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(54) **CONTAINERS HAVING DISTINCTIVE TABS WITH LASER ETCHING AND VOID FORMING A PROMOTIONAL IMAGE**

BEHÄLTER MIT MARKANTEN LASCHEN MIT LASERÄTZUNG UND HOHLRAUMBILDUNG EINES WERBEBILDES

CONTENEURS A LANGUETTES ORIGINALES POURVUES DE GRAVURES AU LASER ET DE VIDES QUI FORMENT UNE IMAGE PROMOTIONNELLE

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(56) References cited:
EP-A- 1 123 772 WO-A-00/47487
WO-A-01/68460 WO-A-99/09853
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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] This invention relates generally to the subject of containers, for example metal or plastic containers for consumer products such as food and beverages. More particularly, the invention relates to cans and can ends having a manually manipulable tab used for opening such a container that contains a promotional or decorative image.

Description of Related Art

[0002] Figure 1 is a perspective view of a conventional prior art beverage can 10. The can 10 is formed from a one-piece drawn and ironed cup. The cup walls are stretched in a can body making station to form the side wall 12 of the can. A neck 14 is formed on the upper portion of the can by a set of necking stations, such as described in the patent to Caleffi et al., U.S. No. 4,774,839 or Tung et al., U.S. No. 5,755,130. After the neck 14 is formed on the upper portion 16 of the can 10, the can is sent to a flanging station where a flange is formed around the upper peripheral edge of the can. The flange is seamed to the peripheral edge of a can end 18 after the can is filled, in accordance with well-known techniques.

[0003] Referring to Figure 2, the can end 18 includes a generally flat center panel 19, integrally connected to a circumferential countersink which is surrounded by a peripheral flange or curl. The center panel includes score lines which defines a panel, which when opened, allows the contents of the can to be removed.

[0004] The scored portion 20 cooperates with a manually manipulable tab 22 so as to enable the user to either remove, for example, most of the center panel, such as in a full panel easy open end that is used for cans containing cat food, snacks or other foods, or to remove or open the pour panel of a beverage can.

[0005] On a typical beverage can, such as shown in Figure 2, the score 20 defines a pour panel 21 which, after opening, remains attached to the center panel by a hinge (not shown). The pour panel is opened by the tab 22. Tab 22 is secured to the center panel 19 by a rivet 32. The user inserts a finger underneath the tab 22 and lifts the tab up, causing the rivet 32 to pull up, which initiates the pop or initial fracture of the score line 20. Further lifting of the tab 22 further propagates the severing of the score to complete the opening of the can. At that point the user may pour the contents out of the can or drink from the can.

[0006] Prior art references describing ornamental, promotional, or other similar features for beverage containers include the patents to Goodwin, U.S. No. 4,203,240; Januchowski, U.S. No. 1,257,710; Park, U.S. Patent Des.

365,021; and Rheingold, U.S. No. 1,878,541. U.S. Patent No. 4,557,505 to Schaefer et al. describes a stress-opacifying tamper indicating tape that is applied to the openings of containers, in which a visible message is displayed in the tape indicative of whether the seal has been opened or tampered with. Minder, U.S. Patent 3,822,496 shows a can with a detachable display plate or button that is affixed to a pull-ring of a can. Additionally, beverage cans have been previously sold in the United States with alpha-numeric characters formed on the tab with ink-jet printing. Published PCT application PCT/GB00/00463, publication no. WO 00/47487 published August 17, 2000 discloses methods and apparatus for printing on tabs and various features for promotional containers and container ends. EP-A-1,123,772 discloses a laser apparatus which provides markings on a tab surface.

SUMMARY OF THE INVENTION

[0007] An end for a can, such as a can containing food or beverages for human consumption, is provided that includes a scored portion forming a frangible portion in the end. A manually manipulable tab secured to the end is provided and has a first end portion and a second end portion and first and second opposite sides. The first end portion cooperates with the scored portion to open the end when the second end portion is lifted up with the user's finger or other implement. The tab further comprises a tab surface extending across the tab between the first and second sides. In accordance with the invention, the tab surface is distinctively decorated, as by forming a promotional or decorative image in the tab. The promotional image is formed as a combination of a void in the tab and laser etching of the tab surface in the region adjacent to the void. In preferred embodiment, the tab is colored and laser etching bums the color off the tab to reveal the base color of the tab material. The combination of the void, colored tab material, and laser etching of the color material to reveal the color of the base tab material (i.e., silver for an aluminum tab stock), with possible color applied to the end itself, results in a highly distinctive container.

[0008] In a preferred embodiment, the promotion image is formed by applying a layer of a color agent to the tab surface (such as by applying a lacquer containing a color agent to the tab), feeding the tab material to a laser station where a portion of the color agent is burned off revealing the silver aluminum color below the color agent, then feeding the tab into a press where the tab features are formed. The press includes a stamping tool that forms the void forming part of the promotional or decorative image.

[0009] The end in accordance with the invention can be provided for any suitable can, for example a can for containing a human or animal food product. In a preferred embodiment, the can comprises an aluminum beverage can, but cans for snack foods (e.g., peanuts), or other

types of products can be used with the inventive ends and tab. The end may be a full panel easy open end, in which full panel is removed, or an end in which the tab is used to open a pour panel in the end to provide a means of access to the contents of the can.

[0010] The promotional or decorative image may be a logo or trademark of the manufacturer of the contents of the can, or other a promotional or fanciful image associated with the manufacturer of the contents of the can. Other examples of promotional images would be letters, numbers, symbols, or fanciful shapes.

[0011] These, and other advantages, features and improvements of the invention will be more apparent from the following detailed description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] Presently preferred embodiments of the invention are described below in conjunction with the drawings, in which like reference numerals refer to like elements in the various views, and in which:

Figure 1 is a perspective view of a prior art beverage can;

Figure 2 is a plan view of a prior art beverage can end and manually manipulable tab for the beverage can of Figure 1;

Figure 3 is a plan view of an inventive end for the beverage can of Figure 1 showing a promotional or decorative image formed as a void on the surface of the tab in combination with adjacent laser etching of the tab.

Figure 3A is an alternative arrangement of the tab of Figure 3.

Figures 4 and 5 show two alternative decorative or promotional images formed in the tab surface.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

[0013] Figures 3 is a plan view of an inventive end 18 for the can 10 of Figure 1. The end 18 has a scored portion 20 for defining an opening in the end, and a manually manipulable tab 22 having the promotional or decorative image 30 formed therein.

[0014] The tab 22 is secured to the end 18 by a rivet 32 or other suitable structure that allows the tab 22 to remain fixed to the end 18 when the tab is manipulated by the user to open the can 10. The tab 22 has a first end portion 34 and a second end portion 36 and first and second opposite sides 38 and 40, respectively. The first end portion 34 is forced into the region 37 bounded by the scored portion 20 to open the end when the second end portion 36 is lifted up with the user's finger or other implement.

[0015] The tab further comprises a tab surface 41 extending across the tab 22 between the first and second sides 38 and 40. As shown in Figure 3, the tab surface

41 has a promotional or decorative image 30 formed therein. In the example of Figure 3, the tab is coated with a lacquer or other pigment to form a colored tab (e.g., black, red or blue), and the promotional image 30 is formed by forming a void 50 in the tab and laser etching of the color adjacent the void in a predetermined pattern or arrangement 52 to reveal the base metal (aluminum). The combination of the void 50, which reveals the color of the end panel 19 (which may be colored, e.g., gold, or uncolored, i.e., silver), plus color tab surface 41, plus laser etching at 52 forms a distinctive container end. Thus, it is possible to present to the consumer or viewer at least three colors: (1) the color of the end panel 19, which would also be viewed through the void 50 in the tab, (2) the color applied to the tab surface 41, and the color of the base tab material (silver for an aluminum tab) in the region 52 where the laser has burned off the color.

[0016] The particular image shown in Figure 3 is a promotional or decorative image in the shape of the star. The star has a circular punched hole 50 and the points 52 of the star consist of areas where the laser has burned off the color or coating applied to the tab surface. Consider for example an end with a gold colored panel 19, the void 50 reveals the gold color, and the silver points 52 against the black tab background in the tab surface 41 forms a highly distinctive arrangement. Moreover, the resulting star presents no sharp surfaces to the user which could possibly injure the user when the can is opened. The combination of void feature and laser etching opens many new possibilities for decoration of tabs for cans.

[0017] Two more examples are shown in Figures 4 and 5. Figure 4 shows a decorative image in the form of the letter "1" with the bar 50 formed as a void and the base and upper left hand portions of the number formed as laser etchings of the tab surface to burn off color that is applied to the tab. Alternatively, the tab has no color and the laser etching burns off the coating to the aluminum base stock, which may result in a darkening of the tab color in the area 52. In the example of Figure 5, the promotional or decorative image consists of the letter "P" and is formed from a void 50 and a laser etching in region 52. The laser etching and void could be reversed in the examples of Figures 4 and 5, of course.

[0018] Various types of promotional or decorative images 30 may be formed in the tab surface, such as logos, sports team logos, trademarks, an image of a product or feature suggesting the contents of the can, letters, numbers, symbols of various kinds, arbitrary designs, and so on.

[0019] In one preferred embodiment, the promotional image 30 is formed in the tab 22 by first applying a layer of a color agent or lacquer containing a color agent to the tab surface, or by buying pre-coated tab stock, and then removing a portion of the color agent in predetermined locations using a laser. The tab stock is then introduced into a tab forming press (such as a press from Dayton Reliable Tool). The tab is then formed in the

press. One of the operations of the press includes a stamping operation wherein the void 50 is stamped out of the tab surface. The void will normally be formed immediately adjacent to where the color etching has occurred, so that the laser etching and the void together form a single unitary image. Consider, for example, a logo in the shape of a bull's head. The laser etching is performed to etch out the shape of the horns, ears and nose of the bull, revealing these features in the base material color. The remainder of the tab surface is colored tab material. An inverted triangle is stamped from the tab surface to form the basic head shape.

[0020] In an alternative and less preferred embodiment, the laser etching of the tab surface 41 in region 52 could be performed after the tabs have been formed and affixed to the end in a shell conversion press. With this embodiment, precise positioning of the end relative to the laser would have to be maintained in order to insure that the etching is performed at the correct locations.

[0021] Other embodiments are contemplated. It is possible that an uncolored tab could be used and the promotion image could be formed by the void in addition to other etched features, such as patterns, or other features, in the tab surface adjacent to the void.

[0022] Still further embodiments would introduce three-dimensional shapes to the tab from embossing or debossing, in addition to the etching and void forming features described herein. In these embodiments, the metal in the tab surface 41 is either pressed down (towards the end panel 19) or raised.

[0023] The techniques of the invention can be applied to various types of ends for containers, and representative examples include ends for can for food, beverage and other types of products.

[0024] Figure 3A is an alternative arrangement of the embodiment of Figure 3, in which the laser etching is applied to trace a circular outline 52A and the outline 52B of the points of the star feature, showing the color of the panel 19 showing through the void 50.

[0025] Variation from the particular embodiments described above is contemplated and within the scope of the invention. This true scope of the invention is defined by the appended claims, to be interpreted in light of the foregoing specification.

Claims

1. An end for a can body, comprising:

a scored portion for defining a frangible portion in said end; and
a manually manipulable tab secured to said end and having a first end portion and a second end portion and first and second opposite sides,

wherein said tab further comprises a tab surface extending across said tab between said first and sec-

ond sides, said tab surface having a promotional image formed therein,

characterised in that said promotion image is formed as a combination of a void formed in the tab surface and adjacent laser etching of one or more features adjacent to said void in said tab surface.

2. The end of claim 1, wherein a first color is applied to said tab surface and said laser etching removes color from said tab surface to reveal the base color of the tab material, the first color, revealed base color and void forming a distinctive tab appearance.

3. The end of claim 2, wherein said end comprises a base material and a color applied to said base material, and wherein said color applied to said base material of said can end is different from the color applied to said tab surface, whereby said can end presents three colors to a viewer: said color applied to said can end, said color applied to said tab surface, and the color of the base tab material.

4. The end of claim 1, wherein said end and can body form a can for containing a human or animal food product.

5. The end of claim 1, wherein said can comprises a metal beverage can.

6. The end of claim 1, wherein said promotional image comprises a logo.

7. The end of claim 1, wherein said promotional image comprises a promotional image associated with the manufacturer of the contents of a can.

8. The end of claim 1, further comprising a three-dimensional decorative feature in combination with said void and said etched feature.

9. A can, comprising:

a can body comprising a side wall and a base and defining an interior region for containing a product and an end as defined in any preceding claim.

10. The can of claim 9 wherein a first color is applied to said tab surface and said laser etching removes color from said tab surface to reveal the base color of the tab material, the first color, revealed base color and void forming a distinctive tab appearance.

11. The can of claim 10, wherein said end comprises a base material and a color applied to said base material, and wherein said color applied to said base material of said can end is different from the color applied to said tab surface, whereby said can end

presents three colors to a viewer: said color applied to said can end, said color applied to said tab surface, and the color of the base tab material.

12. The can of claim 9, wherein said can comprises a can for containing a human or animal food product.
13. The can of claim 9, wherein said can comprises a metal beverage can.
14. The can of claim 9, wherein said promotional image comprises a logo.
15. The can of claim 9, wherein said promotional image comprises a promotional image associated with the manufacturer of the contents of said can.
16. The can of claim 9, further comprising a three-dimensional decorative feature in combination with said void and said etched feature.

Patentansprüche

1. Ende für einen Dosenhauptteil, das aufweist:

einen eingekerbten Teil zum Bilden eines aufbrechbaren Teils in dem Ende; und
eine manuell handhabbare Lasche, die an dem Ende befestigt ist und einen ersten Endbereich und einen zweiten Endbereich und erste und zweite gegenüberliegende Seiten hat,

wobei die Lasche weiter eine Laschenoberfläche aufweist, die sich über die Lasche zwischen den ersten und zweiten Seiten erstreckt, welche Laschenoberfläche darin ein Werbebild ausgebildet hat, **dadurch gekennzeichnet, dass** das Werbebild durch eine Kombination eine Ausnehmung, die in der Laschenoberfläche gebildet ist, und benachbarte Laserätzung von einem oder mehreren Merkmalen gebildet ist, die der Ausnehmung in der Laschenoberfläche benachbart sind.

2. Ende nach Anspruch 1, bei dem eine erste Farbe auf die Laschenoberfläche aufgebracht ist und die Laserätzung Farbe von der Laschenoberfläche entfernt, um die Grundfarbe des Laschenmaterials freizulegen, wobei die erste Farbe, die freigelegte Grundfarbe und die Ausnehmung eine ausgeprägte Erscheinung der Lasche bilden.
3. Ende nach Anspruch 2, bei dem das Ende ein Grundmaterial und eine Farbe aufweist, die auf das Grundmaterial aufgebracht ist, und wobei die Farbe, die auf das Grundmaterial des Dosenendes aufgebracht ist, verschieden ist von der Farbe der Laschenoberfläche, wodurch das Dosenende einem Betrachter

drei Farben darbietet: die Farbe, die auf das Dosenende aufgebracht ist, die Farbe, die auf die Laschenoberfläche aufgebracht ist, und die Farbe des Grundmaterials der Lasche.

4. Ende nach Anspruch 1, bei dem das Ende und der Dosenhauptteil eine Dose bilden, die ein Nahrungsmittelerzeugnis für Menschen oder Tiere enthält.
5. Ende nach Anspruch 1, bei dem die Dose eine Getränkedose aus Metall aufweist.
6. Ende nach Anspruch 1, bei dem das Werbebild ein Logo aufweist.
7. Ende nach Anspruch 1, bei dem das Werbebild ein Werbebild aufweist, das mit dem Hersteller des Inhalts einer Dose zusammenhängt.
8. Ende nach Anspruch 1, das weiter ein dreidimensionales dekoratives Merkmal in Kombination mit der Ausnehmung und dem geätzten Merkmal hat.
9. Dose, die aufweist: einen Dosenhauptteil, der eine Seitenwand und einen Grundteil aufweist, die einen inneren Bereich zum Enthalten eines Erzeugnisses begrenzen, und ein Ende, wie es in einem der vorangehenden Ansprüche definiert ist.
10. Dose nach Anspruch 9, bei der eine erste Farbe auf die Laschenoberfläche aufgebracht ist und das Laserätzen Farbe von der Laschenoberfläche entfernt, um die Grundfarbe des Laschenmaterials freizulegen, wobei die erste Farbe, die freigelegte Grundfarbe und die Ausnehmung eine ausgeprägte Laschenerscheinung bilden.
11. Dose nach Anspruch 10, bei der das Ende ein Grundmaterial und eine Farbe aufweist, die auf das Grundmaterial aufgebracht ist, und wobei die Farbe, die auf das Grundmaterial des Dosenendes aufgebracht ist, verschieden von der Farbe ist, die auf die Laschenoberfläche aufgebracht ist, wodurch das Dosenende einem Betrachter drei Farben darbietet: die Farbe, die auf das Dosenende aufgebracht ist, die Farbe, die auf die Laschenoberfläche aufgebracht ist, und die Farbe des Laschengrundmaterials.
12. Dose nach Anspruch 9, bei der die Dose eine Dose zum Enthalten eines Nahrungsmittelproduktes für Menschen oder Tiere aufweist.
13. Dose nach Anspruch 9, bei der die Dose eine Metallgetränkedose aufweist.
14. Dose nach Anspruch 9, bei der das Werbebild ein Logo aufweist.

15. Dose nach Anspruch 9, bei der das Werbebild ein Werbebild aufweist, das mit dem Hersteller des Inhalts der Dose zusammenhängt.

16. Dose nach Anspruch 9, die weiter ein dreidimensionales dekoratives Merkmal in Kombination mit der Ausnehmung und dem geätzten Merkmal aufweist.

Revendications

1. Extrémité pour un corps de boîte, comportant:

une partie entaillée destinée à définir une partie fragile dans ladite extrémité; et
une patte pouvant être manipulée manuellement fixée sur ladite extrémité et ayant une première partie d'extrémité et une deuxième partie d'extrémité et des premier et deuxième côtés opposés,
ladite patte comportant en outre une surface de patte s'étendant transversalement à ladite patte entre lesdits premier et deuxième côtés, ladite surface de patte ayant une image promotionnelle formée dedans,

caractérisée en ce que ladite image promotionnelle est formée comme une combinaison d'un vide formé dans la surface de patte et d'une gravure au laser adjacente d'une ou plusieurs caractéristiques adjacentes au dit vide dans ladite surface de patte.

2. Extrémité selon la revendication 1, dans laquelle une première couleur est appliquée sur ladite surface de patte et ladite gravure au laser enlève la couleur de ladite surface de patte afin de révéler la couleur de base de la matière de patte, la première couleur, la couleur de base révélée et le vide formant un aspect de patte distinctif.

3. Extrémité selon la revendication 2, dans laquelle ladite extrémité comprend une matière de base et une couleur appliquée sur ladite matière de base, et dans laquelle ladite couleur appliquée sur ladite matière de base de ladite extrémité de boîte est différente de la couleur appliquée sur ladite surface de patte, de sorte que ladite extrémité de boîte présente trois couleurs à un observateur : ladite couleur appliquée sur ladite extrémité de boîte, ladite couleur appliquée sur ladite surface de patte, et la couleur de la matière de patte de base:

4. Extrémité selon la revendication 1, dans laquelle ladite extrémité et ledit corps de boîte forment une boîte destinée à contenir un produit alimentaire pour humain ou pour animaux.

5. Extrémité selon la revendication 1, dans laquelle la-

dite boîte comprend une boîte de boisson en métal.

6. Extrémité selon la revendication 1, dans laquelle ladite image promotionnelle comprend un logo.

7. Extrémité selon la revendication 1, dans laquelle ladite image promotionnelle comprend une image promotionnelle associée au fabricant du contenu d'une boîte.

8. Extrémité selon la revendication 1, comportant en outre une caractéristique décorative tridimensionnelle en combinaison avec ledit vide et ladite caractéristique gravée.

9. Boîte, comportant :

un corps de boîte comportant une paroi latérale et une base et définissant une zone intérieure destinée à contenir un produit; et
une extrémité selon l'une quelconque des revendications précédentes.

10. Boîte selon la revendication 9, dans laquelle une première couleur est appliquée sur ladite surface de patte et ladite gravure au laser enlève la couleur de ladite surface de patte afin de révéler la couleur de base de la matière de patte, la première couleur, la couleur de base révélée et le vide formant un aspect de patte distinctif.

11. Boîte selon la revendication 10, dans laquelle ladite extrémité comprend une matière de base et une couleur appliquée sur ladite matière de base, et dans laquelle ladite couleur appliquée sur ladite matière de base de ladite extrémité de boîte est différente de la couleur appliquée sur ladite surface de patte, de sorte que ladite extrémité de boîte présente trois couleurs à un observateur: ladite couleur appliquée sur ladite extrémité de boîte, ladite couleur appliquée sur ladite surface de patte, et la couleur de la matière de patte de base.

12. Boîte selon la revendication 9, dans laquelle ladite boîte comporte une boîte destinée à contenir un produit alimentaire pour humain ou pour animaux.

13. Boîte selon la revendication 9, dans laquelle ladite boîte comprend une boîte de boisson en métal.

14. Boîte selon la revendication 9, dans laquelle ladite image promotionnelle comprend un logo.

15. Boîte selon la revendication 9, dans laquelle ladite image promotionnelle comprend une image promotionnelle associée au fabricant du contenu de ladite boîte.

16. Boite selon la revendication 9, comportant en outre une caractéristique décorative tridimensionnelle en combinaison avec ledit vide et ladite caractéristique gravée.

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FIG.1
(PRIOR ART)

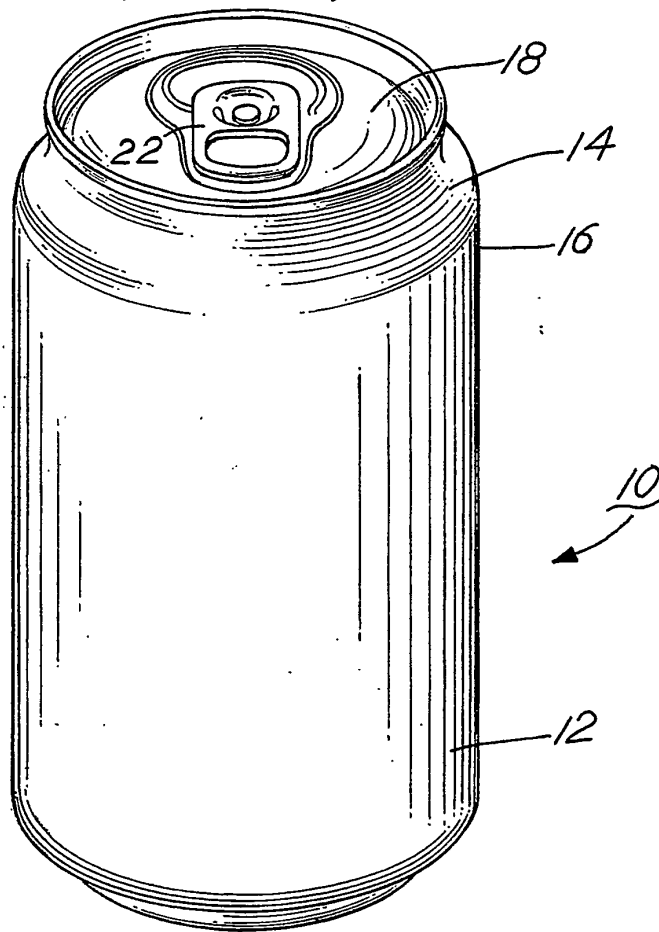


FIG.2
(PRIOR ART)

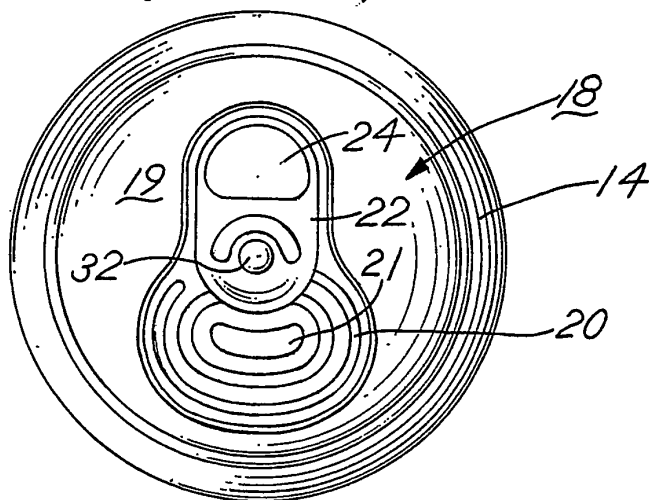


FIG.3

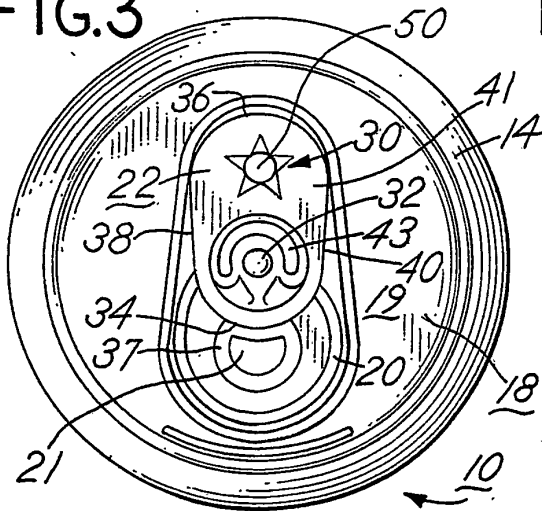


FIG.3A

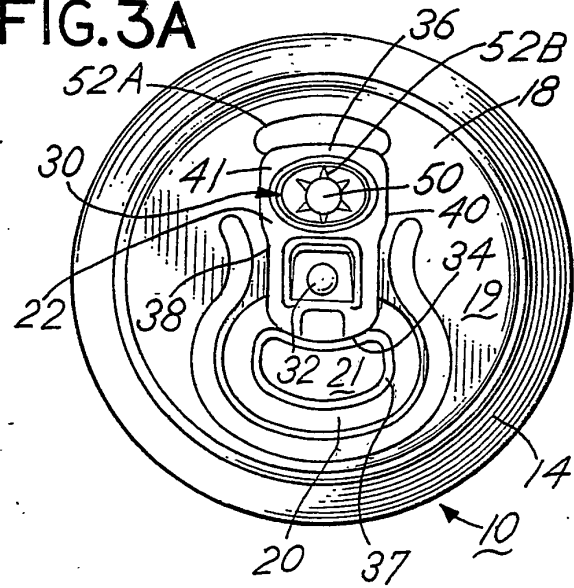


FIG.4

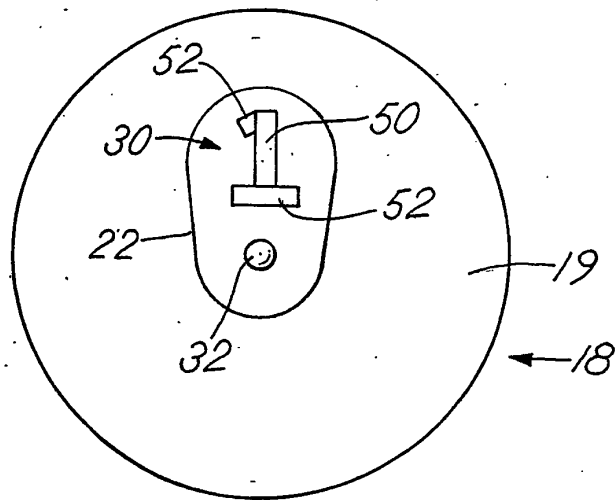


FIG.5

