

July 31, 1945.

F. V. SEVERIN
CONTAINER CLOSURE
Filed Jan. 7, 1941

2,380,797

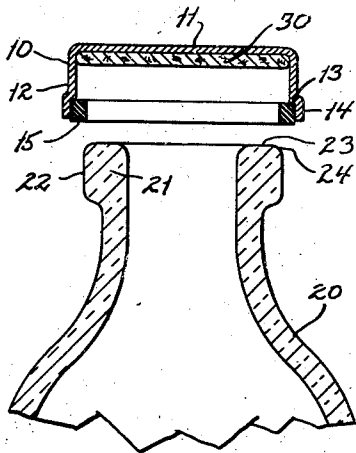


Fig. 1

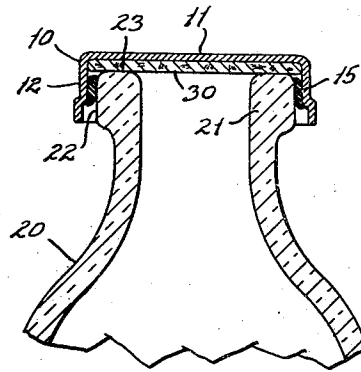


Fig. 2

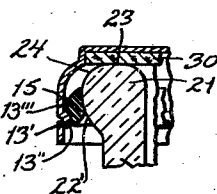


Fig. 3

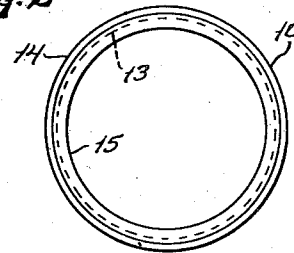


Fig. 4

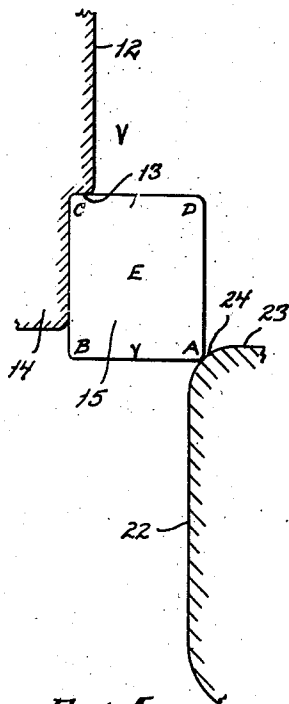


Fig. 5

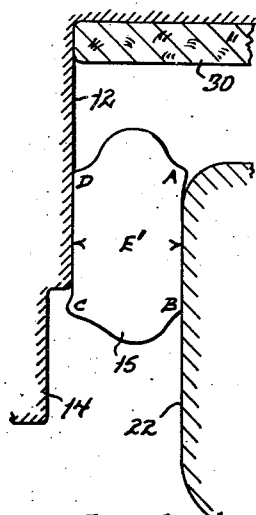


Fig. 6

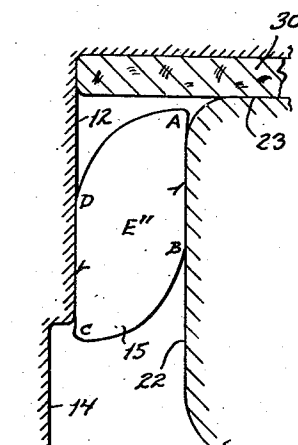


Fig. 7

INVENTOR.
FRED V. SEVERIN
BY
Bates, Teare, & McBean
ATTORNEYS

UNITED STATES PATENT OFFICE

2,380,797

CONTAINER CLOSURE

Fred V. Severin, East Cleveland, Ohio

Application January 7, 1941, Serial No. 373,445

1 Claim. (Cl. 215—38)

This invention relates to an improved closure for sealing jars, bottles or the like. This therefore is the general object of the present invention. Another object of the present invention is to provide a jar or bottle closure which will be simple in construction, economical to manufacture, and efficient in operation.

A more specific object of the present invention is to provide a closure for jars, bottles and the like, which closure may be readily applied, requiring only a single downward motion and no subsequent deformation such as spinning or crimping.

Another object is to provide a closure for bottles, jars and the like which, when in position on a jar, bottle or the like is constantly urged into sealing engagement with the mouth of the jar or other container by the sealing member.

Other objects of the present invention will become more apparent from the following description reference being had to a preferred embodiment of the invention illustrated in the accompanying drawing. The novel features of the invention will be summarized in the claim.

In the drawing, Fig. 1 is a fragmentary vertical section of a bottle and closure therefor prior to the application of the closure; Fig. 2 is a view similar to Fig. 1 showing the closure in position on the bottle; Fig. 3 is a fragmentary view of a modified form of the cap and also of the bottle; Fig. 4 is a bottom plan view of the cap; and Figs. 5, 6 and 7 are diagrammatic illustrations of three progressive stages in the application of the closure to the bottle.

As shown in the drawing, my improved closure comprises the cap 10 which may conveniently be formed as a sheet metal cup having a disc-like top 11 provided with a depending annular skirt 12. Near the lower edge of the skirt an inwardly extending downwardly facing shoulder 13 or 13' is formed, as by laterally offsetting the lowermost portion 14 of the skirt or, as shown in Fig. 3, by an inwardly protruding annular bead 13'. This shoulder provides a stop or inward limit for an inserted sealing band 15, of a resilient composition material, such as rubber. The band 15 is of such diameter that when it is inserted in the lower portion of the skirt it will be under sufficient compression to remain in position under normal conditions.

The sealing band 15, as illustrated in Figs. 1 and 5, is preferably rectangular in cross-section and I have found that highly efficient results are obtained when the vertical or axial dimension of

the band is as great or greater than the horizontal dimension of the cross-section.

A more or less conventional bottle or jar is illustrated at 20 as being provided with a neck having the usual enlarged lip portion 21. The outer surface 22 of this lip may be generally vertical as illustrated in Fig. 1 or rounded as in Fig. 3 to form a downwardly facing inclined portion 22', and if desired, may be slightly roughened or circumferentially ridged. This surface 22 may join the end surface 23, surrounding the mouth of the bottle, by a smooth curve 24 as is desirable in glass containers, for example.

As most clearly seen in Fig. 5, the outer diameter of the lip 21 of the container is slightly greater than the inner diameter of the sealing band 15, whereby the band cannot slip over it, but must be deformed as the cap is brought down onto the bottle. The inner lowermost edge A of the band contacts the end of the bottle, as at the region 24, and its further downward motion is arrested. The shoulder 13 or 13', however, by its engagement with the edge C, drives the body of the band downwardly until the originally lower face A—B is turned inwardly against the lip portion of the bottle and the originally upper face C—D is turned outwardly against the skirt 12 of the cap. The position of the parts is at this time as shown in Fig. 6, where it will be seen that the band has been turned through an angle of approximately 90 degrees and is under high compression in a state of instability. The dimension E of the unstressed band of Fig. 5 has been greatly reduced to E' in Fig. 6 and can expand toward its normal value by subsequent upward or downward movement of the cap. In capping the bottle the movement, of course, is continually downward and upon reaching and passing the point of instability the band expands forcibly to snap the cap to the limit of its movement. In the form shown in Fig. 3, the bead 13' presents an inwardly extending upwardly facing shoulder 13'' for the band to act upon to greater advantage. In the embodiments illustrated I prefer to employ the usual disc 30 of cork or the like and the limit of movement referred to is the jamming of this disc against the surface 23 of the bottle, as seen in Fig. 7.

Not only does the sealing band resist removal of the cap but it also continually urges the cap into tight sealing engagement with the lip of the bottle. This is due to the fact that the band is still in a greatly stressed condition with the dimension E'' unable to regain the normal value E. The disc 30 adapts itself to any irregularities in the

surface 23 and serves to prevent contact of the liquid in the bottle with the band 15.

Removal of the cap, when desired, may be easily effected by the fingers without requiring any mechanical device, or by the application of the usual hooked type of bottle opener which may conveniently engage the lower edge of the skirt portion 14. By thus rocking the cap about an opposite point of the bottle lip it may be pried off relatively easily although the holding means effectively resists a straight pulling force in an axial direction or dislodgement due to expansion of the contents.

I claim:

In combination, a container, a closure therefor comprising a cap having a top and an annular wall, said wall having an inwardly extending downwardly facing shoulder and an inwardly extending upwardly facing shoulder thereabove, a resilient band of rectangular cross section within the cap and seated against the downwardly facing shoulder, said band being made of a composi-

tion material to frictionally engage the surface of the container and the cap without slipping therealong, the axial dimension of said cross section of the band being greater than its radial dimension, the container having an annular lip portion the external diameter of which is greater than the normal internal diameter of the resilient band, but smaller than the internal diameter of the annular wall of the cap, said lip having a downwardly facing portion, a gasket within the cap bearing against the top thereof and adapted to abut the top of the container in the closed position of the cap, whereby upon application of the cap to the container, the band will be turned by the downwardly facing shoulder through approximately a right angle and will then expand obliquely downwardly between the upwardly facing shoulder of the closure and the downwardly facing portion of the container lip to hold the cap on the container with said gasket in sealing engagement with the top of the container lip.

FRED V. SEVERIN.