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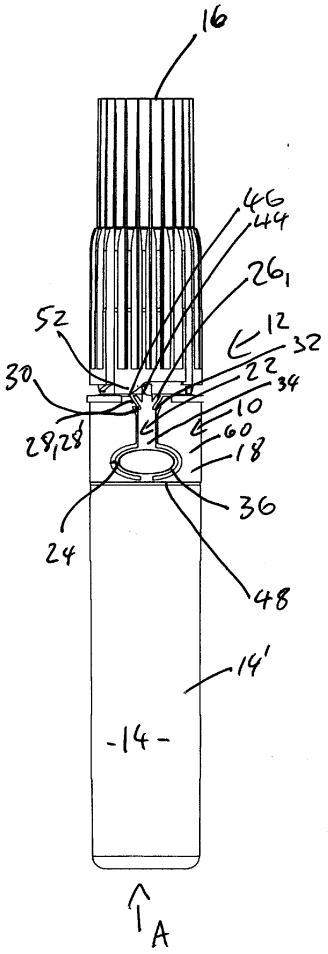
(54) VISUAL FIRST OPENING INDICATOR, CONTAINER AND METHOD OF FIRST TIME ACTIVATION OF SUCH A CONTAINER

(57) A visual first opening indicator (10) for visually indicating whether a container (12) has been opened, the container (12) having a bottle (14) and a lid (16) attached thereto for repeated closing and opening of the container (12), the visual first opening indicator (10) comprising a body (18) surrounding a through hole (20) thereof and a snapper element (22), the snapper element (22) extending in parallel to a longitudinal axis (A) of the body (18), with the longitudinal axis (A) extending through the through hole (20), the snapper element (22) being permanently fixed to the body (18) and being moveable relative to the body (18) along the longitudinal axis (A) and the snapper element (22) being arranged in an aperture (24) of the body (18), a container comprising such a visual first opening indicator, and a method of first time activating of such a container.

Fig. 1a



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Description

[0001] The present invention relates to a visual first opening indicator for visually indicating whether a container has been opened, the container having a bottle and a lid attached thereto for repeated closing and opening of the container, the visual first opening indicator comprising a body surrounding a through hole thereof and a snapper element, the snapper element extending in parallel to a longitudinal axis of the body, with the longitudinal axis extending through the through hole, the snapper element being permanently fixed to the body and being moveable relative to the body along the longitudinal axis and the snapper element being arranged in an aperture of the body. The invention further relates to a container comprising such a visual first opening indicator and to a method of first time activating of such a container.

[0002] Containers are used to store a plethora of materials. Such materials can range from adhesives used in the dental, medical, pharmaceutical and veterinary fields, to adhesives, lubricants and paints used in industrial applications, e.g. in the automotive, and aeronautical fields, and in the construction sector etc.

[0003] A further field of application is in the beauty sector where the typical situation in stores is as follows cosmetic items, such as mascara, lip-gloss, lip-stick, make-up, etc., are typically stored in shop shelfs for selling. In order to prevent the unused cosmetic items of being opened the stores offer test items which the consumers are supposed to use for test purposes in order to evaluate in the store whether the product of interest is to the customers satisfaction or not. Such an item is for instance a cosmetic unit (e.g. Mascara) which can be opened and tested by the consumer right at the point of sale. The aim is to convince the user to buy the tested product. Tester units are standard on the market and in the stores.

[0004] Unfortunately, many consumers do not follow the rules of using only the tester units. They simply open unopened packages as new tester units as they are "fresh" and use these. What makes matters worse is that in some instances the same consumers who already opened a fresh package then proceed to buy a further fresh - unopened - package.

[0005] The contamination after the first opening cannot always be recognized, as a lot of the packages do not have any protection, such as a tamper-proof evidence.

[0006] Even if the units are marked with labels (applied along the cap and the bottle) the indication of already opened units is not clear. If such labels break, the customer can directly see the damage and pick another product. However, from time to time it happens that the label can simply peel-off (e.g. in the area of the bottle) without being broken. This leads some consumers to remove the label, to then test the product and then after use the consumer can easily press-on the label back at the initial position. The product seems to be visually unopened, but in fact the contamination process has already started.

[0007] It is an object of the present invention to provide a container having a visual first-opening-indication function and a corresponding visual first opening indicator that are able to be manufactured in an as simple as possible manner and that reliably ensure a visual first indication of whether the container has been previously opened or not, so that respective customers do not use and/or purchase containers in which a contamination process has already started.

[0008] This object is satisfied by a visual first opening indicator, by a container and by a method of first-time activation of a container in accordance with the respective independent claim.

[0009] Such a visual first opening indicator for visually indicating whether a container has been opened, with the container having a bottle and a lid attached thereto for repeated closing and opening of the container, comprises a body surrounding a through hole thereof and a snapper element, the snapper element extending in parallel to a longitudinal axis of the body, with the longitudinal axis extending through the through hole, the snapper element being permanently fixed to the body and being moveable relative to the body along the longitudinal axis and the snapper element being arranged in an aperture of the body.

[0010] Thereby a container equipped with such a visual first opening indicator can be provided having a visual first-opening-indication function. Such a part can be formed reliably and efficiently either by injection molding or through additive manufacturing in an as simple as possible manner.

[0011] By providing the visual first opening indicator with a snapper element that is moveable relative to the body ensures that different states of use can be reliably indicated, such that respective customers do not use and/or purchase containers in which a contamination process has already started.

[0012] The labels previously applied to the containers as tamper proof evidence are applied in a subsequent step after filling of the respective containers. The parts of the visual first opening indicator are present in the container prior to filling of the container. The visual first opening indicator is assembled automatically from these parts once the container is filled and the lid is attached to the bottle. The fillers of the containers hence do not need to adapt their manufacturing processes and no longer need to include the subsequent step. Moreover, the containers can be filled in the same way as they were previously filled meaning that the manufacturing process does not need to be adapted in any way, if at all, it is simplified.

[0013] In this connection it should be noted that the snapper element is an element that in a first state of use, i.e. the storage state is able to move relative to the body and in the activated state is locked to the body such that one can reliably ensure the provision of a visual first opening indicator that enables a visual first indication of whether the container has been previously opened or not.

[0014] The snapper element may be formed to complement the outer and inner shape of the body surround-

ing the through hole. In this way an attachment to the bottle can be simplified and less construction space is required for the container.

[0015] The snapper element may comprise one or more anchor elements, e.g. barbs, in particular wherein the one or more anchor elements may be configured to cooperate with anchor chambers, e.g. one or more edges, present at the aperture. Using such elements, the snapper element can reliably lock itself to the body in the activated state of the visual first opening indicator.

[0016] The snapper element may comprise a first portion and a second portion, with the second portion optionally being formed more flexible than the first portion and with the first portion being lockable to the body and the second portion being connected to the body in both the storage state and in the activated state. Providing different portions which have different tasks permits a more versatile snapper element.

[0017] The second portion may have a second portion opening present therein and a reduced wall thickness in comparison to the first portion. The provision of such an opening and of a reduced wall thickness permits the second portion to deform relative to the first portion. This deformation aids in ensuring that the snapper element can lock to the body such that the user obtains a visual first indication of whether the container has been previously opened or not. Moreover, through the deformation the snapper element can move relative to the body and this movement can be visualized and seen by a user via the indication window

[0018] The snapper element may be fixedly connected to the body via the second portion. Thereby a movement of the snapper element relative to the body can be ensured via the second portion.

[0019] The first portion may extend at least substantially in parallel to the longitudinal axis or extends in parallel to the longitudinal axis. Such an arrangement is simple to manufacture and enables a reliable activation of the visual first opening indicator.

[0020] The second portion may comprise an elongate outer shape with the elongate outer shape extending transverse to and radially about the longitudinal axis. Such a shape is simple to manufacture.

[0021] On moving the snapper element relative to the body along the longitudinal axis, the second portion may be configured to compress between the body and the first portion. In this way the body and the first portion can act as supports relative to which the second portion can deform.

[0022] The aperture comprises a first chamber portion configured to accommodate the first portion and a second chamber portion configured to accommodate the second portion. In this way the parts of the snapper element can be reliably stored within the aperture. Such chambers are also simple to manufacture, e.g. in an injection molding or additive manufacturing process.

[0023] The snapper element may comprise a projection projecting beyond a first end of the visual first opening indicator. Such a projection can be produced in a simple manner and in a simple way permits an activation of the visual first opening indicator.

[0024] According to a further aspect the present invention also relates to a container comprising a visual first opening indicator, the bottle and the lid attached thereto for repeated closing and opening of the container, the visual first opening indicator being arranged at an interface between the bottle and the lid, with the visual first opening indicator extending around a part of the bottle at said interface and being activated on a first opening of said container.

[0025] Thereby a container is made available having a visual first opening indicator which enables a consumer to select a product which has no invisible product contamination, which for beauty products, especially during epidemics or pandemics, such as COVID, aids in avoiding unnecessary exposure to germs, bacteria and possible viral infections of other people, the visual first opening indicator helps to clearly identify unsafe/already opened products.

[0026] The visual first opening-indicator may consist of one ring which is snapped onto the bottle and later completely covered by an outer bottle sleeve respectively a cover.

[0027] The visual first opening indicator extends completely around said part of the bottle. The invention may thus be a one-ring solution which is simple to manufacture and install at the bottle.

[0028] The lid may comprise one or more ledges and on moving the lid the one or more ledges are configured to interact with the snapper element to activate the visual first opening indicator on first opening of the container. This provides a comparatively simple mechanism which enables a visual first opening indicator to be activated on activation/opening of the container.

[0029] The visual first opening indicator may be snap fit into place at the bottle. This simplifies an assembly of the container.

[0030] The container may further comprise a cover configured to cover the bottle and the visual first opening indicator, in particular wherein the cover may further comprise an indication window which in an activated state of the visual first opening indicator shows a part of the visual first opening indicator after a first opening of the container, especially wherein a part of the snapper element may be visible through the indication window.

[0031] It should further be noted that the snapper element is preferably of a colour different to the rest of the container in order to have a contrast between the container and the snapper element which contrast can be used to more clearly differentiate between the container in the activated state and container in the storage state.

[0032] According to a further aspect the present invention also relates to a method of first time activating a container, the method comprising the steps of moving the lid of the container relative to the bottle, thereby contacting the visual first opening indicator and moving this

from a storage state into a state indicating that a first opening of the container has taken place.

[0033] Through a deformation of the deformable portion respectively of a part of the second portion, the visual first opening indicator comprises a part that can deform in order to become visible via the indication window of the cover. In a non-deformed state none of the snapper element is visible, i.e. in the storage state of the container and following activation a part of the snapper element is visible indicating that the container has been previously opened.

[0034] Further embodiments of the invention are described in the following description of the Figures and/or the dependent claims attached to this specification. The invention will be explained in the following in detail by means of embodiments and with reference to the drawing in which is shown:

Figs. 1a to c views of a container;
Figs. 2a to c views of a first type of visual first opening indicator;
Figs. 3a to c views of a first type of visual first opening indicator; and
Figs. 4a to c views of a first type of visual first opening indicator.

[0035] In the following the same reference numerals will be used for parts having the same or equivalent function. Any statements made having regard to the direction of a component are made relative to the position shown in the drawing and can naturally vary in the actual position of application.

[0036] Fig. 1a shows a visual first opening indicator 10 for visually indicating whether a container 12 has been opened. The container 12 has a bottle 14 and a lid 16 attached thereto for repeated closing and opening of the container 12. The visual first opening indicator 10 is arranged at an interface 50 between the bottle 14 and the lid 16, with the visual first opening indicator 10 extending, in particular completely, around a part of the bottle 14 at said interface 50 and being activated on a first opening of said container 12. The container 12 of Fig. 1 is in a storage state of the container 12, i.e. the visual first opening indicator 10 has not been activated.

[0037] Fig. 1b shows the visual first opening indicator 10 following a first opening of the container 12. The visual first opening indicator 10 is configured to permanently adopt the state shown in Fig. 1b after the first activation of the container 12.

[0038] The visual first opening indicator 10 is attached to the bottle 14. This attachment can for example be realized by a snap fit connection, and/or bonding, e.g. using an adhesive and/or ultrasonic welding etc. via which the visual first opening indicator 10 can be snapped into place at the bottle 14.

[0039] The visual first opening indicator 10 extends, in particular completely, around said bottle 14. The visual first opening indicator 10 is arranged directly adjacent to a neck of the bottle (not shown) and is configured to interact with the lid 16 of the container 12 on a first opening of the container 12, i.e. when the container 12 is activated from a storage state such that a content of the container 12 can be accessed for the first time.

[0040] The container may comprise an applicator (not shown). This can be present, for example, in the form of an outlet, a nozzle or a lipstick applicator present at the neck of the bottle 14 for dispensing material stored in the bottle 14. Alternatively, the applicator can be arranged and present at an inner surface of the lid 16 and can, for example, project into the bottle 14 and optionally be a mascara pen or the like.

[0041] In order to repeatedly open and close the container 12, the lid 16 comprises a part of a closure, for example an inner thread at the inner surface thereof (not shown) which interacts with a further part of the closure, for example an outer thread present at an outer surface of the neck (also not shown) of the bottle 14. Also other forms of closures such as a bayonet connection or the like can be used to repeatedly attach the lid 16 to the bottle 14. The closure is typically arranged at the interface 50 present between the lid 16 and the bottle 14 (see Fig. 1c).

[0042] The visual first opening indicator 10 of Figs. 1a and 1b comprises a body 18 surrounding a through hole 20 (see e.g. Fig. 2c) thereof and a snapper element 22. The snapper element 22 extends in parallel to a longitudinal axis A of the body 18, with the longitudinal axis A extending through the through hole 20.

[0043] The snapper element 22 is formed to complement the outer and inner shape of the body 18 surrounding the through hole 20. This means that the snapper element 22 does not project into the through hole beyond an inner surface 62 (Fig. 2c) of the body 18 nor beyond an outer surface 60 of the body 18.

[0044] The snapper element 22 is permanently fixed to the body 18 and is moveable relative to the body 18 along the longitudinal axis A. The snapper element 22 is arranged in an aperture 24 of the body 18.

[0045] The snapper element 22 comprises a first portion 34 and a second portion 36. The snapper element is fixedly connected to the body 18 via the second portion 36. It is preferable if the snapper element 22 is fixedly connected to the body 18 only via the second portion 36. This permits a relative movement to take place between the snapper element 22 and the body 18.

[0046] The snapper element 22 preferably comprises a deformable portion 72 (see e.g. Fig. 2a) which permits a deformation of part of the snapper element 22 relative to the body 18,

[0047] The second portion 36 is formed more flexible than the first portion 34. This increased flexibility can be achieved thereby that the second portion 36 has a second portion opening 38 formed therein and a reduced wall thickness in comparison to the first portion 34, with the reduced wall thickness of the second portion 36 preferably leading to the increased flexibility of the second por-

tion 36 relative to the first portion 34.

[0048] In this connection it should be noted that the reduced flexibility could also be achieved thereby that the first portion 34 is formed from a different material than the second portion 36.

[0049] The first portion 34 extends at least substantially in parallel to the longitudinal axis A or extends in parallel to the longitudinal axis A.

[0050] The second portion 36 comprises an elongate outer shape with the elongate outer shape extending transverse to and radially about the longitudinal axis A.

[0051] On moving the snapper element 22 relative to the body 18 along the longitudinal axis A from a first end 46 of the visual first opening indicator 10 towards a second end 48 of the visual first opening indicator 10 on a first opening of the container 12, the second portion 36 is configured to compress between the body 18 and the first portion 34.

[0052] On compressing the second portion 36 the first portion is configured to interact with the body 18 in such a way that the first portion 36 is fastened to the body 18, in particular in such a way that on normal use of the container 12, a movement of the first portion 36 back into the storage state of the container 12 is not possible after a first activation of the container 10.

[0053] The snapper element 22 comprises a projection 44 projecting beyond a first end of the visual first opening indicator 10 in a storage state of the container 12 respectively of the visual first opening indicator 10.

[0054] Once activated this projection 44 if it at all projects beyond the first end 46, does not project as far beyond the first end 46 as in the storage state of the container 12.

[0055] In this connection it should be noted that the projection 44 extends by a length of 5 to 30% of a length of the body in parallel to the longitudinal axis A, in particular of 10 to 20% of a length of the body in parallel to the longitudinal axis A beyond the first end 46, with the length of the body being the distance between the first end 46 and the second end 48.

[0056] The projection 44 comprises an inclined surface 74. On assembly of the container 12 the provision of the inclined surface 74 ensures a smoother assembly of the container 12.

[0057] The lid 16 comprises one or more ledges 52 that are configured to interact with the snapper element 22. On moving the lid 16, the one or more ledges 52 are in particular configured to urge the snapper element 22 along the longitudinal axis A relative to the body 18 and the bottle 14. It is preferable if the one or more ledges 52 contact the projection 44 of the snapper element 22 for this purpose.

[0058] The first end 46 of the body 18 further has an outwardly projecting lip surrounding the through hole 20.

[0059] Fig. 1c shows a further view of the container 12. In this example the container 12 further comprises a cover 54 configured to cover an inner bottle 14' of the bottle 14. This means that the bottle 14 may be a multi-part bottle 14 comprising the cover 54, the inner bottle 14' and the visual first opening indicator 10.

[0060] It should be noted in this connection that the bottle 14 does not necessarily require a separate cover 54, but that the cover may be integrally formed with the inner bottle 14' or may not even be required, as the visual first opening indicator 10 could be arranged within a pouch present at the bottle 14 (not shown).

[0061] The cover 54 does not cover the neck of the bottle 14 and is arranged such that it is separate from the lid 16. The lid 16 may also be a multi-part lid comprising the lid 16 and a casing 58 enveloping at least a part of the lid 16, as well as optionally the applicator formed therein.

[0062] The cover 54 is arranged at the inner bottle 14' such that it abuts the outwardly projecting lip surrounding the through hole 20 at the first end 46 of the body 48.

[0063] The cover 54 further comprises an indication window 56 which in an activated state of the visual first opening indicator 10 shows a part of the visual first opening indicator 10 after a first opening of the container 12, especially wherein a part of the snapper element 22 is visible through the indication window 56.

[0064] Prior to the first opening of the container 12 it is preferred if a different part or no part of the visual first opening indicator 10 is visible through the visual first opening indicator 10.

[0065] In a preferred case of application, a part of the first portion 34 of the snapper element 22 is visible through the indication window 56 following the first activation of the container 12 respectively of the visual first opening indicator 10.

[0066] Fig. 2a to 2c show views of the first type of visual first opening indicator 10 illustrated in Figs. 1a and 1b. The body 18 is formed as a ring having the aperture 24 formed therein, with the snapper element 22 being arranged within the aperture. 24.

[0067] Starting at the first end 46 of the body 18 the snapper element 22 comprises the projection 44 arranged at the first portion 34. The first portion 34 further comprises one or more anchor elements 26, e.g. barbs 26'. The one or more anchor elements 26 are preferably configured to cooperate with anchor chambers 28, e.g. one or more edges 28', present at the aperture 24.

[0068] The first portion 34 also comprises a pin 66 via which the first portion 34 is fixedly connected to the second portion 36.

[0069] The second portion 36 is formed by an oval shaped ring having the second portion opening 38 formed at its centre. Through an appropriate selection of the dimension of the second portion 36, i.e. of the wall thickness thereof surrounding the second portion opening 38, this is formed more flexible than the first portion 34. The part of the second portion 36 forming the deformable portion 72 is the oval part of the second portion 36.

[0070] The second portion 36 is fixedly connected to the body 18 via a web of material 64 arranged at the second end 48 of the body 18. Preferably this web of

material 64 is the only point of integral connection between the snapper element 22 and the body 18.

[0071] The aperture 24 is formed complementary in shape to the snapper element 22. For this purpose, the body 18 has an, in particular V-shaped, opening 30 leading into the aperture 24 from the first end 46 of the body 18. The opening is dimensioned such that in the storage state of the container 12 respectively of the visual first opening indicator 10, the anchor elements 26 can be stored therein without contacting the body 18.

[0072] The aperture 24 further comprises two edges 28' at a boundary between the, in particular V-shaped, opening 30 and the anchor chambers 28. The edges 28' are configured engage the one or more anchor elements 26 after the first activation of the visual first opening indicator 10. The anchor chambers 28 are respectively preferably formed by an, in particular V-shaped, recess 32 in a wall 68 of the aperture 24.

[0073] Starting from the edges 28' the aperture 24 comprises a first chamber portion 40 configured to accommodate the first portion 34 following the first activation of the visual first opening indicator 10. The aperture comprises a second chamber portion 42 configured to accommodate the second portion 36 both prior to first activation and following first activation of the visual first opening indicator 10.

[0074] The first chamber portion 40 has an inner shape formed complementary to an outer shape of the first portion 34. Similarly, the second chamber portion 42 has an inner shape formed complementary to an outer shape of the second portion 36.

[0075] Figs. 3a to 3c show a second type of the visual first opening indicator 10. The main differences are the shapes of the second portion 36, the shape of the first and second chamber portions 40, 42, as well as the kind of attachment between the second portion 36 and the body 18.

[0076] The second portion 36 is formed as a wave structure that is connected to the first portion 34. The second portion 36 is attached to the body 18, i.e. the second chamber portion 42, via two arms 70 of the second portion 36. The wall thickness of the arms 70 is selected such that the second portion 36 is more flexible than the first portion and that the arms 70 can be deformed on moving the projection 44 along the longitudinal axis A towards the second end 48.

[0077] In this case the first and second chamber portions 40, 42 are not formed complementary in shape to the snapper element 22, as is the case with the kind of snapper element 22 shown in Fig. 2, but complementary in function, i.e. it permits the snapper element 22 to carry out its desired function.

[0078] In all of the kinds of visual first opening indicators 10 shown herein the function of the snapper element 22 is that the barbs 28' of the snapper element 22 can engage the edges 28' of the body 18 in order to lock the first portion 34 to the first chamber portion 40. Moreover, the snapper element 22 comprises the deformable portion 72 and the second chamber portion 42 is shaped such that the deformable portion 72 respectively part of the second portion 36 can deform within the second chamber portion 42 and enable a part of the snapper element 22 to then be visible via the indication window 56 of the cover 54.

[0079] The part of the second portion 36 forming the deformable portion 72 are the arms 70.

[0080] Figs. 4a to 4c show a third type of the visual first opening indicator 10. The main differences to the example shown in Figs. 2a to 2c are the shapes of the second portion 36, the shape of the first and second chamber portions 40, 42.

[0081] The part of the second portion 36 forming the deformable portion 72 is the rhombus shaped part of the second portion 36. This is arranged in a second chamber portion having a shape selected to permit the deformable portion 72 to deform therein.

[0082] The first chamber portion 40 is formed analogous to that shown in Figs. 3a to 3c and 5a to 5c. Specifically the edges 28' merge with the wall 68 that extends at least substantially at or at right angles right angles to the edges 28' and then tapers inwardly again until the second portion 36 starts where the wall 68 tapers outwardly again to form the space required to permit the deformable portion 72 to deform therein.

[0083] Figs. 5a to 5c show a fourth type of the visual first opening indicator 10. The main differences to the example shown in Figs. 2a to 2c are the shapes of the second portion 36, the shape of the first and second chamber portions 40, 42.

[0084] The part of the second portion 36 forming the deformable portion 72 is the discontinuous oval shaped part of the second portion 36. This is arranged in a second chamber portion having a shape selected to permit the deformable portion 72 to deform therein.

[0085] In this connection it should be noted that a length of the body 18 in parallel to the longitudinal axis can be selected in the range of 2 to 50 mm, especially 3 to 30 mm, in particular in the range of 5 to 15 mm.

[0086] In this connection it should further be noted that a diameter of the through hole 20 can be selected in the range of 3 to 60 mm, in particular in the range of 5 to 25 mm.

[0087] A method of first time activating of the container 12 comprises the steps of moving the lid 16 of the container 12 relative to the bottle 14, thereby contacting the visual first opening indicator 10 and moving this from a storage state into a state indicating that a first opening of the container 12 has taken place through a deformation of the respective deformable portion 72, with the deformation of the deformable portion permitting a movement of a part of the snapper element 22 into the region of the indication window 56 of the cover 54 such that its presence can be seen via the indication window 56 hence indicating that the container 12 has previously been opened or not.

[0088] Through a deformation of the deformable por-

tion 72 respectively of a part of the second portion 36, the visual first opening indicator 10 comprises a part that can deform in order to become visible via the indication window 56 of the cover. In a non-deformed state none of the snapper element 22 is visible, i.e. in the storage state of the container 12, and following activation a part of the snapper element 22 is visible indicating that the container 12 has been previously opened.

[0089] When the user starts to open/unscrew the lid 16 from the container 12, the ledge 52 of the lid 16 pushes down the projection 44. The anchor elements 26 of the snapper element 22 then engage the edges 28' of the anchor chambers 28 to irreversibly lock the snapper element 22 to the body and to cover the previously empty indication window 56 with part of the snapper element 22. When the user sees the snapper element 22 through the indication window 56 he knows that the container was previously opened. In order to further enhance the visual indication of whether the container 12 has been opened for the first time, the visual first opening indicator 10 may have a color different to that of the cover 54.

[0090] Different designs of the deformable portion 72 may be selected in order to enhance the downwards moving function of the snapper element 22. Each specific design having another impact on the opening force (harder or stronger) and provides the ability to change the overall distance of the downwardly moved snapper 22.

[0091] The invention also relates to a production process of the container. The process comprising the steps of:

1) Manufacturing of all parts (visual first opening indicator 10, casing 58, lid 16, bottle 14, i.e. inner bottle 14' and cover 54 optionally of an integral or separate applicator at the bottle 14)
2) Assembly of the upper part (lid 16, casing 58 and optionally applicator)
3) Assembly of the lower part (attaching the visual first opening indicator 10 at the inner bottle 14' and subsequent covering with the cover 54) and/or
4) Filling of the container 12.
After the filling the upper part is screwed on the bottle. The ledge 52 can move over the projection 44 via the inclined surface 74. The projection 44 is flexible and can be slightly bend backwards. After the ledge 52 passes by the projection 44, projection 44 moves back to the initial straight position.

[0092] The unit is now activated/charged and ready for first time use.

[0093] The individual parts can be manufactured for example by injection molding or additive manufacturing (3D printing) using any known types of plastic materials or resins.

List of reference numerals:

[0094]

10	visual first opening indicator
12	container
14, 14'	bottle, inner bottle
16	lid
18	body
20	through hole of 18
22	snapper element
24	aperture
26, 26'	anchor elements, barb
28, 28'	anchor chamber, edge
30	opening
32	recess
34	first portion
36	second portion
38	second portion opening
40	first chamber portion
42	second chamber portion
44	projection
46	first end of 10
48	second end of 10
50	interface
52	ledge
54	cover
56	indication window
58	casing of 16
60	outer surface of 10
62	inner surface of 10
64	web
66	pin
68	wall of 24
70	arm
72	deformable portion
74	inclined surface of 44
A	longitudinal axis

Claims

1. A visual first opening indicator (10) for visually indicating whether a container (12) has been opened, the container (12) having a bottle (14) and a lid (16) attached thereto for repeated closing and opening of the container (12), the visual first opening indicator (10) comprising a body (18) surrounding a through hole (20) thereof and a snapper element (22), the snapper element (22) extending in parallel to a longitudinal axis (A) of the body (18), with the longitudinal axis (A) extending through the through hole (20), the snapper element (22) being permanently fixed to the body (18) and being moveable relative to the body (18) along the longitudinal axis (A) and the snapper element (22) being arranged in an aperture (24) of the body (18).

2. The visual first opening indicator (10) of claim 1, wherein the snapper element (22) is formed to complement the outer and inner shape of the body (18) surrounding the through hole (20).

3. The visual first opening indicator (10) of claim 1 or claim 2, wherein the snapper element (22) comprises one or more anchor elements (26), e.g. barbs (26'), in particular wherein the one or more anchor elements (26) are configured to cooperate with anchor chambers (28), e.g. one or more edges (28'), present at the aperture (24).

4. The visual first opening indicator (10) of one of claims 1 to 3, wherein the snapper element (22) comprises a first portion (34) and a second portion (36), with the second portion (36) optionally being formed more flexible than the first portion (34).

5. The visual first opening indicator (10) of claim 4, wherein the second portion (36) has a second portion opening (38) present therein and a reduced wall thickness in comparison to the first portion (34).

6. The visual first opening indicator (10) of claim 4 or claim 5, wherein the snapper element (22) is fixedly connected to the body (18) via the second portion (36).

7. The visual first opening indicator (10) of one of claims 4 to 6, wherein the first portion (34) extends at least substantially in parallel to the longitudinal axis (A) or extends in parallel to the longitudinal axis (A).

8. The visual first opening indicator (10) of one of claims 4 to 7, wherein the second portion (36) comprises an elongate outer shape with the elongate outer shape extending transverse to and radially about the longitudinal axis (A).

9. The visual first opening indicator (10) of one of claims 4 to 8, wherein, on moving the snapper element (22) relative to the body (18) along the longitudinal axis (A), the second portion (36) is configured to compress between the body (18) and the first portion (34).

10. The visual first opening indicator (10) of one of claims 4 to 9, wherein the aperture (24) comprises a first chamber portion (40) configured to accommodate the first portion (34) and a second chamber portion (42) configured to accommodate the second portion (36).

11. The visual first opening indicator (10) of one of claims 1 to 10, wherein the snapper element (22) comprises a projection (44) projecting beyond a first end of the visual first opening indicator (10).

12. A container (12) comprising a visual first opening indicator (10) in accordance with one of claims 1 to 11, the bottle (14) and the lid (16) attached thereto for repeated closing and opening of the container (12), the visual first opening indicator (10) being arranged at an interface (50) between the bottle (14) and the lid (16), with the visual first opening indicator (10) extending around a part of the bottle (14) at said interface (50) and being activated on a first opening of said container (12).

13. The container (12) according to claim 12, wherein the visual first opening indicator (10) extends completely around said part of the bottle (14); and/or wherein the lid (16) comprises one or more ledges (52) and on moving the lid (16) the one or more ledges (52) are configured to interact with the snapper element (22); and/or
wherein the visual first opening indicator (10) is snap fit into place at the bottle (14).

14. The container (12) of one of claim 12 or claim 13, further comprising a cover (54) configured to cover (54) the bottle (14) and the visual first opening indicator (10) adjacent to the lid (16), in particular wherein the cover (54) further comprises an indication window (56) which in an activated state of the visual first opening indicator (10) shows a part of the visual first opening indicator (10) after a first opening of the container (12), especially wherein a part of the snapper element (22) is visible through the indication window (56), in particular wherein a part of the first portion (34) of the snapper element (22) is visible through the indication window (56).

15. A method of first time activating a container (12) of one of claims 12 to 14, the method comprising the steps of moving the lid (16) of the container (12) relative to the bottle (14), thereby contacting the visual first opening indicator (10) and moving this from a storage state into a state indicating that a first opening of the container (12) has taken place.

Fig. 1a

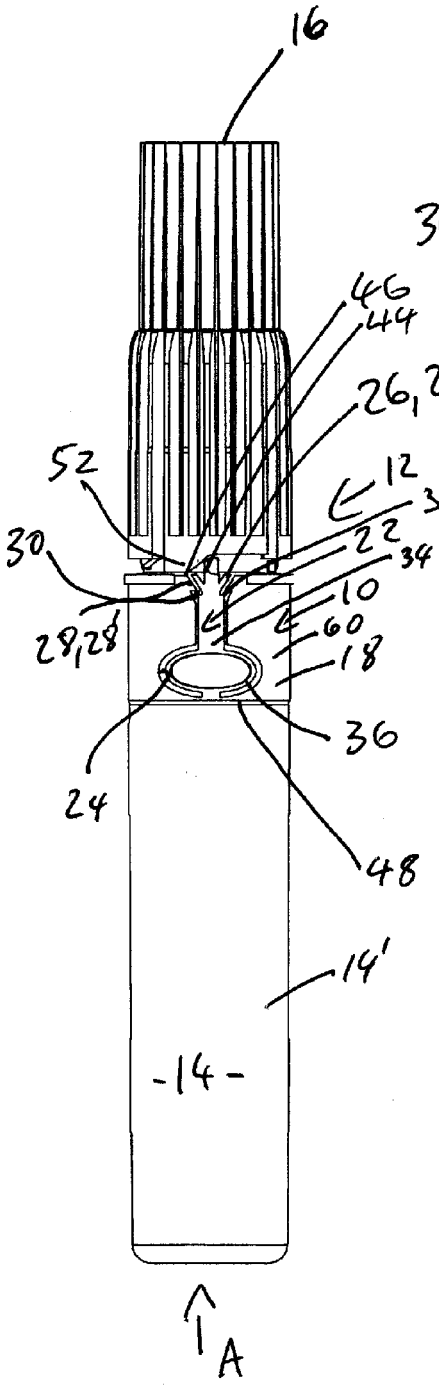


Fig. 1b

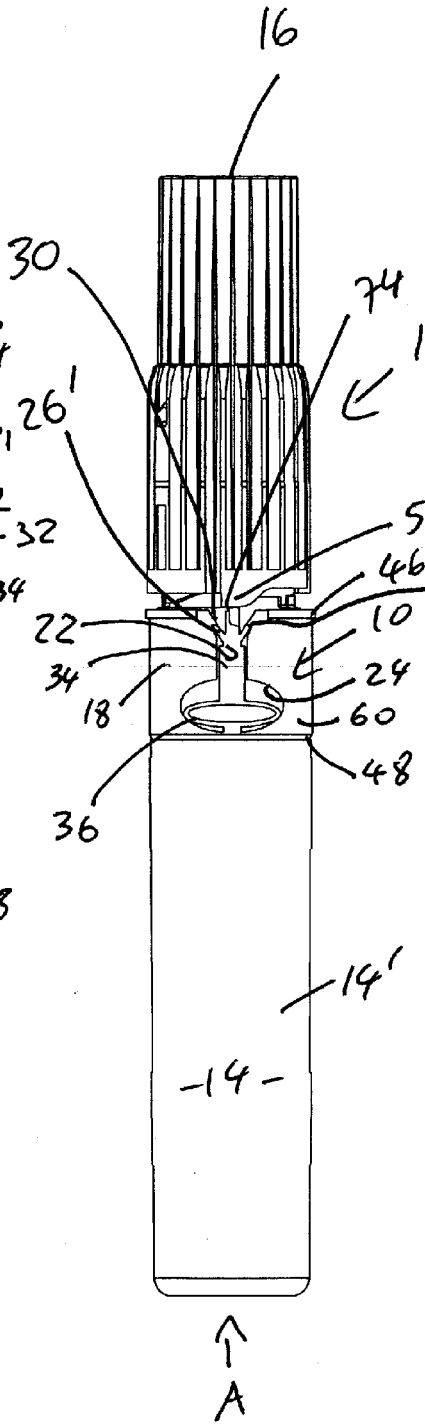
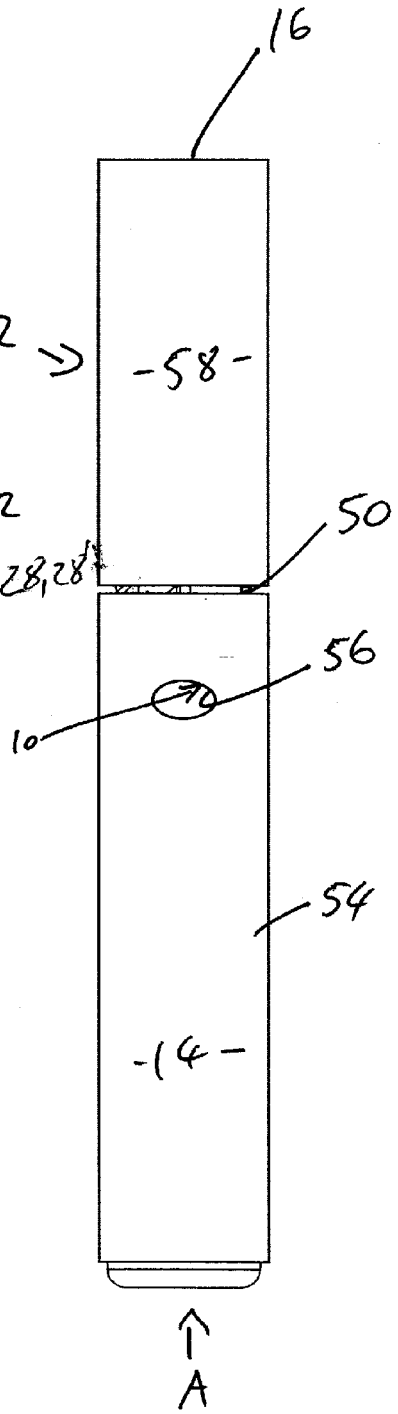


Fig. 1c



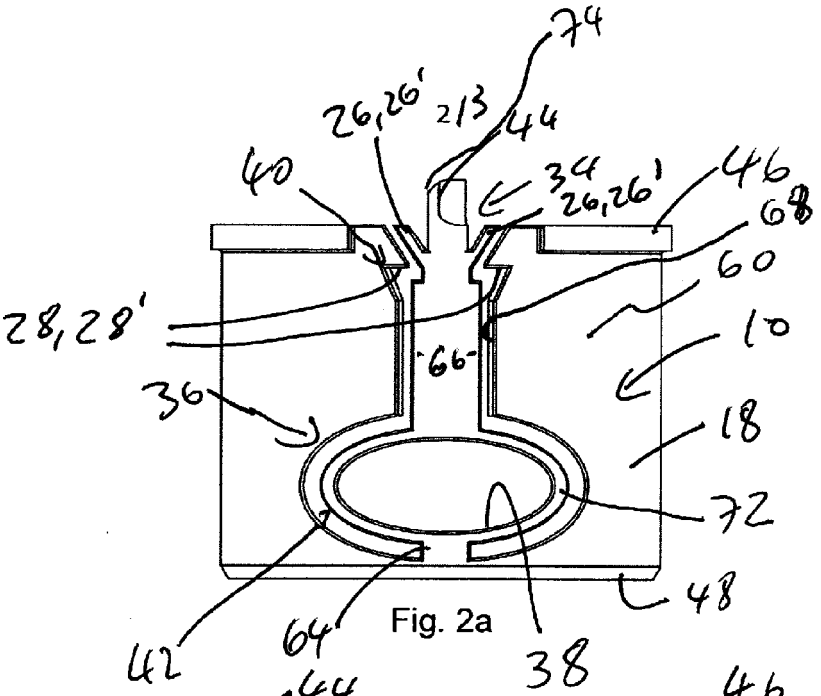


Fig. 2a

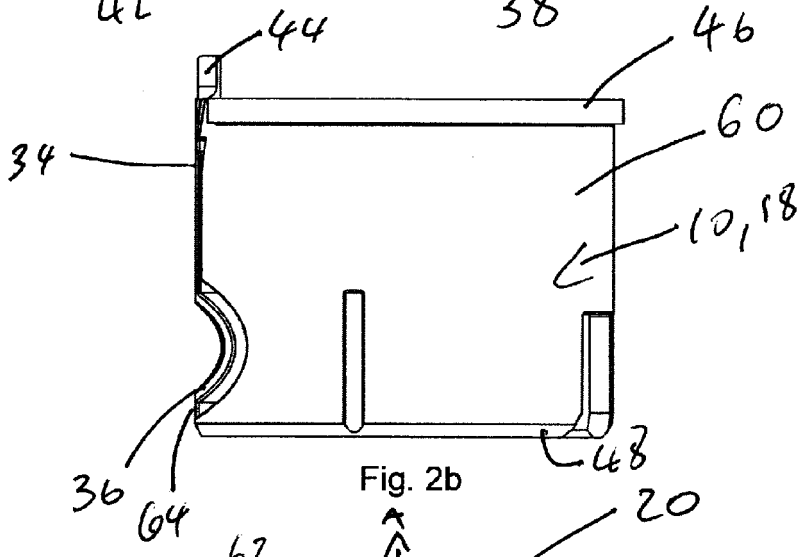


Fig. 2b

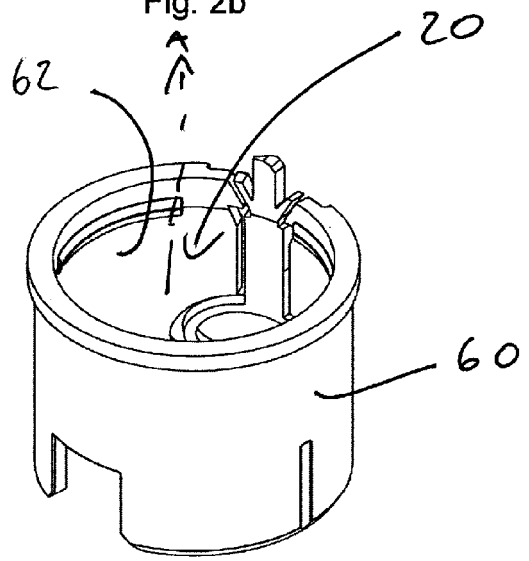


Fig. 2c

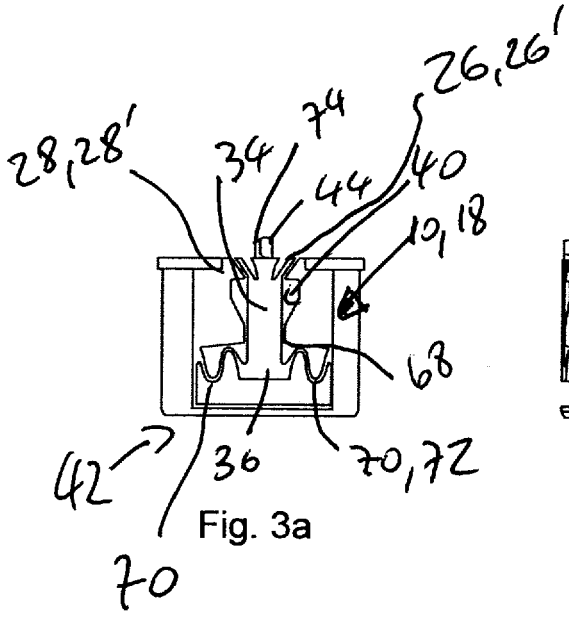


Fig. 3a

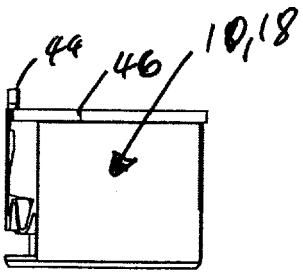


Fig. 3b

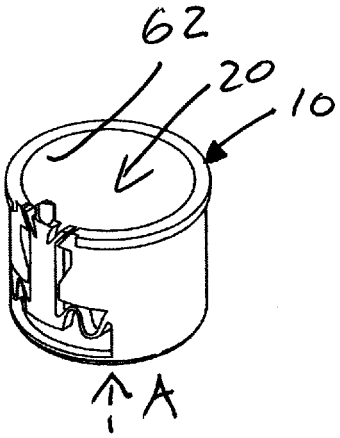


Fig. 3c

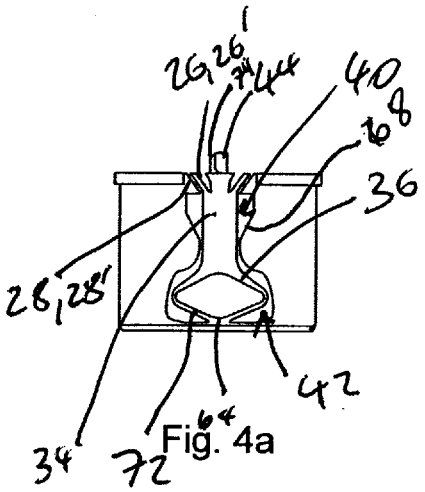


Fig. 4a

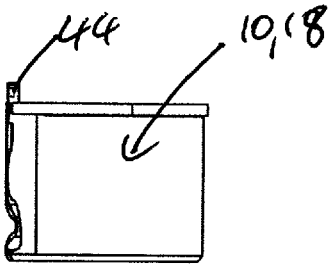


Fig. 4b

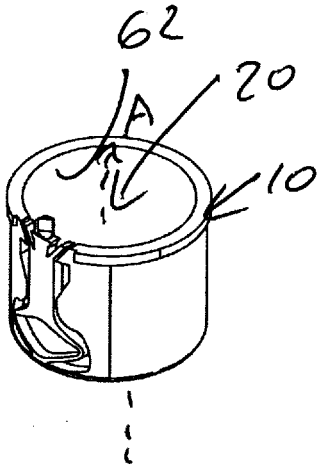


Fig. 4c

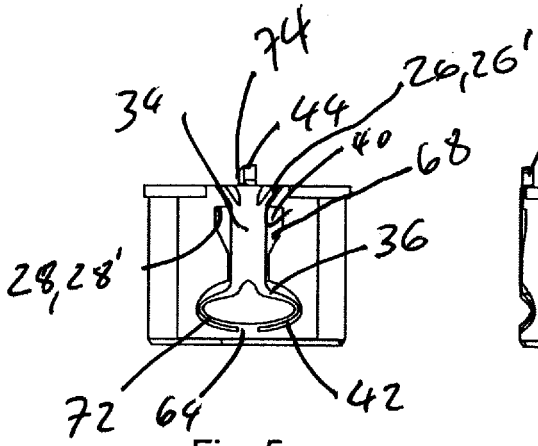


Fig. 5a

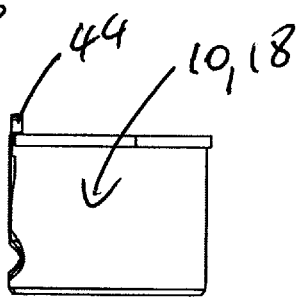


Fig. 5b

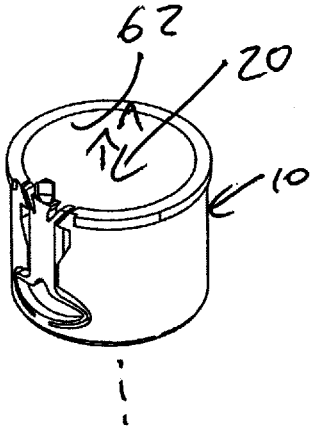


Fig. 5c

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EUROPEAN SEARCH REPORT

Application Number
EP 21 15 2947

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	EP 2 877 411 A1 (GUALA CLOSURES SPA [IT]) 3 June 2015 (2015-06-03) * paragraphs [0035], [0036], [0054]; figures 5-10 * -----	1-8, 11-15 9,10	INV. B65D55/04

TECHNICAL FIELDS SEARCHED (IPC)

B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	7 July 2021	Sundell, Olli

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

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07-07-2021

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		EA 201500177 A1	29-05-2015
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82