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3,167,202

CLOSURE ASSEMBLY FOR CONTAINER NECK

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FIG. 1

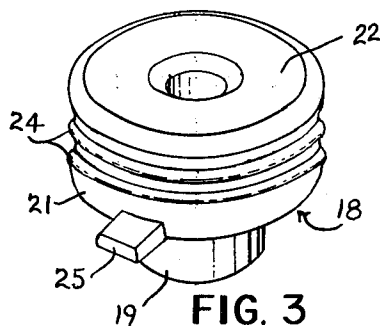
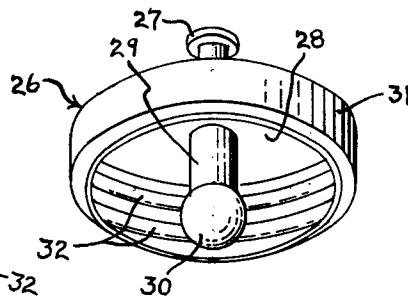
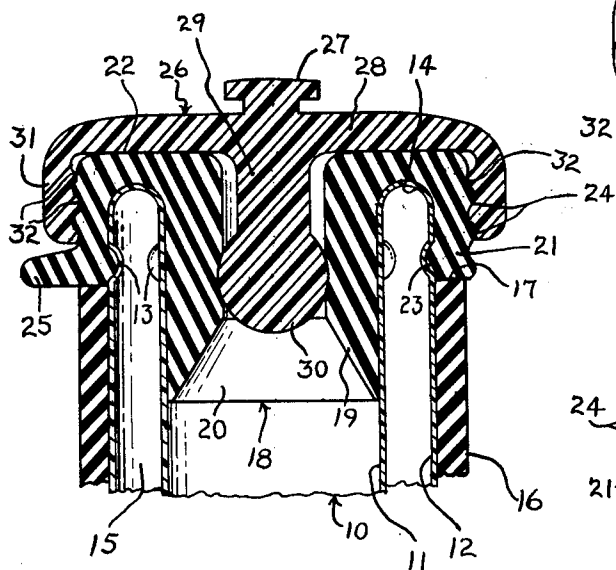


FIG. 2

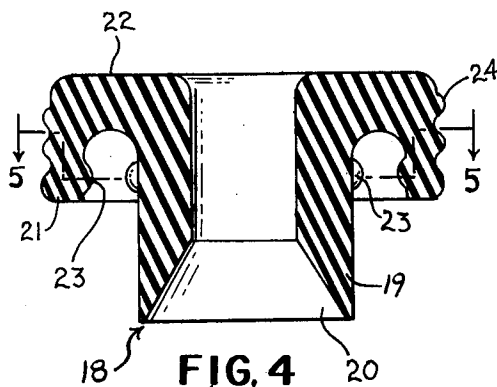
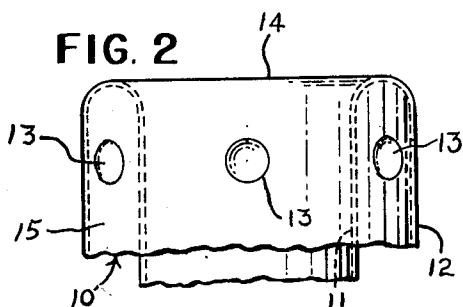


FIG. 5

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1

3,167,202

CLOSURE ASSEMBLY FOR CONTAINER NECK
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The invention relates to containers for commodities, especially liquid or semi-liquid comestibles. More specifically the invention relates to insulated containers of the type adapted to keep fluids, such as beverages hot. In such containers of small capacity a double walled container having a high partial vacuum therebetween is effective. However, it is impractical to provide a high enough vacuum in a large sized container such as one capable of containing one or more gallons of hot coffee or the like as it required when a military detachment is to be supplied. Thus, such large sized containers are usually made of sheet metal with a double wall having the inter wall space filled with suitable insulating material. Of course, such metal walls although strong and sturdy in use are excellent transmitters of heat whereby they not only burn the lips of one drinking from the neck of the container but a considerable portion of the heat of the liquid is dissipated through the exposed neck, particularly after the closure therefor is removed. In U.S. Patent No. 2,978,134, dated April 4, 1961, a neck guard and closure assembly adapted to accomplish much the same purpose is disclosed. However, such device is not entirely satisfactory because when the closure plug is pulled out, there is a tendency for it to strip the guard from the neck as well. This requires the guard to be separated from the plug and reapplied to the neck before the container can be used.

With the foregoing in view, it is an object of the invention to provide an improved container neck guard of the class described.

A further object is to provide such an improved guard in combination with a container neck to provide interfitting means adapted to resist withdrawal of the guard from the neck.

A further object is to provide an improved combination of guard and closure for providing a multiple seal for a container.

A further object is to provide an improved closure for a container which includes means for readily releasably securing the same in position.

A further object is to provide an improved combination of guard and closure for a container neck wherein said guard and neck include interfitting means resisting separation and wherein said closure and guard include interengaging means for resisting separation of said closure and guard.

Other objects and advantages reside in the specific structure of the several elements of the invention, combinations and subcombinations of such elements with each other and/or with a container, all of which will be readily apparent to those skilled in the art upon reference to the attached drawing in connection with the following specification wherein the invention is described and claimed.

In the drawing:

FIGURE 1 is a fragmentary vertical view through the neck of container showing the guard and closure applied thereto;

FIGURE 2 is a fragmentary elevational view of the container neck apart from the guard and closure;

FIGURE 3 is an exploded perspective view of the closure and guard apart from the container neck;

FIGURE 4 is a vertical sectional view through the guard apart from the closure and neck; and

2

FIGURE 5 is a horizontal sectional view taken substantially on the planes of the line 5-5 of FIGURE 4.

Referring specifically to the drawing, wherein like reference characters designate like parts in all views, and referring at first to FIGURES 1 and 2, 10 indicates generally a dispensing neck for an insulated container of any suitable type, not shown. Neck 10 includes an inner wall 11 an an outer wall 12. Outer wall 12 is formed with a plurality of radially directed bosses or recesses for a purpose to be apparent. In the species shown, wall 12 is formed with a plurality of circular recesses 13 but recesses of other shapes and of greater or lesser numbers are contemplated. Walls 11 and 12 merge at the top to form a free upper edge 14 for the neck 10. The space 15 between the walls 11 and 12 may be filled with any suitable insulating material, not shown. Walls 11 and 12 are formed of any suitable material, metal or plastic but will usually be formed of corrosion resistant steel or the like. The outer wall 12 may be covered with any suitable insulating material 16, FIGURE 1, which terminates short of the free outer edge 14 to provide an upwardly directed annular shoulder 17. As aforesaid, a metal wall is an excellent transmitter of heat so an insulating guard 18 for the neck 10 has been provided.

Guard 18 is formed of any suitable resilient material which is substantially resistant to both high and low temperatures. The so-called silicone rubber which is formed from a silicone resin is a suitable material but use of other elastomers either natural or synthetic is contemplated. As best seen in FIGURES 3, 4 and 5, guard 18 includes an inner tubular portion 19. The lower end of the inner surface of portion 19 may be bevelled as at 20 to facilitate the flow of liquids out of the neck 10. Guard 18 includes an outer tubular portion 21 which is preferably shorter than the inner portion 19 and which is integrally connected thereto at the upper end thereof by a web 22. The inner surface of the outer tubular portion 21 is formed with radially directed projections or recesses corresponding to those of the outer surface of the neck 12. In the embodiment shown, such inner surface is formed with a plurality of bosses 23 which are complementary to the recesses 13 aforesaid whereby to fit therein and provide means resisting the removal of the guard 18 from the neck 10 in a manner readily understood. The outer surface of the outer tubular portion 21 is likewise formed with one or more radially directed projections or recesses. In the species of the invention illustrated, such outer surface is formed with a plurality of screw threads 24 for a purpose to be apparent hereinafter. The outer tubular portion 21 has a length sufficient to enable its free lower edge of resiliently abut the shoulder 17 of the outside insulating cover 16. The lower edge of the outer tubular portion 21 is formed with at least one radially outwardly projecting tab or finger grip 25 for not only facilitating the application and removal of the guard 18 to and from the neck 10 but also to hold the guard in place when the closure 26 is removed from the assembly.

The closure 26 may include any suitable handle such as the axially upwardly projecting stud 27 and comprises a cap or web portion 28 which overlies and bears upon the web 22 of the guard 18 to provide a seal. It also includes an axially inwardly extending plug 29 the inner or lower end of which is enlarged to form a ball-shaped portion 30 which has a diameter greater than the interior diameter of the inner tubular portion 18 so as to slightly compress the same when inserted therein and provide therewith a seal. The outer edges of the cap portion 26 are downwardly directed to provide a skirt 31 which has a close fit with at least the upper portions of the outer surface of the outer tubular portion 21. The inner surface of such skirt 31 is formed with radially directed projections or recesses complementary to those of the outer surface of the outer

tubular portion 21. As shown, in this species of the invention such elements comprise screw threads 32 which are complementary to the aforesaid threads 24. Threads 32 are sized to at least slightly compress the threads 24 when applied thereto so as to provide a third seal and also to provide means resisting withdrawal of said closure 26 from the guard. Of course, when the closure 26 is screwed into place the web 28 compresses the web 22 of the guard to provide a seal.

Closure 26 may be formed of any suitable inert material, preferably one of the fluorocarbon plastics or nylon or polyethylene or the like. Of course, it should be formed of material harder than that forming the guard 18.

In use, with the parts in the position of FIGURE 1, the operator grasps the tab or finger grip 25 with the thumb or a finger of one hand to immobilize the guard 18. The closure 26 is now readily unscrewed by the other hand. Thus, the closure is readily removed from the guard without stripping the latter from the neck 10.

As is apparent from the foregoing, the entire exposed outside surface of the neck 10 is covered by the outer tubular portion 21 while the inner surface of the neck is covered to a point well below the shoulder 17 of the insulating cover 16. Thus, no direct dispersal of heat from the container contents through the inner and outer neck walls 11 and 12 or the free outer edge 14 thereof. Also, the neck opening is sealed with a triple seal by the three aforementioned seals. At the same time, both guard 18 and the closure 26 are positively secured together and to the neck 10 against accidental dislodgement. Nevertheless, closure 26 is readily disengageable from the guard 18 and the latter may be as readily removed from the neck 10. Replacement of these elements is equally easy.

The foregoing invention comprises elements which are readily manufactured at comparatively low cost by molding low cost material in conventional molds. Likewise, the projections or recesses, as the recesses 13 in the container neck may be readily formed by a simple operation during the course of manufacture. At the same time, it is clear that the neck, guard and closure assembly provide excellent insulation of a vulnerable part of the container as well as an assembly which can be readily used under blackout conditions by any personnel with a minimum of instruction and while wearing hand coverings.

Moreover, while there has been shown and described what is now thought to be the preferred embodiment of the invention, it should be understood that the same is susceptible of other forms and expressions. Consequently, the invention is not considered to be limited to the precise structures shown and described hereinabove but only as hereinafter claimed.

I claim:

1. A closure assembly for the neck of a container, said neck including inner and outer surfaces as well as a free outer end, the outer surface of said neck being formed with at least one recess therein, a guard member of resilient material comprising inner and outer tubular portions, said guard member being shaped and sized to have a close sliding fit over said neck with said inner and

outer tubular portions embracing the inner and outer surfaces of said neck therebetween, said inner tubular portion providing a reduced tubular passage through said neck, said outer tubular portion having an inner surface formed with at least one radially inwardly directed boss being complementary to said recess and resiliently seated therein to provide therewith means resisting withdrawal of said guard from said neck; a closure assembly comprising a plug having a diameter substantially smaller than that of the reduced passage and insertable in said reduced passage, said plug having a ball portion integral with the lower end thereof, said ball portion having a diameter greater than that of said passage to compress corresponding portions of said inner tubular portion of the guard to provide a seal, an annular web extending radially outwardly of said plug and disposed thereabove, said web including a depending cylindrical skirt adapted to encircle the outer tubular portion of said guard and having an inner surface formed with screw threads, the outer surface of the outer tubular portion of the guard being formed with screw threads complementary to those of said skirt, the threads of said skirt being sized to compressively engage the threads of said outer tubular portion to provide a seal.

2. A container including a neck having a free outer end as well as inner and outer surfaces, a guard for said neck, said guard being formed of resilient material and comprising inner and outer tubular portions connected together at one end by an integral web, said inner tubular portion providing a reduced tubular passage through said neck, said guard having a close sliding fit over said neck with said inner and outer tubular portions embracing the inner and outer surfaces of said neck therebetween with said web overlying the outer end of said neck; a closure for said guard comprising a cap portion having a web and a skirt, a plug depending centrally from said web in concentric relation to said skirt and having a ball portion integral with the lower end thereof, said plug being insertable in the reduced passage in the neck of said guard, said plug having a diameter less than, and said ball portion having a diameter greater than, the diameter of the reduced passage in the neck of the guard; interfitting means for releasably securing said guard on said neck comprising a series of radially and inwardly extending bosses formed on the inner surface of the outer tubular portion of the guard and a series of radially and outwardly extending recesses formed on the outer surface of the neck on the guard and disposed in complementary arrangement with said bosses; and an integral tab on the outer tubular portion of said guard, said tab projecting radially outwardly of said skirt to provide means for immobilizing said guard while said closure is being applied or removed therefrom.

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FRANKLIN T. GARRETT, *Primary Examiner*.