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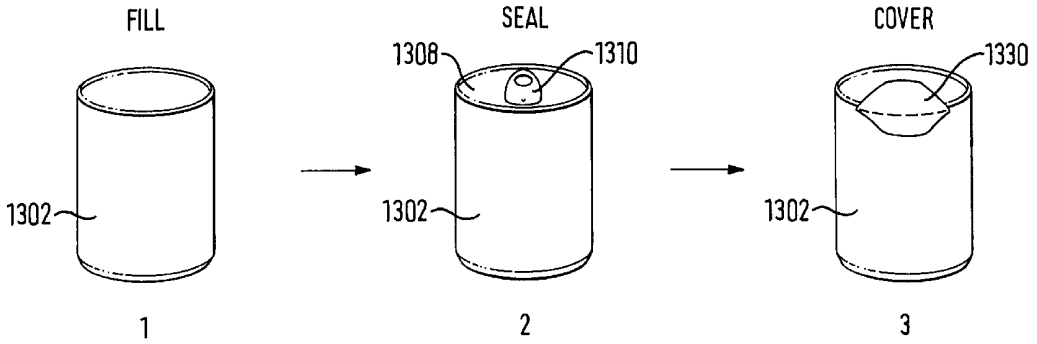

(57) Abstract: There is provided a container for containing a beverage or liquidfoodstuff comprising a container body (1302); an exit opening (1310) for accessing the contents thereof; and a removable protective cover (1330). The protective cover wholly covers that part of the container body w hich will come into contact with a user's lips when a user drinksdirectly from the exit opening.

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CONTAINER WITH REMOVABLE PROTECTIVE COVER

This invention relates to containers for beverages or liquid foodstuffs. More especially, but not in particular, the invention relates to beverage/liquid foodstuffs cans which have a pull-tab opening mechanism.

A variety of drinks for example alcoholic (e.g. beers), fizzy, health, and iced teas are provided to the public packaged in aluminium, plastic or steel containers. Similarly, containers for liquid foodstuffs are often sold in containers. Containers are filled and packed in overwrapped trays (or multipacks) before distribution through numerous channels. Trays and packs are often split up and individual containers are stacked on shelves, in refrigerators, or in vending machines under different environmental conditions. One of the disadvantages of these forms of selling is that the external container body can be exposed to dirt, bacteria and other potential environmental hazards.

Each container may be manufactured such that a section of the top of the container may be removed, for example, by a pull-tab such as a ring-pull, in order to access the contents through an exit opening. In many cases, the consumer activates the pull-tab opening and either because of a lack of time, for convenience or simply due to preference, drinks the contents directly from the exit opening of the container. In this case, the consumer's lips will inevitably come into direct contact with part of the exterior of the container.

Consumers are becoming increasingly aware and concerned about food hygiene and the presence of dirt or germs on consumable products. The manufacturing process, and the transit, handling, and storage of containers exposes the containers to a range of poor hygiene conditions. Many people concerned about the state of cleanliness of the exterior of a container in the "mouthpiece" or

pouring area prior to consuming a beverage/liquid foodstuff, clean the container by, for example, wiping the container with their hands, an item of clothing, or a cloth, but this is inconvenient and is not guaranteed to remove microscopic dirt and bacteria.

A number of previous patent applications have recognized the general hygiene problems described above. These have tended to focus on the specific problem of dirt and bacteria build up in the area of the exit opening and inner top rim of the container. This has led to various solutions being proposed which involve the provision of a lid cover for covering the upper lid surface of the container. Examples of such solutions are for example described in United States Patent No.s 4,927,048; 5,273,176 and 5,108,003 and PCT Patent Application No. WO95/28328.

The Applicant's have now recognized that whilst covering the upper lid surface can be beneficial from a hygiene standpoint, this does not entirely solve the noted hygiene problems. This is simply because when drinking directly from the container the user's lips will contact an area of the container's outer surface which extends beyond the upper lid surface. In particular, the lower lip of the user will contact at least part of the side wall of the container.

The problem may be appreciated in more detail by having regard to Figure 1 in which the container is a beverage container of the type commonly used for containing carbonated beverages. The container comprises a body 2 having a lateral wall 4, a base wall 6 and an upper wall 8. The lateral wall has an inwardly tapering portion 5 ending in a protruding lip 7 which extends around the circumference of the upper wall 8. The upper wall 8 is recessed (typically by 2-8, particularly 4-6mm) relative to the upper extent of the protruding lip 7 and the inner circumferential wall 9 of the lip 7 and the upper wall 8 in combination form a recessed well. The container has a pull-tab opening 10 of a type well-known in the art. The pull-tab opening 10 comprises a ring pull-tab 12 fixed through rivet 14

to the upper wall of the container at a point adjacent to exit opening 16. The opening 16 sits in pull-tab recess 18, which assists finger access thereto. Opening of the container 2 is through the well-known process of the user pulling up the ring pull 12, which transfers opening force through the pull-tab and rivet point 14 to open the exit opening 16.

Importantly, Figure 1 shows the lip contact area 20, comprising the area of the container which will come into contact with the lips of a user when that user drinks from the container. This area 20 may be sub-divided into upper 22 and lower 24 lip contact areas. The upper lip contact area 22 comprises a portion of the access opening 16, upper wall 8, protruding lip 7 and circumferential wall 9 thereof and of the tapering portion 5 of the lateral wall 4. The lower lip contact area 24 comprises mainly a portion of (the outer part of) protruding lip 7 and the tapering portion of the lateral wall 4, but also may include part of the lateral wall itself. Importantly, the lip contact area is not necessarily symmetrical, and the lower lip contact area 24 extends potentially some way down the lateral wall 4. Earlier suggested solutions which are designed to protect only the tab-opening 10 area and/or upper wall 8 area are thus unlikely to protect against ingress of dirt/contaminants resulting from user lower lip contact 24 with the container. It may be appreciated that similar lip contact areas 20 could be defined for other containers having differing configurations.

To better address the above described hygiene problem, the Applicant's have now found that it is essential that the lip contact area 20, and optionally a defined region therebeyond (e.g. 10-20% excess coverage) is covered by a protective cover. From a cost standpoint it is however, desirable to minimise the extent of the excess coverage area. Thus, solutions involving full or partial over-wrapping of the container are not favoured.

An object of the present invention is to provide a container for containing beverages or liquid foodstuffs which has a protective and/or hygienic cover

covering the lip contact area of the container, that is to say, the area of the container most likely to come into contact with a user's lips on drinking from the container. Another object is to increase consumer confidence in the product and to encourage worry-free consumption of the beverage/foodstuff from the container. Another object of the invention is to provide an advertising and/or marketing tool for container/beverage manufacturer and/or retailer

According to one aspect of the present invention there is provided a container for containing a beverage or liquid foodstuff comprising a container body; an exit opening for accessing the contents thereof; a seal for the exit opening; and a removable protective cover, wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

The container is suitable for containing a beverage or liquid foodstuff. The beverage is particularly a carbonated beverage. As used herein, the term liquid foodstuff relates to any flowable foodstuff or solid foodstuff having a liquid environment, such as soups, purees, stews or the like (for example, meat or vegetables in a sauce or puree), or vegetables/meat/fish/pulses in brine or oil or other sauce.

The container comprises a container body; and an exit opening for accessing the contents thereof. The container body may have any suitable form, but it particularly has the well-known form of a carbonated drinks container in which the exit opening is sealed by a pull-tab.

With many pull-tab designs, the tab is levered into the interior of the container and the contents when it is pulled open. If the top of the tab has been contaminated prior to use then contamination can spread to the contents of the container. In aspects, the present invention ensures that the pull-tab on the container is covered prior to being actuated.

The container is provided with a protective cover that wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening. As used herein, the term protective cover relates to any suitable cover (e.g. a seal) which is capable of protecting the covered area, thereby reducing or preventing its contact with dirt, bacteria, insects or other environmental hazards.

In one preferred aspect, the container is carbonated beverages container having the general form as shown in Figure 1. The container comprises a body 2 having a lateral wall 4, a base wall 6 and an upper wall 8. The lateral wall has an inwardly tapering portion 5 ending in a protruding lip 7 which extends around the circumference of the upper wall 8. The upper wall 8 is recessed (typically by 2-8, particularly 4-6mm) relative to the upper extent of the protruding lip 7 and the inner circumferential wall 9 of the lip 7 and the upper wall 8 in combination form a recessed well. The container has a pull-tab opening 10 comprising a ring pull-tab 12 fixed through rivet 14 to the upper wall of the container at a point adjacent to exit opening 16. The opening 16 sits in pull-tab recess 18, which assists finger access thereto. Opening of the container 2 is through the well-known process of the user pulling up the ring pull 12, which transfers opening force through the pull-tab 12 and rivet point 14 to open the exit opening 16.

In Figure 1, that part of the container body which contacts a user's lips when the user drinks directly from the exit opening is shown as lip contact area 20. The lip contact area 20 may be sub-divided into upper 22 and lower 24 lip contact areas. The upper lip contact area 22 comprises a portion of the access opening 16, upper wall 8, protruding lip 7 and circumferential wall 9 thereof and of the tapering portion 5 of the lateral wall 4. The lower lip contact area 24 comprises mainly a portion of (the outer part of) protruding lip 7 and the tapering portion of the lateral wall 4. It may be appreciated that similar lip contact areas could be defined for other containers having differing configurations.

In accord with the present invention, the lip contact area 20, and optionally a defined region therebeyond (e.g. 5-50% excess coverage) would be covered by the protective cover. From a cost standpoint it is however, desirable to minimise the extent of the excess coverage area.

Suitably, the protective cover is shaped and sized to both cover the lip contact area 20; and a defined area around the pull-tab opening of the container. Preferably, an excess area of 5-50%, particularly 10-30% is also covered. In aspects, the lip contact area and optionally the pull-tab opening area of the container may be mapped out and the dimensions of the protective cover defined to comfortably cover the mapped area e.g. by covering the mapped area plus an excess of from 1 to 20mm, particularly 2 to 10mm around the periphery of the mapped area.

Suitably, the protective cover has a first portion which fits snugly into the recessed well (e.g. defined by the inner circumferential wall 9 of the lip 7 and the upper wall 8 in combination of Fig 1) of the container and second portion which overhangs the lip to form a tab. The tab assists removal of the cover from the container. In one aspect, the tab folds against the container.

Suitably, the tab of the protective cover is arranged to be moveable between two distinct positions comprising a stowed position in which the tab folds against the container and an alert position in which the tab stands proud from the container (e.g. in a plane which is inclined at an acute angle (e.g. 1- 30%) from the plane defined by the top wall of the container). In the alert position, the tab is available for grabbing by a user who may then grip the tab to remove the protective cover from the container.

Preferably, the protective cover is provided with a means for detecting or evidencing movement of the tab from the stowed to alert positions, particularly tamper evidence means for detecting or evidencing tampering behaviour.

Preferably, movement of the tab from the stowed to alert positions is accompanied by a characteristic sound such as a click. Most preferably, the click sound results from the tab itself as a result of its construction or material form – e.g. a paper-click.

Suitably, when in the stowed position the end of the tab is adhesively (or otherwise) anchored to the container. This anchoring engagement has utility from a tamper resistance standpoint, with a break in anchor providing an indication of tampering. A breakable wax cover could be utilised as the anchor.

Suitably, the tab is formed from a material which changes colour when the tab is moved from the stowed to alert position, thereby providing evidence in the instance of tampering. The colour change may result from a change in exposure to mechanical strain (e.g. at the fold point) or as a result of a change in exposure to light conditions (e.g. the underside of the tab comprises photographic or other light sensitive material).

Preferably, the protective cover comprises a forward tab element (e.g. sized and shaped for user grip) and wing portions flanking either side thereof. The wing portions are sized and shaped to assist in covering the lower lip contact area (e.g. around a portion of the protruding lip 7 and tapering portion 5 of the lateral wall 4 of Fig 1). In typical embodiments, the tab as a whole covers a 90-150°, particularly 150°, segment (where the full circular lip =360°) of the protruding lip of the container with the forward tab and each flanking wing thereto covering approximately equal angular protruding lip extents.

Suitably, the protective cover is provided with folds, reinforcement lines and/or tear lines such as are needed to define its function. Tear lines may, in particular be used to provide evidence of tampering. Reinforcement lines may for example, be used to prevent accidental tearing of printed-on areas.

In one aspect, the protective cover is configured to be readily stowable in a wallet or purse (e.g. in the credit card stowage area) after removal from the container.

In one aspect, the protective cover has a tab with a forward element and wings provided on either side thereof. The underside of the cover has an adhesively coated portion for ready attachment to the top wall (or recessed well area) of the container, but the underside of the tab has no adhesive coating. The cover as a whole is shaped such that once removed from the container, the adhesive portion may be folded together such that no outward adhesive area remains presented. This is enabled e.g. by having an adhesive portion which is symmetrical about a fold line. The tab may then be readily stowed in a wallet or purse.

In aspects, the protective cover may be shaped to have a fanciful form, such as that of a pair of human lips e.g. in a 'kiss' or 'smiling' configuration.

Suitably, the protective cover takes the form of a seal, and/or a tab, and/or a cap, and/or a membrane and/or a wrap and/or a strip.

In one embodiment, at least part of the underside of the protective cover is provided with a light adhesive coating which enables peelable engagement with the container (e.g. the upper wall or lip thereof). In another embodiment, the cover snap-fits to the container. In another embodiment, the cover is pre-formed to have at least part of the shape of that part of the exterior of the container to which it is to be applied.

The means for sticking (adhesive or otherwise) provided to the underside of the protective cover may in embodiments, be positioned to enable sticking to any one of the upper wall, lateral wall, lip or recessed well of the container.

The cover may be made from materials selected from one or more of the following: polymers (for example, plastics), foil (for example, aluminium foil), gel, wax or paper. In aspects, the material is recyclable.

The cover material may be clear or opaque or a combination of these. It may be colourless or coloured. Suitably, the material is suitable for the receipt of printed media thereon.

Suitably, any coatings may be applied to either or both or the interior and exterior of the protective cover such as moisture-resistant materials or fluoropolymer materials which reduce the surface energy thereof.

The cover may be manufactured from material which is biodegradable and/or antibacterial (e.g. triclosan) and/or has desiccant properties.

The cover may incorporate a scent and/or a flavouring agent. In aspects, this scent of flavouring agent is released on removal of the cover from the container.

The cover may indicate when it reaches a predetermined age, for example, the cover may change colour when the contents are past their sell-by or use-by date.

The cover may change colour if the container leaks around the exit opening, for example, the cover may change colour when it comes into content with the carbon dioxide content of a carbonated beverage.

The cover may control characteristics of the container contents, for example, moisture ingress and/or pressure changes.

The protective cover may be reusable, that is, after the pull-tab is removed from the container, the cover may be used to temporarily recover the contents of the container.

Many manufacturers run competitions and/or promotions in association with beverage/liquid foodstuffs containers. Thus, the cover may be used to advertise such promotions and provide a means for printing winning numbers/signs on its underside without having to change the printing of the exterior/interior of the container itself. An advantage of the protective cover herein is that it provides an available space for advertising and/or promotional material which is associated with, but separable from the container product.

The printed material may for example comprise collectable elements e.g. characters or reward tokens. In one particular aspect, the printed element comprises a postage stamp such that the cover may, once removed from the container, be affixed to an envelope and posted to a defined postal address.

In one aspect, the cover comprises a unique identifier. The unique identifier may be printed thereon (e.g. in bar code or numeric form) or comprised in digital form within an electronic memory. In embodiments, the cover comprises a smart chip for conveying marketing and/or advertising information.

Suitably, the cover includes a transceiver comprising an antenna or equivalent for transmitting or receiving data and connecting thereto a memory. The memory will typically comprise an integrated circuit chip. The transceiver may be configured to have a memory structure which allows for large amounts of information to be stored thereon. The memory structure can be arranged such that parts of the memory are read-only, being programmed during/after manufacture, other parts are read/write and further parts are password protectable. Initial transfer of information (e.g. on manufacture or one dispensing) to or from any transceiver

can be arranged to be readily achievable by the use of a reader which is remote from the container, thereby minimising the need for direct product handling. In further aspects, the reader can be arranged to simultaneously read or write to the memory of multiple transceivers on multiple containers.

Suitably, the transceiver comprises a label or tag comprising an antenna for transmitting or receiving energy; and an integrated circuit chip connecting with said antenna. In this case the label or tag is a passive transceiver and the reader is an active transceiver. Preferably, the reader will not need to be in direct contact with the tag or label to enable the tag or label to be read.

The tag may be used in combination and/or integrated with other traditional product labelling methods including visual text, machine-readable text, bar codes and dot codes.

Suitably, the integrated circuit chip has a read only memory area, a write only memory area, a read/write memory area or combinations thereof.

Suitably, the integrated circuit chip has a one-time programmable memory area. More preferably, the one-time programmable memory area contains a unique serial number.

Suitably, the integrated circuit chip has a preset memory area containing a factory preset, non-changeable, unique data item. The preset memory item is most preferably in encrypted form.

Suitably, the integrated circuit chip has plural memory areas thereon. Suitably, any memory area is password protected.

Suitably, any memory area contains data in encrypted form. Electronic methods of checking identity, error detection and data transfer may also be employed.

In one aspect, the integrated circuit has plural memory areas thereon including a read only memory area containing a unique serial number, which may for example be embedded at the time of manufacture; a read/write memory area which can be made read only once information has been written thereto; and a password protected memory area containing data in encrypted form which data may be of anti-counterfeiting utility.

Suitably, the tag is on a carrier and the carrier is mountable on the protective cover. In one aspect, the carrier is a flexible label. In another aspect, the carrier is a rigid disc. In a further aspect, the carrier is a rectangular block. Other shapes of carrier are also envisaged.

In one aspect, the transceiver on the protective cover comprises a radiofrequency identifier comprising an antenna for transmitting or receiving radiofrequency energy; and an integrated circuit chip connecting with said antenna. An advantage of radiofrequency identifier technology is that the reader need not be in direct contact with the radiofrequency identifier tag or label to be read.

The radiofrequency identifier can be any known radiofrequency identifier. Such identifiers are sometimes known as radiofrequency transponders or radiofrequency identification (RFID) tags or labels. Suitable radiofrequency identifiers include those sold by Phillips Semiconductors of the Netherlands under the trade marks Hitag and Icode, those sold by Amtech Systems Corporation of the United States of America under the trade mark Intellitag, and those sold by Texas Instruments of the United States of America under the trade mark Tagit.

Suitably, the antenna of the RFID tag is capable of transmitting or receiving radiofrequency energy having a frequency of from 100 KHz to 2.5 GHz. Preferred operating frequencies are selected from 125 KHz, 13.56 MHz and 2.4 GHz.

In one aspect, the transceiver on the protective cover comprises a magnetic label or tag comprising an antenna for transmitting or receiving magnetic field energy; and an integrated circuit chip connecting with said antenna.

A suitable magnetic label or tag comprises plural magnetic elements in mutual association whereby the magnetic elements move relative to each other in response to an interrogating magnetic field. A magnetic label or tag of this type is described in U.S. Patent No. 4,940,966. Another suitable magnetic label or tag comprises a magnetorestrictive element which is readable by application of an interrogating alternating magnetic field in the presence of a magnetic bias field which results in resonance of the magnetorestrictive elements at different predetermined frequencies. A magnetic label of this type is described in PCT Patent Application No. WO92/12402. Another suitable magnetic label or tag comprising plural discrete magnetically active regions in a linear array is described in PCT Patent Application No. WO96/31790. Suitable magnetic labels and tags include those making use of Programmable Magnetic Resonance (PMR) (trade name) technology.

In another aspect, the transceiver comprises a microelectronic memory chip. The microelectronic memory chip may comprise an Electrically Erasable Programmable Read Only Memory (EEPROM) chip or a SIM card-type memory chip.

Any transceiver herein, particularly a passive transceiver may be mounted on or encased within any suitable inert carrier. The carrier may comprise a flexible sheet which may in embodiments be capable of receiving printed text thereon.

In one aspect, the transceiver is integral with the protective cover such that a single unit is comprised. The transceiver may for example be encased within or moulded to the protective cover.

Suitably, the protective cover additionally comprises a communicator for wireless communication with a network computer system to enable transfer of data between the network computer system and a memory thereon.

Suitably, the data is communicable between the network computer system and the memory in encrypted form. All suitable methods of encryption or partial encryption are envisaged. Password protection may also be employed. Suitably, the communicator employs radiofrequency or optical signals.

In one aspect, the communicator communicates via a gateway to the network computer system. In another aspect, the communicator includes a network server (e.g. a web server) such that it may directly communicate with the network.

In a further aspect, the communicator communicates with the gateway via a second communications device. Preferably, the second communications device is a telecommunications device, more preferably a cellular phone or pager. Preferably, the communicator communicates with the second communications device using spread spectrum radiofrequency signals. A suitable spread spectrum protocol is the Bluetooth (trade mark) standard which employs rapid (e.g. 1600 times a second) hopping between plural frequencies (e.g. 79 different frequencies). The protocol may further employ multiple sending of data bits (e.g. sending in triplicate) to reduce interference.

In one aspect, the network computer system comprises a public access network computer system. The Internet is one suitable example of a public access network computer system, wherein the point of access thereto can be any suitable entrypoint including an entrypoint managed by an Internet service provider. The public access network computer system may also form part of a telecommunications system, which may itself be either a traditional copper wire system, a cellular system or an optical network.

In another aspect, the network computer system comprises a private access network computer system. The private access network system may for example, comprise an intranet or extranet which may for example, be maintained by a supermarket or product brand owner. The network may for example include password protection; a firewall; and suitable encryption means.

Preferably, the communicator enables communication with a user-specific network address in the network computer system.

The user-specific network address may be selected from the group consisting of a web-site address, an e-mail address and a file transfer protocol address. Preferably, the user-specific network address is accessible to a remote information source such that information from said remote information source can be made available thereto. More preferably, information from the user-specific network address can be made available to the remote information source.

According to another aspect of the present invention there is provided for the container to be in a stackable form and for a stack of containers as described hereinabove.

According to another aspect of the present invention there is provided a container as described herein containing a beverage or liquid foodstuff, particularly a carbonated beverage.

According to another aspect of the present invention there is provided protective cover for a container for containing a beverage or liquid foodstuff comprising, wherein said protective cover wholly covers that part of the container which will come into contact with a user's lips when a user drinks directly from the exit opening.

According to another aspect of the present invention there is provided a method of ensuring that the user lip contact area of a container for containing beverages or liquid foodstuffs is protected from the environment, comprising the step of applying a removable protective to the container, wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

There is also provided a method of assembling a filled container comprising selecting a container, said container comprising a container body and an exit opening for accessing the contents thereof; filling the container with a beverage of liquid foodstuff; sealing said exit opening; and applying a removable protective cover to the container body, wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

In one aspect, the cover is pre-formed to fit the shape of the container. In another aspect, the cover is post-formed on the container *in situ.*

The cover may be formed on the container using a potting or wax covering process. Alternatively, or in addition, the cover may be applied to the container under pressure or vacuum to ensure an adequate cover is obtained. Alternatively, or in addition, the cover may be applied using laser or ultrasonic welding and/or covering or heat shrinking. Alternatively, or in addition, a hot melt type of bonding may be used to apply the cover to the container top.

The container may be pre-treated e.g. through an oxygen or argon chemical pretreat to clean and/or sterilise the surface thereof before the protective cover is applied. Alternatively, an air or water blast abrasive process may be employed.

It is desirable that application of the protective cover does not affect current filling production lines. Suitably therefore, the cover is applied by way of an additional

end or finishing process once conventional filling and covering of the containers has taken place.

The process of stacking containers may be used to ensure that a cover had been applied correctly during the production line.

The invention will now be described by way of example only by reference to the following diagrammatic drawings in which:

Figure 1 illustrates a beverage container;

Figure 2 illustrates in perspective view a first container herein;

Figure 3 illustrates in perspective view a second container herein;

Figure 4 illustrates in perspective view a third container herein;

Figures 5a and 5b illustrate a first protective cover herein in respective top and underside views;

Figures 6a and 6b illustrate a second protective cover herein in respective top and underside views;

Figure 7 illustrates a third protective cover herein in underside view;

Figures 8a and 8b illustrate top views of a fourth protective cover herein in respective unfolded and folded configurations;

Figures 9a to 9d illustrate respective top views of fifth, sixth, seventh and eighth protective covers herein;

Figure 10a illustrates a fourth container herein in perspective view, and Figures 10b and 10c illustrate the protective cover of the fourth container in perspective and sectional views respectively;

Figure 11a illustrates a fifth container herein in perspective view, and Figures 11b and 11c illustrate the protective cover of the fifth container in perspective and sectional views respectively;

Figure 12a illustrates a sixth container herein in perspective view, and Figures 12b and 12c illustrate variations of the protective cover of the sixth container in perspective view;

Figure 13 illustrates a seventh container herein in perspective view; and

Figure 14 illustrates a process for making a filled container herein in schematic representation.

Referring now to the figures, Figure 2 shows a conventional beverage container 102 for containing beverages similar to that shown in Figure 1. The container 102 has a protective cover 130 in the form of shrink-wrap plastics coating. Two lines of perforations 132, 134 running along the centre top of the cover 130 ensure that to access the pull-tab 110 the user simply tears off the central strip 136 of the cover.

Figure 3 illustrates a container 202 (similar to that shown in Figure 1) having a protective cover 230 surrounding the pull-tab 210 and the area most likely to come into contact with a consumer's lips when drinking from the container 202. The protective cover 230 is provided with a forward tab element 240 which is easy to lift and pull away from the top wall 208 of the container 202. In this example, the forward tab element 240 has been inscribed with advertising or promotional information 242 for the consumer to read.

Figure 4 illustrates a container 302 (similar to that shown in Figure 1) having a protective cover 330 surrounding the pull-tab 310 and the area most likely to come into contact with a consumer's lips when drinking from the container 302. The protective cover 330 is provided with a forward tab element 340 which is easy to lift and pull away from the top wall 308 of the container 302. To either side of the forward tab element 340 are provided flanking wing portions 344, 346 which are shaped to cover a segment (approx. 120°) of the lip 307 of the container. In this example, the forward tab element 340 has been inscribed with advertising or promotional information 342 for the consumer to read.

Figures 5a and 5b respectively show top and underside views of a protective cover 430 herein particularly suitable for use with the container of Figure 1. The cover 430 has a first portion 431 which is sized to cover the top wall of a container by fitting into the recessed well thereof. The distance a (shown only in Figure 5a for convenience) corresponds essentially to the diameter of that recessed well. The cover is provided with a forward tab element 440 shaped to overhang the tapering portion 5 of the lateral wall 4 of the container of Figure 1 and having a length b which is approximately 60% (a range of 40-80% is acceptable) of the length of the tapering portion 5 of the container. Flanking wings 444, 446 are sized and shaped to cover a segment (approx. 120°) of the lip 7 of the container of Figure 1. Fold line 432 (positive fold in Figure 5a, negative fold in Figure 5b) is shaped to mirror the curve of the lip 7 of the container of Figure 1.

Referring now to Figure 5b, the underside of the protective cover 430 may be seen to be provided with an adhesive portion 450 for attachment of the cover to the container. Once the cover 430 has been removed from the container it may be folded positively along fold line 452 to create an entity that presents no outward adhesive surface, and which is therefore readily stowable in a wallet or purse.

Figures 6a and 6b respectively show top and underside views of a protective cover 530 herein which is a variant of the cover of Figures 5a and 5b. The cover 530 has a first portion 531 which is sized to cover the top wall of a container by fitting into the recessed well thereof. The distance a (shown only in Figure 6a for convenience) corresponds essentially to the diameter of that recessed well. The cover is provided with a forward tab element 540 shaped to overhang the tapering portion 5 of the lateral wall 4 of the container of Figure 1 and having a length b which is approximately 60% (a range of 40-80% is acceptable) of the length of the tapering portion 5 of the container. Flanking wings 544, 546 are sized and shaped to cover a segment (approx. 120°) of the lip 7 of the container of Figure 1. Fold line 532 (positive fold in Figure 5a, negative fold in Figure 5b) is shaped to mirror the curve of the lip 7 of the container of Figure 1. An unfolding movement of the tab 540 *in situ* along the fold line 532 from a first position where the tab 540 overhangs the container to a second position where it stands proud results in a characteristic click sound. Fold line 532 is therefore a click-fold.

Referring now to Figure 6b, the underside of the protective cover 530 may be seen to be provided with a symmetrically shaped adhesive portion 550 for attachment of the cover to the container. Once the cover 530 has been removed from the container it may be folded positively along fold line 552 to create an entity that presents no outward adhesive surface, and which is therefore readily stowable in a wallet or purse.

Figure 7 shows an underside view of a protective cover 630. The cover 630 has a first portion 631 which is sized to cover the top wall of a container by fitting into the recessed well thereof. The cover 630 is provided with a forward tab element 640 shaped to overhang the tapering portion 5 of the lateral wall 4 of the container of Figure 1. Flanking wings 644, 646 are sized and shaped to cover a segment (approx. 120°) of the lip 7 of the container of Figure 1 when in use the forward tab 640 and flanking wings 644, 646 are folded over the lip of the

container along fold line 632. The cover is provided with an RFID tag comprising a memory chip 660 which is capable of storing, transmitting and receiving information and an antenna 662 which is located around an underside adhesive portion 650. The antenna 662 is responsive to radiofrequency energy over a wide bandwidth, ranging from 100 KHz to 2.4 GHz. Data in digital form may therefore be stored on the cover 630 in the memory 660 and transferred thereto and therefrom by radiofrequency interrogation of the tag.

Figures 8a and 8b show top views of a protective cover 730 herein particularly suitable for use with the container of Figure 1. In Figure 8a the cover 730 is shown in unfolded (i.e. pre-assembled) configuration and in Figure 8b the cover 730 is shown folded and ready for use. The cover 730 has a first portion 731 which is sized to cover the top wall of a container by fitting into the recessed well thereof. The distance a corresponds essentially to the diameter of that recessed well. The cover is provided with a forward tab element 740 shaped to overhang the tapering portion 5 of the lateral wall 4 of the container of Figure 1 and having a length b which is approximately 60% (a range of 40-80% is acceptable) of the length of the tapering portion 5 of the container. Flanking wings 744, 746 are sized and shaped to cover a segment (approx. 120°) of the lip 7 of the container of Figure 1. Fold line 732 is shaped to mirror the curve of the lip 7 of the container of Figure 1.

The forward tab element 740 is also provided with a fold under element 750 (only visible on Figure 8a) foldable towards the forward tab element along fold under line 752. The fold under element is shaped and sized to mirror the shape and size of the forward tab element, thus it has a length b and corresponding flanking wings 754 and 756 (matching forward wings 744 and 746). In the embodiment shown the fold under element 750 folds towards the underside of the forward tab element 740 thereby doubling its thickness. In an alternative embodiment, the fold under element 750 may fold towards the topside of the forward tab element 740. The fold under element 750 may be provided with data (e.g. written or bar-

coded or electronic tagged) which is invisible until the element 750 is folded out. This feature can be used to hide/protect data and or be incorporated as part of a tamper proof feature.

The forward tab element 740 of the protective cover 730 is moveable between two distinct positions comprising a stowed position in which the tab 740 folds against the container body and an alert position in which the tab 740 stands proud from the container body. In variations herein, the protective cover 730 may be provided with means for detecting or evidencing movement of the tab 740 from said stowed position to said alert position. For example, said movement may be accompanied by a characteristic 'click' sound, which may arise as a result of the natural properties of the material from which the cover 730 is formed (e.g. relatively stiff paper or plastics material). In another variation, movement of the tab 740 from the stowed to the alert position results in break of an anchor engagement. In a further variation, movement of the tab 740 from the stowed to the alert position results in change of colour at least part of the protective cover 730.

Figures 9a to 9d show variations of the protective cover of Figures 8a and 8b in the folded configuration. The cover 830a, 830c, 830d of Figures 9a, 9c and 9d has a first portion 831a, 831c, 831d which is sized to cover a major part of the top wall of a container by fitting into the recessed well thereof. The cover 830b of Figure 9b by contrast, has a rounded cutaway end 834b shaped to enable finger access to the ring pull of a pull-tab opening when the cover 830b is positioned in the recessed top wall of a beverage container. In each case, the cover 830a-d is provided with a forward tab element 840a-d shaped to overhang the tapering portion 5 of the lateral wall 4 of the container of Figure 1 and having a length b which is approximately 60% (a range of 40-80% is acceptable) of the length of the tapering portion 5 of the container. Flanking wings 844a-d, 846a-d are sized and shaped to cover a segment (approx. 120°) of the lip 7 of the container of

Figure 1. Fold line 832a-d is shaped to mirror the curve of the lip 7 of the container of Figure 1.

The protective covers of Figures 9a and 9d are additionally provided with a continuous line of reinforcement 836a, 836d (e.g. comprising a raised area of thickened cover material or strengthening material printed or otherwise applied thereto). The protective covers of Figures 9c and 9d are additionally provided with perforated tear lines 845c, 845d and 847c, 847d in the flanking wings 844c, 844d and 846c, 846d for use in detecting any removal of the tab (e.g. as a result of tampering).

The protective covers of Figures 8a, 8b and 9a-d are initially manufactured as flat-form structures. When applied to the container however, the cover will be shaped *in situ* to adopt a three-dimensional form mirroring that of the top wall of the container to which they are applied.

Figure 10a illustrates a container 902 (similar to that shown in Figure 1) having a protective cover 930 surrounding the pull-tab 910 (not visible) and the area most likely to come into contact with a consumer's lips when drinking from the container 902. The protective cover 930 is provided with a forward tab element 940 which is designed to lift and pull away from the top wall 908 of the container 902. To either side of the forward tab element 940 are provided flanking wing portions 944, 946 which are shaped to cover a segment (approx. 120°) of the lip 907 of the container. The tip 941 of the forward tab element 940 is anchored to the lateral wall 904 of the container 902 as a means of tamper-evidence.

The protective cover 930 of Figure 10a is also shown in Figures 10b and 10c (the latter being a sectional view along line Y-Y of Figure 10a) from which it may be appreciated that the cover 930 has a pre-formed (e.g. pre-shaped, pre-stamped of pre-moulded) three-dimensional shape which mirrors the shape of the top wall 8 and recessed well of the container of Figure 1. One advantage of pre-forming of

the cover 930 is that it reduces the complexity of the manufacturing process step involved in applying the cover to the container 902.

Figure 11a illustrates a container 1002 (similar to that shown in Figure 1) which is a variation of that shown in Figures 10a-c. The container 1002 has a protective cover 1030 surrounding part, but not all, of the pull-tab 1010 and the area most likely to come into contact with a consumer's lips when drinking from the container 1002. The protective cover 1030 is provided with a forward tab element 1040 which is designed to lift and pull away from the top wall 1008 of the container 1002. To either side of the forward tab element 1040 are provided flanking wing portions 1044, 1046 which are shaped to cover a segment (approx. 120°) of the lip 1007 of the container. The tip 1041 of the forward tab element 1040 is in this case not anchored to the lateral wall 1004 of the container 1002, although in variations a means of anchoring (e.g. adhesive) could be provided.

The protective cover 1030 of Figure 11a is also shown in Figures 11b and 11c (the latter being a sectional view along line X-X of Figure 11a) from which it may be appreciated that the cover 1030 has a pre-formed (e.g. pre-shaped, pre-stamped of pre-moulded) three-dimensional shape which mirrors the shape of the top wall 8 and recessed well of the container of Figure 1. One advantage of pre-forming of the cover 1030 is that it reduces the complexity of the manufacturing process step involved in applying the cover to the container 1002.

Figure 12a illustrates a container 1102 (similar to that shown in Figure 1) which is also a variation of that shown in Figures 10a-c. The container 1102 has a protective cover 1130 surrounding part, but not all, of the pull-tab 1110 and the area most likely to come into contact with a consumer's lips when drinking from the container 1102. The protective cover 1130 has a fanciful representation mirroring the outline and form of a pair of human lips. A forward tab element 1140 of sorts is defined, and this is designed to lift and pull away from the top wall 1108 of the container 1102. To either side of the forward tab element 1140 are

provided the equivalents of flanking wing portions 1144, 1146 which are shaped to cover a segment (approx. 120°) of the lip 1107 of the container.

Variations of the protective cover 1130 of Figure 12a are shown in Figures 12b and 12c. In essence, the variations relate to different human lip sizes. It may be appreciated that differing lip sizes may be applied to different ethnic or regional markets. Alternatively, in marketing aspects the representation of celebrity lip profiles may be employed. Typically, the cover 1130 has a pre-formed (e.g. pre-shaped, pre-stamped of pre-moulded) three-dimensional shape. One advantage of pre-forming of the cover 1030 is that it reduces the complexity of the manufacturing process step involved in applying the cover to the container 1002.

Figure 13 illustrates a container 1202 (similar to that shown in Figure 1) which is a variation of that shown in Figures 11a-c. The container 1202 has a protective cover 1230 surrounding part, but not all, of the pull-tab 1210 and the area most likely to come into contact with a consumer's lips when drinking from the container 1202. The protective cover 1230 is principally formed from a soft, gel-like material. Its shape is formed at the time of applying the gel to the container 1202 during manufacture. The protective cover 1230 is provided with a forward tab element 1240 which is designed to lift and pull away from the top wall 1208 of the container 1202. To either side of the forward tab element 1240 are provided flanking wing portions 1244, 1246 which are shaped to cover a segment (approx. 120°) of the lip 1207 of the container. The tip 1241 of the forward tab element 1040 is in this case not anchored to the lateral wall 1204 of the container 1202, although in variations a means of anchoring (e.g. adhesive) could be provided. The gel-like cover 1230 has the advantage that it may be readily peeled off by the user in a smooth peel-to-access type process.

Figure 14 schematically illustrates a method for forming a container herein. In a pre-step the body of a container 1302 is formed. The container body 1302 is, in a first step, then filled with beverage. In a second step, the container is sealed by

for example crimping a lid 1308 having a pull-tab opening 1310 therein to the container body 1302. In a final step, a protective cover 1330 is applied to the top wall 1308 of the container. The protective cover 1330 may either have a pre-formed shape or its shape may be formed at the time of its application to the container 1302.

It is to be understood that the foregoing is merely exemplary of the invention and that modifications may be made thereto without departing from the true scope of the invention as set out in the claims.

Claims

1. A container for containing a beverage or liquid foodstuff comprising a container body; an exit opening for accessing the contents thereof; a seal for the exit opening; and a removable protective cover, wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

2. A container according to claim 1, wherein said seal is a pull-tab opening.

3. A container according to claim 2, wherein the protective cover additionally covers the pull-tab opening of the container.

4. A container according to either of claims 1 or 2, wherein the protective cover additionally covers an excess area of the container body amounting to 10-50% excess over that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

5. A container according to any of claims 1 to 4, wherein the protective cover additionally covers an excess area of the container body amounting to 10-50% excess over both area defined by the pull-tab opening and that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

6. A container according to any of claims 1 to 5, wherein the protective cover has a tab element.

7. A container according to claim 6, wherein the tab of the protective cover is moveable between two distinct positions comprising a stowed position in

which the tab folds against the container body and an alert position in which the tab stands proud from the container body.

8. A container according to claim 7, wherein the protective cover is provided with means for detecting or evidencing movement of the tab from said stowed position to said alert position.

9. A container according to claim 8, wherein movement of the tab from the stowed to the alert position results in a characteristic sound.

10. A container according to claim 8, wherein movement of the tab from the stowed to the alert position results in break of an anchor engagement.

11. A container according to claim 8, wherein movement of the tab from the stowed to the alert position results in change of colour at least part of the protective cover.

12. A container according to any of claims 1 to 11, wherein the protective cover comprises a forward tab element and wing portions flanking either side thereof.

13. A container according to claim 12, wherein the forward tab element and flanking wings in combination define a 120-150° segment.

14. A container according to any of claims 1 to 13, wherein the protective cover is provided with mechanical elements selected from the group consisting of folds, reinforcement lines, tear lines and any combinations thereof.

15. A container according to any of claims 1 to 14, wherein the protective cover is configured to be readily stowable in a wallet or purse on removal from the container body.

16. A container according to any of claims 1 to 15, wherein the underside of the cover has an adhesively coated portion for ready attachment to part of the container.

17. A container according to any of claims 1 to 15, wherein the protective cover snap-fits to the container.

18. A container according to any of claims 1 to 17, wherein the protective cover is pre-formed to have at least part of the shape of the container body.

19. A container according to any of claims 1 to 18, wherein the form of the protective cover mirrors the form of a pair of human lips.

20. A container according to any of claims 1 to 19, wherein the protective cover comprises a material selected from the group consisting of polymers, foil gel, wax, paper and any combinations thereof.

21. A container according to claim 20, wherein said material is biodegradable.

22. A container according to either of claims 20 or 21, wherein said material is has antibacterial or desiccant properties.

23. A container according to any of claims 20 to 22, wherein the material incorporates a scent and/or a flavouring agent.

24. A container according to any of claims 20 to 23, wherein the material has a colour which changes on reaching a predetermined age.

25. A container according to any of claims 20 to 24, wherein the material has a colour which changes in response to the detection of leaks of container contents.

26. A container according to any of claims 1 to 25, wherein the container body has a lateral wall; a base wall; and an upper wall, wherein the lateral wall has an inwardly tapering portion ending in a protruding lip which extends around the circumference of the upper wall and the upper wall is recessed relative to the upper extent of the protruding lip such that the inner circumferential wall of the lip and the upper wall in combination form a recessed well.

27. A container according to claim 26, wherein the container has a pull-tab opening comprising a pull-tab fixed through rivet to the upper wall of the container at a point adjacent to exit opening and the exit opening sits in pull-tab recess which assists finger access to the pull-tab.

28. A container according to either of claims 26 or 27, wherein that part of the container body which contacts a user's lips when the user drinks directly from the exit opening comprises in combination

(a) an upper user lip contact area comprising a portion of the exit opening, the upper wall, the protruding lip and the circumferential wall; and

(b) a lower user lip contact comprising a portion of the protruding lip and the tapering portion of the lateral wall.

29. A container according to any of claims 1 to 28, wherein the protective cover has printed matter thereon.

30. A container according to any of claims 1 to 29, wherein the protective cover comprises a unique identifier.

31. A container according to any of claims 1 to 30, wherein the protective cover includes a transceiver comprising an antenna or equivalent for transmitting or receiving data and connecting thereto a memory.

32. A container according to claim 31, wherein the transceiver comprises a radiofrequency identifier tag comprising an antenna for transmitting or receiving radiofrequency energy; and the memory comprises an integrated circuit chip connecting with said antenna.

33. A container according to any of claims 1 to 30, wherein the protective cover includes a microelectronic memory chip.

34. A stack of containers according to any of claims 1 to 33.

35. A filled container according to any of claims 1 to 34 containing a beverage or liquid foodstuff, particularly a carbonated beverage, therein.

36. A protective cover for a beverage or liquid foodstuff container comprising a container body; an exit opening for accessing the contents thereof; and a seal for said exit opening, wherein said protective cover wholly covers that part of the container which will come into contact with a user's lips when a user drinks directly from the exit opening.

37. A method of assembling the filled container according to claim 35, comprising

(a) selecting a container, said container comprising a container body and an exit opening for accessing the contents thereof;

(b) filling the container with a beverage of liquid foodstuff;

(c) sealing said exit opening; and

(d) applying a removable protective cover to the container body,

wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

38. A method according to claim 37, wherein the protective cover is pre-formed to fit the shape of the container body.

39. A method according to claim 37, wherein the protective cover is post-formed on the container body *in situ.*

40. A method according to any of claims 37 to 39, wherein, the protective cover is applied by a process selected from the group consisting of

(a) a potting or wax covering process;
(b) under pressure and/or under vacuum;
(c) using laser or ultrasonic welding and/or covering or heat shrinking; and
(d) using a hot melt type of bonding.

41. A method according to any of claims 37 to 40, wherein the container body is pre-treated before application of the protective cover.

42. A kit of parts comprising

(a) a container for containing a beverage or liquid foodstuff comprising a container body; an exit opening for accessing the contents thereof; and a seal for said exit opening; and

(b) a removable protective cover,

wherein said protective cover wholly covers that part of the container body which will come into contact with a user's lips when a user drinks directly from the exit opening.

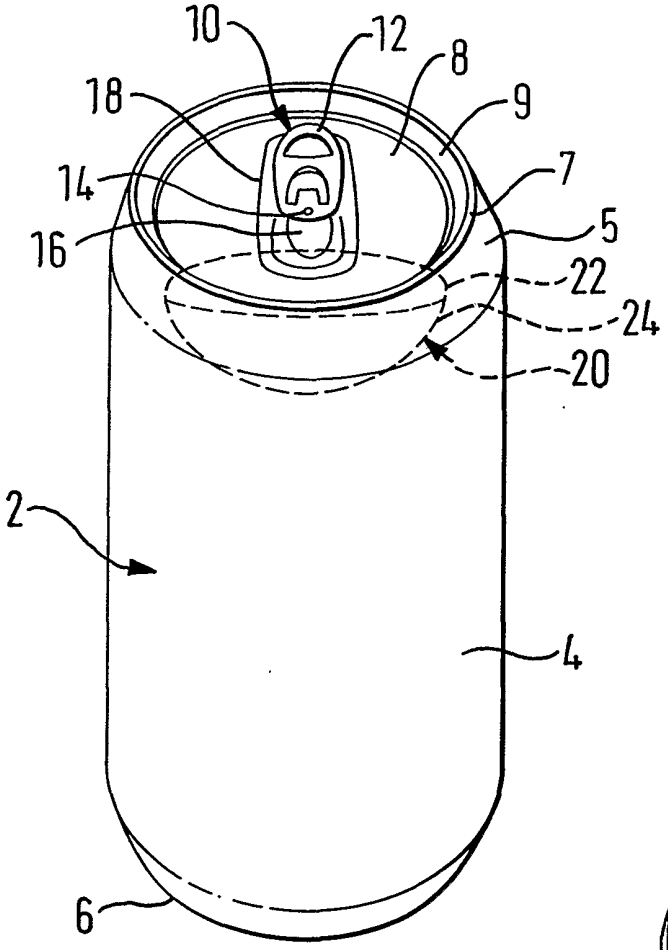


FIG. 1

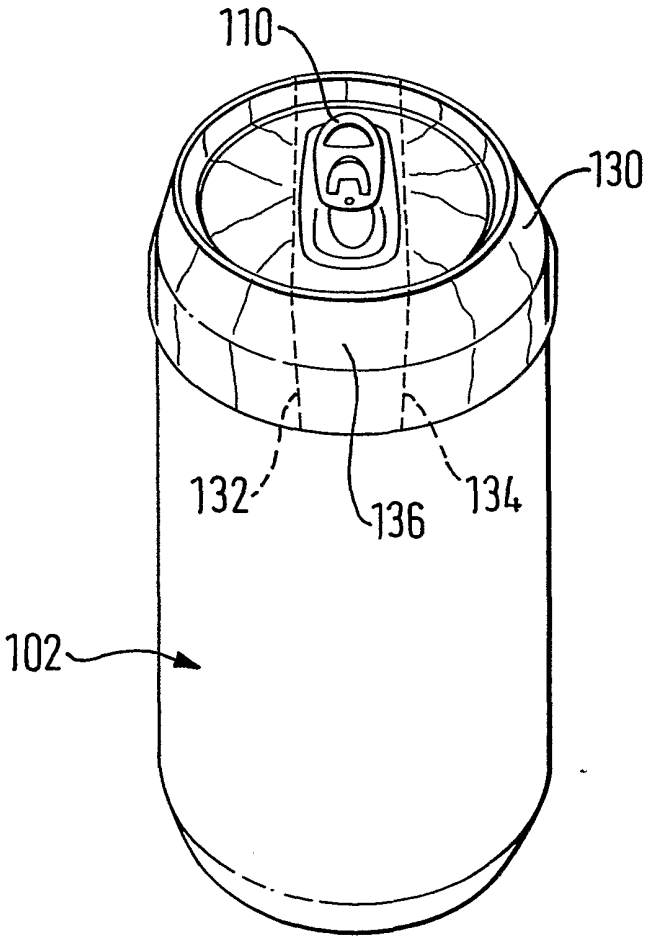


FIG. 2

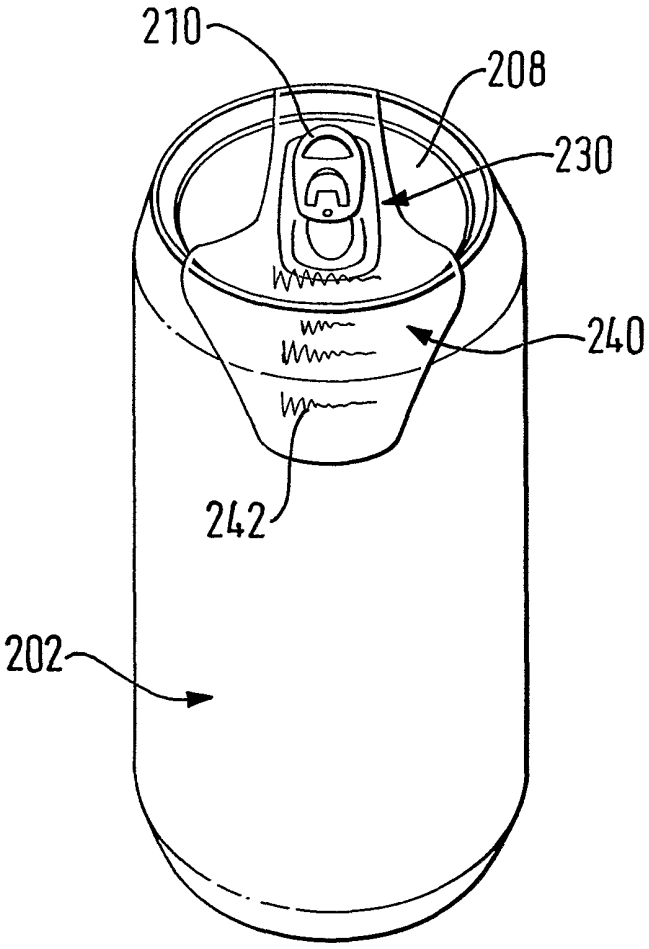


FIG. 3

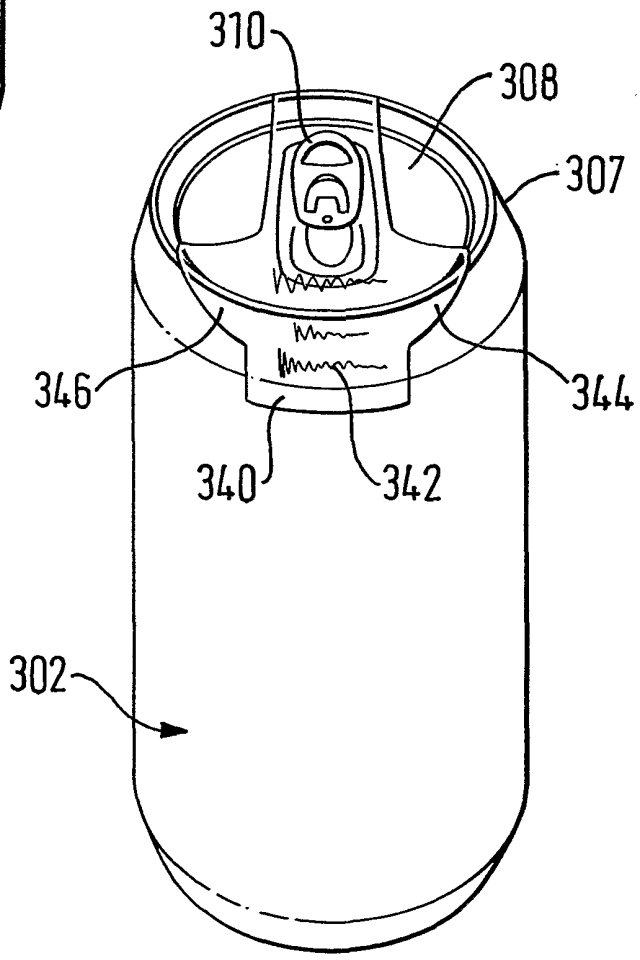


FIG. 4

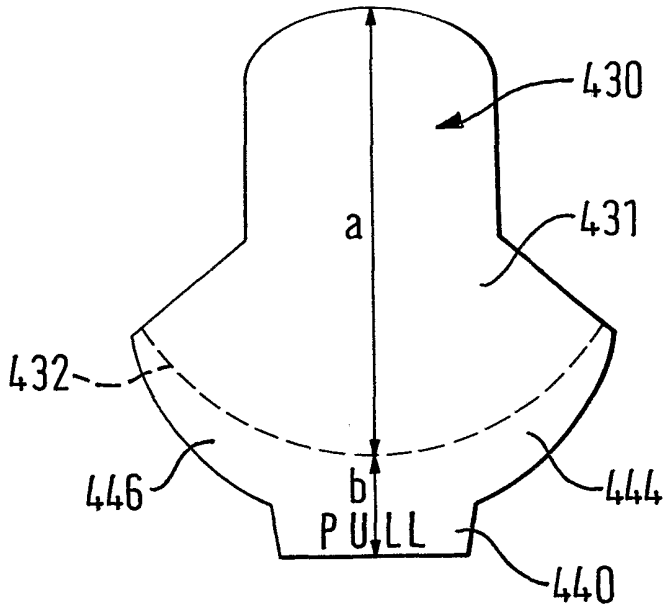


FIG. 5a

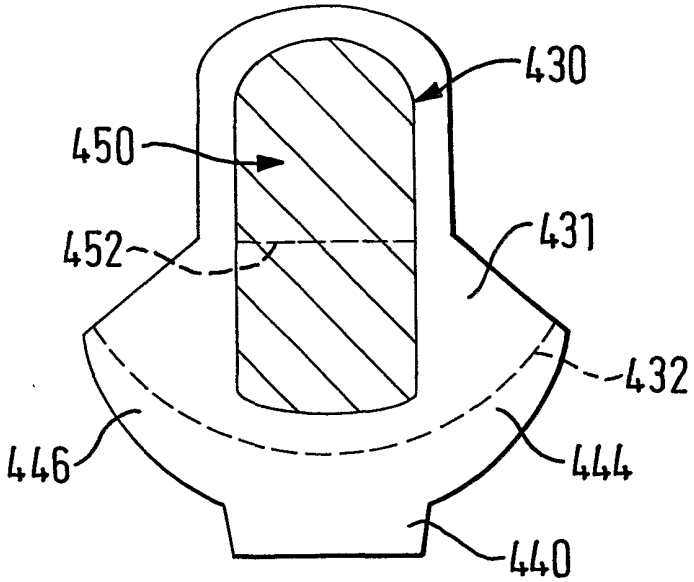


FIG. 5b

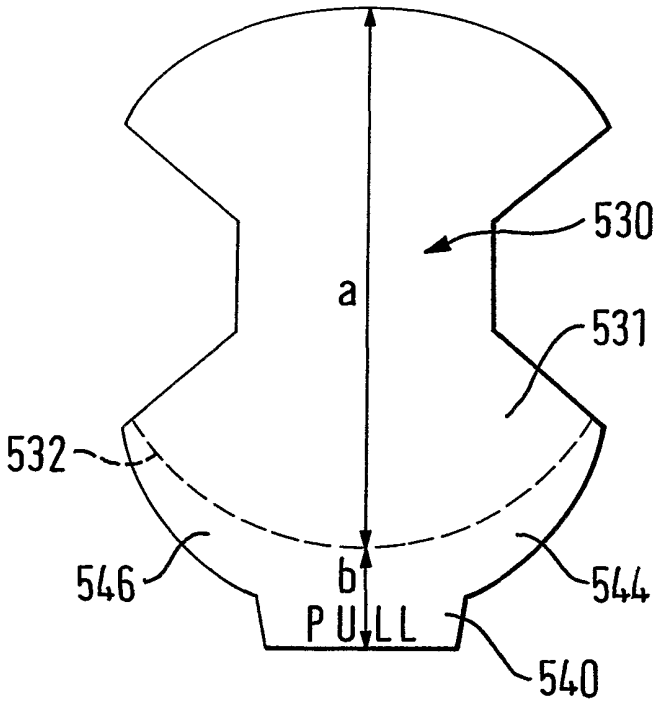


FIG. 6a

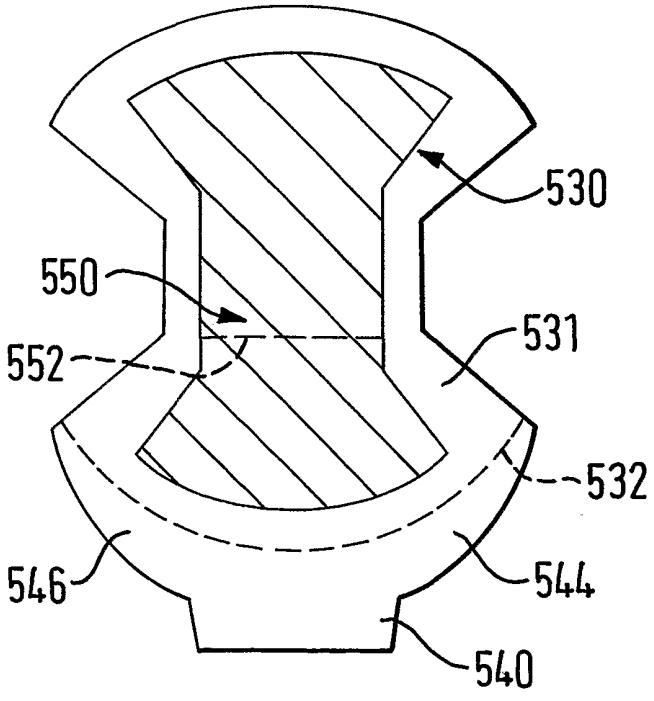


FIG. 6b

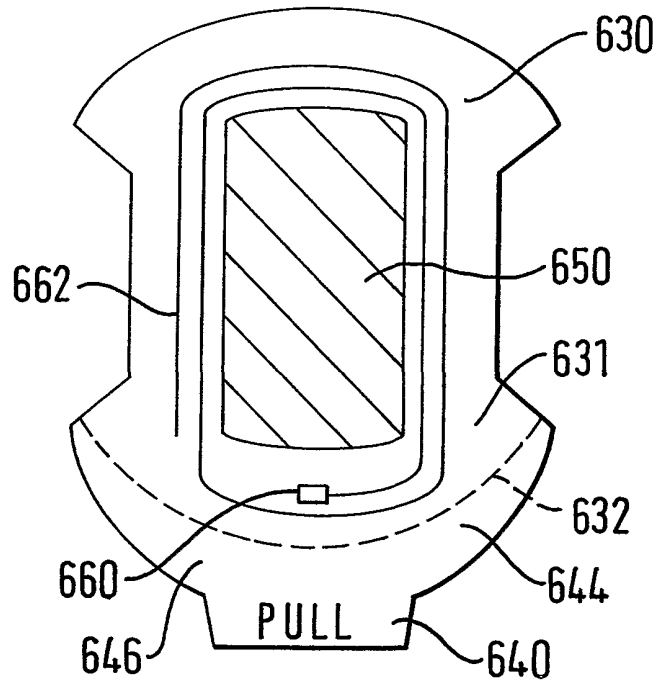


FIG. 7

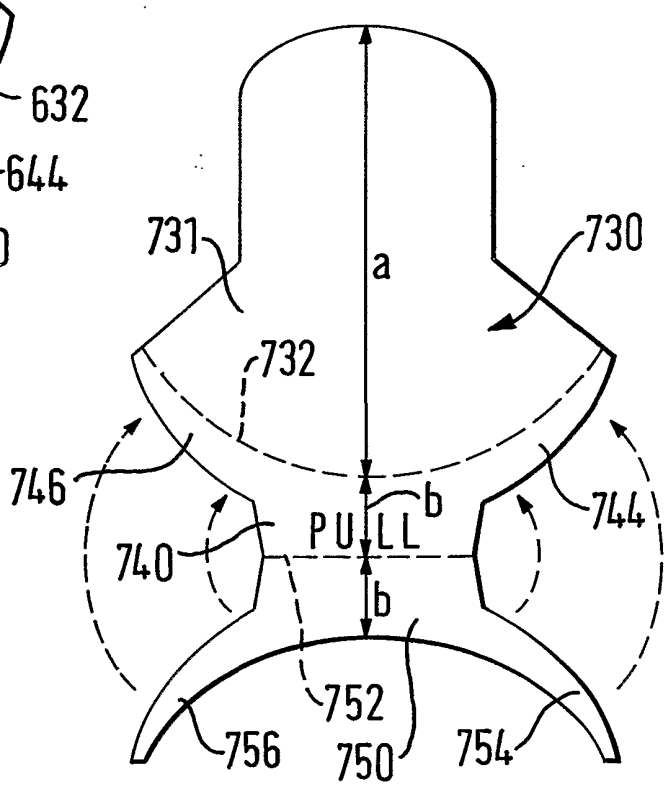


FIG. 8a

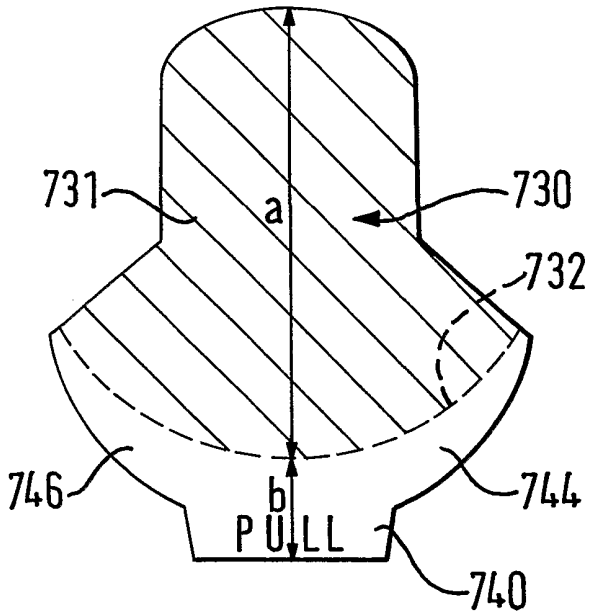


FIG. 8b

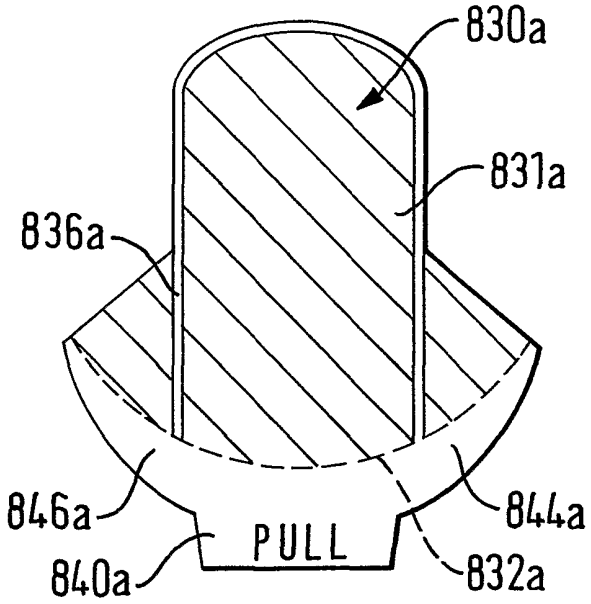
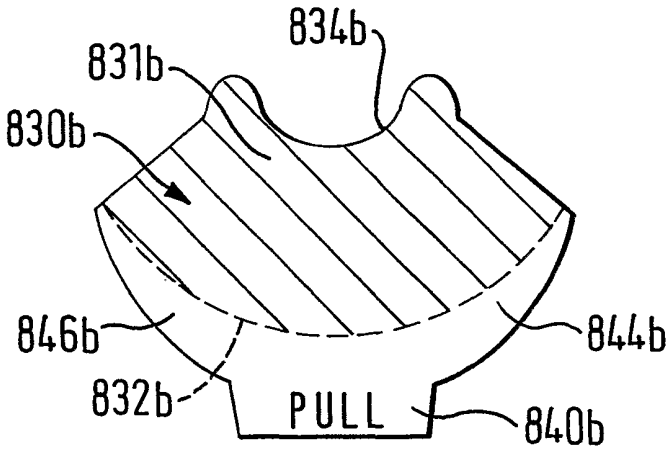

830a
831a
836a
846a
PULL
844a
840a
832a

FIG. 9a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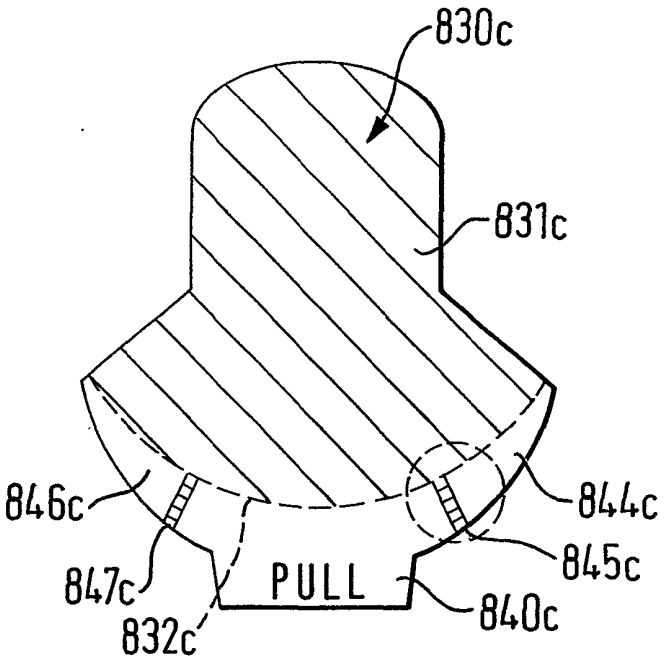
831b
830b
846b
844b
832b
PULL
840b

FIG. 9b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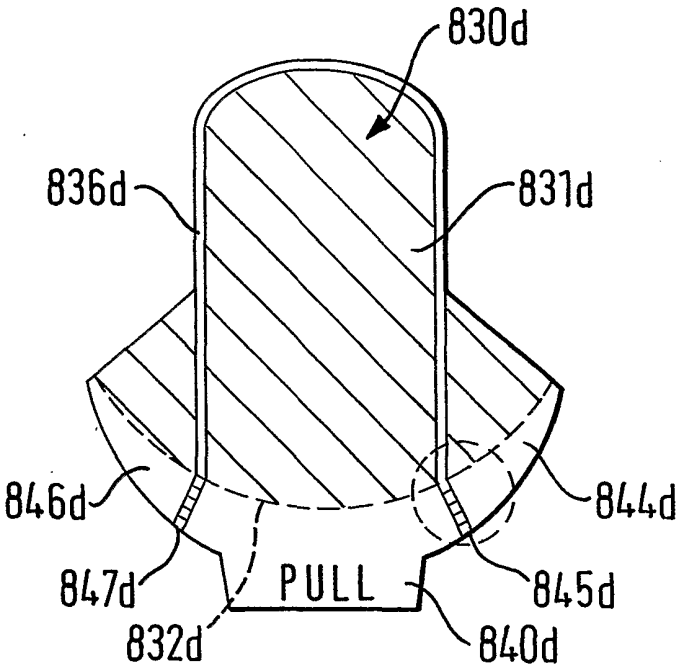
844c
847c
845c
PULL
840c
832c

FIG. 9c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831d
846d
844d
847d
845d
PULL
832d
840d

FIG. 9d

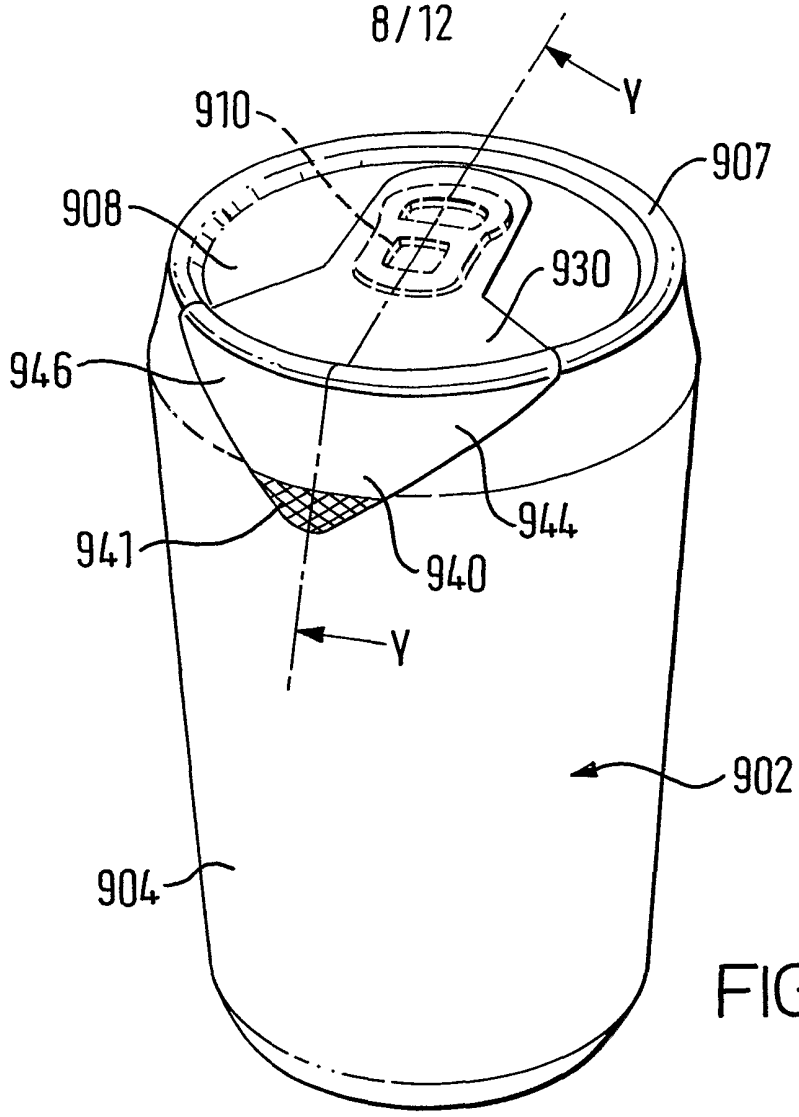

FIG. 10a

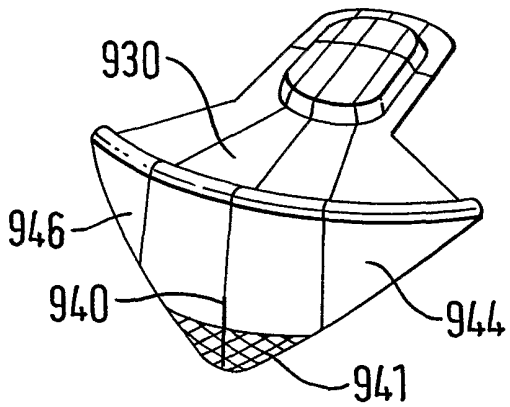

FIG. 10b

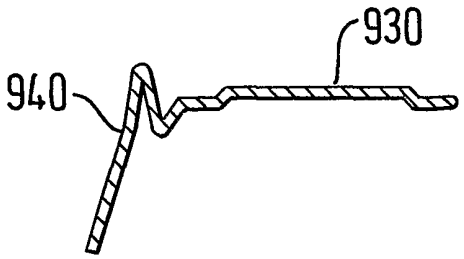

FIG. 10c

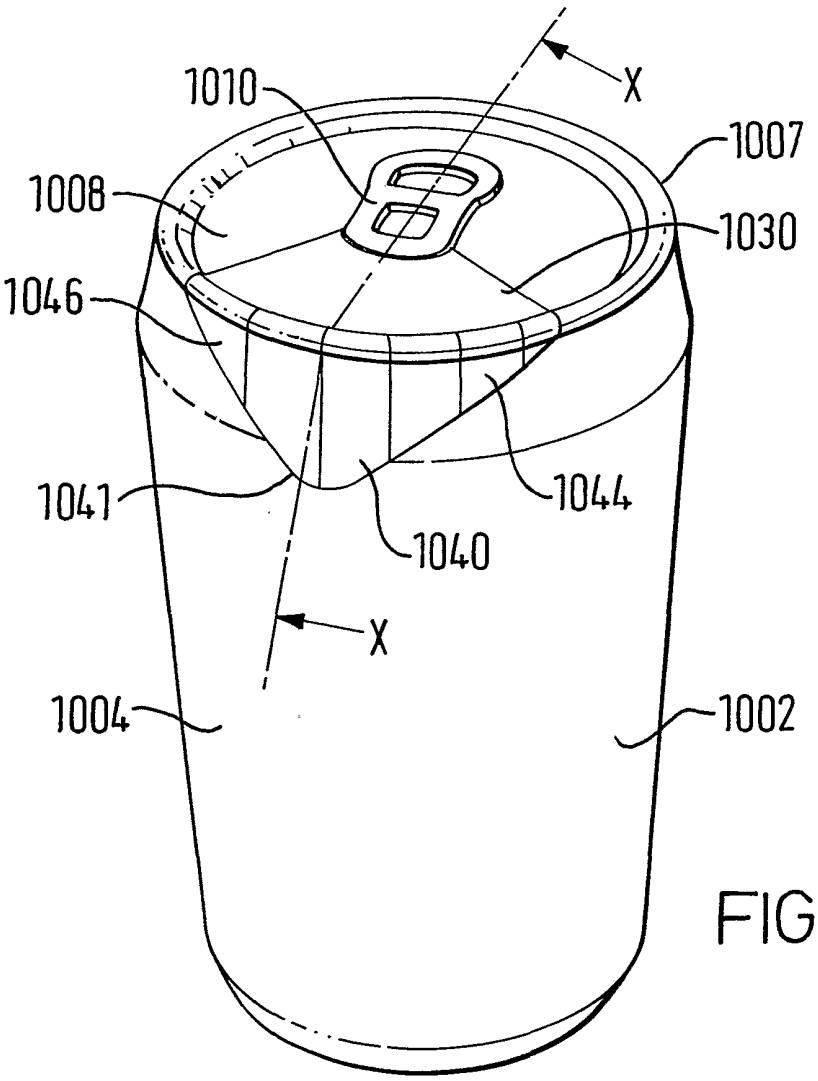

FIG. 11a

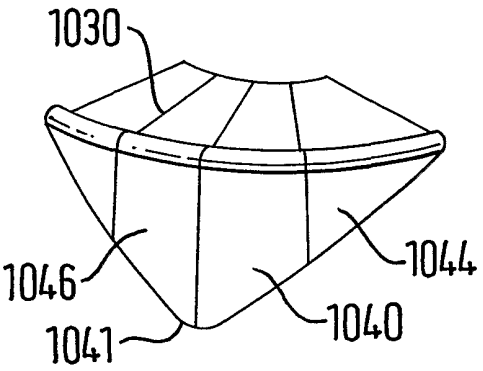

FIG. 11b

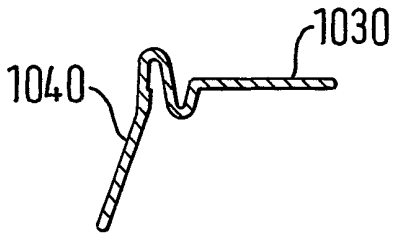

FIG. 11c

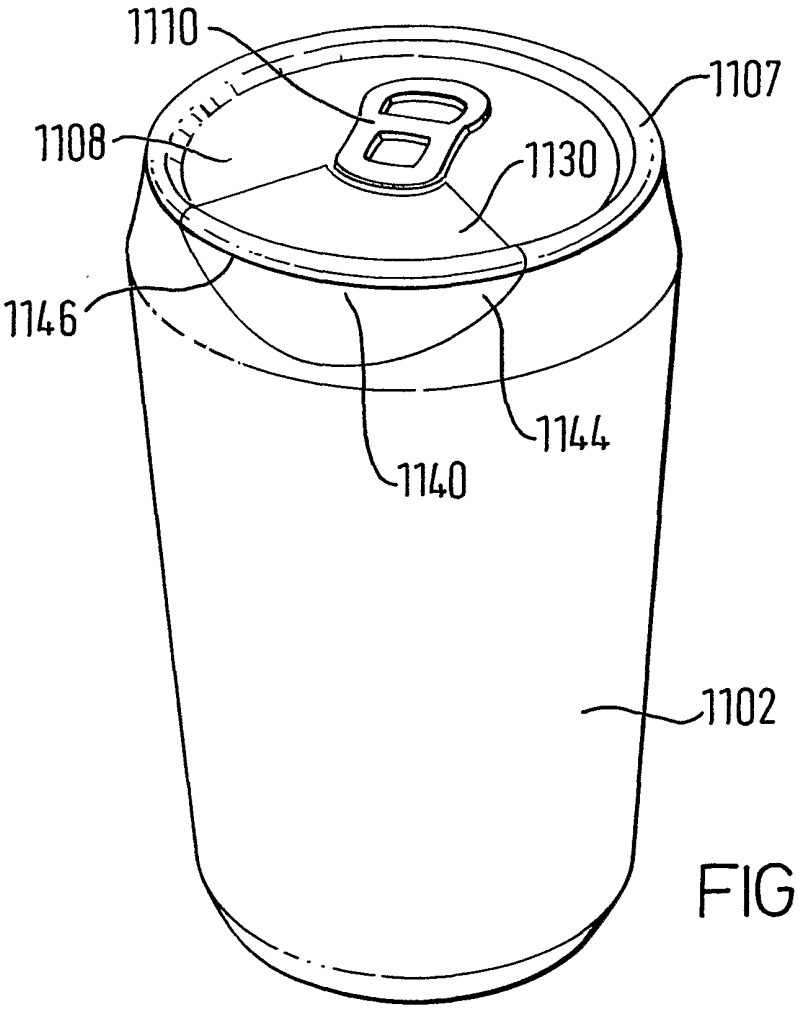

FIG. 12a

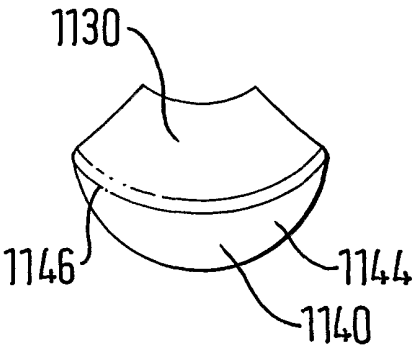

FIG. 12b

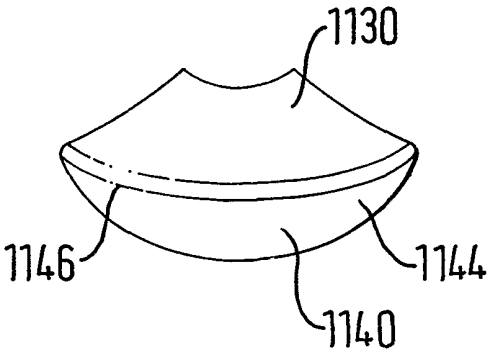

FIG. 12c

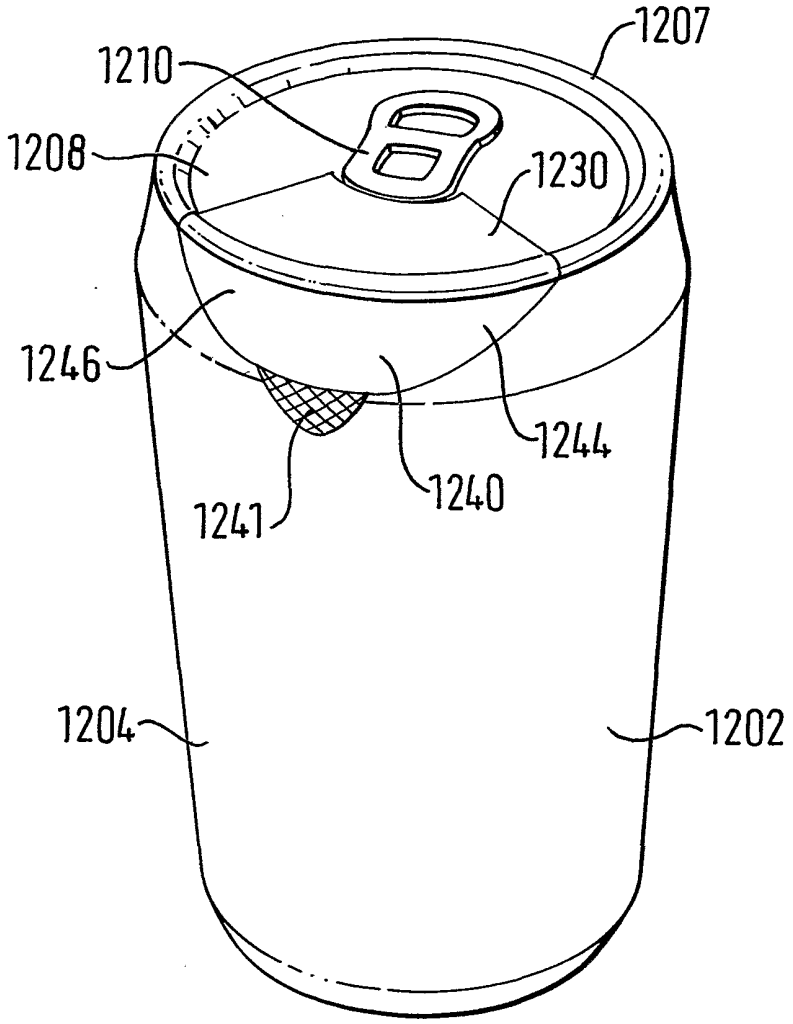

FIG. 13

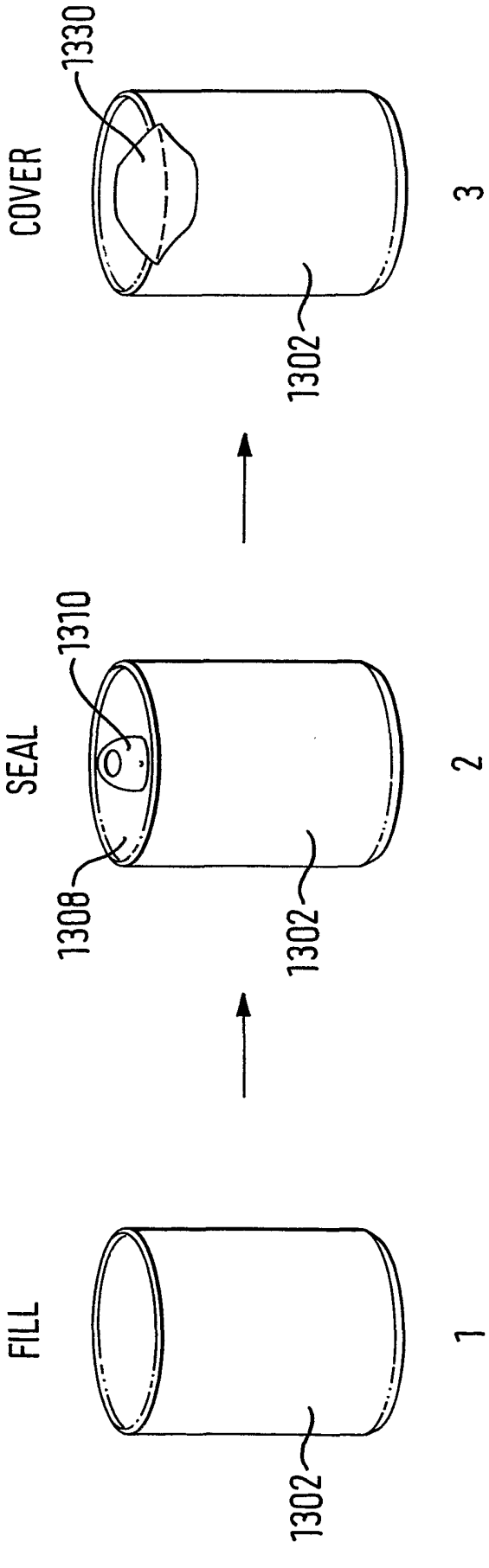

FIG. 14