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(54) **POUR SPOUT FITMENT**

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ACCESSOIRE DE BEC VERSEUR

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Description

[0001] This invention relates to a pour spout fitment for providing tamper evidence.

[0002] US 2005/0252878 discloses a tamper-evident package comprising a cap provided with a tamper-evident band, a finish provided with an annular flange, said band and finish provided with mutually engaging detents that cooperate to prevent turning of the band relative to the spout.

[0003] According to the present invention, there is provided a pour spout fitment comprising an externally threaded, tubular pour spout, an internally threaded cap whereof the threading co-operates with the external threading of the spout, a tamper-evident band co-axially and frangibly attached to an inner end of said cap, a substantially annular slot substantially co-axial with and in one of said spout and said band, a substantially annular flange substantially co-axial with and provided by the other of said spout and said band and projecting into said slot, at least one detent in said slot, at least one detent on said flange, a first external reference on said cap, the arrangement being such that, upon unscrewing of said cap, said at least one detent on the spout co-operates with said at least one detent on the band to detain the band against turning movement relative to the spout and to detain the band in a position relative to the substantially fully reclosed cap, characterised in that the pour spout fitment further comprises a second external reference on said band and in a predetermined relationship with said first external reference, the arrangement being such that upon unscrewing of said cap the reference on the band remains out of said predetermined relationship.

[0004] Owing to the invention, it is possible to provide a tamper-evidence system which is relatively cheap and not easy to overcome.

[0005] The flange is preferably provided by the tamper-evident band.

[0006] The detents preferably comprise teeth on the band and on the spout.

[0007] Alternatively, the detents could comprise teeth on one of the band and the spout and notches in the other of the band and the spout.

[0008] Advantageously, the at least one detent on the band faces substantially radially inwards and the at least one detent on the spout faces substantially radially outwards.

[0009] Of course, the internal threading and the external threading each have at least one start. In a preferred embodiment, the internal threading and the external threading each have a plurality of starts, particularly at least three.

[0010] It is especially advantageous if the number of starts and the effective height of the internal threading on the cap and the external threading on the spout are such that, upon reclosing, the cap cannot be turned sufficiently for the two references to re-enter the predetermined relationship. Each of the references may be coloured, contrastingly with the colour(s) of the cap and the band, with the references having been printed onto the cap and the band. The same or other references may be tactile to assist the blind or partially sighted.

[0011] In reclosing the cap, it is turned in a sense opposite to its opening sense and, upon the cap being fully reclosed, the first reference is out of the predetermined relationship relative to the second reference, owing to the band's having been detained against movement with the cap.

[0012] In order that the invention may be clearly and completely disclosed, reference will now be made, by way of example, to the accompany drawings, in which:-

Figure 1 is a top perspective view of a pour spout fitment in a condition before first opening;

Figure 2 is a view similar to Figure 1 of the fitment following opening and full reclosing thereof;

Figure 3 shows a longitudinal part-section through the fitment;

Figure 4 is a horizontal sectional view through the fitment at a level of a tamper-evident band on the line IV - IV of Figure 3; and

Figure 5 shows a detail of Figure 4.

[0013] Referring to the drawings, a pour spout fitment 2 comprises a tubular pour spout 4 incorporating an external flange 6 at its lower end. The flange 6 may be sealed to the outside of a wall of a packaging container round a location at which a pouring hole is formed, or will be formed by the fitment; alternatively, it may be sealed to the inside of the wall and the fitment protrude externally from a hole through the wall.

[0014] The spout 4 is formed with multi-start, external threading 8 which meshes with multi-start, internal threading 10 of a screw cap 12 of the fitment. The cap 12 is connected via bridges 14 to a tamper-evident band 16 of the fitment, the bridges 14 being distributed around the periphery of the cap 12.

[0015] The band 16 includes an annular flange 18 which projects into an annular slot 20 in the outside of the spout 4. At a predetermined location around the slot 20 there projects radially outwardly from the spout into the slot at least two (in this case a group of four) tooth-form detents 22, for co-operating with at least one of a plurality (in this case three) of tooth-form detents 24 equispaced around and projecting from the inner periphery of the flange 18. The detents 22 are in a single group spaced peripherally through 15° from each other, while the detents 24 are, of course, spaced peripherally from each other through 120°. The intention is that, upon unscrewing of the cap 12, the bridges 14 should break at the time when one of the detents 24 interdigitates with two of the dents 22. Although, thus only two detents 22

would appear to be required, the tolerances in moulding of the ribs and thus the angle of turning of the cap 12 relative to the spout 4 necessary to assure complete breaking of the bridges is relatively large, which is why four detents 22 are provided over an angle of 45°. Of course, with tighter tolerances in moulding of the bridges 14, three, or maybe even two, detents 22 could be sufficient. The number (three) of detents 24 equals the number (three) of starts of each threading 8 and 10.

[0016] The angle of turning required before complete breaking depends on the number of detents 24 and of the thread starts. For example, one detent 24 and one thread might require an angle of 360°.

[0017] As seen in Figure 1, the external peripheral surfaces of the cap 12 and the band 16 are formed with a vertical coloured printed mark 26 consisting of a part 26' on the cap and a part 26" on the band. The colour (e.g. red) of the mark 26 contrasts with the colour(s) (e.g. white) of the cap and the band. The external peripheral surface of the cap 12 is formed with knurling 28.

[0018] The method of opening and reclosing of the fitment 2 is as follows.

[0019] The cap 12, accompanied by the band 16, is turned relative to the spout 4. As its turning increases beyond about 60°, the bridges 14 are broken, because the flange 18 remains detained against axial movement by the upper surface 20' of the slot 20. Once a detent 22 is engaged between a pair of detents 24, the band 16 remains held in a limited peripheral position relative to the spout 4. As illustrated by Figure 2, upon full reclosing of the cap 12, the mark part 26' is visually identifiably displaced through about 60° relative to the mark part 26".

Claims

1. A pour spout fitment (2) comprising an externally threaded, tubular pour spout (4), an internally threaded cap (12) whereof the threading (10) co-operates with the external threading (8) of the spout (4), a tamper-evident band (16) co-axially and frangibly attached to an inner end of said cap (12), a substantially annular slot (20) substantially co-axial with and in one of said spout (4) and said band (16), a substantially annular flange (18) substantially co-axial with and provided by the other of said spout (4) and said band (16) and projecting into said slot (20), at least one detent (22, 24) in said slot (20), at least one detent (24) on said flange (18), a first external reference (26') on said cap (12), the arrangement being such that upon unscrewing of said cap (12), said at least one detent (22) on the spout (4) co-operates with said at least one detent (24) on the band (16) to detain the band (16) against turning movement relative to the spout (4) and to detain the band (16) in a position relative to the substantially fully reclosed cap (12), **characterised in that** the pour spout fitment (2) further comprises a second external reference (26") on said band (16) and in a predetermined relationship with said first external reference (26'), the arrangement being such that upon unscrewing of said cap (12), the reference (26") on the band (16) remains out of said predetermined relationship.

2. A fitment according to Claim 1, wherein said flange (18) is provided by said tamper-evident band (16).

3. A fitment according to Claim 1 or 2, wherein the detents (22, 24) comprise teeth operating with each other.

4. A fitment according to any one of Claims 1 to 3, wherein said at least one detent (24) on said band (16) faces substantially radially inwards and said at least one detent (22) on said spout (4) faces substantially radially outwards.

5. A fitment according to any one of Claims 1 to 4, wherein said internal threading (10) and said external threading (8) each have a plurality of starts.

6. A fitment according to Claim 5, wherein said plurality of starts is at least three.

7. A fitment according to any one of Claims 1 to 6, wherein each of the references (26) is coloured contrastingly with the colour(s) of the cap (12) and the band (16).

8. A fitment according to any one of Claims 1 to 7, wherein said references (26) have been printed onto said cap (12) and said band (16).

Patentansprüche

1. Ausgussarmatur (2), umfassend einen rohrförmigen Ausguss (4) mit Außengewinde, eine Kappe mit Innengewinde (12), deren Gewinde (10) mit dem Außengewinde (8) des Ausgusses (4) zusammenwirkt, ein manipulationssicheres Band (16), das koaxial zu und brechbar am inneren Ende der Kappe (12) befestigt ist, einen im Wesentlichen ringförmigen Schlitz (20), der im Wesentlichen koaxial zu und in einem von Ausguss (4) und Band (16) vorgesehen ist, einen im Wesentlichen ringförmigen Flansch (18), der im Wesentlichen koaxial zu und im anderen von Ausguss (4) und Band (16) bereitgestellt wird und in den Schlitz (20) hineinragt, mindestens eine Raste (22, 24) im Schlitz (20), mindestens eine Raste (24) auf Flansch (18), eine erste externe Referenz (26') auf der Kappe (12), wobei die Anordnung so ist, dass nach Abschrauben der Kappe (12) die mindestens eine Raste (22) auf dem Ausguss (4) mit der mindestens einen Raste (24) auf dem Band (16)

zusammenwirkt, um das Band (16) gegen eine Drehbewegung relativ zum Ausguss (4) zu arretieren und das Band (16) in einer Position relativ zu der im Wesentlichen vollständig wieder verschlossenen Kappe (12) zu arretieren, **dadurch gekennzeichnet, dass** die Ausgussarmatur (2) ferner eine zweite externe Referenz (26") auf dem Band (16) und in einer vorbestimmten Beziehung zu der ersten externen Referenz (26') umfasst, wobei die Anordnung so ist, dass nach Abschrauben der Kappe (12) die Referenz (26") auf dem Band (16) außerhalb der vorbestimmten Beziehung bleibt.

2. Armatur nach Anspruch 1, wobei der Flansch (18) von dem manipulationssicheren Band (16) gebildet wird.

3. Armatur nach Anspruch 1 oder 2, wobei die Rasten (22, 24) Zähne aufweisen, die zusammenwirken.

4. Armatur nach einem der Ansprüche 1 bis 3, wobei die mindestens eine Raste (24) auf dem Band (16) im Wesentlichen radial nach innen und die mindestens eine Raste (22) auf dem Ausguss (4) im Wesentlichen radial nach außen sieht.

5. Armatur nach einem der Ansprüche 1 bis 4, wobei das Innengewinde (10) und das Außengewinde (8) jeweils mehrere Gänge aufweisen.

6. Armatur nach Anspruch 5, wobei die mehreren Gänge mindestens drei sind.

7. Armatur nach einem der Ansprüche 1 bis 6, wobei jede der Referenzen (26) zur Farbe (zu den Farben) der Kappe (12) und des Bands (16) kontrastierend gefärbt sind.

8. Armatur zu einem der Ansprüche 1 bis 7, wobei die Referenzen (26) auf die Kappe (12) und das Band (16) aufgedruckt worden sind.

Revendications

1. Dispositif formant un bec verseur (2) comprenant un bec verseur tubulaire, fileté de manière externe (4), un bouchon fileté de manière interne (12) dont le filetage (10) coopère avec le filetage externe (8) du bec (4), une bande inviolable (16) fixée de manière coaxiale et frangible à une extrémité interne dudit bouchon (12), une fente sensiblement annulaire (20) sensiblement coaxiale avec l'un desdits becs verseurs (4) et dans ceux-ci et avec ladite bande (16), une bride sensiblement annulaire (18) sensiblement coaxial avec l'autre desdits bec verseurs (4) est fourni par celui-ci et avec ladite bande (16) et faisant saillie dans ladite fente (20), au moins un ergot (22, 24) dans ladite fente (20), au moins un ergot (24) sur ladite bride (18), une première référence externe (26') sur ledit bouchon (12), l'agencement étant tel que lors du dévissage dudit bouchon (12), ledit au moins un ergot (22) situé sur le bec verseur (4) coopère avec ledit au moins un ergot (24) situé sur la bande (16) afin de retenir la bande (16) contre un mouvement de rotation par rapport au bec verseur (4) et afin de retenir la bande (16) dans une position par rapport au bouchon sensiblement entièrement fermé (12), **caractérisé en ce que** le dispositif formant un bec verseur (2) comprend en outre une deuxième référence externe (26") située sur ladite bande (16) et dans une relation prédéterminée avec ladite première référence externe (26'), l'agencement étant tel que lors du dévissage bouchon (12), la référence (26") située sur la bande (16) reste en dehors de ladite relation prédéterminée.

2. Raccord selon la revendication 1, dans lequel ladite bride (18) est fournie par ladite bande inviolable (16).

3. Raccord selon la revendication 1 ou la revendication 2, dans lequel les ergots (22, 24) comprennent des dents qui fonctionnent les unes avec les autres.

4. Raccord selon l'une quelconque des revendications 1 à 3, dans lequel ledit au moins un ergot (24) situé sur ladite bande (16) fait face sensiblement de manière radiale vers l'intérieur et ledit au moins un ergot (22) situé sur ledit bec verseur (4) fait face sensiblement de manière radiale vers l'extérieur.

5. Raccord selon l'une quelconque des revendications 1 à 4, dans lequel ledit filetage interne (10) et ledit filetage externe (8) possèdent chacun une pluralité de démarrages

6. Raccord selon la revendication 5, dans lequel ladite pluralité de démarrages est d'au moins trois.

7. Raccord selon l'une quelconque des revendications 1 à 6, dans lequel chacune des références (26) est colorée de manière contrastante avec la ou les couleurs du bouchon (12) et avec la bande (16).

8. Raccord selon l'une quelconque des revendications 1 à 7, dans lequel lesdites références (26) ont été imprimées sur ledit bouchon (12) et sur ladite bande (16).

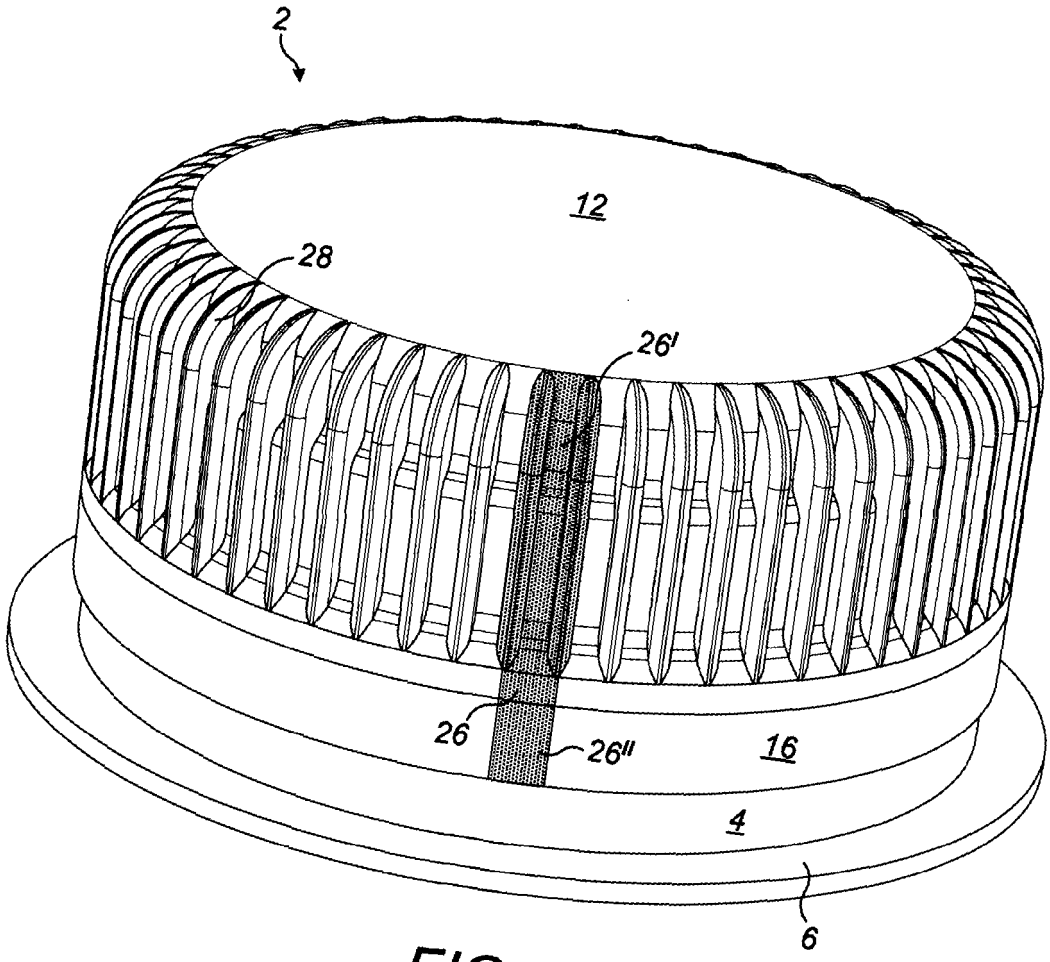

FIG. 1

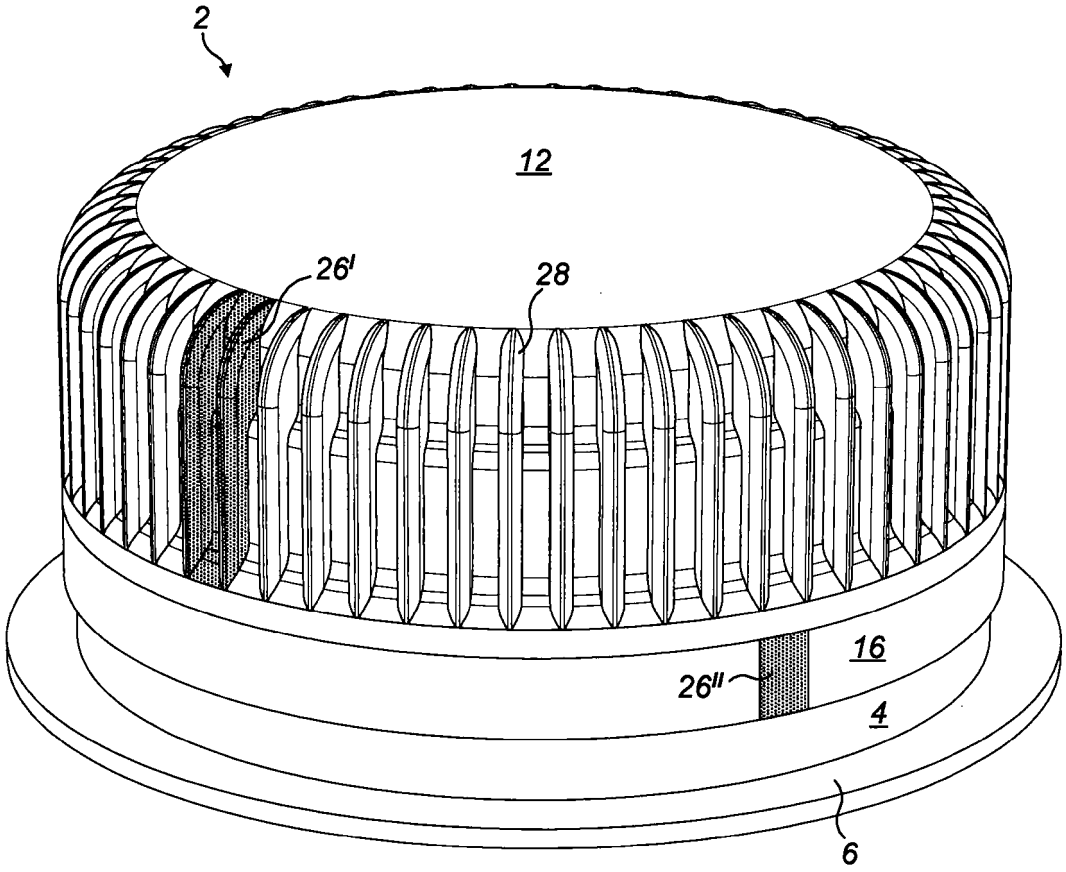

FIG. 2

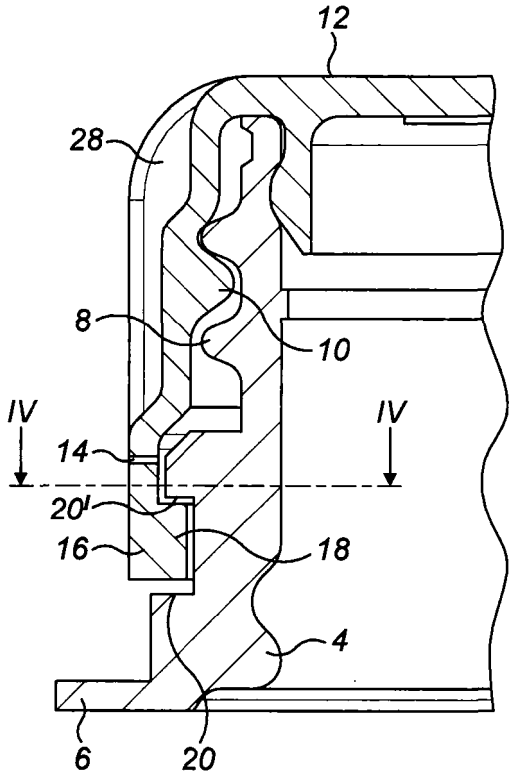

FIG. 3

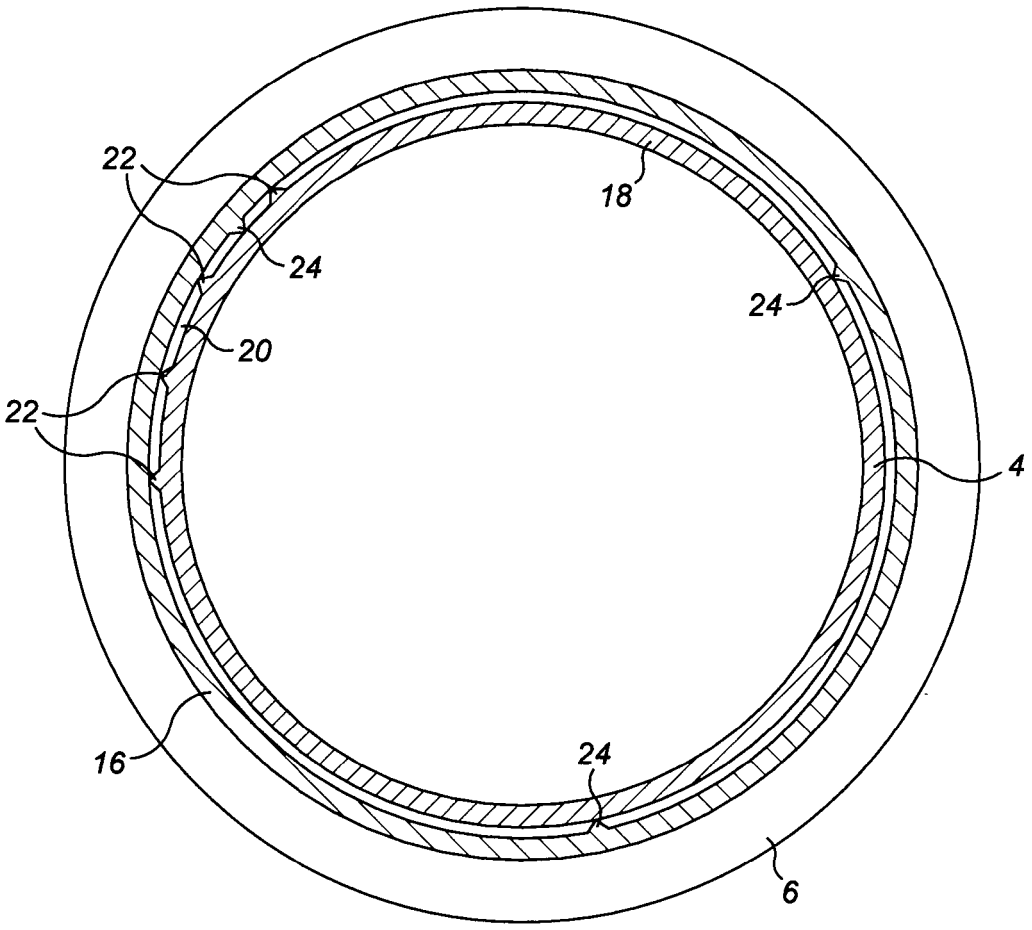

FIG. 4

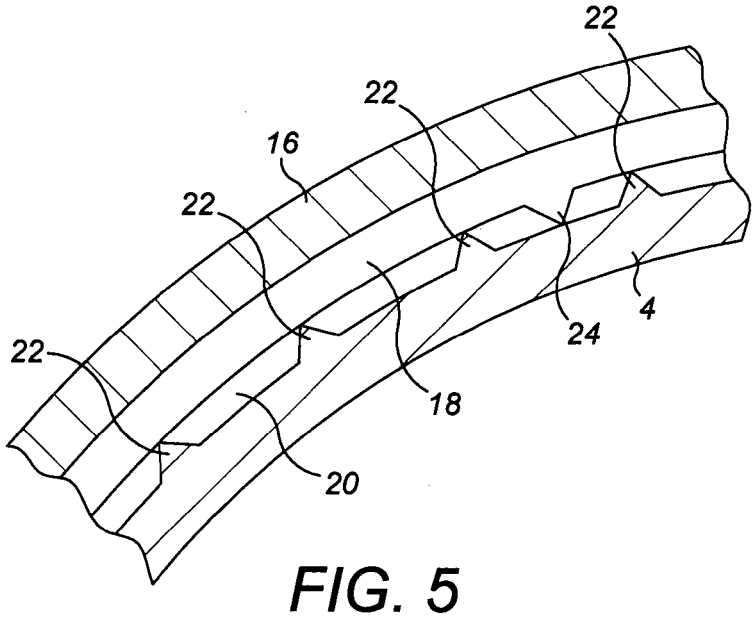

FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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