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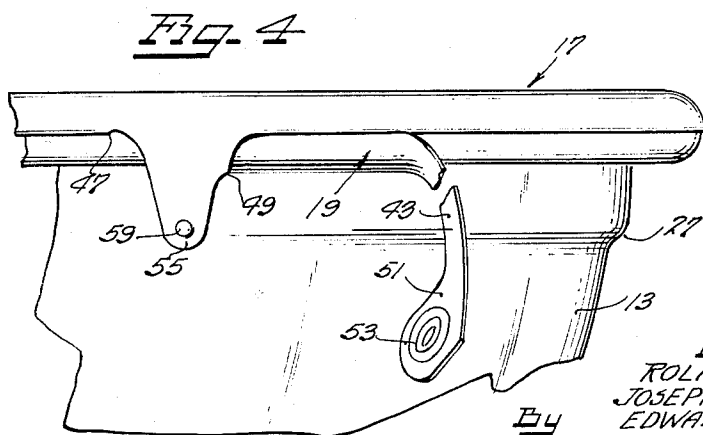
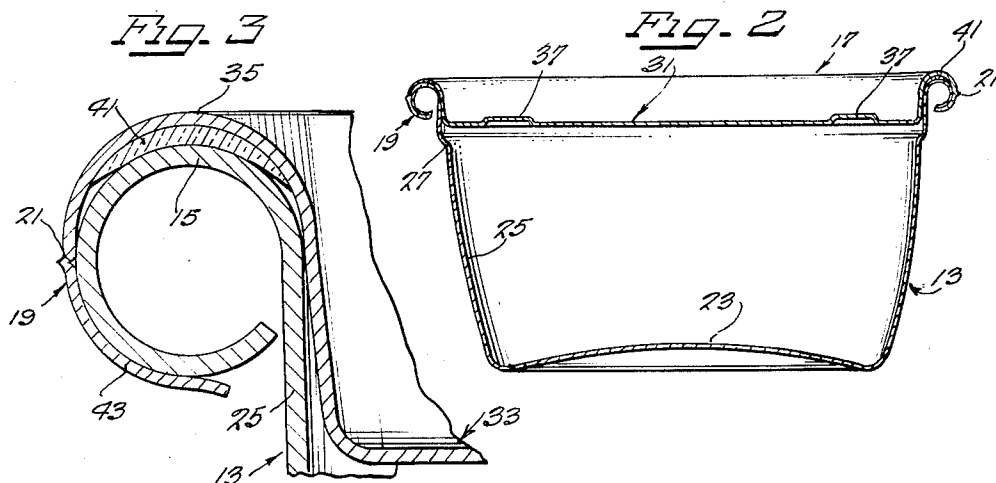
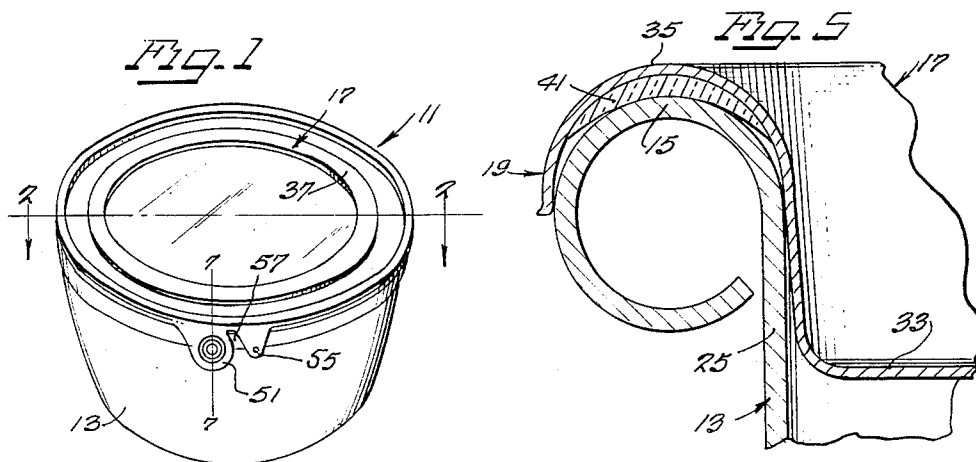
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CONTAINER CLOSURE AND PACKAGE INCLUDING SAME

Filed June 13, 1962

2 Sheets-Sheet 1



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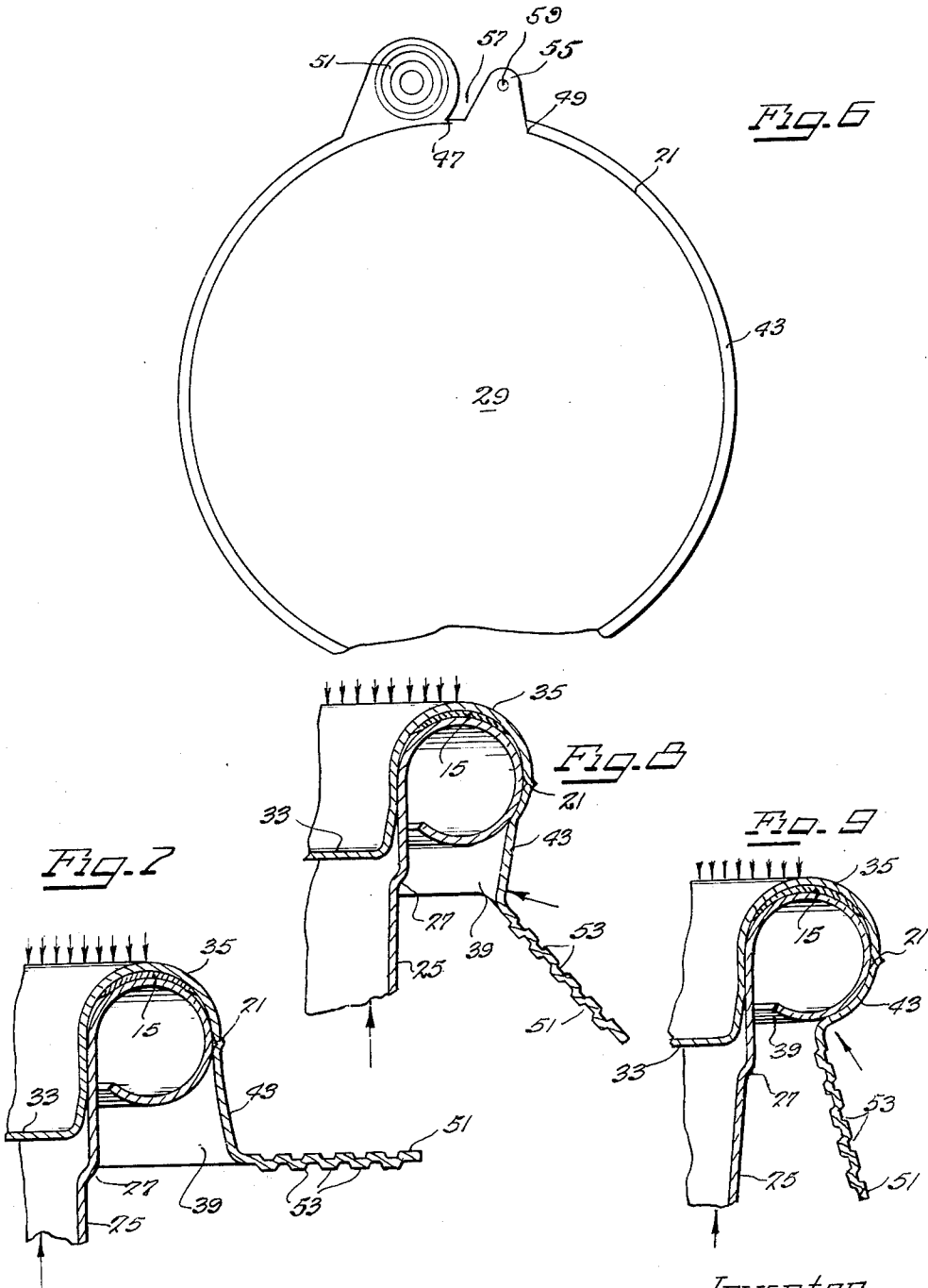
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CONTAINER CLOSURE AND PACKAGE INCLUDING SAME

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CONTAINER CLOSURE AND PACKAGE INCLUDING SAME

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This invention relates to packages having removable closures. More particularly, the invention relates to such packages in which the closures are provided with means for facilitating their removal.

Open-topped containers having a lid or closure releasably secured thereto are frequently utilized in the packaging of products for commercial distribution. In certain applications, such as the packaging of foods under hermetic seal, the container frequently includes an outwardly projecting rim, while the closure or lid is provided with a depending flange crimped so as to engage the lower surface of the rim and secure the closure in place. To facilitate the opening of the package, the flange may be provided with a score line or similar line of weakness which permits detachment of the crimped portion of the flange, theoretically, at least, thereby permitting the lid to be removed from the container.

Frequently, however, when the products within the container are under vacuum, removal of the crimped portion of the flange does not always permit easy removal of the closure, since the greater pressure acting on the outer surface of the closure serves to maintain it in place. The difficulty in removing the closure is increased by the fact that after the crimped portion of the closure has been removed, there is very little surface which can be grasped by hand or with a tool in an attempt to "break" the vacuum. In addition, the small surface which is available is encircled by the sharp edge remaining after the crimped portion has been removed. Accordingly, attempts to open such a container by hand may result in cuts and scratches to the user.

The principal object of the present invention is to provide an improved package of the class described which may be easily and readily opened manually without the use of a tool.

An additional object of the invention is to provide a closure for a container in which hot food products are sealed, thus creating a vacuum in the container when the contents become cooled, which closure includes means for facilitating the removal thereof.

A further object of the invention is to provide a closure adapted to be crimped to an opening-defining rim of a container, which closure includes means for disengaging the crimped portion therefrom along a line of weakness and a tab for facilitating removal of the closure from the container after the crimped portion has been removed.

Other objects and advantages of the invention will become apparent with reference to the following description and accompanying drawings.

In the drawings:

FIGURE 1 is a perspective view of a package showing various of the features of the invention;

FIGURE 2 is an enlarged sectional view taken along line 2—2 of FIG. 1;

FIGURE 3 is an enlarged fragmentary, sectional view of a portion of the package shown in FIG. 2;

FIGURE 4 is an enlarged fragmentary, perspective view of the package of FIG. 1 as it appears during one stage of the opening thereof;

FIGURE 5 is an enlarged fragmentary sectional view

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similar to that of FIG. 3 but showing a portion of the flange of the lid removed;

FIGURE 6 is an enlarged bottom plan view of a blank which might be used to form the closure for the package illustrated in FIGS. 1 and 5; and

FIGURES 7 through 9 are enlarged fragmentary views, partially in section, of the package of FIG. 1, showing three steps in the attachment of the closure to the container portion of the package.

Very generally, a package 11 shown in the drawings and illustrating various of the features of the invention comprises a cup-shaped container or base portion 13, the mouth of which is encircled by a rolled or beaded upper rim 15. An improved closure 17 overlies the rim 15 and includes a depending peripheral flange 19 which is crimped around the rim 15 into engagement with the lower surface thereof so as to secure the closure to the container. Provision is made for the detachment of the crimped portion of the flange from the remainder of the closure along a line of weakness 21 when it is desired to open the package, leaving attached to the closure a projecting lifting tab 55 which is not detachable and which greatly facilitates separation of the closure from the container should any remaining conditions such as a vacuum seal or the surface tension of packaged materials serve to resist such removal.

More specifically, the open top container or base portion 13 is preferably formed of metal or other generally rigid material drawn into cup shape from a blank. The container includes a slightly arched circular bottom wall 23 (FIGURE 2) and a side wall 25 which extends upwardly and outwardly from the periphery of the bottom wall, the side wall being offset outwardly somewhat near its upper edge, as designated by the numeral 27. The upper edge portions of the side walls defining the mouth of the container are rolled or beaded in a continuous curve to provide the outwardly extending rim 15 of substantially cylindrical cross-section to which the closure 17 is secured, as hereinafter described.

The removable closure 17 which is also reuseable, is preferably formed from a single metallic blank 29 (FIGURE 6) and includes a main cover portion in the form of a plate 31, from the periphery of which depends the flange 19. The center section 33 of the cover plate 31 is preferably embossed downwardly with the encircling outer or peripheral portion of the cover plate being flared outwardly at 35 so as to provide a curved portion which will overlie the curled or rolled rim 15 of the container. An annular upwardly directed embossment 37 is provided in the center section 33 to increase the load-bearing properties thereof, and also to provide a shallow recess 38 to receive the lower edge of another package supported thereon during shipment or display.

The flange 19, which is integral with the cover plate 31 and extends completely therearound, cooperates with the side wall of the downwardly embossed center section 33 of the cover plate 31 to define an inverted channel 39 within which the rim 15 of the container is disposed. A sealing material 41 in the form of a thin fluid-impermeable coating on the inner surface of the upper wall of the channel provides a seal between the closure and rim when the closure is in place.

The closure 17 is clamped to the container 13 by a crimping or folding of a lower portion 43 of the flange 19 under the rim 15 so as to cause it to engage the lower surface of the rim. As will be described in more detail shortly, the crimping of the flange is accomplished while the closure is being urged under pressure into intimate contact with the rim so as to compress and deform the sealing material 41.

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In order to release the clamping effect of the crimped portion of the flange incident to removal of the closure from the container 13, the line of weakness 21 in the form of a score line is provided in the flange to permit detachment of the crimped portion from the remainder of the closure. The line of weakness, as seen best in FIG. 6, is preferably located on the inwardly facing surface of the flange and extends almost, but not completely, around the flange, terminating in a pair of spaced points 47 and 49 adjacent the outer edge thereof. The score line therefore begins and ends on the lower edge of the flange 19 when the latter is crimped about the container rim 15, thus permitting the entire lower portion 43 of the flange to be separated from the closure along this line of weakness.

Detachment of the lower or crimped portion of the flange along the line of weakness 21 is facilitated by means of a tear tab 51 which extends from the lower or crimped portion 43 adjacent one of the points 47 of termination of the line of weakness. By grasping the tear tab and pulling upwardly and outwardly thereon, the lower or crimped portion of the flange can be torn along the line of weakness and removed from the closure (see FIG. 4). To facilitate the gripping thereof, the tear tab 51 is preferably embossed in a series of concentric rings 53 (FIGS. 7 through 9).

As has been previously mentioned, detachment of the crimped portion 43 of the flange releases the clamping effect of the flange and should, theoretically, permit easy removal of the closure. However, when there is a vacuum within the package, such as when it contains food products which have been packaged in a warm or hot condition and subsequently cooled, the greater pressure acting upon the outer surface of the closure provides a force which retains the closure in place and renders its removal without the use of a tool quite difficult and, at times, impossible.

Accordingly, the closure 13 of the present invention includes a second tab 55 which extends from the cover plate in the area intermediate the spaced points 47 and 49 defining the termination of the score line 21. The tab 55 is separated from the tear tab 51, as in the illustrated embodiment, by a notch 57 which extends from the outer edge of the tabs to a peripheral portion of the flange 19. Because of its location relative to the line of weakness, the tab 55 is not detached with the crimped portion 43, and remains attached to the closure to provide a convenient means by which the closure can be lifted against the restraining force caused by a vacuum or surface tension of packaged liquids, solids or semi-solids. The tab 55 also includes an embossment 59 to facilitate gripping thereof.

It will be noted that the closure can be removed without the use of a tool which might bend or otherwise deform it. Hence, the closure can be replaced by the consumer to again provide a highly effective seal should only a portion of the packaged product be needed for the initial serving. Even after the original contents of the package have been consumed, moreover, the container and closure can be reused for the storage of other items which are packaged in less durable containers.

A method of applying the improved closure to the container or base is illustrated in FIGS. 7 through 9. Initially, the container is filled with the product to be packaged and the semi-formed closure is then placed over the container, with the curved portion 35 of the lid overlying the curled or rolled rim 15 of the container 13 so as to provide a crescent-shaped space occupied at least partially by the sealing material 41 adhering to the roof of the closure channel 39. Pressure is then applied to the closure (FIG. 7) as indicated by the arrows, which forces the closure into intimate engagement with the rim and also deforms the layer of sealing material 41, causing the feathered edges thereof to flow outwardly over the upper surface of the rim and provide a fluid impermeable seal.

While the closure and containers are under pressure,

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the lower portion 43 of the flange is partially crimped as by rolling with a suitable die, thereby causing this portion of the flange to engage the lower surface of the rolled rim of the container (FIGURE 8). It will be noted that this partial crimping also causes the tabs 51 and 55 to be turned downwardly somewhat.

In the final step of the operation, the crimping of the flange is completed, while still maintaining the package under pressure (FIGURE 9). This final crimping operation positions the tabs in a nearly vertical depending position wherein they will not interfere with adjacent packages when they are packed for shipment.

A novel package has thus been shown and described which is provided with a reusable closure which may be quickly and easily removed manually and without the aid of a tool. The package is particularly adapted for food products which are under vacuum when delivered to the consumer, although it of course has application to the packaging of items under normal pressure and to items other than food products. When the packaged products are under a vacuum, however, the closure which seals the package can be easily removed by means of the lifting tab 55 which enables the user to overcome the resisting pressures.

While various of the features of the invention have been shown and described, it will be apparent that various modifications may be made therein without departing from the scope of this invention.

We claim:

1. A reusable metallic closure for the opening of a container for food items under vacuum, which opening is defined by an outwardly projecting generally cylindrical rolled rim, said closure comprising a cover plate, a wall section extending upwardly from the periphery of said cover plate and flaring outwardly slightly from its lower toward its upper edge, said cover plate and said wall section thereby defining a downwardly embossed central portion of said closure adapted to be disposed within the container with said plate positioned beneath the plane of the opening but parallel thereto and with the wall section engaging the inner surface of the side wall of said container so as to retain the closure thereon, a curved peripheral portion extending from the upper edge of said wall section and adapted to overlie the rim of the container, a flange depending from the outer edge of said peripheral portion and having a lower portion adapted to be crimped so as to engage the lower surface of said rim and thereby further secure said cover plate to the container, said wall section and said depending flange defining thereby a channel adapted to receive the rim of the container, sealing material disposed in said channel so as to engage the outer surface of said rim when said closure is positioned thereon, the inwardly facing surface of said flange being provided with a score line extending partially therearound and terminating at a pair of relatively closely spaced positions on the outer edge of said flange, said score line being disposed so as to be generally intermediate said lower portion of said flange and said curved peripheral portion so as to render said lower portion detachable along said line, a pull tab extending from said lower portion of said flange at one end of said score line for facilitating detachment of said lower portion along said score line, and a lift tab extending from said flange between the ends of said score line and adapted to remain attached to said curved peripheral portion when said lower portion is detached therefrom, said tabs being separated from each other by a notch extending inwardly from the outer edges of said tabs.

2. A package comprising a container having an opening defined by an outwardly projecting generally cylindrical rolled rim, said container having disposed therein a quantity of food product under vacuum, and a reusable closure for said opening comprising a cover plate,

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a wall section extending upwardly from the periphery of said cover plate and flaring outwardly slightly from its lower toward its upper edge, said cover plate and said wall section thereby defining a downwardly embossed central portion of said closure disposed within said container such that said cover plate is positioned beneath the plane of the opening but parallel thereto and said wall section engages the inner surface of the side wall of said container so as to retain the closure thereon, a curved peripheral portion projecting from the upper edge of said wall section and disposed in overlying relation to said rim of said container, a flange depending from the outer periphery of said overlying portion of said wall section and having a lower portion crimped so as to engage the lower surface of said rim and thereby further secure said cover plate thereto, said wall section and said depending flange defining therebetween a channel within which said rim is disposed, sealing material in said channel intermediate the outer surface of said rim and said channel wall, the inwardly facing surface of said flange being provided with a score line extending substantially therearound and terminating at a pair of relatively closely spaced positions along the outer edge of said flange, said score line being disposed so as to be generally intermediate said crimped portion of said flange and said pe-

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ripheral portion so as to render said crimped portion detachable along said score line, a first tab extending from said crimped portion of said flange adjacent one end of said score line in position to facilitate detachment of said portion along said score line, and a second tab extending from said flange intermediate the ends of said score line in position to remain attached to said curved peripheral portion when said crimped portion is detached therefrom, said tabs being separated from each other by a notch extending inwardly from the outer edge of said tabs and along adjacent sides thereof.

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