To all whom it may concern:

Be it known that I, CHRISS HANSEN, a citizen of the United States, residing at Columbia, in the county of Esmeralda and State of Nevada, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in non-refillable bottles and consists of the novel features of construction and the combination and arrangement of parts hereinafter fully described and claimed.

The object of the invention is to provide a simple and practical device of this character which may be readily locked in the neck of a bottle and which will effectively prevent the same from being re-filled after its original contents has been poured out.

The above and other objects of the invention are attained in its preferred embodiment illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section through the neck of a bottle and my improved valve devised for preventing the latter from being re-filled; Fig. 2 is a horizontal section taken on the plane indicated by the line 2—2 in Fig. 1; Fig. 3 is a perspective view of the valve cage and guard; Fig. 4 is a perspective view of the resilient metal locking ring; Fig. 5 is a detail section through a slightly modified form of the invention; and Fig. 6 is a detail perspective of the rubber locking ring shown in Fig. 5.

In the drawings 1 denotes the upper portion of the neck of a bottle or other liquid container, which neck has a cylindrical bore 2 formed with an annular groove or channel 3. The latter is arranged a suitable distance from the mouth of the neck band the wall of the bottle is preferably reinforced at such point by an annular rib or bead 4.

5 denotes a combined valve cage and guard which is adapted to be secured in the bore 2 by means of an expandable locking ring 6 which engages the groove 3. Said cage comprises a substantially cylindrical tubular body, preferably, but not necessarily, made of glass and having in its sides a series of vertically extending slots or openings 7. A ball valve 8 is arranged for sliding movement in the cage and when the bottle is in an upright position is adapted to drop by gravity upon a valve seat 9 formed in the open bottom of said cage. When the bottle is tilted or inverted the valve 8 will leave its seat and drop over the contracted open top 10 of the cage, as indicated in dotted lines in Fig. 1. Formed at the top of the cage is an annular radially projecting flange 11 which is of substantially the same diameter as the bore of the bottle neck and which has its edge formed with notches 12 arranged at points 65 between the openings 7 in the reduced body portion of the cage. Said notches 12 permit the contents of the bottle to pass through the cage when the bottle is inverted.

The locking member 5 is in the form of a 70 radially expandable ring constructed of resilient or elastic material and carried by the bottom of the cage so that it will expand into the groove 3 and lock the cage in the neck. In Fig. 1 the locking ring or member is in 75 the form of a split channeled metal ring of substantially U-shape in cross section and adapted to receive an annular radially projecting flange 13 formed upon the lower end of the cage. The metal from which this ring is constructed is resilient and the normal diameter of the ring is larger than that of the flange 13 so that when said ring is drawn close around said flange the cage and ring may be inserted in the neck of the bottle and forced downwardly until the ring aligns with the groove 3, whereupon said ring will expand radially and enter the groove, as shown in Fig. 1. It will be noted that the flanges of said U-shaped ring are of such width that they will project out of the groove 3 and engage the flange 13 so as to lock the cage in the neck of the bottle. If desired, washers of rubber or the like may be provided upon the locking ring to render the connection liquid tight or the ring may be coated with rubber or other waterproof material. When, however, the contents of the bottle is such as would affect a metal locking ring, I preferably employ the locking ring 9 which is shown in Figs. 5 and 6 of the drawings, and which is constructed of rubber or the like.

This is a closed ring preferably of rectangular shape in cross section and is retained upon the cage by reason of its engagement with an 105 annular groove 14 formed in a flange 13 upon the bottom of the cage. Said flange 13 is of greater width than the flange 13 and the groove 14 is of such depth that the rubber ring may be pressed entirely within the
same while the cage is being inserted in the bottle neck. When, however, the ring registers with the groove in the bottle neck it will expand radially and enter said groove, as clearly shown in Fig. 5. The groove 3 is so arranged in the neck and the length of the cage 5 is such that sufficient space is provided in the upper end of the bore 2 to receive the usual cork or stopper for the bottle.

Having thus described the invention what is claimed is:

1. A non-refillable bottle comprising a neck having its bore formed with an annular groove, a cage containing a valve and having an annular radially projecting flange, a split resilient ring of U-shape in cross section arranged upon said flange and adapted to expand radially and enter said groove to lock the cage in the neck.

2. A non-refillable bottle comprising a neck having its bore formed with an annular groove, a tubular cage having openings in its sides, an annular flange at its upper end formed with notches and an annular flange at its lower end and a split resilient locking ring of U-shape in cross section arranged upon said lower flange and adapted to enter said groove to lock the cage in the neck.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHRIS HANSEN.

Witnesses:

C. E. Smrthi,
C. L. HALTERMAN.