Dec. 31, 1935. C. HOLM 2,026,172

CONVEYER FOR LABELING MACHINES AND THE LIKE

Filed March 4, 1935 5 Sheets-Sheet 1

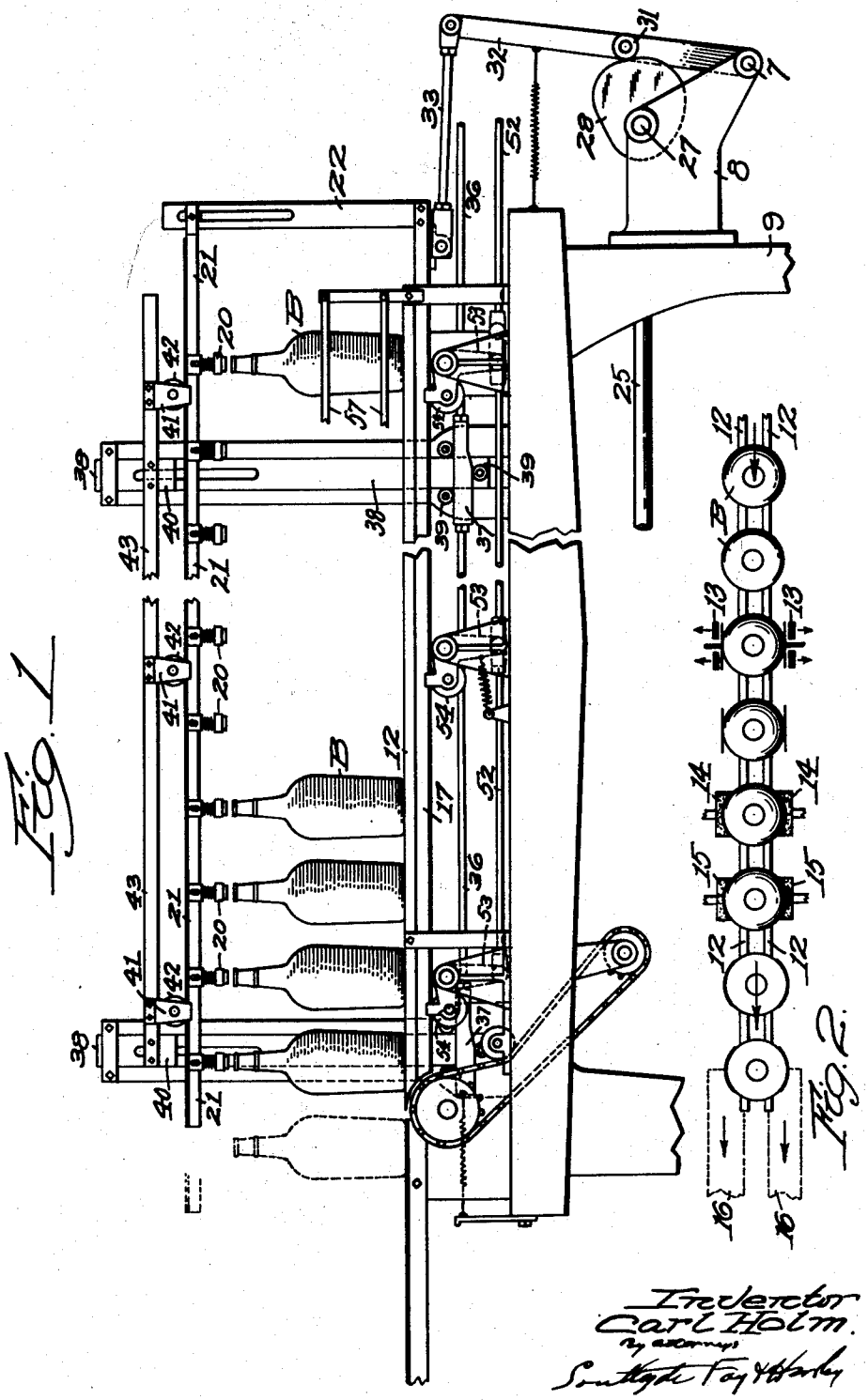


Fig. 1

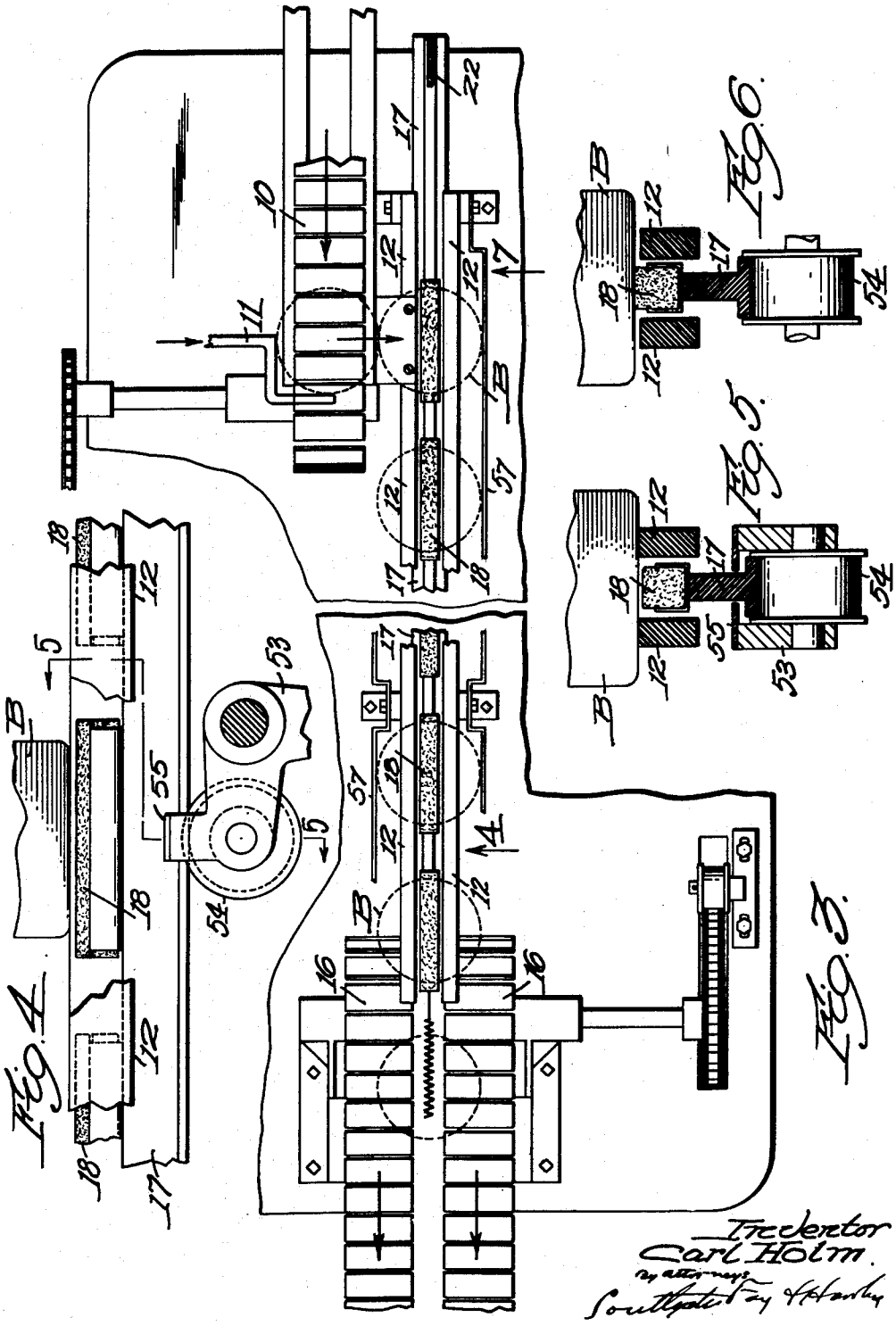
Fig. 2

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CONVEYER FOR LABELING MACHINES AND THE LIKE

Filed March 4, 1935 5 Sheets-Sheet 2



Dec. 31, 1935. C. HOLM 2,026,172

CONVEYER FOR LABELING MACHINES AND THE LIKE

Filed March 4, 1935 5 Sheets-Sheet 3

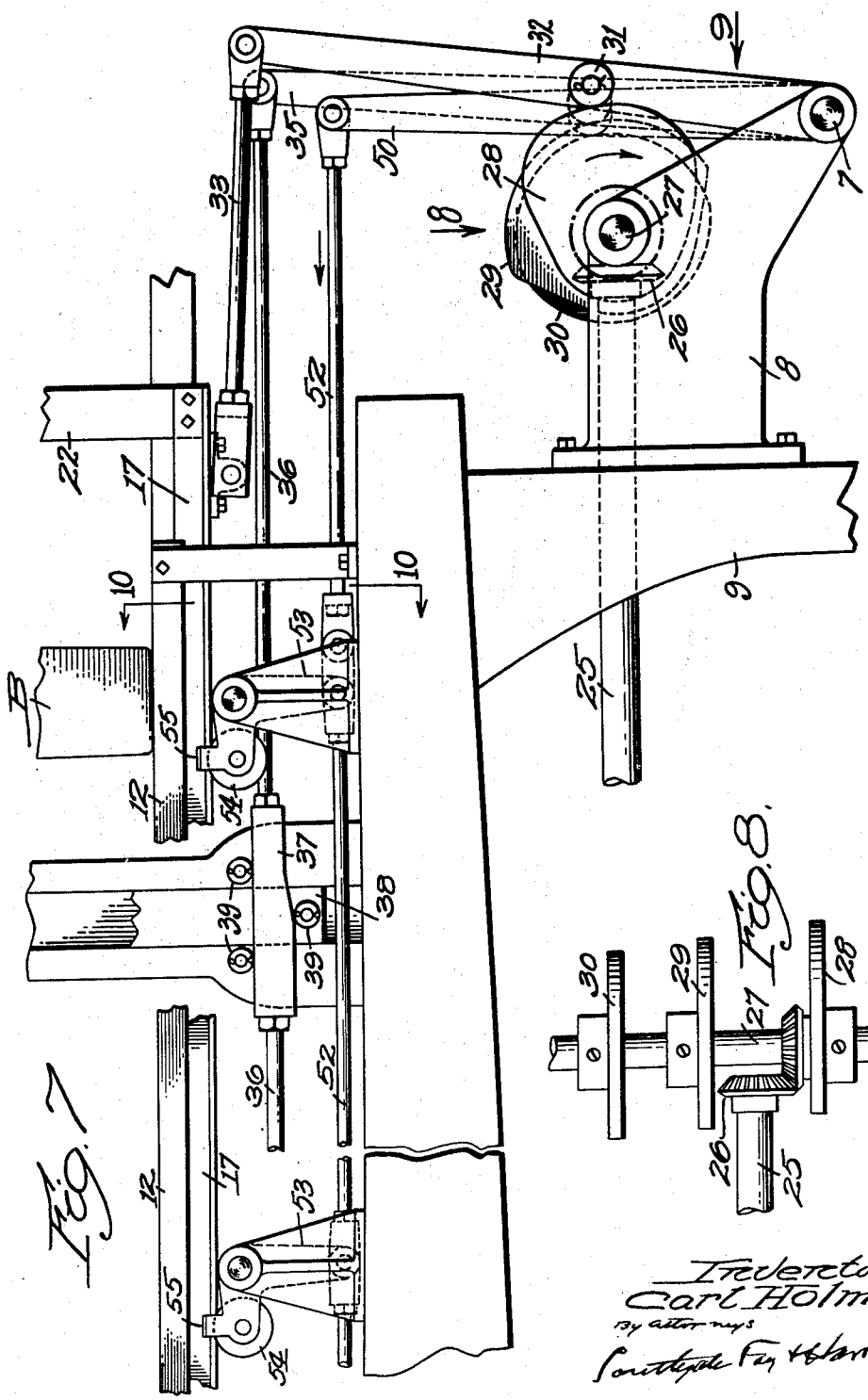


Fig. 7

Fig. 8.

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Dec. 31, 1935. C. HOLM 2,026,172

CONVEYER FOR LABELING MACHINES AND THE LIKE

Filed March 4, 1935 5 Sheets-Sheet 4

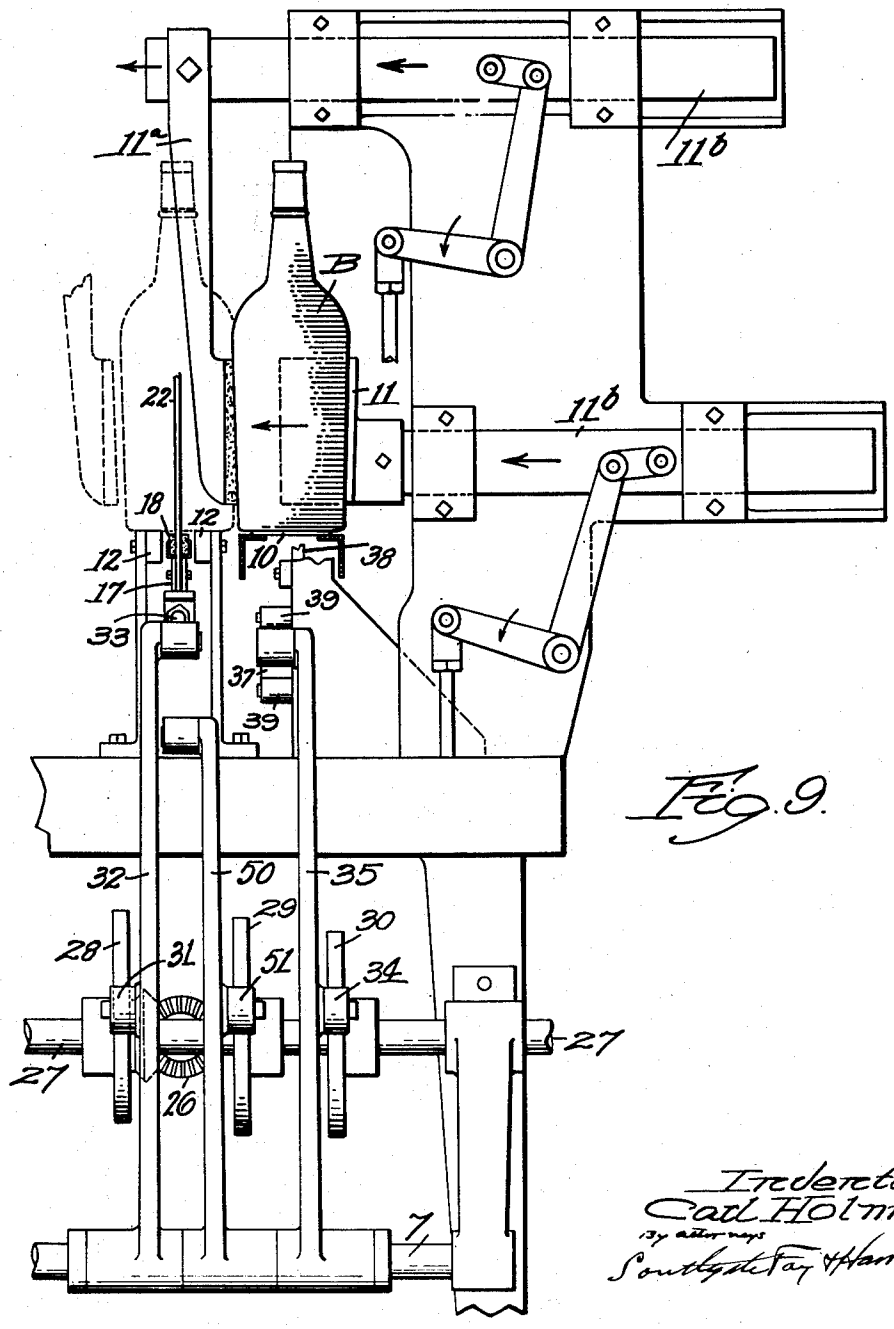


Fig. 9.

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CONVEYER FOR LABELING MACHINES AND THE LIKE

Filed March 4, 1935 5 Sheets-Sheet 5

Fig. 10

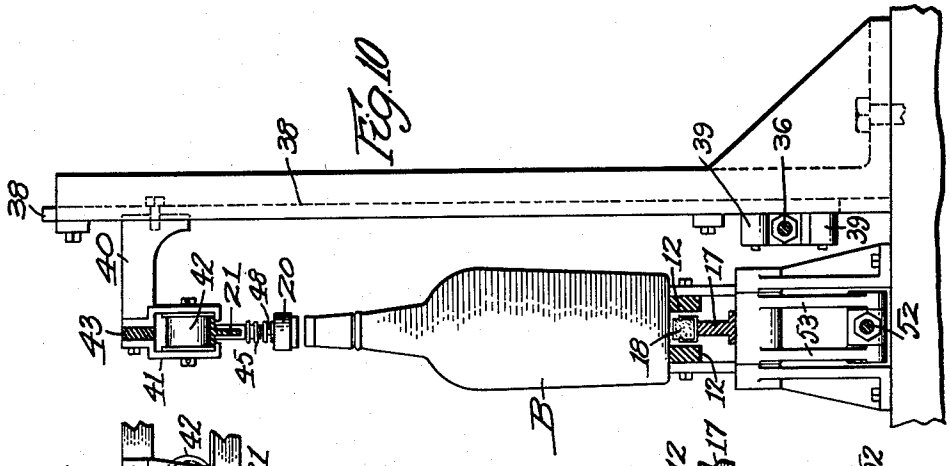


Fig. 11.

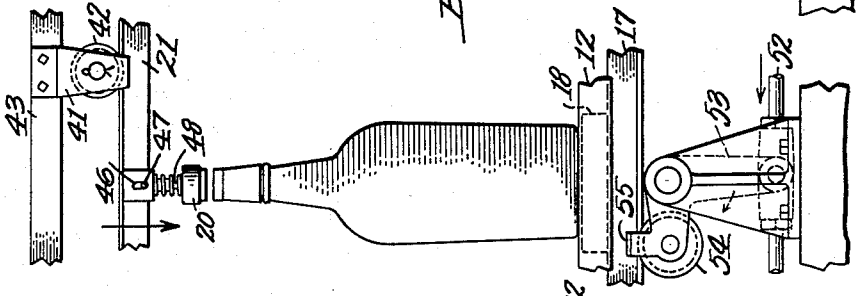


Fig. 12.

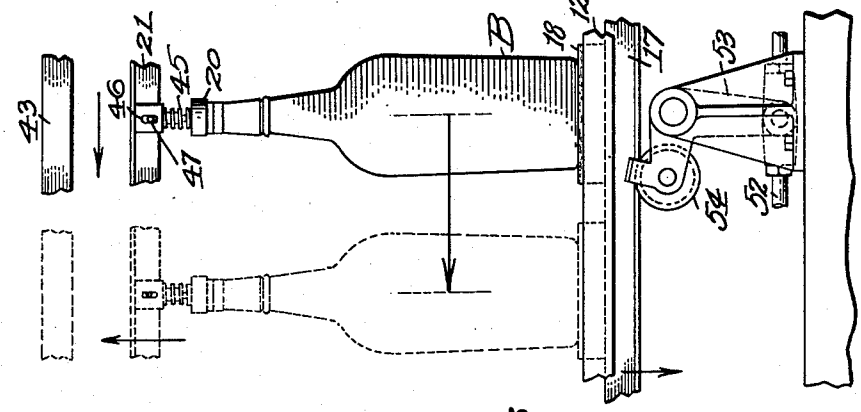
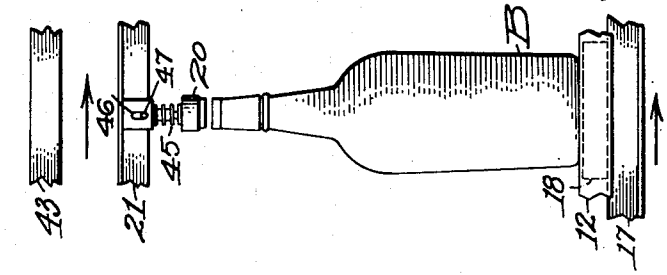


Fig. 13



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UNITED STATES PATENT OFFICE

2,026,172

CONVEYER FOR LABELING MACHINES AND THE LIKE

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Application March 4, 1935, Serial No. 9,142

8 Claims. (Cl. 198—219)

This invention relates to a conveyer for general use but adapted for use in conveying bottles or other articles to be labeled through a labeling machine and stopping them intermittently for the various steps required in placing the labels thereon, and wiping them down, and delivering.

The principal objects of the invention are to provide for intermittently conveying the bottles or articles, without necessitating the gripping thereof, thus eliminating considerable mechanism and cost and to provide means for operating a rest, and also a top holder simultaneously, in a rectilinear path so that the bottles or the like will first rest on a support, then be lifted and moved forward, dropped back on the support and the process repeated in reverse, the means for raising the bottles passing down and then back, then up again, thus completing the rectangle.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a side view of a straightaway labeling machine constructed with a conveyer made in accordance with this invention;

Fig. 2 is a diagrammatic plan showing the course of the bottle through the machine and the labeling operations that are performed upon it;

Fig. 3 is a plan of the machine showing the feed-in and the discharge conveyers;

Fig. 4 is a side view, partly broken away, taken in the direction of the arrow 4 in Fig. 3;

Fig. 5 is a sectional view on the broken line 5—5 of Fig. 4, showing the bottle at rest;

Fig. 6 is a similar view showing the bottle lifted and in the act of being moved along the tracks;

Fig. 7 is a side view taken in the direction of the arrow 7 in Fig. 3;

Fig. 8 is a plan, as indicated by the arrow 8, in Fig. 7, showing the cams;

Fig. 9 is an end view as indicated by the arrow 9 in Fig. 7;

Fig. 10 is a sectional view on the line 10—10 of Fig. 7;

Fig. 11 is a side view showing the bottle in its position of rest and the part for holding it at the top spaced therefrom;

Fig. 12 is a similar view showing in full lines the bottle raised and in the action of being moved along and the means for holding the top of the bottle in position to hold the bottle and showing in dotted lines the end of the stroke, and

Fig. 13 is a similar view showing the bottle in the same position as in dotted lines in Fig. 12, but with the means for holding the top of the bottle raised so as to release it and the conveying means lowered so that the bottle rests on the stationary tracks, the conveyer and means for holding the bottle at the top being ready to start back as indicated by the arrows.

The invention is shown as applied to a labeling machine in which labels are placed on opposite sides of a bottle and wiped down thereon and in which the bottles are conveyed into the machine by an endless conveyer 10 and pushed by the pusher 11, transversely on a pair of tracks 12 spaced from each other. The bottles are moved in a way that will be described, intermittently to a number of positions or stations, as shown in Fig. 2. Here the labels are placed upon them by the pickers 13 and then pressed down on the opposite sides of the bottles by two sets of wipers 14 and 15. The bottles are then pushed from the tracks on a discharge conveyer 16 which carries them away. The invention is not limited to this particular method of labeling or to the labeling of bottles.

The tracks 12 are shown as two in number and stationary. The means for moving the bottles along the tracks 12 operates in one orbit of rectangular shape. This means comprises a movable slide 17 which is provided with a series of rests 18 of rubber or other material. Means is provided for raising this slide 17, together with all these rests, from the position shown in Fig. 5, in which the bottle B is resting on the tracks 12, to the position shown in Fig. 6 in which the bottles are lifted from these tracks and are supported by the rests 18.

This slide 17 in its elevated position is moved forward horizontally, taking the bottles with it and moving them along. One bottle is moved from the position shown in Fig. 2 to the next one and then the slide 17 drops down and descends to the position shown in Fig. 5, leaving the bottle on the tracks 12. The slide 17 then moves backward horizontally in its lowered position and lastly is raised vertically to the position shown in Fig. 6.

In this way, it will be seen that the bottles are moved forward intermittently and that the slide 17 moves in a rectangular path. This constitutes a very simple motion and eliminates the gripper claws and the mechanism connected with them for opening and closing them, as well as

moving them, thus materially simplifying both the construction and operation.

The bottles are held at the top by a series of caps 20 under spring compression and carried by a slide 21, which is in the form of a horizontal bar, secured to a vertical bar 22 which moves horizontally with the slide 21 to give these caps the same motion as that of the slide 17. When the bottles are moved forward the tops of the bottles are held by the caps and they are released when the slide 17 moves below the track. Side guides 57 are employed.

The mechanism for accomplishing these motions can be made in many ways but I have shown a driving shaft 25 which operates all the mechanism. This shaft is provided with a bevel gear 26 which, by a similar gear, operates a cross shaft 27. On this cross shaft are three cams 28, 29 and 30. These shafts are supported on the frame 9 and a bracket 8 carried thereby.

The cams all operate rolls on levers and the rolls are kept in contact with the cams by springs, if edge cams are used, as shown. The cam 28 operates a roll 31 on a lever 32 pivoted on the bracket 8 at 7 and connected by a lever 33 pivotally with the slide 17. This cam 28 is so shaped as to provide the necessary motion above described or, if it is desired to change the path of the slide from a rectangular one to some other shape, the cam will be changed accordingly. In a similar way the cam 30 operates a roll 34 which is mounted on a lever 35 pivoted at the same point 7 as the lever 32. Through a link 36 it operates two sliding cams 37 which actuate two vertical slides 38 by means of rollers 39. To these slides 38 are connected heads 40 which are secured on the slides 38 adjustably and carry a top rail 43.

The slide 21 is supported through rolls 42 by hangers 41 carried by the top rail 43 supported by the heads 40. On the slide 21 are arranged at intervals vertically the movable caps 20 pressed downwardly by springs 45 and capable of moving the length of slots 46 carried by sliding pins 47 on each upright 48 to which a cap 20 is attached. The pins project through the slots 46 and limit the motion. These caps are for the purpose of engaging the tops of the bottles to be labeled and conveyed and holding the same down against the rests 18.

The lower slide or conveyer proper 17 and the upper slide 21 are raised and lowered from a lever 50 which carries a cam roll 51 operated by the cam 29. A link 52 is pivotally connected with the lever 50 and with a series of levers 53, each carrying a roll 54. When the levers are swung from the position shown in Fig. 11 to that shown in Fig. 12 the rollers 54 raise the slide 17 and the rests 18 lift the bottles off the stationary tracks 12, as stated. The levers 53 are provided with projections 55 at the top which constitute side guides.

The operation is as follows:

The bottles are fed in by the conveyer 10 parallel with the tracks 12. Each bottle is moved sideways by a pusher 11 and support 11^a operated by slides 11^b. The slide 17 rises and lifts the bottle on the rest 18 up from the track about $\frac{3}{16}$" and the top of the bottle is pressed down by the cap 20 so that the bottle is held firmly between these two parts, but yieldingly. As the slide 17 next moves forward the slide 21 moves with it, of course, to the next station and stops. Now the lower slide 17 drops and the upper slide 21 rises leaving the bottles free and standing still on the tracks 12. The slides then move back by the same operation.

The bottles move through the successive positions indicated in Fig. 2, one of the above actions taking place to move the bottle from each station to the next. When left in the position shown in Fig. 12 the slide 17 moves down and the slide 21 up and then they both move backwardly together and then come toward each other again. The bottle is provided with a label on each side in this case, as indicated in Fig. 2 and this label is pressed or wiped down by the wipers 14 and 15 and then after that the bottle is discharged by the repeated motion that has been described on the two endless chains 16. In this way the device for gripping the bottles and the mechanism associated therewith are entirely eliminated.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:—

1. In a conveyer, the combination of a track adapted to receive the articles to be conveyed, a slide having means for engaging the bottoms of said articles and supporting them, means for moving the slide up so that all articles on the track will be moved up and supported on the slide, means for moving the slide longitudinally with respect to the track to convey all the articles the same distance along the track, means for lowering the slide to leave the articles supported by the track in their new positions, a slide above the articles, caps carried by the last named slide, means for moving the caps into contact with the tops of the articles to hold them, and means for moving the upper slide longitudinally with the lower slide so that the articles are firmly held while being advanced from one station to another.

2. In a conveyer, the combination of a track for supporting the articles to be conveyed, a slide normally located below the track but movable to a position above the track to raise the articles above the track, and means for engaging the tops of said articles, said engaging means being movable toward the track to hold the articles on the slide, and the engaging means and slide being movable longitudinally to advance the articles along the track.

3. In a conveyer, the combination of a track for supporting the articles to be conveyed, a slide normally located below the track but movable to a position above the track to raise the articles above the track, means for engaging the tops of said articles, means for simultaneously raising the slide and lowering said engaging means, and means for simultaneously advancing along the track the slide and engaging means while they are in position to hold the articles.

4. In a conveyer, the combination of a track adapted to receive thereon the articles to be conveyed, a slide capable of lifting the articles off the track, means for holding the articles down on the slide, means for advancing the slide and holding means along the track, means for raising and lowering the slide, and independent means for raising and lowering the holding means.

5. In a conveyer, the combination of a track on which the articles to be conveyed are adapted to rest, a slide located with its top surface on a lower level than the track, means for raising the slide to bring its top surface above the track and thus support the articles, means for moving the slide forwardly with the articles upon it to

advance them to a new position, and a double endless conveyer located with its two parts at opposite sides of the track in position to receive the articles as they are discharged from the track by the slide, the two parts of the conveyer having a space between them into which the end of the slide is adapted to project.

6. In a conveyer, the combination of means for intermittently advancing the articles to be labeled, a slide located above the same and movable therewith, said slide having spring-pressed caps thereon for engaging the tops of said articles, and means for raising and lowering said slide, whereby, when the caps are in place against the articles, the articles will be moved longitudinally.

7. In a conveyer, the combination of a rail, means for moving said rail up and down, hangers on the rail, a slide having rollers movable on said hangers for supporting the slide, and means carried by the slide for engaging the tops of the articles to be conveyed and steadying the articles while being moved.

8. In a conveyer, the combination of a rail, means for moving said rail up and down, hangers on the rail, a slide having rollers movable on said hangers for supporting the slide, means carried by the slide for engaging the tops of the articles to be conveyed and steadying the articles while being moved, and means for moving said slide longitudinally.

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