T. L. TALIAFERRO.

BOTTLE CLOSURE.

APPLICATION FILED JUNE 16, 1919.

1,425,349. Patented Aug. 8, 1922.

Fig. 1.

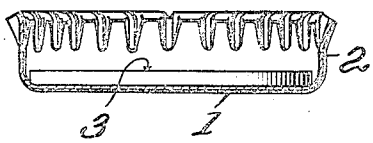


Fig. 2.

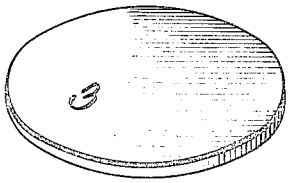


Fig. 3.

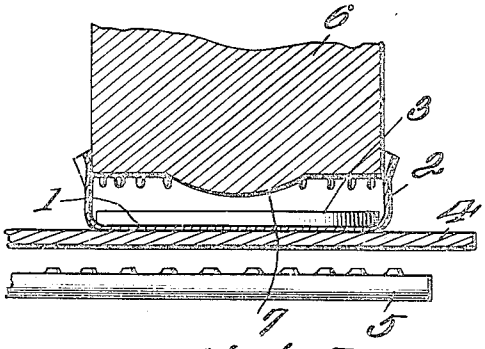


Fig. 4.

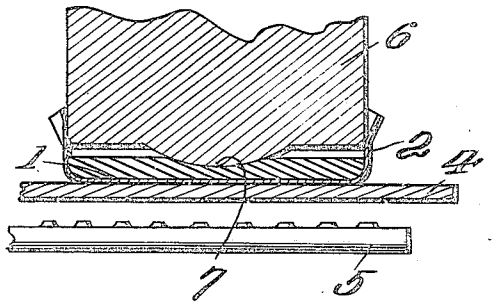


Fig. 5.

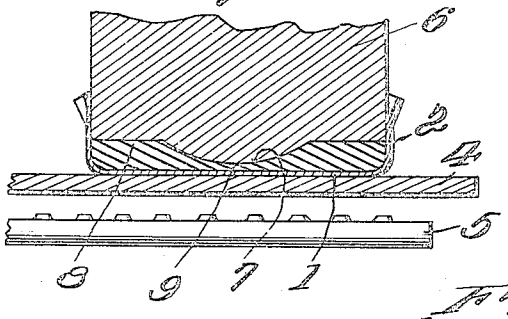


Fig. 6.

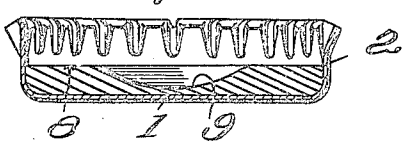
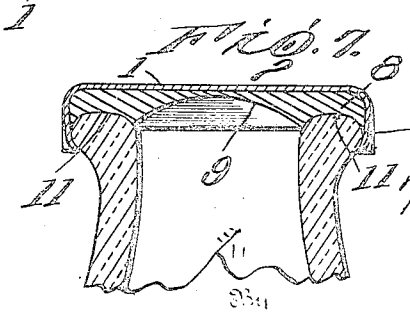


Fig. 7.



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BOTTLE CLOSURE.

1,425,349. Specification of Letters Patent. Patented Aug. 8, 1922.

Application filed June 16, 1919. Serial No. 304,485.

To all whom it may concern:

Be it known that I, THOMAS L. TALIAFERRO, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Bottle Closures, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in bottle closures, and more particularly to a bottle closure of the type known in the art as "crown cork and seal cap."

An object of the invention is to provide a bottle closure of the above character with a plastic rubber sealing member which is adapted to seat against the lip of the bottle and which sealing member is secured to and becomes a permanent part of the cap so that it may be shipped and handled therewith.

A further object of the invention is to provide a bottle closure of the above type wherein the sealing member is formed with a thickened ring-like portion adapted to seat against the lip of the bottle.

A still further object of the invention is to provide a bottle closure of the above type wherein the sealing member spans the mouth of the bottle so as to cover the metal of the cap and prevent the contents of the bottle from coming into contact therewith.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings, which show by way of illustration one embodiment of the invention:—

Figure 1 is a sectional view through the cap portion of a bottle closure to which the invention is applied;

Fig. 2 is a perspective view of the disk-shaped plastic rubber sealing member as it is inserted in the cap portion and before it is re-shaped or caused to adhere to the cap portion;

Fig. 3 is a view showing more or less diagrammatically the cap portion with the disk of sealing material placed therein with the shaping die raised from contact with the sealing material;

Fig. 4 is a similar view, but showing the die as having made contact with the sealing material and the beginning of the re-shaping process;

Fig. 5 is a similar view, but showing the sealing material as having been re-shaped by the die;

Fig. 6 is a sectional view through the finished bottle closure; and

Fig. 7 is a view showing the bottle closure as applied to the mouth of a bottle.

The invention consists broadly in a bottle closure, which bottle closure is in the form of a cap having a depending flange, within which cap is a sealing material adapted to seal the bottle in conjunction with said cap portion of the closure. The sealing material is a rubber composition which is plastic and, therefore, capable of being re-shaped or molded into any desired form, and the sealing material is also preferably of such composition that it has, when cold, a suitable degree of solidity but which softens sufficient with heat, such as is necessarily present in the ordinary process of filling bottles with hot liquids, to permit said sealing material to mold or adapt itself to any roughness or any irregularities in the sealing seat or lip of an ordinary bottle, and thereby form a perfect air-tight joint.

The sealing material which I prefer to use is of the character of the sealing material disclosed in the patent to Goltstein, No. 730,760, granted June 9, 1903. The sealing material as applied to the cap portion of the bottle closure is preferably in disk shape and is laid or placed within the cap portion, after which the cap portion is heated sufficiently to soften the sealing material and render it more plastic to aid in the re-shaping or re-molding of the same and in order to cause the sealing material to firmly adhere to the metal parts of the cap portion with which it comes in contact.

After the cap has been heated sufficiently, then the disk is subjected to die pressure which brings about a re-shaping or re-form-

ing of the plastic rubber sealing material so as to fill the inner parts of the cap and cause said rubber sealing material to adhere to the parts of the cap and thus become a fixed part of the cap itself. Preferably the die is shaped so as to form a thickened ring-like portion in the sealing material adapted to engage the lip of the mouth of the bottle and a relatively thin portion which spans the mouth of the bottle and prevents the contents of the bottle from coming into contact with the metal parts of the cap.

Referring more in detail to the drawings, I have shown a bottle which consists of a cap portion 1 having a depending flange 2 which may be bent about the lip of the bottle to hold the cap on the bottle. The preferred form of cap is similar to that well known in the trade as the "crown cork and seal cap." In the drawings there has been illustrated more or less diagrammatically some of the elements necessary for carrying out my improved method of forming the closure, and in the description of the closure the method and the essential features of the apparatus will be referred to. The improved method referred to, however, forms no part of the present invention, but is described and claimed in my co-pending application, Serial Number 498,107, filed September 2, 1921.

The sealing material, which is to be placed in and become a part of the cap portion to form a closure, is indicated at 3 in Fig. 2 of the drawings. Said sealing material, as above noted, consists preferably of some form of rubber which is substantially free of any vulcanizing agent so that the rubber is plastic and capable of being reshaped and retaining the shape into which it is molded. This rubber composition is also preferably of such a character that it will firmly adhere to the metal parts of the cap when slightly heated and pressed against the same. Furthermore, the sealing material is preferably of such a character that, when the bottle is sealed by means of a cap, said sealing material will, through the heat if any be present in connection with the liquid in the bottle, soften sufficiently to adapt itself to any unevenness in the surface of the glass forming the lip of the bottle against which the closure seats.

This sealing material, having the characteristics above described, is placed in the cap portion 1, as shown in Fig. 3 of the drawings, and said cap portion is placed on a support 4 which is heated by means of a gas flame 5 or other suitable means sufficiently to increase the plasticity of the sealing material and aid in the re-shaping of the sealing material and the adhering of the sealing material to the cap portion of the closure.

A die, indicated in the drawings at 6, is formed with a die face 7 which is shaped so as to form from the sealing disk a thickened ring-like portion 8 and a relatively thin central portion 9. The thickened ring-like portion 8 is adapted to engage the lip 10 of the bottle, indicated at 11 in Fig. 7 of the drawings, and to form a perfectly air-tight seal for the bottle. The substantially thin portion spans the mouth of the bottle and covers the metal parts thereof so as to prevent the contents of the bottle from coming into contact with the inner face of the cap portion of the closure. At the same time the plastic sealing material is caused to flow and reposition itself in the manner above described and will be caused to firmly adhere to the metal parts of the cap. This is brought about by means of the adhesiveness present within the sealing material when a sealing material of the character above described is used, that is, a rubber composition which is substantially free from any vulcanizing agent.

From the above, it will be apparent that I have provided a bottle closure wherein the sealing material may be readily placed within the cap portion of the closure and reshaped as desired within the said closure and at the same time caused to freely adhere to and become a fixed part of the closure. The closure, when constructed in accordance with my invention, has a relatively thick body of sealing material which will engage directly the lip of the bottle, and the sealing material is of such character as to make a perfect air-tight joint so that the bottle will be hermetically closed. Furthermore, the sealing material completely protects the contents of the bottle from coming into contact with the metal parts of the bottle closure.

While I have described my closure as a bottle closure, it will be understood that I have used the term bottle in the broad sense as meaning any receptacle having a restricted mouth which is to be closed by the closure. It will also be obvious that minor changes in the shaping of the parts, the arrangement of the material, and the composition of the material itself may be made without departing from the spirit of the invention so long as the material is of such a character as to firmly seal and adapt itself to re-molding and re-shaping when placed upon the closure, and of a character which will adhere to and become a fixed part of the cap portion.

Having thus described the invention, what I claim as new and desire to secure by Letters-Patent is:—

1. A bottle closure comprising a metal cap portion having a depending flange, and a plastic rubber sealing member forming a permanent part of the closure and having a ring-shaped portion at its outer edge seat-

ing against the lip of the bottle, and a relatively thin portion spanning the mouth of the bottle and preventing the contents of the bottle from coming in contact with the metal parts of the cap.

2. A bottle closure comprising a metal cap portion having a depending flange, a disk-shaped plastic rubber sealing member fitting within said cap portion and having a recess formed therein providing a relatively thick ring-shaped portion at its outer edge seating against the lip of the bottle, and a relatively thin portion spanning the mouth of the bottle and preventing the contents of the bottle from coming into contact with the metal parts of the cap.

In testimony whereof, I affix my signature.

THOMAS LUCIEN TALIAFERRO.