

EDWIGE DESGAGNE NEE HARVEY

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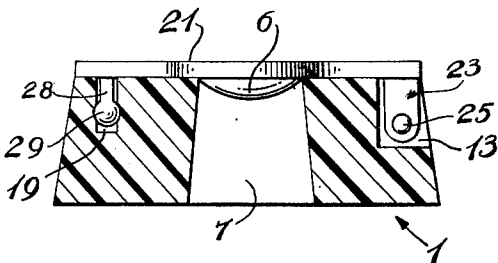


Fig.4

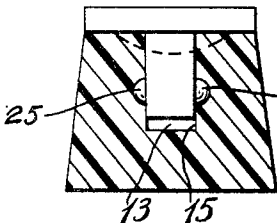


Fig. 3

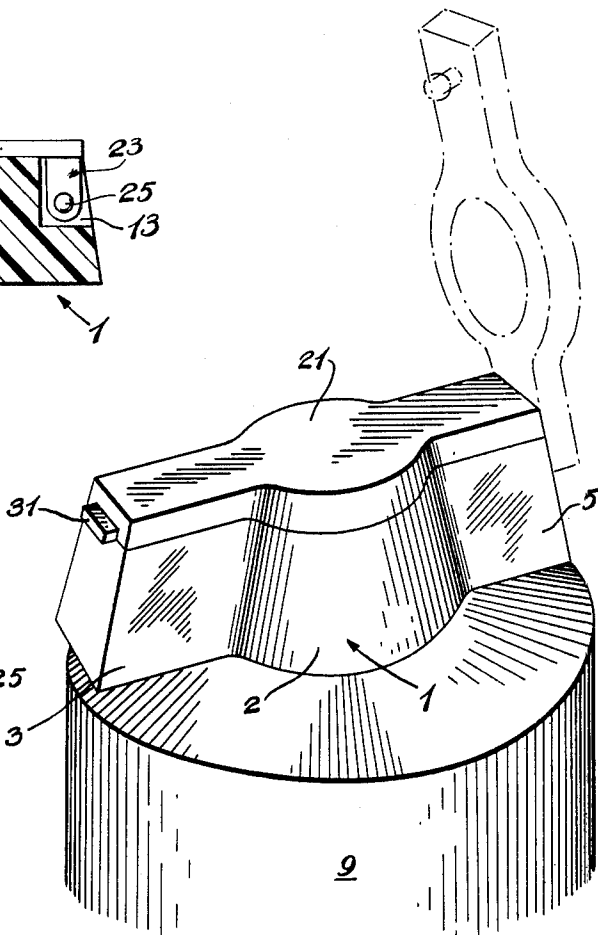


Fig. 1

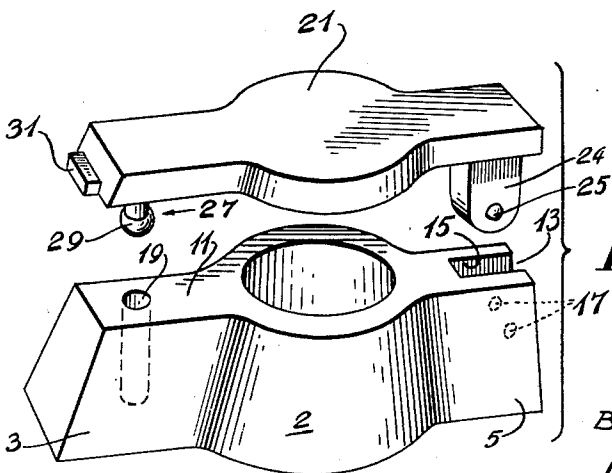


Fig. 2

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CAP FOR COLLAPSIBLE TUBE

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2 Claims. (Cl. 220—31)

This invention relates to closures or caps for collapsible tubes of the type which hold tooth paste and the like.

One main disadvantage of the present-day caps for collapsible containers for tooth paste or the like is that, being a separate piece, they are liable to drop and get dirty or lost.

Another inconvenience is that the opening and closing of such tubes provided with separate caps require the use of both hands, which is not always convenient.

It has also been found that, at times, the threads of the cap and mouth piece or nozzle of the tube become crossed and tend to freeze or become difficult of disengagement.

The instant invention proposes to overcome these inconveniences by providing a new closure for such tubes which would be made an integral part of the tube, thus eliminating the possibility of the cap being dropped or lost.

The invention also contemplates the provision of such a closure which would not depend on screw threads for closing, thus avoiding the frequent crossing of thread and subsequent freezing of the parts.

It is also within the scope of the invention to provide a closure which could readily and simply be opened with one single hand.

The use of nylon in the construction of the closure of my invention will further enhance its cleanliness and the smooth operation of its relatively moving parts while ensuring freedom from rust.

These various objects are attained by the provision of a closure for collapsible tubes or the like comprising: a body having a central section and two wings laterally extending therefrom, a frustoconical opening through said central portion adapted to be mounted on the discharge nozzle of a collapsible tube, said body having a substantially flat top surface, a slot-out of one of the wings and opening onto said flat surface, said slot having opposed surfaces provided with spherically concave grooves; a cylindrical perforation on the other of said wings, also opening onto said flat surface; a substantially flat closure member adapted to lie over said flat surface of said body, said closure member being provided with a hinge member at one end and a lock member at the other end slidably fitting in close contact with the groove and perforation respectively, said hinge member being provided with spherical knobs engageable in the spherically concave grooves for pivotal movement of said closure member, and said lock member being provided with a spherically rounded head frictionally engaging said perforation in locking relationship with said body.

A better understanding of the invention and further advantages and novel characteristics thereof will be pointed out as the description proceeds, having regard to the accompanying drawings wherein:

FIG. 1 is a perspective view of the head of a collapsible container equipped with the closure of my invention, also showing, in dot and dash lines, the closure member in opened position.

FIG. 2 is a perspective view of the closure alone, the main body and the closure member proper being shown severed,

FIG. 3 is a transverse sectional view along the hinge part of the closure, and,

FIG. 4 is a longitudinal section along the complete closure.

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The closure of my invention consists of a main body 1 composed of a central section 2 and wings 3 and 5 extending radially and laterally from the central section, which is frustoconical in outward shape, as seen in FIGS.

1 and 2. The wings 3 and 5 themselves, which are in alignment and separated by central portion 2, are shown trapezoidal in cross-section.

It is not, of course, necessary that the various parts of the main body be of the spherical shape mentioned above. It need only have a central portion through which is pierced a central bore 7 and a couple of wings, the purpose of which is to be described later.

Bore 7 is frustoconical in shape with the smallest diameter at the top. We mentioned before that the closure is to be, preferably, made of nylon so that a tapered bore, wherein the smallest diameter is smaller than the outer thread diameter of the neck of the collapsible tube to which the closure is to be applied, and the largest diameter slightly larger than the neck diameter would provide quite means for mounting the closure thereon. The largest diameter of the bore 7 being slightly bigger than the outside diameter of the neck threads, the closure will have to be force-threaded, because of the smaller diameter, onto the neck, thus providing easy and secure means to hold the closure onto the neck of the tube. The fact that this closure is made of nylon will facilitate the superficial threading of bore 7 that will hold the closure in position.

As better shown in FIGS. 2 and 4, a slot 13 is cut onto one end of the wing 5. This slot opens on the upper flat surface 11 of main body 1 and, preferably, also, it opens on one side of wing 5. Each of two parallel sides 15 of slot 13 is provided with one spherically concave groove 17 (FIG. 2), the axis of which is normal to the axis of bore 7, although not in the same plane.

The other wing 3 is provided with a cylindrical perforation 19, also opening on flat upper surface 11 but terminating short of the bottom surface of main body 1. The axis of this cylindrical perforation 19 is parallel to the bore axis. It may be added that perforation 19, bore 7 and slot 13 have axis substantially in the same plane.

Closure member 21 proper is, of course, complementary to main body 1. It is generally flat and follows the outline of body 1. As best seen in FIGS. 2 and 4, it comprises a hinge member 23 having two parallel sides which are spaced apart a distance slightly less than slot 13 so that it will be received slidably therein.

Each of these side surfaces 24 of hinge member 23 is provided with a spherical knob 25 to be received in mating spherical grooves 17. Therefore, these knobs have a common axis which is normal to bore 7 axis.

On the other end of closure member 21 and also projecting from the flat surface is the lock element 27 which is composed of a rod or bar 28, one end of which is connected to closure member 21 whereas the other end is provided with a spherical head 29 adapted to be received into cylindrical perforation 19.

As clearly seen from FIG. 3, hinge member 23 has to be forced in slot 13 on account of knobs 25. However, once the knobs are sitting in their mating grooves 17, the closure will be in a position to freely pivot about the axis of the knobs and grooves, as side surfaces 24 make a freely slidable contact with the parallel sides 15 of slot 13.

However, locking element 27 is, and remains, a force-fit into cylindrical perforation 19 due to the greater size of spherical head 29 as compared to the diameter of the perforation. It, therefore, serves as an efficient lock.

Projecting outwardly of one end of flat closure member 21 is a lug 31, the purpose of which is obvious.

By holding the collapsible container in one hand, closure member 21 can easily be lifted out of closed position

by pressing upwardly with the thumb of the same hand on lug 31.

I claim:

1. A closure for collapsible tubes having an outwardly threaded discharge nozzle, comprising: a unitary body of plastic material having a central section and two wings laterally extending therefrom; a frusto-conical opening through said central portion having a smooth inner surface adapted to be force threaded onto the threaded discharge nozzle of a collapsible tube; said body having a substantially flat top surface; a slot cut out of the outward end of one of the wings and opening onto said flat surface; said slot having opposed lateral surfaces provided with spherically concave grooves; a cylindrical perforation on the outward end of the other of said wings, also opening onto said flat surface; a unitary substantially flat closure member made of plastic material and adapted to lie over said flat surface of said body in the closed position thereof; a plastic hinge member integral with and projecting perpendicularly from said closure member at one end thereof and provided with integral spherical knobs engageable in the spherically concave grooves for pivotal movement of said closure member; a plastic lock

member integral with and projecting perpendicularly from the other end of said closure member; said lock member being provided at the free end thereof, with a spherically rounded head of a diameter larger than the diameter of said perforation and frictionally engageable into said perforation in locking relationship with said body in closed position of the closure.

2. As claimed in claim 1, wherein said end of said closure member having the locking element is provided with an outward lug projecting away from the adjoining side of the body.

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