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(54) **CAP FOR A RECEPTACLE AND RECEPTACLE, IN PARTICULAR TUBE, IN PARTICULAR FLEXIBLE TUBE FOR A COSMETIC PRODUCT, PROVIDED WITH SAID CAP**

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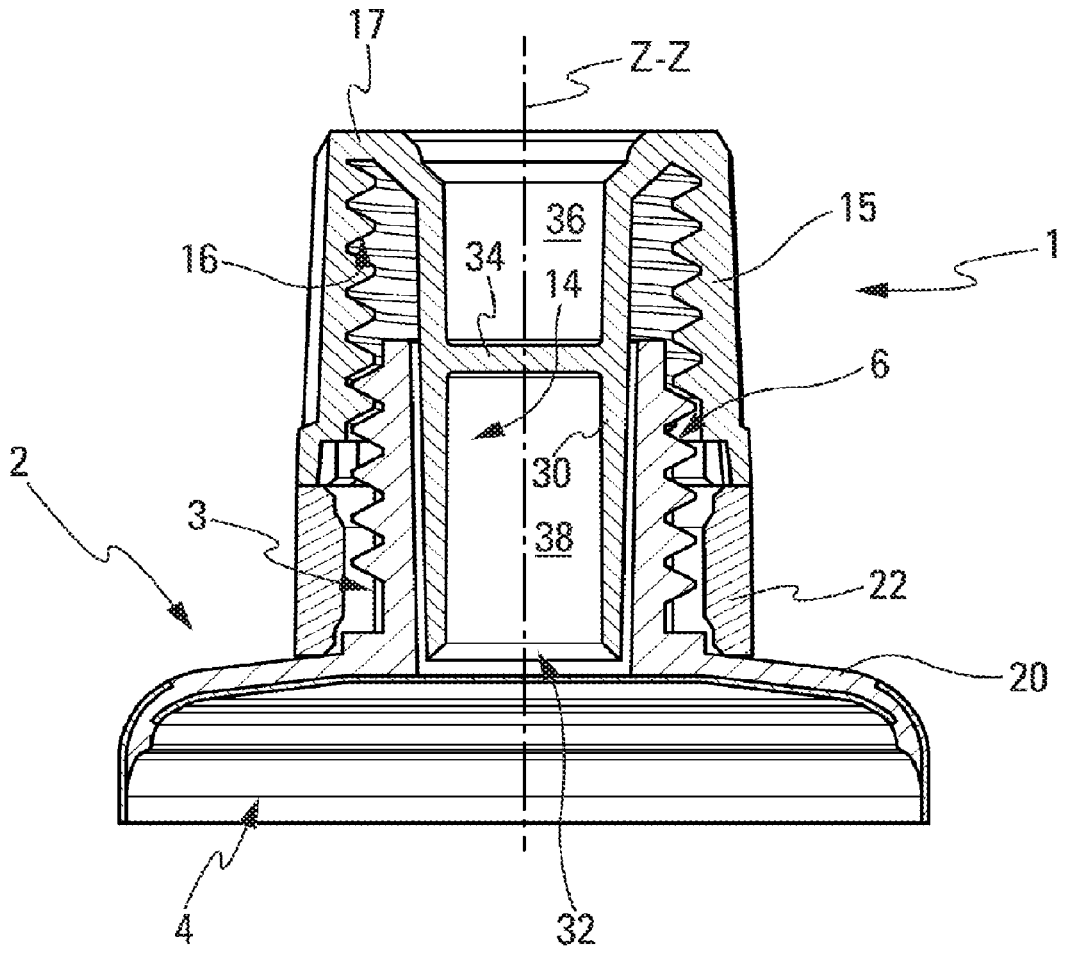
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(57) **ABSTRACT**

A cap for a receptacle, in particular a tube, in particular a flexible tube for a cosmetic product. The receptacle has a neck (**3**) and a solid insert (**8**) forming a seal that closes off one end of the neck (**3**) that leads into an internal volume (**4**) of the receptacle. The cap (**1**) has a punch (**14**) designed to cut and/or pierce the seal, and the cap (**1**) being designed to be positioned on the neck (**3**) in a standby position in which the punch (**14**) is in the neck (**3**), leaving the seal intact, and in a use position in which the seal has been cut and/or pierced by the punch (**14**). The punch (**14**) has a body (**30**) in the form of a stem that is configured to cut and/or pierce the seal.



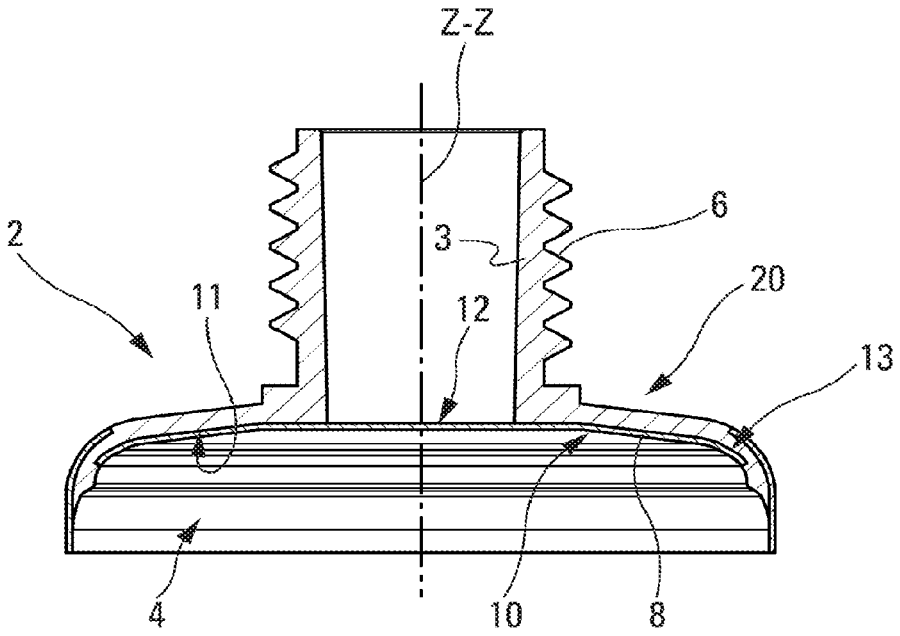


Fig. 1

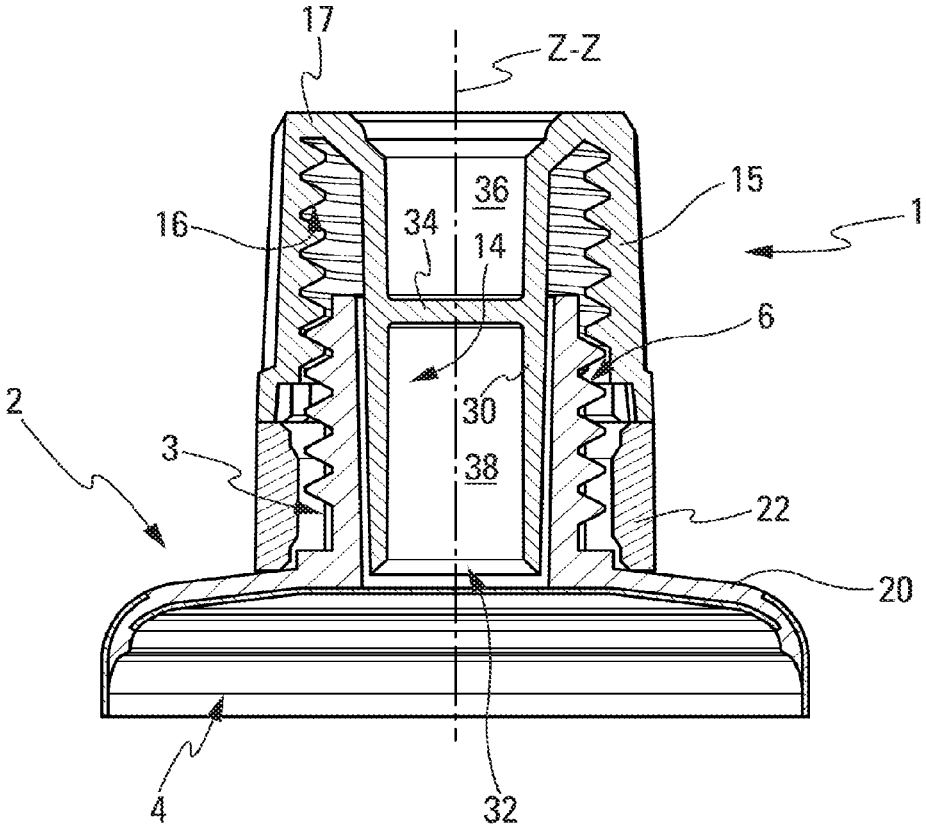


Fig. 2

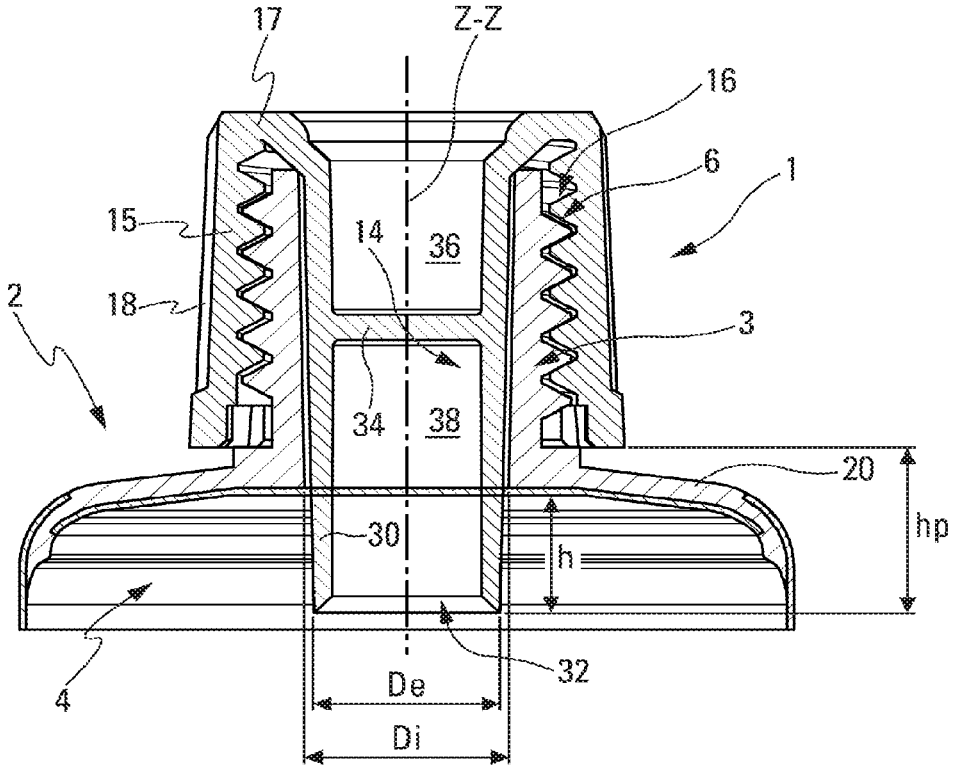


Fig. 3

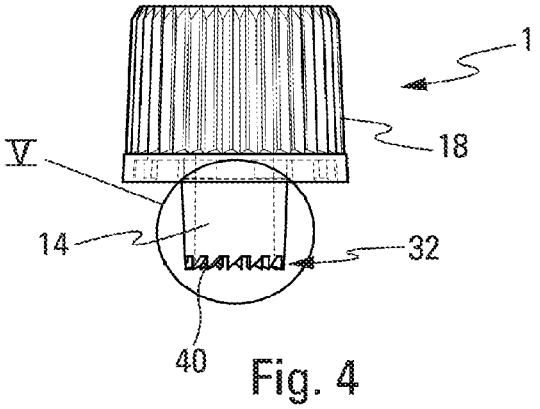


Fig. 4

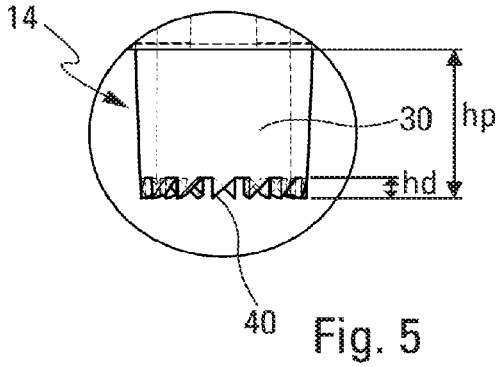


Fig. 5

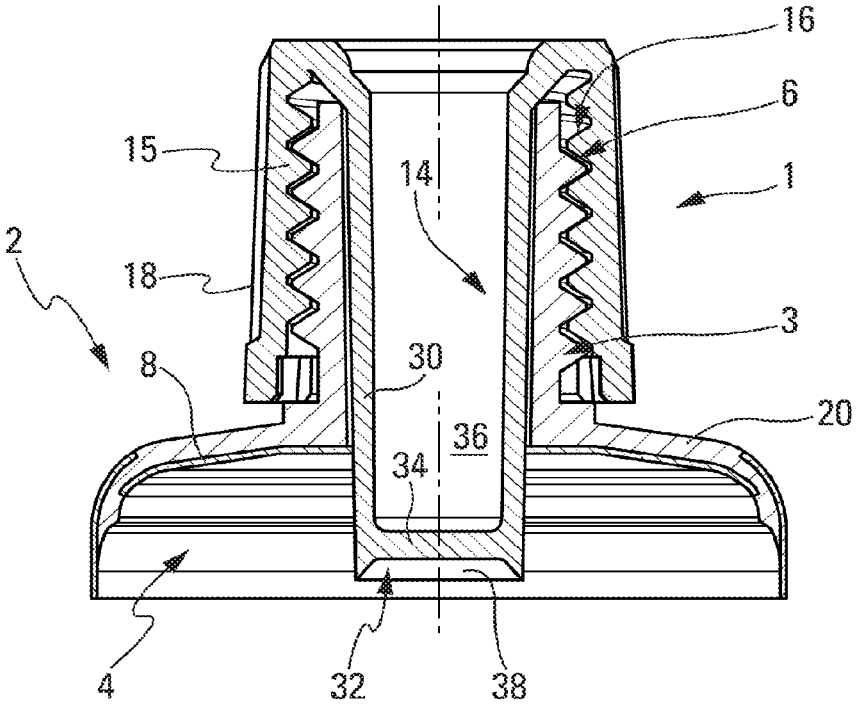


Fig. 6

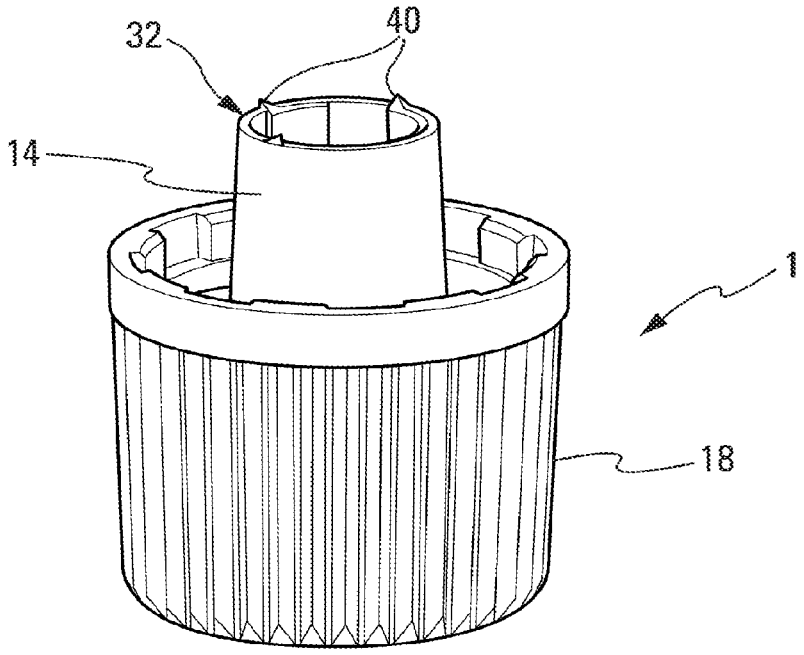


Fig. 7

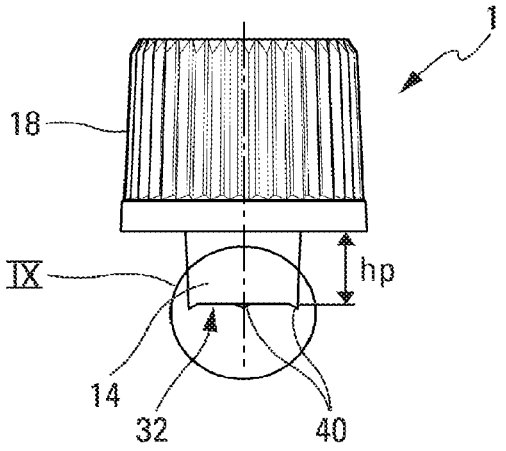


Fig. 8

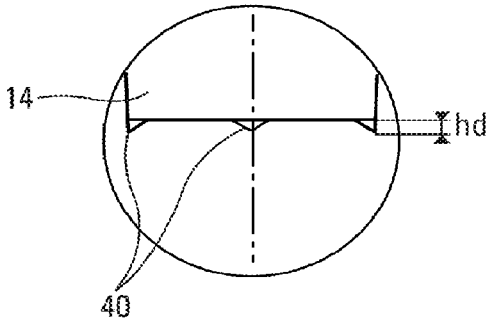


Fig. 9

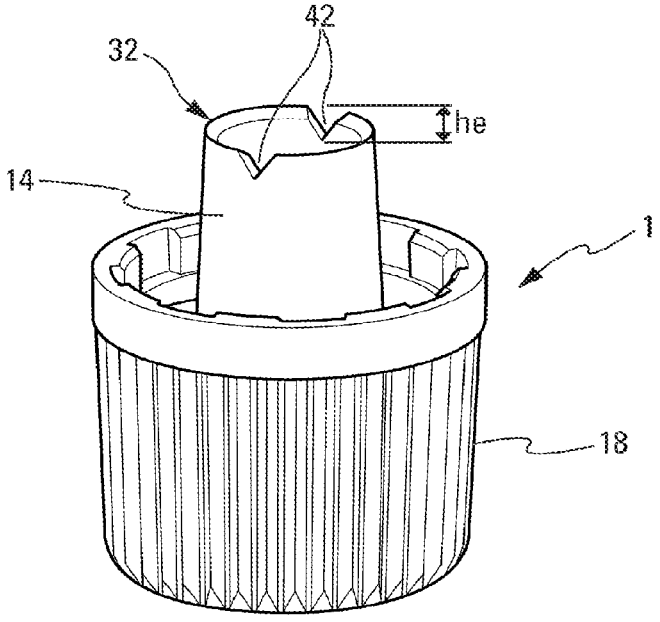


Fig. 10

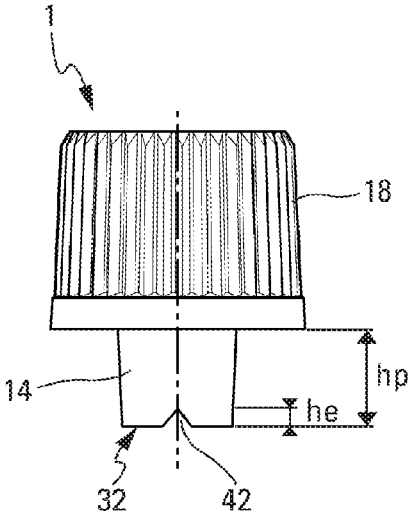


Fig. 11

CAP FOR A RECEPTACLE AND RECEPTACLE, IN PARTICULAR TUBE, IN PARTICULAR FLEXIBLE TUBE FOR A COSMETIC PRODUCT, PROVIDED WITH SAID CAP

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] The present application is a divisional application and claims priority to U.S. application Ser. No. 14/911,830, filed on Feb. 12, 2016, which is a U.S. National Phase filing of International Application No. PCT/EP2014/063783, filed on Jun. 27, 2014, designating the United States of America and claiming priority to French Application No. 1362388 filed Dec. 11, 2013, and French Application No. 1357549 filed Jul. 30, 2013 and the present application claims priority to and the benefit of all the above-identified applications, which are incorporated by reference herein in their entireties.

[0002] The present invention relates to a cap and to a receptacle, in particular a tube, more particularly a flexible tube for a cosmetic product, provided with said cap.

[0003] Tubes are known that are provided with an inner seal connected to a perforating cap comprising a punch that is suitable for perforating said inner seal upon first use of the tube.

[0004] The inner seal allows the product contained in the tube to be hermetically held therein over the period in which said tube is stored prior to first being used, and this is a very large proportion of the overall lifetime of the tube.

[0005] A number of solutions have been proposed to this effect. Tubes are in particular known that comprise a punch that is suitable for cutting and/or piercing the inner seal, said caps being designed to be positioned on a neck of the tube in a stand-by position in which the inner seal remains unbroken and in an in-use position in which the inner seal has been cut and/or pierced by said punch.

[0006] The transition from one position to the other takes place for example by removing a spacing ring that is arranged on the tube in order to keep the cap in the stand-by position. Upon first use, the user takes off the cap and then the ring. The user can thus reposition the cap, which, now that there is no ring, lowers far enough into the tube for the punch to pierce the inner seal.

[0007] In order to provide better protection for the product, it has already been proposed to arrange the inner seals at an end of the neck that opens into the internal volume of the tube, i.e. at the end of the neck that is opposite the end that opens to the outside.

[0008] Such an arrangement requires the punches to have a longitudinal extension that extends far enough to reach the inner seal in order to cut said seal upon first use and the punch has to penetrate the inside of the neck, even when in the stand-by position.

[0009] The distal end of the punch is therefore at risk of being damaged when the cap is positioned on the neck when putting the cap on the tube at the factory. Indeed, if the cap is not centred properly on the tube, the punch is at risk of being damaged, for example by crashing against the neck or even between the neck and an external skirt of the cap. The punch is therefore at risk of not being able to fulfil its function when the tube is used for the first time.

[0010] This risk is even greater given that it is particularly difficult to detect whether a defect of this type has occurred. Indeed, the deformation of the punch is not visible from the outside. Moreover, even though it is conceivable to calibrate machines for positioning the cap so that they detect resistive torque causing the punch to deform, such a calibration is particularly complex given the level of precision that should be reach. Machines of this type are also very expensive.

[0011] The invention aims to overcome the above-mentioned drawbacks and proposes for this purpose a cap for a receptacle, in particular a tube, more particularly a flexible tube for a cosmetic product, said receptacle comprising a neck and a solid insert that forms an inner seal closing an end of the neck that opens into an internal volume of the receptacle, said cap comprising a punch that is suitable for cutting and/or piercing the inner seal, said cap being suitable for being positioned on said neck, in a stand-by position in which the punch is in the neck while the inner seal remains unbroken and in an in-use position in which the inner seal has been cut and/or pierced by said punch, said punch comprising a barrel-shaped body that is designed to cut and/or pierce said inner seal.

[0012] By making the end of the punch barrel-shaped, the punch can remain effective even when a portion thereof has been damaged by the walls of the neck when the cap was put into place with a slightly off-centre positioning. In the case of excessively off-centre positioning, there will be sufficient resistance for preventing the cap from being put into place. In this manner, a cap of which the punch would be rendered unusable is prevented from being put in place.

[0013] According to various features of the invention, which may be taken together or separately:

- **[0014]** said barrel is substantially in the shape of a hollow cylinder,
- **[0015]** said punch comprises a transverse partition separating it into two cavities,
- **[0016]** said partition is located in an upper half of the punch,
- **[0017]** said partition is located in a lower half of the punch,
- **[0018]** one of said cavities is intended to be rotated towards the outside of the receptacle and/or the other of said cavities is formed by said barrel,
- **[0019]** said barrel has a distal end provided with cutting means,
- **[0020]** said cutting means comprise a bevel from said distal end,
- **[0021]** said bevel extends over the entire circumference of the barrel,
- **[0022]** said punch has a wall of which the thickness is greater than the thickness of said cutting means,
- **[0023]** said cutting means comprise at least one cutting tooth,
- **[0024]** said cutting means comprise at least one cutting slit,
- **[0025]** said cutting means comprise a plurality of cutting teeth and/or cutting slits, in particular at least two, at least three or at least four,
- **[0026]** said cutting tooth/teeth and/or said cutting slit(s) are evenly distributed over the entire circumference of the barrel,
- **[0027]** said cutting tooth/teeth has/have a height hd and said barrel has an external diameter De such that the ratio hd/De is less than ⅓, ⅕ or 1/10,
- **[0028]** said cap comprises a distal edge designed to abut a spacing ring in the stand-by position,

[0029] said punch comprises a part that protrudes relative to said distal edge,

[0030] said protruding part has a height hp such that the ratio hd/hp is less than ⅓, ⅕ or 1/10,

[0031] the cutting slit(s) has/have a height he such that the ratio he/De is less than ⅓, ⅕ or 1/10,

[0032] the cutting slit(s) is/are designed such that the ratio he/hp is less than ⅓, ⅕ or 1/10,

[0033] at least one of the teeth and/or one of the slits has a different height hd or height he,

[0034] each of the teeth and/or slots have a different height,

[0035] said barrel is designed to partially cut the insert in order to open said neck such that the inner seal is still attached to the uncut part of the insert by a material bridge when the cap is in its in-use position,

[0036] said cap is suitable for being screwed onto said neck,

[0037] said cap is formed in one piece.

[0038] The invention also relates to a receptacle, in particular a tube, more particularly a tube for a cosmetic product. Said tube is for example a flexible tube.

[0039] Said receptacle comprises a neck and a solid insert that forms an inner seal closing an end of the neck that opens into an internal volume of the receptacle. Said receptacle further comprises a cap as described above.

[0040] According to various features of the invention, which may be taken together or separately:

[0041] said neck has an internal diameter Di and said barrel has an external diameter De such that the ratio De/Di is greater than 0/8 or 0/9,

[0042] said barrel is designed to penetrate said internal volume, in the in-use position, at a distance h that is greater than the distance required in order to deform the insert in a manner that goes beyond the resilient deformation capacity of said insert,

[0043] said insert is a multi-layered insert comprising a barrier layer, of which each of the faces are covered with one or more protective layers, and the penetration distance h of the barrel into the receptacle is such that the ratio h/De is greater than 0/6 or 0/7.

[0044] said insert is joined onto an inner wall of a body of said receptacle,

[0045] said receptacle comprises a removable spacing ring that is arranged so as to rest on the body of the receptacle around the neck in the stand-by position,

[0046] said spacing ring comprises a plurality of ribs that are suitable for centring the spacing ring around the neck,

[0047] said neck has an inner wall comprising at least one region that is inclined with respect to a longitudinal axis of the neck,

[0048] said inclined region is located on the side of an end of the neck that opens towards the outside of the receptacle,

[0049] said inclined region gets closer to the longitudinal axis from the end of the neck that opens towards the outside of the receptacle in the direction of the end of the neck that opens into an internal volume of the receptacle,

[0050] said inclined region extends over at least ⅛ of the internal height of the neck, or over at least 1/10,

[0051] said inclined region forms a cone.

[0052] In the case of an application to a tube, said tube may comprise a tube head comprising said neck, a shoulder and said insert. Said removable spacing ring is advantageously arranged so as to rest on the shoulder.

[0053] Other features, aims and advantages of the invention will become clearer from the following description, which is given purely by way of illustrative and non-limiting example and should be read with reference to the accompanying drawings, in which:

[0054] FIG. **1** is a sectional view, along a diametrical plane, of an example of one part of the receptacle according to the invention, in this case a tube head, said tube head being shown without a cap;

[0055] FIG. **2**, like FIG. **1** an example cap according to the invention being in the stand-by position on the tube;

[0056] FIG. **3**, like FIG. **2**, the cap being in the in-use position;

[0057] FIG. **4** is an elevated view of a variant of the cap from previous FIGS. **2** and **3**;

[0058] FIG. **5** is a detailed view of the part provided with the reference sign V in FIG. **4**;

[0059] FIG. **6** is a sectional view of a variant of the cap from previous FIGS. **2** and **3**;

[0060] FIG. **7** is an elevated view of a variant of the cap from previous FIGS. **2** and **3**;

[0061] FIG. **8** is another view of the variant of the cap from FIG. **7**;

[0062] FIG. **9** is a detailed view of the part provided with reference sign IX in FIG. **8**;

[0063] FIG. **10** is an elevated view of a variant of the cap from previous FIGS. **2** and **3**;

[0064] FIG. **11** is another view of the variant of the cap from FIG. **10**.

[0065] In all the drawings, like elements are provided with identical reference signs.

[0066] The invention relates to a receptacle, in particular a tube, more particularly a tube for a cosmetic product, for example a flexible tube. This is understood to mean a tube of which the body can deform and may or may not return to its initial shape.

[0067] In the drawings, only a head **2** of said tube is shown, either together with or without its cap **1**. Said tube head **2** is intended to be attached to a skirt, not shown, of the tube, typically by overmoulding the tube head **2** on the skirt, or for example by welding or bonding, by mounting the skirt on the previously formed tube head **2**, in particular by injection moulding or by compression injection moulding, or by any other method.

[0068] Said receptacle comprises a neck **3** that defines a longitudinal axis Z-Z and opens both towards the outside of the receptacle and into an internal volume **4** of said receptacle. The neck **3** comprises for example a thread **6** on the outer periphery thereof which is suitable for allowing the cap **1** to be screwed onto the neck **3**.

[0069] Said receptacle further comprises a solid insert **8** that forms an inner seal closing the end of the neck **3** that is facing the internal volume **4**. In other words, said inner seal closes said internal volume **4**. Said insert **8** is for example in contact with, in particular resting against, an inner wall **11** of said receptacle. The insert **8** comprises for example a peripheral portion **10** and a central portion **12** which define said inner seal, the diameter of which corresponds to the internal diameter of the neck **3**. Said insert **8** is typically disc-shaped. Alternatively, the peripheral portion **10** of said

insert can be slightly frustoconical or comprise a planar region surrounding the neck and, around said planar region, one or more slightly frustoconical regions arranged in succession as far as the periphery thereof that may be formed for example by a folded edge **13**.

[0070] Said insert **8** is preferably a multi-layered insert comprising a barrier layer, for example made from EVOH or a metal, in particular aluminium, of which each of the faces are covered with one or more protective layers, in particular made of polymerised materials.

[0071] In this case, said neck **3** and said insert **4** are provided in the region of said tube head **2**. Said tube head may further comprise for example a shoulder **20** extending from said neck **3**. The material of the tube head **2** at least partially surrounds said folded edge **13** of the insert **8** in order to protect it, in particular in order to protect the metal layer of said insert **8**.

[0072] As can be seen in FIGS. **2** and **3**, said cap **1** is suitable in this case for being screwed onto said neck **3**. More precisely, said cap **1** may comprise an inner thread **16** that is suitable for engaging with the thread **6** of the neck **3**. Said cap has a longitudinal direction which corresponds to the longitudinal axis Z-Z of the neck **3** when the cap **1** is screwed onto the neck **3**. Said cap **1** comprises for example a peripheral wall **15** inside which said thread **16** is provided. Said peripheral wall **15** may be provided with longitudinal ridges **18** that are located on the outside in order to make it easier to handle the cap **1**.

[0073] Said cap **1** comprises a punch **14** that is suitable for cutting and/or piercing the inner seal. Said cap **1** is designed to be positioned on said neck **3** in a stand-by position shown in FIG. **2** in which the punch **14** is at least part way in the neck **3** while the inner seal remains unbroken.

[0074] Said receptacle may comprise a removable spacing ring **22** that is arranged so as to rest on a body of the receptacle, here on the shoulder **20** of said tube head **2** located around the neck **3** when in the stand-by position. Said ring thus keeps a space between the cap **1** and the shoulder **20** when the cap **1** is screwed onto the neck **3** prior to the first use. The punch **14** thus extends inside the neck **3** at a non-zero distance from the insert **8**, and thus prevents the inner seal from being cut or perforated. Said spacing ring **22** may comprise a plurality of ribs that are suitable for allowing said ring to be centred around the neck **3**. Said ring **22** is preferably formed independently of said cap **1** such that said cap **1** can be removed from said receptacle without said ring **22** also being removed.

[0075] Said spacing ring **22** is for example annular. In a variant, it may have the shape of a portion of a circle of which a free end forms a tab which can be gripped by a user.

[0076] Said cap **1** is also suitable for being positioned on said neck **3** in an in-use position shown in FIG. **3** in which the inner seal has been cut and/or pierced by said punch **14**. In FIG. **3**, the insert **8** has been shown in the unpierced state in order to better demonstrate the penetration of the punch **14** through said insert.

[0077] Upon first use, the user unscrews the cap **1** from the neck **3** and then removes the spacing ring **22** and screws the cap **1** back onto the neck **3** until it abuts the neck **3** or the shoulder **20**. The punch **14** has thus cut or perforated the insert **8**, or more precisely the central portion **12** thereof that forms the inner seal of the tube head **2**.

[0078] According to the invention, said punch **14** comprises a barrel-shaped body **30** that is designed for cutting and/or piercing said inner seal. Said barrel is substantially in the shape of a hollow cylinder. "Substantially in the shape of a cylinder" is understood to mean in particular that said body may be slightly frustoconical for the purposes of demoulding, i.e. having a vertex angle of less than 2 or 1°. In other words, the punch **14** has a substantially annular transverse section of revolution. The thickness of the wall of said punch **14** may be between 10 and 20% of the external diameter De thereof.

[0079] Said barrel-shaped body **30** may extend along the entire length of said punch **14**. Said punch **14** further comprises for example a transverse partition **34** which separates it into two cavities **36**, **38**. One **36** of said cavities is intended to face the outside of the receptacle and/or the other **38** of said cavities is formed by said barrel. Said other cavity **38** is thus intended to face the internal volume **4** of said receptacle. Said partition **34** is located for example in the upper half of the cap. In other words, said partition **34** is further away from the distal end **32** of the punch **14** than it is from the opposite end thereof. Such a feature makes it possible to strengthen the protection of the product contained in the receptacle even after the inner seal has been opened. It has in fact been noted that said cavity **38** formed by the barrel receives the product, which may cover the walls thereof, in particular the lower face of the partition **34**. This part of the product advantageously provides a filter effect, and this reduces oxygen exchange with the outside.

[0080] In another variant according to the invention that is shown in FIG. **6**, said partition **34** may also be located in the lower half of the cap, i.e. said partition **34** is closer to the distal end **32** of the punch **14** than it is to the opposite end thereof. Such a feature makes it possible to strengthen the punch **14** and make it more resistant, and this reduces the risks of damage if said punch crashes against the neck **3**, for example.

[0081] Said cap **1** is formed for example by injection moulding, in particular by plastics injection moulding.

[0082] Said punch **14** and said peripheral wall **15** of the cap are connected for example by an upper wall **17** of said cap **1**. Said upper wall **17** may have a point of injection of the cap.

[0083] Said punch **14** is advantageously designed such that the cut in the inner seal is a partial cut such that the portion(s) of the inner seal having been cut is/are still attached to the rest of the insert **8** in the in-use position, and this prevents the material that forms the insert **8** from mixing with the product contained in the related receptacle.

[0084] By way of example, assuming that a complete cut is a 360° cut in the inner seal, i.e. a circular cut produced by rotating the cap **1**, the inner seal is advantageously cut such that a connection remains that is sufficient for ensuring cohesion between the central portion **12** having been cut and the peripheral portion **10**.

[0085] Said barrel has a distal end **32** that is advantageously provided with cutting means. Said cutting means are for example in the shape of a bevel that can extend over the entire circumference of the barrel. In other words, the free end **32** is bevelled relative to a plane normal to the axis Z-Z of the neck **3**, the inner seal formed by the insert **8** being typically arranged in such a plane normal to the Z-Z axis of the neck **3**. The bevel formed in this manner is arranged for example so as to face the cavity **38** that faces the internal volume **4** of the receptacle. The thickness of the barrel is

thus reduced locally in order to make the free end **32** sharp which, in turn, makes it easier for the punch **14** to cut the inner seal.

[0086] Said wall of said punch **14** has a thickness that is greater than the thickness of said cutting means. The punch is thus more rigid but the effectiveness of the cutting means is not affected, said cutting means still having a thickness which makes it possible to begin piercing and cutting the inner seal.

[0087] As shown in FIGS. **4** and **5** and **7** to **11**, it is noted that said cutting means may comprise, in a variant, cutting teeth **40** and/or cutting slits **42** that are for example evenly distributed over the entire circumference of the distal end **32** of the punch. A plurality of teeth **40** and/or slits **42** makes it possible to cut the inner seal even if a tooth and/or slit has been damaged when putting the cap on the tube in the factory for example.

[0088] In the variant shown in FIGS. **4** and **5**, said teeth **40** have for example a saw-tooth profile. In this case, there are a dozen teeth **40** that are evenly distributed over the entire circumference of the distal end **32** of the punch.

[0089] In the variant shown in FIGS. **7** to **9**, said means consist of four teeth **40** distributed over the entire circumference of the distal end **32** of the punch **14**, the angle between each of the teeth being 90°.

[0090] In the variant shown in FIGS. **10** and **11**, said means consist of two slits **42** that are diametrically opposite one another.

[0091] Said teeth **40** or said slits **42** have a height that is smaller than that of the punch **14** such that the punch substantially remains barrel-shaped.

[0092] "Height of the punch" is understood here to mean the height hp of the projecting part of the punch, i.e. the part of the punch that extends from a distal edge of the cap **1** towards the distal end **32** of the punch. The distal edge of the cap **1** is the edge of the cap that is designed to abut the spacing ring **22** in the stand-by position and/or the shoulder **20** of said tube head **2** in the in-use position with the tube closed.

[0093] By way of example, the total height of the cap **1** and of the protruding part of the punch is of between 10 and 30 mm.

[0094] By way of example, said teeth **40** can be designed such that a ratio hd/De and/or a ratio hd/hp is less than ⅓, ⅕ or 1/10, hd being the height of said tooth **40**, De being the external diameter of said barrel and hp being the height of the projecting part of the punch **14**, as shown in FIGS. **5**, **8** and **9** where the height hd and the height hp to be taken into account have been indicated.

[0095] In the same way, said slits **42** can be designed such that a ratio he/De and/or a ratio he/hp is less than ⅓, ⅕ or 1/10, he being the height of the slit **42**, De being the external diameter of the barrel and hp being the height of the projecting part of the punch **14**, as shown in FIG. **11** where the height he and the height hp to be taken into account have been indicated.

[0096] In an embodiment which is not shown, at least one of the teeth **40** and/or one of the slits **42** can have a different height hd or height he. Each of the teeth and/or slits preferably have different heights. By way of example, said barrel may comprise three teeth having three different heights that are preferably evenly distributed over the entire circumference of the distal end **32** of the punch **14** with an angle between each of the teeth of 120°. A difference in height between the teeth and/or the slits allows for a partial cut of the inner seal to be promoted such that the portion(s) of the inner seal having been cut remain(s) attached to the rest of the insert **8** in the in-use position, and this prevents the material that forms the insert **8** from mixing with the product contained in the related receptacle. In this way, a complete circle is prevented from being cut in the inner seal.

[0097] Referring again to FIGS. **2** and **3**, it is noted that said neck **3** has an internal diameter Di and said barrel has an external diameter De, as already mentioned. It has been noted that a particularly efficient cutting is formed when the ratio De/Di is greater than 0/8 or 0/9, where De and Di are measured in the same unit.

[0098] Said barrel is advantageously designed to penetrate said internal volume **4** when in the in-use position by a distance h that is greater than the distance required in order to deform the insert **8** in a manner that goes beyond the resilient deformation capacity of said insert **8**. For an insert of the type described above, the penetration distance h of the barrel into the receptacle is for example such that the ratio h/De is greater than 0/6 or 0/7, where h and De are measured in the same unit.

[0099] So as to reduce the risk of damaging the distal end **32** of the punch **14** when positioning the cap **1** on the neck **3** on the production line at the factory, said neck **3** may have an inner wall comprising at least one region (not shown) that is inclined with respect to the longitudinal axis Z-Z of the neck. Said inclined region is located on the top of the neck, i.e. at the side of the end of the neck that opens towards the outside of the receptacle. In particular, said region gets closer to the axis Z-Z from the end of the neck **3** that opens towards the outside of the receptacle in the direction of the end of the neck **3** that opens into the internal volume **4** of the receptacle.

[0100] Said inclined region extends over a small proportion of the inner wall of the neck **3**, for example less than ⅛ of the internal height of the neck, or less than 1/10. The internal height of the neck **3** is measured from the end of the neck **3** that opens towards the outside of the receptacle to the end of the neck **3** that opens into the internal volume **4** of the receptacle.

[0101] Preferably, the inclination forms an angle of less than 45° relative to the axis Z-Z, or less than 30°.

[0102] Therefore, this inclined region makes it possible to guide the punch **14** when applying caps at the factory, in particular if the cap **1** is not correctly centred relative to the neck **3** and if the distal end **32** thereof collides with the end of the neck **3**. Said inclined region therefore reduces the risk of damaging the distal end and/or the cutting means.

We claim:

1. Receptacle comprising a neck and a solid insert that forms an inner seal closing an end of the neck that opens into an internal volume of the receptacle and a cap, said cap comprising a punch that is suitable for cutting and/or piercing the inner seal, said cap being suitable for being positioned on said neck in a stand-by position in which the punch is in the neck while the inner seal remains unbroken and in an in-use position in which the inner seal has been cut and/or pierced by said punch, said punch comprising a barrel-shaped body that is designed to cut and/or pierce said inner seal.

2. Receptacle according to claim **1**, wherein said barrel has a distal end that is provided with cutting means.

3. Receptacle according to claim 2, wherein said cutting means comprise at least one cutting tooth and/or at least one cutting slit.

4. Receptacle according to claim 3, wherein said cutting tooth/teeth and/or the cutting slit(s) are evenly distributed over the entire circumference of the barrel.

5. Receptacle according to claim 3, wherein said cutting tooth/teeth has/have a height hd and said barrel has an external diameter De such that the ratio hd/De is less than ⅓.

6. Receptacle according to claim 3, wherein said cutting tooth/teeth (40) has/have a height hd and said punch comprises an external part having a height hp such that the ratio hd/hp is less than ⅓.

7. Receptacle according to claim 3, wherein said cutting slit(s) has/have a height he and said barrel has an external diameter De such that the ratio he/De is less than ⅓.

8. Receptacle according to claim 3, wherein said cutting slit(s) has/have a height he and said punch comprises an external part having a height hp such that the ratio he/hp is less than ⅓.

9. Receptacle according to claim 1, wherein said cutting means comprise a bevel from said distal end.

10. Receptacle according to claim 9, wherein said bevel extends over the entire circumference of the barrel.

11. Receptacle according to claim 1, wherein said punch comprises a transverse partition separating it into two cavities.

12. Receptacle according to claim 11, wherein said partition is located in an upper half of the punch.

13. Receptacle according to claim 1, wherein said neck has an internal diameter Di and said barrel has an external diameter De such that the ratio De/Di is greater than 0.8 or 0.9.

14. Receptacle according to claim 1, wherein said barrel is designed to penetrate said internal volume, in the in-use position, at a distance h that is greater than the distance required in order to deform the insert in a manner that goes beyond the resilient deformation capacity of said insert.

15. Receptacle according to claim 1, wherein said insert is a multi-layered insert comprising a barrier layer, of which each of the faces are covered with one or more protective layers, and the penetration distance h of the barrel into the receptacle is such that the ratio h/De is greater than 0.6 or 0.7.

16. Receptacle according to claim 1, wherein said insert is joined onto an inner wall of a body of said receptacle.

17. Receptacle according to claim 1, wherein said receptacle comprises a removable spacing ring that is arranged so as to rest on the body of the receptacle around the neck in the stand-by position.

18. Receptacle according to claim 17, wherein said spacing ring comprises a plurality of ribs that are suitable for centering the spacing ring around the neck.

19. Receptacle according to claim 17, wherein said spacing ring is formed independently of said cap such that said cap can be removed from said receptacle without said ring also being removed.

20. Receptacle according to claim 1, wherein said neck has an inner wall comprising at least one region that is inclined with respect to a longitudinal axis of the neck.

21. Receptacle according to claim 20, wherein said inclined region is located on a side of an end of the neck that opens towards the outside of the receptacle.

22. Receptacle according to claim 21, wherein said inclined region gets closer to the longitudinal axis from the end of the neck that opens towards the outside of the receptacle in the direction of the end of the neck that opens into an internal volume of the receptacle.

23. Receptacle according to claim 22, wherein said inclined region extends over less than ⅛ of the internal height of the neck, or over less than 1/10.

24. Receptacle according to claim 20, wherein said inclined region forms a cone.

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