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C. J. YATES
CONTAINER CLOSURE
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Fig. 1.

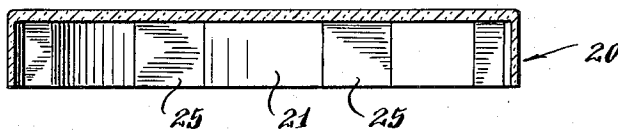


Fig. 2.

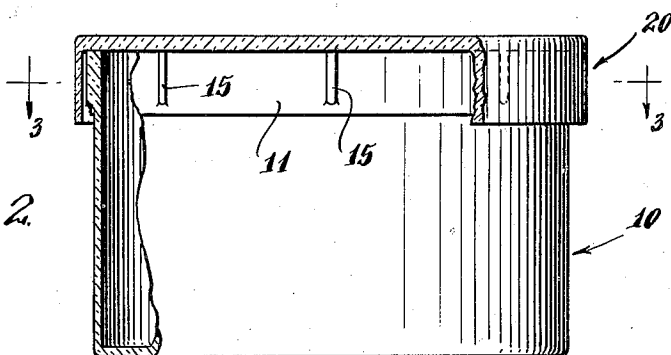


Fig. 3.

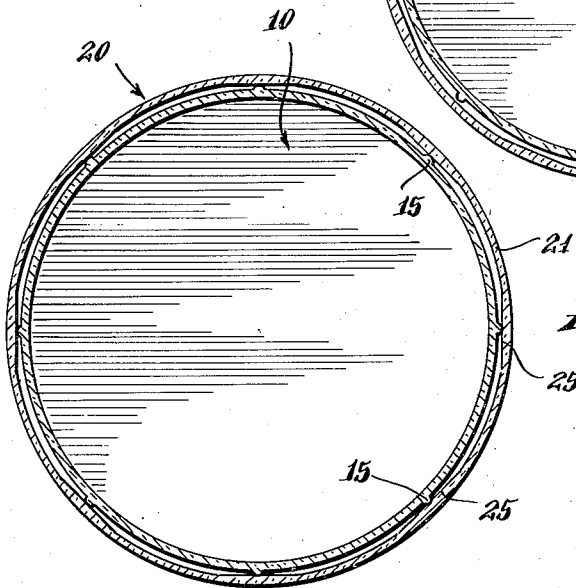
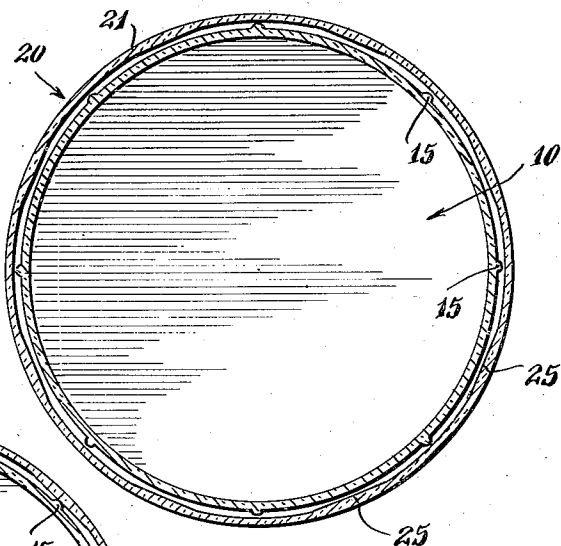


Fig. 4.

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CONTAINER CLOSURE

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2 Claims. (Cl. 220-42)

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This invention relates to containers and, more particularly, to a novel detachable, container closure.

Detachable container closures have been made in various forms. For example, in the case of cylindrical containers, cooperating threads have been formed on the container and its closure, or the two parts have been formed with cooperating lugs and slots. The formation of such threads, lugs and slots was added to the cost of manufacturing the container and its closure.

To avoid this added manufacturing expense, closures have been provided which have a frictional fit with the container. These have not been wholly satisfactory in practice, as the wear and deformation resulting from use of the container alters the relative dimensions of the parts to such an extent that a tight frictional engagement can no longer be attained.

The present invention provides a container and detachable closure having a tight frictional fit, in which wear and deformation may be readily accommodated without loss of tightness of the fit between the closure and the container. The closure may be set loosely onto the container, in one relative position, and frictionally secured thereto by a slight relative turning movement, in either direction, to another position. As the parts wear or deform, a greater degree of turn is required, but the tight frictional fit is in no way impaired.

For this purpose, the wall of the container, adjacent its open end, is formed with circumferentially spaced projections extending radially outwardly, from the container wall. The closure has an annular rim with a general internal diameter large enough so that the rim fits easily over such projecting portions, in one relative position of the closure. To secure the tight fit with the container the interior of the closure rim is joined with chordal portions equal in number and spacing to the container projections. As the closure is turned in either direction, the chordal portions engage the container projections with a wedging fit, thus tightly but detachably securing the closure to the container.

It is therefore among the objects of this invention to provide a novel container and detachable closure assembly.

Another object is to provide a closure having an easily releasable frictional fit with its container.

A further object is to provide a container and closure having frictional engaging means adaptable to accommodate wear and deformation due to use.

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These, and other objects, advantages and novel features of the invention, will be apparent from the following description and the accompanying drawing.

In the drawing:

Fig. 1 is an axial sectional view through a closure according to the invention.

Fig. 2 is an elevation view of a container embodying the invention and cooperable with the closure of Fig. 1.

Figs. 3 and 4 are diametric sectional views, on the lines 3-3 of Fig. 2, showing the closure assembled with the container.

Referring to the drawings, a cylindrical container is illustrated at 10 for cooperation with a detachable closure indicated at 20.

Container 10 is shown as having an annular external rib 11 near its open end. In accordance with the invention, rib 11 is formed with radial projections, shown as comprising elongated, relatively narrow ribs 15. Ribs 15 are preferably equally spaced circumferentially of rib 11, and need have only a small radial thickness.

Container 10 and its ribs 11 and 15, may be formed of any suitable material and by any suitable means. For example, it may be molded from a plastic composition material, or may be stamped or the like from sheet metal. The material and method of formation have no limiting bearing on the present invention.

Closure 20 has an annular rim 21 of such internal diameter that it will slip easily over projections 15 on container 10. At equal spaced points around its inner periphery, rim 21 is provided with chordal sections 25, which may be integral therewith, or formed separately and cemented in place. Chordal sections 25 are of such depth as to have a wedging action on ribs 15 when closure 20 is rotated relatively to container 10.

The operation of the invention will be understood from reference to Figs. 3 and 4. Closure 20 is first set over the annular rib 11 of container 10 in such position that chordal sections 25 are out of alignment with elongated ribs 15, as in Fig. 3. In such relative position, rim 21 fits easily over rib 11. The closure is now turned in either direction to engage chordal sections 25 with ribs 11. The chordal sections wedge against the ribs 11, making a tight frictional fit of the closure onto the container. As wear occurs, a greater degree of turn is required, but a tight fit may still be obtained due to the wedge action of the chordal sections and the container ribs.

In the specific example shown, container 10

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and closure 20 are circular or cylindrical, and ribs 15 and chordal sections 25 are arranged in diametrically opposite pairs. However, such arrangement is not essential. The only necessary condition is that chordal sections 25 are aligned with the respective ribs 15 in one relative position of the container and closure. In the example shown, this alignment is accomplished most effectively by arranging such elements in diametrically opposite pairs and at equal circumferential spacings. Of course, the chordal sections should be equal in number to the ribs 15 for the most effective frictional action. It will be understood that, in the case of other than curvilinear engaging surfaces of the container and closure, the chordal sections 25 will be replaced by equivalent wedge sections.

The invention thus provides a container and closure assembly having tight frictional closing engagement, and in which wedging elements are inexpensively provided to secure such tight closure. By a slight movement in a reverse direction, the closure is made easily removable from the container.

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the principles thereof, it should be understood that the invention may be otherwise embodied without departing from such principles.

What is claimed is:

1. A container and closure assembly interlockable by relative rotation comprising, in combination a container having a circular sidewall defining an opening; vertically extending abutment means spaced circumferentially around the outer surface of said wall adjacent said opening; a closure for said container opening having a depending circular flange, circumferentially spaced

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arcuate sections on the inner surface of said flange fitting freely over said abutment means; and circumferentially spaced chordal sections on the inner surface of said flange between said arcuate sections and arranged to wedgingly engage said abutment means upon relative rotation of said closure and container.

2. A container and closure assembly interlockable by relative rotation comprising, in combination a container having a circular sidewall defining an opening; vertically extending abutment means equally spaced circumferentially around the outer surface of said wall adjacent said opening; a closure for said container opening having a depending circular flange, circumferentially spaced arcuate sections on the inner surface of said flange fitting freely over said abutment means; and circumferentially spaced chordal sections on the inner surface of said flange between said arcuate sections and arranged to wedgingly engage said abutment means upon relative rotation of said closure and container; said chordal sections being equally spaced and equal in number to said abutment means.

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