

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO	
RAD: 14-100023- -2	FECHA: 2015-06-25 16:54:57
DEP: 2020 DIRECCION DE NUEVAS CREACIONES	EVE: 378 FASE NACIONAL INCLUIDO CAPITULO I
TRA: 11 PCT-PATENTE DE INVENCION CAPITULOS I Y II	FOLIOS: 8
ACT: 519 TRASLADOINFORME	

DIRECCIÓN DE NUEVAS CREACIONES

2020
Bogotá, D.C.,

Abogado(a)/Señor(a)
MAURICIO JARAMILLO CAMPUZANO

Asunto: Radicación: 14-100023- -2
Trámite: 11
Evento: 378
Actuación: 519
Oficio: 7303
Folios: 8

Patente de Invención	X			Patente de Modelo de Utilidad	
Vía Nacional					
Vía PCT (Fase Nacional)	X	Capítulo I	X	Capítulo II	
No. Solicitud Internacional	PCT/IB2012/056729				
Fecha de Presentación Internacional	26/11/2012				

Como resultado del examen de fondo realizado, con fundamento en el Artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se comunica:

1. Documentos estudiados

Descripción:	Rad. N° 14-100023-00000-0000	09/mayo/2014
Reivindicaciones:	Rad. N° 14-100023-00000-0000	09/mayo/2014
Dibujos:	Rad. N° 14-100023-00000-0000	09/mayo/2014
Prioridad:	US 13/305,097	28/noviembre/2011

2. Análisis de la Prioridad

Se acepta la reivindicación de prioridad porque ésta solicitud fue presentada dentro del plazo establecido (Art. 9 D 486) y su contenido técnico corresponde con el de la prioridad reivindicada.

3. Objeto de la invención

De acuerdo con lo establecido en el numeral 1.2.2.2 del Capítulo Primero del Título X de la Circular Única para efectos del examen de patentabilidad, se tendrá en cuenta la tasa pagada por el solicitante al momento de comenzar el examen para las reivindicaciones adicionales; esto es que cuando la solicitud contenga más de diez (10) reivindicaciones y no se haya pagado la tasa complementaria, sólo se estudiarán las cubiertas por la tasa pagada. Por lo tanto, se estudiarán las reivindicaciones 11 a 24.

Título de la solicitud: "Pestaña de apertura fácil para una lata de bebida con forma de ala" (modificado Fl. 1).

El problema planteado en esta solicitud, consiste en lograr una pestaña para la apertura fácil de latas de bebida, la cual tenga un espacio suficientemente amplio para acomodar mensajes de máquetin o logotipos tanto en su superficie superior como inferior.

Para resolver este problema técnico, la solicitud en estudio propone una pestaña de apertura fácil para lata que comprende unas alas dispuestas a cada lado de una estructura de pestaña, un extremo de tirador en forma de U dispuesto en el punto medio del lado más ancho de dicha estructura de pestaña, un extremo de nariz semicircular en la estructura de la pestaña y una lengüeta y articulación de atado central.

El objeto de la presente solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): B 65 D 17/34.

4. De la solicitud de patente

Reivindicaciones (Art 30 D 486, Art 22 PCT)

El capítulo reivindicatorio no es claro porque:

- La reivindicación 12, 16, 17, 21 y 24 y las expresiones: "...configurado para que se extienda linealmente desde un remache de atado central (10E) de un envase (20) hasta un primer punto adyacente a la circunferencia del envase...", "...configurado para que se extienda desde el primer punto adyacente de la circunferencia del envase hasta el segundo punto adyacente a la circunferencia del envase...", "...configurado para que se extienda linealmente desde un remache de atado central de un envase hasta un segundo punto adyacente a la circunferencia del envase...", "que se configura para cubrir una superficie del envase (20A) dispuesta de manera adyacente al cuerpo, donde la información se configura para que se disponga colocada en un lado del cuerpo adyacente a la superficie del envase...", "...donde el sistema de fijación se configura para sujetar el cuerpo al envase." (reivindicación 10, 18), describen funciones, efectos, ventajas o resultados a alcanzar, los cuales no son aspectos susceptibles de patente. Para mayor claridad, el producto reclamado se debe definir técnicamente mediante sus características estructurales. Se sugiere al solicitante eliminar la reivindicación y las expresiones citadas.
- La reivindicación 20 no es clara, en primer lugar porque no cumple con lo establecido en el artículo 30 de la decisión 486, toda vez que no está debidamente soportada, ya

que en la descripción no se incluye el “eje asociado con la cuerda”. En segundo lugar, debido a que estas características solo se mencionan en la reivindicación citada, no existe alguna aclaración sobre cual es el eje o cual es la cuerda a la que se refiere el solicitante. En otras palabras, lo descrito no es lo suficientemente claro como para comprender la etapa que se quiere reclamar en la reivindicación citada. En consecuencia, se sugiere al solicitante eliminar esta reivindicación.

5. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de presentación de la solicitud de prioridad: noviembre 28 de 2011, y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Ítem	Documento	Título	Fecha de Publicación
D1	US 2005/0258175	'Pull tab and method'	24/Noviembre/2005
D2	USD 474.967	'Tab for pull-top can'	27/Mayo/2003
D3	US 2006/0196875	'Pull tab'	7/Septiembre/2006

El documento D1¹ una pestaña mejorada y un método donde una pestaña lleva lleva un mensaje secundario en un extremo de una lata (resumen).

El documento D2² divulga un diseño industrial de una pestaña para latas de bebidas (Figs. 1 a 8).

El documento D3³ divulga mejoras de las pestañas usadas para abrir un contenedor como latas de soda (resumen).

6. Examen de Patentabilidad (Art 14 D486)

Novedad (Art 16 D486)

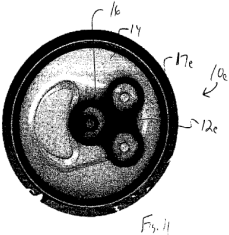
La reivindicación 11 consiste en: “Una pestaña de apertura fácil que comprende: un primer ensanchamiento (10A) configurado para que se extienda linealmente desde un remache...” (Ver página 22 del radicado N° 14-100023-00000-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

1 <https://docs.google.com/viewer?url=patentimages.storage.googleapis.com/pdfs/US20050258175.pdf>

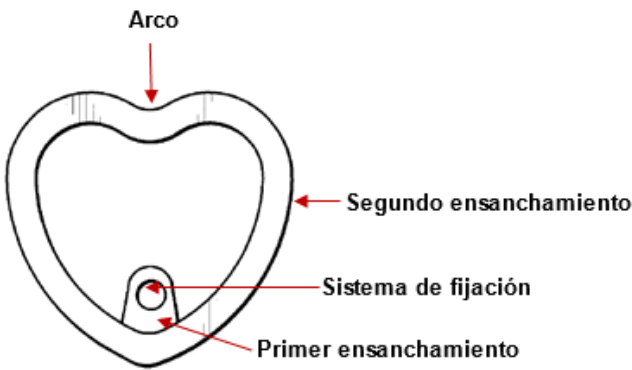
2 <https://www.google.ca/patents/USD474967?dq=USD474967&hl=es&sa=X&ved=0CB8Q6AEwAGoVChMIkoa9gruPxlVljGMCh3NVgBn>

3 <https://www.google.ca/patents/US20060196875?dq=2006/0196875&hl=es&sa=X&ved=0CB0Q6AEwAGoVChMI24X31lCQxglVoS-MCh0awQqS>

Características esenciales	D1	D2
Una pestaña de apertura fácil caracterizada por:	Una pestaña (10e) caracterizada por:	Pestaña para jaral la parte superior de una lata caracterizada por:
Un primer ensanchamiento.	Un primer ensanchamiento (Figs.11 y 12; Párr. [0032]).	Un primer ensanchamiento (Figs. 2 a 4).
Un segundo ensanchamiento.		Un segundo ensanchamiento (Figs. 2 a 4).
Un arco, donde el arco incluye una muesca cóncava dispuesta en la parte más alta del arco.		Un arco, donde el arco incluye una muesca cóncava dispuesta en la parte más alta del arco (Figs. 2 a 4).
Un cuerpo definido mediante el primer ensanchamiento, el segundo ensanchamiento y el arco, donde le cuerpo es una superficie plana.		Un cuerpo definido mediante el primer ensanchamiento, el segundo ensanchamiento y el arco, donde le cuerpo es una superficie plana (Figs. 2 a 8).
Un sistema de fijación acoplado al cuerpo y al remache de atado central.		Un sistema de fijación acoplado al cuerpo y al remache de atado central (Fig. 1).

De acuerdo con la tabla anterior, las características esenciales de la composición de la reivindicación 1 habían sido divulgadas previamente en los documentos D1 y D2, por lo tanto, la materia reivindicada no es nueva.

Figura 3 del documento D2



Asimismo, los documentos D1 y D2 divulgan las características de las reivindicaciones dependientes así:

- Reivindicación 15: La pestaña esta acoplada de forma extraíble mediante el sistema de fijación (Figs.11 y 12; Párr. [0032]).

La reivindicación 18 consiste en: “Un método que comprende: crear un cuerpo (10) de pestaña de apertura fácil incluye un primer ensanchamiento...” (Ver página 23 del radicado N° 14-100023-00000-0000).

Comparación de las características técnicas esenciales, con las del estado de la técnica:

Características esenciales	D1
Una método caracterizado por:	Una pestaña (10e) caracterizado por:
Crear un cuerpo de una pestaña de apertura fácil, donde dicho cuerpo incluye un primer ensanchamiento, un segundo ensanchamiento, un arco, donde el arco incluye una muesca cóncava dispuesta en la parte más alta del arco.	Un primer ensanchamiento, una lengüeta (12e) que tiene la forma de una nariz y dos ojos es acoplada a un extremo de una lata por medio de un remache (16) (Figs.11 y 12; Párr. [0032]).
Donde el cuerpo es una superficie plana.	Donde el cuerpo es una superficie plana (Figs.11 y 12).
Disponer la información colocada en un lado del cuerpo adyacente a la superficie del envase.	La pestaña (10e) puede tener la cara de una persona (Párr. [0033]).

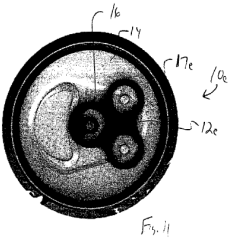
De acuerdo con la tabla anterior, las características esenciales de la composición de la reivindicación 1 habían sido divulgadas previamente en el documento D1, por lo tanto, la materia reivindicada no es nueva.

Asimismo, el documento D1 divulga las características de las reivindicaciones dependientes así:

- Reivindicación 19: lengüeta (12e) acoplada a un extremo de una lata por medio de un remache (16) (Figs.11 y 12; Párr. [0032]).

Nivel inventivo (Art18 D486)

En cuanto a la reivindicación 13 se tiene:

Características esenciales	D1	D3
Una pestaña de apertura fácil caracterizada por:	Una pestaña (10e) caracterizada por:	Pestaña para jalar la parte superior de una lata caracterizada por:
Un primer ensanchamiento.	Un primer ensanchamiento (Figs.11 y 12; Párr. [0032]).	Un primer ensanchamiento (Figs. 57).
Un segundo ensanchamiento.	Una lengüeta (12e) que tiene la forma de una nariz y dos ojos es acoplada a un extremo de una lata por medio de un remache (16) (Figs.11 y 12; Párr. [0032]). 	No menciona
Un arco, donde el arco incluye una muesca cóncava dispuesta en la parte más alta del arco.		
Un cuerpo definido mediante el primer ensanchamiento, el segundo ensanchamiento y el arco, donde el cuerpo es una superficie plana.		Un sistema de fijación acoplado al cuerpo y al remache de atado central (Fig. 1).
Un sistema de fijación acoplado al cuerpo y al remache de atado central.		
Donde la muesca cóncava es una	Donde la muesca cóncava es una	No menciona.

muesca con forma de U que comprende una superficie exterior curva.	muesca con forma de U que comprende una superficie exterior curva (Figs.11 y 12).	
Que se eleva desde la superficie del cuerpo.	No menciona.	La pestaña se eleva desde la superficie del envase (Fig. 57).

Los documentos D1 y D3 se consideran el estado de la técnica cercano a la invención definida en la reivindicación 13 porque divulgan pestañas para latas de bebidas.

La diferencia entre la invención, definida en la reivindicación 13 y la pestaña de D1 consiste en la pestaña que se eleva desde la superficie del cuerpo.

La diferencia entre la invención, definida en la reivindicación 13 y la pestaña de D2 consiste en un cuerpo definido mediante el segundo ensanchamiento y el arco.

El efecto que logra el incluir la pestaña que se eleva desde la superficie del cuerpo es que permite levantar la pestaña con mayor facilidad por parte de un usuario.

Por lo tanto, el problema técnico objetivo que pretende resolver esta invención se puede formular así: “cómo modificar la pestaña conocida en D1 para levantar la pestaña con mayor facilidad por parte de un usuario”.

Sin embargo, la pestaña que se eleva desde la superficie del cuerpo para levantar la pestaña con mayor facilidad por parte de un usuario, ya está divulgada en el documento D3 que se refiere a una pestaña se eleva desde la superficie del envase (Fig. 57).

En consecuencia, la persona del oficio normalmente versada en la materia, incluiría a una pestaña se eleva desde la superficie del envase (Fig. 57) del documento D3 en la pestaña divulgada en el documento D1 para llegar así al objeto de la reivindicación 13 de la solicitud. Por lo cual se considera obvia.

Por su parte, en lo que tiene relación con la reivindicación 22 se tiene:

Características esenciales	D1	D3
Una método caracterizado por:	Una pestaña (10e) caracterizada por:	Pestaña para jalar la parte superior de una lata caracterizada por:
Crear un cuerpo de una pestaña de apertura fácil, donde dicho cuerpo incluye un primer ensanchamiento.	Un primer ensanchamiento, una lengüeta (12e) que tiene la forma de una nariz y dos ojos es acoplada a un extremo de una lata por medio de un remache (16) (Figs.11 y 12; Párr. [0032]).	Crear un cuerpo de una pestaña de apertura fácil, donde dicho cuerpo incluye un primer ensanchamiento. (Figs. 57).
Un segundo ensanchamiento, un arco, donde el arco incluye una muesca cóncava dispuesta en la parte más alta del arco.		No menciona.
Donde el cuerpo es una superficie plana.	Donde el cuerpo es una superficie plana (Figs.11 y 12).	Donde el cuerpo es una superficie plana (Fig. 46).
Disponer la información colocada en un lado del cuerpo adyacente a la superficie del envase.	La pestaña (10e) puede tener la cara de una persona (Párr. [0033]).	No menciona.
Donde la muesca cóncava es una muesca con forma de U que comprende una superficie exterior	Donde la muesca cóncava es una muesca con forma de U que comprende una superficie exterior	

curva.	curva (Figs.11 y 12).	
Que se eleva desde la superficie del cuerpo.	No menciona.	La pestaña se eleva desde la superficie del envase (Fig. 57).

Los documentos D1 y D3 se consideran el estado de la técnica cercano a la invención definida en la reivindicación 22 porque divulgan pestañas para latas de bebidas.

La diferencia entre el método, definido en la reivindicación 22 y la pestaña de D1 consiste en la pestaña que se eleva desde la superficie del cuerpo.

La diferencia entre el método, definido en la reivindicación 22 y la pestaña de D2 consiste en un cuerpo definido mediante el segundo ensanchamiento, el arco y en el disponer la información colocada en un lado del cuerpo adyacente a la superficie del envase.

El efecto que logra el incluir la pestaña que se eleva desde la superficie del cuerpo es que permite levantar la pestaña con mayor facilidad por parte de un usuario.

Por lo tanto, el problema técnico objetivo que pretende resolver esta invención se puede formular así: “cómo modificar la pestaña conocida en D1 para levantar la pestaña con mayor facilidad por parte de un usuario”.

Sin embargo, la pestaña que se eleva desde la superficie del cuerpo para levantar la pestaña con mayor facilidad por parte de un usuario, ya está divulgada en el documento D3 que se refiere a una pestaña se eleva desde la superficie del envase (Fig. 57).

En consecuencia, la persona del oficio normalmente versada en la materia, incluiría a una pestaña se eleva desde la superficie del envase (Fig. 57) del documento D3 en la pestaña divulgada en el documento D1 para llegar así al objeto de la reivindicación 22 de la solicitud. Por lo cual se considera obvia.

Las reivindicaciones 12, 16, 17, 20, 21 y 24 fueron afectadas en el numeral 4 de la presente comunicación.

7. Conclusión

Los requisitos de Patentabilidad de la presente solicitud están afectados así:

Ítem	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	US 2005/0258175	1 a 24	Novedad/Nivel Inventivo
D2	USD 474.967	1 a 24	Novedad/Nivel Inventivo
D3	US 2006/0196875	13 y 22	Nivel inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de sesenta (60) días contados a partir del día siguiente de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Se invita al solicitante se sirva indicar, si así lo considera, su renuncia al término faltante de sesenta (60) días para dar respuesta a este requerimiento y presentarla por escrito.

Finalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones, no pagará la tasa de modificación voluntaria pero sí la correspondiente al pago por reivindicación adicional.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.



JOSÉ LUIS SALAZAR LÓPEZ
Director de Nuevas Creaciones (c)

El anterior requerimiento fue notificado por fijación en lista, de fecha 2015-06-30

Elaboró: Monica Andrea Gutierrez Almonacid
Revisó: Sonia Andrea Diaz Pirazan



US 20050258175A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2005/0258175 A1****Robertson**(43) **Pub. Date: Nov. 24, 2005**(54) **PULL TAB AND METHOD****Publication Classification**(75) Inventor: **Gerald Robertson, Scottsdale, AZ (US)**(51) **Int. Cl.⁷ B65D 17/34; G09F 3/00**

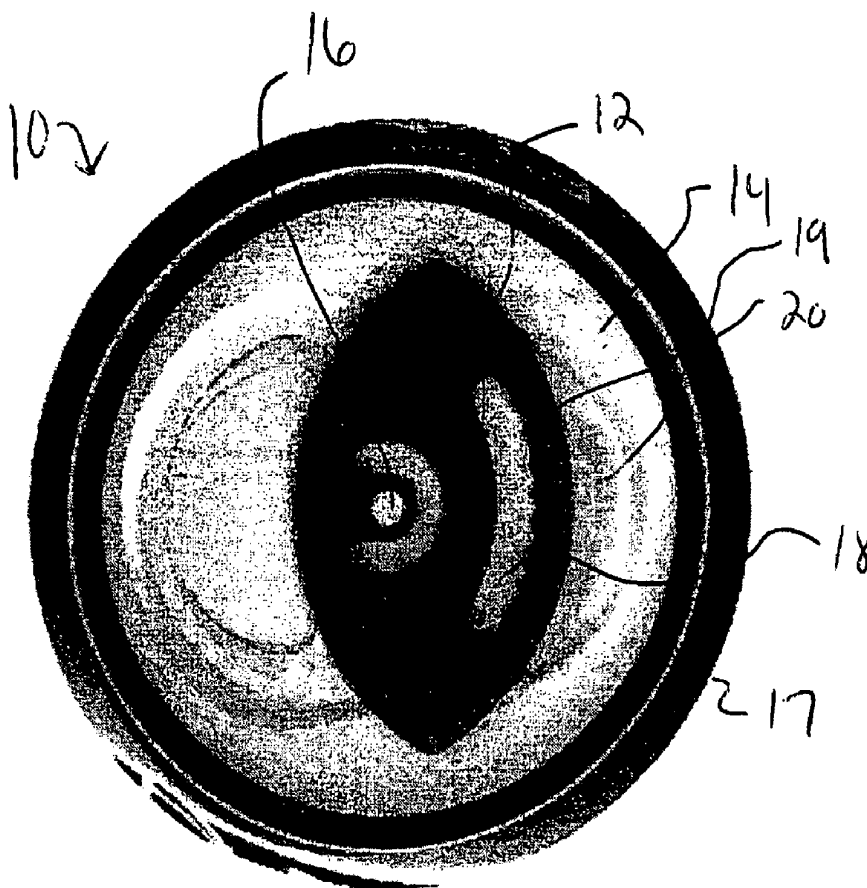
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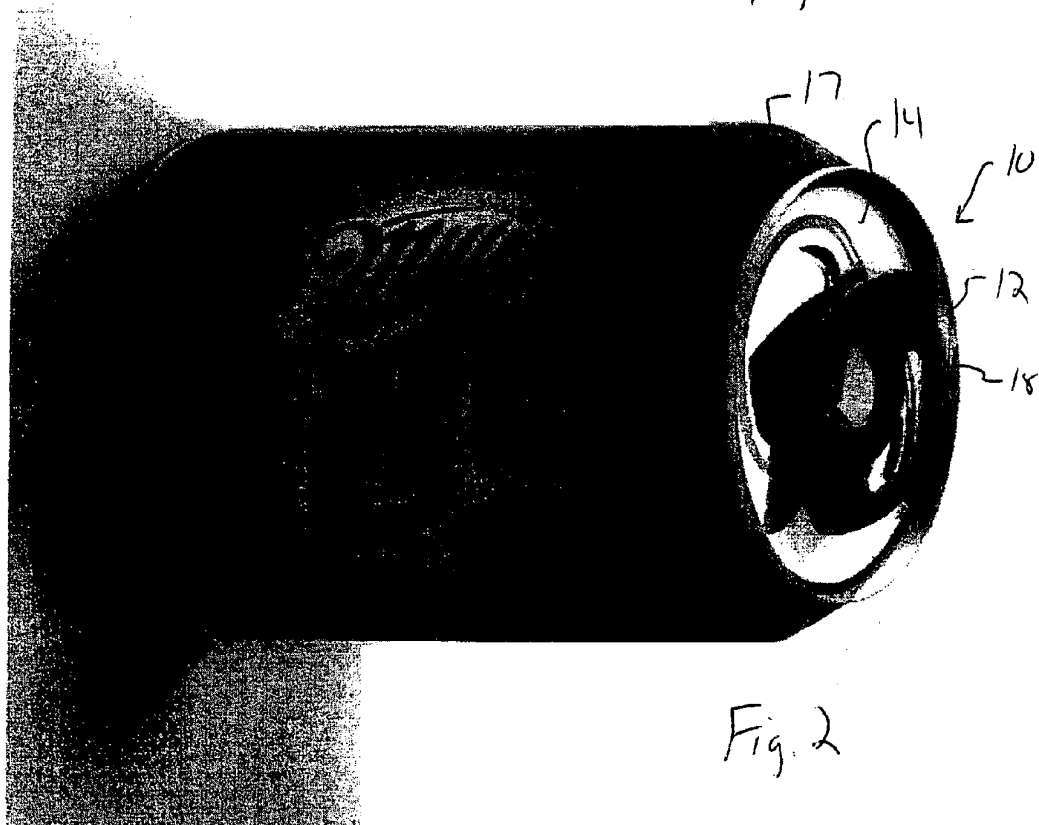
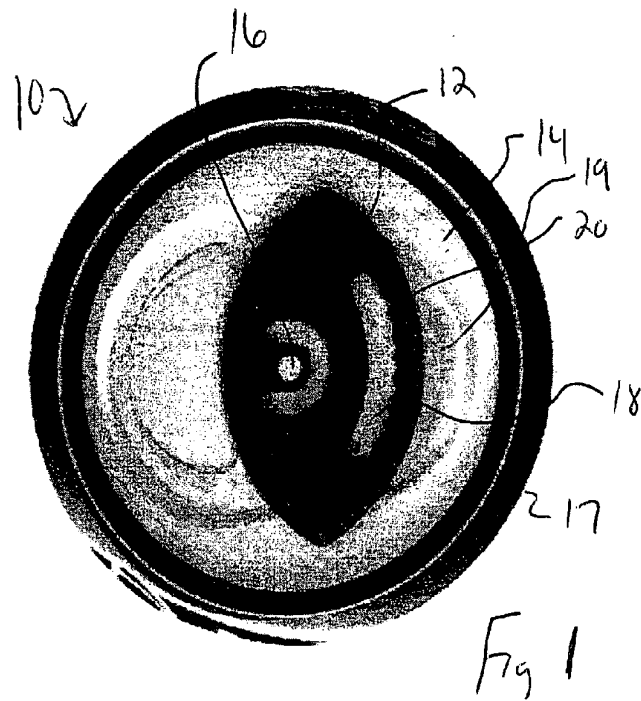
WEISS & MOY PC**4204 NORTH BROWN AVENUE****SCOTTSDALE, AZ 85251 (US)**(52) **U.S. Cl. 220/269; 220/906; 40/306;****40/307; D09/438; D09/518;****D07/619.2; D07/623**(73) Assignee: **ROBERTSON ASSOCIATES LLC**(21) Appl. No.: **11/135,052**(22) Filed: **May 23, 2005****Related U.S. Application Data**

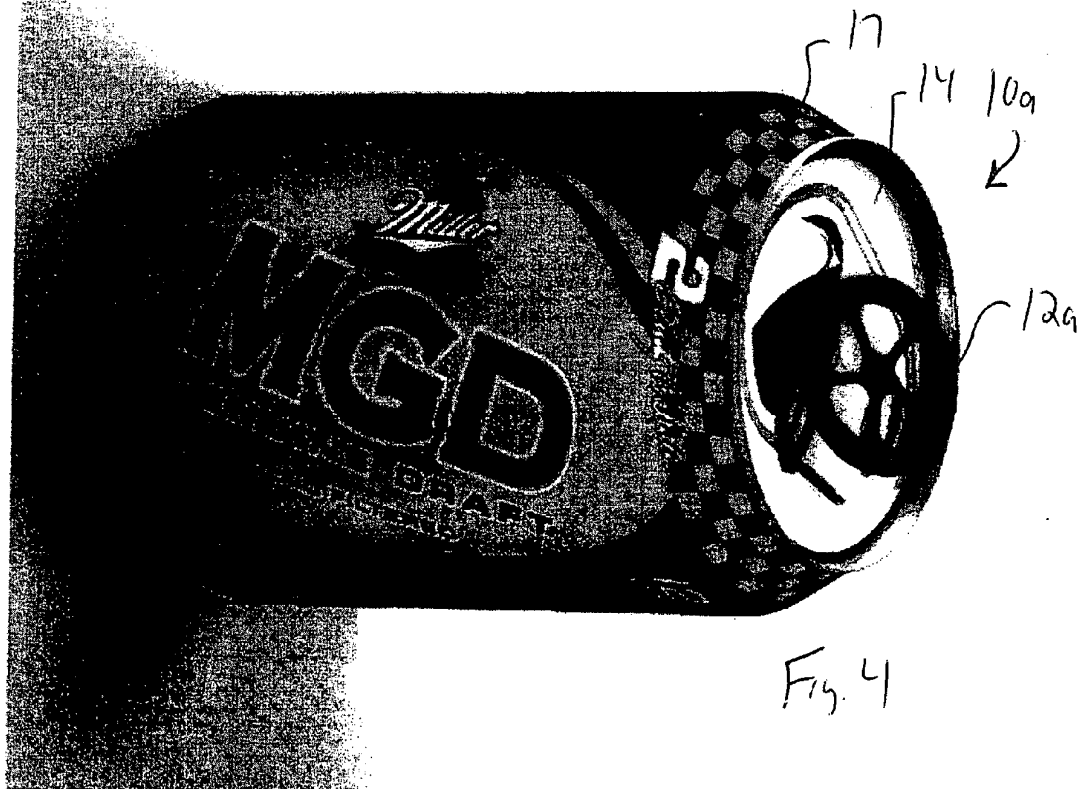
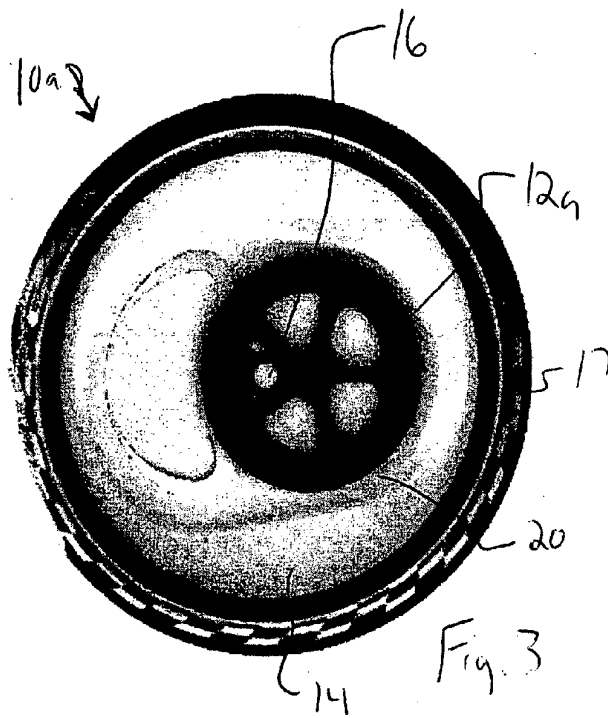
(60) Provisional application No. 60/573,465, filed on May 21, 2004.

(57) **ABSTRACT**

An improved pull tab apparatus and method wherein a pull tab conveying a secondary meaning or message is affixed to a can end. The secondary meaning may be, for example, a sports images, health messages, food items, facial shapes, animated shapes, or political message. For example, it may be desired to provide a pull tab in the shape of a football or race car steering wheel. It may be desired to offer for sale cans having such an apparatus thereon at an event related to the secondary meaning—for example, to sell beer cans with a football shaped tab at a football game.







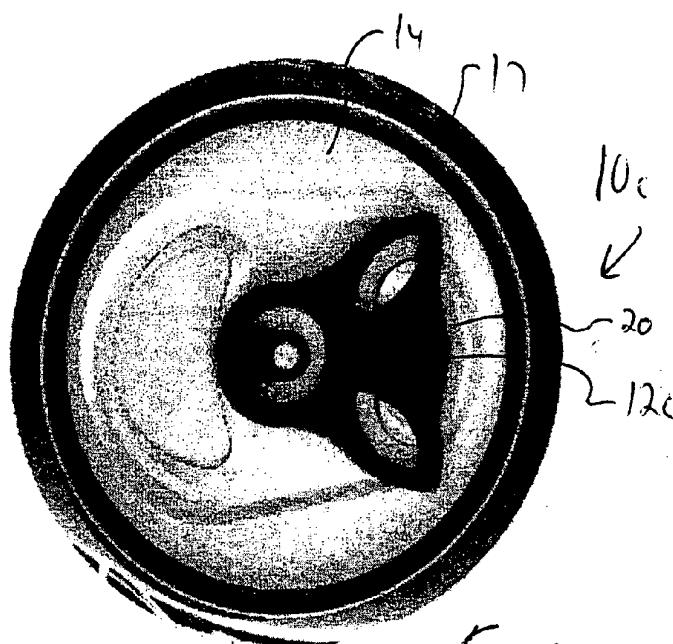


Fig. 5

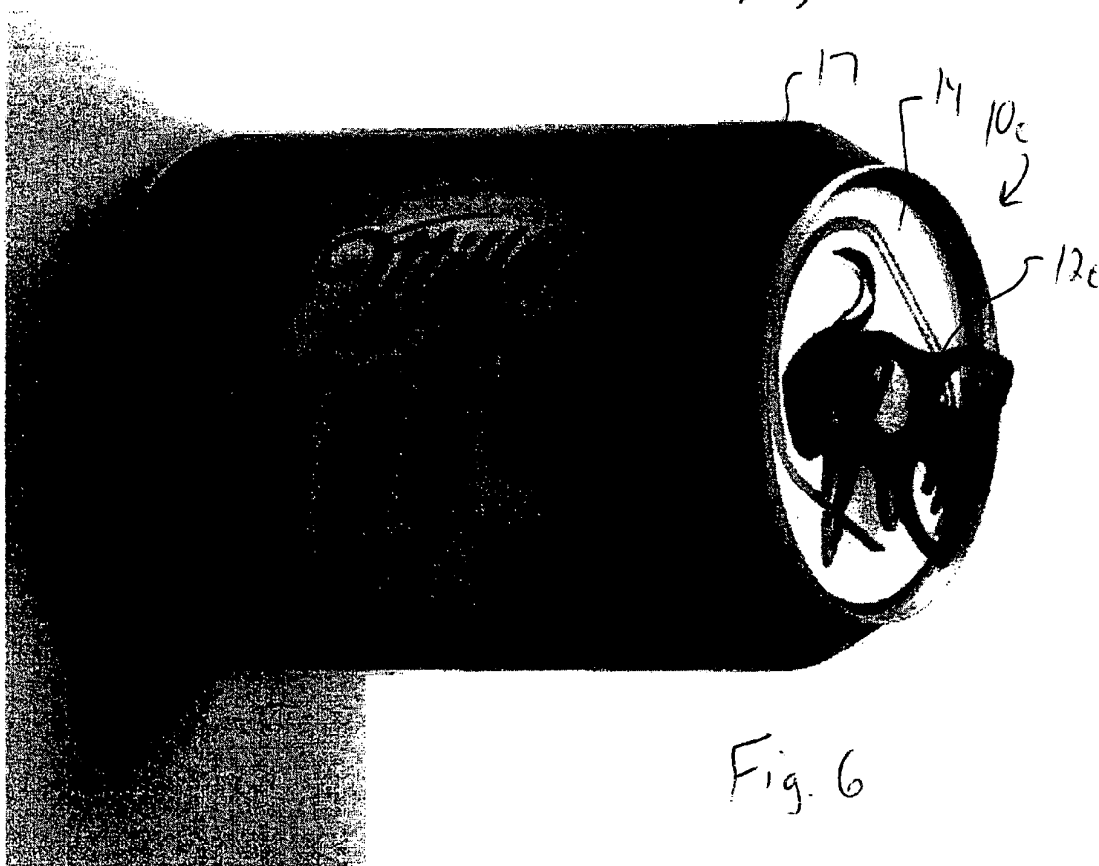
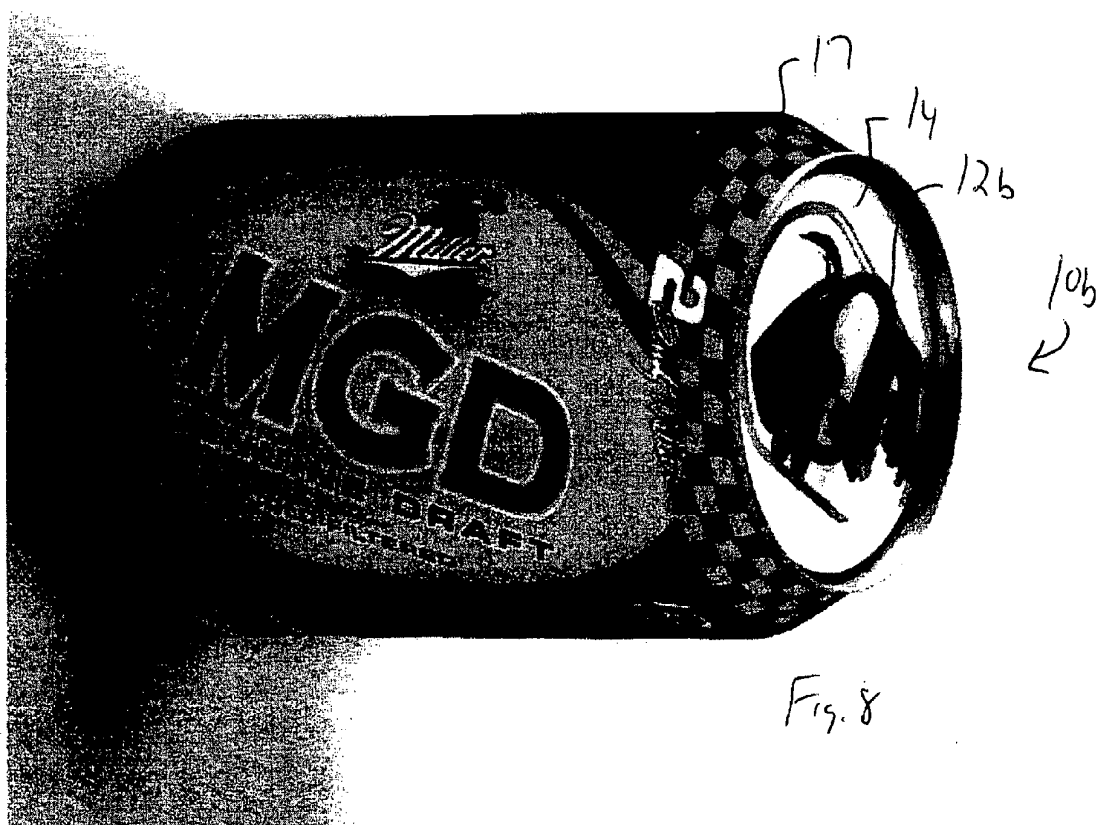
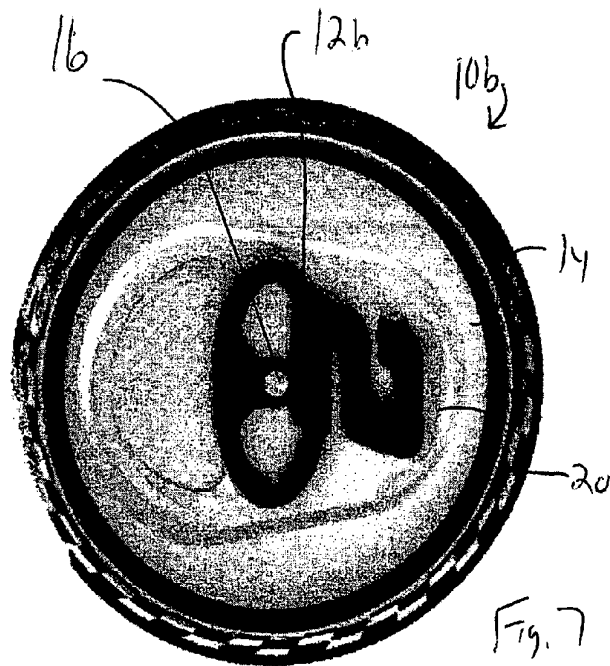
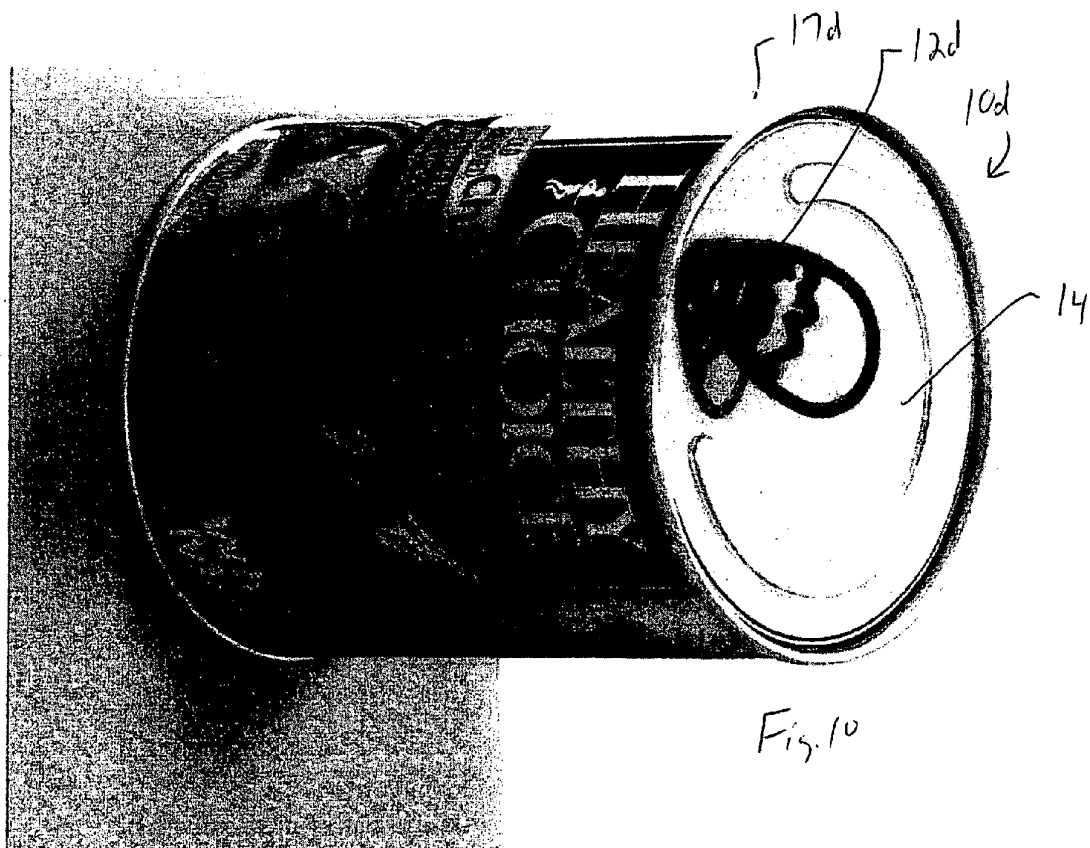
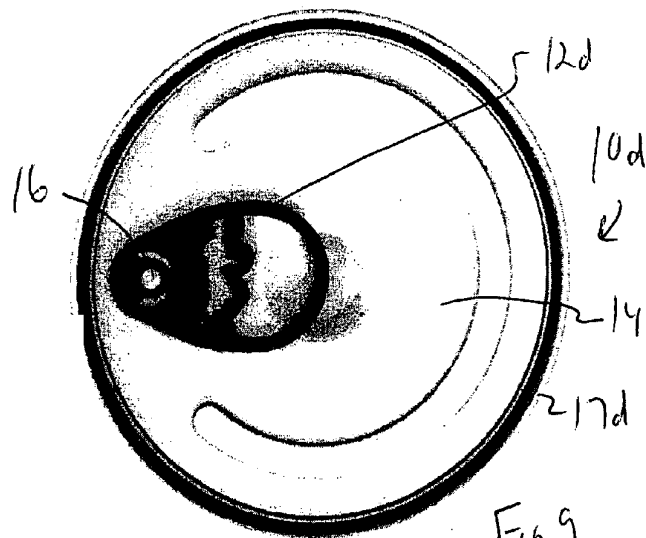


Fig. 6





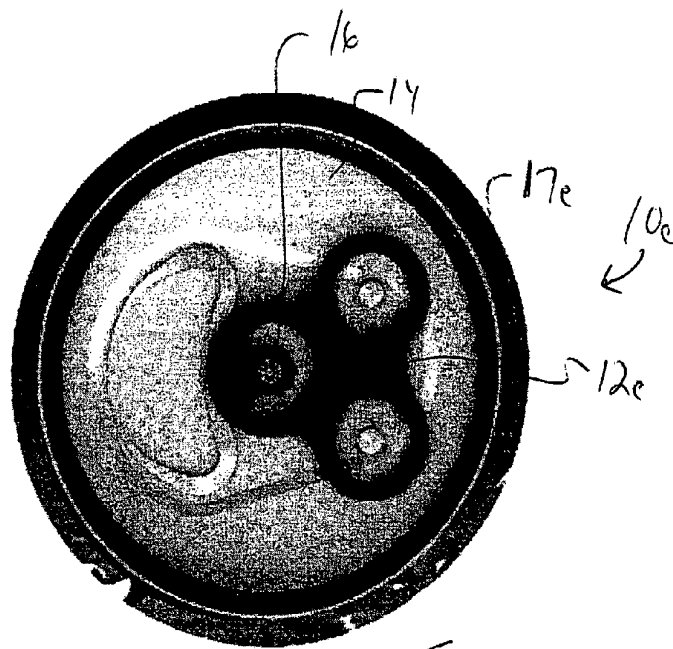


Fig. 11

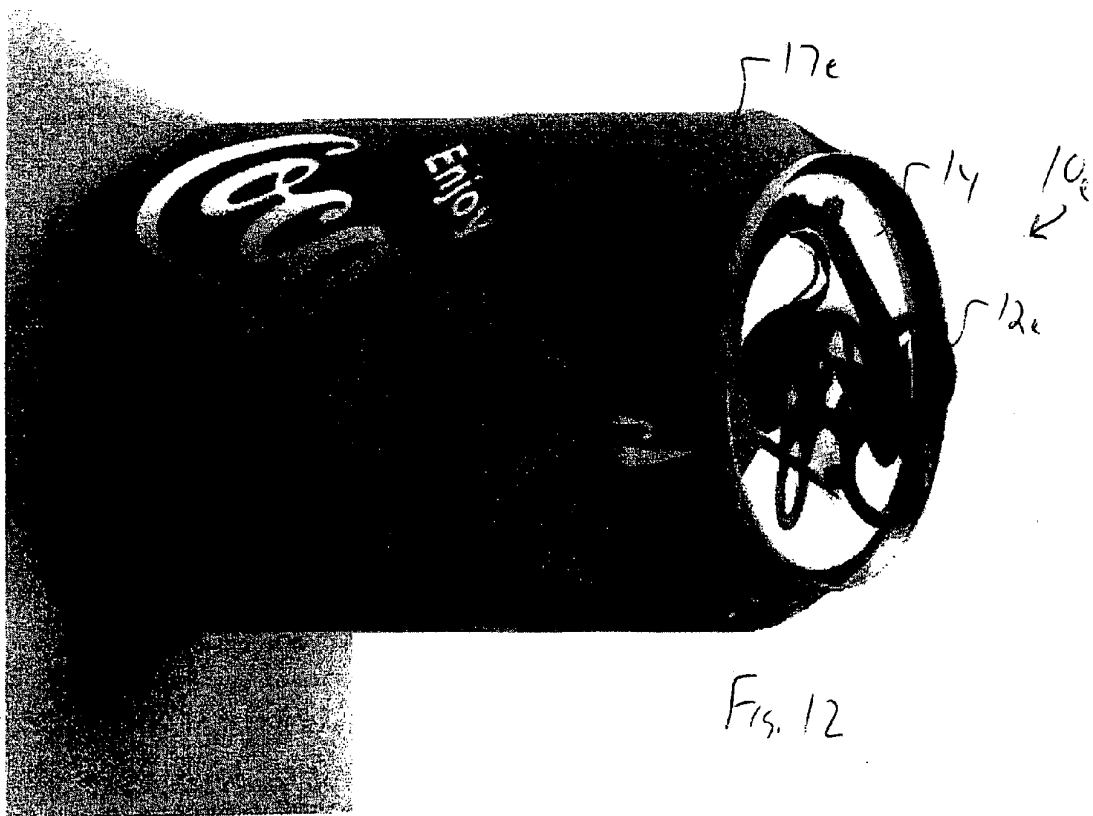
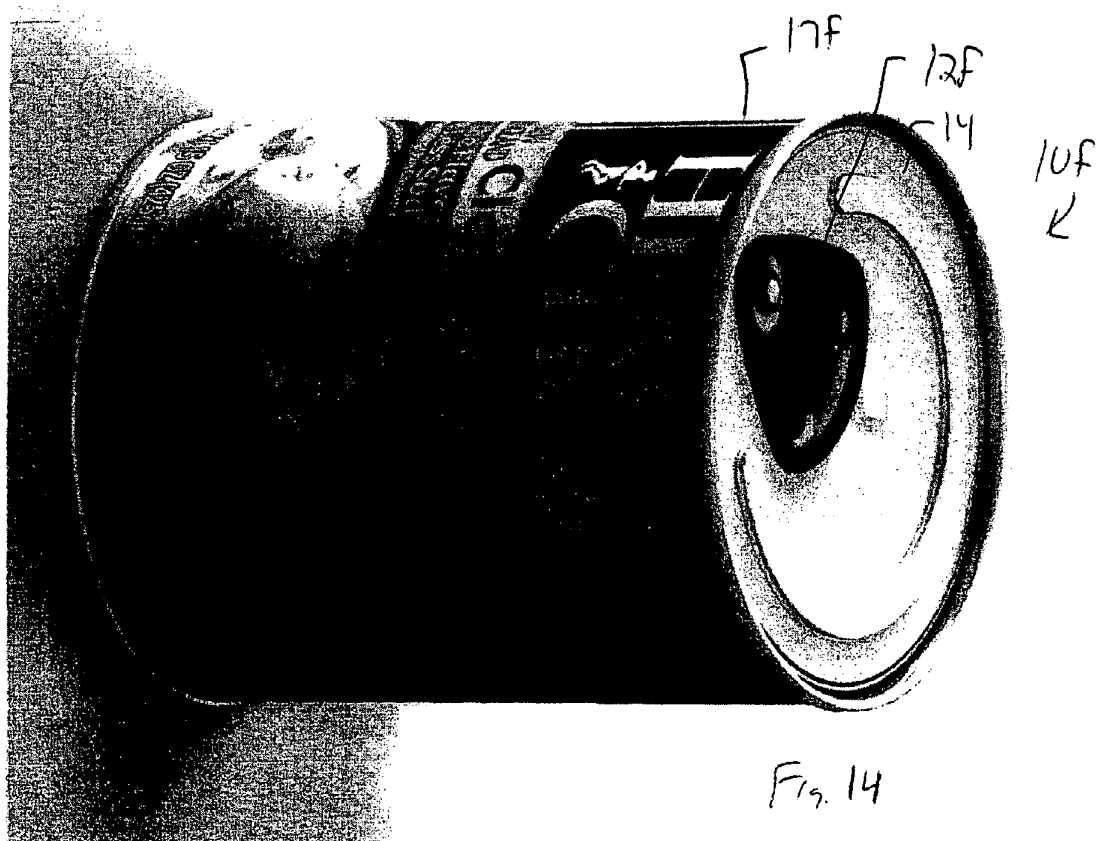
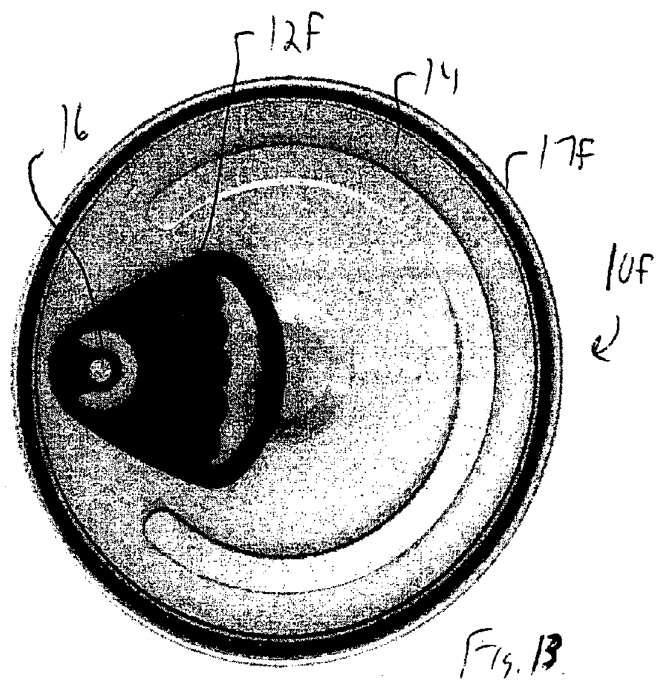


Fig. 12



PULL TAB AND METHOD

RELATED APPLICATION

[0001] This non-provisional application claims priority from Provisional Application No. 60/573,465, filed on May 21, 2004, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] Cans with pull-tabs are commonly used for soft drinks, beer, and food items. The end of a can having a pull-tab has three components: (a) the can end, also known as the "shell"; (b) the tab; and (c) the rivet, which secures the tab to the shell.

[0003] Prior art pull-tab designs are, almost exclusively, purely functional in nature. They utilize a generic tab having a shape that is intended to be relatively easy to grasp and pull. However, the tab itself is not formed in a way that is intended to be particularly pleasing aesthetically, or that conveys a secondary message to the user/potential purchaser that is more than simply a logo/trademark of the company that is selling the product.

[0004] Several patents have been issued for tab designs, wherein the tab has been configured to exhibit the logo/trademark of the company selling the product. However, prior art pull-tab designs do not disclose tabs having a design intended to convey a secondary meaning; i.e., to promote something other than the logo/trademark of the product being sold, such as a sporting event, health message, food item, facial shape, etc.

[0005] The present invention satisfies these needs and provides other, related, advantages.

SUMMARY OF THE INVENTION

[0006] In accordance with one embodiment of the present invention, an improved pull-tab apparatus is disclosed. The apparatus comprises, in combination: a can end; and a pull tab secured to the can end with a rivet; wherein the pull tab conveys a secondary meaning.

[0007] In accordance with another embodiment of the present invention, a method for promoting a secondary message is disclosed. The method comprises: providing a can end; and securing a pull tab to the can end with a rivet; wherein the pull tab conveys a secondary meaning.

[0008] In accordance with a further embodiment of the present invention, a method for promoting a secondary message is disclosed. The method comprises: providing a can end; securing a pull tab to the can end with a rivet; wherein the pull tab conveys a secondary meaning; and marketing a can having the pull tab at an event associated with the secondary meaning.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a top view of a can end consistent with an embodiment of the present invention, illustrating a football-themed tab.

[0010] FIG. 2 is a perspective view of the can end of FIG. 1.

[0011] FIG. 3 is a top view of a can end consistent with an embodiment of the present invention, illustrating a racing-themed tab.

[0012] FIG. 4 is a perspective view of the can end of FIG. 3.

[0013] FIG. 5 is a top view of a can end consistent with an embodiment of the present invention, illustrating a hockey theme.

[0014] FIG. 6 is a perspective view of the can end of FIG. 5.

[0015] FIG. 7 is a top view of a can end consistent with an embodiment of the present invention, illustrating a racing-themed tab.

[0016] FIG. 8 is a perspective view of the can end of FIG. 7.

[0017] FIG. 9 is a top view of a can end consistent with an embodiment of the present invention, illustrating a fitness-themed tab.

[0018] FIG. 10 is a perspective view of the can end of FIG. 9.

[0019] FIG. 11 is a top view of a can end consistent with an embodiment of the present invention, illustrating a tab and can end formed into an image of a face.

[0020] FIG. 12 is a perspective view of the can end of FIG. 11.

[0021] FIG. 13 is a top view of a can end consistent with an embodiment of the present invention, formed into an image of a clam shell.

[0022] FIG. 14 is a perspective view of the can end of FIG. 13.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0023] Referring first to FIGS. 1-2, a pull-tab apparatus 10 consistent with an embodiment of the present invention is shown. In this embodiment, a tab 12 having a football shape is affixed to a can end 14 with rivet 16. The apparatus 10 sits atop a can 17 which, in this embodiment, may be a beer can. A gripping area 18 may be provided within the tab 12, to facilitate the gripping of the tab 12 by a user. (It may be desired to provide a serrated surface 19 to a portion of the interior of the gripping area 18, to yet further facilitate gripping.) It may also be desired to provide a recessed area 20 within can end 14, to further facilitate the sliding of a finger by a user under the tab 12 and the gripping thereof.

[0024] It can be seen that, in this embodiment, can 17 is a beer can, and that tab 12 has a football theme. It would be desired to offer can 17 for sale at a football game or other football-related event (e.g., football banquet or charity event); during the football season; and/or as part of a football-related promotion.

[0025] Referring now to FIGS. 3-4, a pull-tab apparatus 10a consistent with an embodiment of the present invention is shown. In this embodiment, a tab 12a having a steering wheel shape is affixed to a can end 14 with rivet 16. The apparatus 10a sits atop a can 17 which, in this embodiment, may be a beer can. It may be desired to provide a recessed

area **20** within can end **14**, to further facilitate the sliding of a finger by a user under the tab **12a** and the gripping thereof.

[0026] It can be seen that, in this embodiment, can **17** is a beer can, and that tab **12a** has an auto racing theme. It would be desired to offer can **17** for sale at a NASCAR® or other auto racing or auto racing-related event; during the auto racing season; and/or as part of an auto racing-related promotion.

[0027] In FIGS. 7-8, pull-tab apparatus **10b** includes a tab **12b** comprising a combination of a steering wheel and a car number. The tab **12b** is affixed to a can end **14** with rivet **16**. The apparatus **10b** sits atop a can **17** which, in this embodiment, may be a beer can. It may be desired to provide a recessed area **20** within can end **14**, to further facilitate the sliding of a finger by a user under the tab **12a** and the gripping thereof.

[0028] As noted above with respect to FIGS. 3-4, the embodiment of FIGS. 7-8 has an auto racing theme. It would be desired to offer can **17** for sale at a NASCAR® or other auto racing or auto racing-related event; during the auto racing season; and/or as part of an auto racing-related promotion. Moreover, by incorporating into the tab **12b** a particular car number, it is further possible to link the promotion of the sale of the can **17** with a particular driver.

[0029] Referring now to FIGS. 5-6, a pull-tab apparatus **10c** consistent with an embodiment of the present invention is shown. In this embodiment, a tab **12c** having a hockey goalie mask shape is affixed to a can end **14** with rivet **16**. The apparatus **10c** sits atop a can **17** which, in this embodiment, may be a beer can. It may be desired to provide a recessed area **20** within can end **14**, to further facilitate the sliding of a finger by a user under the tab **12c** and the gripping thereof.

[0030] It can be seen that, in this embodiment, can **17** is a beer can, and that tab **12c** has a hockey theme. It would be desired to offer can **17** for sale at a hockey game or hockey-related event; during the hockey season; and/or as part of a hockey-related promotion.

[0031] Referring now to FIGS. 9-10, a pull-tab apparatus **10d** consistent with an embodiment of the present invention is shown. In this embodiment, a tab **12d** having an image of a runner thereon is affixed to a can end **14** with rivet **16**. The apparatus **10d** sits atop a can **17d** which, in this embodiment, may contain a food item marketed to health-conscious consumers.

[0032] Referring now to FIGS. 11-12, a pull-tab apparatus **10e** consistent with an embodiment of the present invention is shown. In this embodiment, a tab **12e** having a shape of a nose and two eyes is affixed to a can end **14** with rivet **16**. The portion of can end **14** that is to be opened by the lifting of tab **12e** is formed into a mouth shape. In addition, rivets **22** may be positioned within the eye portions of the tab **12e**, to further convey the image of eyes. It should be noted that apparatus **10e** can be formed into a shape of a face of an animated character or famous person, which may be connected to the promotion of sales of the can **17e**.

[0033] The can **17e** may, for example, be offered for sale at a political rally, concert or other event related to a person whose face is portrayed by apparatus **10e**—or may be

offered for sale in some other venue to benefit that person. Can **17e**, in this embodiment, is a soft-drink can.

[0034] Referring now to FIGS. 13-14, a pull-tab apparatus **10f** consistent with an embodiment of the present invention is shown. In this embodiment, a tab **12f** having an image of a clam shell is affixed to a can end **14** with rivet **16**. The apparatus **10f** sits atop a can **17f** which, in this embodiment, may contain a clam-related food item.

[0035] As noted above, the invention herein may involve business methods, wherein the can having an apparatus consistent with an embodiment of the present invention is marketed in connection with an event and/or person, and where there is a thematic connection between the apparatus and the event/person. It is noted that the term “secondary meaning” or “secondary message,” as used herein or in the claims, means a meaning that relates to something other than the logo/trademark of the product being sold. Examples of secondary meanings or messages include but are not limited to sports images, health messages, food items, facial shapes, animated shapes, political messages, etc.

[0036] It should also be noted that the particular tab shapes shown herein are exemplary of those that may contain a secondary meaning. For example, sports images other than footballs, hockey masks, and racing car steering wheels may be utilized—such as baseball images, basketball images, etc. It may be desired to provide political or other messages in the shape of a tab. Other images may conveying a secondary message may also be utilized.

[0037] It should be noted that the use of beer cans, soft-drink cans, and food cans is exemplary. Other items sold in cans may also be provided with an apparatus consistent with an embodiment of the present invention. Moreover, with respect to the particular examples provided herein, the particular can type may be varied as desired; e.g., a racing-themed tab may be provided on a soft-drink rather than a beer can, etc.

[0038] While the invention has been particularly shown and described with reference to preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the invention.

I claim:

1. An improved pull-tab apparatus comprising, in combination:

a can end; and

a pull tab secured to the can end with a rivet;

wherein the pull tab conveys a secondary meaning.

2. The apparatus of claim 1 wherein the pull tab is in the shape of a sports image.

3. The apparatus of claim 2 wherein the pull tab is in the shape of a steering wheel.

4. The apparatus of claim 2 wherein the pull tab is in the shape of a football.

5. The apparatus of claim 2 wherein the pull tab is in the shape of a goalie mask.

6. The apparatus of claim 1 wherein the pull tab is in the shape of a face.

7. A method for promoting a secondary message comprising:

providing a can end; and

securing a pull tab to the can end with a rivet;

wherein the pull tab conveys a secondary meaning.

8. The method of claim 7 further comprising marketing a can having the pull tab in a manner so as to promote the secondary meaning.

9. The method of claim 8 wherein the secondary meaning is football and the can is marketed in connection with football.

10. The method of claim 9 wherein the can is sold at a football event.

11. The method of claim 10 wherein the football event is a football game.

12. The method of claim 8 wherein the secondary meaning is auto racing and the can is marketed in connection with auto racing.

13. The method of claim 12 wherein the can is sold at an auto racing event.

14. The method of claim 13 wherein the auto racing event is an auto race.

15. A method for promoting a secondary message comprising:

providing a can end;

securing a pull tab to the can end with a rivet;

wherein the pull tab conveys a secondary meaning; and

marketing a can having the pull tab at an event associated with the secondary meaning.

16. The method of claim 15 wherein the event is an auto race.

17. The method of claim 15 wherein the event is a football game.

18. The method of claim 15 wherein the event is a hockey game.

* * * * *



US00D474967S

(12)

United States Design Patent

Kaneko

(10)

Patent No.:

US D474,967 S

(45)

Date of Patent:

** May 27, 2003

(54) TAB FOR PULL-TOP CAN

(75) Inventor: Soichiro Kaneko, Fukushima (JP)

(73) Assignee: Tamae Kaneko (JP)

(**) Term: 14 Years

(21) Appl. No.: 29/157,126

(22) Filed: Mar. 14, 2002

(51) LOC (7) Cl. 09-07

(52) U.S. Cl. D9/438; D9/451; D9/315

(58) Field of Search D9/449, 438, 441, D9/451, 447, 315; D11/56, 103; 215/255; 220/270; D8/397

(56)

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D242,220	S	*	11/1976	Ono D8/397
D334,354	S	*	3/1993	McNally, Jr. D9/103
D404,304	S	*	1/1999	Kick D9/447
D468,632	S	*	1/2003	Kaneko D9/315

* cited by examiner

Primary Examiner—Louis S. Zarfas

Assistant Examiner—Gregory Andoll

(74) Attorney, Agent, or Firm—Nixon & Vanderhye PC

(57)

CLAIM

The ornamental design for a “tab for pull-top can”, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a tab for pull-top can which embodies my new and original design therefor, and wherein the dashed lines in the accompanying FIG. 1 represent the structural environment therefor forming no part of my claimed design,

FIG. 2 is an enlarged perspective view thereof;

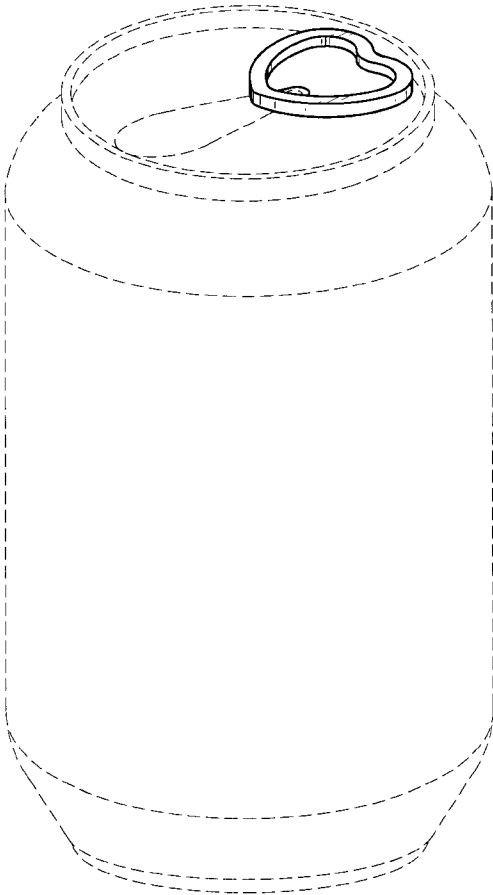
FIG. 3 is a top plan view of thereof;

FIG. 4 is a bottom plan view thereof;

FIGS. 5 and 6 are right and left side elevational views thereof, respectively; and,

FIGS. 7 and 8 are front and rear side elevational views thereof, respectively.

1 Claim, 3 Drawing Sheets



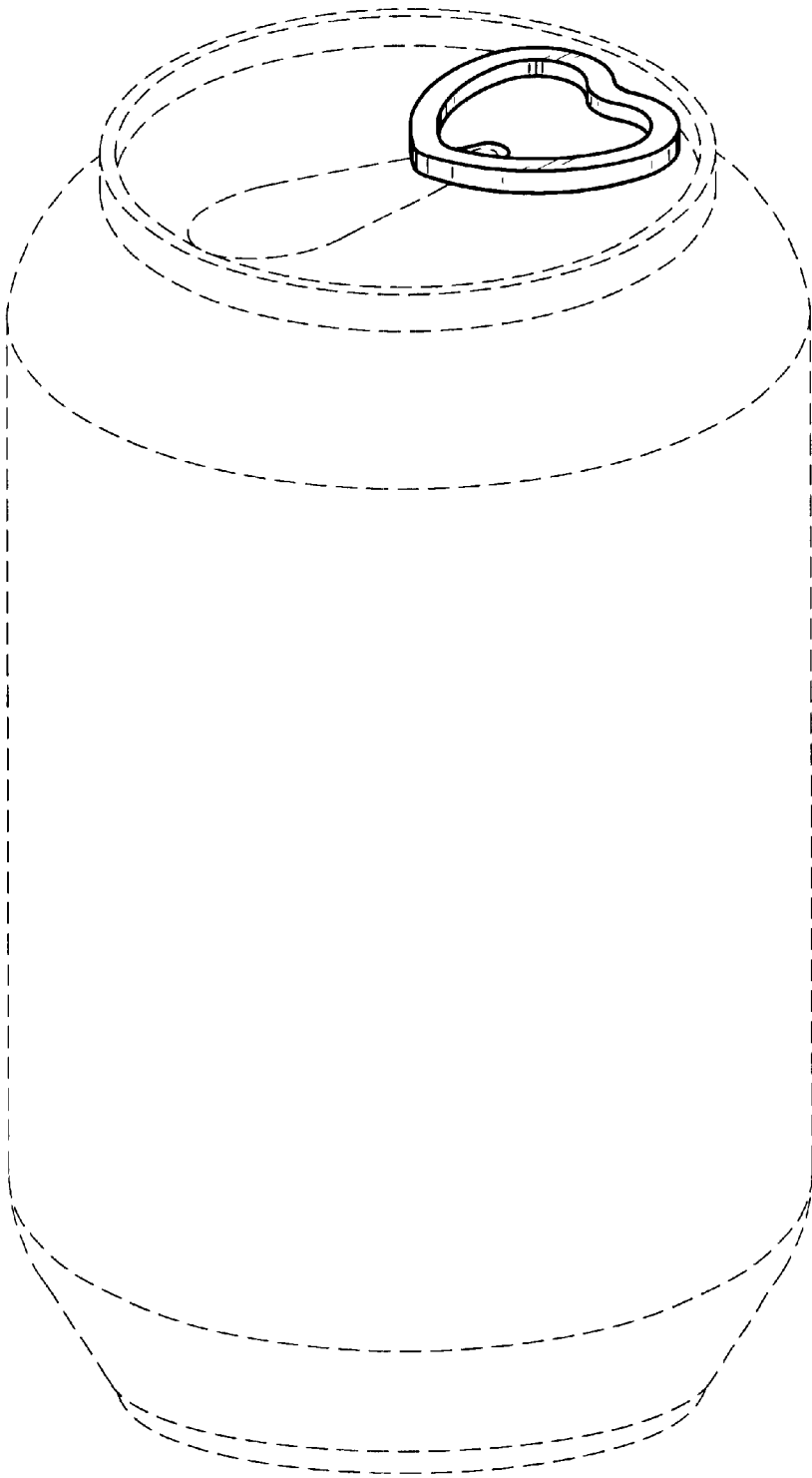


Fig. 1

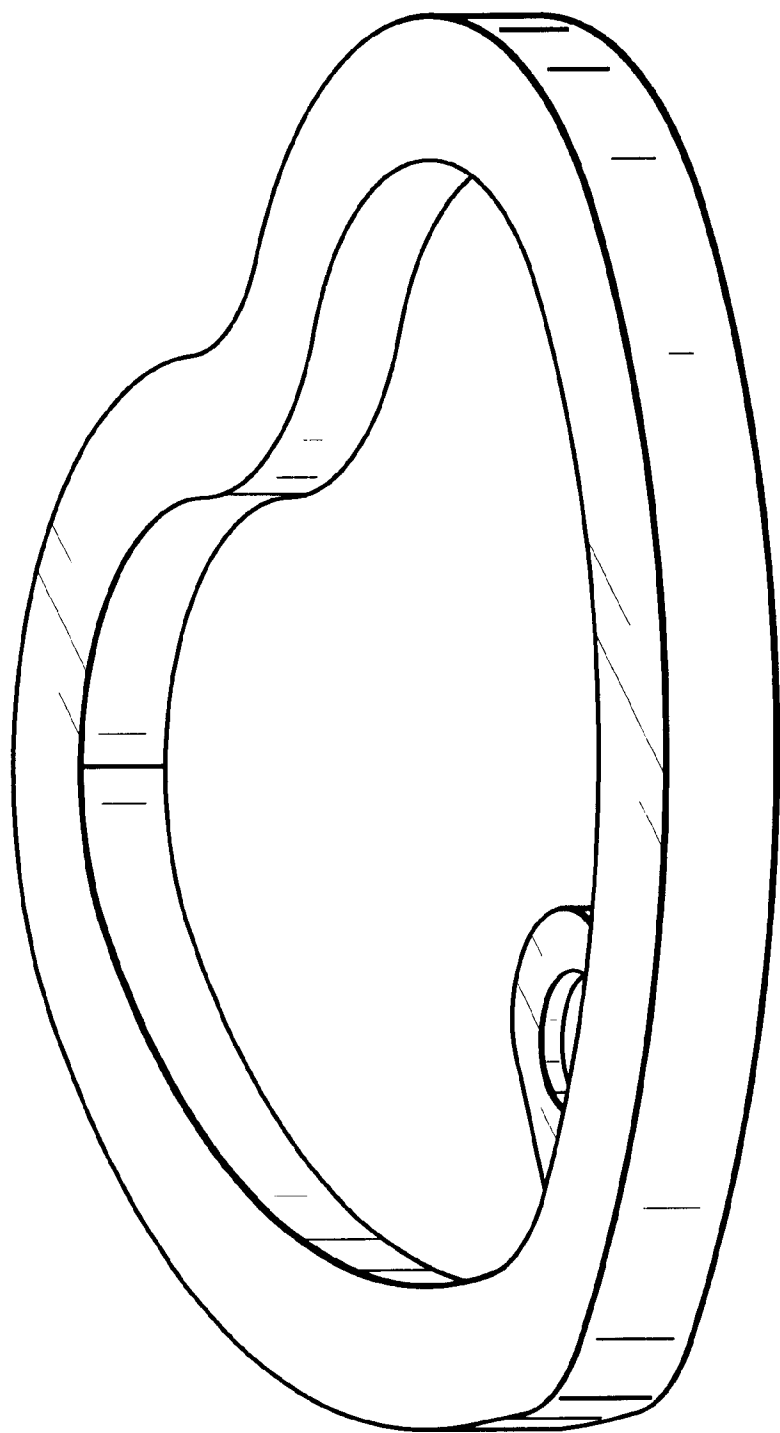


Fig. 2

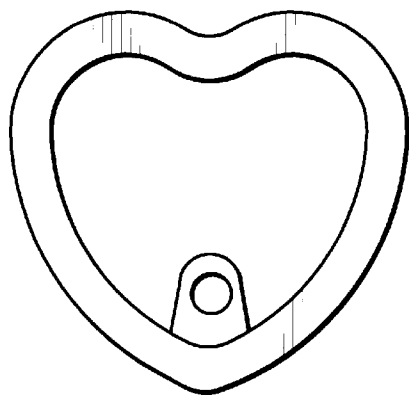


Fig. 3

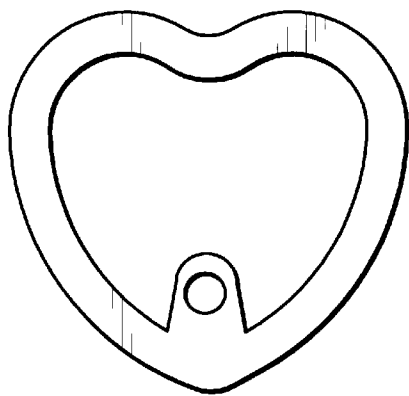


Fig. 4



Fig. 5



Fig. 6



Fig. 7

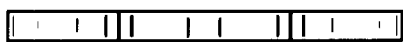


Fig. 8



US 20060196875A1

(19) **United States**

(12) **Patent Application Publication**
Cherian

(10) **Pub. No.: US 2006/0196875 A1**

(43) **Pub. Date: Sep. 7, 2006**

(54) **PULL TAB**

Publication Classification

(76) Inventor: **Gabe Cherian**, Sun Valley, ID (US)

(51) **Int. Cl.**
B65D 17/34 (2006.01)

(52) **U.S. Cl.** **220/269; 220/906**

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GABE CHERIAN

P.O. BOX 1335

SUN VALLEY, ID 83353 (US)

(57) **ABSTRACT**

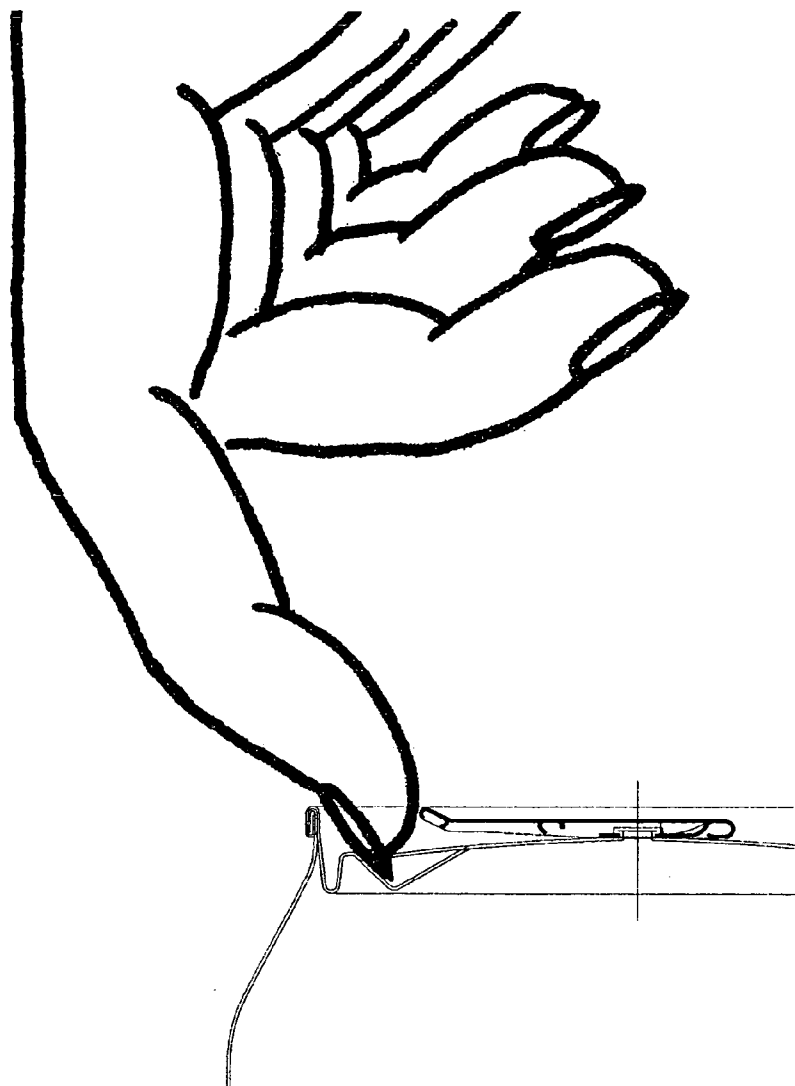
(21) Appl. No.: **10/941,797**

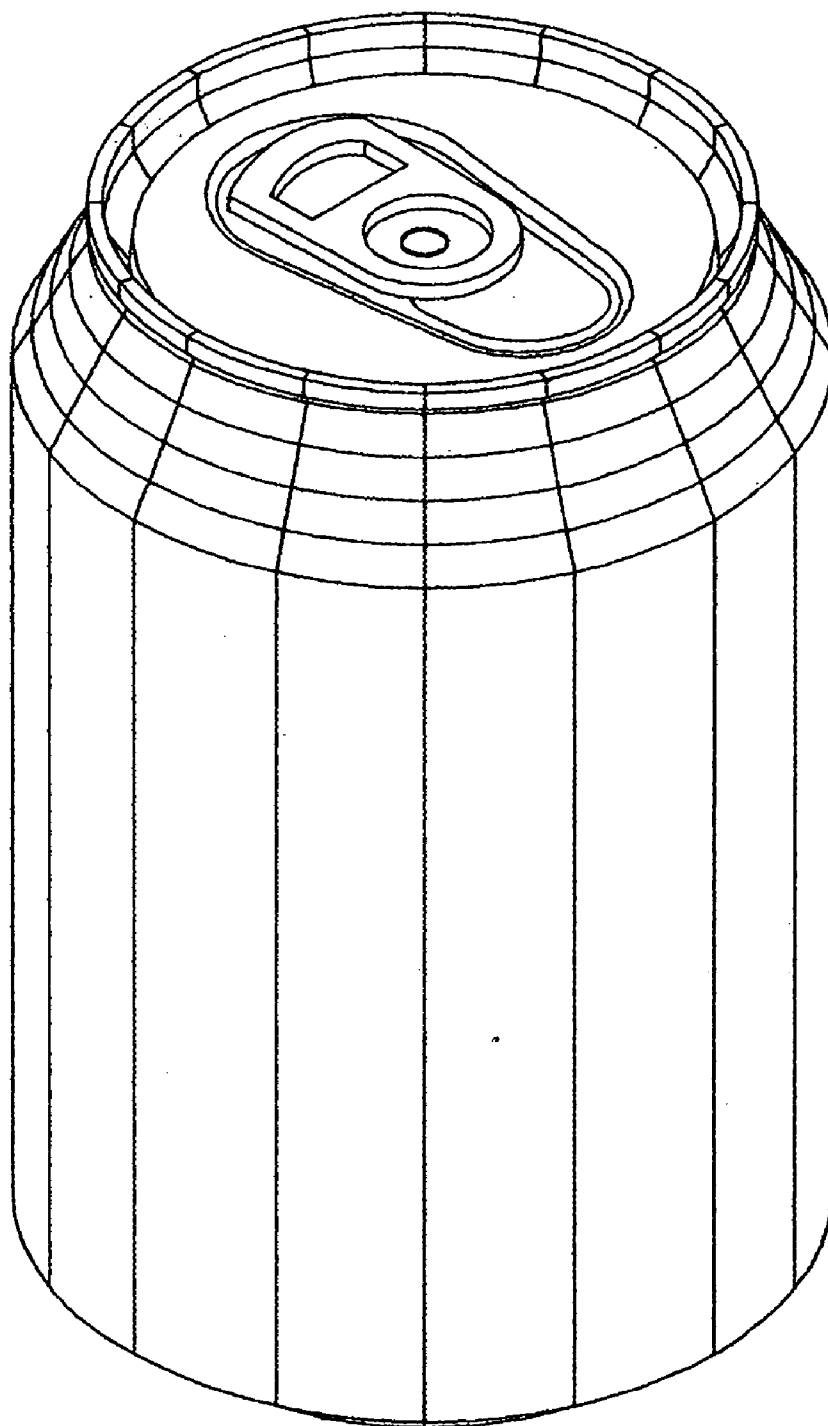
(22) Filed: **Sep. 14, 2004**

Related U.S. Application Data

(60) Provisional application No. 60/503,823, filed on Sep. 19, 2003.

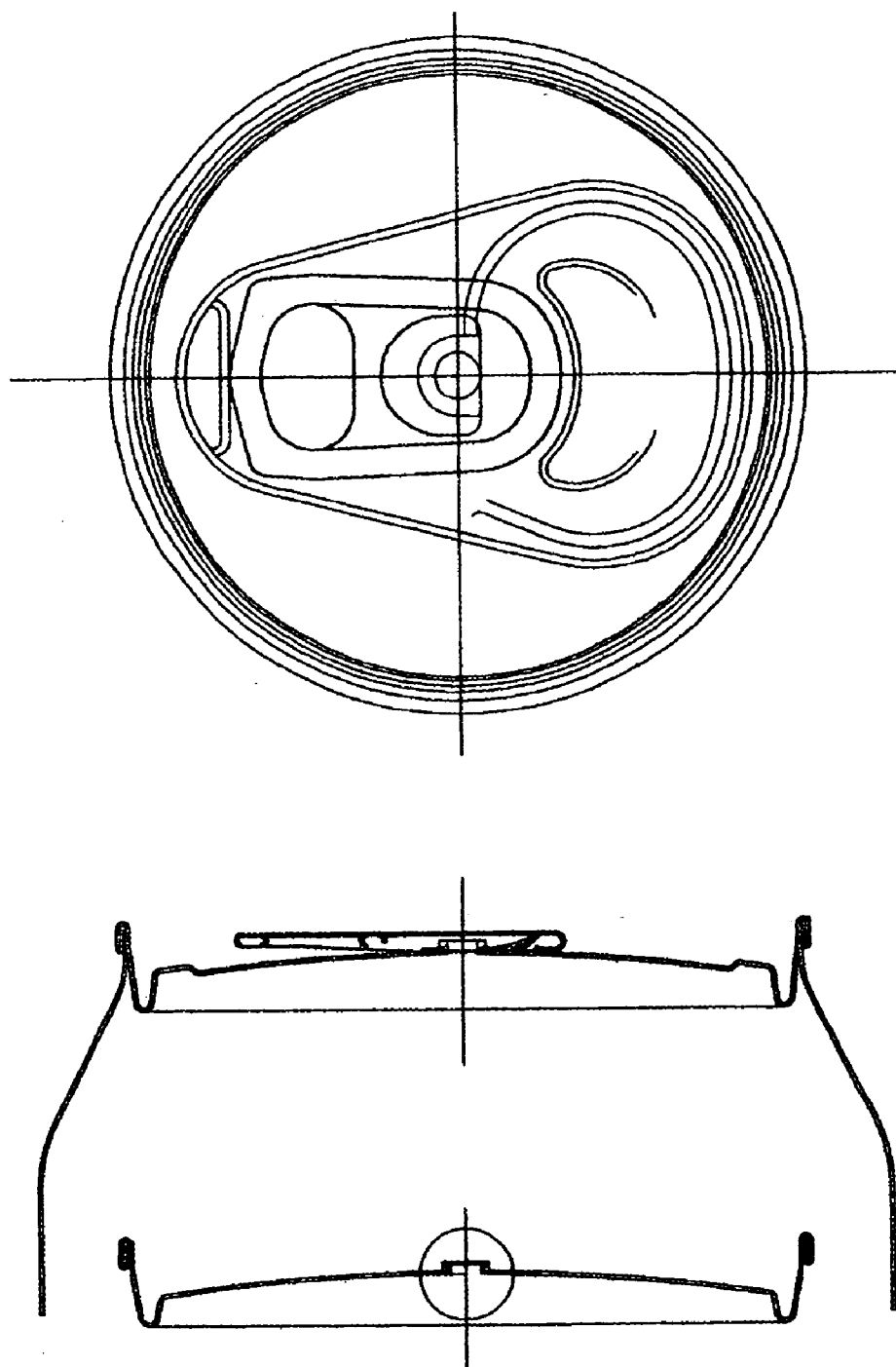
The invention covers a number of alternative improvements to the prior art pull-tab used to open container such as soda cans. One improvement is by forming the nose of the pull tab at a certain angle to the body of the tab, thus allowing the user to tilt the tab thus lifting the pull tip higher and providing more room for the user to insert the finger tip under the pull tip thus making it easier to open the container. Another improvement is by rotating the pull tab a certain angle and making it follow a caming surface thus lifting the pull tip and again providing more room to insert the finger tip and making it easier to open the container.





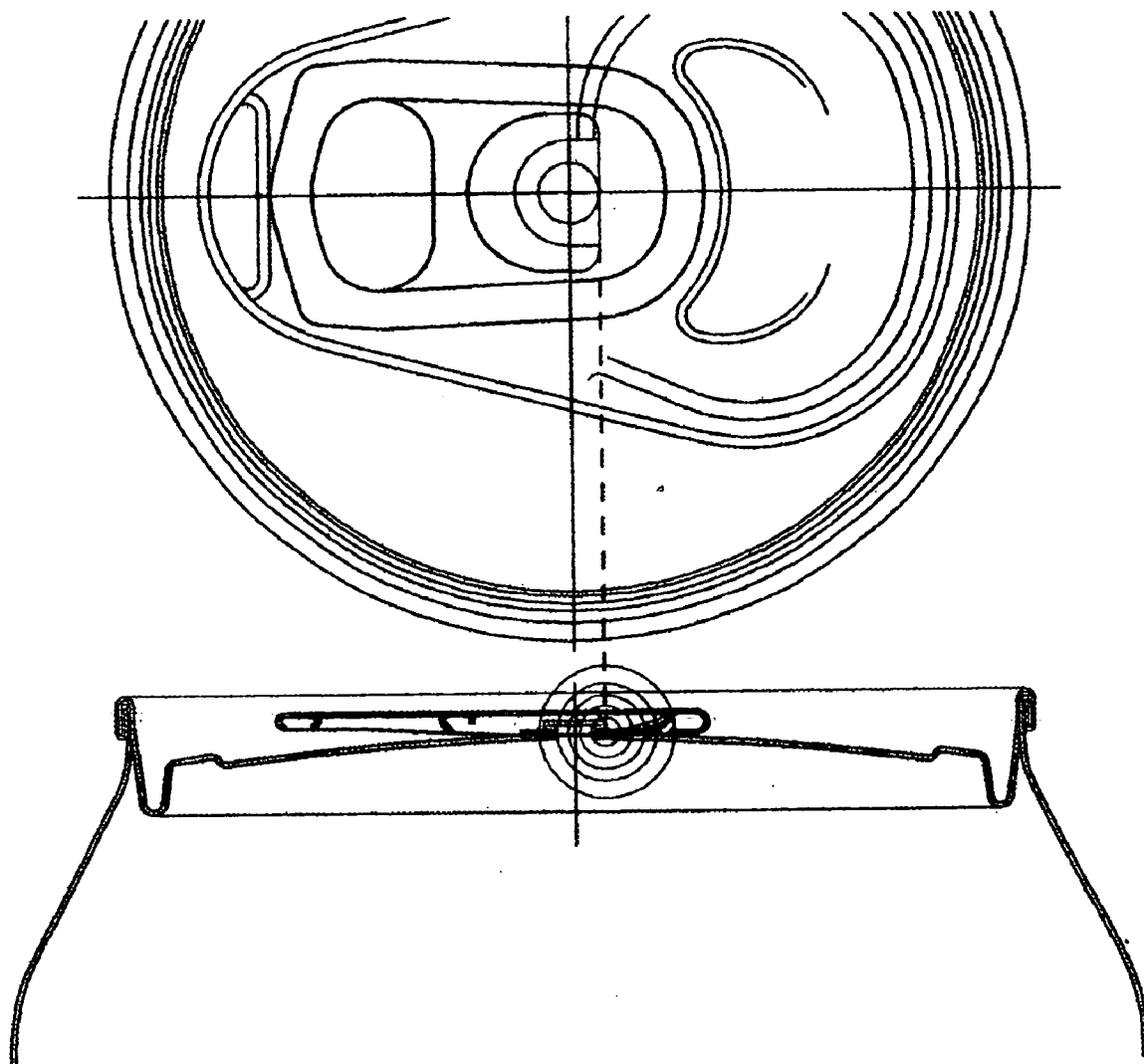
(PRIOR ART)

FIG. 1



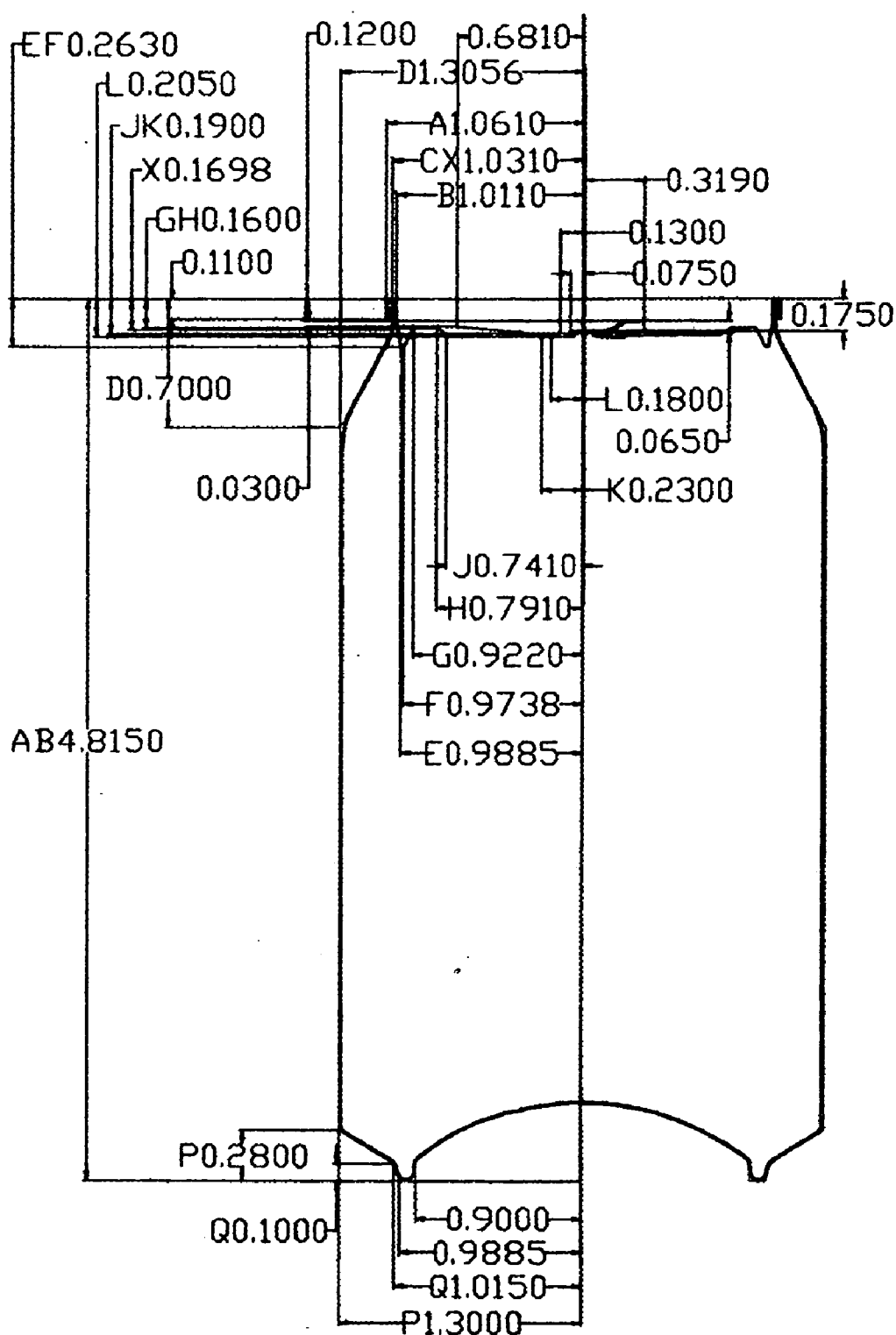
(PRIOR ART)

FIG. 2



(PRIOR ART)

FIG. 3



(PRIOR ART)

FIG. 4

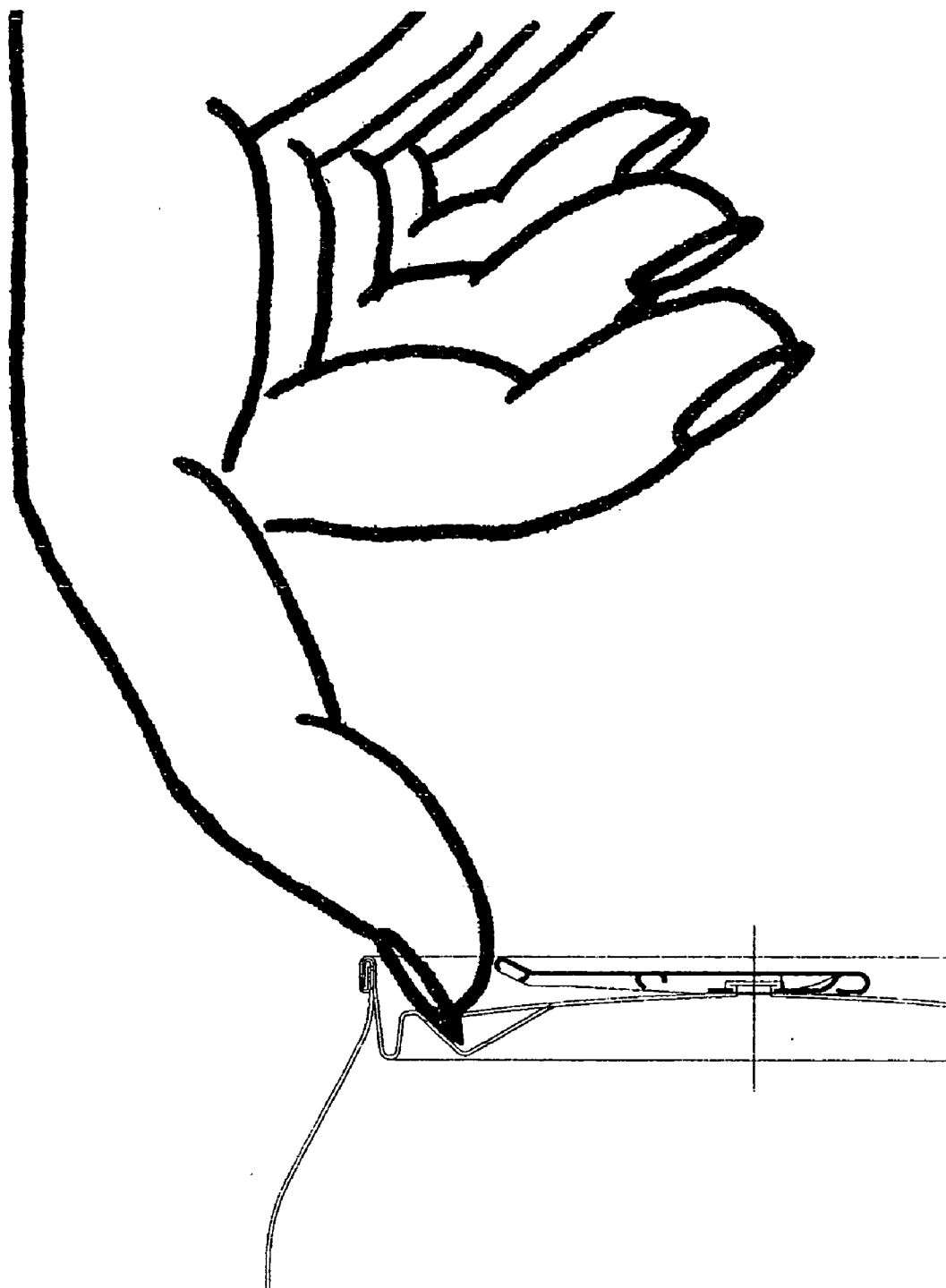


FIG. 16

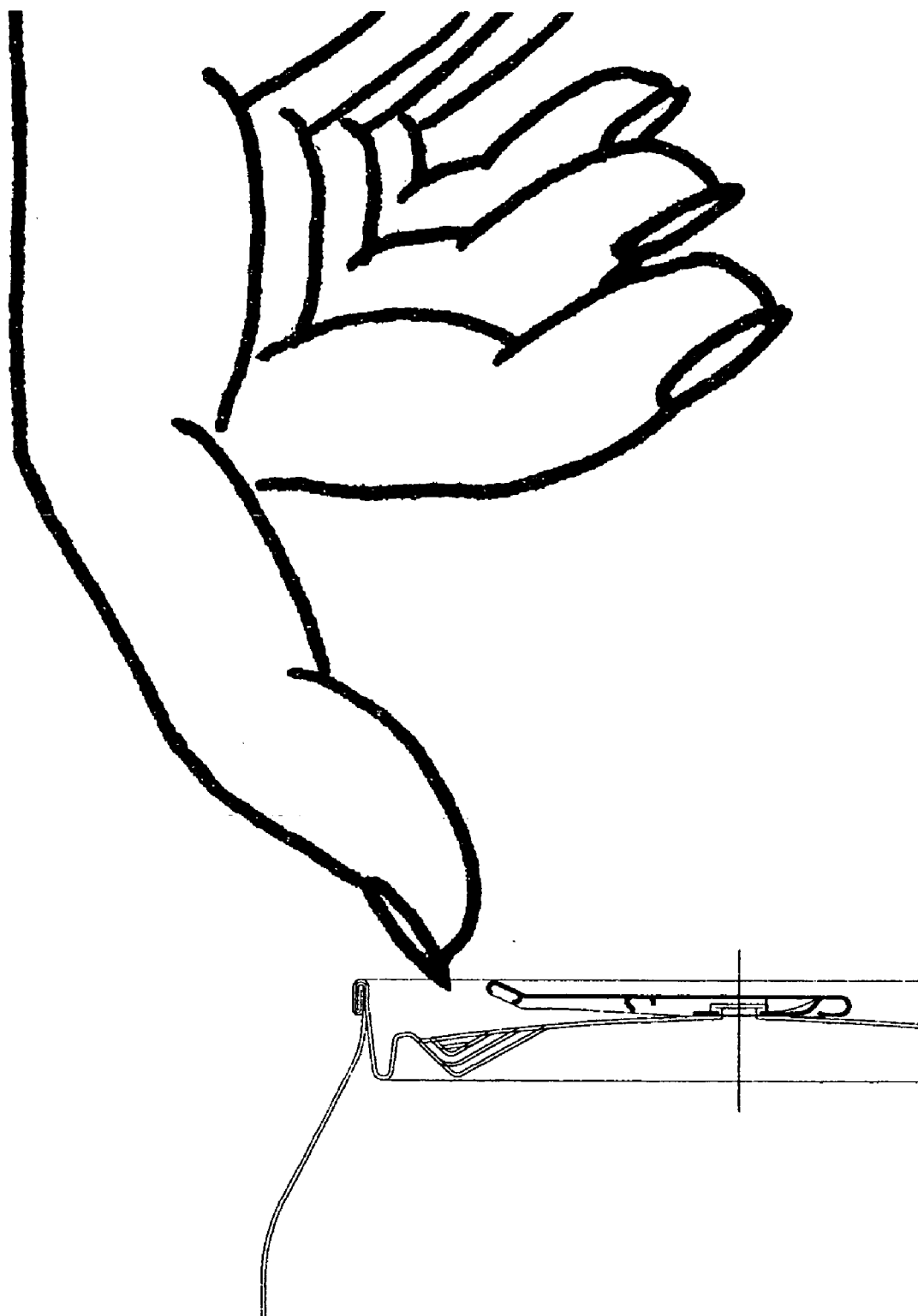


FIG. 17

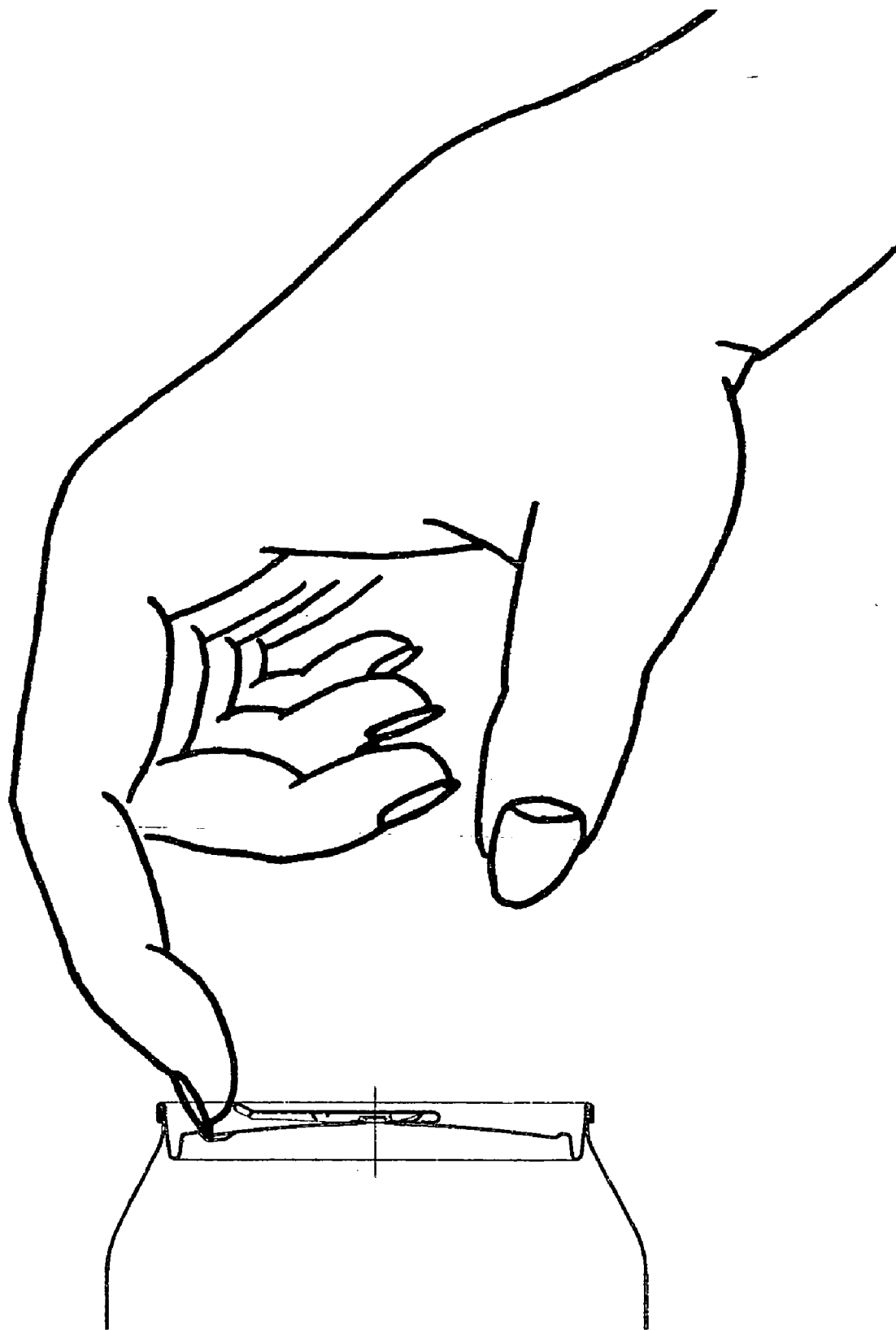


FIG. 18

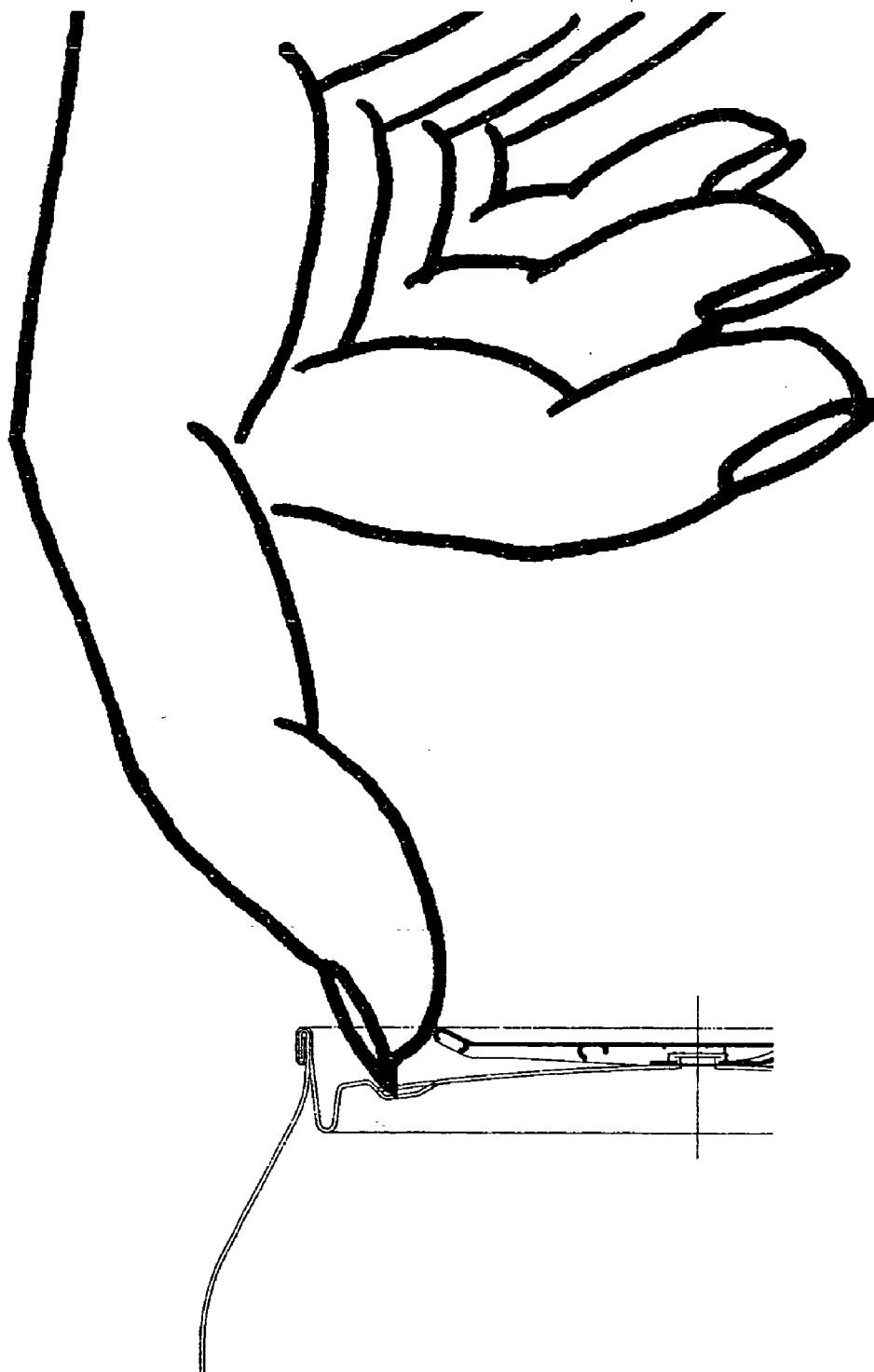


FIG. 19

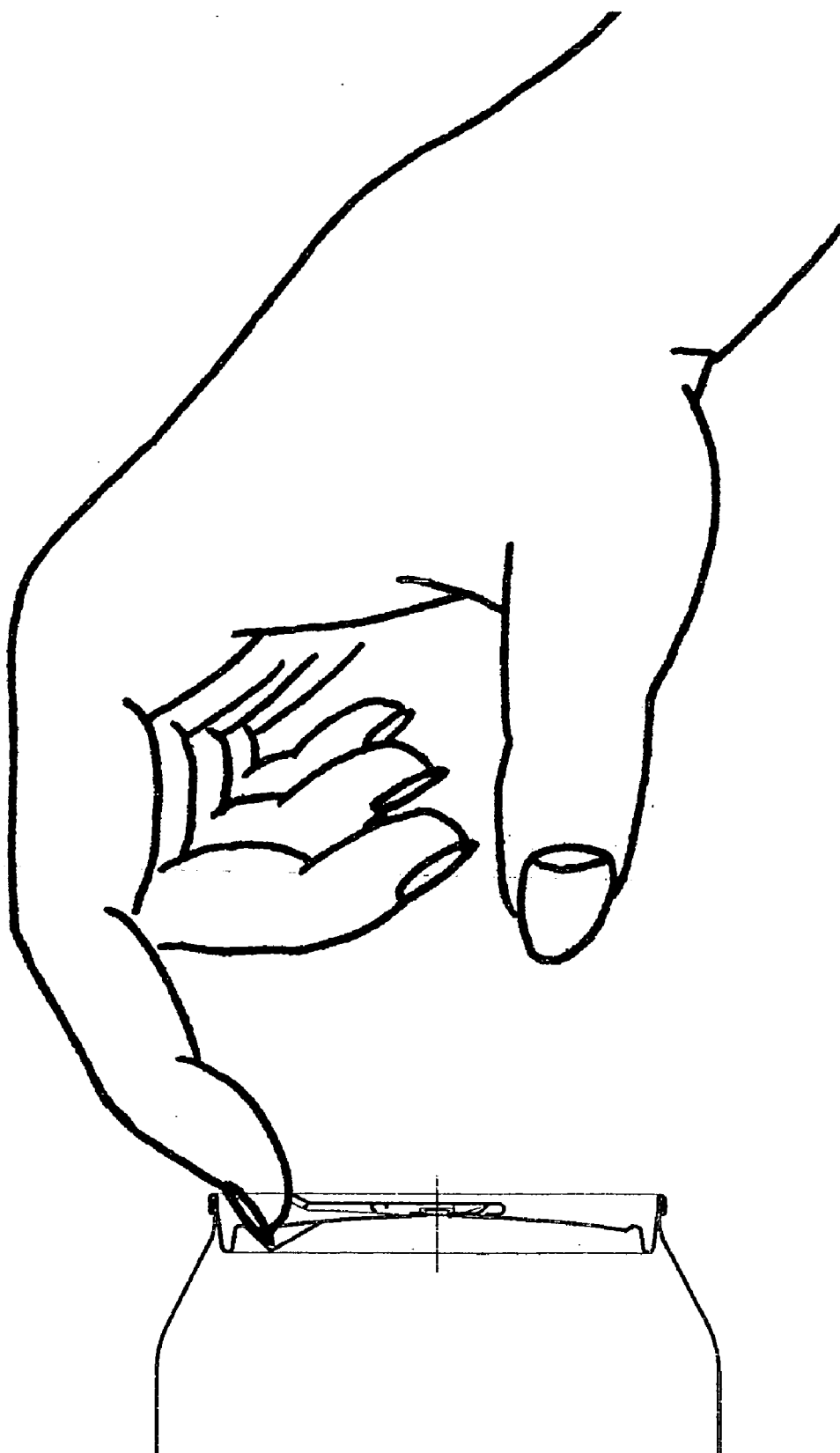


FIG. 20

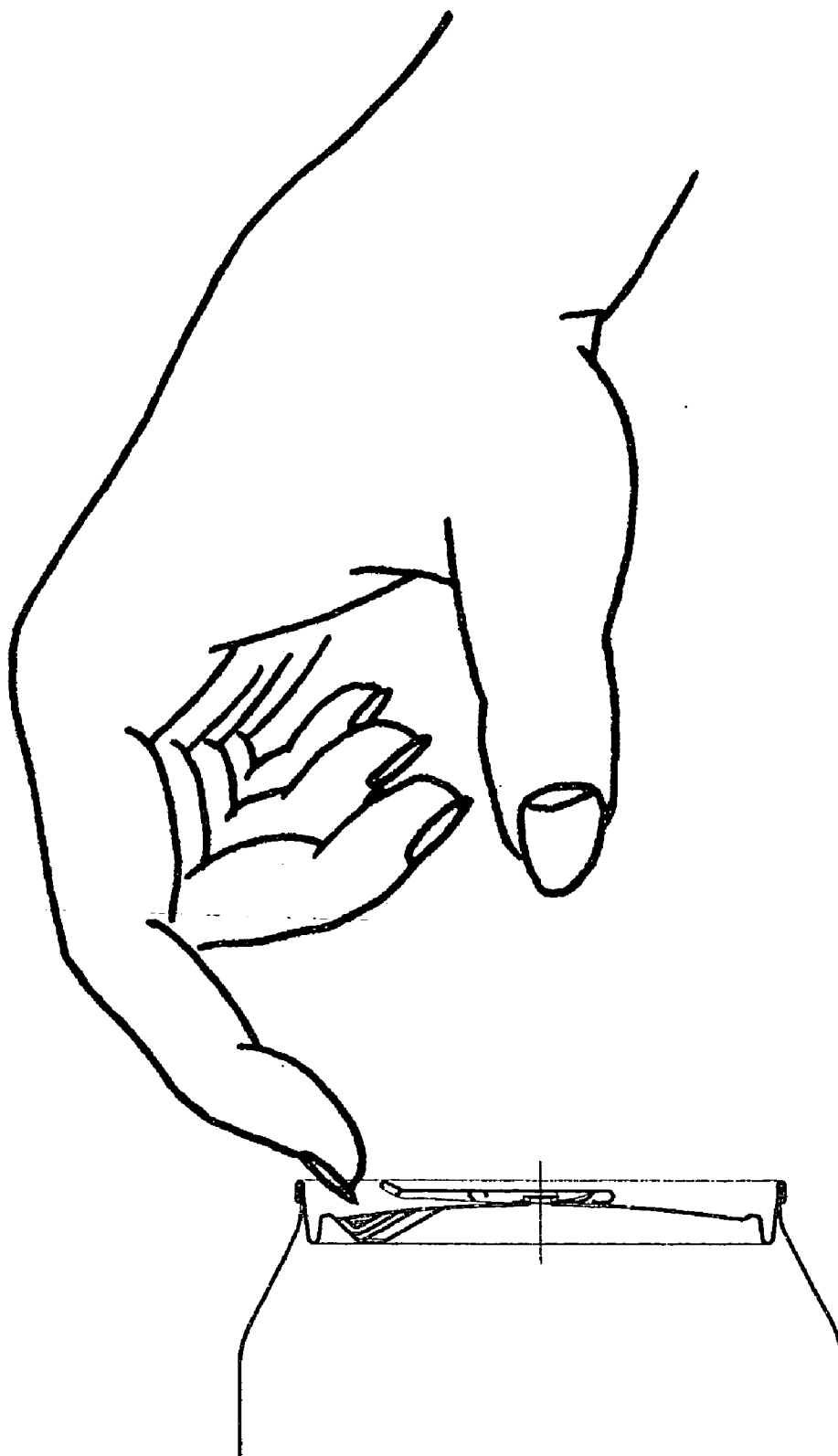


FIG. 21

OPENING FORCE COMPARISON

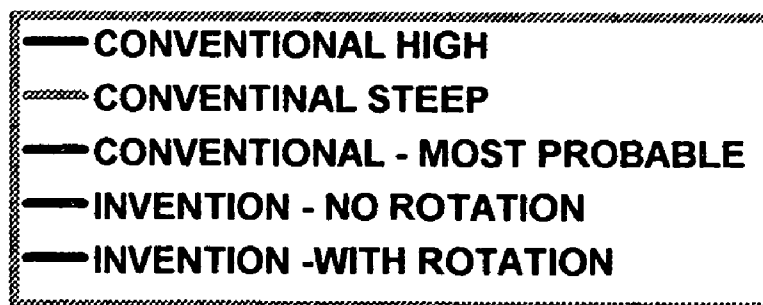
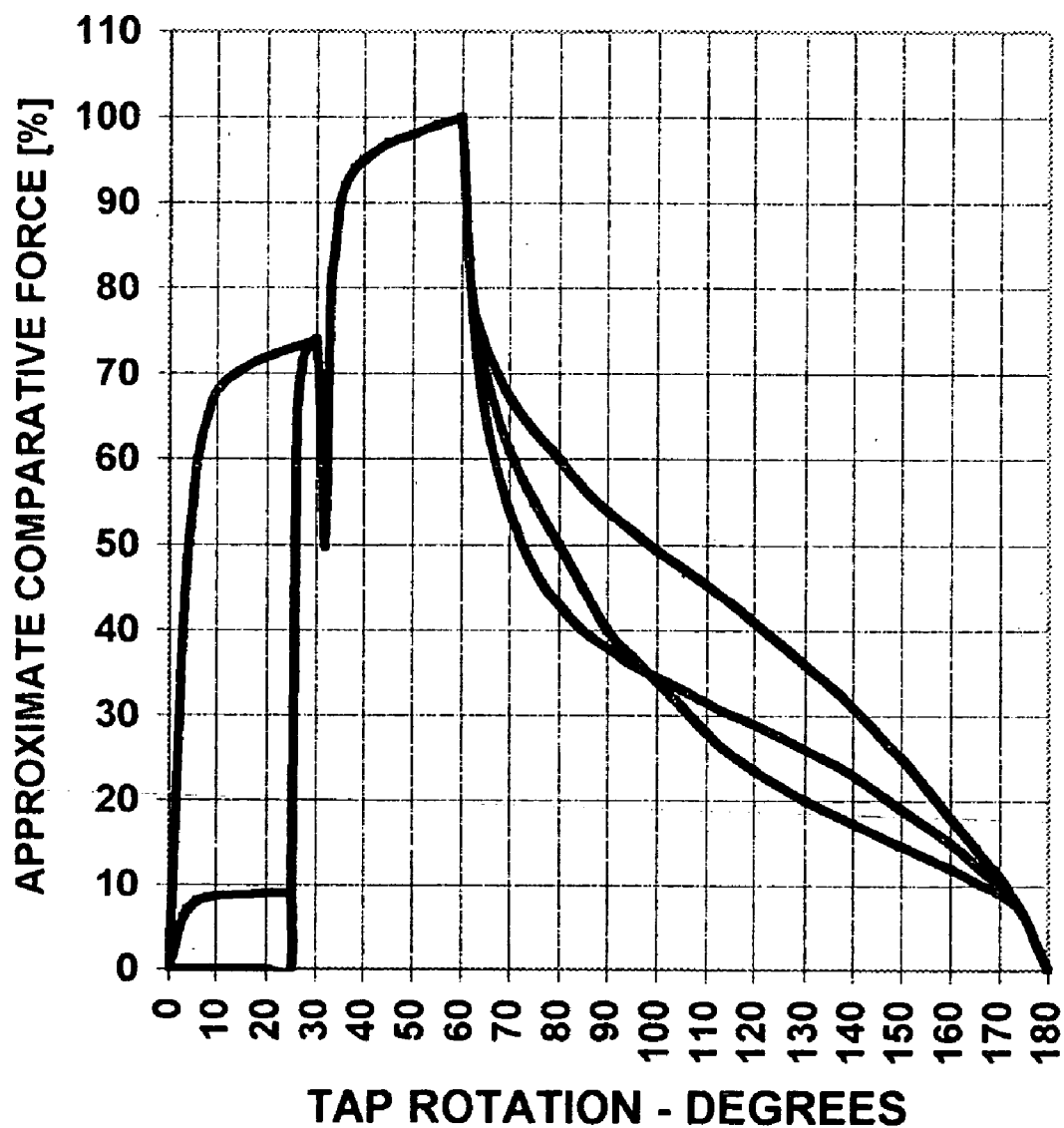


FIG. 22

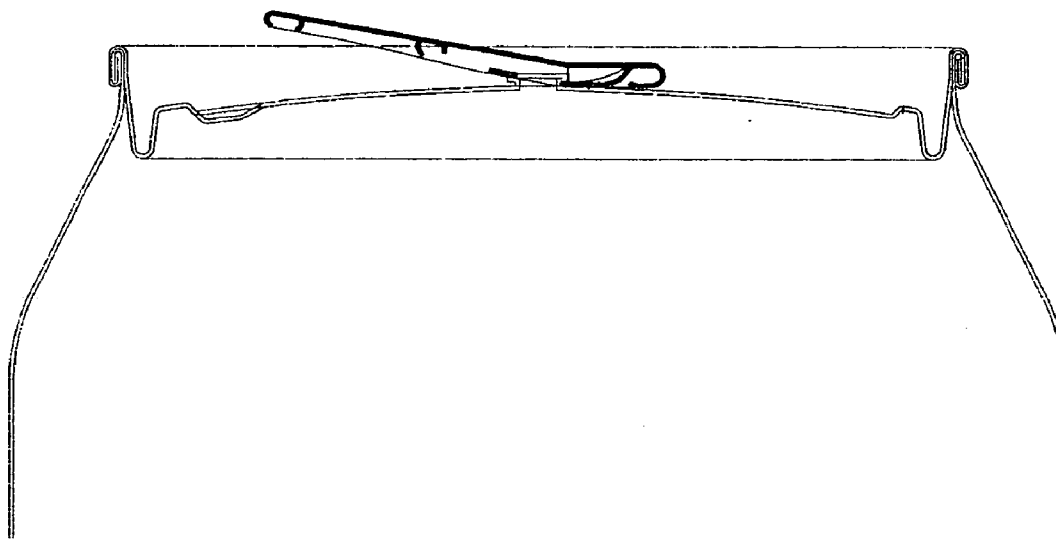


FIG. 23

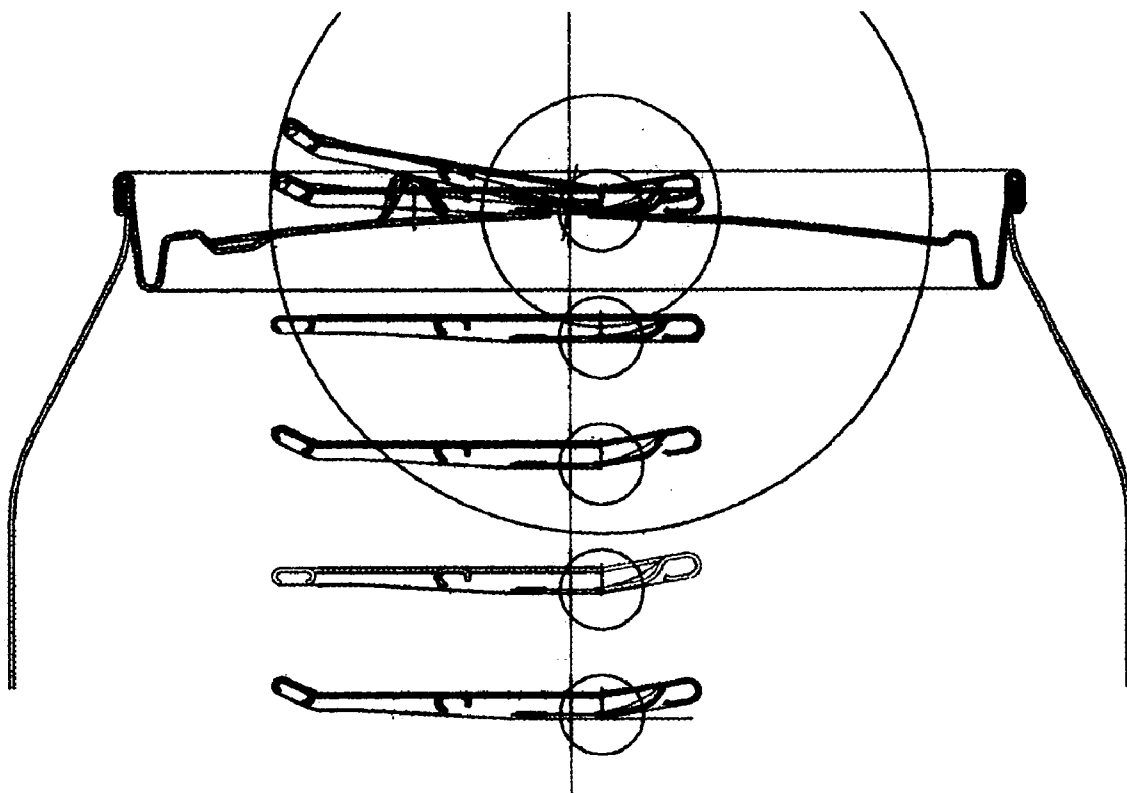


FIG. 30

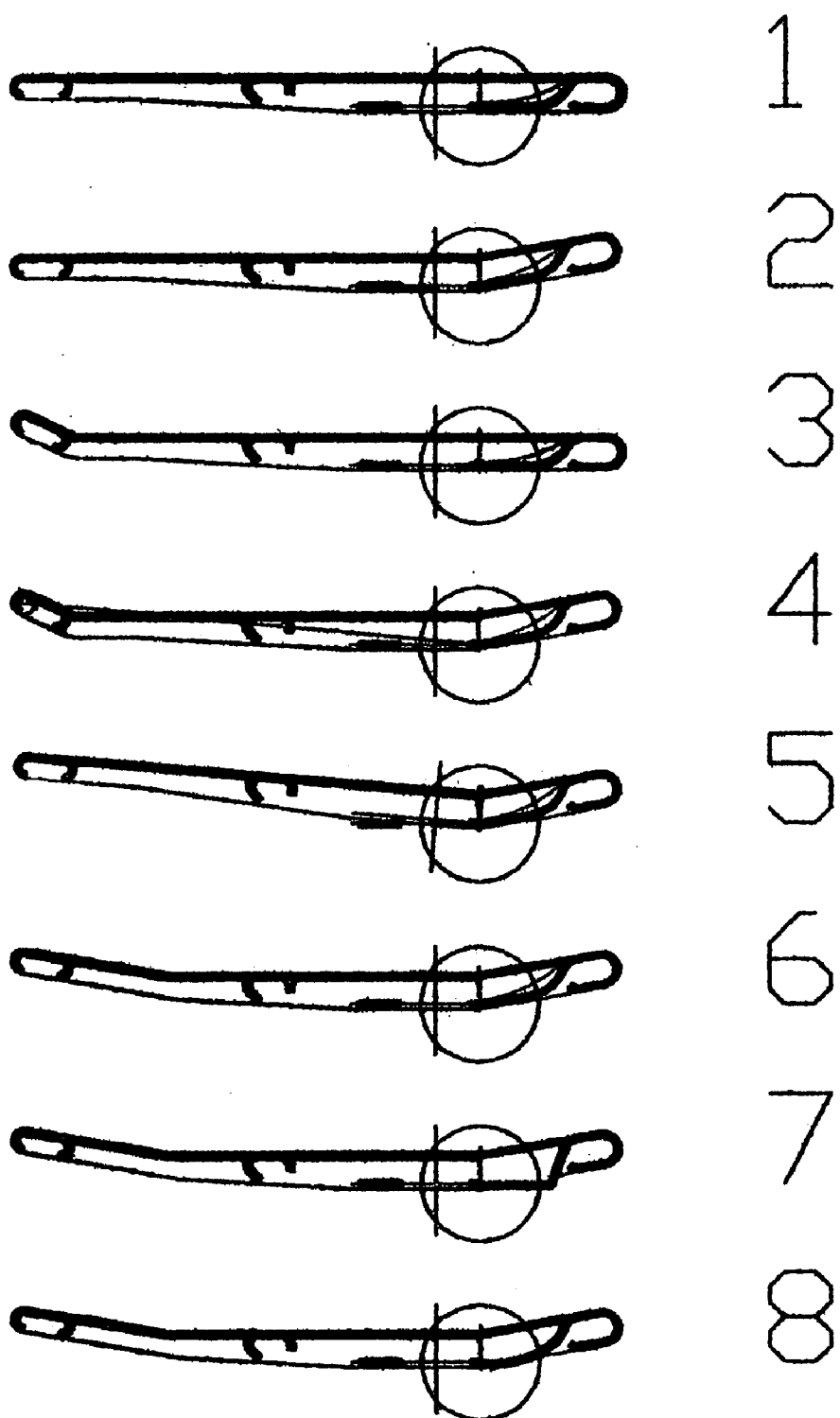


FIG. 31-A

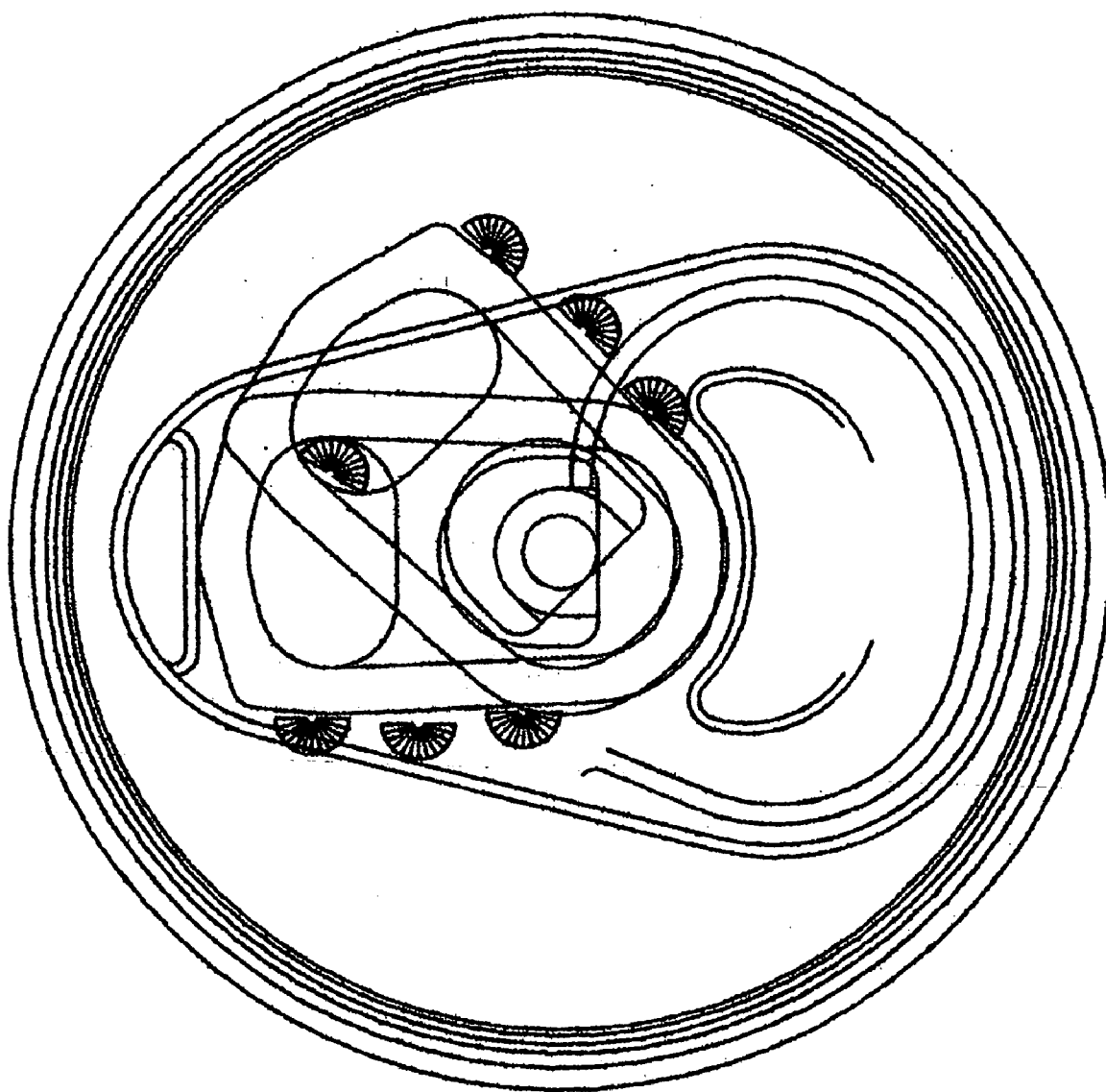


FIG. 31-B

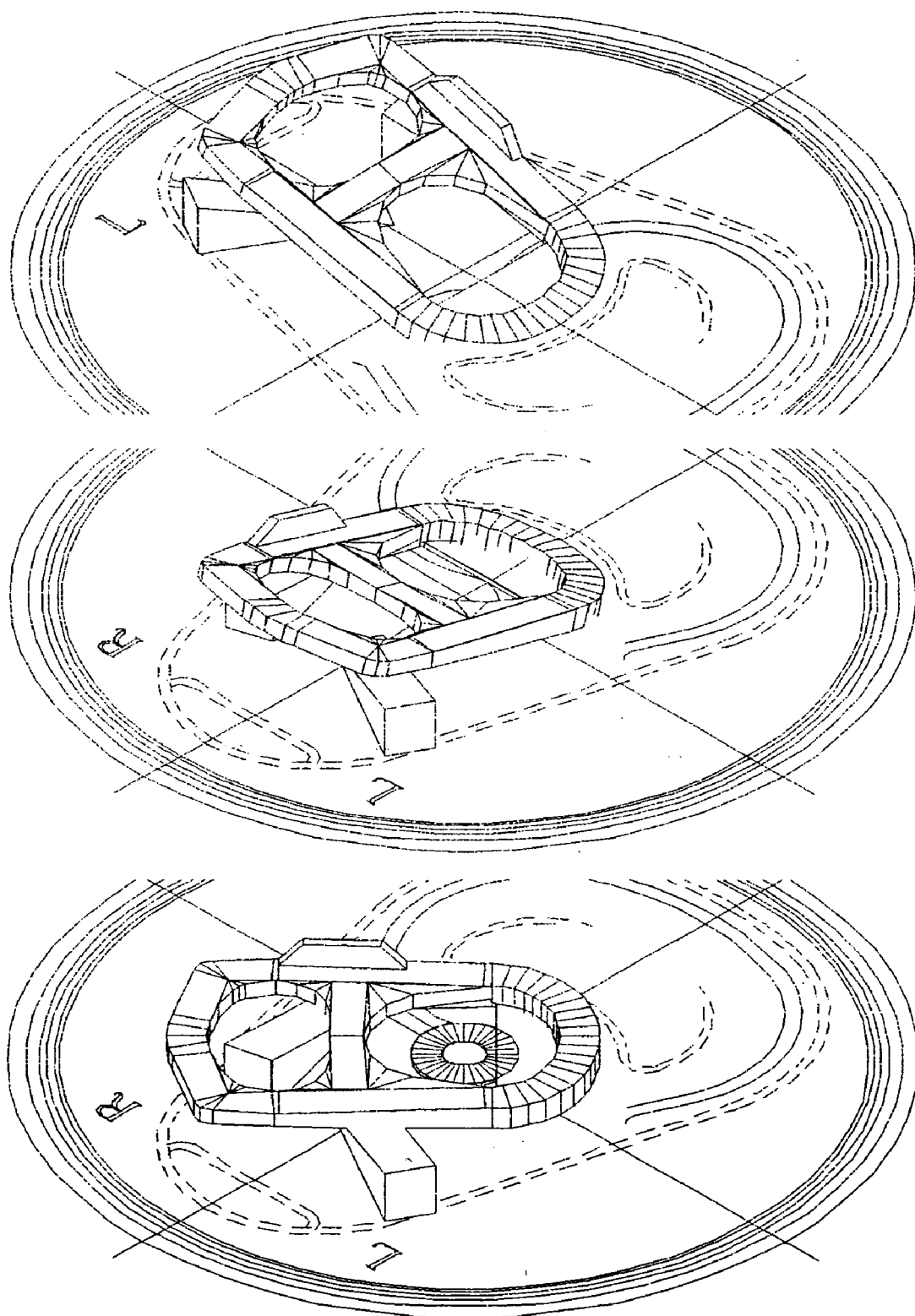


FIG. 46

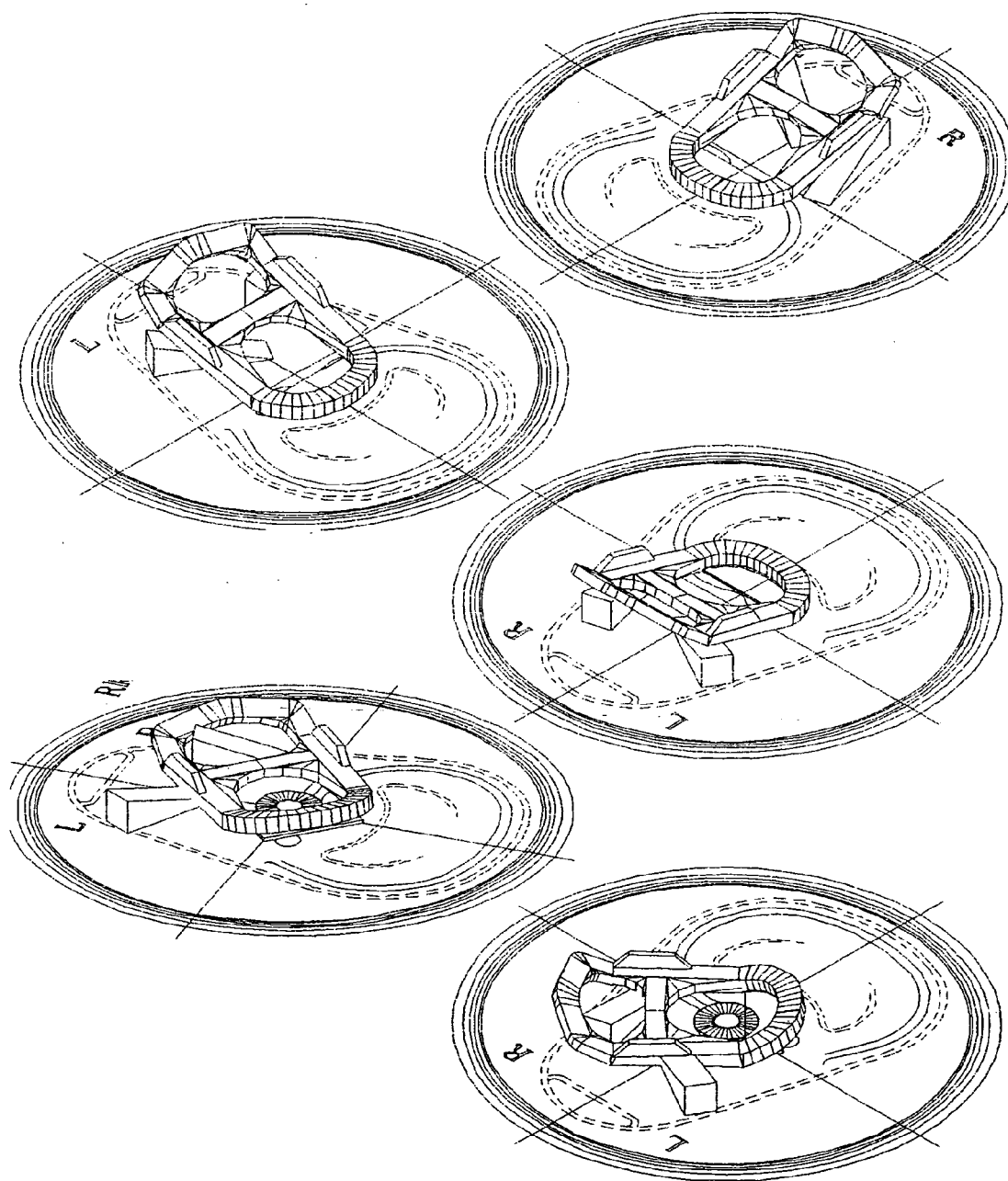


FIG. 55

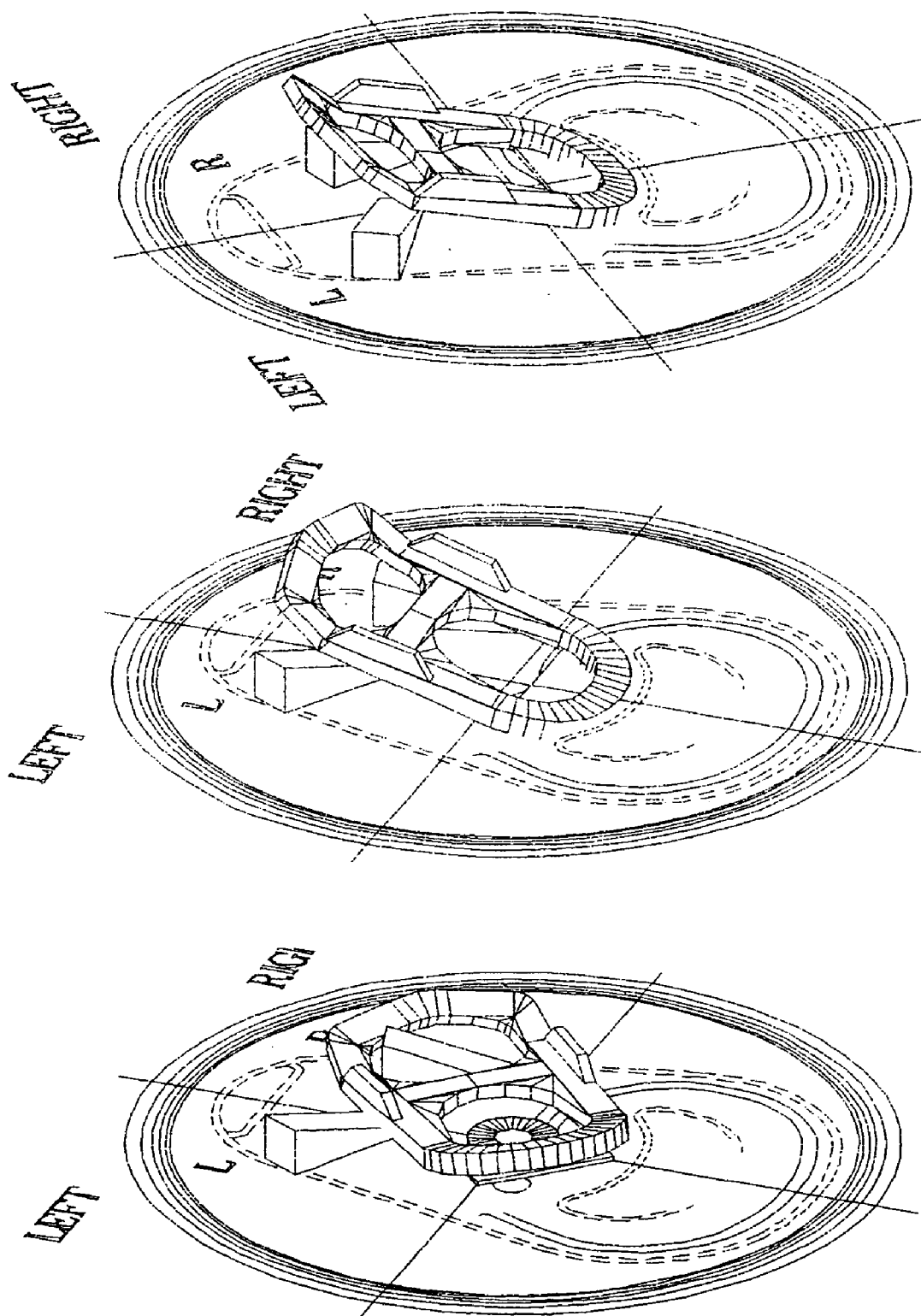


FIG. 57

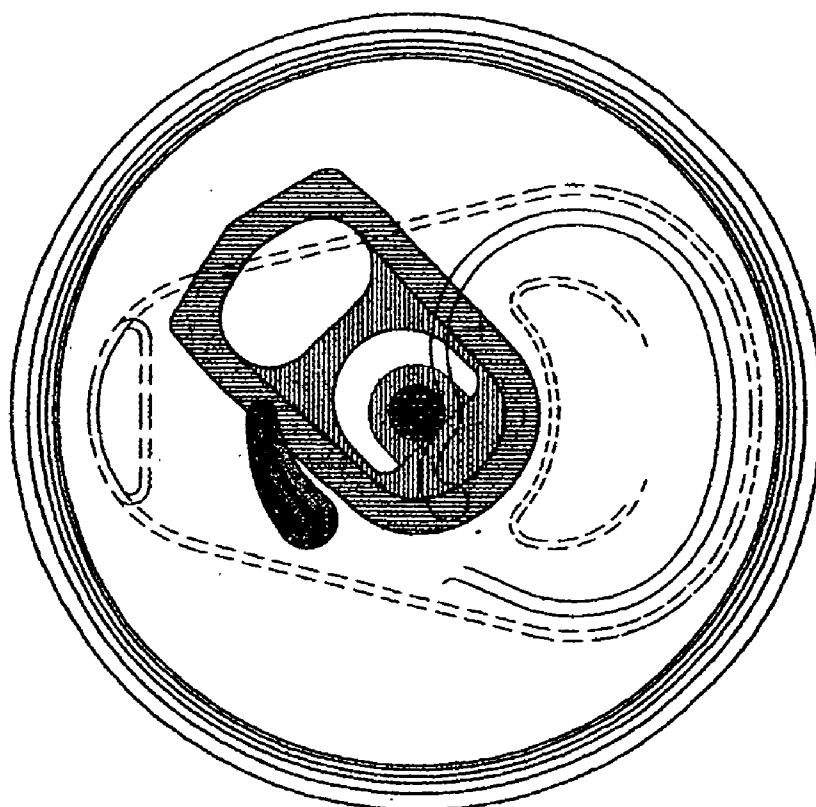


FIG. 61-A

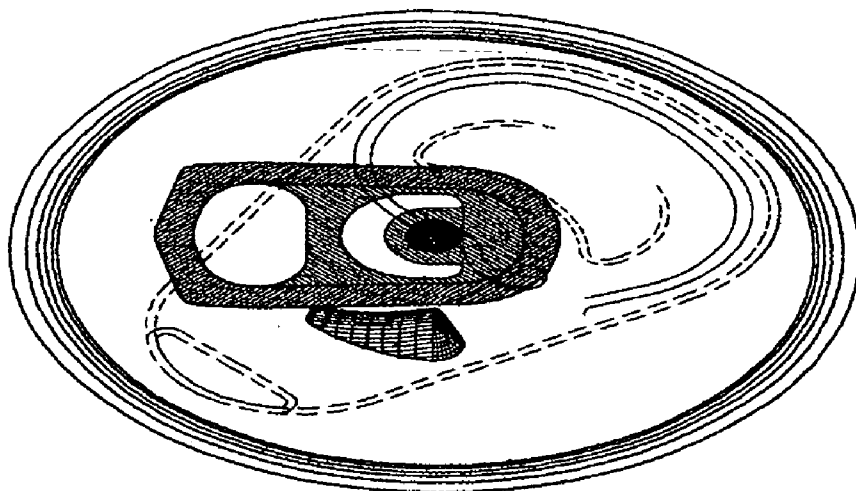


FIG. 61-B

FIG. 61

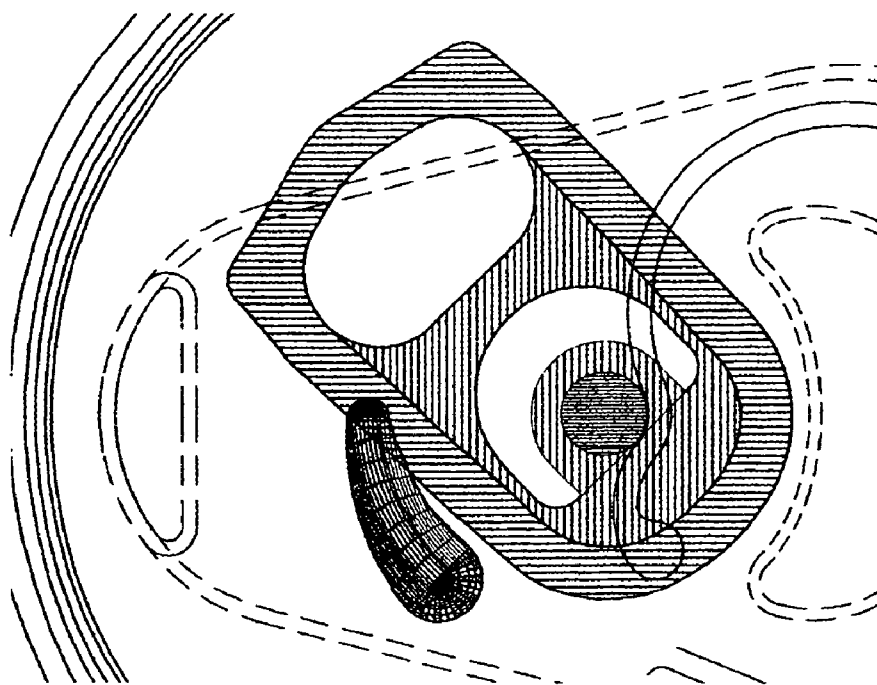


FIG. 62-A

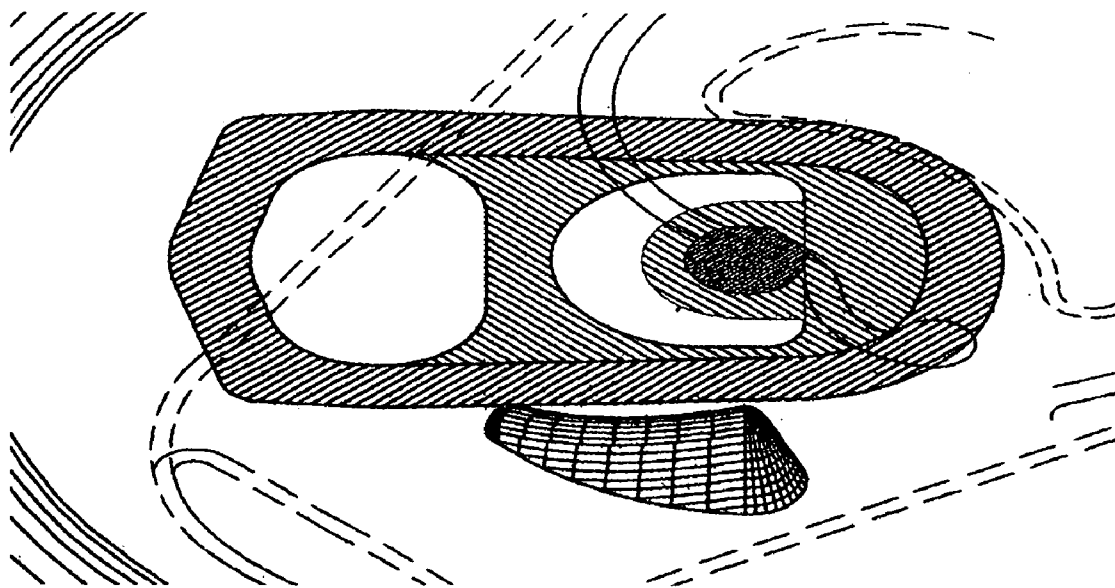


FIG. 62-B

FIG. 62

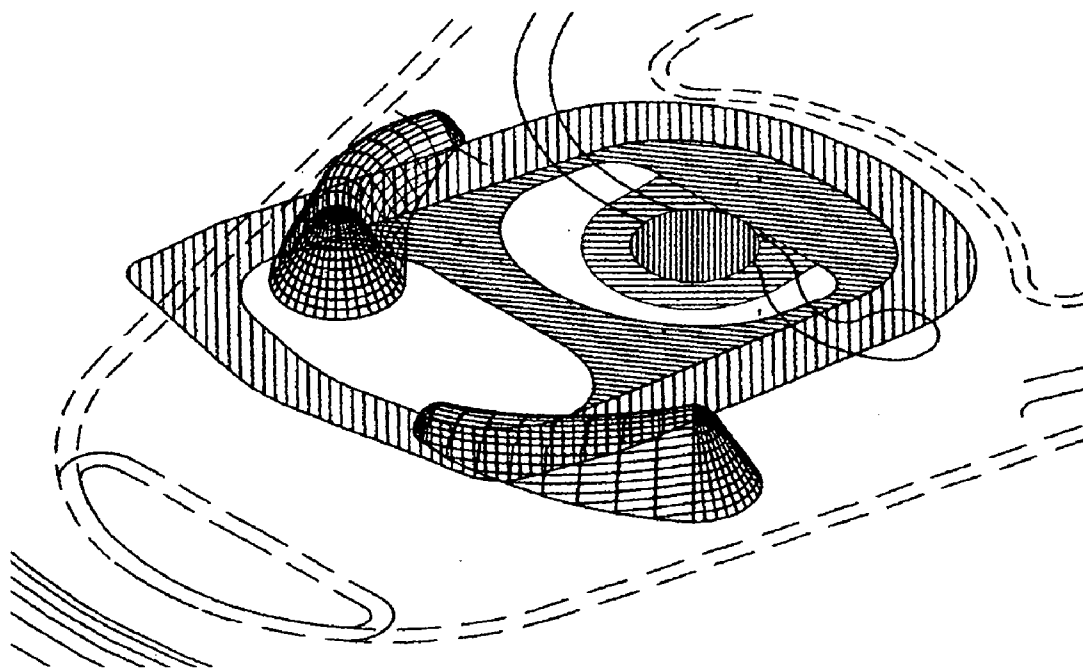


FIG. 63-A

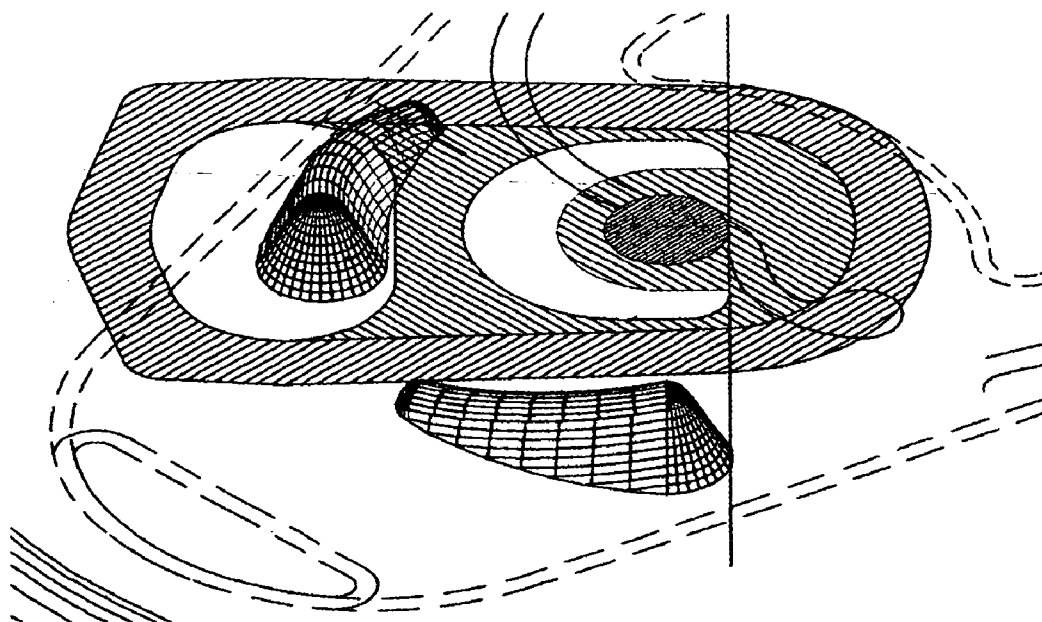


FIG. 63-A

FIG. 63

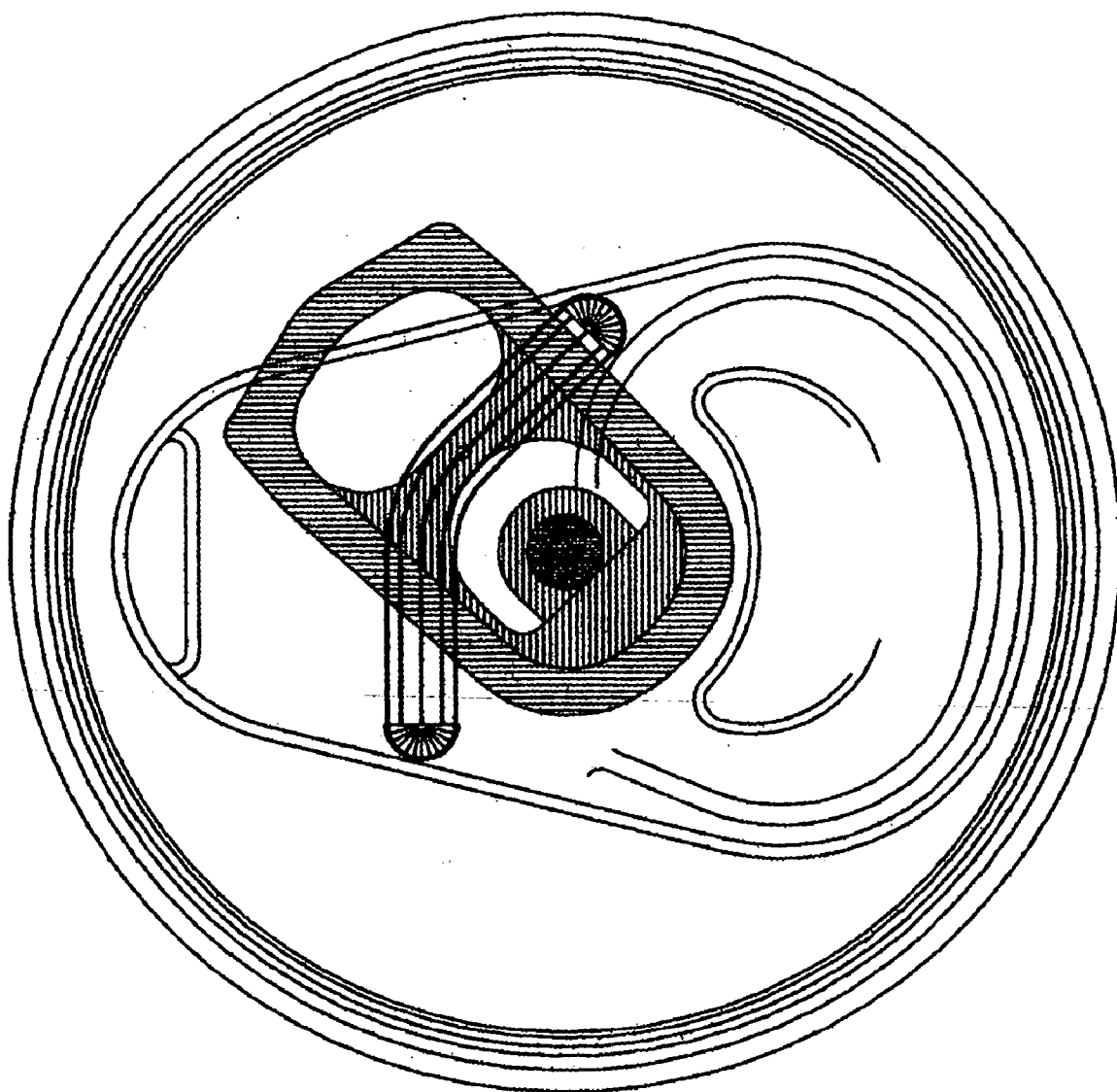


FIG. 64-A

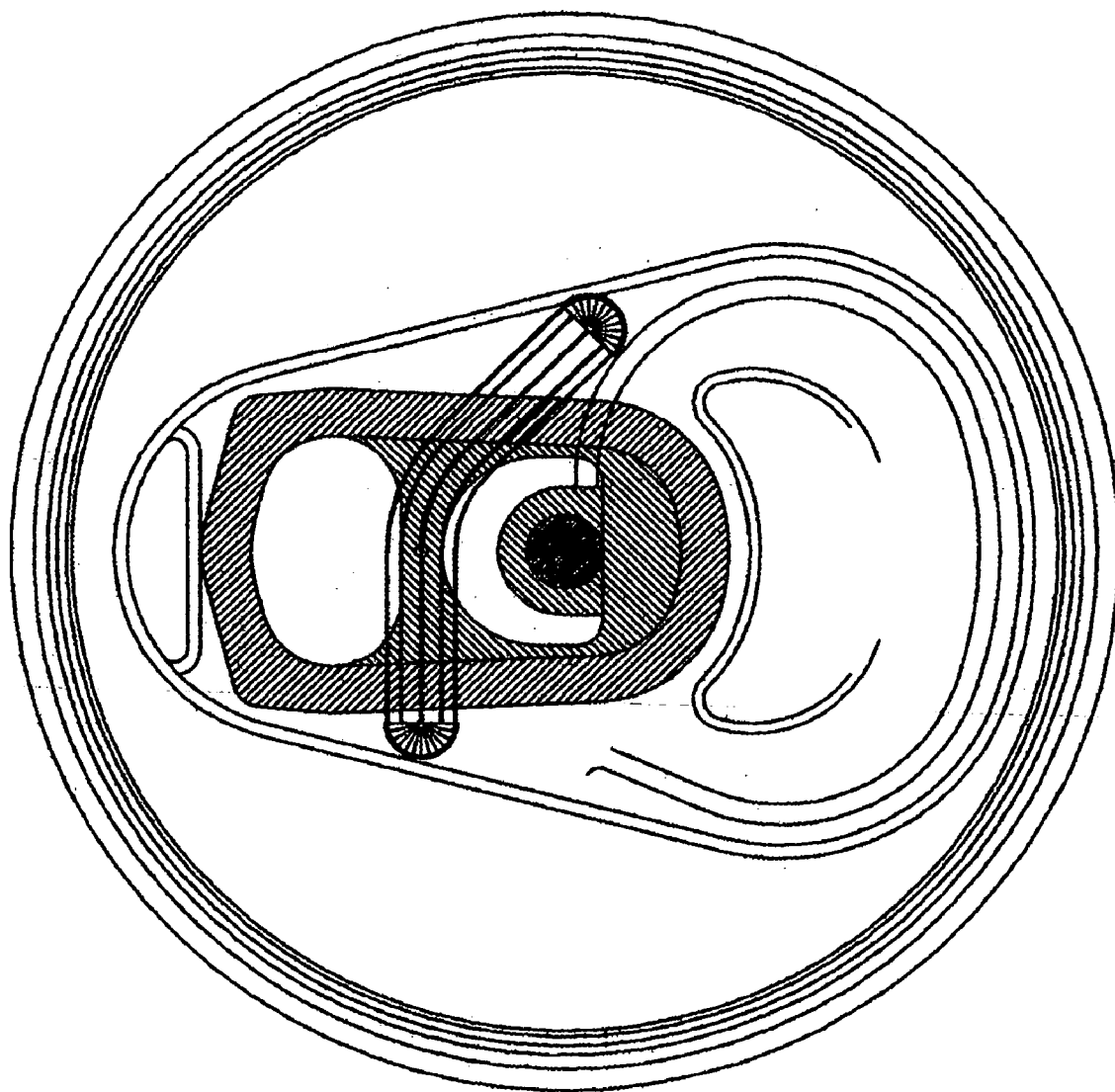


FIG. 64-B

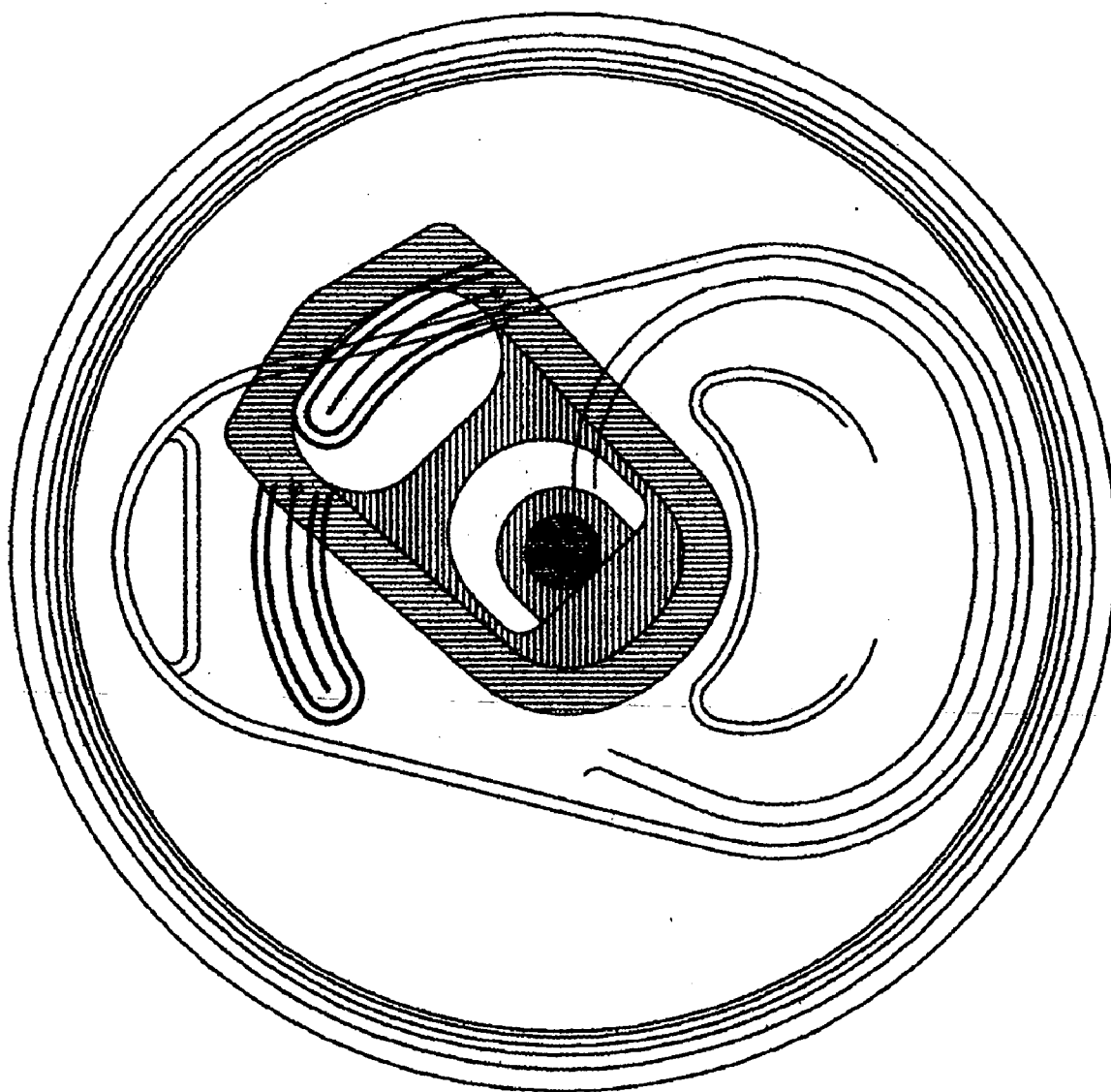


FIG. 65-A

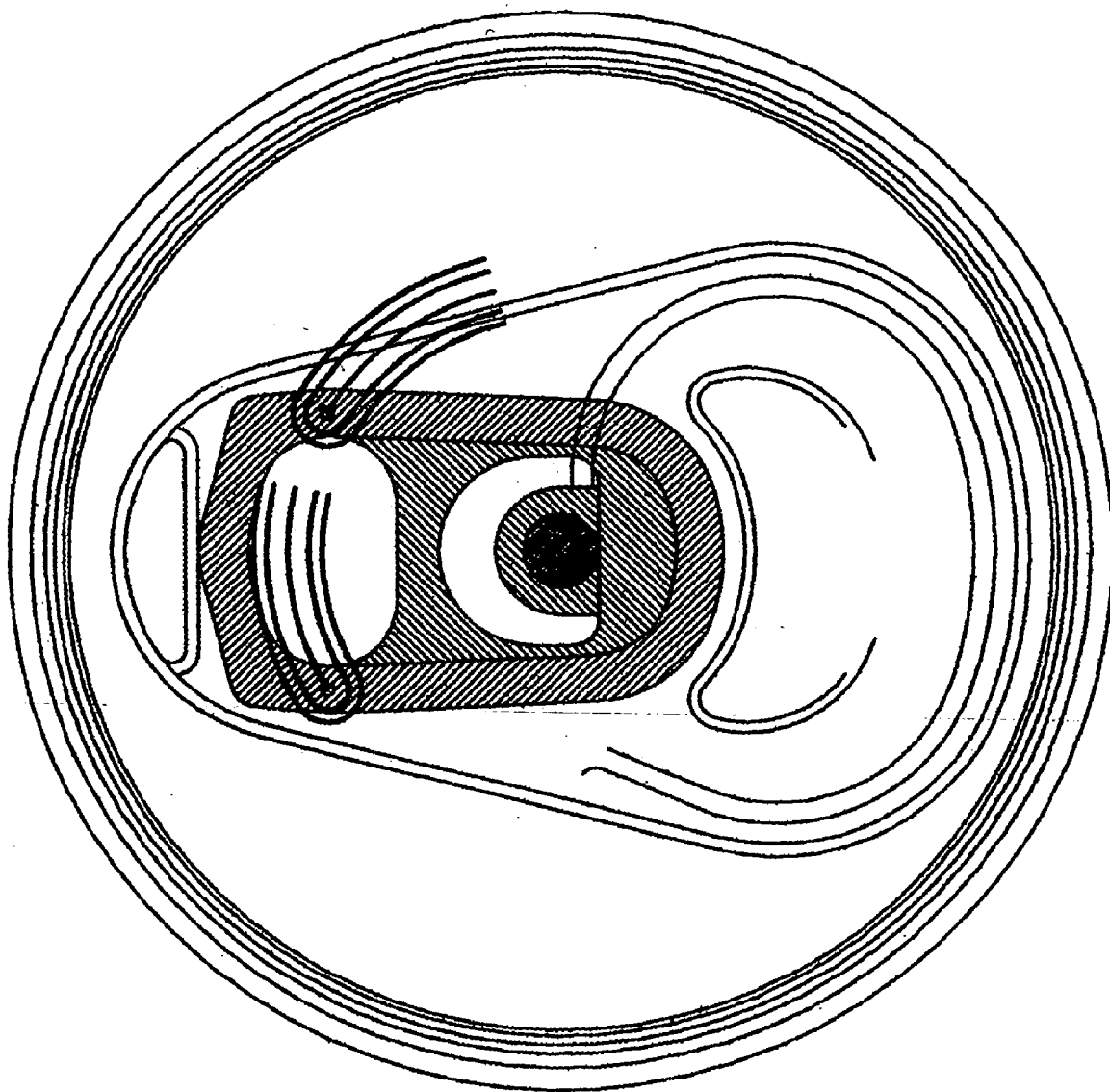


FIG. 65-B

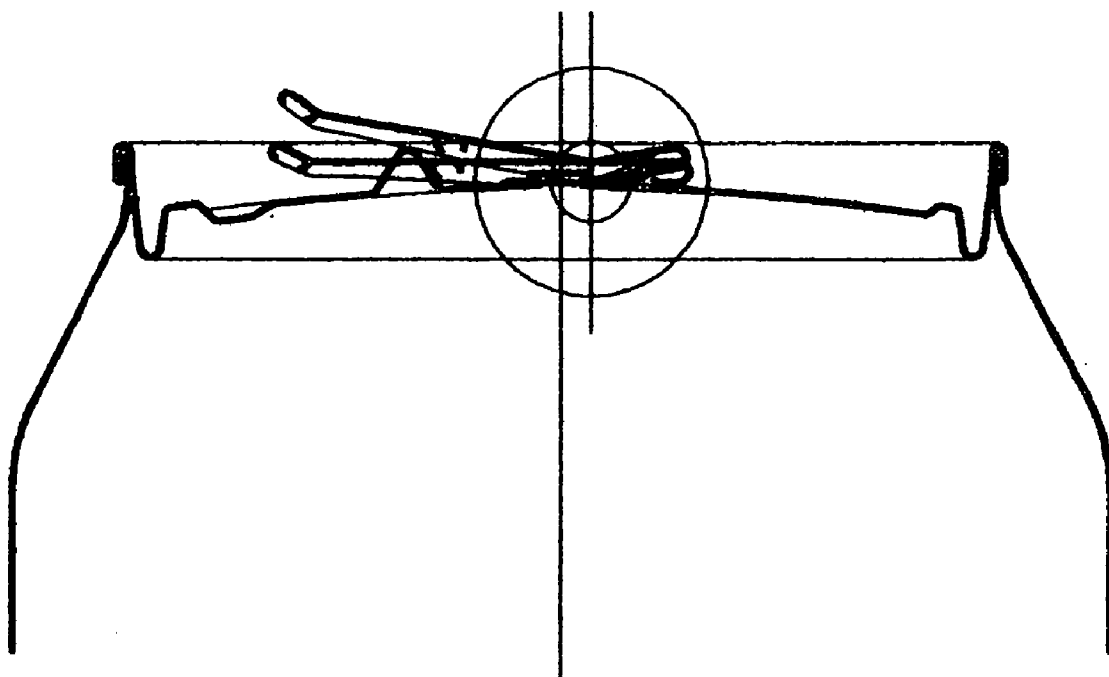


FIG. 66-A

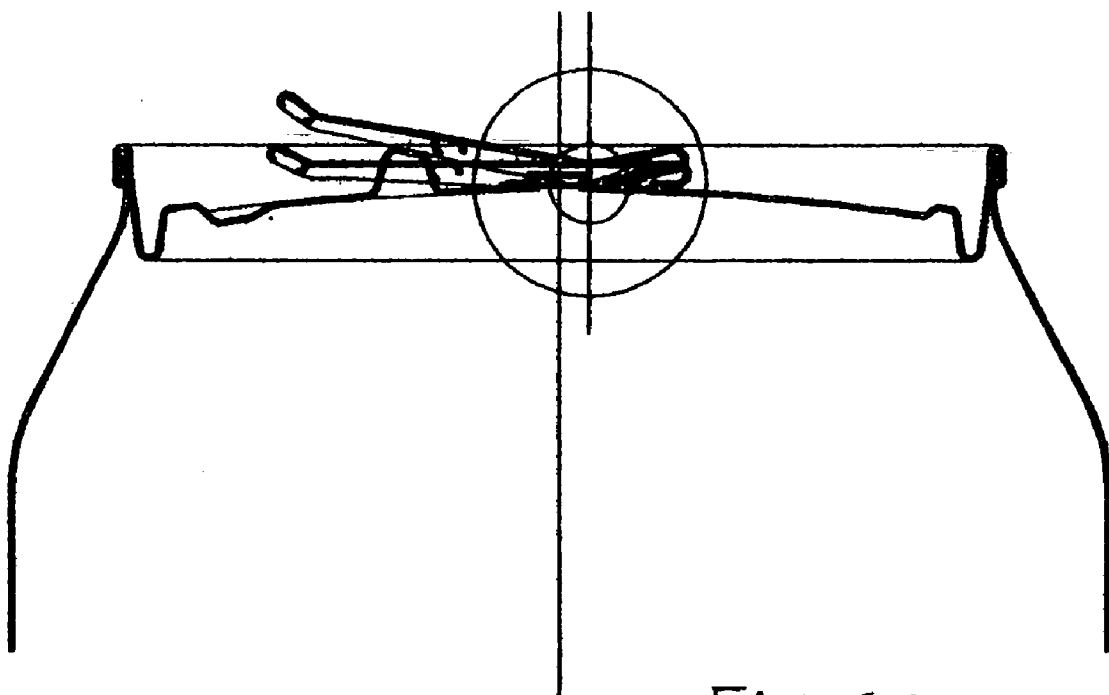


FIG. 66-B

FIG. 66

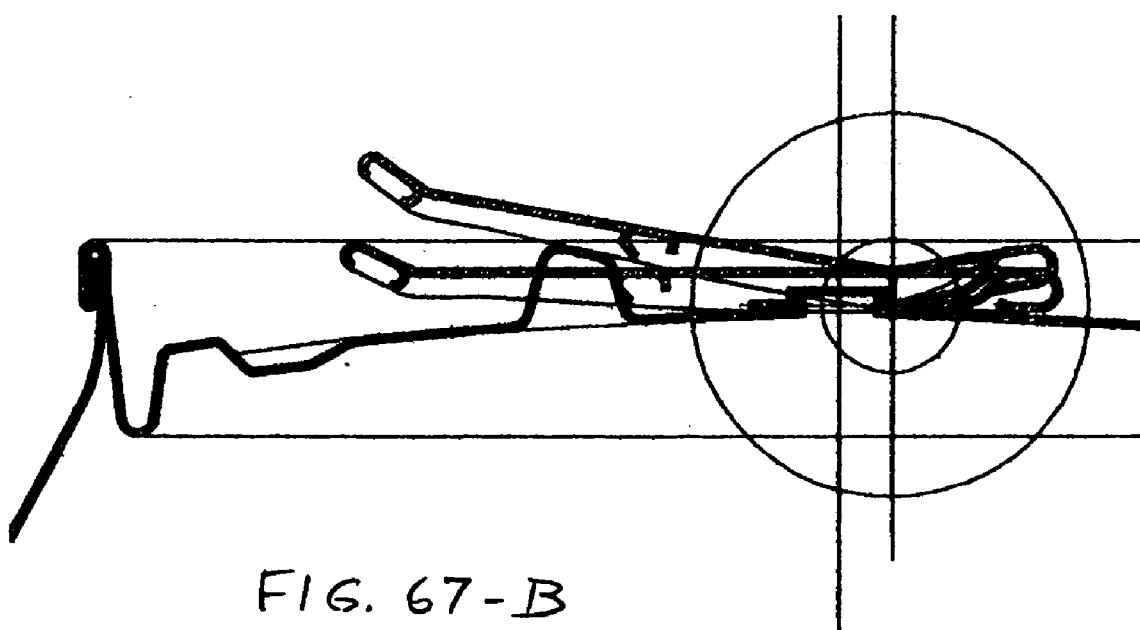
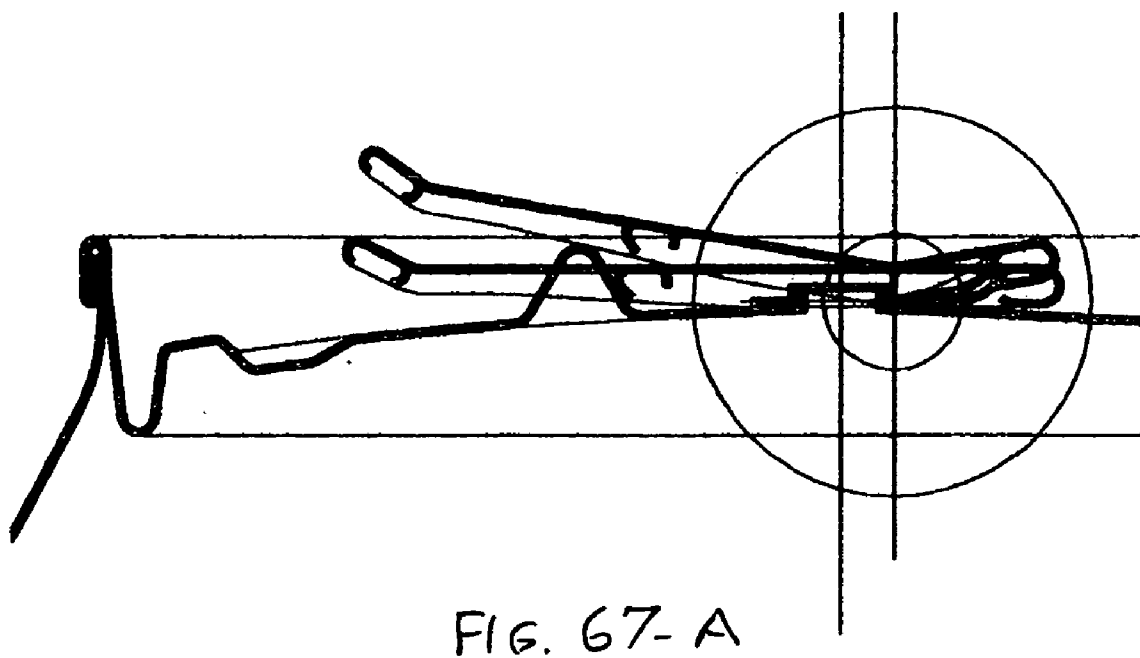


FIG. 67

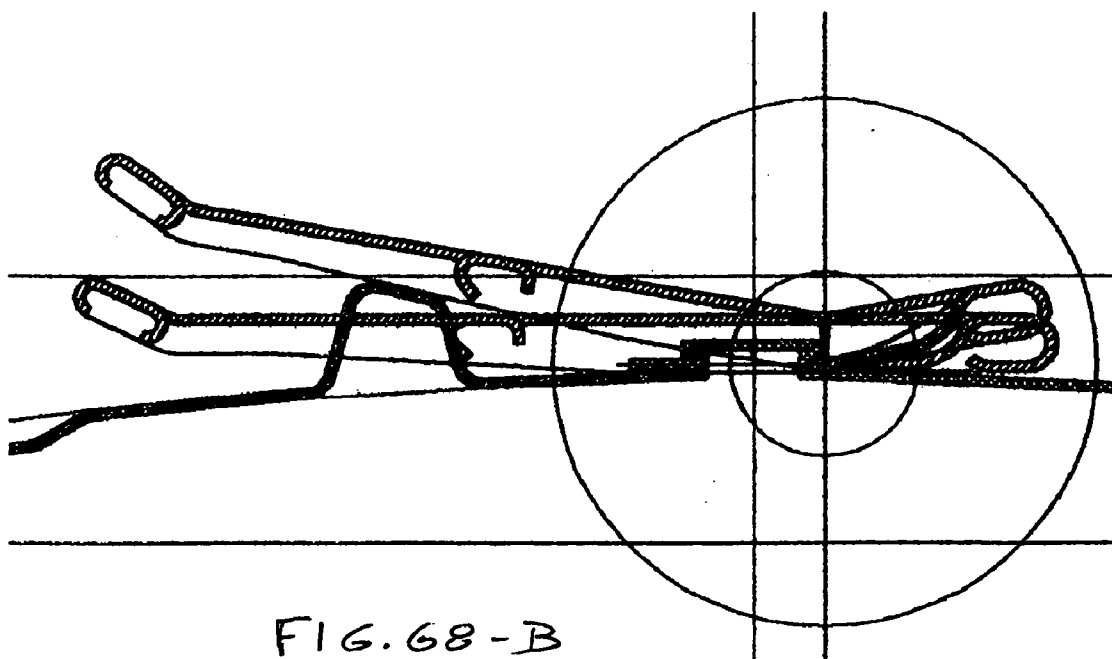
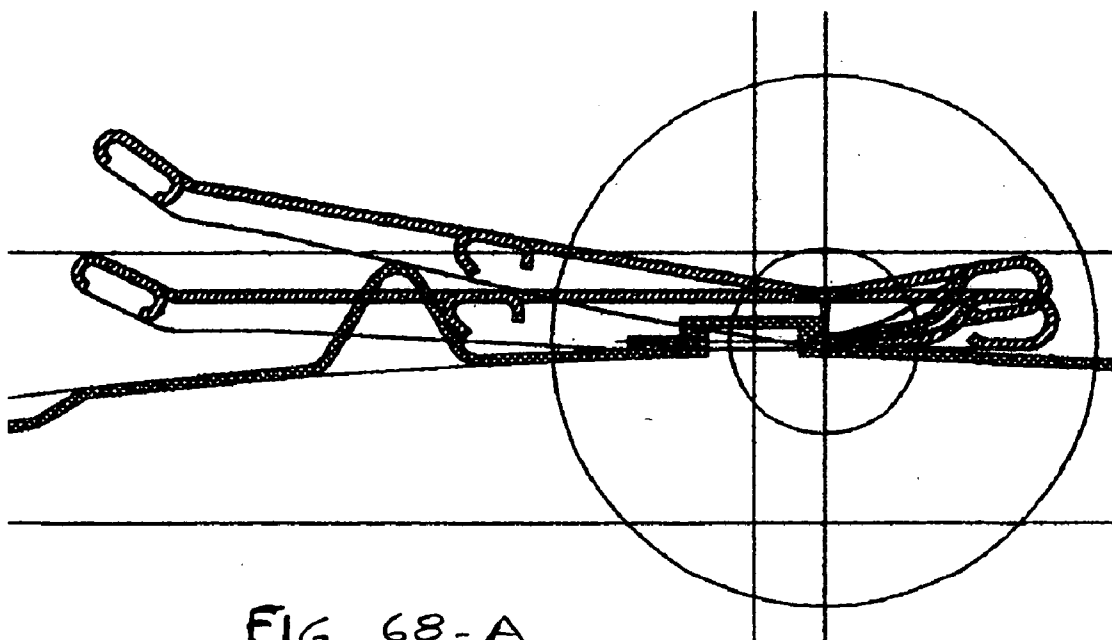


FIG. 68

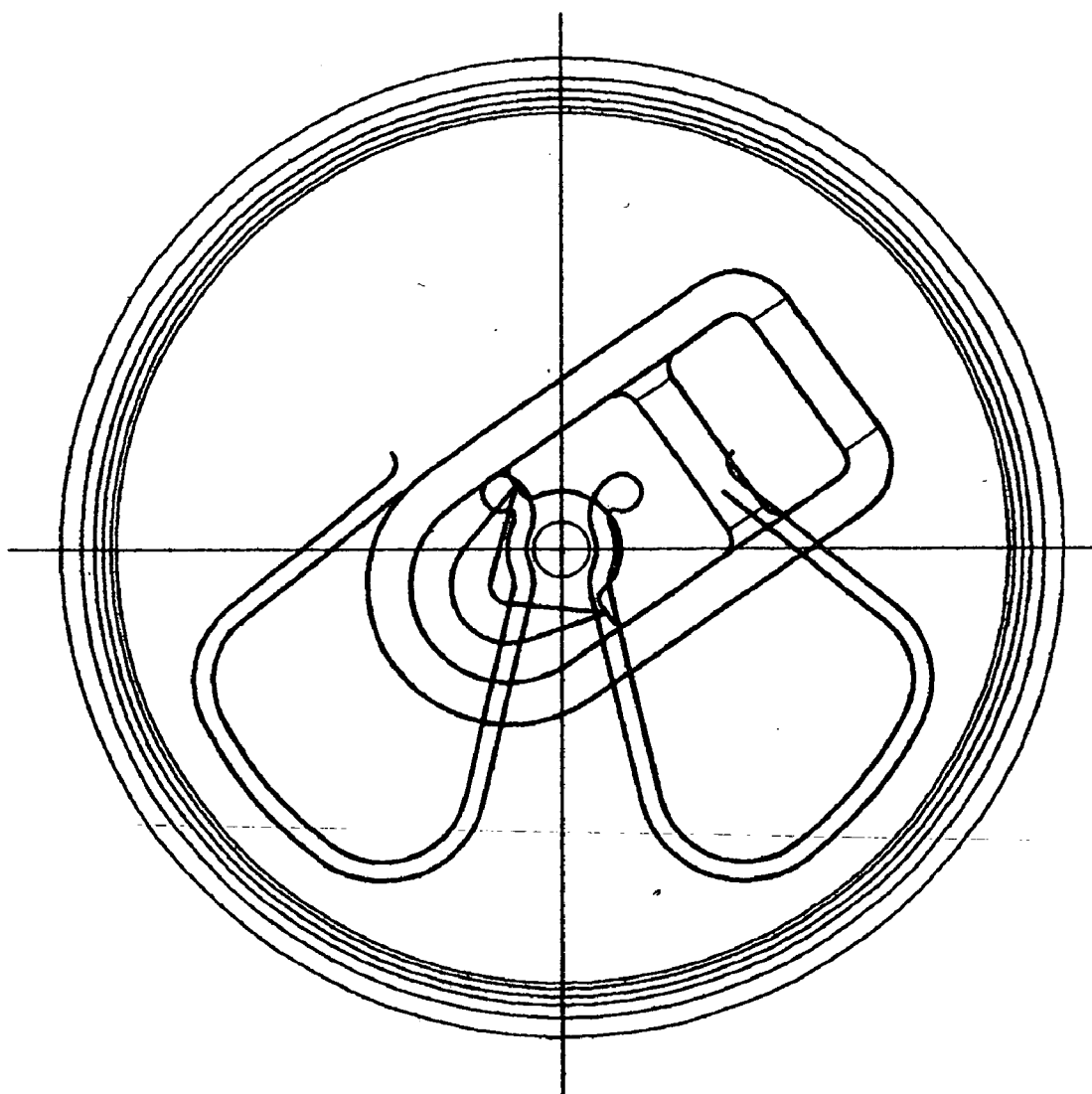


FIG. 74

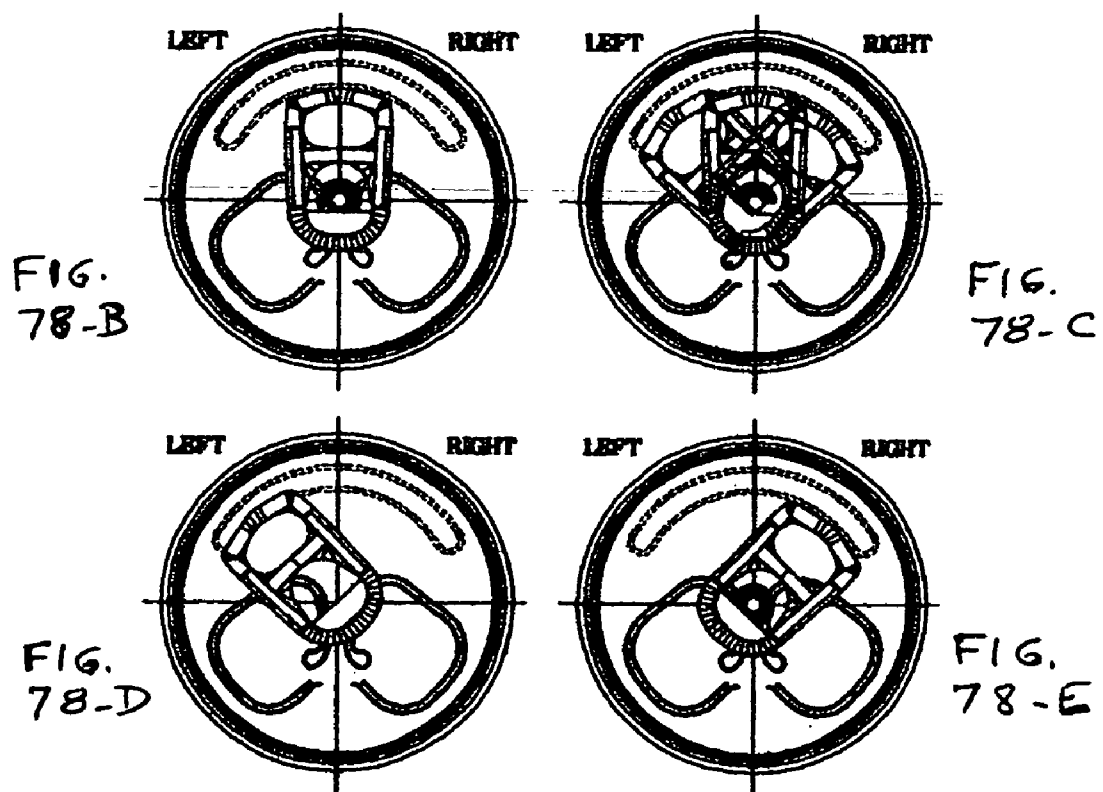
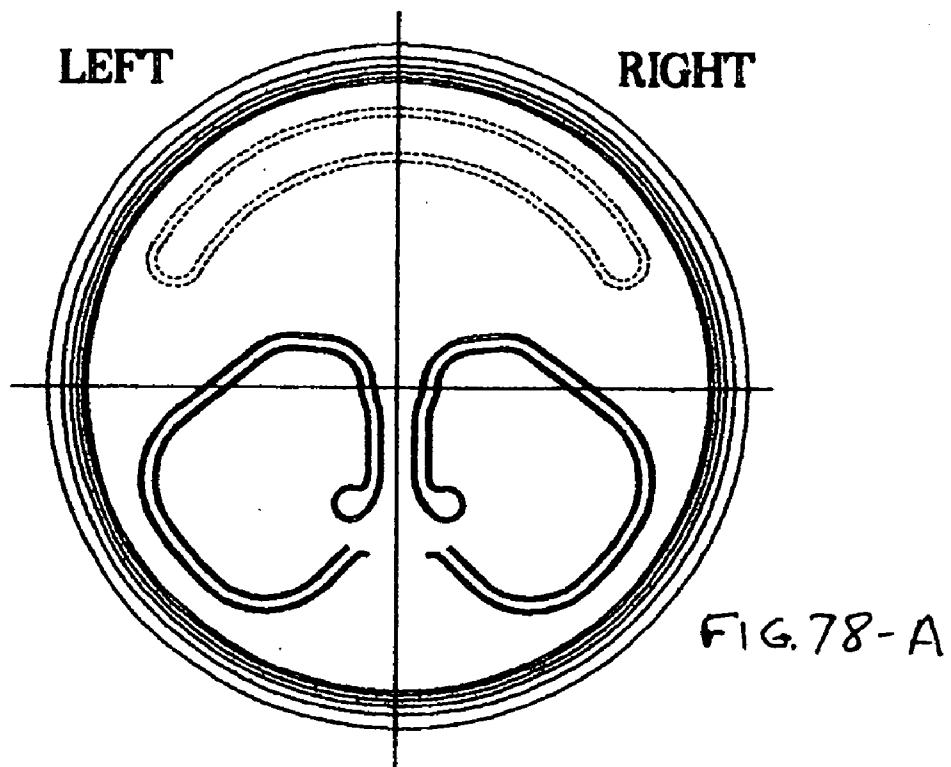


FIG. 78

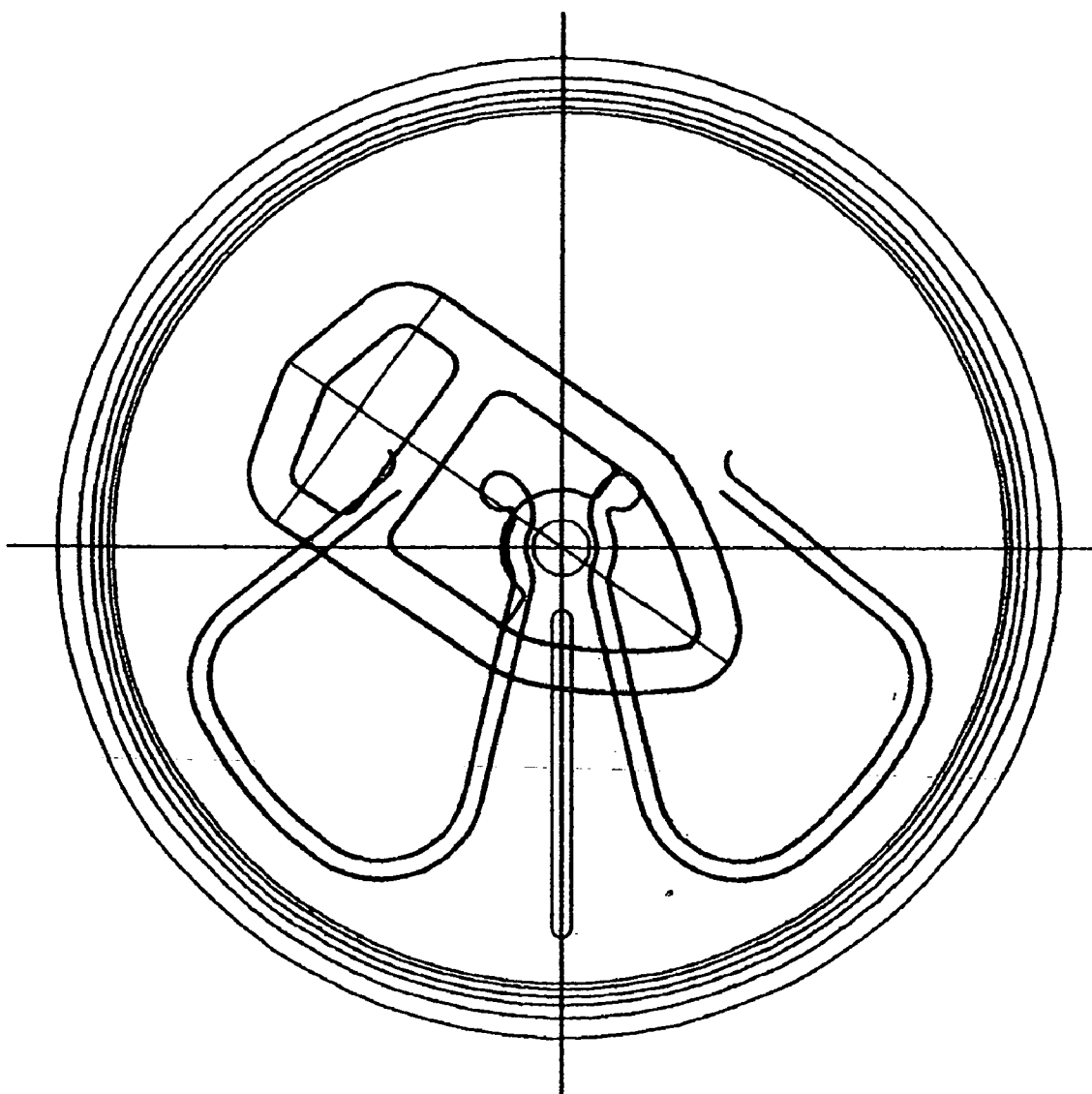


FIG. 79



FIG. 101-A

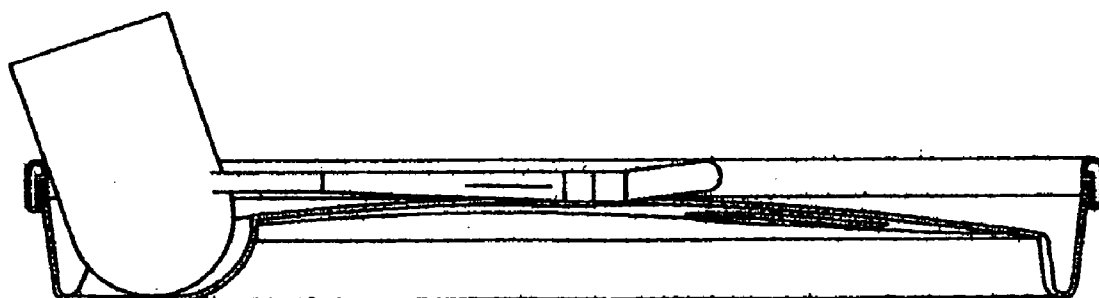


FIG. 101-B

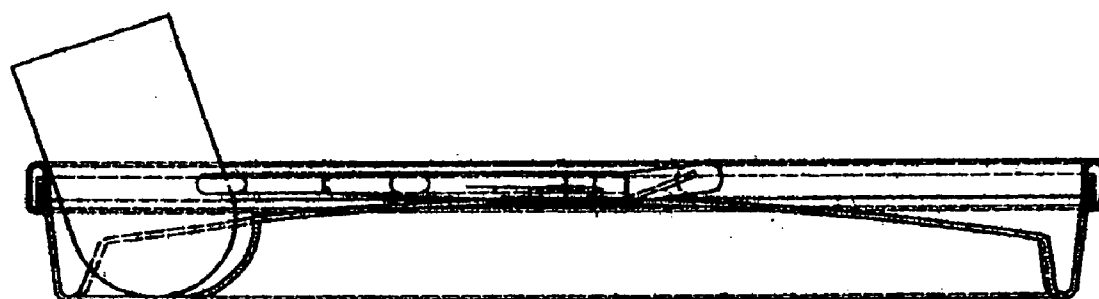


FIG. 101-C

FIG. 101

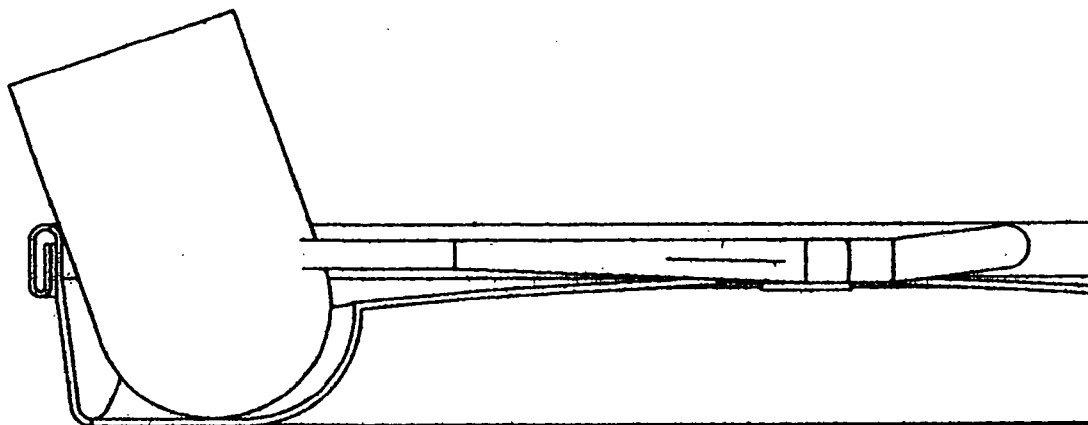


FIG. 102-A

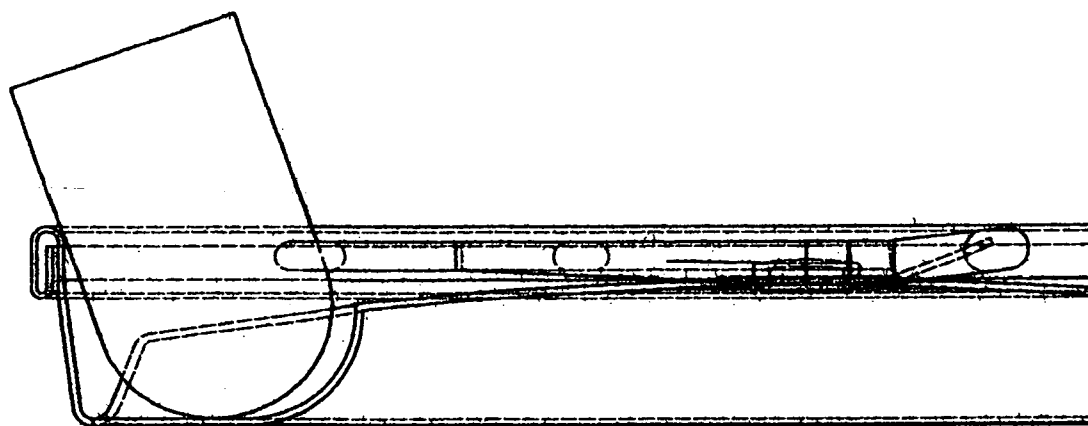


FIG. 102-B

FIG. 102

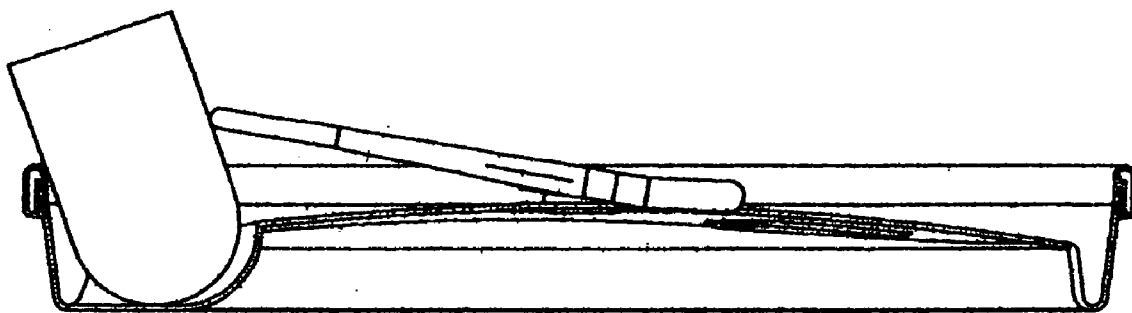


FIG. 103

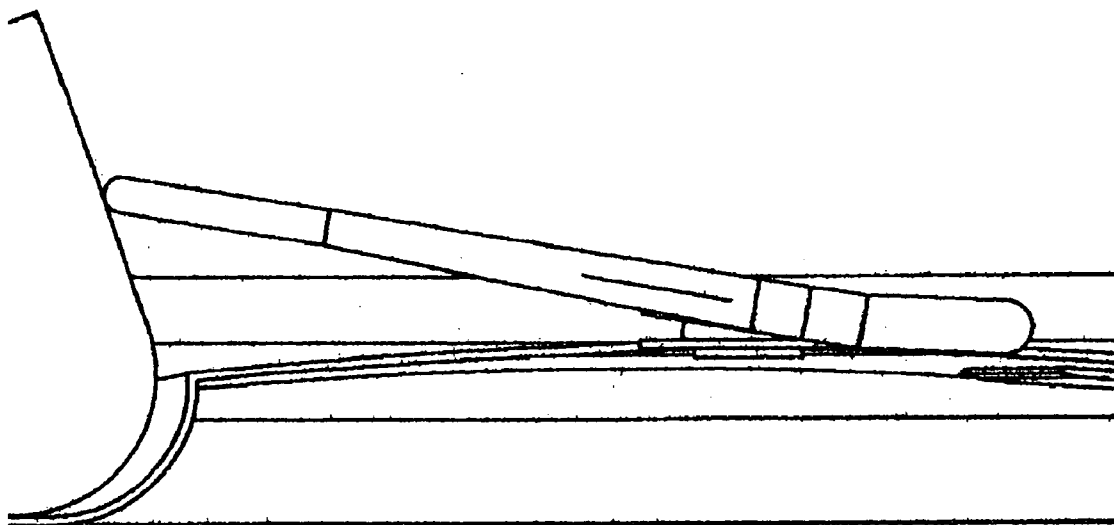


FIG. 104

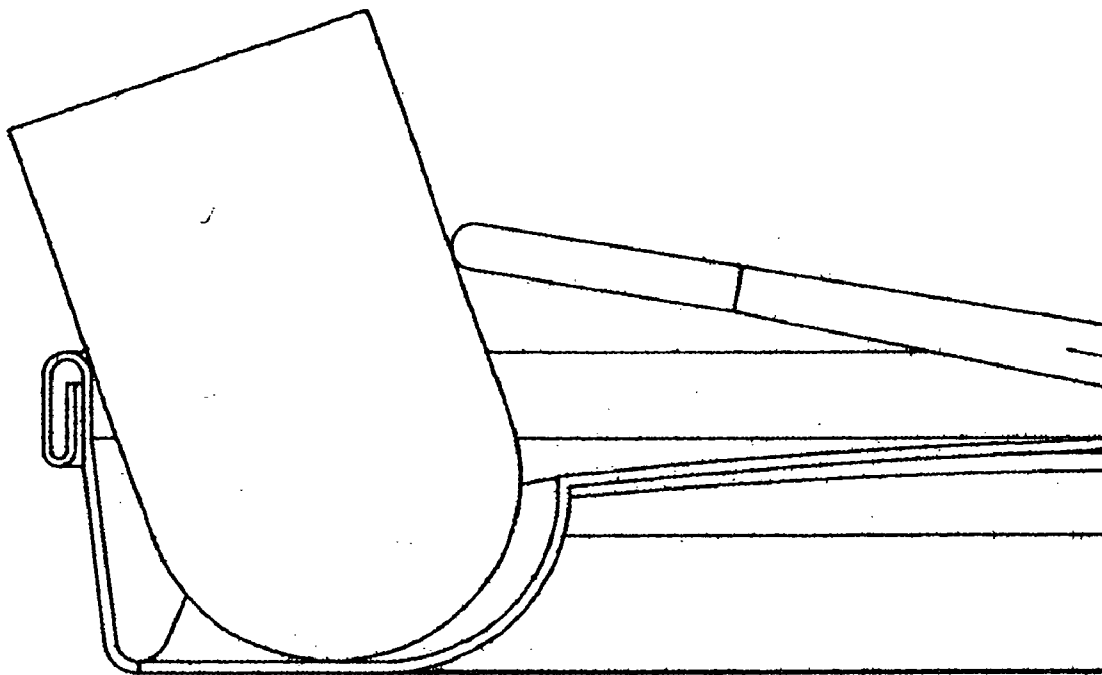


FIG. 105

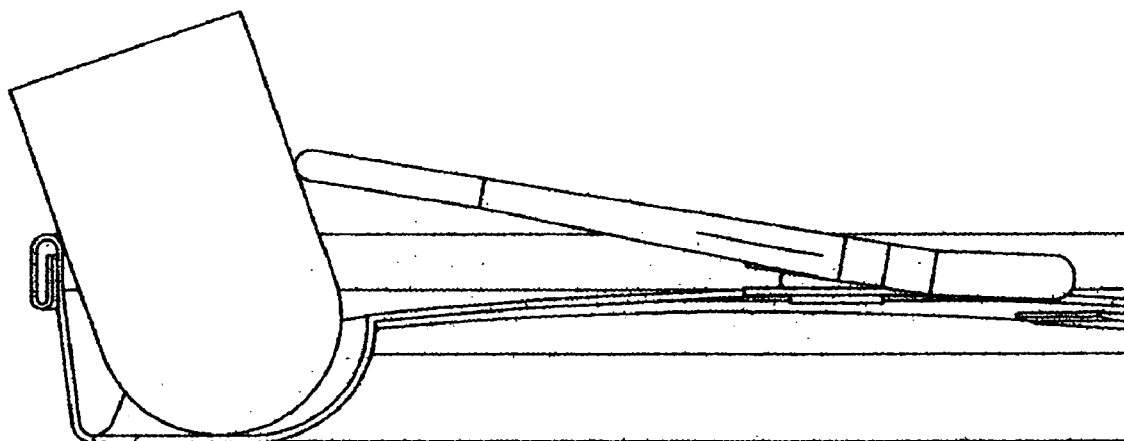


FIG. 106

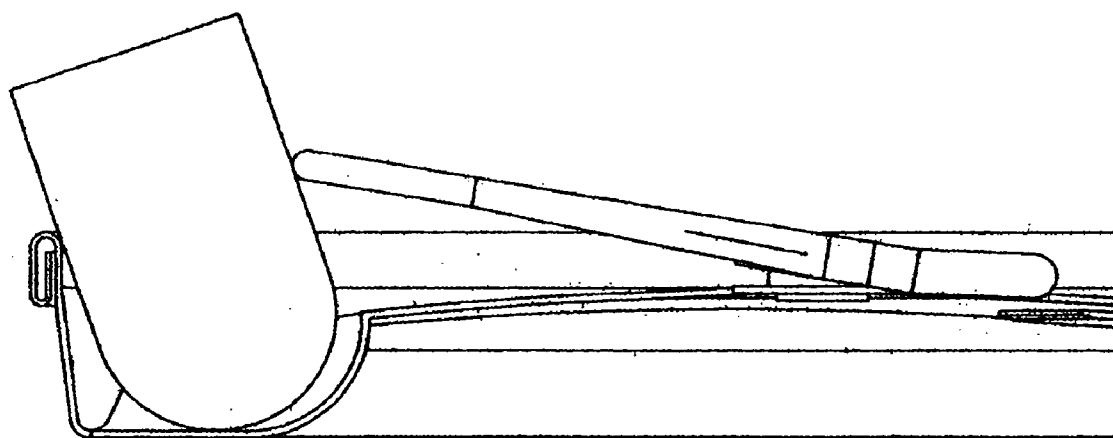


FIG. 107

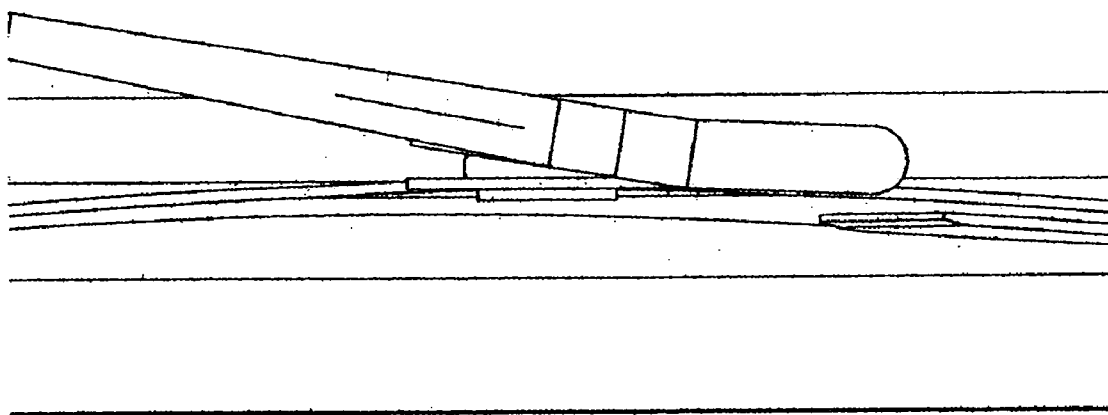


FIG. 108

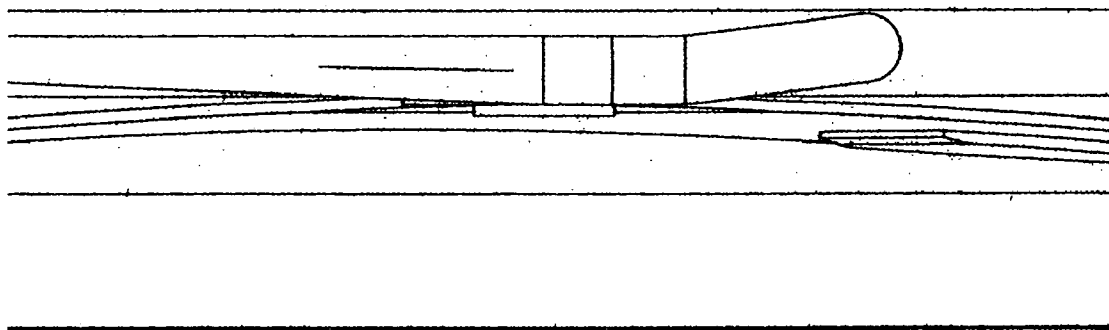


FIG. 109

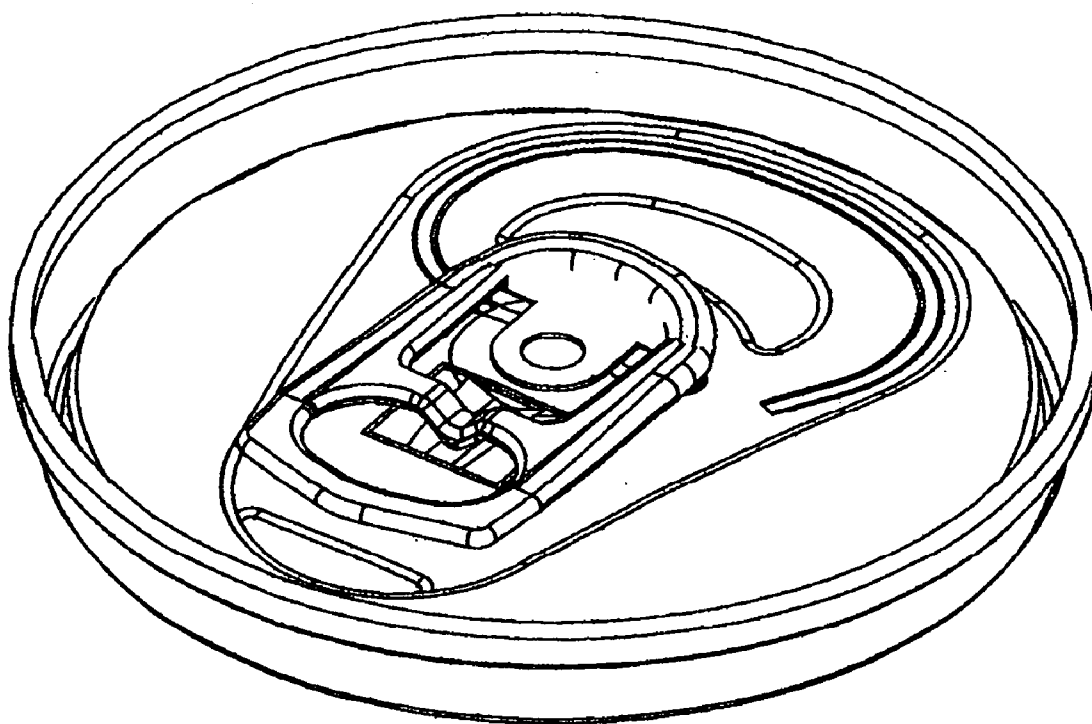


FIG. 110-A

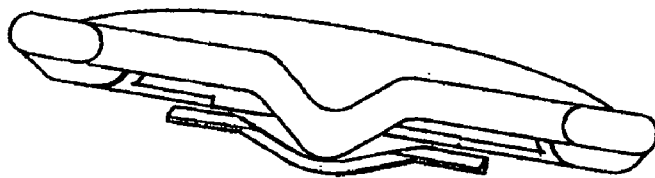


FIG. 110-B

FIG. 110

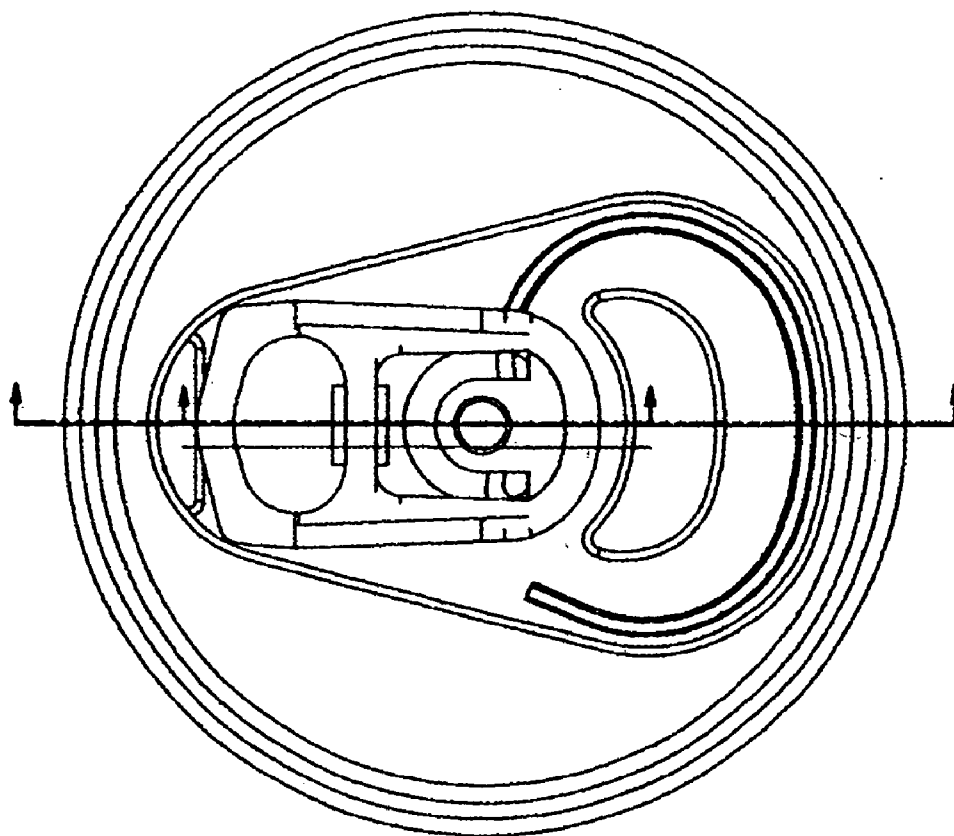


FIG. 111-A

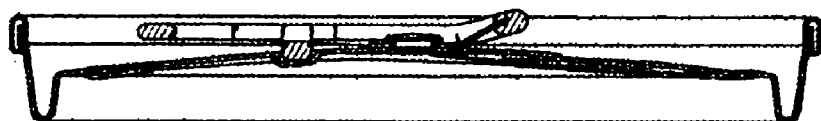


FIG. 111-B

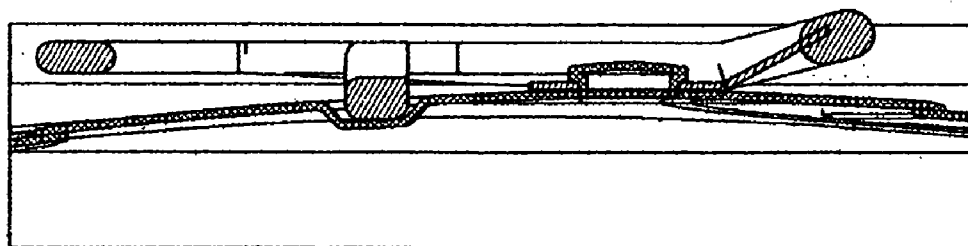


FIG. 111-C

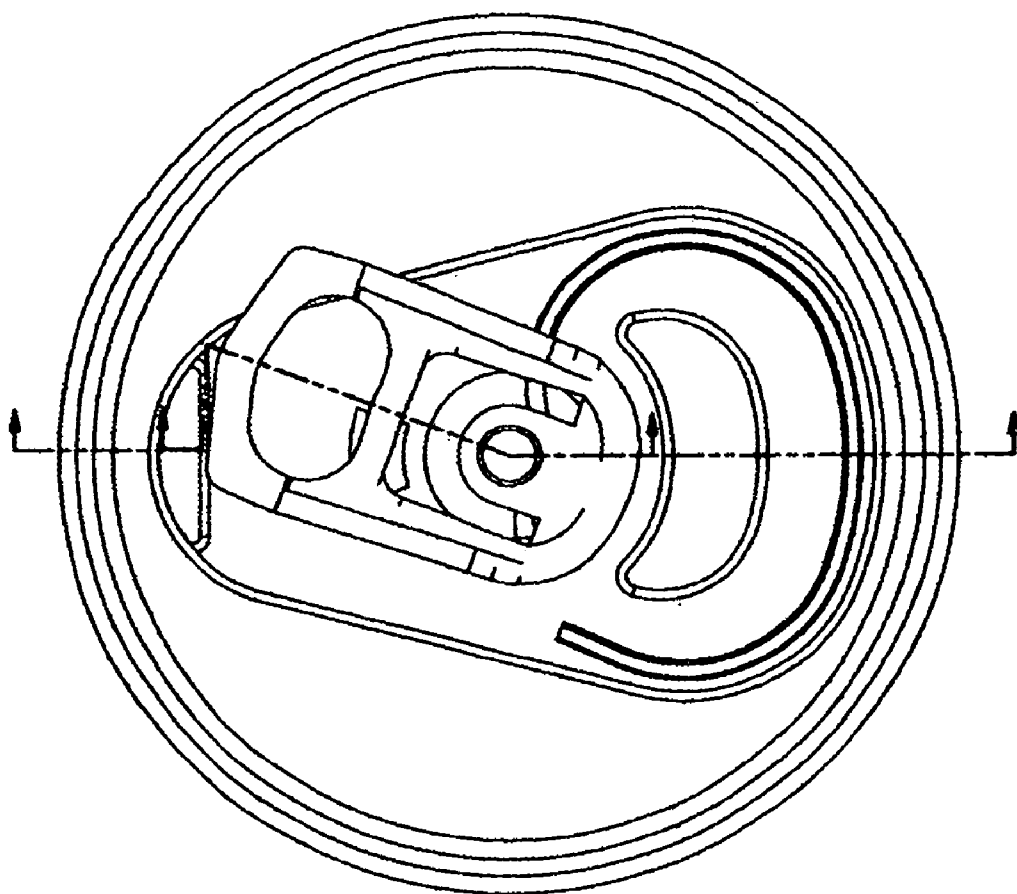


FIG. 111-D

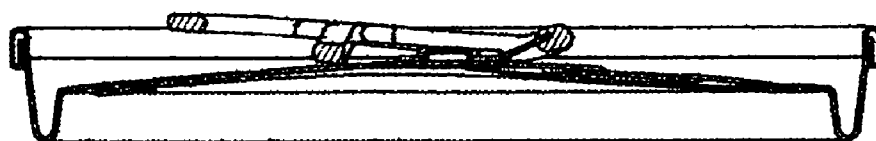


FIG. 111-E

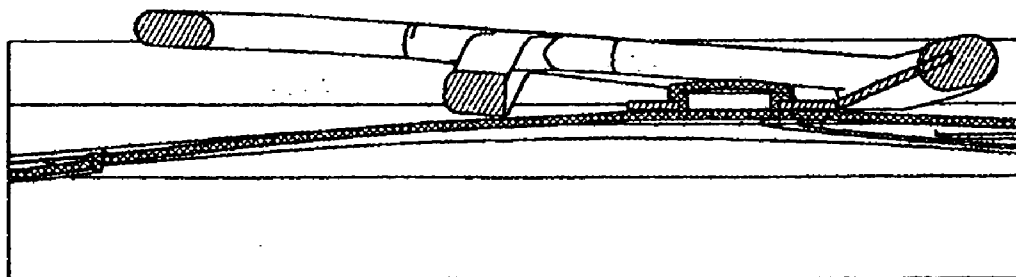


FIG. 111-F

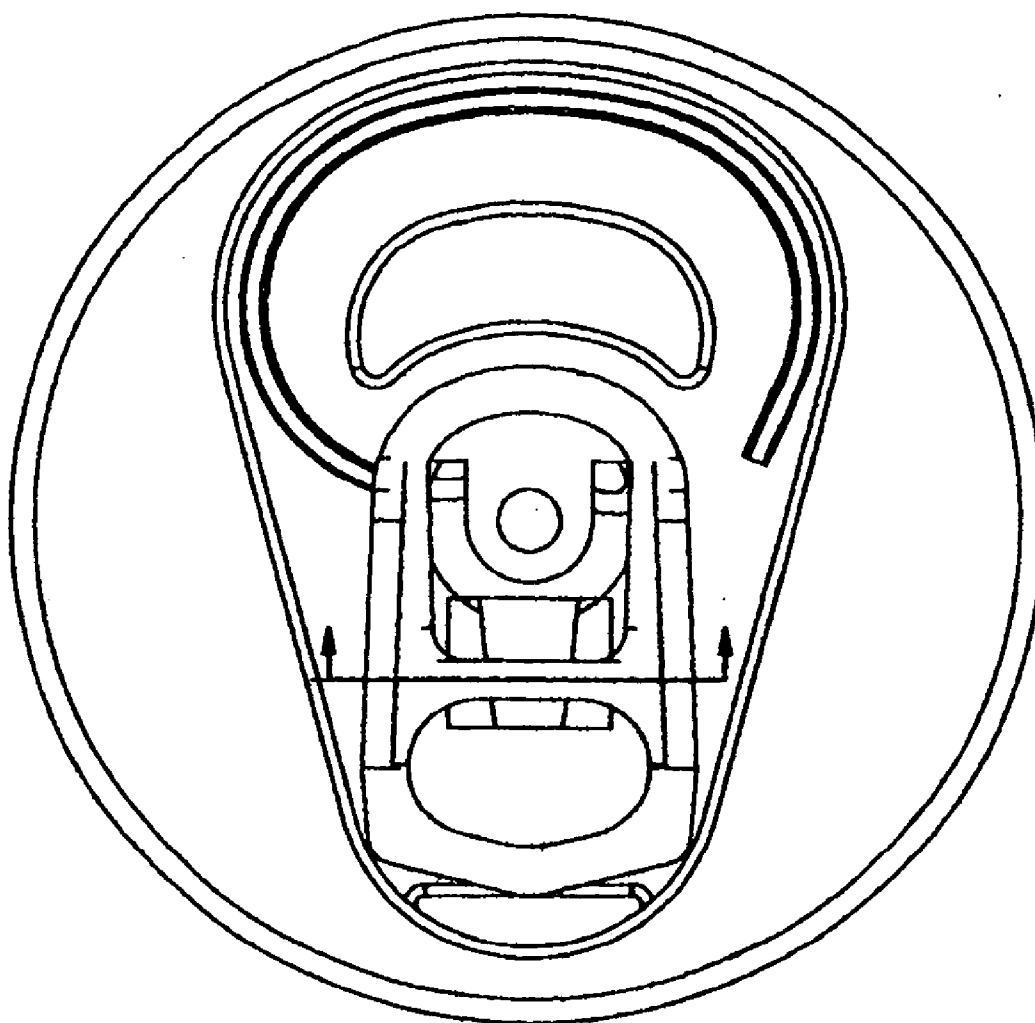


FIG. 112-A

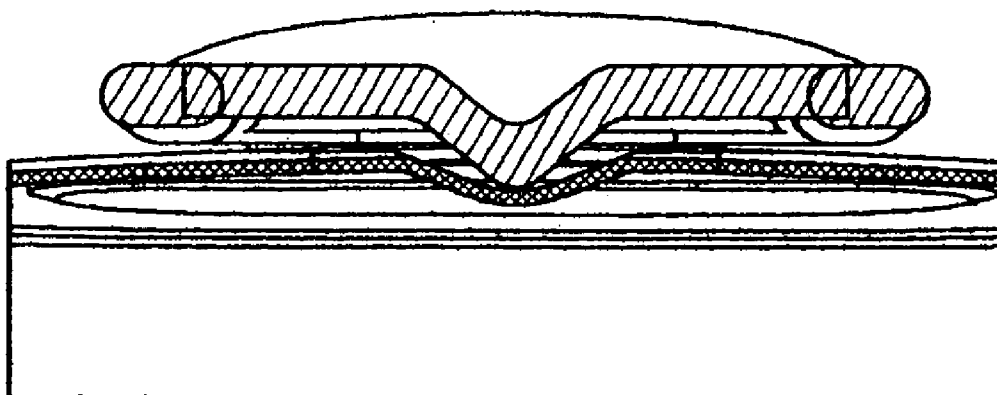


FIG. 112-B

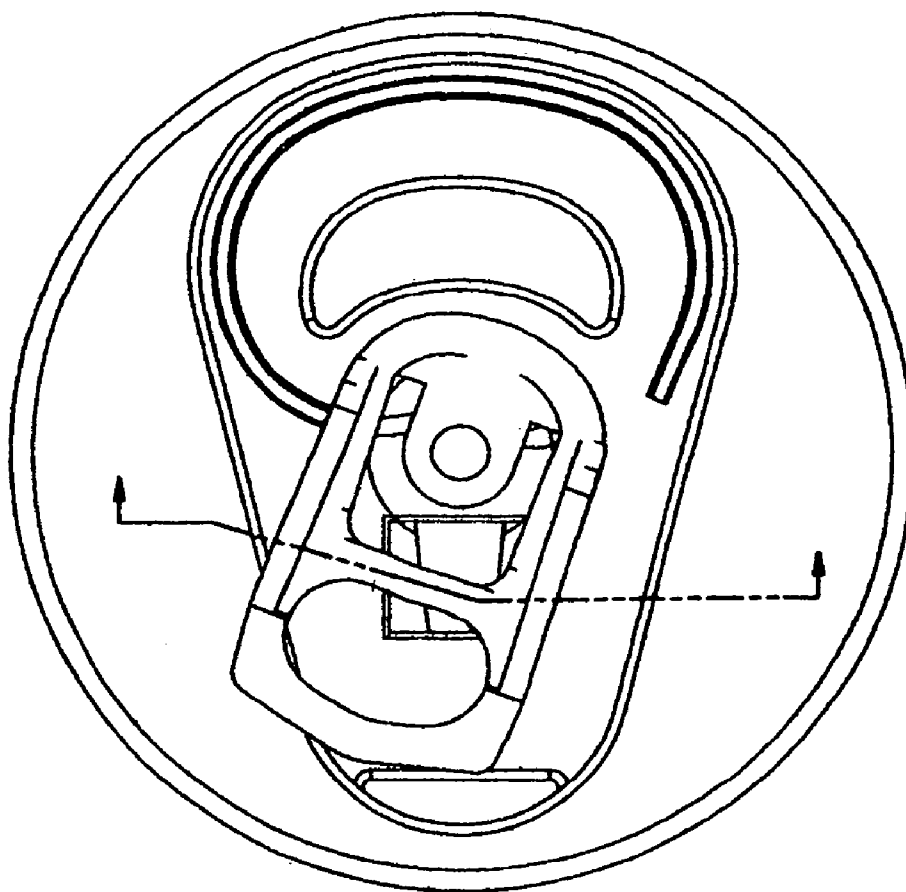


FIG. 112-C

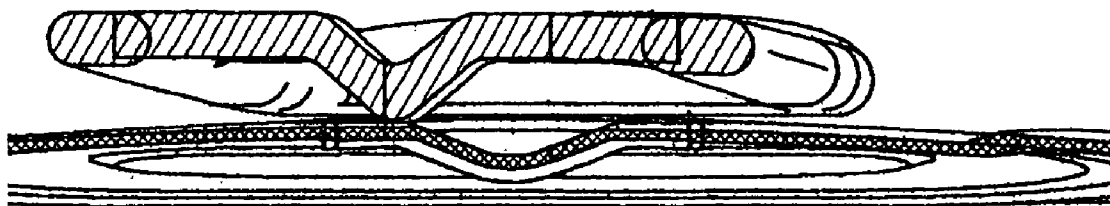


FIG. 112-D

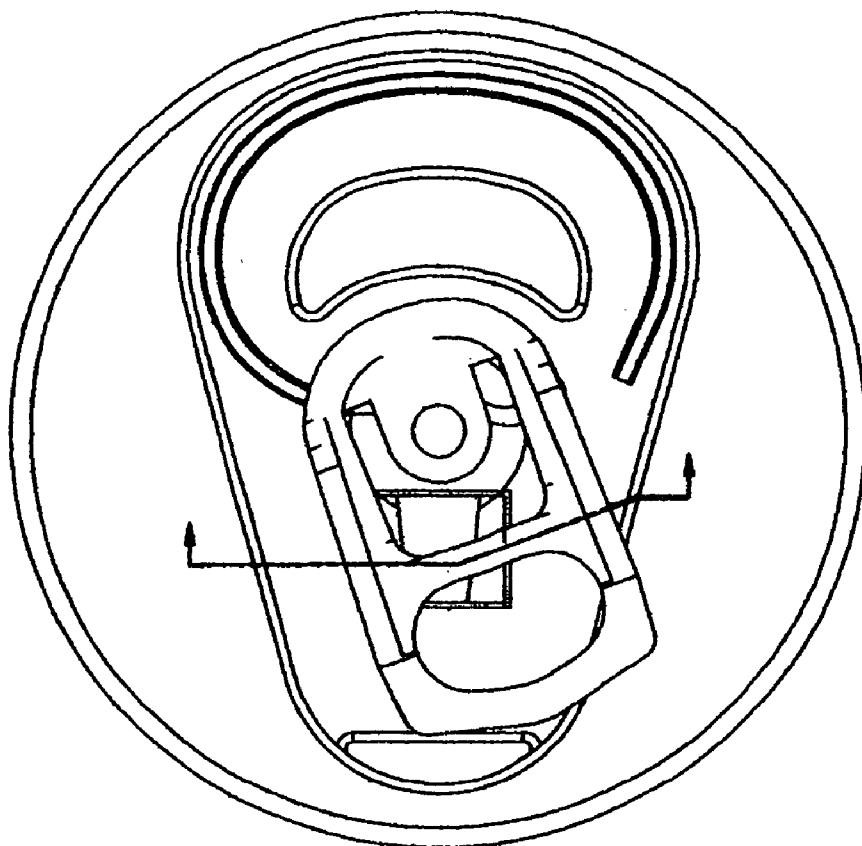


FIG. 112-E

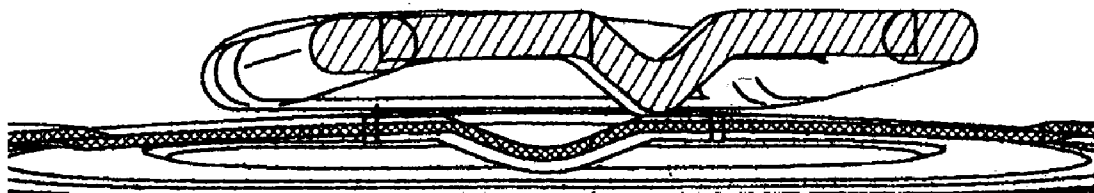


FIG. 112-F

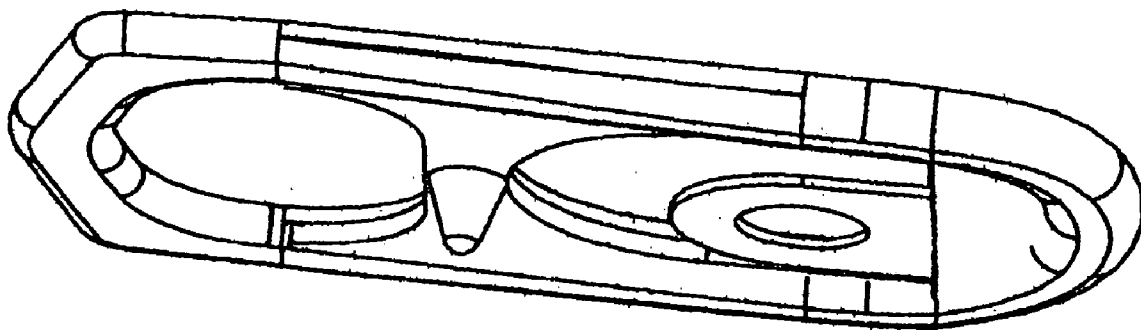


FIG. 113

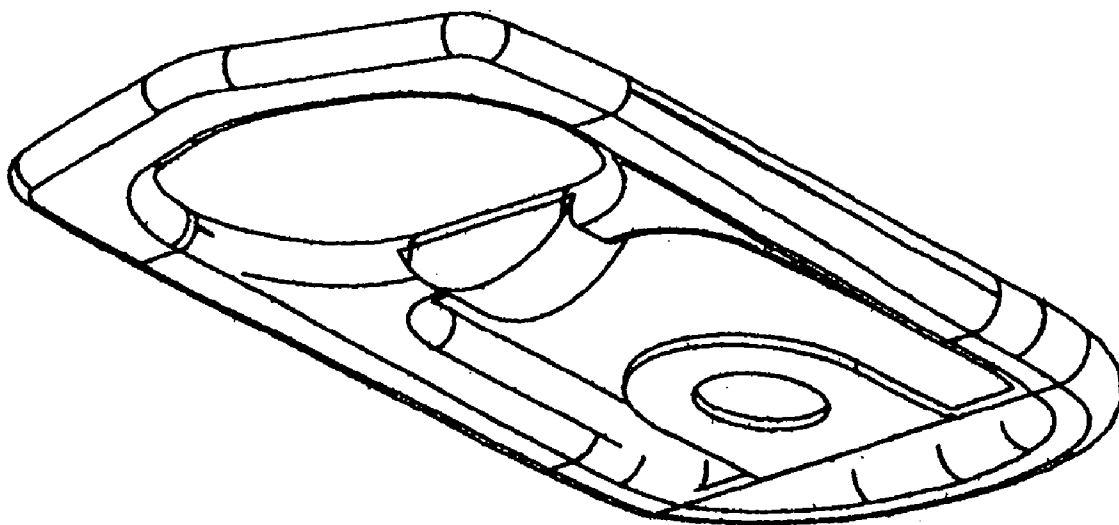


FIG. 114

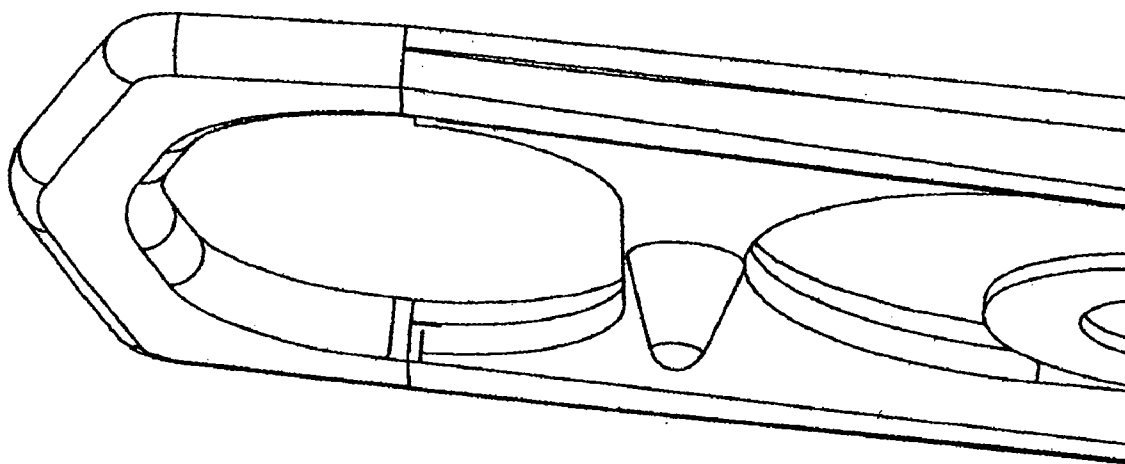


FIG. 115

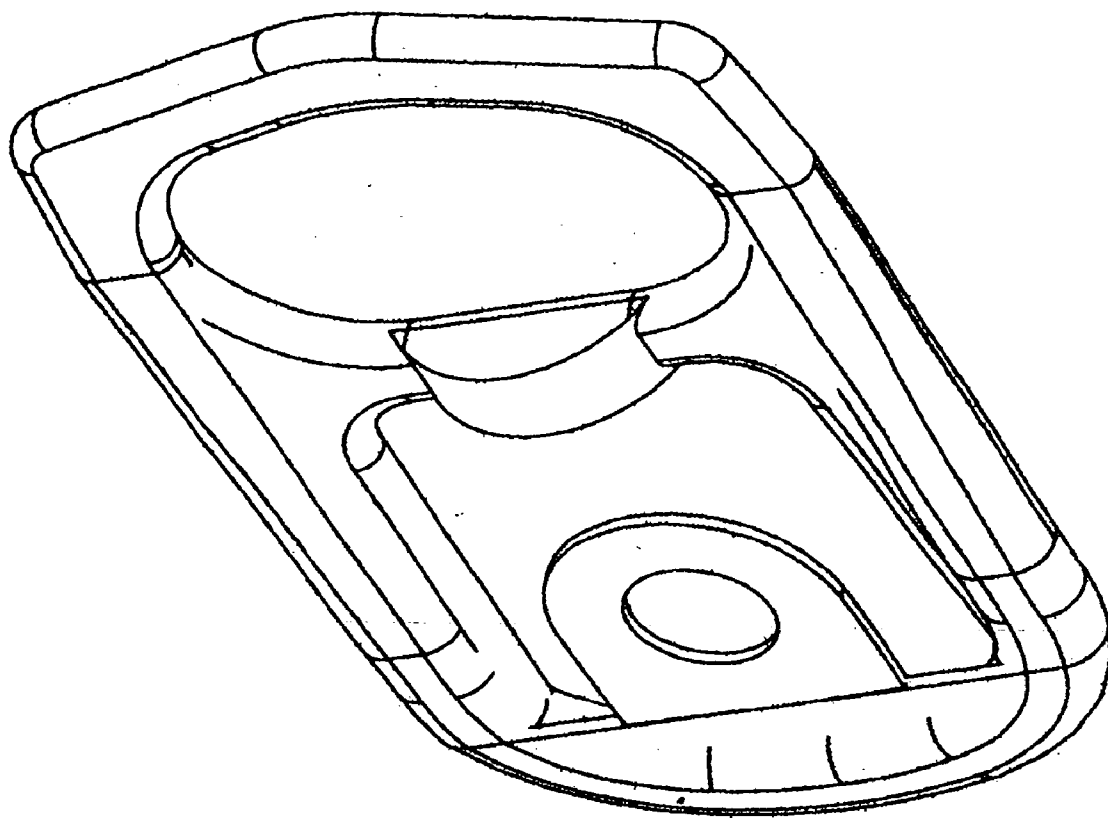


FIG. 116

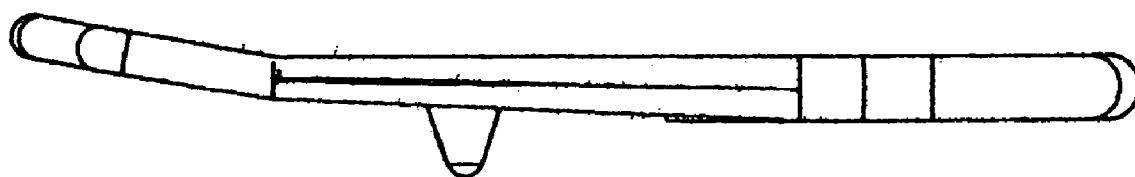


FIG. 117

PULL TAB**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This present application is a non-provisional utility patent application claiming the priority and benefits of the following provisional patent application, all of which is incorporated herein in its entirety by reference:

[0002] Provisional Patent Application Ser. No. 60/503,823, filed Sep. 19, 2003, entitled "Pull Tab", which will be referred to as Ref1.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0003] Not Applicable

REFERENCE TO A MICROFICHE APPENDIX

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention

[0006] The present invention generally relates to means for opening cans and container, which have a pull tab that the user lifts and/or pulls to open the can.

[0007] Specifically, the invention relates to cans used to contain soft drinks, or beer or soups or sardines or drinks and foods in general or the like. The pull tab is usually lifted by the user to break a seal of some sort or shape. The pull tabs presently used on the market are difficult to grab and lift and some users revert to special tools to start the lifting process.

[0008] The present invention relates to means and methods of making the tab lifting process more user friendly, and to do so without special tools.

[0009] 2. Background Information

[0010] Many of the soda cans, beer cans, soup cans, or similar containers or the like, presently on the market, have a pull tab, which is supposed to help the user/consumer to open the can and partake of its contents. Usually the pull tab is relatively flush with the surface of the lid. See the "Tutorial & Definitions" Section for more detailed explanations of some terms used here.

[0011] Since I am not directly working with and using these terms on a daily basis, I have copied many of these terms and phrases from a couple of existing patents that have been issued to companies that are in this line of business. I particularly like the words used in U.S. Pat. No. 6,375,029 to Anthony et al., assigned to Alcoa Inc., Pittsburgh, Pa. (USA) and U.S. Pat. No. 6,405,889 to Neiner, assigned to Metal Container Corporation, St. Louis, Mo. (USA). I have included some of their writings and teachings in the "Tutorial & Definitions" Section, elsewhere in this specification. Additional references used include the following, other than those listed in the "Prior Art" section below.

[0012] 1. U.S. Pat. No. 4,276,993, to Hasegawa, entitled "EASY-OPENING CONTAINER WITH NON-DETACH TAB",

[0013] 2. U.S. Pat. No. 6,375,029 B2, to Anthony et al, entitled "EASY-OPEN MISTING CONTAINER",

[0014] 3. U.S. Pat. No. 6,405,889 B1, to Neiner, entitled "STAY-ON-TAB CONTAINER CLOSURE HAVING TEAR PANEL WITH LOW-RELIEF CONTOUR FEATURES ON THE UPPER SURFACE",

[0015] It is usually hard to get at the pull tab and to lift it from its resting position. If you try to lift it with your fingernails, you may break the fingernail, because you need a large force to lift the tab. If you try to push your fingertip under the tab tip, in order to use the tip of the finger instead the fingernail, there usually is not enough room to get your fingertip under the tab tip, and you would not be able to get a good "grip" on the ring.

[0016] Some users revert to using special tools to lift the tab at least a little bit, so that the user can get his/her fingertip under the tab tip, to be able to grab the tab lifter and lift it and open the seal. Such tools vary across the board. They can be a knife, a fork, a spoon, a screwdriver or the like. There is even now on the market a special tool, designed and being marketed specifically for this purpose, which basically is a short metal piece, which has a thin edge that can fit in the tight space between the top surface of the lid and the bottom surface of the tab tip. The tip of the tool is inserted in that space and is forced in and/or twisted, so as to lift the tab tip enough to insert the user finger there and then to fully lift the tab lifter.

Tutorial & Definitions

[0017] Since I am not directly working with and using these terms on a daily basis, I have copied many of these terms and phrases from existing patents that have been issued to companies that are in this line of business. I particularly like the words used in U.S. Pat. No. 6,375,029 to Anthony et al., assigned to Alcoa Inc., Pittsburgh, Pa. (USA) and U.S. Pat. No. 6,405,889 to Neiner, assigned to Metal Container Corporation, St. Louis, Mo. (USA).

[0018] U.S. Pat. No. 6,405,889, Neiner, Metal Container Corporation defines many of the terminology, when they described their invention, by the following. I will paraphrase and select only the portions of their specification, which would help in understanding these terms and phrases, as well as the technology itself.

[0019] STAY-ON-TAB CONTAINER CLOSURE

[0020] HAVING TEAR PANEL WITH LOW-RELIEF

[0021] CONTOUR FEATURES ON THE UPPER

[0022] SURFACE

TECHNICAL FIELD OF THE INVENTION

[0023] This invention relates generally to closures of the type used for metal beverage containers and, more particularly, to stay-on-tab closures in which an attached tab is lifted to Partially sever and displace a tear panel to create an opening for dispensing the contents of the container. The current invention relates to a stay-on-tab closure having a tear panel with low-relief contour features on the upper surface.

BACKGROUND OF THE INVENTION

[0024] It is well known to use closures, also referred to as "ends" or "lids," for sealing metal beverage containers of the

type used for packaging beer, carbonated soft drinks, juice, tea, water, and other liquids or fluids. These closures are typically formed of an aluminum alloy or steel, although other materials such as metal-plastic laminates or composites can also be used. A common type of closure, often referred to as a "stay-on-tab" closure, incorporates an attached tab which is lifted to partially sever and displace a tear panel defined by a frangible curvilinear score line. The downward displacement of the tear panel creates an opening for dispensing the contents of the container without the use of a separate opening tool. Both the tear panel and the tab remain attached to the closure after opening.

[0025] Conventional stay-on-tab closures typically include a center panel having a generally planar or slightly upwardly domed surface. A tear panel is defined by a curvilinear, but non-closed, frangible score line formed on the center panel which defines the general periphery of the tear panel but leaves a narrow integral hinge connecting the tear panel to the remainder of the center panel. An opening tab is secured to the center panel of the closure by a rivet or other such fastener hingedly connected to the tab. When one tab end is lifted upward, the tab applies forces to the tear panel and center panel to rupture the score line and displace the tear panel down into the associated container to form an opening through which the container contents can be dispensed. The non-closed portion of the score line forms a hinge which retains the tear panel with the closure. Similarly, the tab remains attached to the closure by its hinged connection to the rivet.

[0026] To facilitate the easy bending of the tear panel into the container during opening, conventional stay-on-tab closures connect the tear panel to the center panel using a narrow hinge, i.e., a hinge having a width less than about 25% of the maximum width of the tear panel. Unconventional container closures having displaceable panels and permanently affixed tabs are also known, such as described in U.S. Pat. No. 5,405,039 to Komura, and such closures may be referred to by some as "stay-on-tab" closures. The displaceable panels in such unconventional closures, however, are connected to the center panel by a hinge having a width significantly greater than 25% of the maximum width of the displaceable panel. For example, one closure in the previously mentioned Komura '039 patent provides a displaceable panel comprising approximately one-half of the top of the lid and a hinge having a width of approximately 100% of the maximum width of the displaceable panel. Because the forces relating . . .

ADDITIONAL DEFINITIONS AND ABBREVIATIONS

- [0027] LR=Low Resistance
- [0028] HR=High Resistance
- [0029] IR=Immediate Resistance
- [0030] DR=Delayed Resistance
- [0031] SL=Starting Lift
- [0032] POP Pop
- [0033] CS=Crack Seal
- [0034] HT=Half Tear
- [0035] CT=Complete Tear
- [0036] FB=Folding/Bending

[0037] Please see also all the drawings that were part of the Provisional Patent Application, Ref1, for similar terms and definitions. In addition, I am attaching also **FIG. 80**[7-1], with some additional definitions related to the pull tab itself.

PRIOR ART

[0038] A patent search has revealed the following patents in the prior art, but I believe that none of them can be considered a major objection to the present invention, except for Lundgren's in one specific area of my present invention. I will elaborate on that in due course.

[0039] 1. U.S. Pat. No. 5,248,053, to Lundgren, entitled "OPERATING LEVER FOR BEVERAGE CONTAINER LEVER OPERATED OPENER",

[0040] 2. U.S. Pat. No. 6,026,971, to Lundgren, entitled "LEVER OPERATED OPENER FOR CONTAINER",

[0041] 3. U.S. Pat. No. 6,575,325 B2, to Dickie et al., entitled "ARTICULATED PULL TAB OPENER FOR CONTAINER",

[0042] 4. U.S. Pat. No. 6,253,946 B1, to Makinen, entitled "CLOSURE FOR A CAN OF DRINK WHICH CAN BE OPENED WITH ONE HAND",

[0043] 5. U.S. Pat. No. 6,588,617 B1, to Majcen et al., entitled "ROTATIVE CLOSURE FOR BEVERAGE CONTAINERS",

[0044] 6. U.S. Pat. No. 6,347,720, to Schley, entitled "BEVERAGE CAN RESEALABLE LID HAVING ROTATABLE COVER MEMBER AND BIASING PULL TAB",

[0045] 7. U.S. Pat. No. 6,443,323 B1, to DeRose, entitled "PROTECTIVE SEAL FOR CANS",

[0046] 8. U.S. Pat. No. 6,202,881 B1, to Chiang, entitled "BEVERAGE CONTAINER WITH EASY CLEANING UPPER PANEL", and

[0047] 9. U.S. Pat. No. 6,126,029, to Storgaard, entitled "CAN WITH A COVER PROVIDED WITH A PULL RING".

[0048] I will abide by the decision of the Patent Examiner, as to whether my inventions here are outside the scope of the prior art listed here, and whether my claims are allowable over them.

BRIEF SUMMARY OF THE INVENTION

[0049] Objective:

[0050] The Object of this Invention is to create and to provide means and methods to facilitate the opening of cans and containers that have opening pull tabs, by hand, without the need for external tools. The route to do so, is basically by providing ways to increase the space or gap between the tab tip and the lid, so as to allow the user to more easily and readily insert a finger or at least a finger tip, in that space or gap, so as to have a better grip, or at least a better hold or pull on the pull tab lifter and hence be able to lift the tab lifter and to open the can, or rather the can seal.

[0051] Another object is to manufacture the pull tab and/or the lid in a new shape, so as to provide such a desirable space (gap) between the pull tab tip and the lid.

[0052] Yet another object is to make the pull tab, such that it can be lifted more easily.

[0053] A further object is to make the lid with certain protrusions or depressions, and assemble the pull tab to such a lid, so that the user would rotate the tab and thus move its tab tip higher so as to provide the desirable space/gap between the tab tip and the lid.

[0054] An additional object is to ensure that any of the above features would still allow the cans to be stacked up, one on top of the other, and still have enough room or space to accommodate the stacking.

[0055] A yet another further object is to combine two or more of the above features and improvements, and to get a multiplication of the ensuing benefits.

[0056] A yet another object is to be able to use some or all the above features with other containers.

BRIEF DESCRIPTION OF THE INVENTION

[0057] The problem:

[0058] The problem with the present/conventional pull tabs is that it is difficult for a consumer/user to get his/her finger, or at least finger tip, under the edge of the tab tip of the pull tab lifter.

[0059] PS:

[0060] I will use the words “consumer” or “user” or “you” as synonymous term, to indicate any person trying to open a can with a pull tab and to access its contents.

[0061] I will also use from here on the masculine gender in the text, but it should imply either the masculine or the feminine sex, without any intention of discrimination. It is just to simplify the writing of the specification.

[0062] The figures in drawing PPA group 0, Dwgs #FIG. 1[0-1] through FIG. 5[0-5] show examples of one of the present conventional cans on the market.

[0063] The figures in drawing PPA group 0, Dwgs #FIG. 6[0-6] through FIG. 10[0-10] show how normal people would try to open the present conventional cans. And the kind of difficulties they may have. They may break their fingernails or hurt their fingertips.

[0064] You need to lift the tip of the tab ring, high enough, to at least get the tip of the finger under the tab tip of the lifter, so that you have some “good grip” on it to lift up the tab lifter.

[0065] The pull tab is riveted to the lid in such a strong way and in a way that the pull tab is flat and pretty close to the top surface of the lid, leaving hardly any space/room to get your finger under it, or at least under the tab tip of the lifter. Many cans have a small shallow recess in the top surface of the lid near the tab tip of the lifter, but usually that recess is so small and so shallow that it is almost worthless.

[0066] So the main object of this present invention is to provide such a space, i.e. to provide some space between the top surface of the lid and the bottom surface of the tab tip of the lifter, such a space will be referred to herein after as the finger tip gap, so that a consumer, at least a consumer with normal fingers sizes, would be able to push/insert his/her finger tip in this finger tip gap and get a reasonable good

grip/grab, so as to be able to pull the lifter up, high enough to be able to pull the lifter further and finally open the can, or rather the can seal.

[0067] The present invention proposes several methods and means to accomplish this goal and to attain these objectives.

[0068] There are at least the following approaches or groups of solutions, which I will describe here by some keywords, and will describe in more details later:

[0069] 1. Provide Deeper Finger Recesses.

[0070] 2. Provide elevated tab tip of the lifter.

[0071] 3. Reduce the resistance against starting the pull, using the “Push-Pull” method.

[0072] 4. Reduce the resistance against starting the pull, by using the “Rotate-Pull” method.

[0073] 5. Use a combination of any of the above.

[0074] Group 1: Deeper Finger Recesses.

[0075] The figures in drawing PPA group 1, Dwgs #FIG. 11[1-1] through FIG. 15[1-5] show some proposed method to facilitate this operation.

[0076] Also, the attached FIG. 81[14-1] and FIG. 82[14-2] show additional proposed finger recesses.

[0077] Basically, the idea is to make the finger recess deeper and possibly wider. We can even bring the recess closer to the edge, but leaving enough room for the tools, which seal the lid to the container’s body to create the seals. This can be the “rolling” or sealing operation or the like.

[0078] Group 2: Elevated Tip of the Pull Tab Ring

[0079] The figures in drawing PPA group 20, Dwgs #FIG. 16[2-1] through FIG. 21[2-6] show the general shape of the proposed shapes of the pull tab. Either the tip of the pull tab lifter would be bent up or “arched” up, or the whole length of the pull tab would be bent up, so that there would be enough room/space, or what I referred to as finger tip gap, for the user to insert a bigger portion of his finger or rather finger tip under the pull tab tip and to get a better grip on it, to be able to lift it up and then pull on it. There should be plenty of room at the bottom of the can to allow for this modification of the shape of the pull tab, if and when the cans were to be stacked up one on top of the other, because the bottom of the cans is domed deep enough, creating a cavity/space that provides plenty of room for such an arrangement. With this in mind, we should limit the amount of bending up of the tab tip or of forming the pull tab in general, so that the whole thing would still fit in the available space. Another thing to keep in mind, is that you do not want to create a “catch” condition, where parts of the tab would protrude too far above the rim of the can. This may create a condition, where the tab would accidentally get pulled or pushed during handling and would open the can inadvertently. You can make the can with a higher lip at the edge of the lid, or make the lid deeper to accommodate that, if necessary.

[0080] Group 3 & 4: Reduced Resistance to Starting the Pull

[0081] The figures in drawing PPA group 3, Dwgs #FIG. 23[3-1] through FIG. 31[3-9] show the general idea of the

proposed shapes of the pull tab under this embodiment. In addition, **FIG. 83[18-1]** shows a chart, and **FIG. 84[18-2]** through **FIG. 88[18-6]** give more details of the proposed methods.

[0082] The basic reasoning for these embodiments is the following.

[0083] When a person tries to lift the tip of the pull tab lifter, he is working usually against a number of resisting forces, which act either sequentially and/or simultaneously.

[0084] The goal of the proposed embodiments is to delay the onset of the high resisting forces against the pull tab, until the user gets a good hold on the tab tip. I will explain below, first, the existing “unfavorable” conditions that exist presently in conventional prior art embodiments, and then, second, the improvements set of conditions proposed by the present invention.

First, The Existing Prior Art “Unfavorable” Conditions

[0085] The forces involved while lifting the pull tab and breaking the seal can be described and analyzed as follows. I will use the chart in **FIG. 83[18-1]** to illustrate these forces and to highlight the “timing” of when each force comes into play. Please note that this **FIG. 83[18-1]** replaces the Drawing PT-D-22 **FIG. 22[3-0]**, of the Provisional Patent Application Ref1. The present **FIG. 83[18-1]** shows more details and, to the best of my knowledge, is more accurate.

[0086] When we want to open a can having a pull tab, we pull the tab tip of the lifter upwards. This upward movement of the lifter creates a downward movement of the pull tab nose, which applies a downward force against the seal, and eventually breaks the seal open. The pull tab and the seal, and to a certain extent the lid itself, create some resistance against this action, which resistance materialized itself in a force at the lifter tab tip, which the user observes and will have to overcome, if he wants to open the can seal.

[0087] F1—Low Tab Flexing Resistance

[0088] If the tab was not acting against the lid seal and is simply held in place by the rivet and we wanted to lift the tab tip up, then we would have to “bend” the central portion or “plate”, which is the part of the pull tab containing the “donut”. The force required to bend the plate and the donut will be referred to hereinafter as F1. The pull tab is usually constructed to have a certain amount of rigidity/flexibility, and has been referred to in prior art patents as having “a controlled flex central portion, which I have the tab nose and the tab lifter. So, this F1 is the force provided by this controlled flex donut, against any attempt to lift the tab tip, assuming that there are no other resisting forces. So, I will refer to this force as the “tab flexing resistance” force, F1. F1 is usually pretty small compared to the other forces that I will describe next. In addition, it can be “controlled” to be larger or smaller, depending on the needs.

[0089] PS: We can actually get a good feel of the magnitude of the F1, as follows. After we open a can, and bent the seal inwards inside the can, the pull tab will be acting on its own from that moment on. If at this time, we go ahead and push or pull on the tab, we will be working against this “tab flexing resistance”. We will be able to see, to feel and to realize how small this resistance is, compared to the force required to open the can in the first place.

[0090] So, the donut enables the lifter to be lifted and moved upwards, presenting only a small amount of resistance, referred to hereinafter as the tab flexing resistance. This condition remains so, until the nose touches the seal.

[0091] F2—Seal Breaking Resistance

[0092] Upon further raising the lifter at the tab tip or by any other way, the nose would move further downward and would apply forces on the seal with the purpose of breaking the seal, all this happening in a sequence of events, as mentioned above. At first, the nose touches the seal and transmits the upward movement and force applied at the lifter inversely to the seal. Upon increasing the force, the seal will start to break, at which time a pop may be heard. And upon further application of the movement and force, the seal will crack open to a larger extent, and gradually upon still further application of the movement and force, the seal will open fully.

[0093] The forces required to crack and break the seal itself can be calculated and predicted. Basically, it is a “shear” force, which is equal to the shear strength of the material multiplied by the surface area of the area to be sheared. If this happens gradually, then the area to be sheared is only the area that will be cracking at any particular instant. If the action is fast and/or sudden, then the affected or impacted area can be considerably larger. In any event, this force is usually much larger than the F1 force, the force required to simply flex the tab or the tab donut area.

[0094] In addition, if the container is pressurized, that is has some pressure inside it, say from having a carbonized liquid inside it, then this pressure will add to the resisting forces opposing the action of the pull tab.

[0095] So, again but in different words, if the tab body were attached to the donut by a frictionless hinge/connection, i.e. F1 would be equal to zero, and then we would try to lift the tip of the pull tab lifter to open the seal, then the only force resisting this lifting action would be the force required to crack and break the seal, which would be, a) the force required to shear the material of the lid along the “score” line, plus b) the force against the pressure inside the can; if the can is pressurized for example by some carbonated drink. We will refer to this force hereinafter as F2.

[0096] Actually, F2 can then be divided into two forces, which are the force required to just crack and break the seal along the score line and the force to work against the internal pressure from inside the can.

[0097] F3—Seal Bending or Folding Resistance

[0098] After the seal is cracked and broken, we would still need to push the seal inwards to get it away from the opening. In other cases, like if we are opening a sardine can for example, the seal is usually pulled out. Here the resisting force is the force required to bend and fold the seal about the connecting neck or lip. We will refer to this force hereinafter as F3.

[0099] If we evaluate these various forces, we would most probably determine that F1 is the smallest of the three and that F2 is the largest one. These are the two important forces that we want to address at this moment, especially since F3 does not come into play until we go through F1 and F2 first.

[0100] We can generally find that the graph/chart shown in **FIG. 83[18-1]** gives a good rough approximate relation

between the magnitude of the forces and the position of the pull tab. We could refer to the figures in the chart as “Force-Deflection” curves. The “deflection” will be measured by the lift of the pull tab tip, and/or the angular rotation of the tab body, measured above the surface of the lid.

[0101] Also, please keep in mind that the chart is exactly not to scale. First of all, different containers made of different material and different designed would have different forces or force levels. And depending on the design, sizes, dimensions, etc, the amount of lift required to reach certain events would be different as well. The chart simply gives a “comparable” picture, showing the approximate relation of the forces coming into play during these events. The vertical scale could be showing the “relative percentages” of the forces involved.

[0102] In addition, the chart shows three sets of curves. The middle solid dark curve is the most probable, and the dotted curves above and below it, show the possible variations in the level of the forces.

[0103] Also, please keep in mind that this chart represents the present existing or conventional method of opening the cans.

[0104] PS: All the curves are illustrative approximations, and are not to scale, but they simply show the “relative” magnitudes of the various acting forces.

[0105] Please refer also to FIG. 84[18-2] through 88[18-6].

[0106] At the start of the tab movement, i.e. at tab rotation of 0 degrees or at zero lift of the tab tip, the force is zero. This is represented by the point S. When we start to pull upwards on the tab tip, we encounter a force that follows the curve from point S to point P. This is a combination of the forces F1 and F2—a mentioned above. At point P, the seal is just cracked and the pressure is released. We may also hear a “POP”, and that is why I called this point P.

[0107] This is represented in FIG. 84[18-2], where the pull tab has been lifted approximately 20 degrees from the surface of the can lid, or from the horizontal, assuming that we start with the can sitting on a horizontal table and the can lid is horizontal. FIG. 84[18-2] also shows the approximate location of where the seal begins its cracking and creates this “pop”

[0108] At this moment, we would notice a sudden dip in the force required for keeping the tab at this position. If we go slowly in lifting the tab tip, the point will be pretty noticeable. I called this low level of force the point P2.

[0109] Then we notice that, if we keep pulling on the tab tip, i.e. try to lift it further, then the force would rise back up and may reach the level shown by point C. This is a point where a certain length of the seal score has sheared through, almost at the same time. It is the darkened length of the seal score that I have highlighted between the “Pop and the “Crack” in FIG. 85[18-3]. FIG. 84[18-2] shows also that the pull tab has been lifted approximately 40 degrees from the surface of the can lid, or from the horizontal. We can see that this portion of the seal is approximately parallel to the y-axis, and practically all the points along that section of the seal would crack roughly at the same time. So, the shear force would be equal its total length multiplied by the shear

strength of the material. This is why the force required to do this part of the job may be pretty high, as seen on the chart.

[0110] At this moment, we may feel a sudden dip in the amount of resistance, where the resisting force may dip to some point like point C2.

[0111] Upon lifting the tab tip higher, the force curve continues further until it reaches point HO. See chart in FIG. 83[18-1] and the drawing in FIG. 86[18-4]. At this moment, the seal is roughly “HALF-WAY BROKEN” or “HALF OPEN”, hence “HO”. FIG. 86[18-4] highlights that portion of the seal. It also shows that the pull tab is at approximately 65 degrees.

[0112] From this point on, the force-deflection curve shows that the force will start to diminish rapidly until point F0, “Fully Open”. FIG. 87[18-5] shows the highlighted broken seal, and shows the pull tab almost vertical, i.e. perpendicular to the lid surface.

[0113] At this moment, the seal is hanging on to the lid only by a narrow strip of material, which I refer to as the neck. If we push the pull tab farther, rather rotate it through a larger angle in that same direction as before, then the tab nose will push the seal inwards, inside the can. In this case, the only force resisting the movement will be the force required to “bend” or “fold” the neck of the seal through the traveled angle. This force is relatively small, as any user could feel when actually opening any similar can. This force stays relatively constant for as long as we want to keep folding the seal further inside the can. See the relatively flat curve in FIG. 83[18-1], marked “F”, and the position of the seal and the pull tab in FIG. 88[18-6].

[0114] At this moment, the seal at the score line has been fully broken and the seal will dip inside the can. During this stage, the forces resisting the movement of the tab are F1 and F3.

[0115] From this point on, the curve shows that the remaining resisting force is pretty small. Actually, the forces acting here are F1 and F3 and a smaller portion of F2-b.

[0116] Again, I am showing three probable shapes of the curve, which I called 1-Conventional High, 2-Conventional Steep, and 3-Conventional Most Probable. These are simply illustrative representations and do not come into play at the beginning of the operation, i.e. at the time we start to lift the tip of the tab.

[0117] The important parts of the curve are at the beginning of the operation, starting from 0 degrees to approximately 25 degrees. This is where the finger needs to be inserted and placed under the tip of the tab to start the lifting process.

[0118] We can see that almost from the “get go”, we have to overcome a high resisting force (F1 plus F2).

PROPOSALS AS PER PRESENT INVENTION

[0119] As will be shown down below, I have at least two different ways to reduce this resisting force.

[0120] First, I will show how to decrease the starting resisting forces from the present curve shape to a more favorable one. I will refer to this lower curve shape as the “F1-Only” Curve, or the “LOW STARTING AND DELAYED RESISTANCE”.

[0121] Second, I will show how to decrease the resisting forces against the lifting of the tab tip one more step yet. I will refer to this curve as the “Zero F1/F2” Curve, or the “ROTATE FIRST AND LIFT SECOND”.

ONE PROPOSED PREFERRED EMBODIMENT

[0122] Group 3: Reduced resistance to starting the pull, by using the “Push-Pull” method.

[0123] Again, the figures in drawing PPA group 3, Dwgs #FIG. 23[3-1] through FIG. 29[3-7] show the method of accomplish this embodiment.

[0124] In Dwgs #FIG. 23[3-1] the tab has been bent up from about the area of the donut or the rivet out to the tab tip of the lifter. Dwgs #FIG. 24[3-2] shows the tab in the rest position, as made at the manufacturer. The tab tip is down, but the “nose” is raised up at a certain distance away from the lid and its seal. This distance will be referred to hereinafter as the “Initial Nose Seal Clearance”. The user would push his thumb down on the nose, as in Dwgs #FIG. 25[3-3], thus lifting the tab tip up as shown. The user would then have an easier time inserting the tip of the (index or any other) finger under the tab tip of the pull tab lifter, as in Dwgs #FIG. 26[3-4], and then lifting the tab.

[0125] Dwgs #FIG. 27[3-5] through FIG. 29[3-7] show a similar arrangement, except that the tab tip of the pull tab has been bent upwards to allow even more space underneath it and easier access to the user finger. The tab tip can also be “arched” upwards too, as shown by reference numeral 5 in Dwgs #FIG. 75[4-44],

“Low Starting and Delayed Resistance”, or “F1-Only” Curve

[0126] Now, I want to introduce the chart in FIG. 89[20-1].

[0127] The chart shows the old “Force-Deflection” curve, which was shown in FIG. 83[18-1], but only the so-called “3-Conventional Most Probable”, i.e. the dark solid curve. This curve is shown in this chart as the “dotted” curve, indicating the old, prior art, curve.

[0128] The chart shows also another curve, which is the dark, solid curve, and which is the “IMPROVED CONDITIONS CURVE” or the “PROPOSED METHODS” curve.

[0129] Now I will describe the new Proposed Methods curve. It can be seen that the proposed curve starts at the same point, point S, like the old one. However, the curve goes to point P, which is the LR, i.e. the Low Resistance point, because we are working against only the controlled, low tab flexing resistance, without encountering any of the higher resisting forces of breaking the seal etc. This low initial resistance will be referred to hereinafter as the “low initial resistance” or simply the “LOW-RESISTANCE”.

[0130] We reach this point P, at around 20-30 degrees of lifting at the tab tip. This distance of 20-30 degrees will be referred to hereinafter as the “delay in the onset of the high resistance” or simply the “DELAYED-RESISTANCE”

[0131] This creates a nice desirable amount of opening at the tab tip, which allows the user to easily insert his finger tip under the tab tip, and to get a good hold on it and to lift it further to finally crack and break the seal. This gap was called the tab tip finger gap.

[0132] The rest of the new solid curve shows practically a copy of the old dotted curve, but shifted by that delay distance of 20-30 degrees.

[0133] To recap, it can be seen that the resisting forces here follow new Curve in FIG. 89[20-1]. In other words, the tab is lifted through approximately 20-30 degrees, against only a small resisting force F1, because the nose is not engaging the lid or the seal throughout all this travel/movement, because of the way it has been shaped and bent out the way. The only resisting force is the force required to “bend” or “flex” the donut/plate, which is a relatively small force (F1), and is referred to as the “LOW-RESISTANCE”, as explained above. So, the force-deflection curve would be low and very favorable.

[0134] This way, we bypass the area in the curve marked “Area 1”. This area represents the “work”, i.e. force times travel, which has been eliminated by shaping the pull tab as shown. In turn, this allows the consumer to lift the tab tip to the more desirable position, without exerting a high force, so you don’t need to break your fingernails.

[0135] I have also shown in FIGS. 90[20-2] through 96[20-8] another example of an embodiment according to the proposed method. FIG. 90[20-2] through 92[20-4] show a pull tab, that is shaped so that both the nose and the tab tip are raised. In addition, the seal area has been modified as well. The seal area has been depressed slightly, as shown. The end result is that, with the nose being raised through an angle A, and the seal being depressed through an angle B, as shown in FIG. 92[20-4], we get a nice, sizable nose to seal gap. This results in that the tab tip can be raised quite high, before encountering the high resisting force, as seen in FIG. 93[20-5].

[0136] FIGS. 94[20-6] through 96[20-8] show a sequence of positions of such a pull tab, comparable to the cases in FIG. 18 series.

[0137] FIG. 94[20-6] would be comparable to FIG. 2[0-2] through FIG. 5[0-5], i.e. where the pull tab is at rest and forces acting on it. I have not shown a similar figure in the FIG. 18 series.

[0138] FIG. 95[20-7] is comparable to FIG. 84[18-2], i.e. where the nose has effectively gone through an angle of about 20 degrees to just “pop” the seal.

[0139] FIG. 96[20-8] is comparable to FIG. 85[18-3], where the nose has cracked the seal, from the Pop point to the crack point.

[0140] We can visualize the rest of the sequence, especially by comparing the two force-deflection curves in FIG. 89[20-1].

[0141] Thus I have demonstrated that by shaping the pull tab, and/or the lid and the seal, in a certain way, we provide a predefined clearance between the nose and the seal, so that the tab lifter and the tab tip will be able to move upward only against the low tab flexing resistance, before encountering the considerably higher seal breaking forces. This will create a favorable “tab tip finger gap”, allowing the user to easily apply his finger tip to the tab tip to move the lifter to open the seal. All this in spite of the fact that all the forces required to break the seal are considerably larger than the tab flexing resistance, requiring the user to apply a considerably larger

force at the tab tip during the seal breaking process than the force required to oppose the tab flexing resistance.

[0142] So, again, by shaping the pull tab, and/or the lid and/or the seal, as per our proposed method, we have overcome and solved the problem of breaking the finger nails when attempting to open such containers.

[0143] PS: I have also attached four new drawings, **FIG. 97[20-9]** through **100[20-12]**, which replace drawing **FIG. 30[3-8]**, sheet

[0144] PT-D-30 in Ref1. They show the possible alternatives that can be used for the tab tip and the nose positions.

[0145] PPS: I have also attached nine (9) other "picture drawings", **FIG. 101[20-13]** through **109[20-21]**, which show, in 3-D, the concept described earlier, where the nose is bent upwards to create a large tab tip finger gap.

[0146] **FIGS. 101[20-13]** and **-14**, show that when the lifter is in the down position, an object simulating the finger tip does not have enough room to get in. But, by raising the tab tip according to the proposed methods, the object can be inserted properly.

[0147] The figures also show the advantage of the deep recess suggested elsewhere here in the specification.

[0148] Group 4: Reduced Resistance by Using the "Rotate-Pull" Method.

[0149] Preface:

[0150] When I first filed the Provisional Patent Application, Ref1, I did not know about the Lundgren Patents. I later discovered them and have listed them in Section 8, under Prior Art.

[0151] They are:

[0152] 1. U.S. Pat. No. 5,248,053, to Lundgren, entitled "OPERATING LEVER FOR BEVERAGE CONTAINER LEVER OPERATED OPENER", and

[0153] 2. U.S. Pat. No. 6,026,971, to Lundgren, entitled "LEVER OPERATED OPENER FOR CONTAINER".

[0154] Looking at the Lundgren's patent, I first thought that everything is lost. Lundgren has shown some features, which I had originally thought to be some of my novel ideas. However, upon closer analysis, I think that I may still have a few novel features, which are outside of Lundgren's scope and may warrant consideration.

[0155] Here is a brief comparison.

[0156] 1. Lundgren proposes to have ONE cam, OVER THE LID SURFACE. I am proposing to have TWO cams, allowing the users to rotate the pull tab in either of two opposite directions, i.e. either CW Clockwise or CCW Counter-Clockwise. Some users may be right handed while other may be left handed. My approach would give both groups the option of going one way or the other.

[0157] 2. I am proposing to have FLANGES on the pull tab. These will make it easier for the users to move the tab, without hurting or breaking their fingernails, etc.

[0158] 3. I propose to RAISE THE NOSE OF THE PULL TAB, so that the user will work only against the LOW RESISTANCE, as explained earlier.

[0159] 4. I do not insist on CRACKING THE SEAL, WHILE ROTATING THE PULL-TAB. If it happens, so be it, but I prefer to work only on raising the tab tip and creating the LARGE TAB TIP FINGER GAP. The user can do the cracking afterwards.

[0160] 5. I also propose to RAISE THE TAB TIP, to create yet a LARGER TAB TIP FINGER GAP.

[0161] 6. As another alternative, I propose to USE A TROUGH/WELL AS MY CAMMING SURFACE, so that the top lid surface will not be protruding upwards. This is contrary to Lundgren's RAISED/ELEVATED surface of his cam.

[0162] 7. I also proposed to have the trough/well camming surface work in BOTH DIRECTIONS, i.e. CW as well as CCW.

[0163] So, I feel that I am offering a few new novel features, over and beyond Lundgren. Hence, I would like to pursue this line of thinking as shown below.

[0164] The figures in this group will be numbered **FIG. 32[4-1]**, **FIG. 33[4-2]** etc., similar to the grouping numbering system mentioned earlier. These are the numberings of the PPA, Ref1. They start at sheet # FIG. PT-D-32. They will show the method of accomplish these embodiments.

[0165] In addition, I have included some new drawings, showing the concept of using a trough or well. They are **FIG. 110[22-1]** through **117[22-8]**.

[0166] **FIG. 110[22-1]-A** shows a pull tab having a tab dimple, which would act as a "cam follower", and which will ride on the cam surface of the lid well or trough shown in the cross-section view in **FIG. 110[22-1]-B**. The figures also show the flanges, which could be optional, and which could also be on some slanted angle, and could be all around the edges of the lifter.

[0167] **FIG. 111[22-2]** shows another cross-section view, across the length of the pull-tab. It shows the lid well or trough depressed below the general surface of lid. It also shows the tab dimple, sitting in the trough, and it also shows the raised flanges all along the edges of the lifter.

[0168] **FIG. 112[22-3]** shows that we could still operate satisfactorily with ONE scored seal, IF the rotation of the pull tab is fairly limited to some relatively small ROTATION RANGE. In such a case, we could leave the pull tab in its normal position A, as it is now with Prior Art containers. The user would rotate the pull tab either CW to B or CCW to C, which will raise the tab tip, but will still keep the nose over the scored seal. When the user would pull the tab tip further, the seal will break as usual. With this arrangement, the container would look practically unchanged, compared to the prior art containers, and the users will hardly notice the difference. The only difference is to educate the users that they have now the OPTION OF ROTATING THE PULL TAB TO GAIN CERTAIN ADVANTAGE, namely LIFTING THE TAB TIP EASILY. This could be a GREAT MARKETING ADVANTAGE.

[0169] Of course the option of having two scored seals still exists, as explained further down below.

[0170] **FIG. 113[22-4]** through **117[22-8]** are "picture drawings" made on a 3-D CAD program. They show the pull tab from different angles, especially looking at it from the

bottom. They show the “dimple” which will act as a cam follower, riding on the trough surface and when it rides on the ramp, it will raise the tab tip, as stated earlier. The dimple can have various shapes, and can be part of the “bridge” or part of the “spines” or depending on the shape of the tab, it can be placed at any appropriate location.

[0171] The trough can be straight, rectangular or on an arc, with the rivet as the center of the arc.

[0172] Now, back to the original concepts presented in Ref1, my original Provisional Patent Application.

[0173] FIG. 32[4-1] shows the top view of the can according to this approach. The tab would be placed at a starting position of approximately 45 degrees say, and then it would be rotated to reach a position similar to the present conventional position. During this rotation, the tab will pass over a “ramp”, which would act as a “cam”, which would “lift” it, so that the tip of the pt would rise from its conventional “flat” position to the new “elevated” position. At this elevated position, there will be a large space between the tip of the pt and the lid surface, so that the user will have an easier time inserting the fingertip under the tab to lift it.

[0174] The figures show the tab in “both” positions, superimposed one on top of the other, just to show the concept more clearly. In reality, there is only ONE tab, and it is simply shown at the beginning of the rotation and at the end of the rotation as well. Most of the following figures in this group will show the tab one time at the beginning of the rotation and another time at the end of the rotation, and one more time at both positions superimposed one on top of the other.

[0175] FIG. 33[4-2] shows the can lid, with the wedges. The tab itself has been removed simply to show the wedges more clearly. We can use two wedges as shown, or we can use only one wedge as will be shown later.

[0176] FIG. 34[4-3] through FIG. 45[4-14] show this arrangement/embodiment from different viewpoints. They show the tab in its present conventional shape, i.e. flat, with the tip not bent up and with the nose not bent up either. In this case, when we rotate the tab and it reaches its end position, the tip will be raised to the desirable height, but the nose will be lowered at the same time, into the lid/seal. So, by the time the tab reaches its end position, the nose would have reached a situation, where it may have cracked the seal already. If that is desirable, then so be it. If not, we would bend the nose upwards, as in FIG. 23[3-1] through FIG. 29[3-7]. In this case, the seal would not be affected during the rotation of the tab. We would crack the seal and bend it inside the can, only when we grab the tab and pull on it, i.e. after the tab has been rotated and is sitting in its final rotational position.

[0177] FIG. 46[4-15] through FIG. 48[4-17] show the same thing, except that the tab has a “short flange” at the right side of its top surface. This is to facilitate pushing the tab sideways to rotate it.

[0178] FIG. 49[4-18] and FIG. 50[4-19] show a similar right flange, but a longer one.

[0179] FIG. 51[4-20] through FIG. 54[4-23] show a similar arrangement, but the flanges are on the left-hand side. Again, short and long flanges.

[0180] FIG. 55[4-24] through FIG. 57[4-26] show flanges on both sides. Here the flanges are short, but they can be long as well.

[0181] By the way, the flanges can also be on the lower side of the tab, following the contour of the “domed” surface of the lid. Or they can just be on the lower side of the tab, without any part of the flange above the top surface of the tab, or they can be partially above and partially below the tab.

[0182] Please notice also two additional features in FIG. 55[4-24] through FIG. 57[4-26]. First, the tip of the pt is bent upwards, to allow more space under the tab for the finger. Second, the nose also has been bent upwards, so that the seal would not be opened “during” the rotation motion of the tab.

[0183] FIG. 58[4-27] through FIG. 60[4-29] show the same thing, except that the wedges here have “sloping” side walls, as compared to those shown in the previous figures, where the side walls were shown “vertical”. The advantage of the sloping sidewalls is that it would be easier to manufacture, and would create less internal stresses in the lid material.

[0184] FIG. 61[4-30] through FIG. 68[4-37] show the wedge in an even more streamlined shape, making it even easier to manufacture. FIG. 61[4-30] and FIG. 61[4-30] show one wedge on the lid, while the tab is at its starting position. The wedge would lift one side of the tab, while the second side of the tab would follow partially being elevated as well. FIG. 63[4-32] shows two such wedges, each one acting on one side of the tab. The high end of the second wedge would fit in the opening of the “ring” of the tab. FIGS. 64[4-33] and 4-34 show details as to where to locate the wedges on the lid with respect to the tab. FIG. 66[4-35] through FIG. 68[4-37] show side views of the tab sitting on the lid, with the wedges in between. The wedge is shown in two different cross-sections superimposed one on top of the other. The first one has a rounded top, similar to the wedge shown in FIG. 61[4-30] through FIG. 63[4-32]. The second cross section shows the top of the wedge looking like a trapezoid, with filleted corners. The advantage of such a shape is that it would present a surface that is more parallel to the surface of the tab, when the tab reaches its top elevated position. The wedge could have a rounded top at its lower end and a trapezoid, as shown, at its higher end. Or better yet, the top surface of the trapezoid would have a shallow angle at the lower end of the wedge and a steeper angle at the higher end, the angles being such that they would match the respective angle of the tab surface at its respective low and high positions.

[0185] Right-Hand Rotation, Left-Hand Rotation & Double-Sided Rotation

[0186] All the above rotational drawings show the tab being rotated counter-clock-wise. Some users may prefer to have it rotate in the opposite direction, i.e. clock-wise. The manufacturers may opt to have both versions on the market. However, this may not be economical. The alternative would be to make the tab able to rotate either way.

[0187] FIG. 69[4-38] through FIG. 79[4-48] show such embodiments. FIG. 69[4-38] shows a can lid with two seals. The tab is located centrally wrt them. Also two wedges are shown, but in an opposite direction to each other. FIG.

70[4-39] shows the same arrangement but with flanges on the tab. FIG. 71[4-40] shows the same arrangement, but with the tab rotated ccw. The left wedge has lifted the tab tip as described earlier. The nose moved to the right seal and can open it. FIG. 72[4-41] shows the same arrangement again, but this time, the tab had been rotated clock-wise. The right wedge has lifted the tab tip, while the nose is positioned this time to open the left seal. FIG. 73[4-42] shows the can lid without the tab. FIG. 74[4-43] shows the can lid, with the tab, but without the wedges.

[0188] FIG. 75[4-44] shows some more details of the tab itself. First, the points 1 and 2 are concentration points. The plate would be formed (coined or etc) so as to work "progressively", i.e. to first crack the seal say with point 1 to release the pressure, then it would start the further breaking of the seal at the surrounding score line using point 2. Point 3 would be a relief in the nose area of the tab to bypass the score line edges of the seal, as necessary, and finally point 4 would complete the pushing of the seal inside the can. At the other end, point 5 shows how the tip of the tab would be first bent upwards, and at the same time it would be "arched" as shown to provide even more space for the lifting finger.

[0189] FIG. 76[4-45] shows two additional features. First, it shows two other shapes of the double seals. Second, it shows the contour, in dashed lines, of the recess in the lid, to provide recess space for the "single" direction tab, which was shown in FIG. 32[4-1] through FIG. 65[4-34]. FIG. 77[4-46] shows in addition, the recess space for the "double" direction tabs shown in FIG. 69[4-38] through FIG. 75[4-44].

[0190] FIG. 78[4-47] shows more details of the curved bottom surface of the nose, for progressive action. It also shows some features of the seals, with reinforcing beads.

[0191] FIG. 79[4-48] shows a "pointed tip nose". And some details of the seals as well as a central bead between the two seals.

[0192] Curve 5 in FIG. 22[3-0] (Graph 1) shows the effect of rotating the tab to elevate it before trying to lift it. The force-deflection curve would become "A TO CS TO C TO D ETC.". Hence, the work represented by Area 2 would be eliminated as well, besides the Area 1.

I claim:

1- A container opening system comprising

- a) a lid, applied to a container body,
- b) said lid comprising
- c) a panel having a scored area for defining a seal portion, referred to hereinafter as the seal, which is frangibly secured to said panel for enabling said seal to be severed from said panel and
- d) a tab comprising
- e) a nose portion, referred to hereinafter as the tab nose, or simply the nose, and
- f) a lift portion, referred to hereinafter as the tab lifter, or simply the lifter,
- g) with a controlled flex central portion, referred to hereinafter as the tab donut, or simply the donut, being disposed between said nose and said lifter, and

h) means for securing said tab to said panel, referred to hereinafter as the rivet,

i) said nose being disposed proximate said seal and said lifter being disposed remote therefrom,

j) such that an upward movement of said lifter creates a downward movement of said nose,

k) said donut enabling said lifter to be lifted and moved upwards, presenting only a small amount of resistance, referred to hereinafter as the tab flexing resistance, until said nose touches said seal, and

l) upon further lifting said lifter, said nose would move further downward and would apply forces on the seal with the purpose of breaking said seal, all this happening in a sequence of events, where at first the nose touches said seal and transmits the upward movement and force applied at the lifter inversely to the seal, where upon increasing said force the seal will start to break, at which time a pop may be heard, and upon further application of the movement and force the seal will crack open to a larger extent, and gradually upon still further application of the movement and force the seal will open fully, after which time the seal would be require generally a smaller force to be bent and pushed away from the opening to finally allow access to the contents of the container,

m) all said forces required to break said seal being considerably larger than said tab flexing resistance, requiring the user to apply a considerably larger force at the tab tip during the seal breaking process than the force required to oppose said tab flexing resistance. wherein

n) said tab and said lid panel and said seal are shaped so as to provide a predefined clearance between said nose and said seal, so that the tab lifter and the tab tip will be able to move upward only against the low tab flexing resistance, before encountering the considerably higher seal breaking forces.

2- A container opening system, as set forth in claim 1, wherein

a) a large finger recess is provided adjacent said tab tip to allow a user to easily insert finger tip to said tab tip to lift lifter and to open seal.

3- A container opening system, as set forth in claim 1, wherein

a) said tab is shaped so as to provide a predefined clearance between said nose and said seal, so that the tab lifter and the tab tip will be able to move upward through a corresponding predefined distance, against only said low tab flexing resistance, before encountering said considerably higher seal breaking forces, said predefined distance is a gap of desirable size, large enough to allow a user to easily apply finger tip to said tab tip to move said lifter to open said seal.

4- A container opening system, as set forth in claim 1, wherein

a) said lid panel is shaped so as to provide a predefined clearance between said nose and said seal, so that the tab lifter and the tab tip will be able to move upward through a corresponding predefined distance, against only said low tab flexing resistance, before encounter-

ing said considerably higher seal breaking forces, said predefined distance is a gap of desirable size, large enough to allow a user to easily apply finger tip to said tab tip to move said lifter to open said seal.

5- A container opening system, as set forth in claim 1, wherein

- a) said seal is shaped so as to provide a predefined clearance between said nose and said seal, so that the tab lifter and the tab tip will be able to move upward through a corresponding predefined distance, against only said low tab flexing resistance, before encountering said considerably higher seal breaking forces, said predefined distance is a gap of desirable size, large enough to allow a user to easily apply finger tip to said tab tip to move said lifter to open said seal.

6- A container opening system, as set forth in claim 1, wherein

- a) said tab lifter is shaped so as to provide a large gap between said tab tip and said lid panel, said gap being large enough to allow a user to easily apply finger tip to said tab tip to move said lifter to open said seal.

7- A container opening system, as set forth in claim 1, wherein

- a) said tab further comprises
- b) two spines connecting said lifter to said donut and said nose, and ending up with a lifter tip, referred to hereinafter as the tab tip, at a point farthest away from said donut and said nose, and
- c) a bridge, connecting said two spines, disposed between said donut and said tab tip, and wherein
- d) said tab lifter further comprises a dimple, protruding towards the lid panel, and said dimple being disposed inside said trough, wherein
- e) upon rotating said tab in a first direction, about said rivet, which will act as the center of rotation, said dimple will slide along said first ramp, thus raising said lifter and said tab tip, to create a larger gap between said tab tip and said lid, to allow a user to easily insert finger tip under said tab tip to lift lifter and to open said seal.

8- A container opening system, as set forth in claim 1, wherein

- a) said lid panel further comprises a depression below the surface of said lid panel and proximate area underneath said tab lifter, said depression referred to hereinafter as

the trough, said trough having a bottom surface and a first end surface, said first end surface ramping gradually upwards to meet the top surface of said lid panel, said first end section referred to hereinafter as the first ramp, and

- b) said tab lifter further comprises a dimple, protruding towards the lid panel, and said dimple being disposed inside said trough, and wherein

- c) upon rotating said tab in a first direction, about said rivet, which will act as the center of rotation, said dimple will slide along said first ramp, thus raising said lifter and said tab tip, to create a larger gap between said tab tip and said lid, to allow a user to easily insert finger tip under said tab tip to lift lifter and to open said seal.

9- A container opening system, as set forth in claim 8, wherein

- a) said trough in said lid further comprises a second end surface ramping gradually upwards to meet the top surface of said lid panel, said end section referred to hereinafter as the second ramp, said second ramp being in the opposite direction of said first ramp, and wherein

- b) upon rotating said tab in a second direction, in the opposite direction compared to said first direction, about said rivet, which will act as the center of rotation, said dimple will slide along said second ramp, thus raising said lifter and said tab tip, to create a larger gap between said tab tip and said lid, to allow a user to easily insert finger tip to said tab tip to lift lifter and to open said seal.

10- A container opening system, as set forth in claim 8, wherein

- a) both ramps are above the surface level of the lid panel, and will perform a similar function of raising the tab tip.

11- A container opening system, as set forth in claim 8, wherein

- a) said lid has the same one scored seal, cooperating with said rotating pull tab, regardless of whether said pull tab has been rotated or not.

12- A container opening system, as set forth in claim 8, wherein

- a) said lid has two scored seals, cooperating with said rotating pull tab.

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