

March 4, 1969

R. J. STOLLE ET AL

3,430,593

METHOD OF MAKING A CAN WITH INTEGRAL PULL TAB

Original Filed March 15, 1965

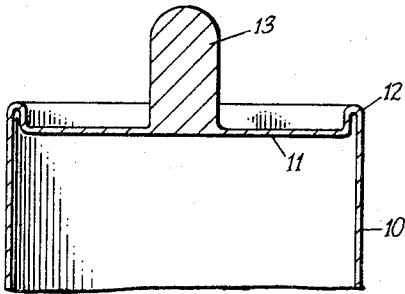


Fig. 1

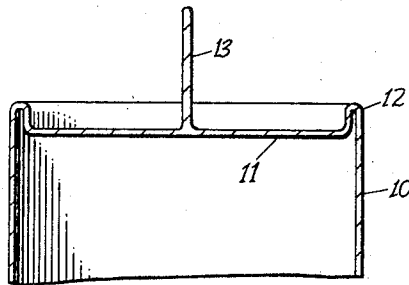


Fig. 2

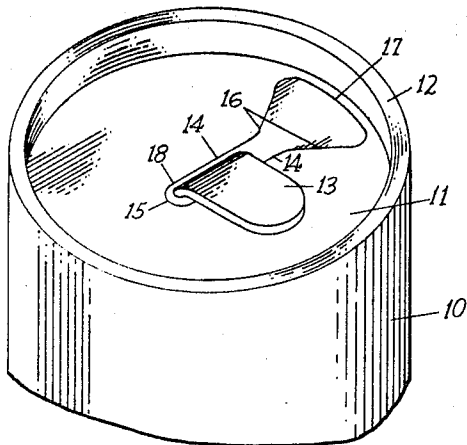


Fig. 4

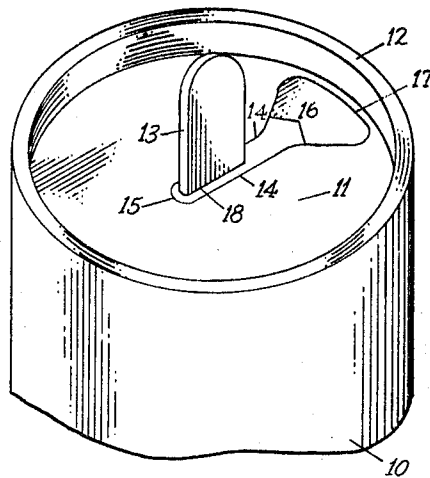


Fig. 3

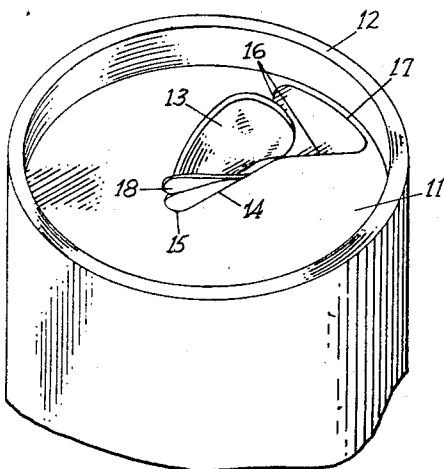


Fig. 5

INVENTOR/S
RALPH J. STOLLE &
ELTON G. KAMINSKI,

BY *Melville, Strasser, Foster and Hoffman*
ATTORNEYS

1

3,430,593

METHOD OF MAKING A CAN WITH INTEGRAL PULL TAB

Ralph J. Stolle, Lebanon, and Elton G. Kaminski, Sidney, Ohio, assignors to The Stolle Corporation, Sidney, Ohio, a corporation of Ohio

Original application Mar. 15, 1965, Ser. No. 439,559, now Patent No. 3,322,297, dated May 30, 1967. Divided and this application Apr. 10, 1967, Ser. No. 629,452

U.S. Cl. 113-120

2 Claims

Int. Cl. B21c 23/10; B21d 51/44; B65d 17/24

2

ABSTRACT OF THE DISCLOSURE

The method of making a can having an integral tear tab formed on one end thereof by impact-extrusion-forming the can body and simultaneously forming a tear tab extending from one end thereof, and thereafter forming score lines in the said end.

This application is a division of Ser. No. 439,559, filed Mar. 15, 1965, and now Patent No. 3,322,297, issued on May 30, 1967.

This invention relates to a method of manufacturing a can with an integral pull tab.

In recent years and particularly in the field of beer cans and soft drink cans, pull tab means have been provided in association with a generally keyhole shaped score line so that the metal of the can end within the score line could be manually torn out of the can end to provide a pouring or drinking spout.

This had generally been accomplished by providing a generally keyhole shaped score line in the can end and riveting on to the can end within the score line a tab by means of which the area within the score line could be torn out.

Manifestly such a construction is relatively expensive and requires a rivet forming operation, a tab forming operation and an assembly operation. Furthermore, there is always the possibility that the rivet may be imperfect so that the tab may tear off the can end without actually operating to open the can.

With the foregoing considerations in mind, it is an object of the present invention to provide a can having an integral pull tab formed from the metal from which the can and can end are formed.

This and other objects of the invention which will become apparent or which will be described in more detail hereinafter, are accomplished by that construction and arrangement of parts and by that series of method steps of which the following describes an exemplary embodiment.

Reference is made to the drawing forming a part hereof and in which:

FIG. 1 is a fragmentary cross sectional view through a can as it is formed.

FIG. 2 is a cross sectional view taken at right angles to the view of FIG. 1.

FIG. 3 is a perspective view of the same.

FIG. 4 is a view similar to FIG. 3 with the tab bent down and with the can in condition for shipment.

FIG. 5 is a view similar to FIGS. 3 and 4 showing the pull tab actuated to tear out the area of the can end within the score line.

Briefly, in the practice of the invention, use is made of so-called impact-extrusion-forming. This is a forming procedure in which a slug of metal having substantially the volume of the article to be formed is extruded under tremendous pressure by means of an impact press or the like into a desired form. According to the present invention, the die is arranged not only to provide the form of a can body and can end, but also a more or less centrally located extending tab. Such tab of course is integral with the material of the can end. After the impact-extrusion-forming step, the can end is scored to define the boundaries of the tear strip and the tab is then bent over substantially flush against the can end, whereupon the can is ready for filling, closing and labeling.

It will be understood that the term impact-extrusion-forming as used herein and in the claims is intended to be inclusive of the so-called impact and iron forming process. The impact and iron forming process is a modification of the impact-extrusion-forming process whereby the article is only partially formed by impact-extrusion-forming. Thus, in the production of a can, the impact-extrusion-forming process is used to produce a short cup of proper diameter with a heavy wall thickness. Thereafter, the cup is pushed through ironing dies to reduce the wall thickness and increase the length of the cup to a proper length for the trimming and flanging operations. If it is desired to use the impact and iron forming process, the tab may simply be formed during the impact-extrusion-forming of the cup. The subsequent ironing operation may then be carried out without in any way affecting the pull tab.

Referring now in more detail to the drawings, the die is arranged to form a can having a body wall 10 and an end wall 11 which may be connected by a U-shaped section 12, whereby the can end is depressed within the length of the can body. The tab which is formed during the impact-extrusion-forming process is shown at 13. The impact-extrusion-forming process is one which lends itself very well to high speed production which is, of course, a very necessary element in the can business.

As seen in FIG. 3, the tab 13 extends upwardly substantially centrally of the can end 11. At this point there is formed in the can end 11 a score line which closely follows around the root of the tab as indicated at 14 and 15 and which then flares out as at 16 toward the edge of the can and the score line then merges in an arcuate section 17 adjacent the edge of the can end.

After the score line has been formed (and this is done in conventional manner), the tab is bent over as shown in FIG. 4 and the can is then ready for inside and outside cleaning and subsequent filling, closing and labeling.

When it is desired to open a can according to the present invention, the tab 13 is lifted slightly and, for a right-handed person, is twisted in a clockwise direction, breaking out the end 18 of the area within the score line. Continued pull on the tab 13 removes the entire area of the can end within the score line and the contents of the can may then be poured or drunk.

While the drawings show a tab having a rectangular cross section, this is of course not a limitation on the invention. The tab may have any suitable or desired cross section and may even have a circular cross section which can then be simply flattened after scoring when the tab is bent over.

It will be clear that modifications may be made with-

3

out departing from the spirit of the invention and that no limitation not specifically set forth in the claims is intended or should be inferred.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. The method of making a can having an integral pull tab, which comprises the steps of impact-extrusion-forming the can body, the can end, and a pull tab on said end, thereafter forming in said can end a score line surrounding said pull tab, and then bending said pull tab down so as to lie closely adjacent the surface of said can end.

2. The method of claim 1, wherein said pull tab is formed substantially centrally of said can end, and said

4

score line runs closely around the two sides and one end of said tab, and flares apart toward the edge of said can end and is joined in a smooth curve adjacent the edge of said can end.

References Cited

UNITED STATES PATENTS

3,300,808 1/1967 Close ----- 113—120

10 RONALD D. GREFE, *Primary Examiner*.

U.S. Cl. X.R.

72—267; 113—121

15