July 30, 1968 D. R. HANSEN ET AL 3,394,837

CONTAINER OPENING MEANS

Filed Sept. 6, 1966 2 Sheets-Sheet 1

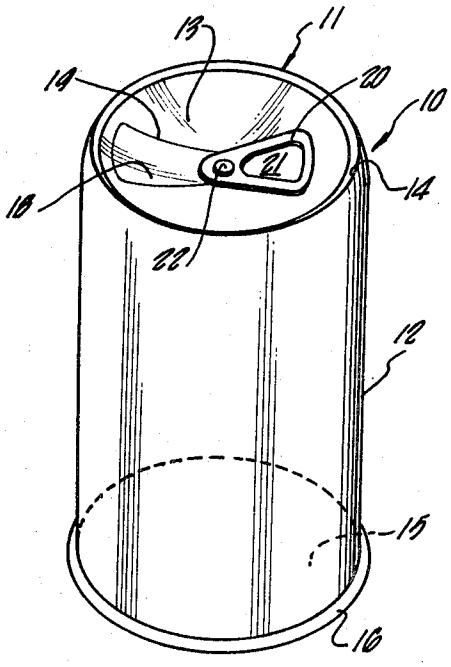


FIG. 1

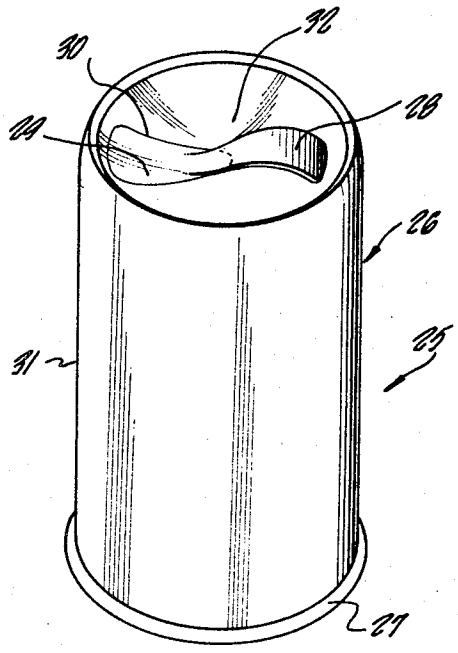


FIG. 2

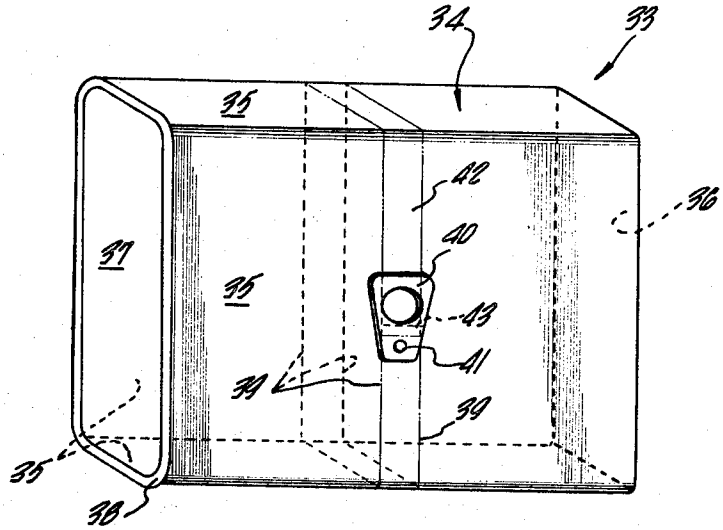


FIG. 3

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July 30, 1968 D. R. HANSEN ET AL 3,394,837

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Filed Sept. 6, 1966 2 Sheets-Sheet 2

FIG_4_

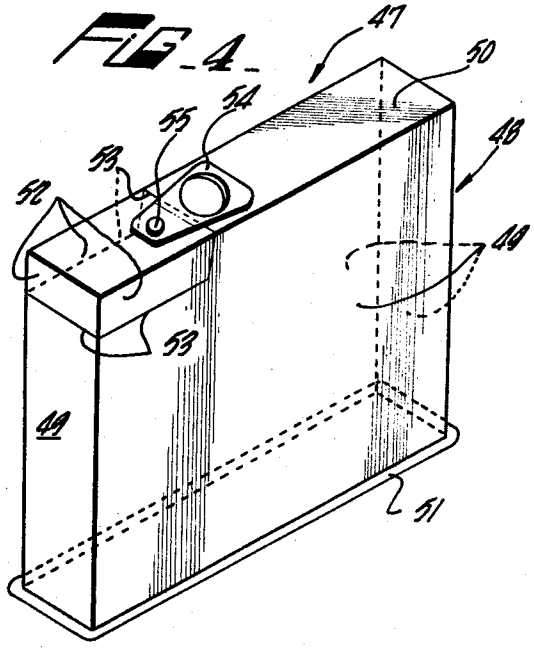


FIG_5_

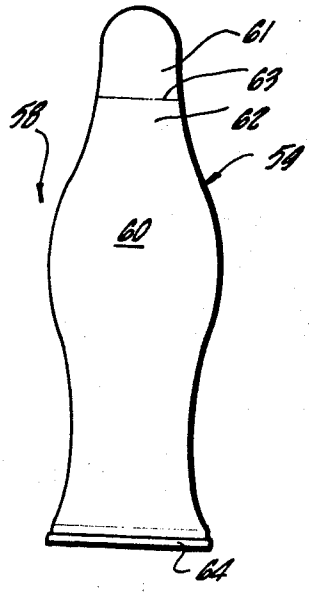
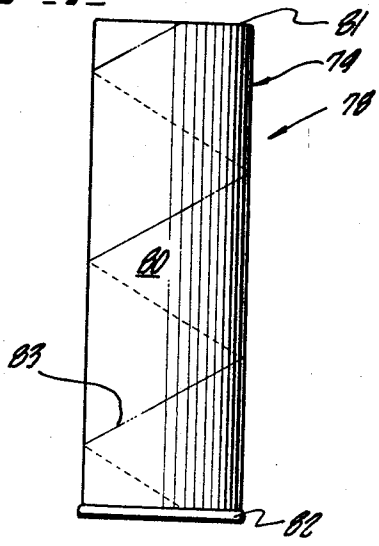


FIG_7_



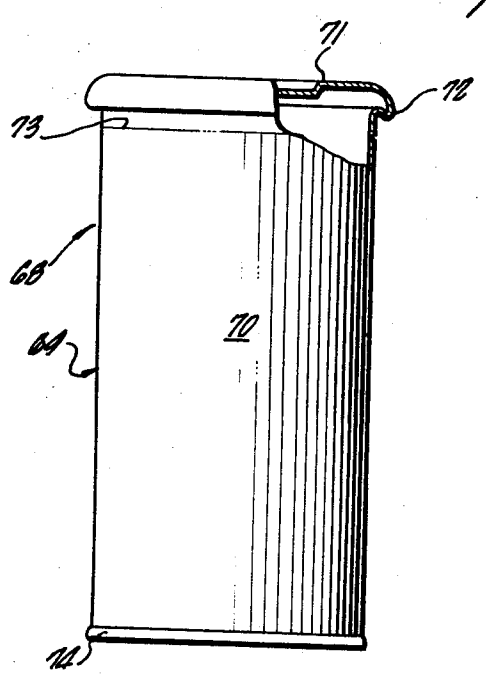


FIG_6_

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CONTAINER OPENING MEANS

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2 Claims. (Cl. 220—54)

ABSTRACT OF THE DISCLOSURE

An improved aluminum container in which an integral housing is formed from a continuous side wall and an end wall, the housing having an opening therein. A separate closure member is secured to the housing across the opening to define a sealed enclosure. The housing has a scored portion defined by a continuous score therein spaced from the closure member, and a lifting tab is secured to the scored portion. Manipulation of the tab permits the scored portion to be broken away from the housing to open the container.

Background of the invention

Aluminum containers and container components have enjoyed widespread popularity in recent years due in large part to their desirable characteristics of light weight, formability, and chemical compatibility with many foods and other products being packaged. These known containers are typically of either two- or three-piece construction, being made up of a body or housing member, and one or several cover or closure members which are secured to the housing member after installation of the packaged product therein to form a sealed enclosure. The closure members are typically secured in place by automatic packaging machinery of known design.

In an older style of metal container, whether aluminum or tin-plated steel, opening is accomplished by use of a conventional can opener to puncture and perhaps remove portions of the closure member. A more recently marketed form of aluminum containers includes a tab which is secured to a scored portion of the closure member, and opening is accomplished by grasping the tab and tearing the scored portion away from the closure member. These containers have in common the traditional form of opening operation which involves penetration and separation of the closure member.

Incorporation of the opening surface in the closure member presents several problems to the packaging industry. First, the closure member is installed after the housing is filled with the product being packaged, and is typically handled by high-speed automatic machinery. Thin aluminum closure members, particularly those which are scored to define a "tear line," are susceptible to bending and other structural damage, and jamming of packaging machinery can result from the handling of these deformed members.

Furthermore, opening the container at the closure member does not provide adequate access to certain kinds of products packaged therein. For example, a food product such as asparagus is awkard to remove from the end of a container since only the tips of the asparagus are accessible. Positioning of the scored "tear line" is also limited by the rigid seams which secure the closure member to the container. Finally, packaging designers have been limited in the creation of new and attractive containers by the location of the opening surface in the closure member.

The container of this invention is free of these difficulties and limitations of prior-art designs, and is adapted for loading and sealing by existing packaging machinery. Our container is esthetically appealing to the consumer, and provides a broad range of design freedom to those

concerned with both the artistic and the mechanical aspects of packaging.

Briefly stated, the improved container of this invention comprises an aluminum housing having a side wall and an end wall, the housing having an opening therein. A closure member is secured to the housing across the opening to define a sealed enclosure within the housing and closure member. The housing includes a scored portion separate from the closure member whereby the container can be opened by breaking away from the scored portion of the housing along the scoring. Preferably, the side wall and end wall of the housing are integral and seamless.

In one form, the container of this invention is formed whereby the side wall of the housing is generally cylindrical, and the end wall forms the top of the container. The scored portion is in the side wall, and the container further comprises a tab secured to the scored portion. In yet another form of the invention, the side wall is round and tapers to a narrow neck portion adjacent the end wall, and the scoring extends circumferentially around the neck portion.

In another form of the invention, the side wall is generally cylindrical, and the end wall forms the top of the container. The scoring extends circumferentially around the side wall and is spaced slightly from the end wall. The end wall is folded to extend peripherally beyond the side wall to form a lift ring.

In another alternative form, the second portion of the container is defined by a pair of spaced-apart, generally parallel scores around the periphery of the side wall, and a lift tab is secured to the scored portion. In one version of this form, the side wall is of generally rectangular cross-section and the scored portion is positioned substantially centrally in the side wall between the end wall and the closure member.

The invention will be described in detail with reference to the attached drawings, in which:

FIG. 1 is a perspective view of a cylindrical container formed according to the invention;

FIG. 2 is another type of cylindrical container in which a lift tab is integrally formed with a scored portion in the housing end wall;

FIG. 3 is a perspective view of a container according to the invention in which the housing is of generally rectangular cross-section, and the scored portion extends peripherally around the housing;

FIG. 4 is a perspective view of yet another form of the invention suitable for packaging products such as cigarettes;

FIG. 5 is a front elevation of a breakaway-top bottle formed according to the invention;

FIG. 6 is a front elevation of a generally cylindrical container having a folded end wall defining a lift ring; and

FIG. 7 is a front elevation of yet another form of the invention in which scoring extends helically around the housing side wall.

Referring to FIG. 1, a container **10**, suitable for packaging products such as beer and soft drinks, includes an aluminum housing **11** which is integrally formed from a side wall **12** and an end wall **13**. The side wall and end wall are integrally joined by an annular rim portion **14** which forms the periphery of the top of the container. Manufacturing techniques for producing this type of integral housing from thin aluminum sheet material are known, and need not be described in detail.

A closure member **15** is secured across the open lower end of housing **11**, and is formed from a disc of aluminum or tin-coated steel, depending upon the chemical characteristics of the product to be packaged. The closure member is secured to housing **11** by a conventional dou-

ble-seam joint **16** or any other conventional sealing means as commonly used in the canning industry. The closure member is of course secured to the housing after the product to be packaged is placed in the housing, and the housing and closure member cooperate to define a sealed enclosure for the product.

End wall **13**, which defines the top of the container, includes a scored portion **18** defined by a closed, loop-shaped score **19** extending from the center of the end wall toward annular rim portion **14**. The scoring extends through a substantial part of the thickness of the end wall, whereby the scored portion can be broken away from the end wall when it is desired to open the container. To assist in this operation, a lift tab **20**, having a finger hole **21** therethrough, is secured to the center of the end wall in the scored portion by means such as a rivet **22**. This type of riveted lift tab construction is known, and need not be described in detail.

To open the container, the lift tab is gripped and lifted away from the end wall to break away scored portion **18** along score **19**. When a packaged liquid product is to be consumed directly from the container, annular rim portion **14** serves as a dam which prevents drops of the product from running down side wall **12**, and is smooth and comfortable against the lips of the consumer.

Referring to FIG. 2, another form of a container **25** is generally similar to container **10** and includes a thin-wall aluminum housing **26** and a closure member **27** secured across the open lower end of the housing. In this form of the invention, a lift tab **28** is integrally formed with a scored portion **29** in the top of the housing. The container is opened by lifting tab **28** away from the housing to break away the scored portion along a score **30**. As in container **10**, housing **26** is integrally formed from a side wall **31** secured to an annular rim portion of an end wall **32**, the end wall defining the top of the housing and container.

FIG. 3 shows a container **33** of a form especially suitable for packaging frozen foods and the like. Container **33** includes a one-piece, thin-wall aluminum housing **34** which is formed from a side wall **35** of substantially rectangular cross section, and an end wall **36** integrally formed with and secured across one end of the side wall. A closure member **37** is secured across the open end of housing **34** by a double-seam joint **38** as described above.

A pair of scores **39** are formed centrally around the periphery of side wall **35** about midway between the end wall and the closure member. A lift tab **40** is secured by a rivet **41** to a scored portion **42** of the housing between scores **39**. A transverse score **43** extends between scores **39** under the lift tab.

Container **33** is opened by lifting tab **40** to break away scored portion **42** along scores **39** and **43**. The lift tab is then moved around the periphery of the housing to tear away the full length of the scored portion whereby the housing separates into two pieces. This form of container is especially advantageous with frozen foods as the packaged food becomes readily accessible to the consumer when the housing is broken away about its midsection.

Another form of a container **47** according to the invention is shown in FIG. 4, and is especially suited for packaging of merchandise such as cigarettes. Container **47** includes a thin-wall aluminum housing **48** having a continuous side wall **49** of rectanglar cross section, and an end wall **50** integrally formed across the upper end of the side wall. A closure member **51** is secured across the open lower end of the side wall after the merchandise being packaged is installed in the housing. A scored portion **52** of the housing is defined by a continuous score **53** which extends across the end wall and around a portion of the periphery of the side wall. A lift tab **54** is secured to the scored portion by a rivet **55**. This container is opened in the same fashion as described above by lifting tab **54** to tear away scored portion **52** along score **53**.

FIG. 5 shows a container **58** having a thin-wall aluminum housing **59** formed as a bottle. The housing includes a side wall **60** and an end wall **61** integrally formed with and secured to the upper end of the side wall. The side wall is round in cross section, and tapers to a narrowed neck portion **62** adjacent the end wall. A score **63** extends peripherally around the narrowed neck portion. A closure member **64** is secured across the open lower end of the housing side wall after the container is filled.

Container **58** is opened by breaking away end wall **61** of the housing along score **63**. This separation of the end wall from the side wall is accomplished by striking the end wall against a surface, or the end wall may be grasped securely and given a sharp snap to break away the housing along the score.

FIG. 6 shows another form of container **68** having a thin-wall aluminum housing **69** which includes a side wall **70** of generally cylindrical shape, and an end wall **71** integrally formed with and secured to the side wall. The end wall extends radially beyond the periphery of the side wall, and is folded back on itself to join the side wall whereby a lift ring **72** is defined at the top of the container. A continuous score **73** extends around the periphery of the side wall just below the lift ring. A closure member **74** is secured across the open lower end of the side wall after the container is filled. Container **68** is opened by gripping the housing by the side wall and pressing sharply upward with the thumbs on lift ring **72** to break away the housing along score **73**.

FIG. 7 shows a container **78** of a form suitable for packaging solid or semi-solid products such as dough for cookies and biscuits. Container **78** includes a thin-wall aluminum housing **79** formed from a generally cylindrical side wall **80** and an end wall **81** integrally formed with and secured to the upper end of the side wall. A closure member **82** is secured across the open lower end of the side wall after the container is filled. A continuous helical score **83** extends peripherally around the side wall toward end wall **81** and closure member **82**. Container **78** is opened by gripping opposite ends of the side wall and twisting sharply in opposite directions to break away the side wall along score **83**.

There have been described several forms of a container which includes a thin-wall aluminum housing having a scored portion which is broken away from the housing to open the container. Variations and modifications of the specific described forms may suggest themselves to those skilled in the art, and it is intended that all such variations and modifications fall within the scope of the appended claims which define our invention.

We claim:

1. An improved container for cigarettes and the like, comprising a hollow aluminum housing having a continuous side wall and a generally rectangular end wall secured at one end of the side wall, the side wall being formed to define a generally rectangular cross section, the side and end walls being integral and seamless, one corner of the housing having a scored portion defined by a continuous score which extends along both the side wall and the end wall; a separate and generally rectangular closure member secured to a second end of the side wall opposite the end wall to define a sealed enclosure within the housing and closure member; and a lifting tab secured to the scored portion.

2. The container defined in claim **1** in which the lifting tab is secured to the end wall of the housing.

References Cited

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THERON E. CONDON, *Primary Examiner.*

G. T. HALL, *Assistant Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,394,837 July 30, 1968

Douglas R. Hansen et al.

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 10, "away from the" should read -- away the --; line 29, "second" should read -- scored --.

Signed and sealed this 13th day of January 1970.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents