May 9, 1933. E. E. HOGG 1,908,245

TAMPERPROOF SEAL

Filed Nov. 25, 1930

Fig. 1.

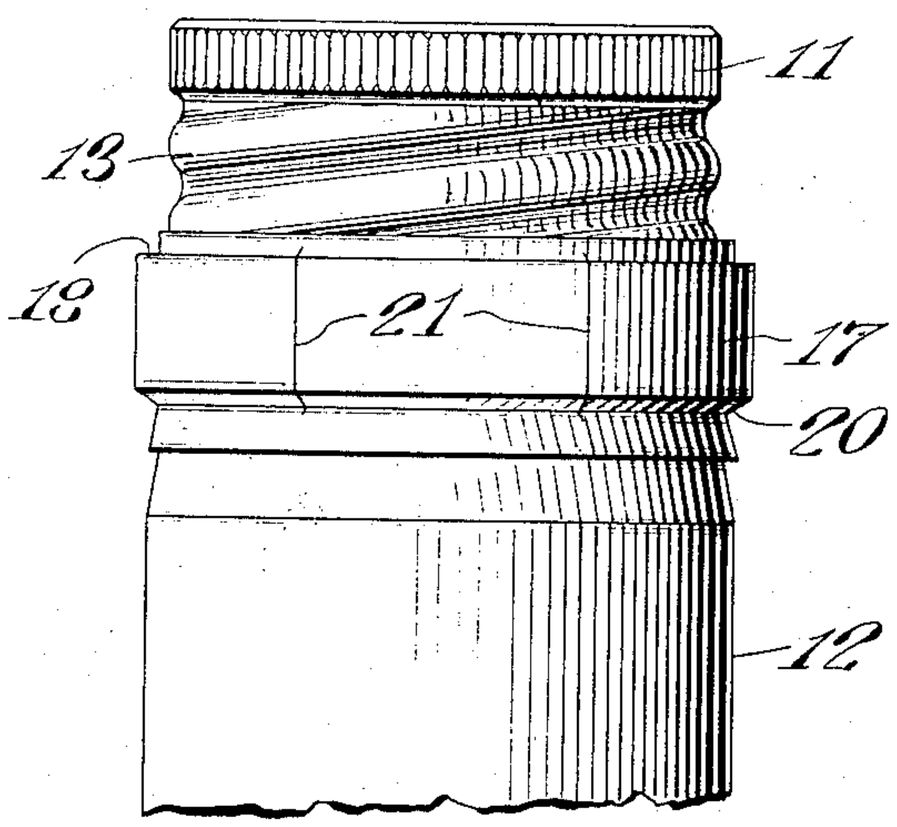


Fig. 2.

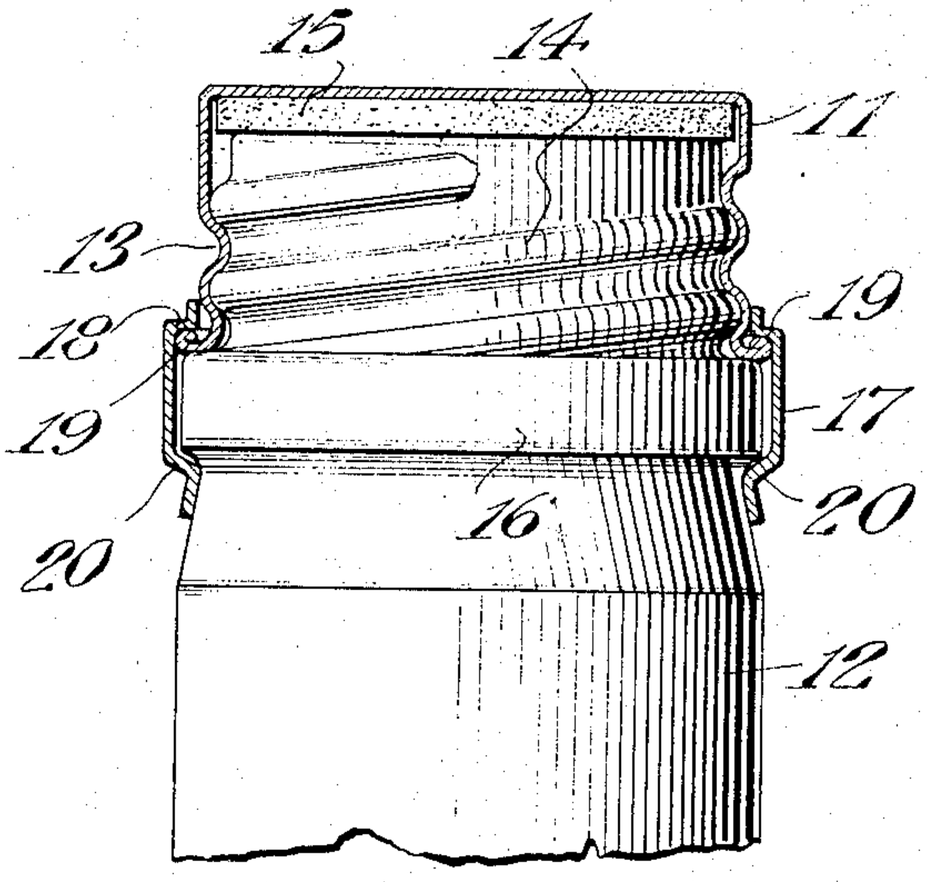


Fig. 3.

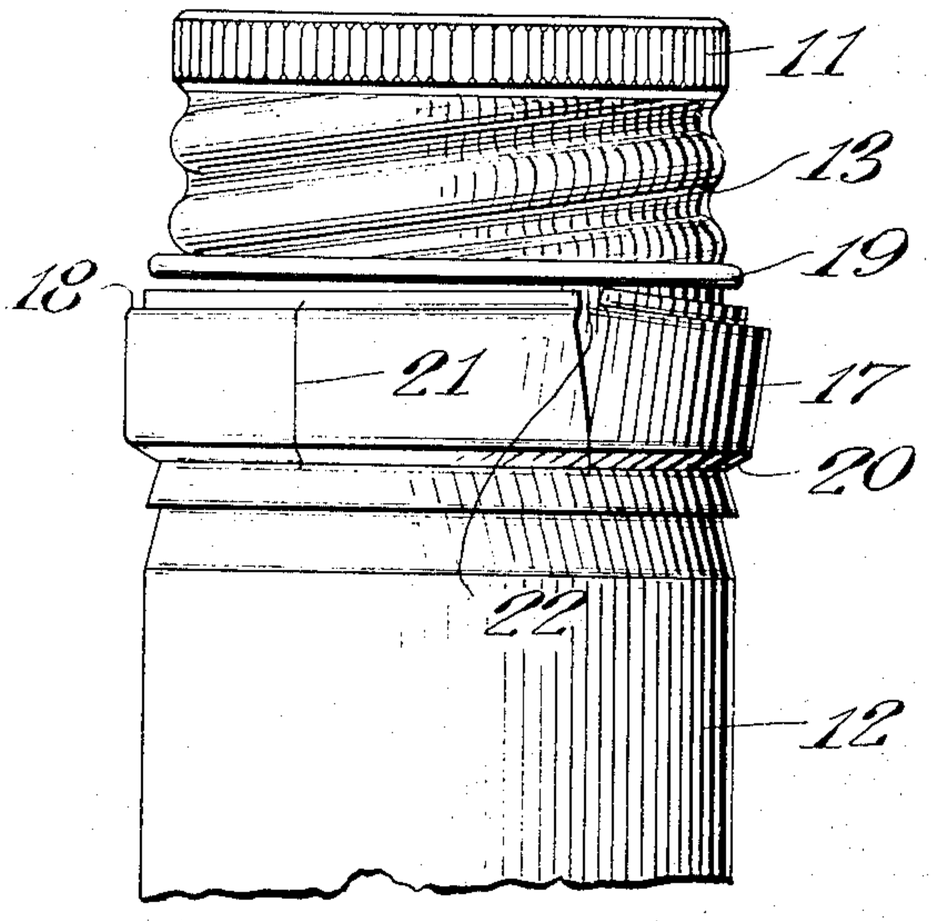
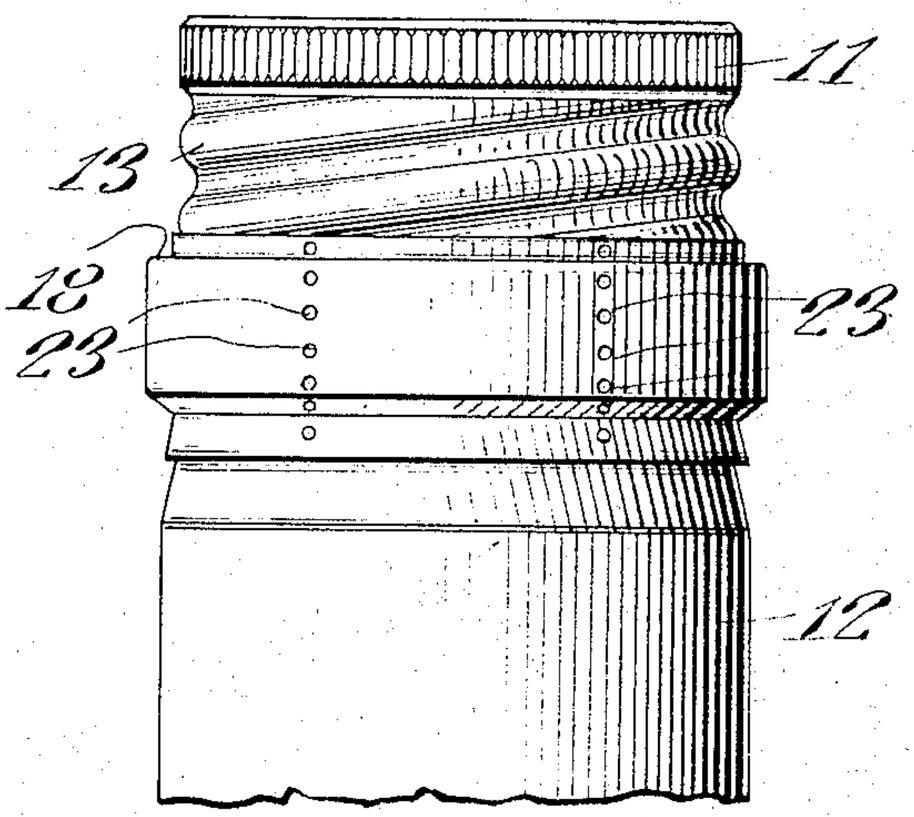


Fig. 4.



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UNITED STATES PATENT OFFICE

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TAMPERPROOF SEAL

Application filed November 25, 1930. Serial No. 498,000.

This invention relates to closures for bottles and jars and the like, more particularly so-called "tamper-proof" closures, by which I mean closures the removal or attempted removal of which produces a visible effect indicating, when the closure, if removed, is replaced, that the container has been opened or that an attempt has been made to open it. One object of the invention is to provide a tamper-proof closure in which the act of removal will produce the effect referred to with greater certainty than in prior devices of similar kind. Another object is to provide a tamper-proof closure in which the effect evidencing the removal amounts to virtual destruction of a sealing part, leaving the closure proper uninjured and capable of replacement.

Further objects are to provide a tamper-proof closure having a sealing part more easily removable than the seals of a similar kind hitherto available, and to provide such a closure in which the structural features facilitating legitimate removal of the seal serve also to greatly enhance the visible effect produced by unauthorized tampering with the seal.

With these objects in view and such others as will hereinafter appear or are incidental thereto, the closure of the present invention comprises a cap having a depending skirt to embrace the sides of the container around the opening of the latter, and a sealing band engaging the lower edge of the cap and part of the container surface, and weakened at one or more places about its circumference, so that on removal or attempted removal of the cap, the band will break and thereby give a permanent indication that the closure has been tampered with. In order to facilitate replacement of the cap after legitimate removal and to insure a satisfactory closure of the container whenever desired, the latter may be provided with screw threads on its surface about the opening, and the skirt of the cap be of threaded form to engage the threads on the container. The weakened portions of the band, which is preferably made of an easily rupturable material such as thin aluminum, may be arranged so as to extend crosswise or partially crosswise of the band, and to that end, may conveniently take the form of vertical slits, sets of perforations, or the like, which will then serve to facilitate breaking the band or deforming it when the cap is unscrewed or otherwise tampered with.

One embodiment of the present invention, and a modification thereof, are shown in the accompanying drawing, in which:

Fig. 1 is a side view of one form of the invention.

Fig. 2 is a similar view of the construction shown in Fig. 1, but with the cap and sealing band shown in vertical section.

Fig. 3 is a side view of the construction shown in Fig. 1, with the closure cap partially removed.

Fig. 4 is a side view of a modified form of the invention.

As shown in Figs. 1 and 2, the closure cap 11 is positioned over the opening of a container 12, and has a depending skirt with threads 13 engaging corresponding threads 14 on the outer surface of the container. In order to effect a liquid—or air—tight closure, the cap is provided interiorly with means 15 of cork, rubber, compo gum, pulp board or other similar material normally used for sealing the opening in the container to which the cap is applied. The outer surface of the container is also provided with a circumferential flange or rib 16, disposed below the threads 14, and over which the annular sealing band 17 is positioned.

The sealing band is made of thin, soft metal, such as aluminum, and has at its upper edge an inwardly extending shoulder 18 projecting over the lower edge of the cap 11 and engaging an encircling bead or projection 19 with which the cap is provided. The band 17 has also, near its lower edge, another inwardly extending shoulder 20, engaging the lower portion of the flange 16, whereby the band is rendered secure against slipping or accidental vertical displacement.

As shown in Figs. 1 and 3, the sealing band is provided with a pair of vertically disposed slits 21 extending partially across the band but leaving intact portions of the latter im-

mediately adjacent the edges thereof. By reason of these slits, the sealing band, already adapted to be torn or broken easily because of the soft metal of which it is fashioned, is locally weakened to a substantially greater extent at those points. This weakening does not impair the utility of the band as a seal, the slits 21 being of such length as to leave intermediate portions of the band integrally connected at one or more points, as for instance at the upper and lower edges thereof as shown in Fig. 1. In this way, the normal condition of the sealed closure, wherein the cap 11 is screwed down over the container opening and the sealing band 17 compressed to lock the cap in position, may be maintained against such accidental jars, shocks, or slight blows as may arise in packing, shipping, storing, or other ordinary handling of the filled container. On the other hand, if an unauthorized person attempts to remove, or does remove the cap 11 by unscrewing it, the band 17 will immediately break near one or more of its locally-weakened points, and will be bent or deformed outwardly as the cap is unscrewed, thereby giving a positive indication that the closure has been tampered with.

Fig. 3 shows a closure of the type illustrated in Fig. 1 after the cap 11 has been partially unscrewed during the act of removing it. It will be seen that unscrewing the cap has in the example shown in Fig. 3, resulted in breaking the sealing band 17 at the point 22, between a slit 21 and the upper edge of the band, and has deformed the band by bending it outwardly throughout a substantial part of its circumference. In this manner, an immediate and unmistakable indication is given that the closure has been tampered with, and by reason of the rupture and bending of the band, restoration of the latter is rendered practically impossible; its mutilated condition serves as a permanent, ineffaceable evidence of tampering.

On the other hand, when it is desired to open the closure for legitimate purposes, the sealing band may be easily removed by inserting the point of a knife or other suitable instrument under an edge of the band and gently prying it out, whereupon it will break at or near its weakened portions; or the closure may be opened merely by unscrewing the cap with sufficient force to break the band automatically, as in the manner illustrated by Fig. 3. In this way the closure of the present invention is not only highly tamper-proof, as has been explained, but by virtue of its novel structure, may be removed by an authorized person with the utmost ease.

In the example shown in Fig. 3, unscrewing the closure cap has broken the sealing band at the upper edge of the latter, by reason of outward pressure exerted by the edge of the cap and its bead when forcibly twisted out from under the overlapping portion of the band. It may frequently happen, because of the size or arrangement of the weakening slits, or because of non-uniformity in the material of the band, or for some other reason, that removal of the cap will completely sever the band, or will break it only at its lower edge and pull it off upwardly at the same time. In either of these cases, as in the situation illustrated, removal of the cap deforms and mutilates the band in a manner tantamount to destruction so far as subsequent use is concerned.

In Fig. 4, a modified form of the invention is shown. Here the sealing band is weakened with perforations, arranged in vertically disposed rows 23. An attempt to unscrew the closure cap will serve to break the band at points intermediate the adjacent perforations in one or more of the rows, so that mutilation and consequent evidence of tampering results. At the same time, authorized removal of the closure is facilitated, in the manner explained above.

It is to be understood that the invention is not limited to the specific construction herein illustrated and described but may be embodied in other forms without departure from its spirit.

I claim:

1. A closure for bottles or other containers comprising a cup-like closure cap positioned about the opening of the container and adapted to be displaced for removal therefrom, and a sealing band engaging a portion of the cap and a portion of the container surface and having one or more weakened portions for facilitating breaking of the band by displacement of the cap alone.

2. A tamper-proof closure for bottles or other containers comprising a displaceable closure cap having a depending skirt embracing the surface of the container adjacent the opening thereof, and a sealing band engaging the lower edge of said skirt and a portion of the container surface and having one or more transverse slits adapted to locally weaken the band, said band being adapted to break on displacement of the cap thereunder, and said cap projecting above said sealing band when the parts are in container-closing position, to afford access for displacing the cap to remove same and thereby effect rupture of the band.

3. A closure for bottles or other containers having screw threads about their exterior surface adjacent the opening thereof, comprising a cup-like closure cap internally threaded in conformity therewith and detachably screwed down over the said opening, and a sealing band engaging the lower edge of the said cap and a portion of the container surface, and having one or more weakened portions for facilitating break-

ing of the band by displacement of the cap alone, whereby unscrewing the said cap effects tamper-indicating rupture of the band.

4. A closure for bottles or other containers having screw threads about their exterior surface adjacent the opening thereof, comprising a closure cap having a depending skirt internally threaded in conformity with the said screw threads and detachably screwed down over the said opening, and having an encircling bead on the exterior surface of the said skirt, and a sealing band engaging the said bead and a portion of the container surface and having one or more weakened portions for facilitating breaking of the band for the purpose specified, whereby unscrewing the cap automatically effects tamper-indicating rupture of the band.

5. A closure for bottles or other containers having screw threads about their exterior surface adjacent the opening thereof and having a circumferential flange disposed below the said screw threads, comprising a closure cap having a depending skirt internally threaded in conformity with the said screw threads and detachably screwed down over the said opening, and a sealing band engaging the said circumferential flange and a portion of the said skirt and having one or more weakened portions disposed crosswise of the band and adapted to facilitate breaking of the latter by displacement of the cap alone whereby unscrewing the said cap effects tamper-indicating rupture of the band.

6. A tamper-proof closure for bottles or other containers having a circumferential flange disposed about their exterior surface below the opening thereof, comprising a displaceable closure cap having a depending skirt engaging the surface of the container adjacent the opening thereof and above the said flange, and having an encircling bead on the exterior surface of the said skirt, and a sealing band engaging the said bead and the said flange and having one or more transverse slits adapted to locally weaken the band, said band being adapted to break on displacement of the cap alone for removal of the latter from the container.

In testimony whereof I hereto affix my signature.

EMERSON EDWARD HOGG.