The invention relates to bottle caps such as used on bottles of liquor and the like, and in particular a bottle cap having a spout extended through one side with a vent extended over the spout opening and with balls positioned in the spout opening and vent providing check valves to prevent liquid being placed in the bottle. The purpose of this invention is to provide a bottle cap having an air vent extended over a pouring spout whereby liquid may be readily poured from a bottle upon which the cap is positioned and wherein the parts are so formed that it is impossible to replace liquid in the bottle.

Various types of non-refillable bottle caps and necks have been provided, however, it is difficult to form a bottle cap so that liquid may be poured from a bottle on which the cap is positioned in the conventional manner and so that it is impossible to return liquid to the bottle.

The object of this invention is, therefore, to provide a relatively small bottle cap having a pouring spout therein in which liquid in the bottle may be readily poured therefrom and which is so constructed that it would be substantially impossible to return liquid to the bottle.

Another object of the invention is to provide a bottle cap having a pouring spout with a check valve therein in which a vent provides a by-pass over the spout opening and in which the vent is also provided with a check valve to prevent liquid flowing into a bottle on which the cap is mounted.

Another important object of the invention is to provide a bottle cap having a spout and also a vent extended therethrough in which check valves are provided in the spout and vent and in which the cap may be used on bottles now in use without changing the bottles.

A further object of the invention is to provide an improved bottle cap having a pouring spout and also a vent extended therethrough in which the cap is of a simple and economical construction.

With these and other objects and advantages in view the invention embodies a collar threaded on the upper end of the neck of a bottle and a bottle cap rotatably mounted on the collar and having an outlet spout and also a vent extended therethrough, and in which the outlet spout and vent are provided with check valves.

Other features and advantages of the invention will appear from the following description taken in connection with the drawing wherein:

FIGURE 1 is a vertical section through the improved bottle cap showing the outlet opening and vent therein and showing the cap positioned on the upper end of the neck of a bottle, the neck also being shown in the section.

FIGURE 2 is a section similar to that shown in FIGURE 1 with the parts illustrated in a pouring position in which ball check valves in the spout and vent are in pockets at the side of the spout and vent permitting pouring of liquid from a bottle upon which the cap is positioned.

FIGURE 3 is a plan view of the cap with the parts illustrated in free or operative positions.

FIGURE 4 is a plan view similar to that shown in FIGURE 3 showing the positions of the parts with the spout and vent of the cap closed.

FIGURE 5 is a vertical section through the improved bottle cap with the parts as shown in FIGURE 4 in which the spout and vent are closed.

FIGURE 6 is a section taken on line 6—6 of FIGURE 4 showing a projection of a collar on which the cap is positioned extended into an arcuate slot to limit turning movements of the cap.

Referring now to the drawing wherein like reference characters denote corresponding parts the improved bottle cap of this invention includes a body 10 having an annular flange 11 with an annular groove 12 in the inner surface on the lower end and having a pouring spout 13 and a vent 14 extended therethrough, a collar 15 having an annular rib 16 positioned in the groove 12 of the body and having internal threads 17 by which the collar is threaded on an extension 18 of a neck 19 of a bottle, a ball 20 positioned in an opening 21 from which the pouring spout 13 extends and a ball 22 positioned in an opening 23 in the body 10 and from which the vent 14 extends.

The collar 15 is provided with an end wall 24 having an opening with a seat 25 therein for the ball 20 and also an opening with a seat 26 therein for the ball 22. With the parts, as illustrated in FIGURE 1, the ball 20 is positioned on a seat 25, and the ball 22 is positioned on the seat 26 whereby the cap is closed. However, upon tilting the bottle so that the cap assumes the position shown in FIGURE 2 the balls 20 and 22 drop, by gravity, from the seats 25 and 26, opening the passages from the interior of the neck 19 of the bottle to the spout 13 and vent 14.

The inner end of the opening 21, from which the pouring spout 13 extends, is formed with an upper surface 27 with side walls 28 and 29 and the opening 23 of the vent 14 is provided with an upper surface 30 and side walls 31 and 32. By this means the balls 20 and 22 are clamped against the seats 25 and 26, respectively with the body 10 of the cap in the position shown in FIGURE 4. By this means the bottle is sealed for storing, shipping, and the like.

In use the cap or body 10 is rotated in a counterclockwise direction, similar to the position shown in FIGURE 4 to the position shown in FIGURE 3 whereby the balls 20 and 22 are released and upon tilting the bottle to the position shown in FIGURE 2 the balls are pulled by gravity from the seats, opening both the spout and vent.

The end wall 24 of the collar 15 is provided with a projection 33 that extends through a slot 34 in the under surface of the body 10 providing limiting or stop means of the cap whereby the cap is only permitted to rotate from the position shown in FIGURE 3 to that shown in FIGURE 4 or from the position shown in FIGURE 4 to that shown in FIGURE 3.

The cap or body 10 is retained on the collar 15 by the annular rib 16 that is positioned in the annular groove 12, and the collar 15 is retained in position on the neck 19 of a bottle by a tough plastic band 35 which is secured to the neck of the bottle and which overlaps the lower portion of the collar.

With the parts as illustrated and described the collar 15 is threaded on the end 18 of a neck of a bottle and secured in position by the tough plastic band 35. The cap or body 10 is positioned on the upper end of the collar with the rib 16 extended into the annular groove 12 in a depending flange on the lower end of the cap or body and with the balls 20 and 22 positioned to register with the seats 25 and 26, respectively.

With the cap 10 turned to the position shown in FIGURE 4 the balls are retained in sealing relation with the seats whereby the bottle cap is closed and with the cap turned in the position shown in FIGURE 3 the balls are free to drop away from the seats, as shown in FIGURE 2 to permit pouring liquid from the bottle.

With the bottle cap provided as illustrated and de-
scribed and mounted on the end of a neck of a bottle fluid may readily be poured from a bottle through the spout 13 with vacuum in the bottle relieved by the vent 14. However, in an attempt to refill the bottle the balls 20 and 22 drop into the seats 25 and 26 thereby preventing fluid from passing into the bottle.

The non-refillable bottle cap provides a bottle from which liquid may readily be poured and which cannot be refilled.

It will be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. In a non-refillable cap, the combination which comprises an internally threaded collar open at one end and having an end wall providing a closure in the opposite end, said end wall having valve seats therein and said collar having an annular rib on the outer surface, a body having a pouring passage extended therethrough positioned on the collar and having a depending flange with an annular groove therein positioned with the rib of the collar in said annular groove providing a swivel mounting of the body on the collar, said body also having a vent extended therethrough, balls in the pouring spout and vent, said body being positioned whereby the balls co-act with the valve seats for sealing the bottle, a band of plastic mounted on the outer surface of the collar and positioned to extend over a portion of the outer surface of the neck of a bottle upon which the collar is threaded, said body having a slot in the undersurface thereof and a projection on the end wall of the collar extending into the slot whereby the rotation of the cap is limited by the movement of the projection in the slot and the longitudinal extent of the slot.

2. In a non-refillable cap, the combination which comprises an internally threaded collar open at one end and having an end wall providing a closure in the opposite end, said end wall having valve seats therein and said collar having an annular rib on the outer surface, a body having a pouring passage extended therethrough positioned on said collar and having a depending flange with an annular groove therein positioned with the rib of the collar in said annular groove providing a swivel mounting of the body on the collar, said body also having a vent extended therethrough, balls in the pouring spout and vent, said valve seats being in registering relation with the pouring passage and vent, respectively whereby the balls co-act with the valve seats for sealing the bottle, and a stop positioned between the body and collar for limiting turning movements of the body, said body having a slot in the undersurface thereof and said stop comprising a projection formed integrally with the end wall of the collar and extending into the slot so that the movement of the cap is limited by the movement of the projection in said slot and the longitudinal extent of said slot.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,878,599</td>
<td>Perkins</td>
<td>Sept. 20, 1932</td>
</tr>
</tbody>
</table>

FOREIGN PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Country</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>448,521</td>
<td>Canada</td>
<td>May 18, 1948</td>
</tr>
<tr>
<td>527,158</td>
<td>Belgium</td>
<td>Mar. 31, 1954</td>
</tr>
<tr>
<td>1,009,183</td>
<td>France</td>
<td>Mar. 16, 1955</td>
</tr>
</tbody>
</table>