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(54) KEG-VALVE WITH ANTI-TAMPERING MEANS

FASSVENTIL MIT VERSCHLUSS-SICHERUNG

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Description

[0001] The invention relates to a container for beer, soft drinks and the like, which includes a shut-off cock comprising an inner part, on which an outer part is mounted, wherein one of said parts is fixed to the container and wherein an annular seal is fitted over said inner part and/or said outer part in such a manner that removal of the inner part from the outer part will result in said annular seal being damaged.

[0002] WO 95/16613 relates to a blocking arrangement for secure prevention of a spear being unscrewed from a corresponding neck using in a container for a liquid. The spear is provided with a shield made of a material, which can be broken relatively easily, for example plastic.

[0003] It is customary to provide the shut-off cock of a container for beer, soft drinks or wine, for example, with a seal or tamper evident device, which tells a person who inspects the container, generally the producer of the beverage, whether at least the part that is usually called the "extractor tube" was removed from the container or that an attempt was made to do so during the period that the container was not at the manufacturer's premises.

[0004] The presence of such a seal can be necessary, or at least desirable, for a number of reasons. Many containers are under an internal gas pressure, for example, so that inexpert fitting and removal of the container connection may result in a highly dangerous situation. Furthermore the container must be prevented from being filled with substances other than that for which the container is intended, in particular because this often makes the container difficult, if not altogether impossible, to clean by means of the automatic cleaning procedure.

[0005] Annular seals are often in the form of a full plastic ring, which is provided with one or more weakened spots, so that unauthorized removal of the annular seal will easily result in visible and permanent damage thereto. Said annular seal is for example fitted round the outer part by means of elastic deformation of the seal.

[0006] One drawback of a construction of this kind is that a fracture may occur when the seal is being fitted and that the extractor tube must be removed from the container in order to fit a new seal in case of the seal, whether or not accidentally, being damaged.

[0007] It is an object of the present invention to eliminate these drawbacks.

[0008] In order to accomplish that objective, the container according to the invention is characterised in that the annular seal is divided at at least one location, and that the seal comprises a once-only closure at the location of the division.

[0009] Preferably, the closure comprises an opening on one side of said division and a projection on the other side, with at least part of which projection having a width greater than the width of the opening. When a part or a neck having a width smaller than or equal to the width

of the opening is furthermore present between the ring and the part of the projection that has a width greater than that of the opening, a readily effected snap closure will be obtained. A suitable embodiment is one wherein

5 the projection comprises a tooth and/or wherein the opening includes at least one locking tooth.

[0010] The invention will be explained in more detail hereafter with reference to the drawings, which show two exemplary embodiments of the shut-off cock according to the invention.

Figure 1 is a vertical sectional view of a shut-off cock provided with an annular seal.

Figure 2 is a bottom plan view of a first annular seal according to the present invention.

Figures 3 and 4 show a detail view, a top plan view and a side view, respectively, of the annular seal of Figure 2.

Figure 5 is a bottom plan view of a second annular seal according to the present invention.

Figures 6 and 7 show a detail view, a top plan view and a side view, respectively, of the annular seal of Figure 2.

25 **[0011]** Identical or comparable parts are indicated by the same numerals in the various figures.

[0012] Figure 1 shows an example of a plastic, annular seal 1 or tamper evident device attached to a shut-off cock 2 of a container 3 for beer, soft drinks and the like. A cylindrical outer part or neck ring 4 is attached, whether or not detachably, on container 3. Present within said neck ring 4 is a cylindrical inner part 5 comprising a riser pipe 6 and a shut-off member or valve 7 for closing container 3.

30 **[0013]** In order to prevent inner part 5 being easily removed by unauthorized or insufficiently instructed persons, a springing locking ring 8 is confined between inner part 5 and neck ring 4. Said locking ring 8 can be pushed inwards into the wall of neck ring 4 via one or 40 more openings 9 (six in the present embodiment), after which the inner part 6 can be removed from neck ring 4. The openings 9 are sealed by means of annular seal 1, so that the clearing of said openings 9 will result in permanent damage to the annular seal 1.

45 **[0014]** A packing 10 is disposed between inner part 4 and neck ring 2, near container 3, which packing forms a gas-tight seal.

50 **[0015]** Figure 2 shows an annular seal 20 according to the invention, which includes a once-only closure 21. Annular seal 20 furthermore comprises two weakened or thin spots 22, the weakening being such that the ring will break when a preset load is exerted thereon. Furthermore annular seal 20 comprises cams 23 for positioning seal 20 relative to the neck ring 4 on container 3. 55 The location of cams 23 corresponds to the location of the openings 9 for pushing the locking ring 8 inwards.

[0016] Figure 3 shows the closure 21 of annular seal 20 in more detail. Annular seal 20 comprises a division

24, on one side of which a projection comprising an arrowhead including two teeth 26 and a neck 27 is present. Present on the other side of the division is a cavity 28, which comprises an opening whose width is smaller than the widest portion of the arrowhead 25 but greater than the narrow portion of neck 27 directly behind arrowhead 25. A locking tooth 29 is present on either side of the opening. The angles between arrowhead 25 and neck 27 are preferably acute, that is, smaller than 90°. The same holds for the apex angle of locking teeth 29. Thus a very effective locking engagement is provided and it has become impossible to remove arrowhead 25 from cavity 28 without neck 27 breaking or the opening of cavity 28 being irreparably damaged.

[0017] Possibly, arrowhead 25 and/or the opening can be provided with two or more teeth or locking teeth arranged one behind another, so that annular seal 21 can be fitted round closures of varying diameter.

[0018] The outer tangential wall of cavity 28 continues in a tangential wall 30 which screens neck 27 and which additionally makes it more difficult to tamper with the closure. In the preferred embodiment which is shown in the figures, a second tangential wall 31 is moreover provided, which wall extends parallel to neck 27 and which in turn screens tangential wall 30. In order to prevent second tangential wall 31 being bent back easily, the end of second tangential wall 31 is bevelled. Bevelled portion 32 falls into a complementary groove 33 in the outer tangential wall of cavity 28 in the closed position of closure 21.

[0019] Figure 4 moreover shows a cross wall 34 which prevents arrowhead 25 and neck 28 being moved apart in the axial direction of annular seal 20. The location of said cross wall 34 is selected in dependence on the shape of the closure, such that it is made impossible to disengage the annular seal in axial direction. Possibly, two cross walls can be used, thus closing cavity 28 all around.

[0020] Figures 5 - 7 show a second annular seal 20 according to the invention, which includes a once-only closure 21. Cavity 28 is formed with a cross connection 35 opposite cross wall 34, such that arrowhead 25 can no longer be removed from the opening in axial direction. Arrowhead 25 is formed with two resilient teeth 26, for example, which are each provided with an undercut 37, and a neck 27. Neck 27 is attached to the remaining portion of seal 20 by means of a comparatively thin portion. Also said thin portion 36 forms a place of fracture.

[0021] An attempt to detach closure 21 will result in an outward force being exerted, which will enhance the locking action of teeth 26 with respect to locking teeth 29. As a matter of fact, also locking teeth 29 may be formed with an undercut. Undercut 37 of teeth 26 may be left out in that case.

[0022] The annular seal according to the invention is preferably made of a plastic which is resistant inter alia to acids, bases, elevated temperatures and chemicals which are used in the cleaning of the containers. Fur-

thermore it is possible to place the brand name and/or the logo of the producer of the contents (beer, wine, soft drinks and the like) of the container on the ring.

[0023] The annular seals according to the invention 5 can also be used in shut-off cocks other than the above-described one. Thus the seals can be adapted for use with shut-off cocks whose inner part and outer part include a (projecting) edge or flange, which edges will abut against each other once the inner part has been 10 fitted in the outer part. Preferably, said edges are substantially flat (on their facing sides) and so wide that a sufficient amount of (static) friction can be generated between the edges. As a result, the moment with which the inner part can be tightened up can be made sufficiently high to make it more difficult to unscrew the inner part (without tools). For this type of shut-off cock, the seal is formed with (inwardly) projecting edges or segments, which engage over the edges of the inner part and the outer part.

[0024] From the foregoing it will be apparent that the 15 invention provides an annular seal which can be fitted in a very simple manner, also if the extractor tube is already mounted in the container, all this without affecting the proper action of the seal.

[0025] The invention is not limited to the embodiment 20 as described above and shown in the drawings, which can be varied in several ways without departing from the scope of the claims. Thus the term "once-only closure" implies that the closure, after being fitted over the seal 25 present on the object to be sealed, cannot be removed without causing visible damage.

Claims

- 35 1. A container (3) for beer, soft drinks and the like, which includes a shut-off cock (2) comprising an inner part (5), on which an outer part (4) is mounted, wherein one of said parts (4, 5) is fixed to the container (3) and wherein an annular seal (1; 20) is fitted over said inner part (5) and/or said outer part (4) in such a manner that removal of the inner part (5) from the outer part (4) will result in said annular seal (1; 20) being damaged, **characterised in that** the annular seal (20) is divided at least one location, and that the seal (20) comprises a once-only closure (21) at the location of the division (24).
- 40 2. A container (3) according to claim 1, wherein the closure (21) is formed with an opening on one side of said division (24) and a projection (25) on the other side, with at least part of said projection having a width greater than the width of the opening, and wherein a part or a neck (27) having a width smaller than or substantially equal to the width of the opening is present between the seal (20) and the part of the projection (25) that has a width greater than that of the opening.
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3. A container (3) according to claim 2, wherein said projection (25) comprises at least one tooth (26).
4. A container (3) according to claim 3, wherein said tooth (26) is provided with an undercut (37).
5. A container (3) according to any one of the claims 2 - 4, wherein the opening is formed with at least one locking tooth (29), which is preferably provided with an undercut.
6. A container (3) according to any one of the claims 3 - 5, wherein the apex angle of the tooth (26) and/or of the locking tooth (29) is smaller than 90 .
7. A container (3) according to any one of the claims 2 - 6, wherein the opening fully surrounds the projection (25) locally, for example by means of a cross connection (35) or cross connections and/or wherein at least one cross wall (34) is provided behind the opening, which cross wall prevents the projection (25) and the neck (27) being moved from the opening in the axial direction of the annular seal (20).
8. A container (3) according to any one of the claims 2 - 7, wherein a tangential wall is provided, which screens the part of the projection (25) that extends through the opening.
9. A container (3) according to claim 8, wherein said tangential wall (30) continues and in addition screens the neck (27).
10. A container (3) according to claim 9, wherein a second tangential wall (31) is provided, which extends parallel to the neck (27) and which screens said first tangential walls (30).
11. A container (3) according to any one of the preceding claims, wherein the parts (4, 5) of the shut-off cock (2) can only be detached from each other by releasing the locking engagement of a locking ring (8) which is present between said parts (4, 5) and whose locking engagement can be released through an opening (9) in the wall of the outer part (4).
12. An annular tamper evident seal (20) for sealing a container according to one of claims 1-11 **characterised in that** said annular seal (20) is divided at least one location, and that the seal (20) comprises a once-only closure (21) at the location of the division (24).

Patentansprüche

1. Behälter (3) für Bier, Softdrinks und ähnliches, mit

- 5 einem Absperrhahn (2), umfassend ein Innenteil (5), auf dem ein Außenteil (4) angebracht ist, wobei eines der Teile (4, 5) an dem Behälter (3) befestigt ist und wobei eine ringförmige Dichtung (1; 20) derart über das Innenteil (5) und/oder das Außenteil (4) gepasst ist, dass ein Entfernen des Innenteils (5) von dem Außenteil (4) dazu führt, dass die ringförmige Dichtung (1; 20) beschädigt wird, **dadurch gekennzeichnet, dass** die ringförmige Dichtung (20) an wenigstens einer Stelle geteilt ist und dass die Dichtung (20) an der Stelle der Teilung (24) einen Einmal-Verschluss (21) umfasst.
- 10 2. Behälter (3) nach Anspruch 1, bei dem der Verschluss (21) auf einer Seite der Teilung (24) mit einer Öffnung und auf der anderen Seite mit einem Vorsprung (25) ausgebildet ist, wobei wenigstens ein Teil des Vorsprungs eine Breite aufweist, die größer ist als die Breite der Öffnung und wobei ein Teil oder ein Stutzen (27) mit einer Breite, die kleiner als die Breite der Öffnung oder im Wesentlichen gleich dazu ist, zwischen der Dichtung (20) und dem Teil des Vorsprungs (25), der eine größere Breite aufweist als die Öffnung, vorhanden ist.
- 15 25 3. Behälter (3) nach Anspruch 2, wobei der Vorsprung (25) wenigstens einen Zahn (26) umfasst.
- 20 30 4. Behälter (3) nach Anspruch 3, bei dem der Zahn (26) mit einem Hinterschnitt (37) versehen ist.
- 25 35 5. Behälter (3) nach einem der Ansprüche 2 bis 4, bei dem die Öffnung mit wenigstens einem Verriegelungszahn (29) ausgebildet ist, der vorzugsweise mit einem Hinterschnitt versehen ist.
- 30 40 6. Behälter (3) nach einem der Ansprüche 3 bis 5, bei dem der Öffnungswinkel des Zahns (26) und/oder des Verriegelungszahns (29) größer als 90° ist.
- 35 45 7. Behälter (3) nach einem der Ansprüche 2 bis 6, bei dem die Öffnung den Vorsprung (25) lokal, zum Beispiel mittels einer Querverbindung (35) oder Quer-verbindungen, vollständig umgibt und/oder bei dem wenigstens eine Querwand (34) hinter der Öffnung vorgesehen ist, die verhindert, den Vorsprung (25) und den Stutzen (27) von der Öffnung in der Axialrichtung der ringförmigen Dichtung (20) zu bewegen.
- 40 50 8. Behälter (3) nach einem der Ansprüche 2 bis 7, bei dem eine tangentielle Wand vorgesehen ist, die den Teil des Vorsprungs (25) abdeckt, der sich durch die Öffnung erstreckt.
- 45 55 9. Behälter (3) nach Anspruch 8, bei dem sich die tangentielle Wand (30) fortsetzt und zusätzlich den Stutzen (27) abdeckt.

10. Behälter (3) nach Anspruch 9, bei dem eine zweite tangentiale Wand (31) vorgesehen ist, die sich parallel zu dem Stutzen (27) erstreckt und die die ersten tangentialen Wände (30) abdeckt.
11. Behälter (3) nach einem der vorstehenden Ansprüche, bei dem die Teile (4, 5) des Absperrhahns (2) nur durch Freigeben des Verriegelungseingriffs eines Verriegelungsringes (8), der zwischen den Teilen (4, 5) vorhanden ist und dessen Verriegelungseinriff durch eine Öffnung (9) in der Wand des Außensteils (4) freigegeben werden kann, voneinander entfernt werden können.
12. Ringförmige, manipulationssichere Dichtung (20) zum Abdichten eines Behälters gemäß einem der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** die ringförmige Dichtung (20) an wenigstens einer Stelle geteilt ist und dass die Dichtung (20) an der Stelle der Teilung (24) einen Einmalverschluss (21) umfasst.

Revendications

1. Récipient (3) pour de la bière, des boissons non alcoolisées et similaire, qui comprend un robinet d'arrêt (2) comprenant une partie interne (5), sur laquelle une partie externe (4) est montée, dans lequel l'une desdites parties (4, 5) est fixée au récipient (3) et dans lequel un joint annulaire (1 ; 20) est ajusté au-dessus de ladite partie interne (5) et/ou ladite partie externe (4) de telle manière que le retrait de la partie interne (5) de la partie externe (4) conduit à ce que ledit joint annulaire (1 ; 20) soit endommagé, **caractérisé en ce que** le joint annulaire (20) est divisé à au moins un emplacement, et que le joint (20) comprend une fermeture à usage unique (21) à l'emplacement de la division (24).
2. Récipient (3) selon la revendication 1, dans lequel la fermeture (21) est formée avec une ouverture sur un côté de ladite division (24) et une saillie (25) sur l'autre côté, au moins une partie de ladite saillie ayant une largeur supérieure à la largeur de l'ouverture, et dans lequel une partie ou un col (27) ayant une largeur inférieure à ou sensiblement égale à la largeur de l'ouverture est présente entre le joint (20) et la partie de la saillie (25) qui a une largeur supérieure à celle de l'ouverture.
3. Récipient (3) selon la revendication 2, dans lequel ladite saillie (25) comprend au moins une dent (26).
4. Récipient (3) selon la revendication 3, dans lequel ladite dent (26) est pourvue d'une gorge (37).
5. Récipient (3) selon l'une quelconque des revendi-

- cations 2 à 4, dans lequel l'ouverture est formée avec au moins une dent de verrouillage (29), qui est, de préférence, pourvue d'une gorge.
- 5 6. Récipient (3) selon l'une quelconque des revendications 3 à 5, dans lequel l'angle de sommet de la dent (26) et/ou la dent de verrouillage (29) est inférieur à 90°.
 - 10 7. Récipient (3) selon l'une quelconque des revendications 2 à 6, dans lequel l'ouverture entoure complètement la saillie (25) localement, par exemple, au moyen d'une connexion croisée (35) ou de connexions croisées et/ou dans lequel au moins une paroi transversale (34) est disposée derrière l'ouverture, ladite paroi transversale empêchant la saillie (25) et le col (27) d'être déplacés de l'ouverture dans la direction axiale du joint annulaire (20).
 - 15 20 8. Récipient (3) selon l'une quelconque des revendications 2 à 7, dans lequel une paroi tangentielle est disposée, qui masque la partie de la saillie (25) qui s'étend à travers l'ouverture.
 - 25 9. Récipient (3) selon la revendication 8, dans lequel ladite paroi tangentielle (30) continue et, de plus, masque le col (27).
 - 30 10. Récipient (3) selon la revendication 9, dans lequel une deuxième paroi tangentielle (31) est disposée, qui s'étend parallèlement au col (27) et qui masque lesdites premières parois tangentielles (30).
 - 35 11. Récipient (3) selon l'une quelconque des revendications précédentes, dans lequel les parties (4, 5) du robinet d'arrêt (2) peuvent être détachées l'une de l'autre uniquement en libérant la mise en prise de verrouillage d'une bague de blocage (8) qui est présente entre lesdites parties (4, 5) et dont la mise en prise de verrouillage peut être libérée à travers une ouverture (9) dans la paroi de la partie externe (4).
 - 40 45 12. Joint inviolable annulaire (20) pour étanchéifier un récipient selon l'une des revendications 1 à 11, **caractérisé en ce que** ledit joint annulaire (20) est divisé à au moins un emplacement, et que le joint (20) comprend une fermeture à usage unique (21) à l'emplacement de la division (24).
 - 50 55

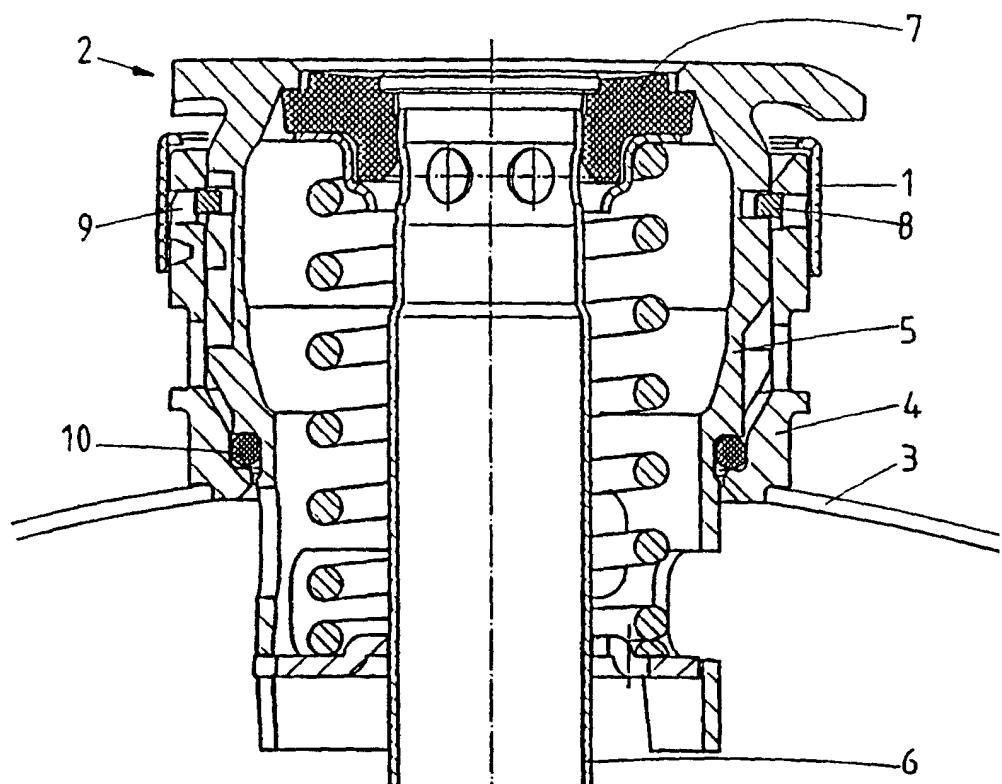


fig.1

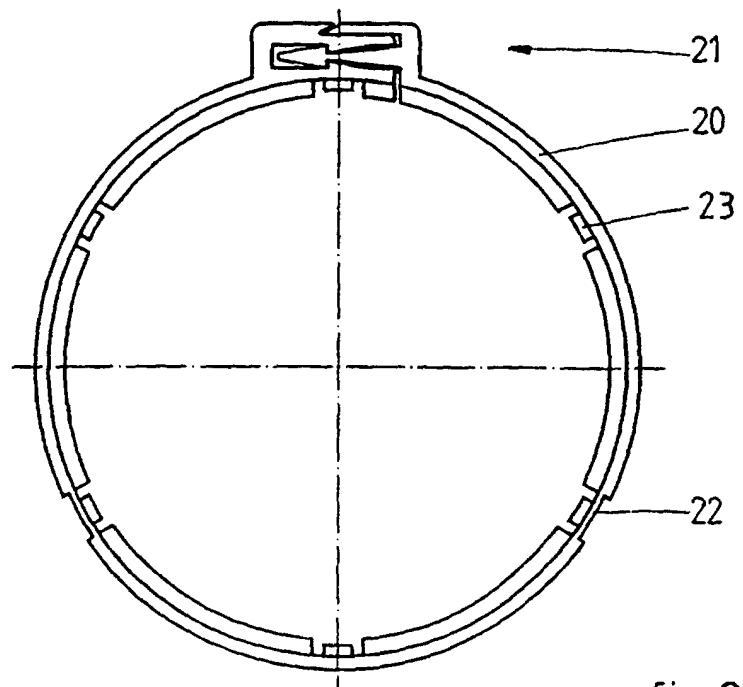


fig.2

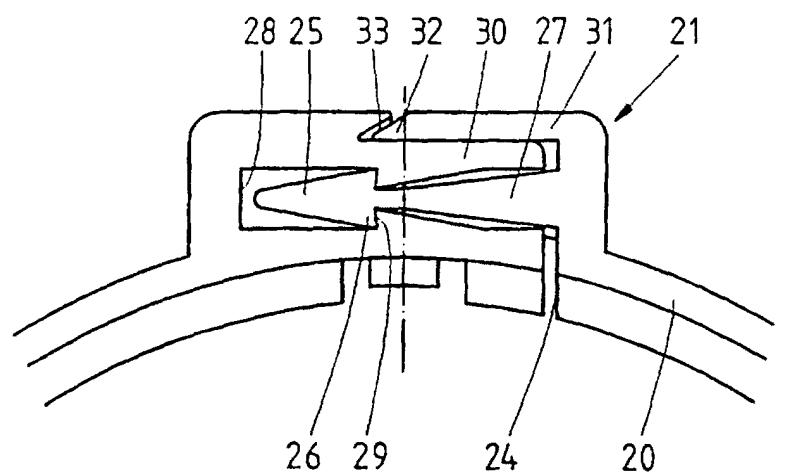


fig.3

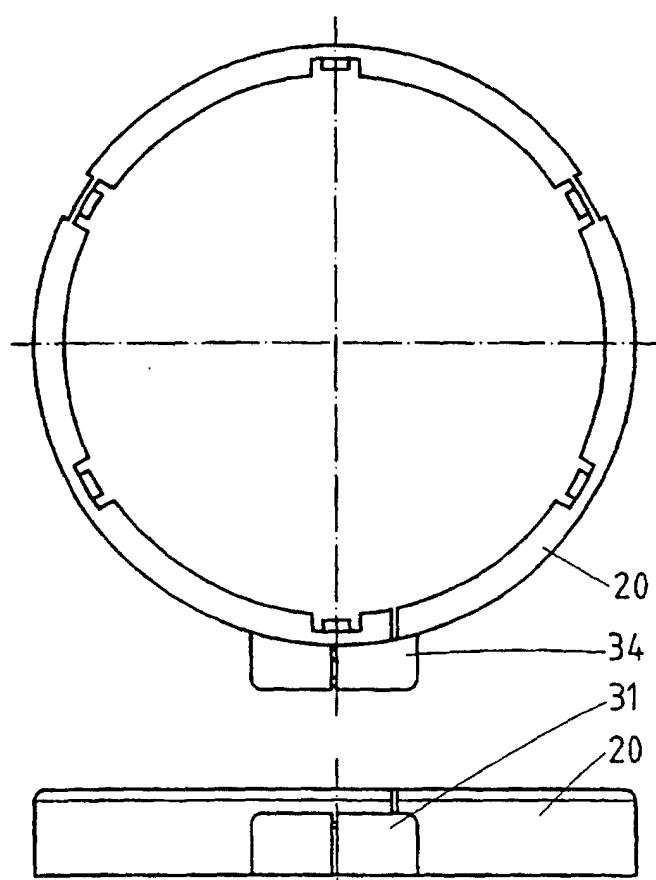


fig.4

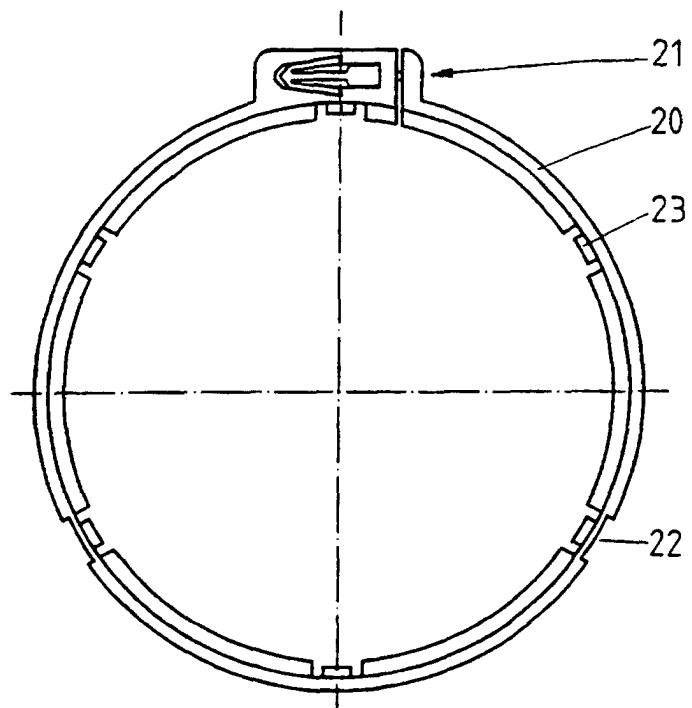


fig.5

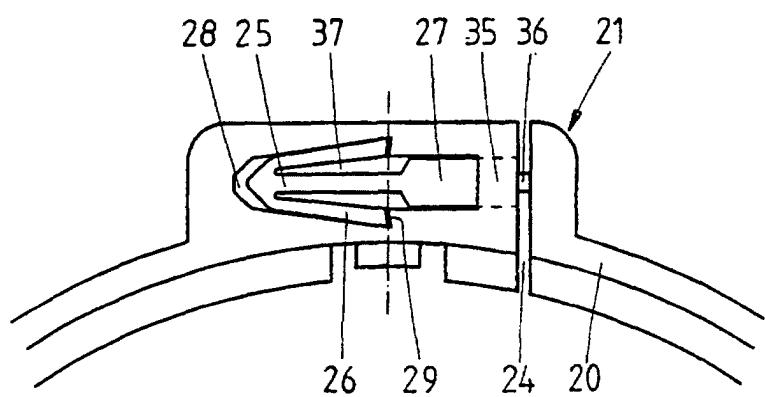


fig.6

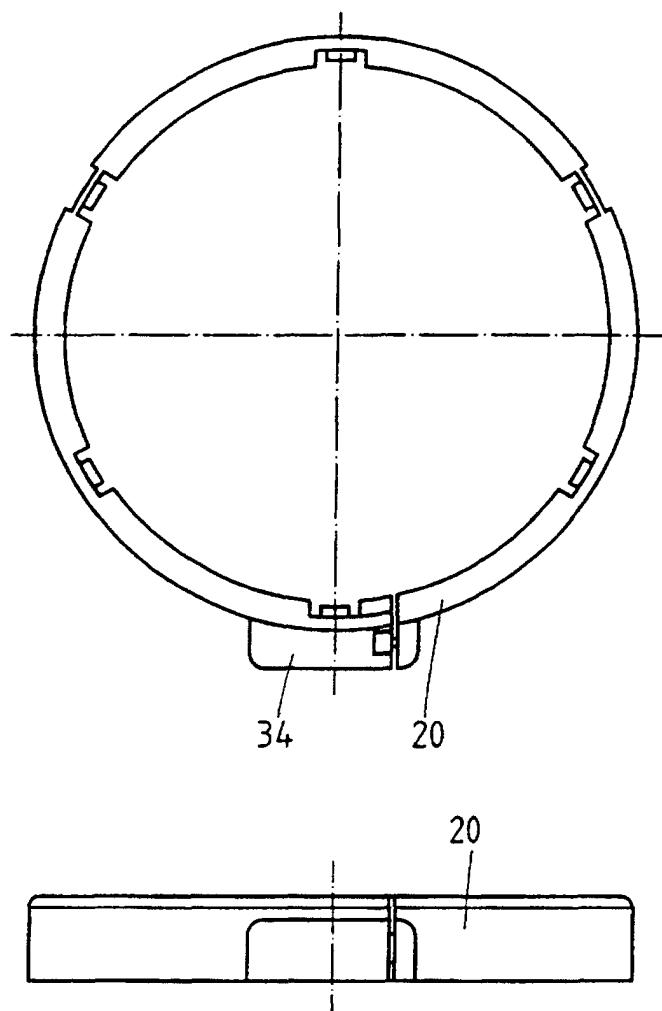


fig.7