

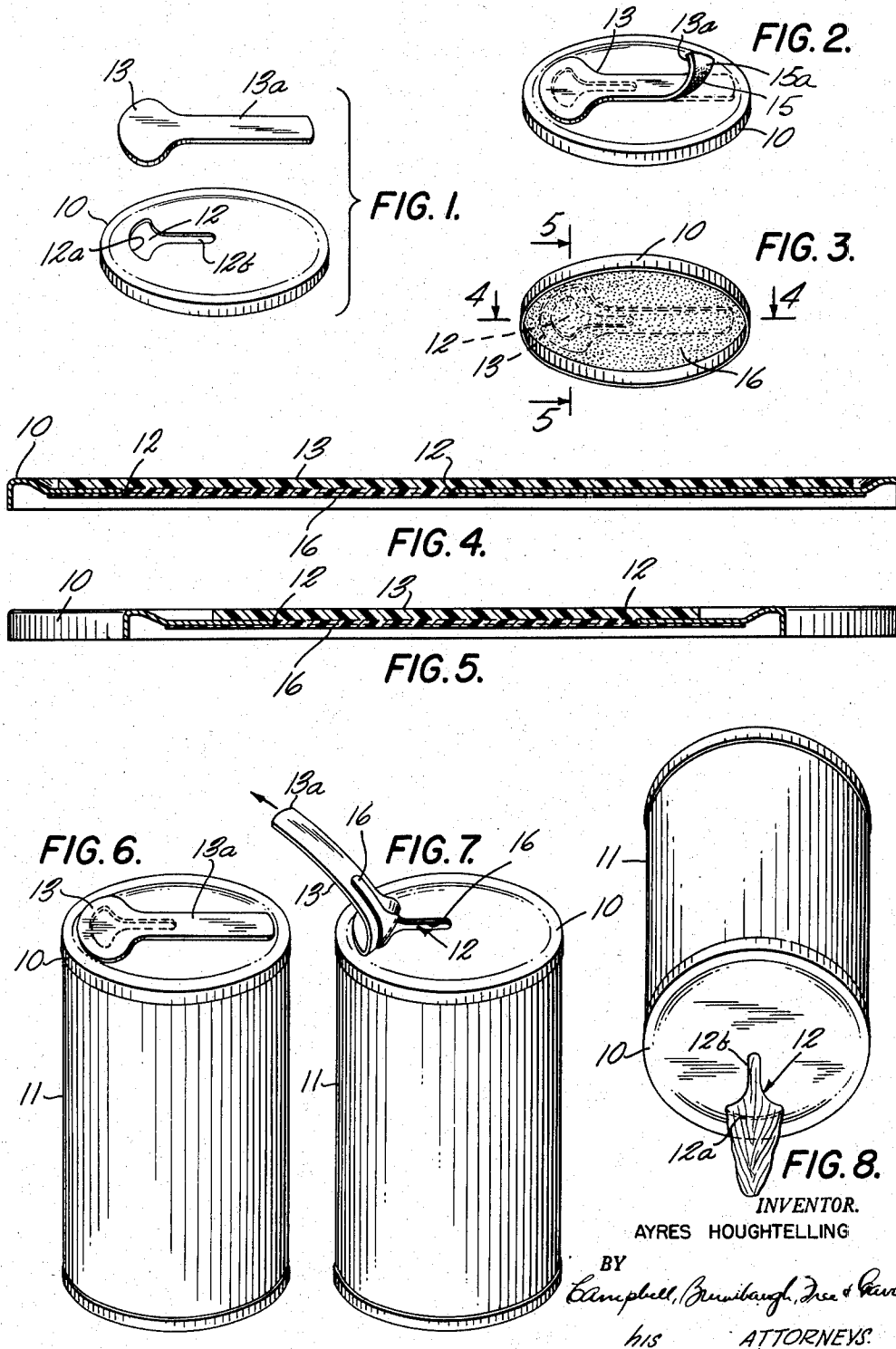
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CONTAINER SEAL

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## CONTAINER SEAL

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4 Claims. (Cl. 220—53)

This invention relates to sealed cans or containers which can be opened to permit the removal of the contents without requiring the use of special implements, such as a can opener, and to a method of making cans or containers of this general organization.

The sealed container of the present invention is formed with an opening in the lid, and a removable plastic cover, preferably attached by an adhesive material to the exterior of the lid, overlies the opening to enclose the contents. A thin plastic coating is applied to the underside of the lid surrounding the opening and to the underside of the portion of the plastic cover over the opening, and this coating coheres or unites with the cover to produce an effective seal for the opening.

If an adhesive material has been applied to the underside of the cover, the plastic seal will also serve to prevent the contents of the container from coming into contact with the adhesive material at the opening.

When it is desired to provide access to the contents of the container, the cover may be easily lifted away from the lid, and to facilitate the removal of the cover, it may be provided with a tab portion which may be conveniently gripped with the fingers. Because the thin inner plastic seal is united with the underside of the cover, the portion of the seal across the opening comes away cleanly with the cover without forming jagged edges around the outline of the opening.

A container sealed in the manner of the present invention is airtight so that food and other substances which have a tendency to spoil when exposed to air may be safely packaged therein. Moreover, the seal, although readily and conveniently removed merely by lifting or peeling off the cover in the manner aforesaid, is sufficiently rugged to withstand the temperatures and the treatment to which such merchandise is ordinarily subjected, such as temperatures required by the pasteurization process in the case of beer. A particularly important advantage of the present invention, however, is the fact that no tools, can openers or other implements are necessary to open the container.

The present invention will be more fully understood by reference to the detailed description which follows and to the accompanying drawings in which:

Figure 1 is an exploded perspective view of the lid of a container which embodies the present invention and of the removable cover which normally overlies the opening in the lid;

Figure 2 is a view similar to Figure 1 showing the cover applied to the lid and illustrating the tab end of the cover lifted as it would be when it is desired to peel off the removable cover;

Figure 3 is a perspective view showing the underside of the lid;

Figures 4 and 5 are cross-section views taken on the lines 4—4 and 5—5, respectively, of Figure 3 looking in the direction of the arrows;

Figure 6 is a perspective view of the container of the present invention as it would be merchandised;

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Figure 7 is a view similar to Figure 6 illustrating the removal of the cover; and

Figure 8 is a perspective representation of the container with the cover removed and illustrating the manner in which the contents may be poured from the opening.

Referring to the drawings, a lid 10 for the container 11 of the present invention is formed with an opening 12 therein. The lid may be produced separately from the body of the container, and after the opening 12 is suitably sealed according to the present invention, the lid may be applied by known methods to the open end of the container.

Although the opening may take various shapes, the "key hole" shape represented in the drawings is preferred. The body of the opening is formed near the periphery of the lid with a curved edge 12a defining the base thereof, and an elongated slot 12b extends from the opposite edge in the direction of the center of the lid. If the contents can be poured, this shape opening permits a rapid flow (see Fig. 8) through the opening over the edge 12a, and the slot 12b serves to admit air.

A flexible cover 13 overlies the opening 12, and the flexible cover may be formed with an extended portion 13a which serves as a tab to facilitate the removal of the cover. The cover should be sufficiently flexible to permit the tab end thereof to be lifted away from the surface of the lid and to permit the cover to be peeled off; however, it is also desired that it have sufficient firmness and toughness to form a rigid cover for the opening capable of withstanding really rugged handling. The cover may be made of any suitable flexible material satisfying these requirements, preferably a flexible thermoplastic material, such as a vinyl plastic or polyethylene, or other polymeric, plastic material, or of a flexible material coated with a flexible thermoplastic material.

The underside of the cover 13 has an adhesive material 15 applied thereto (see Fig. 2) so that the cover may be affixed to the lid and remain affixed during handling. The adhesive material may be eliminated from the surface 15a (see Fig. 2) at the extreme end of the tab 13a to facilitate its removal.

With the cover 13 attached to the upper surface of the lid of the container and overlying the opening 12, a thin sealing material 16, for example a thermoplastic such as a vinyl plastic or polyethylene and preferably of the same material as the cover 13, may be applied or sprayed to the underside of the lid and to the underside of the cover 13 exposed by the opening 12 when the lid is inverted, thereby providing a high tensile strength, resilient film inner seal. To insure that the portion of the inner seal 16 across the opening 12 will be removed with the cover 13, it is necessary that the seal cohere or be united with the portion of the cover with which it comes into contact, especially immediately adjacent and inside of the edge forming the opening 12. This may be accomplished by use of a strong adhesive bond between the seal 16 and the cover 13, but preferably if both are thermoplastic materials they are joined together by heat sealing. The inner seal 16 serves to form, with the cover 13, an airtight seal for the opening, helps to maintain the cover 13 in place over the opening 12 and prevents the contents of the container from coming into contact with the adhesive material 15.

The inner seal 16 may, if desired, be sprayed in liquid form against the undersides of the lid and cover, or it may be pre-formed, for example as a disc, and inserted in place. The seal 16 may or may not adhere to the underside of the lid surrounding the opening.

As mentioned above, when the opening has been sealed

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as set forth above, the lid may be applied to the container according to conventional methods. When it is desired to open the can to provide access to the contents, the tab 13a may be lifted away from the surface of the lid, grasped with the fingers and peeled off, the portion of the seal across the key-hole opening coming away cleanly with the cover as shown in Figure 7. The removal of the inner seal 16 cleanly without forming jagged edges around the hole will be facilitated if the inner seal is formed as a thin film or coating, or if it is a softer substance than the material of the cover 13. The clean removal of the inner seal 16 is also facilitated by the fact that the portion of the inner seal 16 adjacent the edge of the opening 12 in the lid forms a shoulder which defines a break line for the seal. With the cover removed, the contents of the container may be readily emptied, as illustrated in Figure 8.

The invention has been shown and described in a preferred form and by way of example only, and obviously many variations and modifications may be made therein without departing from the spirit of the invention. It is to be understood therefore that the invention is not to be limited to any specified form or embodiment, except insofar as such limitations are set forth in the appended claims.

I claim:

1. In a container, a rigid wall having a pre-formed opening therein, a preformed, cover of a polymeric, plastic material overlying the edge defining said pre-formed opening in the rigid wall and being detachably secured to the outer surface of the rigid wall surrounding the opening therein, said cover being formed with an edge portion thereof which serves as a lift tab for the cover, and a semi-rigid, relatively thin inner seal of the same material as the cover, the inner seal adhering to the inner surface of the rigid wall surrounding the edge defining the pre-formed opening and fused to the portion of the underside of the semi-rigid cover which is exposed by the pre-formed opening, forming an integral coherent structure across the opening whereby the removal of the outer cover will lift with it the inner seal against the edge defining the opening, thereby severing for removal with the cover only that part of the inner seal which is coincident with the opening in the wall, the remaining portion of the inner seal still adhering to the inner surface of the wall so as not to fall into the container.

2. In a container, a metal wall having a pre-formed opening therein, a pre-formed cover of a polymeric, plastic material overlying the edge defining the opening and being detachably secured to the outer surface of the metal wall surrounding the opening therein, said cover being

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formed with an edge portion thereof which serves conveniently as a lift tab for the cover, and an inner seal of a polymeric, plastic material adhering to the inner surface of the metal wall surrounding the edge defining the opening and being fused to the underside of the cover at the opening to form a coherent structure, whereby the removal of the outer cover will lift with it and sever only that portion of the inner seal which is coincident with the opening in the wall to provide access to the contents of the container.

3. The combination set forth in claim 2 wherein the outer cover and the inner seal are made of the same polymeric, plastic material.

4. A metal container for a pressurized fluid comprising a metal wall of the container having a preformed opening therein, a pre-formed cover of a polymeric, plastic material overlying the opening defined in the metal wall, said cover being detachably secured to the outer surface of the metal wall surrounding the opening and having a free end portion which serves as a pull tab to facilitate the lifting of said cover away from the surface of the metal wall, a relatively thin inner coating of a polymeric, plastic material adhering to the inner surface of the metal wall surrounding the opening and being fused to the underside of the cover at the said opening to form a coherent sealing structure, the cover and the inner coating being of the same polymeric plastic material, which material is highly resistant to permanent deformation at normal atmospheric temperatures by the internal pressure within the container, the rigidity of the inner coating reinforcing the outer cover against internal pressure and the action of the internal pressure against the inner coating supplementing the sealing action between the inner coating and the inner surface of the wall surrounding the opening, whereby the removal of the outer cover from the outer surface of the metal wall lifts the inner coating against the metal edge defining the opening, permitting only that portion of the inner coating which is coincident with the opening to be removed with the outer cover.

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