

Aug. 27, 1935.

J. R. NOLAN

2,012,543

SEALED PACKAGE

Filed July 8, 1932

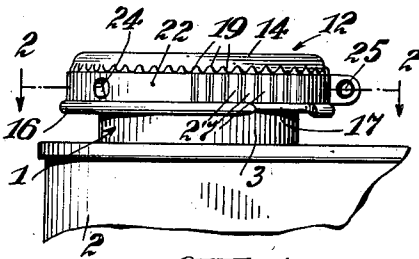


Fig. 1.

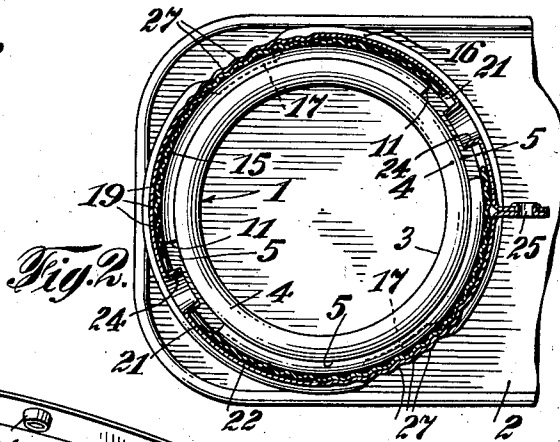


Fig. 2.

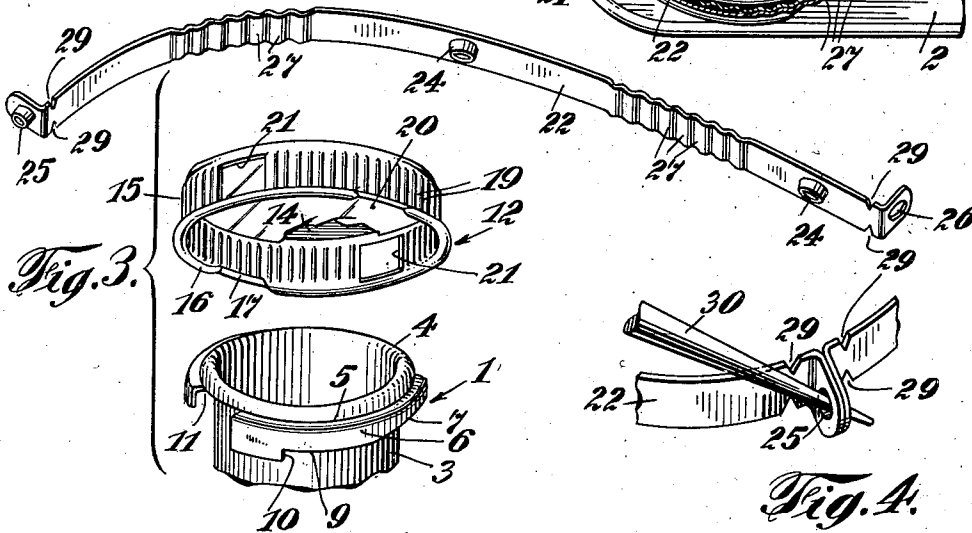


Fig. 3.

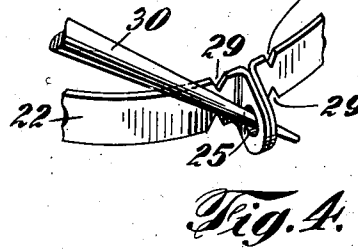


Fig. 4.

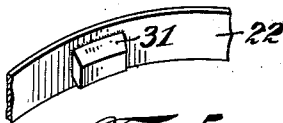


Fig. 5.

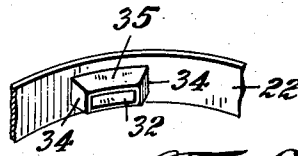


Fig. 6.

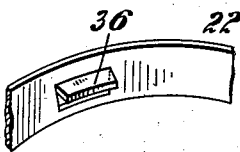


Fig. 7.

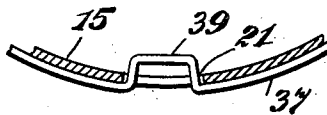


Fig. 8.

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2,012,543

SEALED PACKAGE

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Application July 8, 1932, Serial No. 621,329

18 Claims. (Cl. 220—61)

The present invention relates to sealed packages and the parts thereof, and more particularly, to a tamper proof seal.

Manufacturers of products which are packed in sealed containers are particularly interested in having the ultimate consumer purchase their products in the same condition as they leave the factory. In many instances, dishonest dealers impose upon the manufacturer, and upon the public, by adulterating the contents of the package or by removing the contents and refilling the packages with an inferior product. In either case, they are sold as original and genuine packages, but the consumer does not receive the benefit of the goods for which he is paying. Naturally, such frauds create dissatisfaction on the part of the consumer and are detrimental to the good will and reputation of the manufacturer.

In an effort to guard against the above contingencies, packers have, in some cases, adopted impractical closures which must be destroyed or substantially deformed when they are removed. In many instances, it is desirable to use the closure again to protect the remaining contents of the package and, hence, destruction of the closure is objectionable. Another method resorted to by manufacturers consists in placing a label across the cap and the container to prevent removal of the cap without destruction of the label. Such labels can easily be counterfeited, and the original label can be readily steamed off and replaced without detection. Attempts have also been made to close the interior of nozzles. The latter is objectionable because the internal closure is concealed, it is difficult to open, and portions of the metal forming the closure are likely to fall into the contents of the can.

The present invention aims to provide a tamper proof package, comprising a closure securely locked upon a container, which can be removed only by destroying a part thereof which can be readily accomplished. The invention also aims to provide a closure which can be replaced to form an effective seal which discloses the fact that the original seal has been broken.

An object of the present invention is to provide an inexpensive tamper proof seal for a container.

Another object of the invention is to provide a closure which cannot be removed without destruction of a part thereof.

Another object of the invention is to provide a tamper proof closure which forms an effective reseat to protect the remaining contents of the package during consumption thereof.

Another object of the invention is to provide a

tamper proof band for a closure cap which may be securely locked upon the cap and which may be removed readily by destruction thereof.

A further object of the invention is to provide a protective band which bears the trade-mark of the manufacturer or otherwise identifies the genuineness of the product.

Other and further objects of the invention will be obvious upon an understanding of the illustrated embodiment about to be described or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, wherein

Fig. 1 is a side elevational view illustrating a preferred embodiment of the present invention;

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1 showing the closure locked upon the container;

Fig. 3 is an exploded perspective view illustrating the parts of the closure removed from the container.

Fig. 4 is an enlarged fragmentary perspective view illustrating the manner in which the band may be removed;

Fig. 5 is a fragmentary perspective view illustrating a modified band construction;

Fig. 6 is a fragmentary perspective view illustrating another modification of the present invention;

Fig. 7 is a fragmentary perspective view illustrating still another modification of the present invention; and

Fig. 8 is a sectional plan view illustrating a slightly different band secured about a cap.

Referring again to the drawing, and more particularly, to Figs. 1, 2 and 3, there is shown a nozzle or outlet 1 adapted to be attached to a metal container 2 or the like. The nozzle preferably comprises a cylindrical body part 3 having an upper part which is flanged outwardly and rounded to form a crown or sealing surface 4. The flanged part of the nozzle is also bent downwardly, and flared outwardly to form a shoulder 5 with a downwardly extending cylindrical part 6 substantially larger in size than the crown part 4.

Preferably, the lower edge of the cylindrical part or skirt 6 is cut to provide suitable inclined portions 7 merging into horizontal portions 9 which have at their ends, stops or vertical projections 10. The inclined portions 7 cooperate with

suitable lugs or projections on a closure cap, as described hereinafter, to pull the cap downwardly and to form a secure seal. The horizontal portions 9 provide means for holding the cap on the nozzle without creating any tendency for the cap to become loose or to be accidentally removed therefrom. The stops 10 limit the relative position of the lugs of the cap with respect to the threads to prevent the cap from being turned too far upon the nozzle.

Suitable recesses 11 are provided in the shoulder 5 between adjacent threads to permit the lugs of the cap to pass therethrough and engage the lower edge of the thread portions 7 and 9. In addition, the recesses 11 are utilized to lock the cap on the nozzle. This function will be described in detail hereinafter.

A preferred type of cap 12 is illustrated herein with a cover portion 14 and a depending skirt 15 formed integral therewith. The lower edge of the skirt is rolled into a bead 16 to strengthen the skirt and is provided with suitable lugs or projections 17 extending radially inwardly for engaging the thread portions 7 and 9 of the nozzle. Preferably, the skirt of the cap is knurled or corrugated as shown at 19 to facilitate gripping of the cap. A suitable liner 20 is preferably placed in the cap to provide a seal upon the crown part 4 of the nozzle.

In order to carry out the primary objects of the present invention, that is, to lock the cap upon the container, the skirt 15 is provided with an aperture or a plurality of apertures 21. Preferably, as many apertures are provided as there are lugs and these are definitely spaced about the circumference of the skirt with respect to the lugs 17 so that upon application of the cap to the container, and engagements of the cap lugs with the stops 10 on the nozzle, the apertures 21 register with the recesses 11 provided between adjacent threads.

Various devices may be utilized to interlock the closure cap and the recesses 11. A preferred form of device is shown in Figs. 1, 2 and 3 and may comprise a tamper proof band 22 made from a strip of sheet metal or the like, with suitable projections 24 formed therein to register with the apertures 21 in the skirt of the cap. As illustrated, the projections 24 may be formed by punching or drawing a portion of the strip into the shape of a substantially cylindrical extension sufficiently small to fit into the apertures 21 and sufficiently strong to lock the cap in position by engagement with the sides of the recesses 11.

One end of the band 22 is provided with a suitable eyelet 25 adapted to be inserted through an aperture 26 at the other end of the band, and thereafter compressed, as shown in Fig. 2, to lock the ends of the band together. The ends of the band may also be fastened in any other suitable manner to achieve the desired objects.

When the band is thus assembled about the cap, the projections 24 extend through apertures 21 and register with the recesses 11 between adjacent threads of the container whereby removal or rotation of the cap is prevented without destruction of the band. The projections 24 prevent accidental or intentional unscrewing of the cap. They also prevent removal of the band without destruction thereof. The corrugations 27 serve a two-fold purpose, first, they permit the band to be stretched during application thereof to accommodate slight variations in size, and secondly, they cooperate with the corrugations 19

in the skirt of the cap to hold the band thereon. However, excellent results may be obtained without the corrugations.

If desired, suitable notches 29 or weakened portions substantially adjacent to the connected ends of the band may be provided.

A suitable member 30 (Fig. 4) may be inserted through the aperture 25 and thereafter, twisted to disconnect the ends of the band. Hence, the notches are not essential but are sometimes desirable. Since the bands have to be fastened by special machinery or tools, dishonest persons cannot readily tamper with the seal or the contents. Where the notches 29 are used, the band usually breaks at the notches and cannot be replaced.

In Fig. 5 a slightly modified form of band is shown wherein a block 31 of suitable material is welded or otherwise secured to the band 22. The block 31 is adapted to project through the aperture 21 of the cap and register with the recess 11 in substantially the same manner as the projection 24 of the preferred embodiment. An advantage of this construction is that the appearance of the package is enhanced since the locking projections are not visible.

In Fig. 6 a portion of a tamper proof band is shown having a substantially oblong or rectangular projection 32 formed therein. In this construction the side flanges 34 of the projections engage the respective head and tail ends of adjacent threads while the upper flange 35 extends beneath the lip or flange 5 of the nozzle to hold the band securely upon the container, and at the same time, lock the cap against rotation or removal.

In Fig. 7 another modification is shown wherein, a tab 36 is provided by slitting the metal of the band below and at the sides of the tab, and bending the tab 36 upwardly and inwardly so that it is adapted to project through the aperture of the cap and registers with the recess 11.

A continuous band 37 is shown in Fig. 8 telescoped about the skirt of a closure cap as shown in the preferred embodiment. The projections 39 are preferably formed in the band during its application by a suitable machine which presses portions 39 of the band into the apertures of the cap.

While several ways of utilizing the invention have been shown, it will be understood that these are merely illustrative and that other means may also be utilized. It will be understood also, that the invention may be utilized with other types of containers, for example, glass containers.

By stamping or cutting the bands from lithographed sheet material of particular color or decoration, the manufacturer may improve the appearance of the package, identify the product, and feature the tamper proof seal.

The bands can be readily removed by inserting a pointed member such as the prong of the fork into the eyelet or between the band and cap, and twisting the same either to break the band at the notches, or pry open the joined ends. In either instance, the inwardly projecting portions of the band can be withdrawn from the recesses between the threads and can be removed from the apertures in the skirt of the cap to permit the cap to be unscrewed. It will be noted that the band is destroyed in this manner thus, insuring the package against tampering or substitution of the contents, but at the same time, the cap is not distorted and is fully capable of providing an effective seal for use during consumption of the contents of the package.

It will be seen that the present invention provides a simple inexpensive closure which is tamper proof and provides a sealed package which cannot be imitated or counterfeited. The parts of the closure can be readily manufactured by existing machines without substantial increase in cost of material. Likewise, automatic machines may be utilized for applying the closures upon containers. The package provided herein is attractive in appearance, is provided with a secure seal, and the parts thereof, are rugged in construction and fully capable of withstanding any rough usage to which they may be subjected.

As various changes may be made in the form, construction and arrangement of parts without departing from the spirit and scope of the invention and without sacrificing its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. In a closure of the class described, the combination of a screw closure cap having a depending skirt provided with an aperture, a band member of substantially the same length as the periphery of the cap skirt adapted to be secured about said skirt, and means associated with said band member extending radially inwardly therefrom adapted to extend through said aperture.

2. In a closure of the class described, the combination of a cap having a depending skirt provided with a plurality of apertures, a band member adapted to be attached to said cap, to provide an annular member, and projections formed in said band member adapted to extend through said apertures.

3. In a closure of the class described, the combination of a cap having a depending skirt provided with a plurality of apertures and container engaging means in said skirt, and a band member adapted to be secured about said depending skirt to form in effect a continuous member, said band member having portions therein adapted to project inwardly through said apertures to lock the band upon the cap.

4. In a closure of the class described, the combination of a cap having a depending skirt provided with an aperture, a wire edge in the lower edge of the skirt, container engaging means formed in said wire edge, and a band member extending about said skirt having its lower edge abutting against said wire edge, said member having projections associated therewith adapted to extend radially inwardly with respect to said skirt.

5. In a closure of the class described, the combination of a cap having a depending skirt provided with apertures, said skirt having corrugations therein, a member constricted about said skirt having corrugations therein adapted to register with the corrugations in the skirt of said cap, and inwardly extending projections in said band adapted to register with said apertures.

6. In a sealed package, the combination of a container having interrupted cap engaging projections thereon, a closure cap secured to said projections and having an aperture in the skirt thereof, and a band member secured about said cap provided with portions extending radially inwardly through said aperture and between said cap engaging projections on the container to prevent removal of the cap without destruction or removal of the band.

7. In a tamper proof package, the combination of a container having a plurality of threads there-

on, said container having recesses between adjacent threads, a screw closure cap sealed upon said container, said cap having apertures in the skirt thereof adapted to register with said recesses, and a band member extending about the skirt of said cap, portions of said band member extending through said apertures and blocking the recesses between adjacent threads of the container, whereby rotation of the cap without removal of the band is prevented.

8. In a sealed package, the combination of a container having cap engaging means thereon, a closure cap adapted to engage said means, said cap having apertures in the skirt thereof, and a band member constricted about said cap, said band having projections thereon extending inwardly through said apertures and between said cap engaging means on the container, said band member also having corrugations therein to facilitate application thereof.

9. In a tamper proof package, the combination of a container provided with interrupted threads, a closure cap engaging said threads having apertures in the skirt thereof, and an annular member secured about the skirt of said cap, portions of said band member extending through said apertures and between the adjacent ends of said threads to lock the cap upon the container and corrugations in said band adapted to facilitate removal of said band from the closure cap.

10. In a tamper proof package, the combination of a container provided with interrupted threads, a closure cap provided with means for engaging said threads, said cap having an aperture in the skirt thereof, and a band member constricted about said cap having a projection extending through the aperture in the cap and extending between the cap engaging means on the container, said band member having weakened portions adapted to facilitate destruction and removal thereof.

11. A tamper proof package, comprising in combination, a container having interrupted threads thereon providing recesses between adjacent threads, a screw cap applied upon said container having apertures in the skirt thereof adapted to register with the recesses between adjacent threads and a continuous band telescoped about the skirt of the cap having portions thereof struck radially inwardly to extend through said apertures and block the recesses between adjacent threads to prevent rotation of said cap without removal of the band.

12. A band for a tamper-proof package, said band comprising, in combination, a strip of metal having means at the ends thereof for securing said band about a closure cap, and a projection having a substantially tubular flange portion formed in said strip by punching an aperture in said strip and extending the portions of the strip adjacent to the aperture transversely of said strip.

13. A band for a tamper-proof screw cap, said band comprising, in combination, means for interlocking the ends of said band about a closure cap, and symmetrically spaced projections formed between the upper and lower edge of the band, said projections having substantially rigid flange portions adapted to lock a screw cap against rotation.

14. In a tamper proof package, the combination of a container having interrupted threads thereon, a closure cap having thread engaging means in the skirt thereof and an aperture in said skirt, and a band member secured together at its ends

and extending about the skirt of the cap, said band member having a projection formed therein extending radially inwardly through said aperture between adjacent threads of the container, said band member being adapted to be removed from said cap to indicate that the package has been opened.

15. In a sealed package, the combination of a metal container having a nozzle at the upper end thereof provided with interrupted threads, a closure cap having means in the skirt thereof adapted to engage said threads, and having apertures intermediate said thread engaging means, and a substantially circular band member extending about the skirt of said cap, said band member having portions thereof set radially inwardly to register with said apertures and the portions intermediate adjacent threads, whereby removal of the cap is prevented without destruction of said band member.

16. A tamper proof band adapted to be secured about a cap having apertures in the skirt thereof, comprising in combination, a plurality of lateral projections formed from portions of said band, said projections being rigid and extending transversely of said band to provide stops adapted to extend through the apertures in the cap, lock

the closure cap against rotation, and means at the respective ends of said band adapted to be interlocked to secure the band about a closure cap.

17. A tamper proof band comprising in combination, a strip of metal adapted to extend about the skirt of a cap provided with apertures, said strip having means at the ends thereof for securing said band about the closure cap, and substantially rigid members secured to the inner periphery of said strip, adapted to extend through the apertures in the cap to prevent the removal of the closure cap from a container without destruction or removal of the band.

18. A tamper proof band adapted to be secured about a screw cap having apertures in the skirt thereof, said band comprising in combination, a plurality of projections formed from portions of said band and extending transversely of said band adapted to extend through apertures in the skirt of a cap, said projections being substantially rigid to facilitate locking a screw cap on a container, means at the ends of the band for interlocking the ends of said band, and weakened portions in said band adapted to facilitate tearing the band upon removal thereof.

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