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**APPARATUS FOR CONTROLLING A CONTAINER VALVE AND FILLING THE CONTAINER WITH A CARBONATED LIQUID**

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This invention relates to apparatus for filling a container with a carbonated liquid and more particularly to such apparatus which shall be adapted for filling containers with carbonated beverages.

An object of my invention is to provide apparatus for filling a container with a carbonated liquid in which the carbonated liquid can be introduced into the container under pressure without having to chill the liquid prior to introduction.

Another object of my invention is to provide apparatus for filling a container with a carbonated liquid of the character designated which shall embody a movable supply member which is adapted to enter the container for introducing the carbonated liquid and shall include improved means for sealing the container immediately upon removal of the supply member.

Another object of my invention is to provide apparatus of the character designated in which the means for supplying the carbonated liquid is inserted and removed through a suitable passageway provided in the upper portion of the container and in which the passageway is automatically sealed by a gravity actuated valve upon removal of the supply member from the container while the container is in an upright position.

A further object of my invention is to provide apparatus for filling a container with a carbonated liquid of the character designated in which the gravity actuated valve automatically opens the passageway in the container upon inverting an empty container, whereby the container may be cleaned without the necessity of having to remove a cover member or the like.

A still further object of my invention is to provide apparatus for filling a container with a carbonated liquid of the character designated which shall be simple of construction, economical of manufacture and one which may be readily employed with conventional type containers for carbonated beverages.

Heretofore in the art to which my invention relates, various means have been devised for filling containers with carbonated liquids. However, such means has been unsatisfactory due to the fact that it is very difficult to clean the containers after they become empty. Such containers have usually been hand cleaned by providing an enlarged opening in the top of the container which is sealed by a removable cover member. The cleaning solution is introduced into the container and then removed through the opening in the container. Not only does such a cleaning process require the removal of the cover members from the container, but such containers are not adapted for washing by automatic apparatus.

To overcome the above and other difficulties, I provide a passageway in the upper portion of the container which is automatically closed when the container is in an upright position by a gravity actuated valve and is automatically opened when an empty container is inverted. Accordingly, when the container is in an upright or filling position, the gravity actuated valve is opened by the supply means for the carbonated liquid and upon removal of the supply means, the gravity actuated valve is automatically closed, whereby there is substantially no loss of pressure as the container is filled.

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On the other hand, when an empty container is inverted and positioned in an automatic washing machine, the gravity actuated valve automatically opens the passageway whereby the cleaning solution may be drained through the passageway.

Apparatus embodying features of my invention is illustrated in the accompanying drawings, forming a part of this application, in which:

FIG. 1 is a vertical sectional view showing the apparatus in the filling position, a portion of the container and the means for raising and lowering the same being in elevation;

FIG. 2 is a vertical sectional view showing the means for supplying the carbonated liquid and gas and showing the same in position for introducing the gas alone;

FIG. 3 is a vertical sectional view of the means for introducing the carbonated liquid and carbonated gas and showing the same in a position whereby there is no flow of carbonated liquid or gas;

FIG. 4 is a fragmental view showing the position of the gravity actuated valve when an empty container is inverted; and,

FIG. 5 is a fragmental view showing a modified form of my invention.

Referring now to the drawings for a better understanding of my invention, I show a conventional type container 10 for carbonated liquids. The container is provided with a removable cover member 11 which is secured in place by the usual annular retainer member 12 having suitable locking means associated therewith. The container 10 is also provided with a conduit 13 having a suitable valve 14 therein for removing the carbonated product from the container 10 in a manner well understood in the art. Also, a conduit 16 having a control valve 17 therein is provided in the container 10 for introducing gas under pressure into the container whereby the product is discharged through the conduit 13.

The container described hereinabove is a conventional type container for carbonated beverages and may be employed in association with my improved apparatus now to be described. A passageway 18 is provided in the upper portion of the container 10. Preferably, where the container 10 is provided with the removable cover member 11, the passageway 18 is provided in the cover member 11, as shown. However, it will be apparent that the container 10 may be provided with an integral upper portion, thereby eliminating the cover member 11. By providing the passageway 18 in the cover member 11, conventional type containers having cover members may be employed in association with my improved apparatus by merely modifying the cover member and without any change to the remainder of the container. The passageway 18 may be defined by a sleeve member 19 or the passageway may be defined by providing an opening in the container, as shown in the modified form of my invention in FIG. 5 of the drawings.

Mounted for pivotal movement within the container 10 adjacent the passageway 18 on a suitable pivot pin 21 is a gravity actuated valve, indicated generally at 22. Preferably, the lower end of the sleeve 19 is cut to a bevel, as shown in FIG. 1, whereby the gravity actuated valve 22 engages the same with a minimum amount of angular movement of the valve. The gravity actuated valve 22 comprises a sealing member 23 which is adapted to move into seated position relative to the lower beveled end of the sleeve 19 when the container is in an upright position whereby the passageway 18 is closed. The valve unit 22 is provided with an outwardly projecting arm 24 having a counterweight 26 mounted at the outer or free end thereof. The counterweight 26 is of a weight greater than the weight of the sealing member 23 whereby it