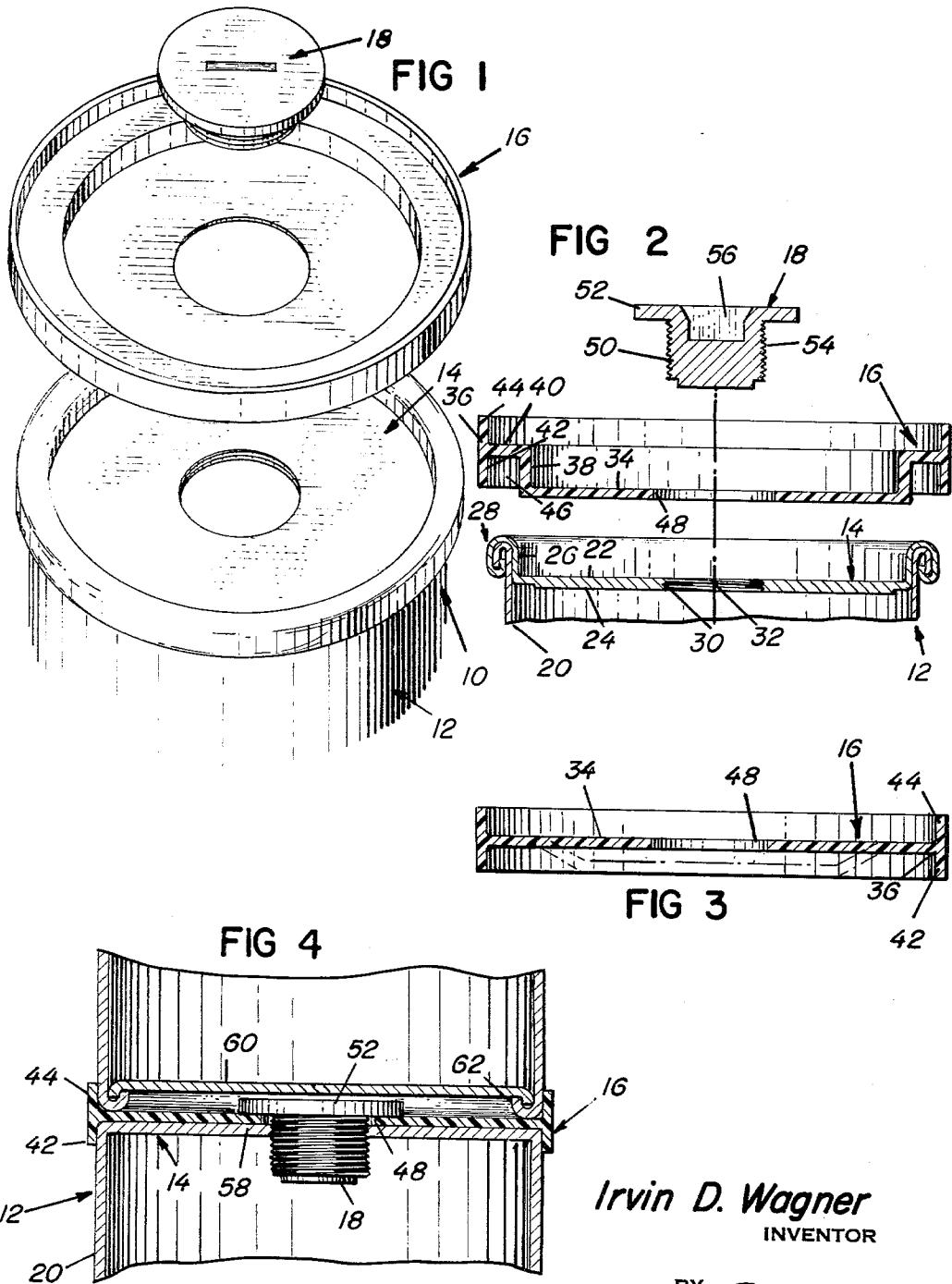


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CONTAINER LID

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CONTAINER LID

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This invention relates to containers and more particularly it relates to a lid for use on containers of the can type to permit such containers to be nested or stacked upon one another.

One of the problems encountered in shipping and storing containers such as metal cans is the fact that such cans do not readily stack upon one another. This is essentially due to the constructional characteristics of a can which has at least one and usually two separate end closures which are connected to the body of the can by means of clenched end seams. These clenched seams project beyond the planes of the end closures with the result that when one can is stacked upon another, the end seam of one can rests either upon the end seam of the next adjacent can or upon the can end itself if the can end is formed without an end seam. In either instance, the pair of mating cans are precariously balanced since even slight misalignment will cause the end seam of one can to extend beyond the edges of the other can, and the weight of the uppermost can contents may be sufficient to tip that can completely over, depending upon the degree of misalignment. Naturally, if a stack is several cans in height, this tendency toward misalignment of one or several of the cans is increased.

Another factor which gravitates toward instability of stacked cans is the use of plug-type closures in the covers. These plug-type closures are generally frictionally or threadably received within the covers and are provided with some form of projecting head which facilitates their removal. If the height of such a head is too great, the bottom of each can will rest solely upon the head of the plug in the can beneath it. Since the size of the plug is generally quite small in relation to the size of the can, there is a strong tendency for a can supported solely upon a small plug to tip or lean sideways. If the plugs in the covers are located eccentrically or off center, it is almost impossible for the cans to be stacked or nested satisfactorily.

In merchandising outlets such as supermarkets, the problem is particularly acute since canned items are generally displayed in stacks several cans in height. Each time a consumer removes one can from the stack, there is a tendency for the other cans in the stack to become misaligned. This not only creates an unsightly display, but also utilizes an inordinate amount of space which could be used for storing other items. Furthermore, if a stack of cans should become misaligned to such a point where they tip over, the toppling cans can create a safety hazard for anyone in their path. Finally, if and when such cans do fall, they generally sustain dents and nicks which tend to ruin their appearance and sometimes make opening more difficult.

One further consideration with respect to containers of the can type is the opening features. Imperforate end closures are well known for hermetically sealing cans and such closures are generally opened by a conventional can opener. Perforated end closures having a friction plug or screw plug mounted therein are also well known, and such closures are opened by removal of the plug. Plug-type closures are generally used on containers where the product is not to be entirely dispensed or used up in one operation. Thus, the plug can be removed, a small amount of the product can be dispensed, and the plug then can be returned or reinserted in its original position to close the container and protect the remainder of the product. However, in some instances,

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a consumer may purchase a container having a plug type closure and may wish to utilize nearly all of the product within that container. In such a situation, the consumer has two choices; he may either remove the plug and slowly and laboriously pour out the contents through the small plug opening, or he may open the container on a can opener by severing the entire end closure. The latter choice is, of course, much quicker and simpler, but if a small amount of product remains within the container after dispensing is completed, there has heretofore been no way to reclose the container to protect that remaining product.

It is, therefore, an object of the present invention to overcome the aforementioned problems present in prior art containers and to provide an improved container construction.

Another object of the present invention is to provide a container lid which permits containers to be nested or stacked one upon the other.

Another object of the present invention is to provide a container lid which can be utilized as a reclosure means.

Another object of the present invention is to provide a lid for a screw-plug type container, which lid can be secured to the container to prevent its inadvertent removal, and which lid can be easily and readily removed and replaced, as desired.

Another object of the present invention is to provide a container lid which can be easily manufactured, which is durable and inexpensive, which is attractive, and which is easily manipulative.

Other objects, advantages and salient features of the present invention will become apparent from the following detailed description, which, taken in connection with the annexed drawings, discloses a preferred embodiment thereof.

In the drawings:

FIGURE 1 is an exploded fragmentary perspective view of a container and lid in accordance with the principles of the present invention;

FIGURE 2 is a sectional view of the exploded configuration of FIGURE 1;

FIGURE 3 is a sectional view of a modified form of container lid; and,

FIGURE 4 is a fragmentary sectional view of the lid of FIGURE 3 utilized on a modified form of container.

In accordance with the principles of the present invention, and as can be seen generally in FIGURE 1, there is provided a container generally designated 10 which includes a body generally designated 12 and an end closure generally designated 14. A lid generally designated 16 is adapted to overlie the container and closure and to be retained in this position by a plug means generally designated 18.

As can be seen in FIGURES 1 and 2, the container body 12 is formed with upstanding body walls 20 which define a tubular, and preferably cylindrical, body shape. The end closure 14 is formed of a generally flat or planar sheet, preferably metal, which has an outer or external surface 22 and an inner or internal surface 24. Adjacent its outer edges, the end closure turns upwardly into an upstanding vertical wall 26 which interfolds with the body walls 20 to form a conventional double seam generally designated 28. This double seam forms the upper end seam of the container 10 and serves to hermetically secure the end closure 14 to the body 12. An aperture 30 having threaded side walls 32 is formed within the end closure 14, preferably, but not necessarily, in the center thereof.

The lid 16 can be formed either as the embodiment shown in FIGURE 2 or as the embodiment shown in FIGURE 3, and in each of these embodiments, the lid

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is comprised of a central panel 34 with an integral rim portion 36 formed at its periphery. In the embodiment of FIGURE 2, the central panel 34 is coextensive with the flat portion of the end closure 14 and is provided with an upstanding vertical wall 38 which is adapted to lie in parallel contacting juxtaposition to the vertical wall 26 on the end closure. The lid vertical wall 38 then merges into a web 40 which is substantially parallel to the central panel 34 and which is adapted to overlies the top of the double seam 28. The rim portion 36 includes a downwardly extending skirt 42 which depends perpendicularly from the web 40 and is adapted to surround the outside of the double seam 28 and also includes an upturned or upwardly projecting skirt 44 which extends perpendicularly from the web 40 and oppositely to the skirt 42. The outer surfaces of the skirts 42 and 44 are continuous and coplanar to form with the web 40, a generally T-shaped cross-section.

It can thus be appreciated that a generally U-shaped channel 46 is formed between the skirt 42 and the vertical wall 38 and this channel is adapted to receive the container double seam 28. The upturned skirt 44 serves to circumscribe a cavity or recess having a lateral extent at least equal to that of the base of the container body 12 and it thereby provides a means whereby similar containers 10 may be nested or stacked upon one another. When the lid 16 is secured to one container 10, another similar container 10 may be placed above the one container with the base of the other container being received within the lid skirt 44 and resting upon the web 40. The skirt 44 keeps the upper container in alignment with the lower one and thus prevents any inadvertent or accidental tipping of the containers regardless of how many are stacked upon one another. In general, thermoplastic is the preferred lid material and since the lid embodiment shown in FIGURE 2 need not be deformed in any manner, it can be fabricated of a rigid thermoplastic such as polystyrene, but, if desired, it can also be fabricated of a flexible thermoplastic such as polyethylene. An aperture 48 is formed within the central panel 34 of the lid 16, and this aperture 48 is positioned for axial alignment with the threaded aperture 30 of the end closure 14. The lid aperture 48 is formed with a diameter larger than that of the threaded aperture 30 for a purpose which will be presently described.

The plug 18, which serves to assemble the container 10 and lid 16 together, is formed with a shank portion 50 and an enlarged head portion 52 at one end of the shank portion. Screw threads 54 are formed on the exterior of the shank portion and are adapted to engage and mate with the threads 32 on the walls of the end closure aperture 30. A slot or groove 56 is formed in the plug 18 and is adapted to receive a screwdriver or other similar tool. To assemble the lid to the container, the lid 16 is placed over the end closure 14 with the U-shaped channel 46 receiving the double seam 28. The plug shank 50 is passed through the lid aperture 48 and is screwed into the threaded end closure aperture 30, either manually or by means of a tool insertable in the plug slot 56. The lid aperture 48 is larger than the shank portion 50 of the plug so that the threads 54 do not contact the lid 16. However, the plug head portion 52 has a lateral extent greater than the diameter of the aperture 54 and as a result, the underside of the head portion 52 contacts the lid central panel 34 and forces into engaging contact with the external surface 22 on the end closure 14. The engagement between the plug threads 54 and the end closure threads 32 not only serves to seal the container but also serves to secure the plug 18 and end closure 14 together, with the lid 16 being sandwiched therebetween.

The lid embodiment of FIGURE 3 can also be utilized on a container such as is illustrated in FIGURES 1 and 2. The lid 16 of FIGURE 3 has a central panel 34 and a rim portion 36 just as in the lid of FIGURE 2, but the

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central panel of the FIGURE 3 lid is completely planar and is not provided with any U-shaped channel 46. When the FIGURE 3 lid is applied to a container, the central panel outer edges rest upon the double seam 28 and keep the remainder of the central panel 34 and the aperture 48 spaced away from the upper surface 22 of the end closure 14. However, the lid 16 shown in FIGURE 3 is fabricated of some suitable flexible and resilient material such as polyethylene so that when the plug 18 is threaded into the end closure aperture 30, the plug head portion 52 will deform at least a part of the lid central panel downward to the position shown in dotted lines, whereat that portion of the central panel marginal to the aperture 48 is brought into contact with the end closure outer surface 22.

The height of the plug head portion 52 is kept shallow enough to prevent it from coming in contact with the base of a container stacked within the lid 16, even if the base of the stacked container is perfectly flat. Thus, the height of the portion 52 is kept smaller than that of the end closure vertical wall 26 upon which the stacked container rests and in this way, regardless of whether the FIGURE 2 lid or the FIGURE 3 lid is utilized, the plug head will not contact the upper stacked container and thus cannot lift it upwardly beyond the height of the skirt 44 and the containers therefore cannot become misaligned.

It is also possible to have a container body formed with an integral top wall 58 which acts as an end closure 16 but does not have an end seam such as 28. Such a container body is shown in FIGURE 4 and can be formed by high pressure extrusion or by deep drawing and ironing. A separate bottom end closure 60 can be provided for such a container and this end closure can be connected to the body walls 20 by a single seam type of end seam generally designated 62. A lid 16, of the type shown in FIGURE 3, can be assembled to such a container with the lid central panel 34 being in superimposed contacting position with the top wall 58. The plug 18 keeps the lid 16 assembled to the container in the manner previously described and the skirt 44 on the lid receives the end seam 62 on the bottom of a similar container and thus mounts that container in a stacked and aligned position. The height of the plug head portion 52 is kept smaller than the height of the bottom end seam 62 and therefore the plug head is kept out of contact with the bottom end closure 60.

In operation, each container 10 is closed by screwing the plug 18 into the threaded aperture 30, thereby both sealing the container and affixing the lid 16 thereto. When it is desired to dispense from the container, a suitable tool may be inserted in the slot 56 and the plug may be unscrewed and removed, thus permitting the container contents to be dispensed through the aperture 30. If the consumer, however, desires a more convenient and quicker means for opening and closing the container, and if the container need not be kept hermetically sealed, the end closure 16 may be peripherally severed by a conventional rotary can opener. This may be accomplished after first removing the plug 18 and the lid 16. Then, if the plug is again passed through the lid and screwed into the aperture 30 in the now severed end closure panel, the result is a composite cover formed of the lid and the end closure panel. This composite cover can be placed back over the opened container with the lid skirt 42 engaging either the double seam 28 or the body walls 20. The head portion 52 on the plug acts as a knob by which the composite cover can be grasped and easily removed from and replaced upon the opened container.

It should be apparent from the foregoing detailed description that the objects set forth at the outset of this specification have been successfully achieved. Accordingly, what is claimed is:

1. As an article of manufacture, a thermoplastic lid for

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a dispensing container having a screw-plug closure, said lid comprising:

- a central panel having an aperture therein; and
 - a rim portion integral with and located at the periphery of said central panel;
 - said central panel having a planar portion in which said aperture is formed, a vertical wall portion extending upwardly from the periphery of said planar portion, and a web portion extending laterally from the upper edge of said vertical wall portion;
 - said planar portion and said web portion thus being parallel to one another and spaced apart by said vertical wall portion;
 - said rim portion being formed at the periphery of said web portion and including a depending skirt extending perpendicularly downward from said web portion;
 - said rim portion also including an upturned skirt extending perpendicularly upward from said web portion;
 - said depending and upturned skirts being coplanar with one another to form a single annular band surrounding said central panel;
 - said depending skirt and said vertical wall portion being in spaced parallel juxtaposition to one another and defining therebetween a generally U-shaped annular channel.
2. A lid as defined in claim 1 wherein the thermoplastic of which said lid is fabricated is a flexible and resilient material.
3. In combination:
- a container; and
 - a lid for said container;
 - said container including a body having side walls and an end closure secured to and extending between said side walls at one end thereof;
 - said end closure having a threaded aperture therein forming said container dispensing opening;
 - said container also including a plug having a head portion and a threaded shank portion adapted to screw into said threaded aperture to close said container dispensing opening;

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- said lid including a central panel with a rim portion at its periphery;
- said central panel having an aperture therein larger than said plug shank portion but smaller than said plug head portion;
- said lid rim portion including a downwardly extending skirt which surrounds said body side walls;
- said lid rim portion further including an upwardly extending skirt which projects above said end closure and which is adapted to receive and retain the base of a similar container to be stacked upon said container;
- said container and said lid being detachably coupled together by passing said plug shank portion through said lid aperture and screwing it into said threaded aperture whereby said plug head portion forces at least a part of said central panel into engagement with said end closure when said plug is fully screwed into said threaded aperture;
- said container and said lid, when detachably coupled, serving to prevent misalignment between said similar container and said container, when stacked one upon the other.

4. A combination as defined in claim 3 wherein said plug head portion is of a shallow enough height to prevent it from contacting the base of said similar container nested within the upwardly extending skirt of said lid.

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