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J. R. DOSTAL

2,223,846

BOTTLE CONVEYER

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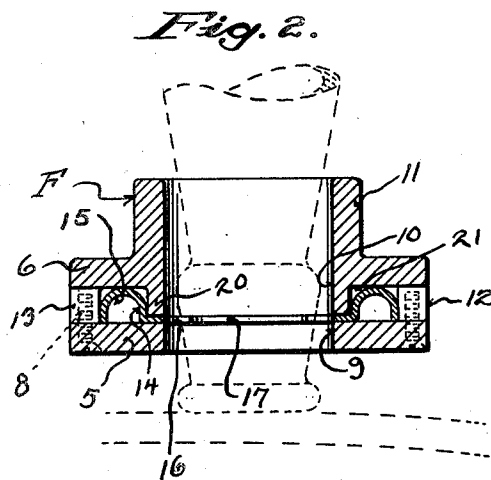
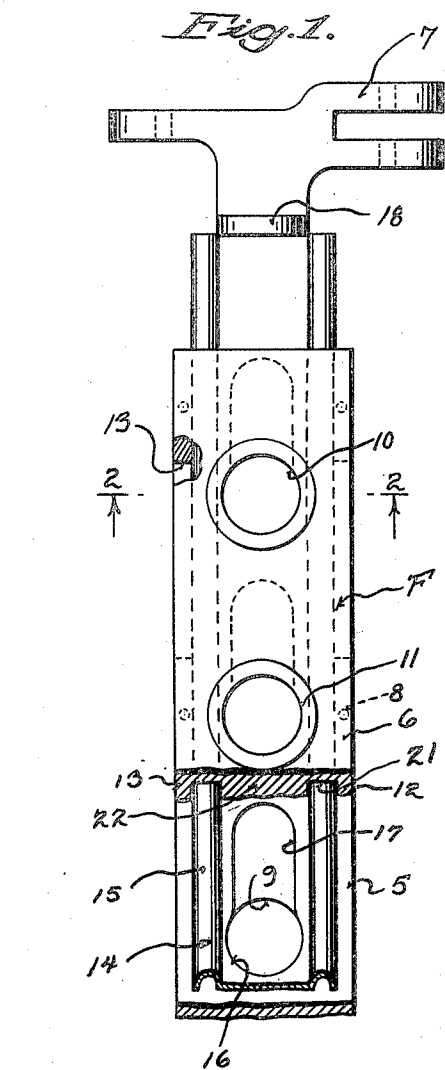
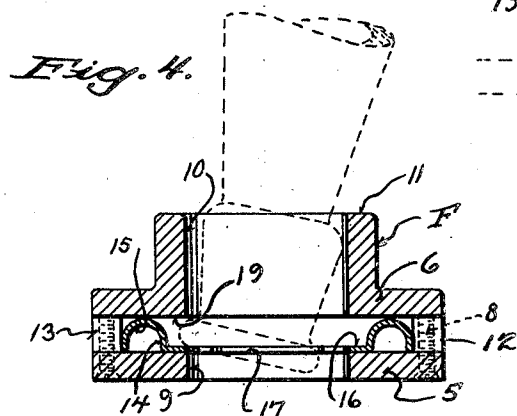
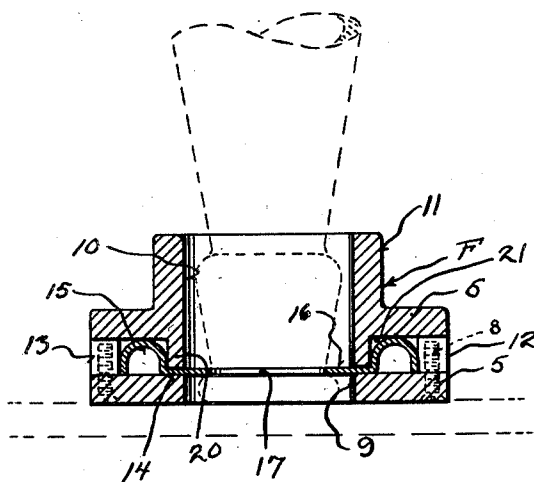


Fig. 3.



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BOTTLE CONVEYER

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2 Claims. (Cl. 198—131)

This invention appertains to bottle-washing machines, and more particularly to endless conveyers utilized for carrying the bottles through the machine during the cleaning process.

One of the primary objects of my invention is to improve the construction of bottle conveyers of the type shown in my prior Patent No. 2,094,398, issued to me September 28, 1937, so that the bottles, as the same are placed in the conveyers, will be properly guided in position for locking engagement by the locking bar or plate.

In bottle conveyers of all the types with which I am familiar, a certain amount of breakage of the bottles occurred due to the fact that the bottles were not properly positioned in the bottle neck receiving cups or openings formed in the conveyer flights. Some of the bottles, as the same are placed in the openings or cups, would be received therein at an angle, and the beads for the crown caps on the bottles would engage and hang on to the side walls of the cups or openings. Consequently, these bottles would not be properly locked in position and would quickly become displaced upon movement of the conveyer.

Therefore, another salient object of my invention is the provision of novel means for forming the individual flights of the endless conveyer, whereby smooth uninterrupted walls will be formed on the inner faces of the pockets or openings, whereby the bottles will be guided into a correct upright position in the cups or openings, irrespective of the angle at which the bottles are placed in the cups or openings, and thereby insure the proper locking of all of the bottles on the conveyer flights.

Another important object of my invention is the provision of means for forming an effective guide for the locking bars or plates, where the locking bars or plates are formed from relatively thin material, such as sheet metal, whereby lateral shifting of the locking bars or plates will be prevented, and whereby the catching of the edges of the bottle necks in the cups or openings will be eliminated.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a fragmentary, top plan view of one of the flights of an endless conveyer utilized for carrying bottles to a bottle-washing machine having my invention incorporated therewith,

parts of the figure being shown broken away and in section.

Figure 2 is an enlarged, transverse, sectional view through the conveyer flight, taken on the line 2—2 of Figure 1, looking in the direction of the arrows, showing the locking plate or bar in its bottle neck receiving position, and with a bottle being positioned therein, the bottle being shown in dotted lines.

Figure 3 is a view similar to Figure 2, but showing the bottle correctly positioned in the bottle neck receiving cup or opening, and the bottle locking plate or bar in its bottle-gripping position.

Figure 4 is a detailed, sectional view also similar to Figure 2, but showing a conveyer flight having a sheet metal locking plate or bar, and illustrating the danger of a bottle neck catching in a cup, where the flight was not constructed in accordance with the present invention, as shown in Figures 1 to 3, inclusive.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter F generally indicates a flight of an endless conveyer utilized for carrying bottles through a bottle-washing machine incident to the cleaning process, and a conveyer and a part of a bottle-washing machine are illustrated in my mentioned patent.

In the present instance, the flight F includes inner and outer longitudinally aligned sections 5 and 6, and these sections can be made from suitable castings. The inner section 5 can take the form of a plate and is provided at its opposite terminals with pivot ears 7, whereby the flight can be pivotally connected with the ears of adjacent conveyer flights (not shown). The upper section 6 is rigidly connected to the lower section 5 by means of fastening elements 8.

The sections 5 and 6 are provided with vertically aligned openings 9 and 10, respectively, for the reception of the necks of the bottles to be washed, and the outer section 6 can have its openings 10 surrounded by upstanding flanges 11, so that a cup-like structure or socket will be formed for each bottle neck.

The longitudinal side edges of the outer section 6 has formed thereon inwardly extending, relatively narrow ribs 12, and these ribs 12 receive the fastening elements 8, heretofore mentioned. It is preferred to interrupt the ribs 12 at certain predetermined points, as at 13, so as to permit the easy cleaning of the conveyer flights themselves and to permit the free flow of clean-

ing fluid therethrough. These ribs 12 define guide tracks for receiving the edges of the bottle neck locking bar or plate 14.

The bottle neck locking plate or bar 14 can also be formed from cast material, but I prefer to construct the same from relative thin stock, such as sheet metal, and to then stamp the sheet metal in proper form. Thus, the sheet metal locking plate or bar 14 includes longitudinally extending, spaced, parallel, outstruck ribs or beads 15, with a central flat body portion 16 therebetween. The flat body portion 16 is adapted to ride on the inner surface of the inner section 5 of the conveyer flight F, while the ribs or beads 15 engage the inner faces of the ribs 12 of the outer section 6.

The flat body portion 16 of the locking plate or bar 14, at equidistantly spaced points, is provided with keyhole slots 17. When the locking bar or plate 14 is in one of its positions, the enlarged portions of the keyhole slots 17 will be in vertical alignment with the openings 9 and 10, and, consequently, the bottle necks can be placed free in the flight. In another position of the locking plate or bar, the narrow portions of the keyhole slots 17 will ride in the openings 9 and 10 to lock the bottles on the conveyer flight. The locking bar or plate 14 is moved back and forth by proper mechanism, which can be of the type shown in my mentioned prior patent, and the end of the locking bar or plate 14 can be provided with a cam-operated foot or lug 18.

As illustrated in Figure 4, when the flight is constructed in the usual way, and when a cast locking plate or bar is utilized, or where my novel sheet metal locking plate or bar is used (as shown in Figure 4), a space 19 will occur between the locking bar or plate and the inner surface of the outer section of the conveyer flight. Through inadvertence, many bottles come into the bottle-receiving openings at an angle, and when the bottles come into the openings at an angle, there is always danger of the bottle lips catching in the space 19 (see Figure 4). Where the bottle necks catch in the walls of this space 19, the bottles will not be properly locked, and, hence, the bottles will fall out of the openings and will be subjected to breakage.

With the novel locking plates or bars, my invention consists in the novel means of preventing the hanging of the bottle necks in the opening 19, and, thus, the inner face of the outer section 6 is provided with inwardly directed portions 20, which effectively close the space 19, and the portions 20 directly engage the adjacent face of the locking plate or bar 14, and correctly guide the bar or plate in its opening and closing movements. Consequently, with the portion 20, a smooth inner surface for the openings 9 and 10 is provided substantially throughout their entire height, so that the bottle necks, irrespective of

the angle at which the bottles are placed in the openings, will not hang or catch on the walls of said openings.

If desirable, and as shown in Figures 1, 2, and 3, the outer section 6 of the flight can be formed relatively thick, and the inner face of the outer section can have formed therein, in spaced parallel relation, longitudinally extending guide grooves 21, which grooves receive the ribs or beads 15 formed on the lock plate or bar 14. This provides a centrally thickened body portion 22 on the outer section, which body portion engages the adjacent face of the locking plate or bar 14 and serves to effectively close the space 19 shown in Figure 4, so that the bottles will not hang in the openings 9 and 10. Where the outer sections are formed relatively thick, the outer section is still interrupted at the points 13.

From the foregoing description it can be seen that I have provided an efficient means for preventing the hanging or catching of bottles in the bottle neck receiving openings of the flights of an endless conveyer of a bottle-washing machine, whereby the breakage of bottles is materially reduced.

Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is:

1. In a bottle-washing machine, a flight for an endless conveyer comprising, inner and outer longitudinally alined sections having bottle neck receiving openings therein, the inner section being in the nature of a flat plate, and the outer section being formed relatively thick and having spaced parallel guide grooves on its inner face and a relatively thick body portion between the grooves, and a locking plate slidably mounted between said sections having ribs received in said grooves, and a body portion between said ribs with keyhole slots therein, the inner face of the body portion of the outer section of the flight snugly engaging the adjacent face of the body portion of the locking plate.

2. In a bottle-washing machine, a flight for an endless conveyer comprising, inner and outer longitudinally alined sections having bottle neck receiving openings therein, the inner section being in the nature of a flat plate, and the outer section being formed relatively thick and having spaced parallel guide grooves on its inner face and a relatively thick body portion between the grooves, and a locking plate slidably mounted between said sections having ribs received in said grooves, and a body portion between said ribs with keyhole slots therein, the inner face of the body portion of the outer section of the flight snugly engaging the adjacent face of the body portion of the locking plate, said locking plate being formed from sheet metal with the ribs struck up from its side edges.

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