F. E. HEINRICH.

BOTTLE CLOSURE.

APPLICATION FILED MAR. 1, 1910.

992,662. Patented May 16, 1911.

Fig. 1.

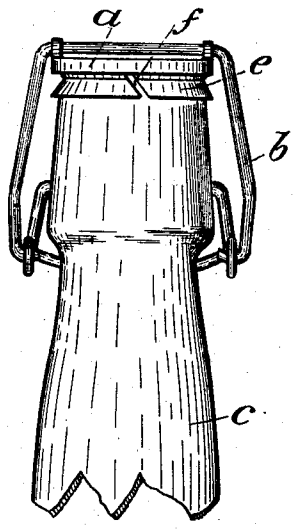


Fig. 2.

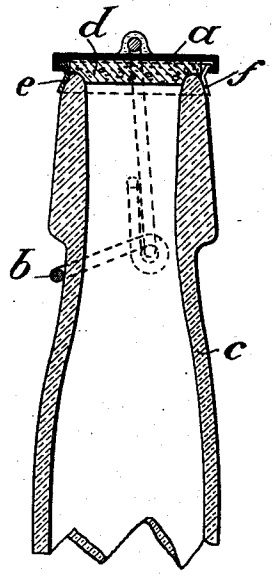


Fig. 3.

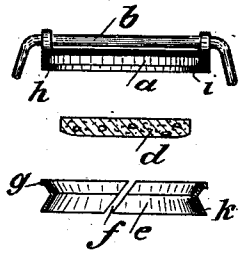


Fig. 2a.

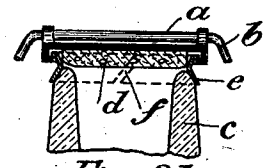


Fig. 2b.

Fig. 5.

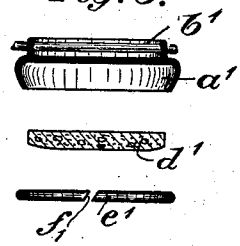
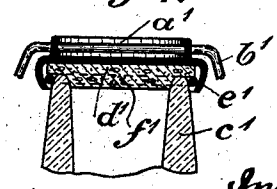


Fig. 4.



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UNITED STATES PATENT OFFICE.

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BOTTLE-CLOSURE.

992,662. Specification of Letters Patent. Patented May 16, 1911.

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To all whom it may concern:

Be it known that I, FRIEDRICH EDUARD HEINRICH, merchant, a citizen of the German Empire, residing at Stuttgart, in the Kingdom of Würtemberg, Germany, have invented certain new and useful Improvements in Bottle-Closures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in bottle closures and more particularly in bottle closures of that class in which a closing member or stopper provided with a packing disk of elastic material is clamped on the mouth of the bottle by means of a bow shaped wire or the like. Bottle closures of this class are objectionable in this respect that the packing medium is not in the proper way pressed on the mouth of the bottle when closing the same, so that the closure is not always complete, the packing material being distorted and pressed sidewise when pressing the closure on the mouth. For example in bottle closures in which the closing member consists of a substantially conical body and a rubber disk placed on the same, when applying the closure to the mouth of the bottle at first one side of the closure is pressed against the mouth of the bottle. If now the closing operation is completed, a pull is exerted on the packing ring so that the latter is sometimes drawn off from its proper position.

The object of my improvements is to provide a bottle closure in which the packing medium is uniformly pressed on the mouth of the bottle, so that it can not be forced out of its proper position by the closing operation. For this purpose the closure is provided with a guiding member which is first brought in contact with the mouth of the bottle before the packing medium is seated thereon, and which thereby assures a proper positioning of the closure and its packing medium on the mouth of the bottle. Thereby the closure is uniformly and simultaneously with its whole circumference pressed on the mouth of the bottle, so that it can not be displaced during the closing operation. Thereby the closure of the bottle is made particularly reliable and durable. In the preferred form of the closure the said guiding member consists of a ring which is forced into the closing body and which also holds the packing medium.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawing in which the same letters of references have been used in all the views to indicate corresponding parts.

In said drawing—Figure 1, is a side view of the upper part of the bottle neck provided with my improved closure, Fig. 2, is a vertical cross-section of the same, Fig. 2^a, is a similar cross-section of the mouth of the bottle showing the closure in the position while being applied to the mouth, Fig. 2^b, is a similar cross-section showing the closure in the position when seated on the mouth of the bottle, Fig. 3, is a vertical cross-section of the cap inclosing the packing member, Fig. 4, is a vertical cross-section showing a modification of the closure, and Fig. 5, shows the elements of the closure when separated from one another.

Referring to the example illustrated in Figs. 1 to 3, the closure consists of a flanged disk or cap *a* to which a closing bow *b* is jointed, and which is hinged by the said bow to the bottle, as is common in closures of the class shown. Inclosed within the said flanged disk or cap there is the packing medium which in the example shown consists of a disk *d* of rubber, cork or some other suitable material. The closure is provided with a guiding member which in the example illustrated consists of a ring *e* constructed in the form of two cones. The upper outwardly tapering part of the ring is formed with a flange *g* whereby it is secured within the cap or flanged disk *a* by bearing on an inwardly directed flange *h* of the latter, as is shown in Fig. 3. Preferably the ring *e* is split as at *f* and it has the tendency to expand by its spring action when being placed into the cap. As the diameter of the ring *e* is smaller when in its compressed state than the inner diameter of the inwardly directed flange of the cap *a*, the said ring can be inserted into the said cap and removed therefrom, and when expanding within the cap the ring assumes an exactly central position, so as to provide a centering guide for the closure. The packing medium is inserted into the hollow of the cap *a* or of the upper portion of the ring *g*, as is shown in Fig. 2, and it is se-

curely held within the latter by reason of the outwardly and upwardly tapering form of the said ring.

While in the drawing the portion *k* of the ring *e* is shown as conical I wish it to be understood that I do not limit myself to the form shown, and that the form of the said portion may be different. But the said portion must fit exactly on the mouth *c* of the bottle so as to provide a guide for the closure when applying the same to the bottle and to seat the packing medium *d* on the said mouth in a uniform and perfect way.

The method of using my improved bottle closure is as follows: The expansible ring *e* is first compressed and inserted into the cap *a* together with the packing disk *d* or after the same. If now the ring is released it expands by its spring action and engages above the inner flange of the cap *a*. The packing disk is now held in its proper position by the outwardly tapering portion of the ring *e*. Now the closure *a*, *e*, *d* is placed on the mouth of the bottle with the collar or ring *k* bearing on the latter. By the said collar, the packing disk *d* is properly seated on the mouth, so that it bears on the latter with its whole circumference. If now pressure is applied to the packing disk by means of the bow *b* the central portion of the disk is forced into the mouth of the bottle and its margin against the ring *e*.

In the modification shown in Figs. 4 and 5 the flanged portion *h'* of the cap *a'* is curved inward, and the split ring or collar *e'* has a circular cross-section and it bears on the lower margin of the flange of the cap *a'*. In this case the guide for the closure is provided by the ring *e'* and the lower margin of the flange *h'* of the cap *a'*. When pressing the closure on the bottle mouth the bottom of the cap *a'* forces the packing disk *d'* against the expansible ring *e'* so that the latter is forced against the flange of the cap.

I claim herein as my invention:

A bottle closure comprising a flanged cap, a packing medium held within said cap, a slitted elastic guiding member snugly fitting upon the head of a bottle, a flange of said slitted member securing the same to the cap by gripping over the flange of said cap, adapted to hold the packing medium within said cap, and possessing a predetermined form and size in proper relation to the bottle head for the purpose of centering the closure cap and avoiding a tilting of the same and consequent injuries to the packing, and means for fastening the closure in closed position and releasing the same.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRIEDRICH EDUARD HEINRICH.

Signed in presence of—

SAMUEL MOOS,

ANDREAS FREY.