Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 1

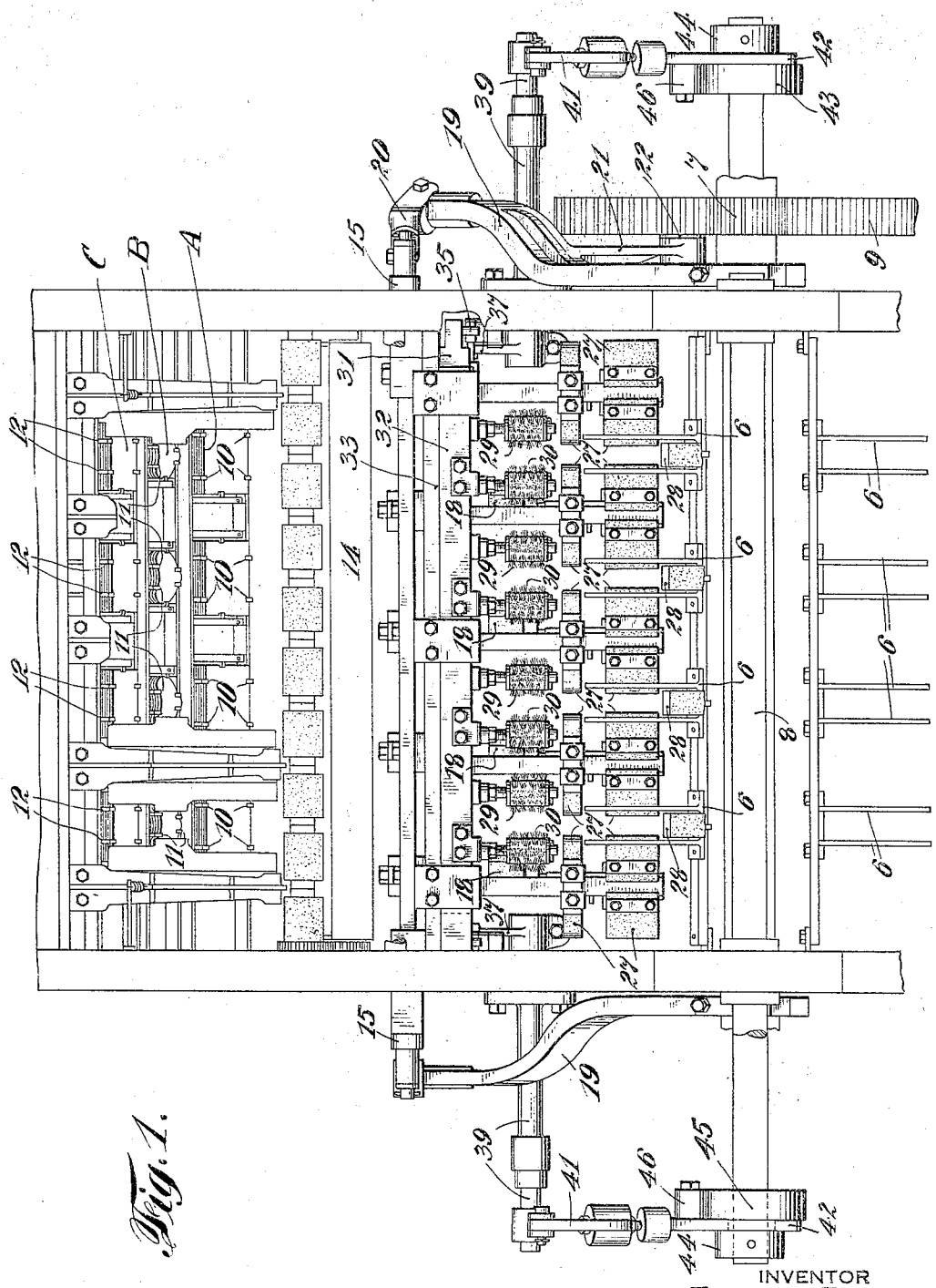


Fig. 1.

INVENTOR
Edward Ermold
BY
C. P. Goepel
ATTORNEY

Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 2

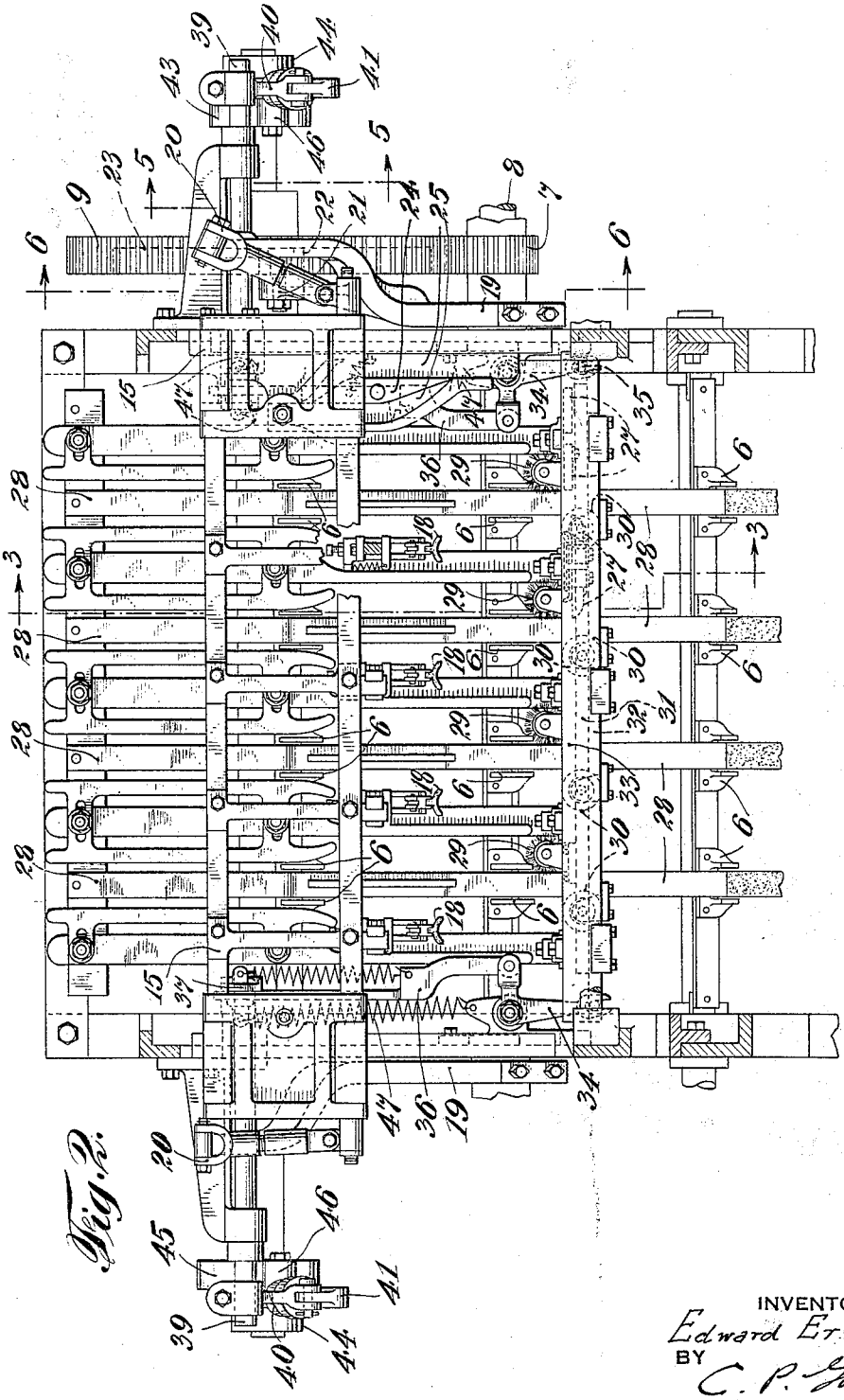


Fig. 2.

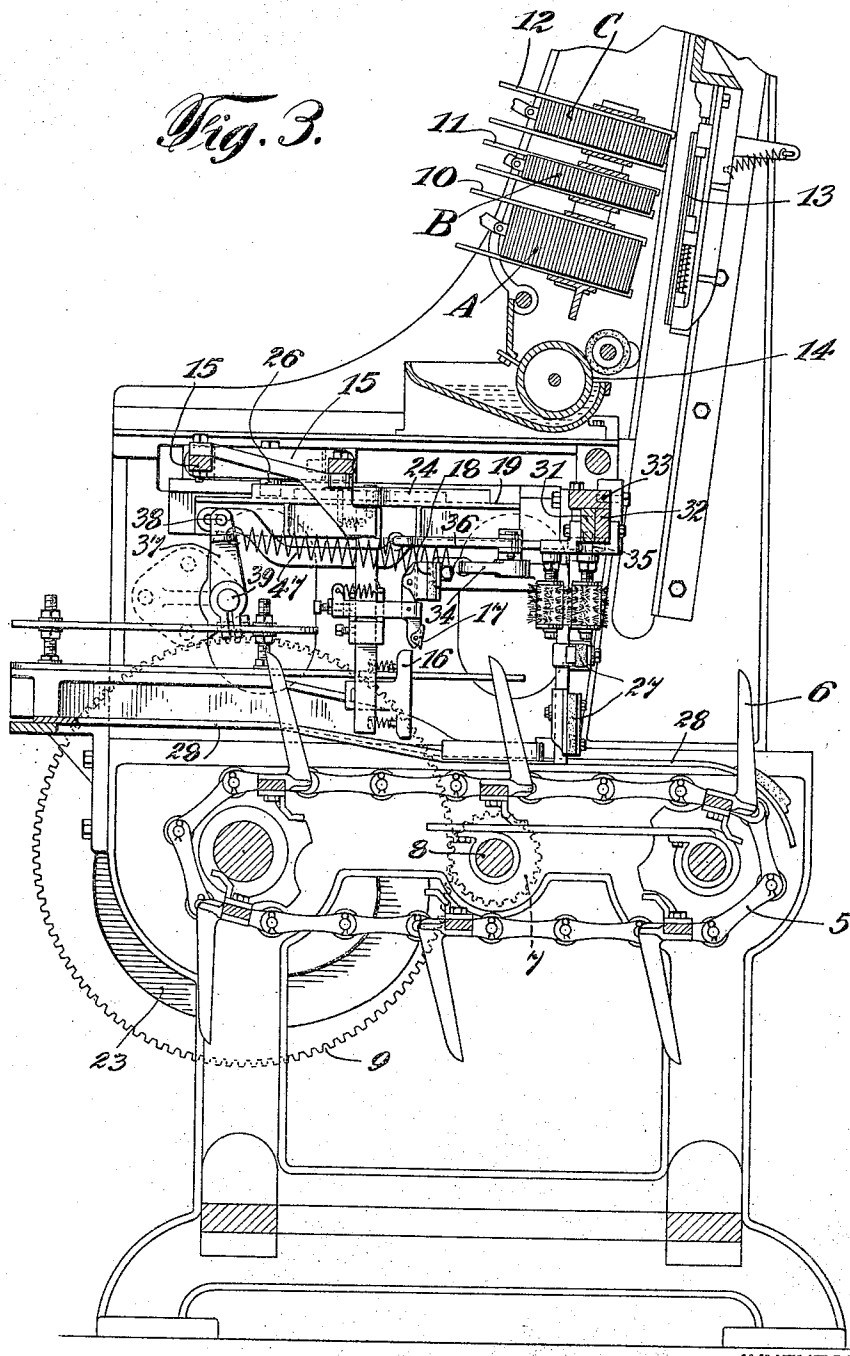
INVENTOR
Edward Ermold
BY
C. P. Goepel
ATTORNEY

Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 3

Fig. 3.



INVENTOR
Edward Ermold
BY
C. P. Goepel
ATTORNEY

Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 4

Fig. 4.

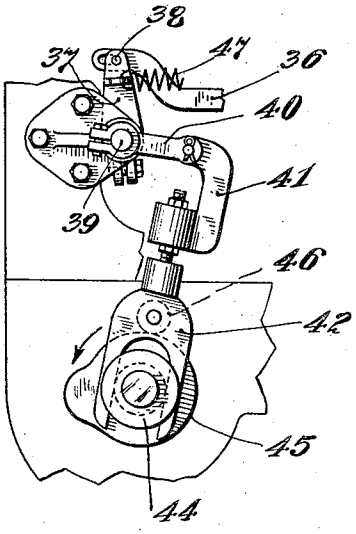


Fig. 5.

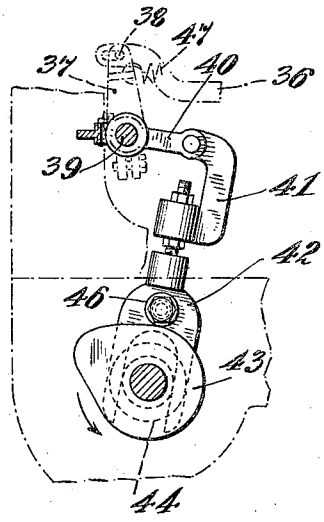
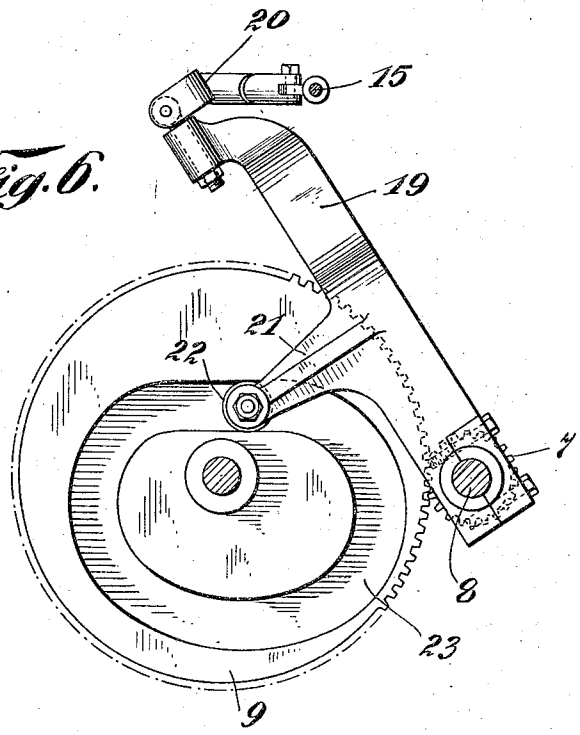


Fig. 6.



INVENTOR
Edward Ermold
BY
C. P. Goepel
ATTORNEY

Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 5

Fig. 7.

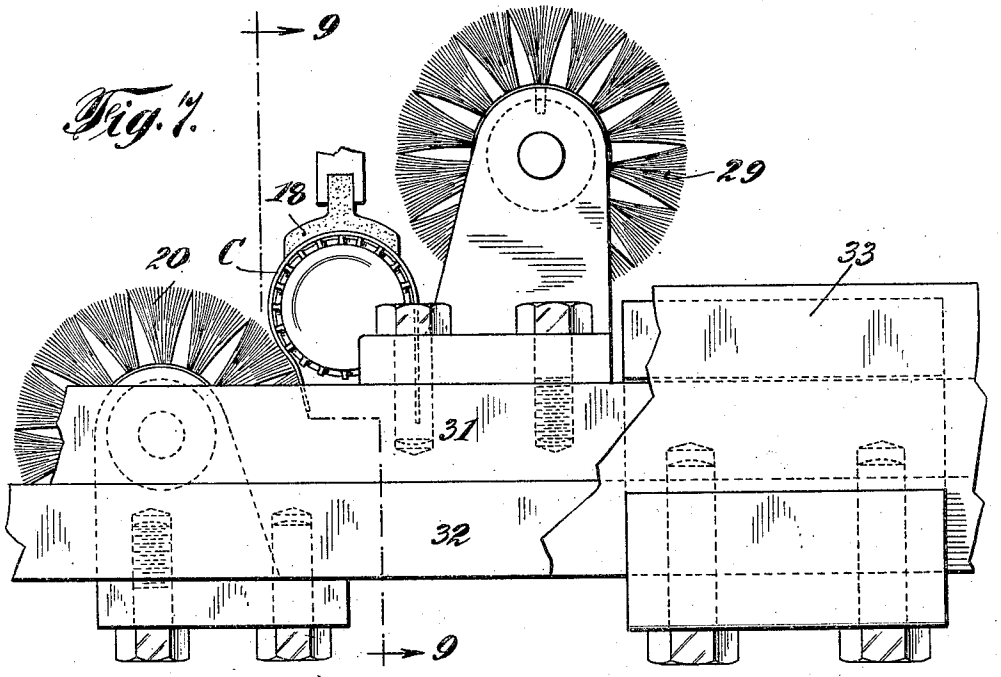
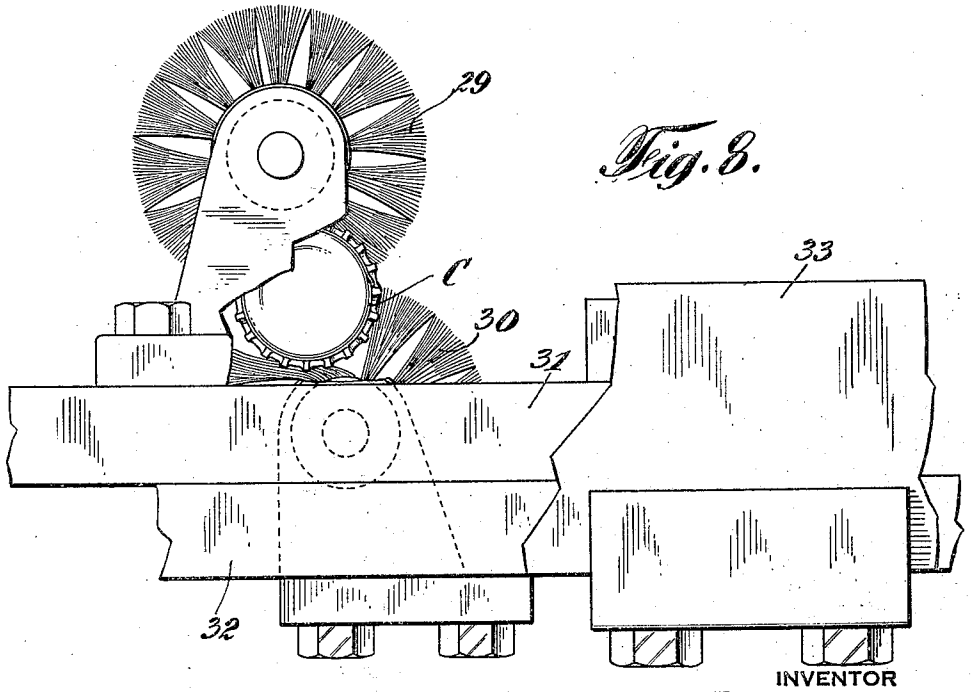


Fig. 8.



INVENTOR
Edward Ermold
BY C. P. Goepel
ATTORNEY

Aug. 16, 1932. E. ERMOLD 1,871,677

BOTTLE LABELING MACHINE

Filed July 7, 1930 6 Sheets-Sheet 6

Fig. 9.

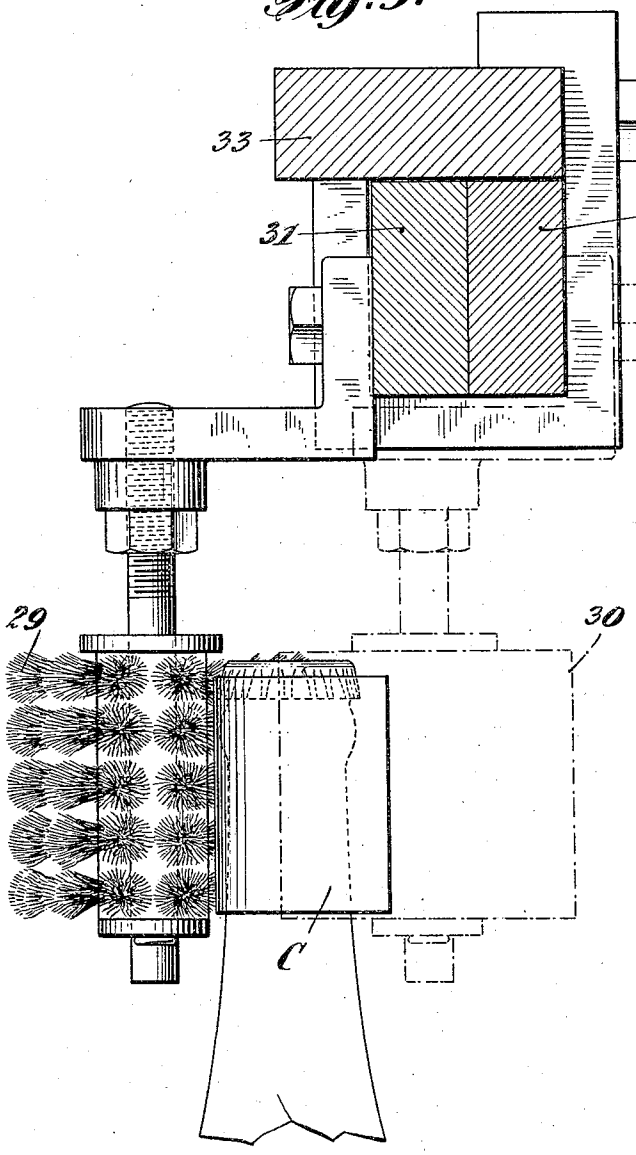
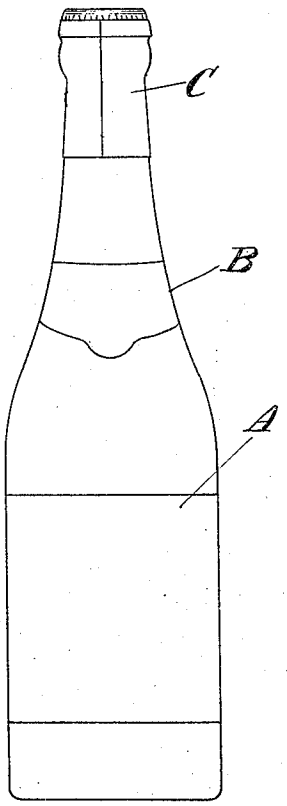


Fig. 10.



INVENTOR
Edward Ermold
BY
C. P. Goepel
ATTORNEY

Patented Aug. 16, 1932 1,871,677

UNITED STATES PATENT OFFICE

EDWARD ERMOLD, OF NEW YORK, N. Y.

BOTTLE LABELING MACHINE

Application filed July 7, 1930. Serial No. 466,145.

This invention relates to bottle labeling machines, and more particularly to certain improvements in the labeling machine shown and described in Patent No. 1,308,280, issued to Edward Ermold on July 1, 1919.

It is the primary object and purpose of my present improvements to provide the patented labeling machine with automatically operating means for securely and accurately applying an ornamental band of tin foil or similar material to the neck portion of the bottle during a single movement of the bottle through the machine and substantially simultaneously with the application of one or more labels to the surface of the bottle.

It is a more particular object of the invention to provide means for the above purpose embodying wiper members mounted to reciprocate across the path of movement of the bottle together with means for moving said members in relatively opposite directions and in accurately timed relation so as to properly engage the gummed end portions of the tin foil strip and smoothly press the same upon the bottle neck without interruption in the continuous movement of the bottle.

It is also an important object of the invention to provide the reciprocating wiper members for the tin foil strip in the form of rotary brushes having a reciprocal movement past each other on opposite sides of the bottle neck and operating during such movement to impart a partial rotation to the bottle so that in the wiping action of the brushes, the gummed ends of the tin foil strip will be smoothly overlapped.

It is also a further general object of the invention to provide improvements as above characterized in the patented labeling machine which will materially increase the utility thereof, without greatly complicating the construction of the machine, and which will reduce the expense heretofore incident to providing beverage containing bottles with ornamental tin foil in addition to the usual labels.

With the above and other objects in view, the invention consists in the improved bottle labeling machine, and in the form, construction and relative arrangement of its 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 my present improvements, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a front elevation of the bottle labeling machine provided with my present improvements;

Fig. 2 is a top plan view, certain parts of the machine being omitted and others shown in section;

Fig. 3 is a vertical longitudinal section through the machine taken substantially on the line 3—3 of Fig. 2;

Fig. 4 is a detail end elevation of the parts at the left hand side of a machine in Fig. 1, for reciprocating one set of the wiper brushes;

Fig. 5 is a detail sectional view taken on the line 5—5 of Fig. 2, showing the corresponding means at the right hand side of Fig. 1 for reciprocating the other set of washer brushes;

Fig. 6 is a detail vertical section taken on the line 6—6 of Fig. 2;

Figs. 7 and 8 are enlarged detail plan views showing relatively different positions of one pair of cooperating wiper brushes;

Fig. 9 is a vertical sectional view taken on the line 9—9 of Fig. 7, and

Fig. 10 is a detail elevation of a bottle showing the two labels and the tin foil band as applied thereto by means of the present invention.

The machine in general as illustrated in the accompanying drawings, is quite similar to that disclosed in my issued patent above referred to, and for the purposes of this application, it will suffice to state that the machine is preferably of the multiple type and includes the conveyer 5, carrying a plurality of longitudinally spaced series of bottle engaging fingers or flights 6, there being four such flights in each series in the present instance. Any suitable means may be provided

for properly feeding the bottles to the conveyer. The conveyer is driven by means of the gear 7 fixed upon the drive shaft 8 and meshing with a relatively large gear 9 fixed on one end of the rear conveyer shaft.

At a point suitably spaced above the bottle conveyer, vertically spaced label magazines 10 and 11 respectively, and a magazine 12 for the sheets of tin foil are mounted in the machine frame. The tin foil sheets are in the uppermost magazine, the neck labels in the intermediate magazine 11 and the body labels in the lower magazine 10. The picker mechanism is generally indicated at 13 and is automatically operated to singly remove the labels and tin foil sheets from the front ends of the respective magazines and lower the same into position for engagement with the bottles. Also the usual glue applying means shown at 14 is provided for applying a film of glue to the surfaces of the yieldingly hinged plates of the picker mechanism 13 as the same moves upwardly to label receiving position. Since this part of the machine is fully described in my prior patent, it need not herein be further referred to.

Also, as fully illustrated in the issued patent, a carriage 15 is mounted in the machine frame for longitudinal and transverse reciprocating motion, said carriage carrying transversely spaced sets of label pressers shown at 16 and 17 respectively, and an upper presser member 18 for engagement with the tin foil strip or sheet. The carriage 15 is reciprocated longitudinally through the medium of the levers 19 loosely fulcrumed upon the conveyer drive shaft 8 at opposite sides of the machine and connected at their upper ends by the universal joint members indicated at 20 to the opposite ends of the carriage. One of the levers 19 is provided intermediate of its ends with an angularly projecting arm 21 carrying a roller 22 which is engaged in the cam track 23 provided in the inner face of the large gear wheel 9.

The carriage 15 is shifted transversely of the machine frame at the ends of its forward and rearward movements to dispose the presser members 16, 17 and 18 in the path of movement of the respective bottles or to displace the same therefrom by means of the yieldingly held pivoted switch dog shown at 24 cooperating with the track ways 25 and a suitably mounted roller 26 on the under side of the carriage, all as shown and described in the above referred to issued patent.

Immediately above the conveyer 5, there is arranged the usual vertically spaced wipers indicated at 27 for engagement with the vertically spaced body and neck labels to press the gummed surfaces thereof upon the surface of the bottle.

The spaced bottles as they are moved through the machine by the conveyer flights 6, are supported upon the transversely spaced longitudinally extending metal bars 28, and during such movement, the respective bottles are engaged with the intermediate portions of the labels and the tin foil sheet which are positioned in the path of movement of the bottles by the picker mechanism 13. The mechanism as thus far described is all contained in the above named issued patent, and constitutes no essential part of the invention claimed herein.

My present improvements consist in the provision of additional wiper members for the tin foil sheet arranged above the wipers 27. In the present instance, these wiper members are illustrated as consisting of the two sets of rotary brushes 29 and 30 respectively, each set of brushes being carried by a bar 31 and 32 respectively, said bars being supported in closely adjacent relation in suitable guide means indicated at 33 for transverse reciprocating motion relative to each other. The brushes 29 and 30 are laterally offset or spaced apart and are arranged in pairs for engagement with the tin foil sheet and the bottles moving upon the respective supporting bars 28. It will be noted from reference to Fig. 2 of the drawings, that the brushes 30 are normally positioned in closely adjacent relation to the center line of the respective supporting bars 28 while the brushes 29 are laterally spaced therefrom for a greater distance and are positioned rearwardly of the brushes 30.

While various means may be devised for imparting a reciprocating motion to the brush carrying bars 31 and 32, I preferably employ for this purpose, the bell crank levers 34 mounted in opposite sides of the machine frame and each having a forwardly extending arm engaged at its ends with a pin or stud indicated at 35 fixed in the outer end of one of said bars. The other transversely disposed arm of the bell crank lever extends inwardly and is connected to the forward end of a bar 36, the rear end of which is slotted to receive a pin or stud 38 fixed in the end of an arm 37 secured to the inner end of a rock shaft 39 journalled in suitable bearings on the machine frame. Each of the rock shafts 39 also has an arm 40 fixed to the outer end thereof and connected by the adjustable link 41 with a yoke member 42. This yoke member is engaged with the peripherally grooved hub 44 of cams 43 and 45 fixed upon the relatively opposite ends of the rear conveyer shaft. Each yoke carries a roller 46 with which the associated cam engages. It will be noted from reference to Figs. 4 and 5 of the drawings, that the cams 43 and 45 are of somewhat different shape. The cam 43 at the right hand side of the machine and as shown in Fig. 5 of the drawings, controls the reciprocating motion of the series of wiper brushes 29, while the cam 45 at the left hand side of the machine controls the relative reciprocat-

ing motion of the series of brushes 30. The reason for this difference in the shape or form of these cams will become apparent from the following description.

Suitable coil springs 47 are provided and connected with the crank arms 37 to yieldingly hold the yoke rollers 46 in bearing engagement upon the peripheral surfaces of the respective cams, one of said springs being connected with the bar 36.

In the operation of the machine, as the bottles are moved rearwardly by the conveyer, the carriage 15 is moved forwardly and at approximately the same time as the bottles are engaged with the labels and the tin foil sheet, the presser members 16, 17 and 18 are engaged with the intermediate portions of the labels and tin foil sheets at the rear sides of the bottles. As the movement of the conveyer continues, the ends of the labels are pressed upon the surface of the bottle by the wiper members 27, while one end of the tin foil sheet is brought into engagement with the brush 30. The carriage 15 now starts to move rearwardly, while maintaining contact of the presser members 16, 17 and 18 with the labels and the tin foil and at the same time, the cam 45 acts to shift the associated yoke 42 upwardly, thereby rocking one of the shafts 39 and through the medium of the connections with one of the bell cranks 34, shifting the bar 32 inwardly. Thus, upon reference to Fig. 7 of the drawings, it will be seen that the brushes 30 are moved across the front sides of the necks of the respective bottles to press one end of the respective tin foil sheets on the surface thereof. This engagement of the gummed surface of the end of the sheet upon the bottle neck occurs in the first part of the movement of the wiper brushes 30. The other cam 43 then acts to rock the other of the shafts 39 and shift the other bar 31 inwardly or in a direction opposite to the direction of movement of bar 32. In the continued movement of the brushes 30, and as the brushes 29 are brought into engagement with the other end portion of the tin foil sheet at the rear side of the bottle neck, the oppositely moving brushes cause a partial rotation of the bottle which continues until the relative movement of the brushes 29 and 30 ceases. It will be understood that in this relative reciprocating motion, both brushes rotate upon their respective axes, and the brush bristles will therefore, apply pressure to the gummed ends of the tin foil sheet, the brush 29 finally pressing one end of the sheet into overlapping relation upon the other end thereof which was previously pressed upon the surface of the bottle by the brush 30. It will be understood that this relative reciprocation between the two series of brushes 29 and 30 is quite rapid, and as the brush bristles are freely yieldable, no appreciable resistance to the continued movement of the bottles resulting in displacement thereof relative to the conveyer and the supporting bars 28 will take place.

From the above description, it will be seen that by means of a relatively simple addition to the patented machine, the decorative tin foil sheets may be applied to the bottle necks simultaneously with the labels in a single movement of the bottles through the machine. Thus, as shown in Fig. 10 of the drawings, the main label A is applied to the lower body portion of the bottle of larger diameter, the smaller label B to the tapering neck portion thereof, while the til foil sheet C is applied around the upper end of the bottle neck and extends to the sealing cap or crown. It will of course, be understood that the shape or form of the bottle as shown in Fig. 10 is purely conventional, and my invention may be so employed for applying the labels and the tin foil sheet in a similar manner to bottles or analogous receptacles of other shapes and sizes.

I have herein shown and described, one simple and practical construction of the several novel features of the invention, but it will nevertheless be understood that the same may 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 embodied within the spirit and scope of the invention as claimed.

I claim:

1. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, relatively stationary label wiping means, means movable relative to the individual bottles to engage and wipe the tin foil sheet thereon without interruption of the movement of the bottle conveyer, and means for actuating said movable means.

2. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, relatively stationary means to engage and wipe the label on the bottle, means movable in an angular direction relative to the path of movement of the bottles to engage the tin foil sheet and wipe the same upon the individual bottles, and means for actuating said movable wiping means.

3. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, relatively stationary means for wiping the label upon the bottle, means movable transversely across the path of movement of the bottles to engage the tin foil sheet and wipe said sheet upon the bottle neck, and means for actuating said last named means.

4. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, relatively stationary means for wiping the label upon the bottle, movable wiper memers to engage the tin foil sheet at opposite sides of the bottle neck, and means for moving said members relative to each other in engagement with the tin foil sheet to wipe said sheet upon the bottle neck without interruption in the movement of the bottle conveyer.

5. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, the tin foil sheet adapted to the applied around the neck of a bottle, relatively stationary means for wiping the label upon the bottle, a pair of wiper members mounted for relative transverse reciprocating movement and for engagement with the tin foil sheet at opposite sides of the bottle neck, and means for reciprocating said members in relatively opposite directions and in contact with the tin foil sheet to wipe the same upon the bottle neck without interruption in the movement of the bottle conveyer.

6. In a bottle labeling machine having a bottle conveyer, means for positioning a label and a tin foil sheet in the path of movement of the bottles, the tin sheet adapted to to be applied around the neck of a bottle, relatively stationary means for wiping the label upon the bottle, a pair of wiper members mounted for relative transverse reciprocating movement and for engaging with the tin foil sheet at opposite sides of the bottle neck, and means for reciprocating said members in relatively opposite directions and in timed relation to each other to first engage one of said members with one end of tin foil sheet and wipe the same upon the bottle neck, said bottle being thereafter rotated by frictional contact with the opposite moving wiper members whereby the other of said members wipes the other end of the tin foil sheet upon the bottle and in meeting engagement with the first named end of the sheet.

7. In a bottle labeling machine having a bottle conveyer, means for positioning vertically spaced labels and tin foil sheets in the path of movement of the individual bottles on the conveyer, relatively stationary means to wipe the labels on the bottles, a pair of transversely reciprocating brushes mounted above the conveyer, and means for reciprocating said brushes in relatively opposite directions on opposite sides of the individual bottles to engage and wipe the tin foil sheets upon the individual bottles.

8. In a bottle labeling machine having a multiple row bottle conveyer, means for positioning vertically spaced labels and tin foil sheets in the path of movement of the individual bottles in each row, transversely reciprocating bars mounted above the conveyer, spaced rotary brushes mounted on each bar for engagement with the tin foil sheets on opposite sides of the bottles in the respective rows, the brushes on one of said bars being arranged for engagement with one end of the tin foil sheets prior to engagement of the brushes on the other bar with said sheets, and means for reciprocating said bars in relatively opposite directions to move the associated brushes past each other and in engagement with the tin foil sheets whereby a partial rotary movement is imparted to the bottles and the tin foil sheets wiped thereon, without interruption in the movement of the bottle conveyer.

9. In combination with means for releasably supporting a flexible sheet in the path of movement of a container, said sheet being of a length sufficient to encircle the container wall, relatively movable wiper members to engage the opposite ends of the sheet after release of the sheet from the supporting means by contact of the container therewith to wipe the ends of said sheet upon the container wall, and means for moving said wiper members in parallel planes past each other.

10. In combination with means for releasably supporting a flexible sheet in the path of movement of a container, wiper members movable in spaced parallel planes across the path of movement of the container adapted to engage the respective ends of the sheet and wipe the same upon the container wall after said sheet has been released from the supporting means by contact of the container therewith, and means operable independently of the container for actuating said wiper members.

11. In combination with means for releasably supporting a flexible sheet in the path of movement of a container, said sheet being of a length to substantially encircle the container wall, wiper members movable in opposite directions across the path of movement of the container and adapted to engage opposite ends of said sheet at relatively different times after the sheet has been released from the supporting means by contact of the container therewith, the wiper member first engaging one end of said sheet by frictional contact therewith causing rotation of the container to position the other end of the sheet for engagement by the other wiper member, and means for relatively moving said wiper members in timed relation to each other.

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

EDWARD ERMOLD.