H. D. CULLEY.

AUTOMATIC FEEDER FOR BOTTLE FILLING, CAPPING, AND LABELING MACHINES.

APPLICATION FILED APR. 9, 1912.

1,087,909. Patented Feb. 17, 1914.

3 SHEETS—SHEET 1.

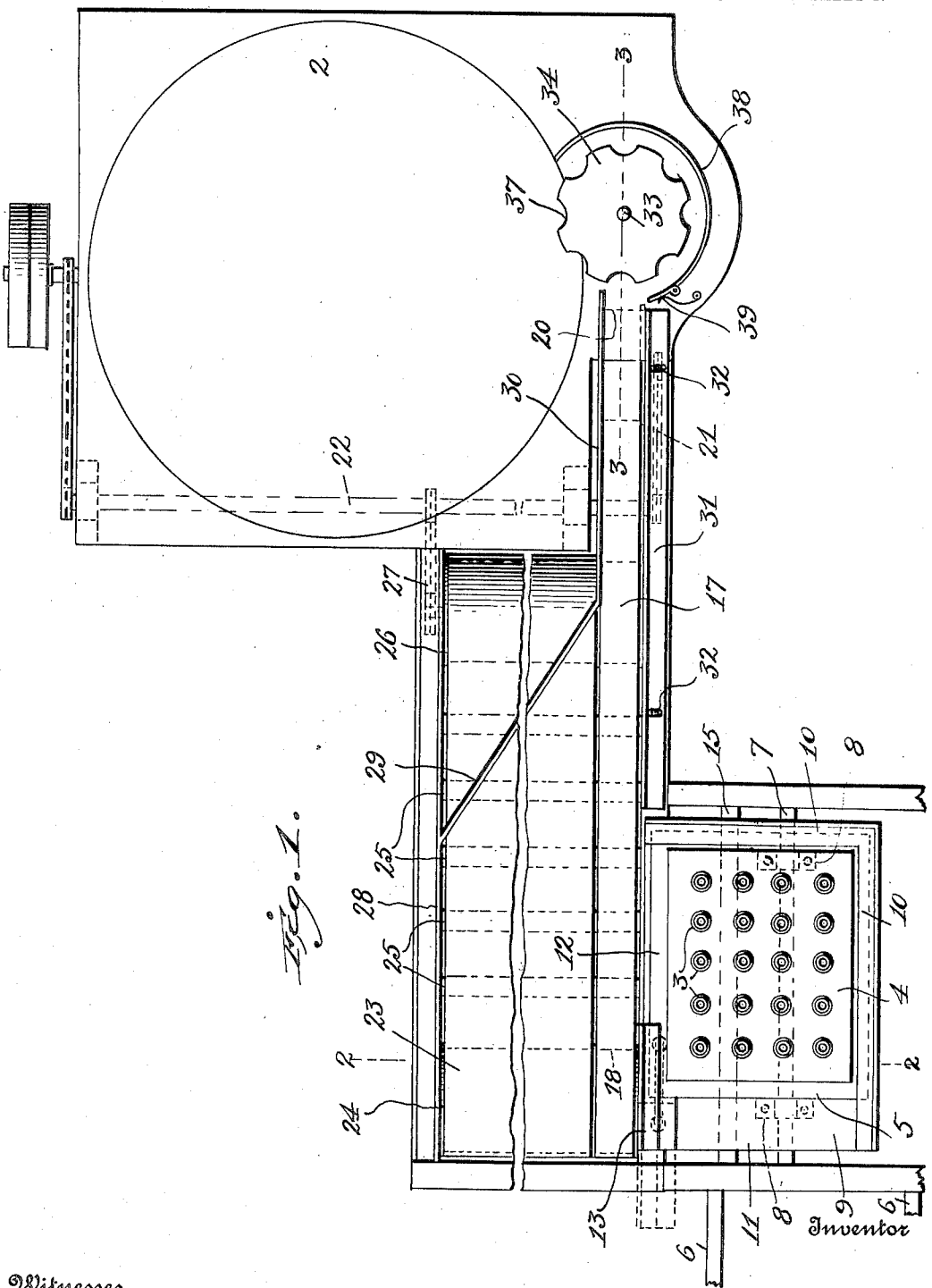


Fig. 1.

Witnesses

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Inventor

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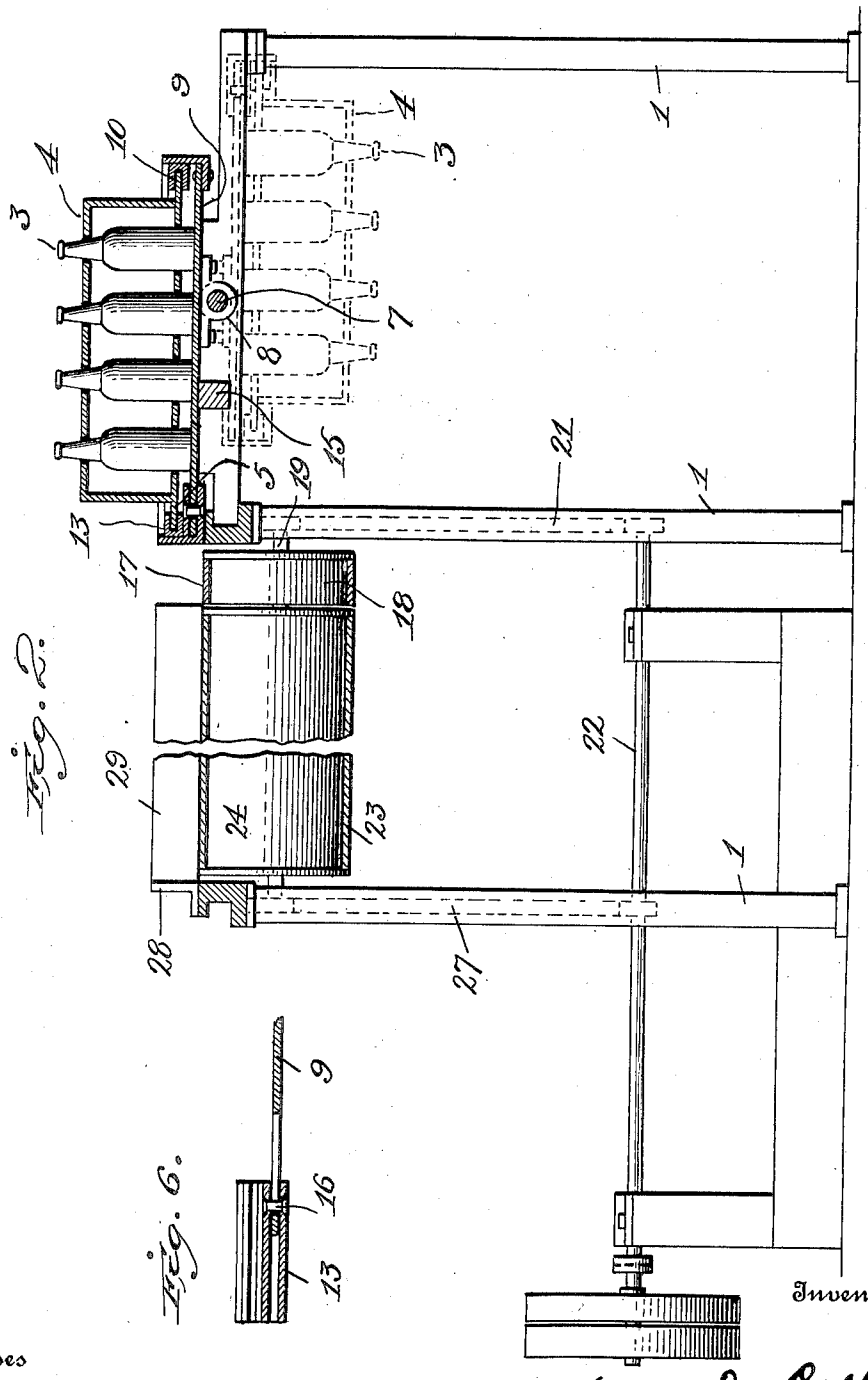


Fig. 2.

Fig. 6.

Witnesses

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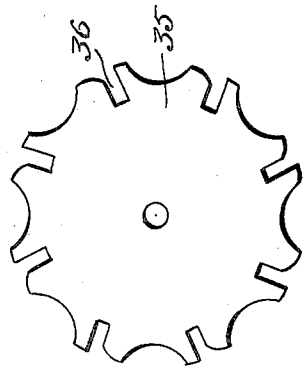


Fig. 5.

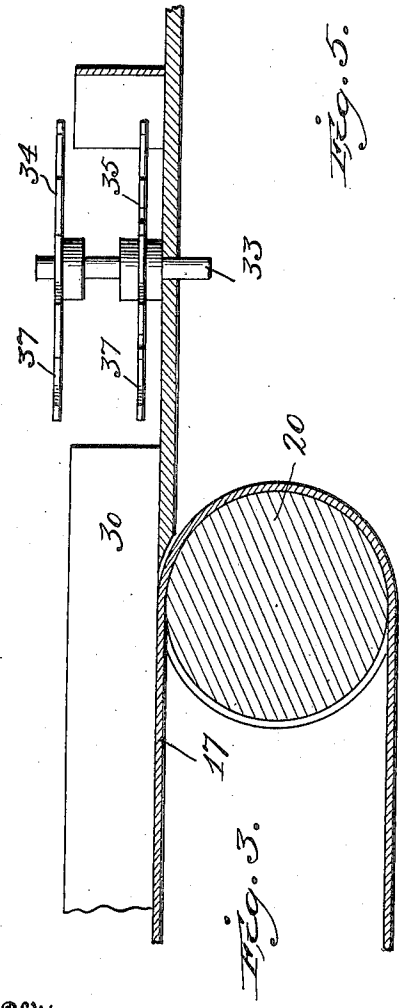


Fig. 3.

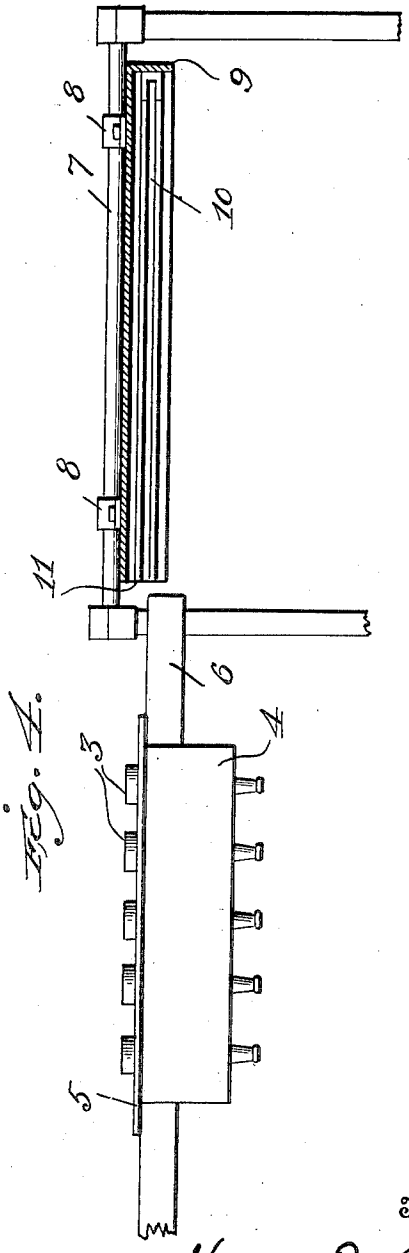


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

HARRY D. CULLEY, OF TERRE HAUTE, INDIANA, ASSIGNOR TO AUTOMATIC MACHINERY COMPANY, OF TERRE HAUTE, INDIANA, A CORPORATION OF INDIANA.

AUTOMATIC FEEDER FOR BOTTLE FILLING, CAPPING, AND LABELING MACHINES.

1,087,909. Specification of Letters Patent. Patented Feb. 17, 1914.

Application filed April 9, 1912. Serial No. 689,532.

To all whom it may concern:

Be it known that I, HARRY D. CULLEY, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Automatic Feeders for Bottle Filling, Capping, and Labeling Machines, of which the following is a specification.

This invention relates to automatic feeders for bottle filling, capping, and labeling machines.

The present invention has for its object the provision of an improved automatic feeder adapted for use in connection with bottle filling, capping, or labeling machines, particularly those machines which employ a rotary table where the filling, capping, or labeling operation is performed.

The invention, one embodiment of which is set forth hereinafter, consists, first, of endless belt traveling conveyers arranged side by side and running at different speeds, combined with means for transferring bottles from one of said conveyers to the other; and, second, in combination with traveling conveyers arranged side by side and running at different speeds, of means for delivering a plurality of bottles to said conveyers simultaneously, and means for guiding said bottles to the faster moving conveyer.

In the accompanying drawings:—Figure 1 is a plan view, partly broken away and in dotted lines; Fig. 2, a vertical section on line 2—2, Fig. 1, dotted lines representing the position of the tray, bottles, and turntable when the bottles are being placed on the turntable and full lines representing the position of the tray, bottles, and turntable when ready for transfer to the conveyers; Fig. 3, an enlarged section on line 3—3, Fig. 1; Fig. 4, a detail view showing the turntable in section and illustrating the position of the tray with the bottles inverted when being moved toward the turntable; Fig. 5, a detail view of the lower wheel which operates the rotary transferrer; and Fig. 6, a detail section showing the sliding latch which holds the tray on the turntable.

The frame 1 supports any suitable rotary bottle filling, capping, or labeling mechanism positioned at 2, as my invention relates solely to a feeder for machines of this class.

The bottles 3 are carried by a tray 4 which has an outstanding flange 5, Figs. 2 and 4, the tray being slid along parallel skids or ways 6 as it comes from the washing machine, adjacent which the machine of the present invention may be located.

Suspended from a support or shaft 7 by hangers 8 is a turntable 9 which is shown in receiving position in dotted lines in Fig. 2, and full lines in Fig. 4. This turntable is provided with channeled guides 10 on two of its sides, its receiving end being open at 11 and its transferring or delivery side being open at 12 for the greater portion of its length but also provided with a slidable channeled latch 13 which may be moved to either the full or the dotted line position shown in Fig. 1. When the turntable is in the inverted position shown in Figs. 2 (dotted lines) and 4, the latch 13 is in a position shown in full lines in Fig. 1 so that it is adapted to receive the flange 5 of the tray 4. When the tray 4 is to be delivered or transferred laterally from the turntable after the latter has been brought to the full line position of Figs. 1 and 2, the latch 13 may be shifted to the dotted line position of Fig. 1, to leave the side 12 open so that the tray and bottles may be slid laterally from the turntable.

Preferably the turntable 9 is connected to the shaft 7 in such manner that the shaft is off-set from the median line of the turntable. This enables the operative to obtain a greater leverage when swinging the tray and, further, the off-set mounting aforesaid tends to keep the turntable from turning too easily or getting out of position when receiving the tray 4 and when in position for the delivery of the tray therefrom. The channels in the guides 10 and the latch 13 are in line with the top of the ways or skids 6, Fig. 4, so that as the tray is slid along the skids with the bottles inverted, the flange 5 is adapted to enter the channels 10 and the latch 13, as shown by dotted lines in Fig. 2. The operative thereupon swings the turntable to the full line position shown in Figs. 1 and 2. When in either position, a cross piece 15 constitutes an abutment for the turntable. Having brought the turntable and tray to the aforesaid position, the latch 13 may be slid to the dotted line position, Fig. 1, leaving the side 12 open for the re-

moval of the tray and bottles from the turntable. The latch 13, Fig. 6, is connected to the turntable by a slot and pin connection 16.

Disposed adjacent the open side 12 of the turntable is a relatively narrow conveyer belt or apron 17 which runs around a drum 18 at one end, said drum being loosely mounted on a shaft 19. At its other end the conveyer or apron runs around a drum 20 which is driven by a sprocket chain 21 from shaft 22. Disposed alongside the conveyer or apron 17 is a wide conveyer or apron 23 one end of which runs around a drum 24 loose on the shaft 19, the upper surfaces of the conveyers or aprons 17 and 23 being in the same plane and said aprons having their upper stretches supported and running over rollers 25 which reduce friction and keep the aprons from wearing. The other end of the apron or conveyer 23 runs around and is driven by a drum 26 which is driven from shaft 22 by a sprocket chain 27. The sprocket chains 21 and 27 and sprocket wheels are so geared that the conveyer 17 runs somewhat faster than the conveyer 23. Disposed adjacent the outer edge of the conveyer 23 is a wall 28. Extending obliquely over the conveyer 23 is a selector wall guide 29 to which is joined a guidewall 30 disposed immediately above the edge of the conveyer or apron 17. Disposed opposite the guide wall 30 is a guide wall 31 which is adjustable toward and away from the guide wall 30 by any suitable means such as bolt or slot connections 32. The guide wall 31 extends back almost to the turntable 9 and is disposed substantially at or closely adjacent to the edge of the apron 17.

Carried by the same shaft 33, Figs. 1 and 3, are the upper feeder wheel 34 and the lower feeder wheel and operating wheel 35, the latter having notches 36 adapted to be engaged by the rotary bottle filling, capping, or labeling mechanism employed at 2. The notches 37 of the wheels 34 and 35 are shaped to receive the botties one at a time. Arranged substantially concentric to the wheels 34 and 35 is the guide wall 38 whereby the bottles fed to the wheels 34 and 35 by the apron 17 are fed, one at a time, to the mechanism 2. A spring actuated yieldable section 39 is provided at the entrance to the wall guide 38. This eliminates all possibilities of a bottle sticking or wedging when it is only part of the way in notches 37 of the wheels 34 and 35. At times when a bottle is only part of the way in notch 37 it is pushed to the first section 39 of the guide wall 38 and if the bottle is out too far the spring 39 will give enough to let part 37 pass the bottle, and then will shove the bottle in to the next part 37.

The tray 4 having been brought to the position shown in full lines in Figs. 1 and 2, the latch 13 is pulled aside, as shown by dotted lines, Fig. 1, and the entire tray pulled by hand out of turn table 9 and onto conveyers 23 and 17. The tray is lifted and removed for use elsewhere, the bottles being then supported by the conveyers 23 and 17. The bottles on conveyer 17 are carried direct into feed wheels 34 and 35. The bottles on conveyer 23 are carried against the selective guide wall 29 which spreads them out and insures their feed, by lateral displacement, on the apron 17 which thereupon lines the bottles up in single series and passes them along between the guide walls 30 and 31. The guide wall 31 may be adjusted toward or away from wall 30 according to the size of the bottles. The greater speed of the apron 17 insures the continual taking off from the apron 23 of the bottles which are selectively arranged by the part 29. The bottles are fed, one at a time, by the apron 17 to the notches 37 of the wheels 34 and 35 and are passed around and against the wall 38 and fed in succession, one at a time, to whatever rotary mechanism is employed at 2. The curvature of the notches 37 insures the reception therein of but one bottle at a time and the yielding part 39 prevents any clogging at this point while the passage of the bottles in single file between the guides 30, 31, prevents clogging or congesting.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a bottle feeder, endless belt traveling conveyers arranged parallel with each other side by side in the same plane and running at different speeds but in the same direction, and means for transferring the bottles from one conveyer to the other.

2. In a bottle feeder, endless belt traveling conveyers arranged parallel with each other in the same plane side by side and running at different speeds but in the same direction, and an inclined selector for effecting the transfer of the bottles from the conveyer of lower speed to the conveyer of higher speed.

3. In a bottle feeder, traveling conveyers arranged side by side, a race way for one of said conveyers, and an inclined selector, for directing the bottles from the other conveyer to the race way, the conveyer having the race way running faster than the other conveyer.

4. In a bottle feeder, the combination with traveling conveyers arranged side by side and running at different speeds, of means for delivering a plurality of bottles to said conveyers simultaneously, and means for guiding said bottles to the faster moving conveyer.

5. In a bottle feeder, the combination with traveling conveyers arranged side by side and running at different speeds, the faster moving conveyer being of a width to hold a

single row of bottles, of means for delivering a plurality of bottles to both of said conveyers simultaneously, and means for guiding said bottles to said faster moving conveyer.

6. In a bottle feeder, the combination with traveling conveyers arranged side by side and running at different speeds, the faster moving conveyer being of a width to hold a single row of bottles, of means for delivering to both of said conveyers simultaneously a plurality of bottles in an upright position standing on their bottoms, and means for guiding said bottles to said faster moving conveyer so that they will be carried off thereby in a single row to a filling, capping or other machine.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY D. CULLEY.

Witnesses:

STELLA M. THOMAS,

HARRY J. BAKER.