

G. W. CHRISTIANS.
METHOD OF AND MEANS FOR AGITATING CONTENTS OF RECEPTACLES.
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1,366,874.

Patented Jan. 25, 1921.

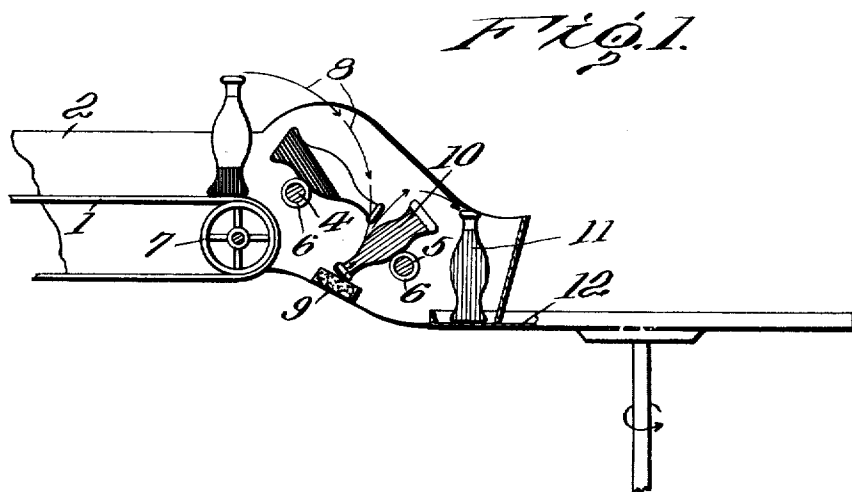
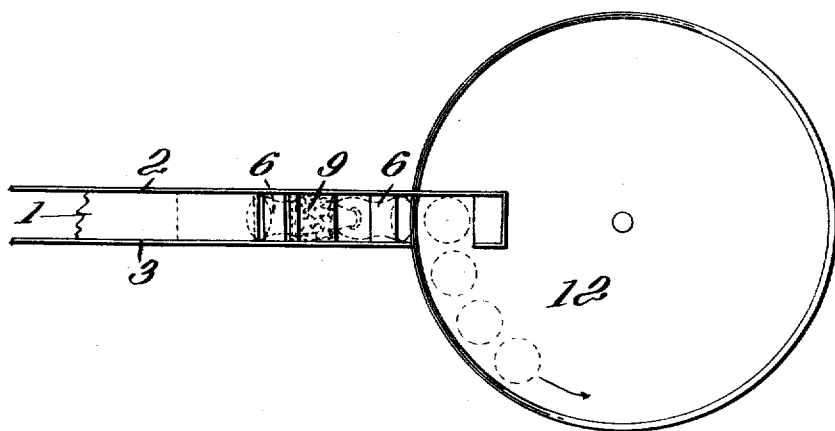


Fig. 2.

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METHOD OF AND MEANS FOR AGITATING CONTENTS OF RECEPTACLES.

1,366,874.

Specification of Letters Patent.

Patented Jan. 25, 1921.

Application filed January 19, 1920. Serial No. 352,301.

To all whom it may concern:

Be it known that I, GEORGE W. CHRISTIANS, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Methods of and Means for Agitating Contents of Receptacles, of which the following is a specification.

This invention relates to improvements in an apparatus and method for agitating liquids and it is particularly designed for agitating and mixing the contents of filled and capped bottles.

In bottling liquids composed of syrupy substances and ordinary liquids, the syrupy material is placed in the bottle first and the ordinary liquid is then introduced. It frequently happens that the substances placed in the container do not mix and consequently when the contents of a receptacle is poured out by the user, the ordinary liquid will first enter the drinking receptacle and the syrupy substance will follow. My aim is to provide a method and means for agitating the filled and capped bottles to cause the contents to be intimately mixed and form a homogeneous mass.

Therefore, the main object of the invention is to furnish a method and apparatus for causing filled, capped bottles to move from a position where they rest on their bottoms, to a position in which they rest on their crowns, and then from the latter position to a position in which they again rest on their bottoms. With my apparatus a bottle will be thrown from standing position and turned until its head strikes a resilient pad and this pad will rebound and cause the bottle to again assume a standing position. As a result of these movements, the liquid in the bottle will be violently agitated.

With the foregoing object outlined and with other objects in view which will appear as the description proceeds, the invention consists in the novel features hereinafter described in detail, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

Referring to the drawing:—

Figure 1 is a vertical sectional view of my improved apparatus.

Fig. 2 is a top plan view of the same.

In the drawing 1 represents an ordinary endless belt or conveyer employed in removing filled and capped bottles from a

bottling machine. In connection with this conveyer, I provide vertical side guides 2 and 3 which form a frame for my improved agitating mechanism and act to guide the bottles along the conveyer and through the agitating mechanism. These side guides are secured together by means of horizontal tie-bars 4 and 5 each of which is covered with a resilient pad 6. The bar 4 is arranged just beyond the outer end of the wheel 7 and it is so located relatively to the conveyer that a bottle in leaving the conveyer will strike the bar with its lower portion and this will cause its upper heavier portion to fall to the right, as shown by the arrows 8. From this position the bottle continues to fall head downwardly, until its crown strikes a resilient pad 9 and in falling downwardly, the bottom portion of the bottle will move to the right, as shown at 10 in Fig. 1. The resilient pad under the force of the blow delivered by the falling bottle, will be caused to rebound and thereby throw the bottle upwardly and to the right until its heavier portion will turn about the bar 5 and guide the bottle into the position occupied by the bottle 11 in Fig. 1. The bottle thus treated will land in a standing position upon a conveyer table 12, which is intermittently rotated to provide an unoccupied space for the following bottle.

By this mechanism, a bottle will be moved from standing position through a half circle or approximately a half circle, onto its head and it will then be thrown through another half circle and land on the conveyer 12 in a standing position. The bottle, during these movements, will be turned in two different directions and will be struck a violent blow, in consequence of which the liquid will be subjected to a shaking movement, that will cause its ingredients to be intimately mixed.

I am aware that various modifications and changes may be made in the construction shown, without departing from the spirit of the invention as set forth in the following claims.

What I claim and desire to secure by Letters Patent is:—

1. A method of agitating filling and capped bottles, consisting in throwing the bottle from an upright position through an approximate half circle, into a position in which its upper end occupies the lowermost position, and then moving the bottle

from the latter position through a half circle and causing it to turn to a position in which its lower end occupied the lowermost position.

5 2. A method of agitating the contents of filled and closed receptacles, consisting in turning the receptacle upside down and causing one of its ends to strike a resilient surface and then causing a reverse movement of the receptacle to move said receptacle into the position which it originally occupied.

10 3. The combination with a feeding and receiving mechanism, of means located between the same for causing a filled and capped receptacle to be turned upside down, struck a blow, and then returned to its original standing position upon the receiving means.

20 4. The combination with feeding means and a receiving means, of a resilient pad located between the same, and means for causing receptacles leaving the feeding means to be turned upside down and landed

with one end upon the resilient pad, the rebound of said pad causing the receptacle to be moved away from the same, and means for turning the receptacle after it leaves the resilient pad, to cause the receptacle to assume its original position upon the receiving means. 30

5. The combination with a feeding conveyer and a receiving means, of guides extending alongside of said conveyer for guiding receptacles along the conveyer and forming a frame, a resilient pad located in said frame, a bar extending across the frame and so located relative to the conveyer, to cause a receptacle leaving the conveyer to have its lower portion strike said bar, said bar causing the receptacle to turn, be reversed and land upon the resilient pad, and a second bar located between the resilient pad and the receiving means, to cause the receptacle after striking the pad to be turned or reversed and occupy its original position upon the receiving means. 45

GEORGE W. CHRISTIANS.

It is hereby certified that in Letters Patent No. 1,366,874, granted January 25, 1921, upon the application of George W. Christians, of Chattanooga, Tennessee, for an improvement in "Methods of and Means for Agitating Contents of Receptacles," an error appears in the printed specification requiring correction as follows: Page 1, line 107, claim 1, for the word "filling" read *filled*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of March, A. D., 1921.

[SEAL.]

L. B. MANN,

Acting Commissioner of Patents.