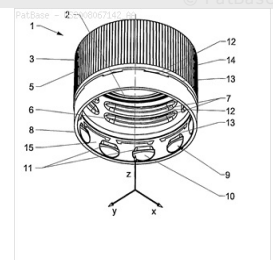


**1) Family number: 33366293** (US2008067142A)**SEALING MEANS FOR A CLOSURE, CLOSURE AND PROCESS**

**Abstract:** Source: US2008067142A The present invention is directed to a sealing means for sealing of a neck of a container, especially a container for carbonated beverages. The sealing means comprises a radially deformable outer sealing means suitable to be engaged with an outer free surface of a neck of the container. The outer sealing means comprises an annular base which blends by a blend into a vertical top surface and at least one annular sealing ring arranged at a free end of the annular base, protruding radially inwardly above the inner surface of the base and forming in engaged position with the neck a first contact area with the outer free surface.

**Probable Assignee:** CREANOVA UNIVERSAL CLOSURES LTD

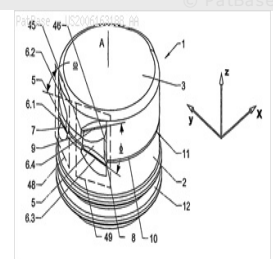
**Earliest Publication Date:** 20060309

**2) Family number: 31485477** (US2006163188A)**HINGED CLOSURE MOULDED IN CLOSED POSITION**

**Abstract:** Source: US2006163188A The invention is directed to a closure moulded in closed position. The closure comprises a body and a lid, which are separated by a circumferential gap. A snap hinged comprising two trapezoid elements, which are connected each by film hinges to the body and the lid, causes a snap action while opening or closing the closure. The closure offers opening angles in the range of 220 degrees.

**Probable Assignee:** CREANOVA AG

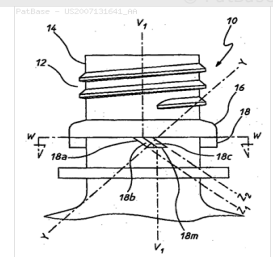
**Earliest Publication Date:** 20050127

**3) Family number: 31517864** (US2007131641A)**CLOSURE WITH FRANGIBLE TAMPER-EVIDENT BAND**

**Abstract:** Source: US2007131641A This invention relates to closures for containers, and more particularly to tamper-evident closures for containers. One aspect of the invention provides a container and a closure for connection to said container, said closure including: an upper wall (102), a skirt (104) formed integrally with and extending downwardly from said upper wall, said skirt adapted to engage with a neck portion of the container to secure the closure to the container; a tamper-evident band (110) frangibly connected to said skirt; the neck (10) of the container including a plurality of discretely spaced projections (18) extending outwardly from said neck and adapted to engage with tabs (122) on said tamper-evident band to facilitate breaking of the band (110) from the skirt of the closure.

**Probable Assignee:** RBC TRUSTEES CI LTD

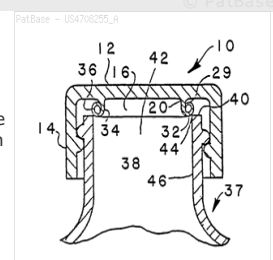
**Earliest Publication Date:** 20040902

**4) Family number: 10479960** (US4708255A)**CLOSURE CAP WITH A LINERLESS SEAL AND A METHOD FOR FORMING SUCH CLOSURE AND SEAL**

**Abstract:** Source: US4708255A A linerless cap for a container and a method of forming the cap. In the method the cap is molded from plastic and includes a top wall, an outer depending skirt and an internal depending substantially annular wall having an upper end integral with and depending from the top wall and a lower free end. Thereafter the free end is engaged by an essentially concave surface of a curling tool to progressively turn the free end away from the internal wall to curve the free end into a curvilinear compressible and resilient free end adapted to be engaged for sealing. The engageable free end of the seal can have a coil, O, U, J or quarter round cross sectional shape and can be a rim, plug or corner seal.

**Probable Assignee:** ZAPATA INNOVATIVE CLOSURES INC

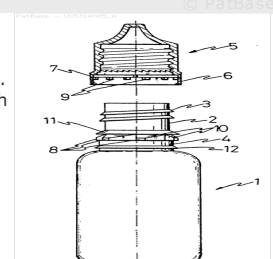
**Earliest Publication Date:** 19870618

**5) Family number: 17275177** (US5314085A)**CONTAINER AND TAMPER-EVIDENT CLOSURE**

**Abstract:** Source: US5314085A A container with a threaded neck and a non-spin threaded top and ring seal device. The top and the ring seal are frangibly attached. The neck has an upper zone with a helical thread and lower smooth zone with a diameter larger than the upper zone. Between the upper and lower zones is a serrated edge with teeth having oblique upper surfaces for easy insertion/assembly of the top and ring seal. Above the serrated edge there is an annular projection which defines an oblique annular tooth which holds the ring seal in place after the seal is broken, preventing it from coming out of place when the product within the container is being used. There is also another annular projection below the serrated edge near the bottom of the lower zone which centers the ring seal but does not prevent it from dropping when the seal is broken.

**Probable Assignee:** JOSE COLLADO BONET SA

**Earliest Publication Date:** 19920216

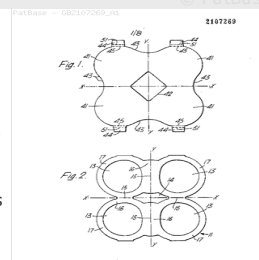


## MULTIPACKS OF CONTAINERS

**Abstract:** Source: GB2107269A A multipack comprises a plurality of containers such as cans (10) tightly held in an array by a sheet plastics coupler (11) which has apertures through which the tops (9) of the containers protrude. The tops of the containers are provided with end closures and the multipack includes a cover attachment (8) formed from a blank of heat-sealable sheet material having a plane portion which covers these end closures, and a plurality of tabs (44) which are integral with the plane portion and are folded downwardly along a crease line (45) and connected by heat sealing (46) to the coupler at the outer periphery of the multipack. This configuration is easier to produce than known arrangements and is less likely to become damaged during storage and handling. An apparatus for the high speed attachment of said blanks to said couplers comprises conveyors for transporting arrays of coupled containers (65) through the apparatus, an applicator (80) for removing blanks (82) from a magazine (81) and depositing them on respective said arrays of containers, means for directing hot gas onto the blank tabs (44) and the coupler to render them heat-sealable together, folders for bending the tabs downwardly against the coupler and means for pressing the tabs against the coupler to heat seal the same together.

**Probable Assignee:** METAL BOX PLC

**Earliest Publication Date:** 19830324

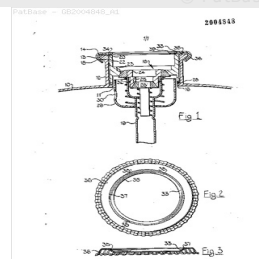


## TAMPER-INDICATING CLOSURES

**Abstract:** Source: GB2004848A Portable container for beer under pressure has its top opening closed by a screwed-in valved spear 18, 19. The container opening is provided with a frangible tamper-proof end ring 35 having a skirt 36 secured by crimping to the container. The spear cannot be removed without breaking away an inner rim portion 33 frangibly connected to the end ring 35 and thereby providing visual evidence of tampering.

**Probable Assignee:** COURAGE BREWING LTD

**Earliest Publication Date:** 19790324

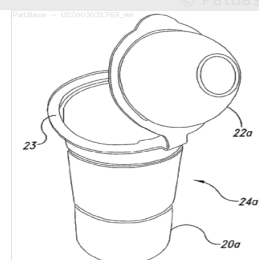


## MODIFIED ATMOSPHERE PACKAGE AND METHODS

**Abstract:** Source: US2003031769A The present invention is directed to an oxygen-level controlled, modified atmosphere package consisting of a cup and a lid in the form of a dome. The cup and the dome are hermetically sealed along the flange of the cup and the dome. The interior of the package is designed to contain food and other perishable components having certain metabolizing characteristics. The package polymers are selected to provide an optimum environment for preserving the freshness of foods packaged in a modified gas atmosphere sealed inside the package with the food. The invention incorporates various mechanically enhanced characteristics, as well as offering enhanced safety with package tamper evidence visible to the consumer. In particular, the invention hereof further incorporates methodology and structures to produce reduced oxygen packaging (ROP) with the interior headspace automatically regulated to a specific partial pressure of oxygen designed to inhibit the growth of anaerobic pathogens.

**Probable Assignee:** FRESH TEC PACKAGING INC

**Earliest Publication Date:** 20030213

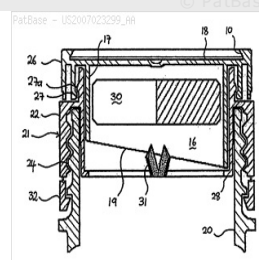


## DISPENSING CLOSURE

**Abstract:** Source: US2007023299A A dispensing closure (15) for a container (20), such as a beverage container, is provided so as to selectively dispense a product (30) carried by the closure (15) into the container (20). The container has a neck portion with which the closure is engaged to close or seal the container (20). The closure (15) has a body (21) having an outer wall portion (22) to engage an outer surface of the container neck to releasably secure the closure to the container. The closure (15) is provided with a compartment (16) to contain the product (30) to be dispensed. The compartment (16) is formed by a cylindrical side wall (17), a top wall (18) and a frangible bottom wall (19). A cutting blade (31) is moveable relative to the side wall (17) and the bottom wall (19) to break open the frangible bottom wall (19) to selectively dispense the contents (30) into the container (20). The closure (15) has means restricting inadvertent relative movement of the cutting blade (31).

**Probable Assignee:** CLARKSON ARON JOSEPH

**Earliest Publication Date:** 20050317

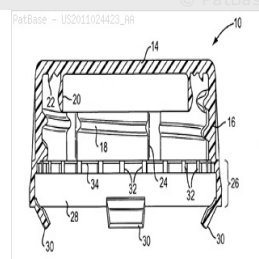


## TAMPER-EVIDENT PACKAGE WITH IMPROVED OPENING PERFORMANCE

**Abstract:** Source: US2011024423A A tamper-evident package having pressurized contents includes a closure and associated container which cooperate to provide desired tamper-evidence upon initial removal of the closure from the container, while promoting convenient and comfortable removal and use by consumers. In particular, the package is configured such that from a fully applied position of the closure on the container, the closure is movable through a predetermined angle prior to actuation of the tamper-evident feature on the package. In this fashion, the torque which must be applied to the closure for overcoming the static friction at the sealing interface between the closure and the container can be overcome prior to the application of torque required for operating the tamper-evident feature of the package. The present invention contemplates enhancing the opening performance of the package by configuring the package to include certain structure features to facilitate convenient, consistent, and comfortable use by consumers.

**Probable Assignee:** CLOSURE SYSTEMS INT INC

**Earliest Publication Date:** 20091223



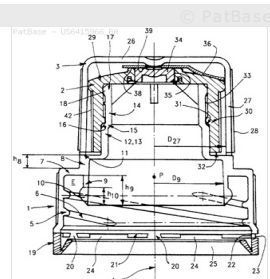
11) Family number: 11569757 (US6415966B)

#### PUSH-PULL CLOSURE COMPRISING A DOUBLE SAFETY SEAL

**Abstract:** Source: US6415966B A push-pull closure which includes a base for securing to a container and which base includes an upper plug which seats within an opening in a valve lifter which is moveable with respect thereto between a closed position and an open position and wherein a cap is provided for covering the valve lifter when in a closed position. A tamper indicating seal is applied over a portion of the top of the valve lifter and the plug of the base in order to provide a seal therebetween and to provide evidence of tampering or of first opening of the valve lifter from the closed position to the open position.

**Probable Assignee:** NOVEMBAL

**Earliest Publication Date:** 20000621



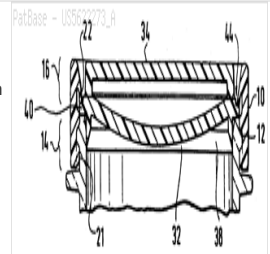
12) Family number: 15323473 (US5622273A)

#### RESEALABLE SNAP-FIT PLASTIC CLOSURE

**Abstract:** Source: US5622273A A plastic closure includes an annular ring durably attached to the container, and a sealing assembly installed in the ring to seal the mouth. The sealing assembly includes a plug having a sealing lip on its lower face and a release lever connected to the plug by a flexible hinge. A tab on the release lever can be lifted to pry the sealing assembly out of the opening. The ring has a free edge directed downwardly and inwardly so as to permit the plug to pass easily through the opening during assembly, or resealing, but to resist removal of the plug sufficiently to prevent it from being forced off the container by pressure within the container.

**Probable Assignee:** CROWN CORK AND SEAL CO INC

**Earliest Publication Date:** 19970320



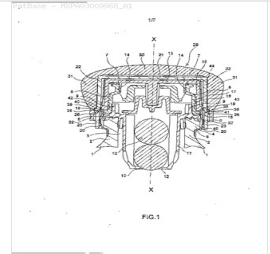
13) Family number: 1580276 (MXPA03009968A)

#### TAMPER-EVIDENT CLOSURE FOR LIQUID CONTAINERS, PARTICULARLY BOTTLES.

**Abstract:** The present invention refers to a tamper-evident closure for liquid containers and more particularly a bottle closure, which is characterized in that an upper cap (21) is introduced between a cap and a cover (29) having a tubular bushing that extends in an axial manner. The disclosure includes a first portion located on the tubular bushing (15) of the cap, a second portion (23) located on an annular skirt (20). The portions (22) and (23) are connected therebetween by a circumferential zone (24), the same being capable of braking upon opening the closure for first time, thereby the second portion (23) is separated from the first portion (22). The disclosure further comprises means (43, 44, 41, 33, 34, 38, 39) that avoid relative rotations and axial displacements to happen between the first portion (22) of the upper cap and the bushing (15) of the cap; and the cover (29), which has an aesthetic function; as well as clutch means (45, 46, 48, 49, 50) between the second portion (23) and the skirt (20).

**Probable Assignee:** GUALA CLOSURES S P A

**Earliest Publication Date:** 20040501



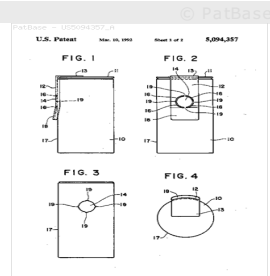
14) Family number: 18757903 (US5094357A)

#### TAMPER EVIDENT SEAL

**Abstract:** Source: US5094357A A tamper evident seal for a container is provided by a tab which is preferably of a different color from the container. This tab has a portion that will be left on the container sidewall or lid. When only this portion of the tab is on the container sidewall or lid, there is clear evidence of tampering.

**Probable Assignee:** COLGATE PALMOLIVE CO

**Earliest Publication Date:** 19910808



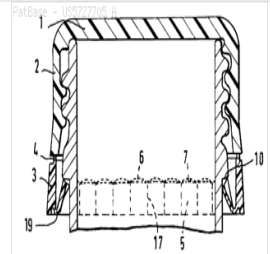
15) Family number: 20657383 (US5727705A)

#### CLOSURE CAP FOR CLOSURE OF A CONTAINER MOUTH

**Abstract:** Source: US5727705A The TE-band (3) of a closure cap for closure of a container is provided with retaining elements (5) which protrude radially inwards and upwards to the base of the closure cap from the inner surface of the TE-bank (3). Each retaining element (5) comprises a retaining surface (6) terminating in a retaining edge (7). The retaining edges engage beneath an engagement surface (10) on the mouth of a container when the closure cap is in position on said container. The retaining edge (7) are formed as a concave segment and all retaining edges (7) together define substantially a circle. The circle is coaxial with the engagement surface of a container mouth and has a diameter which is smaller than the outer diameter of the engagement surface of the container mouth.

**Probable Assignee:** CROWN PACKAGING TECHNOLOGY INC

**Earliest Publication Date:** 19980317



16) Family number: 20750940 (US5984125A)

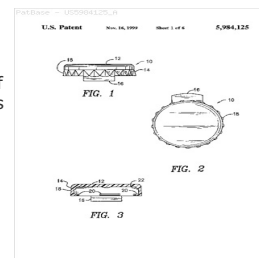
#### TAMPER EVIDENT CLOSURE FOR BEVERAGES

PatBase - US5984125A

**Abstract:** Source: US5984125A The tamper evident closure of the present invention includes a twist cap made of plastic that comprises a top portion and an interior sealing means which coacts with the rim of the container neck to provide a gas-tight seal. The top portion also has an annular depending skirt which includes an interior retaining means to coact with an exterior retaining means on the neck finish of the container. The exterior retaining means of the container has a positive stopping means to coact with interior retaining means of the cap so that when the cap is screwed onto the container neck the positive stopping means is engaged at a predetermined level of sealing force and capping torque. The depending skirt also includes locking means which lock the cap into place after the container is sealed. The locking means coacts with the positive stopping means on the container to prevent the cap from being unscrewed or twisted off the container after it has been screwed onto the container neck. The locking means are disengaged only after a tamper evident means is engaged to indicate that the container has been opened. The tamper evident means preferably comprises a hinged portion of the cap which must be lifted to open the container, thus providing an indication that the container has been opened or tampered with.

**Probable Assignee:** ZAPATA INNOVATIVE CLOSURES INC

**Earliest Publication Date:** 19990722



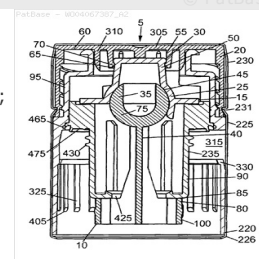
**17) Family number: 28343964 (WO04067387A2)**

## LIQUID CONTAINER CLOSURE ASSEMBLY

**Abstract:** There is disclosed a closure assembly (5; 5a; 5b) or tamper-proof device adapted to be applied to a mouth of a container (e.g. for liquid), such as a neck of a bottle. There is a need for such closure assemblies (5; 5a; 5b) to provide tamper-evidence, e.g. indication of opening, and beneficially to also provide non-refilling means. Accordingly, the invention provides a closure assembly (5; 5a; 5b) comprising: a first member or tamper indication means (10a; 10b; 10c), and a container closure member (20; 20a; 20b) are retained in association with one another by retaining means, and wherein further initial opening of the closure assembly (5; 5a; 5b) causes release of the retaining means which causes the first member (10; 10a; 10b) thereafter to act as a valve member.

**Probable Assignee:** GUALA CLOSURES INT BV

**Earliest Publication Date:** 20040812



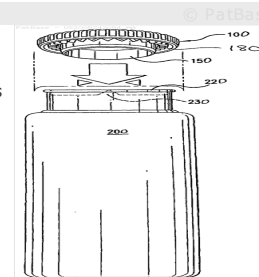
**18) Family number: 31410105 (US2005242054A)**

## TAMPER-EVIDENT QUICK TWIST CLOSURE

**Abstract:** Source: US2005242054A A cap with a tamper-evident ring is designed to snap engage a container that is provided with an upper and lower bead. A ring of teeth provided along an inside skirt of the cap engage teeth located along an inside wall of the container. When the cap is snapped onto the container, both sets of teeth automatically engage and a plug seal provided on the cap engages the container upper bead. By turning the cap clockwise or counterclockwise, the side angles of the teeth force the cap to disengage upwards over the upper bead and unsnap from the container. When the closure is opened for the first time, the ring breaks away from the cap and slides down the container below the lower bead, which keeps the ring from coming off the container and provides evidence that the cap had been opened.

**Probable Assignee:** MRP NEW JERSEY LLC

**Earliest Publication Date:** 20031231



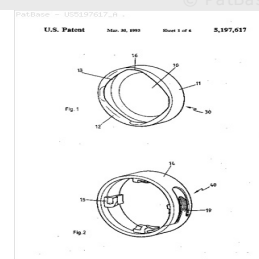
**19) Family number: 3247460 (US5197617A)**

## LOCKABLE CLOSURE FASTENING AND TAMPER EVIDENT CLOSURE

**Abstract:** Source: US5197617A A closure (30) for an aperture (70) with a co-operative peripheral rim profile, such as the mouth of a container, the closure incorporating a self-locking fastener element (40) which cooperates with the rim profile and locks the closure on to the aperture upon limiting engagement thereof.

**Probable Assignee:** ARIEL IND PLC

**Earliest Publication Date:** 19910414



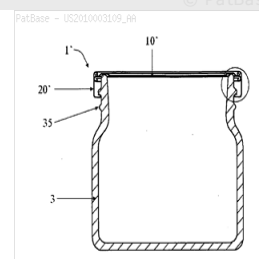
**20) Family number: 41778050 (US2010003109A)**

## METHOD FOR PRODUCING SUCH A METAL CLOSURE WITH SEPERATE DISC AND RING FROM A SINGLE CLOSURE BLANK

**Abstract:** Source: US2010003109A A method of production for a 2-piece "Combo" style closure (1'), having a disk (10') constrained within a peripheral ring (20'). The "combo" style closure (1') is produced from a conventional one-piece closure shell (1) by cutting the sidewall (20) in the vicinity of the top plate (10) to produce the ring (20') and disk (10') respectively.

**Probable Assignee:** CROWN PACKAGING TECHNOLOGY INC

**Earliest Publication Date:** 20080507



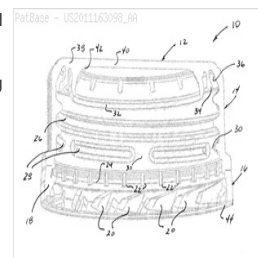
**21) Family number: 49158219 (US2011163098A)**

## PLASTIC CLOSURE WITH ENHANCED PERFORMANCE

**Abstract:** Source: US2011163098A A plastic closure is disclosed which is configured for enhanced performance and reduced closure weight. Notably, the closure includes a compound, internal helical thread formation including an upper retention portion which provides desired closure hoop strength and sealing performance, and a lower guide portion which is configured for light weight while functioning to guide the closure onto an associated container during application. The closure can further include a stepped top wall portion having a relatively thick outer region, and a relatively thin central region. A tamper-evident band of the closure can be configured to include a deformable free edge portion for enhanced tamper-resistance.

**Probable Assignee:** CLOSURE SYSTEMS INT INC

**Earliest Publication Date:** 20110707



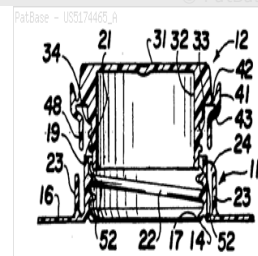
**22) Family number: 50639889 (US5174465A)**

## ONE-PIECE FITMENT AND CAP WITH TAMPER-EVIDENT BAND

**Abstract:** Source: US5174465A A fitment and cap therefor are integrally molded with lugs interconnecting the part. The fitment has a flange to be attached to a container and an internally threaded spout. The cap has an externally threaded skirt. The lugs are diametrically spaced and interconnect the bottom edge of the skirt and upper edge of the spout. After molding, force is applied to break the lugs and snap the skirt inside the spout, the threads slipping past each other and inter-engaging. A temper-evident band extends around the skirt and is connected thereto by frangible bridges. At diametrically spaced locations vertically projecting fingers extend down from the temper evident band and are received in sockets on the fitment flange shaped so that the band fingers prevent unscrewing the cap without removing the tamper-evident band. A pull tab and thumb tab assist the consumer in removing the tamper evident band so that the cap may be unscrewed from the fitment.

**Probable Assignee:** PORTOLA PACKAGING INC

**Earliest Publication Date:** 19920901



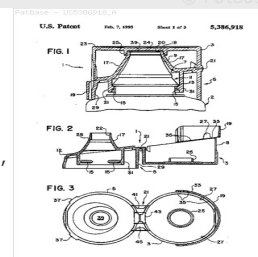
**23) Family number: 8467917 (US5386918A)**

## CLOSURE WITH TAMPER EVIDENCE STRUCTURE

**Abstract:** Source: US5386918A Disclosed is a closure for a container, the closure having a lid hinged to a base. The base of the closure has structure for locking the closure on a dispensing nozzle of the container. The closure has tamper evidence structure, to indicate whether the lid and base have been separated (that is, whether the closure has previously been opened). The tamper evidence structure includes a tear band; the closure cannot be opened without removal of the tear band. The closure is configured, and positioned relative to the dispensing nozzle, such that relatively little area of the closure contacts the material dispensed from the container as the material is dispensed, thereby reducing absorption of material components (e.g., flavors and/or oils of the material dispensed) by the closure. The top surface of the closure lid is configured such that the container and closure can be stably stood on end on the closure lid when the lid is in the closed position. The closure can be held at least two positions on the dispensing nozzle, a first position where the closure is locked on the dispensing nozzle and a second position where the closure is held on the dispensing nozzle but not locked thereon.

**Probable Assignee:** COLGATE PALMOLIVE CO

**Earliest Publication Date:** 19941023



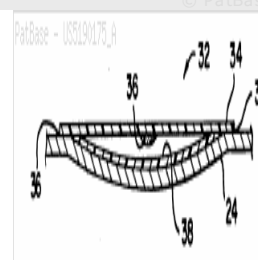
**24) Family number: 11070642 (US5190175A)**

## TAMPER EVIDENT CLOSURE

**Abstract:** Source: US5190175A In accordance with the present invention, an irreversible tamper evident system for a closure such as a button closure is provided. The irreversible tamper evidence system is provided by an appearance change system carried by the flexible button portion of the closure. The appearance change system comprises a liquid crystal material and a liquid crystal poison. When the button is depressed such as upon initial closure of the container, the liquid crystal material is separated from the liquid crystal poison and optical properties of the liquid crystal material are viewable. When the container is opened the flexing the button forces the liquid crystal poison into contact with the liquid crystal material and the optical properties of the liquid crystal material are irreversibly altered.

**Probable Assignee:** SILGAN HOLDINGS INC

**Earliest Publication Date:** 19930302



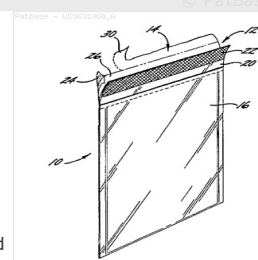
**25) Family number: 11106169 (US5631068A)**

## SELF-CONTAINING TAMPER EVIDENT TAPE AND LABEL

**Abstract:** Source: US5631068A A tape or label for sealing a container that provides visual evidence if the seal is forced open or cooled below a breakdown temperature. The tape includes a plastic strip, a layer of ink printed on a surface of the plastic strip, and a layer of pressure-sensitive adhesive. The tape can be incorporated into a bag for sealing the bag closed. The tape includes an ink layer that is sandwiched between the plastic strip and the adhesive layer. The adhesive can be secured to portions of a bag to seal it closed. If the seal is forced open, the ink layer visibly delaminates from the plastic strip. The adhesive layer and the plastic strip are chosen to have different rates of shrinking when cooled, so that when the tape is cooled below its breakdown temperature, the ink layer delaminates. In an alternative embodiment of the tape, two layers of ink are printed onto the plastic strip. The first layer of ink is clear and is printed onto the untreated plastic strip in a pattern. The second layer of ink is opaque and is printed uniformly over the plastic strip and the clear ink after the plastic strip is treated.

**Probable Assignee:** AMPAC TRIGON LLC

**Earliest Publication Date:** 19960215



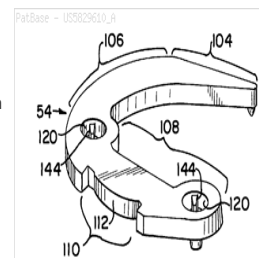
**26) Family number: 11118650 (US5829610A)**

## CLOSURE WITH A TAMPER-INDICATING ELEMENT OPTIONALLY SUITABLE FOR USE AS A TOOL

**Abstract:** Source: US5829610A A tamper-evident closure is provided with a base for attachment to a container, and the base defines a discharge aperture. A lid is movable between a closed position and an open position with respect to the discharge aperture. A manually releasable latch holds the lid closed on the base. A tamper-indicating element is mounted adjacent the latch. In one form of the invention, the element has a removable part defining a tool. According to another aspect of the invention, the removable part of the element is broken away when the latch is operated. In yet another form of the invention, the element prevents operation of the latch until the removable part of the element is first removed.

**Probable Assignee:** APTARGROUP INC

**Earliest Publication Date:** 19980319



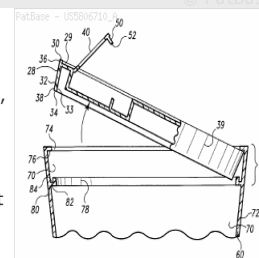
**27) Family number: 11141773 (US5806710A)**

## CONTAINER AND CLOSURE LID

**Abstract:** Source: US5806710A This invention provides a container and closure lid particularly suitable for packaging semi-solids and liquids which are to be frozen. The closure lid fits entirely into the mouth of the container, providing no easy method of removal absent use of a pull tab which incorporates a tamper-evident frangible pin. The closure lid incorporates a generally flat sided seal skirt which mates with a U-shaped seal channel on the container inner wall surface to prevent leakage past the seal skirt and a locking ridge having a flat top which mates with a locking ledge face on the container inner wall surface adjacent the container mouth. The seal skirt snaps under and is covered by the locking ledge to provide no purchase along the lid edge. The container seal channel not only provides part of the sealing mechanism of the invention but also prevents translation of the lid toward the container bottom while the container locking ledge prevents translation of the lid toward the container mouth. This back-to-back relationship enhances the positive positioning of the closure lid on the container even during freeze+544 thaw expansion and contraction of the contents. In one embodiment, the container incorporates a dimple ring as part of the seal channel which provides an interference fit to the inserted closure lid seal skirt, pressing the seal skirt against the opposing wall of the seal channel, thereby providing two regions of sealing between the seal channel and the inserted seal skirt.

**Probable Assignee:** ALLEN TOOL CO INC

**Earliest Publication Date:** 19980915



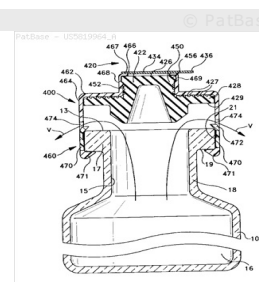
**28) Family number: 11182380 (US5819964A)**

## LYOPHILIZATION CLOSURE ASSEMBLY FOR A MEDICAMENT CONTAINER FOR USE DURING A LYOPHILIZATION PROCESS

**Abstract:** Source: US5819964A A lyophilization closure assembly for a container or vial is disclosed. The lyophilization closure assembly is self-supporting with the container and may be employed with the container during a lyophilization process, eliminating the need for a separate crimping operation outside of the sterile environment in which lyophilization is conducted. The lyophilization closure assembly includes a body with a skirt disposed around the rim of the container. The skirt features one or more deflectable abutments and one or more deflectable latches positionable about the rim of the container, and defines one or more vapor passages. An elastomeric closure is retained within the body for sealing the open top of the medicament container. The elastomeric closure features a plug for sealing the open top of the container and a top surface facing away from the open top of the container. The body defines an opening over the elastomeric closure that delimits an access area on the top surface of the closure. A membrane is removably secured over the access area of the elastomeric closure and hermetically encloses the access area.

**Probable Assignee:** BECTON DICKINSON CO

**Earliest Publication Date:** 19980327



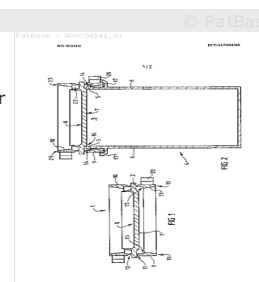
**29) Family number: 11267052 (WO0034141A1)**

## REVERSIBLE TAMPER EVIDENT CAP AND CONTAINER

**Abstract:** The present invention relates to a cap, as well as a cap and container combination, adapted to indicate or provide evidence of tampering, suitable for indicating tampering with a container both before and after contents have been added to the container. The invention provides a cap and container combination including a container having an opening defined by a rim, and a cap for covering the container opening and being receivable on the container in at least two closure positions, the cap including a lid portion having a first side and a second side, wherein, in the first closure position, the first side of the lid portion is in opposed relation to the rim and the container opening, and wherein, in the second closure position, the second side of the lid portion is in opposed relation to the rim and container opening. Tamper indicating means are provided on at least one side of the cap to indicate whether or not the cap has been removed from the corresponding closure position.

**Probable Assignee:** SPECIALISED PACKAGING CONCEPTS

**Earliest Publication Date:** 20000615



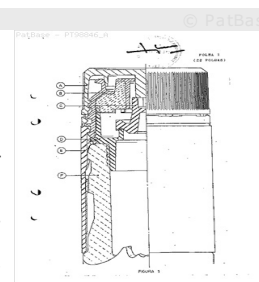
**30) Family number: 11767564 (GB9118768A)**

## TAMPER-EVIDENT CLOSURE

**Abstract:** Stopper for bottles or similar containers, comprising a screw cap of the tamper-evident type, an outlet, a seal and a cylindrical tube and, depending on the version, a tamper-evident ring. In certain versions, the tamper-evident cap comprises at its bottom a ring linked to the body of the cap by means of small segments or bridges which break when the cap is unscrewed for the first time, the fracture of these bridges remaining visible. In another version, the tamper-evident ring is not linked to the cap and breaks into two parts when the cap is unscrewed for the first time. In yet another version, the tamper-evident ring is divided into four sections which become detached from the stopper when the cap is unscrewed for the first time. The invention also proposes a stopper of the tamper-evident and anti-refilling type comprising, in addition to the above parts, a valve whose purpose is to allow the outlet of the liquid from inside the bottle or container and to prevent the entry of liquid, which results in the stopper, in addition to its tamper-evidence, preventing any new refilling.

**Probable Assignee:** GRUPO STEVI SA

**Earliest Publication Date:** 19920304



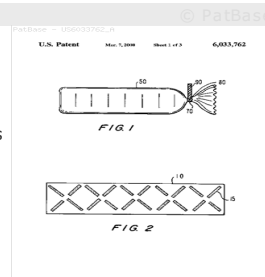
**31) Family number: 12420227** (US6033762A)

#### SELF-ADHESIVE RESEALABLE TAMPER-EVIDENT TAPE

**Abstract:** Source: US6033762A A self-wound, self-adhesive, resealable tamper-evident tape is provided. The tape is used to seal any container requiring a self-adhesive closure, such as bags or pouches, and provides clear visual evidence if the self-adhesive seal is peeled apart. The tape comprises a backing sheet, the upper surface of which is coated with a release layer, and the bottom surface with an adhesive. The release layer is relatively non-adherent to the adhesive so that the tape may be wound or rolled up without a separating liner. A non-visible patterned varnish layer is applied to the adhesive to create a hard surface onto which an colored ink layer is subsequently applied. The colored ink layer breaks or chips when the self-adhesive seal is peeled apart and retains this appearance if the tape is reapplied to seal the container, thereby providing visible evidence of tampering.

**Probable Assignee:** DECKER TAPE PRODUCTS CO INC

**Earliest Publication Date:** 19991118



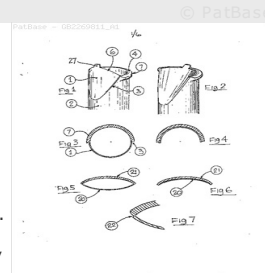
**32) Family number: 13032340** (GB2269811A)

#### HINGED CLOSURE

**Abstract:** Source: GB2269811A A closure comprises a flexible panel 1 attached to a container 2 or cap by one or more hinges 3, the hinge or hinges defining an area which is smaller than the area of the panel and the panel being outwardly convex when in the open position and inwardly concave when pushed into the closed position (figure 2). The rim 7 of the container may be strengthened and may also deform to aid movement of the panel and to give a snap action. The panel may have longitudinally extending reinforcing grooves or ribs. The closure may be integral with the container or form part of a cap (figure 11). It may also have a sealing device such as a lip (23, figures 8 and 9) or rib and groove seal, and may have a tamper evident tear off seal which must be removed before opening. The closure may be child resistant (figures 12a-12e) and comprise a cap, biased by a spring, rotating on the closure.; The closure may be manufactured from plastics, metal, cardboard, paper or a composite of these and may include a tab 27.

**Probable Assignee:** WESTON TERENCE E

**Earliest Publication Date:** 19940223



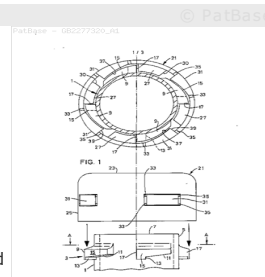
**33) Family number: 13087377** (GB2277320A)

#### CONTAINER AND TAMPER EVIDENT CLOSURE.

**Abstract:** Source: GB2277320A A container comprises a neck 1 having an interrupted support collar 3 formed by circumferentially spaced projections 9 on its outer surface each having a camming portion 15 and an inverted ramp 11 on its underside and terminating in a face 17, and a closure 21 for the container comprises inwardly projecting ribs 27 having an upper surface configured to engage with a respective inverted ramp 11 of each projection 9, tamper evident means connected to a skirt 25 by frangible means 33, 35 and cammable to be forced past the face 17, and a top 23 with means to seal against the container neck 1. The tamper evident means may comprise windows 31 connected to the skirt 25 by frangible bridges 33, 35 which act as hinges to allow the step 39 of each window to snap engage the radial face 17 of its respective portion 9, and which break on removal of the closure.; The windows 31 may hinge radially outwards or downwards. The neck may have a top annular sealing surface 7 and the cap 21 may have a recess (41, Fig 2) to receive the sealing surface 7 and may have a depending plug portion 43.

**Probable Assignee:** ABLE IND LTD

**Earliest Publication Date:** 19941026



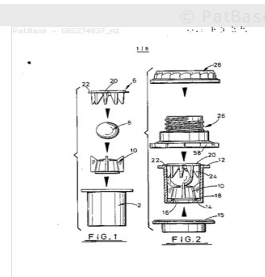
**34) Family number: 13104907** (GB2274837A)

#### TAMPER-RESISTANT CLOSURE ASSEMBLY FOR LIQUID CONTAINERS

**Abstract:** Source: GB2274837A A closure adapted to be applied to container necks to deter unauthorized attempts to re-fill used containers with other than genuine contents comprises a one-way valve assembly including a weighted (8) valve member (10) adapted to close against a seating surface (18) of a tubular sleeve member (2). Flanges (46) projecting inwardly and upwardly of a skirt member non-releasably engage a shoulder (60) on the bottle neck and a retaining ring (28) is welded to adjacent components to maintain the valve assembly entrapped between the pouring outlet (12), the skirt member and the bottle neck. A tamper-indicating ring (30) engages ratchet teeth (32) on the retaining ring (28) in such a way as to distort or break when the cap (40) is first opened. The valve assembly may include various deterring means.

**Probable Assignee:** MONTGOMERY DANIEL AND SON LTD

**Earliest Publication Date:** 19940810



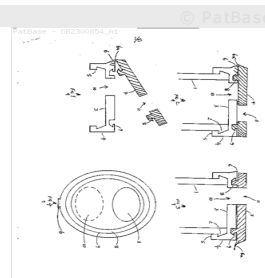
**35) Family number: 13437852** (GB2300854A)

#### CLOSURE; TAMPER EVIDENCING; CHILD RESISTING

**Abstract:** Source: GB2300854A A closure for attachment to a container may have tamper evidencing means and child proofing means and is non-releasably attached to the container. The closure has a base member for non-releasable attachment to the container and providing a dispensing opening, and a cover member such as a hinged lid or rotatable cover. In one example [figs.3-5] the base member 1 has a cover member 3 attached thereto by a hinge 4 prior to attachment to the container. The base member attaches to the container by undercut formations and the cover hinges down to attach to the opposite side of the base by non-releasable formations 6-8. Thus once assembled the cover cannot be opened. The hinge 4 has a weakened line and can be broken. A serviceable hinge is provided on the other side of the cover by the formations 6 being attached to the base via a small hinged plate 5. Child proofing may be provided by including walls which have to be flexed to allow the cover to pivot. In an alternative the cover is a rotatable disc with an aperture which aligns with an aperture in the base member to form a dispensing opening. The initial attachment of the cover to the base is by a similar hinging and latching arrangement as above, but the initial hinge is broken by rotation of the disc like cover. In this embodiment child proofing is provided by suitable frictional engagement of the disc like cover and the base.

**Probable Assignee:** JENNINGS MARK R

**Earliest Publication Date:** 19961120



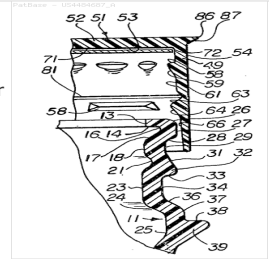
**36) Family number: 14932216** (US4484687A)

### TAMPER-PROOF CONTAINER CLOSURE FOR USE WITH CONTAINER NECKS SEALED WITH FOIL SEAL DISCS

**Abstract:** Source: US4484687A To prevent tampering with the contents of containers for pharmaceuticals and other products, a plastic cap which is an improvement upon U.S. Pat. Nos. 3,338,446 and 4,166,552. The neck of the container is sealed with a commercially available foil seal; the cap is dimensioned so that the foil seal is inserted inside the cap prior to its being applied to the container. The dimensions of the cap accommodate the foil seal yet the snap-on and the tamper-proof features of the cap are maintained. At intervals, scorelines are formed extending upward from the bottom of the cap skirt; these tear if one attempts to pry the cap off the container and are visible evidence of the tampering. A flexible, thin flange projecting from the periphery of the cap is used to removed the cap in its reclosure mode; however, this flange has a sharp corner where it meets the cap skirt so that if one attempts to use the flange to pry off the cap when in its original sealing mode, the flange tears and gives additional evidence of tampering.

**Probable Assignee:** PORTOLA PACKAGING INC

**Earliest Publication Date:** 19841127



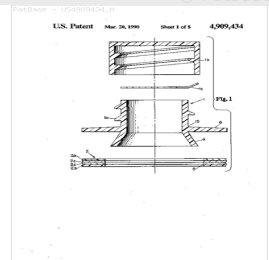
**37) Family number: 15337110** (US4909434A)

### MOISTURE IMPERVIOUS CARTON HAVING ONE-PIECE POURING SPOUT SEALED TO INNERMOST AND OUTERMOST SURFACES

**Abstract:** Source: US4909434A A liquid-containing paperboard laminate carton including a one-piece plastic spout (1) having a pair of opposing flanges (4,6) sealed about an aperture (5) in one of the carton walls to both the innermost (26) and outermost (2a) surfaces of the carton wall. The double flange configuration not only forms a mechanically positive interlock between the plastic spout and the carton wall, but even more importantly, isolates the cut edges of the aperture from exposure to liquid either from within the container or from the environment through which the carton must pass from the point of manufacture until it is ready for disposal after its contents have been consumed. The spout preferably includes a liquid passageway having a membrane-type seal (1c) across its discharge orifice to provide evidence of tampering and a resealable closure member (1b) such as a screw cap or a snap-on closure held in place by means of a mating ring or groove on the spout. The cross-sectional area and configuration of the liquid passageway and discharge orifice in the spout are designed to prevent to complete blockage by liquid when the package contents are being dispensed during a normal dispensing cycle, i.e., when the package is not being held completely upside down. Method and apparatus for securing said one-piece spout in sealed liquid type relation of both surfaces of the carton wall either sequentially or simultaneously are also disclosed.

**Probable Assignee:** BEVERAGES HOLDINGS LLC

**Earliest Publication Date:** 19891121



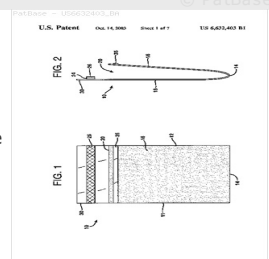
**38) Family number: 15811010** (US6632403B)

### FORENSIC EVIDENCE CONTAINER

**Abstract:** Source: US6632403B A forensic evidence container includes a first flexible panel, the first flexible panel including a material having a moisture vapor transmission rate of at least 10 gm/24 hours-100 square inches; a second flexible panel, the second flexible panel including a material having a moisture vapor transmission rate of equal to or less than 5 gm/24 hours-100 square inches; an opening capable of providing access to the interior of the forensic evidence container; an adhesive, applied to the first panel or second panel, having a free surface so arranged as to seal the opening on superposition of the first panel and the second panel; and a tamper evident device arranged on the first or second panel. A peelable flexible third panel, including a material having a moisture vapor transmission rate of equal to or less than 5 gm/24 hours-100 square inches, can optionally be peelably adhered to the first flexible panel.

**Probable Assignee:** AMPAC HOLDINGS LLC

**Earliest Publication Date:** 20020102



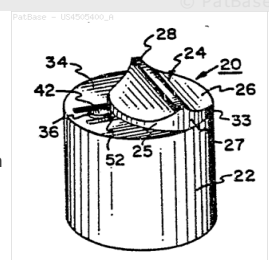
**39) Family number: 2088995** (US4505400A)

### SLIDE TYPE CAP CLOSURE

**Abstract:** Source: US4505400A A slide type cap closure is disclosed comprising a cylindrically shaped closure member and a slidably interfitting disk member. The closure member forms a seal about the opening of the container on which it is mounted and includes an orifice extending upward from a recess formed along the top surface of the member. The recess has a pair of grooves extending along its length into which downwardly depending rails of the disk member slidably interfit. The disk member is dimensioned so as to move in a snap action manner along the upper surface of the closure member between open and closed positions. The disk member does not extend beyond the periphery of the closure member. The disk member in combination with the slightly protruding upper termination of the orifice forming member forms an extremely tight seal with the orifice when in the closed position.

**Probable Assignee:** BENNETT R A

**Earliest Publication Date:** 19840927

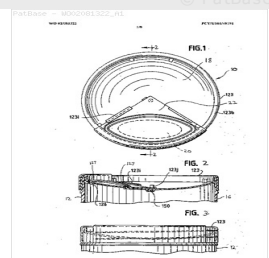


**40) Family number: 23929324** (WO02081322A1)

### RESEALABLE CLOSURE FOR OPEN END OF BEVERAGE CONTAINER

**Abstract:** A resealable closure (10) for beverage containers uses initial physical interference to initiate a seal between a sealing flap (22) and a dispensing port (20) in a lid (18) of the resealable closure (10). In certain embodiments, once the initial seal is achieved, a pressure differential develops, resulting in additional force tending to bias the sealing flap (22) toward the dispensing port (20). The sealing flap (22) is actuated by an external drive means (24), that can also be a dust cover (26) to prevent debris from contaminating any surfaces that may come into contact with the contents of the beverage container. In many embodiments, there is a slack between initial movement of the external drive means and initial movement of the sealing flap (22), during which the pressure differential is preferably equalized through the unsealing of a vent hole (36) in the resealable closure (10).

**Probable Assignee:** REXAM BEVERAGE CAN CO



**Earliest Publication Date:** 20021009

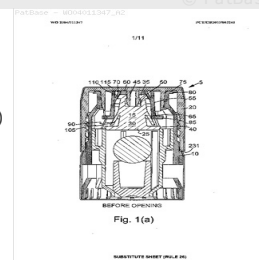
**41) Family number:** 24121621 (WO04011347A2)

#### LIQUID CONTAINER CLOSURE ASSEMBLY

**Abstract:** There is disclosed an improved closure assembly (5) adapted to be applied to a mouth and neck portion of a container (e.g. for liquid) such as a neck of a bottle. Known container closure assemblies suffer from a number of problems, e.g. simplicity of manufacture and provision of tamper evidence. Accordingly, the closure assembly (5) (or tamper-evident device) of the present invention comprises: a first body part (10); a tamper-evidence member or lock means (15); and a container closure member (20), wherein prior to initial opening the tamper-evident member or lock means (15) is in a first position such that the first body part (10) and the container closure member (20) are disposed in a first relation to one another, and initial opening of the closure assembly (5) causes the tamper-evident member or lock means (15) to move to a second position. Upon reclosure the lock means (15) causes the first body part (10) and the container closure member (20) to be disposed in a second (spaced) relation to one another, thereby evidencing opening and reclosure.

**Probable Assignee:** MONTGOMERY DANIEL AND SON LTD

**Earliest Publication Date:** 20040205



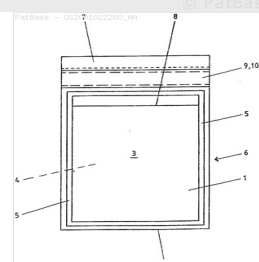
**42) Family number:** 28105678 (US2001022280A)

#### ARTICLE WITH IMPROVED TAMPER EVIDENCE

**Abstract:** Source: US2001022280A An article, such as a tamper evident container, includes an indicator having a first layer including a thermochromic ink composition, and a second layer, disposed on the first layer, having a composition different from the ink composition of the first layer. The article exhibits better evidence of tampering. The first and/or second layer can be in the form of a message.

**Probable Assignee:** AMPAC HOLDINGS LLC

**Earliest Publication Date:** 20010118



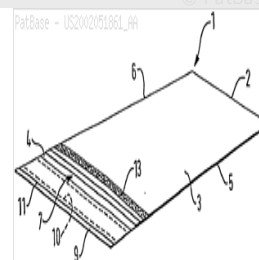
**43) Family number:** 28199772 (US2002051861A)

#### TAMPER EVIDENT CONTAINERS AND METHOD FOR MAKING THE SAME

**Abstract:** Source: US2002051861A A method of forming a cold detect on a substrate comprising the steps of applying an adhesive to a surface of a substrate and applying an intimate mixture of an indicator and a finely-divided moisture absorbent carrier to the adhesive-coated substrate to form a cold detect. The cold detect may be used as a closure adhesive to seal an adhesively-closable container, such as a security bag for bank notes or forensic evidence.

**Probable Assignee:** JENNINGS ANTONY B

**Earliest Publication Date:** 19990519



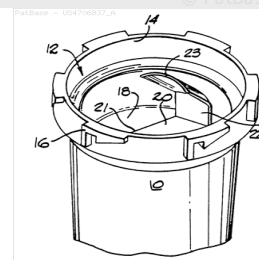
**44) Family number:** 2850084 (US4706837A)

#### TAMPER-RESISTANT PACKAGE

**Abstract:** Source: US4706837A A tamper resistant package consisting of a container and removable closure includes sealing means comprising an insert disposed in the interior of the container for sealing the container. The insert includes a tear-away section and a tab affixed to the insert at the tear-away section. The tab normally extends upwardly for removing the tear-away section when it is desired to open the container. If the tear-away section is partially or completely broken away from the body of the insert the user is provided with a positive, readily ascertainable indication that the package has been previously opened and possibly tampered with.

**Probable Assignee:** REID RONALD E TRUSTEE OF LC FULENWIDER JR LIQUIDAT

**Earliest Publication Date:** 19871008



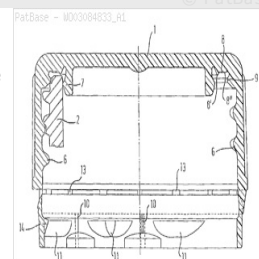
**45) Family number:** 29076590 (WO03084833A1)

#### CONTAINER SCREW-CLOSURE CAP

**Abstract:** The invention provides a container screw-closure cap (1) which is made of plastic and is provided, on the inner side of its cap base (4), with an annular sealing lip (7) which, when the screw-closure cap (1) is screwed onto the container mouth (2), seals against the cylindrical inner side (2') of the container mouth (2), it being the case that the annular sealing lip (7), which has a predetermined bending strength, at a radial spacing in the outward direction, is assigned a double annular rib (8, 8', 8'') which extends away from the inner side of the cap base (4) with a downwardly double tapering (8', 8'') cross section and with a smaller height than the sealing lip (7) and engages with the end side of the container mouth (2) when the screw-closure cap (1) is screwed on, and that extending away from the transition region of the cap base (4) into the lateral cap surface (3) is another annular rib (9), with tapering cross section, which acts in a sealing manner on the outer side of the container mouth (2).

**Probable Assignee:** PLAMATEC AG

**Earliest Publication Date:** 20021002



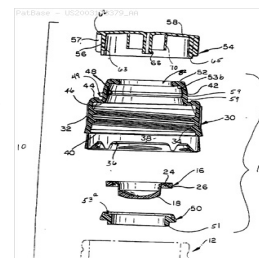
**46) Family number:** 29081705 (US2003173379A)

#### COVER FOR DISPENSING CLOSURE WITH PRESSURE ACTUATED VALVE

**Abstract:** Source: US2003173379A A cover for a valved dispensing closure prevents the valve from opening while the cover is disposed on closure. The cover's central projection prevents flaps formed in the valve from opening, and the cover's outer projection prevents the flexible valve head from moving or inverting. The cover may also have projections that project inwardly from its skirt. The cover projections interact with mating projections formed on an exterior of the closure, and a lower end of the skirt may be disposed into an annular groove in the closure, to enhance a seal between the closure and the cover.

**Probable Assignee:** CROWN PACKAGING TECHNOLOGY INC

**Earliest Publication Date:** 20030918



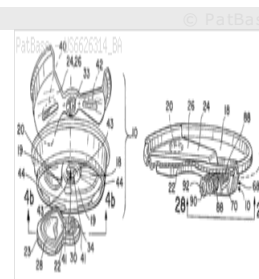
**47) Family number: 29111040** (US6626314B)

#### RESEALABLE CLOSURE FOR BEVERAGE CONTAINER

**Abstract:** Source: US6626314B A resealable closure for beverage containers uses initial physical interference to initiate a seal between a sealing flap and a dispensing port in a lid of the resealable closure. Once the initial seal is achieved, a pressure differential develops, resulting in additional force tending to bias the sealing flap toward the dispensing port. The sealing flap is actuated by an external drive means, that can also be a dust cover to prevent debris from contaminating any surfaces that may come into contact with the contents of the beverage container. There is a slack between initial movement of the external drive means and initial movement of the sealing flap, during which the pressure differential is preferably equalized through the unsealing of a vent hole in the resealable closure.

**Probable Assignee:** REXAM BEVERAGE CAN CO

**Earliest Publication Date:** 20030930



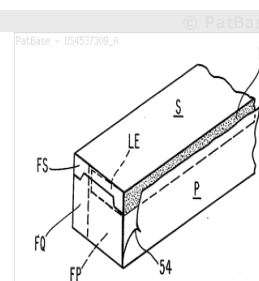
**48) Family number: 29509075** (US4537309A)

#### TAMPER RESISTANT AND TAMPER EVIDENT SEALED END CARTONS

**Abstract:** Source: US4537309A An extension is provided at each end of a glue flap of a conventional carton blank, the extensions being glued to conventional carton dust flaps to thereby provide improved tamper resistance to a sealed end carton when intrusion is attempted along glue seam for purposes of violating the contents, i.e. pharmaceutical products and the like, contained within primary packaging contained within the carton (secondary packaging). The extensions prevent withdrawal of the dust flaps to which the extensions are glued after the glue seam is penetrated. If the dust flaps are forcibly withdrawn, positive visual indication of tampering will result to thereby alert a potential consumer.

**Probable Assignee:** PENNWALT CORP

**Earliest Publication Date:** 19840319



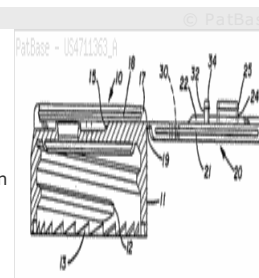
**49) Family number: 29680561** (US4711363A)

#### TAMPER EVIDENCE CLOSURE

**Abstract:** Source: US4711363A A tamper evidencing closure for use on containers containing food stuffs and the like comprises multiple cap configuration intricately joined to a closure by a live hinge. A secondary cap is formed within the first with frangible tamper evidence strips and a secondary live hinge. A tubular plug depends from the underside of said secondary cap and is registerable into a dispenser opening within the closure. Assembly pins secure the cap to the closure and an annular rib on the tubular plug forms a seal around the dispensing opening when the tubular plug is in closed position and holds the secondary cap and plug in closed position once the frangible tear strips are broken.

**Probable Assignee:** WEST PENN PLASTIC INC A PA CORP

**Earliest Publication Date:** 19871208



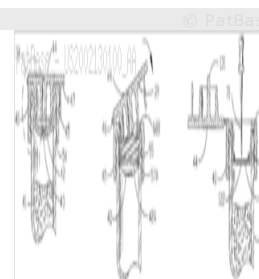
**50) Family number: 30117085** (US2002130100A)

#### CLOSURE DEVICE FOR CONTAINERS

**Abstract:** Source: US2002130100A An injection molded assembly forming a sealing device for a threaded or non-threaded container using a double cap concept with pressure responsive convex sealing; also disclosed is a wiping mechanism, a one piece construction, a tamper resistant construction, a limited air exchange construction while allowing easy access to fluid contents, a sterile air venting and filter construction, a one piece tamper evident closure with a tethered container, and a frangible tether means molded with the formation of the sealing device.

**Probable Assignee:** SMITH JAMES C

**Earliest Publication Date:** 20001114



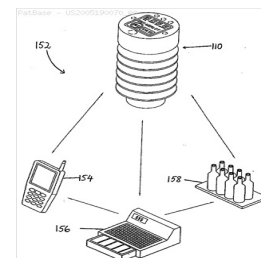
**51) Family number: 30163204** (US2005190070A)

#### CLOSURE WITH CONCERTINA ELEMENT AND PROCESSING MEANS

**Abstract:** Source: US2005190070A The invention provides in a first aspect a closure (10) for a passageway such as a bottleneck. The closure (10) has a concertina element (16). When the concertina element (16) is released, the closure (10) can be removed from the passageway. The concertina element (16) may have folds (18), including compressible folds, may be in the form of a spiral. In a further aspect, the invention provides a closure (110), which has processing means (132). The processing means (132), which may include a computer chip (134), is adapted to receive or convey various types of data, such as characteristics of the contents of the container closed by the closure (10). The first and second aspects may be combined.

**Probable Assignee:** TELEZYGOLOGY INC

**Earliest Publication Date:** 20020912



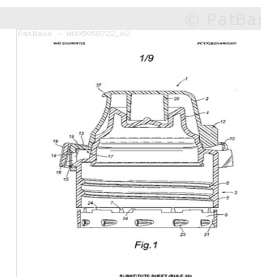
**52) Family number:** 30322072 (WO05058722A2)

### CONTAINER CLOSURE

**Abstract:** The present invention relates to a container closure comprising a main body element (3) for attachment to a container, said main body element having a spout member (4). The closure further comprises a tapered cap element (2) for covering the spout member. The cap element is hingeably connected to a shoulder portion of the main body element by way of a hinge member (10) and moveable between open and closed positions, the cap element covering the spout member in the closed position. The main body element includes a recess (11) on an outer surface, at or adjacent the hinge member, the cap element having a protrusion (12), which is received in the recess when the cap element is moved to a fully open position.

**Probable Assignee:** ALCOA CLOSURE SYSTEMS INT INC

**Earliest Publication Date:** 20050630



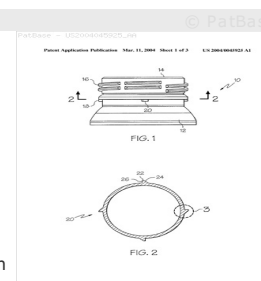
**53) Family number:** 30359630 (US2004045925A)

### TAMPER EVIDENT CLOSURE WITH LOCKING BAND

**Abstract:** Source: US2004045925A A container assembly includes a container that has an externally threaded finish portion as well as retention structure for preventing upward movement of a tamper evident band. The container assembly further includes a closure having a body portion of a base and an internally threaded downwardly depending sidewall portion that is sized and shaped to screw onto the finish portion of the container. The closure further includes a tamper evident band that is frangibly connected to the sidewall portion and that includes a main band portion and a J-hook retention member. The J-hook retention member includes a plurality of pleated retaining elements, each of which has upper portion for engaging the retention structure. Advantageously, at least one of the pleated retaining elements is further constructed and arranged to engage the container so as to resist rotation with respect to the container, whereby separation of said tamper evident band from said body portion is better assured when the closure is unscrewed from the container.

**Probable Assignee:** OBRIST CLOSURES SWITZERLAND GMBH

**Earliest Publication Date:** 20030227



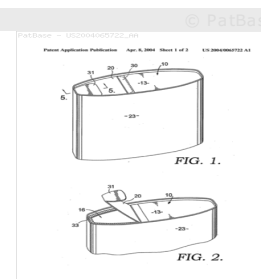
**54) Family number:** 30459260 (US2004065722A)

### RECLOSABLE PAPERBOARD CLOSURE

**Abstract:** Source: US2004065722A The present invention provides a cost effective, tamper-evident container that can be effectively closed and that is easy to use. The closure includes a disc having an aperture and a tab extending across the aperture. The tab is removably coupled to the disc in a tamper-evident method around the periphery of the aperture and permanently coupled to the disc at a connecting portion. The sidewall of the container is bent inward and down to provide a locking mechanism for maintaining the tab in a closed position after it has been opened.

**Probable Assignee:** HUHTAMAKI CONSUMER PACKAGING INC

**Earliest Publication Date:** 20040408



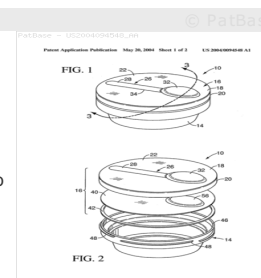
**55) Family number:** 30572360 (US2004094548A)

### TAMPER-EVIDENT CLOSURE WITH UTENSIL

**Abstract:** Source: US2004094548A A package for heating and dispensing a food product includes a container body having a top opening and an outside thread, and a lid assembly. The lid assembly includes an outer shell having an inside thread and an integrally formed utensil, and an inner disk. The utensil is defined by a weakened segment or outline formed into an end wall of the outer shell and has a convex region. The disk has a protrusion that is shaped to be received into the convex region when the outer shell is placed on the container body and threaded tightly onto the body over the disk. A sufficient friction force exists between the disk and the body that prevents the disk from turning when the outer shell is unscrewed an initial amount. The protrusion forcibly leaving the convex region causes the weakened segment to rupture creating tamper evidence and a vent for heating.

**Probable Assignee:** ALCOA CLOSURE SYSTEMS INT

**Earliest Publication Date:** 20040520



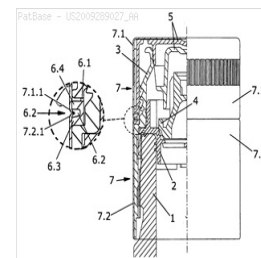
**56) Family number:** 30688031 (US2009289027A)

### MEANS FOR SEALING BOTTLE CAPS WITH EVIDENCE OF OPENING

**Abstract:** Source: US2009289027A The present invention consists of an improvement made on the patent "Means for sealing bottle caps with evidence of opening" with Spanish application number P200202864, which made use of a concealed tongue that was revealed after the first opening without allowing to recover the original situation. The present invention maintains a connection between the top and bottom segments of the capsule, preventing their rotation relative to each other and providing an audible evidence of opening.

**Probable Assignee:** COMPANIA DE TAPONES IRRELLENABLES SA

**Earliest Publication Date:** 20040624



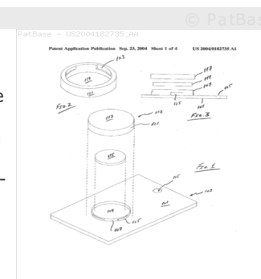
**57) Family number:** 30972711 (US2004182735A)

#### COMBINED RECEPTACLE AND DISPLAY CARD

**Abstract:** Source: US2004182735A An integred display card and goods holding container is provided. A well for the goods is formed integrally with the card, the integral structure preferably made of plastic but can be made of wood or metal. A cover is provided for closing the well, such as a screw top. The cover and the card can be provided with structures, such as pawls and catches, so that when the cover is fully engaged with the well, the structures provide evidence of tampering if the cover is removed from the card. Alternatively, or in addition, entire card can be shrink-wrapped or a seal, such as a tamper proof seal, can be placed over the cover.

**Probable Assignee:** LOMBARDI DESIGN AND MFG

**Earliest Publication Date:** 20040923



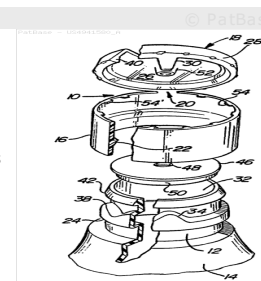
**58) Family number:** 3204008 (US4941580A)

#### DISPENSING CLOSURE

**Abstract:** Source: US4941580A A dispensing closure having a base ring with means for attachment to a container which permits rotation of the ring without axial movement. A lid is connected to the base ring by a hinge which allows the lid to be swung from a closed position blocking access to a container opening to an open dispensing position. A cam element on the lid effects initial movement of the lid towards an open position when the base ring is rotated. The lid cam element cooperates with a cam surface on the container. A fitment can also be used to attach the closure to a flat can top or to other container configurations. When a fitment is used, the cam surface will be on the fitment rather than the container.

**Probable Assignee:** SUNBEAM PLASTICS CORP

**Earliest Publication Date:** 19900717



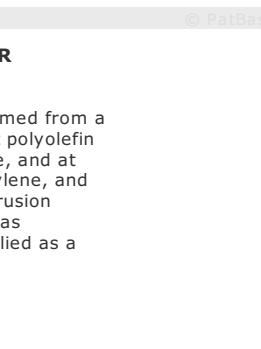
**59) Family number:** 3220102 (US5000992A)

#### COEXTRUDED MULTILAYER FOAMED FILM FOR PLASTIC CONTAINER CLOSURES AND PROCESS FOR MANUFACTURE

**Abstract:** Source: US5000992A A plastic container closure, such as a bottle cap liner or tamper evident seal, is formed from a coextruded multilayer foamed film. The coextruded multilayer foamed film has at least one solid film layer of a first polyolefin blend containing linear low density polyethylene, low density polyethylene, and, optionally high density polyethylene, and at least one foamed layer of a second polyolefin blend containing linear low density polyethylene, low density polyethylene, and optionally ethylene vinyl acetate. The multilayer foamed film may be coextruded using a blown film or cast film extrusion process under defined conditions. the coextruded multilayer foamed film may be laminated to other materials such as polyester film, thermoplastic adhesive films or metallic films and used as a plastic container closure, or may be applied as a liner to a plastic bottle cap.

**Probable Assignee:** DOW CHEMICAL CO

**Earliest Publication Date:** 19901213



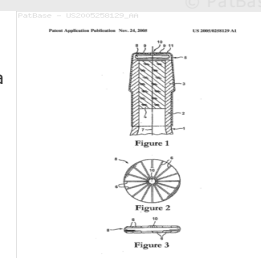
**60) Family number:** 32436106 (US2005258129A)

#### TAMPER-PROOF CLOSURE/SEAL FOR CONTAINERS, PARTICULARLY WINE BOTTLES

**Abstract:** Source: US2005258129A In the present invention the bottle or container to be secured is provided with a plastic sleeve with a clear plastic top, providing a view of a safety capsule. The plastic sleeve may be provided with small holes, allowing air to enter within the air space underneath the plastic sleeve. The safety capsule is kept in place with an attachment point to the plastic sleeve. If any tampering occurs such as using an injection needle to enter the bottle through the cork, the safety capsule may be punctured, casing its color to change (e.g., from white to red). This color change is a warning to the end user and seller that a toxic attack to the contents may have occurred.

**Probable Assignee:** MODEL PETER

**Earliest Publication Date:** 20051124



**61) Family number:** 34951892 (US2007175854A)

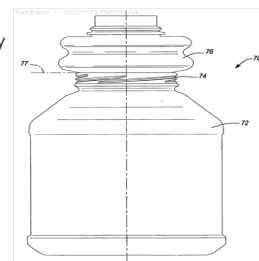
#### BLOW-MOLDED CONTAINER HAVING THREAD GROOVE



**Abstract:** Source: US2007175854A A blow-molded plastic container includes an upper portion having a finish, a body portion and a base. At least one groove is formed in a radial sidewall of the finish. The groove slopes gradually downward along the radial sidewall and away from an opening into the container. A method of making the blow-molded plastic container includes disposing a preform into a mold cavity having a surface defining a body forming region, a finish forming region and a moil forming region. The preform is blown against the mold surface to form an intermediate container having a body portion, a finish and a moil portion. The moil is severed from the finish to define the opening into the container. A closure member is adapted to selectively mate with the finish on the container. At least one thread is formed on the closure member.

**Probable Assignee:** AMCOR GROUP GMBH

**Earliest Publication Date:** 20070802



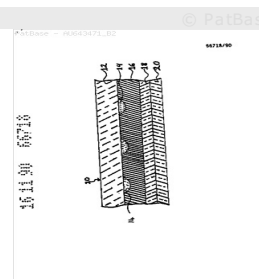
**62) Family number: 3543927 (AU199066718A)**

## NOVEL TAMPER EVIDENT CLOSURE

**Abstract:** Source: AU199066718A 1. A tamper-evident closure comprising a transparent backing carrying in order, a discontinuous layer of a barrier material preventing adhesion of the underlying layer to the backing; a colored laminating adhesive layer having a greater affinity to the backing than to any other layer in the tape; and an adhesive layer for aggressively securing the tape to the bag pouch or other substrate to which evidence of tampering is desired, which tape is tamper-evident over a wide temperature range.

**Probable Assignee:** KENDALL AND CO

**Earliest Publication Date:** 19920611



**63) Family number: 3644333 (CA1252419A)**

## TAMPER-PROOF CONTAINER CLOSURE FOR USE WITH CONTAINER NECKS SEALED WITH FOIL SEAL DISCS

**Abstract:** Source: CA1252419A To prevent tampering with the contents of containers for pharmaceuticals and other products, a plastic cap which is an improvement upon U. S. Pat. 3,338,446 and 4,166,552. The neck of the container is sealed with a commercially available foil seal; the cap is dimensioned so that the foil seal is inserted inside the cap prior to its being applied to the container. The dimensions of the cap accommodate the foil seal yet the snap-on and the tamper-proof features of the cap are maintained. At intervals, scorelines are formed extending upward from the bottom of the cap skirt; these tear if one attempts to pry the cap off the container and are visible evidence of the tampering. A flexible, thin flange projecting from the periphery of the cap is used to remove the cap in its reclosure mode; however, this flange has a sharp corner where it meets the cap skirt so that if one attempts to use the flange to pry off the cap when in its original sealing mode, the flange tears and gives additional evidence of tampering.

**Probable Assignee:** CAP SNAP CO

**Earliest Publication Date:** 19890411

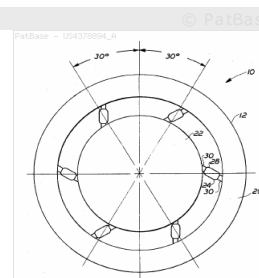
**64) Family number: 3807290 (US4378894A)**

## TAMPER-EVIDENT CLOSURE

**Abstract:** Source: US4378894A A tamper-evident closure having a central disc end wall panel bonded to a sealing liner and connected to an annular end wall projecting inwardly from the closure skirt wall by at least two fractureable bridges. Removal of a closure of this invention after being applied to a container causes at least one of the bridges to fracture giving evidence that at least an attempt has been made to remove the closure.

**Probable Assignee:** ALCOA INC

**Earliest Publication Date:** 19830405



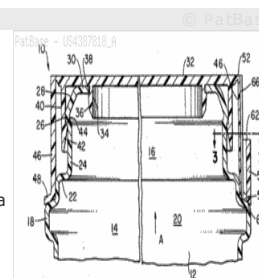
**65) Family number: 3823222 (US4387818A)**

## SNAP-ON TAMPER-PROOF CLOSURE

**Abstract:** Source: US4387818A A snap-on closure for use with a bottle having a neck and a mouth defining an opening in communication with the interior of the bottle, includes a circular top wall which contacts the uppermost surface portion of the bottle mouth. A first annular sealing wall, extending centrally downwardly from the top wall, engages and seals an inner surface portion of the bottle mouth. A second annular sealing wall also extending centrally downwardly from the top wall is spaced radially outwardly from the first annular sealing wall and engages and seals an outer surface portion of the bottle mouth. An outer wall, connected to the periphery of the top wall by a thin web membrane to permit easy separation from the top wall, extends downwardly from the periphery of the top wall a greater length than the second annular sealing wall. The outer wall has a flange extending radially outwardly from and along a major portion of its lower edge. The flange cooperates with a shoulder on the bottle neck so as to provide a flush fit with the bottle. A tear tab is connected to the outer wall to facilitate the separation of the outer wall from the top wall. In an alternative embodiment, the outer wall is frangibly connected to the lower periphery of the second annular sealing wall.

**Probable Assignee:** ITNOC DAIRY CAP CO INC

**Earliest Publication Date:** 19830614



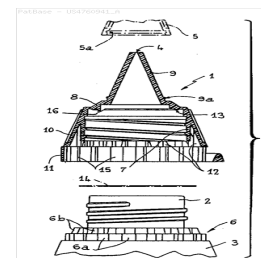
**66) Family number: 3827274 (US4760941A)**

## COMBINATION CONTAINER AND CLOSURE ASSEMBLY

**Abstract:** Source: US4760941A A combination closure assembly and container wherein the threaded neck of the container includes two series of notches along the base thereof and wherein the closure is provided with a tamper indicating guarantee strip which is lockingly engaged with a first of the series of notches so that the strip will be severed from the remaining portion of the closure assembly if access is attempted into the container and wherein the closure assembly also includes a conical sleeve which is engageable with the second of the series of notches upon the severance of the guarantee strip in such a manner as to prevent the closure assembly from being removed from the container.

**Probable Assignee:** NOUVELLE DE BOUCHONS PLASTIQUES SOC

**Earliest Publication Date:** 19871016



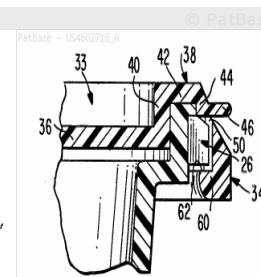
**67) Family number: 5075154 (US4602718A)**

## DUAL-OPERATION TAMPER-EVIDENT BAND FOR CLOSURES

**Abstract:** Source: US4602718A A tamper-evident closure, having a lower band attached by connecting ribs to the lower edge of the skirt portion of a cap, is disclosed. The attaching ribs for the lower band extend radially inwardly, and are adapted to engage radially outwardly extending fins on a container adapted to receive the closure, so that rotation of the cap will fracture the connecting ribs to detach the tamper-evident ring from the cap. The lower band also incorporates along its bottom edge an inwardly extending shoulder which engages the lower edges of the container fins, when the cap is in place. The cap incorporates a thumb tab for lifting the cap off the container. When this is done, the lifting motion will fracture the connecting ribs to detach the tamper-evident ring from the cap. Thus, either rotational or lifting movement of the cap provides visible evidence that the cap has been moved.

**Probable Assignee:** SUN COAST CLOSURES INC

**Earliest Publication Date:** 19860729



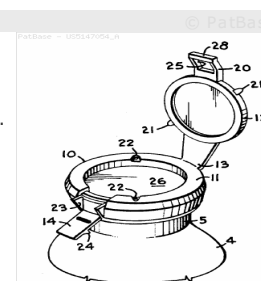
**68) Family number: 5142303 (US5147054A)**

## TAMPER-PROOF CONTAINER

**Abstract:** Source: US5147054A A tamper-proof container for over-the-counter drugs or the like includes a cylindrical plastic bottle which tapers to a narrow neck. An annular angled depression is molded into the bottle neck. A two-part closure includes a cap ring onto which is molded an annular angled projection sized and positioned to mate with the angled depression in the bottle neck when the cap ring is snapped over the bottle mouth. A hinged cap is attached to the cap ring and has a plurality of tamper tab projections connected thereto via a like plurality of frangible tear regions. The tamper tab projections mate with corresponding tamper tab depressions in the cap ring when the hinged cap is closed. After the bottle is filled, a tamper-evident seal is adhered over the mouth of the bottle and the cap ring is snapped over the bottle mouth, enclosing the tamper-evident seal. The cap ring is then ultrasonically welded to the bottle neck and the cap is ultrasonically welded to the cap ring via the tamper tabs. The result is a tamper-proof container.

**Probable Assignee:** PEHR HAROLD T

**Earliest Publication Date:** 19920915



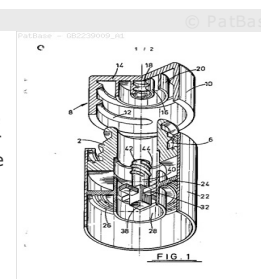
**69) Family number: 6699034 (GB2239009A)**

## CONTAINER CLOSURE

**Abstract:** Source: GB2239009A A tamper-evident closure particularly for a bottle of spirits comprises a pouring outlet (2) defining a pouring passage and a cap (8) which threadably engages with a screw thread portion (6) of the outlet and with a screw thread portion (44) of pitch greater than that of portion (6) formed on an indicating member (40) having a non-circular portion (38) for engagement with retaining means such as fingers (32) projecting into the outlet passage; upon unscrewing the cap (8), the member (40) is driven into the interior of the container by the effect of the difference in pitches between threads (44 and 6). Its presence, loose, in the container being readily detected as evidence that the container has been broached.

**Probable Assignee:** MONTGOMERY DANIEL AND SON LTD

**Earliest Publication Date:** 19910619



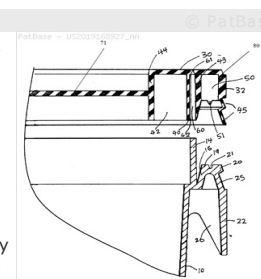
**70) Family number: 68588954 (US2019168927A)**

## AN IMPROVED PLASTIC CONTAINER BODY AND CONTAINER CLOSURE AND CARRY HANDLE GRIP / CONTAINER LEVERAGE OPENING TOOL ASSEMBLY

**Abstract:** Source: US2019168927A A plastic injection moulded wide mouth container body and container cover locking and sealing mechanism which includes an annular flange and an annular angular notch groove respectively in a pre-determined configuration so as to provide a tight leak-proof seal when the container lid is fitted over, around and within the container body hoop annular fin and upon locking engagement. The present invention incorporates a multi-use plastic handle grip which may also be used as a closure opening levering tool to disengage the container lid from the container body in a safe and ergonomic manner. More significantly the invention, and when in use and upon first usage opening, does not require the removal of any portion of the container lid to comply with tamper evident requirements, nor needs other tools such as knives and metal levers to completely remove the container closure from the container body. Still furthermore the invention includes a plurality of venting channels and adjacent ports which allows the evacuation of increased internal air pressure within the closed container head space with no leakage of the packaged fluid product. The invention may be adapted to plastic containers of any size and shape being round, oval, square or rectangular tapered or straight wall containers.

**Probable Assignee:** KANG KERN WEICHOREAK

**Earliest Publication Date:** 20180215



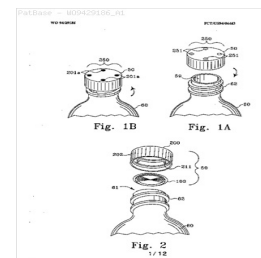
**71) Family number: 8482344 (WO9429186A1)**

## TAMPER-EVIDENT CLOSURE SYSTEM

**Abstract:** An inexpensive, multi-component closure for both pressurized and vacuum-packed containers (60), includes a closure disk (400) having a combination of features for forming an effective seal for the open mouth of such containers (60) and a screw cap (412), also with a combination of features, for carrying, by its rotation, the closure disk (400) into closing and sealing engagement with the open mouth (61) of the container (60). The closure disk (400) and screw cap (412), through their coaction, provide tamper evidence upon any subsequent counter-rotation of the screw cap (412), for example, as a user initiates opening of the container (60). Through their coaction, closure disk (400) and screw cap (412) also maintain an effective seal by controlling compression set of the seal, even if the closure is exposed to heavy top loads for long periods, such as in storage, and the subsequent removal of the load.

**Probable Assignee:** WILDE

**Earliest Publication Date:** 19941222



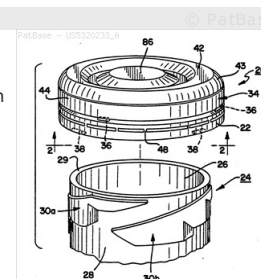
**72) Family number: 8502624 (US5320233A)**

#### TAMPER EVIDENT LUG CAP

**Abstract:** Source: US5320233A The present invention is directed to a lug cap or closure that is used in combination with a container for indicating that the container has been opened so as to indicate loss of seal or tampering. The lug cap includes an upper cap portion and a depending tamper or pilfer band, each having a series of circumferentially spaced lugs. The upper cap portion and the pilfer band are joined by a plurality of frangible bridges. The container finish includes combination camming/locking projections for locking the lugs into a locked position and for separating the pilfer band from the upper cap portion by a camming action when the container is opened. The lug cap may also include a secondary tamper indicating means such as a tamper indicating button in the top of the lug cap.

**Probable Assignee:** SILGAN CONTAINERS CORP

**Earliest Publication Date:** 19940614



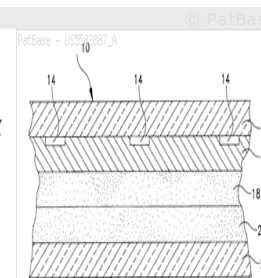
**73) Family number: 8525926 (US5582887A)**

#### TAMPER-EVIDENT TAPE HAVING DISCONTINUOUS BARRIER LAYER

**Abstract:** Source: US5582887A Disclosed is a tamper-evident tape for applying over the flap or other opening in cellulosic substrates such as paper products, corrugated containers, cardboard boxes, shipping cartons and the like, which tape will provide evidence of tampering with its contents over a wide temperature range from above to below the Tg of the adhesive layer adhering the tape to the substrate. The tape has a transparent backing layer carrying on one side thereof a discontinuous layer of deposits of a transparent barrier material which is bonded to the backing layer and which prevents bonding of an underlying colored layer to the backing layer in areas where the barrier material is present.

**Probable Assignee:** COVALENCE SPECIALTY MATERIALS CORP

**Earliest Publication Date:** 19941225



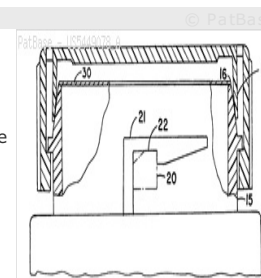
**74) Family number: 8610247 (US5449078A)**

#### COMBINATION OF A CONTAINER AND A SAFETY CAP THEREFOR

**Abstract:** Source: US5449078A The combination of a container and a safety cap therefor in which the safety cap has a closure plane and a circumferential outer skirt for engaging a container and has a circumferential resilient depending inner member. The container has a rigid wall having an end for engagement with the cap internally of the outer skirt. The wall is tapered from a smaller diameter portion adjacent the closure plane of the cap to a larger diameter portion remote from the closure plane of the cap. The tapered wall of the container engages internally the resilient inner member of the cap and the larger diameter portion of the wall expands the resilient inner member outwardly to provide a working seal of the container as well as a bias on the cap in a direction of removal of the cap. The combination also includes means disposed on the container remotely from the end of the rigid wall and cooperative means on the cap for preventing the cap from being removed from the container without depression of the cap on the container and rotation of the cap on the container. When the container is used as a bottle, the container preferably includes means for providing a tamper evident seal, whereby it will be obvious that the contents have been sealed with a material protecting the contents of the container. Any penetration of the seal prior to the removal and destruction of the seal by the user will be evidence of the lack of integrity of the contents of the container.

**Probable Assignee:** THERMAR CORP

**Earliest Publication Date:** 19950912



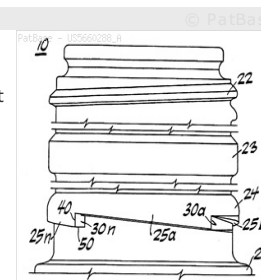
**75) Family number: 8686910 (US5660288A)**

#### REVERSE HELIX TAMPER-EVIDENT CONTAINER

**Abstract:** Source: US5660288A A container for use with tamper-evident closures, or tamper-evident child-resistant closures, having tamper-evident bands is provided. The container has threads for engaging corresponding threads on the tamper-evident closure. The container further has ramps for engaging tamper-evident elements on the tamper-evident band of the tamper-evident closure. The ramps hold the tamper-evident elements down while the closure is being rotated off of the container. Furthermore, the slant of the ramps actually serves to force the tamper-evident elements downward while the closure is rotated off. This greatly enhances the ease of removal of the tamper-evident closure, thus making the closure far easier to use, without sacrificing the important tamper-evident quality. Furthermore, the accelerated separation of the band from the closure enhances the tamper-evident quality of the package by causing band separation upon distortion, before the closure/bottle seal is broken.

**Probable Assignee:** BERRY PLASTICS CORP

**Earliest Publication Date:** 19960725



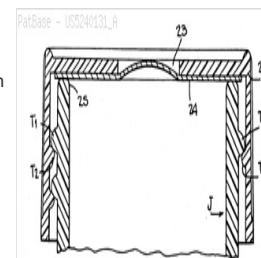
**76) Family number: 8955836 (US5240131A)**

#### TAMPER EVIDENT CONTAINER CLOSURE

**Abstract:** Source: US5240131A A tamper evident closure for a container has a seal member which is in a concave or convex condition to show closure integrity. The seal is visible through an opening in the cover of the container. Filling the container under pressure which is higher or lower than atmospheric produces the distention or contraction of the seal member that evidences that no tampering or leakage has occurred.

**Probable Assignee:** BESTFOODS

**Earliest Publication Date:** 19930624



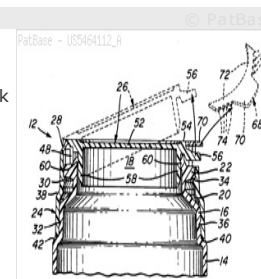
**77) Family number: 9106514** (US5464112A)

#### TAMPER-EVIDENT CLOSURE CAP FOR CONTAINERS

**Abstract:** Source: US5464112A The invention relates to a tamper-evident closure cap for a container having a neck and an opening defined in the neck. The closure cap of the invention includes an annular skirt member adapted to be secured to the neck of the container to prevent removal of the closure cap from the container, and a closure member hingedly connected to the skirt member for pivotal movement between a closed position whereat the closure member closes the opening of the container and an open position whereat the closure member permits access to the opening. A manually graspable tab is fixedly connected to the closure member for moving same from the closed position to the open position. The closure cap further includes a tamper-indicating member removably connected to the skirt member in overlying relation with respect to the tab and adapted to prohibit initial opening of the closure member prior to removal of the tamper indicating member. Thus, unauthorized removal of the tamper-indicating member provides evidence of tampering or initial opening.

**Probable Assignee:** CREALISE CONDITIONNEMENT INC CREALISE PACKAGING INC

**Earliest Publication Date:** 19940925



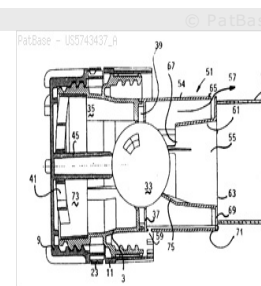
**78) Family number: 10226570** (US5743437A)

#### CLOSURE FOR CONTAINERS FOR LIQUID

**Abstract:** Source: US5743437A A reusable closure for placement within the neck of a returnable and reusable container for liquid includes an improved sealing device for preventing contamination of the container. The sealing device achieves a tight seal between a ball and a valve seat within the closure. A cap abutment or spring may optionally be provided to further enhance the tightness of the seal.

**Probable Assignee:** MONSANTO CO

**Earliest Publication Date:** 19950109



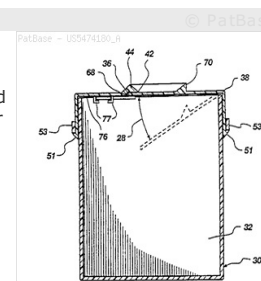
**79) Family number: 10953166** (US5474180A)

#### CONTAINER ASSEMBLY FOR TRANSPORT AND DISPOSAL OF MEDICAL MATERIALS

**Abstract:** Source: US5474180A A container assembly for transport and disposal of medical instruments is disclosed and claimed. The container assembly preferably has a container body and a lid for use with multiple-sized container bodies. The lid includes a self-closing biased flap and a cradle member for insertion of sharp medical instruments and other medical waste without contact by medical personnel during insertion into the container.

**Probable Assignee:** SPECIALIZED HEALTH PRODUCTS

**Earliest Publication Date:** 19951212



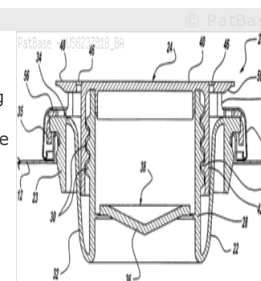
**80) Family number: 15397590** (US6237818B)

#### TAMPER EVIDENT POURING SPOUT

**Abstract:** Source: US6237818B A flexible pouring spout for material containers incorporating a tamper evident ring having a nested flexible spout capable of being selectively moved between a nested position and an extended position, a cap threadedly attached to the spout, a tamper-evident ring attached to the cap by a plurality of frangible elements, and a metal ring for attaching the closure to the container. The metal ring is secured over the peripheral flange of the spout and over the tamper-evident ring, preventing the closure from being removed or the spout from being extended without detection. A flexible bail handle is attached to the cap member to facilitate extending the spout member and removing the cap. For additional tamper evidence, an internal diaphragm is used to seal off the spout until the closure is opened and the diaphragm removed.

**Probable Assignee:** RIEKE CORP

**Earliest Publication Date:** 20010529



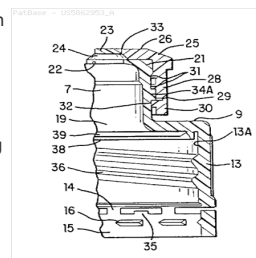
**81) Family number: 23545519** (US5862953A)

#### TAMPER EVIDENT PUSH-PULL CLOSURE WITH POUR SPOUT

**Abstract:** Source: US5862953A A resealable push-pull pour spout closure having an annular secondary closure with a central opening through which a plug is adapted to engage to close a container. The central opening is defined by an annular wall having at least one internally extending annular flange. The diameter of the central opening is substantially the same as that of the plug. The plug takes the form of a circular closure disk having an integrally molded depending annular skirt projecting from the periphery of the disk that attaches to angularly extending legs that connect the plug to the spout thereby defining a hollow cavity for the plug interior and increasing the structural flexibility of the plug. The annular seal flange projects radially into opening for form fitting engagement with the plug to substantially eliminate any leakage when the plug is positioned in the central opening.

**Probable Assignee:** SILGAN IPEC CORP

**Earliest Publication Date:** 19971023



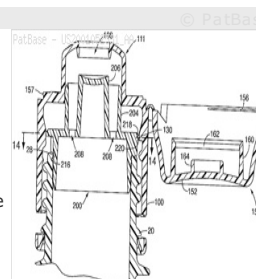
**82) Family number: 28144587** (US2001052531A)

## FITMENT AND RESEALABLE DISPENSING CLOSURE ASSEMBLY FOR HIGH-PRESSURE SEALING AND BI-MODAL DISPENSING

**Abstract:** Source: US2001052531A A fitment is provided for incorporation into a closure assembly to provide at least one high-pressure seal suitable for maintaining high-positive pressures in a container having pressurized contents, such as carbonated beverages. The fitment and closure assembly also provide for bi-modal dispensing operations, because the fitment it can be removed from the closure assembly to provide alternative flow characteristics from the container through the closure assembly. The fitment may also be provided with one or more projections adapted to engage a thread on the closure body such that rotation of the closure body relative to the container results in removal of the fitment from the container. The fitment may also be provided with one or more projections for engaging the closure body to limit its movement relative to the container, thereby defining a fully open dispensing position of the closure body. The projection(s) preferably take the form of a plurality of radially extending ratchet shaped projections or the form of a single, helical flange extending around a peripheral surface of the fitment. A closure assembly incorporating the fitment also may include a plurality of seals formed between various features on the fitment and the closure body, which may include a hinged lid, to enhance the sealing characteristics of the closure assembly.

**Probable Assignee:** SEAQUIST CLOSURES FOREIGN INC

**Earliest Publication Date:** 20011129



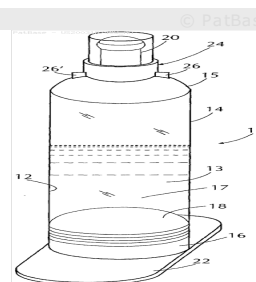
**83) Family number: 29114874** (US2003187403A)

## TAMPER EVIDENT OVERAP FOR A CONTAINER

**Abstract:** Source: US2003187403A A tamper evident protective cap for a container having a pharmaceutical or biological fluid. The barrel of the container is equipped with two protuberances. The protective cap consisting of top and bottom portions are connected by a frangible portion. The bottom portion contains two notches to engage the protuberances. Without engaging the protuberances with the notches the protector cap cannot be removed. Upon engaging the protuberances with the notches, the top portion of the protective cap is twistably removed at the frangible area and the content of the container is removed by attaching a luer connector or a syringe equipped with a luer connector.

**Probable Assignee:** BRACCO DIAGNOSTICS INC

**Earliest Publication Date:** 20031002



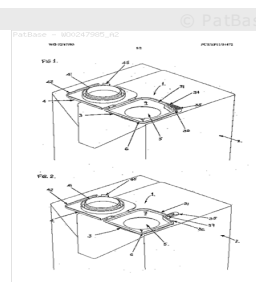
**84) Family number: 29682181** (US2004026286A)

## CARTON CLOSURE

**Abstract:** Source: US2004026286A A closure (1) for a container such as a carton (2) having a planar base (3) and a planar lid (4) hinged thereto, such that when the lid is in its closed position, cartons with the closure attached can be stacked. The base defines a dispensing orifice (5) and a pouring lip (6) and is fixed to the container surrounding a similar dispensing orifice in the container. The closure is adapted to be welded to the container and has a welded zone (7) which surrounds the dispensing orifice in the base but lies inside the periphery of the pouring lip, such that the closure can be welded to the container with the pouring lip aligned with the edge of the container.

**Probable Assignee:** CROWN OBRIST GMBH

**Earliest Publication Date:** 20020620



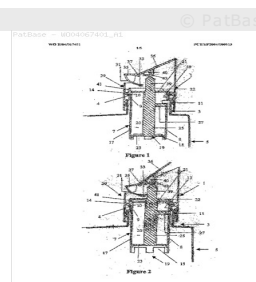
**85) Family number: 30751776** (WO04067401A1)

## DISPENSING CLOSURE

**Abstract:** A dispensing closure for dosing a present volume of liquid comprising: a cylinder (7) lodged within the bottle neck (3) and comprising at least one inlet opening (11) at the upper end (13) and at least one venting hole (15) at the lower end (17); a piston (19) comprising an upper sealing plate (21) and a lower sealing plate (23) linked by an essentially longitudinal shaft (25), said piston movable inside the cylinder hence defining a dosing volume delimited by the sealing plates (21, 23) and the cylinder wall (8; further comprising a register (27) rigidly connected with said shaft (25) and arranged at a distance from the lower sealing plate (23) such as to liberate or close the inlet opening simultaneously with the lower sealing plate, respectively, liberating or closing the venting hole; a spout element (29) extending the bottle neck; a spring means (31) maintaining said upper sealing plate in sealing arrangement with said cylinder, and allowing for movement of said piston in unsealed position when operated.

**Probable Assignee:** MONSANTO EUROPE SA

**Earliest Publication Date:** 20040804



**86) Family number: 30992633** (US5931332A)

## TAMPER-EVIDENT CLOSURE WITH PULL-TAB

**Abstract:** Source: US5931332A A tamper-evident container system having a lid fitting over a container and a pull-tab attached to the lid along frangible lines. The pull-tab angles inwardly and upwardly from a peripheral rim of the lid and terminates below the topmost portion of the lid. The pull-tab joins to the adjacent walls of the lid rim along thin integrally formed webs which are easily severed upon displacement of the pull-tab to provide highly visible evidence of tampering. The webs extend from an inner section of the rim and across at least a portion of an upper bridge formed on the rim, further enhancing the visibility of any tampering. The pull-tab forms a small angle with a vertical inner wall of a recess of the lid and extends circumferentially around the inner wall without extending above the rim. A sealing ring formed on the lid below the container system to be resealed by the consumer after opening. A poppet-style injection molding assembly is used to form the lid which creates a space between the mold parts forming the angled pull-tab prior to release of the lid from an undercutting mold structure.

**Probable Assignee:** CHEDISTER MATHEW O

**Earliest Publication Date:** 19990803



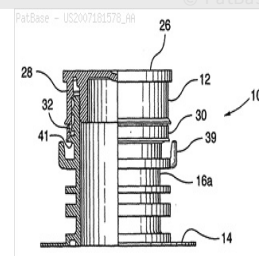
**87) Family number: 31517866** (US2007181578A)

#### TAMPER EVIDENT FITMENT ASSEMBLY

**Abstract:** Source: US2007181578A A tamper evident fitment assembly for use with a container for flowable material, the closure comprising a cap and a spout secured to the container, the cap having a frangible tamper evident band, the cap having an annular recess for frictionally engaging a top portion of the spout, the cap and spout having cooperating detent and locking elements so that the assembly in a first position where the cap is removably sealed to the spout and the tamper evident band is not broken when the cap is removed for filling may move to a second position when the cap is removably sealed to the spout and the tamper evident band is broken upon removal of the cap. An important feature of the present invention is that the cap frictionally engages a top portion of the spout. No screw threads or similar securing means are required to retain the cap on the spout

**Probable Assignee:** LIQUI BOX CORP

**Earliest Publication Date:** 20050210



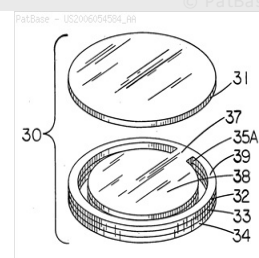
**88) Family number: 32713327** (US2006054584A)

#### TAMPER EVIDENT CONTAINER SEAL WITH INTEGRAL PULL OPENER

**Abstract:** Source: US2006054584A A multi layered leak proof tamper evident container closure seal with an integral pull opener is constructed from a first layer of leak proof frangible sheet material that is adhesively bonded to a second layer of strengthening sheet material. The strengthening layer contains a varied C shaped cut out void configuration that forms a breaking pattern that turns the strengthening layer into a break and tear template layer. The adhesive layer bonding the frangible layer to the template includes an area void of the adhesive that duplicates the cut out void configuration of the breaking pattern. The seal is also bonded to the container rim without any adhesive being present in the area of the cut out void configuration of the breaking pattern thereby leaving only the single frangible layer covering over the C shaped cut out void configuration forming the breaking pattern which creates a weakness in the multi layered seal only in the area of the C shaped breaking pattern. When a consumer forces a finger into the installed seal the applied pressure forces the seal to break open and tear only in the weaker area of the C shaped breaking pattern configuration that follows in close proximity the inside perimeter of the container rim while the rim contact portion of the seal remains bonded to the container rim. The broken open C shaped central portion of the seal then forms a connected pull tab that can be lifted back out and pulled from the container. The ability of the seal to be easily broken open while the rim contact portion of the seal remains bonded to the container rim allows the seal to be bonded to the rim with either a strong adhesive that forces the pull tab to tear from the rim contact portion of the seal, or a weak adhesive that allows the rim contact portion of the seal to peel from the container rim along with the pull tab.

**Probable Assignee:** JACKMAN BRIAN F

**Earliest Publication Date:** 20060316



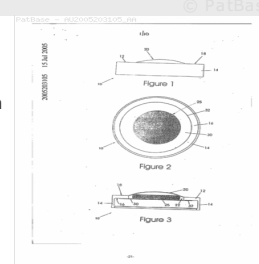
**89) Family number: 32715897** (AU2005203105A)

#### DRINKING CONTAINER CLOSURE

**Abstract:** Source: AU2005203105A A drinking container closure comprising a lower member adapted to be fastened to the mouth of a drinking container and an upper member interlocked with the lower member, wherein an aperture extends through the upper and lower members; and a sealed blister pack containing a dissolvable substance having a circumferential flange that is clamped between the interlocked upper and lower members to secure the blister pack across the aperture such that a force applied to an upper surface of the blister pack pushes the substance through a bottom surface of the blister pack and into a drinking container. 18 12 14 Figure 1 32 /16 1 Figure 2 18 12 14 16 30 2514 Figure 3 5 9/-1 09IS 017 1 -57 19 0 t7 zq -5 9 Ij LS o1i J vo1'I( pc--s I 0) FT6~ IIOc Force Tablet Displacement

**Probable Assignee:** LEOKADIA ENTPR PTY LTD

**Earliest Publication Date:** 20060202



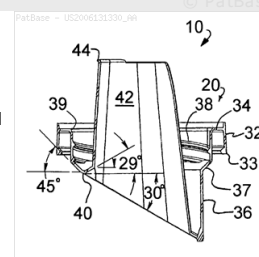
**90) Family number: 33082209** (US2006131330A)

#### DRAIN-BACK SPOUT FITMENT CLOSURE WITH DRIP-LESS POUR TIP

**Abstract:** Source: US2006131330A A snap on, drain back fitment closure for a container, wherein the drain back pour spout fitment has a snap fit structure overlaying a container or bottle neck finish and which may be secured thereto with adhesives. The snap fit structure has an outer annular skirt with an internal, radial inwardly facing bead engaging a radial outwardly facing surface of the bottle finish. Spaced from the outer annular skirt by a horizontal upper flange, the spout fitment includes an inner annular skirt with internal threads on the fitment to receive an externally threaded closure. The closure has a plug seal above the threads engaging the fitment. Further the pour spout has a radial outwardly extending drip-less pour spout at an end thereof.

**Probable Assignee:** BERRY PLASTICS CORP

**Earliest Publication Date:** 20060622



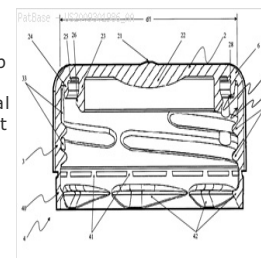
**91) Family number: 33154107** (US2009301986A)

## CLOSURE

**Abstract:** Source: US2009301986A A one-piece closure for sealing a container having a neck portion includes a top wall (2) connected with a substantially cylindrical side wall (3) and an annular seal (24) that extends downwardly from an inner surface of the closure. The side wall (3) has a substantially contact wall thickness and the annular seal (24) is deformable, in use, on application of the closure to the neck portion of a container such that it at least in part abuts the side wall (3). A tamper evident ring (40) separates from the closure at substantially the same time the annular seal (24) disengages from the neck portion (5).

**Probable Assignee:** CONSTAR INT LLC

**Earliest Publication Date:** 20071122



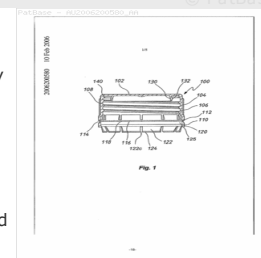
**92) Family number: 33341388** (AU2006200580A)

### TAMPER-EVIDENT CLOSURE AND CONTAINER NECK

**Abstract:** Source: AU2006200580A SThe present invention relates to closures for containers, and more particularly to Stamper-evident closures for containers including tamper-evident dispensing closures and tamper-evident child resistant closures together with corresponding container necks. One aspect of the present invention provides a container and a closure for Sconnection to said container, said closure ( ) including: 00 an upper wall (102); a skirt (104) formed integrally with and extending downwardly from said upper IND wall (102), said skirt including a helically threaded section (106) on an internal face (108); a tamper-evident band (110) frangibly connected to said skirt, said tamper- evident band including an annular wall (120) from which extends a series of discretely spaced tabs (122); said container including: a neck (50) with a helically threaded section formed on an external surface and adapted to engage with said helically threaded section (106) on the internal face (108) of the skirt (104) of the closure so as to secure the closure to the container; a tamper-evident band engagement formation (55) located on said neck beneath said helically threaded section, said engagement formation including a downwardly and outwardly extending upper face to facilitate passage of said tabs (122) over the engagement formation (55) and reduce force on the tamper-evident band (110) during application of the closure to the container; such that upon rotation of said closure to remove said closure from said container said tabs engage with said tamper-evident band engagement formation to resist rotation of said tamper-evident band and facilitate breaking of the band from the skirt of the closure. 102 108 114 104 12 110 116 123 122 Fig. 2 Fig. 3 120 121 110 '2E'

**Probable Assignee:** CTECH CLOSURES PTY LTD

**Earliest Publication Date:** 20060824



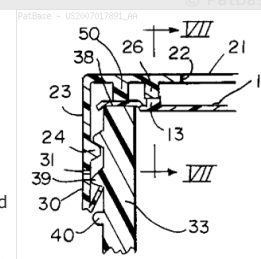
**93) Family number: 34067207** (US2007017891A)

### COMPOSITE TWO-PIECE TAMPER-EVIDENT CLOSURE WITH A SEAL-DELAY-RELEASE FEATURE AND A METHOD THEREFOR

**Abstract:** Source: US2007017891A An apparatus includes an outer closure including a closure plane and a circumferentially depending outer skirt extending in a first direction from the closure plane. The closure plane has first ramped lugs equi-spaced around a circumference of the closure plane and which extend axially in the first direction. The outer skirt has screw threads on a radially inward side and a tamper-evident arrangement frangibly connected to a lower edge of the outer skirt. A first ramp of each of the first ramped lugs is substantially parallel to the screw threads on a same radius. The apparatus also includes an inner sealing disk adapted to nest rotatably and axially movably against a side of the closure plane facing the first direction. The inner sealing disk is enclosed by the outer skirt and an axial movement of the inner sealing disk is limited by a retaining arrangement of the outer closure. The inner sealing disk includes second ramped lugs extending axially in a second direction opposite the first direction. Each second ramped lug corresponds to one of the first ramped lugs. A second ramp of each of the second ramped lugs is substantially parallel to the first ramp for each radial position. A container includes a sidewall having screw threads on a radially outward side adapted to engage the screw threads on the outer closure and an upper edge adapted to engage a container sealing area of the inner sealing disk. The upper edge is arranged around an opening of the container. The sidewall has an arrangement adapted to engage the tamper-evident arrangement of the outer closure. The outer closure and the inner sealing disk cooperate to provide a tamper-evident closure with the container. The tamper-evident closure maintains the inner sealing disk on the container while the outer closure is unthreaded from the container for a first time until the tamper-evident arrangement shows evidence of tampering.

**Probable Assignee:** BERRY PLASTICS CORP

**Earliest Publication Date:** 20061206



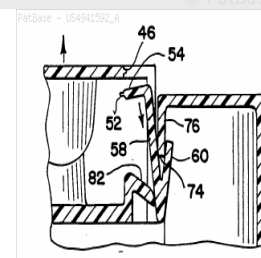
**94) Family number: 3514412** (US4941592A)

### HINGED DISPENSING CLOSURE WITH A TAMPER-EVIDENT SEAL

**Abstract:** Source: US4941592A A plastic molded tamper-evident dispensing closure with a tamper-evident seal. The seal is integrally molded with the closure lid and projects downwardly from a peripheral edge of the lid into interlocking engagement with the body. A seal segment is disposed in a peripheral notch in the lid to evidence access to the contents of an associated container.

**Probable Assignee:** SEAQUIST CLOSURES FOREIGN INC

**Earliest Publication Date:** 19900717



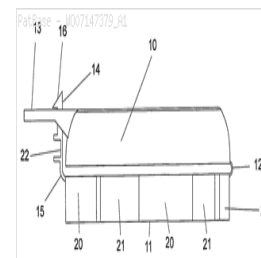
**95) Family number: 41004788** (WO07147379A1)

### CLOSURE FOR A RECEPTACLE, PARTICULARLY A BEVERAGE BOTTLE, AND RECEPTACLE COMPRISING SUCH A CLOSURE

**Abstract:** The invention relates to a closure for a receptacle, particularly a beverage bottle, comprising a lid (10) and a tamper-proof seal (14). In order to create a closure that is easy to close again, is provided with a tamper-proof seal (14), and is easy to mount on the receptacle, the inventive closure is characterized in that the lid (10) is connected especially in an articulated manner to a ring (11) which can unremovably be connected to the receptacle.

**Probable Assignee:** PACKSTER GMBH ENTWICKLUNG

**Earliest Publication Date:** 20071227



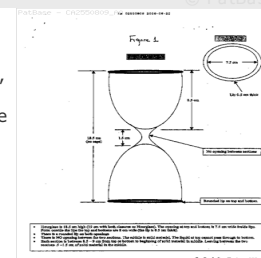
**96) Family number:** 41036394 (CA2550809A)

#### DOUBLE-ENDED SAMPLER GLASS

**Abstract:** Source: CA2550809A A double-ended container for holding separated alcoholic beverages, such as wine, includes two separate open-ended compartments, opening to the top and the bottom respectively, each compartment having a peripheral lip and a resilient closure adapted to conform with the lip and close the respective compartments. A tamper proof seal is associated with the closure to prevent or provide evidence of tampering.

**Probable Assignee:** TURCOTTE BERNIE

**Earliest Publication Date:** 20071222



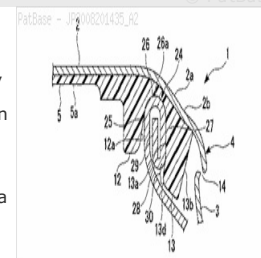
**97) Family number:** 42249474 (JP2008201435A)

#### CAP, CLOSURE DEVICE, AND CLOSURE DEVICE CONTAINING BEVERAGE

**Abstract:** Source: JP2008201435A PROBLEM TO BE SOLVED: To provide a cap having a superior tamper-evidence, a closure device and a closure device containing beverage. SOLUTION: There is provided a cap 1 including a cap body 4 having a top plate 2 and a cylindrical part 3, and a liner 5 arranged within this cap body 4. The liner 5 has an inner seal protrusion 12 abutting against the inner surface of a curled part 24 of a container and an outer seal protrusion 13 abutting against the outer surface of the curled part 24. The inner surface 13a of the outer seal protrusion 13 can be abutting against a straight part 27 of the curled part 24 and the lowermost part 13d of the inner surface 13a is positioned at a location below the straight part 27. The lower portion 30 of the inner surface 13a can be against the straight part 27 when the cap 1 is closed.

**Probable Assignee:** ALCOA CLOSURE SYSTEMS JAPAN

**Earliest Publication Date:** 20080904



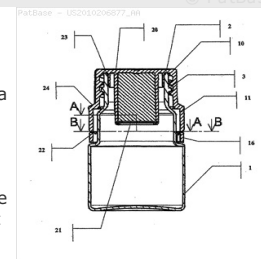
**98) Family number:** 42773233 (US2010206877A)

#### CHILD-SAFE CLOSURE DEVICE WITH SCREW AND COLLAR FOR REVEALING FIRST OPENING

**Abstract:** Source: US2010206877A The invention relates to a child-safe closure device for a container (1), consisting of: i) a stopper having a base and a cylindrical side wall, the inside face of which has a screwthread and a first series of teeth (13), and ii) a collar (16) for revealing the first opening, said collar (16) being connected to said side wall and being equipped with a second series of teeth (17), these two series of teeth engaging with corresponding series of teeth (4,7) positioned on the base of the neck (2) of the container (1), which is characterized in that: a) the cylindrical side wall of the stopper is made up of two zones, one rigid (10), and the other, or skirt (11), being flexible and deformable, b) the collar (16) for revealing the first opening is attached to the skirt (11) by frangible bridges (22), in such a way that deformation of the skirt (11) does not result in an equivalent deformation of the collar (16).

**Probable Assignee:** CLARIANT PRODUCTION FRANCE SAS

**Earliest Publication Date:** 20081231



**99) Family number:** 43079630 (US2010170910A)

#### HINGED CLOSURE

**Abstract:** Source: US2010170910A A hinged closure for a container, particularly a drinking bottle, includes a lower part and an upper part, a hinge section, with which the upper part can be pivoted from a first position to a second position, in which the upper part is pivoted away from the lower part by an opening angle, and a retaining device, having a first retaining section and a second retaining section, both being detachably connected when the upper part is moved into the second position.

**Probable Assignee:** WEENER PLASTIK GMBH

**Earliest Publication Date:** 20090319

