No. 889,498. PATENTED JUNE 2, 1908.

J. C. ANDERSON.

BOTTLE.

APPLICATION FILED JUNE 12, 1907.

Fig. 1.

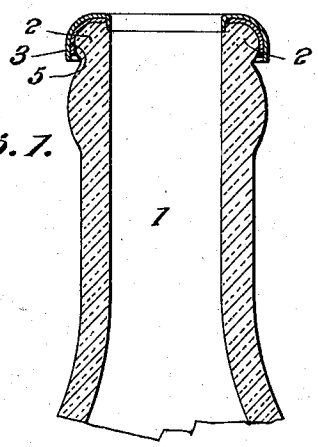


Fig. 2.

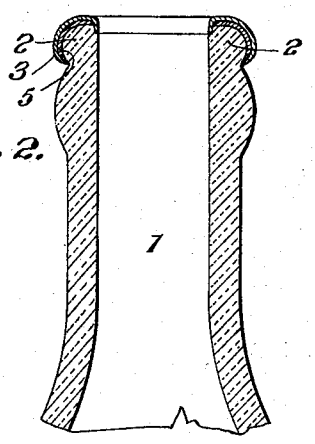


Fig. 3.

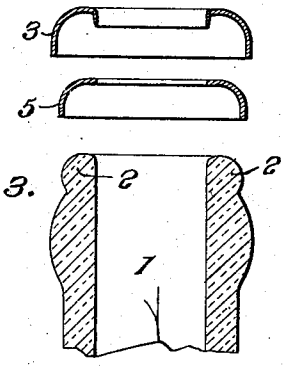


Fig. 4.

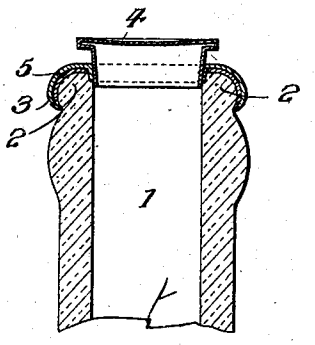


Fig. 5.

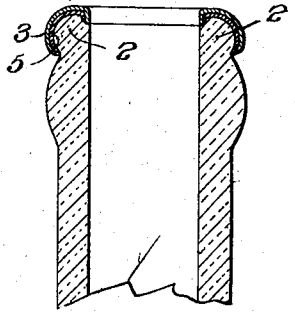
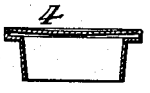


Fig. 6.



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BOTTLE.

No. 889,498. Specification of Letters Patent. Patented June 2, 1908.

Application filed June 12, 1907. Serial No. 378,543.

To all whom it may concern:

Be it known that I, JAMES C. ANDERSON, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Bottles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in bottles of that class in which a hard metal ring or collar is secured upon the neck of the bottle to produce a liquid and gas-tight joint, and adapted to receive a metallic crown or closure device as illustrated and described in Letters Patent granted to me April 3, 1906, and March 27, 1907, and numbered respectively 817,033 and 846,177, and particularly to that type shown and described in the last named Letters Patent in which the metal ring or collar is secured in place by means of solder adapted to melt at a temperature just above the boiling point of water and which will weld and consolidate with the ring or collar, and make a close mechanical contact with the neck of the bottle.

My present invention has for its object to avoid the necessity of the application of heat as described in the said last named patent, to effect the proper union between the ring or collar and the neck of the bottle and consists broadly in the employment of a soft metal gasket corresponding substantially with the interior surface of the metallic ring or collar, and adapted to make under suitably applied pressure a liquid and gas-tight joint between the ring or collar and the neck of the bottle, as will be hereinafter more fully set forth.

My invention further consists in the particular details of construction hereinafter described, of the closure device employed to seal the bottle.

In order that those skilled in the art to which my invention appertains may know how to make and use my improvement in bottles and to fully appreciate its advantages I will proceed to describe the same, referring by numerals to the accompanying drawing in which

Figure 1 is a central vertical section of a bottle neck with one of my improved rings or collars, and a soft metal gasket in proper position to be permanently secured in place by the application of pressure. Fig. 2 is a similar view showing the relation of parts after the ring has been permanently secured in position. Fig. 3 is a similar section showing the ring or collar and the soft metal gasket separated. Fig. 4 is a view similar to Fig. 2, and showing a closure device or seal secured in position wthin the ring or collar. Fig. 5 is a similar view but showing the inner edge of the soft metal gasket extended vertically a short distance and concentric with the inner vertical wall of the ring or collar, and Fig. 6 is a central vertical section of the seal or closure device.

Similar letters of reference indicate like parts in the several figures of the drawing.

1, is the neck of an ordinary bottle formed at its upper extremity with a circumferential rib 2, and 3, is a hard metal ring or collar adapted to receive a closure device or seal 4, such as will be hereinafter more particularly referred to.

5, is a soft metal gasket corresponding substantially in form with the hard metal ring or collar 3, and terminating at its inner edge as shown in Fig. 2, in order that it may abut the inner vertical wall of the hard metal ring or collar, or as shown in Fig. 5, so that it will for a slight distance trend vertically for the purpose hereinafter explained.

In either of the forms shown of the soft metal gasket, it bears such relation to the inner and outer vertical walls of the hard metal ring or collar that during the compression to which it is subjected in securing the collar in place the soft metal will not flow below the walls of the ring or collar.

In applying the ring or collar 3, to the neck of the bottle it is placed in the position shown at Fig. 1, and the outer wall is spun, or otherwise forced against and below the circumferential rib 2, on the bottle. The pressure thus exerted causes the metal composing the gasket 5, to flow in all directions toward any depressions or irregularities in the surface of the bottle neck and to make a close mechanical contact therewith and which I have found from experience will produce a perfect and lasting air and gas-tight joint, while the embrasure of the rib by the outer wall of the ring or collar maintains the flame in fixed and permanent position.

While I have found that the form of the soft metal gasket shown at Fig. 2, with its inner edge abutting the inner vertical wall of the ring or collar constitutes a perfect air and

gas-tight joint between the ring or collar and the neck of the bottle, I may if deemed expedient extend the inner edge of the gasket in a vertical direction to a limited extent as shown at Fig. 5, in order that it may also seal the joint between the inner wall of the ring or collar and the inner surface of the bottle neck.

The interior upper extremity of the bottle neck is preferably rounded as shown, in order that when the ring or collar is secured in place, the inner wall thereof will be in practically the same plane as the surface of the bottle neck below it, so that it will not constitute a projection and will permit the bottle to be readily cleansed.

The inner wall of the ring or collar is slightly tapered inwardly to correspond with the tapered wall of the closure device in order also that as the same is forced down the increasing rigidity of the wall of the closure device will cause closer contact between the sealing device and the ring or collar.

The closure device 4, as will be clearly seen by reference to Fig. 6, is closed and headed at its upper end and open at its lower end. The flanged head not only constitutes a rigid support for the elastic wall, but likewise provides means by which the closure device may when desired be readily removed. The closed head is preferably slightly concave in order that when used with a bottle containing gaseous bodies the expansive force of such gases will tend to flatten the head and obviously force the side wall of the device into closer contact with the ring or collar. This action of the gases is also effective by pressure against the inner surface of the wall of the sealing device, the area of which is greater than that of the head, and this is the case whether the head be flat or concave.

From the construction shown and described it will be readily appreciated that a bottle equipped as described, will possess all of the advantages set forth in the Letters Patent herein referred to while at the same time it may be more economically and expeditiously manufactured.

The construction and characteristics of the sheet metal closure device not only permits of such contact with the ring or collar as to produce a permanent air and gas-tight joint, but likewise after it has been removed from such close contact it may be employed as an ordinary cork when the bottle contains still liquors and will protect the same against ingress of air or dust.

I desire to particularly call attention to the fact that the improved construction of the closure device is such, that unlike that shown in the Letters Patent referred to or other similar devices, it does not become necessary to expand the closure device to secure a tight joint between it and the inner surface of the metallic ring or collar, but that on the contrary and owing to the fact that the closure device is open at the bottom and is formed with the flanged head, and the wall tapered slightly corresponding with the inner surface of the ring or collar, the sealing contact between the closure device and collar is accomplished to a greater or less extent by simply forcing the sealing device downwardly thus avoiding the use of any tool.

While I have shown, and prefer to have the closed upper end of the closure device flanged as shown, I desire it to be understood that my invention so far as the sealing device is concerned, contemplates broadly the open lower end, and a closed upper end so that the wall or contact surface of the device may be sufficiently elastic to accommodate itself to any peculiarities of the inner surface of the ring or collar.

Having described the construction and advantages of my improvements, what I claim as new and desire to secure by Letters Patent is:—

1. A bottle having an exterior circumferential rib at its upper extremity and provided with a sheet metal collar secured upon the exterior rib by compression and adapted to receive an expansible closure device, in combination with a soft sheet metal gasket interposed between the collar and the surface of the bottle and adapted to be compressed during the application of the collar upon the bottle, as hereinbefore set forth.

2. A bottle provided with a sheet metal collar adapted to receive a closure device and secured in fixed and permanent relation with the neck of the bottle, in combination with a soft sheet metal gasket located between the neck of the bottle and the sheet metal collar and adapted to be compressed during the application of the sheet metal collar upon the neck of the bottle, substantially as hereinbefore set forth.

3. In combination with a bottle provided with a hard metal collar secured in air and gas-tight relation with the neck thereof and having its interior surface slightly converging downwardly and adapted to receive a closure device; a hollow sheet metal closure device having a wall normally corresponding in taper with the converging surface of the hard metal collar, and having its lower end open and its upper end closed by an integral head, substantially as hereinbefore set forth.

4. In combination with a bottle provided with a hard metal collar secured in air and gas-tight relation with the neck of the same, and with its inner wall converging in a downward direction; a sheet metal closure device having an open bottom and a wall normally corresponding in taper with the converging surface of the hard metal collar and closed at its upper end by an integral head slightly concaved, substantially as hereinbefore set forth.

5. A bottle having an exterior circumferential rib at its upper extremity and recessed at its inner extremity and provided with a hard metal collar secured in air and gas-tight relation with the neck of the bottle and having its interior wall in alinement with the interior surface of the neck of the bottle, substantially as and for the purpose set forth.

6. In combination with a bottle having the interior surface at the extremity of the neck converging in a downward direction, a sheet metal closure device having an open lower end and closed at the upper end by an integral head, and having its wall normally tapered to correspond with the converging inner surface of the bottle neck.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES C. ANDERSON.

Witnesses:
D. G. STUART,
JNO. J. HARROWER.