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(54) VISUAL FIRST OPENING INDICATOR, CONTAINER AND METHOD OF FIRST TIME ACTIVATING 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 an inner ring (18) and an outer ring (20), wherein the inner ring (18) is received within the outer ring (20), the inner ring (18) being rotatable relative to the outer ring (20), wherein the outer ring (20) comprises an indication window (22) which, in an activated state, shows a part of the inner ring (18) after a first opening of the container (12) and which in a storage state shows one of a different part of the inner ring (18) and no part of the inner ring (18), a container comprising a visual first opening indicator, and a method of first time activating a container.

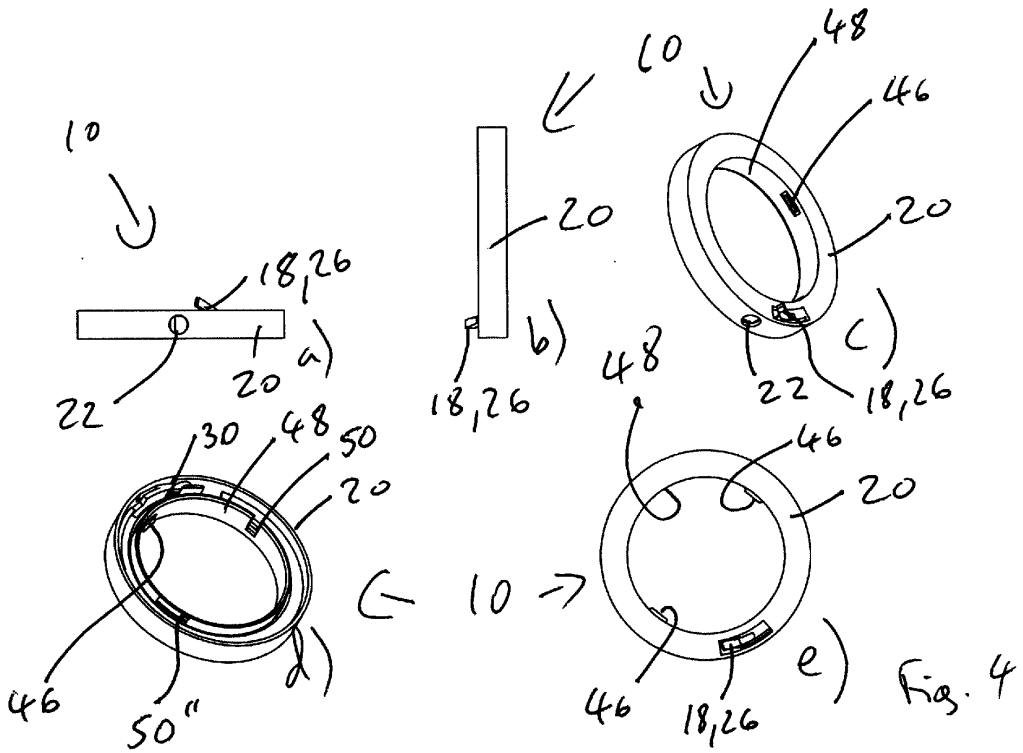

Fig. 4

EP 4 032 830 A1

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 an inner ring and an outer ring, wherein the inner ring is received within the outer ring, the inner ring being rotatable relative to the outer ring, wherein the outer ring comprises an indication window which, in an activated state, shows a part of the inner ring after a first opening of the container and which in a storage state shows one of a different part of the inner ring and no part of the inner ring. The invention further relates to a container comprising a visual first opening indicator and to method of first time activating 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 and the cosmetic sector where the typical situation in stores is as follows liquid soaps, such as shampoo, body wash and the like, as well as 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] 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 an inner ring and an outer ring, wherein the inner ring is received within the outer ring, the inner ring being rotatable relative to the outer ring, wherein the outer ring comprises an indication window which, in an activated state, shows a part of the inner ring after a first opening of the container and which in a storage state does not show a part of the inner ring.

[0010] In this way a visual aid can be provided in which a state of the container can be indicated visually, with the states comprising a storage state indicated by a first state visible via the indication window prior to opening of the container and an open or activated state which is also indicated via the indication window in which a second state of the container is visible via the indication window. In this connection it may be such that a part of the inner ring is visible via the indication window after opening that was previously not visible.

[0011] By providing the first opening indicator with an indication window via which different parts can be seen, different states of use can be reliably indicated, such that respective customers do not use and/or purchase containers, such as mascara pens, 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] The visual first opening indicator can be attached in a simple manner at a container such that a container equipped with such a first opening indicator can be provided having a first-opening-indication func-

tion.

[0014] Such a visual first opening indicator can be formed reliably and efficiently either by injection molding or through additive manufacturing in an as simple as possible manner.

[0015] The inner ring may be configured to be secured into position after the first opening in the activated state. By using such a securing member one can avoid the first opening indicator indicating an unopened state albeit the container already having been opened.

[0016] The inner ring may be configured to be secured into position at the outer ring after the first opening in the activated state. By securing the inner ring into position at the outer ring an as compact as possible container can be made available.

[0017] The inner ring may comprise one or more projections projecting therefrom. Such projections can be used as a part moveable into the indication window to provide an indication function. It is possible in this connection to provide not only one indication window but two or more such indication windows in order to reliably and redundantly show whether a container has been opened or not.

[0018] One of the one or more projections may be visible through the indication window after the first opening of the container in the activated state of the container. This reliably ensures an indication of whether the container has been opened or not.

[0019] The visual first opening indicator may further comprise a tongue projecting from the inner ring, wherein the tongue projects from the inner ring at a top side of the inner ring. Such an element can be reliably used to move parts of the first opening indicator to indicate the different states of use reliably.

[0020] The tongue may project through an aperture of the outer ring. In this way an as compact as possible visual first opening indicator can be formed.

[0021] The tongue may secure the inner ring into position after the first opening in the activated state. Thereby a part having different functions can be provided, an entraining function and a securing function. The use of parts with more than one function also ensures an as compact as possible container.

[0022] The tongue may secure the inner ring into position, in particular at the outer ring, after the first opening in the activated state by means of at least one of a snap fit connection, a snap lock connection, a biased connection, a friction fit connection, a slide and lock connection, and a press fit connection. Such connections are well known and comparatively simple to implement leading to an as compact as possible container.

[0023] The tongue may be configured to interact with the lid on moving the inner ring from the storage position into the activated position of the visual first opening indicator. In this way a part of the visual first opening indicator can be contacted while opening the container in a reliable manner.

[0024] The outer ring may comprise a securing element configured to interact with the inner ring to secure the inner ring into position after a first activation of the visual first opening indicator, in particular wherein the securing element is one of a pin, a recess, a projection, a wall and a ledge. Such a securing element is simple to produce and ensures an as reliable and an as compact as possible container.

[0025] The tongue may engage the securing element to secure the inner ring at the outer ring after first activation of the visual first opening indicator.

[0026] The object is further satisfied by a container comprising a visual first opening indicator, a bottle and a lid attached thereto for repeated closing and opening of the container, the visual first opening indicator being arranged at the 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.

[0027] The lid may comprise one or more ledges configured to interact with the inner ring on moving the lid. In this way a reliable visual first indication function can be provided on opening of the container for the first time by way of at least one ledge.

[0028] The lid may comprise one or more ledges and at least one of the one or more ledges are configured to interact with the tongue of the inner ring on moving the lid. Such projections or the like can be reliably used to interact with the visual first opening indicator in a reliable manner using an as compact as possible container.

[0029] The visual first opening indicator may be arranged at a bottle neck of said bottle. In this way an as compact as possible container is realised.

[0030] The visual first opening indicator may extend completely around said part of the bottle. In this way a visual first opening indicator can be provided that can be integrated into the design of the container in order to create a container with an appealing look and/or design.

[0031] The container may be filled with a material M, with the material for example comprising a member selected from the group of members consisting of a beauty product, a cosmetic product, a cleaning product, a skin care product, a medical product, a dental product, a pharmaceutical product, an adhesive, a lubricant, a paint, and a building material.

[0032] The above object is also satisfied by a method of first time activating a container, the method may comprise 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 an activated state indicating that a first opening of the container has taken place.

[0033] 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. 1 a and 1b schematic views of a container,
Figs. 2a and 2b schematic part sectional views of a container in a storage state,
Figs. 3a and 3b schematic part sectional views of the container of Fig. 2 in an activated state,
Figs. 4a to 4e various views of a visual first opening indicator, and
Fig. 5a to 5e various views of an inner ring of the visual first opening indicator of Fig. 4.

[0034] 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.

[0035] Figs. 1a and 1b show schematic views of a container 12. The container 12 comprises a visual first opening indicator 10 for visually indicating whether the container 12 has been opened or not. 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 32 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 32 and being activated on a first opening of said container 12.

[0036] The visual first opening indicator 10 comprises an inner ring 18 that is indicated with a hatched portion in Figs. 1a and 1b and is shown in detail in Fig. 5. The visual first opening indicator 10 further comprises an outer ring 20, with the inner ring 18 being received within the outer ring 20. The inner ring 18 is rotatable relative to the outer ring 20 as indicated by the arrow denoted R. In the present case the inner ring 18 is configured to be moved in one direction R of rotation only.

[0037] The outer ring 20 comprises an indication window 22 which, in an activated state, shows a part of the inner ring 18 after a first opening of the container 12 and which in a storage state shows a different part of the inner ring 18. For reasons of improved visibility the inner ring 18 may have a colour that differs from the colour of the outer ring 20.

[0038] Additionally or alternatively, only the part of the inner ring 18 visible via the indication window 22 after the first opening of the container 12, i.e. always thereafter, could be of a different colour. This part then only being visible once the container 12 has been opened.

[0039] As indicated e.g. in Figs. 5c to 5e, the inner ring 18 has a projection 24 projecting radially outwardly therefrom. This projection 24 is visible through the indication window 22 after the first opening of the container 12 in the activated state of the container 12, i.e. this projection 24 is previously not visible via the indication window 22. It is also possible that an outer surface of the projection 24 is provided in a colour different to the outer ring 20 and/or of the remainder of the inner ring 18 respectively, or is provided with some form of coating or marking, with this different colour, coating or marking then being visible via the indication window only after the first opening of the container 12, to indicate that the container 12 has previously been opened.

[0040] In this connection it should be noted that the inner ring 18 can also be provided with a cut-out 40 (see e.g. Fig. 5a) or recess that is then seen via the indication window 22 prior to the first opening of the container 12, such that it appears that no part of the inner ring 18 is visible via the indication window 22 in the storage state of the container 12.

[0041] The inner ring 18 is configured to be secured into position after the first opening in the activated state, i.e. after the lid 16 is rotated relative to the bottle 14 for the first time. Specifically, the inner ring 18 is configured to be secured into position at the outer ring 20 after the first opening in the activated state.

[0042] The visual first opening indicator 10 further comprises a tongue 26 projecting from the inner ring 18, wherein the tongue 26 projects from the inner ring 18 at a top side 38 of the inner ring 18. In this connection a top side 38 of the inner ring 18 is that side of the inner ring 18 arranged closest to the lid 16.

[0043] The tongue 26 projects through an aperture 28 of the outer ring 20 in the storage state of the container 12. The tongue 26 is configured to interact with the lid 16 on moving the inner ring 18 from the storage position into the activated position of the visual first opening indicator 10. The tongue 26 also secures the inner ring 18 into position after the first opening in the activated state.

[0044] The lid 16 comprises one or more ledges 34, 34', 34" of which one is configured to interact with the inner ring 18 on moving the lid 16. Specifically, the lid 16 comprises a first ledge 34' that engages the tongue 26 on a first opening by entraining the tongue 26 in the direction R of rotation and on attaching the lid 16 again at the bottle, i.e. by rotating the lid against the direction of rotation R, the second ledge 34" can urge the tongue 26 into a secured position if the tongue 26 was not previously secured after the first opening and thereby hinders the tongue 26 from projecting from the top side 38 after the closing of the container 12 and also aids in locking the inner ring 18 to the outer ring 20.

[0045] The visual first opening indicator 10 is arranged at a bottle neck 36 of said bottle 14. As indicated e.g. in Fig. 4 the visual first opening indicator 10 is a complete ring and hence extends completely around said neck 36 once installed at the bottle 14. This is achieved by installing the visual first opening indicator 10 at the container 12 by means of a snap-fit connection and/or bonding, e.g. using an adhesive, and/or ultrasonic welding.

[0046] The visual first opening indicator 10 could additionally alternatively be attached to the bottle by at least one of a snap-fit connection, a snap-lock connection a press-fit connection, a biased connection, a friction-fit connection, and combinations thereof.

[0047] The lid 16 is screwed into place at the bottle 14

via threaded parts (not shown) u a manner known per se. Other types of closures, such as a bayonet closure are also possible, provided the closure has a rotational component in order to entrain the tongue 26 on a first opening of the container 12.

[0048] Figs. 2a and 2b show schematic part sectional views of the container 12 in the storage state. A part of the outer ring 20 is cut away in order to see the tongue 26 in more detail. The tongue 26 extends upwardly from the top side 38 of the inner ring 18. At the point of attachment of the tongue 26 to the inner ring 38, the inner ring comprises a recess 42. This recess 42 may be of circular shape. On entraining the tongue 26 in the direction R of rotation the tongue 26 contacts a top surface 44 of the outer ring 20, i.e. a wall, in order to deflect the tongue 26 from the position it has in the storage state where it projects from the top side 38 of the inner ring 18 into a held or locked position, where it can no longer project through the aperture 28 and be entrained by the lid 16.

[0049] The tongue 26 secures the inner ring 18 into position, in particular at the outer ring 20, after the first opening in the activated state by means of at least one of a snap fit connection, a snap lock connection, a biased connection, a friction fit connection, a slide and lock connection and a press fit connection.

[0050] For this purpose, the outer ring 20 comprises a securing element 30 configured to interact with the inner ring 18 to secure the inner ring 18 into position after a first activation of the visual first opening indicator 10. In the present example the securing element 30 is the top surface 44, as once the tongue 26 is held down by the top surface 44, the ledges 34, 34', 34" of the lid 16 can no longer engage the tongue 26, thus a slide and lock connection is made available in which the tongue 26 is slid under the top surface 44 where it is then held, i.e. locked, into position.

[0051] Additionally, the securing element could comprise one of a pin, a recess, a projection, and a ledge. For example, the outer ring 20 could comprise a pin that is engaged by the circular recess 42 in order to also hold the tongue 26 into position at the outer ring 20.

[0052] The container 12 in use is filled with a material M, with the material M for example comprising a member selected from the group of members consisting of a beauty product, a cosmetic product, a cleaning product, a skin care product, a medical product, a dental product, a pharmaceutical product, an adhesive, a paint, and a building material.

[0053] Figs. 3a and 3b show schematic part sectional views of the container of Fig. 2 in an activated state. Having been entrained by the first ledge 34', the tongue 26 is in engagement with the securing element 30 in order to secure the inner ring 18 at the outer ring 20 by having been moved beneath the top surface 44. As the tongue 26 is so to say tucked away beneath the top surface 44 that acts like a shield, so that the tongue 26 is shielded from the second ledge 34" of the lid 16. Thus, the second ledge 34" cannot come into contact with the tongue 26 on closing the container 12 by screwing the lid 16 back on and this is hence secured into position at the outer ring 20.

[0054] The projection 24 is also visible in the cut-away portion and via the indication window. For this purpose, the projection 24 is indicated with a hatched surface in Figs. 3a and 3b. In the storage state this part of the inner ring 18 is not visible via the indication window, but in the activated state, i.e. after a first opening of the container 12, the projection 24 is visible.

[0055] On a first time activation of the container 12, the lid 16 of the container 12 is moved relative to the bottle 14. Thereby the first ledge 34' contacts the tongue 26, which moves the inner ring 18 relative to the outer ring 20. On moving the tongue 26 this contacts the top surface 44 and is urged downwardly away from the lid 16 and is moved beneath the top surface 44. Hence a first time opening of the container 16 leads to a contacting of the visual first opening indicator 10 and moves this from the storage state into the activated state indicating that a first opening of the container 12 has taken place.

[0056] Figs. 4a to 4e show various views of the visual first opening indicator 10. Fig. 4a shows a side view on to the indication window 22. The outer ring 20, like the tongue 26 projecting from the inner ring 18 are visible.

[0057] Fig. 4b shows a further side view of the visual first opening indicator 10, with this having been rotated by 90°. The indication window is not visible in this view.

[0058] Fig. 4c shows a perspective top view of the visual first opening indicator 10. A nose 46 is present at an inner surface of the 48 of the outer ring 20. By means of this nose 46 the visual first opening indicator 10 can be attached at the bottle 14. The nose 46 can snap fit into a complementary shaped groove (not shown) at the bottle 14.

[0059] Fig. 4d shows a perspective bottom view of the visual first opening indicator 10. A further nose 46 is visible as are a first and second recess 50, 50'. By using a second nose 46 the attachment to the bottle 46 can be improved.

[0060] The first and second recesses 50, 50' differ in size in order to bring about a coded alignment of the visual first opening indicator 10 at the bottle 14 in order to ensure a correct attachment of the visual first opening indicator 10 at the bottle 14 by placing the first and second recesses 50, 50' at correspondingly shaped (i.e. height and/or width) formations (not shown) present at the bottle 14.

[0061] This could be achieved in a similar manner using only a single recess that cooperates with a nose, projection or the like (not shown) at the bottle 14.

[0062] Fig.4e shows a top view of the visual first opening indicator 10. The two noses 46 are visible as projecting from the inner surface of the outer ring 20.

[0063] The two noses 46, like the first and second recesses 50, 50' are used to install the visual first opening indicator 10 at the bottle 14. For this purpose, the bottle 14 comprises grooves and projections (not shown) that

are complementary in shape to the noses 46 and the first and second recesses 50, 50'.

[0064] Thus, to attach the visual first opening indicator 10 at the bottle 14, the visual first opening indicator 10 can comprise one or more noses 46 and/or one or more recesses 50, 50', with the bottle 14 then having parts cooperating therewith that are of complementary size and shape.

[0065] Fig. 5a to 5e shows various views of the inner ring 18 of the visual first opening indicator 10 in similar positions to the visual first opening indicator 10 shown in Fig. 4.

[0066] The inner ring 18 has an inner part 52 and an outer part 54, with the inner part 52 extending completely around the inner circumference of the inner ring 18, i.e. the inner ring 18 is a continuous ring. The outer part 54 of the inner ring 18 has the cut out 40, the projection 24 and the tongue 26. The inner ring 18 is integrally formed from one piece.

[0067] The top side 38 of the inner ring 18 also comprises a groove

[0068] The inner and outer rings 18, 20 can be produced using injection molding techniques as well as additive manufacturing techniques as single parts that are then assembled to form the visual first opening indicator 10. The assembled visual first opening indicator 10 is then placed at the bottle 14 where it is secured.

List of reference numerals:

[0069]

10	visual first opening indicator
12	container
14	bottle
16	lid
18	inner ring
20	outer ring
22	indication window
24	projection
26	tongue
28	aperture
30	securing element
32	interface
34, 34', 34"	ledge, first ledge, second ledge
36	neck
38	top side
40	cut-out
42	recess
44	surface
46	nose
48	inner surface of 20
50, 50'	first recess, second recess
52	inner part of 18
54	outer part of 18
56	groove of 18
M	material
R	direction of rotation

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 an inner ring (18) and an outer ring (20), wherein the inner ring (18) is received within the outer ring (20), the inner ring (18) being rotatable relative to the outer ring (20), wherein the outer ring (20) comprises an indication window (22) which, in an activated state, shows a part of the inner ring (18) after a first opening of the container (12) and which in a storage state shows one of a different part of the inner ring (18) and no part of the inner ring (18).

2. The visual first opening indicator (10) of claim 1, wherein the inner ring (18) is configured to be secured into position after the first opening in the activated state.

3. The visual first opening indicator (10) of claim 1 or claim 2, wherein the inner ring (18) is configured to be secured into position at the outer ring (20) after the first opening in the activated state.

4. The visual first opening indicator (10) of one of claims 1 to 3, wherein the inner ring (18) comprises one or more projections (24) projecting therefrom.

5. The visual first opening indicator (10) of claim 4, wherein one of the one or more projections (24) is visible through the indication window (22) after the first opening of the container (12) in the activated state of the container (12).

6. The visual first opening indicator (10) of one of claims 1 to 5, further comprising a tongue (26) projecting from the inner ring (18), wherein the tongue (26) projects from the inner ring (18) at a top side of the inner ring (18).

7. The visual first opening indicator (10) of claim 6, wherein the tongue (26) projects through an aperture (28) of the outer ring (20).

8. The visual first opening indicator (10) of claim 6 or claim 7, wherein the tongue (26) secures the inner ring (18) into position after the first opening in the activated state.

9. The visual first opening indicator (10) of claim 8, wherein the tongue (26) secures the inner ring (18) into position after the first opening in the activated state by means of at least one of a snap fit connection, a snap lock connection, a biased connection, a friction fit connection, a slide and lock connection,

and a press fit connection, in particular wherein the tongue (26) secures the inner ring (18) into position at the outer ring (20) after the first opening in the activated state by means of at least one of a snap fit connection, a snap lock connection, a biased connection, a friction fit connection, a slide and lock connection, and a press fit connection.

10. The visual first opening indicator (10) of one of claims 6 to 9, wherein the tongue (26) is configured to interact with the lid (16) on moving the inner ring (18) from the storage position into the activated position of the visual first opening indicator (10).

11. The visual first opening indicator (10) of one of claims 1 to 10, wherein the outer ring (20) comprises a securing element (30) configured to interact with the inner ring (18) to secure the inner ring (18) into position after a first activation of the visual first opening indicator (10), in particular wherein the securing element (30) is one of a pin, a recess, a projection, a wall and a ledge.

12. The visual first opening indicator (10) of claim 11 and one of claims 6 to 10, wherein the tongue (26) engages the securing element (30) to secure the inner ring (18) at the outer ring (20) after first activation of the visual first opening indicator (10).

13. A container (12) comprising a visual first opening indicator (10) in accordance with one of claims 1 to 12, a bottle (14) and a lid (16) attached thereto for repeated closing and opening of the container (12), the visual first opening indicator (10) being arranged at the interface (32) 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 (32) and being activated on a first opening of said container (12).

14. The container (12) according to claim 13, wherein the lid (16) comprises one or more ledges (34, 34', 34") and at least one of these is configured to interact with the inner ring (18) on moving the lid (16), and/or
wherein the lid (16) comprises one or more ledges (34, 34', 34") and at least one of the one or more ledges (34, 34', 34") is configured to interact with the tongue (26) of the inner ring (18) on moving the lid (16); and/or
wherein the visual first opening indicator (10) is arranged at a bottle neck (36) of said bottle (14); and/or
wherein the visual first opening indicator (10) extends completely around said part of the bottle (14); and/or
wherein the container is filled with a material (M).

15. A method of first time activating a container (12) of one of claims 13 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 an activated state indicating that a first opening of the container (12) has taken place.

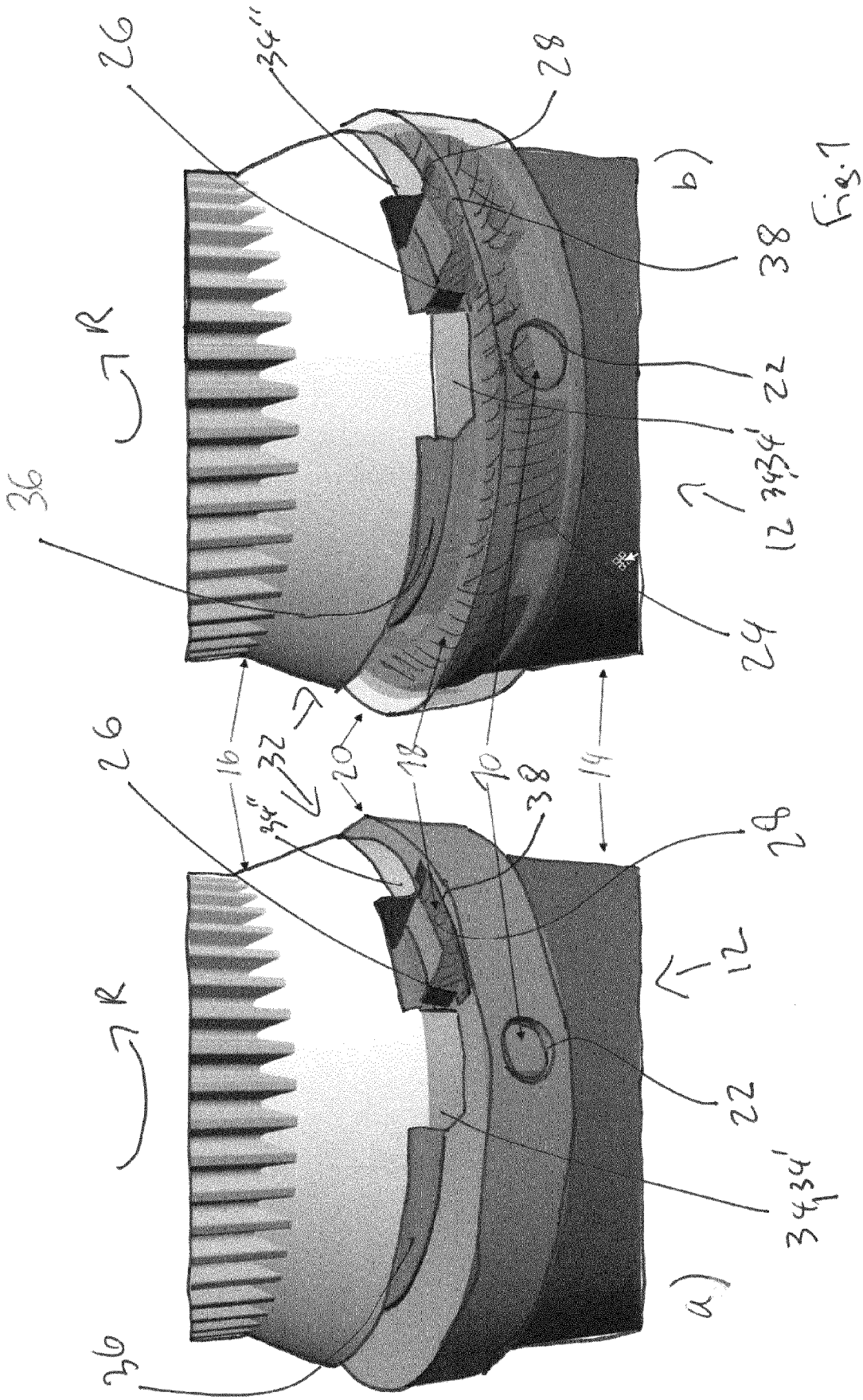

Fig. 1

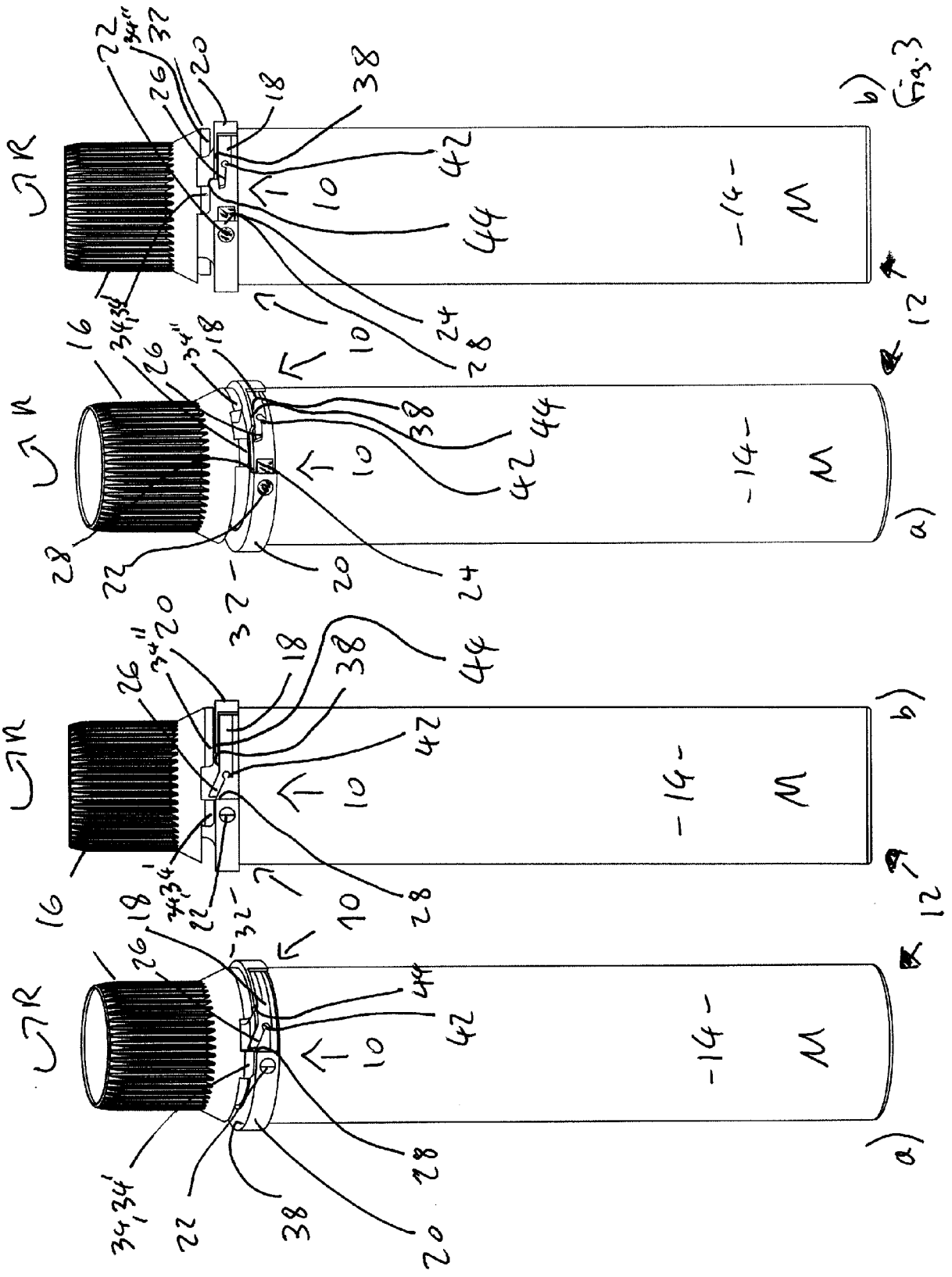

Fig. 2

Fig. 3

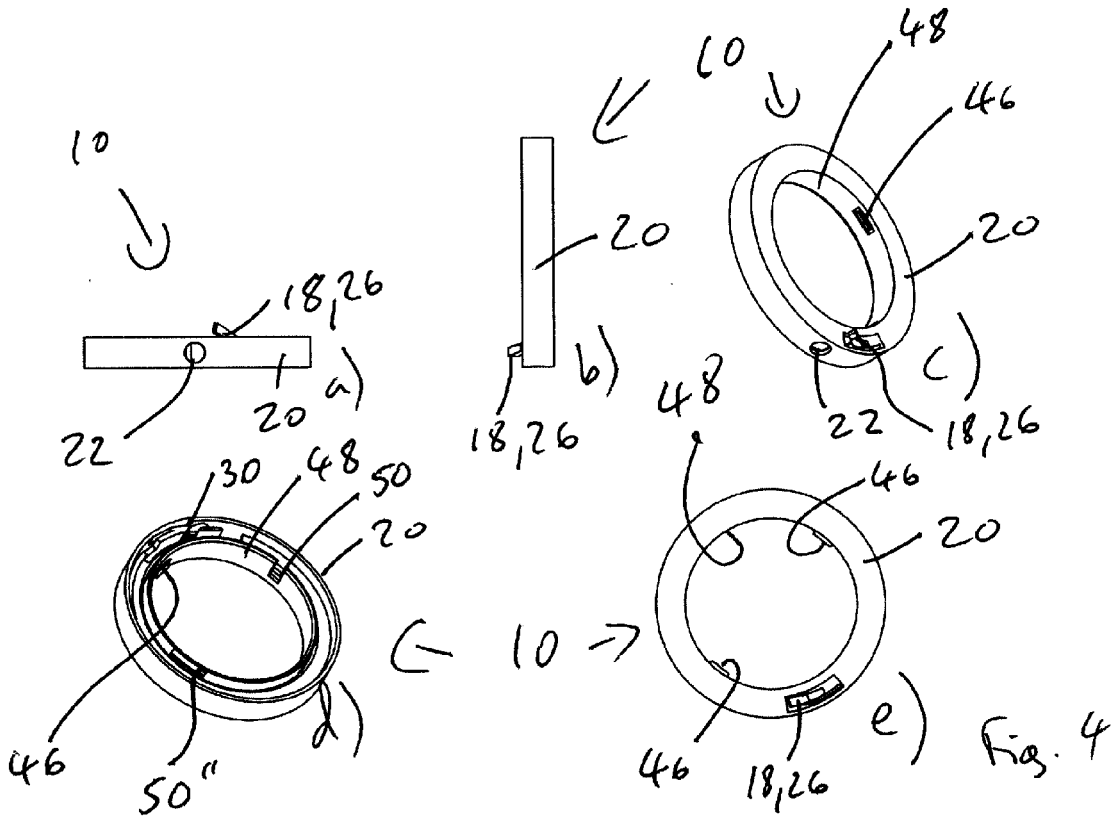
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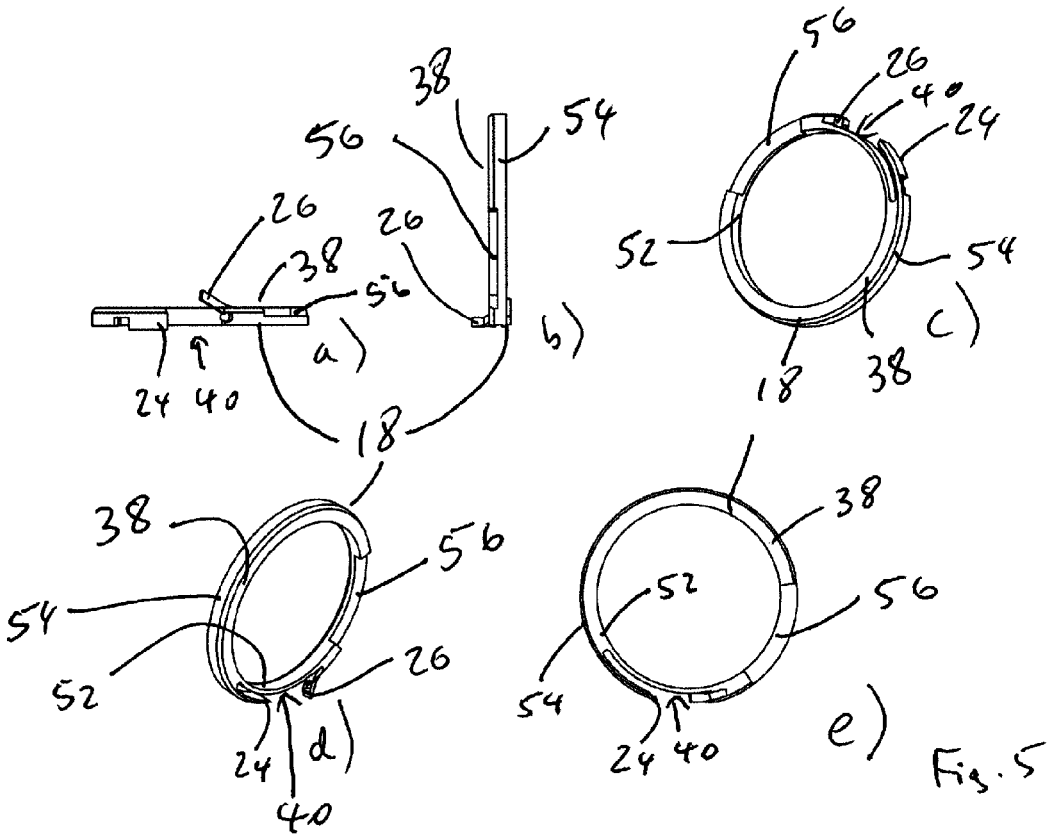
Fig. 4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a)
b)
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c)
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d)
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e)

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 21 15 2954

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 10 214 326 B1 (GILLIAM JAMES R [US] ET AL) 26 February 2019 (2019-02-26) * column 6, line 1 - line 7; figures 4-7 * -----	1-15	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	14 July 2021	Sundell, Olli

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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14-07-2021

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