Aug. 3, 1926. 1,594,465

C. A. MILLER, SR

AUTOMATIC BOTTLE FEED TO FILLING MACHINES

Filed Nov. 9, 1925 2 Sheets-Sheet 1

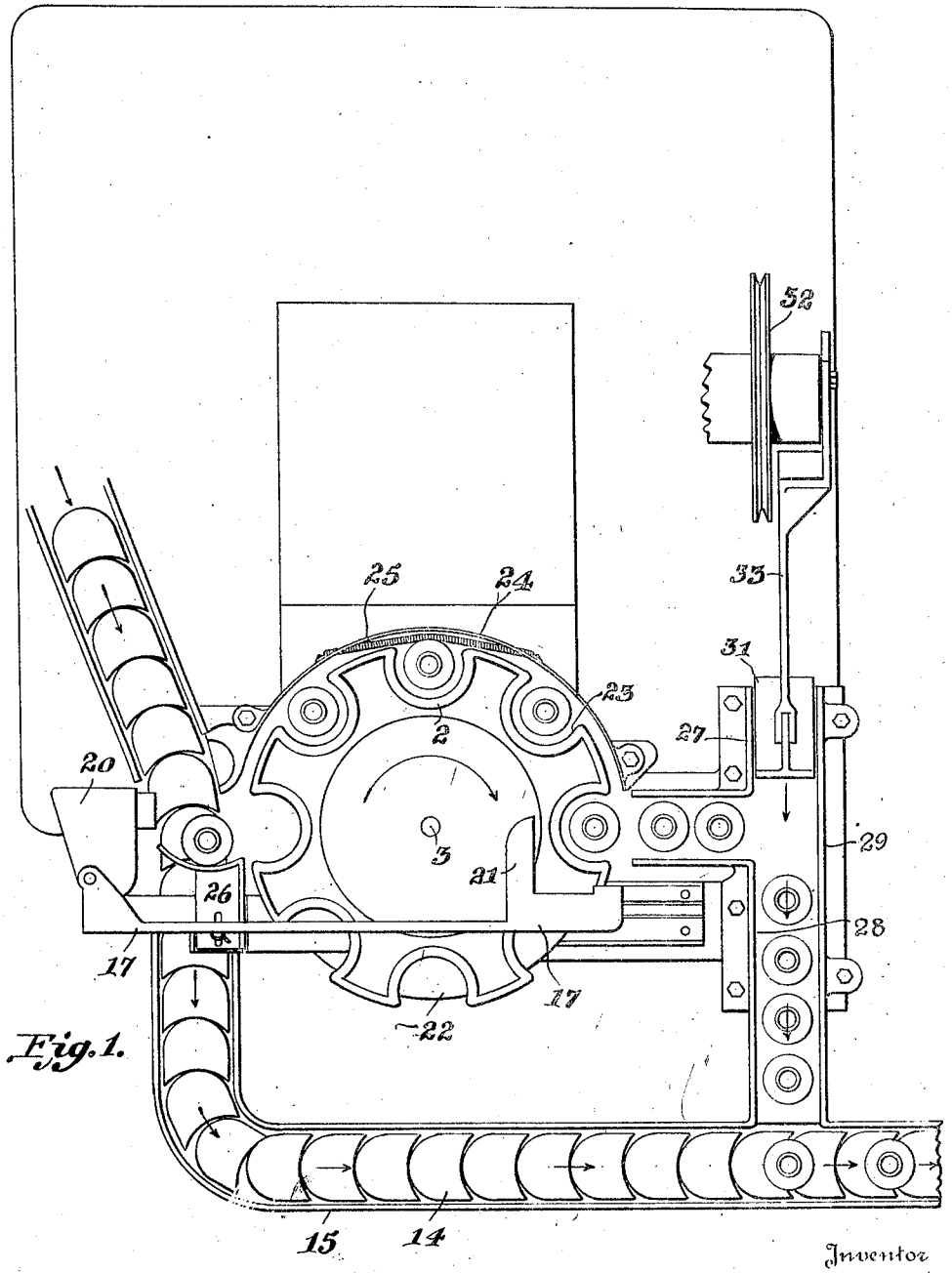


Fig. 1.

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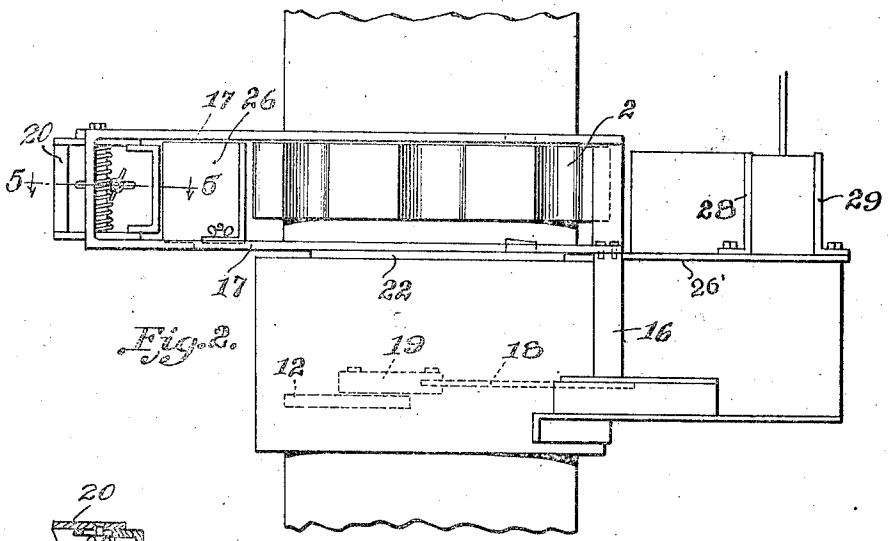


Fig. 2.

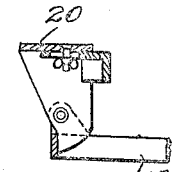


Fig. 5.

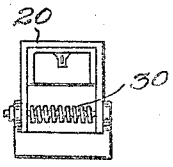


Fig. 4.

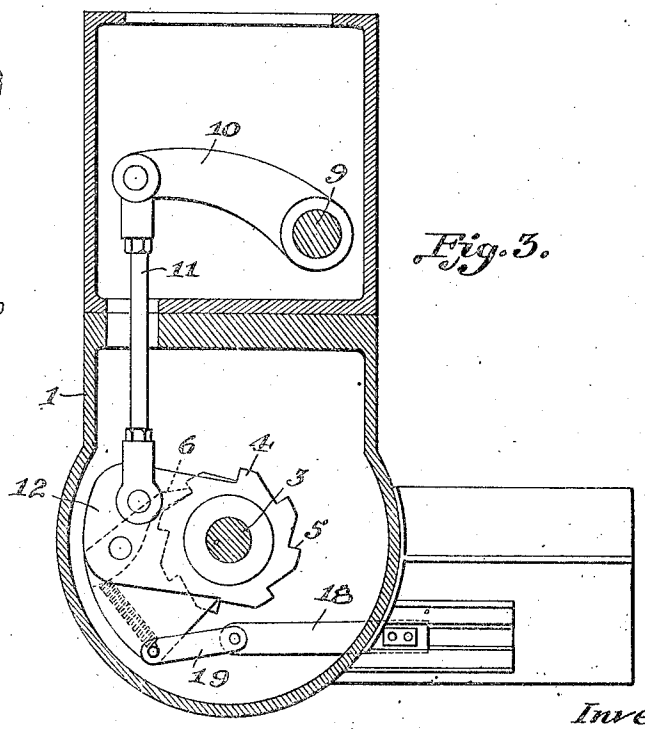


Fig. 3.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC BOTTLE FEED TO FILLING MACHINES.

Application filed November 9, 1925. Serial No. 67,938.

This invention relates to improvements in bottle washing, filling and crowning machines, particularly to improved means for transferring empty bottles from an endless belt conveyor to a circular bottle holding wheel on which bottles are filled and capped.

A further object of this invention is to provide means for ejecting the filled bottles from the wheel onto the same endless belt conveyor.

Other objects will appear in the following detailed description of the apparatus, and as disclosed in the three sheets of drawings herewith made a part of the application.

In the drawings:—

Fig. 1 is a diagrammatic plan view of the automatic bottled feed, filling and discharge mechanism in assembled form.

Fig. 2 illustrates a side elevational view of the bottle holding wheel disclosing the bottle transferring and ejecting means in relationship thereto.

Fig. 3 represents a plan view in section of Fig. 2, showing the transferring and ejecting mechanism in assembled relationship.

Similar numerals in the drawings represent similar elements in the figures.

Numeral 1 designates the frame of the bottle filling machine which supports a turn-table or bottle holder 2, commonly attached to a vertical shaft 3, suitably supported in the frame 1 of the machine. Connected to the shaft 3 is a wheel 4 having spaced notches 5 located along its periphery. Intermittent or periodic movement is imparted to the turn-table 2 by means of mechanism which may be described as follows:

At one end of frame 1 is a shaft 9 on which is mounted an arm 10 which is adapted to oscillate by means of mechanism comprising the driving apparatus of the filling machine. Connected to the end of arm 10 opposite to shaft 9 is a rod 11, connected to member 12, the member 12 being adapted to work freely on shaft 3 in an oscillating movement. Fixed to member 12 is a pawl 6 which tends to rotate the wheel 4 in an intermittent or periodic motion. Attached to wheel 4 is the bottle holding wheel 2. Obviously, the oscillating movement of arm 10 will cause the rod 11 to move member 12 in a forward and backward motion, and as 12 is pushed forward, pawl 6 will slip out of the notched space 5 by means of a spring sufficiently strong to maintain pawl 6 in the notch 5 when the member 12 is being pulled backward.

Arranged along the turn-table 2 is an endless conveyor chain 14 suitably supported in the frame 15. Mounted on connecting bar 16 between the turn-table 2 and conveyor 14, is a sliding member 17, which is connected by means of link 18 to an arm member 19, the arm member 19 being attached to member 12 pivoted to shaft 3. An arm or pusher member 20 is adapted to push inward over the endless chain conveyor 14, and the member 21 is adapted to slip below and above the wheel 2. A stationary plate 22 is arranged to hold a bottle while being carried around the turn-table 2. The turn-table or rotating head 2 is provided with a series of pockets 23 which open outwardly to permit the proper entry and output of the bottles. Surrounding the turn-table is a guide 24 which may be adjusted to diameter and which serves to hold the bottles in position in the pockets 23. Attached to guide 24 is a spring member 25 which is adapted to hold bottles of similar size in a rigid position as they are being filled.

Overlying the endless belt 14 is a stop or pocket member 26 which tends to hold the bottles in position before they are transferred from the chain conveyor 14 by the member 20 into a pocket of the wheel 2. On the motion of member 20, which is affixed to member 17, member 21 on the opposite end of 17 will push the bottles out of the wheel 2 on to a guide support 26′. Bolted to the guide support 26′, are three suitable guide portions 27, 28 and 29, which prevent the bottles from falling.

The wiper or pusher member 20 is normally attached to member 17 by means of a hinge-like element having a spring member 30, thereby permitting the wiper or element 20 to adjust itself in case a bottle falls or topples over and is forced into a space sideways instead of in upright position. Obviously, this hinge member 20 is essential for the reason that elements 9, 10, 11 and 12, are positive in movement, having no spring releases to give way in case a bottle falls as described above.

As the bottles are ejected from the pocket

23 of wheel 2 into the guides 27, 28 and 29, a member 31 is pushed forward, the member 31 being controlled by motion of a pulley wheel 32 which makes a complete revolution at each stroke of rod 9, thereby pushing the bottle on to the conveyor 14 at the proper point. The pushing member 31 is connected to wheel 32 by means of a connecting rod 33. In this connection it may be stated that the pulley wheel 32 does not make a complete revolution until members 20 and 21 have performed their functions of transferring and ejecting the bottles.

In operation this invention provides an efficient means for automatically feeding bottles to the machine and ejecting them therefrom. The shaft 9 is arranged to make a forward and backward motion thereby giving the arm 10 a suitable rocking action, by means of the connecting rod or shaft 11, which is connected to member 12, the member 12 being rotatably attached to shaft 3. Member 12 is connected to it and pawl 6, which, when moved inwardly to the notches 5, causes the wheel 4 to move in a periodic circular motion. Attached to wheel 4 is a pocket wheel or bottle holding wheel 2, and wheel 2 not being in motion, member 12 is moving backwardly, thereby causing members 18, 19 and 20 to move accordingly.

Inasmuch as members 20 and 21 are connected to the above elements, the function of transferring and ejecting the bottles is readily accomplished.

What I claim is:—

1. In a bottle filling machine having an endless belt conveyor and a bottle holding wheel means for simultaneously transferring bottles from the belt to the wheel, and ejecting bottles from the wheel to the belt, consisting of a sliding member mounted on a connecting bar, the connecting bar being suitably attached through a system of linkages to an oscillating member which is suitably pivoted to the holding wheel.

2. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, the means consisting of a sliding member mounted on a connecting bar, the connecting bar being suitably attached to an arm member by means of a linked portion.

3. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, the means consisting of a sliding member mounted on a connecting bar, the connecting bar being suitably attached to an arm member by means of a linked portion, the arm member being in turn attached to an oscillating member which is suitably pivoted to the holding wheel shaft.

4. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, the means consisting of a sliding member mounted on a connecting bar, the connecting bar being suitably attached to an arm member by means of a linked portion, the arm member being in turn attached to an oscillating member which is suitably pivoted to the holding wheel shaft, of means for providing oscillating movement to the last named member.

5. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, the means consisting of a sliding member mounted on a connecting bar, the connecting bar being suitably attached to an arm member by means of a linked portion, the arm member being in turn attached to an oscillating member which is suitably pivoted to the holding wheel shaft, of means for providing oscillating movement to the last named member, consisting of linked members keyed to a driving shaft of the machine.

6. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, operative means for transferring and ejecting the bottles comprising an oscillating element which forces a pusher member inwardly over the endless belt conveyor, thereby pushing the bottle into its position in the holding wheel, simultaneously the pushng member acts to push a bottle from the holding wheel on to the endless belt.

7. The combination with a bottle filling machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, operative means for transferring and ejecting the bottles comprising an oscillating element which forces a pusher member inwardly over the endless belt conveyor, thereby pushing the bottle into its position in the holding wheel, simultaneously the pushing member acts to push a bottle from the holding wheel on to the endless belt, of means for relieving the pusher element of strain in case the bottle falls over.

8. The combination with a bottle filling

machine of an endless belt conveyor, of a bottle holding wheel, of means simultaneously transferring bottles from the belt to the wheel and ejecting bottles from the wheel to the belt, operative means for transferring and ejecting the bottles comprising an oscillating element which forces a pusher member inwardly over the endless belt conveyor, thereby pushing the bottle into its position in the holding wheel, simultaneously the pushing member acts to push a bottle from the holding wheel on to the endless belt, the last named means comprising a hinged pusher member suitably tensioned by means of a spring.

In testimony whereof I affix my signature.

CHARLES ALVIN MILLER, Sr.