

July 3, 1973

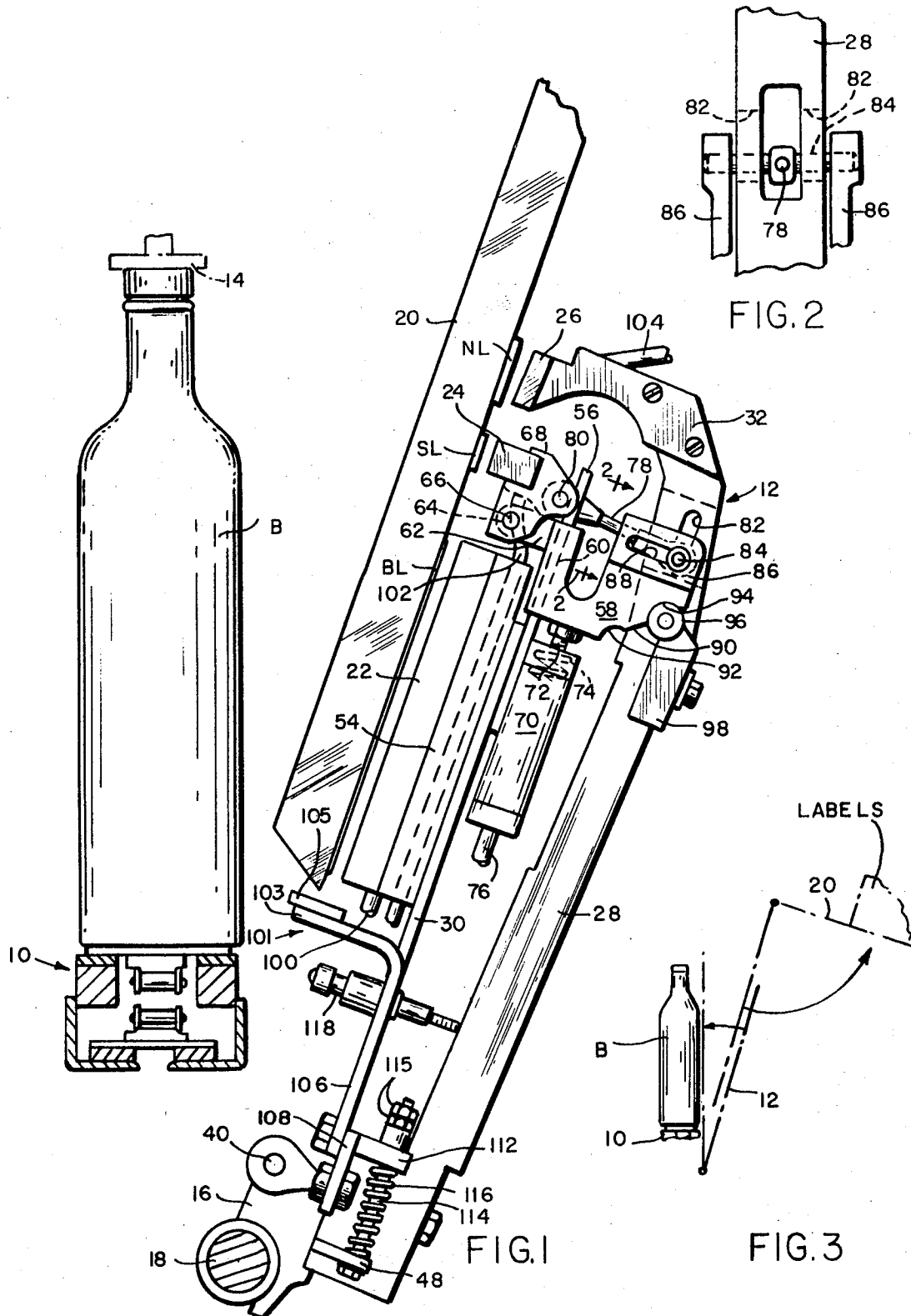
E. A. SCHNIER

3,743,565

GRIP-FINGER FOR APPLYING LABELS

Filed Sept. 1, 1971

3 Sheets-Sheet 1



July 3, 1973

E. A. SCHNIER

3,743,565

GRIP-FINGER FOR APPLYING LABELS

Filed Sept. 1. 1971

3 Sheets-Sheet 2

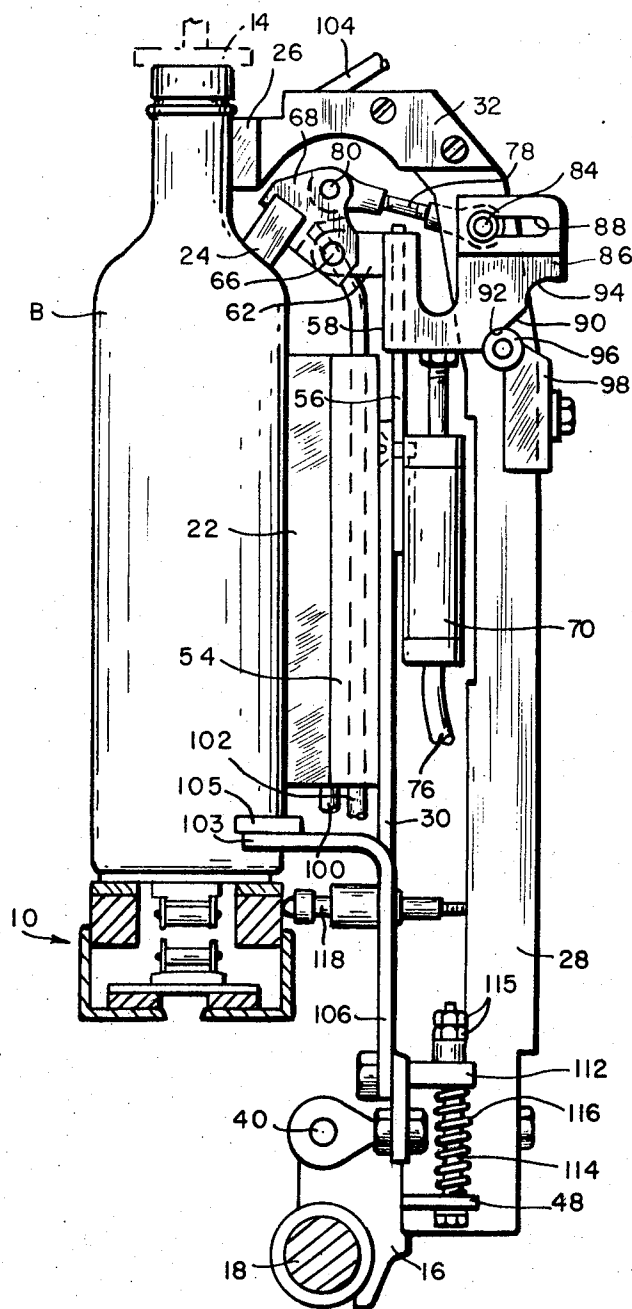


FIG. 4

July 3, 1973

E. A. SCHNIER

3,743,565

GRIP-FINGER FOR APPLYING LABELS

Filed Sept. 1, 1971

3 Sheets-Sheet 3

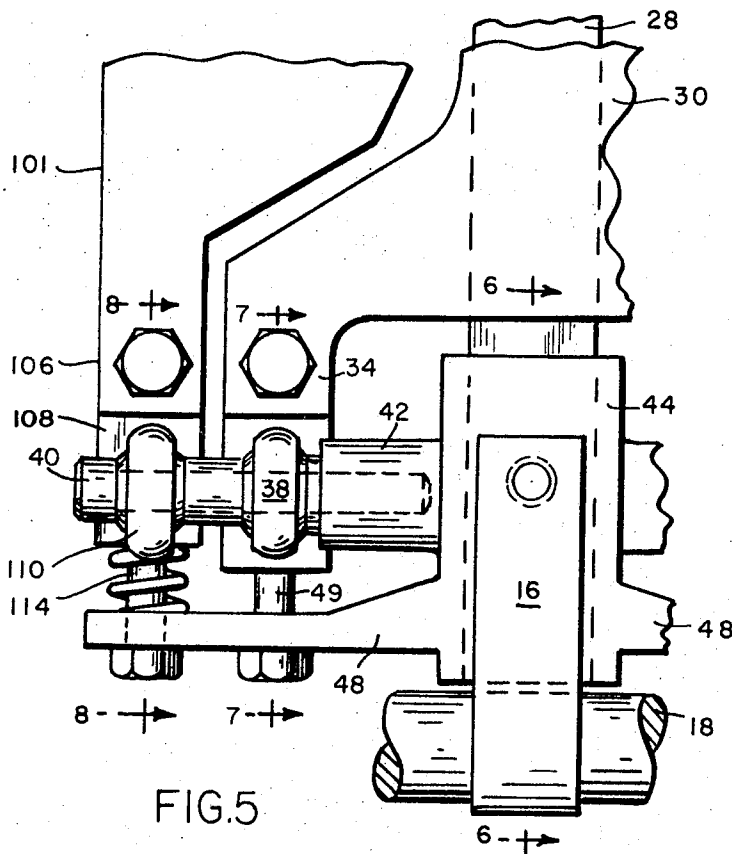


FIG. 5

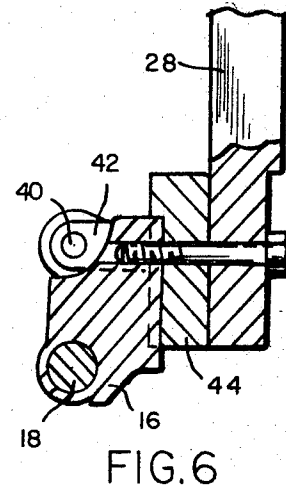


FIG. 6

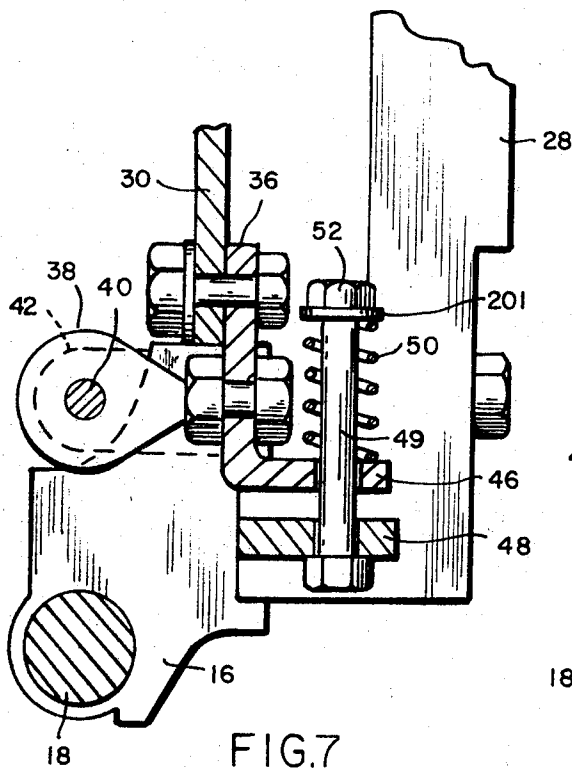


FIG. 7

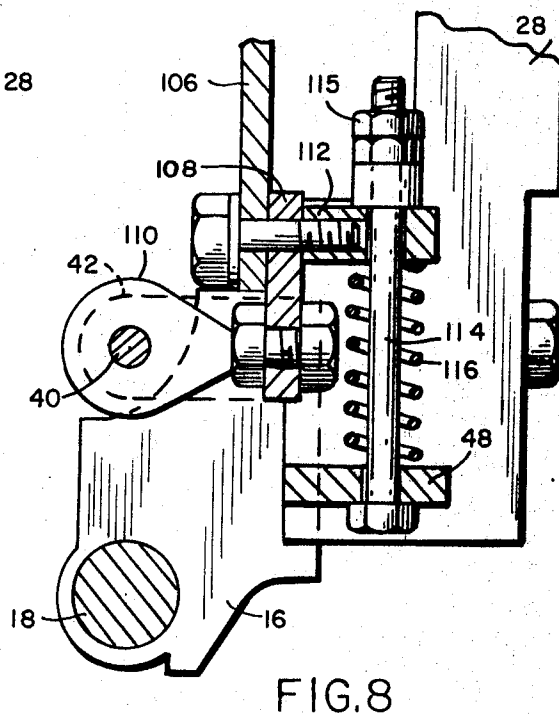


FIG. 8

1

3,743,565

GRIP-FINGER FOR APPLYING LABELS

Edward A. Schnier, Hubbardston, Mass., assignor to

A-T-O Inc., Cleveland, Ohio

Filed Sept. 1, 1971, Ser. No. 176,860

Int. Cl. B65c 9/08, 9/36

U.S. Cl. 156—476

27 Claims

ABSTRACT OF THE DISCLOSURE

A label-applying transfer assembly of the kind which is reciprocated between a label picker and a support on which a container is supported in an upright position to take labels from the picker and to press the labels against the body, shoulder and neck of the container resting on the support, said assembly having relatively yieldable arms on which are mounted label-applying elements for movement from a common plane at the place of label transfer at substantially equal distances from each other to the different planes of the areas of the container to which the labels are to be applied at different distances from each other and specifically to provide for moving the shoulder label-applying element from a position at the transfer position substantially equally distant from the body and neck label-applying elements, which distance corresponds to the spacing of the picking elements, to a position relative to the body and neck label-applying elements at the place of label application corresponding to the spacing of the areas to which the labels are to be applied. Movement of the shoulder label-applying element is effected by a motor mounted on the assembly and rotation of the shoulder label-applying element into the plane of the shoulder at the label-applying position is effected by relative movement of the arms. There is a rocker for effecting reciprocal movement of the label-applying element. As the rocker is rotated to label-applying position the motor is activated to effect rectilinear movement of the shoulder label-applying element and as the rocker is retracted the motor is disabled to permit the spring to retract the shoulder label-applying element.

BACKGROUND OF THE INVENTION

In Pats. 2,946,472 and 3,549,457 and others, there are shown label-applying machines with label-applying mechanism known in the art as "grip-finger assemblies" designed to move between a transfer position and a label-applying position to take labels from the pickers at the transfer position and apply them to containers at the label-applying position. The assembly is desirably provided with three label-applying elements, one for applying a label to the body of the container; a second to apply a label to the shoulder of the container; and a third to apply a label to the neck of the container. In the label-applying position the several label-applying elements are situated in different planes and, in particular, the shoulder label-applying element is inclined with respect to the body and neck label-applying elements, which are offset with respect to each other in substantially parallel planes an amount corresponding to the lateral offset of the neck relative to the body and is very close to the neck label-applying element. When the assembly moves over to the transfer position for taking the labels from the picker the label-applying elements are moved into a common plane; however, the shoulder label-applying element remains so close to the neck label-applying element as to make transfer from the pickers to the label-applying elements and correspondingly picking from the label dispensing means difficult. This invention has for its purpose to provide for changing the spacing of the label-applying element on the assembly as it is moved from the transfer position to the

2

label-applying position from a spacing such that the picking and transfer can be achieved without difficulty to a position such that the label-applying elements are situated at the same spacing as the areas to which the labels are to be applied and in the same planes.

SUMMARY

The label-applying assembly herein illustrated is of the kind reciprocable between a label-applying position where there is a support for supporting containers to which labels are to be applied to a transfer position where it is adapted to take labels from a picker. In accordance with this invention there are label-applying elements on the assembly comprising three such elements, one of which is movable relative to the others from a position at the place of transfer spaced from the others distances corresponding to the distances between the label-picking elements on the picker which are so spaced as to enable the pickers to take labels from label dispensing devices without interference to positions relative to each other on the assembly at the place of label application corresponding to the distance between the areas on the container to which the labels are to be applied. The assembly comprises divergent arms on which the label-applying elements are mounted comprising a body applying element, a shoulder applying element and a neck applying element. The body applying element and neck applying element are mounted at a spacing corresponding to the distance between the areas on the container to which the body and neck labels are to be applied and the shoulder label-applying element is mounted therebetween for rectilinear movement from a position corresponding to the position the shoulder label picking element bears to the body and neck label picking elements on the picker to a position corresponding to the distance that the area to which the shoulder label is to be applied bears to the areas to which the body and neck labels are to be applied and for rotation from a plane common to all of the label-applying elements at the place of transfer to an inclined position at the label-applying position corresponding to the inclination of the shoulder. The areas to which the labels are to be applied are situated in different planes and the divergent arms of the assembly are relatively yieldable so that at the place of label application they successively move the label-applying elements into engagement with the container at the different planes. The foremost arm of the assembly carries the body label-applying element and the shoulder label-applying element and the rearmost arm carries the neck label-applying element. A motor mounted on the foremost arm and connected to the shoulder label-applying element is operable to effect rectilinear movement thereof as the assembly moves into label-applying position and a link connected to the shoulder label-applying element and to the rearmost arm is operable by relative movement of the arms at said position for effecting rotation of the shoulder label-applying element. Spring means and cam means on the foremost arm cooperate to restore the arms to their divergent positions when the assembly is moved away from the label-applying position and to dispose the several label-applying elements in a common plane at the place of picking.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 shows the label-applying assembly in the transfer position;

FIG. 2 is a fragmentary elevation taken on the line 2—2 of FIG. 1;

FIG. 3 diagrammatically illustrates the label applicator in relation to the picker and the picker in relation to the label dispenser;

FIG. 4 is an elevation showing the label-applying assembly in the label-applying position;

FIG. 5 is an elevation, to larger scale, at the lower end of the label assembly showing the mounting therefor;

FIG. 6 is a fragmentary section taken on the line 6—6 of FIG. 5;

FIG. 7 is a view taken on the line 7—7 of FIG. 5; and

FIG. 8 is a view taken on the line 8—8 of FIG. 5.

Referring to FIGS. 1 and 4 the containers which are here shown to be bottles B are supported in a vertical position with their bases resting on an endless conveyor 10 by means of which they are removed in succession past label-applying assemblies 12. Only one bottle is shown herein. To hold the bottles upright during the application of the labels to the sides there is provided a hold-down belt 14 which is supported in spaced parallel relation to the conveyor 10 for engagement with the tops of the bottles and for movement longitudinally therewith at the same rate as the conveyor, the hold-down belt 14 not only holding the bottles upright but maintaining their proper spacing. The construction of the conveyor 10 and hold-down belt 14 and their motivation are disclosed in the aforesaid Pat. 3,549,347.

The label-applying assembly 12 disclosed herein is supported by a rocker 16 fixed to a rocker shaft 18 situated below the conveyor 10 in parallel relation to the direction of movement of the conveyor and so located that the label-applying assembly may be rocked from a retracted inclined transfer position (FIG. 1) where it is adapted to take labels from a picker 20 to a substantially vertical position (FIG. 4) where it is adapted to apply the labels to the body, shoulder and neck of a bottle resting on the conveyor and has for this purpose a body label-applying element 22, a shoulder label-applying element 24 and a neck label-applying element 26.

At the label-applying position the several label-applying elements occupy different planes, the body and neck label-applying elements being situated in spaced parallel planes corresponding to the displacement of the body and neck and the shoulder label-applying element is inclined to the body and neck label-applying elements at an angle corresponding to the inclination of the shoulder. At the transfer position it is desirable to have the label-applying elements in a common plane to make it possible to take the labels from a common picker and also to have them substantially equally distant from each other so that the picking element may also be substantially equally distant from each other to facilitate picking the labels from label dispensing means. Because of the limited space available to effect retraction of the shoulder label-applying element into the plane of the body and neck label-applying elements and in order to provide for the desired, substantially equi-distant spacing of the several elements at the place of transfer the shoulder label-applying element, according to this invention, is mounted so that it may be retracted from its position confronting the shoulder of the bottle as the assembly is moved away from the confronting position to a position substantially equally distant from the body and neck label-applying elements and vice versa moved from its retracted position to a position confronting the shoulder of the bottle as the assembly is moved to label-applying position. To provide for the aforesaid movement of the several label-applying elements from the common plane at the transfer position into the several planes at the label-applying position and to move the shoulder label-applying element to a position confronting the shoulder of the bottle and rotate it to the inclination of the shoulder of the bottle the assembly is comprised of arms 28 and 30 which support the several elements at the transfer position in a substantially common plane and which are relatively movable as the assembly is moved into label-applying position to permit the several elements to take up the different planes to which the labels are to be applied. To this end the arm 28 which mounts the neck label-applying element is rigidly

bolted at its lower end to the rocker 16 and has at its upper end a limb 32 which extends laterally therefrom over the upper end of the arm 30 to the distal end of which is fixed the neck label-applying element 26. The arm 30 which mounts the body label-applying element 22 has at its lower end transversely spaced legs 34—34 to which are fixed bracket members 36—36. Bearing members 38—38 are bolted to the bracket members and the bearing members 38—38 are rotatably mounted on shafts 40—40 fixed in rigid bosses 42—42 integral with a block 44 bolted together with the lower end of the arm 28 to the rocker 16. To provide for the desired relative movement of the arms 28 and 30 the bracket members have arms 46—46 and the block 44 has laterally extending limbs 48—48 containing aligned holes therein in which are disposed bolts 49—49. Springs 50—50 are mounted on the bolts between the arms 36—36 and the washers 201—201 and are held under compression by nuts 52 threaded onto the bolts above the washers 201—201 thus yieldably holding the arms 28 and 30 at a slightly divergent position when the assembly is retracted but permitting the arms to be moved into substantially parallel relation at the label-applying position. As illustrated, the body label-applying element is mounted to a block 54 which in turn is fixed to the arm 30.

To provide for the desired movement of the shoulder label-applying element a plate 56 containing a slot 60 is fastened to the rear side of the arm 30 and a part 58 is slidably mounted on the upper end of the plate 56. The part 58 has projecting forwardly therefrom spaced parallel ears 62—62 containing aligned holes 64—64 in which there are disposed pins 66—66 and on the pins there is mounted a block 68 to which the shoulder label-applying element 24 is fastened. Movement of the part 58 and hence the shoulder label-applying element 24 to and from its retracted position is effected rectilinearly by a motor 70 mounted on the plate 56 below the part 58. The motor 70 comprises a cylinder containing a piston from which projects a piston rod 72 the distal end of which is connected to the part 58. A spring 74 in the cylinder operates against the piston to hold the rod retracted and a flexible tube 76 connected to the lower end of the cylinder provides for extending the piston in opposition to the spring. In order to rotate the shoulder label-applying element to the inclination of the shoulder at the label-applying position an adjustable link 78 is pivotally connected at one end by a pin 80 to the block 68. The other end of the link extends into a slot in the arm 28 which has at its opposite sides vertically disposed slots 82—82 and is pivotally connected thereto by a pin 84. The part 58 has at its rear side spaced parallel cheeks 86—86 containing horizontally disposed slots 88—88 within which the ends of the pin 84 project. The slots 82—82 permit the part 58 to move rectilinearly and the slots 88—88 permit the arm 28 to move relative to the arm 30 when the latter is stopped by engagement of the body label-applying element 22 with the bottle to rotate the shoulder label-applying element to the inclination of the shoulder and to permit the neck label-applying element to move into engagement with the neck. The slot 60 permits the connecting link 78 to move downwardly when the part 58 is retracted as shown in FIG. 2. To control the upper and lower limits of movement of the part 58 the latter has at its rear side cam tracks 90—90 containing detents 92—92 and 94—94 which are adapted to receive cam rollers 96—96 rotatably mounted on a block 98 adjustably bolted to the arm 28. When the cam rollers 96—96 are located in the detents 94—94 arm 28 is restrained from movement relative to arm 30. In order for arm 28 to move relative to arm 30 it is necessary that motor 70 be energized to raise part 58 and allow cam roller 96 to roll along cam track 90 into detents 92—92.

Each of the label-applying elements 22, 24 and 26 is of the suction pad type comprising a substantially rectangular block of yieldable material containing openings

in its face which are connected to a suitable source of subatmospheric pressure to take hold of the label at the transfer position and at the label-applying position to release the label. Flexible tubes by means of which the respective label-applying elements are connected to a source of subatmospheric pressure are shown at **100** at the lower end of the body label-applying element **22**; **102** at the lower side of the shoulder label-applying element **24**; and **104** at the rear side of the neck label-applying element **26**.

At the transfer station as previously mentioned there is a picker **20** which is of conventional construction, designed in the position shown to permit the label-applying elements **22**, **24** and **26** to take the labels BL, SL and NL from the picker when the tubes **100**, **102** and **104** are connected to subatmospheric pressure and to hold them until they are moved to the label-applying position and applied to the bottle. The picker **20**, while the label-applying assembly is moving to the label-applying position, moves from the position shown in FIG. 1 to a position to pick labels from a label dispensing device in accordance with the conventional practice of machines of this kind, for example, as shown diagrammatically in FIG. 3 and in such patents as Holm, 2,161,469, Carter, 2,460,214, and Craig, 2,303,525 and 2,321,661. In the Holm and Carter patents adhesive is applied to the picker so that when the picker is moved into engagement with a label or labels the latter adhere to the picker and are removed by the picker from the label dispensing means. In the Craig patents the pickers are provided with suction orifices so that when the pickers are moved into engagement with the label or labels the labels become attached to the pickers and are removed thereby from the label dispensing means.

It is desirable to align the bottles as the label-applying assembly is moved to label-applying position to position the bottle opposite the label-applying elements in the event they are slightly out of alignment. Accordingly, a straightener **101** is provided. The straightener is mounted on the assembly for movement therewith and has at its upper end transversely spaced parts **103—103** on which are mounted rollers **105—105** for engagement with the sides of the bottle. The lower end of the straightener has transversely spaced legs **106—106** to which are fixed bracket plates **108—108**. Bearings **110—110** are bolted to the bracket plates **108—108** and these are pivotally mounted on the shafts **40—40** for rotation relative to the arm **30**. Blocks **112—112** are bolted to the bracket plates **108—108** and these are provided with holes aligned with holes in the limbs **48—48** through which bolts **114—114** are disposed. Springs **116—116** are mounted on the bolts **114—114** between the blocks **112—112** and the limbs **48—48** and nuts **115** are threaded onto the bolts above the blocks **112—112** to hold them in compression. The straightener is thus yieldably supported so that after it is moved into engagement with the bottle to straighten it the arm **30** is free to move relative thereto so as to move the body label-applying element into engagement with the bottle. An adjustable limit pin **118** may be provided to limit the movement of the assembly into label-applying position by engagement with the support **10**.

In operation the assembly is reciprocated by oscillation of the shaft **18**. The several springs hold the arms in divergent relation to each other when the assembly is retracted with the label-applying elements at a spacing from each other corresponding to the spacing of the picking elements on the picker, in which position the shoulder label-applying element is retracted with respect to the neck label-applying element. As the assembly is moved to the label-applying position pressure is supplied to the motor **70** to move the shoulder label-applying element from its retracted position to a position confronting the shoulder and as the arm **28** is moved forwardly to press the neck label-applying element into engagement with

the neck the link **78** rotates the shoulder label-applying element into engagement with the shoulder. Following application of the labels retraction of the assembly is accompanied by disabling of the motor so that the springs retract the shoulder label-applying element and restore the several label-applying elements to a common plane preparatory to taking labels from the picker.

The assembly shown herein is disposed at one side only of the bottle; however, it is to be understood that should it be desirable to apply labels to the opposite sides simultaneously an assembly of identical construction may be mounted at the other side of the conveyor. Moreover, if an assembly is not used at the other side of the conveyor at the support **14** and the top is not sufficient to hold a bottle against the label-applying pressure supporting means may be applied at the opposite side as disclosed in Pat. 2,573,182.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents falling within the scope of the appended claims.

I claim:

1. Apparatus for applying labels to containers resting on a support comprising a container support, a label-applying assembly, means supporting the label-applying assembly for movement from a retracted position spaced from the support to a label-applying position adjacent said support and substantially parallel to the longitudinal axis of a container resting on the support, label-applying elements, means mounting the label-applying elements on the label-applying assembly in longitudinally spaced relation such that in the label-applying position the label-applying elements are aligned longitudinally with respect to the axis of said container, said label-applying elements being movable with the assembly to and from the label-applying position, means mounting one of the label-applying elements for longitudinal movement on the label-applying assembly from one to the other of two predetermined extreme positions in one of which the distance between the label-applying elements correspond to the distance between the areas on the container to which the labels are to be applied and in the other extreme position of which the distance between the label-applying elements are different, and means connected to the movable label-applying element operable to move the movable label-applying element to said one extreme position as the label-applying assembly is moved to said label-applying position.

2. Apparatus according to claim 1, wherein said last means comprises a motor for moving the movable label-applying element to said one extreme position and spring means for moving said movable label-applying element to said other extreme position.

3. Apparatus according to claim 1, comprising means at the retracted position of the assembly for providing the label-applying elements with labels.

4. Apparatus according to claim 1, wherein the label-applying assembly comprises relatively movable parts which at the retracted position of the label-applying assembly support the label-applying elements in a common plane, and wherein said relatively movable parts yield as the label-applying elements are moved to said label-applying position to present the labels to portions of the container which are situated in different planes.

5. Apparatus according to claim 1, wherein the label-applying assembly comprises yieldable parts which in the retracted position of the label-applying assembly support the label-applying elements in a common plane, and wherein said yieldable parts permit the label-applying elements to be presented in different planes and at different angles at the label-applying position for application of the labels to portions of the container which are situated in said different planes and at different angles.

6. Apparatus for applying labels to containers resting on a support, comprising a container support, a label-

applying assembly, means supporting the label-applying assembly for reciprocal movement from a retracted position spaced from the support to an operative position adjacent the support for applying labels to a container resting on the support, label-applying elements, means mounting the label-applying elements on the label-applying assembly for movement in unison therewith into and out of label-applying position, said label-applying elements being longitudinally spaced on said label-applying assembly so that at the label-applying position they are spaced longitudinally of the axis of the container, means mounting one of the label-applying elements on the label-applying assembly for longitudinal movement thereof with respect to a first terminal position which is longitudinally distant from another of the label-applying elements by an amount corresponding to the distance between the areas on the container to which the labels are to be applied to a second terminal position which is different, motor driven means operably connected to said mounting means operable to move the movable label-applying element to said first terminal position at said label-applying position, spring means operably connected to said mounting means to move said mounting means to said second terminal position when said motor-driven means is disabled, and means operable to effect reciprocation of the label-applying assembly.

7. Apparatus according to claim 6, comprising means at the retracted position of the assembly for providing the label-applying elements with labels.

8. Apparatus according to claim 1, wherein the container is supported in an upright position, comprising means associated with the support for holding the container upright in opposition to the pressure applied to the container by the label-applying assembly at said label-applying position.

9. Apparatus according to claim 1, wherein the container is supported in an upright position, comprising a hold-down device engaged with the top of the container for holding the container upright during the application of the labels thereto.

10. Apparatus according to claim 1, comprising a straightening device associated with the assembly operable to straighten the container with respect to the label-applying elements at the label-applying position.

11. Labeling apparatus of the kind comprising label dispensing means, a picker for taking labels from said label dispensing means and moving them to a transfer position, said picker being of a length to simultaneously receive two labels in longitudinally spaced relation at a distance from each other which is different from the longitudinal spacing of the areas on the container to which the labels are to be applied and a label-applying assembly movable between said transfer position where it takes the labels from the picker to a label-applying position where it applies labels to a container, label-applying elements, means mounting the label-applying elements on the label-applying assembly in longitudinally spaced relation for movement in unison with the label-applying assembly between said transfer position and said label-applying position, one of said means mounting one of the label-applying elements on the label-applying assembly being longitudinally movable thereon between terminal positions in one of which the distance between the label-applying means corresponds to the spacing of the labels on the picker and in the other of which it corresponds to the spacing between the areas on the container to which the labels are to be applied, and means connected to said one of said mounting means for moving it on the assembly from said one terminal position to the other.

12. Label-applying apparatus for applying labels to containers by means of a label-applying assembly which moves between a transfer position in which it takes labels from a picker to a label-applying position in which it presses labels into engagement with the container, and

wherein the labels are supported by the picker in longitudinally spaced relation at predetermined distances from each other which differ from the distances between the areas on the container to which the labels are to be applied, label-applying elements mounted on the label-applying assembly, one of said label-applying elements being longitudinally movable thereon relative to the others from a first terminal position in which the two elements are situated at the same spacing as the labels held by the picker to a second terminal position in which they are situated at a spacing corresponding to the spacing of the areas on the container to which the labels are to be applied, means for yieldably holding said one of the two label elements at said first position at the place of transfer and means for moving it to said second position at the place of label application.

13. Apparatus for applying labels to containers comprising a label-applying assembly reciprocally movable between a transfer position where it takes labels from a picker to a label-applying position where it presses the labels to the body, shoulder and neck of a container, label-applying elements carried by the assembly comprising body, shoulder and neck label-applying elements, means supporting the body and neck label-applying elements at a fixed linear spacing corresponding to the vertical distance between the areas on the container to which the body and neck labels are to be applied and for relative movement at the place of application corresponding to the lateral offset of the neck of the container from the body of the container, means supporting the shoulder label-applying element between the body and neck label-applying elements for rectilinear movement from the first position, closer to the body label-applying element than the area of the shoulder to which the label is to be applied is to the area of the body to which the body label is to be applied, to a second position corresponding to the distance between said areas, and for rotation into a plane corresponding in inclination to the slope of the shoulder, means yieldably holding the shoulder label-applying element at the first position while assembly is at the transfer position, means operable at the label-applying position to move the shoulder label-applying element to said second position and means operable by movement of the label-applying element for the neck relative to the label-applying element for the body to effect rotation of the shoulder label-applying element into the plane of said shoulder.

14. In a label-applying machine, a support on which containers are adapted to be supported upright and a label-applying assembly reciprocally movable between a transfer position where it takes labels from a picker, supporting the labels in a common plane at a predetermined linear spacing, to a label-applying position confronting the container on the support for pressing labels against the container onto areas which are at a different linear spacing and in different planes, said assembly comprising arms, means mounting label-applying elements on the arms in a common plane, said arms being so relatively yieldable that they permit movement of the label-applying elements at said confronting position into engagement with the surfaces in said different planes, one of said means mounting one of the label-applying elements on one of the arms being movable along said arm relative to the other of the elements from a first terminal position in which the distance between the elements corresponds to the spacing of the labels on the picker to a second terminal position in which the distance between the label-applying elements correspond to the distance between the areas on the container to which the labels are to be applied, means for maintaining the label-applying elements at said first position while the assembly is at the transfer position, means for moving when at said confronting position, and means for effecting said one label-applying element to said second position reciprocal movement of the assembly.

15. Apparatus according to claim 14, comprising a straightening device movable with the assembly operable at said confronting position to straighten the container relative to the label-applying elements.

16. In a label-applying machine, a support on which a container is adapted to be supported upright and a label-applying assembly reciprocally movable between a transfer position where it takes labels from a picker on which there are supported in a common plane at a predetermined linear spacing three labels to a position confronting the container on the support for pressing labels against the container onto three linearly spaced areas thereof which are at a different linear spacing than the spacing of the labels on the picker and in different planes, the intermediate area being inclined with respect to the other two which are situated in spaced parallel planes, said assembly comprising arms on which there are mounted three label-applying elements, two on one arm and one on the other, one of the two being the label-applying element for applying the intermediate label, said arms being so relatively yieldable that they permit movement of the label-applying elements at said confronting position into engagement with the areas of the container in the different planes, means mounting the label-applying elements on the arms so that said one of the two elements on the one arm is movable linearly relative to the other elements from a position in which the three elements bear the same linear spacing with respect to each other as do the labels on the picker to a position such that they bear the same linear spacing to each other as the areas on the container to which the labels are to be applied, means maintaining the movable label-applying element at said first position while the assembly is at the transfer position, means for effecting linear movement of the movable element to said second position when the assembly is at the label-applying position, said means for maintaining the movable element on the one arm including means for pivotally supporting it for rotation relative to the other elements, and means operable substantially simultaneously with the linear movement of the movable element to said second position to rotate it relative to the other elements into a plane corresponding to the inclination of said intermediate area of the container.

17. Apparatus according to claim 16, comprising means mounting the movable element on said one of the arms for linear and pivotal movement and vertical displacement, and means connected to said movable element and to said other arm of said arms operable by relative movement of the arms as they are moved into label-applying position to permit linear movement of the movable label-applying element to the level of the inclined area of the container to which the label is to be applied and to effect rotation thereof into a plane parallel thereto.

18. Apparatus according to claim 17, comprising means for adjustably controlling rotation of the movable element.

19. Apparatus according to claim 16, comprising cam means on the movable element and said other arm cooperable in the retracted position of the movable element to hold the arms in fixed relation to each other.

20. Apparatus according to claim 19, wherein said cam means is operable as the movable element is moved toward its operative position to release said arms for movement relative to each other.

21. Apparatus according to claim 16, wherein one arm precedes the other in the direction of movement of the arms toward the label-applying position and wherein said movable label-applying element is mounted on the foremost of the arms and there is means connecting said movable label-applying element to the rearmost of the arms operable, by relative movement of the arms as they are moved into label-applying position, to move the other of the label-applying elements on the foremost arm into engagement with the container and then to move the label-applying element on the rearmost arm into engagement

with the container, to permit rotational movement of the movable label-applying element to the level of the inclined area of the container to which the label is to be applied and to effect rotation thereof into the plane of said inclined area.

22. Apparatus according to claim 21, comprising straightening means associated with the foremost arm operable at said confronting position to straighten the container relative to the label-applying elements.

23. Apparatus according to claim 21, comprising means on the foremost arm operable by engagement with the support to limit the movement of the foremost arm at the confronting position of the assembly.

24. Apparatus according to claim 21, comprising spring means yieldably urging the arms to take up their divergent positions with respect to each other.

25. In a label-applying machine, a support on which a container is adapted to be supported upright and a label-applying assembly reciprocally movable between a transfer position where it takes labels from a picker to a position confronting the container on the support for pressing labels against the container to areas on the body, shoulder and neck thereof which are at a different linear spacing than the picking elements and in different planes, said assembly comprising relatively movable arms, a rocker supporting the arms for reciprocable movement about a predetermined axis parallel to the support, body and shoulder label-applying elements on the foremost arm, a neck label-applying element on the rearmost arm, means mounting the shoulder label-applying element on the foremost arm for rectilinear movement along the arm from a first position relative to the other applicator elements corresponding to the spacing of the pickers relative to each other to a second position relative to the other applicator elements corresponding to the relative spacing of the areas on the container to which the labels are to be applied to dispose the shoulder label-applying element in confronting relation to the shoulder and for rotation about an axis parallel to the axis of rotation and to dispose the shoulder label-applying element in a plane parallel to the plane of the shoulder, a spring operating to hold the shoulder label-applying element retracted with respect to the axis of rotation at said first position, and a motor for effecting movement of the shoulder applying element to said second position, a link pivotally connecting the shoulder applying element to the rearmost arm such that following movement of the foremost arm to said confronting position and operation of the motor to move the shoulder label-applying element to said confronting position, the rearmost arm operates as it moves into position to press the neck label-applying element into engagement with the neck of the container to effect pivotal movement of the shoulder label-applying element into a plane parallel to the inclination of the shoulder and means for effecting reciprocal movement.

26. Apparatus according to claim 25, wherein said spring operates when the motor is disabled to retract the means mounting the movable shoulder label-applying element and a cam on the latter means operates to restore the divergent positions of the arms relative to each other and at said transfer position to dispose the several label-applying elements in a common plane.

27. Apparatus for applying labels to containers comprising label dispensing means providing a plurality of dispensing devices located at a predetermined spacing with respect to each other, a label picker for taking labels from the label dispensing means and a label-applying assembly which moves between a transfer position in which it takes labels from the picker to a label-applying position in which it presses the labels into engagement with the container and wherein the distance between two of the areas on the container to which the labels are to be applied is less than said predetermined spacing between the label dispensing devices, means for moving the picker between the label dispensing devices and the transfer position to

11

present labels at the spacing of the dispensing means to said label-applying assembly at the transfer position, label-applying elements, means mounting one of two of the label-applying elements which are to apply labels to said two areas on the label-applying assembly for movement thereon from a position corresponding to the spacing of the labels on the picker at said transfer position to a position corresponding to the spacing of said two areas on the container to which the labels are to be applied at the place of label application, means connected to the movable label-applying element operable to move said movable label-applying element to said latter position as the assembly moves to said label-applying position, and means for effecting reciprocal movement of the assembly between transfer and label-applying positions.

5

10

15

12

References Cited

UNITED STATES PATENTS

2,983,398	5/1961	Carter	-----	156—566	X
2,980,278	4/1961	Carter	-----	156—476	X
3,115,232	12/1963	Carter	-----	156—566	X

FOREIGN PATENTS

825,262	12/1959	Great Britain	-----	156—476
---------	---------	---------------	-------	---------

PHILIP DIER, Primary Examiner

U.S. Cl. X.R.

156—569, 571