

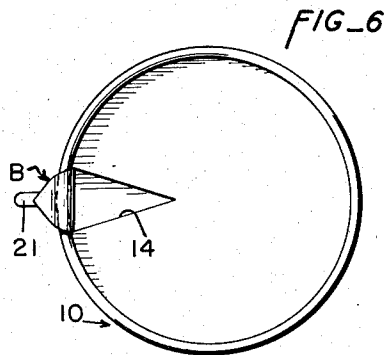
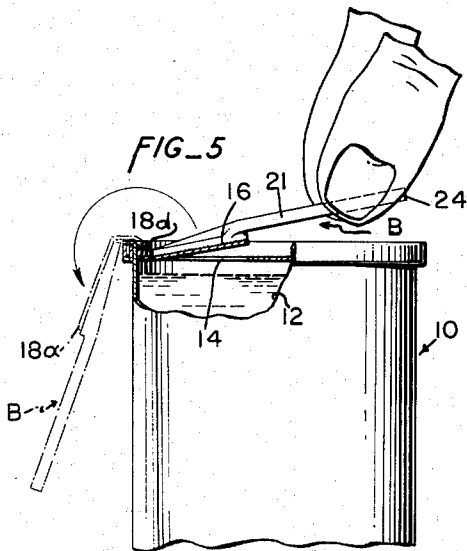
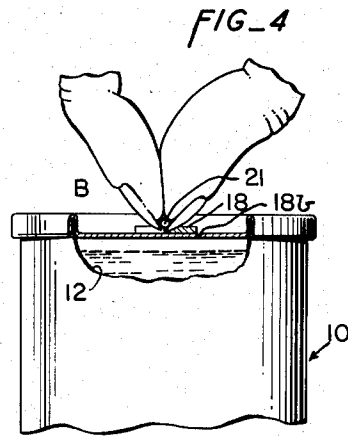
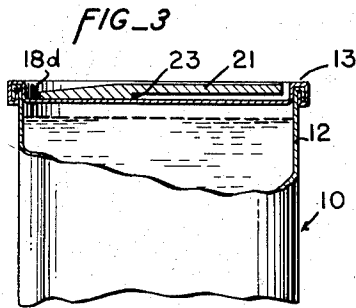
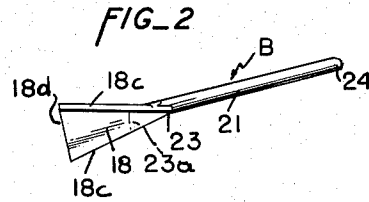
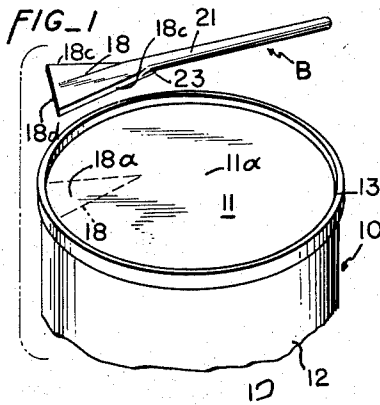
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2,801,765

BREAKAWAY CAN OPENER

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2,801,765

BREAKAWAY CAN OPENER

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4 Claims. (Cl. 220—48)

The present invention relates to a breakaway can opener, and pertains more particularly to an opener attached to a tin can in a manner to tear a hole in the can upon prying the opener upwardly away from the can. The present application is a continuation in part of application Serial No. 473,131, filed December 6, 1954, and now abandoned.

Extensive developments have been made in recent years in various types of tin cans, and particular efforts have been made to provide a can which could be opened easily, and one which would not lose its seal accidentally. During this same time, the use of tin cans as containers for food and other products has increased tremendously. Many products which previously were sold in bottles now are sold in increasing quantities in cans.

In order that a can may be opened without recourse to extraneous openers, I have now devised an improved type of can having a generally triangular opening member attached firmly to an end of the can to be opened. A rigid lever arm is connected to the opening member and extends beyond it over one apex thereof to facilitate swinging the opening member upwardly and outwardly away from the end of the can to tear out a correspondingly shaped opening in the can.

The opening device of the present invention may be incorporated in cans, preferably of the chime end type, during their manufacture at only a slight increase in cost, and without interfering with easy stacking of the cans, since no part of the proposed opener extends above the chime end of the can. The invention also contemplates the provision of a can opener incorporated as an integral part of the can itself during manufacture, so as to be available at any time that it is desired to open the can.

Briefly, the invention comprises a triangular body portion of metal considerably heavier and stiffer than the metal of the can for which it is intended. This body portion is secured marginally to a can end member, the marginal seal connecting the body portion to the can being sufficiently strong so that when the body portion is pulled outwardly away from the can it will tear a hole in the can end member corresponding in size and shape to the triangular body portion of the opener. A rigid lever arm is secured to the opener body portion to extend outwardly from one apex thereof, and thence preferably diametrically across the can and free of attachment therewith. The free end of the lever arm may be grasped and pulled upwardly to tear the triangular opener body portion and the underlying can end metal free from the can, beginning at the pointed apex of the body portion from which the lever arm extends. The opener then may be swung outwardly without bending over the side of the can to tear the can end material clear out to the edge of the can, thereby providing a pouring opening in the can. Another object of the invention is to provide an opener attached to a can and adapted to tear an opening in the can in the zone of attachment of the opener to the can.

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The foregoing and other objects and advantages of the invention will be apparent from the following description and the accompanying drawings, wherein:

Fig. 1 is a fragmentary perspective view of the upper portion of a chime-end tin can, an opener embodying the present invention being shown spaced upwardly from the broken-line outlined portion to which it is to be attached.

Fig. 2 is a perspective view of the under side of the opener shown in Fig. 1.

Fig. 3 is a fragmentary view, partly in elevation, and partly in section along the diameter, of a can with the opener shown in Fig. 1 attached thereto.

Fig. 4 is a view at right angles to the showing of Fig. 3, a portion of the can and opener being broken away.

Fig. 5 is a fragmentary side elevational view showing the upper portion of a can in the process of being opened, portions being broken away, the opener being shown in fully opened condition in broken lines.

Fig. 6 is a plan view of the arrangement shown in Fig. 5, the opener being shown in fully opened condition.

The can 10 shown in Fig. 1 is of conventional chime end construction, wherein a can end member 11 is sealed to each end of the tubular can side wall 12 by a usual upstanding end seam or chime 13. While use of the opener B embodying the present invention is not restricted to use in a chime end can, such type of can is preferred, since the chime 13 then serves to wall in the opener B, the chime being higher than the thickness of the opener, to permit stacking the cans and to protect the openers.

The opener B comprises a triangular body portion 18 of a size and shape corresponding to the opening it is desired to provide in the can. The opener body portion 18 preferably is of generally triangular shape, and is of heavier and stiffer material than the can end member 11 to which it is attached.

The body portion 18 is mounted to overlie a triangular zone 18a (Fig. 1) of the can end member 11 which it is desired to tear out to provide the opening 14 (Figs. 5 and 6) in the can. This triangular can end portion 18a thus comprises a removable closure element which is torn free from the remainder 11a of the can end member in operating the opener as will be brought out later herein. The body portion 18 is firmly attached at least marginally thereof to the can end member 11, for example, by suitable welding or brazing 16.

A strong, rigid lever arm 21 is mounted on the triangular body portion 18 and extends therefrom directly over the apex 23, preferably along a line bisecting the apex angle 23a (Figs. 1 and 2) of the body portion 18, and thence substantially diametrically across the can end member 11. The portion of the lever arm 21 which extends beyond the apex 23 of the body portion 18 is free from attachment to the can end member 11, and preferably is spaced slightly therefrom to facilitate grasping the lever arm as shown in Figs. 4 and 5.

The lever arm 21 preferably is formed integrally with the triangular body portion 18 as by coining or stamping the entire opener B in a conventional manner. The details of fabricating the opener are not material to the invention, and will be obvious to one skilled in the art.

In opening a can having an opener B applied thereto, the lever arm 21 may be grasped, for example as shown in Figs. 4 and 5 to lift its free end 24 away from the can end member 11, and thereby raise the apex end 23 of the opener body portion, tearing out the closure portion 18a (Fig. 1) of the can end member 11 therebeneath beginning at the apex 23. The lever arm 21 preferably is of a cross sectional shape which will permit it to be grasped easily, the lever arm 21 shown in Figs. 1 to 6 inclusive being round.

The marginal line of juncture of the triangular tear-

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out portion 18a with the remainder 11a of the can end member 11 may be marked by score lines 18b (Fig. 4) which may be made with a conventional scoring die (not shown) to weaken the metal of the can end member 11 along these lines.

When it is desired to open a can having an opener embodying the present invention installed thereon, the lever arm 21 is raised as shown in Fig. 5 to pry up the apex end 23 of the triangular body portion 18 of the opener, and thereby to tear the closure portion 18a which lies beneath the body portion 18 free from the remainder of the can end member 11. The lever arm 21 then may be swung outwardly and downwardly about the base edge 18d of the triangular body portion 18 as a fulcrum. The base edge 18d of the body portion 18, being positioned closely adjacent the side wall 12 of the can is firmly supported thereby to provide the necessary fulcrum support for the opener. The final position of the opener B alongside the can is shown in broken lines in Fig. 5. Thus the opener tears the closure portion 18a free from the can end member 11 along the side edges 18c of the triangular body portion 18. This provides an opening 14 in the can for removing its contents.

Preferably the apex end 23 of the triangular body portion 18 extends well in toward the center of the can to which it is applied, and the body portion 18 preferably is rather narrow, so as to provide a narrow, radially elongated opening in the can. With such an opening, a good pouring stream can be poured from even a can full of liquid without danger of air-lock, since the inner apex of the opening remains clear of the liquid to provide a vent.

The present invention provides a simple and inexpensive opener, which, being incorporated as an integral part of each can, is always available for use. The cost of a can having the opener as the present invention incorporated therewith is but little more than that of a can having plain chime ends without the opener.

Since it is customary for manufacturers packing their products in ordinary cans to give purchasers free of charge some sort of a can opener, the cost of providing the present opener with each can would be compensated for, at least in part, by the savings involved in not having to supply other openers, and would have the advantage of always having an opener available when needed.

While I have illustrated and described a preferred embodiment of the present invention, it will be understood however, that various changes and modifications may be made in the details thereof without departing from the spirit and scope of the invention as set forth in the appended claims.

Having thus described the invention, what I claim as new and desire to protect by Letters Patent is defined in the following claims.

I claim:

1. In combination with a can having a side wall and a pair of end closure members, a closure element formed integrally with an end member of the can, said closure element being separated from the remainder of the can end member by a pair of angularly intersecting score lines, the point of intersection of said score lines being spaced inwardly from the can wall, said score lines being of sufficient depth to weaken the material of the can end member to provide a breakaway line for tearing the closure element free of the can, a rigid opener body portion conforming in size and shape to the closure element secured in conforming, superposed relation thereon and extending from adjacent the can wall between the score lines directly over the point of intersection of said score lines, a handle lever rigidly secured to the opener body portion and extending over the can end member beyond said closure element, the body portion of said opener overlying the closure element being firmly attached thereto, and the handle lever portion of said opener beyond the closure element being free of attachment with the can end member, said entire opener being of sufficient

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strength and rigidity to tear two sides of the closure element free of the can end member beginning at the point of intersection of the scored lines upon an upward swinging movement of the free end of the opener handle lever about the end of the body portion opposite the handle lever as a fulcrum to provide an opening in the can end member.

2. In combination with a can having a side wall and a pair of end closure members, a triangular closure element formed integrally with a can end member, the base of said closure element lying adjacent a wall of the can, intersecting score lines in the can end member along the other two sides of the closure element, the point of intersection of said score lines defining the apex of the closure member opposite its base, the score lines being of a depth to weaken the can end member sufficiently to provide a breakaway line for tearing the closure element free from the can end member, a rigid opener body portion conforming in size and shape to the closure element and secured thereto in superposed relation by a bond stronger than the tearing strength of the can end member along said score lines, a strong, rigid arm portion secured integrally to the opener body portion and extending therefrom directly over the apex of the body portion and thence over the can end member beyond said body portion, the portion of said arm beyond the body portion being free of attachment with the can end member, said opener, consisting of the combined body portion and arm, being of sufficient strength and rigidity to swing upwardly as a unit about the base of said body portion as a fulcrum upon lifting the free end of the lever arm away from the can end member, thereby to tear two sides of the closure element free of the can end member along the score lines beginning at the point of intersection of the score lines to provide an opening in the can.

3. In combination with a can having a side wall and a pair of end closure members, a triangular closure element integral with one of the end closure members of the can, the base of said triangle closure element lying closely adjacent a side wall of the can, a can opener comprising a triangular opener body portion of substantially stiffer material than the one can end closure member conforming to and substantially co-extensive with the closure element and secured in superposed relation thereon by a bond stronger than the tearing strength of the underlying can end closure member, a lever arm secured to the opener body portion and extending therefrom directly over the apex of said triangular body portion opposite its base and thence over said one can end closure member beyond said body portion, the portion of said lever arm beyond the body portion being free from attachment to said one can end closure member, said entire opener, consisting of the lever arm and body portion, being of sufficient overall strength and rigidity to tear the two sides of the triangular closure element, other than its base, free of said one can end closure member beginning at the apex of the triangular closure element opposite its base, upon an upward swinging movement of the free end of the lever arm about the side of the body portion overlying said base of the closure element to provide an opening in the end closure member.

4. In combination with a container having a side wall structure and an end closure member, an elongated narrow closure element having converging side portions formed integrally with the end closure member, said closure element having a size and shape of a desired opening in the container and being positioned with its major dimension disposed transversely across said end closure member and having one end thereof lying closely adjacent the side wall structure of the container, a can opener having a body portion conforming to and substantially co-extensive with the closure element and secured in superposed relation thereon by a bond stronger than the tearing strength of the end closure member, a lever attached to the opener body portion and free from

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attachment to the end closure member, the entire opener, consisting of the body portion and lever being of sufficient overall strength and rigidity to tear the closure element free of the remainder of the end closure member along the converging side portions beginning at a portion 5 thereof which is substantially more narrow than and disposed remotely from the one end of the closure element which is adjacent the side wall structure upon an upward swinging movement of the free end of the lever about said one end of the closure element with said one end of the 10 closure element acting as a fulcrum, thus providing an opening in the end closure member.

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