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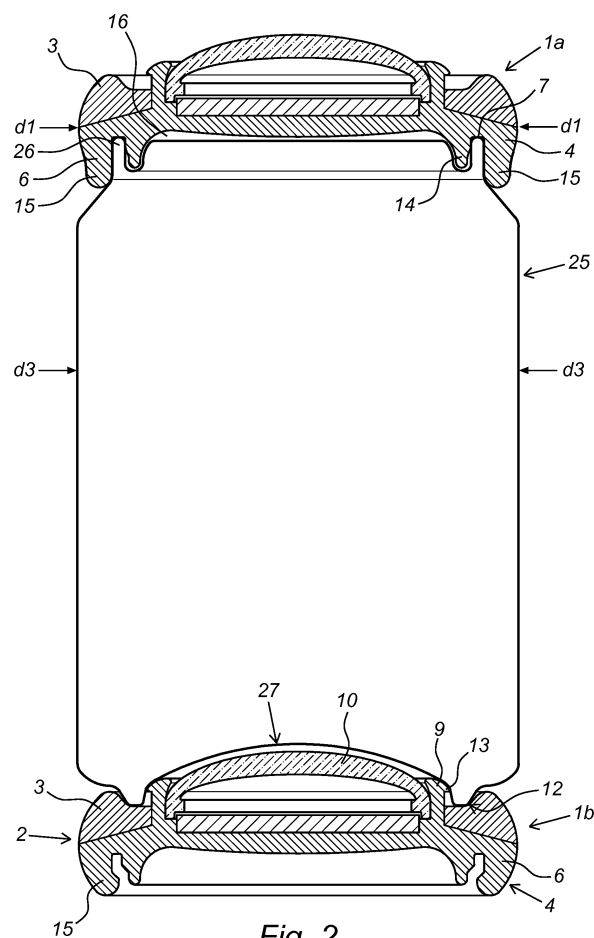
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(54) **ADD-ON DEVICE FOR A BEVERAGE CAN**

(57) Add-on device (1) for a can, in particular a beverage can, which add-on device (1) is connectable to at least an upper section of said can, in particular said beverage can, in such a way that the add-on device (1) according to the invention is configured to close said beverage can.



*Fig. 2*

## Description

**[0001]** The invention relates to an add-on device for a can, in particular a beverage can, which add-on device is connectable to at least an upper section of said can, in particular a beverage can.

**[0002]** Separate closing lids to be connected, as add-on device, to a beverage can are known, and are used to (re)close the beverage can after opening in order to conserve the beverage within the beverage can.

**[0003]** It is a first object of the present invention to provide an improved add-on device for a beverage can.

**[0004]** It is a second object of the present invention to provide a multifunctional add-on device for a beverage can.

**[0005]** It is a third object of the present invention to provide an add-on device for sealing a beverage can.

**[0006]** In order to achieve at least one of the above object, the invention provides an add-on device for a can, in particular a beverage can, according to claim 1. The add-on device is configured to act as separate closing lid to be attached (connected) onto a regular (beverage) can, in order to (re)close the can after opening of the can. The device according to the invention comprises a modular disc-like body, wherein said body comprises a rigid annular member which provides robustness to the disc-like body, which facilitates gripping and handling of the device by a user, in particular during installation (coupling) of the add-on device onto the beverage can and/or during de-installation (uncoupling) of the add-on device from the beverage can. The disc-like body additionally comprises the first flexible sealing element which is configured to easily and smoothly connect (couple) the add-on device onto and disconnect (uncouple) the add-on device from a beverage can, and preferably also to close the sealing can, more preferably in a sealing manner. Hence, by constructing the disc-like body of different components with different properties (and different materials), the functionality of the add-on device can be improved, without making concessions which would affect the handling, gripping, and easy of connection of the add-on device as such. In addition to the use of the add-on device according to the invention as a closure to protect the freshness and purity of the contents of beverage cans after they have been opened, the add-on device is also configured to co-act, preferably in a clamping manner, with a bottom section of a beverage can, such that the device acts as, preferably attachable, coaster for said beverage can. Since (at least a part of) the first flexible element is located underneath the annular member, the first flexible element defines the lower surface of the disc-like body, and also of the add-on device as such, as a result of which the relatively soft first sealing element will be in (steady) contact with a supporting (furniture) surface, which will further minimize the risk of damaging said supporting surface. This additionally allows furniture and the like to be protected against damage from the (metal) beverage can as well as to protect furniture from the mois-

ture and condensation usually present on cans of chilled beverages.

**[0007]** The first flexible element is preferably configured to grip and/or clamp around a top section, in particular a lid, of a beverage can. In coupled condition, the add-on device, in particular the first flexible element, will engage to top section, in particular the lid, of a beverage can or alternative food container, under tension. This will tensioned engagement will stabilize the connection between the add-on device and the beverage can. During this clamping engagement of the add-on device onto the can, the first flexible element will be elastically deformed. By causing the flexible element to engage under bias on the top section of the beverage can, the beverage can can be sealed in a substantially medium-tight manner. This not only prevents the possibility of the beverage and/or other food products leaving the beverage can, but also prevents gas exchange being able to take place between an atmosphere surrounding the food product container and an atmosphere prevailing in the food product container. In the case the beverage is for example formed by a carbonated drink, carbon dioxide will remain confined in the beverage can, which enhances the preservation of taste and the like. Using a device according to the invention it is moreover possible to prevent micro-organisms being able to move, in the closed situation, from outside the beverage can to a location inside the food product container. A constant composition of the beverage, can therefore be guaranteed by using the device according to the invention, wherein the beverage can also be conserved in relatively hygienic manner in the beverage can after initial opening.

**[0008]** Preferably, a lower side the first flexible element comprises and/or defines a circular groove configured to accommodate a part of the top section of the beverage can. In coupled condition, the first flexible element preferably engages a plurality of sides of a part of the top section of the beverage can being accommodated within the circular groove. This multilateral engagement, preferably under bias, of the circular groove will further improve the coupling between the device and the can, and commonly further improves the sealing effect created by the add-on device attached to the top section of the beverage can. The circular groove of the first flexible element is preferably defined in between a downwardly extending inner rim and a downward extending outer rim. More preferably the height of the outer rim is greater than the height of the inner rim. This will result in the situation that the lowest surface of the disc-like body is formed by the (lowest) outer end of the outer rim. Consequently, in case the device is used as coaster, the coaster will primarily be supported by said outer rim (rather than by said inner rim) which is favourable from a hygienic point of view. Preferably, the first flexible element encloses an accommodating space for at least a part of a top section, in particular a lid, of a beverage can. To this end, a lower side of the first flexible element may enclose a hollow space suitable to accommodate at least a part of the top

section of the beverage can.

**[0009]** In a preferred embodiment, an outer diameter of the annular member is substantially identical to an outer diameter of the first flexible element. Preferably, said outer diameter of the annular member is preferably substantially identical to an outer diameter of the beverage can, which is favourable from a practical and logistic point of view in case multiple beverage cans are stacked on top of each other, wherein in between each two cans a device according to the invention is applied.

**[0010]** Preferably, the disc-like body comprises at least one second flexible element connected to said annular member, wherein at least a part of said second flexible element faces an upper side of said annular member, wherein said second flexible element is configured to co-act, preferably under bias, with a (hollow) bottom section of a beverage can, wherein the said second flexible element is preferably configured to be connected and/or clamped to, and typically within, a bottom section of a beverage can. More preferably, at least a part of the second flexible element is configured to be clamped (under bias) within an accommodating space formed by a hollow bottom element of a bottom section of a beverage can. In this manner, the device is (also) connectable to the bottom section of a beverage can. Here, the at least one second flexible element preferably comprises an upwardly extending rim, wherein (the outer surface of) the rim is configured to co-act with a (hollow) bottom section of a beverage can. The upwardly extending rim preferably comprises a thickened outer end and/or a outwardly extending flange connected to an outer end of said rim, which facilitates and improves coupling of the device to a bottom section of a beverage can. The upwardly extending rim encloses an accommodating space for accommodating an object, such as a (poker) chip, gifts, tokens, advertisements, electronics (such as speakers and/or lights), capsules, toys, sweets, candies, etcetera. Preferably, the add-on device according to the invention comprises a, preferably transparent, closing element connected, preferably in a releasable manner, to said upwardly extending rim of said second flexible element, such the accommodating space for accommodating an object, is closed. In this manner, the object can be kept in place within said accommodating space. Preferably, an outer circumferential rim of the closing element co-acts with the upwardly extending rim of said second flexible element, while a central part of the closing element (enclosed by said circumferential rim) is positioned at a distance from the second flexible element, in coupled condition, which increases the actual accommodating space enclosed by the second flexible element and the closing element. An increased accommodating space provides more freedom in the choice of objection designs and object dimensions to be accommodated in said accommodating space. More preferably, said central part of the closing element is a curved and at least partially transparent, as a result of which the accommodating space enclosed by the second flexible element and the

closing element is not only increased, but this provides the transparent closing element a (converging) lens effect enlarging the view of the object held in the accommodating space. Typically, the central part of the closing element is formed by a negative meniscus lens (having a concave lens surface directed towards the second flexible element, and an opposite convex lens surface directed away from said second flexible element).

**[0011]** The at least one first flexible element and the at least one second flexible element may be formed by separate elements which may, for example, be connected (attached) to opposite sides of the annular member. However, it is commonly preferred that the at least one first flexible element and the at least one second flexible element are integrally connected with each other, and in fact form a single piece (single component) also referred to as a flexible structure. The flexible structure preferably extends through an opening enclosed by the annular member. The flexible structure preferably engages an inner side and/or a bottom side and/or an upper side of the annular member. This multilateral engagement commonly fixates the mutual orientation of the annular member and the flexible structure, which is in favour of the stability and reliability of the device as such. The flexible structure may be releasably connected to the annular member. This allows the flexible structure and/or the annular member to be replaced in case of damaging and/or for aesthetical reasons. It is, however, also imaginable that the flexible structure is permanently connected to the annular member. Here, the flexible structure may for example be glued and/or welded to the annular member. It is also imaginable that the disc-like body is produced in a single step by means of (co-)injection moulding.

**[0012]** Preferably the first flexible element and/or the second flexible element is/are made of an elastomer, more preferably a rubber, such as silicone rubber, or any other (crosslinked) polymer having resilient properties. The substantially rigid annular member is preferably made of a thermoplastic material, in particular a thermoplastic material chosen from the group consisting of: polyethylene (PE), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), polycarbonate (PC), and polyester, in particular polyethylene terephthalate (PET) and/or polylactic acid (PLA).

**[0013]** The invention will be elucidated on the basis of non-limitative exemplary embodiments shown in the following figures. Herein shows:

figure 1 a a perspective view of a device according to the invention;

figure 1 b a cross section of the device shown in figure 1 a; and figure 2 a schematic view of an assembly of two devices as shown in figures 1 a and 1 b and a beverage can.

**[0014]** Figures 1 a and 1 b show a schematic representation of an add-on device (1) for a beverage can (not shown) according to the invention. The device (1) com-

prises a disc-like body (2) with an upper side (3) and a lower side (4), wherein the upper side (3) of said disc-like body (2) is configured to co-act with a bottom section of a beverage can (not shown) and wherein the lower side (4) of said disc-like body (2) is configured to be connected to a top section of a beverage can. The disc-like body (2) comprises a substantially rigid annular member (5), and at least one first flexible element (6) connected to said annular member (5). Figure 1b shows that a part of the first flexible element (6) faces a lower side of the annular member (5). The outer diameter (d1) of the annular member (5) is substantially identical to the outer diameter (d2) of the first flexible element (6). The lower side of the first flexible element (6) defines a circular groove (7) configured to accommodate a part of the top section, in particular a lid, of the beverage can. The circular groove (7) is defined in between a downwardly extending inner rim (14) and a downward extending outer rim (15). The height (h1) of the outer rim (15) is greater than the height (h2) of the inner rim (14). The first flexible element (6) furthermore encloses an accommodating space (16) suitable to accommodate at least a part of the top section of the beverage can.

**[0015]** The disc-like body (2) furthermore comprises a second flexible element (8) connected to said annular member (5). A part of said second flexible element (8) faces an upper side (3) of said annular member (5). The second flexible element (8) comprises an upwardly extending rim (9) which encloses an accommodating space (11) for accommodating an object. In the shown embodiment, a token (20) is releasably inserted in the accommodating space (11). The add-on device (1) comprises a closing element (10) releasably connected to said upwardly extending rim (9) of said second flexible element (8), such the accommodating space (11) for accommodating an object, is closed. The second flexible element (8) and the upper side (3) of the annular member (5) define a second annular receiving space (12). The upwardly extending rim (9) comprises a thickened outer end. The outer end of the upwardly extending rim (9) comprises an outwardly extending flange (13). The annular receiving space (12) and the outwardly extending flange (13) facilitate coupling of the device (1) onto a beverage can, preferably a bottom section of a can.

**[0016]** In the shown configuration are the first flexible element (6) and the second flexible element (8) integrally connected with each other. The first flexible element (6) and the second flexible element (8) together form a flexible structure. The flexible structure extends through an opening enclosed by the annular member (5). More specifically, the flexible structure engages an inner side, a bottom side, and an upper side of the annular member (5).

**[0017]** Figure 2 shows a schematic representation of an assembly of two add-on devices (1 a, 1 b) as shown in figures 1 a and 1 b and a beverage can (25). Equal elements of the devices (1 a, 1 b) are referred to with corresponding reference numbers as indicated in the de-

vice (1) shown in figures 1 a and 1 b. The bottom device (1 b) acts as coaster for the beverage can (25). The device (1 b) is mainly supported by the outer rim (15) of the first flexible element (6). The closing element (10) is designed such that a part of the hollow bottom section (27) of the can (25) encloses the closing element (10). The can (25) is positioned in the second annular receiving space (12). The circumferential bottom wall of the can (25) is in contact with both the outwardly extending flange (13) of the upwardly extending rim (9) and with the annular member (5). A part of the second flexible element (8), in particular the upwardly extending rim (9), is clamped within the accommodating space formed by the hollow bottom element of the bottom section (27) of the can (25).

**[0018]** The upper device (1 a) is connected to the top section (26) of the can (25). The device (1 a) hereby acts as separate closing lid. The first flexible element (6) clamps around the top section (26) of the can (25). The top section (26), in particular the lid, of the can (25) is accommodated in the accommodating space (16) of the first flexible element (6). A part of the lid of the can (25) is inserted in the circular groove (7) and thereby enclosed by both the downwardly extending inner rim (14) and the downwardly extending outer rim (15). The outer rim (15) is deformed in order to provide clamping engagement. More in specific, the outer rim (15) bends outwards. Possibly the inner rim (14) is also deformed. The outer diameter (d1) of the annular member (2) substantially equals the outer diameter (d3) of the beverage can (25).

**[0019]** It will be apparent that the invention is not limited to the working examples shown and described herein, but that numerous variants are possible within the scope of the attached claims that will be obvious to a person skilled in the art.

**[0020]** The above-described inventive concepts are illustrated by several illustrative embodiments. It is conceivable that individual inventive concepts may be applied without, in so doing, also applying other details of the described example. It is not necessary to elaborate on examples of all conceivable combinations of the above-described inventive concepts, as a person skilled in the art will understand numerous inventive concepts can be (re)combined in order to arrive at a specific application.

**[0021]** The verb "comprise" and conjugations thereof used in this patent publication are understood to mean not only "comprise", but are also understood to mean the phrases "contain", "substantially consist of", "formed by" and conjugations thereof.

## Claims

1. Add-on device for a beverage can, comprising a disc-like body with an upper side and a lower side, wherein the upper side of said disc-like body is configured to co-act with a bottom section of a beverage can,

- such that the device acts as coaster for said beverage can, and wherein the lower side of said disc-like body is configured to be connected to a top section, in particular a lid, of a beverage can, such that the beverage can is substantially closed by said device, wherein the disc-like body comprises a substantially rigid annular member, and at least one first flexible element connected to said annular member, wherein at least a part of said first flexible element faces a lower side of said annular member, and wherein said first flexible element is configured to be connected to a top section, in particular a lid, of a beverage can for substantially closing, in particular sealing, said beverage can.
2. Device according to claim 1, wherein the first flexible element is configured to grip and/or clamp around a top section, in particular a lid, of a beverage can.
  3. Device according to claim 1 or 2, wherein a lower side of the first flexible element defines a circular groove configured to accommodate a part of the top section, in particular a lid, of the beverage can.
  4. Device according to one of the foregoing claims, wherein an outer diameter of the annular member is substantially identical to an outer diameter of the first flexible element.
  5. Device according to one of the foregoing claims, wherein the disc-like body comprises at least second flexible element connected to said annular member, wherein at least a part of said second flexible element faces an upper side of said annular member, wherein said second flexible element is configured to co-act with a bottom section of a beverage can, wherein the said second flexible element is preferably configured to be connected to a bottom section of a beverage can.
  6. Device according to claim 5, wherein at least a part of the second flexible element is configured to be clamped within an accommodating space formed by a hollow bottom element of a bottom section of a beverage can.
  7. Device according to claim 5 or 6, wherein the at least one second flexible element comprises an upwardly extending rim, wherein the rim is configured to co-act with a bottom section of a beverage can, and wherein said rim encloses an accommodating space for accommodating an object.
  8. Device according to claim 7, wherein the device comprises a closing element releasably connected to said upwardly extending rim of said second flexible element, such the accommodating space for accommodating an object, is closed.
  9. Device according to one of claims 5-8, wherein the at least one first flexible element and the at least one second flexible element are integrally connected with each other, and together form a flexible structure.
  10. Device according to claim 9, wherein the flexible structure extends through an opening enclosed by the annular member.
  11. Device according to claim 9 or 10, wherein the flexible structure engages an inner side, a bottom side, and an upper side of the annular member.
  12. Device according to one of claims 9-11, wherein the flexible structure is releasably connected to the annular member.
  13. Device according to one of claims 9-11, wherein the flexible structure is permanently connected to the annular member.
  14. Device according to one of foregoing claims, wherein the first flexible element and/or the second flexible element are made of an elastomer.
  15. Device according to one of foregoing claims, wherein the annular member is made of a thermoplastic material, in particular a thermoplastic material chosen from the group consisting of: polyethylene (PE), polypropylene (PP), polystyrene (PS), polyvinyl chloride (PVC), polycarbonate (PC), and polyester, in particular polyethylene terephthalate (PET) and/or polylactic acid (PLA).

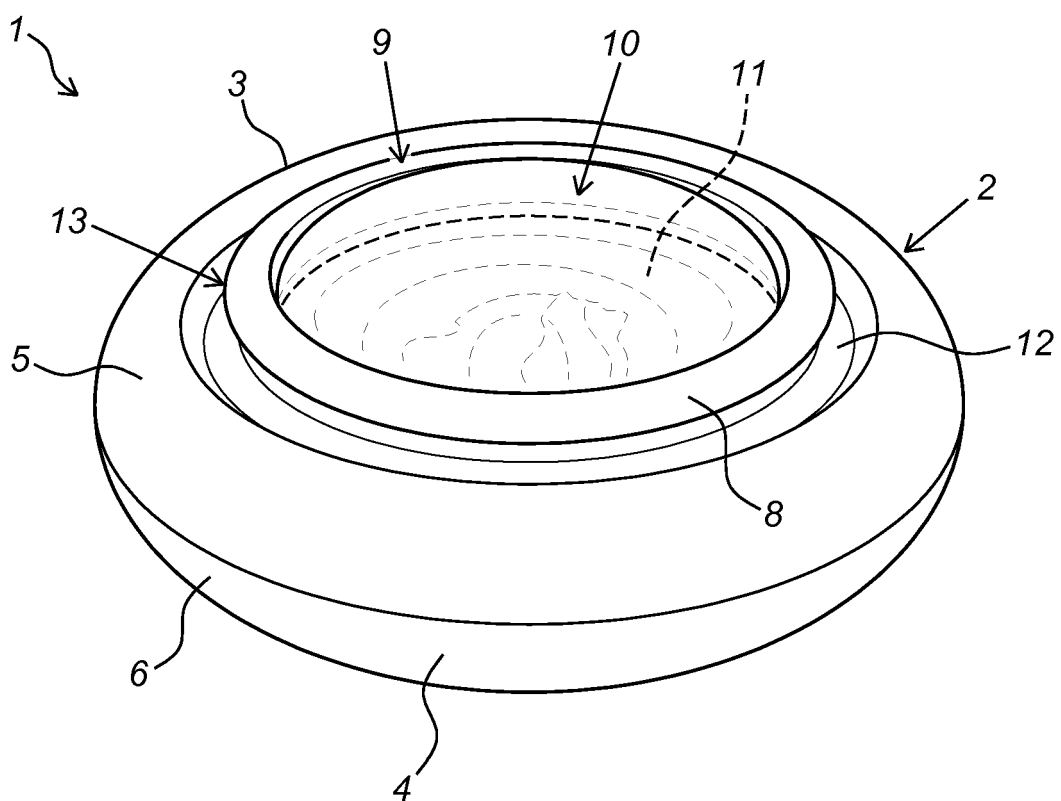


Fig. 1a

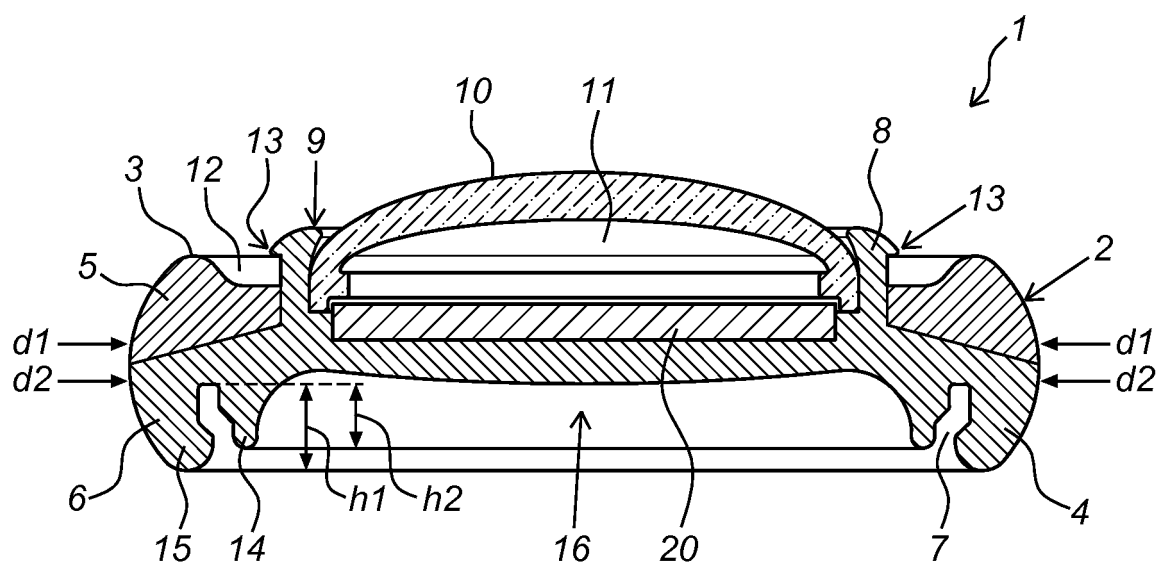


Fig. 1b

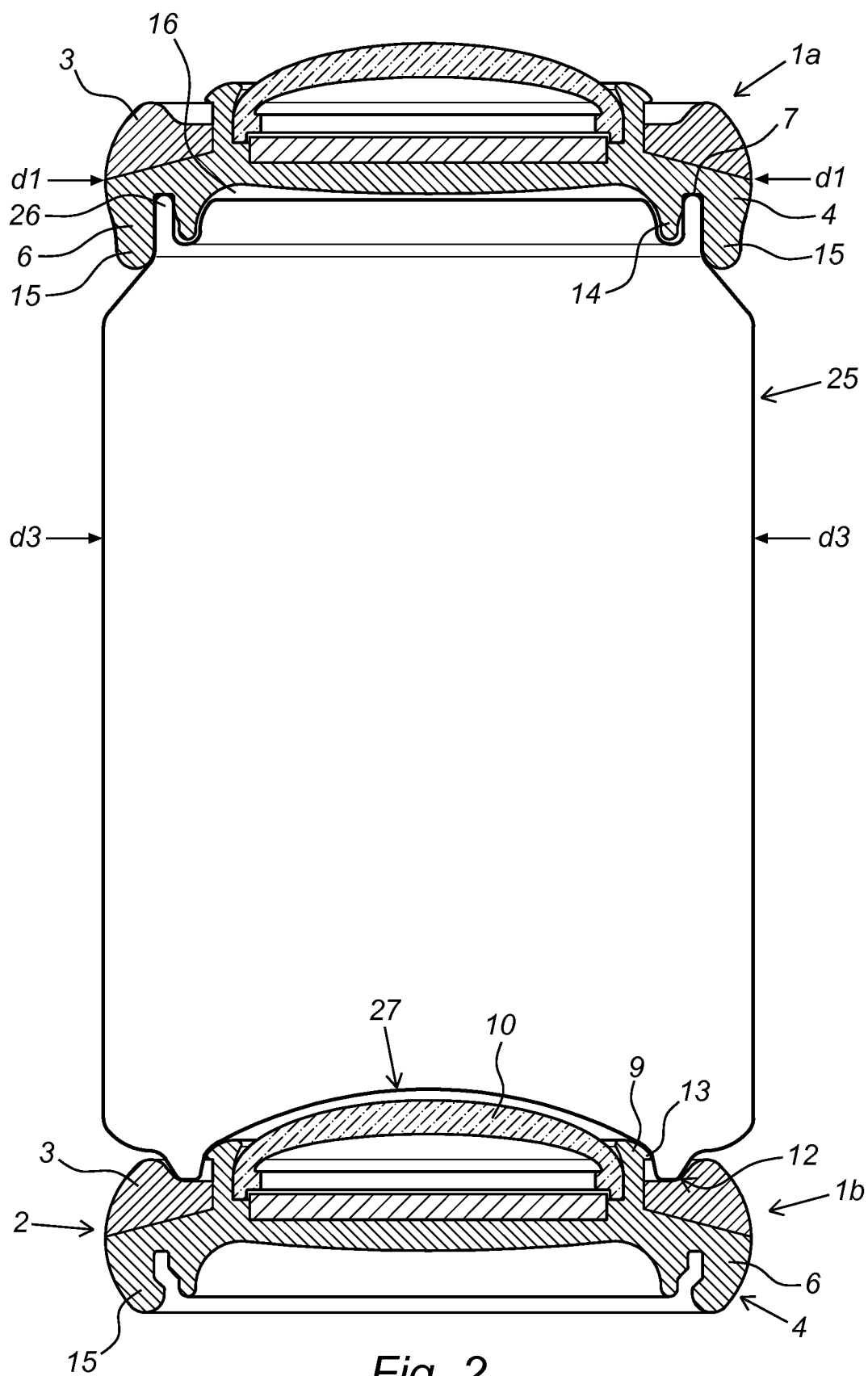


Fig. 2



## EUROPEAN SEARCH REPORT

Application Number  
EP 17 16 8239

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Place of search Munich		Date of completion of the search 24 October 2017	Examiner Duc, Emmanuel
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