

Dec. 13, 1927.

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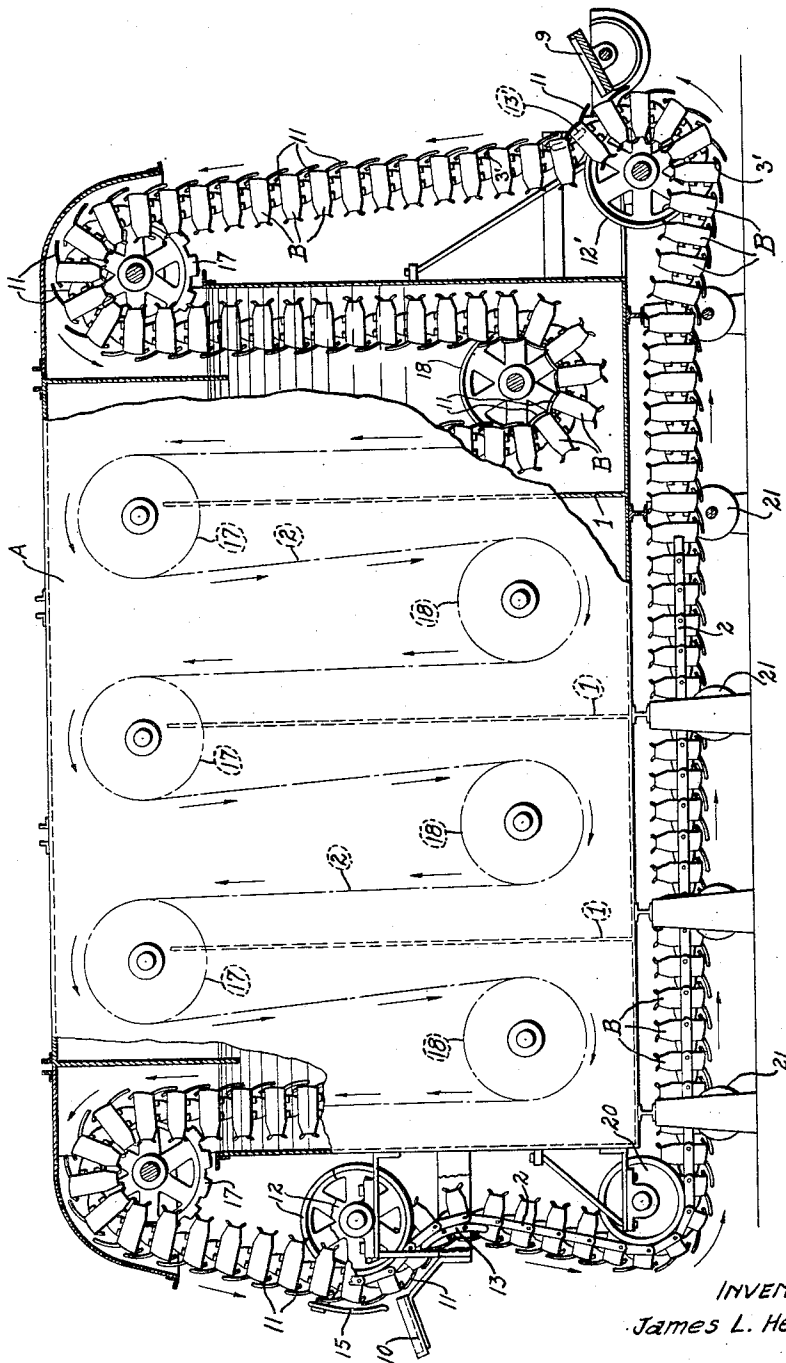
J. L. HEROLD

TRAVELING CONVEYER

Filed June 30, 1924

2 Sheets-Sheet 1

FIG. 1



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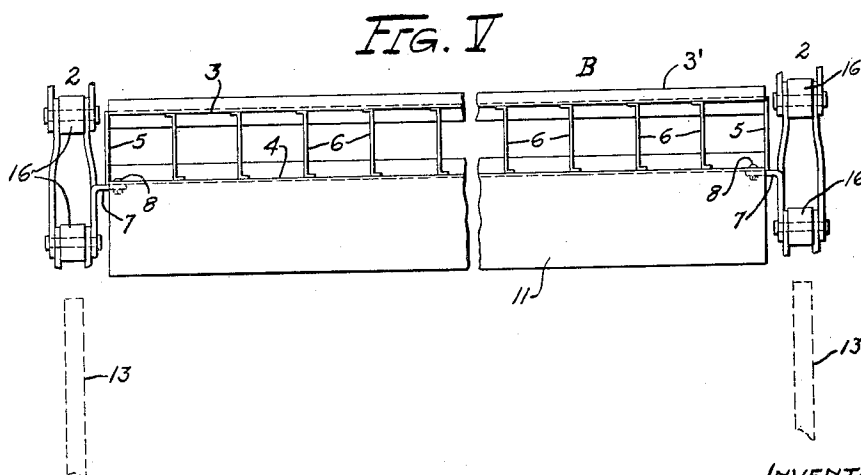
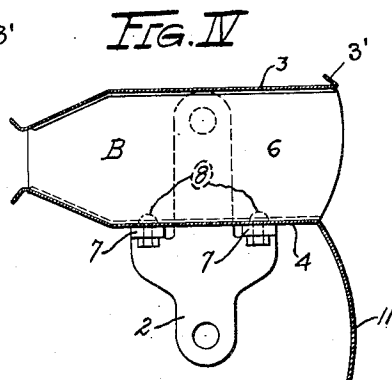
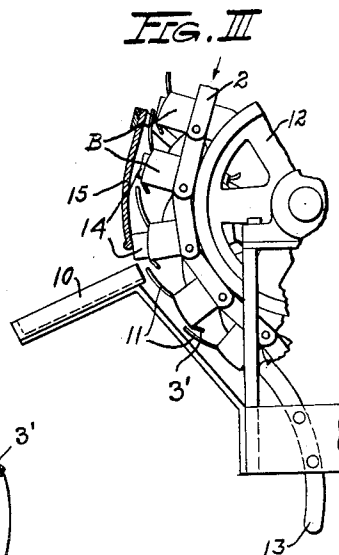
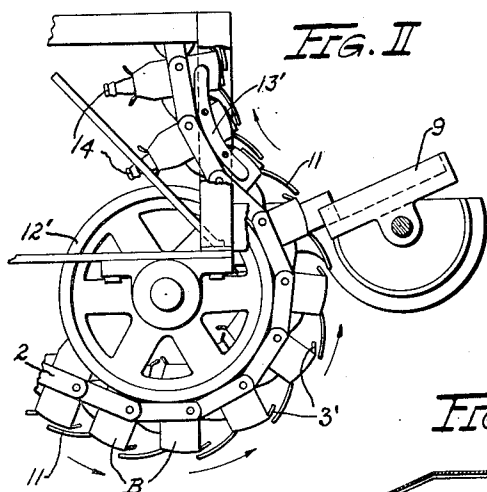
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

JAMES L. HEROLD, OF ST. LOUIS, MISSOURI, ASSIGNOR TO BARRY-WEHMILLER MACHINERY CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

TRAVELING CONVEYER.

Application filed June 30, 1924. Serial No. 723,179.

This invention relates to improvements in traveling conveyers, the main object being to produce a simple and inexpensive means for holding and releasing the articles carried by the conveyer. More specifically stated, an object of the invention is to provide a device of this kind including a holder for the articles to be carried, a closure adapted to retain the articles in the holder, and a simple operating means whereby one of the parts is moved relative to the other so as to open and close the holder.

In the preferred form of the invention, the holder and its closure member are rigidly connected to different portions of a flexible traveling support, and this support is bent to open and close the holder. A series of the holders may be connected to different portions of the traveling support, and instead of using separate fastening means to attach the closure members, the structure can be simplified by providing each holder with an extended closure member adapted to overlap and form a closure for the next adjacent holder.

With the foregoing and other objects in view, the invention comprises the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings wherein is shown the preferred embodiment of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications within the scope of the claims hereunto appended.

Fig. I is a side elevation, partly in section, illustrating a bottle carrier embodying the features of this invention.

Fig. II is a fragmentary view illustrating a guiding device whereby the traveling chain is bent to receive the bottles.

Fig. III is a fragmentary view showing a guiding device whereby the traveling chain is bent to discharge the bottles.

Fig. IV is an enlarged section showing one of the bottle holders secured to a chain link, and a closure member extending downwardly from one side of the bottle holder.

Fig. V is a front elevation of one of the bottle holders, showing portions of the traveling chains secured to the ends of the bottle holder.

To illustrate one of the uses of the invention, I have shown a machine known as a "bottle-soaker" comprising an endless bot-

tle carrier traveling in a tortuous course through a tank A provided with partitions 1 which divide it into several compartments. Each compartment contains a liquid as suggested at the right side of Fig. I, and the bottles are carried through the successive bodies of liquid.

The bottle carrier comprises a pair of endless flexible traveling supports, preferably sprocket chains 2, located at opposite sides of the machine, and a series of bottle holders B having their ends secured to the chains. Figs. IV and V illustrate one of the bottle holders and the means whereby it is fastened to the chains. The bottle holders may be exactly alike, and when arranged as shown by Figs. IV and V each holder comprises a top wall 3, a bottom wall 4, end walls 5 and partitions 6 arranged between the end walls to form a row of bottle compartments. As shown by Fig. IV, the bottle holder is open at one end to receive the bottles, and the opposite end is contracted to limit the motion of the bottles and prevent them from passing entirely through the holder. Each of the chains 2 (Figs. IV and V) is provided with extensions 7 rigidly secured to a bottle holder by means of fastening devices 8 which pass through the wall 4. The bottle holders are thus rigidly secured to the flexible chains.

9 designates a receiving table, at the right side of Fig. I, located adjacent to the bottle carrier and adapted to receive the bottles, said table being inclined so that the bottles can freely slide into the bottle holders. A discharge table 10 is located at the left side of the machine to receive the bottles which drop by gravity from the bottle holders.

Each bottle holder is open at one side to receive and discharge the bottles, and the same side is provided with an extended closure member 11 adapted to overlap and close the next adjacent bottle holder to retain the bottles therein. In the preferred form of the invention, each bottle holder is rigidly attached to the flexible chains, as previously described, and since each holder is provided with a closure 11 for an adjacent holder, it will be understood that the chains may be bent to open and close the holders. The means for bending the chains to accomplish this comprises guide wheels 12 located at the left side of the machine and contacting with the chains 2, as shown in Figs. I and III,

and curved guide bars 13 associated with said wheels. These guide bars are secured to stationary parts of the machine and they have cam faces which cooperate with the rotary wheels to bend the chains, as shown in Fig. III and at the left side of Fig. I. The chains travel between the guide bars 13 and the wheels 12, and owing to the shape and location of these parts, the chains are bent on the wheels 12 to tilt the bottle holders and displace the closure members 11, thereby opening the bottle holders and permitting the bottles 14 to slide onto the table 10. To prevent premature release of the bottles, a stationary stop plate 15 may be located above the table 10, as shown in Figs. I and III.

To avoid excessive friction, the sprocket chains 2 are preferably provided with rollers 16 adapted to engage the guide bars 13, as suggested by Fig. V.

Near the receiving table 9, the chains pass around rotary guide wheels 12' to open the bottle holders, and since the holders must be open when they are tilted to receive bottles passing from this inclined table, guide bars 13' are associated with the wheels 12' to deflect or bend the chain and thus retain the closures 11 in their open position while the bottle holders pass the table 9.

To guide the bottle carrier in a tortuous course through the compartments of tank A, the chains 2 pass over the top of sprocket wheels 17 at the upper portion of the tank, and under the bottom of guide wheels 18 at the lower portion of said tank. The sprocket wheels may be driven by any suitable source of power. Attention is directed to the movements of the bottle holders and closures at the wheels 17 and 18. While the chains pass over the top of wheels 17, the closures are opened, but the bottle holders lie at an angle to the chain links on which they are secured, and said holders occupy substantially upright positions while their links pass over the top faces of the wheels 17, so the bottles can not drop from the holders at these points. The bending motions at the lower wheels 18 do not open the closures, and at these points the closures lie at the upper portions of the holders, so there is no liability of the bottles being dropped from the holders.

Each chain 2 passes under guide wheel 20 near one corner of the tank and over supporting wheels 21 below the tank.

The bottle holders are preferably made of sheet metal and the closure members 11 may be integrally connected to the respective bottle holders. For example, Figs. IV and V show a bottle holder having a sheet metal wall 4 which is extended to form the closure member 11. Each wall 4 is rigidly secured to a portion of the flexible supporting chain and its closure member 11 is extended to

overlap a bottle holder secured to another portion of the chain. Any desired number of bottle holders may be used and the closure members may be secured in any suitable manner. Furthermore, the holders may be constructed in any suitable manner to receive bottles, or other articles, and the design of the closure members 11 may be varied, as they merely serve as stops to retain the articles in the holders. Each bottle holder is a complete container having walls whereby the bottle is surrounded, and these enclosing walls are rigidly connected together, the closure being movable independently of the rigidly connected walls so as to open and close the container. In addition to producing a simple, silent and inexpensive automatic means for opening and closing the holders for the articles to be carried, the closures 11 arranged as herein shown serve as means for closing the spaces between the holders B, so the bottles or other articles resting upon the inclined table 9 cannot accidentally slide into these spaces. Each closure 11 serves as a stop to retain the bottles on said table 9 until the open side of the adjacent bottle holder is alined with the bottles.

The closure members 11 are preferably curved transversely to conform approximately to the open sides of the bottle holders and to permit free movement in passing around the guide wheels.

These members 11, when made of thin sheet metal, are liable to be accidentally bent, and since the bottle holders are tilted toward and away from each other it would be possible for a bent closure member 11 to extend into the space between two adjacent holders B. The wall 3 of each holder is, therefore, provided with an inclined flange 3' at the open side of the holder, said flange being formed at the front edge of wall 3 and extended backwardly outside of the bottle compartments, so as to provide an inclined deflector adapted to force the free edge of a closure member 11 away from the wall 3 if said free edge should be accidentally displaced to lie between the bottle holders. In addition to serving as a deflector for a bent closure member 11, each flange 3' serves as a reinforcing element for a sheet metal wall 3.

I claim:

1. A bottle carrier comprising a pair of traveling sprocket chains, a series of bottle holders secured to said chains, each of said bottle holders comprising a container adapted to enclose the bottle and having an extension lapping the next adjacent holder and forming a closure therefor, and means whereby the bottle holders and their extensions are tilted to open and close said holders.

2. A bottle carrier comprising a pair of traveling sprocket chains, bottle holders hav-

ing their ends rigidly secured to the respective chains, each bottle holder being a container having rigidly connected walls whereby the bottle is surrounded and provided
 5 with an opening at one side to receive the bottles and also with a closure member extending from the said side and lapping the next adjacent bottle holder to retain the bottles therein, and means whereby said
 10 sprocket chains are bent to open the bottle holders.

3. A carrier comprising a flexible traveling support, a holder for the articles to be carried, a closure member adapted to retain
 15 the articles in said holder, said holder and closure member being carried by said flexible support, and means for bending said flexible support to open and close said holder, said holder having an opening to receive and discharge the articles, and one of the margins
 20 of said opening being provided with a deflector adapted to engage and deflect the closure member.

4. A bottle holder comprising a flexible
 25 traveling support, a series of bottle holders secured to said support, each bottle holder comprising a pair of oppositely disposed sheet metal walls one of which is extended to overlap and form a closure for an adjacent
 30 bottle holder, the other wall of said pair being provided with an inclined flange at its outer margin adapted to deflect the adjacent closure member, substantially as described.

5. A bottle holder comprising a flexible
 35 traveling support, a series of bottle holders secured to said support, each bottle holder comprising a pair of oppositely disposed sheet metal walls rigidly secured to each other, one of said walls being extended to overlap
 40 and form a closure for an adjacent bottle holder, and means for bending said flexible traveling support to open and close the bottle holders.

6. A carrier comprising an endless flexible
 45 traveling support, upper and lower wheels

whereby said flexible support is guided in a tortuous course, said flexible support being arranged over the upper wheel and under the lower wheel, a holder for the articles to be carried, a closure member adapted to retain
 50 the articles in said holder, said closure member and holder being so connected to different portions of said flexible traveling support that said holder is closed in response to bending
 55 movements of said flexible support when the latter passes under said lower wheel, said holder being at an angle to said flexible support and arranged to occupy substantially upright positions while the closure is opened
 60 in response to the bending movement at one of said wheels and said closure member being located at the upper portion of said holder when the latter lies at the lower portion of said lower wheel

7. A carrier comprising an endless flexible
 65 traveling support, upper and lower wheels whereby said flexible support is guided in a tortuous course, said flexible support being arranged over the upper wheel and under the lower wheel, a holder for the articles to be
 70 carried, a closure member adapted to retain the articles in said holder, said closure member and holder being so connected to different portions of said flexible traveling support that said holder is closed in response to
 75 bending movements of said flexible support when the latter passes under said lower wheel, said holder being at an angle to said flexible support and arranged to occupy substantially upright positions while the closure is opened
 80 in response to the bending movement at one of said wheels, and said closure member being located at the upper portion of said holder when the latter lies at the lower portion of said lower wheel, and a guiding device cooperating with said flexible support
 85 to open and close said holder.

In testimony that I claim the foregoing I hereunto affix my signature.

JAMES L. HEROLD.