according to the present invention and generally designated by the numeral 10 which is useful for applying a label 11 to an object 12 (FIG. 2) from a supply of label stock 14 comprising a multiplicity of labels 11 of uniform length adhesively carried in predetermined spaced relationship on a liner 15. The device 10 is particularly adapted for applying labels 11 comprising a central longitudinally extending strip of magnetiz-

able material 16 to an object 12 such as a bank pass-book or a credit card.

The device 10 includes a first frame 18 having locating means including a surface 19 of the first frame, and two bars 20 and 21 attached on the surface 19 and disposed at a right angle to each other to provide together with the surface 19 a guide 23 for locating an object in a predetermined position on the first frame 18. The device 10 also includes a second frame 22, means for mounting the first and second frames 18 and 22 for relative movement between a first relative position (FIG. 1) and a second relative position, means for supporting a supply of label stock 14, label dispensing means mounted on the second frame 22 for dispensing a label 11 from the label stock 14 in a predetermined position with respect to an object 12 positioned in the guide 23 during relative movement of the frames 18 and 22 from the first to the second relative positions, and means for pressing a dispensed label 11 into engagement with an object 12 in the guide 23.

The first frame 18 comprises a pan 24 formed of sheet metal, supported by feet 25, and having a sheet metal cover 26 defining the surface 19 mounted to the pan 24 via a hinge 27. The cover 26 may be opened to afford access to the interior of the pan 24. The first frame 18 also includes a frame member 29 attached to and vertically projecting from the surface 19 of the cover 26.

The means for mounting the frames 18 and 22 for relative movement between the first and second relative positions comprises a slot 30 in the frame member 29, in which slot 30 is slidably mounted a bearing member 31 to which the second frame 22 is pivotably attached via a shaft 35 (FIG. 5). The bearing member 31 is slidable along the slot 30 so that the second frame 22 is movable relative to the first frame 18 between its first position adjacent a first side 32 of the first frame 18 with the second frame 22 in contact with a stop 33 mounted on the first frame 18, (FIG. 1) and its second position adjacent the opposite end of the slot 30 and a second side 34 of the frame 18, which second position is defined by brake means later to be explained. A series of contact buttons 38 are mounted in the second frame 22 to laterally position the second frame 22 on the frame member 29 and to provide bearing surfaces for sliding and pivotal movement between the frames 18 and 22. The contact buttons preferably are made of a firm material having a low coefficient of friction with the metal frame member 29 such as the acetal resin sold under the trade designation of Delrin (and so designated throughout this specification). The second frame 22 includes a handle 36 which is adapted for manual engagement to allow an operator to move the second frame 22 from its first to its second position relative to the first frame 18 to apply a label 11 to an object 12 positioned in the guide 23, and to return the second frame 22 to its first position.

The means for pressing a dispensed label 11 into engagement with an object 12 in the guide 23 includes a pressure roller 37 rotatably mounted on the second frame 22 with its periphery extending beyond the edge of the second frame 22 toward the surface 19. The pressure roller 37 is positioned so that as the second frame 22 is moved from its first to its second position relative to the frame 18, the pressure roller 37 will pass over a label 11 dispensed to an object 12 by the label dispensing means (later to be explained). The second

frame 22 is pivotally mounted by the shaft 35 in the bearing member 31 so that the operator may urge the pressure roller 37 toward an object 12 in the guide 23 as he moves the second frame 22 from the first to the second position, thereby causing the pressure roller 37 to engage and press the dispensed label 11 into engagement with the object 12.

The apparatus also includes means facilitating access to the guide 23 to insert or remove objects 12. Biasing means or a spring biased plunger assembly 39 is positioned between the first and second frames 18 and 22 to rotate the second frame 22 relative to the frame 18 about the shaft 35 to a raised position of the second frame 22 with the pressure roller 37 spaced from the surface 19 to afford access to the guide 23 to insert or remove an object 12. The raised position of the second frame 22 (illustrated in FIG. 3) is defined by contact between the adjacent surface of a cam member 40 carried by the second frame 22 (the further function of which will be explained later) and the surface 41 of a bearing strip, preferably of Delrin. The bearing strip is attached to the frame 18 and positioned with the surface 41 parallel to the slot 30 in an opening in the first frame 18 which permits movement of the cam member 40 with the second frame 22 between its first and its second position. The plunger assembly 39 includes a support block 43 attached to the second frame 22 having a bore in which is slidably mounted a plunger 44 biased by a spring 45 against a top surface of the frame member 29 which extends parallel with the slot 30. Thus, when the second frame is not urged by an operator to the position (illustrated in FIG. 2) with the pressure roller 37 against an object 12 in the guide 23 against the bias of the spring 45, the second frame 22 will be moved to its raised position (FIG. 3) by the spring 45.

The means for supporting a supply of label stock includes the pan 24 which is sized to contain a supply roll 47 of label stock 14 supported on an edge surface. As the label stock 14 is drawn off the supply roll 47 by the label dispensing means, the supply roll 47 is caused to rotate by contact of its peripheral surface with a wall 48 of the pan 24 and with a first guide shoe 49.

The device 10 also includes guide means for guiding the label stock 14 from the supply roll 47 to the label dispensing means on the second frame 22. The guide means includes the first shoe 49 which has an arcuate surface 51 aligned axially parallel with the supply roll 47, and a second guide shoe 52 spaced across the pan 24 from the first guide shoe 49 and having an arcuate surface 53 oriented with its axis disposed approximately 90° from the axis of the arcuate surface 51 to produce a 90° twist in the label stock 14 dispensed from the supply roll 47 and provide a required orientation of the liner 15 with respect to the second frame 22 to afford threading of the label stock 14 through the label dispensing means. From the second guide shoe 52 the label stock 14 passes about a guide roller 54 rotatably mounted on the frame member 29, continues in a direction generally parallel to the slot 30 to a guide roller 55 rotatably mounted on the second frame 22, and approximately 180° around the guide roller 55 to the label dispensing means on the second frame 22.

The label dispensing means comprises means defining a path for the label stock 14 along the second frame 22, separating means along the path for the seriatim separation of labels 11 from the label stock 14 upon

movement of the liner 15 of the label stock 14 past a separating edge 57, and indexing means for positioning the next label 11 to be dispensed in a predetermined position along the path with respect to the guide 23 on the first frame 18 when the first and second frames 18 and 22 are in their first relative position. The label dispensing means also includes drive means coupled between the first and second frames 18 and 22 and operated by relative movement of the frames 18 and 22 for driving a label 11 to be dispensed along the path past the separating edge 57 at the same rate as the relative rate of movement between the frames 18 and 22 to dispense the label 11 at a predetermined accurately located position on an object in the guide 23 during movement of the frames 18 and 22 from their first to their second relative positions.

The means defining the path along the second frame 22 includes the guide roller 55, a second rotatable guide roller 58 and a support surface 59 on a plate-like support member 60. At the end of the support member 60, the liner 15 passes about the separating edge 57 at which the labels 11 are separated from the label stock 17. The liner 15 extends from the separating edge 57 about the periphery of a driven roller 62 through the nip between the driven roller 62 and an idler roller 63, and along a guide plate 64 having a semi-cylindrical inner guide surface 65 disposed with its axis oriented at approximately 45 degrees to the axes of the driven roller 62 to direct the liner 15 along the guide surface 65 about a coaxially positioned guide pin 66 and through a slot 67 and the slot 30 to discharge the liner 15 from the device 10.

The drive means coupled between the first and second frames 18 and 22 and operated by their relative movement is adapted for engagement with the liner 15 of the label stock 14 along the path to move one label 11 of the label stock 14 past the separating edge 57 upon movement of the frames 18 and 22 from their first to their second relative positions, and includes means to prevent movement of the label stock 14 or liner 15 along the path upon movement of the frames 18 and 22 from their second to their first relative positions.

The drive means comprises the driven roller 62 which is fixedly attached to the shaft 35 journaled in the bearing member 31, and the idler roller 63 which is rotatably mounted on a bracket 70 which bracket 70 is pivotally mounted on a pin 71 on the second frame 22. The periphery of the idler roller 63 is urged toward the periphery of the first roller by biasing means or a spring 72, and may be manually moved to a position spaced from the periphery of the driven roller 62 in opposition to the spring 72 by manipulating an end 73 of the bracket to afford positioning the liner 15 of the label stock 14 in the nip between the rollers 62 and 63.

The periphery of the driven roller 62 is coated with abrasive particles, and the spring 72 is sized to urge the liner into engagement with the periphery of the driven roller 62 with sufficient pressure that rotation of the driven roller 62 will draw the liner 15 and the label stock 14 along the path to move a label 11 past the separating edge 57.

Referring now to FIGS. 1, 3 and 5 the means for driving the driven roller 62 upon movement of the frames 18 and 22 from their first to their second relative positions includes a flanged pulley 75 fixedly attached to the shaft 35 on the side of the frame member 29 oppo-

site the driven roller 62. A wire 76 is fixedly attached at one end to the first frame 18 adjacent its first side 32, extends generally parallel to the slot 30 and is wrapped several times about the periphery of the pulley 75. From the pulley 75 the wire 76 extends generally parallel to the slot 30 and is attached to one end of a biasing means or spring 77. The other end of the spring 77 is attached to the first frame 18 adjacent its second side 34. The spring 77 provides means to tension the wire 76 about the pulley 75. When the second frame 22 is moved from its first toward its second position relative to the first frame 18, the tension so provided in the wire wraps about the pulley 75 will cause the wire 76 to frictionally engage the periphery of the pulley 75 and rotate the pulley 75 and thereby the driven roller 62 to advance the liner 15 along the path. Upon movement of the second frame 22 from its second toward its first position relative to the first frame 18, however, the spring 77 affords slack in the wire wraps about the pulley 75, which pulley 75 is prevented from rotating under the influence of the wire coils by a one-way clutch 78 between the second frame 22 and the shaft 35. Thus relative motion occurs between the wire wraps and the periphery of the pulley 75 and the driven roller 62 will not be rotated so that the position of the label stock 14 and liner 15 along the path will be maintained during movement of the second frame 18 from its second to its first position.

The diameter of the pulley 75 and the driven roller 62 are selected to drive a label 11 past the separating edge 57 at a rate of movement which will essentially match the rate of movement of the separating edge 57 over an object 12 in the guide 23, thus affording smooth transfer of the label 11 from the liner 15 to the object 12 which will not tension or wrinkle the label 11. The effect on the label being applied of moving the second frame 22 across the first frame 18 from its first to its second position is essentially that of tacking one end of a label 11 to a fixed object 12 to which it is being applied and pulling the liner 15 out from under the label 11 while progressively pressing the label 11 into intimate contact with the object 12.

As an example of design parameters which have provided an acceptable drive means, with a spring steel 0.016 inch diameter wire 76 wrapped four times about the periphery of a 1.09 inch diameter Delrin pulley 75 and tensioned with approximately one-half pound tension by the spring 77, drive means are provided which will consistently rotate the drive pulley 75 upon movement of the first frame 18 from its first to its second position, and will allow relative motion between the wire 76 and the pulley 75 upon movement of the second frame 22 from its second to its first position.

The separating means along the path comprises the separating edge 57 on the support member 60 about which the liner is drawn by the drive means and means for tensioning the liner 15 about the separating edge 57. The label 11 is sufficiently stiff so that sharp bending of the liner 15 about the separating edge 57 will cause a label 11 to separate from the liner 15 and continue along a path generally parallel with the support surface 59 toward the periphery of the pressure roller 37.

The means for tensioning the liner 15 about the separating edge 57 includes the drive means for drawing the liner 15 around the separating edge 57, and a brake means for restricting movement of the label stock 14

along the path to cause a predetermined desired tension in the liner 15 extending around the separating edge 57. The brake means comprises a cantilevered leaf spring 80 supported at one end by a block 81 attached to the second frame 22 for biasing a pad of frictional material 82 into contact with the surface of the label stock on the periphery of the roller 58. The distal end of the spring 80 is adapted for manual engagement to move the pad of frictional material 82 away from the periphery of the roller 58 and afford threading of the label stock 14 therebetween. As illustrated, the frictional material 82 is a product commercially called Fibre-Tran which comprises short resilient nylon fibers projecting from a resilient supporting layer, and which is positioned between the spring 80 and the roller 58 with the distal end of the fibers in conforming resilient frictional contact with the label stock 14 on the roller 58.

The indexing means for positioning the next label 11 to be dispensed at a predetermined position with respect to the guide 23 on the first frame 18 when the first and second frames 18 and 22 are in their first relative position includes means activated by engagement with a label 11 of the label stock 14 during movement of the first and second frames 18 and 22 toward their second relative position subsequent to dispensing a label 11 for stopping movement of the label stock 14 with the engaged label 11 in a predetermined position to position the label 11 next to be dispensed at a predetermined position along the path, and support means restricting deformation of the engaged label 11 to insure accurate positioning of the next label 11 to be dispensed.

The support means includes the support surface 59 and a retaining member 84 attached to the second frame 22 and having a retaining surface 85 adapted to be spaced from the support surface 59 a distance approximately equal to the total thickness of the liner 15 and a label 11. As best illustrated in FIG. 4, a planar foot 86 on the retaining member 84 extends toward the separating edge 57 parallel to the support surface 59 and defines the retaining surface 85. The planar foot 86 has a pair of parallel slots 87 extending into its distal end to afford clearance for a pair of fingers 88 on a stop member 90. The distal ends of the fingers 88 are adapted for engagement with the end of a label 11 positioned between the support and retaining surfaces 59 and 85. The support provided a label 11 between the support surface 59 and the retaining surface 85 assures that the label 11 will not be wrinkled or lifted from the liner 15 during engagement between the stop member 90 and the label 11 to stop the movement of the label stock 14 along the path. This is important to afford accurate positioning of the next label 11 to be dispensed. The device 10 is adapted so that the stop member 90 engages the label 11 preceding the next label 11 to be dispensed with the engaged label 11 positioned under the foot 86 of the retaining bracket 84. The device 10 positions the label 11 next to be dispensed with its leading end extending over the separating edge 57 and positioned adjacent the periphery of the pressure roller 37 in a predetermined position with respect to an object 12 in the guide 23 when the second frame 22 is in its first position relative to the first frame 18. The position of the label end with respect to the stop member 90 is thus dependent only upon the length of the label 11 next to be dispensed and the spacing between the en-

gaged label and the label next to be dispensed. Thus the ability of the device 10 to accurately position a label 11 on an object 12 on the first frame 18 is dependent only on the accuracy of these two dimensions, the machine accuracy, and the ability of an operator to correctly position the object 12 in the guide 23, and is not subject to effects of cumulative error in the lengths of or spacings between consecutive labels 11 of the label stock 14.

The stop member 90 includes a first generally U-shaped member 91 and a second member 92. One end of the first member 91 is fixably attached to a pin 93 pivotally mounted in a first end of the second member 92. The opposite end of the second member 92 is fixably attached to a shaft 94 journaled on the second frame 22. The distal end of the first member 91 is formed with the fingers 88 for engaging a label 11. A biasing means or leaf spring 95 is positioned between the first and second members and biases the first member 91 for rotation toward the support surface 59 with respect to the second member 92. A stop button 96 mounted on the second frame 22 limits rotation of the second member 92 away from the support surface 59, and defines a normal position for the second member 92 with respect to which the stop member 90 is biased toward the support surface 59 to engage a label 11 between the support surface 59 and the retaining surface 85.

The indexing means includes means to move the fingers 88 to a position spaced from the support surface 59 against the bias of the spring 95 when the second frame 22 is in its first position relative to the first frame 18 to afford movement of the label 11 to be dispensed along the path past the separating edge 57 under the influence of the drive means when the second frame 22 is moved toward its second position. The indexing means also includes means to allow the fingers 88 to engage the end of a label 11 moving under the retaining bracket 84 during the dispensing of label 11 to restrict movement of the label 11 next to be dispensed at a predetermined position on the second frame 22.

A follower 97 is clamped to the pin 93 and is positioned such that during movement of the second frame 22 from its first position relative to the first frame 18 an end 98 of the follower 97 will move along a path adjacent a planar surface 99 of the bar 20 extending generally parallel with the slot 30. The length of the bar 20 is such that the end 98 of the follower 97 will move beyond the end of the bar 20 before the second frame 22 reaches its second position. The follower 97 is positioned on the pin 93 so that when the second frame 22 is in its raised position with respect to the first frame 18 under the influence of the spring 45 in the plunger assembly 39, the end 98 of the follower 97 will not contact the surface 99 of the bar 20 or the surface 19 of the first frame 18 so that the fingers 88 on the first member 91 will be urged into contact with the label stock 14 on the support surface 59 under the influence of the spring 95 to afford contact of the fingers 88 with the end of a label 11 under the retaining bracket 84 in any position of the second frame 22 relative the first frame 18. The position of the follower 97 is adapted so that when the second frame 22 is in its first position, and the operator pivots the second frame 22 to press the roller into engagement with an object 12 in the guide 23, the end 98 of the follower 97 will contact the surface 99 of the bar 20 and rotate the first member 91

against the bias of the spring 95 to space the fingers 88 from the support surface 59 and allow movement of the label stock 14 along the path when the operator moves the second frame 22 toward its second position. When the operator has sufficiently moved the second frame 22 toward its second position that the end 98 of the follower 97 leaves the end of the bar 20, the fingers 88 of the second member under the influence of the spring 95 rotate into contact with the label stock 14 which is moving along the support surface 59, and subsequently into the space following the next label 11 to be dispensed to engage the end of the label 11 under the retaining surface 85 upon further movement of the label stock 14 along the path.

While alternatively the pin 93 attached to the first member 91 could be journaled on the second frame 22 so that the fingers 88 would stop the movement of the label 11 under the retaining surface 85 upon the initial engagement between the fingers 88 and the label 11 and cause the liner 15 to slip relative to the driven roller 62 for a short period until the second position of the second frame 22 was reached against a stop, such as a stop 102 on the first frame 18, the device 10 illustrated is not so designed. Rather, the device 10 includes brake means activated by energy manually supplied by the operator to move the second frame 22 toward its second position via contact between the stop member 90 and a label beneath the retaining bracket 84 to stop the movement of the second frame 22 away from its first position relative to the first frame 18 and establish the second relative position of the frames 18 and 22. Thus in the illustrated embodiment the stop 102 serves only to limit movement of the second frame 22 away from its first position if there is no label stock 14 in the device 10.

The brake means includes a brake member 104 preferably of hardened steel rotatably mounted at one end about a pin 105 on the first frame 18. The brake member 104 has a radially extending brake plate 106 preferably of hardened steel attached at its end opposite the pin 105 which brake plate 106 projects into the clearance opening in the frame member 29 for the cam member 40. The brake plate 106 is positioned between the cam member 40 and a needle bearing 108 rotatably mounted on the second frame 22. The needle bearing 108 supports the brake plate 106, and precisely positions a ground brake surface 109 on the brake plate 106 with respect to the cam member 40 in any position of the second frame 22 relative to the first frame 18. The cam member 40 is pivotally mounted on the end of the shaft 94 attached to the second member 92. A flat spring 111 is engaged between the shaft 94 and the cam member 40 and biases the cam member 40 to an angular position corresponding to the angular position of the second member 92. When the second member 92 is positioned against the stop 96 the spring 111 urges the cam member 40 to a position at which the surface of the cam member 40 is spaced from the brake surface 109 to allow movement of the second frame 22 toward its second position. Upon engagement of the fingers 88 with a label 11 under the retaining bracket 84, however, continued force manually applied to the handle 36 of the second frame 22 to move it to its second position will be transmitted by the drive means through the label 11 engaged by the stop member 90 and will cause relative rotation of the first and second members 91 and 92 about the pin 93 against the bias of the spring

95, and movement of the second member 92 away from the stop 96 together with corresponding rotation of the shaft 94 to rotate the cam member 40 into engagement with the brake surface 109. As the cam member 40 is formed to be self locking, further force applied at the handle 35 to move the second frame 22 away from its first position will lock the cam member 40 between the shaft 94 and the brake plate 106 which is supported by the needle bearing 108 to prevent further movement of the second frame 22 away from its first position and define the second position of the second frame 22 relative to the first frame 18.

The operation of the device 10 will now be explained, assuming the device 10 is threaded with a supply of label stock 14, and that initially no object 12 is in the guide 23 and the second frame 22 is in its first position relative to the first frame 18. Initially the second frame 22 is raised by the spring biased plunger assembly 39 to provide sufficient spacing between the pressure roller 37 and the surface 19 for the operator to position an object 12 such as a savings passbook in the guide 23. The operator then grasps the handle 36, presses the handle 36 toward the surface 19 to pivot the second frame 22 about the shaft 35, and press the pressure roller 37 into contact with the object 12 against the bias of the plunger assembly 39, and pushes the second frame 22 toward its second position. As the second frame 22 is pivoted to move the pressure roller 37 into contact with the object 12, the end 98 of the follower 97 comes into contact with the bar 20, causing rotation of the first member 91 to disengage the fingers 88 from the end of a label under the retaining bracket 84 and allow movement of the label stock 14 along the path as the second frame 22 is moved towards its second position. The wire 76, which wire 76 is attached at its one end to the first frame 18 and wrapped about the pulley 75 on the second frame 18, causes the pulley 75 to rotate and drive the driven roller 62. The roller 62 engages the liner as it is forced thereagainst by the idler roller 63. The rollers 62 and 63 thus draw the label stock 14 along the path at the same rate as the second frame 22 is moved toward its second position. The label 11 being dispensed remains essentially in a fixed longitudinal position with respect to the guide 23 while the liner is stripped out from under it as the driven roller 62 draws the liner 15 around the separating edge 57. Shortly after movement of the second frame 22 begins, the pressure roller 37 moves onto the level 11 being dispensed. As the second frame 22 moves toward its second position, the pressure roller 37 rolls across the label 11 and progressively presses it into intimate contact with the object 12 in the guide 23. Before the second frame reaches its second position with respect to the first frame 18, the end 98 of the follower 97 leaves the end of the bar 20 so that the first member 91 pivots towards the support surface 59 under the influence of the spring 95. The fingers 88 on the first member 91 ride along the top of the label 11 next to be dispensed, and subsequently drop into the space between the label 11 next to be dispensed and a label 11 between the support surface 59 and the retaining bracket 84.

Further movement of the label stock 14 causes engagement between the fingers 88 and the leading edge of the label 11 beneath the retaining bracket 84 so that the force exerted by the operator to move the second frame 22 to its second position is transmitted via the

drive means through the label stock 14 to move the first member 91 with the engaged label 11 along the path. Such movement of the first member 91 causes the second member 92 to rotate with the shaft 94 away from the stop 96, causing the cam member 40 on the shaft 94 to be biased into engagement with the brake plate 106 with the engaged label 11 at a predetermined position along the path. As the cam member 40 is shaped to be self engaging, further pressure by the operator on the handle 35 to move the second frame 22 away from its first position will lock the cam member 40 in engagement with the brake plate 106 to stop movement of the second frame 22 and establish the second position of the second frame 22. The operator then pulls the second frame 22 back toward its first position which will result in the second frame moving to its raised position so that the pressure roller 37 is spaced from the object 12 in the guide 23. As the second frame 22 is drawn toward its first position, the one way clutch 78 prevents rotation of the driven roller 62, and slack in the wraps of the wire 76 about the pulley 75, permitted by the spring 77, allows the wire to slip relative to the pulley 75. The fingers 88 remain in engagement with the label 11 under the retaining bracket 84 during movement of the second frame 22 toward its first position so that the cam member 40 remains biased against the brake plate 106 by the spring 111. The cam member 40 is shaped so that upon movement of the second frame 22 from its second toward its first position, the cam member 40 will rotate slightly out of engagement with the brake plate 106 against the bias of the spring 111 to allow such movement. With the second frame 22 again in its first position, the operator can conveniently remove the object 12 from the guide 23, and the device is ready for precise application of the next label 11 to be dispensed.

Having thus described the present invention with respect to a preferred embodiment, what is claimed is:

1. A device useful for applying a pressure sensitive adhesive label to an object from a supply of labels comprising labels adhesively carried in spaced relationship on a support liner, said device comprising:

a first frame;

locating means on said first frame for registering a said object in a predetermined position;

a second frame;

means for mounting said first and second frames for relative movement to position said second frame at a first predetermined position relative to said locating means and at a second relative position;

means for supporting a said supply of labels, means defining a path for said labels and their support liner along said second frame;

separating means on said second frame along said path for separating a said label from its support liner upon movement of the length of liner supporting the label past said separating means;

indexing means for positioning a said label to be separated in a predetermined relationship to said locating means on said first frame when said second frame is in said first predetermined position;

drive means coupled between said first and second frames and operated by movement of said second frame relative to said locating means from said first predetermined position to drive said label to be separated along said path past said separating means at substantially the same rate of movement

as the rate of relative movement between said frames to position the separated label at a predetermined position in relation to said locating means; and

means for pressing said separated label into contact with a said object in said locating means during relative movement of said frames.

2. A device according to claim 1 wherein said drive means comprises:

roller means rotatably mounted on said second frame for engagement with the liner carrying said labels to pull the liner past said separating means;

a pulley having a cylindrical periphery rotatably mounted on said second frame and coupled to said roller means for rotation therewith;

a wire affixed at one end to said first frame and wrapped about the periphery of said pulley with the other end of said wire extending from said pulley in the direction of movement of said frames;

biasing means coupled between said other end of said wire and said first frame to tension said wire about said pulley to cause rotation of said pulley and of said roller means to advance said liner along said path during relative movement of said frames from said first predetermined position and for providing slack within said wire about said pulley upon relative movement of said frames toward said first predetermined position to restrict driving engagement between said wire and said pulley; and

means for restricting rotation of said pulley to the direction affording movement of the liner toward said roller means.

3. A device according to claim 1 wherein said indexing means comprises:

a support member mounted on said second frame and having a support surface defining a portion of said path in advance of said separating means;

a retaining member having a retaining surface;

means mounting said retaining member on said second frame for spacing said retaining surface from said support surface a distance approximately equal to the total thickness of a said liner and a said label;

a stop member mounted on said second frame and having a distal end positioned along said support surface for contacting said liner at said retaining member to engage the leading edge of said labels moving between said support member and said retaining member; and

means for moving said stop member to a position spacing said distal end from said labels upon movement of said second frame from said first predetermined position and for affording movement of said stop member to engage said labels during movement of said frames to said second relative position.

4. A device according to claim 3 wherein said device further comprises brake means activatable by engagement of said stop member with the end of a label for stopping relative movement of said frames and defining said second relative position of said frames.

5. A device according to claim 4 wherein said stop member comprises a first member and a second member pivotably interconnected at a first end of each member, the opposite end of said first member being said distal end, and the opposite end of said second member being mounted on said second frame for piv-

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otal movement from a first position defined on said second frame upon movement of the distal end of said first member along said path with an engaged label, and said brake means comprises biasing means to bias said second member to said first position, a brake member mounted on said first frame having a brake surface extending in a direction generally parallel to the path of relative movement between said frames, and a cam member mounted on said second frame for movement along said brake surface and coupled for pivotal movement with said second member from a position spaced from said brake surface when said second member is in said first position to afford relative movement of said frames to a position in engagement with said brake surface to stop relative movement of said frames upon movement of said second member from said first position.

6. A device according to claim 1 wherein said means for pressing said dispensed label into contact with a said object in said locating means includes a pressure

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roller rotatably mounted on said second frame adjacent said separating means and said locating means, said first frame has a slot, said device includes a bearing member slidably mounted in said slot, and said second frame is mounted for pivotal motion about said bearing member between a position with said pressure roller in contact with a said object in said locating means, and a position with said pressure roller spaced from said locating means to afford insertion and removal of a said object, said second frame being movable across said first frame between said first predetermined position and said second relative position of said frames upon movement of said bearing member along said slot, and said second frame has a handle to afford manual relative movement of said second frame between said first and second positions relative to said first frame and movement of said roller into engagement with a said separated label on a said object in said locating means.

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