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CLOSURE FOR TUBES OR THE LIKE

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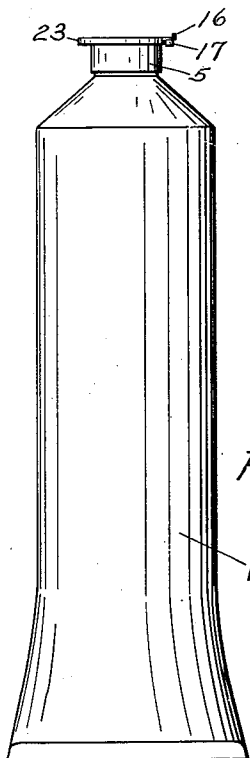


FIG-1

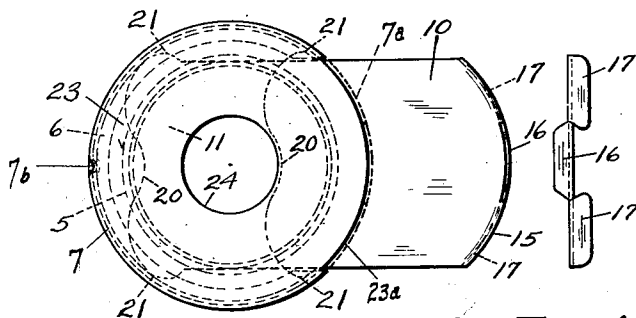


FIG-3 FIG-4

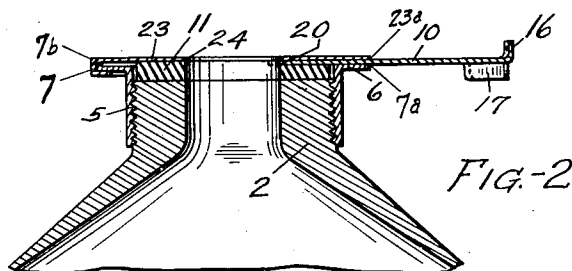


FIG-2

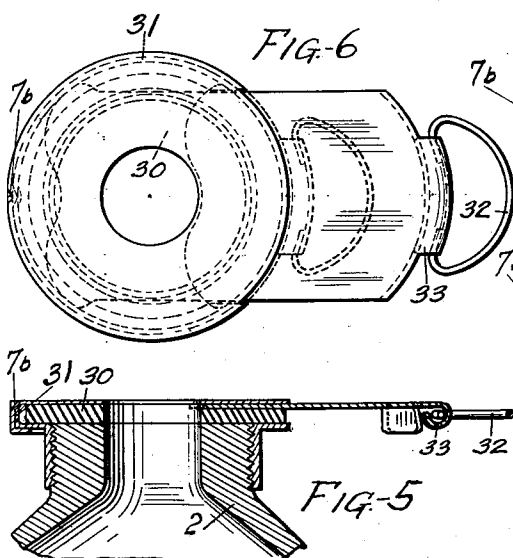


FIG-6

FIG-5

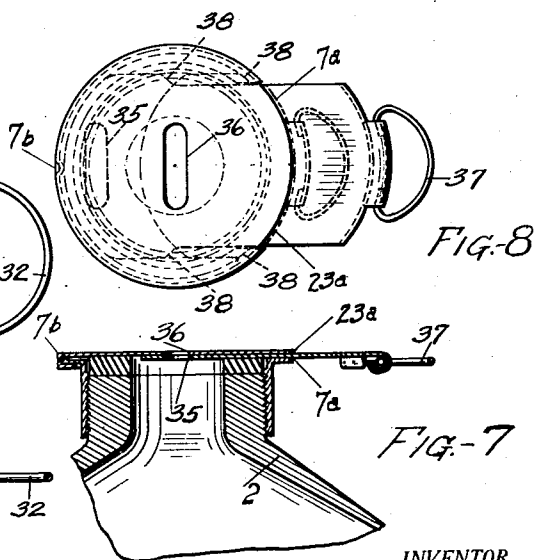


FIG-8

FIG-7

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## CLOSURE FOR TUBES OR THE LIKE.

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This invention relates to a new and improved form of closure for containers of various kinds and while it is shown as applied to the ordinary collapsible tube such as used for dispensing pastes or liquids of all kinds, the invention is also applicable to other containers, cans, jars, or the like.

The object of the invention is to provide a form of closure which will do away with the ordinary screw cap which is easily lost. It also has for its object the provision of a sanitary closure which will securely seal the contents of the tube or container from air and prevent leakage. Advantages of the closure reside in its cheapness of manufacture and in the fact that it is not bulky or cumbersome and cannot be easily bent or injured so as to become inoperative.

The device embodies a sliding cut-off which positively and cleanly severs that portion of the contents which has been extruded or dispensed from the container, leaving a clean tube cover or cap. The device is so constructed that the pressure upon the sliding cut-off may be adjusted so that it may be firmly locked in closed position or released to the desired degree to permit more or less easy operation of the slide.

With these and other advantages, the device may be made inexpensively and from stamped metal parts and an ordinary compressible gasket or washer. It is, therefore, a desirable adjunct to containers or tubes of all types.

Several forms of the invention are illustrated in the accompanying drawings, but it will be appreciated that even more specifically different embodiments of the invention may be made within the scope thereof as set forth in the appended claims.

In the drawings:

Figure 1 is a view of the new form of closure applied to a collapsible tube;

Figure 2 is a section of the preferred form of closure;

Figure 3 is a plan thereof;

Figure 4 is an end view of the slide or cut-off;

Figure 5 is a section through a modified form of the closure;

Figure 6 is a plan of the construction shown in Figure 5;

Figure 7 is a section through a second modified form of the invention; and

Figure 8 is a plan thereof.

The container, in the form of a collapsible tube, is shown at 1, the upper end being formed with the usual screw-threaded nozzle 2.

Referring to the form of the invention shown in Figures 2 to 4, the end of the tube is provided with a threaded cap 5 formed of sheet metal and the screw threads adapted to fit over the nozzle. The cap is formed with a circular, enlarged upper surface 6 about which is formed the flange 7, this flange being extended about the entire circumference of the cap except where it is cut away or removed, as at 7<sup>a</sup>, for the passage of the slide 10 which is of substantially the same height as the flange 7.

On top of the nozzle is placed a ring-shaped washer 11 which may be of cork, rubber, or other compressible or yielding material as may be found practicable, the washer lying below and in contact with the under face of the slide so that the pressure upon the slide may be varied by a slight turning of the cap.

The slide or shutter 10 is formed at one end upon a curve 15 equal to the curvature of the cap and at that point is provided with a tip or flange 16 bent upwardly to provide a purchase or hold for withdrawing the slide. At the sides of the part 16, the metal of the slide is bent downwardly to form two wings 17 which fit against the outer circumference of the cap when the slide is closed. It will be observed in this form of the invention that the slide is of such length that when it is withdrawn to its full extent, as illustrated in full lines in Figures 2 and 3, the opening in the nozzle 2 is completely uncovered. The inner end of the slide may be cut away, as at 20, for this purpose. The slide is retained within the cap by two wings or extensions 21 which abut against the flange 7 and thus stop the movement thereof.

The cap is closed with a cover or lid 23 which is formed of sheet metal and is bent or crimped, or otherwise attached, over the upper portion of the cap except at the point where the slide is located. The cover or lid 23 has a cut at 23<sup>a</sup> therein, through which the slide 10 may extend. In order that the cover 23 may be easily assembled with cap 5, so that cut 23<sup>a</sup> will register properly with cut 7<sup>a</sup>, cooperating projections and indentations may be formed in cover 23 and flange 7, as indicated at 7<sup>b</sup>, so that these parts may

be "clicked" into registry. The center of the cover is provided with a hole 24 which registers with the hole in the nozzle.

In the form of the invention shown in Figures 5 and 6, the gasket 30 extends over the whole of the cap which necessitates a somewhat higher flange 31 about the cap. In this form, a ring 32 is held in a turned-under extension 33 of the slide and may be used for pulling the slide outwardly and also for hanging up the tube or container.

In the form of the invention shown in Figures 7 and 8, the construction resembles that shown in Figures 2 to 4, except that the slide or cut-off is extended the full width of the cap and is formed with a narrow aperture 35 which is adapted to register with an aperture 36 in the cover or top, which latter may be of the same shape or different shape from the aperture 35. The lateral extensions to prevent the withdrawal of the slide are indicated at 38.

In all of the forms shown, the gasket or washer, which has a hole therein for extrusion of the contents of the container, is adapted to be urged against the under side of the slide and that in turn against the cover or top. The slide is of such area as substantially to cover the entire cross-sectional area of the container nozzle and also to provide contact of the slide with the greater part of the surface of the gasket. The contents of the container can, therefore, be tightly sealed and the pressure exerted can be so great as to prevent the withdrawal of the slide. By loosening the cap slightly, the slide may be withdrawn. The slide will always cleanly sever the contents of the container from that which has been extruded, making a sanitary package and one which will not permit deterioration of the contents by exposure to or admission of the air to the interior. The slide may be made very thin so that none of the contents of the tube will clog the opening and at the same time the opening may be wiped clean.

The provision of the lateral extensions upon all forms of slides prevents the withdrawal thereof and does away with extending the slide to both sides of the cap, the slide riding without tilting upon the upper edge of the nozzle. The slide is, therefore, completely housed within the cover and cannot be bent or distorted when not in use. In prior forms in which the slide extended clear through the cap, the extended end of the slide could be easily bent or distorted and the device rendered inoperative for that reason. The lateral extensions and the flanges upon the slide serve, by contact with the flange 7, to align the slide properly when at either limit of its movement.

In the construction shown in Figures 2 to 6 inclusive, the fact that the slide terminates short of the aperture makes it possible to

use a shorter slide than in prior forms, in fact the slide in any of the forms is not longer than the width of the cap.

The entire construction is very cheap, light, and compact. It may be readily made and easily assembled. It operates as a positive cut-off and as an air-tight seal or closure. It cannot get out of order and is equally suitable for paste, powder or liquids. Its other advantages will be apparent to those familiar with the art and with the requirements of this form of container.

What is claimed is:

1. A container having a screw-threaded nozzle thereon, an apertured cap in screw threaded engagement therewith, an apertured gasket lying over the nozzle, a slidable cut-off on the gasket, and an apertured top over the cap, the gasket being compressed against the slide by screwing the cap upon the nozzle.

2. A container having a screw-threaded nozzle thereon, an apertured cap engaged therewith, an apertured gasket lying over the nozzle within the cap, and a slide in the cap providing a closure for the nozzle, the gasket being positioned to be compressed between the slide and the nozzle to hold the slide in sealed position by adjustment of the cap upon the nozzle.

3. A container having a nozzle, an apertured cap upon the nozzle, said cap having an adjustable mounting on said nozzle, a slide in the cap and movable over the nozzle to open or close the same and of length not to exceed the diameter of the cap, and a compressible gasket within the cap in contact with the slide, the pressure upon the gasket being regulated by the position of the cap upon the mounting.

4. A closure for a container comprising an apertured cap, a flange extending upwardly about the cap, a slide contained within the flange and having an extension through the flange to one side thereof only and providing a closure for the cap, and an apertured cover over the cap and slide.

5. A closure for a container comprising an apertured cap, a flange about the cap, a slide contained within the flange and having an extension through the flange to one side thereof only and providing a closure for the cap, an apertured cover over the cap and slide, and a compressible gasket in contact with the slide.

6. A closure for a container comprising an apertured cap, a flange about the cap, a slide contained within the flange and having an extension through the flange to one side thereof and providing a closure for the cap, an apertured cover over the cap and in contact with one side of the slide, and a ring-shaped compressible gasket in contact with the other side of the slide.

7. A closure for a container comprising an

apertured cap, a flange about the cap, a slide contained within the flange and having an extension through the flange to one side thereof only and providing a closure for the cap, and an apertured cover over the cap and slide, in combination with a container upon which the cap may be adjusted to exert varying pressures upon the slide.

8. A closure for a container comprising an apertured cap, a flange about the cap, a slide contained within the flange and having an extension through the flange to one side thereof only and providing a closure for the cap, an apertured cover over the cap and slide, and a ring shaped compressible gasket in contact with the slide, in combination with a container upon which the cap may be adjusted to exert varying pressures upon the slide and gasket.

9. A closure for a container comprising an apertured cap, a flange about the cap, a slide contained within the flange and having an extension through the flange to one side thereof and providing a closure for the cap, an apertured cover over the cap and slide and in contact with one side of the slide, and a ring shaped compressible gasket in contact with the other side of the slide, in combination with a container upon which the cap may be adjusted to exert varying pressures upon the slide and gasket.

10. In combination, a container having a nozzle, an apertured cap adjustably fitted upon the nozzle, a slide movable transversely of the cap to provide a closure for the nozzle, a flange extending upwardly about the cap, a portion of which is removed for the passage of the slide, lateral extensions upon the slide which are adapted to contact with the flange to prevent complete withdrawal of the

slide, and an apertured gasket in the cap positioned between the slide and the nozzle so as to be compressed therebetween.

11. In combination, a container having a screw-threaded nozzle, an apertured, adjustable cap in engagement therewith, a flange extending upwardly about the periphery of said cap, a ring shaped compressible gasket in the cap and resting against the nozzle, a slide over the gasket and extending through the flange to one side of the cap only and providing a closure for the nozzle, lateral extensions upon the slide adapted to contact with the flange to prevent complete withdrawal of the slide, and an apertured cover over the cap and adapted to confine the slide therein.

12. In combination, a container having a screw-threaded nozzle, an apertured, adjustable cap in engagement therewith, a flange extending upwardly about the periphery of said cap, a ring shaped compressible gasket in the cap and resting against the nozzle, a slide over the gasket and extending through the flange to one side of the cap only, and providing a closure for the nozzle, lateral extensions upon the slide in the cap arranged to engage the same to prevent complete withdrawal of the slide, and an apertured cover over the cap and adapted to confine the slide therein.

13. A closure for containers comprising an adjustable screw threaded, apertured cap, a cover secured to the cap, and a gasket above the cap and permanently retained in position between the cover and the cap with the undersurface of the gasket bearing against the top of the container and constituting a seal therefor.

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