

B. F. SCHIRMER.

BOTTLE HOLDER FOR BOTTLE WASHING MACHINES.

APPLICATION FILED DEC. 13, 1902.

NO MODEL.

Fig. 1.

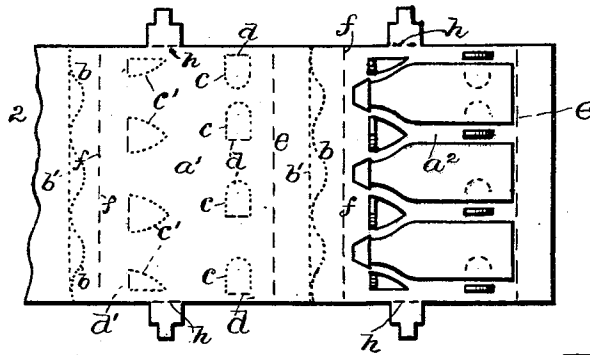


Fig. 3.

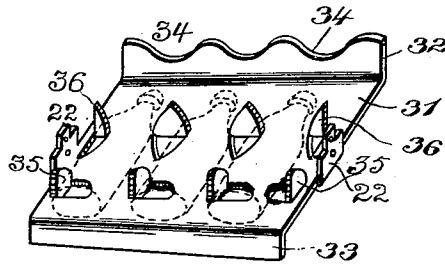


Fig. 2.

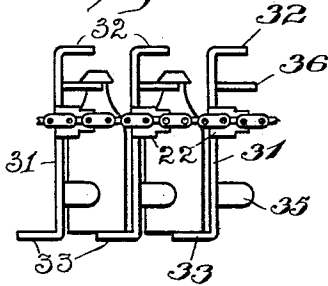


Fig. 5.

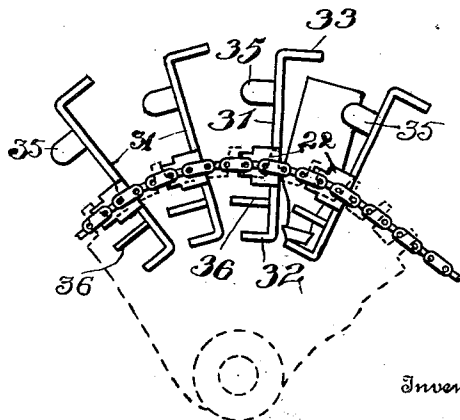
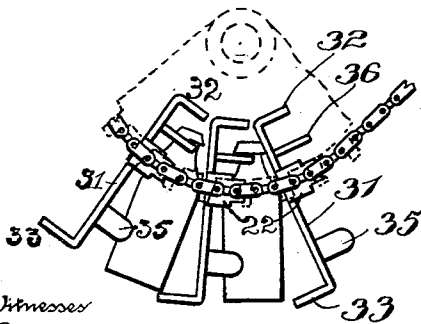


Fig. 4.



Witnesses  
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By

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## UNITED STATES PATENT OFFICE.

BALDWIN F. SCHIRMER, OF CLEVELAND, OHIO.

## BOTTLE-HOLDER FOR BOTTLE-WASHING MACHINES.

SPECIFICATION forming part of Letters Patent No. 733,558, dated July 14, 1903.

Application filed December 13, 1902. Serial No. 135,065. (No model.)

*To all whom it may concern:*

Be it known that I, BALDWIN F. SCHIRMER, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Bottle-Holders for Bottle-Washing Machines, of which the following is a specification.

My invention relates to bottle-holders for bottle-washing machines and machines of a similar class by means of which it is desired to carry a large number of bottles through a tank filled with water or a cleansing or sterilizing solution and at the end of their journey to deliver them to another tank or receptacle or into the hands of the workmen. Machines of this class commonly comprise an endless carrier consisting of a pair of endless sprocket-chains caused to move in substantially parallel planes, one mounted on each side of the tank containing the sterilizing solution, and between which chains are suspended the bottle-holders proper. The sprocket-chains are propelled by sprocket-wheels from a suitable source of power, and the bottles are fed into the transverse holders at one end of the tank and are delivered at the other after they have been passed through the solution. Difficulties have arisen with bottle-holders designed to be used with machines of this kind where springs have been employed to grasp the bottles, and even where open pockets have been used to hold them, because, in the first instance, the springs are apt to become loosened and break, and, in the second instance, some means must be provided to prevent the bottles from falling out of the pockets at such places in the line of travel where the open end of the pocket is downward.

I have already described in an application filed by me on the 8th day of December, 1902, for Letters Patent of the United States, Serial No. 134,260, a bottle-washing machine designed to comprise an improved bottle-holder consisting, in brief, of a plurality of jaws arranged in succession along an endless flexible carrier such as has been mentioned, each jaw being adapted to receive a bottle and carry it with its longitudinal axis substantially at right angles to the line of travel

of the carrier and provided with means for preventing the lateral displacement of the bottles and in part the longitudinal displacement of the bottles except when desired.

The subject-matter of this patent is, more properly speaking, the bottle-holding jaws of which the endless carrier in connection with the chains and chain-moving mechanism is composed. These jaws comprise a receiving-plate, an upwardly-extending flange at its front end, a downwardly-extending flange at its rear end, and upwardly-projecting guards to prevent the lateral displacement of the bottles while in motion. I have found that jaws of this description can be easily and quickly manufactured out of sheet metal, the flanged parts being struck up and turned to form the different parts of the complete jaw and the whole being made integral.

In the drawings, Figure 1 is a top plan view of a sheet of metal out of which a series of my improved bottle-holding jaws are to be stamped, the points of separation where the cuts are to be made being indicated by lines of fine dots and where the creases are to be made being indicated by dashes. Fig. 2 is a side elevation of some of the jaws attached to the sprocket-chain. Fig. 3 is a perspective view of one of the finished jaws, showing the bottles in dotted outline. Fig. 4 is a side view showing three of the jaws attached to the chain and arranged at an angle to form two open pockets. Fig. 5 is a view in side elevation, showing some of the jaws in positions opposite to those of Fig. 4.

In Fig. 1 of the drawings, 2 is a strip of sheet metal designed to be cut into sections  $a' a'$ , &c., to form my improved bottle-holding jaws. The dotted lines  $b b$  and  $b' b'$  indicate the terminal lines of each section, the lines  $b b$  being curved and the lines  $b' b'$  straight to properly shape the front and rear flanges, as will be hereinafter explained. The dotted lines  $c c c$  and  $c' c' c'$  indicate where the sides and neck-guards are cut out, and the dash-lines  $d d d$  and  $d' d' d'$  indicate where these guards are to be bent. The dash-lines  $e e$  indicate where the metal is to be bent to turn up the front flange;  $f f$ , where it is to be bent to turn down the rear flange, and  $h h$  where the ears by means of which the jaws

are secured to the chains between which they are mounted are to be turned up. The cutting and creasing may be done by any suitable dies or rolls in any of the different ways known to this art, the manner or method being entirely immaterial so long as the desired result is secured. After the metal has been cut and creased as indicated the parts are turned up to form the jaw, as shown in perspective in Fig. 3.

In Figs. 2 to 5, 31 is the receiving-plate, 32 is the upwardly-extending flange, and 33 the downwardly-extending flange, the flange 32 being hollowed out at 34 34 to provide an aperture to allow of the escape of the contents of the bottle when the latter is turned bottom upward. 35 35 are guard-plates at right angles to the receiving-plate 31 and to each of the flanges 32 and 33 and are designed to prevent in part the lateral displacement of the bottle and more particularly the lateral displacement of the bottle-body. 36 36 are guard-plates at right angles to the guards 35 35 and to the receiving-plate 31, but are parallel to the flanges 32 and 33, and are designed, further, to prevent the lateral displacement of the bottles by limiting their motion side-wise near their necks. The ears 22 are turned up at the sides of plates 31 and are the means whereby the jaws are secured to the links 21 of the sprocket-chain by rivets or other suitable means. Any suitable means may be employed for the purpose of securing the links to the jaws so long as a rigid connection is made whereby the jaws are caused to move with the links. In the application for Letters Patent of the United States, Serial No. 134,260, above referred to, the means shown to secure the jaws to the links are flanges made integral with the links, riveted to the jaws. In this application there are shown flanges made integral with the jaws riveted to the links. The two constructions are equivalent.

The jaws are arranged on a chain, as shown in Figs. 2, 4, and 5, the plane of each receiving-plate 31 being substantially at right angles to the plane of the central medial axis of the link to which it is secured. The plates are arranged in succession along the chain and at such a distance apart that a bottle of the size to be treated in the machine will be snugly but not tightly held between the receiving-plates of two adjacent jaws. The flange 33 on one jaw serves to engage the bottle placed upon the receiving-plate 31 of the jaw immediately in front of it, so that the bottle cannot escape. The chains are arranged one on each side of the jaws, so that the jaws will vary their angles to each other as the line of motion of the chain is varied. Consequently when the sprocket-chains are actuated by sprocket-wheels over which they move, as the angles of the links to each other vary to conform to the line of curvature of the wheels, the angles of the jaws suspended along these links will vary. The flange 33 on

one jaw will thus be far from the receiving-plate 31 of the jaw in front of it when passing over a convex curve, as shown in Fig. 4, and the pocket formed between the two jaws will be open. On the other hand, in passing over a concave curve, as shown in Fig. 5, the flange 33 will be near to the receiving-plate 31 of the jaw next in front of it, and the pocket formed between the two jaws will be closed. The sprocket-wheels over which the chains pass serve, therefore, not only to propel them along, but to afford a means to vary the angles between the adjacent jaws to open and close the pockets.

My device enables me to make a bottle-washing machine very cheaply. The bottle-holding jaws being made of light sheet metal and stamped out in one piece are light, stiff, and strong, cheaply made, and easily and quickly put together.

What I claim is—

1. A multiple bottle-holder consisting of a plurality of jaws each jaw provided with means for receiving the bottles and means adapted to engage the bottles on the adjacent jaw to retain them thereon.

2. A multiple bottle-holder comprising a plurality of jaws, each jaw provided with means for receiving bottles consisting of a bottle-holding plate and with means adapted to engage the bottles on the adjacent jaw to retain them thereon consisting of a dependent flange turned toward said adjacent jaw.

3. A multiple bottle-holder consisting of a plurality of jaws, each jaw provided with means for receiving bottles and preventing their longitudinal displacement in one direction consisting of a receiving-plate provided with an upwardly-extending guard at its front end and means adapted to engage the bottles on the adjacent jaw to retain them thereon.

4. A multiple bottle-holder comprising a plurality of jaws, each jaw provided with means for receiving the bottles and preventing their displacement consisting of upwardly-projecting guards at the front and sides of the bottle and means adapted to engage the bottoms of the bottles on the adjacent jaw to retain them thereon.

5. A multiple bottle-holder comprising a plurality of jaws, each jaw provided with means for receiving the bottles and preventing their displacement consisting of upwardly-projecting guards at the front and sides of the bottle and means adapted to engage the bottoms of the bottles on the adjacent jaws to retain them thereon consisting of a dependent flange turned toward said adjacent jaw.

6. A multiple bottle-holder consisting of a plurality of jaws, each jaw provided with means for receiving bottles and means adapted to engage the bottles in the adjacent jaw to retain them thereon, in combination with means for varying the angle between the adjacent jaws.

7. A jaw for a bottle-holder consisting of a plate, an upwardly-extending guard at the front end thereof, and a flange extending in the opposite direction from the rear end thereof.

5 8. A jaw for a bottle-holder consisting of a plate, an upwardly-extending guard at the front end thereof, a flange extending in the opposite direction from the rear end thereof, and guards struck out of and turned up from the plate and adapted to prevent the lateral displacement of the bottles, the whole being made integral.

10 9. A multiple bottle-holder comprising a plurality of jaws each jaw provided with means for receiving the bottles and preventing their longitudinal displacement in one

direction and with means adapted to limit the lateral movement of the bottles.

10. A multiple bottle-holder comprising a plurality of jaws, each jaw provided with means for receiving the bottles and preventing their longitudinal displacement in one direction, with means adapted to limit the lateral movement of the bottles and with a second means adapted to still further limit the lateral movement of the bottles.

Witness my hand, this 3d day of December, 1902, at the city of Buffalo, in the county of Erie and State of New York.

BALDWIN F. SCHIRMER.

Witnesses:

C. A. STRANGMANN,  
EDWARD C. REEB.