Dec. 13, 1927. 1,652,597

J. E. AYERS

BOTTLE HOLDER FOR BOTTLE WASHING MACHINES

Filed Nov. 20, 1926

Fig. 1

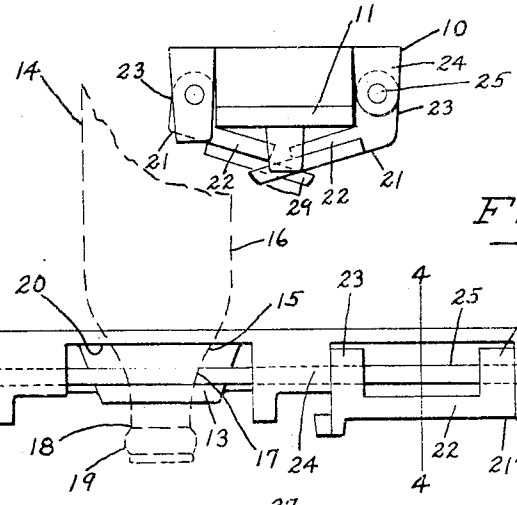


Fig. 2

Fig. 3

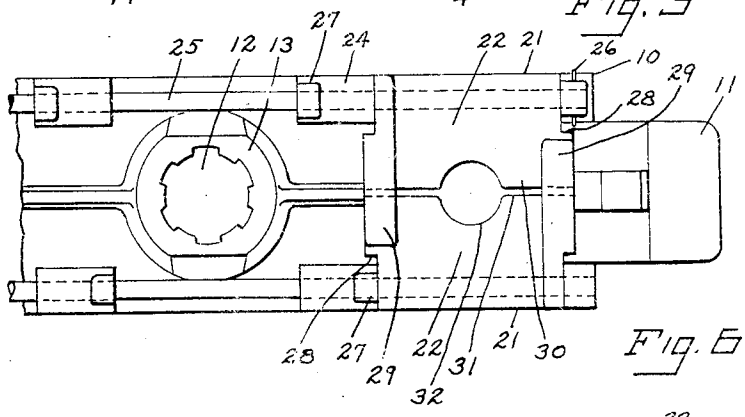
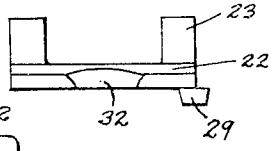


Fig. 6



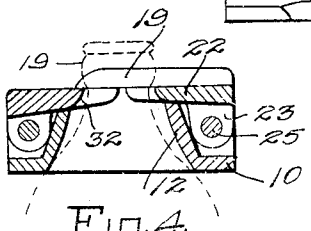
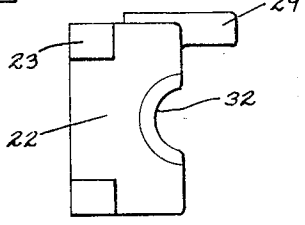


Fig. 4

Fig. 5



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UNITED STATES PATENT OFFICE.

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BOTTLE HOLDER FOR BOTTLE-WASHING MACHINES.

Application filed November 20, 1926. Serial No. 149,654.

My invention relates to improvements in bottle holders for bottle washing machines of the form in which a plurality of bottle carriers are incorporated in an endless chain structure that travels in parallelism with a vertical plane and the bottles, supported by said carriers, are generally maintained in such a plane while being operated upon, are held in pendant position along the lower reach of said chain and dipped into a cleansing solution, and along the upper reach of said chain structure are held in a vertical inverted position for having a rinsing solution projected into the interior, and the object of my improvement is to produce a bottle holder in the form of gripping means that permit the ready removal of a cleaned bottle along the upper reach and the insertion of a bottle to be cleaned; that will automatically operate to grip the bottle when changing from the upper reach to the lower reach along the one end of said chain structure; that will hold the bottle when in such pendant position; that will automatically release the hold on the bottle upon being brought again to the upper reach, and; that in the operating elements is free from any springs.

In the accompanying drawing:—

Figure 1 is an end view of a bottle carrier that is adapted to be incorporated in a bottle washing machine for being propelled by a duplex endless chain structure, one chain being connected to each of the ends of the carrier, the view corresponding to a side view of the machine, and which carrier is provided with a plurality of sets of mating jaw members that cooperate as bottle holders embodying my invention.

Figure 2 is an inside edge view of the same, as viewed from between the two chain elements, showing one end complete and the adjacent bottle receiving cups to the extent of two such cups, one of said cups being provided with the mating jaw members, the jaw members being omitted from the second cup, and a bottle being indicated by broken lines in the receiving position in said second cup.

Figure 3 is a bottom view of the structure that is shown in Fig. 2.

Figure 4 is a sectional view on the line 4—4 of Fig. 2 and in the inverted position, a bottle being indicated by broken lines in the supported pendant position.

Figure 5 is a plan view of one of the jaw members.

Figure 6 is an edge view of the same.

My improved bottle holder for bottle washing machines is mounted on the under face of the bottle carrier 10 as shown in Fig. 1. Said carrier 10 is in the form of an elongated plate-like structure that is located transversely in the machine, is connected by the ends 11 with the elements of the duplex endless chain, and has a set of four openings 12 having shaped border walls forming cups 13 for receiving the bottles 14 and a bottle holder structure is provided for each of said cups 13.

The bottle 14 is inserted in the cup 13 in the inverted position and the parts are constructed and arranged so that the portions of the bottle 14 adjacent the junction 15 of the relatively large body 16 and the tapered neck 17 engage with the walls of the cup 13 and the part of the bottle of the smallest diameter, adjacent the junction 18 of the neck 17 and the relatively enlarged head 19 at the extreme end, is positioned appreciably below said bottom face 20 of the carrier 10.

The bottle holder comprises a pair of jaws 21 that engage the bottle 14 by the neck 17 and adjacent said head 19 and that operate automatically to effect such engagement when carried by the endless chain so as to make the turn from the upper reach to the lower reach, adjacent one end of the machine, such engagement being effected by gravity, and the holding continues until the chain again comes to the upper reach when the release of the hold on the bottle is effected by gravity.

The jaws 21 are entirely similar and arranged to operate as right and left in mating and each comprises a plate-like body portion 22.

Each jaw 21 has a pair of pivotal lugs 23 that fit between cooperating lugs 24 on the carrier 10 and that are located along one edge of said carrier for supporting the jaws on one side of the cups 13 and the jaws 21 on the other side are similarly arranged. A bar 25 common to the jaws on each side serves as the pivotal connection and is held in place by means of a cotter-pin 26.

Integral projections 27 on the fixed lugs 24 cooperate with shoulders 28 on the body portions 22 to limit the opening movement of the jaws 21, operating to determine the extreme open position.

In the intermediate positions of the jaws 21 I find it desirable to provide cooperating members on the jaws and this in the present instance is provided in the form of an outwardly projecting finger 29 that overhangs and cooperates with the opposed edge portion 30 of the mating jaw 21. The function of these parts is to prevent the jaws from opening out too far, particularly as the bottle is being tilted, and thereby facilitating the cooperation of the two jaws in effecting the final gripping of the bottle.

In the final gripping position the opposed edges 31 of the jaws 21 may be closely adjacent and adjacent the middle there are provided cooperating semi-circular jaw recesses 32 that encircle the neck of the bottle to effect the holding.

In the pendant position the bottle is suspended by the enlarged head 19 by the walls of the jaw recesses 32.

I claim as my invention:—

1. A bottle holder for a bottle washing machine comprising a carrier of plate-like form that is provided with a cup-like opening for generally positioning a bottle, a pair of mating jaws pivotedly connected to said carrier at opposite sides of said opening, of plate-like form, and having cooperating recesses in the opposed edges for engaging with the neck of a bottle, and said jaws individually having an outwardly projecting finger that overlaps and cooperates with the opposed edge portion of the mating jaw for limiting the opening movement of said jaws.

2. In a bottle washing machine, a bottle holder comprising a carrier having a cup for receiving the bottle, a pair of mating jaws pivotally supported from opposite edges of said cup and having mating bottle receiving recesses, the location of the pivot being such that the jaws will open by gravity to receive the bottle in one position of said carrier, and in the reverse position of said carrier will change by gravity to the position for gripping the bottle.

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