

No. 881,779.

PATENTED MAR. 10, 1908.

J. DICKENS.  
BOTTLE CLOSURE.

APPLICATION FILED SEPT. 28, 1906. RENEWED AUG. 19, 1907.

*Fig. 1.*

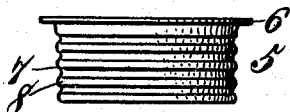


*Fig. 2.*

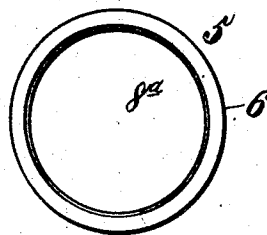


*Fig. 3.*



*Fig. 5.*

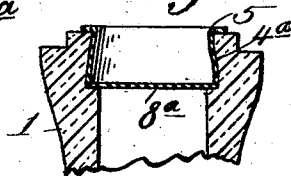
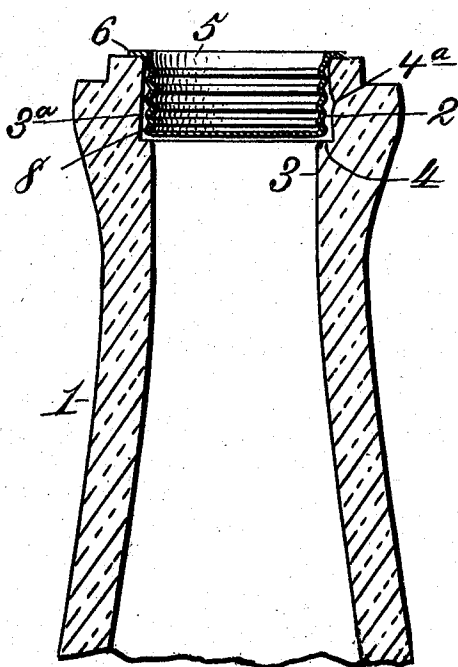


*Fig. 4.*



Witnesses.  
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Inventor.  
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By James L. Norris,  
Att'y.

# UNITED STATES PATENT OFFICE.

JOHN DICKENS, OF PASSAIC, NEW JERSEY, ASSIGNOR TO THE STANDARD SHEET METAL COMPANY, OF PASSAIC, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## BOTTLE-CLOSURE.

No. 881,779.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed September 28, 1906, Serial No. 336,622. Renewed August 19, 1907. Serial No. 389,251.

*To all whom it may concern:*

Be it known that I, JOHN DICKENS, a citizen of the United States, residing at Passaic, in the county of Passaic and State of New Jersey, have invented new and useful Improvements in Bottle-Closures, of which the following is a specification.

This invention relates to bottle closures, and aims to provide, in a manner as herein-  
after set forth, an expansible stopper adapted to hermetically seal the throat of the bottle and at the same time to be easily removable without the employment of a specially designed tool or stopper-pulling device.

The invention further aims to provide an expansible stopper having a laterally-extending flange adapted to be seated upon the edge of the bottle neck and a spun body portion, the spinning being such as to provide the body portion with a plurality of annular ribs arranged in parallelism with respect to each other and forming surplus metal so that when the body portion of the stopper is expanded in the throat of the bottle the metal will readily adjust itself to any irregularities or unevenness in the inner face of the bottle neck, thereby forming a tight joint, and, furthermore, the ribs also act as a means to prevent the outlet of gas or the entrance of air.

The invention further aims to provide a bottle closure which shall be extremely simple in its construction, readily removed when occasion so requires, strong, durable, hermetically sealing the throat of the bottle, efficient in its use, readily expanded to closure position, and inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, wherein like reference characters denote corresponding parts throughout the several views and in which—

Figure 1 is a side elevation, Fig. 2 a top

plan and Fig. 3 a vertical section of a bottle closure in accordance with this invention. Fig. 4 is a vertical sectional view of a bottle neck showing the position of the bottle closure before expansion. Fig. 5 is a view in section illustrating the expanded closure within the bottle neck.

Referring to the drawings by reference characters 1 denotes the bottle neck, 2 the throat and 3 the wall of the throat. The wall 3 near the upper end thereof is cut away so as to form a shoulder 4 and that portion of the wall of the throat above the shoulder 4 substantially conoidal. By way of example, that portion of the throat above the shoulder 4 is formed in an irregular manner, as at 4<sup>a</sup>.

The bottle closure is indicated by the reference character 5, is formed of expansible metal, preferably aluminium, is hollow, open at one end, substantially cup-shaped in cross section and is formed at its upper end with a laterally-extending flange 6, which, when the bottle closure 5 is in position, is adapted to rest upon the top edge of the bottle neck, as shown in Figs. 4 and 5. The body portion of the bottle closure is indicated by the reference character 7 and is provided with a plurality of annular ribs 8 spun in the said body portion and the said ribs are arranged in parallelism with respect to each other and suitably spaced apart. The providing of the body portion 7 with the ribs 8 forms surplus metal so that when the said body portion 7 of the closure is expanded in the conoidal-shaped portion of the wall of the throat of the bottle the metal will readily adjust itself to any irregularities or unevenness in the wall 3, thereby forming a tight joint, and, furthermore, the ribs 8 act as a means to prevent the outlet of gas or the entrance of air when the closure is in sealing position. In this connection it will be stated that in some instances parts of the body portion 7 are not expanded because the diameter of that portion 3 of the wall which the body portion 7 engages is such as to not require the smoothing out of the entire body portion, consequently certain of the ribs or certain portions of the ribs remain, and it is these remaining ribs or the portions of the ribs which act to prevent the outlet of gas or the entrance of air. By way of example it will be stated that possibly the gas may get around one rib, but the other rib would prevent the

outlet. It is hardly probable, however, that there will ever be a passage of gas around the junction of the body portion 7 with the bottom 8<sup>a</sup> for the reason that the stopper is expanded in such a manner as to have the body portion 7 snugly fit the conoidal-shaped portion of the wall of the throat throughout. Owing to the spinning of the ribs 8 in the body portion 7 the latter in cross section is undulated, and the ribs and grooves formed on the periphery of the body portion 7, as well as the ribs and grooves formed on the inner face of the body portion 7, are endless.

When the bottle closure is positioned in the throat of the bottle and expanded it will snugly fit the shoulder 4 as shown in Fig. 5, the shoulder 4 acting as a means to prevent the blowing out of the stopper, furthermore, the conoidal-shaped portion of the wall 3 of the throat 2 when the bottle closure is expanded, acts as a wedge to prevent the blowing out of the closure as the lower portion of the bottle closure when expanded is of a greater diameter than the upper portion. This is caused by the shape of the portion 3<sup>a</sup> of the wall of the throat 2 being substantially conoidal in contour.

The bottle closure is removed by inserting a knife or other suitable instrument between the flange 6 and the edge of the bottle neck and the closure can then be plied off very readily.

What I claim is—

1. A bottle closure having an expansible cup-shaped body portion provided with circumferentially-extending ribs separated by circumferentially-extending grooves, the bottom of said body portion adapted to be seated within the neck of a bottle and constituting a closure therefor.

2. A bottle closure having an expansible body portion provided with circumferentially-extending ribs separated by circumferentially-extending grooves, said body portion terminating at its top in a laterally-extending flange.

3. A metallic bottle closure comprising an expansible cup-shaped body portion open at its top and having the side thereof provided with ribs to form surplus metal so that when the body portion is expanded in the throat of the bottle the metal will readily adjust itself to any irregularities or unevenness in the wall of the throat of the bottle the bottom of said body portion adapted to be mounted in the throat of the bottle and form a closure therefor.

4. A metallic bottle closure having an ex-

pansible body portion provided with ribs to form surplus metal so that when the body portion is expanded in the throat of the bottle the metal will readily adjust itself to any irregularities or unevenness in the wall of the throat of the bottle, said body portion terminating at its upper end in a laterally-extending flange.

5. The combination with a bottle having the wall of the throat thereof formed with an annular shoulder, of a metallic closure therefor consisting of a substantially cup-shaped member having the bottom thereof seated upon said shoulder and comprising an expansible body portion having endless ribs separated from each other to provide surplus metal when expanding the body portion so that said body portion will readily adjust itself to any irregularities or unevenness in the wall of the throat of the bottle above the shoulder.

6. A metallic closure for bottles consisting of a substantially cup-shaped member comprising an expansible body portion having endless ribs separated from each other to provide surplus metal when expanding the body portion so that said body portion will readily adjust itself to any irregularities or unevenness in the wall of the throat of the bottle, said member further comprising a laterally-extending flange at the upper end thereof adapted to seat upon the edge of the bottle neck when the closure is positioned in the throat of the bottle.

7. The combination with a bottle neck having the wall of the throat thereof provided with a shoulder terminating in a conoidal-shaped portion, of a metallic cup-shaped member mounted on the shoulder in the wall of the throat and comprising an expansible body portion having circumferentially-extending ribs, said ribs forming surplus metal so that when the body portion of the closure is expanded the metal will readily adjust itself to any irregularities or unevenness in and snugly fit the conoidal-shaped part of the wall of the throat of the bottle, said member further comprising a laterally-extending flange adapted to be seated upon the edge of the neck of the bottle.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN DICKENS.

Witnesses:

GEO. WOLFF,  
EDWIN L. DECKER.