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(54) **A GAS COOKING DEVICE COMPRISING A COOKTOP PLATE**

GASKOCHVORRICHTUNG MIT EINER KOCHPLATTE

DISPOSITIF DE CUISSON AU GAZ COMPRENANT UNE PLAQUE DE CUISSON

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Description

[0001] The present invention relates to a gas cooking device comprising a cooktop plate, at least one opening provided on the cooktop plate, a gas control member positioned below the cooktop plate, having a rotatable shaft which passes through the opening.

[0002] The patent application numbered WO2014016114 A2 discloses a sealing element suitable for using in cooking devices, especially counter-top cooktops, preventing the liquids spilled onto the panel from leaking through the aperture by providing leak-proofing of the apertures wherein the knobs placed onto the panel are mounted and comprising a gasket seated all around the edge of the aperture on the upper surface of the panel and produced from elastic material, and also relates to the cooking device wherein the sealing element is used.

[0003] EP 1 046 865 A2 describes a hob consisting of a sheet of tempered glass for kitchen appliances, wherein said sheet of glass has holes with shaped edges, such as to create raised parts or protrusions which rise above the surface of said sheet of glass.

[0004] CN 203375488 U describes an embedded fuel gas cooker with a double waterproof device on a rotary knob hole.

[0005] JP 2001182941 A describes a protective device being constituted of a deformed hole, a slant part and a projecting part provided upward at the fore end of the outer periphery of the slant part.

[0006] JP 2016211815 A describes an operation knob on a top board and a lower adjusting valve that are connected by a shaft passed through an open hole formed at the top board.

[0007] EP 0 963 957 A1 describes a method of bending the perimeter of at least one opening provided in a glass-ceramic precursor plate, said perimeter describing a closed curve without sharp angles.

[0008] The invention provides an additional improvement, an additional advantage or an alternative to the prior art.

[0009] The purpose of the present invention is to prevent liquid leakage from opening under the control knobs to inside the gas cooking device without using any kind of sealing member.

[0010] The invention, to achieve the abovementioned purpose, a gas cooking device comprising a cooktop plate, at least one opening provided on the cooktop plate, a gas control member positioned below the cooktop plate, having a rotatable shaft which passes through the opening. In the invention, the cooktop plate has an embossed form defined along a periphery of the opening in such a way that it is providing a barrier between the opening and the cooktop plate. A control knob of the gas cooking device has a shaft connection housing extending in the direction of a rotation axis of the rotatable shaft, wherein the shaft connection housing connects to a free end of the rotatable shaft in such a way that it is rotating with the rotatable shaft jointly, wherein the control knob

has a shell surrounding the rotation axis whereby a knob housing is provided on a side facing the embossed form, and wherein the control knob covers the embossed form by means of the shell and the knob housing. Thus, penetrating of the liquid from the opening under the control knob to inside the gas cooking device, is prevented without using any kind of sealing member such as a gasket. Since, using of the sealing member under the control knob is eliminated and therefore, the possible undesirable dislocations of the sealing member is prevented, the sealing feature under the control knob is permanently provided. Moreover, the possible short circuits in the electric system inside the gas cooking device due to the liquid leakage from the opening under the control knob, is eliminated.

[0011] Here, the gas cooking device can be a gas cooktop or a gas oven comprising a cooktop plate. Here, the gas control member can be any kind of gas tap having a rotatable shaft.

In a possible embodiment of the invention, the cooktop plate has a base whereby the embossed form is in the form of an elevation with respect to said base. Thus, penetrating of the liquids from the opening under the control knob to inside the gas cooking device, is prevented.

[0012] In a possible embodiment of the invention, the embossed form is configured as a frusto-conical form. Thus, the sealing feature under the control knob is provided without using any kind of sealing member.

[0013] In a possible embodiment of the invention, the embossed form has an aperture on a side away from the base, the rotatable shaft is provided in an accessible manner through the aperture and a flat surface is provided along a periphery of said aperture. Thus, the shaft connection housing can pass through the aperture in order to connect to the rotatable shaft.

[0014] Moreover, sharp edges which can be unsafe for the users, is eliminated by forming the periphery of the aperture as the flat surface.

[0015] The control knob has a shaft connection housing extending in the direction of a rotation axis of the rotatable shaft and the shaft connection housing connects to a free end of the rotatable shaft in such a way that it is rotating with the rotatable shaft jointly. Thus, the rotational movement and/or axial movement of the control knob can be transmitted to the rotatable shaft.

[0016] The control knob has a shell surrounding the rotation axis whereby a knob housing is provided on a side facing the embossed form. Thus, the movement of the control knob in the direction of the rotation axis is not restricted.

[0017] In a possible embodiment of the invention, an axial movement distance is provided between the control knob and the base for an axial movement of the control knob in a direction towards the base, when the control knob is at a position away from the base. Thus, the distance for the axial movement of the control knob, is provided.

[0018] Further advantages may become apparent

from the following description of the figure(s). In the figure, an exemplary embodiment of the invention is shown. The figure, the description and the claims contain a plurality of features in combination. The person having ordinary skill in the art will purposefully also consider the features separately and will find further expedient combinations.

[0019] If there is more than one specimen of a certain object, only one of these is given a reference numeral in the figures and in the description. The description of this specimen maybe correspondingly transferred to the other specimens of the object.

[0020] The figures, whose brief explanations are herewith provided, are solely intended for providing a better understanding of the present invention and are as such not intended to define the scope of protection or the context in which said scope is to be interpreted in the absence of the description.

Fig.1 represents an isometric view of the exemplary gas cooktop.

Fig. 2 represents an isometric view of the cooktop plate of the gas cooktop.

Fig. 3 represents an isometric view of a section of the gas cooktop where a plurality of control knob and embossed form is provided.

Fig. 4 represents a section view of the gas cooktop where the cooktop plate, the gas control member and the control knob is provided.

Fig. 5 represents a side view of the cooktop plate where the embossed form is provided.

As can be seen in Fig. 1, the subject matter gas cooking device (1), i.e. a gas cooktop, comprising a cooktop plate (8) having a width and depth. Said gas cooking device (1) further comprises a plurality of gas burners (15) and control knobs (5) for controlling a burning operation of the gas burners (15). In the present invention, as can be seen in Fig. 2, the cooktop plate (8) has an embossed form (11) configured under the control knob (5).

[0021] In Fig. 3, an isometric view of a section of the gas cooktop where a plurality of control knob (5) and embossed form (11) is provided, is given. There is a gas control member (2) positioned below the cooktop plate (8) (see in Fig. 4). Said gas control member (2) has a rotatable shaft (3) which passes through an opening (10) of the cooktop plate (8). The rotatable shaft (3) connects to the control knob (5). In Fig. 3, one of the control knob (5) is separated from the rotatable shaft (3) in order to be shown a section of the cooktop plate (8) where the embossed form (11) is provided. In a possible embodiment of the invention, the cooktop plate (8) has an embossed form (11) defined along a periphery of the open-

ing (10) in such a way that it is providing a barrier between the opening (10) and a base (9) of the cooktop plate (8). The embossed form (11) has an aperture (14) on a side away from the base (9). As can be seen in Fig. 3, the rotatable shaft (3) is provided in an accessible manner through the aperture (14). Said rotatable shaft (3) which is rotatable around a rotation axis (A), extends in a direction of said rotation axis (A). Furthermore, the control knob (5) has a shaft connection housing (6) extending in the direction of the rotation axis (A).

[0022] In Fig. 4, a section view of the gas cooktop where the cooktop plate (8), the gas control member (2) and the control knob (5) are provided, is given. The gas control member (2) having the rotatable shaft (3) is positioned below the cooktop plate (8). Said rotatable shaft (3) of the gas control member (2) extends in the direction of said rotation axis (A) in a manner passing through the opening (10). In a possible embodiment, the embossed form (11) is configured along the periphery of the opening (10). In more details, the embossed form (11) is in the form of an elevation with respect to the base (9) of the cooktop plate (8). Preferably, said embossed form (11) is configured as a frusto-conical form. As can be seen in Fig. 5, the embossed form (11) has a barrier section (12) providing a barrier between the opening (10) and the base (9) of the cooktop plate (8). Said embossed form (11) has an aperture (14) on a side away from the base (9). The rotatable shaft (3) is provided in an accessible manner through the aperture (14). There is a flat surface (13) provided along a periphery of said aperture (14) in order to eliminate the sharp edges of the embossed form (11) which can be unsafe for the users. The shaft connection housing (6) passes through the aperture (14) and connects to a free end (4) of the rotatable shaft (3) in such a way that it is rotating with the rotatable shaft (3) jointly. The control knob (5) has a shell (16) surrounding the rotation axis (A) whereby a knob housing (7) is provided on a side facing the embossed form (11). In a possible embodiment, an axial movement distance (L) is provided between the control knob (5) and the base (9) for an axial movement of the control knob (5) in a direction towards the base (9), when the control knob (5) is at a position away from the base (9).

[0023] In a possible embodiment of the invention, the cooktop plate (8) is made of a metal material Said metal material can be any kind of metal which can be shaped by a deep drawing process. In a possible embodiment, the embossed form (11) is formed in a one piece manner with the cooktop plate (8).

[0024] In the light of the structural details and figures of the possible embodiment given above, the usage and functionalizing of the invention is as follows; there is not any burning operation at the related gas burner (15), when the related control knob (5) is at a first position where the control knob (5) has not rotated around the rotation axis (A). The control knob (5) transitions from the first position to an second position, when the control knob (5) is moved axially towards the cooktop plate (8)

ve rotated around the rotation axis (A). The control knob (5) covers the embossed form (11) by means of the shell (16) and the knob housing (7), when the control knob (5) is axially moved towards the cooktop plate (8). The axial and rotational movements of the control knob (5) is directly transmitted to the rotatable shaft (3). The gas control member (2) directs an amount of gas according to the rotation level of the control knob (5) and the rotatable shaft (3), to the related gas burner (15) for feeding the burning of the cooking operation. In case of an overflow onto the cooktop plate (8) during the cooking operation, the barrier section (12) prevents penetrating of the liquids from the opening (10) under the control knob (5) to inside the gas cooking device (1).

REFERENCE LIST

[0025]

1. Gas cooking device
2. Gas control member
3. Rotatable shaft
4. Free end
5. Control knob
6. Shaft connection housing
7. Knob housing
8. Cooktop plate
9. Base
10. Opening
11. Embossed form
12. Barrier section
13. Flat surface
14. Aperture
15. Gas burner
16. Shell
- L. Axial movement distance
- A. Rotation axis

Claims

1. A gas cooking device (1) comprising a cooktop plate (8), at least one opening (10) provided on the cooktop plate (8), a gas control member (2) positioned below the cooktop plate (8), having a rotatable shaft (3) which passes through the opening (10), wherein the cooktop plate (8) has an embossed form (11) defined along a periphery of the opening (10) in such a way that it is providing a barrier between the opening (10) and the cooktop plate (8), wherein a control knob (5) of the gas cooking device (1) has a shaft connection housing (6) extending in the direction of a rotation axis (A) of the rotatable shaft (3), wherein the shaft connection housing (6) connects to a free end (4) of the rotatable shaft (3) in such a way that it is rotating with the rotatable shaft (3) jointly, wherein the control knob (5) has a shell (16) surrounding the rotation axis (A) whereby a knob housing (7) is provided on

a side facing the embossed form (11), **characterized in that** the control knob (5) covers the embossed form (11) by means of the shell (16) and the knob housing (7).

2. A gas cooking device (1) according to Claim 1, wherein the cooktop plate (8) has a base (9) whereby the embossed form (11) is in the form of an elevation with respect to said base (9).
3. A gas cooking device (1) according to Claim 1 or 2, wherein the embossed form (11) is configured as a frusto-conical form.
4. A gas cooking device (1) according to Claim 2 or 3, wherein the embossed form (11) has an aperture (14) on a side away from the base (9), wherein the rotatable shaft (3) is provided in an accessible manner through the aperture (14) and wherein a flat surface (13) is provided along a periphery of said aperture (14).
5. A gas cooking device (1) according to any of the preceding claims, wherein an axial movement distance (L) is provided between the control knob (5) and the base (9) for an axial movement of the control knob (5) in a direction towards the base (9), when the control knob (5) is at a position away from the base (9).

Patentansprüche

1. Gaskochvorrichtung (1) mit einer Kochstellenplatte (8), mindestens einer an der Kochstellenplatte (8) vorgesehenen Öffnung (10), einem unter der Kochstellenplatte (8) angeordneten Gasregelglied (2) mit einer drehbaren Welle (3), die durch die Öffnung (10) verläuft, wobei die Kochstellenplatte (8) eine geprägte Form (11) aufweist, die an einem Umfang der Öffnung (10) entlang so definiert ist, dass sie zwischen der Öffnung (10) und der Kochstellenplatte (8) für eine Barriere sorgt, wobei ein Drehknopf (5) der Gaskochvorrichtung (1) ein Wellenverbindungsgehäuse (6) aufweist, das sich in Richtung einer Rotationsachse (A) der drehbaren Welle (3) erstreckt, wobei das Wellenverbindungsgehäuse (6) so mit einem freien Ende (4) der drehbaren Welle (3) verbunden ist, dass es sich mit der drehbaren Welle (3) zusammen dreht, wobei der Drehknopf (5) einen Mantel (16) aufweist, der die Rotationsachse (A) umgibt, wodurch auf einer zu der geprägten Form (11) weisenden Seite ein Knopfgehäuse (7) vorgesehen ist, **dadurch gekennzeichnet, dass** der Drehknopf (5) mithilfe des Mantels (16) und des Knopfgehäuses (7) die geprägte Form (11) abdeckt.
2. Gaskochvorrichtung (1) nach Anspruch 1, wobei die

Kochstellenplatte (8) einen Sockel (9) aufweist, wodurch die geprägte Form (11) in Bezug auf den Sockel (9) in Form einer Erhöhung vorliegt.

3. Gaskochvorrichtung (1) nach Anspruch 1 oder 2, wobei die geprägte Form (11) als Kegelstumpfform gestaltet ist.
4. Gaskochvorrichtung (1) nach Anspruch 2 oder 3, wobei die geprägte Form (11) auf einer von dem Sockel (9) weg weisenden Seite eine Öffnung (14) aufweist, wobei die drehbare Welle (3) auf über die Öffnung (14) zugängliche Weise vorgesehen ist und an einem Umfang der Öffnung (14) entlang eine ebene Fläche (13) vorgesehen ist.
5. Gaskochvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei zwischen dem Drehknopf (5) und dem Sockel (9) ein axialer Bewegungsabstand (L) vorgesehen ist, damit sich der Drehknopf (5) in einer Richtung zum Sockel (9) hin axial bewegen kann, wenn sich der Drehknopf (5) in einer von dem Sockel (9) entfernten Position befindet.

3. Dispositif de cuisson au gaz (1) selon la revendication 1 ou 2, dans lequel la forme en relief (11) est configurée sous une forme frustoconique.

- 5 4. Dispositif de cuisson au gaz (1) selon la revendication 2 ou 3, dans lequel la forme en relief (11) possède un orifice (14) sur un côté éloigné de la base (9), dans lequel l'arbre rotatif (3) est ménagé d'une manière accessible à travers l'orifice (14) et dans lequel une surface plate (13) est ménagée le long d'une périphérie dudit orifice (14).
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- 15 5. Dispositif de cuisson au gaz (1) selon l'une quelconque des revendications précédentes, dans lequel une distance de déplacement axial (L) est ménagée entre la molette de commande (5) et la base (9) pour un déplacement axial de la molette de commande (5) dans une direction allant vers la base (9), lorsque la molette de commande (5) est à une position éloignée de la base (9).
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Revendications

1. Dispositif de cuisson au gaz (1) comprenant une plaque de cuisson (8), au moins une ouverture (10) ménagée sur la plaque de cuisson (8), un organe de commande de gaz (2) positionné au-dessous de la plaque de cuisson (8), ayant un arbre rotatif (3) qui traverse l'ouverture (10), dans lequel la plaque de cuisson (8) possède une forme en relief (11) définie le long d'une périphérie de l'ouverture (10) d'une manière telle qu'elle fournit une barrière entre l'ouverture (10) et la plaque de cuisson (8), dans lequel une molette de commande (5) du dispositif de cuisson au gaz (1) possède un compartiment de liaison d'arbre (6) s'étendant dans la direction d'un axe de rotation (A) de l'arbre rotatif (3), dans lequel le compartiment de liaison d'arbre (6) est raccordé à une extrémité libre (4) de l'arbre rotatif (3) d'une manière telle qu'il est en rotation avec l'arbre rotatif (3) de manière conjointe, dans lequel la molette de commande (5) possède une coque (16) enveloppant l'axe de rotation (A) ce par quoi un compartiment de molette (7) est ménagé sur un côté faisant face à la forme en relief (11), **caractérisé en ce que** la molette de commande (5) recouvre la forme en relief (11) au moyen de la coque (16) et du compartiment de molette (7).
2. Dispositif de cuisson au gaz (1) selon la revendication 1, dans lequel la plaque de cuisson (8) possède une base (9) ce par quoi la forme en relief (11) se présente sous la forme d'une élévation par rapport à ladite base (9).

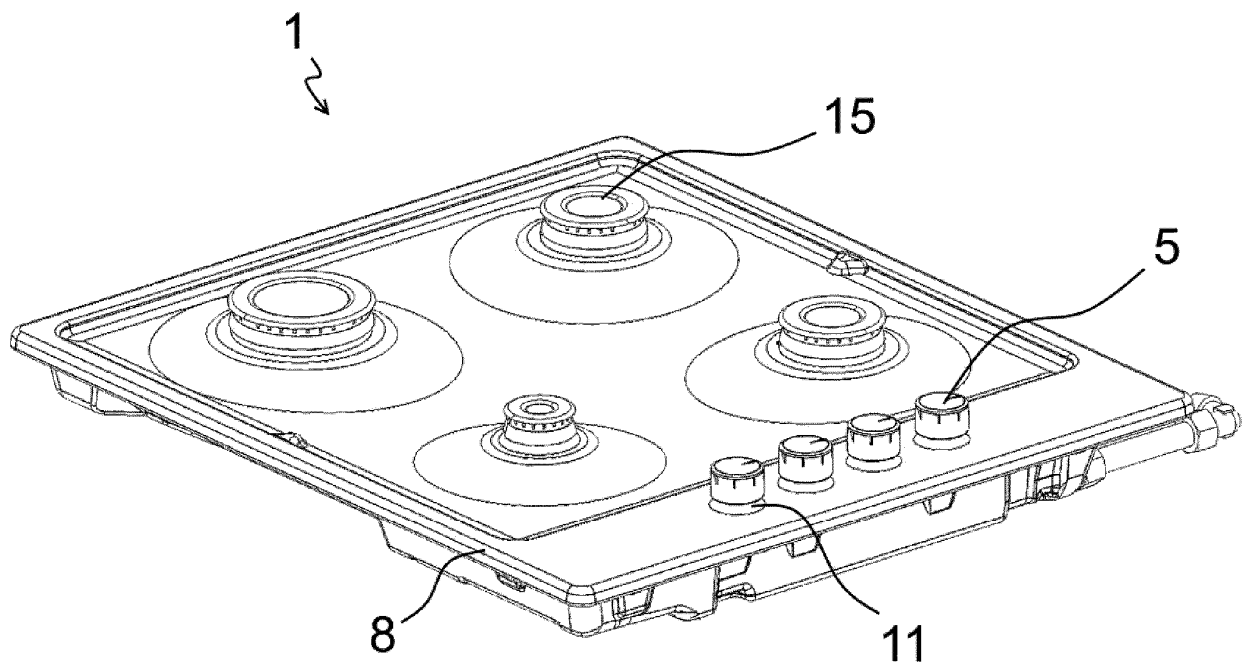


FIG. 1

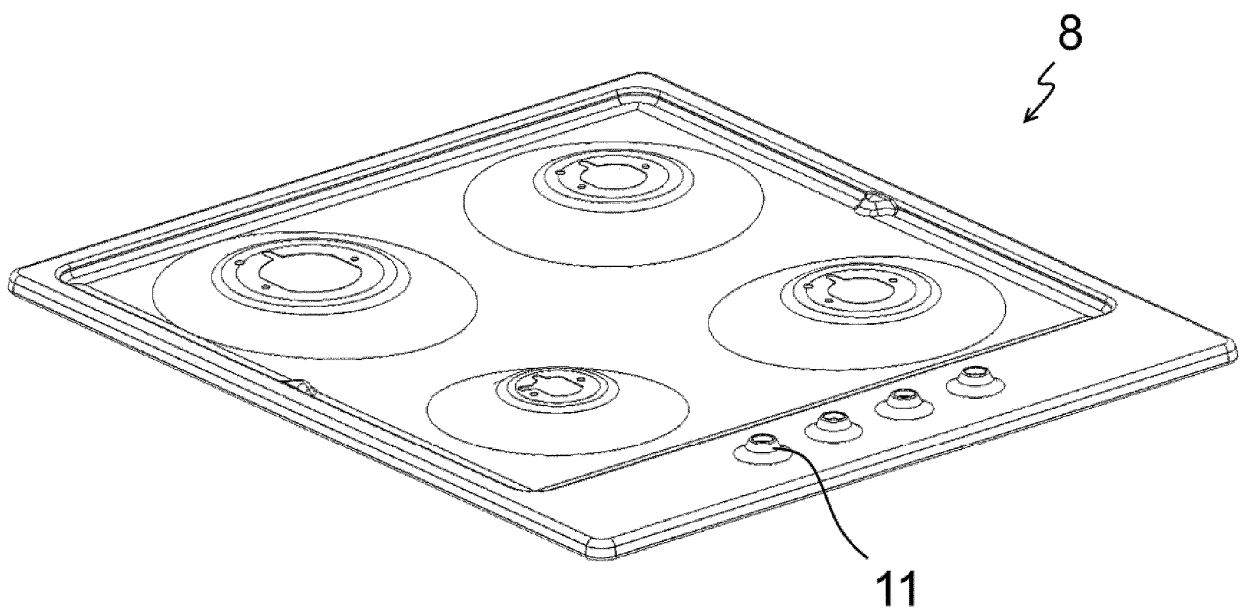


FIG. 2

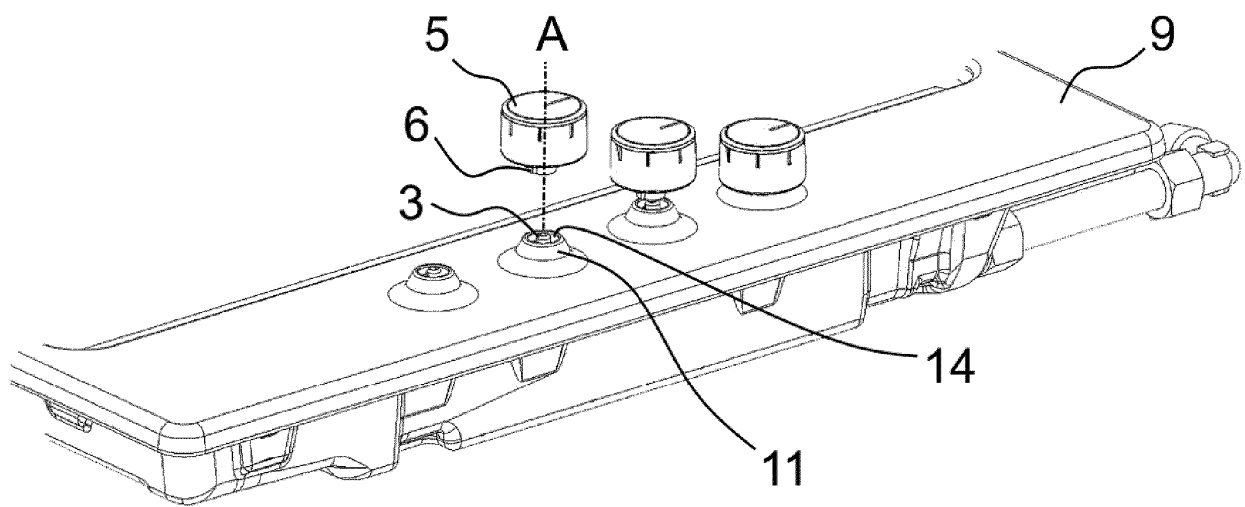


FIG. 3

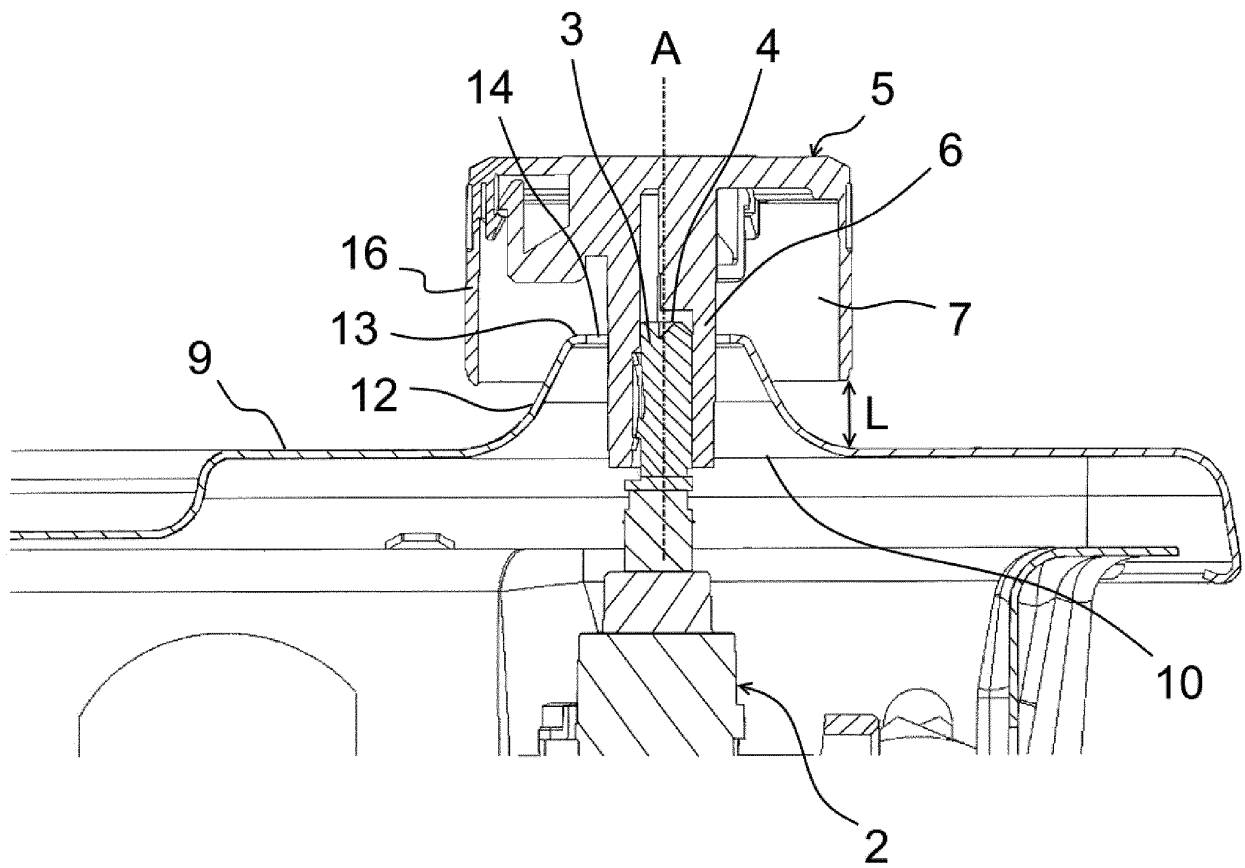


FIG. 4

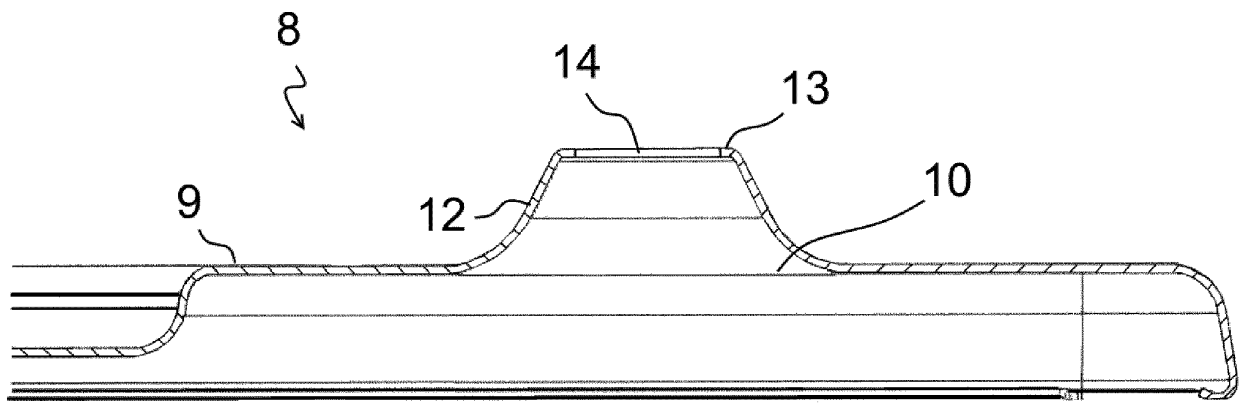


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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