United States Patent [19]

Wochner

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[54] **METHOD OF LABELING A LID**

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[52] **U.S. Cl.** **156/238,** 156/542

[51] **Int. Cl.** **B44c 1/00**

[58] **Field of Search** ..... 156/300, 362, 423, 538, 156/540, 556, 569, 541, 542, 238, 566, 484, DIG. 15, DIG. 2

[56] **References Cited**

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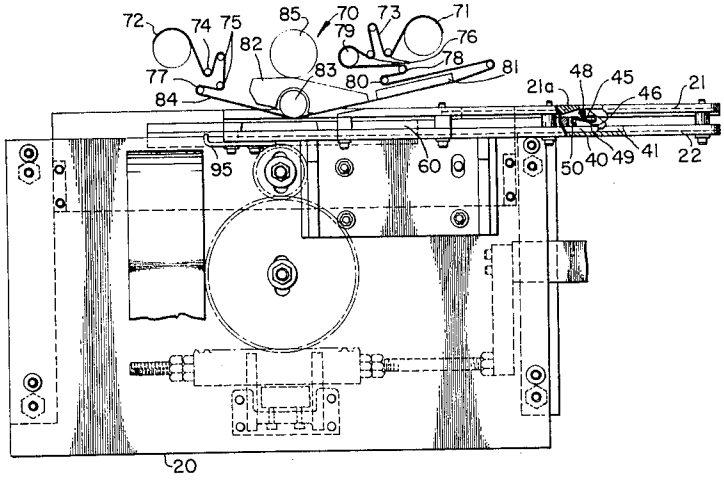
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[57] **ABSTRACT**

A method of labeling a lid with heat transfer labels while said lid is apart from its container, the method including the steps of feeding a lid into a cutout of a transport means which will hold it upright on its end, providing a backing means with said transport means to engage an end of said lid, applying a heat transfer label to the lid apart from its container at a label application station, removing the lid apart from its container at a discharge station, reciprocating the transport means between stations and engaging the lid with said backing means to support it as it travels between said feed station and said label application station and disengaging said backing means after said label station but before said discharge station.

1 Claim, 7 Drawing Figures



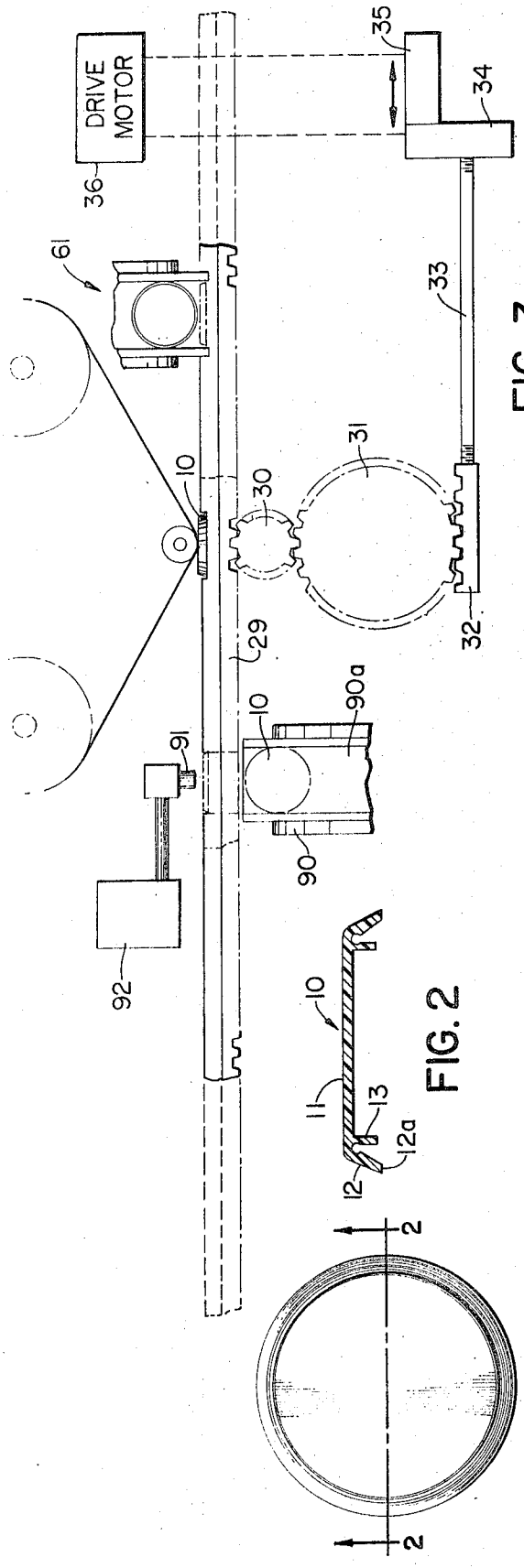


FIG. 3

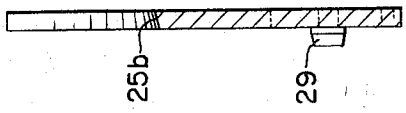


FIG. 7

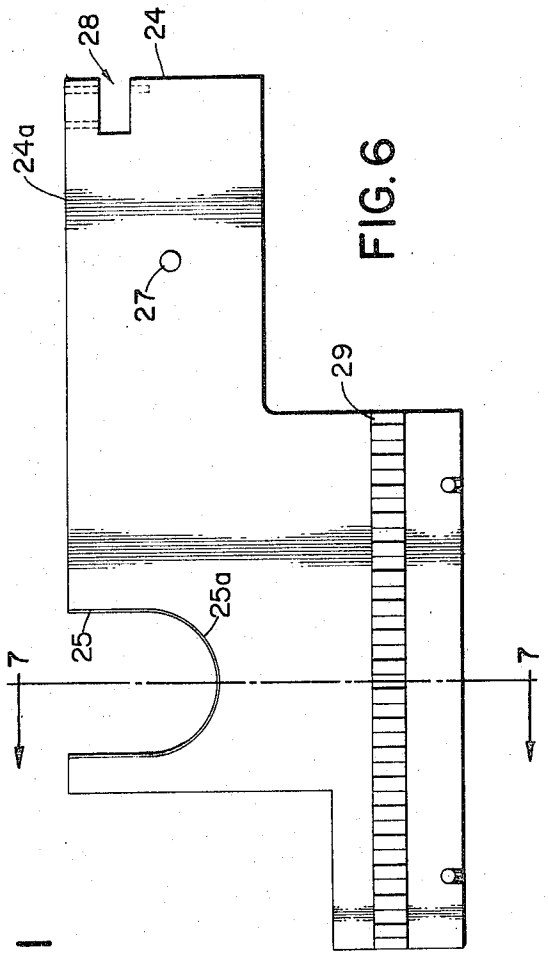


FIG. 6

FIG. 2

FIG. 1

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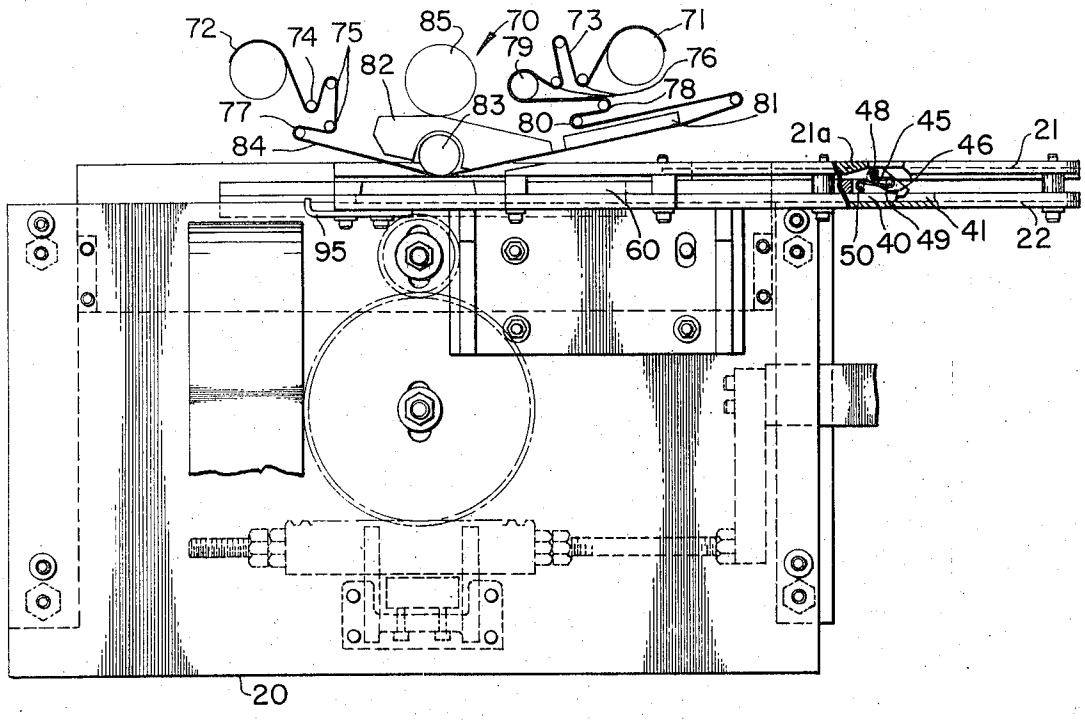


FIG. 4

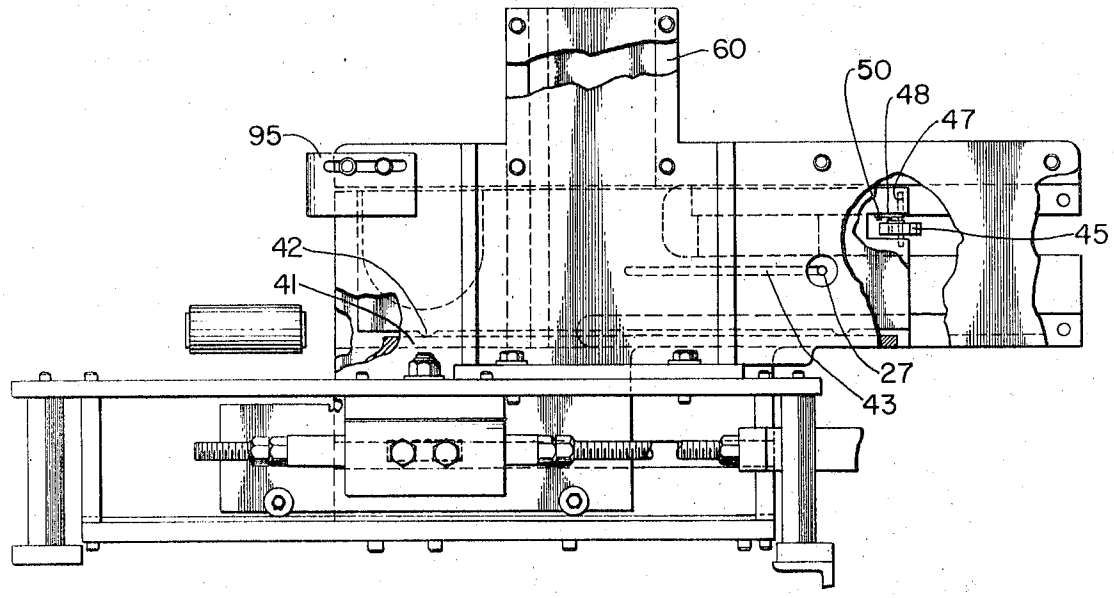


FIG. 5

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METHOD OF LABELING A LID

This invention is directed to a method for applying labels and is more particularly directed to a method for rapidly applying heat transfer labels to lids, tops, covers or the like and other substantially flat surfaced objects.

The prior art is replete with systems for applying labels, including heat transfer labels to bottles and containers, e.g., see U.S. Pat. Nos. 3,064,714; 3,208,897; 3,261,734; 3,231,448; 3,313,667; 2,981,432; 3,126,309; and 3,036,624.

Although the systems disclosed in these patents are usable for labeling bottles or containers they are not suitable for applying labels, particularly heat transfer labels to lids, tops, covers, etc., (e.g. lids or tops for containers or bottles).

In the past such lids, tops or covers have been labeled by hand or machine with paper labels having adhesive on one side thereof. Other schemes for labeling lids, tops, covers or the like have also included printing or stamping techniques. With the use of printing or stamping techniques decorative multicolor labeling of lids, tops or covers have usually been limited to one or two colors.

In view of the foregoing, a new and improved method has been developed as disclosed herein for permitting heat transfer labels to be applied to container lids, tops, covers or the like having substantially flat surfaces.

This has been accomplished by providing a labeling system which is adapted to feed the lids, tops or covers to a carriage transport or support means which moves between a plurality of positions. At one position the transport means is adapted to receive the lids, tops or covers, at a second position the transport means is adapted to position the lids, tops or covers at a decorating station and hold it there so that a label can be applied thereto, and at a third position the transport means is positioned to permit the lids, tops or covers to be discharged therefrom.

In view of the foregoing it is an object of this invention to provide a new and improved method for applying heat transfer labels to a flat surfaced object such as a lid, top or cover.

An additional object of this invention is to provide a new and improved method for rapidly feeding lids or the like to a labeler so that labels can be transferred from a carrier onto the surface to be decorated.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specification.

For a fuller understanding of the nature and objects of the invention, reference is had to the following description taken in connection with the accompanying drawings in which;

FIG. 1 is a top view of a lid or the like to be labeled as described herein;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a top diagrammatic view of the apparatus of the invention;

FIG. 4 is a top view with certain parts removed showing the operating parts of the apparatus;

FIG. 5 is a side view of the apparatus shown in FIG. 4;

FIG. 6 is a side view of the carriage or transport according to the invention;

FIG. 7 is a sectional view taken along line 7—7 of FIG. 6.

The particular embodiment of the invention as illustrated in FIGS. 1–7 is especially adapted to transport labels from a strip to a container lid, top, cover or the like having a substantially flat surface to apply a label thereto. While any heat transfer label strip may be employed, the strip is preferably made as disclosed in U.S. Pat. No. 2,862,832. As illustrated in FIG. 1 of the patent the label strip comprises a paper backing having a marginal row of sprocket holes, the backing being coated with oxidized wax adhesively to hold the labels thereon. The wax coating is heat activatable so that when a label is pressed against a bottle or other article by means engaging the back of the strip the label is transferred from the strip to the article.

Reference should now be had to FIGS. 1 and 2 which show a typical lid to be labeled by the apparatus of this invention. The lid is generally shown at **10** and can be of plastic or cardboard or other like materials conventionally used as lids, tops, covers of containers, bottles or the like. The lid **10** comprises a top substantially flat surface **11**, a lid end shown at **12**, a lid bottom **12***a* and a lid downward projecting member shown at **13** for permitting a container side wall to enter between the lid end **12** and the member **13** so as to be retained therein. As may be noted from FIGS. **1** and **2** the end **12** of the lid **10** slopes slightly such that a good friction fit can be obtained between a container top and the lid end **12** and the member **13.**

Reference should now be had to FIGS. **3–7** which more particularly show the features of this invention. The apparatus comprises a main frame **20** for supporting guide members shown at **21** and **22** in which a carriage or transport **24** is adapted to move or reciprocate back and forth therein. The carriage **24** is adapted to move between a plurality of positions so as to carry a lid from a receiving or a feed position to a position where the lid may be labeled, and thence to a position where the lid may be discharged from the carriage or transport onto a belt or the like.

FIGS. **6** and **7** more particularly show the construction of the carriage **24.** The carriage **24** includes a cutout shown at **25** which is adapted to support and hold the container lid therein on its end and move it between the aforementioned positions. The cutout **25** is preferably open at the top so that a lid may be dropped therein, and preferably is shaped so that it has a portion **25***a* shaped to conform to the shape of the lid end **12.** The cutout is preferably tapered as shown in FIG. **7** at **25***b* to conform to the slope of the lid end **12.** As shown in FIGS. **6** and **7** the cutout opening **25***a* is narrower closest to the label applicator (to be described). The cutout is wider at the back end thereof, that is the portion of the transport furthest from the applicator. The transport also includes a pin shown at **27** which extends outwardly therefrom, (its function to be later described), and a second cutout shown at **28** for supporting a pawl feeder (also to be described).

Positioned on and supported by the carrier is a rack **29** which is utilized to move the carriage **24** and reciprocate or slide it between the aforementioned positions. In order to move the carriage back and forth, there is provided a gear **30** which mates with the rack **29** positioned on the carriage and which is driven by second gear **31.** The second gear **31** is in turn rotated by a rack shown at **32** mounted on a rod **33** which is in

turn coupled to members **34** and **35** which are driven by a drive motor **36** for operating the labeling apparatus of this invention. In this manner the rack **29** is reciprocated as the members **32, 33, 34** and **35** move backward and forward as shown by the arrows to position the carriage **24** at the aforementioned positions.

At **40** there is provided a backing plate which is adapted to slide along the bottom of the guide slot formed by the members **21** and **22** and by the bottom member **41.** The backing plate is preferably of a hard plastic material such as teflon or could also be metal. The backing plate **40** is adapted to move with the carriage **24** for a portion of its motion to provide a means of supporting the bottom of the lid shown at **12***a*. The backing member prevents the lid from moving backward and out of the cutout during the feeding and labeling application steps of this invention.

The backing plate **40** slides along the member **41** and has tips **42** for engaging the member **41.** The backing plate is also provided with a guide slot shown at **43** in which the pin **27** of the carriage is adapted to slide. In order to move the backing plate **40** therewith, the carriage is provided with a pawl feeder shown at **45** along with a cutout **46** at one end thereof which is supported on a pin **47** extending through the cutout **28** of the carriage. The pawl feeder is spring loaded by a spring shown at **48** which is coupled to a pin **50** also supported by the carriage **34.** In this manner the pawl feeder is spring loaded as shown at the right of FIG. **4** in order to carry the backing plate **40** therewith as it moves to the left of FIGS. **3** and **5.** As also may be seen in FIG. **4** the guide member **22** extends in a manner such that it provides support for the backing plate when the carriage and the lid supported therein is in position for applying the label to the lid.

In order to provide lids to the carriage cutout **25** there is provided a lid feed apparatus shown generally at **60** which is essentially a slotted member in which lids can be fed (vertically) so as to permit a lid to be dropped into the cutout when the cutout is positioned under the feeder. The lids can be fed to the feeder **60** by a belt arrangement such as shown at **61** in FIG. **3** or by hand. The lids will stack on their ends, one on top of the other, and only be fed out when the cutout is under the feeder **60.** Once the lid has been dropped into the cutout **25** the top wall **24***a* of the carriage will prevent any further lids from dropping down out of the feeder **60.** Other conventional feed systems can be utilized as long as they provide lids to the carriage cutout such that the lid would be supported on its end.

In order to apply a label to the lid there is provided and shown generally at **70** the conventional application device such as utilized in U.S. Pat. Nos. 3,064,714, 3,208,897, and the others cited at the beginning of the specification. Preferably the type of label application means is the one currently used, Model TB-1B Applicator System and sold by the Dennison Manufacturing Company of Framingham, Massachusetts.

In its preferred form the application means **70** comprises diagrammatically as shown in FIG. **4,** a feed reel **71,** take up reel **72,** dancer rolls shown at **73** and **74,** idler rolls **75** and **76,** shuttle rolls **77** and **78,** a metering roll shown at **79** and a further idler roll shown at **80.** At **81** there is shown a label pre-heater. At **82** there is shown a platen, and at **84** there is shown a rubber roll **83** supported by the platen applying a label carried by a strip shown at **84** to the lid. The platen is operated by a platen cam shown at **85** which is mounted for rotation and which is driven by the main drive motor of the machine shown at FIG. **3.**

In addition, the feed reel and the take up reel are also driven by the drive motor of the machine. In this invention, as in the previously mentioned patents, the label strip is fed by the label pre-heater and is heated for a period of time. The strip then moves past the rubber roll and platen and is pressed onto the top of the substantially flat surface of the lid.

After the label has been applied to the lid the carriage **24** moves to a position such that the lid may be discharged onto a conveyor system or the like. This is more particularly shown at FIG. **3** wherein a belt type conveyor is shown at **90** to carry a lid away from the carriage.

To facilitate the discharge of the lid from the carriage, mechanical devices (pushers) may be provided to engage the lid and shove it out of the carriage or preferably, in the alternative, gas (air) may be discharged by the provision of a nozzle at **91** coupled to gas (air) source at **92** spraying the gas against the lid to force the lid out of the carriage onto the conveyor **90.**

Briefly the operation of the device shown in this application is as follows: a lid **10** which is in position drops into the cutout **25** of the transport **24.** The lid is received within the carriage cutout and is then moved to the left and positioned as shown in FIGS. **3, 4** and **5** by the drive mechanism. The backing plate **40** is carried with the carriage **24** by the pawl feeder as it engages the end of the backing plate **40** (shown in FIG. **4**). When both the carriage and the backing plate are in position to permit a label to be applied thereto, a label is applied by the labeling applicator shown at **70.** After a label has been applied, the drive mechanism then causes the transport to continue moving to the left of FIGS. **3, 4** and **5** into position to discharge the lid therefrom onto the conveyor.

During the discharge step, the backing plate moves slightly until it engages a stop member shown at **95** and thereafter the pin **27** moves within the slot **43** of the backing member such that the cutout **25** clears the end of the backing plate as well as the guide **22.** In addition, during the discharge step the feed pawl **45** is raised over the end of the backing plate **40** and slides upon the backing plate by the action of a camming surface **21***a* provided by guide **21.**

At this time the lid is discharged by the application of air against it and falls on the belt shown at **90***a*. On the return stroke, the carriage **24** moves to the right of FIGS. **3, 4** and **5,** and carries the backing plate **40** with it as the pin **27** engages the right hand end of the slot **43** as shown in FIG. **5.**

On the return stroke the pawl feeder is released when it clears the camming surface **21***a* and rotates to engage the end of the backing plate **40** and drops thereover. It should be understood that various types of drive mechanisms could be utilized to move the backing member as well as the carriage or transport back and forth. It should also be understood that the carriage could have a different configuration or could be cut out to accomodate different size articles to be labeled.

The invention accordingly comprises the method of labeling lid, top, cover or the like by holding it upright on its ends and moving it between a plurality of positions so as to apply a label thereto.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description are efficiently attained and since certain changes may be made in carrying out the above method and in the construction set forth without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. It is also understood that the following claims are intended to cover all the generic and specific features of the invention herein described and all statements of the scope of the invention which as a matter of language, might be said to fall therebetween.

I claim:

1. A method for applying heat transfer labels to a lid which comprises the steps of (1) feeding at a feed station a lid apart from its container to a transport means which includes a plate having a tapered cutout so that the lid rests in the cutout upright on its end with the top surface thereof in position for applying a label thereto at a label application station; (2) providing a backing means with said transport means to engage the end of the lid; (3) applying a heat transfer label to the top of the lid apart from its container at the label application station; (4) removing the lid apart from its container from the cutout at a discharge station; (5) reciprocating the transport means between said feed station, said application and said discharge station while maintaining the lid upright on its end within the cutout of said transport means; and (6) engaging the end of said lid with said backing means to support it as it travels between said feed station and said label application station and disengaging said backing means after said label station but before said discharge station.

* * * * *