

Aug. 27, 1946.

H. SEBELL

2,406,568

CONTAINER

Filed March 5, 1945

2 Sheets-Sheet 1

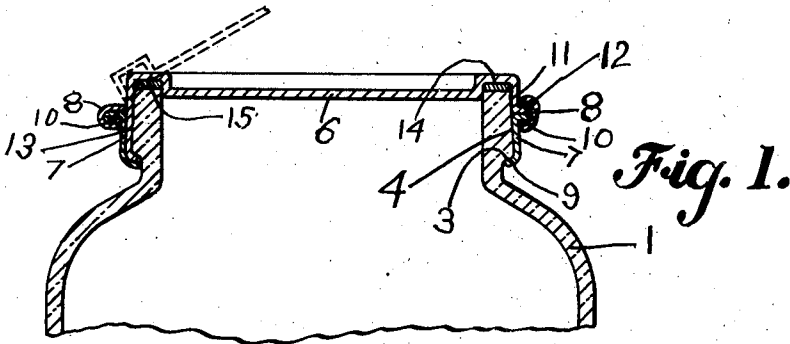


Fig. 2.

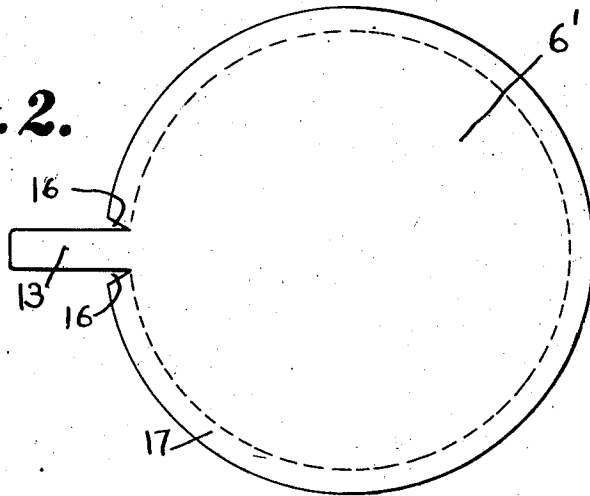
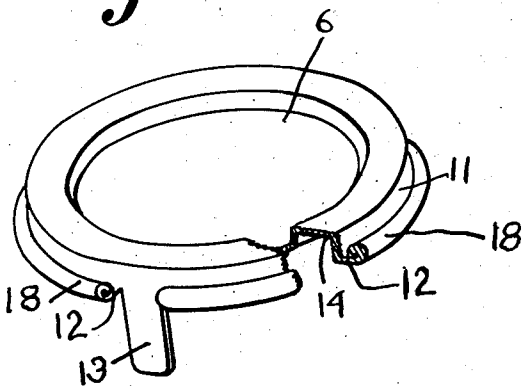


Fig. 3.



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2 Sheets-Sheet 2

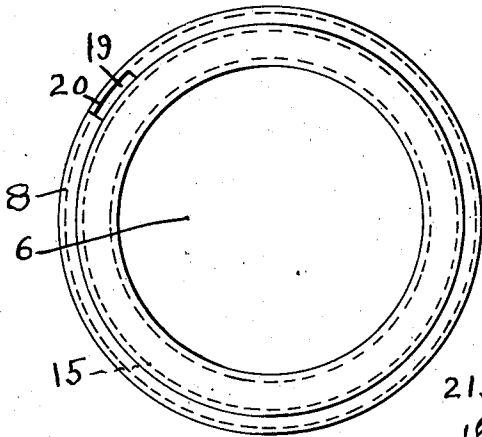


Fig. 4.

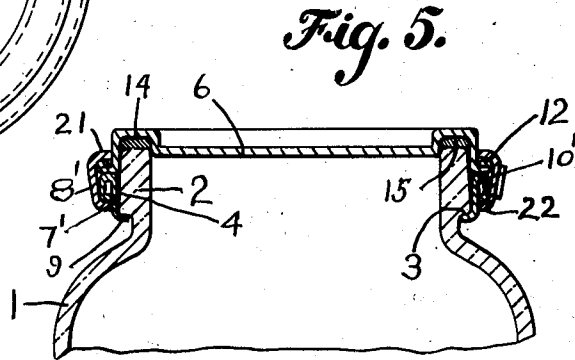


Fig. 5.

Fig. 6.

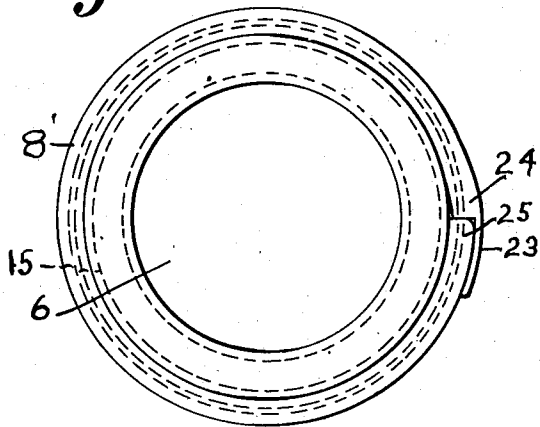


Fig. 7.

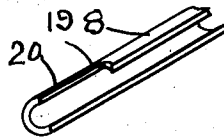
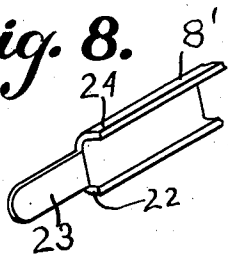


Fig. 8.



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UNITED STATES PATENT OFFICE

2,406,568

CONTAINER

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Application March 5, 1945, Serial No. 581,086

5 Claims. (Cl. 215—63)

1

This invention relates to containers and particularly to containers of that type having a body of glass or similar vitreous material and a metal sealing closure by which the container is closed and sealed, which closure is so constructed that when the container is opened, the cover element will remain hinged to the container so that it can be repeatedly opened and closed again.

One of the objects of my present invention is to provide a container of this general type in which the metal closure member comprises a band element which encircles the upper end of the container and is provided at its upper edge with an outwardly extending sealing flange and also comprises a cap element formed with a skirt which encircles the upper end of the container above the sealing flange of the band member and which is provided at its lower edge with an outwardly extending sealing flange which mates that of the band member, said sealing flange being clamped together by means of a U-shaped sealing strip which embraces both flanges.

A further object of the invention is to provide a sealing closure of this type which is so constructed that when the sealing strip is removed for opening the container, the cover element will remain hinged to the container so that it can be repeatedly swung from closed to open position and back again.

Other objects of the invention are to provide an improved sealing means for glass containers which will be more fully hereinafter set forth and pointed out in the appended claims.

In the drawings wherein I have illustrated some selected embodiments of my invention,

Fig. 1 is a vertical sectional view through a container embodying the invention.

Fig. 2 is a plan view showing the blank from which the cap element is formed.

Fig. 3 is a perspective view of the cap element after it has been formed and is ready for assembling with the band element, a part of the cap being broken out to better illustrate the construction.

Fig. 4 is a top plan view of the sealed container.

Fig. 5 is a sectional view similar to Fig. 1 but showing a different embodiment of the invention.

Fig. 6 is a top plan view of Fig. 5.

Fig. 7 is a fragmentary perspective view of one end of the U-shaped sealing strip shown in Figs. 1 to 4.

Fig. 8 is a fragmentary perspective view of one end of the sealing strip shown in Figs. 5 and 6.

In the drawings 1 indicates a container which may be made of glass or some other vitreous ma-

2

terial and which is shown as provided with the neck portion 2, and with an exterior downwardly facing shoulder 3. The outer surface 4 of the neck 2 between the top edge and the shoulder 3 is slightly tapering, said surface being slightly smaller at the top edge than at the shoulder.

The metal sealing closure for the container comprises a cap element 6, a band element 7, and a sealing strip, shown at 8 in Figs. 1 to 4.

The band element 7 encircles the portion of the neck 2 immediately above the shoulder 3, said band tightly fitting such exterior surface. The lower edge 9 of the band element is bent inwardly under the shoulder 3, and the upper edge of the band element is bent to present an outwardly directed sealing flange 10, which extends clear around the band.

The vertical dimension of the band 7 is such that the sealing flange 10 is located below the top edge of the container.

The cap element 6, which is made of sheet metal, is formed at its periphery with a skirt portion 11 which encircles the exterior surface of the neck 2 above the sealing flange 10 of the band 7, the lower edge of the skirt 11 being bent outwardly to form a second sealing flange 12 which mates that of the band 7. The cap element 6 has integral therewith a hinge-forming tab 13 which is anchored to the band 7. In the construction shown this is accomplished by reason of the fact that the tab is clamped between the band and the exterior surface 4 of the neck 2 as best shown in Fig. 1.

The cap element 6 is also preferably formed on its underside with an annular groove 14 which registers with the top edge of the container and is adapted to receive a packing gasket or sealing compound 15 for the purpose of making a tight joint.

The U-shaped sealing strip 8 tightly embraces the two sealing flanges 10 and 12 and serves to hold the cap element tightly sealed.

The cap element 6 may be made from a blank such as shown at 6' in Fig. 2, this blank comprising a circular piece of sheet metal having the tab 13 extending therefrom. The blank is formed with two notches 16 either side of the root of the tab 13. This blank is then deformed to present the cap element 6 such as shown in Figs. 1 and 3, said cap element having the annular groove 14 on its underside and the annular skirt portion 11 and also presenting the outwardly directed sealing flange 12 at the bottom of the skirt. When the cap member has been pressed into shape the tab 13 will extend downwardly as shown

3

in Fig. 3. The edge portion 17 of the blank is preferably rolled into a bead 18 at the outer edge of the sealing flange 12. This bead and the sealing flange will extend from one side of the tab 13 around the cap member to the other side thereof, as best seen in Fig. 3.

In the operation of sealing a container with a closure embodying my invention, the cap element 6 and the band element 7 will first be assembled with their sealing flanges in abutting relation and then the sealing strip will be applied to the mating flanges and firmly clamped thereon by applying pressure to the top and bottom sides of said strip, thereby forming a closure unit comprising the cap element, the band element and the sealing strip. If desired, the tab 13 may be spot-welded or soldered to the band. Such closure unit will be formed completely before it is applied to the container, and during the operation of assembling the band element and the cap element, the lower edge 9 of the band element will be in line with the walls thereof.

The sealing compound 15 may be deposited in the groove 14 either before the cap element and the band element are united to form the closure unit or after such unit is formed.

After the closure unit has thus been completed, then it will be applied to the container by forcing the band portion 7 thereof and the skirt portion 11 down over the neck 2 of the container, thereby to seat the sealing compound 15 firmly against the top edge of the container. The band member 7 will preferably be initially made with a diameter to fit the exterior diameter of the neck 2 at its top edge, and as the closure unit is forced downwardly into its sealing position, the lower portion of the band element will be expanded slightly by the increasing diameter of the neck at its lower end, thereby the band will be firmly clamped to the neck.

After the closure unit has thus been assembled with and applied to the container, then the lower edge 9 of the band member will be crimped in under the shoulder 3 as shown in Fig. 1.

When the container is to be opened, the sealing strip 8 is removed, and as soon as this has been done, the cap element may be lifted from the top of the container and swung into an open position as indicated by dotted lines, Fig. 1. The band member will still remain firmly clamped to the neck 2 of the container after the sealing strip 8 has been removed, thereby forming a firm anchorage for the tab-forming hinge 13. The tapering shape of the neck will prevent the band element 7 from slipping downwardly after the strip has been removed and the inturned lower edge 9 of the band prevents it from moving upwardly, and therefore, the tab 13 will remain firmly anchored to the container after the sealing strip has been removed.

When the container has been initially opened, the cap element 6 may be swung back into its closed position with the skirt 11 fitting around the upper end of the neck 2, thereby providing a tight closure for the container.

In order to facilitate the removal of the strip, I have shown in Figs. 4 and 7 a construction in which the upper edge of the strip is cut away at 19 at one end, thereby making it possible to insert the end of a screw driver or some other implement behind the edge 19 for the purpose of prying the end 20 of the strip loose. As soon as said end has been loosened, then the strip can be readily removed.

The sealing flange 12 on the cap element is

4

preferably made of a somewhat larger diameter than the sealing flange 10 on the band, so that the peripheral edge of the sealing flange 12 projects outwardly beyond the peripheral edge of the sealing flange 10. The advantage of this construction is that after the sealing strip has been removed the projecting edge of the sealing flange 12 can be readily grasped to apply the necessary lifting force on the cap element to loosen it from the container and swing it into its open position.

In Figs. 5, 6, and 8 there is shown a slightly different embodiment of the invention in which the sealing strip has a tab at one end which overlies the opposite end of the strip and is soldered or welded thereto.

In this embodiment, the cap element 6 has the same construction as that shown in Figs. 1 to 3 but the band element 7' is made with a sealing flange that has a much greater vertical dimension or thickness than the sealing flange 10 of Fig. 1. In Fig. 5 for instance the upper end of the band 7 is bent outwardly and then downwardly to make a sealing rib 10' and the sealing strip 8' is considerably wider than the sealing strip 8 used in Fig. 1. This sealing strip 8' has its upper edge 21 embracing the sealing flange 12 of the cap element, and its lower edge 22 fits under and embraces the sealing rib 10' on the band 7. The wide sealing strip 8' is formed at one end 24 with a tab 23 which overlies the other end 25 of the sealing strip as shown best in Fig. 6. The tab 23 may be soldered or welded to the end 25 of said strip, thereby holding the sealing strip in its operative position.

In order to open a container having this construction the end or extremity of the tab 23 may be bent backwardly and engaged by a key such as is commonly used for opening tear strip containers. As the tab is wound on the key, it will be broken loose from the end 25 of the sealing strip, and as soon as this is done, said strip can be readily removed from the sealing flanges. This operation of breaking the tab 23 loose from the end 25 of the sealing strip will require only about one turn of the key, as distinguished from the multiplicity of turns of the key required to remove the tear strip of a tear-strip container.

In the construction shown in Fig. 1, the upper edge of the sealing strip 8 may be bent around or behind the bead 18 on the sealing flange 12, thereby locking the sealing strip to the flange and retaining it firmly in position.

I claim:

1. A container comprising a container body having an open top, thereby forming a top edge to said body, said body being provided with an exterior downwardly facing shoulder below said top edge, and a closure for said open top comprising a cap member and a band member, said band member encircling the upper portion of the body and having its lower edge bent inwardly underneath said shoulder and also having at its upper edge an outwardly directed sealing flange which is located below said top edge of the container body, said cap member being formed with a peripheral skirt portion which encloses the upper portion of the container body above the sealing flange of the band member and having extending therefrom a hinge-forming tab which overlies the exterior of the container body and is clamped between said body and said band member, said skirt of the cap member being provided at its lower edge with an outwardly directed sealing flange that mates the sealing flange of

5

the band member, and a U-shaped sealing strip embracing the two sealing flanges and holding them tightly clamped together.

2. A container comprising a container body having an open top, thereby forming a top edge to the container body, said body being provided with an exterior downwardly facing shoulder below said top edge, and a closure for the open top comprising a cap member and a band member, said band member encircling the upper portion of the body and having its lower end bent inwardly underneath said shoulder and also having at its upper edge an outwardly directed sealing flange which is located below the top edge of the container body, said cap member being formed with a peripheral skirt portion which encloses the upper portion of the container body above the sealing flange of the band member and having extending therefrom a hinge-forming tab which is anchored to said band member, said skirt portion of the cap member being provided at its lower edge with an outwardly directed seal-

6

ing flange that mates the sealing flange of the band member, and a U-shaped sealing strip embracing the two sealing flanges and holding them tightly clamped together.

3. A container as in claim 2, in which the sealing flange of the cap member has a larger diameter than that of the band member, whereby in lifting the cap member from closed position the projecting peripheral edge of the sealing flange thereon may be readily grasped.

4. A container as in claim 2, in which one end of the U-shaped sealing strip has a projecting tab which overlies the other end of said strip and is united thereto.

5. A container as in claim 2, in which the U-shaped sealing strip at one end thereof is cut away on its upper side to provide a shoulder adapted to be engaged by an implement for disengaging said end of the sealing strip from the sealing flanges when the container is to be opened.

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