

J. L. ZEILER.
 APPARATUS FOR FILLING BOTTLES.
 APPLICATION FILED OCT. 26, 1912.

1,064,677.

Patented June 10, 1913.

2 SHEETS—SHEET 1.

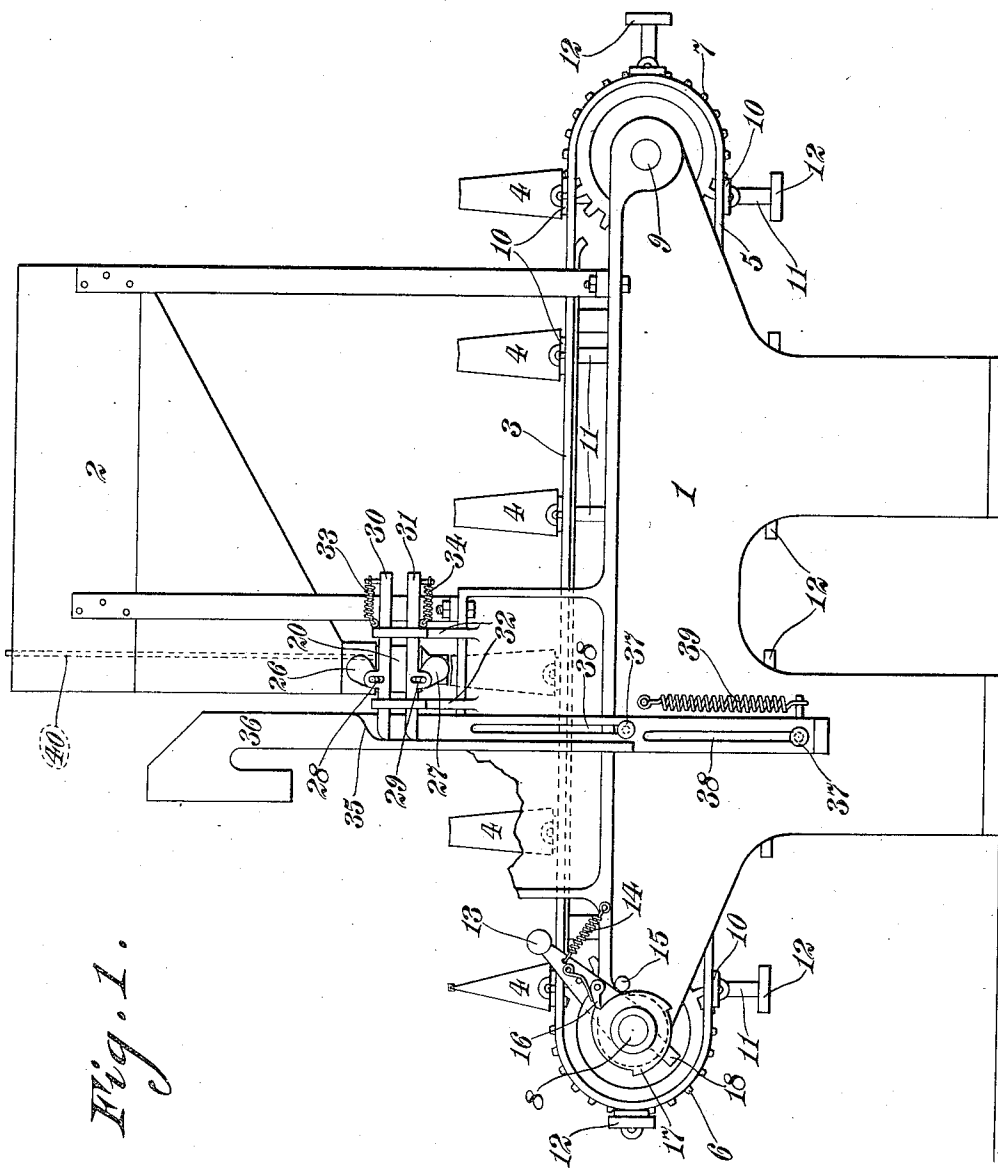


Fig. 1.

Witnesses:
 Harry H. Peiss.
 George L. Anderson.

Inventor:
 John L. Zeiler,
 by Hugh H. Wagner,
 His Attorney.

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2 SHEETS—SHEET 2.

Fig. 2.

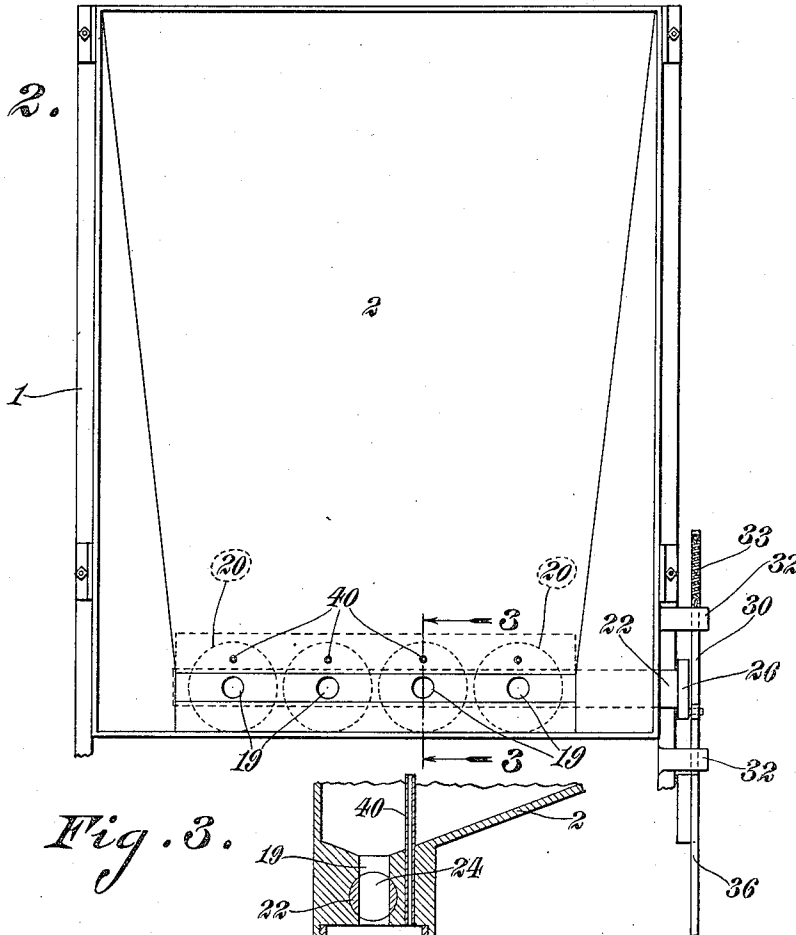
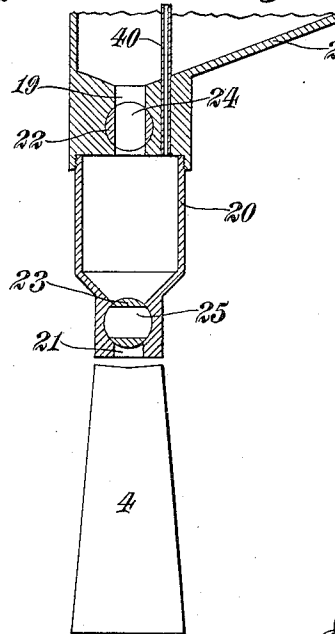


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN L. ZEILER, OF OROSI, CALIFORNIA.

APPARATUS FOR FILLING BOTTLES.

1,064,677.

Specification of Letters Patent.

Patented June 10, 1913.

Original application filed August 21, 1911, Serial No. 645,207. Divided and this application filed October 26, 1912. Serial No. 727,888.

To all whom it may concern:

Be it known that I, JOHN L. ZEILER, a citizen of the United States, formerly residing at the city of Clayton, in the county of St. Louis and State of Missouri, but now residing at Orosi, in the county of Tulare, State of California, have invented certain new and useful Improvements in Apparatus for Filling Bottles, of which the following is a specification.

This application is a division and a continuation of one filed by me August 21, 1911, Serial No. 645,207, for apparatus for closing and sealing bottle tops.

This invention has reference to apparatus for filling, closing, and sealing bottles, that is designed primarily for operating upon and in conjunction with that type of bottle, which is constructed of paper or similar sheet material and is especially intended for holding milk and other liquids of like character, and refers particularly to the filling mechanism, the object being to provide novel means for actuating the valves associated therewith.

In the accompanying drawings forming part of this specification, in which like numbers of reference denote like parts wherever they occur, Figure 1 is a fragmentary side elevation of the bottle-filling mechanism complete; Fig. 2 is a top plan view of the liquid-containing reservoir; and Fig. 3 is an enlarged vertical sectional view on the line 3—3, Fig. 2, of the reservoir and its associated valves, one of the bottles being shown in elevation therebeneath in position to be filled.

The apparatus shown in the drawings consists, essentially, of a suitable frame, base, or support 1, whereon the reservoir 2 is supported in any desired manner, and a conveyer 3 for carrying the bottles 4 through the apparatus. This conveyer, in the present instance, is constituted by a pair of endless chains 5, which connect front and rear pairs of sprocket-wheels 6 and 7 secured to shafts 8 and 9 journaled and supported in the frame 1. The chains are themselves connected at suitable intervals by transversely-arranged bars 10 that act as carriers for the bottle-holders 11, the ends of said bars being attached to said chains in any desired manner. Each carrier is adapted to support one or more of the aforesaid holders

11, which latter are slidably fitted in perforations in the carrier. Both ends of the holders are enlarged to limit their sliding movement in opposite directions, the larger upper ends 12 constituting heads upon which the bottles are fitted.

The type of bottle employed is preferably formed with the shape of an axially elongated truncated cone having a bell-shaped base to fit upon the head 12 of a holder. The bottles are constructed of paper or other sheet material of a like character, which is treated with a waterproofing substance, such, for example, as paraffin. They may be made to contain any desired quantity of milk or other liquid, as will be understood, and may be fitted upon their holders either by hand or by means of suitable mechanism.

In order to drive the conveyer 3, the following parts may be provided: Upon one end of the front shaft 8 there is loosely mounted a handle 13, which is normally held by a spring 14 in contact with a stop pin 15 secured to the frame of the apparatus. This handle carries a spring-pressed pawl 16 that engages the peripheral edge of a three-toothed ratchet 17 rigidly mounted on shaft 8. When the handle is swung forwardly, its pawl will be brought into engagement with the adjacent ratchet tooth, whereupon continued movement of said handle will effect rotation of said shaft and, in consequence, of the conveyer, such rotation continuing until a projection 18 provided upon the handle strikes against pin 15. The handle is then released, and returns automatically to its initial position under the influence of spring 14, the conveyer remaining at rest at that time. Pin 15 serves, therefore, to limit both the forward and rearward movement of the handle.

During their travel with the conveyer toward the front of the apparatus, the empty bottles are first brought into position in alinement with the filling mechanism, the driving mechanism for said conveyer hereinabove described being so constructed and arranged that at each actuation of handle 13 a row of bottles is brought into position to be filled, while a second row of bottles, which have been previously filled are moved into position to be closed and sealed by the closing and sealing mechanism (not shown in the drawings), and a third row is moved

from beneath the closing and sealing mechanism into position for removal from the conveyer. The aforementioned filling mechanism, which embodies the present invention, comprises the reservoir 2 that is adapted to contain a supply of milk or other liquid, the bottom of same being formed with a series of outlet passages 19 equal in number to the number of bottles comprised in one of the rows. To said bottom is detachably connected a series of measures 20, each made to hold a pint, quart, or other desired quantity corresponding to the capacity of the bottles to be filled. These measures are also provided with outlet passages 21. The flow of milk through the passages 19 and 21 is controlled through the agency of separate valve systems constituted, in the present instance, by upper and lower shafts 22 and 23 that are suitably journaled and supported in the bottom portions of said reservoir and measures and are formed, respectively, with series of openings 24 and 25 corresponding in number to said passages and adapted to be brought into and out of registration with the latter, during the rotation of the shafts, as will be understood. To actuate said shafts, they are provided at one end with crank arms 26 and 27 whose reduced terminals are engaged in slots 28 and 29 formed intermediate the ends of a pair of horizontally-disposed operating slides or bars 30 and 31 slidably supported in brackets 32 connected with the frame of the apparatus. These slides are normally forced toward the front of the apparatus by a pair of springs 33 and 34, and their forward ends are adapted to be engaged by the inclined surface 35 of the main operating bar 36, which latter is vertically disposed with respect to the apparatus, is slidably supported and guided in the frame thereof (preferably by the engagement of a pin or pins 37 in a longitudinal slot or slots 38 in said bar, as depicted in Fig. 1) and is normally held in elevated position by a spring 39. Each of the measuring devices 20 is provided with a vent pipe 40, which may open into the atmosphere above the reservoir, in order to prevent the formation of a vacuum in said measure. It will be apparent, therefore, that when the operating bar 36 is depressed (either manually or through the intermediary of suitable mechanical devices), its inclined surface 35 will first engage the upper slide 30 and force the latter rearwardly, so as to rock shaft 22 in a counter-clockwise direction, and, as the downward movement of said bar continues, its said surface will engage and shift the lower slide 31 in a similar manner, thereby rocking shaft 23 in a clockwise direction. In practice, the openings 24 and 25 are preferably disposed at substantially a right-angle to each other,

as depicted in Fig. 3, the upper openings normally alining with passages 19, while the lower openings are normally out of alinement with passages 21. Consequently, the measures are normally in communication with the reservoir and, hence, remain filled, the above-described movements of the respective slides serving to close such communication and move openings 25 into alinement with passages 21, whereupon the milk will flow from the measures into the bottles therebeneath. When the upward movement of the operating bar takes place, consequent upon its release, and the cam surface 35 thereon passes beyond bar 31, the latter will be free to move forward under the influence of spring 34, thereby rocking shaft 23 counter-clockwise and closing the valves in the measures, and, similarly, when said surface passes beyond bar 30, that bar will also advance through the agency of its spring 33 and will rock shaft 22 clockwise, so as to open the reservoir valves and permit refilling of the measures.

The operation of the apparatus is believed to be apparent from the foregoing and to require no further description.

I claim:

1. In a filling mechanism, the combination, with a liquid-containing reservoir having an outlet passage leading therefrom, a measuring device into which said passage opens provided with a discharge passage, and a valve rotatably arranged in each passage, of a pair of slides, one connected with one valve and the other with the other valve for actuating the same, and a depressible operating bar having a portion arranged to successively engage said slides during the movement of the bar for shifting said slides.

2. In a filling mechanism, the combination, with a liquid-containing reservoir having an outlet passage leading therefrom, a measuring device into which said passage opens provided with a discharge passage, and a valve rotatably arranged in each passage and having a crank arm, of a pair of endwise movable parallel slides each having a central slot wherein the terminal of the adjacent valve arm is journaled, a depressible operating bar having a cam arranged to successively engage said slides at one end of the latter during its movements for shifting the slides to rock said valves, and means connected to the other end of said slides for normally holding their first named ends in the path of travel of said cam.

3. In a filling machine, the combination, with a liquid-containing receptacle having a valved-controlled inlet and a valve-controlled outlet, and means for supplying liquid to said receptacle, of a horizontally arranged slide operatively connected with each controlling valve, and a vertically movable operating element having a portion thereon ar-

ranged to successively engage the adjacent ends of said slides during its movements, to shift said slides and actuate said valves.

5 4. In a filling mechanism, the combination, with a liquid-containing reservoir, and a rocking controlling valve therefore provided with an arm, of an endwise-movable valve-actuating slide to which said arm is connected, and a depressible bar having a

cam arranged to directly engage one end 10 of said slide during the movement of the bar for shifting said slide.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JOHN L. ZEILER.

Witnesses:

O. C. GOODIN,

C. A. RYAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."