

Feb. 11, 1947.

H. SEBELL

2,415,609

CONTAINER

Filed Dec. 15, 1944

2 Sheets-Sheet 1

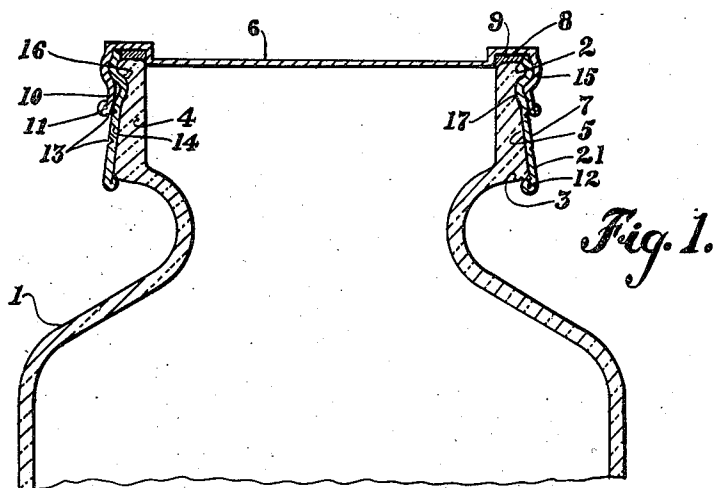


Fig. 1.

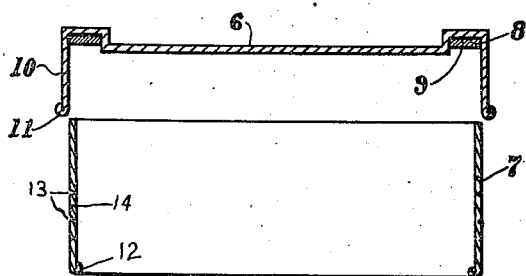


Fig. 2.

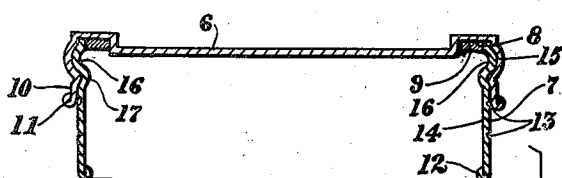


Fig. 3.

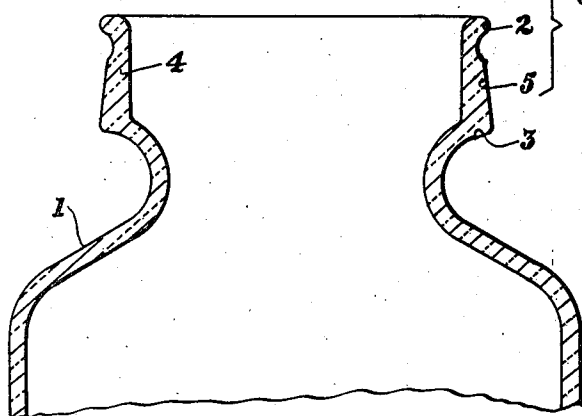


Fig. 4.

INVENTOR.
Harry Sebell
BY
Heard Smith Stenmark
ATTORNEYS

Feb. 11, 1947.

H. SEBELL

2,415,609

CONTAINER

Filed Dec. 15, 1944

2 Sheets-Sheet 2

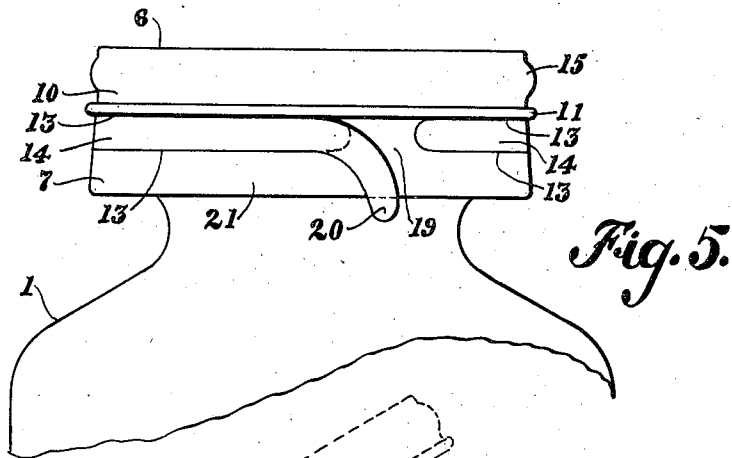


Fig. 5.

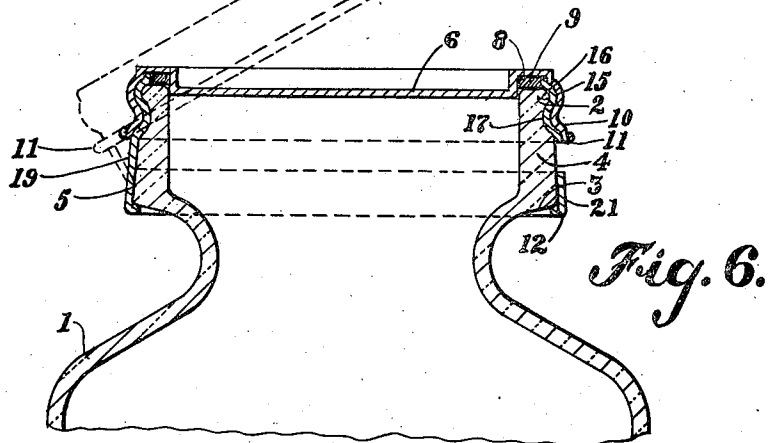


Fig. 6.

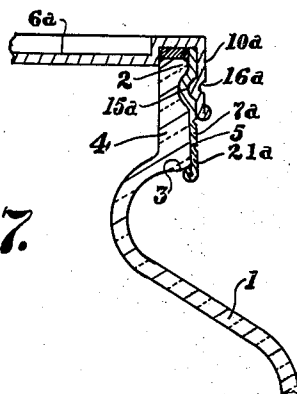


Fig. 7.

INVENTOR.
Harry Sebell
BY
Heard Smith & Sternbach
ATTORNEYS

UNITED STATES PATENT OFFICE

2,415,609

CONTAINER

Harry Sebell, Marblehead, Mass., assignor to Bell Products Corporation, Boston, Mass., a corporation of Massachusetts

Application December 15, 1944, Serial No. 568,278

2 Claims. (Cl. 215—38)

1

This invention relates to containers and particularly to containers having a container body of glass and a metal sealing closure by which the container is closed and sealed and which is provided with a tear strip that can be torn out when the container is to be opened, the construction being such that after the container has been opened, the closure can be used as a cover for the container.

One object of the invention is to provide a novel closure which can be readily applied to the container body for sealing the container under vacuum conditions when the container is to be vacuum packed.

Another object of the invention is to provide a novel closure which is so constructed that when the filled container is in the vacuum chamber, the final sealing of the container under vacuum conditions can be accomplished simply by forcing the closure member firmly against the open top of the container body.

Further objects of the invention are to provide various novel features relating to containers of this type which will be more fully hereinafter set forth and then pointed out in the appended claims.

In the drawings:

Fig. 1 is a sectional view showing a sealed container embodying my invention.

Fig. 2 is a sectional view of the cap portion of the closure.

Fig. 3 is a sectional view of the band portion of the container.

Fig. 4 is a view illustrating the cap portion and band portion of the closure assembled ready to be applied to the container for sealing the latter.

Fig. 5 is a side view of the sealed container.

Fig. 6 is a sectional view similar to Fig. 1 but showing the tear strip removed and the container opened.

Fig. 7 is a sectional view similar to Fig. 1 but showing a modified form of the invention.

In the drawings the container body is indicated at 1, and it may have any suitable or usual shape except that it is provided at its upper open end with an exterior bead 2 and also with a downwardly facing exterior shoulder 3 below the bead. The container herein shown is one having a neck portion 4, the bead 2 and downwardly facing shoulder 3 being formed on the neck portion. The exterior surface 5 of the neck between the bead 2 and the shoulder 3 tapers outwardly slightly from the bead to the shoulder so that the exterior diameter of the neck at the shoulder

2

3 is slightly larger than it is immediately below the bead 2.

The sealing closure for the container comprises a cap member 6 and a band member 7, both of these preferably being made of sheet metal. The cap 6 is shown as formed with an annular groove 8 adapted to fit over the top edge of the neck 4 and adapted to receive a gasket or sealing compound 9 which engages the top edge of the neck to make a tight joint.

The cap member 6 is also provided with a depending skirt portion 10, the lower edge of which is preferably rolled into a bead 11 for the purpose of eliminating a raw edge. The band member 7 is initially made in cylindrical form and of a size to fit snugly with the skirt 10 of the cap member 6. The lower end of the band member is formed with an interior bead 12, this being provided for by rolling the edge of the band member over as indicated in the drawings. Said member is also provided with two spaced score-lines 13 which form between them a tear strip 14 that can be torn out when the container is to be opened as will be presently described.

The cap member 6 and the band member 7 of the closure are assembled and united together before they are applied to the container body. These two elements are connected by inserting the upper end of the band member 7 into the skirt 10 of the cap member and then beading two members together near the upper edge of the band member. One way in which this can be accomplished is to operate on the assembled cap member and band member with a beading machine which will roll a bead 15 into the skirt 10 and upper end of the band member. As shown in Figs. 1 and 4 this bead 15 is an outwardly bulging bead which provides an annular groove 16 on the interior of the band. In forming the outwardly bulging bead 15 the band member 7 and skirt 6 are deformed so as to provide an interior annular rib 17 on the inside of the band directly below the groove 16.

Where the band element and cap member are beaded together in this way the bead will be so formed that when the closure member is applied to the body member, the groove 16 will register with the exterior bead 2 on the container body, and the interior rib or bead 17 will lie directly underneath said exterior bead 2. The band is also of such dimension that when the closure is applied to the container body, the interior bead 12 at the bottom of the band member will fit snugly underneath the downwardly facing shoulder 3.

3

In making the closure member, the band 7 will be so formed initially that its interior diameter at its lower end is slightly less than the exterior diameter of the neck 4 directly above the shoulder 3, and its interior diameter at the rib 17 is slightly less than the exterior diameter of the neck 4 at its exterior bead 2.

In sealing the container the band member 7 and the cap member 6 are assembled and beaded together as shown in Fig. 4, and the cap member will be supplied with a ring of sealing compound 9 in the bottom of the groove 8. The assembled band member and cap member are then forced downwardly over the neck of the container body until said closure member is firmly seated against the top edge of the container. In thus applying the closure member to the container body, the bead 12 at the lower edge of the band member will be forced over the larger lower end of the neck, and the interior bead 17 will also be forced over the exterior bead 2 of the container body.

Since the exterior diameter of the neck 4 directly above the shoulder 3 is slightly greater than the interior diameter of the band 7 as it is initially made, the operation of forcing the closure on to the container to seal the latter will expand the lower end portion 21 of the band slightly thereby producing a tight friction fit between the band and the exterior surface 5 of the neck 4. The amount of expansion which the lower end of the band experiences during this operation, however, is within the elastic limit of the material so that when the closure is firmly seated as shown in Fig. 1, the resiliency of the band will cause the bead 12 to snap in under the shoulder 3. There will, however, still exist a tight friction fit between the lower end of the band and the exterior surface of the neck even after the bead 12 has snapped in under the shoulder 3.

The exterior surface 5 of a container body made of glass will not always be a true or perfect surface of revolution but instead there may be some irregularities in the glass surface which would depart in a small degree from a true surface of revolution. The operation of forcing the band over the neck of the container, during which operation the lower end portion 21 of the band is expanded slightly, will cause such lower end of the band not only to have a tight frictional fit with the surface 5 of the neck but will also cause said portion of the band to conform to any irregularities in such surface.

Inasmuch as the interior diameter of the band at the interior bead 17 is slightly less than the exterior diameter of the container at the bead 2, the operation of forcing the closure member on to the container will cause the band to expand slightly at the bead 17, but since the amount of such expansion is well within the elastic limit of the material of which the band is made, said bead 17 will snap in under the bead 2 when the closure is fully seated as above described.

The closure is thus locked or secured to the container partly by the engagement of the bead 17 with the underside of the bead 2, partly by the engagement of the bead 12 underneath the shoulder 3 and partly by the tight friction fit between the lower end 21 of the band and the exterior surface 5 of the container.

If the container is to be vacuum packed, then after it has been filled, the closure may be loosely placed on top of the container neck and the filled container with its closure may be placed in the vacuum chamber. After the vacuum has

4

been applied for the appropriate length of time, the sealing of the container in the vacuum chamber can be accomplished simply by forcing the closure downwardly over the neck of the container until the sealing compound 9 in the groove 8 is firmly seated against the top edge of the container and the beads 17 and 12 have snapped under the exterior bead 2 and shoulder 3. This is an operation which can be readily performed in a vacuum chamber because it involves simply applying a downward force on the closure member.

Instead of beading the cap member 6 and band member 7 together by means of an outwardly bulging head, this operation may be performed by an inwardly bulging head as shown in Fig. 7, wherein 6a indicates the cap member and 7a indicates the band member. In said Fig. 7 the beading together of the upper end of the band member 7a and the skirt 10a of the cap member is accomplished by forming therein the inwardly bulging bead 15a which will leave a groove 16a on the exterior of the skirt. In this embodiment of the invention the bead is so formed that when the closure member is applied to the container, the inner bulging portion 15a of the bead will snap over and underlie the exterior bead 2 of the container body.

In this embodiment of the invention also the lower end portion 21a of the band 7a is stretched slightly as the closure is applied to the container, and during this operation, said portion of the band not only conforms to any irregularity in the exterior surface 5 of the container but also acquires a tight friction fit with said surface.

As stated above the band member 7 is provided with spaced scorelines 13 forming between them a tear strip 14 which can be torn out when the container is to be opened. These scorelines extend circumferentially around the band, and the upper scoreline is located directly below the lower edge of the skirt 10, while the lower scoreline is located a short distance above the lower edge of the band element. These scorelines may extend clear around the band, or they may extend nearly but not quite around the band, thereby leaving an unscored portion 19 which may constitute a hinge element by which the cover remains hinged to the container after the tear strip 14 has been removed.

The tear strip 14 will be provided at one end with the usual tab 20 that can be engaged by a key such as is usually used for opening the containers having a tear strip.

When the tear strip has been torn out of the band element 7, as shown in Fig. 6, the portion of the closure above the tear strip can be lifted off from the top of the neck, thereby to gain access to the interior of the container. The tight friction fit between the lower portion 21 of the band below the lower scoreline and the exterior surface 5 serves to hold such lower portion of the band securely attached to the neck of the container after the tear strip has been removed.

If the scoreline extends nearly but not entirely around the band as shown in Figs. 5 and 6 then after the tear strip 14 has been removed, the cover will remain attached to the container through the unscored portion 19 of the band 7 and the lower portion 21 thereof, which lower portion remains firmly attached to the container neck. With this construction when the cover is lifted from the top of the container, it will swing about the hinge portion 19 as shown in dotted lines, Fig. 6. The cover may subsequently be

5

swung back into a closed position as shown in full lines Fig. 6, and when this is done, the interior bead 17 or 15a will again snap over the bead 2 of the container, thereby locking or holding the cover in its closed relation.

I claim:

1. A container comprising a container body having an open top and provided with an exterior bead at its top edge and also provided with an exterior downwardly facing shoulder below said bead, the exterior diameter of the container body immediately above the downwardly facing shoulder being slightly greater than at said exterior bead, and a closure for said open top which comprises both a cap member and a band member, the latter encircling the upper portion of the container body and having its upper edge adjacent the top edge of the container body, said cap member having a depending skirt and the upper end of the band member being inserted into said skirt and being beaded thereto in a manner to form an interior bead on the band member which underlies the exterior bead at the top of the container body, said band member also being provided with an interior bead at its lower edge which underlies said downwardly facing shoulder, the lower portion of the band member being held in a slightly stretched condition by the larger diameter of the container immediately above said downwardly facing shoulder whereby the interior bead at the lower edge of the band member is held in firm engagement with said downwardly facing shoulder, said band member having two spaced score lines forming between them a tear strip which can be torn out for opening the container.

2. A container comprising a container body having an open top and provided with an exterior bead at its top edge and also provided with an exterior downwardly facing shoulder below the bead, the exterior surface of said body tapering

6

outwardly slightly from the exterior bead to said shoulder, and a closure for said open top which comprises a cap member and a band member, the latter encircling the upper portion of the container body, said cap member having a depending skirt and the upper end of the band member being inserted into said skirt and being beaded thereto in a manner to form an interior bead on the band member which underlies the exterior bead at the top of the container body, said band member having at its lower edge an interior bead which underlies said downwardly facing shoulder and also having two spaced score lines between the said two interior beads forming between them a tear strip which can be torn out for opening the container, the portion of the band below the score lines being in a slightly stretched condition due to the increased exterior diameter of the container body resulting from the tapered shape whereby said lower portion of the band is held to the container body by a tight friction fit.

HARRY SEBELL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
681,132	Norton	Aug. 20, 1901
642,739	Daugherty	Feb. 6, 1900
1,481,034	Stattmann	Jan. 15, 1924
2,041,912	Fabrice	May 26, 1936
1,335,007	Milligan	Mar. 30, 1920
1,879,873	Hopkins	Sept. 27, 1932
1,952,487	Biffi	Mar. 27, 1934
1,058,640	Stenius	Apr. 8, 1913
521,033	Marzynski	June 5, 1894
1,857,665	Sebell	May 10, 1932
2,321,946	Sebell	June 15, 1943