

March 20, 1934.

H. M. DILLHOEFER, JR

1,952,036

CONTAINER

Filed July 20, 1932

2 Sheets-Sheet 1

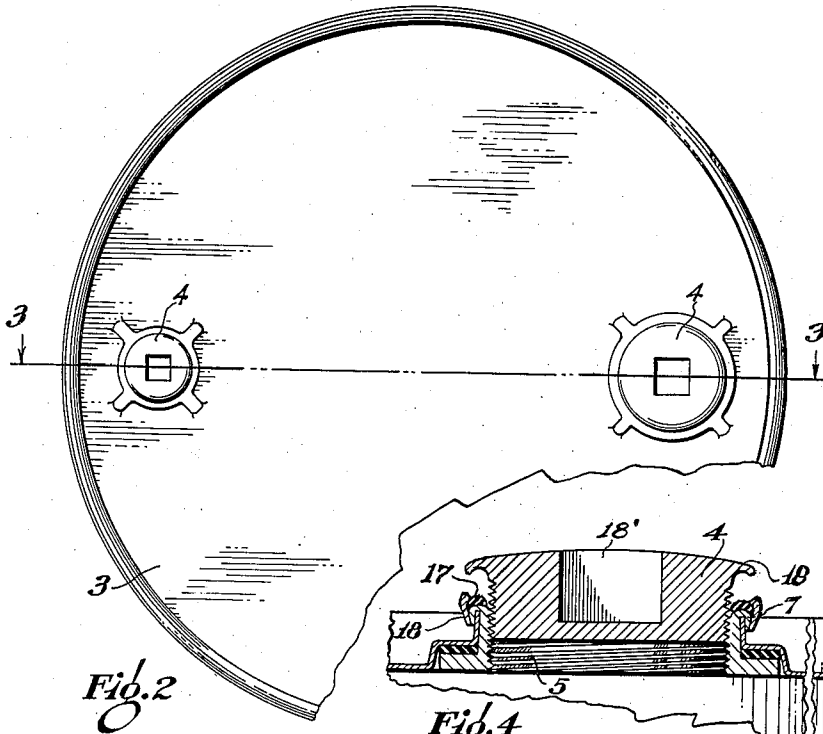


Fig. 2

Fig. 4

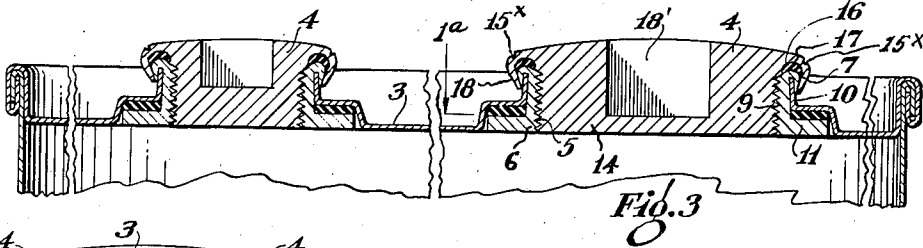


Fig. 3

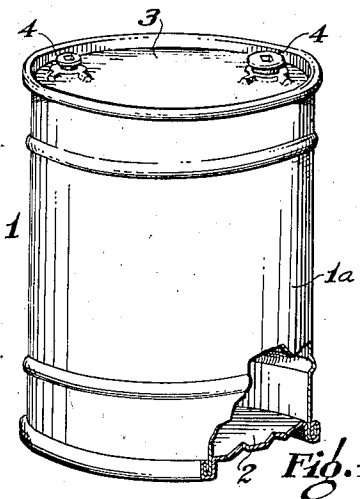


Fig. 1

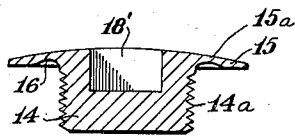


Fig. 5

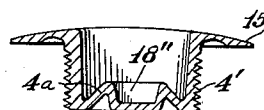


Fig. 6

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2 Sheets-Sheet 2

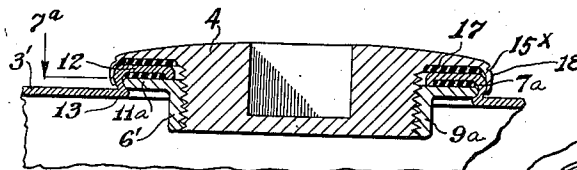


Fig. 7

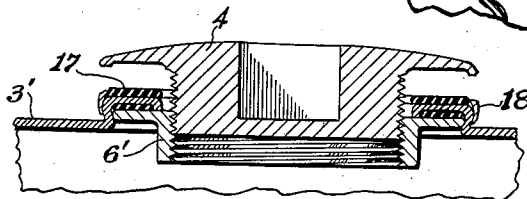
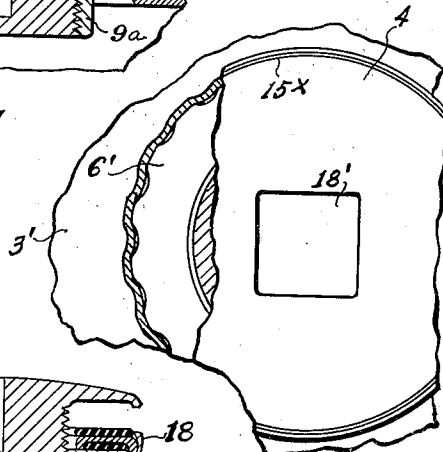


Fig. 8

Fig. 7a



Fig. 6a

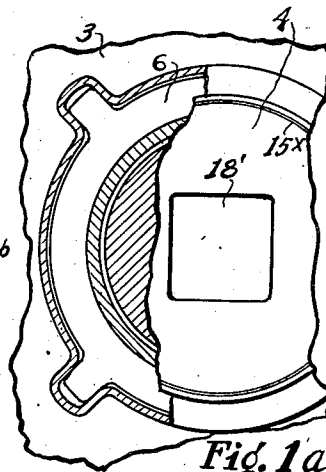


Fig. 1a
INVENTOR.

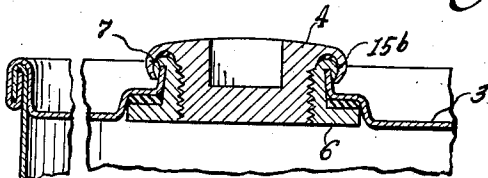


Fig. 6b

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UNITED STATES PATENT OFFICE

1,952,036

CONTAINER

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Application July 20, 1932, Serial No. 623,537

10 Claims. (Cl. 220—39)

This invention relates to a container, more particularly a container for storing and shipping liquids and semi-liquids, including the sealing means therefor, whereby the container may be filled and sealed in such manner that unauthorized opening may be readily detected. The sealing means is shown applied to a container fabricated from sheet metal, but it is applicable to other forms of construction.

One object of the invention is to provide a container and a removable closing element therefor of improved construction adapted to be interlocked in sealed relation without the use of auxiliary devices and so arranged that opening or attempted opening of the container will automatically mutilate or distort the closing element.

Another object of the invention is to provide a container construction in which portions of the container surrounding an opening therein and portions of the closing element for such opening are utilized to seal the container against unauthorized opening.

Another object of the invention is to provide an improved closing element for the opening of a container having an annular marginal portion arranged to be interlocked with portions of the container to seal the latter and adapted to be broken or detached from the element upon the loosening or removal of the element, whereby unauthorized opening or attempted opening of the container may be detected.

A further object of the invention is to provide an improved removable closing plug for the opening in a container in which the plug is provided with a bendable flange arranged to engage portions of the container and having a weakened annular portion, permitting breakage of the flange along said portion when the plug is loosened or removed, whereby opening or attempted opening of the container may be detected.

A still further object of the invention is to provide an improved plug for the opening in a container in which the plug is provided with a bendable flange arranged to interlock with portions of the container and the flange is formed with an annular groove on its lower side serving as a seat for a gasket.

Another object of the invention is to provide an improved process of closing a container to prevent leakage of the material therein and to seal it against unauthorized opening.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in

connection with the accompanying drawings, wherein

Fig. 1 is a perspective view of a container construction embodying my invention, parts being broken away;

Figure 1a is a fragmentary plan view of parts shown in Figures 2 and 3, partly in section.

Fig. 2 is an enlarged plan view of the container;

Fig. 3 is a section on the line 3—3 of Fig. 2, further enlarged.

Fig. 4 is a fragmentary section showing the closing element for one opening in the container partly removed.

Fig. 5 is a cross section through the closing and sealing element.

Fig. 6 is a cross section through a closing and sealing element having a different construction.

Figure 6a is a cross section through a plug having another form of construction.

Figure 6b is a fragmentary section showing the assembly of the plug shown in Figure 6a in a bung ring and sealing the plug and ring.

Fig. 7 is a fragmentary sectional view showing another different form of construction.

Figure 7a is a plan view of the parts shown in Figure 7, partly in section.

Fig. 8 is a view similar to Fig. 7, but showing the closing element partly removed.

In the drawings, 1 indicates as an entirety a container, preferably having a sheet metal body portion 1a and heads 2, 3. For illustration purposes, the body portion is formed of a sheet metal section having its longitudinal edges suitably united in sealed liquid tight relation. The ends of the body and peripheral edges of the heads are suitably united, for example, by a double seamed joint, in a liquid tight manner. The container 1 is formed with one or more openings and each may be formed in the body portion or in either head. By preference, I show two openings in the head 3. Where two openings are provided, both are sealed to prevent unauthorized opening without detection by my improved closing and sealing elements, each indicated as an entirety at 4, although my invention is not limited to such dual arrangement.

As the closing and sealing means for both openings are herein illustrated as similar in construction, I will refer to but one thereof in the following description, as follows: 5 indicates an opening formed in the head 3. 6 indicates a bung ring fixedly associated with the openings and threaded internally to receive the closing element 4. 7 indicates an annular shoulder or

wall spaced from the upper face of the head 3 in concentric relation to the opening 5. The wall 7 preferably constitutes an annular shouldered portion resulting from the application and mounting of the bung ring 6 in relation to the opening 5, thereby avoiding a specially constructed shoulder on the head or ring. For this purpose I show in Figs. 1, 2, 3 and 4 a pressed-in bung ring 6 preferably similar to that shown in the co-pending application of Henry M. Dillhoefer, Ser. No. 486,018 (see Letters Patent No. 1,929,412, dated October 10, 1933), except that the ring 6 is mounted in an inverted position. The ring 6 comprises an internally threaded body portion 9 fitted into the neck 10 of the head or wall 3 and having at one end a flange 11 seated and incorporated in the wall of the head 3 and at its other end a circumferentially extended portion beaded over the free end of the neck 10, such beaded over portion forming the annular shoulder 7; and in Figs. 7 and 8 I show a pressed-in bung ring 6' of the construction shown in Letters Patent No. 1,783,927, granted to Theo. W. Rieke and comprising an internally threaded body portion 9a having at one end a flange 11a, the metal of the head 3' engaging the outer and inner faces of the flange at 12, 13, and extending around the periphery of the flange, as shown at 7a, to form the annular shoulder in spaced relation to the upper face of the head 3'.

Referring particularly to Figs. 1, 2, 3, 4 and 5, the combined closing and sealing element 4 comprises a body portion 14 externally threaded at 14a and provided at its outer end with a relatively thin, bendable flange 15 adapted to be bent by any suitable tool downwardly around the shoulder 7 and inwardly thereof to thereby interlock the element 4 and head 3 together to seal the opening in such manner that the closure element cannot be loosened or removed without mutilating the flange 15. The upper side of the element 4 is preferably convexed, as shown at 15a, to reduce the thickness of the marginal portion of the flange to facilitate bending thereof into sealing position, interlocked with the wall 7 or 7a. The lower surface of the flange 15 is formed with a groove 16, which forms a seat for a gasket 17. The flange is weakened circumferentially, whereby its marginal portion 18 will be broken off from the body portion when the latter is loosened or removed (see Figs. 4 and 8), thereby permitting access to the container, but indicating any unauthorized access thereto or tampering with the closure. The weakening of the flange is preferably provided for by scoring it circumferentially around its bent portion. The metal of the flange may be scored on its lower or upper surface; if scored on its lower side, as shown at 15b in Figure 6a, the scoring is effected before the element 4 is inserted in the bung ring. But I prefer to score the flange on its upper surface, as shown at 15x in Figs. 1, 2 and 3, after the element 4 is positioned and the flange 15 is bent or rolled into its final sealing relation. In this preferred arrangement, the stress on the metal of the flange 15, due to bending thereof, is effected prior to weakening the metal wall, it being obvious that if the scoring of the flange on the upper surface of the flange was effected first, the final bending of the flange would fracture the metal along its weakened portion and the resulting appearance of the closure and its flange would indicate mutilation rather than a finished or unmutated condition. Accordingly, it will be seen that first the closure element is

screwed down into position preferably tight enough to compress the gasket 17, next the marginal portion of the flange is, by a suitable tool or tools, bent downwardly and inwardly, below the shoulder at 7, as shown in Fig. 3, or at 7a, as shown in Fig. 7, and finally the metal is scored as shown at 15x.

The body portion 14 of the closure is preferably formed with a socket 18' of non-circular shape so that by means of a suitable tool, sufficient force may be readily applied to back off the closure and thus cause the breakage of the marginal portion 18, as shown in Figs. 4 and 8. After the body portion 14 and marginal portion 18 are separated, the latter may be broken in two and removed from the wall 7 or 7a. Also the body portion may be discarded and another closure 4 used or a standard type of plug substituted to close the opening.

The closure 4 may consist of a forging, as shown in Fig. 5, or a stamping, as shown at 4' in Fig. 6. In this latter form of construction, the bottom 4a is up-set to form the tool socket 18'.

It will be noted that in my construction, no fittings or special parts are required to be attached to the walls of the container or associated with the bung ring and where pressed-in rings of the types herein disclosed are used, advantage is taken of the structural portions of the mounting to secure the closure element in position. It will also be noted that a unitary part of the closure member is utilized to lock and seal the opening in the container and that when the closure and sealing member is secured in final position no loose or protruding parts result. Furthermore, the turned over bendable flange of the closure completely encloses the exposed end of the bung ring in the form of construction shown in Figs. 1, 2 and 3 and the exposed metal of the container head in the form of construction shown in Figs. 7 and 8, thereby forming a symmetrical sealed structure and materially aiding in preventing tampering therewith.

To those skilled in the art to which my invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. My disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

What I claim is:

1. A container having a wall formed with an opening and provided with an annular shoulder concentric to said opening and spaced from the container wall, an internally threaded bung ring fixedly associated with the opening, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, whereby unscrewing of said element will mutilate said flange.

2. A container having a wall formed with an opening and provided with an annular shoulder concentric to said opening and spaced from the container wall, an internally threaded bung ring fixedly associated with the opening, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, said flange having a weakened circumferential portion, whereby unscrew-

ing of said element will effect breakage of said flange along its weakened portion.

3. A container having a wall formed with an opening and provided with an annular shoulder concentric to said opening and spaced from the container wall, an internally threaded bung ring fixedly associated with the opening, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, said flange being formed on its under surface with an annular groove to form a seat for a gasket.

4. A container having a wall formed with an opening, an internally threaded bung ring, said wall and portions of said ring being inter-related to fixedly mount the ring therein and forming an annular shoulder in spaced relation to said wall, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, whereby the unscrewing of said element will mutilate said flange.

5. A container having a wall formed with an opening, an internally threaded bung ring, said wall and portions of said ring being inter-related to fixedly mount the ring therein and forming an annular shoulder in spaced relation to said wall, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, said flange having a weakened circumferential portion, whereby the unscrewing of said element will effect breakage of said flange along its weakened portion.

6. In a container construction, the combination with a wall for the container formed with an opening, the wall surrounding said opening being shaped to provide an upwardly extending neck and a surrounding seat, of a bung ring fitting into said neck and having at one end a flange seated in said seat and at its opposite end a circumferential wall beaded over the free end of the neck to form a shoulder, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around

and inwardly of said shoulder when said element is in position.

7. In a container construction, the combination with a wall for the container formed with an opening, the wall surrounding said opening being shaped to provide an upwardly extending neck and a surrounding seat, of a bung ring fitting into said neck and having at one end a flange seated in said seat and at its opposite end a circumferential wall beaded over the free end of the neck to form a shoulder, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, said flange having a weakened circumferential portion, whereby unscrewing of said element will effect breakage of said flange along its weakened portion.

8. A removable closure element for the opening in a container comprising a body portion threaded externally, a flange at one end, said flange being bendable and formed with a circumferential score to provide a weakened circumferential portion arranged to be broken off when the element is unscrewed, and means provided on said element for engagement by a tool.

9. A container having a wall formed with an opening and provided with an annular shoulder concentric to said opening and spaced from the container wall, an internally threaded bung ring fixedly associated with the opening, and a combined sealing and closure element comprising a body removably threaded into said ring and provided at its outer end with a bendable flange bent around and inwardly of said shoulder when said element is in position, the under surface of said bent over portion of the flange being scored circumferentially to form a weakened section of the metal, whereby such portion of said element will be broken off upon the unscrewing of said element.

10. A combined sealing and closure element for an opening in the wall of a container comprising a threaded body adapted to be removably mounted in the opening in the wall of a container and having an integral peripheral flange at one end, said flange being bendable over adjacent portions of the container, whereby removal of the body will mutilate said flange.

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