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H. T. KRAFT

2,036,875

CLOSURE PLUG

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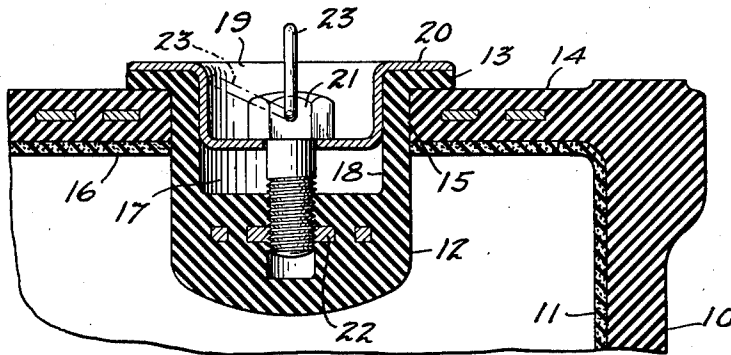


Fig. 1

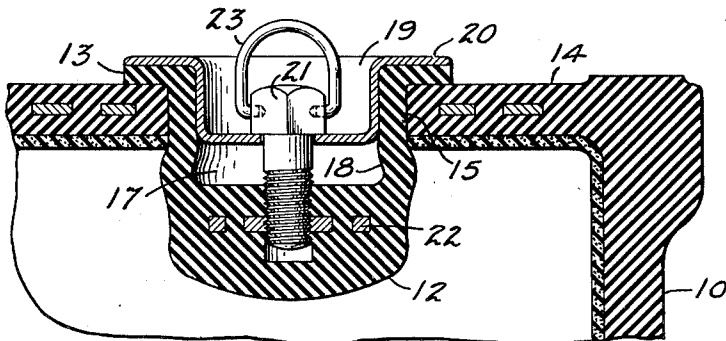


Fig. 2

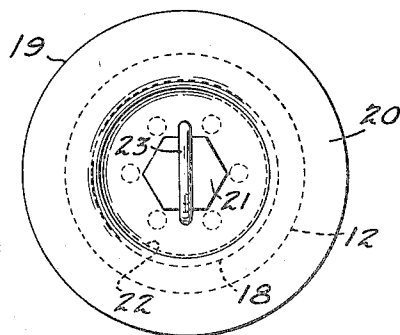


Fig. 3

INVENTOR
Herman T. Kraft
BY *Evanor McLoey*
ATTORNEYS

UNITED STATES PATENT OFFICE

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CLOSURE PLUG

Herman T. Kraft, Akron, Ohio, assignor to The
General Tire & Rubber Company, Akron, Ohio,
a corporation of Ohio

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5 Claims. (Cl. 206—2)

This invention relates to removable closures for containers and it is one of the objects of the present invention to provide a removable closure of new and improved construction which will provide an efficient seal with the walls of the opening in which the closure is disposed and which can be economically manufactured.

Another object is to provide an improved closure plug which is deformable to provide a fluid tight seal with the walls of the opening in which it is disposed.

With the above and other objects in view the present invention consists of certain features of construction and combinations of parts to be hereinafter described with reference to the accompanying drawing and then claimed.

In the drawing which illustrates a suitable embodiment of the invention,

Figure 1 is a longitudinal section of the closure plug in position in a container opening, the container being shown in fragmentary section;

Fig. 2 is a view similar to Fig. 1 but showing the closure plug in its deformed sealing position; and

Fig. 3 is a plan view of the closure plug shown in Figs. 1 and 2.

Referring to the accompanying drawing in which like numerals refer to like parts throughout the several views, I have shown a fragmentary portion of a container 10 of the character shown in my co-pending application Serial No. 705,525, filed January 6, 1934, and which is in the form of a one-piece fibrous body or drum having a lining 11 of gum rubber, this container being particularly adapted for the transportation of acids. While I have shown the closure about to be described in connection with the acid drum 10, it is to be understood that such showing is for the purpose of illustration only and that the closure is suitable for use in any type of container having a filler or drain opening.

The closure of the present invention is formed of a suitable body of rubber or other suitable deformable material and comprises a circular body portion 12 having a peripheral flange 13 which is adapted to seat against the head 14 of the container 10 while the body portion 12 extends through the opening 15 in the head 14 well beyond the inner face 16 thereof.

The body portion 12 is formed with a central recess 17, the bottom of which is disposed some distance below the plane of the inner face 16 of the head 14 so as to provide an annular deformable wall 18 between the planes of the bottom of

the recess 17 and the inner face 16 as shown in Figs. 1 and 2.

Seated within the recess 17 but spaced from the bottom thereof is a cup shaped stamping 19 having a flange 20 seated on the flange 13 of the body portion 12.

The body 12 is deformed by means of a cap screw 21 extending axially through the stamping 19 and threaded into a metal plate like member 22 which is embedded in the body portion 12 between the solid end of the same and the bottom of the recess. The head of the screws 21, if desired, may be provided with a bail-like portion 23 for turning the screw, which is swingable as shown in Fig. 1 into the cup of the stamping 19.

After the closure is inserted in the container opening, the screw 21 is rotated to thread the same into the plate 22 and this threading action obviously distorts the narrow walls 18 of rubber, causing them to bulge circumferentially outwardly as shown in Fig. 2, by reason of the pressure tending to compress the closure. The compressive force also tends to expand the body of rubber between the outer walls of the cup 19 and the wall of the container opening. This expansion of the rubber adjacent the wall of the container opening and the bulging of the same at the inner edge of the opening thus provides for a fluid tight fit of the closure within the container opening and also provides a means for very effectively preventing displacement of the closure from the opening. Such a closure is particularly adaptable for use in containers employed for transporting acids and the like since it may be formed of rubber.

The closure is simple in construction, economical to manufacture and can be easily inserted in and removed from the container opening.

Although a single embodiment of the invention has been herein shown and described it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined in the following claims.

What I claim is:

1. In combination with a container having a wall provided with an opening, a closure plug for said opening, comprising a cylindrical body of resilient deformable material having a coaxial annular portion, said annular portion being disposable within said opening with said body disposed within said container, a rigid member engaging the end wall of said annular portion, a second member connectively associated with said body, and means for moving said second mem-

ber toward said rigid member whereby to longitudinally compress and bulge a portion of said annular portion outwardly into substantially overlapping relation with the inner edge of said opening.

- 5 2. A closure plug for container openings, comprising a cylindrical body of resilient deformable material having a relatively thin walled annular portion, a rigid member engaging the end
10 walls of said annular portion, an apertured plate embedded in said body and a screw member abutting the outer face of said member at one end and threaded into said plate at its opposite end for drawing said member and body toward
15 each other to circumferentially bulge said annular portion.

3. A closure plug for container openings, comprising a cylindrical body of rubber having an apertured plate embedded therein and an annular portion, a cup shaped stamping fitting within said annular portion and spaced from said body, and a screw extending through said stamping and threaded into said apertured plate for drawing said stamping and body toward each
20 other to compress the annular portion lying therebetween and thereby expand said portion.
25 4. A closure plug for container openings, com-

prising a body of rubber having an apertured plate embedded therein and having an annular portion, said annular portion having a radial container engaging flange, a rigid member extending across said annular portion and engaging said flange, and a screw extending through said member and threaded into said apertured plate for moving said member and body toward each other to exert compressive pressure on said annular portion and circumferentially bulge the same radially outwardly.

5. A closure plug for container openings, comprising a body of rubber having an apertured plate embedded therein and having an annular portion, said annular portion having a radial container engaging flange, a rigid member extending across said annular portion and engaging said flange, and a screw extending through said member and threaded into said apertured plate for moving said member and body toward each other to exert compressive pressure on said annular portion and circumferentially bulge the same radially outwardly, said member having a cup portion nested within said annular portion and spaced from said body.

HERMAN T. KRAFT.