Dec. 17, 1929. H. M. ENZ 1,740,233

BOTTLE HOLDER

Filed July 15, 1925 2 Sheets-Sheet 1

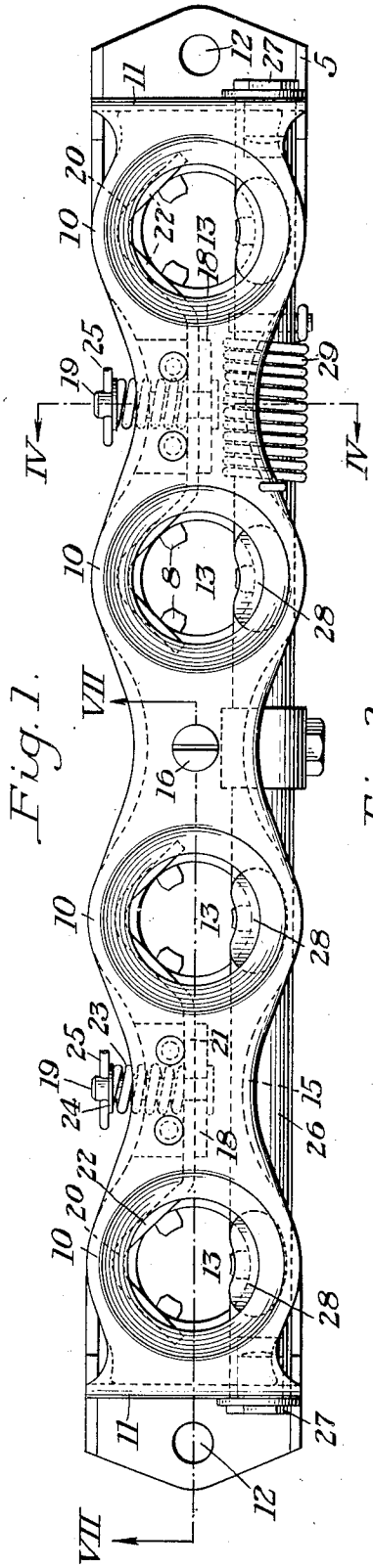


Fig. 1.

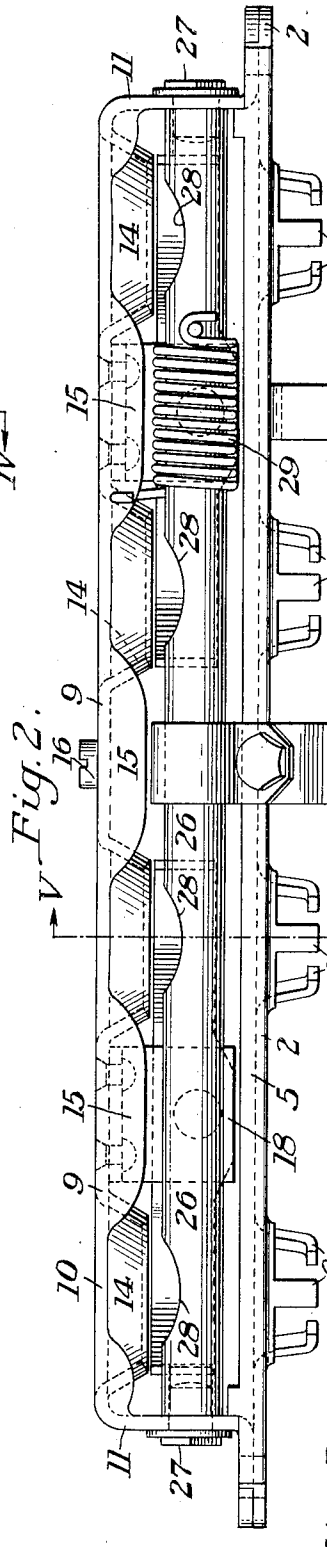


Fig. 2.

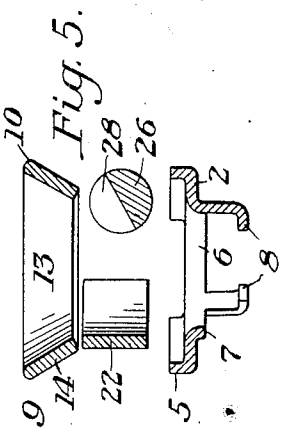


Fig. 5.

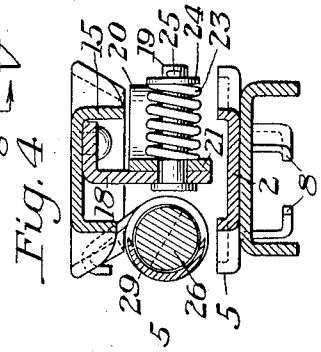


Fig. 4.

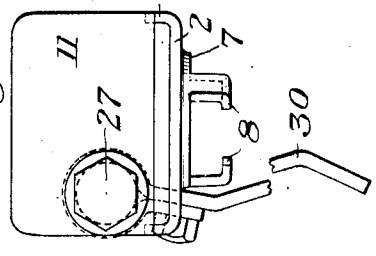


Fig. 3.

INVENTOR

Henry M. Enz,

by Byrnes, Kittredge & Parmelee,

his Attys.

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BOTTLE HOLDER

Filed July 15, 1925 2 Sheets-Sheet 2

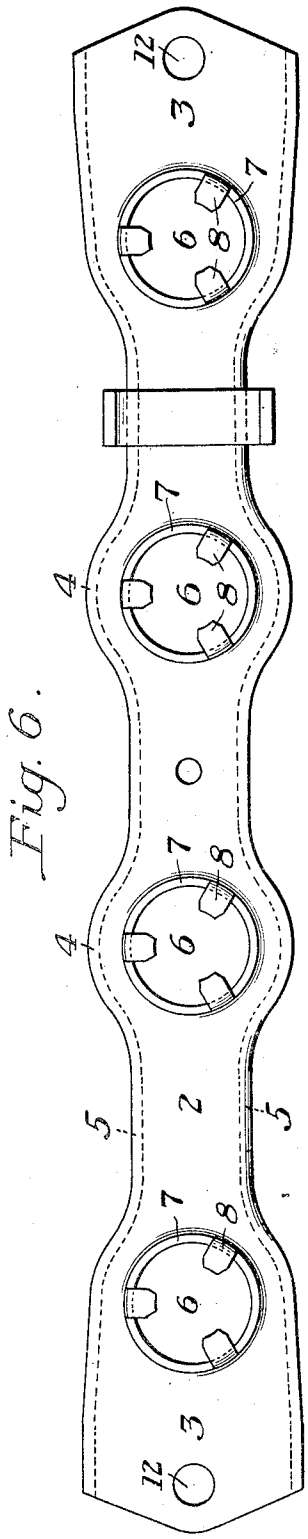


Fig. 6.

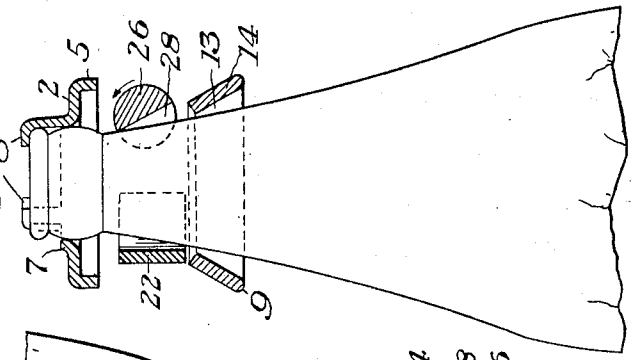


Fig. 10.

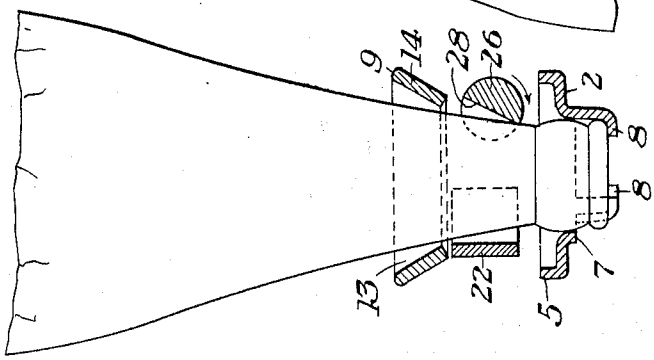


Fig. 9.

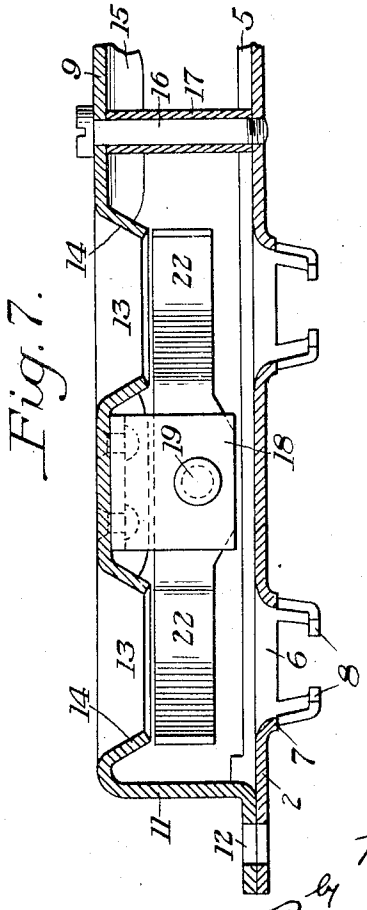


Fig. 7.

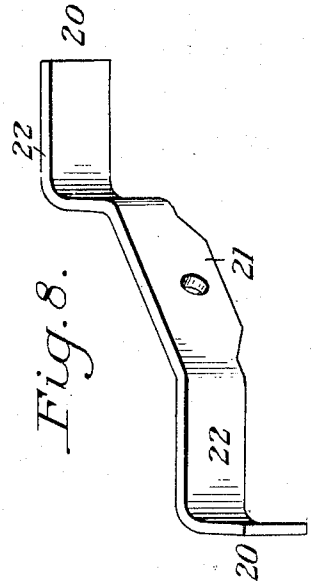


Fig. 8.

INVENTOR
Henry M. Enz,
by Byrnes, Townsend & Carmichael,
his attys.

Patented Dec. 17, 1929 1,740,233

UNITED STATES PATENT OFFICE

HENRY M. ENZ, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO McKENNA BRASS & MANUFACTURING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

BOTTLE HOLDER

Application filed July 15, 1925. Serial No. 43,890.

The present invention relates broadly to bottle handling apparatus, and more particularly to a holder adapted for use in bottle washing machines, filling machines, or other forms of apparatus requiring the gripping and conveying of bottles.

It has heretofore been proposed in the art to which the present invention relates to construct bottle holders adapted for simultaneously handling a plurality of bottles, and other forms of holders adapted for the individual handling of bottles. Where the holders are utilized in connection with washing machines, they are ordinarily subjected to the action, at least at times, of a strongly alkaline solution, and therefore considerable care has to be exercised in the construction of the holders to insure proper operation at all times. The present invention has for one of its objects the production of a holder adapted to be carried in any desired manner, preferably by means of spaced conveying chains as is customary in the art, and having openings for the reception of a plurality of bottles, the construction being such that the operating parts are not injured by the solutions in connection with which the apparatus is used.

In the accompanying drawings, there is shown for purposes of illustration only, a preferred embodiment of the present invention, it being understood that the drawings do not define the limits of my invention as changes in the construction and operation disclosed therein may be made without departing either from the spirit of the invention or the scope of my broader claims.

In the drawings—

Figure 1 is a top plan view of a holder constructed in accordance with the present invention;

Figure 2 is a side elevation of the construction shown in Figure 1;

Figure 3 is an end view of the holder shown in Figures 1 and 2;

Figure 4 is a transverse sectional view on the line IV—IV of Figure 1 looking in the direction of the arrows;

Figure 5 is a transverse sectional view on the line V—V of Figure 2 looking in the direction of the arrows;

Figure 6 is a bottom plan view of the base of the holder;

Figure 7 is a longitudinal sectional view along the line VII—VII of Figure 1 looking in the direction of the arrows;

Figure 8 is a perspective view of one of the compensating jaws;

Figure 9 is a view partially in section and partly broken away illustrating a bottle in inverted position within the holder; and

Figure 10 is a view similar to Figure 9 showing the bottle in upright position.

In producing an article of the character contemplated by the present invention, which is necessarily produced in comparatively large quantities, it is desirable not only to keep the weight as low as possible, but also to keep the cost and manufacturing expense down to the lowest possible figure consistent with the results desired. With this in mind, the present holder is designed largely with the view of permitting the manufacture thereof from stampings whereby machining is, to a very large extent, obviated.

In carrying out the invention, there may be produced a holder comprising a base 2 of sheet metal, preferably in the form of a stamping, having enlarged end portions 3 and enlarged intermediate portions 4. For reinforcing the base 2 throughout its entire length, it may have an upwardly projecting flange 5 formed thereon during the stamping operation. Formed in each of the enlargements 3 and 4 is an opening 6 of a size adapted to receive the neck of a bottle, each opening preferably being surrounded by a downturned flange 7 from which project fingers 8 adapted to extend partially under each of the openings 6 to cooperate with a bottle and limit its insertion into the holder, as clearly apparent from Figures 9 and 10.

Cooperating with the base 2 is a cover 9 which is also preferably in the form of a stamping, having spaced enlargements 10 and ends 11 extending downwardly and then outwardly. The downwardly extending portions of the ends determine the distance between the base and the cover, while the outwardly extending portions are shaped to fit between the flanges 5 whereby the parts may

be secured together. For this purpose the base and cover may each be provided with aligned openings 12 adapted to receive a machine screw or the like which not only secures the parts together, but also attaches them to the chains or other conveying mechanism with which they are utilized.

Formed in each of the enlargements 10 is a bottle receiving opening 13, preferably surrounded by a downwardly flared portion 14 serving as a guide for receiving and directing the bottles into the openings 6 in the base 2. The cover 9 is also preferably reinforced throughout a substantial portion of its length by having downturned flanges 15 formed thereon.

At a point intermediate the ends of each holder, the base and cover may be provided with aligned openings, one of which may be threaded to receive a bolt 16 and a spacer sleeve 17, as clearly shown in Figure 7. This maintains the base and cover in properly spaced relation throughout their entire length.

Adjacent each end of the holder at a point intermediate each pair of bottle receiving openings, the cover 9 may have secured thereto in any desired manner a downwardly projecting bracket 18. Each of these brackets preferably has its downwardly projecting portions provided with an opening adapted to receive a pin 19 serving as a fastening means for a compensating jaw 20. This jaw preferably has a substantially straight intermediate portion 21 provided with an opening for the reception of the pin 19 and has V-shaped end portions 22 adapted to partially embrace a bottle neck, as clearly apparent from the drawings. Each of the pins 19 preferably carries a spring 23 which may be held under compression in any desired manner, as by a washer 24 and cotter pin 25. It will be apparent that by reason of the mounting of the jaw, the opposite ends of the jaw are permitted to float to a limited extent, thereby enabling them to cooperate with bottles of varying sizes or contour.

Extending lengthwise of the holder, and preferably journaled in the downturned end portions of the cover, is a locking rod 26. This rod, as illustrated more particularly in Figure 2, may be of a length such that it accurately fits between the downturned ends of the cover and may have internally threaded recesses adapted to receive fastening bolts 27. At points adjacent the aligned openings 13 and 6 in the cover and base respectively, the rod 26 is of changing cross-section. Preferably, this change is produced by cutting out portions of the rod to provide depressions 28 therein adapted to cooperate with the necks of the bottles, as clearly apparent from Figures 9 and 10.

For normally urging the rods 26 in such direction that they will effectively engage a bottle or bottles positioned within the holder, there may be provided a spring 29 effective, as viewed in Figures 5 and 9, for rotating the rod in a clockwise direction, and, as viewed in Figures 4 and 10, for rotating it in a counter clockwise direction. Carried by an intermediate portion of the rod is a trip finger 30 which may project downwardly therefrom to an extent such that it will be engaged by a suitable projection during the travel of the holder and thereby rotate the rod against the action of the spring 29 for releasing all of the bottles therein or permitting new bottles to be entered into the holders. It will be apparent that when the trip finger 30 is released the spring 29 on each rod will be effective for again turning the locking rod in such position that accidental removal of the bottles will be impossible.

Certain advantages of the invention arise from the provision of a holder adapted to simultaneously cooperate with a plurality of bottles, and preferably comprising main portions constructed of stampings.

Further advantages of the invention arise from the provision of a holder comprising a rotatable locking bar cooperating with a plurality of openings, as well as the provision of a compensating jaw insuring proper gripping of bottles irrespective of their specific size or construction.

I claim:

1. A bottle holder having a plurality of openings for receiving the necks of bottles, a rod extending lengthwise of the holder and having portions of non-circular cross section adjacent the openings, the rod being adapted to engage or release the necks of the bottles upon rotation, and means for rotating said rod, substantially as described.

2. A bottle holder having a bottle-receiving opening, a rod cooperating therewith, said rod being of non-circular cross section adjacent the opening, and means for rotating the rod to clamp or release a bottle in the opening, substantially as described.

3. In a bottle holder, a body portion having a bottle-receiving opening, a rod carried by said body portion and provided with a change of section adjacent said opening adapted to grip or release a bottle upon rotation of the rod, and means for rotating said rod, substantially as described.

4. A bottle holder having a bottle neck-receiving opening, a rod carried by said holder adapted to grip or release the neck of such bottle upon rotation of the rod, means for normally urging the rod into gripping position, means for moving the rod in the opposite direction, and means on opposite sides of said rod for centering a bottle engaged thereby, substantially as described.

5. A bottle holder having a bottle-receiving opening, a rod having portions of changing cross section therein adapted to grip or release

a bottle upon rotation of the rod, means for normally holding the rod in gripping position, and means whereby the rod may be rotated to released position, substantially as described.

6. A bottle holder comprising a body portion having bottle-receiving openings, a freely movable compensating jaw cooperating with each opening, and a locking rod common to all of said openings, substantially as described.

7. A bottle holder comprising a base, a cover carried thereby, there being aligned bottle-receiving openings in said base and cover, a compensating jaw for each opening located intermediate said base and cover, and bottle-locking means cooperating with said compensating jaws, substantially as described.

8. A bottle holder comprising a base having neck-receiving openings, a cover therefor having neck-receiving openings in alignment with said first-mentioned openings, and bottle-engaging means intermediate said base and cover, substantially as described.

9. A bottle holder comprising a base having neck-receiving openings, a cover therefor having neck-receiving openings in alignment with said first-mentioned openings, and bottle-engaging means intermediate said base and cover, said means including a rotatable neck-engaging rod, substantially as described.

10. A bottle holder comprising a base having neck-receiving openings, a cover therefor having neck-receiving openings in alignment with said first-mentioned openings, and bottle-engaging means intermediate said base and cover, said means including a rotatable neck-engaging rod and compensating jaw, substantially as described.

11. A bottle holder having a plurality of bottle receiving openings, spring compensating means cooperating with said openings and bodily movable toward and from such openings, means for gripping a bottle in each opening in cooperative relation to said compensating means, and means for simultaneously releasing a plurality of the bottles so gripped, substantially as described.

12. A bottle holder comprising a base having neck receiving openings, a cover therefor having neck receiving openings in alignment with said first mentioned openings, and bottle engaging means intermediate said base and cover, said means including a rotatable neck engaging rod having gripping portions of different cross section from the remainder of the rod, substantially as described.

13. A bottle holder comprising a base having neck receiving openings, a cover therefor having neck receiving openings in alignment with said first mentioned openings, compensating means intermediate said base and cover and bottle engaging means intermediate said base and cover, said means including a rotatable neck engaging rod having portions thereof offset with respect to the remainder of the rod, substantially as described.

In testimony whereof I have hereunto set my hand.

HENRY M. ENZ.