July 12, 1927. 1,635,511

O. N. TEVANDER

BOTTLE CLOSURE AND METHOD OF PRODUCING THE SAME

Filed May 20, 1926

Fig. 1.

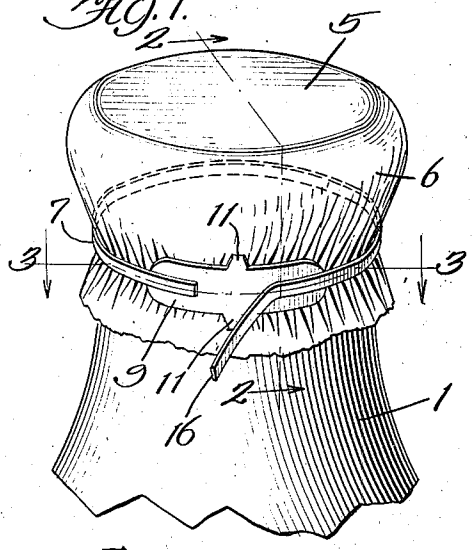


Fig. 2.

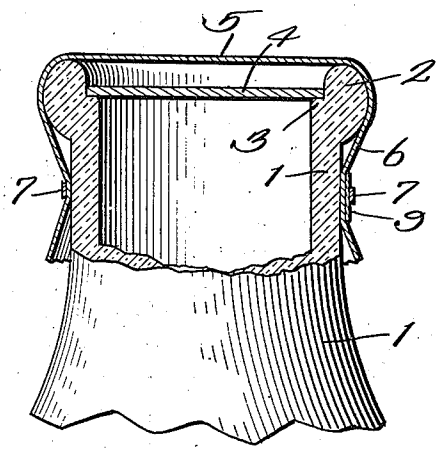


Fig. 3.

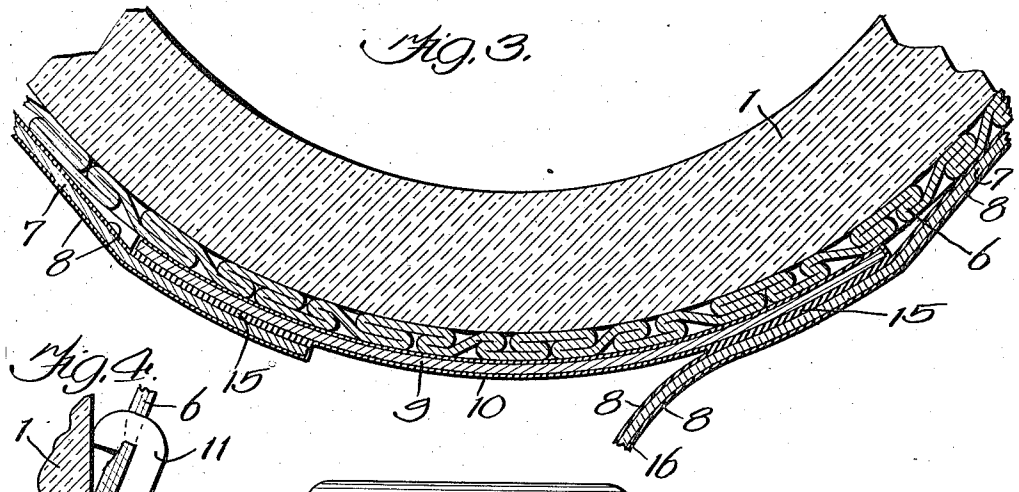


Fig. 4.

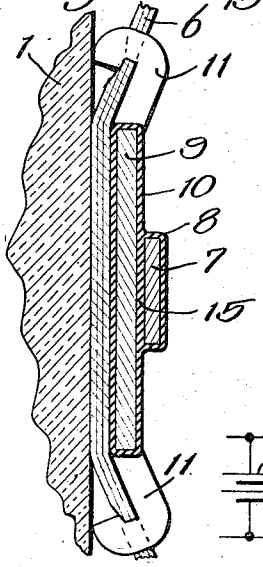
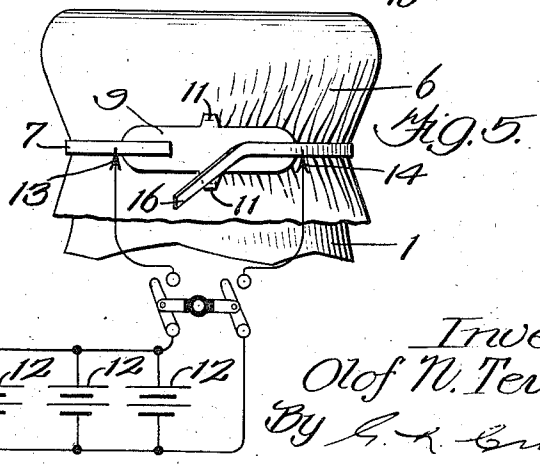


Fig. 5.



Inventor:
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By G. K. Gragg Atty.

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UNITED STATES PATENT OFFICE.

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BOTTLE CLOSURE AND METHOD OF PRODUCING THE SAME.

Application filed May 20, 1926. Serial No. 110,448.

My invention relates to bottle closures and to a method of producing the same.

In practicing the method of my invention I place a skirted cap over the mouth of the bottle and about the bottle neck and I also place a ring into tight engagement with the cap skirt by relatively moving adjacent portions of the ring oppositely and circumferentially.

In accordance with one feature of the method of my invention I assemble these adjacent ring portions with a bond which is preferably secured to the cap whereby these ring portions are placed in suitable relation to each other and the ring as a whole is held in its relation to the cap.

In accordance with another characteristic of the method of my invention I employ a split ring, that is, a ring having free ends which are assembled with each other, in ring contracting relation, and with the cap skirt by means of cement carried by the cap skirt and which cement is preferably a tinned coating provided upon a metal plate which, itself, is secured to the cap skirt and thereby assembles the cement with the cap skirt. This metal plate constitutes a bond, supplied in addition to the cap skirt, between the ends of the split ring and thereby completes the ring about the cap skirt. The invention, however, is not to be limited to this method of providing the cement upon the cap skirt.

In the preferred embodiment of the invention the ends of the ring are spaced apart and one of these ends has a free extension which may be readily grasped in order that this portion of the ring end may be readily torn from the bond when the cap is to be removed. The cement is of such a nature that it may be fluxed by a suitable fluxing agency. The cement that is preferred will flux in response to heat. I desirably bring the cement to a temperature which will cause it to flux and yet which is insufficient to materially burn the cap which is usually made of paper.

The structure of my invention is inclusive of a bottle whose neck is externally enlarged at the mouth of the bottle, a skirted cap placed over the mouth of the bottle and about the bottle neck, a ring tightly contracted about the skirt of the cap and bottle neck and having portions drawn and extending oppositely and circumferentially of the ring to contract the ring, and a bond preferably secured to the cap skirt and secured to said ring portions and holding these ring portions in ring contracting relation.

The method and a preferred construction of my invention are illustrated in the accompanying drawing in which Fig. 1 is a perspective view of a bottle with a cap thereon; Fig. 2 is a sectional view on line 2—2 of Fig. 1; Fig. 3 is a sectional view on line 3—3 of Fig. 1 illustrating a part of the bottle; Fig. 4 is a view, on a larger scale, of a part of the structure shown in Fig. 2; and Fig. 5 is a diagrammatic illustration of the preferred way of practicing the method of my invention.

The bottle 1, illustrated, is one which is commonly employed for containing milk or cream. It has an external enlargement or surrounding bead 2 at the mouth of the bottle. It is customary to provide an annular seat 3 at the mouth of the bottle for receiving a paper closure disc 4, this closure disc, however, forming no essential part of my invention. A cap 5, preferably paper, is placed over the mouth of the bottle and over the closure disc 4, this cap having a skirt 6 integral therewith which is encircled by a band which is inclusive of a split non-resilient metallic ring 7 coated with cement, preferably tin, as indicated at 8, and a metallic non-resilient bond 9 also coated with cement, preferably tin, as indicated at 10. The bond is desirably permanently secured to the cap as by means of prongs 11, one upon the top side of the bond and another upon the bottom side of the bond. The ends of the split ring 7 are drawn upon oppositely and circumferentially until the cap skirt has been sufficiently tightly engaged with the bottle neck whereafter the ends of the split ring 7 are cemented to the bond 9 by fluxing the tin coatings 8 and 10. This fluxing is accomplished by means of heat applied to the ends

of the split ring 7 and the bond 9. Sufficient heat may be applied to the tin upon the split ring and bond by means of current furnished from three pairs of dry battery cells 12 connected in multiple and furnishing a pressure of, say, five volts. The terminals 13 and 14 are desirably applied to the split ring 7 adjacent the ends of the bond 9 until the adjacent tin surfaces of the bond and ring ends are fluxed to cause these tin surfaces to merge as indicated at 15 in Figs. 3 and 4. The ends of the split ring are desirably spaced apart, being bridged by the bond. A portion of one of the ends of ring 7 is free of direct attachment to the bond as indicated at 16 whereby this end of the split ring may be readily torn from the bond when the cap is to be removed from the bottle.

The cap employed is preferably of paper and of the construction disclosed in Patent 1,117,147 dated November 10, 1914. The method of my invention is a material improvement upon the prior methods employed for contracting cap holding rings about the skirts of caps such as disclosed in Patent 947,502 dated January 25, 1910. It will also be observed that the structure of my invention is a material improvement upon that disclosed in the first aforesaid Patent 1,117,147 in many respects among which is the ease with which the ring of my present invention may be broken in order that the cap held thereby may be removed from the bottle it covers.

I do not wish to be limited to the method herein disclosed for producing the product. It is obvious that changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; securing a bond to the skirt of the cap; placing a ring into tight engagement with the cap by relatively moving adjacent ring portions oppositely and circumferentially; and assembling said ring portions with said bond while the ring is contracted to hold the ring contracted.

2. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; securing a bond to the skirt of the cap; placing a split ring about the cap skirt and bottle neck; contracting the ring into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; and securing the ends of the ring to said bond while the ring is contracted to hold the ring contracted.

3. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring about the cap skirt and bottle neck; contracting the ring, with the end portions of the ring spaced apart, into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; interposing a bond. that is inclusive of cementitious material, between the spaced apart ends of the ring; subjecting the cementitious material to a fluxing agency to cause it to flux; and permitting the cementitious material to harden while the ring is contracted to hold the ring contracted.

4. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring about the cap skirt and bottle neck; contracting the ring, with the end portions of the ring spaced apart, into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; placing a bond between the ends of the ring; placing cement between the bond and the ends of the ring that will flux in response to heat; applying sufficient heat to the cement to cause it to flux; and permitting the cement to harden while the ring is contracted to hold the ring contracted.

5. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring about the cap skirt and bottle neck; contracting the ring into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; placing a metallic bond between the ends of the ring; placing cement between the bond and the ends of the ring that will flux in response to heat; passing sufficient electric current through said bond to heat the bond to flux the cement; and permitting the cement to harden while the ring is contracted to hold the ring contracted.

6. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring about the cap skirt and bottle neck; contracting the ring into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; placing a bond between the ends of the ring; placing electric current conducting cement between the bond and the ends of the ring that will flux in response to heat; passing sufficient electric current through the cement to flux it; and permitting the cement to harden while the ring is contracted to hold the ring contracted.

7. A bottle whose neck is externally enlarged at the mouth of the bottle; in combination with a skirted cap placed over the mouth of the bottle and about the bottle

neck; a ring tightly contracted about the skirt of the cap and bottle neck and having portions drawn and extending oppositely and circumferentially of the ring to contract the ring, said ring being below the enlargement at the mouth of the bottle; and a bond secured to the cap skirt and to said ring portions and holding these ring portions in ring contracting relation.

8. A bottle whose neck is externally enlarged at the mouth of the bottle; in combination with a skirted cap placed over the mouth of the bottle and about the bottle neck; a ring tightly contracted about the skirt of the cap and bottle neck and having portions drawn and extending oppositely and circumferentially of the ring to contract the ring, said ring being below the enlargement at the mouth of the bottle; and a bond secured to the cap skirt and inclusive of cement adhering to said ring portions to hold these ring portions in ring contracting relation.

9. A bottle whose neck is externally enlarged at the mouth of the bottle; in combination with a skirted cap placed over the mouth of the bottle and about the bottle neck; a ring tightly contracted about the skirt of the cap and bottle neck and having portions drawn oppositely and circumferentially of the ring to contract the ring, said ring being below the enlargement at the mouth of the bottle; and a bond secured to the cap skirt and to said ring portions and holding these ring portions in ring contracting relation.

10. A bottle whose neck is externally enlarged at the mouth of the bottle; in combination with a skirted cap placed over the mouth of the bottle and about the bottle neck; a ring tightly contracted about the skirt of the cap and bottle neck and having portions drawn oppositely and circumferentially of the ring to contract the ring, said ring being below the enlargement at the mouth of the bottle; and a bond secured to the cap skirt and inclusive of cement adhering to said ring portions to hold these ring portions in ring contracting relation.

11. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring about the cap skirt and bottle neck; contracting the ring, with the end portions of the ring spaced apart, into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; placing a bond between the ends of the ring; placing cement between the bond and the ends of the ring that will flux; applying a fluxing agency to the cement to cause it to flux; and permitting the cement to harden while the ring is contracted to hold the ring contracted.

12. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring, with the end portions of the ring spaced apart, into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; interposing a bond, that is inclusive of cementitious material which will flux in response to heat, between the spaced apart ends of the ring; subjecting the cementitious material to heat to cause it to flux; and permitting the cementitious material to harden while the ring is contracted to hold the ring contracted.

13. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a ring about the cap skirt and bottle neck; contracting the ring into tight engagement with the cap by relatively moving adjacent portions of the ring oppositely and circumferentially; placing a bond at said adjacent portions of the ring; placing cement between the bond and said adjacent portions of the ring that will flux in response to heat; applying sufficient heat to the cement to cause it to flux; and permitting the cement to harden while the ring is contracted to hold the ring contracted.

14. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a split ring, with the end portions of the ring spaced apart, into tight engagement with the cap by relatively moving the ends of the ring oppositely and circumferentially; initially assembling cementitious material, that will flux in response to heat, with the cap skirt at said ring portions; subjecting the cementitious material to heat to cause it to flux upon said ring portions; and permitting the cementitious material to harden while the ring is contracted to hold the ring contracted.

15. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a ring about the cap skirt and bottle neck; contracting the ring into tight engagement with the cap by relatively moving adjacent portions of the ring oppositely and circumferentially; initially assembling cementitious material, that will flux in response to heat, with the cap skirt at said ring portions; applying sufficient heat to the cementitious material to cause it to flux upon said ring portions; and permitting the cementitious material to harden while the ring is contracted to hold the ring contracted.

16. The method of sealing a bottle which consists in placing a skirted cap over the mouth of the bottle and about the bottle neck; placing a ring about the cap skirt and bottle neck; contracting the ring into tight

engagement with the cap by relatively moving adjacent portions of the ring oppositely and circumferentially; initially assembling cementitious material, that will flux, with the cap skirt at said ring portions; applying a fluxing agency to the cementitious material to cause it to flux upon said ring portions; and permitting the cementitious material to harden while the ring is contracted to hold the ring contracted.

In witness whereof, I hereunto subscribe my name.

OLOF N. TEVANDER.