May 22, 1956 R. J. NEWMAN ET AL 2,746,422

LABEL FEEDING AND GUMMING APPARATUS

Filed Oct. 27, 1953 4 Sheets-Sheet 1

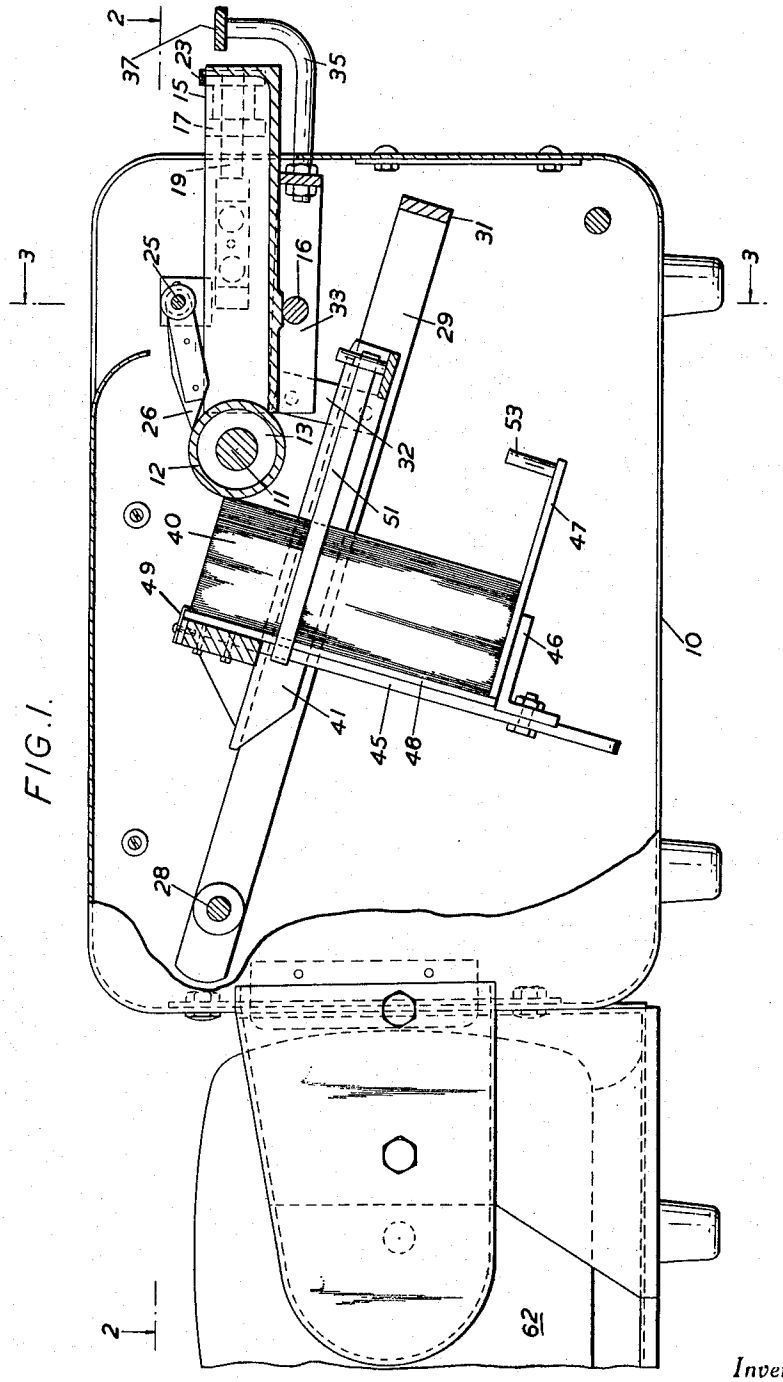


FIG. 1.

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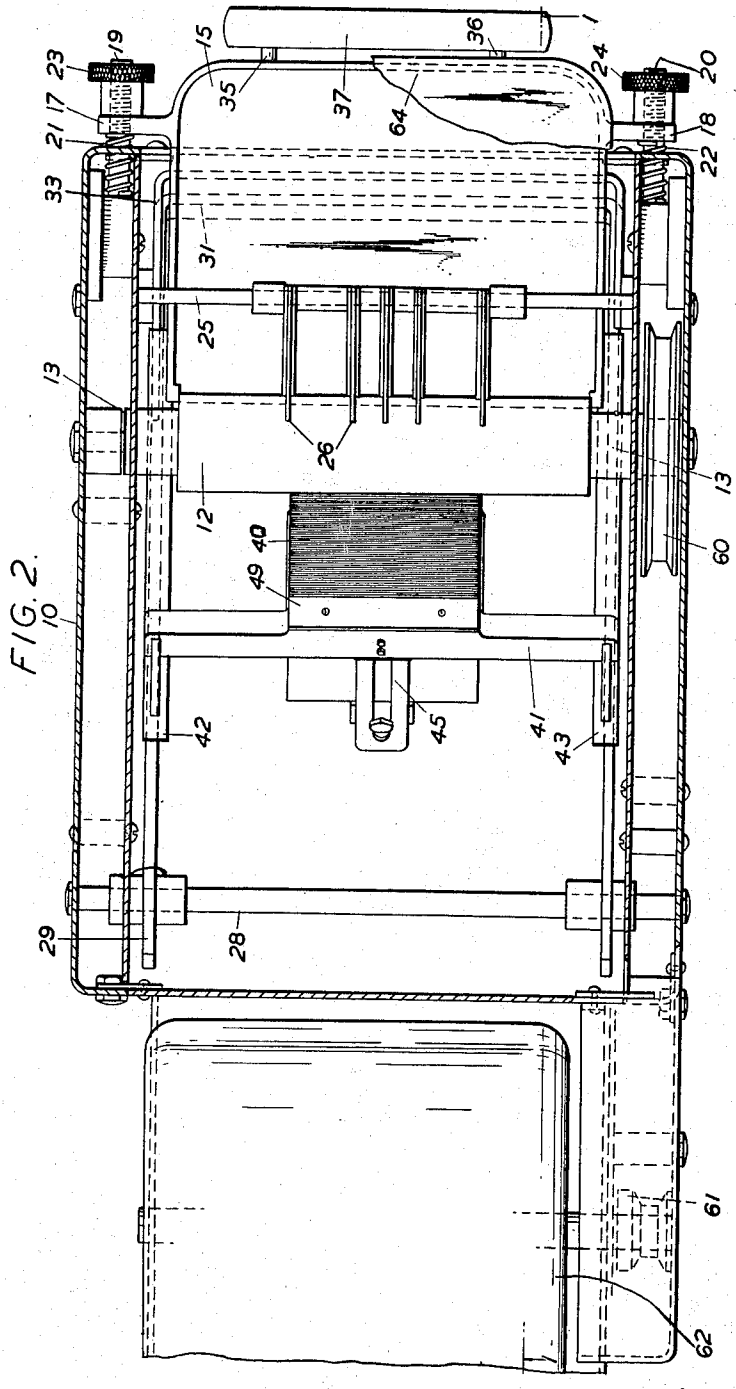


FIG. 2.

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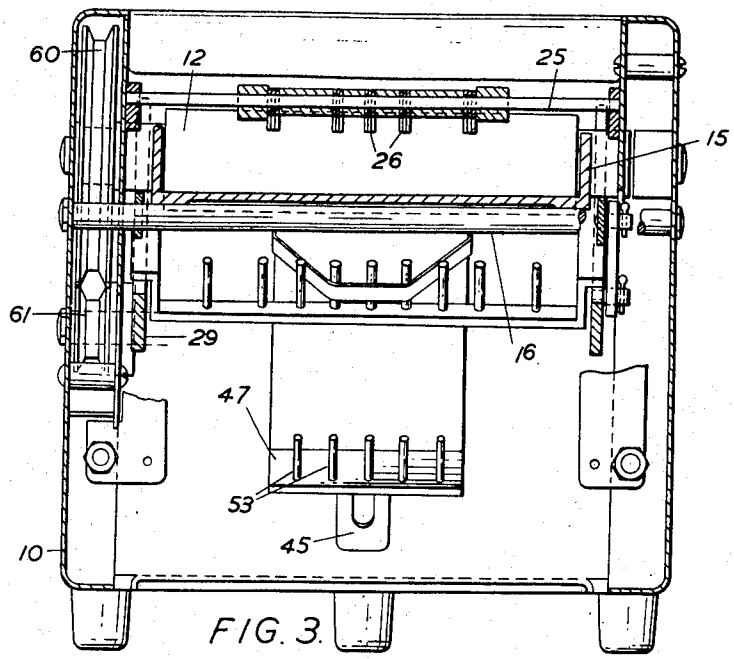


FIG. 3.

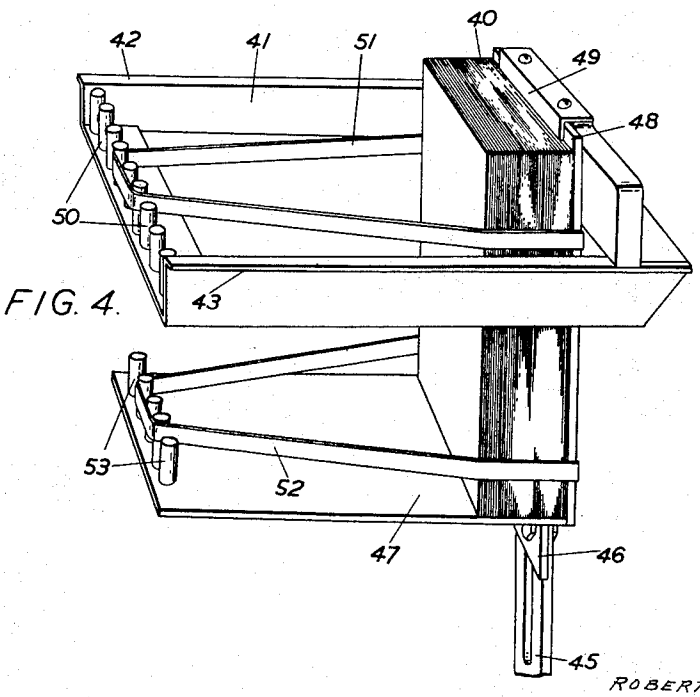


FIG. 4.

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LABEL FEEDING AND GUMMING APPARATUS

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FIG. 5.

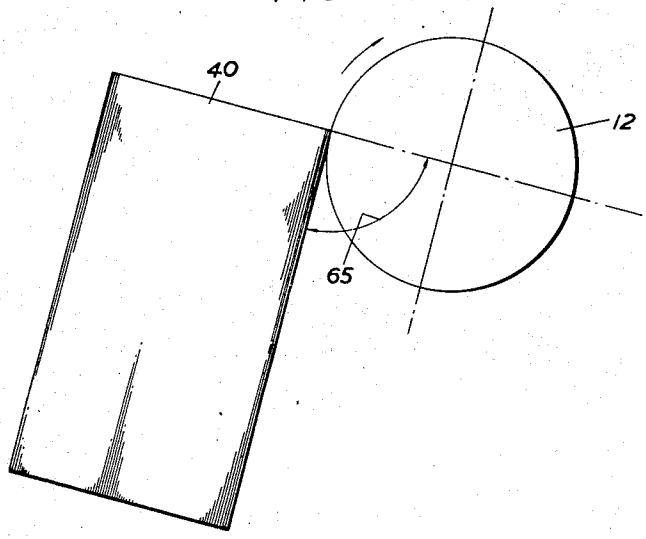
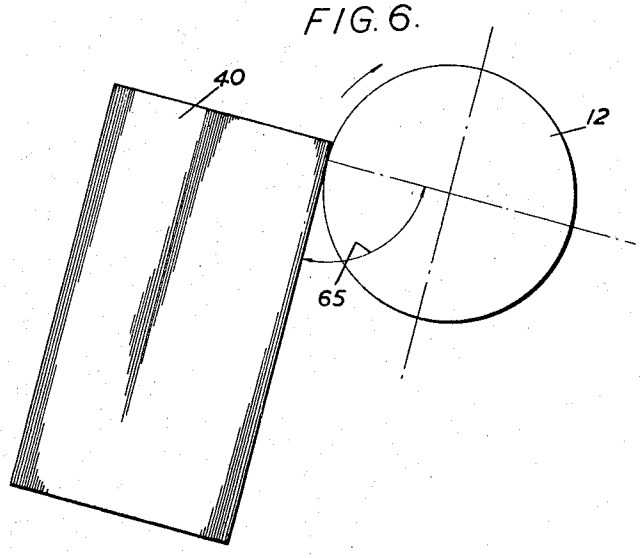


FIG. 6.



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LABEL FEEDING AND GUMMING APPARATUS

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Application October 27, 1953, Serial No. 388,516

Claims priority, application Great Britain October 31, 1952

4 Claims. (Cl. 118—236)

This invention relates to labelling apparatus and its main object is to provide simple and reliable means for picking off one label at a time from a stack of labels, applying gum to it, and delivering it for application by hand or automatically to a bottle or other article.

According to the invention the apparatus comprises means for carrying a stack of labels with the edge of the label to be removed engaging directly on a gum-carrying roller rotating in the direction to move off the edge away from the label at the successive lines of contact, and means for periodically effecting relative movement between the stack and the roller in a direction such that the label moves relatively to the roller transversely of the radius of the roller at the line of contact. The plane of the label resting on the roller is preferably at an angle of 90 degrees to the radius of the roller at the line of contact and the direction of movement approximately tangential to the roller.

The labels may be carried in a label box adapted to rest by its own weight on the roller, this being effected for example by placing the label box in a freely slidable manner on inclined supporting means which may be lifted slightly when a label is required.

By means of this invention the usual additional ungummed roller or other means for removing the labels from the stack is dispensed with and the labels rest continuously on the gummed roller which does not pick off a label until required whereupon a slight movement of the label about tangentially of the roller is effected until a short length of label is gummed (e. g. about one to three eighths of an inch) whereupon the label is taken off by the roller, gummed and fed to the required position. As the gummed roller may rotate continuously an accumulation of gum occurs in the apex of the angle between the label and the roller which facilitates picking off the label.

The labels are preferably held by resilient means for example by one or more rubber or like resilient bands that extend around the stack of labels and a back plate and are held off the label to be first removed with the adjacent parts of the band inclined towards a position remote from the label, as more fully described in our co-pending British application No. 27415 of 1952.

A constructional form of the invention will now be described by way of example with reference to the accompanying diagrammatic drawings wherein:—

Figure 1 is a view, mainly in section on the line 1—1 on Figure 2, of a label feeding apparatus made in accordance with the invention;

Figure 2 is a sectional view thereof on the line 2—2 on Figure 1;

Figure 3 is a sectional view thereof on the line 3—3 on Figure 1;

Figure 4 is a perspective view of the label box; and

Figures 5 and 6 are detail views showing the principle of the invention.

A box-like frame **10** carries spindle **11** on which end collars **13** of a brass gumming roller **12** are rotatably mounted. The gumming roller which may be about one to two inches in diameter is disposed horizontally across the apparatus towards the upper forward part thereof. The gum roller is driven by a pulley **60** which in turn is driven by a belt (not shown) from a pulley **61** on the spindle of a motor **62**. A gum box **15** has no rear wall but the roller serves as a rear wall and is in contact with or nearly in contact with the lower rear edge of the bottom of the box. The gum box rests on a transverse spindle **16** that is mounted in the frame **10**. The gum box has side extending apertured lugs **17**, **18** through which pass threaded rods **19**, **20** that carry springs **21**, **22** and nuts **23**, **24** whereby the position of the box towards and away from the gum roller **12** can be adjusted. Just above the top edge of the gum box is a rod **25** carrying rearwardly extending spaced stripper fingers **26** that lightly rest at their rear ends on the roller and serve for stripping the gummed labels off the roller.

At the rear upper part of the apparatus is a horizontal rod **28** carrying the free ends of a U-shaped guide member **29**. The rod is slightly above the level of the roller axis and say six to twelve inches rearwardly thereof. The U-shaped member **29** extends forwardly and downwardly at an angle of 10 to 30 (e. g. 15) degrees to the horizontal to a position forwardly of the roller where it has its front transverse bar **31**. One of its side limbs is connected by a link **32** to the end of one side bar of another U-shaped member **33** the front transverse limb of which carries rods **35**, **36** that extend forwardly and upwardly and carry a finger bar **37** at their front ends. The member **33** is pivoted to the frame on the spindle **16** so that depression of the finger bar **37** by the operator lifts the U-shaped guide member **29** upwardly about the axis of the horizontal rod **28**.

The labels **40** are placed in a label box comprising a rectangular frame **41** the side limbs of which have outwardly extending flanges **42**, **43** that are placed slidably on the side limbs of the guide member **29**. The frame **41** carries at its upper part a downwardly and rearwardly extending slotted bar **45** which extends down the back edges of the labels. This bar carries a bracket **46** which is adjustable along the slot for different sizes of labels. The bracket **46** carries a base plate **47** on which the labels stand. A loose back plate **48** is placed on the bracket **46** between the rear edge of the plate **47** and the bar **45**. The upper edge of the back plate is engaged under a bracket **49** attached to the frame **41**. The transverse front limb of the frame carries a row of round pins **50** extending upwardly of the frame. At least one extensible band **51** e. g. a band of rubber or other elastic material is placed around the back plate **48** and stack and is pulled off the stack at the side (front) where the first label is to be removed and held off the label by engaging on one or more of the pins **50** so that the band **51**, is approximately triangular shape at its lower part whereby it grips the edges of a number of labels first to be removed at opposite sides of the stack. The gripping pressure can be adjusted by pulilng out the triangular parts so as to stretch the band and then release it so that the band tends to press the labels towards the back plate. According to the length of the labels two or more bands may be required, e. g. a further elastic band **52** engages around the back plate and one or more of a row of pins **53** on the base plate **47**. The labels are pulled out of the triangular space between the round pins and the labels. Instead of round pins other supporting means may be used so long as the parts of the band from the opposite edges of the stack incline towards each other as they approach the supporting means.

The label box is placed on the U-shaped guide member in the position shown in Figure 1 and slides down it by its own weight until the upper forward edge of the label

first to be removed rests on a generatrix of the gum roller which is in about the same horizontal plane as the axis of the roller. The stack of labels then extends downwardly and rearwardly at an angle of about 15 degrees to the vertical.

The upper edge of the front label normally rests on the gum roller **12** as shown in Figure 5 with this label at an angle marked **65** to the adjacent radius of the roller of 90 degrees and although the gum roller is rotating with its succeeding lines of contact moving in the direction upwards off the edge of the label, it is in contact with such a small area of the label that it does not overcome the retaining force of the rubber bands. Upon each depression of the finger bar **37** the stack of labels is slightly raised so that the label moves transversely to the adjacent radius of the gum roller and as shown in Figure 6 a larger area of the front label which tends to adhere to the roller is now in contact with the gum roller and a label is picked off, gummed and delivered to the front of the apparatus on to a delivery plate **64** a part only of which is shown in Figure 2 and which forms a closure plate for the gum box.

We claim:

1. A label feeding apparatus comprising a gumming roller, means for rotating the gumming roller continuously, means for carrying a stack of labels, means for locating said label carrying means normally in the position in which the edge of the label to be removed is engaging directly on the gumming roller rotating in the direction to move off the edge away from the label at the successive lines of contact, a manually operable element, and operating means connected between said element and said label carrying means which upon operation of said element effects relative movement between the carrying means and the roller in a direction such that the label will move relatively to the roller transversely of the radius of the roller at the line of contact, said operating means moving the label only over a small fraction of the length of the label in the direction of its movement sufficient to enable the label to be caught up by the roller.

2. A label feeding apparatus as claimed in claim 1 wherein the label carrying means comprises an inclined supporting means extending beneath the gumming roller, and a label box adapted to rest on and slide gravitationally down said supporting means whereby the labels rest gravitationally with the upper edge of the front label on the gum roller.

3. A label feeding apparatus as claimed in claim 1 having a gum box at the front part of the apparatus with its rear end open and adjacent the gumming roller, the axis of the latter being in a horizontal plane transversely across the apparatus, the roller substantially closing the rear end of the gum box, said label carrying means comprising a label box and a label box guide, said guide consisting of a U-shaped member pivotally mounted at its rear ends on an axis in substantially the same horizontal plane as the gum roller axis, and extending forwardly and downwardly under the gumming roller so that the label box can slide down said guide.

4. A label feeding apparatus as claimed in claim 1 having a gum box at the front part of the apparatus with its rear end open and adjacent the gumming roller, the axis of the latter being in a horizontal plane transversely across the apparatus, the roller substantially closing the rear end of the gum box, said label carrying means comprising a label box and a label box guide, said guide consisting of a U-shaped member pivotally mounted at its rear ends on an axis in substantially the same horizontal plane as the gum roller axis, and extending forwardly and downwardly under the gumming roller so that the label box can slide down said guide, said guide being at an angle of from 10 to 30 degrees to the horizontal plane of the gumming roller axis.

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