

June 3, 1958

T. E. BETNER

2,837,236

RE-USABLE CONTAINER WITH DISPOSABLE COVER

Filed March 3, 1954

Fig. 1

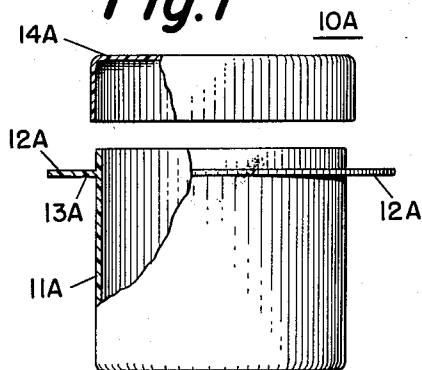


Fig. 4

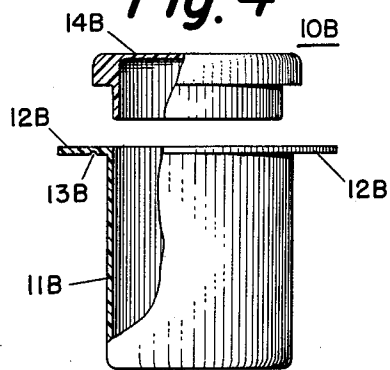


Fig. 2

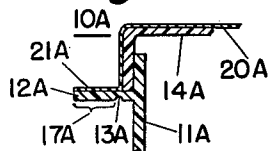


Fig. 3

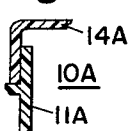


Fig. 5

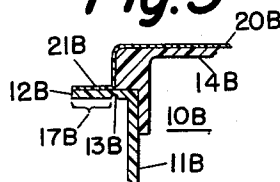


Fig. 6

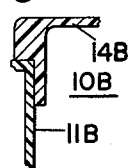


Fig. 7

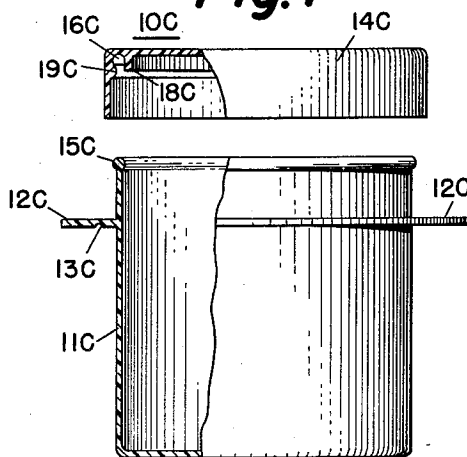


Fig. 10

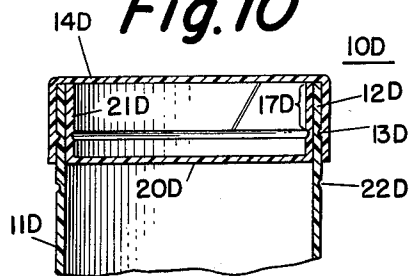


Fig. 8

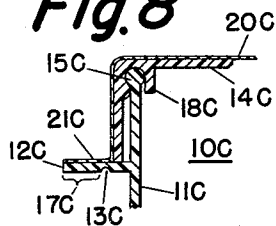
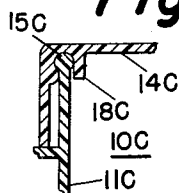


Fig. 9



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RE-USABLE CONTAINER WITH DISPOSABLE COVER

Thomas E. Betner, Bryn Mawr, Pa.

Application March 3, 1954, Serial No. 413,779

5 Claims. (Cl. 220—54)

This invention relates to containers which during shipment and display, for example, provide a hermetic seal for protection of the container contents and which, when such seal is broken, may thereafter be used for safe storage of the partially depleted contents or for other purposes.

In accordance with the present invention, the container consists of a body, a re-usable cover and a disposable cover. The body is preformed of plastic and has an integral peripheral flange which is heat-sealed to a corresponding flange of the disposable cover. The detachment of the container seal formed by the heat-sealed flanges leaves the container body and the re-usable cover intact for re-use. In some forms of the invention, the disposable cover is external to the re-usable cover and positively retains it in position during shipment and display whereas in other forms of the invention, the re-usable cover is external to the disposable cover and overlies the seal between the container body and the disposable cover.

The invention further resides in features of construction, combination and arrangement hereinafter described and claimed.

For a more detailed understanding of the invention, and for illustration of various embodiments thereof, reference may be had to the accompanying drawings in which:

Fig. 1 is an elevational view, partly in section, of re-usable body and cover components of a container;

Fig. 2 is a partial, sectional view showing the components of Fig. 1 sealed in closed-container relation by a disposable cover;

Fig. 3 is a partial, sectional view corresponding with Fig. 2 after removal of the seal and the disposable cover;

Fig. 4 is an elevational view, partly in section, of the re-usable body and cover components of a modification of Fig. 1;

Fig. 5 is a partial, sectional view showing the components of Fig. 4 sealed in closed-container relation by a disposable cover;

Fig. 6 is a partial, sectional view corresponding with Fig. 5 after removal of the seal and the disposable cover;

Fig. 7 is an elevational view, partly in section, of the re-usable body and cover components of a third form of re-usable container;

Fig. 8 is a partial sectional view showing the components of Fig. 7 sealed in closed-container relation by a disposable cover;

Fig. 9 is a partial, sectional view corresponding with Fig. 8 after removal of the seal and the disposable cover; and

Fig. 10 is a partial, elevational view, in section, of a fourth re-usable container.

Referring to Figs. 1 to 3, the container 10A comprises a body 11A of any suitable size and shape for receiving the container contents which may be foodstuffs, chemicals or the like. The body 11A, like that of the other containers herein described, is of suitable plastic, such as polyethylene or one of its derivatives, which is tough, heat-sealable, semi-rigid and inert with respect to the container contents. The container body and its integral outwardly-extending flange 12A are formed in a single-

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step injection molding process: the groove 13A in the underface of flange 12A may also be formed during the same operation or during the heat-sealing operation later described.

Adjacent its upper, open end, the external perimeter of the container body 11A is dimensioned and shaped snugly to fit the inner perimeter of the re-usable cover 14A which may be of any suitable material but preferably is of plastic, such as polyethylene, or one of its derivatives, and is pre-formed by an injection molding operation.

After the body 11A of the container is filled with its desired contents, the open end is closed by the re-usable cover 14A. A second, disposable cover 20A of heat-sealing plastic, such as polyethylene or the like, is subsequently or concurrently applied to bring its integral outwardly extending flange 21A in position to overlie the body flange 12A (Fig. 2). The cover and body flanges 21A, 12A are then heat-sealed to each other to provide a hermetic seal 17A extending completely around the container to prevent access to its contents by contaminants. The second, sealed cover 20A also prevents any accidental dislodgment of cover 14A, and serves, if removed before the container reaches the ultimate user, as an indication of tampering.

The cover 20A may be pre-formed, as by injection molding, particularly when of substantial thickness: or, alternatively, the cover 20A may be formed of a thin web of thermoplastic which is heated to permit it to be stretched over and into conformity with cover 14A just prior to its sealing to the body flange 12A.

When the need arises to use any part or all of the container contents, the seal 17A is removed, as by tearing along the weakened line provided by groove 13A of the body flange 12A. If cover 20A is of substantial thickness, it, too, is provided with a similar tearing groove around its upper face and opposite the groove 13A. If desired to facilitate tearing off of the seal, either or both of these grooves may have one or more extensions leading out to the outer edge of the container seal; such extensions can most readily be formed by the heat-sealing tools or dies. However, if the cover 20A is of thin sheet plastic, it need not be so grooved and its removal will accompany tearing of flange 12A.

The removal of the seal and the disposable cover 20A leaves both the body 11A and the re-usable cover 14A intact (Fig. 3) so that they may be used for storage of the depleted contents of the container or for any other subsequent re-use.

Except for differences specifically hereinafter mentioned, the containers 10B, 10C, 10D of Figs. 4 to 10 are generally similar to container 10A of Figs. 1 to 3, and, accordingly, the preceding description is generally similarly applicable thereto. For clarity, the corresponding elements of the various modifications are identified by the same reference numbers, using however different letter suffixes for the respective modifications.

Referring to Figs. 4 to 6, the flange 12B of container body 11B is in a plane flush with the open top of the body rather than being displaced below it as in Fig. 1. Also as distinguished from Fig. 1, the internal perimeter of body 11B is shaped and dimensioned tightly to fit the external perimeter of the lower part of cover 14B. After the body portion 11B is filled with the intended contents, it is closed (Fig. 5) by the re-usable cover 14B which is inserted therein with the disposable cover 20B in overlying relation. The flange 12B of the body 11B is then heat-sealed to the flange 21B of the disposable cover 20B so to provide a hermetic seal 17B extending peripherally of the container and having the purposes previously mentioned.

The container seal 17B and the disposable cover 20B

may be detached by tearing along the weakened line afforded by groove 13B, or equivalent, leaving the body 11B and the re-usable cover 14B intact for subsequent repeated re-use.

Referring to Figs. 7 to 9, the container body 11C is similar to body 11A of Fig. 1 in that its heat-sealing flange extends outwardly therefrom at some distance below the open top of the container. However, it differs therefrom in that body 11C is provided with an integral locking bead or ring 15C which is received by cover groove 16C defined by the downwardly and inwardly directed flange 18C of the top wall of cover 14C and by the shoulder 19C extending inwardly from the side wall of cover 14C.

After the container body 11C has been filled with its intended contents, the cover 14C is snapped into closed position (Fig. 8). The body flange 12C is then heat-sealed to flange 21C of the disposable cover 20C to provide a hermetic seal 17C circumscribing the container 10C for purposes previously described. This snap-on cover construction relieves the hermetic seal 17C of mechanical strains to which it may otherwise be subjected during handling of the sealed container.

When it is desired to remove any or all of the container contents, the container seal 17C and the disposable cover 20C may be removed and thrown away by tearing along the weakened line defined by groove 13C. The body 11C and the re-usable cover 14C are left intact (Fig. 9) so that the cover 14C may be snapped on and off as many times as desired for subsequent re-use of the container. This snap-on cover is preferred, as it not only relieves the hermetic seal of strains incident to handling of the sealed container, but also minimizes the possibility of any accidental dislodgment of cover 14C in subsequent use of the container.

In the modifications previously described, the peripheral seal extends outwardly from the side of the container, increasing its girth whereas in the container 10D of Fig. 10 the peripheral seal extends axially of the container. Thus, other dimensions remaining the same, the shelf and packing space requirements are less for sealed containers of the construction shown in Fig. 10. Specifically, the disposable cover 20D of this modification is pre-formed or shaped during heat-sealing to fit the inside of the container body 11D and is inserted or formed therein in inverted position (Fig. 10) with its flange 21D in engagement with top flange 12D of the body 11D. The flanges 12D, 21D are heat-sealed to provide a hermetic seal 17D extending around and projecting upwardly from the now-closed top of the container. The re-usable cover 14D is then applied to overlie the sealed flanges: if desired, cover 14D may have an internal bead to fit the body groove 13D and so minimizes any possibility of accidental removal.

When access to the container contents is desired, the cover 14D is removed and the container unsealed by tearing along the circumscribing line defined by the groove 13D of the body 11D. Such unsealing leaves both the body 11D and the re-usable cover 14D intact for subsequent re-use. If desired, the body 11D may be provided with a second groove 22D for engagement by the internal locking ring of cover 14D in subsequent re-use after the peripheral seal has been removed.

It shall be understood the invention is not limited to the specific exemplary modifications described and that changes may be made within the scope of the appended claims.

Modifications herein disclosed but not specifically claimed are claimed in my copending application Serial No. 717,633, filed February 26, 1958.

What is claimed is:

1. A container comprising a pre-formed body of semi-rigid plastic material such as polyethylene or one of its derivatives, said body having at its open end an integral peripheral bead and having below said open an outwardly extending peripheral flange; a re-usable cover hav-

ing a side wall extending externally of the container body below said body bead and toward said body flange, said re-usable cover having a flange extending downwardly and inwardly of the container body, the adjacent faces of said cover flange and said cover side wall defining a cover groove having a peripheral snap fit with said bead of the body to lock the cover thereto; and a second, disposable cover overlying said re-usable cover and having a flange heat-sealed to said body flange to form a hermetic seal, said bead of the body and said cooperating groove of the re-usable cover relieving said hermetic seal provided by the heat-sealed flanges of said disposable cover and of said body, from mechanical strains incident to handling of the container.

2. A container as in claim 1 in which the body flange has a groove spaced inwardly from its outer edge to define an annular heat-sealable area and having an extension of said groove leading outwardly across said area to said outer edge for tearing off of the peripheral seal provided by the heat-sealed flanges of the container body and the disposable cover.

3. A container comprising a heat-sealable open-ended body having an integral, peripheral flange adjacent its open end, a re-usable cover, said re-usable cover and said body having complementary beading and grooving, and a disposable heat-sealable cover having a peripheral flange for heat-sealing to said flange of said container body to form a tear-off hermetic seal, said complementary beading and grooving of the re-usable cover relieving said hermetic seal provided by the heat-sealed flanges of said disposable cover and of said body from mechanical strains incident to handling of the heat-sealed container and minimizing possibility of accidental spilling of the container contents after tear-off of said hermetic seal provided by said heat-sealed flanges of the body and said disposable cover.

4. A container as in claim 3 in which the disposable cover fits into the open end of the container body with the hermetic peripheral seal formed by their heat-sealed flanges extending axially of the container, in which the re-usable cover fits over the open end of the container body to overlie and surround said peripheral hermetic seal of the sealed container, in which the re-usable cover is removed prior to tear-off of said hermetic seal, and in which said complementary beading and grooving mechanically locks said re-usable cover to the container both as hermetically sealed by the heat-sealed flanges of the container body and the disposable cover and as hermetically unsealed by the tear-off of said heat-sealed flanges.

5. A container as in claim 3 in which the body flange has a groove spaced inwardly from its outer edge to define an outer peripheral heat-sealing area and having an extension of said groove leading outwardly across said area to said outer edge for tearing off of the peripheral hermetic seal provided by the heat-sealed flanges of the container body and the disposable cover.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 2,837,236

June 3, 1958

Thomas E. Betner

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 74, after "open" insert -- end --.

Signed and sealed this 14th day of October 1958.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents