No. 887,897. PATENTED MAY 19, 1908.

B. ADRIANCE.

BOTTLE CAP OR CLOSURE.

APPLICATION FILED JULY 11, 1907.

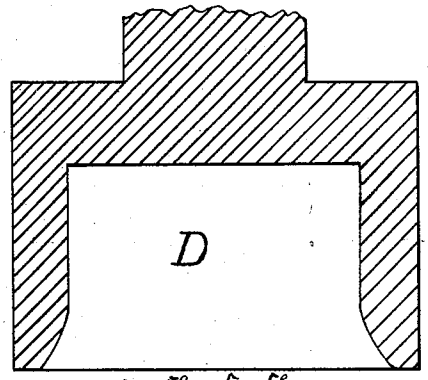


Fig. 4.

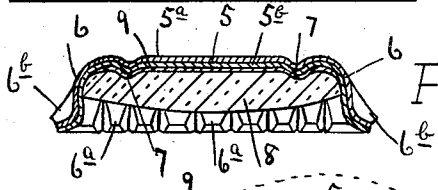


Fig. 3.

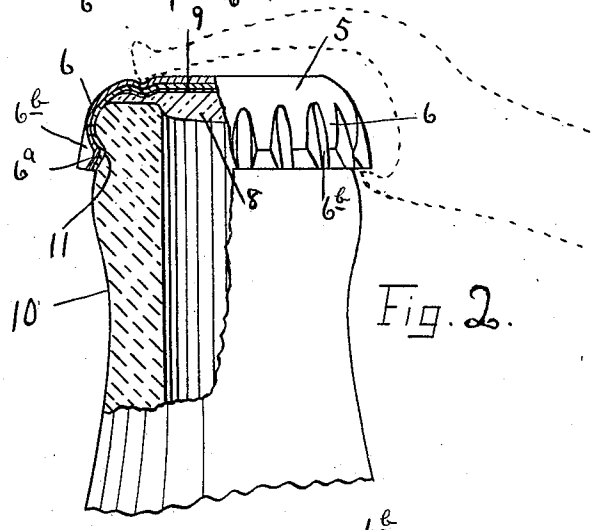


Fig. 2.

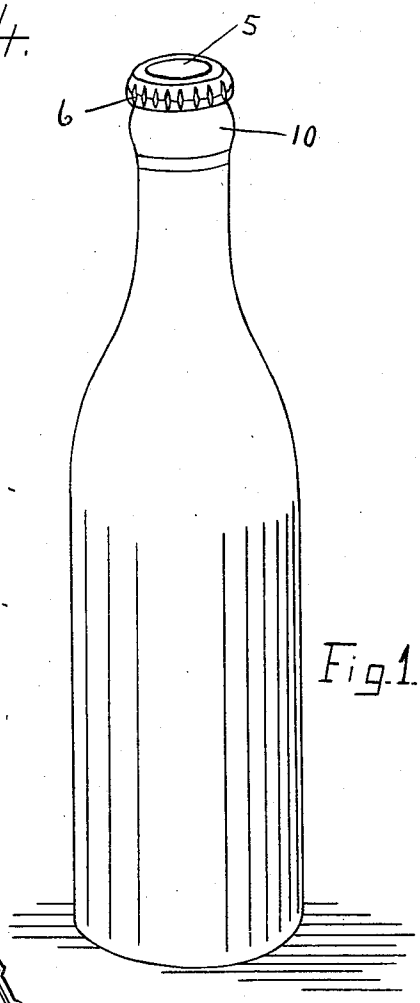


Fig. 1.

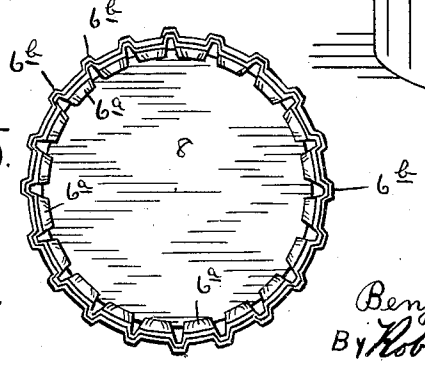


Fig. 5.

WITNESSES:

Geo. E. Rendell.

Sarah E. Clark.

INVENTOR

Benjamin Adriance.

By Robinson, Martin & Jones

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

BENJAMIN ADRIANCE, OF NEW YORK, N. Y.

BOTTLE CAP OR CLOSURE.

No. 887,897. Specification of Letters Patent. Patented May 19, 1908.

Application filed July 11, 1907. Serial No. 383,241.

To all whom it may concern:

Be it known that I, BENJAMIN ADRIANCE, of the borough of Brooklyn, in the city of Greater New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Bottle Caps or Closures; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form part of this specification.

The object of my invention is to provide an improved bottle cap or closure, which is efficient and certain to accomplish its purpose, cheaply made, easily and expeditiously applied with little danger of breakage of the bottle and easily removed.

Figure 1 shows a perspective view of a bottle with my improved cap or closure applied. Fig. 2 shows on an enlarged scale partially in section the neck end of the bottle with the cap or closure applied. Fig. 3 shows in section on an enlarged scale the cap or closure before being applied. Fig. 4 shows in section on a scale corresponding with that of Fig. 3 a die for applying the cap. Fig. 5 shows on an enlarged scale an inner face view of the cap after the flanged edge has been turned in, *i. e.* the position when applied.

The body 5 of the cap consists of two nesting parts 5^a and 5^b of rigid strength affording metal, both having flanges 6 corrugated as to the edge portion of the flanges to provide relatively prominent internal nesting lumps or protuberances 6^a alternating with the relatively thin external nesting folds 6^b.

The top of the cap is provided with a circular rib 7, formed by indenting the layers, and is lined with an elastic pad 8 preferably of cork and an adhesive moisture-proof sheet 9 preferably of gummed paper.

In position on the bottle the pad overlies or caps the opening, and the end of the neck surrounding the same, and the rib 7 is adapted to take a position opposite to the end wall of the neck. Externally adjacent to the end the bottle neck 10 is provided with a groove 11 affording a shoulder with which the internal lumps or protuberances 6^a are adapted to engage. The nesting external folds 6^b as well as affording clamps which assist in holding the plies of the material together in completed caps and to provide for the surplus material in the flanges, serves as ribs on which the closing tool acts in applying the cap. The form of the lumps 6^a also assists in holding the plies of the material together in the completed cap. The closing tool is preferably a die D operated by a press. It is evident that when the cap is in the form shown in Fig. 3, it may readily be placed over the mouth of the bottle. The descending die engaging with the outstanding folds 6^b of the cap first presses the cap down firmly on the end of the bottle and embed it in the pad 8 and, continuing, ride down the folds 6^b, which transmit the force to the flange 6 as a whole, folding it in so that the internal lumps 6^a engage in the groove 11 and secure the cap in position not only while the die withdraws, but afterwards until removed. The nested folds and lumps of the flange affords a circumferential resiliency, which is desirable, and still affords the necessary strength to maintain the cap securely in place and withstand pressure within the bottle.

The form of the cap and the arrangement of the lumps and folds of the flange is such that when applied the lower edge of the flange and particularly the lower ends of the folds 6^b stands out so as to be readily engaged by an opening tool. The working end of an opening tool suitable for removing the cap or closure is shown in dotted lines in Fig. 2, although this particular form of tool is not material.

There is a certain amount of variation in the size and shape of the bottle necks, in spite of the fact that they may all be intended to be the same. The nested folds and lumps of the flange allows a cushioning and yielding in the cap as applied, which saves breakage of the bottle and produces a better and more uniform result.

It is obvious that the two-plies of material when corrugated in the flanges will not lie together in a solid mass as though a single thickness were employed. When two plies of material are employed any holes, soft spots or weak points in one sheet or ply is not liable to co-incide with or register with a similar or other defect or weakness of the other ply, so that practically a perfect cap is always secured. These caps are usually made from

what is ordinarily termed "tin", which has sufficient hardness and elasticity to make it practically successful for these caps.

A cap of sufficient strength in the flanges to successfully maintain itself can be made from thin scrap tin when two plies or thicknesses of material are used.

The internal rib 7 in the head of the cap concentrates the pressure of the cap on the wall at the end of the neck, so as to make a successful closure under conditions which would result in failure were the rib omitted.

It is evident that other analogous forms of caps than that shown herein and particularly described may be made from two plies of material as herein described.

What I claim as new and desire to secure by Letters Patent is:

1. A flanged cap or closure for bottles formed throughout of two sheets of rigid metal, the flange formed of alternating nesting folds and nesting lumps, substantially as set forth.

2. A cap or closure for bottles formed throughout of two sheets of rigid metal and having a turned flange of nested folds and lumps, and an internal pad, substantially as set forth.

3. A cap or closure for bottles formed throughout of two sheets of metal and having a turned flange having internal nesting lumps 6^a and alternate external nested folds 6^b, substantially as set forth.

4. A cap or closure for bottles having a turned flange edge to receive the end of the bottle neck and formed throughout of two nested sheets of rigid metal, substantially as set forth.

5. A cap or closure for bottles formed of two sheets of rigid metal throughout, and having a turned flange alternately indented from opposite sides, substantially as set forth.

6. The combination of a bottle having a circumferential groove adjacent to the open end of its neck, and a cap or closure thereof formed throughout of two sheets of rigid metal having a turned flange with the edges mutually indented to provide internal nested lumps to engage in said groove, and alternate external nested folds and a pad in the cap, substantially as set forth.

7. The combination of a bottle having a circumferential groove adjacent to the open end of its neck and a cap or closure therefor formed throughout of two sheets of rigid metal having a turned flange indented from opposite sides to provide internal nested lumps to engage in said groove, and alternate external nested folds, and having a circumferential internal ridge opposite the end wall of the neck, and a pad in the cap, substantially as set forth.

In witness whereof, I have affixed my signature, in presence of two witnesses, this 3rd day of July, 1907.

BENJAMIN ADRIANCE.

Witnesses:
W. D. C. BOGGS,
W. J. HORN.