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Description

[0001] The present invention relates to a tear-off anti-tamper seal able to be fitted to stopper-type closing members mounted on the open end of the neck of a container in the form of a bottle and able to indicate, when torn, that the container has been opened for the first time, comprising a tubular body with an annular top flange directed towards the inside of the body and with a sleeve portion which extends axially from the said flange along the neck of the container, means for fixing the said sleeve portion to the neck of the container, preventing relative axial movements, means for also preventing relative angular movements of said sleeve portion and the neck of the container, a circumferential weakening line formed on the said sleeve portion, a pair of weakening lines which extend axially along the said sleeve portion of the tubular body and are situated in the zone between the said top flange and the said circumferential weakening line, said axial lines defining on the tubular body two perimetral zones, one of which has a circumferential extension smaller than that of the other zone, and a tear-off tongue projecting towards the inside of the said tubular body and fixed to the said top flange in the zone between the said axial weakening lines which has a smaller circumferential extension.

[0002] An example of prior art of such nature is described in EP-A-1,100,727.

[0003] According to the prior art mentioned above, the axial weakening lines, which define between them the zone which is to be torn in order to remove the seal from the stopper-type closing members of the bottle, have cuts which are formed in the thickness of the top flange and the wall of the tubular body and which extend only over a short distance from the top flange of the tubular body of the seal.

[0004] The same axial weakening lines, in the prior art example mentioned, continue towards the circumferential weakening line by means of incisions which affect only partially the thickness of the wall of the tubular body, these incisions being formed on the inner surface of the tubular body so as to leave the outer surface as smooth as possible for the high-quality printing of writing or decorative patterns.

[0005] In accordance with the same prior art illustrated in the abovementioned document, the circumferential weakening line intersects the axial lines with the result that, during opening producing destruction of the seal, the pulling force exerted on the tear-off tongue causes the separation of the zone of smaller extension situated between the axial lines, as far as the circumferential line, from the remainder of the tubular body which instead remains positioned on the closing members. The removal of this additional part of the tubular body of the seal therefore requires a further operation to be performed either using the fingers or using an implement so as to cause breakage along the weakened circumferential line.

[0006] All this constitutes a functional drawback occurring during removal of the anti-tamper seal which cannot be entirely removed with a single operation performed by means of tearing of the tongue.

[0007] Moreover, according to the prior art mentioned, the seal, once broken, consists of two separate parts, one part of which, i.e. that left attached to the tongue, remains within the user's fingers and may therefore be easily thrown away into a bin, while the other part, which overall also is larger in size, ends up falling freely to the ground and needs to be picked up.

[0008] The object of the present invention is to overcome the drawbacks encountered in the anti-tamper seals of the prior art and aims to solve the problem of breaking and removing the seal from the bottle closing members completely, as one piece, by means of the pulling force exerted on the tear-off tongue.

[0009] The object is achieved with an anti-tamper seal in accordance with Claim 1 which follows.

[0010] The invention will now be described more fully with reference to a preferred, but not exclusive example of embodiment thereof, illustrated in the accompanying drawings, in which:

- Figure 1 is a perspective view from the outside of the anti-tamper seal according to the invention;
- Figure 2 is a perspective view of the seal according to the invention showing its upper part with a partial view of the inside;
- Figure 3 is a partially cross-sectioned side view of the seal according to the invention mounted on an example of stopper-type closing members.

[0011] With reference to the abovementioned drawings, the tubular body of the anti-tamper seal according to the invention is indicated overall by 1.

[0012] It comprises a top flange 2 directed radially towards the inside of the tubular body and a sleeve-like portion 3. The latter extends, starting from the flange 2, axially along the neck 4 of a container, partially indicated by 5, in the form of a bottle.

[0013] In a known and conventional manner, the opening 6 of the neck 4 is provided with stopper-type closing members which may or may not have conventional valve-like members for allowing pouring of the product contained inside the bottle, usually, a high-quality liqueur and for preventing the introduction of another - possibly imitation - product.

[0014] The sleeve portion 3 of the tubular body 1 is provided, internally, with means for fixing said portion to the neck 4 and preventing relative axial movements. These means, in the example shown, consist of an annular lip 7, the functional features of which are well known to persons skilled in the art and which is intended to engage underneath the shoulder of the neck 4. Moreover, the same sleeve portion 3 of the tubular body 1 is also provided with means able to prevent relative angular movements of the neck 4 and the sleeve portion 3. These additional means, in the example shown, consist of axial

ribs which are arranged at intervals on the inner wall of the sleeve portion 3 and engage inside corresponding grooves 9 provided on the neck 4.

[0015] The inner wall of the tubular body 1 may also be provided, as in the example shown, with an annular edge 10 projecting radially inwards, for engagement with a component of the stopper-type closing members of the bottle.

[0016] In the example shown, this edge 10 engages with the shoulder 11 of a conventional pouring body 12 of the closure.

[0017] The tubular body 1 of the anti-tamper seal according to the invention comprises a circumferential weakening line indicated by 13. This conventionally consists of a plurality of incisions 14 which are spaced from each other by continuous parts 15.

[0018] In addition to the circumferential weakening line 13, the tubular body 1 is provided with a pair of axial weakening lines. These, in accordance with the invention, consist of a first cut 16 and a second cut 17 which are formed through the entire thickness of the wall of the tubular body, starting both from the flange 2 and extending axially along the sleeve portion towards the circumferential weakening line 13.

[0019] The first cut 16 extends from a zone close to the free edge 2a of the flange 2 until it reaches the vicinity of the circumferential line 13, leaving a bridge-piece P of material. In accordance with a preferred embodiment, the first cut 16, with its end 16a, stops at about 3/10 mm before the circumferential line 13.

[0020] The cut 17 which forms the second axial weakening line extends from a zone close to the free edge 2a of the top flange 2 until it reaches a point, on the sleeve portion 3, where its end 17a is situated at a level higher than that where the first cut 16 terminates with its end 16a, relative to the circumferential weakening line 13.

[0021] Preferably, the axial distance L between the end 17a of the second cut 17 and the end 16a of the first cut 16 is about 6.5 mm.

[0022] In the zone of the top flange 2, the cuts 16 and 17 are provided with transverse connecting elements indicated by 16b and 17b, respectively.

[0023] These connecting elements may consist of portions of the free edge 2a of the flange 2.

[0024] The cuts 16 and 17 define, on the sleeve portion 3, in the section between the top flange 2 and the circumferential weakening line 13, a first perimetral zone 18 which has a circumferential extension less than that that of the second zone 19.

[0025] A tongue 20 is integral with the flange 2 and is connected to the latter in the perimetral zone 18 of smaller extension situated between the cuts 16 and 17.

[0026] The tongue 20, which extends radially towards the inside of the tubular body 1, forms the member for gripping by the user so as to perform tearing of the seal and achieve opening of the bottle 5 for the first time. The tongue 20 may have a size and a form also different from that shown by way of example in the drawings and in particular it may be in the form of a ring.

[0027] The tearing action, in accordance with the invention, produces firstly breakage of the elements 16b and 17b and then radial removal of the zone 18 from the underlying closing member and finally breakage of the bridge-piece P, if present. In this way the cut 16 eventually affects the circumferential weakening line.

[0028] Continuing the tearing action by means of the tongue 20 causes breakage of the circumferential line 13 with integral separation of the zones 18 and 19 of the tubular body 1.

[0029] These zones 18, 19 remain connected together owing to the presence of a suitable section of solid wall corresponding substantially to the distance L existing between the ends 16a and 17a of the axial cuts 16 and 17.

[0030] Incisions with a reduced thickness or radial slits, indicated by 21, are provided on the flange 2 at predetermined intervals in order to facilitate deformation of the zone 19 during removal of the seal. Moreover, they make obvious the deformation of the seal and therefore prevent repositioning of the latter on the closure.

[0031] The closure to which the anti-tamper seal according to the invention is applied may be of any nature, it being necessary to make, where necessary, only technical modifications which are within the competence of a person skilled in the art.

Claims

1. Tear-off anti-tamper seal able to be fitted to stopper-type closing members mounted on the open end (6) of the neck (4) of a container (5) in the form of a bottle and able to indicate, when torn, that the container has been opened for the first time, comprising:

   - a tubular body (1) with an annular top flange (2) directed towards the inside of the body and with a sleeve portion (3) which extends axially from the said flange (2) along the neck (4) of the container,
   - means (7, 7a) for fixing the said sleeve portion (3) to the neck (4) of the container, preventing relative axial movements,
   - means (8, 9) for also preventing relative angular movements of said sleeve portion (3) and the neck (4) of the container,
   - a circumferential weakening line (13) formed on the said sleeve portion (3),
   - a pair of weakening lines which extend axially along the said sleeve portion (3) of the tubular body and are situated in the zone between the said top flange (2) and the said circumferential weakening line (13), said axial lines defining on the tubular body (1) two perimetral zones (18, 19), one (18) of which has a circumferential extension smaller than that of the other zone (19),
   - and a tear-off tongue (20) projecting towards

the inside of the tubular body (1) and fixed to the said top flange (2) in the zone (18) between the said axial weakening lines which has a smaller circumferential extension,

characterized in that the said axial weakening lines consist of a respective first cut (16) and a second cut (17) in the wall of the tubular body (1) and the top flange (2), the first cut (16) extending from a zone close to the free edge (2a) of the said flange (2) until it reaches the vicinity of the said circumferential weakening line (13) leaving a bridge-piece (P) of material, while the second cut (17) extends from a zone close to the free edge (2a) of the said flange (2) as far as a point (17a) positioned on the sleeve portion (3) at a level higher than that (16a) where the first cut (16) terminates, relative to the circumferential weakening line (13).

2. Tear-type anti-tamper seal according to Claim 1, **characterized in that** the said first cut (16) of the axial weakening lines terminates at a distance of about 3/10 mm relative to the said circumferential weakening line (13).

3. Tear-type anti-tamper seal according to Claims 1 to 2, **characterized in that** said second cut (17) of the axial weakening lines extends axially on the said sleeve portion (3) as far as a level (17a), the axial distance (L) of which from the point (16a) to which the said first cut (16) extends ranges between 1 mm and 10 mm.

4. Tear-type anti-tamper seal according to Claim 3, in which the said axial distance (L) is 6.5 mm.

5. Tear-type anti-tamper seal according to Claims 1 to 4, **characterized in that** the said first and second cuts (16, 17) forming the said axial weakening lines, along the free edge (2a) of the top flange (2), have connecting elements (16b, 17b) transverse to each cut.

6. Tear-type anti-tamper seal according to Claim 5, **characterized in that** said transverse connecting elements (16b, 17b) of the said first and second cuts are curved portions of the inner annular edge (2a) of the said top flange (2) of the tubular body (1).

7. Tear-type anti-tamper seal according to Claim 1, **characterized in that** the said circumferential weakening line (13) consists of a plurality of incisions (14) which are spaced from each other and separated by continuous portions (15) of the wall of the tubular body (1).

8. Tear-type anti-tamper seal according to Claim 1, **characterized in that** the said top flange is provided with radial incisions or slits (21) able to facilitate deformation of the seal during its removal.

Patentansprüche

1. Abziehbare Sicherungsdichtung, welche geeignet ist, an stopfenartigen Verschlussmitteln befestigt zu werden, welche auf dem offenen Ende (6) des Halses (4) eines Behälters (5) in Flaschenform angebracht werden, und beim Abreißen geeignet sind, darauf hinzuweisen, dass der Behälter zum ersten Mal geöffnet wurde, wobei sie folgendes umfasst:

- einen röhrenförmigen Körper (1) mit einem ringförmigen Obergurt (2), welcher zur Innenseite des Körpers gerichtet ist, sowie mit einem Muffenabschnitt (3), welcher sich axial von dem besagten Gurt (2) entlang des Halses (4) vom Behälter erstreckt,
- Mittel (7, 7a), um den besagten Muffenabschnitt (3) am Hals (4) des Behälters zu befestigen, wodurch entsprechende axiale Bewegungen verhindert werden,
- Mittel (8, 9), um ebenso entsprechende Winkelbewegungen des besagten Muffenabschnitts (3) sowie des Halses (4) des Behälters zu verhindern,
- eine umlaufende Abschwächungslinie (13), welche auf dem besagten Muffenabschnitt (3) gebildet wird,
- ein Paar von Abschwächungslinien, welche sich axial entlang des besagten Muffenabschnitts (3) des röhrenförmigen Körper erstrekken, und welche sich in einem Bereich zwischen dem besagten Obergurt (2) und der besagten umlaufenden Abschwächungslinie (13) befinden, wobei die besagten axialen Bänder auf dem röhrenförmigen Körper (1) zwei perimetrische Bereiche (18, 19) bestimmen, von denen einer (18) eine umlaufende Ausdehnung besitzt, welche kleiner als die des anderen Bereiches (19) ist,
- sowie eine abziehbare Lasche (20), welche zur Innenseite des röhrenförmigen Körpers (1) hervorsteht und mit dem besagten Obergurt (2) im Bereich (18) zwischen den besagten Abschwächungsbändern befestigt ist, welcher eine kleinere umlaufende Ausdehnung besitzt,

dadurch gekennzeichnet, dass die besagten axialen Abschwächungsbänder aus einer entsprechenden ersten Ritze (16) sowie einer zweiten Ritze (17) in der Wand des röhrenförmigen Körpers (1) und dem Obergurt (2) bestehen, wobei sich die erste Ritze (16) von einem Bereich dicht bei dem freien Rand (2a) des besagten Gurtes (2) erstreckt, bis sie die Umgebung der besagten Abschwächungslinie (13)

erreicht, wobei sie einen Steg (P) von Material hinterlässt, während die zweite Ritze (17) sich von einem Bereich dicht bei dem freien Rand (2a) des besagten Gurtes (2) bis zu einem Punkt (17a) erstreckt, welcher sich auf dem Muffenabschnitt (3) auf einem höheren Niveau als dem (16a) befindet, wo die erste Ritze (16) endet, im Verhältnis zur besagten Abschwächungslinie (13).

2. Abziehbare Sicherungsdichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die erste Ritze (16) der axialen Abschwächungslinien bei einer Entfernung von 3/10 mm im Verhältnis zur besagten umlaufenden Abschwächungslinie (13) endet.

3. Abziehbare Sicherungsdichtung nach Anspruch 1 und 2, **dadurch gekennzeichnet, dass** die zweite Ritze (17) der axialen Abschwächungslinien sich axial auf dem besagten Muffenabschnitt (3) bis zu einem Niveau (17a) erstreckt, wobei die axiale Entfernung (L), über welche sich jene vom Punkt (16a) bis zu jener von der besagten ersten Ritze (16) erstreckt, zwischen 1 mm uns 10 mm schwankt.

4. Abziehbare Sicherungsdichtung nach Anspruch 3, bei welcher die besagte axiale Entfernung (L) 6,5 mm beträgt.

5. Abziehbare Sicherungsdichtung nach den Ansprüchen 1 bis 4, **dadurch gekennzeichnet, dass** die besagten ersten und zweiten Ritzen (16, 17), welche die besagten axialen Abschwächungslinien entlang des freien Randes (2a) des Obergurtes (2) bilden, Verbindungselemente (16b, 17b) besitzen, die quer zu jeder Ritze verlaufen.

6. Abziehbare Sicherungsdichtung nach Anspruch 5, **dadurch gekennzeichnet, dass** die besagten quer verlaufenden Verbindungselemente (16b, 17b) der besagten ersten und zweiten Ritzen (16, 17) gekrümmte Abschnitte des inneren ringförmigen Randes (2a) des besagten Obergurtes (2) vom röhrenförmigen Körper (1) sind.

7. Abziehbare Sicherungsdichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die umlaufende Abschwächungslinie (13) aus einer Vielzahl von Einschnitten (14) besteht, welche voneinander abstehen und durch durchgehende Abschnitte (15) der Wand des röhrenförmigen Körpers (1) getrennt sind.

8. Abziehbare Sicherungsdichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** der besagte Obergurt mit radialen Einschnitten oder Schlitzen (21) ausgestattet ist, welche dafür geeignet sind, die Verformung der Dichtung während ihrer Entfernung zu erleichtern.

Revendications

1. Joint anti-bourrage déchirable pouvant être adapté aux membres de fermeture du type en bouchon monté sur l'extrémité ouverte (6) du col (4) d'un récipient (5) ayant la forme d'une bouteille et pouvant indiquer, une fois déchiré, que le récipient a été ouvert pour la première fois, comportant :

- un corps tubulaire (1) avec une aile supérieure annulaire (2) dirigée vers l'intérieur du corps et avec une portion de manchon (3) qui s'étend axialement depuis l'aile (2) susdite le long du col (4) du récipient,
- des moyens (7, 7a) pour fixer la portion de manchon (3) susdite au col (4) du récipient, empêchant tout mouvement axial relatif,
- des moyens (8, 9) pour empêcher aussi tout mouvement angulaire relatif de la portion de manchon (3) susdite et du col (4) du récipient,
- une ligne d'affaiblissement circonférentielle (13) formée sur la portion de manchon (3) susdite,
- une paire de lignes d'affaiblissement qui s'étendent axialement le long de la portion de manchon (3) susdite du corps tubulaire et situées dans la zone entre l'aile supérieure (2) susdite et la ligne d'affaiblissement circonférentielle (13) susdite, les lignes axiales susdites définissant sur le corps tubulaire (1) deux zones périmétrales (18, 19), dont l'une (18) a une extension circonférentielle plus petite que celle de l'autre zone (19),
- et une languette déchirable (20) saillant vers l'intérieur du corps tubulaire (1) et fixée à l'aile supérieure (2) susdite dans la zone (18) entre les lignes d'affaiblissement axiales susdites, qui a une extension circonférentielle plus petite,

caractérisé en ce que les lignes d'affaiblissement axiales susdites sont constituées d'une première coupure (16) respective et d'une seconde coupure (17) dans la paroi du corps tubulaire (1) et de l'aile supérieure (2), la première coupure (16) s'étendant depuis une zone proche du bord libre (2a) de l'aile (2) susdite jusqu'à ce qu'elle atteigne la proximité de la ligne d'affaiblissement circonférentielle (13) susdite laissant un morceau en pont (P) de matériau, tandis que la seconde coupure (17) s'étend depuis une zone proche du bord libre (2a) de l'aile (2) susdite jusqu'à un point (17a) positionné sur la portion de manchon (3) à un niveau supérieur par rapport à celui (16a) où la première coupure (16) se termine, relative à la ligne d'affaiblissement circonférentielle (13).

2. Joint anti-bourrage déchirable selon la revendication 1, **caractérisé en ce que** la première coupure (16)

susdite des lignes d'affaiblissement axiales se termine à une distance d'environ 3/10 mm relative à la ligne d'affaiblissement circonférentielle (13) susdite.

3. Joint anti-bourrage déchirable selon les revendications 1 à 2, **caractérisé en ce que** la seconde coupure (17) susdite des lignes d'affaiblissement axiales s'étend axialement sur la portion de manchon (3) susdite jusqu'à un niveau (17a), dont la distance axiale (L) depuis le point (16a) vers lequel la première coupure (16) susdite s'étend oscille entre 1 mm et 10 mm.

4. Joint anti-bourrage déchirable selon la revendication 3, **caractérisé en ce que** la distance axiale (L) susdite est de 6,5 mm.

5. Joint anti-bourrage déchirable selon les revendications 1 à 4, **caractérisé en ce que** les première et seconde coupures (16, 17) susdites formant les lignes d'affaiblissement axiales susdites, le long du bord libre (2a) de l'aile supérieure (2), ont des éléments de raccordement (16b, 17b) transversaux par rapport à chaque coupure.

6. Joint anti-bourrage déchirable selon la revendication 5, **caractérisé en ce que** les éléments de raccordement transversaux (16b, 17b) susdits des première et seconde coupures susdites sont autant de portions courbées du bord annulaire intérieur (2a) de l'aile supérieure (2) susdite du corps tubulaire (1).

7. Joint anti-bourrage déchirable selon la revendication 1, **caractérisé en ce que** la ligne d'affaiblissement circonférentielle (13) susdite est constituée d'une pluralité d'entailles (14) qui sont écartées les unes des autres et séparées par des portions continues (15) de la paroi du corps tubulaire (1).

8. Joint anti-bourrage déchirable selon la revendication 1, **caractérisé en ce que** l'aile supérieure susdite est munie d'entailles ou bandelettes radiales (21) pouvant faciliter la déformation du joint pendant son enlèvement.

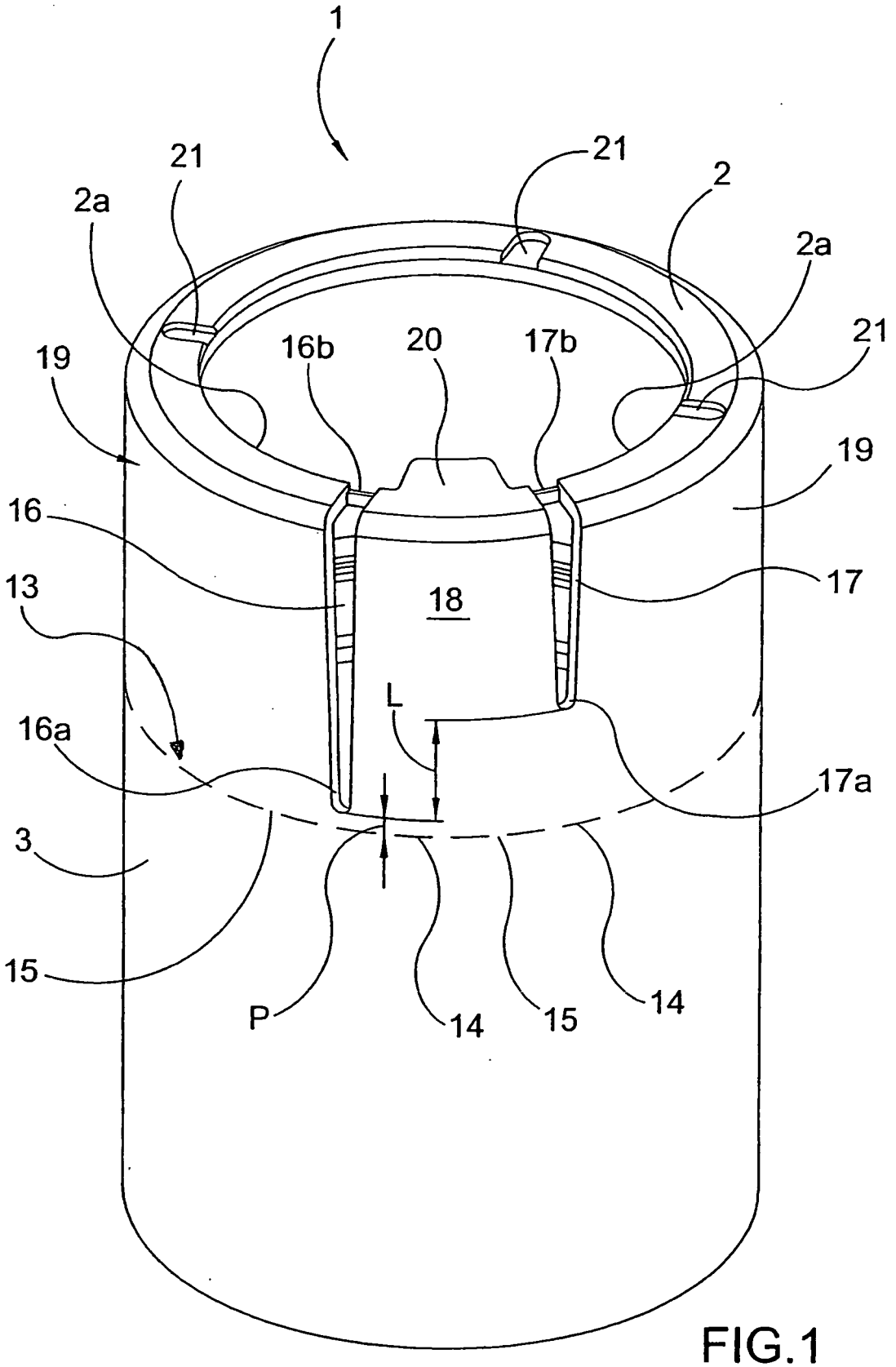

FIG.1

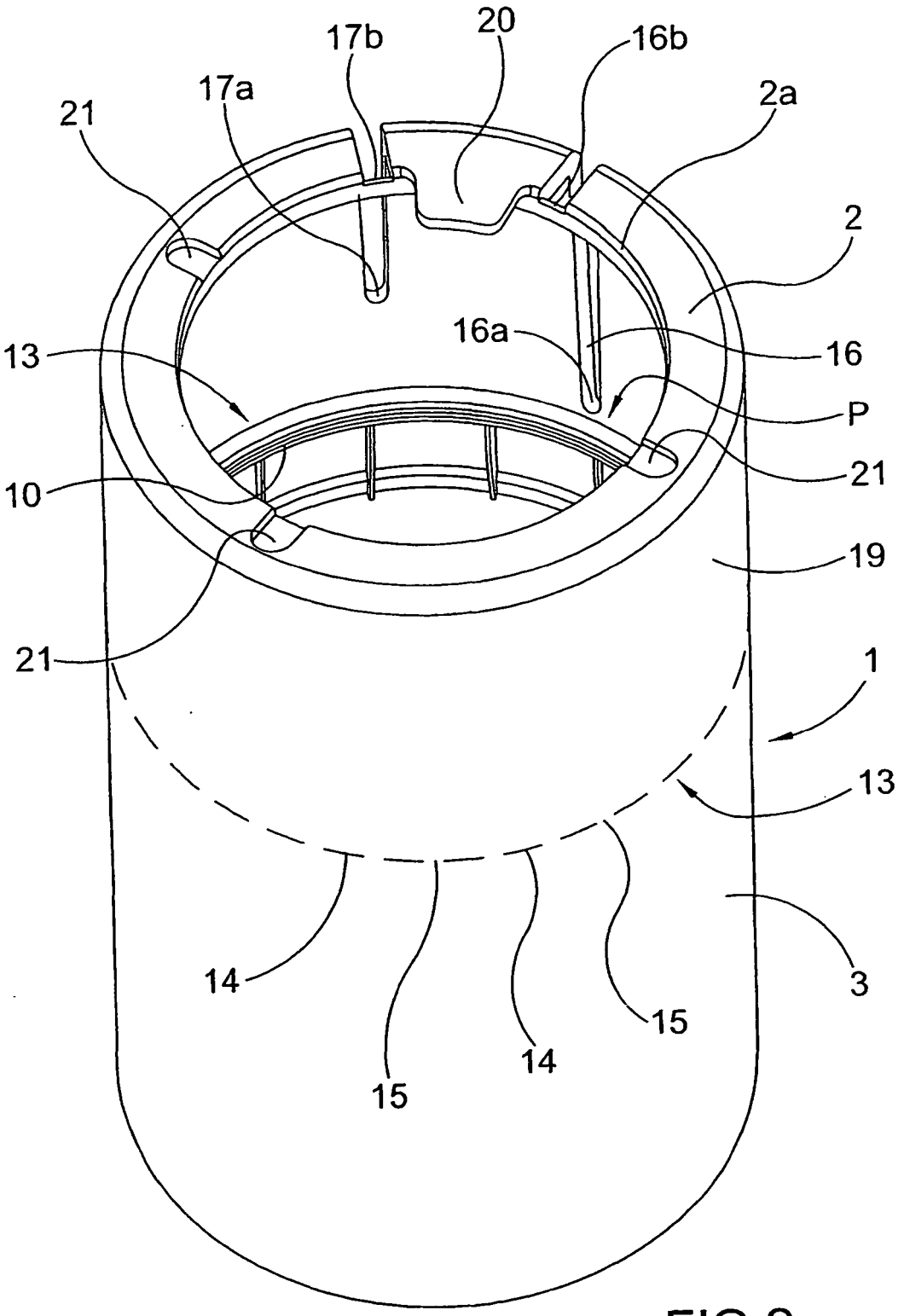

FIG.2

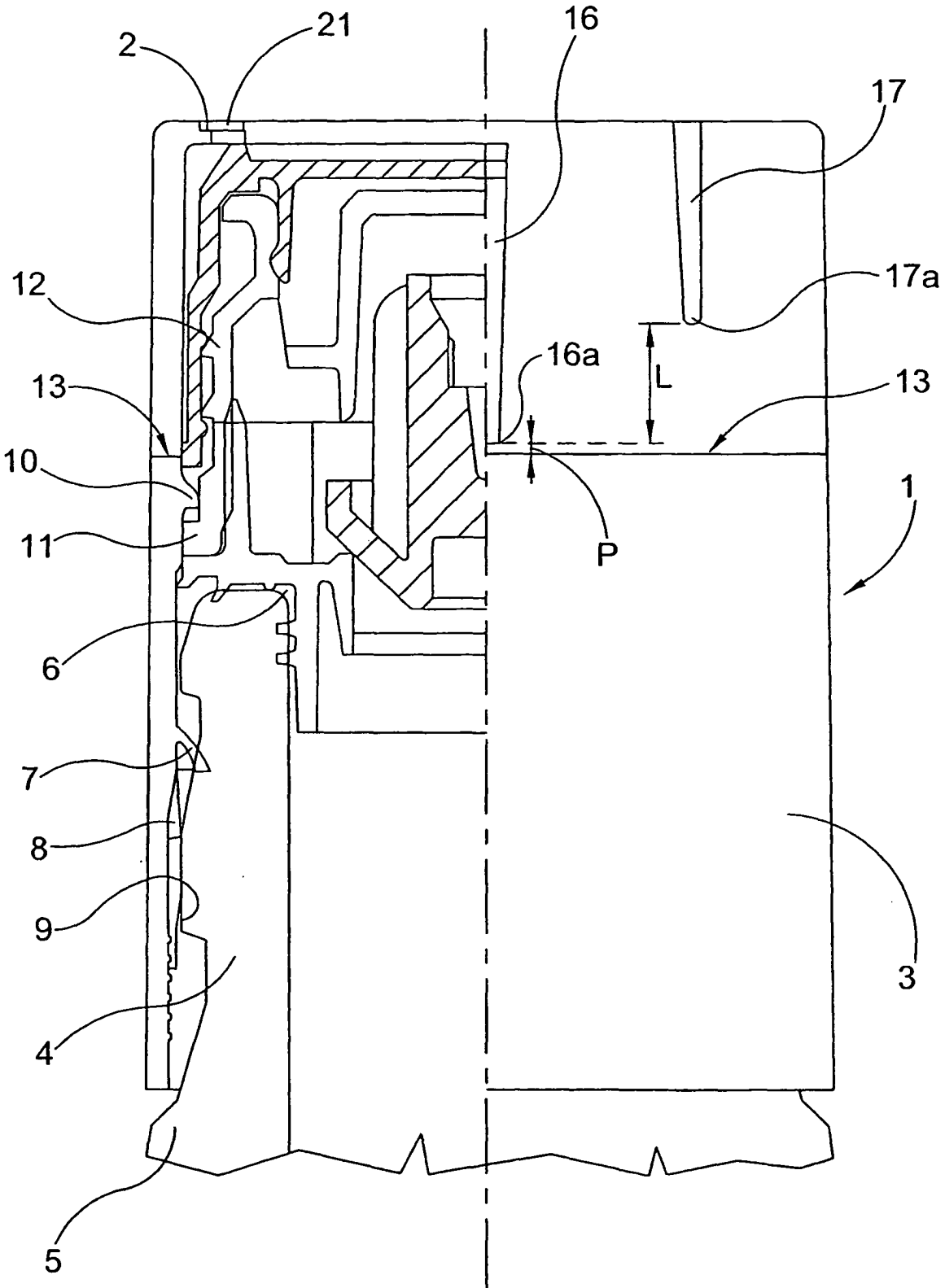

FIG.3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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