(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 386 497 B9**

(12) **CORRECTED EUROPEAN PATENT SPECIFICATION**

(15) Correction information:
Corrected version no 1 (W1 B1)
Corrections, see
Claims EN 1

(48) Corrigendum issued on:
02.10.2013 Bulletin 2013/40

(45) Date of publication and mention of the grant of the patent:
03.04.2013 Bulletin 2013/14

(21) Application number: **11006570.3**

(22) Date of filing: **11.02.2009**

(51) Int Cl.:
B65D 50/04 *(2006.01)*

(54) A child-resistant closure

Verschluss mit Kindersicherung

Fermeture de sécurité pour enfant

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR

(30) Priority: **19.02.2008 GB 0802995**
26.02.2008 GB 0803433
30.04.2008 GB 0807889

(43) Date of publication of application:
16.11.2011 Bulletin 2011/46

(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
09711787.3 / 2 254 805

(73) Proprietor: **Obrist Closures Switzerland GmbH**
4153 Reinach (CH)

(72) Inventor: **Bull, Martin Carey**
Attleborough
Norfolk, NR17 1EY (GB)

(74) Representative: **Greenwood, Matthew David et al**
Bryers LLP
7 Gay Street
Bath BA1 2PH (GB)

(56) References cited:
EP-A- 0 443 868
WO-A1-98/46491
US-A- 5 111 949

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Description

[0001] The present invention relates generally to a child-resistant closure and particularly to a squeeze-and-turn closure according to the preamble of claim 1.

[0002] Many different types of safety closure, or child-resistant closure, have been proposed. Amongst these is a class known as "squeeze-and-turn". This has a threaded skirt for screw-threaded application to and removal from the neck of a container, and a deformable portion including one or more internal fins or lugs which cooperate with corresponding abutments on the container neck to resist the unscrewing operation until the deformable portion of the closure is deformed to move the fins or lugs clear of the abutments. Examples of this type of closure are disclosed in GB 1521201, GB1387572 and EP0443868.

[0003] EP 0 443 868 describes a child-resistant, squeeze-and-turn closure according to the preamble of claim 1.

[0004] A problem with known squeeze-and-turn closures is that when the closure is squeezed this does not always successfully cause the required movement of the fins or lugs because the deformable portion is not deformed sufficiently.

[0005] The present invention seeks to address the problems with known squeeze-and-turn closures.

[0006] According to a first aspect of the present invention there is provided a child-resistant, squeeze-and-turn closure for a container, the closure comprising a body having a side skirt and locking means carried on or by the skirt for releasably locking the closure on to the container, wherein the side skirt is flexible and a squeezing action causes it to ovalize, in which the closure further comprises a shoulder including one or more regions of reduced stiffness in the vicinity of the locking means.

[0007] By providing regions of reduced stiffness the deformation/deflection of the skirt in the region of the locking means is improved.

[0008] The side skirt may comprise one or more ribs and a side wall with the or each rib carried on or by the wall. The or each rib may be carried on the interior and/or exterior of the wall. In some examples the ribs are created as part of a 'lightweighting' exercise in which material is removed. In examples without a wall the same lightweighting exercise could result in a skirt formed entirely from ribs with gaps therebetween. In one example a 'basket-like' or 'lattice' configuration is achieved with a criss-cross array of ribs.

[0009] The body may be at least partly dome-shaped. For example, a body which is entirely dome-shaped is contemplated, as is a frusto-conical body.

[0010] The region of reduced stiffness may be provided by a variation in the material of the closure body. For example, a more deformable material could be used to form at least part of the skirt in the region of the locking means.

[0011] The variation may comprise a portion of reduced thickness; for example an internal or external channel.

[0012] The ratio of the thickness of the portion of reduced thickness to the thickness of the body immediately adjacent may be in the range 1:5 to 4:5.

[0013] The thickness of the portion of reduced thickness may be in the range 0.1 mm to 0.5mm.

[0014] The variation may comprise one or more windows. The windows may comprise apertures passing through the entire thickness of the body. Alternatively the windows may comprise thinned wall section membranes. The windows/membranes may be transpersed with connecting webs or bridges to give stability. In addition to increasing flexibility of the closure skirt and helping to direct the pressing forces to the required area, the removal of material reduces costs.

[0015] The region of reduced thickness may be formed on a child resistant band provided by the closure. The band may be connected to the closure body by one or more of the ribs. The band may provide the region of reduced stiffness. The region of reduced stiffness may be enhanced by providing an absence of connecting ribs over selected regions of the bands.

[0016] The closure may further comprise a defined top plate from which the side skirt depends.

[0017] The variation may be provided in the top plate and/or the side skirt.

[0018] The variation may be provided in the region of the intersection between the top plate and the side skirt.

[0019] The closure may include a bore seal depending from the top plate and the variation may be located between the bore seal and the skirt.

[0020] The present invention also provides a container having a closure as described herein.

[0021] The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a closure formed according to a first embodiment of the present invention;

Figure 2 is a side elevation of the closure of Figure 1 in the region of a lateral squeeze pad;

Figure 3 is a plan view of the closure of Figure 1;

Figure 4 is an under plan perspective view of the closure of Figure 1;

Figure 5 is an under plan view of the closure of Figure 1;

Figure 6 is a side elevation of the closure of Figure 1 in the region of an internal locking lug;

Figure 7 is a section of the closure of Figure 6 taken along line A-A;

Figure 8 is an under plan view of the closure of Figures 1 to 7 shown in a locked position;

Figure 9 is an under plan view of the closure of Figure 8 shown in an unlocked position;

Figure 10 is a perspective view of a closure formed according to an alternative embodiment;

Figure 1 is a side elevation of the closure of Figure 10;
Figure 12 is a section of the closure of Figures 10 and 11;
Figure 13 is a side elevation of a closure formed according to an alternative embodiment shown in the region of a pressing pad;
Figure 14 is a side elevation of the closure of Figure 13 shown in the region of a locking lug; and
Figure 15 is an underplan view of the closure of Figures 13 and 14;
Figure 16 is a magnified view of the region of reduced stiffness formed in the closure of Figures 13 to 15; and
Figure 17 is an under plan view of the region of Figure 16.
Figure 18 is a side elevation of a closure formed according to an exemplary embodiment not forming part of the invention;
Figure 19 is a perspective view of the closure of Figure 18;
Figure 20 is an underplan view of the closure of Figures 18 and 19;
Figure 21 is an underplan view of the closure of Figures 18 to 20 shown in a locked position;
Figure 22 is an underplan view of the closure of Figure 21 shown in and unlocked position;
Figure 23 is a side elevation of a closure formed according to another exemplary embodiments not forming part of the invention;
Figure 24 is a plan view of the closure of Figure 23;
Figure 25 is a perspective view of the closure of Figure 24; and
Figure 26 is a perspective view of a closure formed according to a further embodiment.

[0022] Referring first to Figures 1 to 6 there is shown a closure generally indicated 10.

[0023] The closure 10 comprises a top plate 20 and a side skirt 30.

[0024] The top plate 20 comprises a central disc 21 with an inclined annular wall 22 depending from the periphery thereof. At the other end of the annular wall 22 a shoulder 23 extends and merges into the side wall 30.

[0025] The closure further comprises an inner wall 35 which is concentric with the skirt 30. The inner wall 35 includes internal screw thread formations 36 for engagement on corresponding external screw thread formations on a container neck (not shown).

[0026] The exterior of the open end of the skirt is provided with a pair of diametrically opposed pressing pads.

[0027] At the open end of the skirt 30 two diametrically opposed wedge-like lugs 40, 45 are internally positioned. The lugs 40, 45 are circumferentially positioned between the pressing pads 31, 32 on the side wall 30 so that the pads 31, 32 and lugs 40, 45 are spaced by 90° from each other, in the same way as the points on a compass.

[0028] Referring now also to Figure 7 the shoulder 23 is provided with two portions of reduced thickness in the form of a pair of diametrically opposed interior grooves 50, 55. The grooves 50, 55 are arcuate and extend over approximately 45° of the circumference, with in the region of the lugs 40, 45, with the lugs 40, 45 positioned approximately centrally with respect to the grooves 50, 55 when viewed from below.

[0029] The closure 10 also has an annular bore seal 60 depending from the inclined wall 22.

[0030] Referring now to Figures 8 and 9 there is shown schematic under plan views of the closure 10.

[0031] The closure 10 is shown connected to a container neck 70, which includes external screw thread formations (not shown) for engaging the corresponding threads on the closure 10. The container neck 70 also comprises a pair of diametrically opposed abutment lugs 75, 80 positioned to engage the locking lugs 40, 45 of the closure.

[0032] Figure 8 shows the closure in the locked position in which the closure is fully screwed on to the container neck 70 and the locking lugs 40, 45 engaged the abutment lugs 75, 80 on the container neck. In this position the closure cannot be rotated relative to the container neck due to the abutment of the closure and container lugs. In order for the closure to be rotated the lugs 40, 45 must be moved radially outward with respect to the abutment lugs 75, 80. This is effected by squeezing the closure at the pressing pads 31, 32. The closure skirt 30 is flexible and the squeezing action causes it to ovalise as shown in Figure 9. The lugs 40, 45 can now pass around the outside of the abutment lugs 75, 80 so that with a combined squeeze and turn movement the closure can be unscrewed.

[0033] The grooves 50, 55 provide a region of reduced stiffness in the vicinity of the locking lugs 40, 45 which in turn reduces the pressure required on the pads 31, 32 in order to effect a sufficient deformation of the skirt 30 in those regions. In other words, the grooves 50, 55 reduce the resistance of the skirt 30 to flexing in the region of the locking lugs. The 'hinging' of the skirt relative to the top plate is therefore improved in these areas. Keeping the material thicker particularly in the region of the pressing pads is important for the transmission of force, hence simply a complete thinning of the entire closure would not produce the desired effect.

[0034] The regions of reduced stiffness allow the pressing forces on the pads to be directed to where they are most needed.

[0035] Referring now to Figures 10 to 12 there is shown a closure 110 according to an alternative embodiment.

[0036] The closure 110 is very similar to the closure 10 shown in Figures 1 to 9. In this embodiment the portions of reduced stiffness are provided by a pair of diametrically opposed windows 180, 185 formed in the closure shoulder 123. The windows 180, 185 serve a similar purpose to the internal grooves of the closure 10 because they provide portions of reduced stiffness in the region of the locking lugs.

[0037] Referring now to Figure 13 to 17 there is shown

a closure 210 formed according to an alternative embodiment.

[0038] The closure 210 is similar to the closure 10 of Figures 1 to 7 in that it includes a pair of internal grooves 250, 255 which provide increased flexibility to the skirt in the regions of two locking lugs 240, 245.

[0039] In this embodiment the skirt 230 is shorter and the closure includes an intermediate annular wall 290 between the shoulder 223 and the top plate 220. This gives it a more elongate appearance.

[0040] The closure 210 does not comprise both an inner wall and a bore seal, but rather a single bore seal 260 which depends from the intersection of the shoulder 223 and the intermediate wall 290. The seal 260 includes internal screw threads 236.

[0041] The shoulder region 223 of the closure 210 includes two diametrically opposed internal grooves 250, 255. In this embodiment the thickness of the material adjacent the grooves 250, 255 is approximately 1 mm and the thickness of the material defining the base of the groove is approximately 0.2mm thick.

[0042] The closure operates in the same way as the closure 10 in that the pressing pads are used to ovalise the skirt 230 which moves the locking lugs 240, 245 radially outwards. The grooves 250, 255 promote this movement of the skirt.

[0043] Referring now to Figures 18 to 20 there is shown a closure generally indicated 310. The closure 310 comprises a top plate 320 and a side skirt 330.

[0044] The top plate 320 comprises a circular disc.

[0045] The closure further comprises an inner wall 335 (see Figure 3)depending from the interior of the skirt. The inner wall includes internal screw thread formations for engagement on corresponding external screw thread formations on a container neck (not shown).

[0046] The skirt 330 depends from the periphery of the top plate 320. The skirt has two major components: i) an underlying side wall 350; and ii) a plurality of arcuate ribs 360.

[0047] The side wall 350 has three sections: i) a domed upper section 351; ii) an annular intermediate section 352; and iii) an annular lower section 353. The upper section 351 joins the intermediate section 352 at a first step 354 and similarly a second step 355 joins the intermediate and lower sections 352, 353.

[0048] The ribs 360 project from the exterior of the side wall. All of the ribs extend from the top plate 320 and over the upper 351 and intermediate 352 side wall sections. In other examples (not shown) some or all of a set of ribs extend from a point on the side wall below the top plate. Some of the ribs terminate at the second 355 step whereas others continue as described in more details below.

[0049] At the end of the skirt opposite the top plate 320 a child resistant band 365 or hoop is provided.

[0050] The exterior of the band is provided with a pair of diametrically opposed pressing pads 331, 332. In this exemplary embodiment the pads are generally triangular; other shapes are, of course, possible.

[0051] The band 365 is annular and passes around the open end of the side wall annular lower section 353. The band 365 is coaxial with the open end but with a greater diameter so that a gap 366 is present.

[0052] The side wall 350 is connected to the band 365 by the ribs 360. More specifically, in this embodiment seven ribs 360a extend beyond the second step in the region of each pad and connect to the pad/band. In other examples the band may be connected to the side wall by different numbers of ribs, or by a window or membrane-like thinned wall section.

[0053] Two diametrically opposed wedge-like lugs 340, 345 are internally positioned on the band. The lugs 340, 345 are circumferentially positioned between the pressing pads 331, 332 on the side wall 330 so that the pads 331, 332 and lugs 340, 345 are spaced by 90° from each other, in the same way as the points on a compass.

[0054] Referring now to Figures 21 and 22 there is shown schematic under plan views of the closure 310.

[0055] The closure 310 is shown connected to a container neck 370, which includes external screw thread formations (not shown) for engaging the corresponding threads on the closure 310. The container neck 370 also comprises a pair of diametrically opposed abutment lugs 375, 380 positioned to engage the locking lugs 340, 345 of the closure. Figure 21 shows the closure in the locked position in which the closure is fully screwed on to the container neck 370 and the locking lugs 340, 345 engaged the abutment lugs 375, 380 on the container neck. In this position the closure cannot be rotated relative to the container neck due to the abutment of the closure and container lugs. In order for the closure to be rotated the lugs 340, 345 must be moved radially outward with respect to the abutment lugs 375, 380. This is effected by squeezing the band at the pressing pads 331, 332. The band is flexible and the squeezing action causes it to ovalise as shown in Figure 22. When the band flexes the ribs connected thereto are also caused to flex inwards, which in turn causes the side wall to ovalise. The lugs 340, 345 can now pass around the outside of the abutment lugs 375, 380 so that with a combined squeeze and turn movement the closure can be unscrewed.

[0056] Because the ribs only connect to the band 365 in the region of the pads this creates regions of reduced stiffness in the vicinity of the lugs, where no extended ribs are present. Accordingly the force required on the pads is reduced. This has the same effect as localised windows or membrane wall sections.

[0057] Referring now to Figures 23 to 25 there is shown a closure 110 formed accordingly to an alternative exemplary embodiment.

[0058] The closure 410 is very similar to the closure 310 shown in Figures 18 to 22. In this exemplary embodiment all of the ribs 460 extend so as to connect the band 465. The gap 466 between the band and the side wall provides a region of reduced stiffness on the closure.

[0059] Referring now to Figure 26 there is shown a closure 510 formed according to an alternative exempla-

ry embodiment.

[0060] The closure 510 is very similar to the closure 410 shown in Figures 23 to 25. In this exemplary embodiment additional ribs 561 are provided.

[0061] The ribs 561 extend across the side wall 550 perpendicular to the ribs 560 to give a crisscross, lattice-like rib structure.

[0062] All of the ribs 560, 561 connect to the band 565. The gap 566 provides a region of reduced stiffness.

Claims

1. A child-resistant, squeeze-and-tum closure (10) for a container, the closure comprising a body having a side skirt (30) and locking means (40, 45) carried on or by the skirt for releasably locking the closure on to the container, wherein the side skirt is flexible and a squeezing action causes it to deform, **characterised in that** the closure further comprises a shoulder (23) including one or more regions of reduced stiffness (50, 55) in the vicinity of the locking means whereby to improve deformation of the skirt in the region of the locking means when the closure is squeezed.

2. A closure as claimed in Claim 1, in which the region of reduced stiffness comprises one or more windows (180,185).

3. A closure as claimed in Claim 1, in which the region of reduced stiffness comprises one or more grooves (50, 55).

4. A closure as claimed in any preceding claim, in which the region of reduced stiffness is provided by a variation in the material of the closure.

5. A closure as claimed in Claim 4, in which the variation comprises a portion of reduced thickness.

6. A closure as claimed in Claim 5, in which the ratio of the thickness of the portion of reduced thickness to the thickness of the body immediately adjacent is in the range 1:5 to 4:5.

7. A closure as claimed in Claim 5 or Claim 6, in which the thickness of the portion of reduced thickness is in the range 0.1 mm to 0.5mm.

8. A closure as claimed in any preceding claim, in which the closure (10) further comprises a top plate (20) from which the side wall (30) depends.

9. A closure as claimed in Claim 8. in which the variation is provided in the region of the intersection between the top plate and the side skirt.

10. A closure as claimed in any of claims 1 to 8, in which the shoulder (23) merges into the side skirt (30).

11. A closure as claimed in any preceding claim, in which the closure further comprises an inner wall (35).

12. A closure as claimed in Claim 11, in which the inner wall (35) carries a screw thread (36).

13. A closure as claimed in Claim 11 or 12, in which the region of reduced stiffness is provided between the side skirt and the inner wall.

14. A closure as claimed in any preceding claim, in which the skirt (30) comprises pressing pads (31, 32).

15. A closure as claimed in any preceding claim in which the body is generally dome-shaped.

16. A closure as claimed in any preceding claim, in which the skirt is provided with a pair of diametrically opposed pressing pads and locking lugs positioned between the pads, the pressing pads being used to ovalise the skirt to move the lugs radially outwards.

17. A closure as claimed in any preceding claim, in which the skirt (330) comprises a flexible child-resistant band (365).

18. A closure as claimed in Claim 17, in which the band carries the lugs and pads.

19. A container having a closure according to any preceding claim.

Patentansprüche

1. Kindersicherer Drück-und Drehverschluss (10) für einen Behälter, wobei der Verschluss einen Körper mit einer Seitenrandleiste (30) und Sperrmittel (40, 45) aufweist, die auf oder durch die Randleiste gehalten werden, um den Verschluss lösbar auf dem Behälter zu sperren, wobei die Seitenrandleiste flexibel ist und eine Drückaktion dazu führt, dass sie verformt wird, **dadurch gekennzeichnet, dass** der Verschluss weiterhin einen Absatz (23) aufweist, der ein oder mehrere Bereiche mit verringerter Steifigkeit (50, 55) in der Nähe des Sperrmittels besitzt, wodurch die Verformung der Randleiste im Bereich des Sperrmittels verbessert wird, wenn der Behälter zusammengedrückt wird.

2. Verschluss gemäß Anspruch 1, wobei der Bereich mit verringerter Steifigkeit ein oder mehrere Fenster (180, 185) aufweist.

3. Verschluss gemäß Anspruch 1, wobei der Bereich

mit verringerter Steifigkeit ein oder mehrere Nuten (50, 55) aufweist.

4. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei der Bereich mit verringerter Steifigkeit durch eine Variation im Material des Verschlusses vorgesehen ist.

5. Verschluss gemäß Anspruch Claim 4, wobei die Variation einen Bereich verringerter Steifigkeit aufweist.

6. Verschluss gemäß Anspruch 5, wobei das Verhältnis der Stärke des Bereichs mit verringerter Stärke zur Stärke des unmittelbar angrenzenden Körpers im Bereich von 1:5 bis 4:5 liegt.

7. Verschluss gemäß einem der Ansprüche 5 oder 6, wobei die Stärke des Bereichs mit verringerter Stärke im Bereich von 0,1 mm bis 0,5 mm liegt.

8. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei der Verschluss (10) weiterhin eine Kopfplatte (20) aufweist, von der die Seitenwand abhängt.

9. Verschluss gemäß Anspruch 8, wobei die Variation im Bereich des Schnittes der Kopfplatte und der seitlichen Randleiste vorgesehen ist.

10. Verschluss gemäß einem der Ansprüche 1 bis 8, wobei der Absatz (23) in der Randleiste (30) aufgeht.

11. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei der Verschluss weiterhin eine Innenwand (35) aufweist.

12. Verschluss gemäß Anspruch 11, wobei die Innenwand (35) mit einem Gewinde (36) ausgebildet ist.

13. Verschluss gemäß einem der Ansprüche 11 oder 12, wobei der Bereich mit verringerter Steifigkeit zwischen der seitlichen Randleiste und der Innenwand vorgesehen ist.

14. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei die Randleiste (30) Andrückkissen (31, 32) aufweist.

15. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei der Körper im Allgemeinen kuppelförmig ist.

16. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei die Randleiste mit einem Paar diametral gegenüberliegender Andrückkissen und Sperransätze versehen ist, die zwischen den Kissen angeordnet sind, wobei die Andruckkissen dazu verwendet werden, die Randleiste oval zu verformen, um die Ansätze radial nach außen zu verschieben.

17. Verschluss gemäß einem der vorhergehenden Ansprüche, wobei die Randleiste (330) ein flexibles, kindersicheres Band (31, 32) aufweist.

18. Verschluss gemäß Anspruch 17, wobei das Band mit den Ansätzen und Kissen ausgebildet ist.

19. Behälter mit einem Verschluss gemäß einem der vorhergehenden Ansprüche.

Revendications

1. Fermeture à comprimer et à tourner, de sécurité pour enfants (10) destinée à un contenant, la fermeture comprenant un corps présentant une jupe latérale (30) et un moyen de verrouillage (40, 45) prévu sur la jupe ou réalisé par la jupe en vue d'un verrouillage de manière libérable de la fermeture sur le contenant, où la jupe latérale est souple et une action de compression l'amène à se déformer, **caractérisée en ce que** la fermeture comprend en outre un épaulement (23) incluant une ou plusieurs zones de rigidité réduite (50, 55) à proximité du moyen de verrouillage, permettant d'améliorer une déformation de la jupe dans la zone du moyen de verrouillage lorsque la fermeture est comprimée.

2. Fermeture selon la revendication 1, dans laquelle la zone de rigidité réduite comprend une ou plusieurs fenêtres (180, 185).

3. Fermeture selon la revendication 1, dans laquelle la zone de rigidité réduite comprend une ou plusieurs rainures (50, 55).

4. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle la zone de rigidité réduite est prévue par une variation dans le matériau de la fermeture.

5. Fermeture selon la revendication 4, dans laquelle la variation comprend une partie d'épaisseur réduite.

6. Fermeture selon la revendication 5, dans laquelle le rapport de l'épaisseur de la partie d'épaisseur réduite sur l'épaisseur du corps immédiatement adjacent se trouve dans la plage allant de 1:5 à 4:5.

7. Fermeture selon la revendication 5 ou la revendication 6, dans laquelle l'épaisseur de la partie d'épaisseur réduite se trouve dans la plage allant de 0,1 mm à 0,5 mm.

8. Fermeture selon l'une quelconque des revendica-

tions précédentes, dans laquelle la fermeture (10) comprend en outre une plaque supérieure (20) de laquelle la paroi latérale (30) dépend.

9. Fermeture selon la revendication 8, dans laquelle la variation est prévue dans la zone de l'intersection entre la plaque supérieure et la jupe latérale.

10. Fermeture selon l'une quelconque des revendications 1 à 8, dans laquelle l'épaulement (23) se confond avec la jupe latérale (30).

11. Fermeture selon l'une quelconque des revendications précédentes, où la fermeture comprend en outre une paroi intérieure (35).

12. Fermeture selon la revendication 11, dans laquelle la paroi intérieure (35) supporte un filet de vissage (36).

13. Fermeture selon la revendication 11 ou 12, dans laquelle la zone de rigidité réduite est prévue entre la jupe latérale et la paroi intérieure.

14. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle la jupe (30) comprend des zones de compression (31, 32).

15. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle le corps présente globalement une forme de dôme.

16. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle la jupe est dotée d'une paire de zones de compression diamétralement opposées et de pattes de verrouillage positionnées entre les zones de compression, les zones de compression étant utilisées pour rendre la jupe ovale afin de déplacer les pattes radialement vers l'extérieur.

17. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle la jupe (330) comprend une bande de sécurité pour enfants souple (365).

18. Fermeture selon la revendication 17, dans laquelle la bande porte les pattes et les zones de compression.

19. Contenant présentant une fermeture selon l'une quelconque des revendications précédentes.

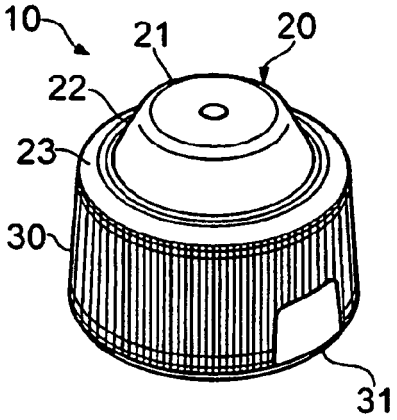


FIG. 1

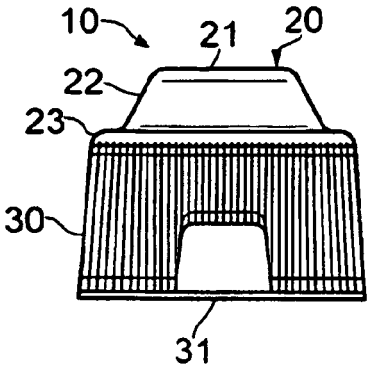


FIG. 2

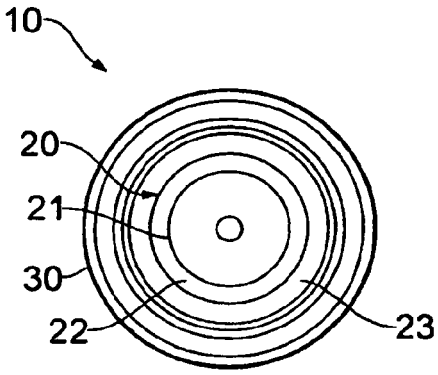


FIG. 3

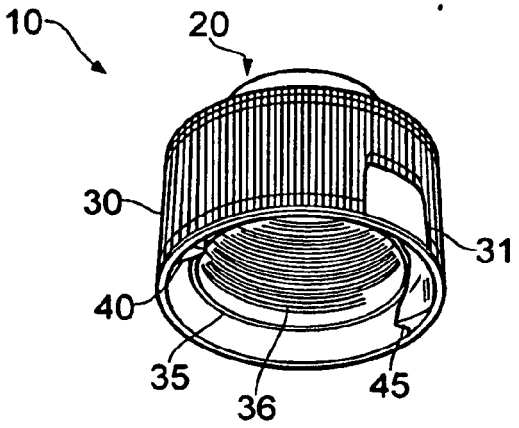


FIG. 4

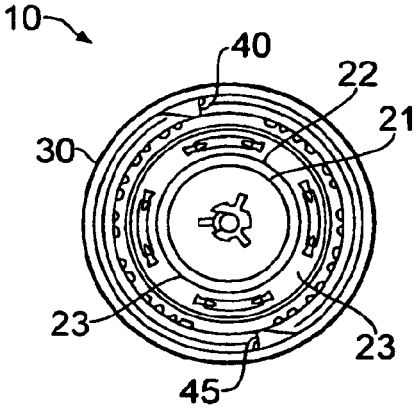


FIG. 5

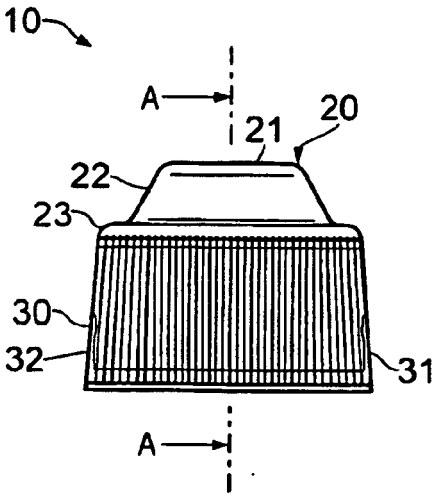


FIG. 6

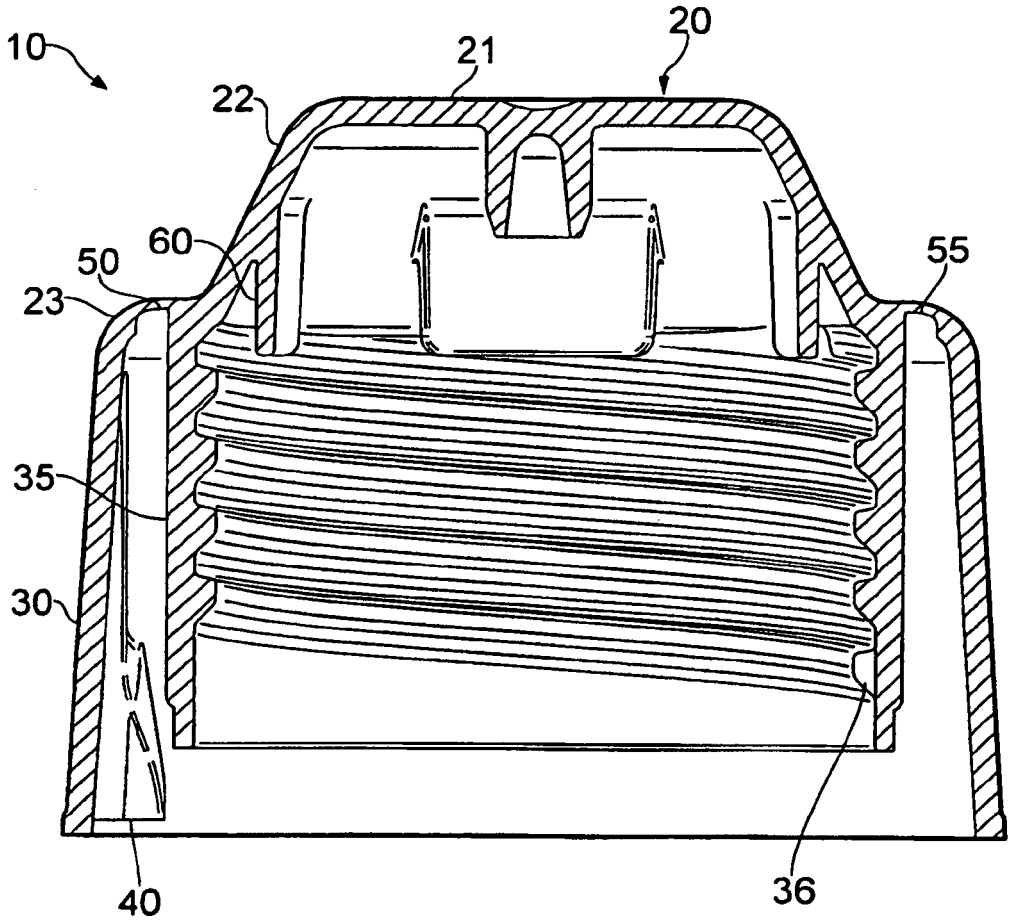


FIG. 7

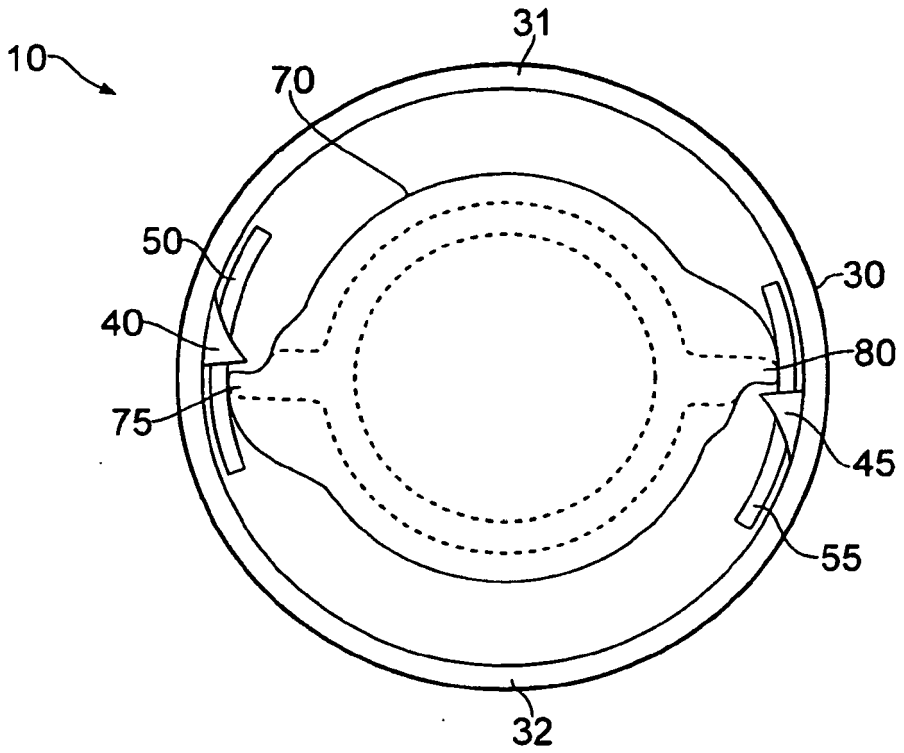


FIG. 8

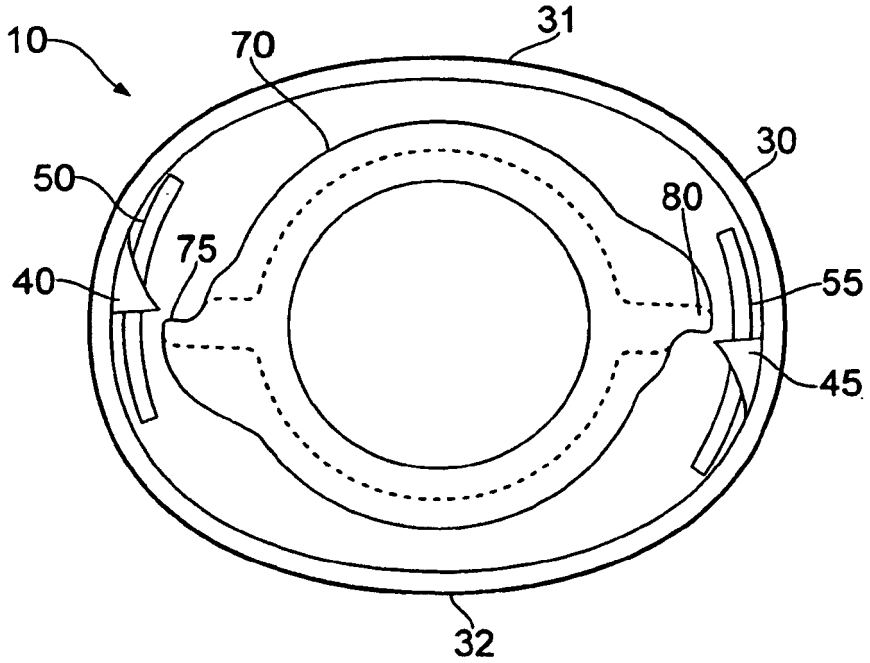


FIG. 9

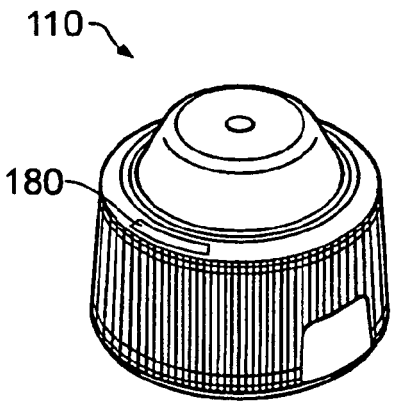


FIG. 10

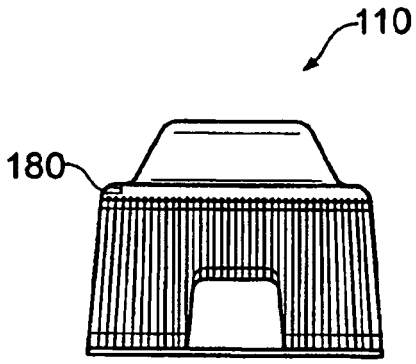


FIG. 11

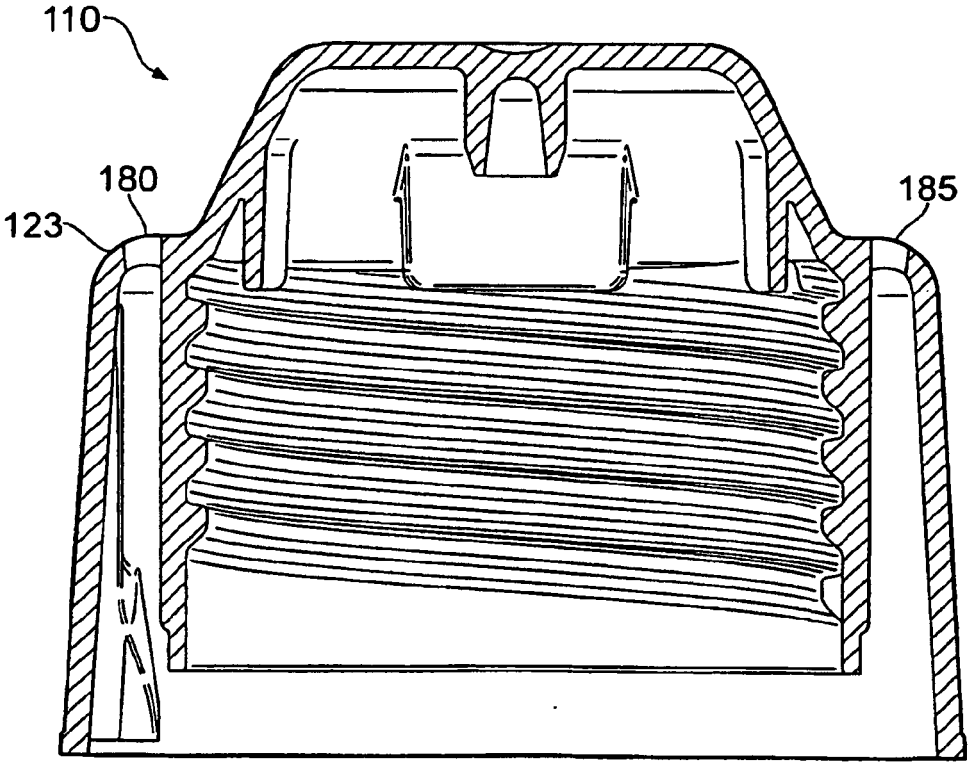


FIG. 12

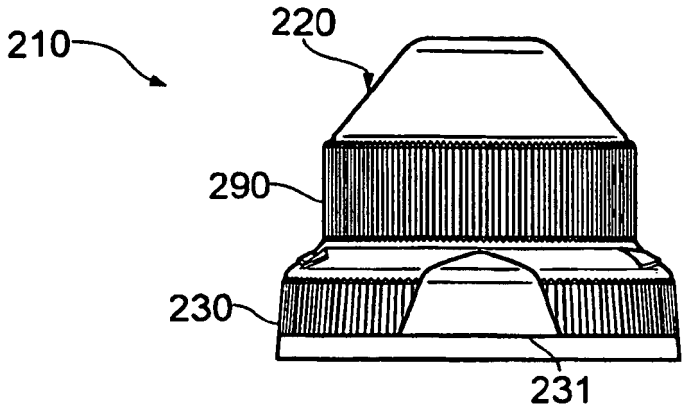


FIG. 13

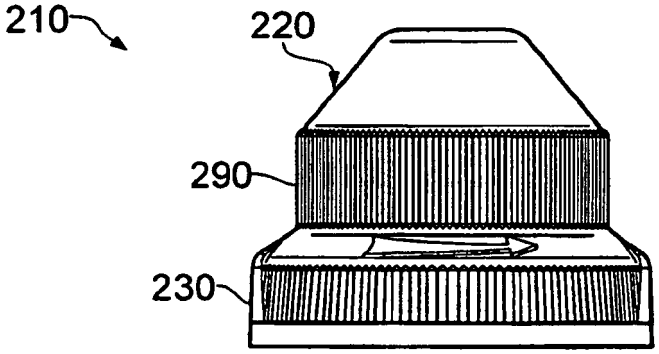


FIG. 14

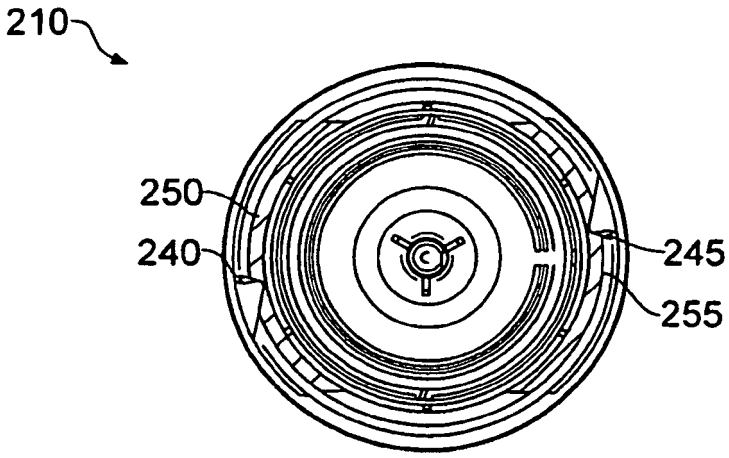


FIG. 15

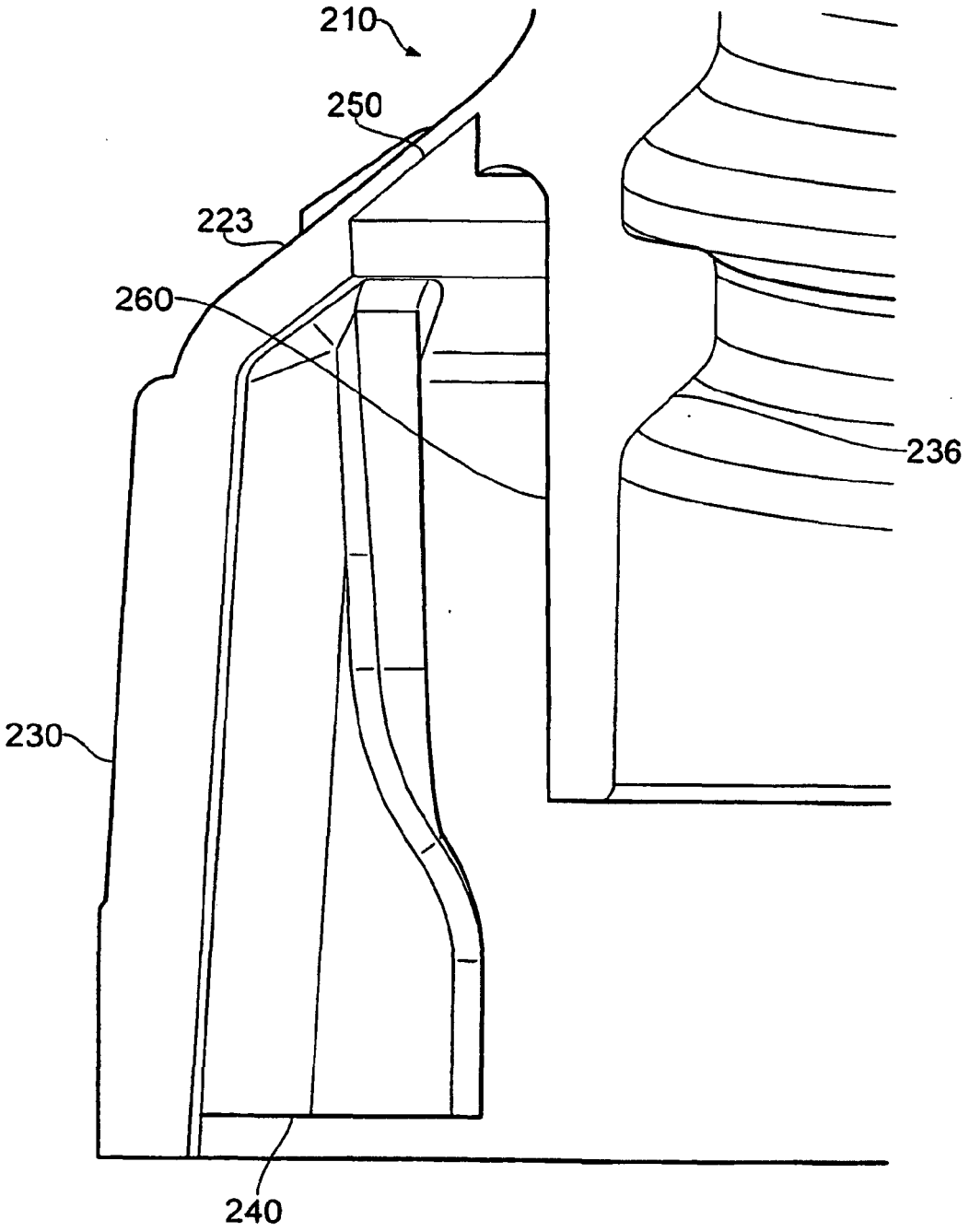


FIG. 16

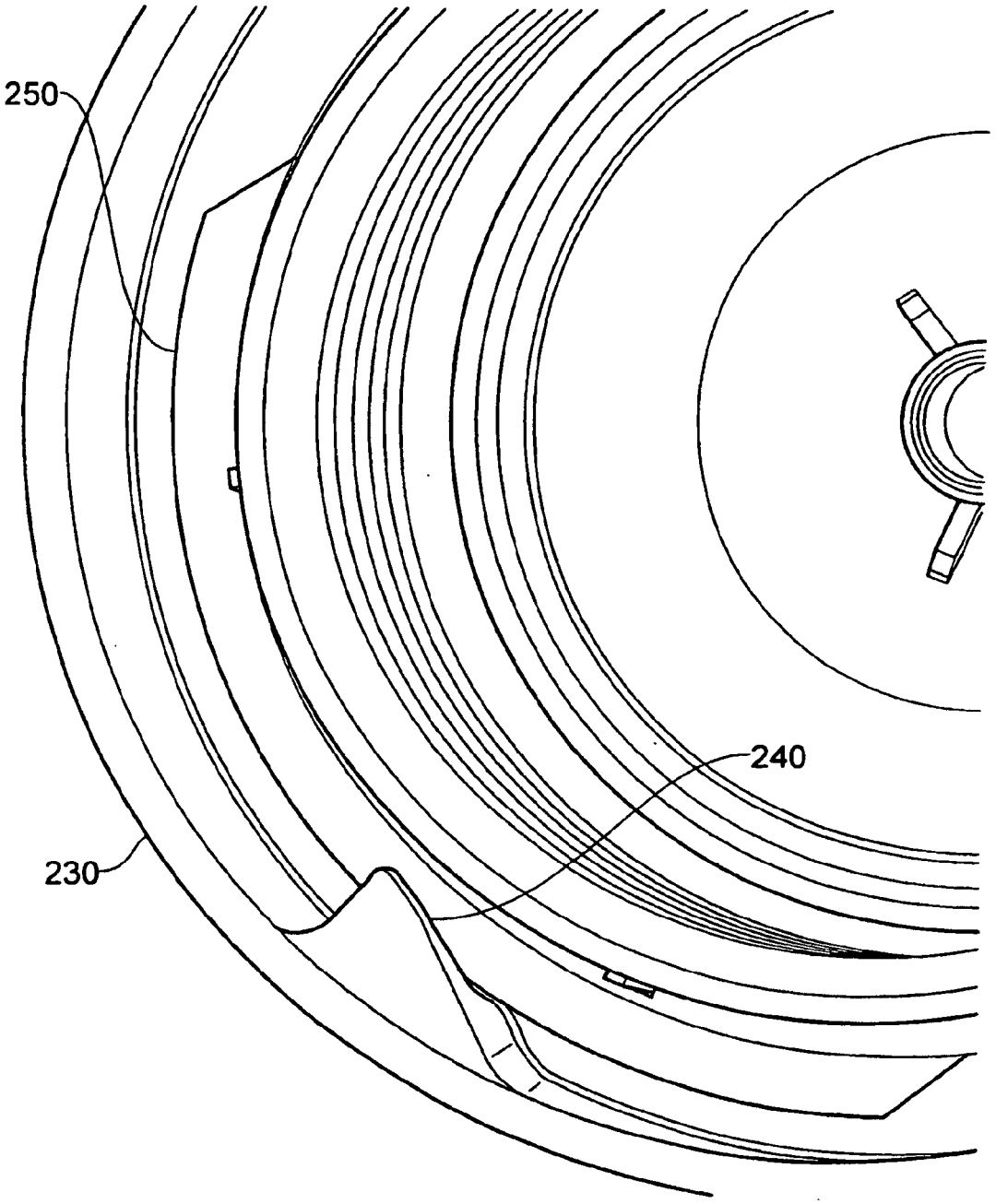


FIG. 17

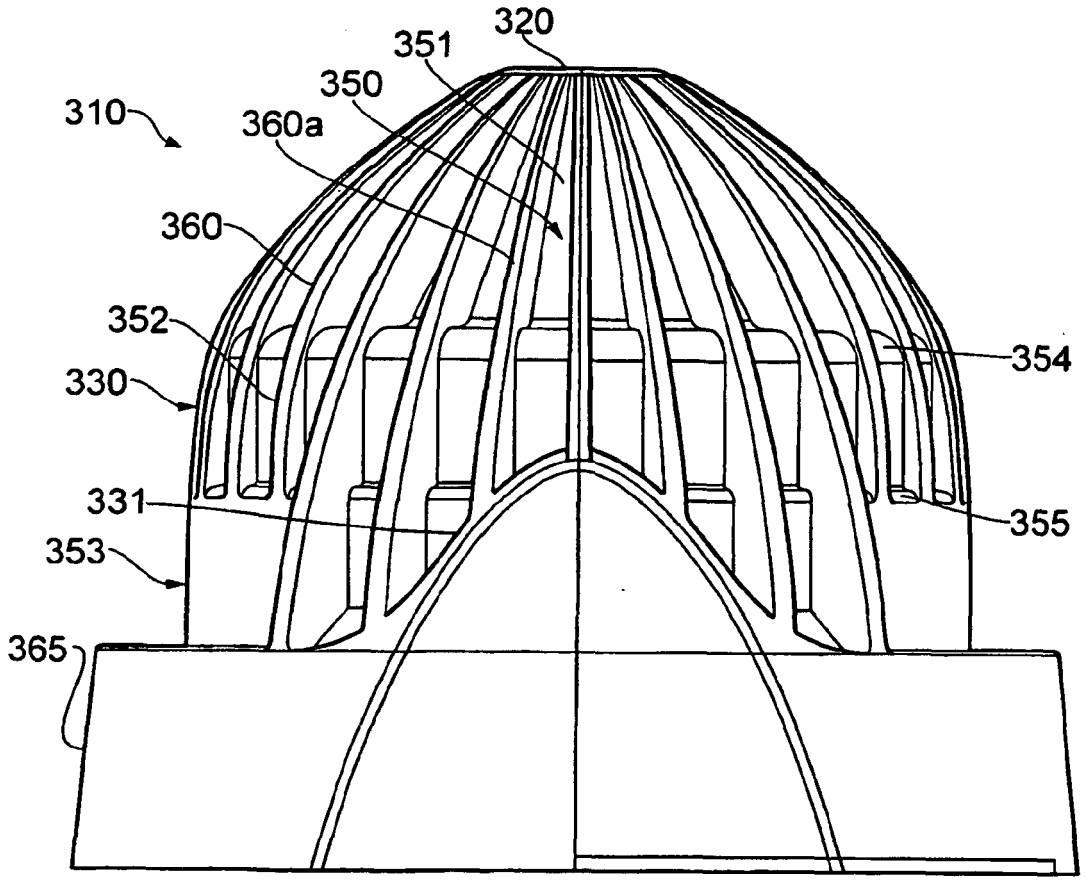


FIG. 18

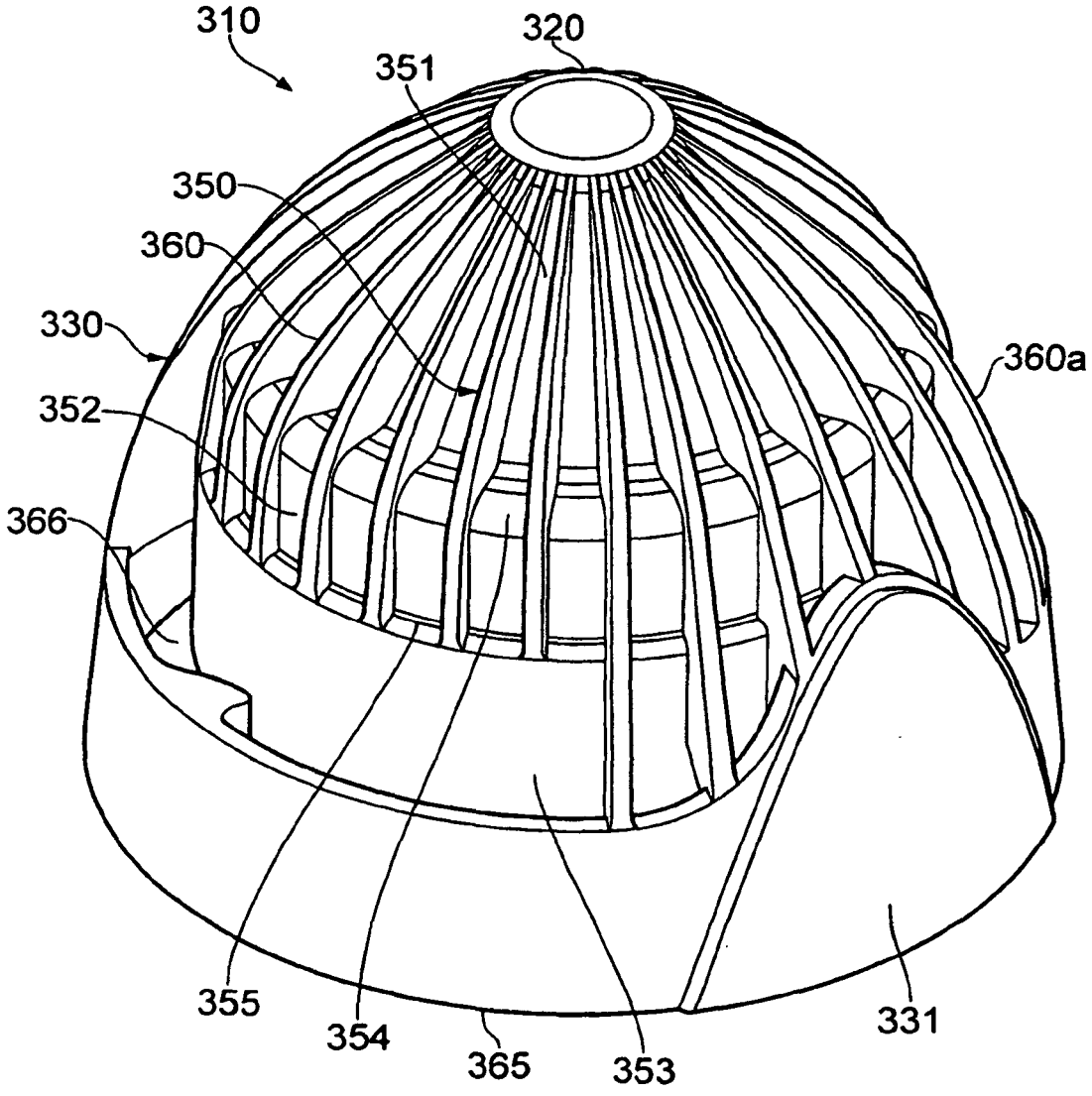


FIG. 19

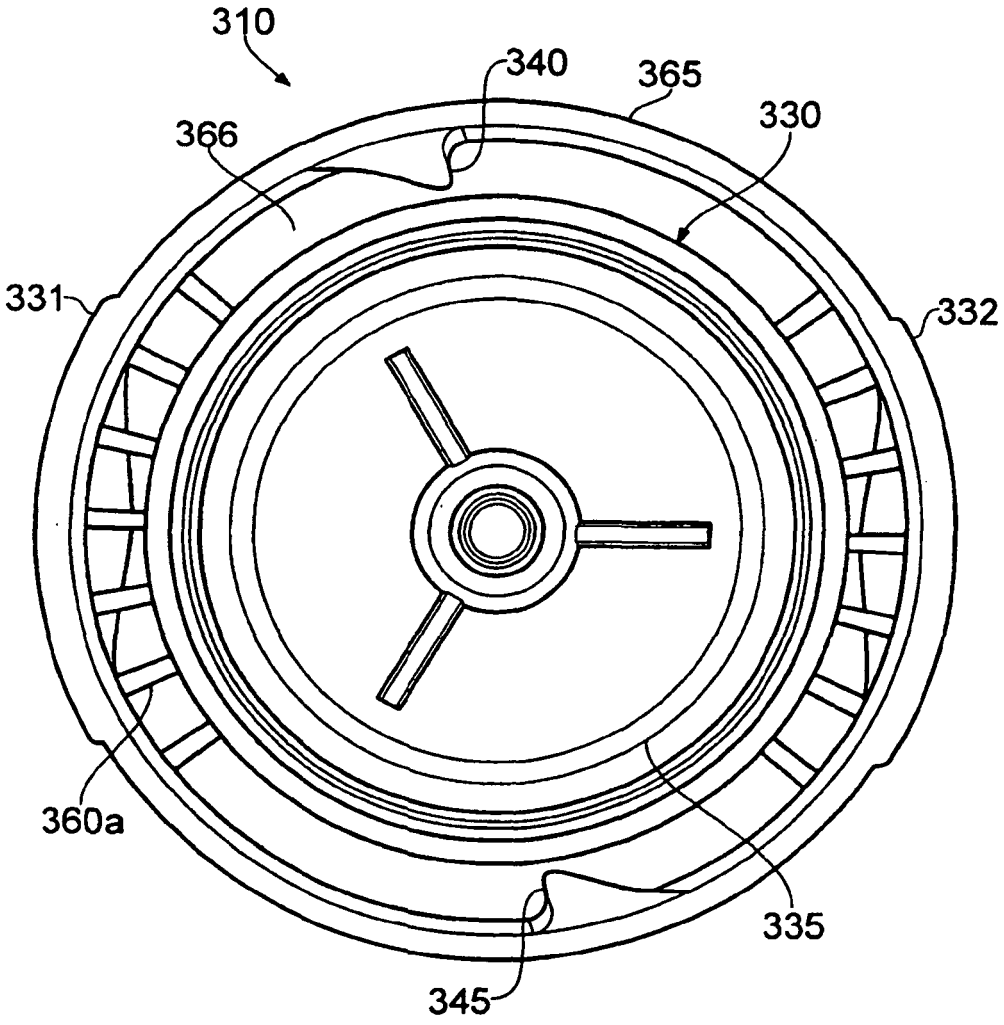


FIG. 20

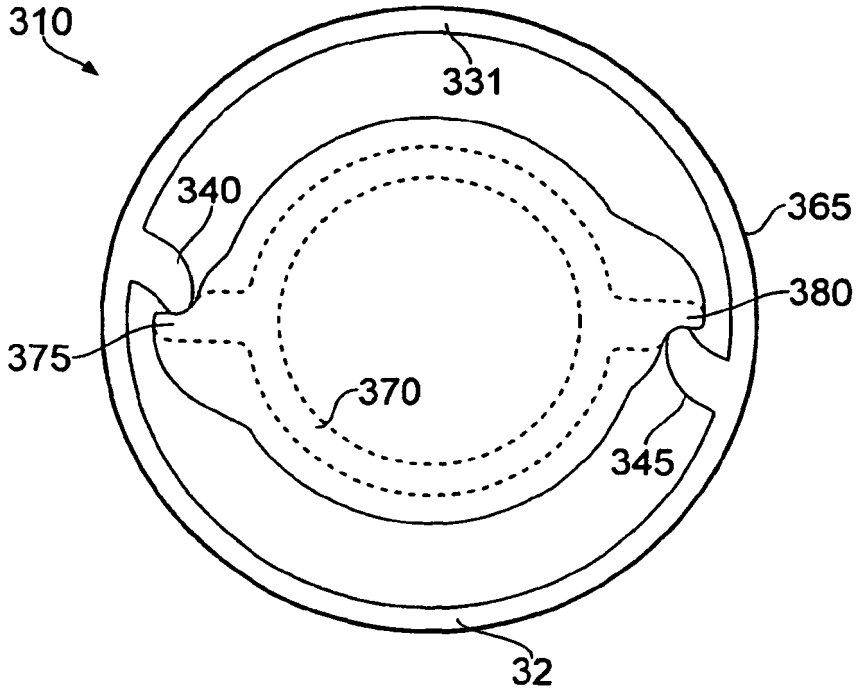


FIG. 21

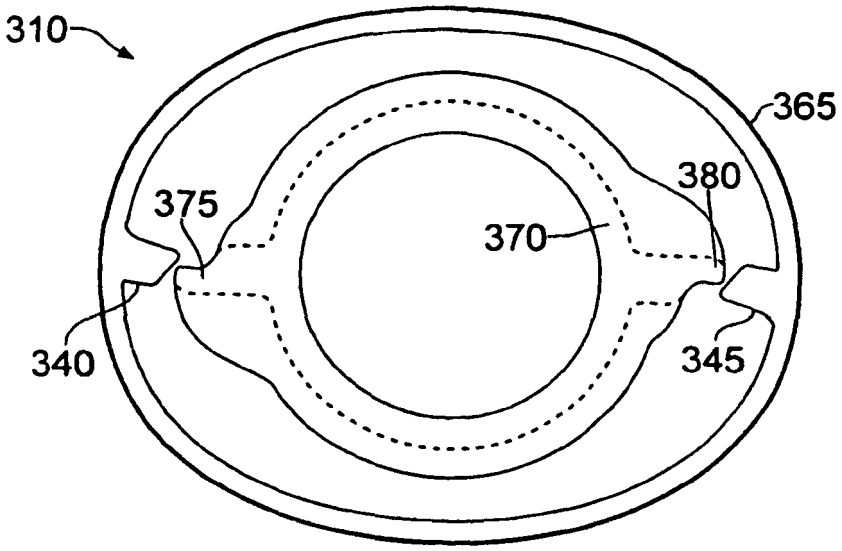


FIG. 22

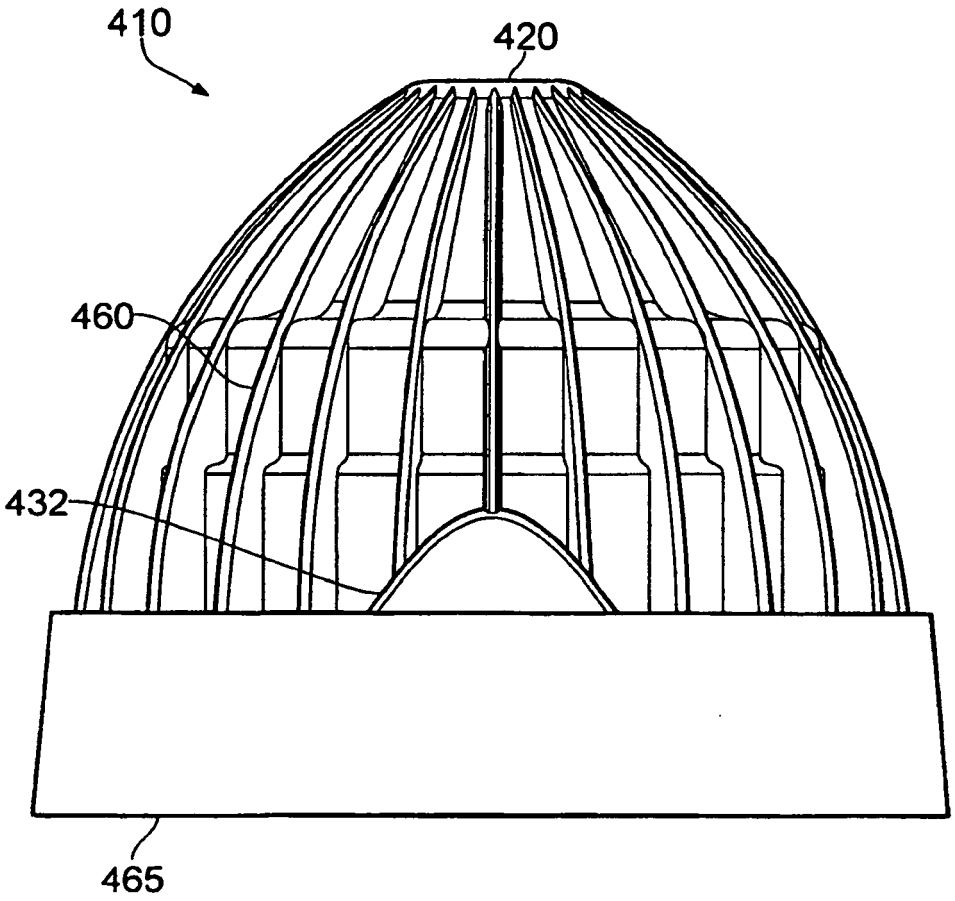


FIG. 23

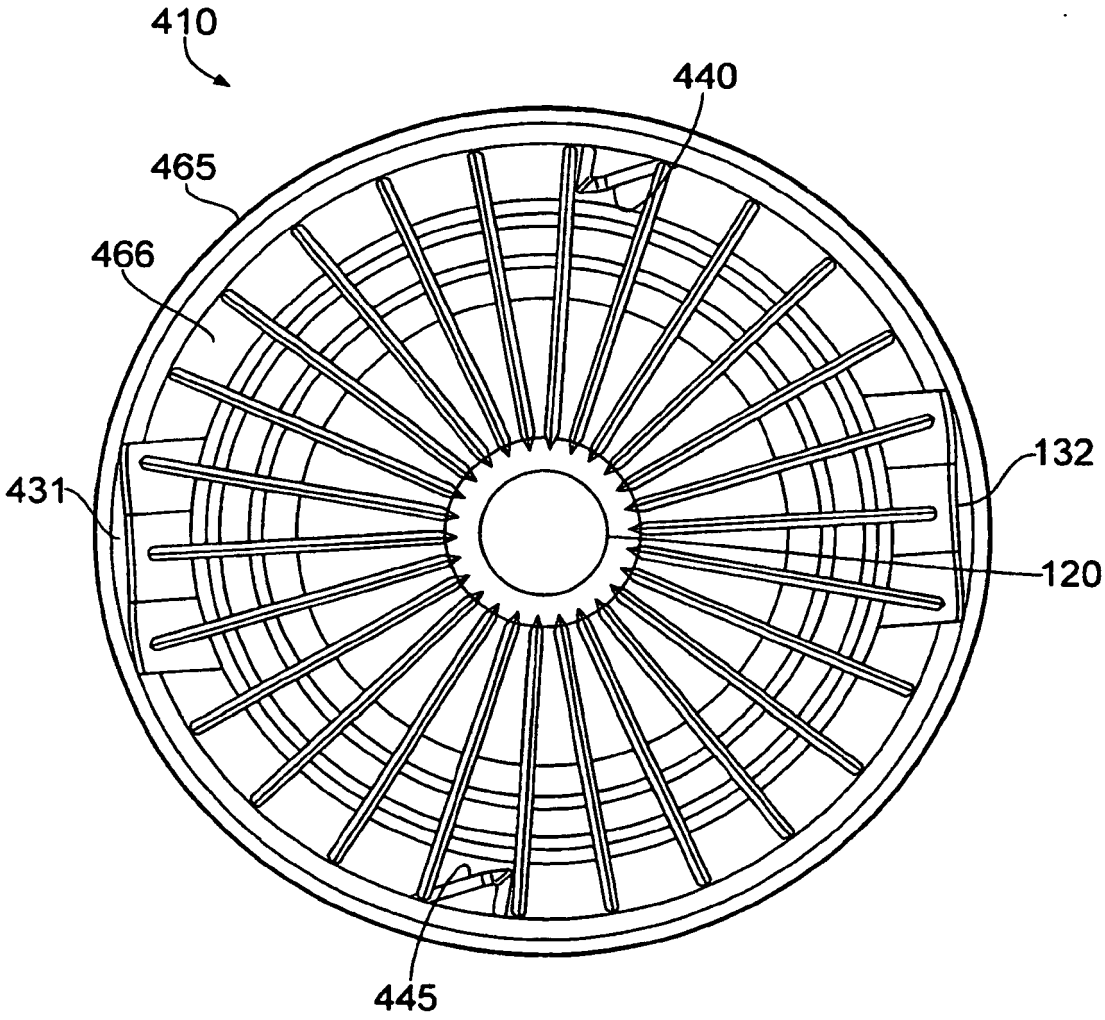


FIG. 24

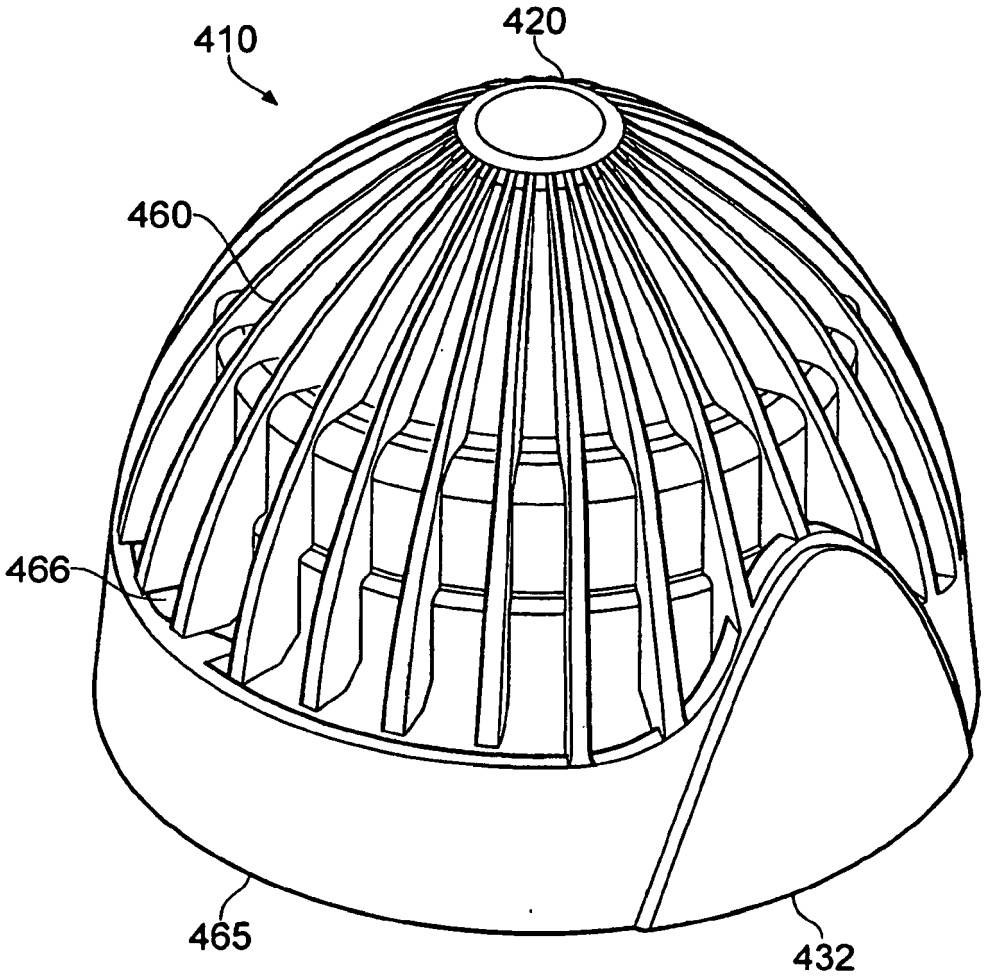


FIG. 25

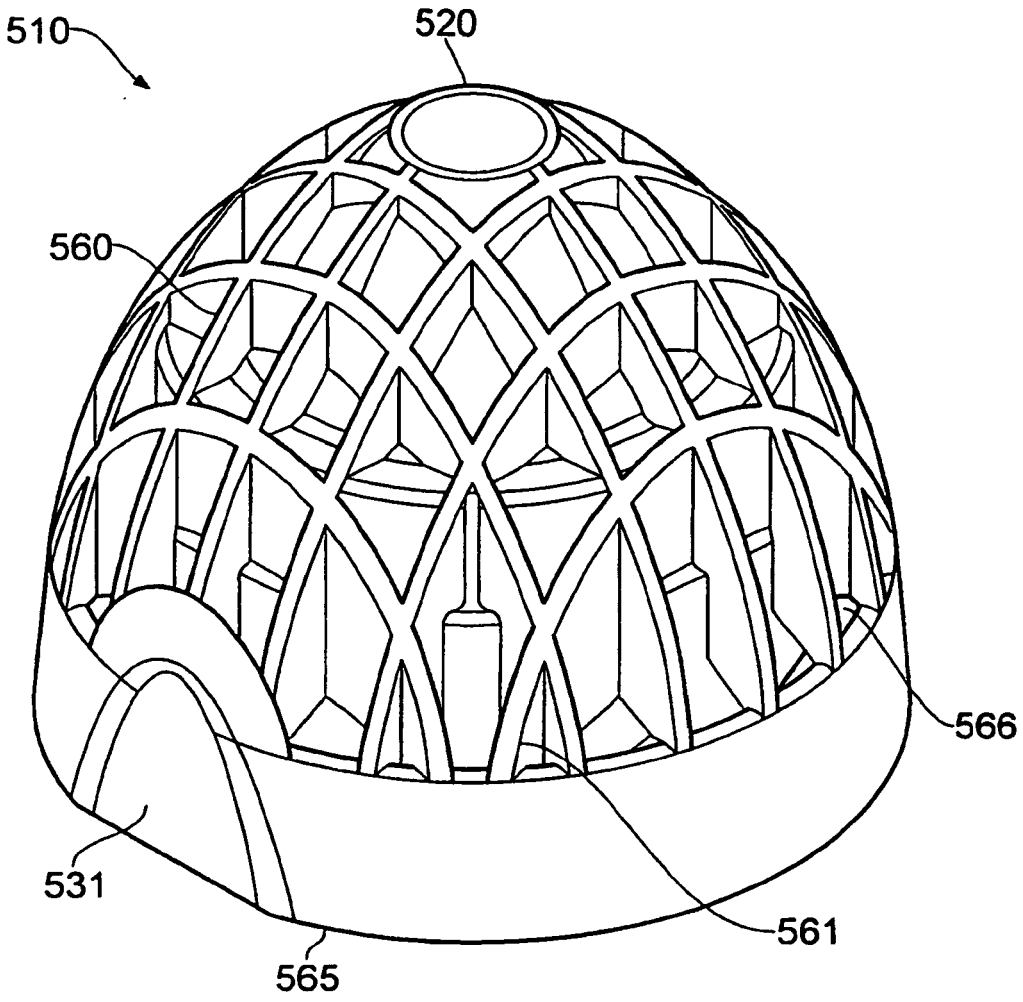


FIG. 26

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 1521201 A **[0002]**
- GB 1387572 A **[0002]**
- EP 0443868 A **[0002] [0003]**