

Jan. 7, 1947.

S. T. CARTER

2,414,019

PICKER MECHANISM

Filed May 2, 1945

2 Sheets-Sheet 1

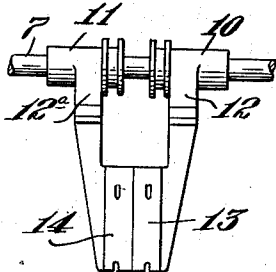


Fig. 1

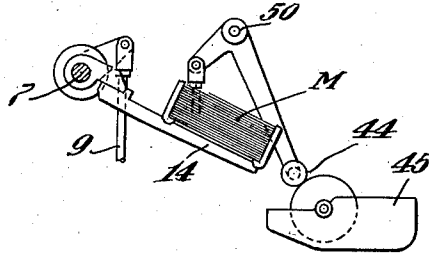


Fig. 2

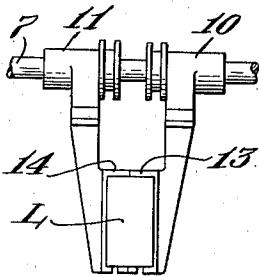


Fig. 3

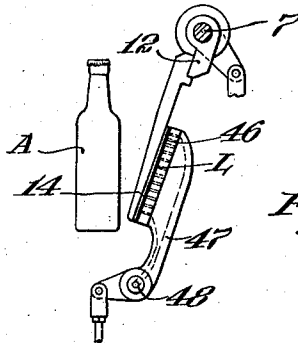


Fig. 4

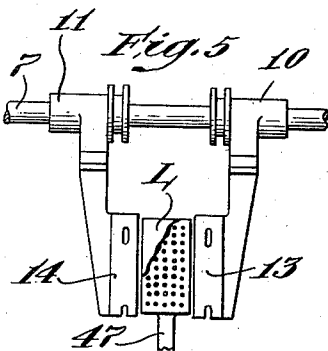


Fig. 5

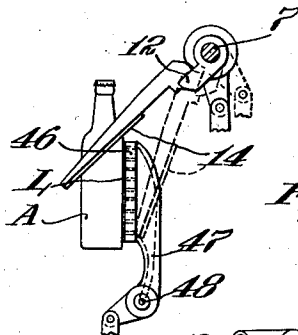


Fig. 6

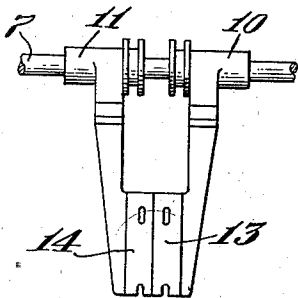


Fig. 7

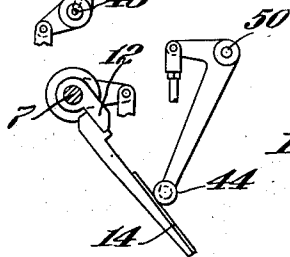


Fig. 8

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2 Sheets-Sheet 2

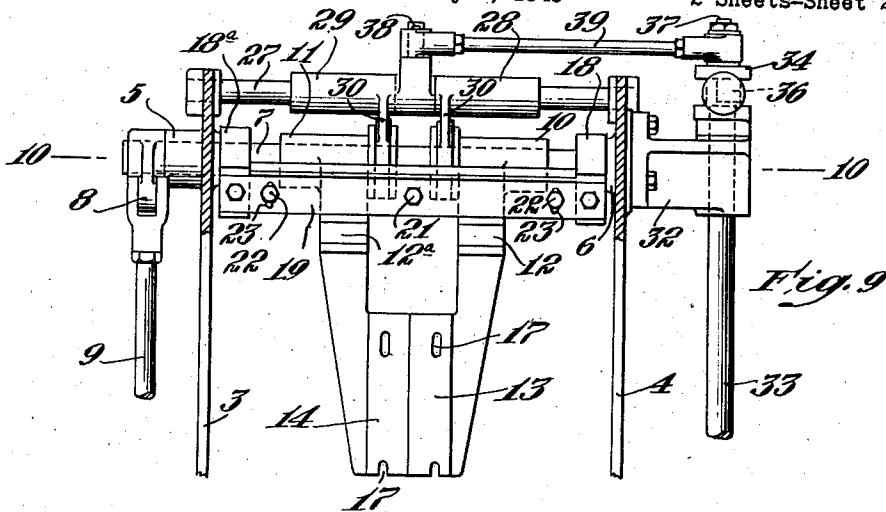


Fig. 9

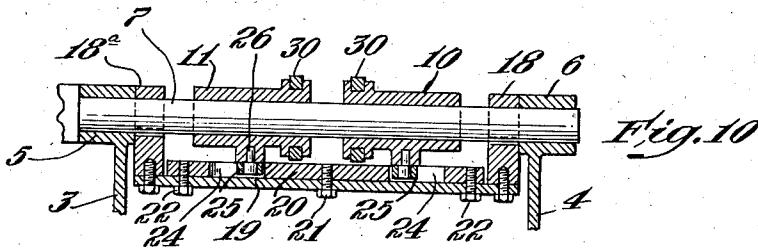


Fig. 10

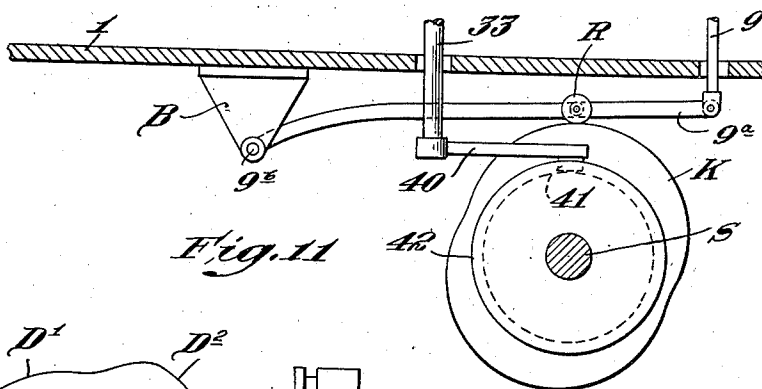


Fig. 11

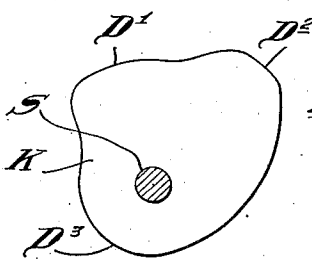


Fig. 12

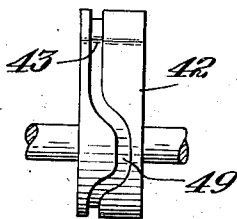


Fig. 13

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UNITED STATES PATENT OFFICE

2,414,019

PICKER MECHANISM

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Application May 2, 1945, Serial No. 591,615

7 Claims. (Cl. 216—54)

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This invention pertains to labeling machines, and relates more especially to improved picking mechanism operative to remove a label from a magazine and to present the label with one surface adhesively coated to appropriate applying means, the present invention constituting an improvement over that disclosed and claimed in the patent to Holm No. 1,901,101, dated March 14, 1933.

In labeling machines of the general type to which this invention relates, the ungummed labels are arranged in a stack in a magazine, gum is applied to one surface of a movable picker, the gummed surface of the picker is brought into contact with the exposed label in the magazine, and the picker is then moved away from the magazine with a label adhering to its gummed surface, and this label is then transferred from the picker to the surface of the article to be labeled.

The patent to Holm, above referred to, is particularly concerned with pickers of the kind in which two picker blades, disposed in the same plane cooperate to remove the label from the magazine, the picker blades being movable toward and from each other in their own plane for the purpose, among other things, of spreading the gum evenly over the label before withdrawing the latter from the magazine.

When blade-like pickers are used for removing labels from a magazine of the usual type, it is necessary to provide openings in the picker blades to accommodate the label-retaining prongs of the magazine. Since the film of adhesive is not continuous across these openings, spots bare of gum are left on the label at the location of these openings. Furthermore, unless the aggregate width of the picker blades equals or exceeds the width of the label, the margins or center of the label may not receive a proper coating of gum.

The principal object of the present invention is to provide picker mechanism of the general type disclosed in the aforesaid Holm patent, but so devised as to insure the application of adhesive to the entire surface of the label, even though the pickers have apertures therein or are of less aggregate width than the width of the label. Other and further objects and advantages of the invention will be pointed out in the following more detailed description and by reference to the accompanying drawings, wherein

Fig. 1 is a fragmentary front elevation showing pickers of the general type to which the present invention relates, disposed in the rela-

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tive position which they occupy when they contact the exposed label in the magazine;

Fig. 2 is a fragmentary side elevation diagrammatically illustrating the magazine and the pickers in the picking position;

Fig. 3 is a view similar to Fig. 1, showing the relative position of the pickers as they approach the transfer point carrying the label;

Fig. 4 is a diagrammatic fragmentary side elevation showing the pickers registered with a transfer pad at the transfer point;

Fig. 5 is a view similar to Fig. 1, but showing the picker blades separated at the completion of the transfer of the label from the pickers to the transfer pad and with the label adhering to the pad;

Fig. 6 is a view similar to Fig. 4, but showing the pickers and pad in the relative positions of Fig. 5;

Fig. 7 is a view similar to Fig. 1, showing the picker blades closed together as they approach the gumming position;

Fig. 8 is a fragmentary diagrammatic side elevation showing the pickers at the gumming position;

Fig. 9 is a fragmentary front elevation showing means for supporting the pickers and connections for operating them;

Fig. 10 is a fragmentary section, substantially on the line 10—10 of Fig. 9;

Fig. 11 is a fragmentary side elevation, illustrating cams and levers for operating the pickers;

Fig. 12 is a face view of the cam for swinging the picker; and

Fig. 13 is a development of the peripheral surface of the cam which moves the picker blades toward and from each other.

Referring first to Figs. 9 to 13 of the drawings, the numeral 1 designates the table or bed of the machine, beneath which is arranged the horizontal power driven shaft S. Upon the table 1 is mounted a frame comprising rigid upright portions 3 and 4. Journaled within bearings 5 and 6 in the upper parts of the frame members 3 and 4, respectively, is a rock shaft 7 provided with a crank 8 to which is pivotally connected the upper end of a rod 9. This rod 9 extends down through an opening in the table 1 (Fig. 11) and its lower end is pivotally connected to a lever arm 9^a swinging about a pivot pin 9^b carried by a bracket B. A cam follower roll R on the lever arm 9^a engages a cam K fixed to the drive shaft S. On the shaft 7 is a pair of longitudinally slidable sleeves 10 and 11. Extending radially from the respective sleeves 10 and 11 are ears or lugs

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12 and 12^a. To the lug 12 on the sleeve 10 there is secured the carrier arm for one of the picker blades 13, while the lug 12^a supports the carrier arm for the other picker blade 14. These blades are so supported that they always lie in substantially the same plane. These blades have slots 17 to accommodate the label-holding prongs of the label magazine M.

The sleeves 10 and 11 are not keyed directly to the shaft 7, but are connected thereto through the following construction:

Keyed to the shaft 7 (Fig. 10) are two relatively spaced arms 18, 18^a, the outer ends of which are secured in any appropriate manner to a crossbar 19. Mounted on the inner face of the bar 19 is a plate 20. This plate 20 is pivotally connected to the bar 19 by the center stud 21 and is held in its desired adjusted position by end studs 22. To permit the plate 20 to swing on its pivot, the bar 19 has elongate slots 23 where the end studs 22 pass therethrough. The plate 20 is provided with two horizontally extending elongate slots 24 which are adapted to receive rollers 25 carried by stub shafts 26 extending from the shiftable sleeves 10 and 11. It will thus be seen that when the shaft 7 is oscillated or rocked, the sleeves are likewise moved but are free to shift longitudinally of the shaft at any time.

Arranged parallel to the shaft 7 is a crossrod 27 (Fig. 9) which is suitably mounted in aligned apertures in the upper end portions of the frame members 3 and 4. Mounted on this cross-rod 27 is a pair of slidable collars 28 and 29. Both of these slidable collars have forked extensions at 30 which are adapted to engage peripheral grooves in the sleeves 10 and 11 respectively.

Rigidly bolted to the upper end of the frame member 4 is a bearing bracket 32 (Fig. 9) which provides a suitable support for the upper end of an oscillatory shaft 33. Fixed to the upper end of this shaft 33 is a plate 34 which is elongate from front to rear. Adjustable blocks 36 are mounted on the opposite ends, respectively, of this plate, each of these blocks being provided with an upwardly directed pivot pin 37. Each of the sliding collars 28 and 29 is provided with an upstanding pin or stud 38 and these studs 38 are connected by rods 39 to the corresponding pins 37.

The rod 33 extends down through an opening in the table 1 (Fig. 11) and is provided at its lower end with a crank arm 40 carrying a cam follower roll 41 which engages a peripheral groove 43 in a cam 42 mounted on the shaft S.

For further details of the mechanism thus far described, the above Patent No. 1,901,101 may be referred to. As previously mentioned, the label picking mechanism of the present invention is intended to be substituted for that described in said patent, and for this reason the other instrumentalities involved in the complete machine are omitted herefrom. In the arrangement of the present invention the label pickers are designed to swing in an arcuate path and during the upward swing the active faces of the picker blades are adhesively coated by appropriate gumming mechanism. The picker blades then continue to the upper limit of their movement where their adhesively coated surfaces contact the face of the lowermost label in the label holder or magazine. After this lowermost label has adhered to the gummed surfaces of the picker blades, the latter swing downwardly to a transfer position where they dwell while a pneumatic transfer pad engages the ungummed surface of the label, the

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label adhering more firmly to the transfer pad than to the picker blades. The pad then removes the label from the picker blades and applies it to the article being labeled.

The cam K (Fig. 12) which controls the up and down swinging of the picker blades, is suitably contoured and provided with dwells as indicated, for example, at D¹, D² and D³, for holding the pickers temporarily stationary at desired points in its travel, for instance at the gum-receiving point, at the picking point, and at the transfer point, respectively. The cam 42, which controls the spacing of the picker blades, by oscillating the shaft 33, is provided at the point 49 with an active portion designed, while the roll is in engagement with this part of the cam groove, so to turn the shaft 33 that the picker blades are widely separated from each other. However, the cam groove 43 is so shaped that in all other positions, the picker blades are closely adjacent, preferably with their adjacent edges in contact.

As illustrated in Figs. 1 and 2, the picker blades 13 and 14 are thus disposed in closely adjacent position and the picker is at the picking point, the blades 13 and 14 having previously been coated with adhesive and now engaging the lowermost label in the magazine M. This lowermost label adheres to the coated surfaces of the blades 13 and 14 and immediately thereafter the picker device is swung downwardly toward the transfer position indicated in Fig. 4. During this downward movement the blades 13 and 14 remain closely adjacent to each other, with the label L adhering to their gummed surfaces. At the transfer point the transfer pad 46, carried by the supporting arm 47 and swinging about the axis 48, is brought into parallel relation to the blades 13 and 14 so that its suction surface contacts the ungummed face of the label. Suction is established at the suction pad 46 in accordance with usual practice in machines of this type, whereby the label L becomes more firmly adherent to the pad 46 than to the gummed surfaces of the picker blades 13 and 14. Immediately thereafter the cam 42 oscillates the shaft 33, thereby sliding the sleeves 28 and 29 in opposite directions along the shaft 27 and thus separating the picker blades 13 and 14, as illustrated in Fig. 5. As the blades thus move apart while the label L is adherent to the surface of the pad 46 and thus relatively stationary, the adhesive film interposed between the blades 13 and 14 and the label is spread over the entire surface of the label even though the blades 13 and 14 have slots or openings 17 across which the adhesive film did not originally extend. This separation of the blades, while the label is firmly held between them and the pad 46, smooths the label and removes wrinkles and leaves it in optimum condition for application to the article A to which the label is to be affixed. When the blades have thus been separated, as shown in Fig. 5, so that they no longer contact the label L, the cam K may, if desired, be so devised as to hold the picker stationary (dotted lines Fig. 6), or alternatively to continue the movement of the picker blades in the same general direction as before, the blades passing at opposite sides of the article A. At substantially the same time the pad 46 is moved up toward the article A (Fig. 6) and applies the label to the latter. The cam K now starts the picker blades back in their rearward and upward swing, and as soon as they have passed the transfer point, the cam 42 moves the sleeves 28 and 29 toward each other, thus bringing the blades 13 and 14 closely adjacent to each

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other and in fact preferably into edge contact. The picker blades swing upwardly to some such position as indicated in Fig. 8, where their upper faces are contacted by the gum-applying roll 44 swinging about the axis 50, and which receives gum in the intervals between the gum-applying operation from a reservoir 45. Then the gum-applying roll 44 is moved to the gum-receiving position relatively to the reservoir 45, and the picker blades continue upwardly to the picking position shown in Fig. 2, thus completing the cycle.

While one desirable mechanism for moving the pickers is here illustrated by way of example, it is to be understood that the invention is not limited to this particular arrangement, but is broadly inclusive of equivalent constructions included within the scope of the appended claims.

I claim:

1. A labeling machine of the kind which includes a label magazine, label-picking means movable toward and from the magazine and operative to withdraw the exposed label from the magazine, said picking means comprising a pair of picker elements movable toward and from each other in the same plane, means for applying adhesive to the picker elements, a transfer pad operative to receive the label from the picker elements, means operative to move the picker elements while they are in closely adjacent relation, into the picking position, and means operative to separate the picker elements while they are in operative relation to the transfer pad with a label interposed between the picker elements and the pad.

2. A labeling machine of the kind which includes a label magazine, a pair of conjointly swinging, relatively movable picker elements disposed in the same plane, a transfer pad operative to receive a label from the picker elements, means operative to swing the picker elements toward the magazine so as to receive the exposed label from the magazine, and means for actuating the picker elements comprising connections operative to swing the picker elements from a picking position adjacent to the magazine to a transfer position adjacent to the transfer pad and means for holding the picker elements in closely adjacent position during the picking operation and for separating them, sufficiently to permit the transfer pad to pass between, while the

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picker elements are in the transfer position relatively to the transfer pad.

3. A labeling machine of the kind which includes a label magazine, a pair of conjointly swinging, relatively movable picker elements disposed in the same plane, a slide member connected to each picker element, an oscillatory shaft, a connection between the shaft and each of said slide members, means for swinging the pickers toward and from the magazine, and means for oscillating the shaft, the picker-swinging and shaft-oscillating means being so constructed and relatively arranged as to hold the pickers in closely spaced relation while they are approaching and receding from the magazine and to separate the pickers after they have left the magazine and while in contact with a label.

4. In combination with a label magazine, gum-applying means, a transfer pad, picker means, and means operative to move the picker means successively from the gum-receiving position to the label-picking position, and then to a transfer position, the picking means comprising laterally separable picker elements movable toward and from each other in the same plane, and means operative to hold the picker elements in closely adjacent relation while at the picking point and for moving them apart while in the transfer position with the label disposed between them and the transfer pad.

5. Label picking means comprising a pair of conjointly movable picker elements and means operative to hold said picker elements in closely adjacent relation at the picking point and for causing said elements to separate at the label transfer point in their cycle of joint movement.

6. Label picking mechanism comprising a pair of conjointly swinging picker elements, and means operative relatively to separate said picking elements while at the transfer point and for bringing them together as they approach the picking point.

7. Label picking mechanism comprising a pneumatic transfer pad, a pair of conjointly swinging picker elements operative to deliver a label to the pad, and means for separating said elements while in the label delivering position relatively to the pad and for bringing them together at another point in their swinging movement.

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