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(71) Applicant: **Babanov, Valery**
50935 Köln (DE)

(72) Inventors:
- **Babanov, Valery**
50935 Köln (DE)
- **Harnack, Michael A.**
Chaoyang District
Beijing (CN)
- **Liang, Chengbao**
Chaoyang District
Beijing (CN)

(74) Representative: **Patentanwälte Freischem**
Salierring 47-53
50677 Köln (DE)

(54) **Closure element with compartment for a multi-compartment container, multi-compartment container and methods of producing such products**

(57) The invention relates to a closure element for a multi-compartment container, to a multi-compartment container comprising at least two interconnectable compartments and to methods of producing such products. The problem to be solved is to provide a closure element with a compartment for a multi-compartment container and a multi-compartment container allowing to repeatedly establish and separate a fluid communication between two compartments, the closure element and the multi-compartment container being based on a simple construction and inexpensive in manufacturing. Furthermore methods of producing a closure element and a multi-compartment container shall be provided. An inventive closure element comprises

a) a container with a compartment (16) for storing content,

b) at least one opening (44) with a channel (20) leading to the compartment (16),

c) the channel (20) allowing to insert a bottle neck (22) of an insertion element in an extension direction (e) of the channel (20),

d) a coupling element allowing to connect the closure element to the insertion element (14) being inserted into the channel (20) and

e) means for opening and closing a fluid communication between the closure element (12) and the insertion element (14) by relative movement of the closure element (12) to the insertion element (14).

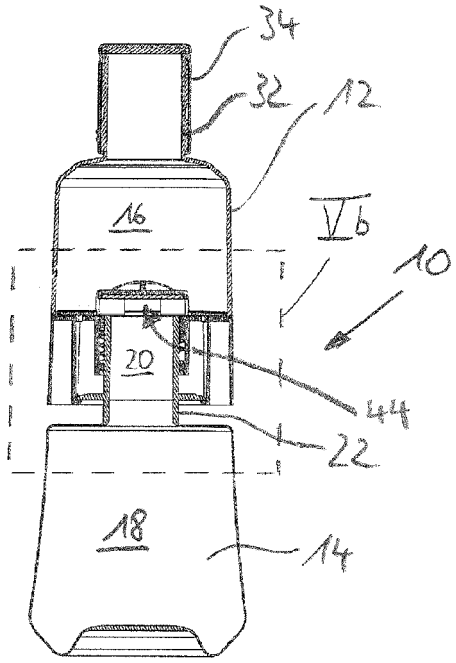


fig. 4b

EP 2 774 874 A1

Description

[0001] The invention relates to a closure element for a multi-compartment container, to a multi-compartment container comprising at least two interconnectable compartments and to methods of producing such products.

[0002] DE 10 2006 028 912 B4 refers to a closing device for a drinks container comprising an inner compartment for receiving a drink and a container opening which is arranged on the upper side and contains the closing device comprising at least one receiving region. The content of said receiving region is introduced into the inner compartment of the drinks container. The closing device further comprises an axially mobile closing element in the upper region, said closing element being connected to a lower covering element, and a receiving region being provided between the two elements. The receiving region comprises a supply opening, through which the contents of the receiving region can be released by an axial pushing process into the inner compartment of the drinks container. The inner compartment is intended to store dietary or other supplements that are small in volume in relation to the inner compartment of the drinks container. When carrying out the axial pushing process, the supplement is completely released.

[0003] DE 20 2008 015 235 U1 relates to a bottle, comprising a receiving body having a receiving space, in which a first component is present, and a bottle neck on which a bottle opening is provided. An insert is arranged in the bottle neck, said insert comprising at least one inner sleeve with a supply space in which a second component is present, wherein the inner sleeve has at least one recess at its circumference and is guided in a sealed manner in the bottle neck against at least two sealing lips such that an axial displacement of the inner sleeve with respect to the receiving body creates a fluid communication between the receiving space of the receiving body and the supply space of the inner sleeve. When carrying out the axial displacement of the inner sleeve, the second component is completely released.

[0004] DE 34 26 739 A1 refers to a two-component pack having a beaker arranged in the neck of the pack for receiving the one component and a screw-cap associated with the neck of the pack and having, projecting into the beaker, a collar the front rim of which forms a ram edge for severing the beaker in the region of a predetermined line of break by screwing the screw-cap up further beyond the normal position at sale. After the having severed the beaker in the region of the predetermined line of break, the second component is completely released.

[0005] DE 20 2005 016 492 U1 refers to a bottle comprising a body in which is stored clean and pure drinking water. The body comprises a storage container with a storage space and a filling device to fill the storage space with foodstuff for mixing. The storage container and mouth of the body of the bottle are interconnected by a threaded connection. A breakable sealing element is installed between the storage container and mouth of the bottle. Breaking this seal is achieved by a screwing movement of the storage container and the bottle. After the seal having been broken the foodstuff falls into the bottle and is completely mixed with the water. It is not possible to re-separate the body from the filling device after the seal has been broken.

[0006] DE 699 09 618 T2 discloses a multi-chamber container comprising a first container for receiving a first product component and a second container for receiving a second product component, said containers being rotationally coupled with one another and each comprising a communication opening for the mutual exchange of said products. Moreover, a closing device is provided for simultaneously closing the two communication openings, said closing device comprising an engaging device for introducing the rotational movement of one container into the closing device and said closing device further comprising guide devices which are coupled to the other container such that upon rotation of the closing device is moved into a position of releasing both communication openings. The container is based on a quite complex and cost-intensive construction.

[0007] The above mentioned containers either lack the possibility to close the interconnection between the at least two compartments after having opened the interconnection once or they are based on a complex and cost-intensive construction.

[0008] The problem to be solved is to provide a closure element with a compartment for a multi-compartment container and a multi-compartment container allowing to repeatedly establish and separate a fluid communication between two compartments, the closure element and the multi-compartment container being based on a simple construction and inexpensive in manufacturing. Furthermore, methods of producing a closure element and a multi-compartment container shall be provided.

[0009] The problem is solved by the features of claims 1, 8, 13 and 14, respectively.

[0010] A closure element according to the invention (later on also referred to as "inventive closure element") comprises

a) a container with a compartment for storing content,
b) an opening with a channel leading to the compartment,
c) the channel allowing to insert a bottle neck of an insertion element in an extension direction of the channel,
d) a coupling element allowing to connect the closure element to the insertion element being inserted in the channel,
e) means for opening and closing the fluid communication by relative movement of the closure element to the insertion element.

[0011] The above mentioned opening allows adding

content to and taking content from the compartment. Alternatively the closure element may comprise one or more additional openings to add content to and take content from the compartment. The closure element is preferably used with an insertion element comprising a coupling element being complementary to the coupling element of the closure element. In this case the inventive closure element allows for easy creation of an inventive multi-compartment container by inserting an insertion element with a bottle neck in an extension direction of the channel and to mix different contents being stored in the compartment of the closure element and in a compartment of the insertion element at any time by the means for opening and closing the fluid communication. The inventive closure element may be manufactured easily and does not require any additional and cost-intensive movable parts, in particular inner movable parts. In other words, the inventive closure element provides a compartment for storing content and means for opening and closing a fluid communication to an insertion element that may be inserted in the channel of the closure element and coupled to the closure element.

[0012] An important advantage of the inventive closure element is that it may be easily designed for use with standard bottles as insertion elements.

[0013] The term "extension direction" (of the channel) refers to the two directions along the "extension axis" of the channel, e.g. the extension axis of a cylinder if the channel is cylindrical in shape. In some embodiments of the inventive closure element said directions are referred to as "opening (extension) direction" and the "closing (extension) direction" meaning that a relative movement of the closure element in the "opening extension direction" opens the fluid communication and that a relative movement of the closure element in the "closing extension direction" closes the fluid communication.

[0014] Hereinafter, the term "element" means either "one-piece elements", e.g. elements being produced as one piece by injection moulding, or "multi-part elements" wherein several elements may be manufactured separately, but wherein the parts are then rigidly coupled to one resulting "element", e.g. by ultrasonic welding, screwing or any other appropriate joining technique. It is essential that the resulting element is robust and does not have any movable parts. Thus, one element may comprise several elements.

[0015] In a preferred embodiment the coupling element and/or the means for opening and closing the fluid communication is a thread, in particular a female screw thread for insertion of a standard bottle neck (with a male screw thread), preferably a female screw thread being formed on the inner surface of the channel. Such a screw thread may be easily formed during a single manufacturing process (e.g. injection moulding) without the need for any post-processing.

[0016] In a further preferred embodiment the channel of the inventive closure element is at least partly cylindrical in shape and the opening is formed in the cylindrical part of the channel. For example one or several openings may be formed in the cylinder wall of a cylindrical channel. Said embodiment, again, has advantages in manufacturing, as it is based on a simple and low-cost construction.

[0017] The relative movement of the inventive closure element to an insertion element in the closing extension direction is preferably limited by a sealing element extending transverse to an extension direction of the channel, said sealing element preferably limiting the length of the channel. In particular, the sealing element extends perpendicular to the extension axis. Preferably the extension axis intersects the sealing element in the middle, i.e. the sealing element is centred with respect to the extension axis.

[0018] The sealing element is preferably planar in shape at least on the side directed to the channel such that the sealing element may seal the bottle neck of a completely inserted insertion element. The sealing element may also be planar in shape only along a circular ring corresponding to the face side of a bottle neck of the insertion element. It is essential that the sealing element allows closing the fluid communication to an insertion element being inserted into the channel.

[0019] In another preferred embodiment of the inventive closure element the channel is formed by at least two interconnected parts. Preferably one of the two parts comprises the aforementioned sealing element and the other of the two parts comprises the aforementioned coupling element. In a further preferred embodiment the aforementioned at least two parts comprise corresponding contact surfaces being formed to be mutually complementary. Such contact surfaces may for example be planar surfaces being arranged trans-verse (preferably perpendicular) to the extension axis. Such contact surfaces may comprise a geometrical shape being optimized for joining, e.g. ultrasonic welding, multistage injection moulding or the like. The two interconnected parts may be a sealing element and a channel element as described in detail later on.

[0020] If the relative movement between the closure element and an insertion element shall be limited bidirectional, i.e. restricted to both directions along the extension axis (closing extension direction and opening extension direction), it is preferred to provide at least one stop element, preferably arranged in the opening extension direction of the channel. Such a stop element might have a stop surface, e.g. formed as a hook, extending transverse to the extension axis of the channel, preferably a stop surface extending perpendicular to the extension axis of the channel. Preferably a stop element is arranged on the closure element, e.g. on the sealing element or on the channel element if the closure element comprises such elements.

[0021] The invention also refers to a multi-compartment container comprising one of the aforementioned inventive closure elements with a first compartment and an insertion element, the insertion element comprising a

second compartment, a bottle neck with an opening to fill in and to take out a second content, a coupling element being complementary to the coupling element of the closure element, the coupling element allowing a relative movement between the closure element and the insertion element in the extension direction, wherein a fluid communication from the second compartment of the insertion element through the channel to the first compartment of the closure element is opened and closed by relative movement of the closure element to the insertion element along an extension axis. Such a multi-compartment container is easy to manufacture and does not require any additional movable parts. The closure element and the insertion element, i.e. two parts without any additional and without any movable parts, are sufficient to repeatedly establish and separate a fluid communication between the two compartments.

[0022] In a preferred embodiment of an inventive multi-compartment container the insertion element comprises a screw thread, in particular a male screw thread on the outer surface corresponding to a female screw thread on the inner surface of the channel of the closure element. Such screw threads have been known from the prior art for decades. The production costs of such screw threads are low, in particular if the closure element and the insertion element are formed of plastic material like PET.

[0023] In another preferred embodiment of a multi-compartment container the insertion element comprises a support ring, in particular a planar support ring perpendicular to the extension axis, preferably formed on the bottle neck of the insertion element. In this case bottles with support rings known from the prior art can be used. Such support rings may form one part of a stop element in the opening extension direction. Further details concerning this aspect are described in relation with an example described below and the drawings.

[0024] In another preferred embodiment the closure element and the insertion element have circular cross-sections. In particular the closure element and the insertion element are essentially cylindrical in shape, preferably such that the first element and the second element have - in the closed condition - the shape of a one piece container with a continuous contour. As already mentioned, the closure element and/or the insertion element of an inventive multi-compartment container are preferably made of polyethylene terephthalate (PET). Said material is light, unbreakable, well-proven in the field of drink containers and allows for low-cost manufacturing.

[0025] The invention also refers to a method of producing a closure element, in particular a closure element as described above, comprising the following steps:

a) producing a sealing element having a planar sealing section and a contact surface,

b) producing a channel element having a channel allowing to insert a bottle neck of an insertion element in an extension direction of the channel,

c) producing a container element with a compartment for storing content,

d) connecting the sealing element, the channel element and the container element by welding.

[0026] The aforementioned method allows for an easy and economical manufacturing process.

[0027] The invention also refers to a method of producing a multi-compartment container comprising a closure element as described above wherein the compartment of the insertion element is filled with a first content, the insertion element and the closure element are connected such that a multi-compartment container is formed, wherein the fluid communication between the compartment of the closure element and the compartment of the insertion element is closed and wherein the compartment of the closure element is filled with a second content.

[0028] In another preferred method of producing a multi-compartment container the channel element, the sealing element and/or the container are formed with at least one stop element corresponding to a support ring formed on the insertion element, wherein the insertion element is screwed into the closure element such that the stop element(s) limit(s) the relative movement in the opening extension direction. Preferably, the stop element(s) limit(s) the relative movement in the opening direction in such a way that at full open the insertion element is still engaged with one full thread of the channel element when the stop element, in particular a hook of the stop element, engages with the support ring of the insertion element.

[0029] Concerning the advantages of the two aforementioned methods it is referred to the advantages already mentioned in relation with the inventive closure element and the inventive multi-compartment container.

[0030] Further embodiments and advantages of the invention are described below with reference to the drawings.

Figures 1a and 1b show an example of an inventive multi-compartment container comprising a closure element and an insertion element in a closed condition (fig. 1 a) and in an opened condition (fig. 1 b) in perspective views from the side and above.

Figures 2a and 2b show the inventive multi-compartment container of figures 1 a and 1 b in a closed condition (fig. 2a) and in an opened condition (fig. 2b) in perspective views from the side and below.

Figures 3a and 3b show the inventive multi-compartment container of figures 1 a and 1b in a closed condition (fig. 3a) and in an opened condition (fig. 3b) in side views.

Figures 4a and 4b show the inventive multi-compartment container of figures 1 a and 1b in a closed con-

dition (fig. 4a) and in an opened condition (fig. 4b) in sectional views.

Figures 5a and 5b show the details being marked with Va and Vb in figures 4a and 4b.

Figures 6a, 6b and 6c show the insertion element of the inventive multi-compartment container of figures 1 a and 1 b in a perspective view from the side and somewhat from above (fig. 6a), in a perspective view from the side and somewhat from below (fig. 6b) and in a sectional view according to a longitudinal cut through the centre axis of the lower element (fig. 6c).

Figures 7a, 7b and 7c show the inventive closure element of the inventive multi-compartment container of figures 1 a and 1 b in a perspective view from the side and somewhat from above (fig. 7a), in a perspective view from the side and somewhat from below (fig. 7b) and in a sectional view according to a longitudinal cut through the centre axis of the upper element (fig. 7c).

Figures 8a, 8b and 8c show one subelement of the inventive closure element of the multi-compartment container of figures 1 a and 1 b in a perspective view from the side and above (fig. 8a), in a perspective view from the side and below (fig. 8b) and in a perspective side view (fig. 8c).

Figures 1-4 show an inventive multi-compartment container 10 essentially comprising two elements, namely an inventive closure element 12 and an insertion element 14. As can be seen in figure 4, the closure element 12 comprises a compartment 16 for storing content, and the insertion element comprises a compartment 18 for storing content. In a closed condition, as shown in figures 1a, 2a, 3a and 4a, there is no fluid communication between the two compartments 16, 18. In an opened condition, as shown in figures 1b, 2b, 3b and 4b, content may flow through a channel 20 and openings 44 from the compartment 16 of the closure element 12 to the compartment 18 of the insertion element 14 and vice versa. The extension axis of the channel 20 is indicated with "e" in figures 5a and 5b. The opening direction is indicated with "o" and the closing direction is indicated with "c" in figures 5a and 5b.

Figures 6a, 6b and 6c show the insertion element 14. It comprises a cylindrical bottle neck 22 with a male screw thread 24 on the outer surface and a support ring 26.

Figures 7a, 7b and 7c show the inventive closure element 12. It comprises two essentially cylindrical subelements, namely a container element 28 and a connecting element 30. Both subelements 28, 30 are preferably produced by injection moulding and rigidly connected by ultrasonic welding. The connecting element 30 is shown in detail in figures 8a, 8b and 8c.

[0031] The container element 28 forms the compartment 16 of the inventive closure element 12. It further comprises a cylindrical bottle neck 32 with a male screw thread on its outer surface. In figures 7a, 7b and 7c the bottle neck 32 is covered by a cap 34 being screwed on the bottle neck 32. The bottle neck 32 allows filling in and taking out content from the upper side of the inventive closure element 12. The bottom of the container element 28 is formed by the connecting element 30 being rigidly connected to the container element 28.

[0032] As can be seen in figures 5a and 5b, the connecting element 30 comprises two subelements, namely a sealing element 36 and a channel element 38.

[0033] The sealing element 36 comprises a circular ring section 40 with a contact surface 58 and a recessed circular passage element 42 with a planar sealing section 60. The passage element 42 has several openings 44 at the circumference.

[0034] The channel element 38 comprises a cylindrical section 46 with a female screw thread 48 corresponding to the male screw thread 24 of the insertion element 14. Furthermore, the channel element 38 comprises several elastic stop elements 50 with stop surfaces 56 being formed perpendicular to the extension axis e. The stop surfaces 56 are formed as hooks in the embodiment shown in the figures. In addition the channel element 38 comprises a contact surface 62 corresponding to the contact surface 58 of the sealing element 36.

[0035] The sealing element 36 and the channel element 38 - together forming the connecting element 30 - are rigidly connected by ultrasonic welding. The connecting element 30 and the container element 28 - together forming the essential part of the inventive closure element - are also rigidly connected by ultrasonic welding.

[0036] As can be seen in figures 5a and 5b, the sealing element 36 comprises a separate liner 52 made of ethylene vinyl acetate (EVA).

[0037] When the multi-compartment container 10 is in a closed condition (see figure 5a), the bottle neck 22 is pushed with its face side 54 against the liner 52. Thus, the insertion element is sealed by the liner of the closure element and the fluid communication is closed.

[0038] When the multi-compartment container 10 is in an opened condition (see figure 5b), the face side 54 is distant from the liner 52 and thus allows content flowing through the channel 20 and the circumferential openings 44 from the compartment 16 of the inventive closure element 12 to the compartment 18 of the insertion element 14 and vice versa.

[0039] As can be seen in figure 5a the liner 52 forms a stop element for a relative movement in the closing direction.

[0040] As can be seen in figure 5b the stop surfaces 56 of stop elements 50 of the closure element 12 restrict

the relative movement of the closure element 12 in the opening direction. In the position shown in figure 5b the stop surfaces 54 being arranged perpendicular to the extension axis abut on the support ring 26 of the insertion element 14.

[0041] As can be seen in Figures 8b and 8c, the closure element 12 comprises four stop elements 50 being arranged between the walls 64 of the channel 20 and the outer walls 66 of the channel element 38.

[0042] Changing the condition of the inventive multi-compartment container 10 from the closed condition to the opened condition and vice versa takes place by simply rotating the closure element 12 relative to the insertion element 14 thereby causing a relative movement of the closure element to the insertion element 14 along the extension axis "e". Thus, the fluid communication between the compartment 16 of the closure element 12 and the compartment 18 of the insertion element 14 can be repeatedly opened and closed.

[0043] The stop elements 50 are elastic at least to such an extent that they may be moved outwards to pass the support ring 26 of an insertion element 14 when the insertion element 14 with a support ring 26 is initially screwed into the channel element 30 of the closure element 12. After having passed the support ring 26, the stop elements 50 spring back to the position shown in figures 5a and 5b limiting the relative movement of the closure element 12 and the insertion element 14 in the opening direction as described above. Preferably the stop elements 50 are designed such that the closure element 12 and the insertion element 14 may not be separated after the stop elements 50 have passed the support ring 26. This might guarantee that the content of the compartments 16, 18 may be inserted by the manufacturer only.

[0044] The features mentioned in the description above, in the claims and shown in the figures can be combined either separately or in any combination in order to realise the invention. The invention is not limited to the above-mentioned embodiment. It can be varied and modified taking into account the claims, the description and the knowledge of the person skilled in the art. In particular the number of elements, e.g. the number of stop elements, the number of openings etc. does not limit the scope of the invention. The person skilled in the art may vary such details applying their special knowledge.

Reference numbers

[0045]

10 multi-compartment container
12 closure element
14 insertion element
16 compartment (of the closure element)
18 compartment (of the insertion element)
20 channel
22 bottle neck
24 male screw thread
26 support ring
28 container element
30 connecting element
32 bottle neck (of the closure element)
34 cap
36 sealing element
38 channel element
40 circular ring section
42 passage element
44 opening
46 cylindrical section
48 female screw thread
50 stop element
52 liner
54 face side (of the bottle neck)
56 stop surfaces
58 contact surface
60 sealing section
62 contact surface
64 wall (of the channel)
66 outer wall (of the channel element)

Claims

1. Closure element comprising

   a) a container with a compartment (16) for storing content,
   b) at least one opening (44) with a channel (20) leading to the compartment (16),
   c) the channel (20) allowing to insert a bottle neck (22) of an insertion element in an extension direction of the channel (20),
   d) a coupling element allowing to connect the closure element to the insertion element (14) being inserted into the channel (20),
   e) means for opening and closing a fluid communication by relative movement of the closure element to the insertion element.

2. Closure element according to claim 1, **characterized in that** the coupling element and/or the means for opening and closing the fluid communication is a thread (24, 48).

3. Closure element according to one or more of the preceding claims, **characterized in that** the channel (20) is at least partly cylindrical in shape and that the opening (44) is formed in a cylindrical part of the channel (20).

4. Closure element according to one or more of the preceding claims, **characterized in that** the relative movement along the extension axis of the channel (20) is limited in at least one direction by a sealing element (36) extending transverse to the extension

direction.

5. Closure element according to one or more of the preceding claims, **characterized in that** the sealing element (36) is planar in shape at least on the side directed to the channel (20).

6. Closure element according to one or more of the preceding claims, **characterized in that** the channel (20) is formed by at least two interconnected parts.

7. Closure element according to the preceding claim, **characterized in that** at least one stop element (50) is provided to limit the relative movement between the closure element and the insertion element in one extension direction.

8. Multi-compartment container comprising a closure element (12) according to one of the preceding claims with a first compartment (16) and an insertion element (14), the insertion element (14) comprising a second compartment (18), a bottle neck (22) with an opening to fill in and to take out a second content, a coupling element being complementary to the coupling element of the closure element, the coupling element allowing a relative movement between the closure element and the insertion element along an extension axis (e) of the channel (20), wherein a fluid communication from the second compartment (18) of the insertion element (14) through the channel (20) to the first compartment (16) of the closure element (12) is opened and closed by relative movement of the closure element (12) to the insertion element (14) along the extension axis (e).

9. Multi-compartment container according to the preceding claim, **characterized in that** the insertion element (14) comprises a screw thread (24).

10. Multi-compartment container according to one or more of the preceding claims, **characterized in that** the insertion element (14) comprises a support ring (26).

11. Multi-compartment container according to one or more of the preceding claims, **characterized in that** the closure element (12) and the insertion element (14) have circular cross-sections.

12. Multi-compartment container according to one or more of the preceding claims, **characterized in that** the closure element (12) and/or the insertion element (14) are made of polyethylene terephthalate (PET).

13. Method of producing a closure element (12) comprising the following steps:

a) producing a sealing element (36) having a planar sealing section (60) and a contact surface (58),

b) producing a channel element (38) having a channel (20) allowing to insert a bottle neck (22) of an insertion element (14) in an extension direction of the channel (20),

c) producing a container element (28) with a compartment (16) for storing content,

d) connecting the sealing element (36), the channel element (38) and the container element (28) by welding.

14. Method of producing a multi-compartment container (10) comprising a closure element (12) according to the aforementioned claims **characterized in that** the compartment (18) of the insertion element (14) is filled with a first content, the insertion element (14) and the closure element (12) are connected such that a multi-compartment container is formed wherein the fluid communication between the compartment (16) of the closure element (12) and the compartment (18) of the insertion element (14) is closed and wherein the compartment (16) of the closure element (12) is filled with a second content.

15. Method of producing a multi-compartment container (10) according to the preceding claim, **characterized in that** the channel element (38), the sealing element (36) and/or the container (28) are formed with a stop element (50) corresponding to a support ring (26) formed on the insertion element (14), wherein the insertion element (14) is screwed into the closure element (12) such that the stop element (50) limits the relative movement between the closure element (12) and the insertion element (14) in the opening extension direction.

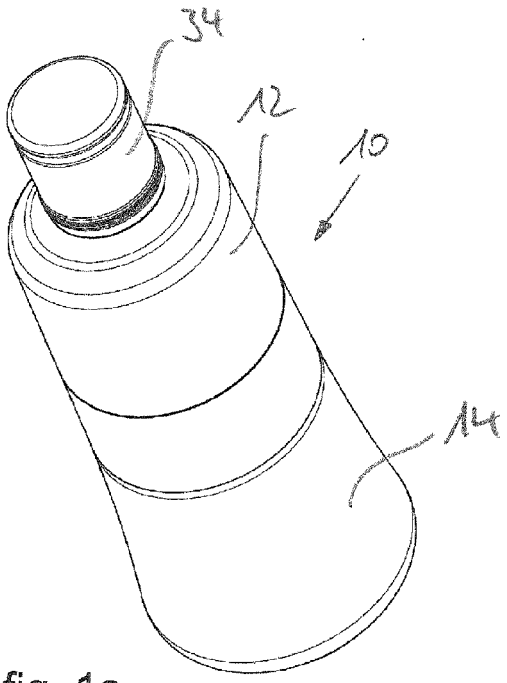


fig. 1a

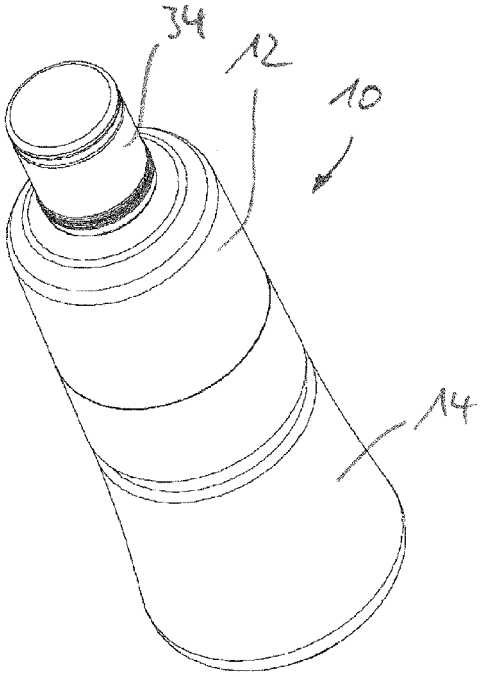


fig. 1b

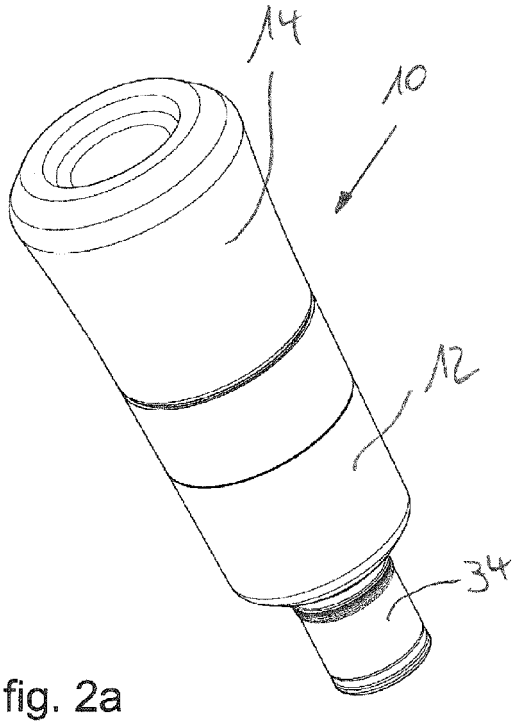


fig. 2a

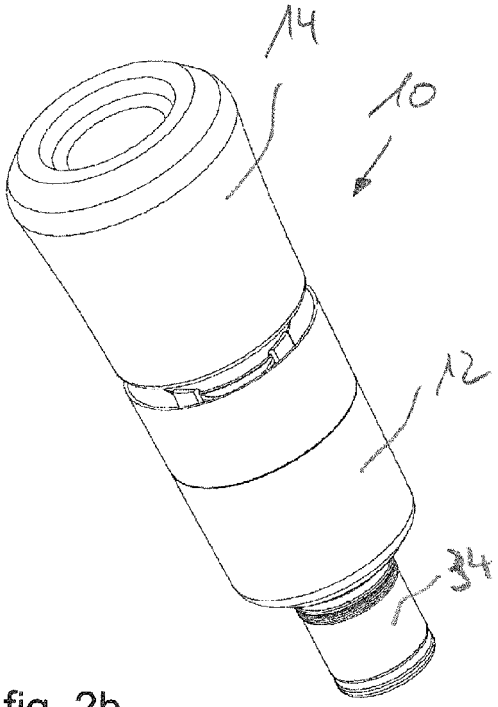


fig. 2b

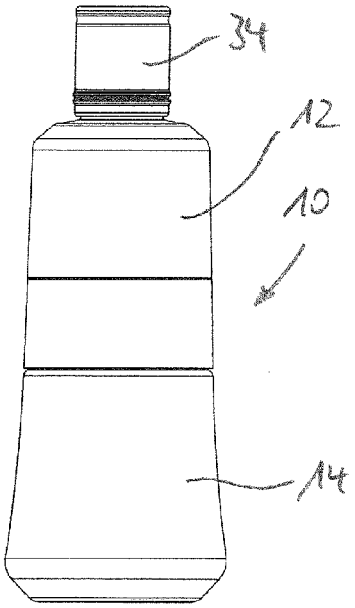


fig. 3a

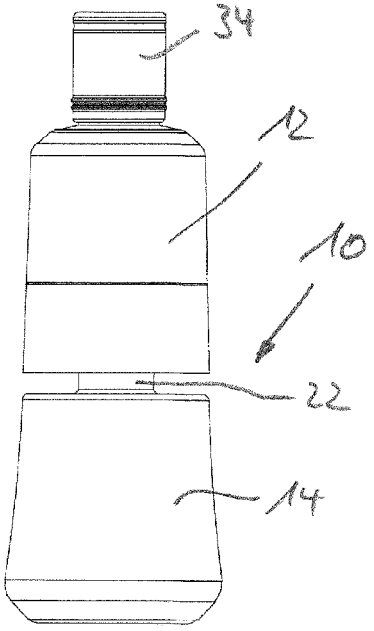


fig. 3b

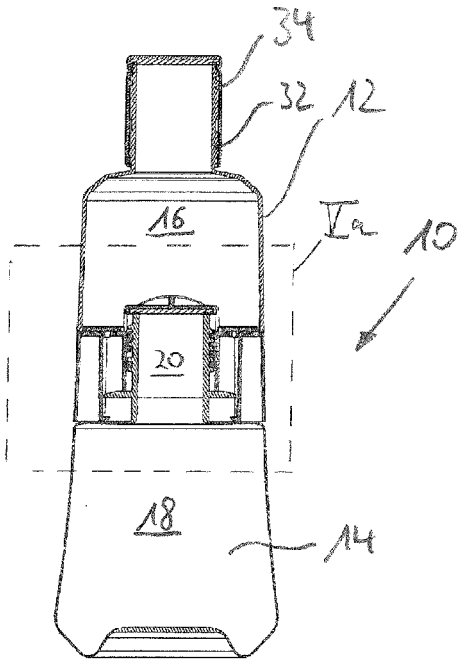


fig. 4a

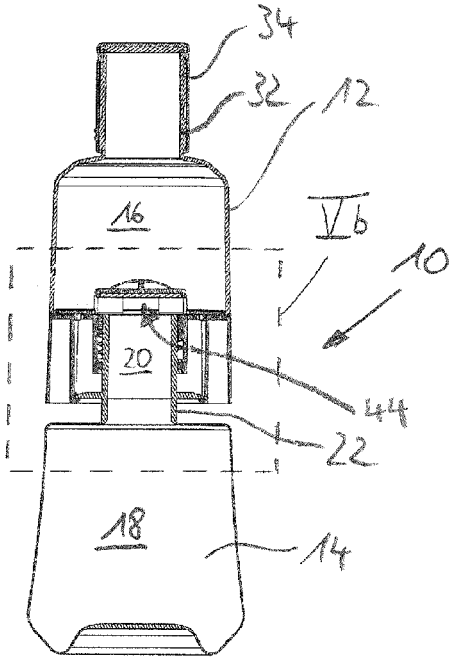


fig. 4b

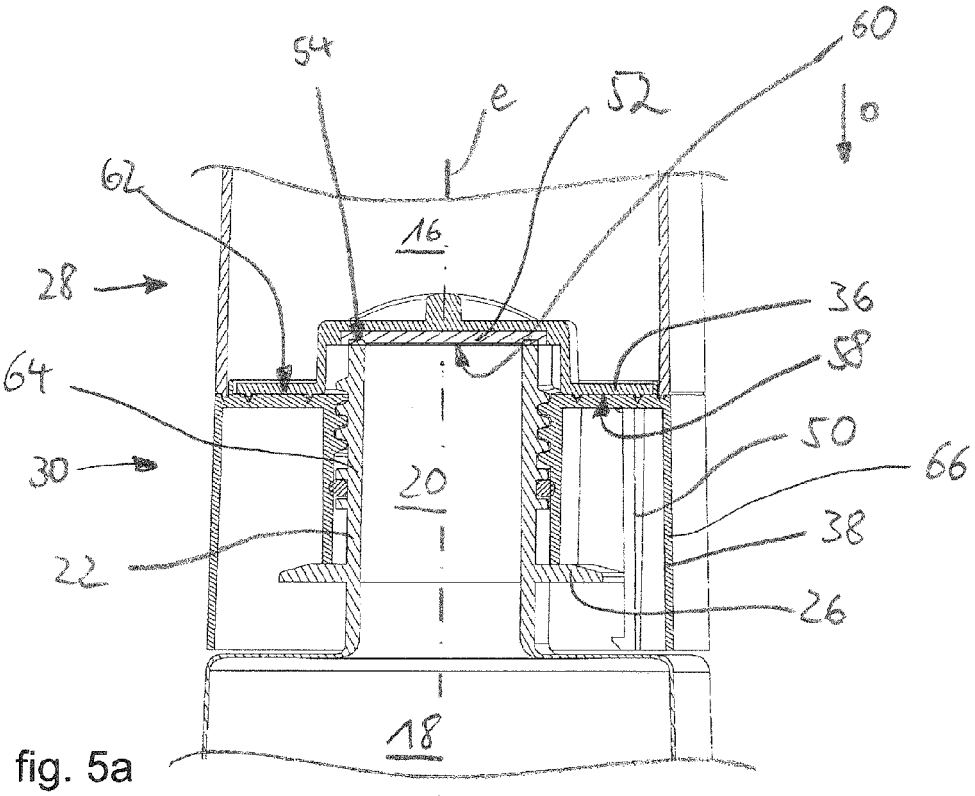

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fig. 5a

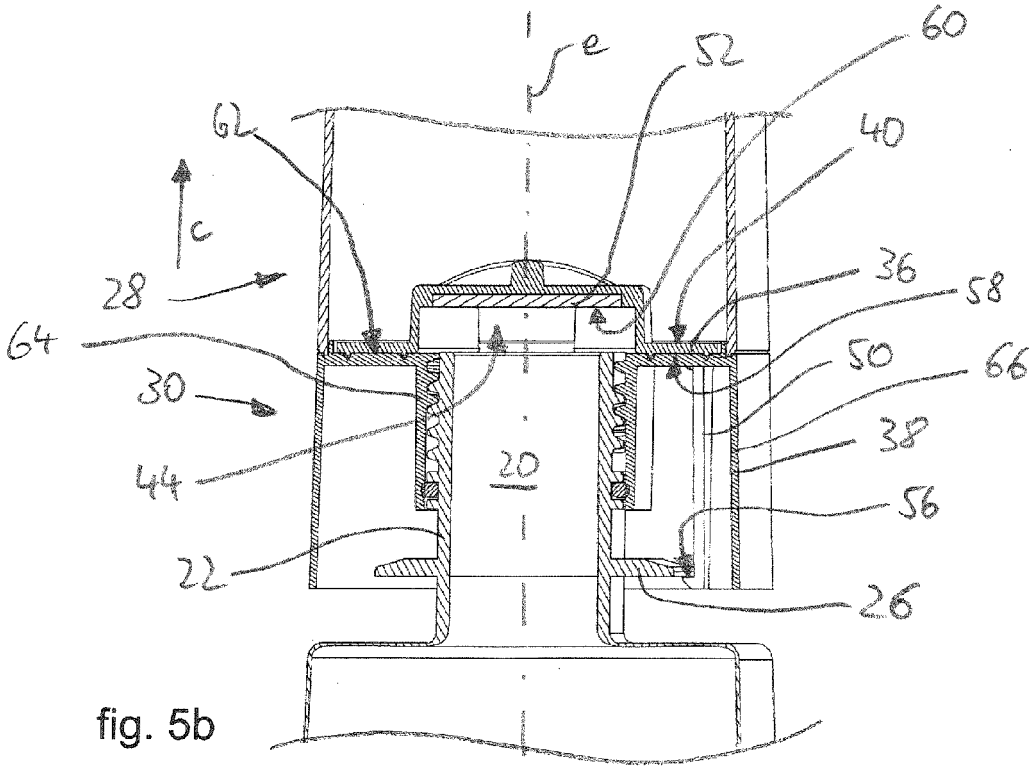

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fig. 5b

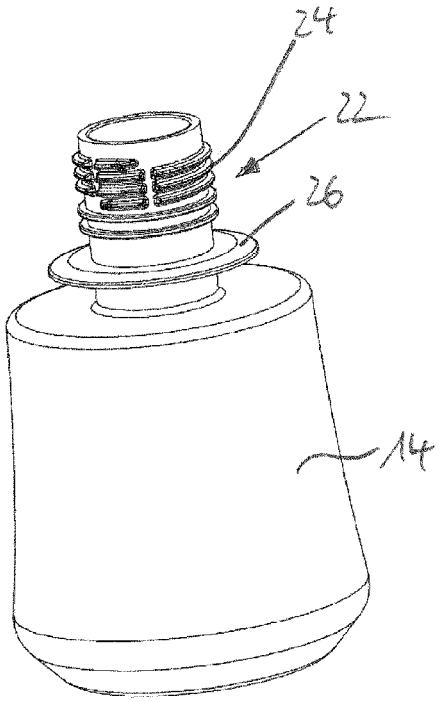


fig. 6a

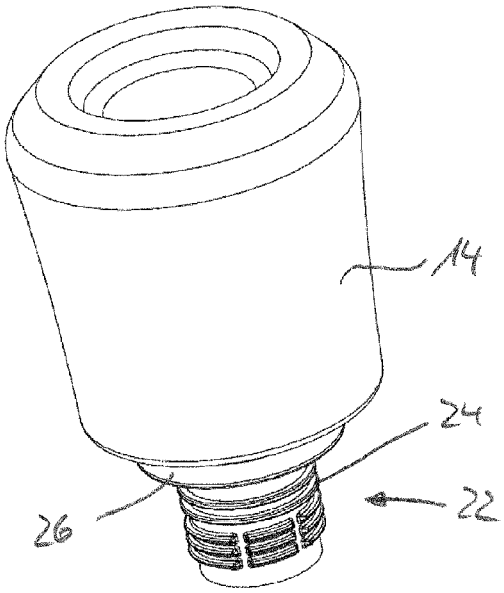


fig. 6b

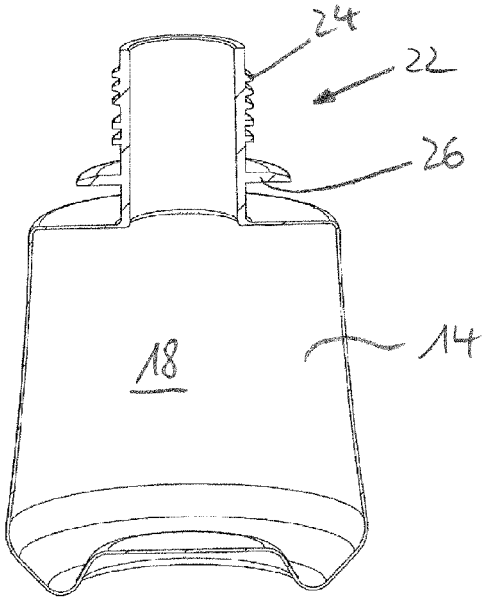


fig. 6c

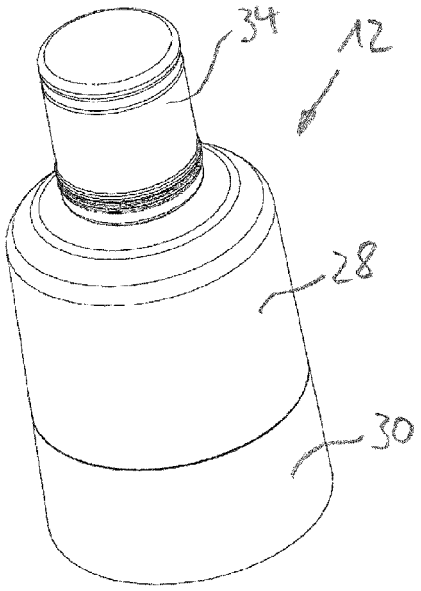


fig. 7a

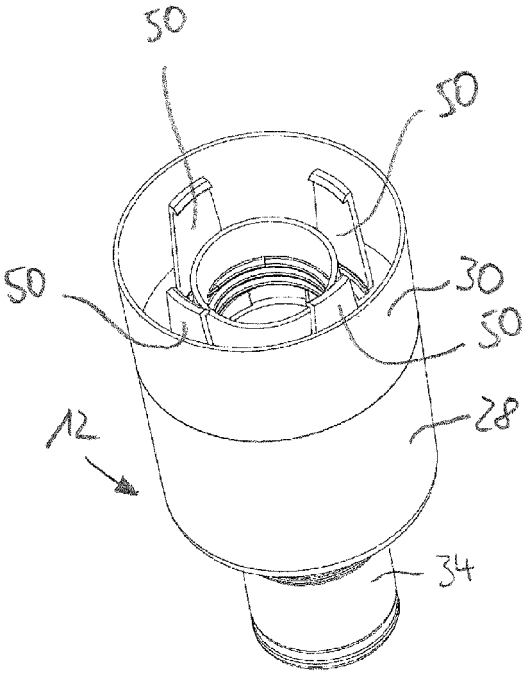


fig. 7b

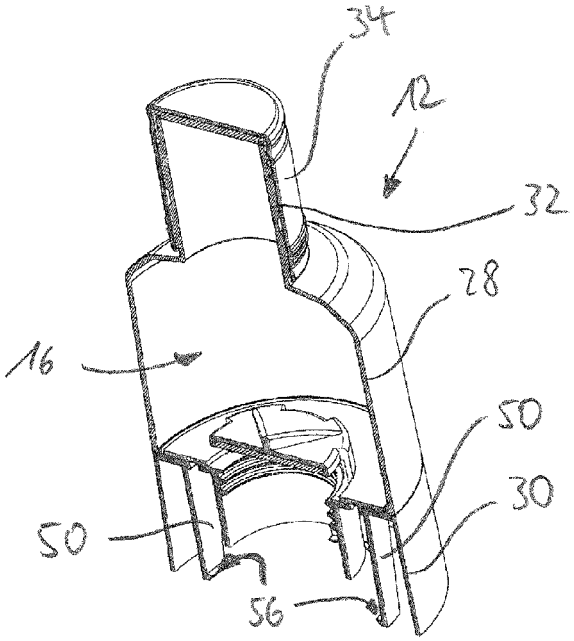


fig. 7c

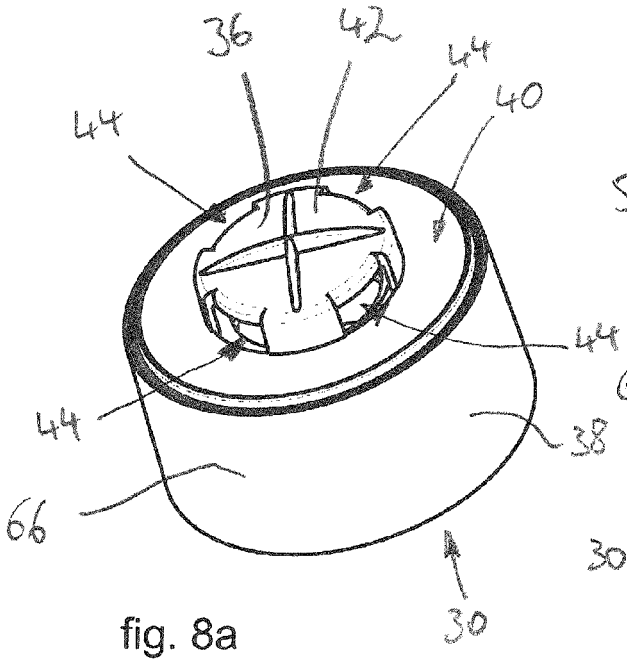


fig. 8a

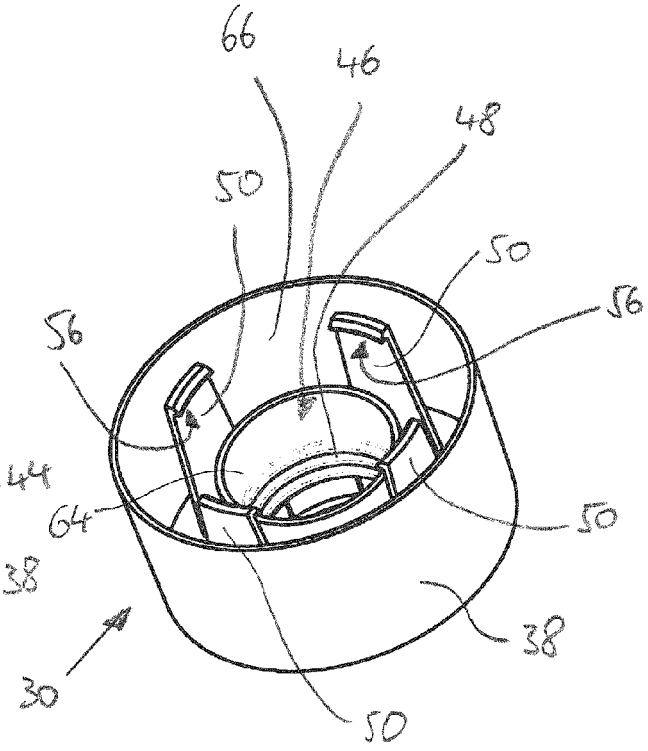


fig. 8b

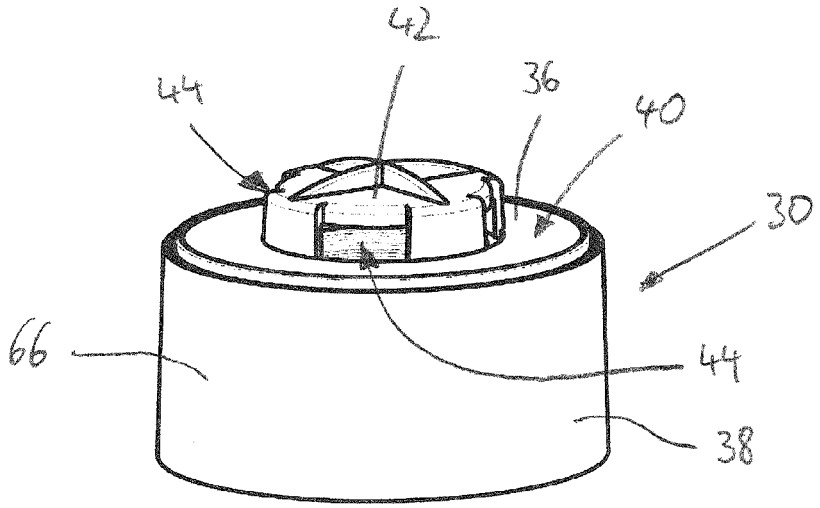


fig. 8c

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EUROPEAN SEARCH REPORT

Application Number
EP 13 15 7861

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	20 June 2013	Zanghi, Amedeo

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