May 24, 1949. C. M. HESSON 2,471,066

LABELER

Filed June 6, 1945 2 Sheets-Sheet 1

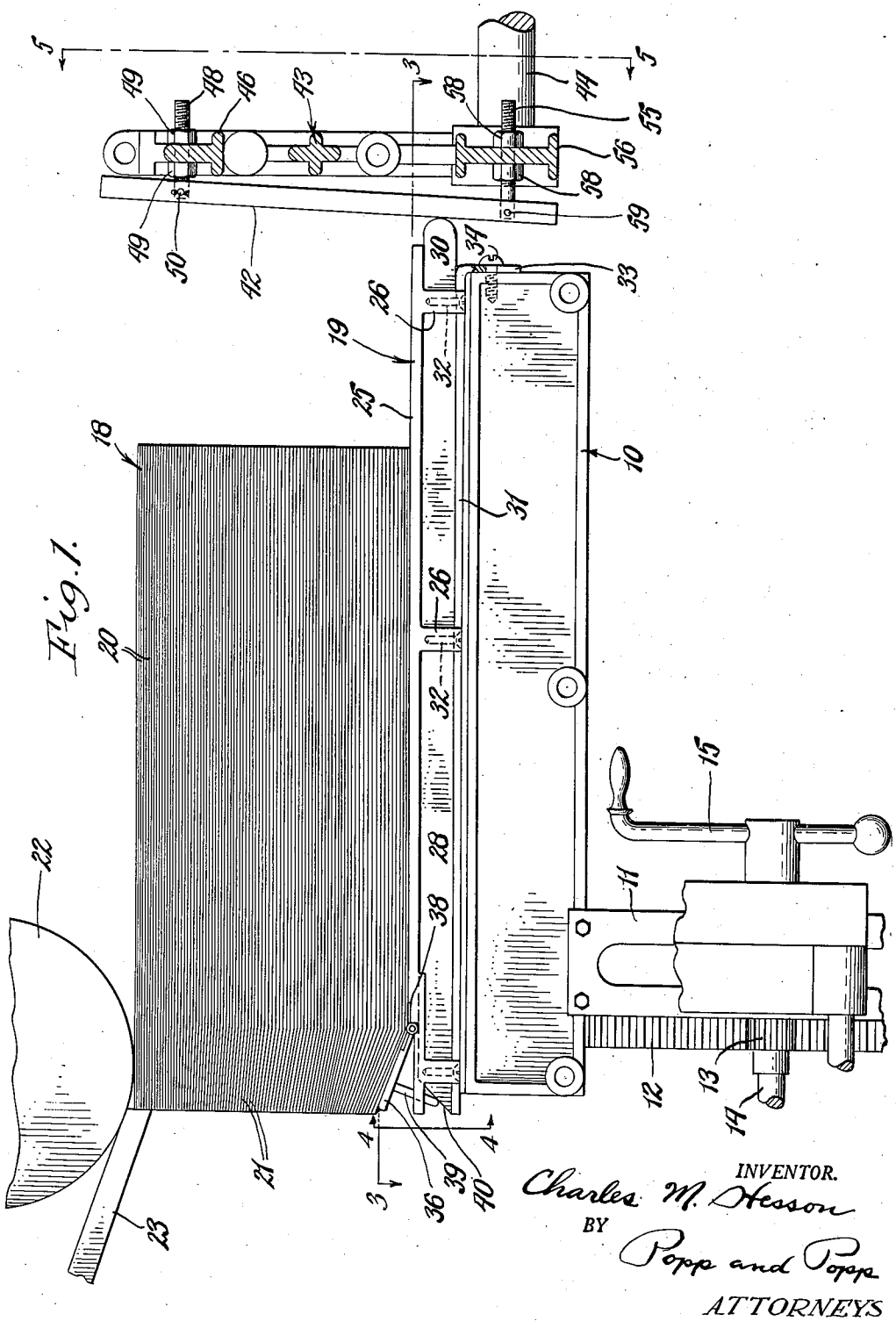


Fig. 1.

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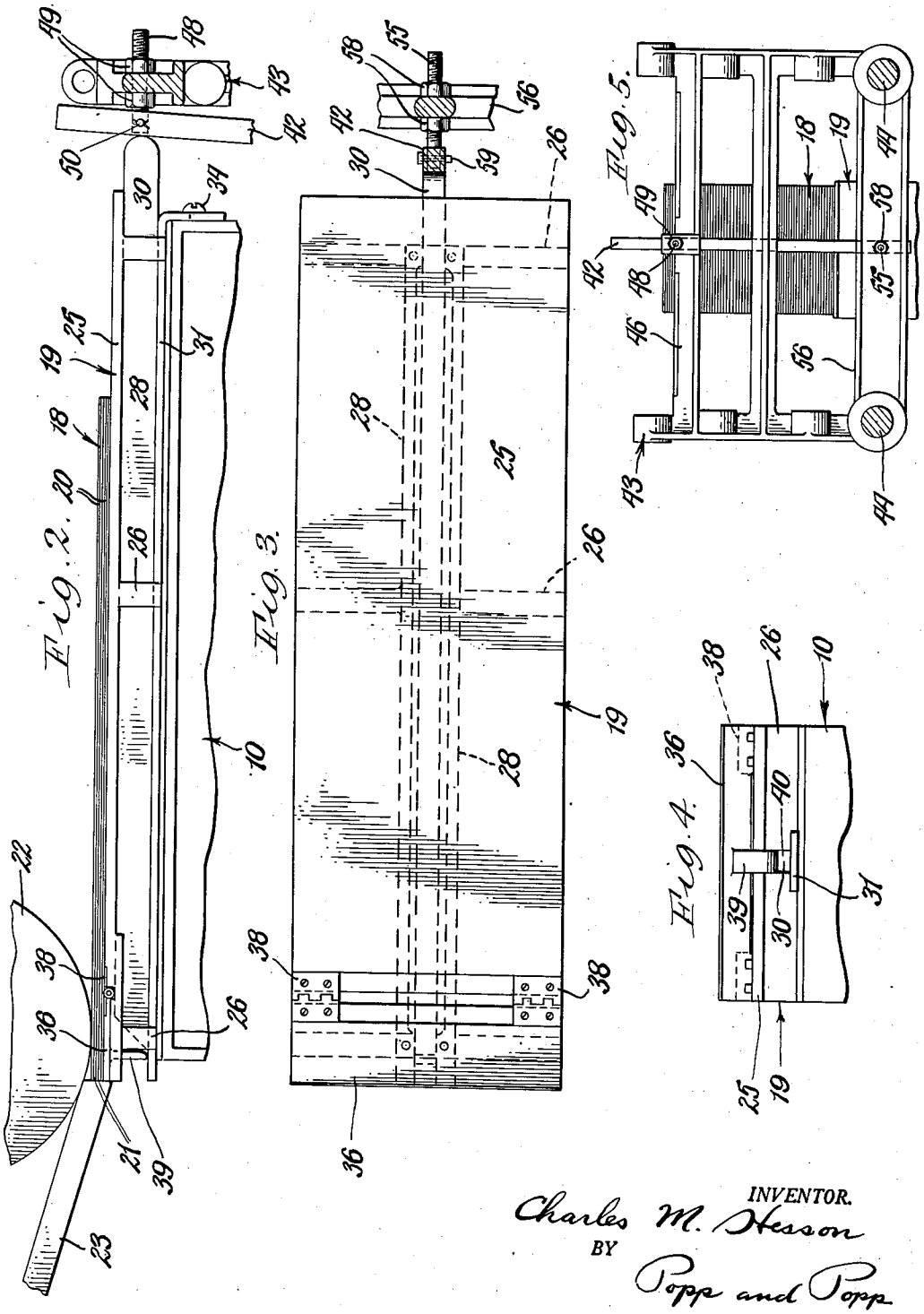


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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# UNITED STATES PATENT OFFICE

2,471,066

## LABELER

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9 Claims. (Cl. 271—62)

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This invention relates to a labeler and more particularly to a labeler for applying labels of uneven thickness to cans. Such labels could be, for example, varnished labels having unvarnished ends or embossed labels where the embossing varies in thickness.

With labels which are varnished or otherwise coated except at one end, the unvarnished end is necessarily of less thickness than the varnished body of the label. Likewise with embossed labels the embossing may vary in thickness. When such labels of uneven thickness are stacked with their thinner portions in register, the thinner portions necessarily droop or incline downwardly from the body of the stack because of this inequality in the thickness. Further, the degree to which the thinner portions of a stack of such labels slopes downwardly depends upon the total thickness of the stack. Thus, with only a few labels this slope of the thinner portions is not particularly noticeable, but as the thickness or the height of the stack increases the inequality in the thickness of the labels causes a progressively greater and greater slope.

The labeler forming the subject of the present invention is particularly adapted for use in conjunction with the labeling of cylindrical cans in which the can is rolled by power down a track or canway over the top of the stack of labels, the can first engaging the end of the uppermost label and rolling it on itself so as to label the can. It will be seen that where a substantial stack of labels having ends of reduced thickness is used, the depressed condition of the thinner end of the uppermost label of the stack presents a distinct problem in securing reliable and full contact between the thinner end of the uppermost label and the can. In the following description it will be assumed that varnished labels having unvarnished ends are to be applied to cylindrical cans, although, as above indicated, the invention is applicable to all labels of uneven thickness, particularly those which are thinner at their ends.

It is accordingly the principal object of the present invention to provide, in a labeler where a can is rolled over a stack of labels of uneven thickness, full contact between the thinner portion of the uppermost label and the can rolling thereover so as to insure uniform and reliable labeling of each can.

It is another object of the invention to provide such a labeler in which the thinner portion of the uppermost label is held coplanar with the thicker body of the uppermost label so that contact of the can rolling thereover with the full area of the uppermost label is insured.

It is another object of the invention to provide such a labeler which automatically compensates for the increase in slope of the thinner portions

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of the stack of labels from the bodies thereof as the height of the stack increases.

Another object is to provide such a mechanism for applying labels of uneven thickness to cans which is in the form of a simple attachment to a standard labeler and which can be readily removed when the labeler is not used with the particular type of labels to which the invention is directed.

Another object of the invention is to provide such a labeler for labels of uneven thickness which can readily be adjusted to accommodate labels having different variations in thickness, this being important inasmuch as the slope of the thinner portions of the labels is dependent upon the difference or inequality between the thickness of the body portions of the labels and the thinner portions thereof.

Another object of the invention is to provide such a labeler which is extremely simple in construction and operation and which will stand up under conditions of severe and constant use without getting out of order or requiring repairs.

In the accompanying drawings:

Fig. 1 is a side elevation of the vertically movable bed plate of a labeler and showing the manner in which the stack of labels thereon is applied to a cylindrical can, the stack being shown as of substantial thickness.

Fig. 2 is a fragmentary view similar to Fig. 1 and showing the position of the parts when the stack of labels has been reduced to a small number.

Fig. 3 is a fragmentary horizontal sectional view, taken on line 3—3, Fig. 1.

Fig. 4 is a fragmentary end elevational view, taken on line 4—4, Fig. 1.

Fig. 5 is a vertical section, taken on line 5—5, Fig. 1.

The labeler is shown as including a vertically movable label bed plate 10 which is mounted for vertical movement having for this purpose vertical guide bars or legs 11 which support the label bed plate in a horizontal position from the main frame (not shown) and permit it to be raised and lowered in accordance with the height of the stack of labels thereon. For this purpose a vertical rack 12 is secured to the label bed plate 10 and is engaged by a pinion 13 fast to a shaft 14 which shaft can be turned by any suitable timing mechanism for gradually raising the label bed plate as the pile of labels thereon diminishes. A hand crank 15 is also shown for manually adjusting the elevation of the bed plate 10, this feature forming no part of the present invention and hence not being illustrated in detail. The stack 18 of labels is supported on a subplate 19, this subplate being removably supported on the label bed plate 10. Each of the labels 18 is shown as having a varnished body 20 and an unvar-

nished end 21, the unvarnished ends 21 being thereby of smaller thickness than the body portions 20. As previously indicated, however, the labeler can be used with any labels of uneven thickness, such as with embossed labels. These labels are shown as applied to a cylindrical can 22 which rolls down an inclined track 23 onto the unvarnished end 21 of the uppermost label of the stack 18, the can picking up this uppermost label and rolling it on itself so as to label the can. The feature of the invention resides in supporting the unvarnished ends 21 of the stack of labels 18 so that the unvarnished end of the uppermost label lies in the same horizontal plane as the body of the uppermost label thereby to insure a reliable pickup of the uppermost label by the can regardless of the height of the stack of labels.

To this end the label subplate 19 comprises a horizontal top plate 25 supported by a plurality of integral cross ribs 26 which rest upon the upper face of the label bed plate 10. At its center the label subplate 25 is provided on its underside with a pair of longitudinal ribs 28, these longitudinal ribs being spaced from each other to provide a guideway for a longitudinally sliding bar 30. This bar is slidingly held in the guideway provided between the longitudinal ribs 28 by a metal strip 31, this strip being secured to the underside of the longitudinal ribs 28 by screws 32 or in any other suitable manner. To hold the label subplate 19 in centered relation to the label bed plate 10, one end of this strip 31 is bent downwardly and provided with a vertical end slot 33 which fits down around the shank of a horizontal screw 34 provided at the corresponding end of the label bed plate 10. This screw 34 is not tightened but merely serves to provide a headed pin for anchoring the label subplate 19 against lateral and endwise displacement relative to the label subplate 10.

One end of the top plate 25 of the subplate 19 is in the form of a hinged section 36, this hinged section 36 extending the full width of the label subplate 19 and being approximately equal in extent, lengthwise of the labeler, to the width of the unvarnished ends 21 of the labels. This hinged end section 36 is secured to the top plate 25 by hinges 38 so that it can be swung upwardly about a horizontal transverse axis and thereby lift the unvarnished ends 21 of the labels in the stack 18 so as to support the unvarnished end of the uppermost label at any inclination desired. This hinged section 36 is provided with a perpendicular depending pin 39 which engages an angularly inclined supporting face 40 at the end of the sliding bar 30. The other end of this sliding bar 30 is rounded and engages an inclined bar 42 adjustably mounted on a stationary end head 43 of the labeler. This stationary end head can be supported from the main frame (not shown) of the labeler in any suitable manner, as by the horizontal supporting rods 44, as shown.

This end head 43 is shown as including an upper horizontal bar 46 which slidingly carries a horizontal pin 48, this pin 48 being threaded and being held at the desired axial position by a pair of nuts 49. At the end of the pin 48 opposing the stack 18 of labels it is provided with a transverse pin 50 which extends through the upper end of the bar 42. The lower end of this bar is similarly supported by a threaded pin 55 which is slidingly supported in the lower bar 56 of the end head 43 and is secured in any adjusted angular position by a pair of nuts 58. This pin 55 is provided with a cross pin 59 which supports the lower end of the inclined bar 42 and it will be seen that by the adjustment of the nuts 49 and 58 the bar 42 can be adjusted to have any desired inclination, fore-and-aft of the labeler.

In the operation of the labeler a substantial stack of the labels is placed upon the label subplate 19 with their ends 21 resting upon the hinged section 36 of the subplate. The hand crank 15 is then turned so as to bring the uppermost label of the stack opposite the rail 23. The label bed plate 10 is either raised or lowered in doing this. If it is lowered the round end of the sliding bar 30 rides down the inclined bar 42 and because of the inclination of this bar 42 it is pushed to the left. Through the incline 40 at the opposite end of this bar 30 the pin 39 and the hinged section 36 is raised so as to lift the unvarnished ends 21 of the stack of labels. If it is raised the round end of the sliding bar 30 rides up on the inclined bar 42 and the weight of the labels, plus the weight of the hinged section 36 acting through the perpendicular pin 39 against the inclined end 40 of this bar 30, serves to shift this bar to the right, as viewed in Fig. 1, so as to continue to engage the inclined bar 42 in such rising movement of the bed plate 10. In either event the angularity of the bar 42 has been adjusted, through the nuts 49 and 58, so as to bring the unvarnished end 21 of the uppermost label even or coplanar with the varnished body thereof. It will therefore be seen that the can 22 on rolling down the track 23, will engage this unvarnished end of the uppermost label.

As the labeling proceeds the height of the stack 18 of labels diminishes, the bed plate 10 being slowly raised by the gear 13 as the labels are peeled off of the stack so as to keep the uppermost label continuously in proper alinement with the track 23. As the bed plate 10 rises in so bringing the topmost of the stack of labels into alinement with the track 23 the sliding bar 30 moves upwardly along the inclined bar 42, this movement being effected by the weight of the labels and the hinged section 36 acting against the inclined end 40 of this bar. As a result, as the height of the stack 18 of labels decreases the angularity of the hinged section 36 of the label subplate likewise decreases. This compensates for the gradually diminishing total thickness of the unvarnished ends 21 of the labels as compared with the varnished bodies 20 thereof as the height of the stack decreases. Thus, upon referring to Fig. 2, when the stack of labels 18 has been practically exhausted, the hinged section 36 is practically coplanar with the top plate 25 of the subplate 19. It will therefore be seen that as the bed plate 10 moves up in response to the diminishing stack of labels the hinged section 36 is automatically adjusted so as to maintain the unvarnished end 21 of the topmost label of the stack coplanar with the varnished body of this topmost label, thereby to insure uniform and full engagement between the label and the can regardless of the height of the stack.

When it is desired to use the labeler with labels having uniform thickness throughout, the operator merely lifts the label subplate 19 from the bed plate 10, this being permitted by the slotted end of the strip 31 which slides over the neck or shank of the screw 34 which serves to hold the subplate in position but is not tightened.

From the foregoing it will be seen that the present invention provides a very simple accessory for a standard labeler which adapts it for

efficient use with labels of uneven thickness, in particular insuring that the topmost label lies flat or in the same horizontal plane regardless of the height of the stack or of the fact that the ends may be of less thickness than the bodies thereof, this difference being cumulative as the height of the stack increases. It will further be seen that the labeler is very easily adjusted to the particular labels employed; it can easily be removed when it is not needed; and will stand up under conditions of severe use without getting out of order.

I claim as my invention:

1. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of said labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a section mounted on said supporting plate for vertical movement relative thereto and supporting the thinner portions of said stack of labels, and means moving said section vertically relatively to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label of said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack, comprising a member carried by said supporting plate and guided for horizontal movement relative thereto, means operatively connecting one part of said member with said section for moving said section vertically in response to the horizontal movement of said member, and stationary cam means arranged alongside said plate and engaging another part of said member to move it horizontally in response to the vertical movement of said supporting plate.

2. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a section mounted on said supporting plate for vertical movement relative thereto and supporting the thinner portions of said stack of labels, and means moving said section vertically relatively to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label of said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack, comprising a member carried by said supporting plate and guided for horizontal movement relative thereto, cam means operatively connecting one part of said member with said section for moving said section vertically in response to the horizontal movement of said member, and stationary cam means arranged alongside said plate and engaging another part of said member to move it horizontally in response to the vertical movement of said supporting plate.

3. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a section mounted on said supporting plate for vertical movement relative thereto and supporting the thinner portions of said labels, and means moving said section vertically relatively to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label of said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack, comprising a horizontal bar carried by said supporting plate and movable longitudinally relative to said plate, means operatively connecting one end of said horizontal bar with said section for moving said section vertically in response to the longitudinal movement of said horizontal bar, and a stationary bar extending upwardly alongside said supporting plate at an angle to the vertical and having its inclined face engaged by the other end of said horizontal bar to move said horizontal bar longitudinally in response to the vertical movement of said supporting plate.

4. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a section mounted on said supporting plate for vertical movement relative thereto and supporting the thinner portions of said stack of labels, and means moving said section vertically relatively to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label of said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack, comprising a horizontal bar carried by said supporting plate and movable longitudinally relative to said plate, means operatively connecting one end of said horizontal bar with said section for moving said section vertically in response to the longitudinal movement of said horizontal bar, a stationary bar extending upwardly alongside said supporting plate at an angle to the vertical and having its inclined face engaged by the other end of said horizontal bar to move said horizontal bar longitudinally in response to the vertical movement of said supporting plate, and means for adjusting the angularity of said stationary bar.

5. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a hinged section mounted at one end of said supporting plate for vertical movement relative thereto to swing about a horizontal transverse axis and supporting the thinner portions of said labels, and means moving said hinged section vertically relative to said

supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label in said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack comprising a horizontal bar carried by said supporting plate and movable longitudinally relative to said plate at right angles to the axis of said hinged section, means operatively connecting one end of said horizontal bar with said hinged section for moving said hinged section vertically in response to the longitudinal movement of said horizontal bar, and a stationary bar extending upwardly alongside said supporting plate at an angle to the vertical and having its inclined face engaged by the other end of said horizontal bar to move said horizontal bar longitudinally in response to the vertical movement of said supporting plate.

6. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a hinged section mounted at one end of said supporting plate for vertical movement relative thereto to swing about a horizontal transverse axis and supporting the thinner portions of said labels, and means moving said hinged section vertically relative to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label in said stack in a predetermined angular relation to the thicker portion thereof regardles of the height of said stack comprising a horizontal bar carried by said supporting plate and movable longitudinally relative to said plate at right angles to the axis of said hinged section and having one end arranged adjacent said hinged section and provided with an inclined face, a downward projection on said hinged section engaging said inclined face for moving said hinged section vertically in response to the longitudinal movement of said horizontal bar, and a stationary bar arranged alongside said supporting plate at an angle to the vertical and having its inclined face engaged by the opposite end of said horizontal bar to move said horizontal bar longitudinally in response to the vertical movement of said supporting plate.

7. In a labeler for labels having portions of less thickness than other portions thereof, said labeler having a supporting plate for a stack of such labels, the uppermost one of which is adapted to be applied to a container, and means for moving said plate vertically relative to the label application zone to maintain the uppermost label of said stack in alinement with said zone, the combination therewith of a label pack adjusting means, comprising a hinged section mounted at one end of said supporting plate for vertical movement relative thereto to swing about a horizontal transverse axis and supporting the thinner portions of said labels, and means moving said hinged section vertically relative to said supporting plate in response to the vertical movement of said supporting plate and maintaining the thinner portion of said uppermost label in



said stack in a predetermined angular relation to the thicker portion thereof regardless of the height of said stack comprising a horizontal bar carried by said supporting plate and movable longitudinally relative to said plate at right angles to the axis of said hinged section and having one end arranged adjacent said hinged section and provided with an inclined face, a downward projection on said hinged section engaging said inclined face for moving said hinged section vertically in response to the longitudinal movement of said horizontal bar, a stationary bar arranged alongside said supporting plate at an angle to the vertical and having its inclined face engaged by the opposite end of said horizontal bar to move said horizontal bar longitudinally in response to the vertical movement of said supporting plate, and means for adjusting the angularity of said stationary bar.

8. An attachment for a labeler to adapt it to be used with labels having portions of less thickness than other portions thereof, comprising a subplate adapted to be laid on the bed plate of the labeler and having a vertically movable section supporting the thinner portions of said labels, a horizontal bar mounted for longitudinally sliding movement in said subplate and having one end projecting outwardly therefrom, means operatively connecting the other end of said horizontal bar with said section for moving said section vertically in response to the horizontal movement of said bar, and an upright stationary bar on said labeler and having an inclined face, said projecting end of said horizontal bar engaging said inclined face of said upright stationary bar to move said horizontal bar longitudinally in response to the vertical movement of said bed plate.

9. An attachment for a labeler to adapt it to be used with labels having portions of less thickness than other portions thereof, comprising a subplate adapted to be laid on the bed plate of the labeler, a section hinged to one end of said subplate for vertical movement relative thereto to swing about a horizontal axis and supporting the thinner portions of said labels, a horizontal bar mounted for longitudinally sliding movement in said subplate and having one end projecting outwardly therefrom and means operatively connecting the other end of said horizontal bar with said hinged section for moving said hinged section vertically in response to the horizontal movement of said bar, comprising a downward projection on said hinged section engaging an inclined face at said other end of said horizontal bar, and an upright stationary bar on said labeler and having an inclined face, said projecting end of said horizontal bar engaging said inclined face of said upright stationary bar to move said horizontal bar longitudinally in response to the vertical movement of said bed plate.

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