Aug. 16, 1932.

E. ERMOLD

1,871,675

FEED MECHANISM FOR LABELING MACHINES

Filed July 7, 1930 4 Sheets-Sheet 3

Fig. 3.

INVENTOR

Edward Ermold

BY

C. P. Beichel

ATTORNEY
This invention relates to feed mechanism for labeling machines, and has for its general object and purpose to provide automatically operating mechanism for rapidly and accurately feeding a plurality of containers from a feed conveyer to positions for engagement by the flights of a transporting conveyer of the labeling machine whereby the containers are transported to their label receiving positions.

It is a more particular object of my invention to provide a feed conveyer extending across the front of the machine in spaced relation to the transporting conveyer and means arranged between the two conveyers to receive and support the glass bottles or other containers in obliquely inclined positions and continuously operating means to engage a plurality of containers on the feed conveyer at spaced intervals in the movement of the latter and transfer the same to said supporting means.

It is another object of the invention to provide relatively stationary means adapted to engage the upper ends of the bottles or containers as they are transversely moved off of the feed conveyer to cause the same to assume an obliquely inclined position upon said supporting means for engagement by the flights of the transporting conveyer.

It is also a further general object of the invention to provide feed mechanism for labeling machines as above characterized which is of comparatively simple mechanical construction and may be readily applied for use in conjunction with the multiple type labeling machines without greatly increasing the production costs of such machines or materially adding to the necessary floor space occupied by the machine.

With the above and other objects in view, the invention consists in the improved feed mechanism for labeling machines, and in the form, construction and relative arrangement of the several parts as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have disclosed one simple and practical embodiment of the present invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a top plan view, illustrating one practical embodiment of my present improvements;

Fig. 2 is a front elevation thereof, certain of the parts being broken away;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1, and

Figs. 5, 6 and 7 are detail sectional views illustrating different positions of the bottle or container in transference of the same from the feed conveyer to the transporting conveyer of the labeling machine.

For purposes of illustration, in the accompanying drawings, I have shown only so much of the labeling machine, as is necessary for a clear understanding of my present improvements. This machine may be of the type shown and described in Patent No. 1,302,230, issued to Edward Ermold, on July 1, 1919. It will therefore, suffice to state that the operating parts of the machine are suitably mounted and supported in a frame structure, a portion of which is indicated at 5, said machine including an endless transporting conveyer 6 having spaced side chains connected at intervals by horizontal bars 7, each of which carries a plurality of spaced conveyer flights 8.

In spaced relation to the forward end of the transporting conveyer 6, the horizontally disposed slotted bed plate 9 extends across the front of the machine and is supported at its opposite ends upon suitable standards indicated at 10. At spaced points, said bed plate is also rigidly connected with the bracket members 11 projecting forwardly from the opposite side members of the machine frame 5.

The upper stretch of a link conveyer belt 12 moves in the longitudinal slot of the bed plate 9 as clearly seen in Figs. 1 and 3 of the drawings, said belt at its opposite ends extending around suitable supporting sprockets 13 fixed to the shafts 14 suitably journaled on the under side of the bed plate.
and extending transversely thereof. One of these sprockets is positively driven from a horizontal shaft 15 through the gearing 16, said shaft at one end being connected by the drive belt or chain 17 with one end of the forward sprocket shaft 18 of the transporting conveyer 6. At its opposite end, the shaft 15 has a driving connection through suitable gearing indicated at 19 and 20 with the lower end of a vertically disposed shaft 21 to which vertically spaced discs 22 are fixed. These discs have peripheral sections each composed of merging convex and concave surface portions for proper engagement with the bottles or other containers which are brought into contact therewith by the primary feed conveyer 23 which extends at right angles to the conveyer 12. A metal guide band 24 surrounds the outer side portions of the discs 22 in spaced relation there-to and extends over the end of the horizontal feed belt 12. Thus, it will be understood that in the rotation of the discs 22 in an anti-clockwise direction, the bottles are successively removed from the continuously moving primary conveyer 23 and carried in contact with the guide band 24 by said discs and delivered in an upright position upon the upper stretch of the conveyer 12 moving across the front of the machine.

The labeling machine is provided with longitudinally extending transversely spaced supporting bars 25 for the containers arranged in line with the spaced flights 8 of the transporting conveyer 6 and positioned above and in parallel relation to the upper stretch of said conveyer. The forward ends of these supporting bars are downwardly curved and fixed to the vertical arms of the bracket members 26. Each of these bracket members is also provided at its upper end with a forwardly extending upwardly inclined arm 27 which is bolted or otherwise rigidly fixed to the bar 25. The opposite ends of said bar, being suitably secured to the bracket members 26. To the rear edge of the bed plate 9, the plates 29 are fixed, said plates being obliquely inclined downwardly and rearwardly in substantially parallel relation with the bracket arms 27 and extending upon the bar 28. These plates have their upper surfaces preferably dished or channelled to receive the base of the bottle or container. Rearwardly of said plates, the cushioning blocks 30 are arranged, each of said blocks having a part secured to the upper side of the bracket arm 27 and an upwardly and rearwardly curved part secured upon the curved forward end of the bar 28.

At the opposite sides of each of the bars 25 and extending forwardly over the rear edge of the bed plate 9, the adjustable guide plates 31 are mounted upon the supporting frames 32, said plates being laterally adjustable with respect to the fixed bars 25 and secured in their adjusted positions by suitable clamping bolts threaded in the frame members 32, as indicated at 33. One of the guide plates 31 is provided with each of the bars 25 has its forward end provided with laterally curved fingers 34 which direct the bottles or containers into the guide ways between the spaced plates 31 as they are moved rearwardly off of the conveyer 12, in a manner to be presently described.

Above the forward ends of the guide plates 31, a horizontal bar 35 is arranged and suitably secured at its opposite ends upon the supporting posts or standards 36, which are fixed in the frame members 32. At its front edge, this bar is provided with spaced laterally curved forwardly projecting fingers 37 which act as stops, limiting the lateral movement of the bottles or containers they are transferred from the conveyer 12 and caused to assume obliquely inclined positions upon the cushioning blocks 30.

For the purpose of simultaneously transferring a plurality of bottles or other containers from the moving conveyer 12 to obliquely inclined positions upon the supporting blocks 30, I provide a bar 38 extending longitudinally of the conveyer above and in parallel relation thereto. This bar is movable both longitudinally and transversely of the conveyer in properly timed relation to the conveyer movement. While various actuating means for the bar 38 might be devised, I have shown said bar pivotally connected at longitudinally spaced points as shown at 40 to the ends of the parallel arms 39 extending radially from the upper ends of the vertical shafts 41. These shafts are jour- nalled in suitable bearings provided on the spaced frames 42 which are fixed at their upper ends to the front edge of the table 9. The arms 42 are also provided with additional bearings for a horizontal shaft 43 connected with the vertical shafts 41 by the gearing 44, said horizontal shaft 43 at one of its ends being geared to the shaft 15 as at 45.

To the rear edge of the bar 40 a longitudinally extending cushioning strip 46 of rubber or other suitable material is attached to prevent scratching or marring of the glass surfaces of the bottles or other containers. The arms 39 and the bar 40 are movable transversely, beneath a longitudinally extending guide bar 47 which extends along the outer side of the table 9 and is vertically spaced above the plane thereof.

In the operation of the mechanism as above described, the bottles are first placed in suitably spaced relation to each other and in upright positions upon the primary conveyer 23, from which they are removed by the rotating discs 22 and transferred to the conveyer belt 12. As the upper stretch of this conveyer belt moves from right to left, the
bar 40 is moved inwardly and transversely over the conveyer by the rotating arms 39, the cushioning strip 46 being engaged with a plurality of the bottles on the moving conveyer (in this case, four). As the movement of the conveyer continues, the bar 40 is also moved rearwardly and longitudinally of the conveyer, thus pushing the bottles transversely in a rearward direction off of the conveyer.

As will be noted by reference to Fig. 5 of the drawings, as the bottles are thus moved rearwardly over the bed plate 9, the upper ends or necks of these bottles come into contact with the front edge of the bar 35, said bottles also being engaged and laterally directed by the curved forward end 34 of the guide plates 31 so that they are positioned in alignment with the plates 28. The continuing pressure of the cushioning strip 47 of the bar 40 against the body portion of the bottle, thus causes the same to be tilted to an inclined position as it moves upon the plate 29, and to slide down the concave upper surface of said plate and upon the cushioning block 30, the base of the bottle engaging the rear upwardly curved part of said cushioning block while the body portion thereof rests upon the forwardly and upwardly inclined part of the block secured to the bracket arm 27. The bottles are thus supported in proper position so that they will be picked up by the upwardly moving flights 8 at the forward end of the transporting conveyer 6, as clearly seen in Figs. 6 and 7 of the drawings and carried upwardly and disposed in vertical upright positions upon the supporting bars 25. The movement of the transporting conveyer 6 is of course, properly timed with respect to the movements of the conveyer 12 and the bar 40 so that the bottles will be thus automatically removed from the conveyer 12 and positioned upon the supporting blocks 30 for engagement by the successive flights 8 of the transporting conveyer.

From the foregoing description considered in connection with the accompanying drawings, it will be seen that I have devised a feed mechanism for such label applying machines which is capable of rapid operation to properly and accurately position the bottles for movement by the transporting conveyer to their label receiving positions, and without liability of breakage or other injury to the bottles. While in the present instance, I have shown a feed mechanism which transfers four bottles at a time from the feed conveyer to the transporting conveyer, it will be evident of course, that by merely lengthening the bar 40, the device is applicable to multiple type labeling machines of greater capacity. Also, while I have herein shown and described an embodiment of my present improvements, which has been found very efficient in practical use, it is nevertheless to be understood that the essential features thereof might also be embodied in various other alternative structural forms, and I accordingly reserve the privilege of resorting to all such legitimate changes therein as may be fairly incorporated within the spirit and scope of the invention as claimed.

I claim:

1. In combination with a labeling machine having conveyer means for transporting containers to label receiving position, a feed conveyer for the containers disposed at right angles to the transporting conveyer means and in spaced relation to one end thereof, a relatively fixed obliquely inclined support between said transporting conveyer means and the feed conveyer, a movable member adapted to engage containers on the feed conveyer and transversely move the same off of said conveyer, means for actuating said member, and stationary means adapted to engage the upper end of the container during its transverse movement and tilt the same to dispose the container on said support in obliquely inclined parallel relation therewith for engagement by a part of the transporting conveyer means.

2. In combination with a labeling machine having transporting conveyer means provided with a plurality of series of spaced flights, a container feed conveyer disposed at right angles to said transporting conveyer means and in spaced relation to one end thereof, a plurality of obliquely inclined container receiving supports between the feed conveyer and the transporting conveyer means, means for simultaneously transversely removing a plurality of containers from the feed conveyer and positioning the same upon said inclined supports for engagement by the flights of the transporting conveyer means including a member transversely movable over the feed conveyer, and a relatively stationary part mounted above said movable member to engage the upper ends of the containers during their transverse movement and tilt the same to positions in parallel relation with the respective supports.

3. In combination with a bottle labeling machine having conveyer means providing with spaced series of flights for supporting the bottles to label receiving positions, a bottle feed conveyer disposed at right angles to said transporting conveyer and in spaced relation to one end thereof, relatively stationary means between said conveyers for supporting the bottles in an obliquely inclined position to be engaged by the flights of the transporting conveyer, a member movable in a closed circular path transversely and longitudinally above the feed conveyer, and means for operating said member in timed relation with the movements of the transporting conveyer and the feed conveyer to simultaneously remove a plurality of bottles transversely from the feed conveyer and po-
sition the same upon said supporting means.

4. In combination with a bottle labeling
machine having conveyer means provided
with spaced series of flights for conveying the
bottles to label receiving positions, a bottle
feed conveyer disposed at right angles to
said transporting conveyer and in spaced re-
lation to one end thereof, relatively station-
ary means between said conveyers for sup-
porting the bottles in an obliquely inclined
position to be engaged by the flights of the
transporting conveyer, a member movable in
a circular path transversely and longitudi-
nally above the feed conveyer, means for op-
erating said member in timed relation with
the movements of the transporting conveyer
and the feed conveyer to simultaneously re-
move a plurality of bottles transversely from
the feed conveyer and position the same upon
said supporting means, and a relatively fixed
part mounted above the path of movement
of said member and engaged by the bottles
during their transverse movement to tilt the
bottles and dispose the same in an obliquely
inclined position upon said supporting means.

5. In combination with a conveyer having
longitudinally spaced flights, means for posi-
tioning containers for engagement by the
flights at one end of said conveyer, said means
comprising a stationary member arranged
above and in longitudinally spaced relation
to one end of the conveyer, a container sup-
port between said member and the conveyer,
means to engage and move the containers
from an upright position toward the con-
voyer and into contact with said stationary
member whereby the container is tilted to
an obliquely inclined position on said sup-
pport in the path of movement of the con-
voyer flights.

In testimony that I claim the foregoing
as my invention, I have signed my name
hereto.

EDWARD ERMOLD.