April 1, 1958 J. F. HOLLER 2,828,883

CONTAINERS

Filed Oct. 1, 1954

FIG_1

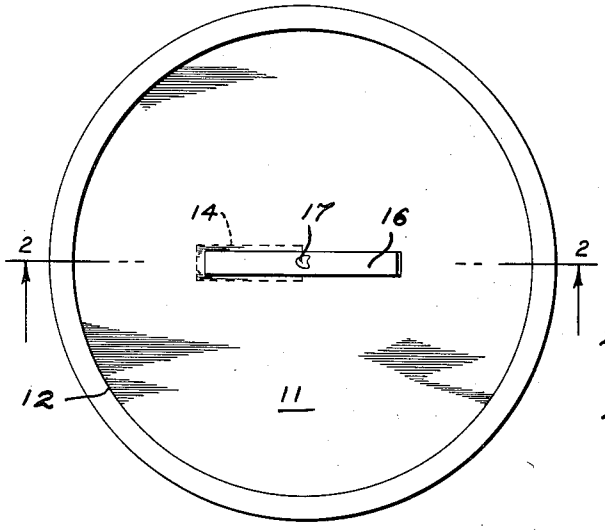


FIG_4

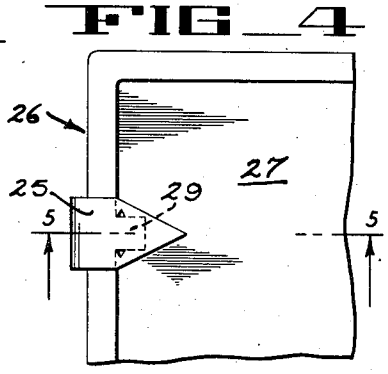


FIG_2

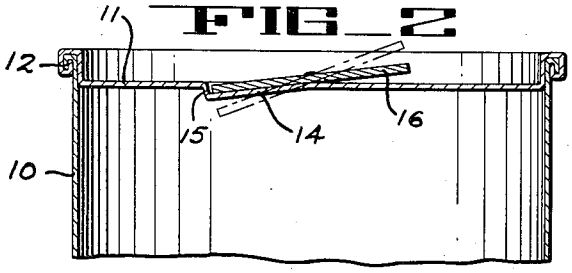


FIG_5

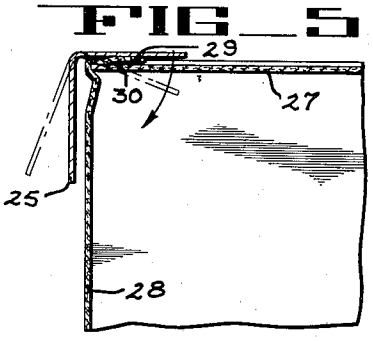
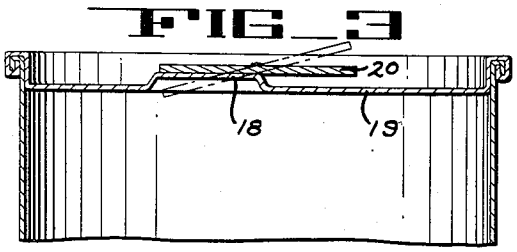


FIG_3



INVENTOR.
JOHN F. HOLLER

BY Paul B. Eike

PATENT AGENT

United States Patent Office

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CONTAINERS

John F. Holler, Saratoga, Calif.

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1 Claim. (Cl. 220—48)

The present invention relates to containers and more particularly to expendable containers that are disposed of subsequent to opening and discharge of their contents.

Expendable containers, such as, for example, tin cans that constitute the packaging unit for foods, beverages and the like are in most instances opened by utilization of separate can openers. While a can, after it has been opened and its contents discharged, is thrown away, the opener constitutes a permanent kitchen utensil which is retained for reuse. Although a can opener is a common kitchen utensil, yet it is often misplaced and sometimes lost. In other instances, such as picnic outings, an opener may be forgotten and is not always readily obtainable. To avoid such situations, certain cans are provided with tear strips and an attached key so that a can of this type may be opened conveniently at any time and place. However, the latter arrangement is none too satisfactory in that the cost of the can is increased appreciably and the removal of the tear strip by use of the key is an awkward procedure, as compared to the very simple operation provided by the conventional separate can openers hereinabove referred to.

Accordingly, it is an object of the present invention to provide a container having an opener integrated therewith in a manner which both keeps the container cost at minimum and facilitates the can-opening operation.

A feature of the invention involves the provision of a container having an integrated opener which can be fabricated with almost negligible modification of current container-manufacturing techniques.

A further feature concerns the ready application of the invention to containers of various shapes and compositions.

An additional feature is the provision of a container having an opener integrated therewith in a manner such that the overall shape of the container is not modified to thus enable, for example, ordinary stacking of the containers for storage and display purposes.

It is a further feature to provide a container having an opener integrated therewith in a manner such that although the opening operation is simple, yet accidental or inadvertent opening is virtually precluded.

These and other features of the invention as well as the advantages stemming therefrom will become more apparent from a perusal of the following description of the accompanying drawings wherein:

Fig. 1 is a top plan view of a container with an integrated opener constituting one embodiment of the present invention,

Fig. 2 is a central sectional view of the container taken along line 1—1 of Fig. 1,

Fig. 3 is a central sectional view similar to Fig. 2 but showing a slightly modified embodiment of the invention,

Fig. 4 is a fragmentary top plan view of another modified embodiment of the invention, and

Fig. 5 is a sectional view taken along line 5—5 of Fig. 4.

As shown in Figs. 1 and 2, the invention is embodied in a metal can as commonly used for the sealed packaging of certain foods and bevarages. Such a metal can is formed by a circular bottom plate (not shown) that is joined in sealing relation at its edge to one end of a cylindrical wall 10. After the can has been filled by way of its open end, a cover plate or top 11 is placed over the cylindrical wall and is sealed thereto by crimping of the adjoining edges, as indicated at 12.

In accordance with the present invention, a certain portion of the cover plate or top 11 is weakened so that it can be readily displaced from the adjoining portions of the top to provide a discharge opening, and means are integrated with the top to enable application of force as required to effect such displacement. The term "integrated" as herein employed connotes that the displacing means can be formed integrally with the top during its formation, or can be attached thereto subsequent to the formation of the top.

As shown in Figs. 1 and 2, the weakened portion of the top 11 constitutes a generally rectangular portion 14 depressed relative to the adjacent portions of the top 11 as by a stamping operation. Such operation necessarily weakens the metal at the edges of the depression, as indicated at 15 in Fig. 2, so that although the top 11 remains imperforate, a relatively small force is required to further depress or displace the weakened portion 14 and thus provide an opening.

In order to facilitate displacement of the depressed portion 14 when a can is to be opened, such depressed portion is slightly inclined, as shown clearly in Fig. 2, so that a flat bar 16 can be placed in the depressed portion 14 with the far end thereof projecting over the main flat surface of the top 11. The bar 16, when so positioned, can be secured to the top 11 by means of a spot-weld, indicated at 17, at a point substantially central of its length. When so secured, the bar 16 projects sufficiently above the surface of the top to enable its free end to be grasped by the fingers and pulled upwardly. As this end of the bar 16 is pulled upwardly, the other end is forced downwardly, the bar constituting, in effect, a lever whose fulcrum is approximately at the central point of attachment by the spot-weld 17. The bar or lever pivots from the position shown in full lines in Fig. 2 to that shown in phantom lines whereupon the depressed portion 14 of the top 11 is severed from the adjoining portions whereby an opening for discharge of the contents of a can is provided.

From the foregoing, it will be seen that the conventional operation of can assembly does not require extensive modification. The depression 14 can actually be formed at the same time that the top 11 itself is formed by the mere modification of a die. Neither the depression 14 nor the bar 16 will interfere with the operation of sealing the top 11 to the wall 10 of the can since they are away from the periphery of the top. The precise location and configuration of the depression 14 and the integrated bar 16 are not critical as long as there is no interference with the assembly of the can.

Preferably, the length of the bar and its degree of inclination are such that the bar does not protrude above the crimped edge 12 of the can. As a consequence, the cans may be stacked in the normal fashion and inadvertent operation of the opening bar 16 is virtually impossible.

As shown in Fig. 3, a weakened portion 18 is formed by raising one section of the top 19 of another can, such raised portion 18 presenting substantially a flat, horizontal surface so that an opening bar 20 can be spot-welded thereover to lie in a plane substantially parallel to, but displaced upwardly from the main portion of the can top 19. The manner of assembly and operation of

this embodiment are obviously similar to that shown in Figs. 1 and 2 and need not be reiterated. Furthermore, the features and advantages of this embodiment are similar to those of the Fig. 1–Fig. 2 embodiment of the invention.

The advantages of the present invention are present to a large degree in the embodiment of the invention shown in Figs. 4 and 5 wherein an opener is integrated with a cardboard container such as is frequently utilized for packaging milk. An opener in the form of a rectangularly bent metal strip **25** is secured to a cardboard container **26** adjacent the edge thereof where the top **27** and side wall **28** are joined. A small projection or tab **29** is formed at the end of the side wall **28** where it horizontally overlaps the top **27** so that small teeth **30** integral with the strip **25** can be brought into clamping engagement therewith to hold the strip **25** on the cardboard container **26** with the arms of the strip substantially parallel to the top **27** and side wall **28** of the container. The one end of the metal strip **25** is tapered to a point so that when the other end is pulled away from the side **28** of the container, the pointed end severs the top **27**, as indicated by phantom lines in Fig. 5, so that the contents of the container **26** can be discharged.

Obviously, other modifications and alterations may be made without departing from the spirit of the invention. Accordingly, the foregoing description of certain embodiments is to be considered as exemplary and not in a limiting sense; the actual scope of the invention being indicated by the appended claim.

I claim:

A metal container comprising a wall having a weakened portion therein of predetermined geometric configuration, and means for displacing said weakened portion to provide an opening in the container, said means including a member having a portion arranged to overlie said weakened portion and conform closely to the configuration thereof, said member constituting a lever integrated with said wall in a manner permitting pivotal movement thereof to displace said weakened portion, and said weakened portion being depressed so as to be angularly disposed relative to said wall.

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