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(54) **TAMPER PROOF SEAL**

(57) The present invention relates to a keg cap for a keg, such as a beer keg, the keg comprising a keg head for filling the keg, wherein the keg cap comprises a lid and a skirt adjoining thereto, the keg cap comprising a detachable portion for removing the keg cap from the keg head, said detachable portion being outlined by a first and a second pair of tear lines, wherein the first pair of tear lines extends over the full diameter of the lid of the

keg cap and wherein the inner wall of said skirt is provided with a plurality of internally directed resilient retention spears along the circumference of the skirt, wherein the angle of the retention spear with the inner wall of the skirt is between 15 degrees and 40 degrees. The present invention also relates to a keg provided with a keg cap, a mold, and a beer in a keg.

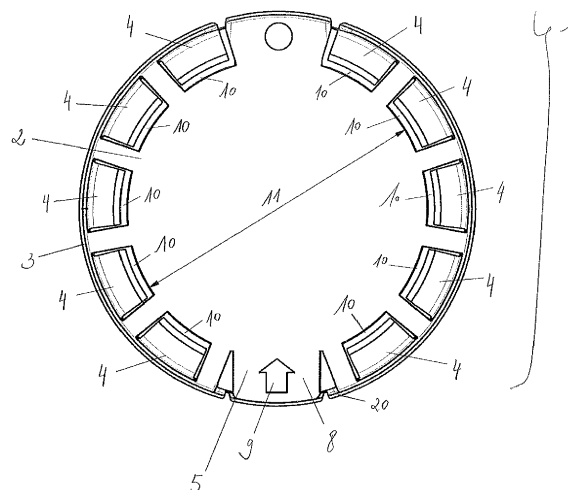


Figure 1

Description

TECHNICAL FIELD

[0001] The invention relates to a keg cap for a keg, such as a beer keg. The invention also relates to a keg provided with the aforesaid keg cap, a mold for producing the aforesaid keg cap and a beer in a keg, wherein the keg in which the beer is located is provided with the aforementioned keg cap.

PRIOR ART

[0002] Sealing the keg head of kegs is essential to prevent dust and other unwanted particles from accumulating in and around the keg head of the keg. This is important, for example, when the keg is stored in an uncovered space and exposed to different weather conditions.

[0003] In order to protect kegs against fraud, it is also important that the kegs cannot be closed again unnoticed after opening.

[0004] One way to achieve these points is to provide the keg with a keg cap.

[0005] Several keg caps are already on the market, as described for example in GB 2 319 019 and BE 1 008 450. Often these keg caps consist of a lid and an adjoining skirt, wherein the skirt surrounds the perimeter of the keg head collar of the keg. The problem, however, is that these keg caps often do not fit closely enough to the keg head of the keg, so that they can be placed back on the keg undetected after opening. As a result, the keg is insufficiently protected against fraud or attempted fraud. Also, dust and other unwanted particles can accumulate in and around the keg head of the keg.

[0006] The present invention aims to find a solution for at least some of the above problems.

SUMMARY OF THE INVENTION

[0007] The invention relates to a keg cap for a keg according to claim 1. More particularly, the invention relates to a keg cap for a keg, such as a beer keg, the keg comprising a keg head for filling the keg, wherein the keg cap comprises a lid and a skirt adjoining thereto, the keg cap comprising a detachable portion for removing the keg cap from the keg head, said detachable portion being outlined by a first and a second pair of tear lines, wherein the first pair of tear lines extends over the full diameter of the lid of the keg cap and wherein the inner wall of said skirt is provided with a plurality of internally directed resilient retention spears along the circumference of the skirt, wherein the angle of the retention spear with the inner wall of the skirt is between 15 degrees and 40 degrees. Preferred embodiments of this keg cap are set forth in claims 2-12.

[0008] By providing the keg cap with retention spears that form an angle between 15 degrees and 40 degrees with the inner wall of the skirt, the keg cap can fit closely

and securely to the keg head of the keg, and it is impossible to remove the keg cap without breaking or tearing it into multiple parts. This means that fraud does not go unnoticed. Moreover, since the keg cap fits closely to the keg head, the accumulation of dust and other unwanted particles in and around the keg head will be avoided.

[0009] In a second aspect, the invention relates to a keg provided with said keg cap.

[0010] In a further aspect, the invention relates to a mold for producing said keg cap.

[0011] In a final aspect, the invention relates to a beer in a keg, wherein the keg is provided with said keg cap.

DESCRIPTION OF THE FIGURES

[0012]

Figure 1 shows a top view of the keg cap according to the present invention.

Figure 2 shows a side view of the keg cap of the present invention.

Figure 3 shows a cross-section of the keg cap according to the present invention in side view, in which the retention spears and the intermediate tabs are clearly visible.

Figure 4 shows a detail view of a retention spear of the keg cap of the present invention coupled to the keg head collar of the keg.

Figure 5 shows a top and bottom view of the keg cap according to the present invention.

DETAILED DESCRIPTION

[0013] Unless otherwise defined, all terms used in the description of the invention, including technical and scientific terms, have the meaning as commonly understood by a person skilled in the art to which the invention pertains. For a better understanding of the description of the invention, the following terms are explained explicitly.

[0014] In this document, "a" and "the" refer to both the singular and the plural, unless the context presupposes otherwise. For example, "a segment" means one or more segments.

[0015] The terms "comprise", "comprising", "consist of", "consisting of", "provided with", "have", "having", "include", "including", "contain", "containing" are synonyms and are inclusive or open terms that indicate the presence of what follows, and which do not exclude or prevent the presence of other components, characteristics, elements, members, steps, as known from or disclosed in the prior art.

[0016] Quoting numerical intervals by endpoints comprises all integers, fractions and/or real numbers between the endpoints, these endpoints included.

[0017] In a first aspect, the invention relates to a keg cap for a keg, such as a beer keg, the keg comprising a keg head for filling the keg, wherein the keg cap comprises a lid and a skirt adjoining thereto, the keg cap comprising a detachable portion for removing the keg cap from the keg head, said detachable portion being outlined by a first and a second pair of tear lines, wherein the first pair of tear lines extends over the full diameter of the lid of the keg cap and wherein the inner wall of said skirt is provided with a plurality of internally directed resilient retention spears along the circumference of the skirt, the latter being able to elastically press against the keg head collar in the coupled locked state.

[0018] The operation of the keg cap is based on the resilient effect of the retention spears. These retention spears are connected to the skirt of the keg cap and are located along the circumference of the skirt. When placing the keg cap over the keg head collar, the retention spears bend toward the skirt and thus allow mounting of the keg cap. Once fitted over the keg head collar, the retention spears spring inward again. Crucial to the tight fit of the keg cap to the keg head of the keg is the angle formed between the retention spear and the inner wall of the skirt. On the one hand, this angle must be sufficiently large so that the retention spears can prevent the keg cap from being removed from the keg head in one piece after placement, but on the other hand must be as small as possible so that the keg cap fits closely to the keg head. The keg cap according to the present invention is such that the angle of the retention spear with the inner wall of the skirt of the keg cap is between 15 degrees and 40 degrees, preferably between 20 degrees and 36 degrees. Retention spears forming an angle with the inner wall of such an order of magnitude allow the keg cap to fit closely and securely enough to the keg head of the keg. This makes it impossible to remove the keg cap without breaking or tearing it into multiple parts and furthermore prevents the build-up of dust and other unwanted particles at the keg head of the keg.

[0019] Before the keg can be connected, the keg cap must be removed. Given the design of the keg cap, this can only be done in a controlled manner by tearing through the keg cap. In order to open the keg cap in a controlled manner, the keg cap is provided with a detachable portion that can be detached from the keg cap by means of tear lines.

[0020] In one embodiment, the first pair of tear lines of the detachable portion of the keg cap continues at one end of the lid of the keg cap in two openings that terminate in the second pair of tear lines and the first pair of tear lines terminate at the other end of the lid in a tear tab. The tear tab is separated from the keg cap skirt by a tear tab opening. The keg cap skirt is provided with a third pair of tear lines at the tear tab opening.

[0021] By providing the second pair of tear lines in the keg cap, the detachable portion can be completely separated from the keg cap when the keg cap is opened. Thus, when pulling the tear tab, the first pair of tear lines,

the openings in the skirt and the second pair of tear lines will ensure that the detachable portion is completely removed from the keg cap in a controlled manner and the latter can be disconnected from the keg head of the keg. By removing the detachable portion, the keg cap cannot be put back in one piece and opening the keg cap cannot go unnoticed. Opening the keg cap in a controlled manner (via the tear tab) thus provides the best indication that the keg has not been tampered with.

[0022] Preferably, the detachable portion can be easily removed from the keg cap. In a preferred embodiment, the portion of the detachable portion in the lid and the portion in the skirt therefore form one rigid whole. As a result, the last part of the detachable portion, the part in the skirt, can be easily removed by means of a lever effect. The two openings in the skirt as a continuation of the first pair of tear lines allow the length of the second pair of tear lines to be reduced, which in turn facilitates removal of the detachable portion.

[0023] Improperly removing the keg cap from the keg head can also cause the third pair of tear lines to rupture. Thus, if the third pair of tear lines is torn, it may be indicative of fraud.

[0024] The tear tab and tear tab opening function to facilitate removal of the detachable portion.

[0025] In one embodiment, the keg cap further comprises intermediate tabs, wherein these intermediate tabs arise from the inside of the skirt of the keg cap and wherein these intermediate tabs, in the coupled condition of the keg cap and the keg, surround the keg head collar of the keg. In one embodiment, the intermediate tabs are positioned at least on either side of each retention spear. The function of these intermediate tabs is to allow the keg cap to fit closely to the keg head collar of the keg. These intermediate tabs can take any shape. In a preferred embodiment, the thickness of these intermediate tabs is between 0.5 mm and 2.5 mm. This thickness is suitable for allowing the keg cap to closely match the diameter of the keg head collar. In one embodiment, the keg cap further comprises release apertures in the lid of the keg cap. These release apertures are necessary to form the retention spears on the inside of the keg cap skirt during the keg cap manufacturing process. Such a release aperture is therefore always located at the level of a retention spear. In a further embodiment the width of these release apertures is substantially equal to the width of the retention spears. Furthermore, these release apertures allow visually checking the positioning of the retention spears against the keg head collar when placing the keg cap on the keg head of the keg.

[0026] The tear lines can be on the inside (the side facing the keg head) or on the outside (the side facing the outside environment) of the keg cap.

[0027] In one embodiment of the keg cap, the first pair of tear lines is on the outside of the lid. In another embodiment of the keg cap, the first pair of tear lines is on the inside of the lid. Providing the first pair of tear lines, which are located on the horizontal plane of the lid, on

the inside of the lid, ensures that the outside of the lid forms a plane without any relief. As a result, this outside of the lid can easily be printed with text and/or one or more illustrations. Also, the placement of the first pair of tear lines on the inside of the lid prevents the accumulation of dust and other contaminating elements in the grooves of this first pair of tear lines.

[0028] In one embodiment, the inside of the lid of the keg cap is provided with a circular elevation or rib. In a further embodiment, this circular elevation or rib abuts in the cavity of the collar of the keg head of the keg.

[0029] The inner diameter of the lid of the keg cap comprises the inscribed diameter formed by the most central rim of the release apertures. In one embodiment, this inner diameter of the lid is between 50 mm and 75 mm, preferably between 52 mm and 72 mm, even more preferably between 55 mm and 71 mm. An inner diameter of such an order of magnitude is suitable for sufficiently closing the keg head collar when the keg cap is coupled to the keg. Namely, this inner diameter must be greater than the inner diameter of the keg head collar of the keg with which the keg cap will be coupled. If the inner diameter of the lid is smaller, and thus the most central rim of the release apertures is located more internally, the release apertures will be at the height of the inner diameter of the keg head collar of the keg and the keg head of the keg will not be protected from external contamination. With a larger inner diameter of the lid, the release apertures will be too small to properly form the retention spears during the production process of the keg cap.

[0030] The inner wall of this skirt is provided with a plurality of internally directed resilient retention spears along the periphery of the skirt. The locking diameter comprises the inscribed diameter formed by the most central point of each of the retention spears. In a preferred embodiment this locking diameter is between 50 mm and 80 mm, preferably between 52 mm and 75 mm, even more preferably between 55 mm and 71 mm. A locking diameter of such an order of magnitude is suitable for sealing the collar of the keg head sufficiently tightly in the coupled state with the keg. If this locking diameter is larger, the retention spears will connect insufficiently, and it will be possible for the keg cap to be removed from the keg in one piece (i.e. without breaking or tearing the keg cap). Since the keg cap is undamaged in this situation, it can be put back unnoticed, and the keg is no longer protected against fraud. If this locking diameter is too small, the keg cap cannot be placed over the keg head.

[0031] In one embodiment, the outer diameter of the keg cap at the top, i.e. the side of the lid, is between 50 mm and 100 mm, preferably between 65 mm and 85 mm, even more preferably between 70 mm and 80 mm. In one embodiment, the outer diameter of the keg cap on the opposite side, the bottom, is between 50 mm and 100 mm, preferably between 65 mm and 85 mm, even more preferably between 71 mm and 81 mm. An outer diameter of such an order of magnitude makes it possible to place sufficient intermediate tabs and retention spears of suit-

able width along the circumference of the inner wall. Preferably, the skirt comprises a peripherally projecting rim on the underside. Preferably, this peripherally projecting rim is complete and continuous. The above-mentioned rim serves as a reinforcing element for the skirt, giving it greater rigidity and preventing tearing during the fitting and fixing of the keg cap on the collar.

[0032] The height of the skirt and/or the rim of the skirt, as well as their thickness, are selected in accordance with the type of keg and keg head for which the keg cap is intended.

[0033] In one embodiment of the keg cap, the height of the keg cap is between 10 mm and 20 mm, preferably between 12 mm and 18 mm, even more preferably between 16 mm and 17 mm, even more preferably between 16.3 mm and 16.6 mm. A keg cap of such height makes it possible to provide retention spears having a suitable height to tightly enclose the keg head. In one embodiment, the height of the retention spears, measured from their point of departure from the underside of the skirt of the keg cap, is preferably between 4 mm and 10 mm, even more preferably between 5 mm and 9 mm.

[0034] The keg cap may be made of any material known in the art. In one embodiment, the keg cap is made from a thermoplastic polymer. In one embodiment, the keg cap is made of polystyrene. In a further embodiment, the keg cap is made from recycled polystyrene. Recycled polystyrene offers an ecological alternative to non-recycled polystyrene.

[0035] In an alternative preferred embodiment, the keg cap is made from polypropylene, preferably by an injection molding process. Polypropylene is a thermoplastic polymer that combines strength and elasticity. This has the advantage that the keg cap can be installed without breakage. Namely, the retention spears must first bend towards the skirt before springing back inwards, which requires a certain elasticity of the material. These properties also ensure that the keg cap is less likely to break into unwanted small parts when opened. This reduces the risk that parts of the keg cap end up in the keg head of the keg. In a further embodiment, the keg cap is made from recycled polypropylene. Recycled polypropylene offers an ecological alternative to non-recycled polypropylene.

[0036] In a second aspect, the invention relates to a keg provided with said keg cap. In a preferred embodiment, the keg comprises a keg head with a collar. The keg head collar of the keg can take on any profile. By providing a keg with the aforementioned keg cap, the keg can be protected against fraud. The design of the keg cap is such that the keg cap fits closely and firmly against the keg head of the keg. As a result, the keg cap cannot be removed unnoticed, thereby preventing fraudulent opening of the keg. In addition, the accumulation of dust and other unwanted particles in the keg head of the keg is avoided. The keg can take any shape and size. In one embodiment, the inner diameter of the keg head collar is between 50 mm and 75 mm. In a preferred embodiment,

the inner diameter of the keg head collar is smaller than the inner diameter of the keg cap lid.

[0037] In a third aspect, the invention relates to a mold for producing said keg cap by means of an injection molding process. The mold may be made of any material known in the art. In a preferred embodiment, the mold is made of steel. Steel is a sturdy and wear-resistant material, which extends the life of the mold. In one embodiment, the mold consists of different parts, wherein the parts are constructed in such a way that, after the thermoplastic polymer has been injected and the entrapped air has escaped, the molded product can be easily and above all quickly removed from the mold.

[0038] The keg cap can be used to secure a keg with any contents. In one embodiment, the keg cap is used to secure a keg containing a liquid. For example, the keg cap can be used to secure a keg containing cider, wine, oil, etc. In a preferred embodiment, the keg cap is used to secure a keg containing beer.

[0039] In a final aspect, the invention relates to a beer in a keg, wherein the keg is provided with said keg cap. By storing the beer in a keg with the aforementioned keg cap, the beer will be protected against fraud and the quality and quantity of the beer cannot be changed unnoticed.

[0040] In what follows, the invention is described by way of non-limiting figures illustrating the invention, and which are not intended to and should not be interpreted as limiting the scope of the invention.

FIGURES

[0041]

FIGURE 1:

Figure 1 shows a top view of the keg cap 1 according to the present invention. The keg cap 1 consists of a lid 2 and an adjoining skirt 3. The inner wall of this skirt is provided with a plurality of internally directed resilient retention spears 4 along the periphery of the skirt 3. These retention spears can elastically press against the keg head collar (not shown) in the coupled locked state. Because of these retention spears 4, it is impossible to remove the keg cap 1 from the keg head without breaking or tearing the keg cap 1 into multiple parts. In order to remove the keg cap 1 from the keg head of the keg in a controlled manner, the keg cap 1 is provided with a detachable portion 5. This detachable portion 5 is outlined by a first pair of tear lines (not visible) located on the inside of the lid of the keg cap and a second pair of tear lines (not visible) at the level of the keg cap skirt. The first pair of tear lines extends over the full diameter of the lid 2 of the keg cap 1 and continues at one end of the lid 2 of the keg cap 1 into two openings (not shown) that terminate in the second pair of tear lines in the skirt of the keg cap 1. The first pair of tear lines ends at the other end of the lid 2 in a tear tab 8. The desired tear direction is indicated by an arrow 9. The keg cap

1 comprises release apertures 10 in the lid 2. These apertures 10 make it possible to form the retention spears 4 during the production of the keg cap 1 and to visually check the position of the retention spears 4 when placing the keg cap 1 over the keg head of the keg. The inner diameter 11 of the lid 2 of the keg cap 1 comprises the inscribed diameter formed by the most central rim of the release apertures 10 and is 55.2 mm in the embodiment of the present figure. An inner diameter 11 of such an order of magnitude is suitable for sufficiently sealing the collar of the keg head in the coupled state with the keg. Namely, this inner diameter 11 must be greater than the inner diameter of the keg head collar of the keg with which the keg cap 1 will be coupled. The outside of the skirt 3 has a peripherally projecting continuous rim 20 on the underside. The above-mentioned rim 20 serves as a reinforcing element for the skirt 3, giving it greater rigidity and preventing tearing during the fitting and fixing of the keg cap 1 on the collar of the keg head.

FIGURE 2:

Figure 2 shows a side view of the keg cap 1 of the present invention. In the figure a part of the skirt 3 has been omitted so that a part of the inside of the keg cap 1 is visible. The outside of the skirt 3 has a peripherally projecting continuous rim 20 on the underside. The tear tab 8 of the detachable portion 5 is separated from the skirt 3 of the keg cap 1 by a tear tab opening 12. The skirt 3 comprises a third pair of tear lines 13a, 13b at this tear tab opening 12. The second pair of tear lines (not visible) and the third pair of tear lines 13a, 13b may rupture if the keg cap is incorrectly removed. The inner wall of this skirt 3 is provided with a plurality of internally directed resilient retention spears 4 along the periphery of the skirt 3. The locking diameter 14 comprises the inscribed diameter formed by the most central point 4a of each of the retention spears 4 and is 57.6 mm in the embodiment of the present figure. A locking diameter 14 of such an order of magnitude is suitable for sealing the collar of the keg head sufficiently tightly in the coupled state with the keg. If this locking diameter 14 is larger, the retention spears 4 will not connect sufficiently to the keg head (not shown) and it will be possible to remove the keg cap 1 from the keg in one piece (i.e. without breaking the keg cap 1). Since the keg cap 1 is undamaged in this situation, it can be replaced unnoticed, and the keg is thus no longer protected against fraud. If this locking diameter 14 is too small, the keg cap 1 cannot be placed over the keg head. Intermediate tabs 16 are placed between the retention spears 4. These intermediate tabs 16 originate from the inside of the skirt 3 of the keg cap 1 and, in the coupled state, surround the collar of the keg head of the keg. The function of these intermediate tabs 16 is to make the keg cap 1

fit as closely as possible to the diameter of the collar of the keg head. The outer diameter at the top 17a of the keg cap 1 is 71.4 mm. The outer diameter at the bottom 17b of the keg cap 1 is 72.6. The height 18 of the keg cap 1 is 16.5 mm in the embodiment of the present figure. A keg cap 1 of such height 18 makes it possible to provide retention spears 4 having a suitable height to tightly enclose the keg head.

FIGURE 3:

Figure 3 shows a cross-section of the keg cap 1 according to the present invention in side view, in which the retention spears 4 and the intermediate tabs 16 are clearly visible. The intermediate tabs 16 are positioned on either side of the retention spears 4. When placing the keg cap 1 over the collar of the keg head (not shown), the retention spears 4 bend towards the skirt 3 and thus allow mounting of the keg cap 1. Once fitted over the collar of the keg head, the retention spears 4 spring inward again and prevent the keg cap 1 from being removed in one piece. The retention spears 4 can thus press elastically against the collar of the keg head in the coupled locked state. A cross-section of an intermediate tab 16 is visible on the left-hand side of the figure. The function of these intermediate tabs 16 is to make the keg cap 1 fit as closely as possible to the diameter of the collar of the keg head. The outside of the skirt 3 has a peripherally projecting continuous rim 20 on the underside.

FIGURE 4:

Figure 4 shows a detail view of a retention spear 4 of the keg cap 1 coupled to the collar 19 of the keg head of the keg. The retention spear 4 can elastically press against the collar 19 of the keg head in the coupled locked state. The operation of the keg cap 1 is based on the resilient effect of the retention spears 4. When placing the keg cap 1 over the collar 19 of the keg head, the retention spears 4 bend towards the skirt 3 and thus enable mounting of the keg cap 1. Once fitted over the collar 19 of the keg head, the retention spears 4 spring inward again. Crucial for the correct closure of the keg head of the keg with the keg cap 1 is the angle α formed between the retention spear 4 and the inner wall of the skirt 3. This angle α must on the one hand be sufficiently large so that the retention spear 4 can prevent the keg cap 1 from being removed in one piece from the keg head after placement, but on the other hand must be as small as possible so that the keg cap 1 fits closely to the keg head. The inside of the lid 2 of the keg cap is provided with a circular elevation or rib 22 which adjoins the cavity 23 of the collar 19 of the keg head of the keg. The outside of the skirt 3 has a peripherally projecting continuous rim 20 on the underside.

FIGURE 5:

Figures 5A and 5B show a top view and a bottom view, respectively, of the keg cap 1 according to the present invention. The keg cap 1 consists of a lid 2 and an adjoining skirt 3. The inner wall of this skirt 3 is provided with a plurality of internally directed resilient retention spears 4 along the periphery of the skirt 3. Intermediate tabs 16 are positioned on either side of the retention spears 4. The detachable portion 5 is outlined by a first pair of tear lines 6a,6b which are located on the inside of the lid 2 of the keg cap 1. This first pair of tear lines 6a,6b extends over the full diameter of the lid 2 of the keg cap 1 and continues at one end of the lid 2 of the keg cap 1 in two openings 7a,7b which terminate in the second pair of tear lines 21a,21b in the skirt 3 of the keg cap 1. The first pair of tear lines 6a,6b ends at the other end of the lid 2 in a tear tab 8. The tear tab 8 is separated from the skirt 3 by a tear tab opening 12. At the height of this opening 12, the keg cap 1 is provided with a third pair of tear lines 13a,13b in the skirt 3 of the keg cap 1. The keg cap 1 comprises release apertures 10 in the lid 2. These release apertures 10 make it possible to form the retention spears 4 during the production of the keg cap 1 and to visually check the position of the retention spears 4 when placing the keg cap 1 over the keg head of the keg (not shown). The inside of the lid 2 of the keg cap is provided with a circular elevation or rib 22 which adjoins the cavity of the keg head collar of the keg (not shown). The outside of the skirt 3 has a peripherally projecting continuous rim 20 on the underside.

Claims

1. Keg cap (1) for a keg, such as a beer keg, the keg comprising a keg head for filling the keg, wherein the keg cap (1) comprises a lid (2) and a skirt (3) adjoining thereto, the keg cap (1) comprising a detachable portion (5) for removing the keg cap (1) from the keg head, this detachable portion (5) being outlined by a first (6a,6b) and a second pair of tear lines (21a, 21b), wherein the first pair of tear lines (6a,6b) extends over the full diameter of the lid (2) of the keg cap (1) and wherein the inner wall of said skirt (3) is provided with a plurality of internally directed resilient retention spears (4) along the circumference of the skirt (3), **characterized in that** the angle (α) of the retention spear (4) with the inner wall of the skirt (3) is between 15 degrees and 40 degrees.
2. Keg cap (1) according to claim 1, wherein the angle (α) of the retention spear (4) with the inner wall of the skirt (3) is between 20 degrees and 36 degrees.
3. Keg cap (1) as claimed in any of the foregoing claims,

wherein the first pair of tear lines (6a,6b) of the detachable portion (5) of the keg cap (1) continues at one end of the lid (2) of the keg cap (1) in two openings (7a,7b) which terminate in the second pair of tear lines (21a,21b) and wherein the first pair of tear lines (6a,6b) terminates at the other end of the lid (2) in a tear tab (8), wherein the tear tab (8) is separated from the skirt (3) of the keg cap (1) by a tear tab opening (12), **characterized in that** the skirt (3) comprises a third pair of tear lines (13a,13b) at the tear tab opening (12).

4. Keg cap (1) as claimed in any of the foregoing claims, further comprising intermediate tabs (16), wherein these intermediate tabs (16) originate from the inside of the skirt (3) of the keg cap (1) and wherein these intermediate tabs (16) surround the collar of the keg head of the keg in the coupled state. 15
5. Keg cap (1) according to claim 4, wherein the intermediate tabs (16) are positioned at least on either side of each retention spear (4). 20
6. Keg cap (1) as claimed in any of the foregoing claims, further comprising release apertures (10) in the lid (2) of the keg cap (1). 25
7. Keg cap (1) as claimed in any of the foregoing claims 3-6, the first pair of tear lines (6a,6b) being on the inside of the lid (2). 30
8. Keg cap (1) as claimed in any of the foregoing claims 6-7, wherein the inner diameter (11) of the lid (2) of the keg cap (1) comprises the inscribed diameter formed by the most central rim of the release apertures (10) and this diameter is between 50 mm and 75 mm. 35
9. Keg cap (1) as claimed in any of the foregoing claims, wherein the locking diameter (14) comprises the inscribed diameter formed by the most central point of each of the retention spears (4) and this diameter is between 50 mm and 80 mm. 40
10. Keg cap (1) as claimed in any of the foregoing claims, the height (18) of the keg cap (1) being between 10 mm and 20 mm. 45
11. Keg cap (1) as claimed in any of the foregoing claims, the height of the retention spears (4) being between 4 mm and 10 mm. 50
12. Keg cap (1) as claimed in any of the foregoing claims, wherein the keg cap (1) is manufactured from polypropylene or polystyrene, preferably by an injection molding process. 55
13. Keg provided with a keg cap (1) according to any of

claims 1-12.

14. Mold for producing a keg cap (1) according to any of claims 1-12 by means of an injection molding process.
15. Beer in a keg, wherein the keg is provided with a keg cap (1) according to any of claims 1-12.

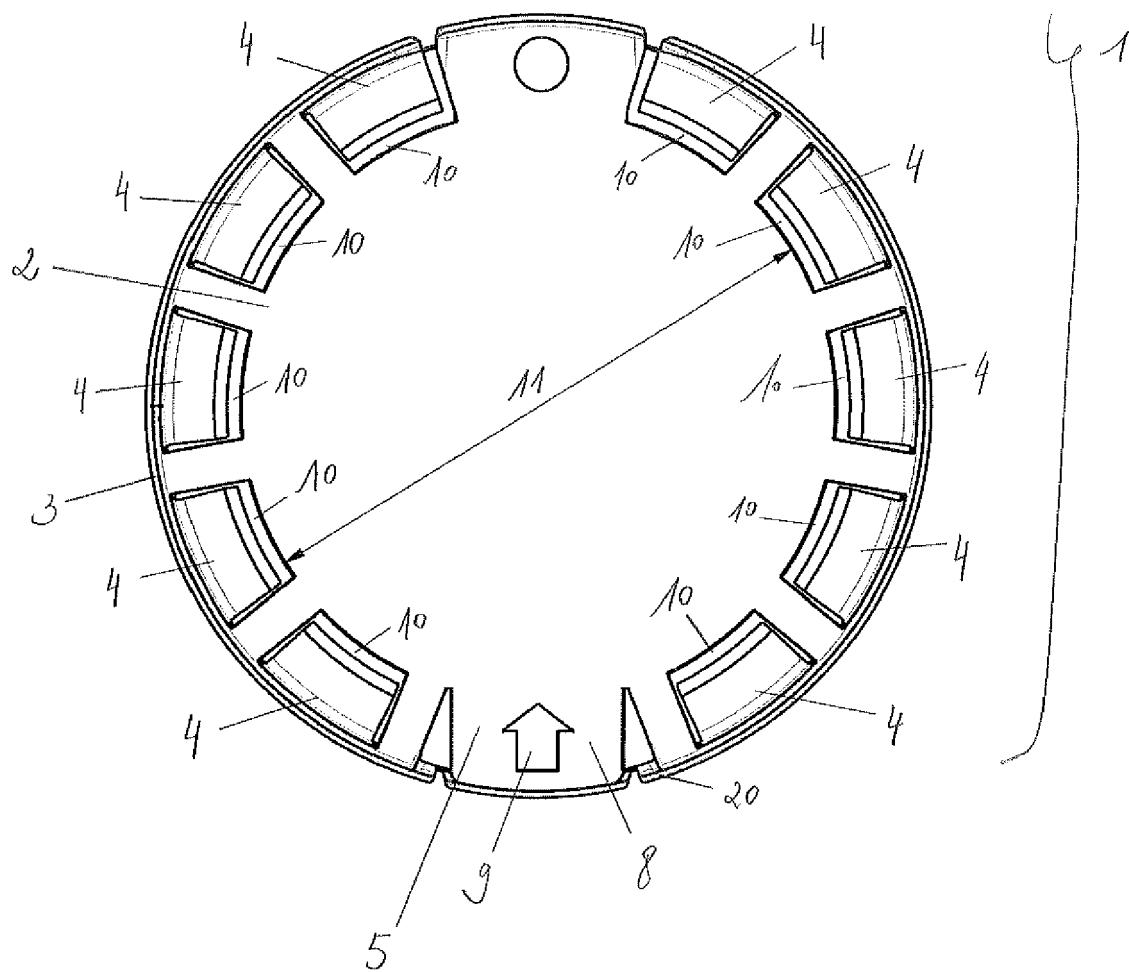


Figure 1

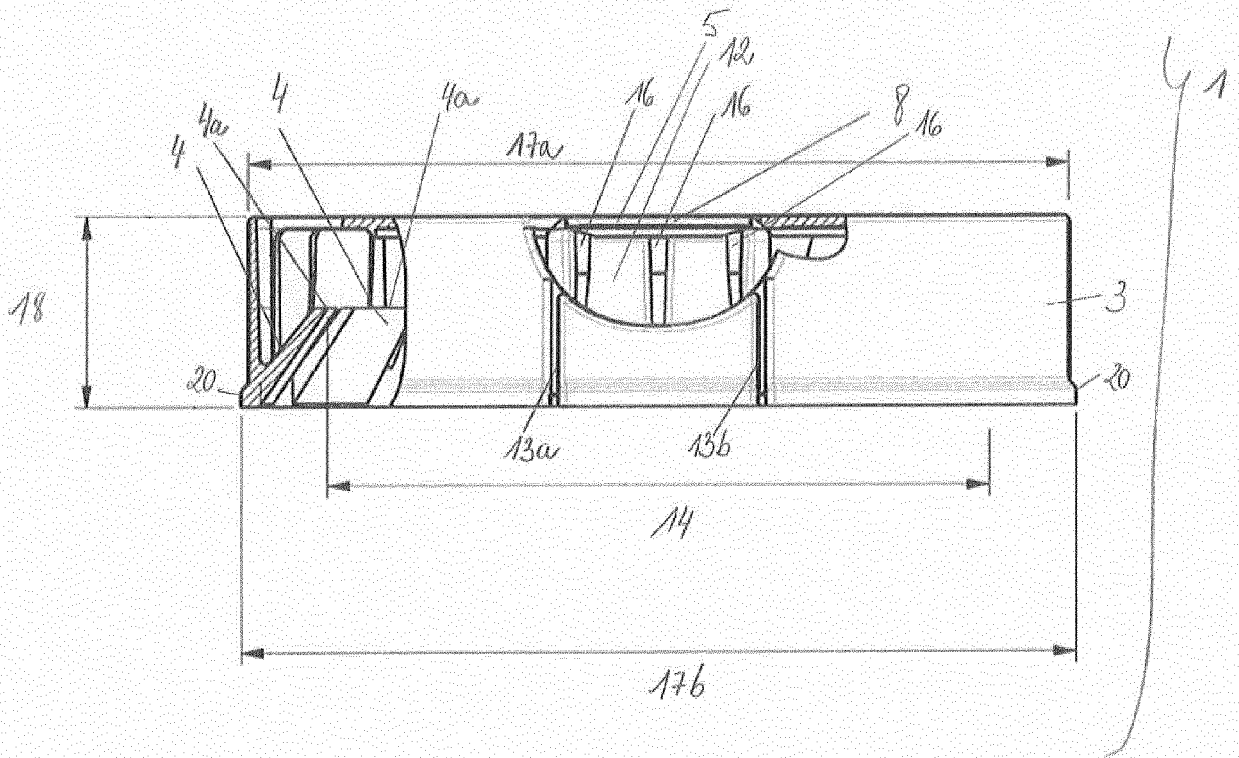


Figure 2

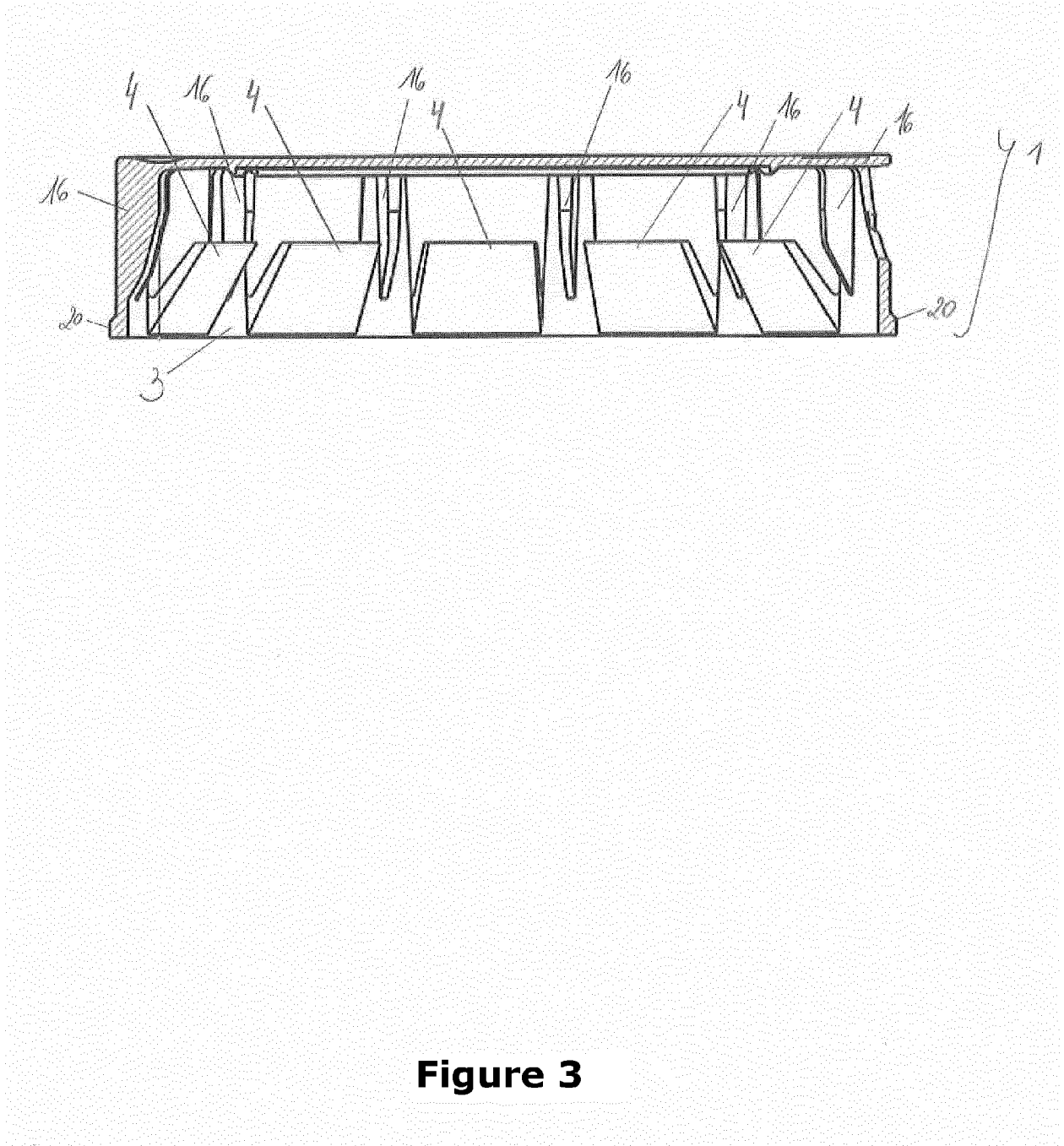


Figure 3

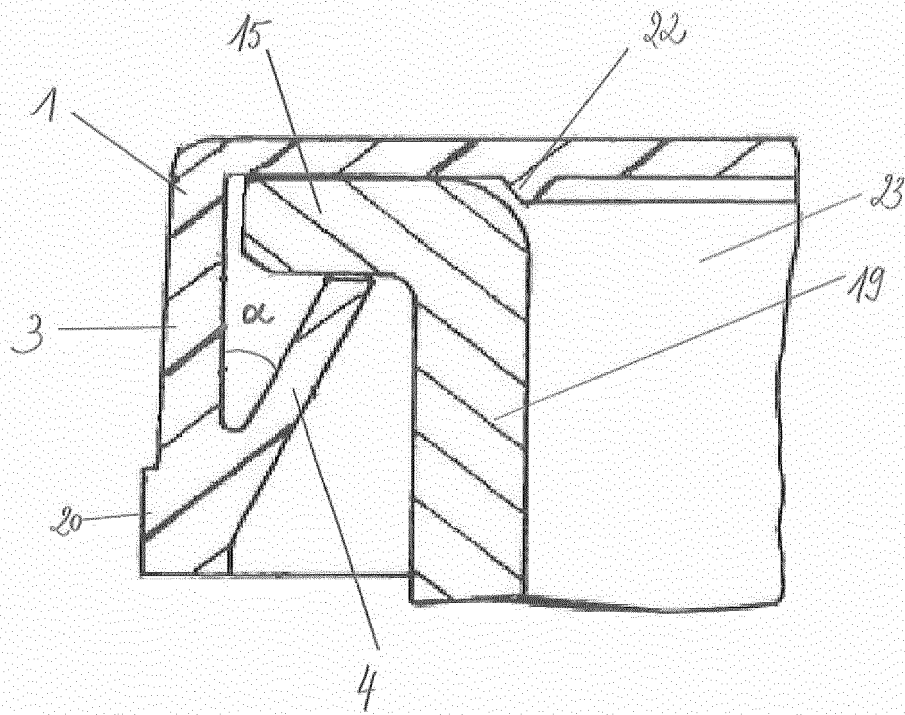


Figure 4

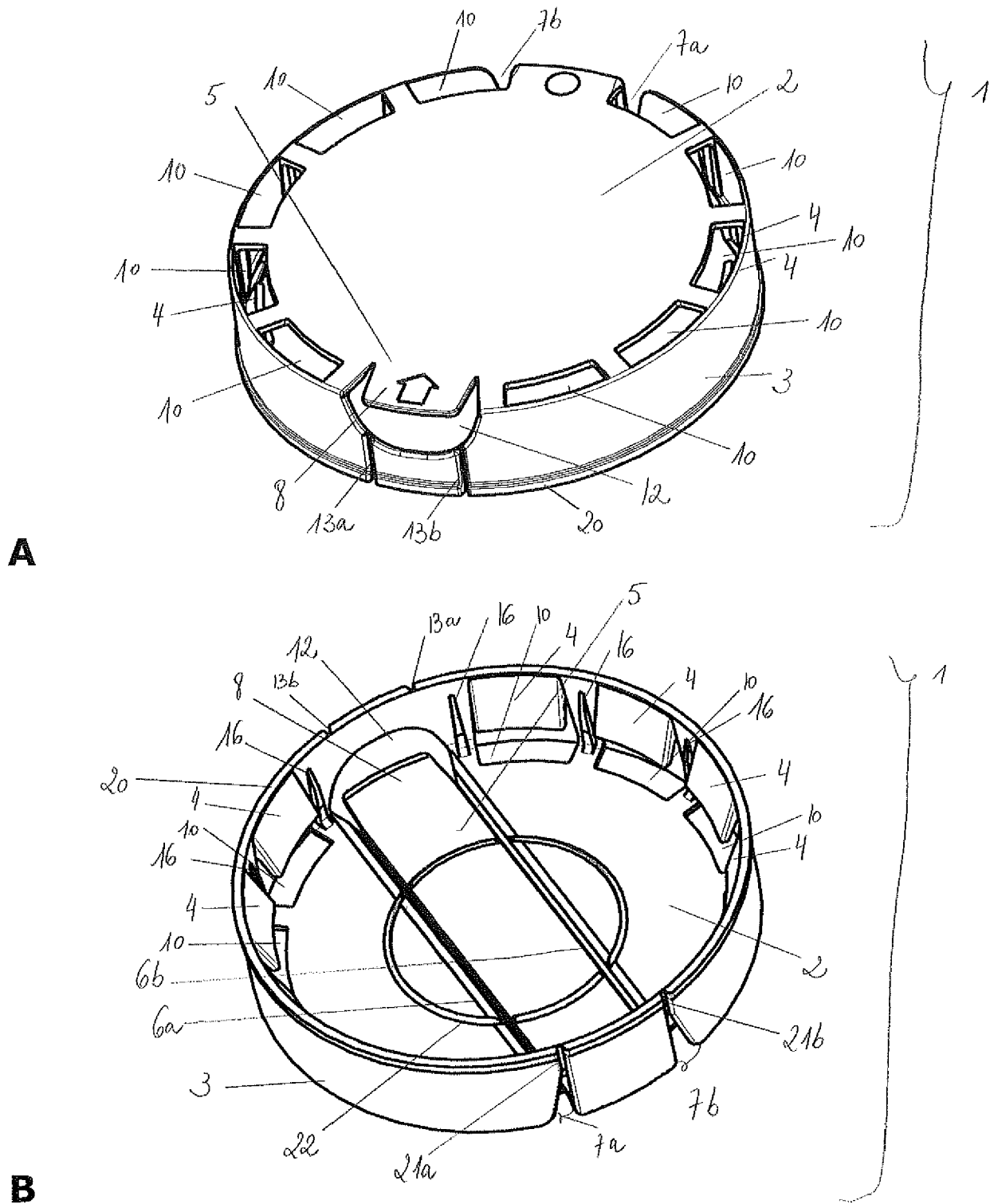


Figure 5



EUROPEAN SEARCH REPORT

Application Number

EP 22 18 0919

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	GB 2 319 019 A (RANKIN BROTHERS & SONS [GB]) 13 May 1998 (1998-05-13)	1, 2, 4-15	INV. B65D55/08
A	* abstract; figures 1, 2 * * page 1, line 4 * * page 4, line 1 - line 4 * * page 5, line 17 - line 19 * -----	3	
Y	BE 1 008 450 A6 (GEVAPLAST [BE]) 7 May 1996 (1996-05-07)	1, 2, 4-15	
A	* figures 1-5 * -----	3	
A	EP 0 652 160 A1 (LAWSON MARDON SUTTON LTD [GB]) 10 May 1995 (1995-05-10) * abstract; figures 1, 2 * -----	1-15	TECHNICAL FIELDS SEARCHED (IPC) B65D
A	EP 1 007 429 A1 (GEVAPLAST [BE]) 14 June 2000 (2000-06-14) * figures 1-6 * -----	1-15	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 22 August 2022	Examiner Tempels, Marco
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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ON EUROPEAN PATENT APPLICATION NO.**

EP 22 18 0919

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

22-08-2022

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2319019 A	13-05-1998	NONE	
BE 1008450 A6	07-05-1996	NONE	
EP 0652160 A1	10-05-1995	NONE	
EP 1007429 A1	14-06-2000	AU 5262896 A	07-11-1997
		EP 1007429 A1	14-06-2000
		EP 1714899 A1	25-10-2006
		ES 2263160 T3	01-12-2006
		WO 9738913 A1	23-10-1997

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EPO FORM P0459

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2319019 A [0005]
- BE 1008450 [0005]