April 8, 1941. J. R. DOSTAL 2,237,756

BOTTLE WASHER CARRIER

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Fig. 1.

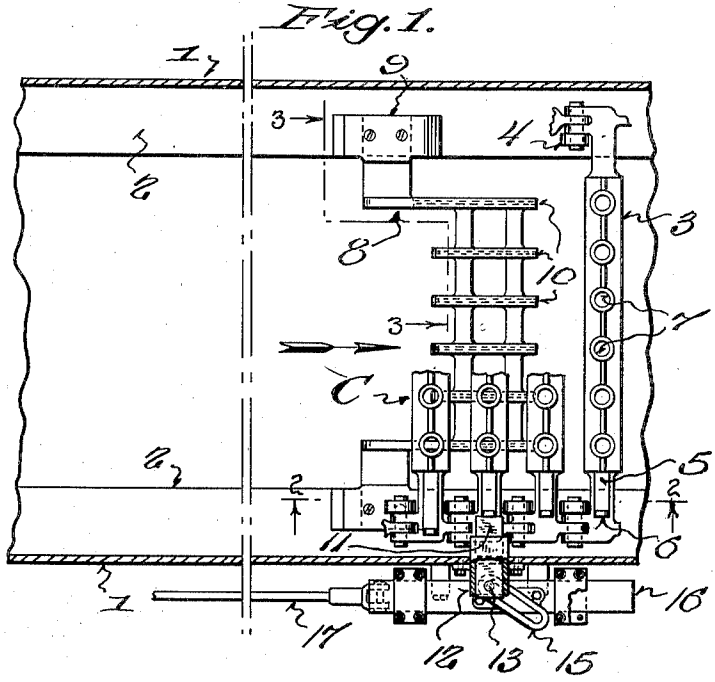
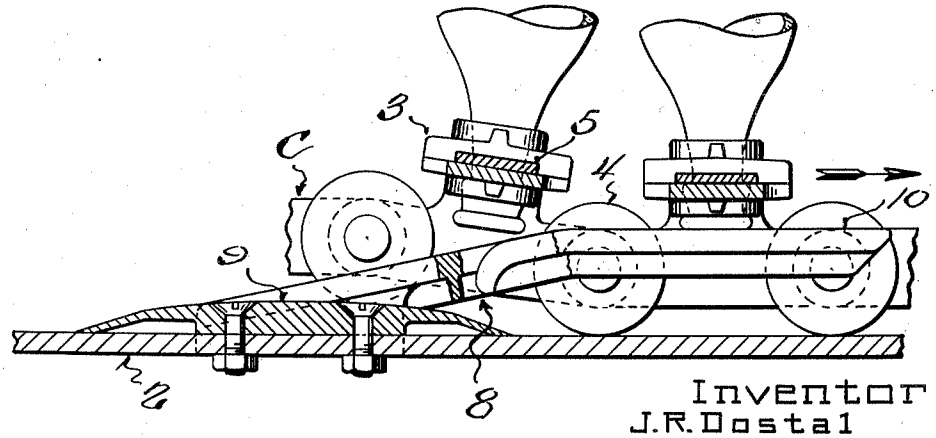


Fig. 2.



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Fig. 3.

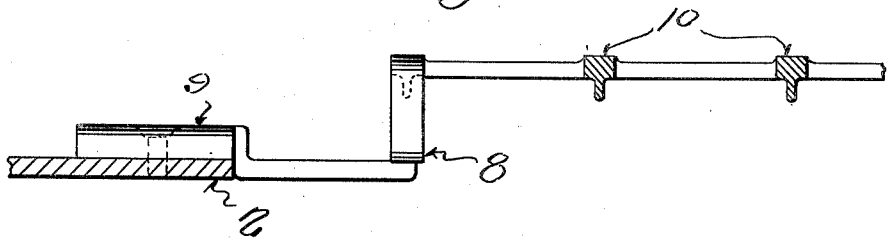


Fig. 4.

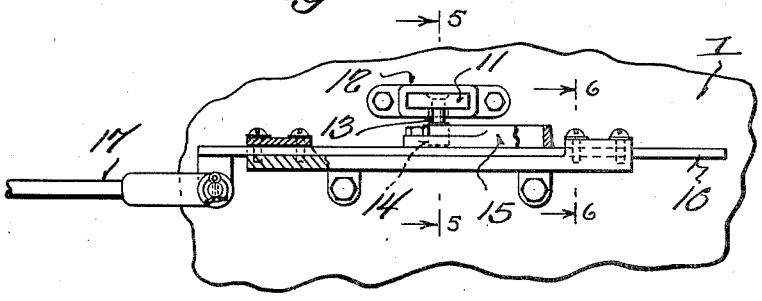


Fig. 5.

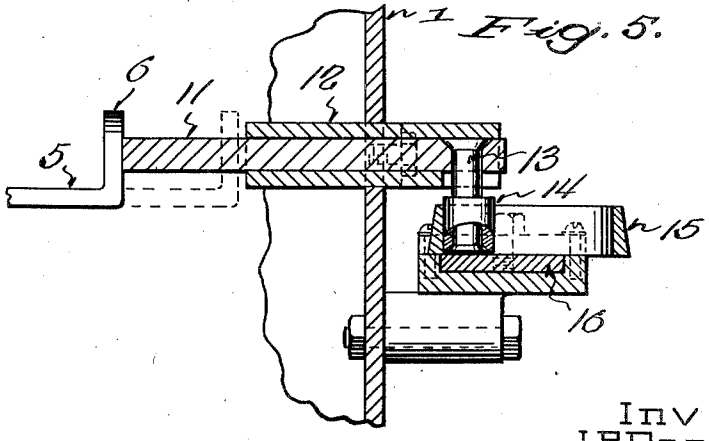
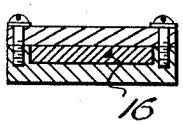


Fig. 6.



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UNITED STATES PATENT OFFICE

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BOTTLE WASHER CARRIER

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Application September 13, 1940, Serial No. 356,683

5 Claims. (Cl. 198—179)

This invention pertains generally to bottle-washing carriers, and more particularly to novel means for registering and locking the bottles in the carrier.

Heretofore, as shown in Letters Patent No. 2,094,398, and my co-pending application for Bottle-washing machines, Serial No. 301,410, filed October 26, 1939, now Patent No. 2,210,529, in order to register the necks of the bottles with the carrier locks, inclined elevators were provided for engaging the lips of the bottles to raise the same within the carrier, so that the necks would be in proper position to receive the locking bars.

While the foregoing structure accomplished its purpose, sliding action between the lips of the bottles and the elevators resulted in wear and occasional chipping or multilation of the bottles.

Furthermore, in practically all machines of the present type, it has been customary to longitudinally shift the locking plates to locking position, by means of a stationary angular cam working upon one end of the locking plates as the carrier travels past the cam, with the result that the locking plates had a tendency to shift obliquely, and bind within the carriers, to disaline the plates and bottle necks, frequently damaging the bottles.

It is, therefore, the primary object of the present invention to remedy the foregoing faults, by the provision of means for raising the carrier flights from their supporting tracks, and subsequently lowering the same to set the bottles upon a support for raising the bottles within the carrier into proper register with the locking plates.

Incidental to the foregoing, a more spesific object of the invention is to provide a bridge having elevating pads mounted upon the carrier tracks to raise the flights, and subsequently permit their return to the tracks with the bottles supported by the intermediate portion of the bridge in raised locking position.

Another object of the invention is to provide movable means for longitudinally shifting the bottle locking plates in the carrier flights to operative position, to eliminate canting of the plates within the flights and consequent binding and disalinement in relation to the bottle necks.

Another important object of my invention resides in the provision of means for actuating the locking plates when the carrier is at rest.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the novel construction, combination, and arrangement of parts, substantially as hereinafter described, and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings is illustrated one complete example of the physical embodiment of the present invention constructed according to the best mode so far devised for the practical application of the principles thereof.

In the drawings:

Figure 1 is a fragmentary plan view of a bottle-washing machine, with parts broken away and in section to more clearly illustrate structural details;

Figure 2 is an enlarged fragmentary longitudinal section, taken on the line 2—2 of Figure 1;

Figure 3 is a fragmentary transverse section, taken on the line 3—3 of Figure 1;

Figure 4 is a fragmentary front elevation of the lock actuating mechanism, parts being broken away and in section;

Figure 5 is an enlarged fragmentary detail section, taken on the line 5—5 of Figure 4; and

Figure 6 is a similar section, taken on the line 6—6 of Figure 4.

Referring now more particularly to the accompanying drawings, the numeral 1 designates the casing sides of a conventional bottle-washing machine provided with spaced tracks 2, which support a travelling carrier C.

The carrier C is of the type disclosed in said application Serial No. 301,410, and comprises a plurality of transverse bottle-receiving flights 3, pivotally connected at their ends to provide a continuous intermittently actuated link conveyor. The pivotal connections between the flights are provided with rollers 4, which travel on the tracks 2. Each flight is provided with a longitudinally slidable locking plate 5, equipped at one end with a vertical lug 6, by means of which the locking plates are shifted within the flights to lock and release the bottles positioned in the receiving recesses 7 provided in the flights.

As explained, the foregoing structure is old in the art, and, therefore, forms no part of the present invention, other than in the combinations hereinafter claimed.

The salient feature of the present invention resides in elevating the flights to deposit the bottles carried thereby upon a bridge 8, which supports the bottles in a raised position, properly alining their necks with the locking plates 5, as best shown in Figure 2. The bridge 8 is provided

at each end with an arched elevating pad 9, secured upon the tracks 2, while the intermediate portion of the bridge consists of a plurality of spaced supporting bars 10, alined with the bottle-receiving recesses 7. Here it might be explained that the intermediate bottle support of the bridge may comprise a solid plate, although the spaced bars are preferable, in that accumulation on the support of dirt and refuse contained in the bottles is largely eliminated.

As set forth in the objects, a highly important feature of the present invention resides in a lock actuating means, designed to axially shift the locking plates when the carrier is at rest. The foregoing is accomplished by means of a reciprocative pusher plate 11, slidably mounted in a bracket 12 secured to one of the side walls 1 of the washer casing, as best shown in Figures 1 and 4. The inner end of the plate 11 is alined with the vertical lugs 6 formed on the ends of the locking bars 5. Consequently, as the pusher plate 11 is forced inwardly to engage an alined lug, the locking bar is shifted on its longitudinal axis to engage the bottle necks adjacent their heads.

The locking plates are subsequently returned to release position by any suitable means (not shown), as, for instance, cams such as disclosed in said Letters Patent No. 2,094,398.

The outer end of the pusher plate 11 is provided with a depending pin 13 having a roller 14 mounted thereon and positioned within an angularly slotted bracket 15, secured upon a slidable bar 16 and actuated by a reciprocative rod 17, connected with any suitable part of the driving mechanism (not shown).

In operation, the carrier C is intermittently actuated in the direction indicated by arrows in Figures 1 and 2, and as the rollers 4 carried by each flight engage the arched pads, the adjacent flights are raised to elevate the lips of the bottles to a horizontal plane in substantial alinement with the supporting bars 10. As the conveyor continues its travel, and the rollers ride off of the elevating pads 9, the flights are lowered to position the lips of the bottles on the supporting bars, which elevate the bottles within the receiving recesses 7 to properly aline their necks with the locking plates 5.

In connection with the foregoing operation, it will be noted that the supporting bars 10 are positioned rearwardly of the elevating pads 9, and while the intermediate supporting portion of the bridge and the elevating pads are shown as an integral casting, it will be appreciated that the same may be formed and mounted separately, without departing from the principles of the invention.

In that form of the invention illustrated and described, the locking operation occurs immediately following return of the flights to the tracks 2, by reason of which the length of the intermediate supporting portion of the bridge is reduced to a minimum, thus eliminating undue wear upon the bottle lips, which would occur should the support be extended to provide for locking at a point remote to the elevating pads 9.

From the foregoing explanation, considered in connection with the accompanying drawings, it will be seen that an exceedingly simple and effective mechanism has been provided for alining bottles within the carrier to insure proper engagement by the slidable locking bars, and inasmuch as elevation of the bottles within the flights is accomplished by depositing the lips of the bottles on a support, rather than to elevate the same by inclined supports, such as shown in said application Serial No. 301,410, excessive wear on the bottle lips and support is eliminated.

The advantage of axially shifting the locking bars 5 when the carrier is at rest will be obvious, in that there is no tendency for the locking bars to cant and bind, with resulting damage to the bottle necks because of disalinement between the necks and locking bars.

I claim:

1. In a bottle-washing machine including an intermittently actuated endless conveyor comprising, a plurality of pivotally connected transverse bottle-receiving flights normally supported at their ends upon a pair of spaced tracks and provided with longitudinally shiftable locking plates; means movable longitudinally of said locking plates for shifting the same to locking position when the carrier is at rest.

2. In a bottle-washing machine including an intermittently actuated endless conveyor comprising, a plurality of pivotally connected transverse bottle-receiving flights normally supported at their ends upon a pair of spaced tracks and provided with longitudinally shiftable locking plates; a reciprocative pusher plate movable longitudinally of said locking plates for engaging their ends and shifting the same to locking position when the carrier is at rest.

3. In a bottle-washing machine including an intermittently actuated endless conveyor comprising, a plurality of pivotally connected transverse bottle-receiving flights normally supported at their ends upon a pair of spaced tracks and provided with longitudinally shiftable locking plates; means movable longitudinally of said locking plates for shifting the same to locking position when the carrier is at rest, and power-actuated means for timed operation of said movable means.

4. In a bottle-washing machine including an intermittently actuated endless conveyor comprising, a plurality of pivotally connected transverse bottle-receiving flights normally supported at their ends upon a pair of spaced tracks and provided with longitudinally shiftable locking plates; a reciprocative pusher plate movable longitudinally of said locker plates for engaging their ends for shifting the same to locking position when the carrier is at rest, and power-actuated means for timed operation of said pusher plates.

5. In a bottle washing machine including an intermittently actuated endless conveyor comprising, a plurality of pivotally connected transverse bottle-receiving flights normally supported at their ends upon a pair of spaced tracks and provided with longitudinally shiftable locking plates; movable means supported at one side of said flights for engaging and longitudinally shifting said locking plates in said flights to engage the periphery of the bottle necks for locking them in the flights.

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