United States Patent [19]

Garza et al.

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[54] **OPENER TOOL**

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[52] **U.S. Cl.** ..... **81/3.46 R**

[51] **Int. Cl.** **B67b 7/16**

[58] **Field of Search**..... 81/3.34, 3.46 R, 3.4, 3.46 A

[56] **References Cited**

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FOREIGN PATENTS OR APPLICATIONS

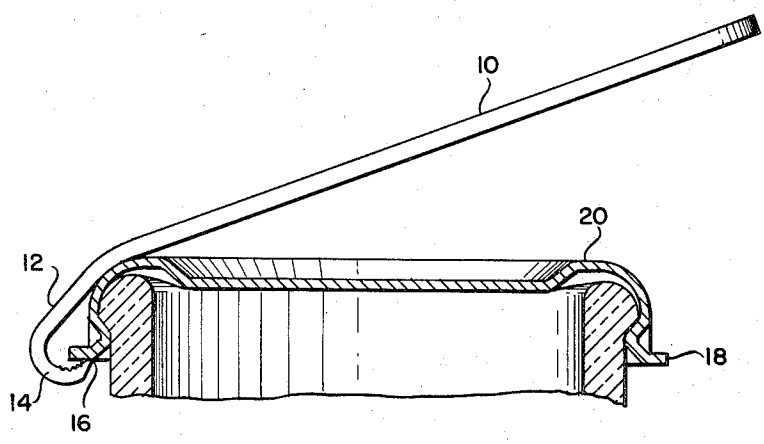
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[57] **ABSTRACT**

An opening tool for use with closures of a modified crown type is disclosed. This is a hand operated one piece tool formed of flat stock and having a handle portion and a offset hooked end. The hooked end engages with a substantial portion (about 30°) of the under edge of the closure while the junction of the hook and handle portions engages the top of the closure immediately adjacent the part engaged by the hooked portion. The handle then extends completely across the top of the container and is fulcrumed thereon at the junction of the hooked and handle portions.

2 Claims, 4 Drawing Figures



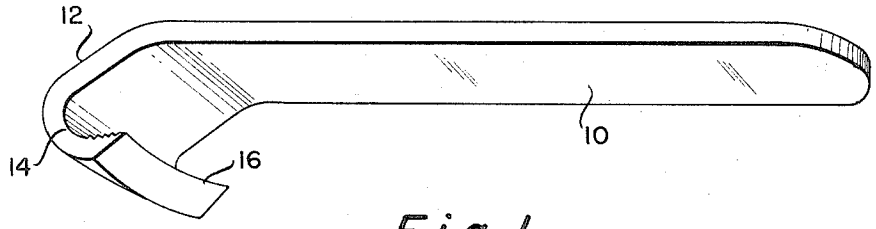


Fig. 1

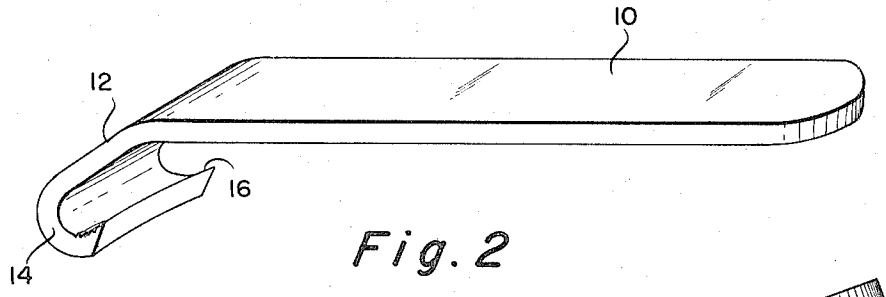


Fig. 2

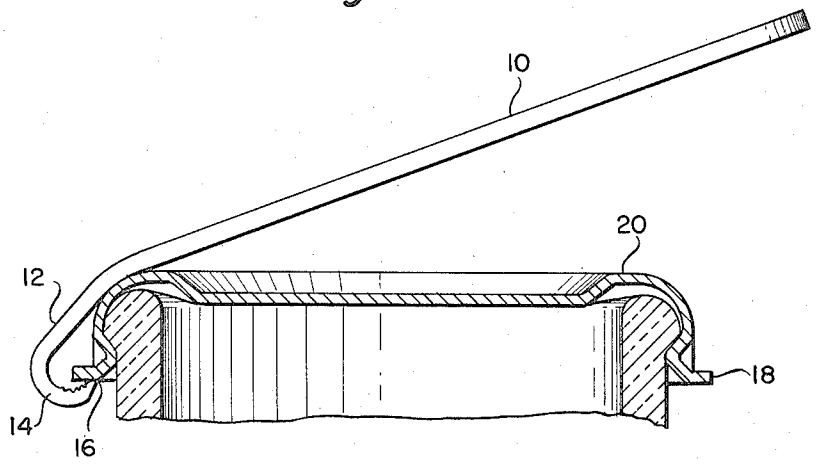


Fig. 3

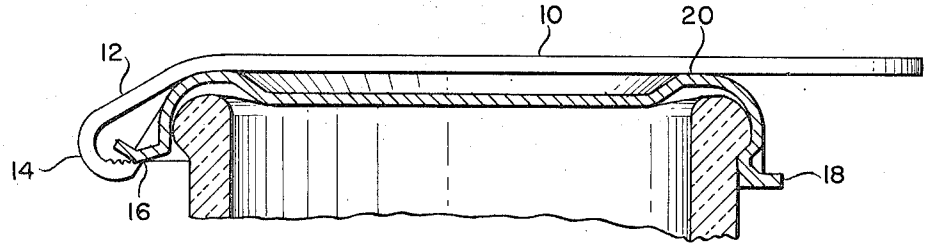


Fig. 4

OPENER TOOL

BACKGROUND OF THE INVENTION

In copending application Ser. No. 475,120 filed May 31, 1974 there is disclosed and claimed a new form of container closure particularly suited for wide-mouth thin-walled containers such as blow-molded glass baby food jars. In order to remove such closures once they have been applied and without distorting the the sealing area of the closure a special tool is required.

BRIEF SUMMARY OF THE INVENTION

The opening tool in accordance with this invention is similar in some respects to the conventional crown closure remover tools of the prior art. It consists of a hand-operated device having an elongated handle portion formed of flat stock and an offset hook portion at one end of the handle portion. The latter is of substantial width in order to engage with perhaps 30° of the periphery of the closure and is spaced from the offset by an amount to permit simultaneous engagement of the offset with the top of the closure immediately adjacent that portion of the edge engaged by the hook portion. The handle then extends completely across the top of the container at an angle thereto and is fulcrumed on the top of the container (through the closure). A downward force is applied to the handle portion until it lies substantially flush with the container top which stresses the rim of the closure in hoop tension. By repeating at adjacent locations around the periphery, the closure is gradually enlarged in diameter by an amount permitting it to be manually removed but the configuration of the sealing portion is undisturbed so that it may be replaced as a dust-tight cover.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. **1** and **2** are perspective views of the tool of this invention;

FIG. **3** shows the placement of the tool on a sealed container preparatory to opening the container; and

FIG. **4** shows the tool in its end position after applying a downward force from the position as shown in FIG. **3**.

DETAILED DESCRIPTION OF THE DRAWINGS

In referring first to FIGS. **1** and **2** of the drawings, it will be seen that the tool is formed of flat metal stock and includes an elongated flat handle portion **10**, and an offset portion **12** which terminates in a hook-shaped portion **14**. The point **16** of the hook **14** will be seen to comprise an elongated edge slightly curved to match the curvature of the containers and closures with which it is to be used. Preferably, the width of the tool is such that the edge **16** will engage with perhaps 25° to 30° of the periphery of the closure.

Referring now to FIGS. **3** and **4** for a description of the operation of the tool, FIG. **3** shows the tool applied to a container sealed with a closure of the type disclosed and claimed in my aforementioned application.

As disclosed in that application, it is the rim portion **18** of the closure **20** which had been reduced in diameter during the closure applying process and which must be increased in diameter by an equal amount before the closure **20** may be manually removed from the container. With the tool applied to the container enclosure as shown in FIG. **3**, the hooked edge **16** engages the underside of the rim **18** of the closure **20** and that portion of the tool which is at the juncture between the handle **10** and the offset **12** is positioned substantially in alignment with the end of the container wall substantially immediately adjacent the point of engagement between the edge **16** of the tool and the rim **18** of the closure. This point, therefore, forms the fulcrum for the tool. By applying a downward force, the handle **10** may be brought into contact with the opposite side of the closure as shown in FIG. **4** and in so doing the rim **18** is pried outwardly. By repeating this operation at successive substantially adjacent points, the inside diameter of the rim **18** of the closure **20** may be enlarged by a sufficient amount to permit removal of the closure over the bead of the container end. It should be carefully noted that this is effected without distorting the top portion of the closure **20** which means that the closure may be replaced on the container after partially using the contents thereof and since it is undistorted in its sealing area it will form at least a dust-tight seal with the container. This is of a distinct advantage in connection with baby foods, for example, where only a portion is used at a time and the remainder replaced in a refrigerator until some time later in the day. The contents is thus protected against contamination until such time as the contents are exhausted.

We claim:

1. An opening tool for closures of the general crown type comprising:

a first elongated flat handle portion;

a second relatively short flat extension of said handle portion extending integrally therefrom at an obtuse angle;

a third portion integral with said second and of substantially the same width, said third portion being U-shaped in cross-section and terminating in a relatively thin edge, the distance between said edge and the junction of said first and second portions being such that said edge can engage under the closure to be removed when the said junction is positioned on the immediately adjacent portion of the closure overlying the rim of the container, so that forcing said flat portion down flush with the upper surface of the closure stresses the closure in hoop tension to enlarge its internal diameter sufficiently to permit removal by hand.

2. A tool as defined by claim **1** in which said edge portion is substantially a section of a circle the radius of which is substantially equal to the radius of the closures with which the tool is to be used.

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