

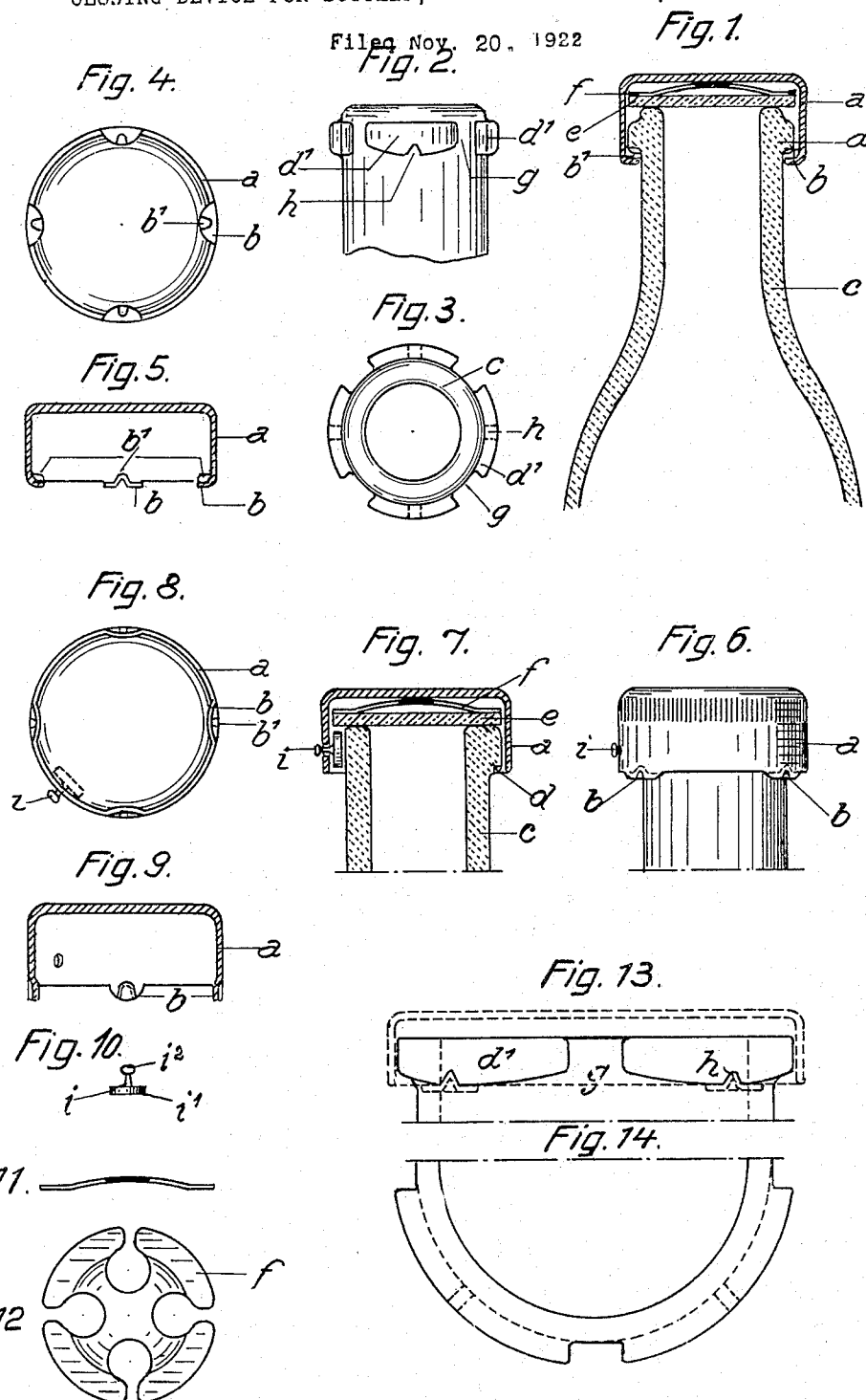
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CLOSING DEVICE FOR BOTTLES, PRESERVE GLASSES, AND THE LIKE

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UNITED STATES PATENT OFFICE.

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CLOSING DEVICE FOR BOTTLES, PRESERVE GLASSES, AND THE LIKE.

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To all whom it may concern:

Be it known that I, CARL ADOLF RAPPENECKER, a citizen of the German Republic, residing at Unterglöttertal, Germany, have invented certain new and useful Improvements in Closing Devices for Bottles, Preserve Glasses, and the like, of which the following is a specification.

This invention relates to closing devices for bottles, preserve glasses and the like which consist of a cap to be placed over the collar of the bottle neck. This cap has flap-like bent extensions which grip under the collar of the bottle neck to press the disk of elastic material, cork, rubber or the like, in the cap strongly upon the edge of the bottle neck. In order to facilitate the removal of the cap from the bottle vertical grooves are arranged in the collar which are of such dimensions that the closing device, if rotated for the required degree, can be removed from the bottle.

It has been found that closing devices of this type get loose on the bottles, preserve glasses or the like being transported, as the cap rotates, owing to negligent handling of the bottle or owing to other outside influences, upon the bottle neck so that the flap-like extensions come into register with the vertical grooves. The closing device loosens in this manner its hold and detaches itself from the bottle.

This deficiency is obviated according to this invention in a simple manner by providing noses upon the flaplike extensions and indentations in the lower surface of the collar of the bottle neck.

In order to detach such a cap from the bottle a pressure has to be exerted upon the upper surface of the device and the cap has to be rotated at the same time in order to lift the noses out of the indentations.

The attachment of the cap is further favored by the special construction of the lower surface of the collar which is subdivided into several separate parts by the vertical grooves. Each part of this lower surface is roof-shaped or vaulted so that at the point where the indentation is made it has the largest depth and gets tapered towards the ends. If the cap is pushed over the collar and rotated to the right or to the left its inner surface which is designed to receive the insertion is gradually pressed strongly upon the edge of the bottle neck

until the noses of the flap-like extension snap into the indentations.

With the object in view to indicate at once an unauthorized opening of the closing device, this device has further a seal of special construction which consists of a disk with a stud and is arranged upon the edge of the cap in such a manner that the stud breaks off at the rotation of the cap which is necessary for removing the closing device.

The improved closing device for bottles and the like is shown in two forms of construction, by way of example, on the accompanying drawing, wherein:—

Fig. 1 shows in longitudinal section a bottle neck with the closing device.

Fig. 2 illustrates the construction of the bottle neck.

Fig. 3 is a plan view of Fig. 2.

Fig. 4 shows in plan view seen from below the cap which forms the closing device.

Fig. 5 is a longitudinal section of the cap.

Fig. 6 shows in elevation the closing device with the seal.

Fig. 7 is a longitudinal section of Fig. 6.

Fig. 8 is a plan view of Fig. 6 seen from below.

Fig. 9 is a longitudinal section of Fig. 8.

Fig. 10 illustrates the seal.

Figs. 11 and 12 show in side elevation and plan view respectively a spring arranged between the inner surface of the cap and the elastic insertion.

Figs. 13 and 14 illustrate in side elevation and plan view respectively the upper part of a preserve glass designed for the reception of the closing device.

The cap *a* which forms the closing device has at its lower edge inwardly bent flap-like extensions *b* which, if the cap is placed upon the bottle neck grip under the lower surface of the collar *d* of the bottle neck *c*. The packing disk *e* of rubber, cork or other suitable material, located in the cap *a*, is thus pressed strongly upon the edge of the bottle neck. In order to press the packing disk elastically upon the bottle neck a blade spring *f* is inserted between the inner surface of a cap *a* and the pushing disk, said blade spring having a vaulted shape. This blade spring could further have the shape of a cross, of strips or the like.

In order to enable the removal of the cap from the bottle vertical grooves *g* are pro-

vided in the collar *d* which subdivide said collar into individual parts *d'*. To remove the closing device the cap *a* is rotated for such a distance that its flaplike extensions

5 *b* register with the vertical grooves *g*.

To securely hold the cap upon the bottle and to ensure the same against accidental rotation the flap-like extensions *b* have preferably noses *b'* pressed out of the material
10 of the extensions and designed to engage with indentations *h* in the lower surfaces of the parts *d'* of collar *d*. The lower surfaces of the parts *d'* of the collar are roof-shaped or slightly vaulted in order to press the elastic
15 disk *e* strongly upon the edge of the bottle neck and further in order to facilitate the removal of the cap, so that these lower surfaces possess the greatest depth at the middle, which is the point where the indentations *h* are situated, said lower surfaces getting
20 narrower towards the ends. This arrangement serves to increase the reliability of the closing device.

In order to make conspicuous the unauthorized removal of the closing device a seal *i* is used which consists of a disk *i'* with stud *i²* which is narrowed at its front end. This seal is inserted into the edge of cap *a* in the manner shown in Fig. 7 when the closing device is mounted upon the bottle neck whereupon the extensions *b* are bent inward with the aid of a suitable machine so that their noses *b'* engage with the indentations *h* of the collar of the bottle neck. The seal *i*
30 is now in engagement with one of the grooves *g*. If the cap *a* is rotated to the right or to the left disk *i'* will strike against one of the projecting parts *d'* so that the disk *i'* breaks off the stud *i²*. In this manner it can be
40 easily ascertained whether the closing device has been opened.

The seal *i*, preferably made of aluminium could have also the shape of a simple stud. The sealing could further be effected by
45 stamping out of the material at a convenient point of the edge of the cap *a* a point or stud which, at the rotation of the cap comes in contact with the edge of one of the projecting parts *d'* and breaks off.

50 I claim:—

1. A closing device for bottles and the like consisting of a cap having flap-like extensions the bottle neck having a collar with vertical grooves, comprising in combination
55 with the cap having a boring in its edge, the flap-like extensions of the cap, the collar of the bottle neck having vertical grooves and indentations in its lower surface, noses of said extensions of the cap designed to engage with said indentations in the lower surface of the collar to secure the cap in its closing position, a seal consisting of a disk with a shaft mounted in said boring of the cap so that the shaft projects into one of the
60 vertical grooves of the collar of the bottle

neck and when the cap is being rotated breaks off by striking against the wall of said groove indicating thus the unauthorized opening of the closing device.

2. A closing device for bottles and the like
70 consisting of a cap having flap-like extensions the bottle neck having a collar with vertical grooves, comprising in combination with the cap having a boring in its edge, the flap-like extensions of the cap, the collar of
75 the bottle neck having vertical grooves and indentations in its lower surface, the lower surfaces of the sections of said collar formed by said grooves being roof-shaped so that they possess the greatest breadth at the middle where the indentations are, noses of said
80 extensions of the cap designed to engage with said indentations in the lower surface of the collar to secure the cap in its closing position, a seal consisting of a disk with a
85 shaft mounted in said boring of the cap so that the shaft projects into one of the vertical grooves of the collar of the bottle neck and when the cap is being rotated breaks off by striking against the wall of said
90 groove indicating thus the unauthorized opening of the closing device.

3. A closing device for bottles and the like consisting of a cap having flap-like extensions the bottle neck having a collar with
95 vertical grooves comprising in combination with the cap having a boring in its edge, the flap-like extensions of the cap, the collar of the bottle neck having vertical grooves and indentations in its lower surface, the lower surfaces of the sections of said collar formed by said grooves being vaulted so that they possess the greatest breadth at the middle where the indentations are, noses of
100 said extensions of the cap designed to engage with said indentations in the lower surface of the collar to secure the cap in its closing position, a seal consisting of a disk with a shaft mounted in said boring of the cap so that the shaft projects into one of
105 the vertical grooves of the collar of the bottle neck and when the cap is being rotated breaks off by striking against the wall of said groove indicating thus the unauthorized opening of the closing device.
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4. In a closing device for bottles and the like having collars with vertical grooves and a cap having flap-like extensions, for the vertical grooves of the neck, in combination
120 with a seal consisting of a disk with a shaft mounted on the cap, so that the shaft projects into one of the vertical grooves of the collar of the bottle neck, and when the cap is being rotated breaks off by striking against the wall of said groove indicating
125 thus the unauthorized opening of the closing device.

5. In a device of the character described, the combination with the neck of a container, provided with grooved spaced lugs,
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of a cover adapted to be positioned on the neck of the container, said cover being provided with integrally formed angularly disposed resilient lips having tits formed therein for preventing the accidental displacement of said cover from the neck of said container.

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

CARL ADOLF RAPPENECKER.

Witnesses:

FRANK H. REDIKER,
W. O. WOLPERTT.