

(19) **DANMARK**

(10) **DK/EP 3356727 T3**



Patent- og
Varemærkestyrelsen

(12) Oversættelse af
europæisk patentskrift

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- (51) Int.Cl.: **F 21 S 8/02 (2006.01)** **F 21 V 21/04 (2006.01)**
- (45) Oversættelsen bekendtgjort den: **2019-09-16**
- (80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2019-07-10**
- (86) Europæisk ansøgning nr.: **16784132.9**
- (86) Europæisk indleveringsdag: **2016-09-27**
- (87) Den europæiske ansøgnings publiceringsdag: **2018-08-08**
- (86) International ansøgning nr.: **DK2016050310**
- (87) Internationalt publikationsnr.: **WO2017054826**
- (30) Prioritet: **2015-09-28 DK 201570611**
- (84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**
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- (54) Benævnelse: **Lampehus med en låseindretning**
- (56) Fremdragne publikationer:
EP-A1- 1 936 265
EP-A1- 2 372 237
EP-A2- 0 840 060
WO-A1-2005/022033
FR-A- 1 304 849
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DESCRIPTION

Field of invention

[0001] The present invention relates to a lamp housing with a locking device, in particular, a locking device that is able to lock the lamp housing in an installation opening. More particular, the present invention relates to a locking device that can be operated with one hand and from within the lamp housing.

Background of invention

[0002] In typical ceiling-mounted lamp housings, two hands are required to install it in an installation opening, in particular because the locking mechanisms typically are spring-loaded and needs to be operated from outside the lamp housing. When installing ceiling-mounted lamp housings, it is typical that a ladder is needed to stand on. Thus, using two hands while standing on a ladder is a dangerous job. Many ceiling-mounted lamp housings are installed with two hands, typically by having several elements applying a pressure from above the ceiling. Common examples of such are described in WO 2005/022033, EP 2372237, FR 1304849, EP 0840060 and EP 1936265.

[0003] Further, because the most common locking mechanisms typically are spring-loaded, the force by which the housings are locked with, are dependent on the spring force. To have a strong locking, a strong spring force is needed. However, in order to have a strong locking, it requires that the installer of the lamp housing is able to compress the spring while installing the lamp housing. Spring loaded locking mechanisms and two hands operation installation of lamp housings complicate installation.

[0004] An alternative to ceiling mounted lamp housing is disclosed in US 4,733,339, where an element is applying a pressure from the side of the ceiling. The element described in US 4,733,339 is able to freely pivot around a fixed point.

[0005] Thus, there is a need for improvement in lamp housings with locking mechanisms.

Summary of invention

[0006] In order to improve the current state of lamp housing and in order to overcome the problems as above describes, the present disclosure provides a lamp housing to be inserted into an installation-opening. The lamp housing comprises: an outer surface and an inner surface; and a slot going through the outer surface into the inner surface. The lamp housing further comprises in one embodiment; a locking device connected to the outer surface,

wherein the locking device comprises: an elongated member; a protruding part from the elongated member, wherein the protruding part, comprises a bottom part; and a top part. In another embodiment the top part comprises a pushing-surface and a contacting-surface, and wherein the elongated member is able to pivot between a first position and a second position such that: in the first position, the elongated member is positioned such that the bottom part is inside the slot, and such that the top part is inside the housing, whereby the contacting-surface and the pushing-surface are inside the lamp housing. In yet another embodiment, in the second position, the elongated member is positioned such that the bottom part is outside the slot, and such that the top part is partly inside the slot, whereby the contacting-surface is contacting the outer surface and the pushing-surface is between inside of the housing and the outer surface, whereby the lamp housing is able to be wedged in the installation-opening by the elongated member.

[0007] A first advantage of the present invention is related to the pushing surface is inside the lamp housing. By this feature, it is possible to push the pushing-surface from within the lamp housing, thereby installing the lamp housing in an installation opening by a simple click, for example using one finger. By the present invention, it is possible to hold the lamp housing with one, using for example all five fingers, then to press-fit the lamp housing into the installation hole, move one of the five fingers to the pushing-surface, whereby the lamp housing is installed with one hand and one click. Thus, the present invention provides a lamp housing that it easily installed in an installation-hole, for example in a ceiling or a wall. The locking device as defined by the present invention does not require being spring loaded, in particular because the contacting-surface is contacting the outer surface in the second position.

An advantage of having the pushing-surface between the inside of the housing and the outer surface in the second position is that this may allow for lamp or a main body that holds a lamp to slide and/or rotate along the inner surface.

Description of drawings

[0008]

Fig. 1 shows an embodiment of the locking device according to the present invention from a perspective.

Fig. 2 shows an embodiment of the locking device according to the present invention from a side view.

Fig. 3 shows an embodiment of the locking device according to the present invention from a top view.

Fig. 4 shows an embodiment of the lamp housing according to the present invention from a perspective.

Fig. 5 shows an embodiment of the lamp housing according to the present invention from a

side view.

Fig. 6 shows an embodiment of the lamp housing with the locking device according to the present invention from a side view.

Fig. 7 shows another embodiment of the lamp housing according to the present invention from a first perspective.

Fig. 8 shows another embodiment of the lamp housing according to the present invention from a second perspective.

Fig. 9 shows another embodiment of the lamp housing according to the present invention from a second perspective.

Detailed description of the invention

Locking device

[0009] As previously described, the locking device may in one embodiment of the present invention be a non-spring-loaded locking device.

[0010] In another embodiment of the present invention, the locking device is formed as a pawl. A pawl or a locking pawl is generally known for being used in connection with a toothed wheel. However, the effect of a pawl is that is by its shape stops or locks or releases a mechanism. The pawl, generally the locking device, as herein disclosed locks the locking device itself into the slot in the second position when the locking pawl is pushed via the pushing-surface from the first position to the second position, at least when being placed in the installation-opening. In one embodiment, it is the installation-opening that prevents the locking pawl from going further away from the outer surface.

[0011] As just described, the locking device may be non-spring loaded, and therefore, when not being placed in an installation-opening, the locking device may not be prevented from going further away from the outer surface, i.e. the contacting-surface may not be prevented from leaving the outer surface.

[0012] However, in some embodiments, the locking device may be prevented from going further away from the outer surface, i.e. the contacting-surface may be prevented from leaving the outer surface, see further details related to locking in the section "*elongated member*", in "first position" and in "second position".

Pushing-surface and contacting surface

[0013] In one embodiment of the present invention, the pushing-surface and the contacting surface have an area that is identical to and/or smaller than an area of the slot. By such construction, it is possible to have both surfaces to pass the slot from the first position to the second position, in particular in an embodiment when the pushing-surface and the contacting-surface are parallel.

[0014] In another embodiment, the pushing-surface and the contacting-surface are separated by a distance that is identical to the distance between the outer surface and the inner surface. For example, in an embodiment when the pushing-surface and the contacting-surface are parallel, the distance between the pushing-surface and the contacting-surface may be on a connecting-surface that connects the pushing-surface and the contacting-surface, whereby a pawl is formed by the pushing-surface, the connecting-surface and the contacting-surface. The connecting surface engages with the slot, in particular the connecting-surface engages with a rim of the slot. By having the pushing-surface and the contacting-surface separated by a distance that is identical to the distance between the outer surface and the inner surface, the pushing-surface is able to be placed between the outer surface and the inner surface in the second position, in this case, the pushing-surface is able to coincide with the inner surface.

[0015] In a preferred embodiment of the present invention, the pushing surface is configured for being pushed on from inside of the lamp housing, such that the elongated locking device is able to pivot between the first position and the second position. This may facilitate easy installation of the lamp housing in the installation-opening.

[0016] In a more preferred embodiment of the present invention, the pushing surface is configured with extension means, such that the pushing-surface can be extended with an extension part such that in the second position, the extension part is inside the lamp housing. Having the extension part on the pushing-surface clearly also means that in the first position, the extension part is also in the lamp housing. The extension means may be a screw or a threading hole for a screw, such that the extension part is configured to fit with the extension means. Having the extension part on the pushing surface extends the pushing-surface, whereby a larger torque is able to be applied such that the elongated member is able to be wedged between the lamp housing and the installation-opening. After the lamp housing has been installed in the installation-opening using the extension part, it is possible to detach the extension part, such that the inner surface has no parts that block for lamps or main bodies being installed in the lamp housing.

[0017] In a most preferred embodiment of the present invention, a cross-section of the bottom part has an area that is smaller than a total area of the pushing-surface and the contacting-surface. This may for example facilitate that the elongated member stays in the first position until it is pushed to the second position, at least when the pushing-surface and the contacting-surface are parallel and/or when the contacting-surface in the first position is placed such that it is not able to go directly through the slot.

Elongated member

[0018] In one embodiment of the present invention, the elongated member and the protruding part are made as a single component. Alternatively, the elongated member and the protruding part may be two separate components that are attached to each other.

[0019] In another embodiment of the present invention, the elongated member is made of a flexible material, such as plastic or metal or a combination thereof. In the embodiment, where the elongated member is made of metal, it is to be understood that a flexible material may be achieved by having proper dimensions of the elongated material, such as for example being thinner than longer. This is elaborated in further details below.

[0020] It is preferred that the length of the elongated member is between 50 mm and 200 mm, preferably between 50 and 70 mm, whilst the thickness of the elongated member is between 1 mm and 5 mm, preferably between 3 and 4 mm, meaning a ratio between length and thickness being between 10 and 50, and preferably between 16 and 20. It has been found that such a ratio provides flexibility so that the elongated member is able to be posited from the first position to the second position by a bending of the elongated member. The width of the elongated member may be between 5 mm and 100 mm.

[0021] In some embodiments of the present invention, the protruding member may be between 2 and 10 mm wide, such as between 5 and 7 mm wide, such as 6 mm wide. Accordingly, the slot may be between 2 and 10 mm wide, such as between 5 and 7 mm wide, such as 6 mm wide.

[0022] In some embodiments of the present invention, the elongated member is wider than the protruding part. This may for example facilitate that a large pressure is able to be transferred to the side of the installation-hole. The width of the elongated member may for example be between 4 and 20 mm, such as between 10 and 14 mm, such as 12 mm.

Attachment means

[0023] In a preferred embodiment, the elongated locking device further comprising attachment means defining the pivot axis, wherein the attachment means is configured for being attached to a fastening means on the outer surface. The attachment means may be a click-on attachment, such as a circular part, the circular part having a radius of curvature between 1 and 2 mm, such as around 1.5 mm.

Wedge angle

[0024] In a preferred embodiment, a shortest distance from the pivot axis to the contacting-surface and a shortest distance from the elongated member to the contacting-surface defines a wedge angle, such that the lamp housing is able to be wedged in the installation-opening by the elongated member.

[0025] In a more preferred embodiment, the contacting surface is angled relative to the elongated member with an angle given by the wedge angle. Thus, when the contacting-surface is in contact with the part of the outer surface in the second position, the contacting-surface is in contact with the outer surface, providing a stable locking of the elongated member.

[0026] In a most preferred embodiment, the wedge angle is between 5 and 35 degrees, such as between 10 and 25 degrees, or such as between 15 and 17 degrees.

First position

[0027] According to the present invention, it may be such that in the first position, the lamp housing is able to be inserted in the installation-opening.

[0028] Further, in one embodiment, it is such that in the first position, the contacting-surface is prevented from going through the slot from the inner surface to the outer surface by having a back side of the contacting-surface facing the inner surface. In other words, the protruding part may comprise a second protruding part, protruding from the protruding part, preferably towards the pivot axis. In relation hereto, the contacting-surface may be able to go through the slot from the inner surface to the outer surface due to the backside being angled relative to the contacting surface. For example, this may be possible due to pressure being applied to the pushing-surface. Alternative, and/or additionally, the contacting-surface may be able to go through the slot from the inner surface to the outer surface due the locking device being flexible.

Second position

[0029] Preferably, in the second position, the pushing-surface may be between the inner surface and the outer surface. This may provide that no parts are inside the housing whilst in the second position, such that lamps or main units that hold a lamp can be freely installed in the lamp housing.

[0030] According to the present invention, it may be such that in the second position, the lamp housing is able to be locked in the installation-opening due to pressure applied from the elongated member to a side of the installation-opening. Since the lamp housing is wedged, there may both be pressure applied to the side of the lamp housing and from above the installation-opening. Thus, alternatively and/or additionally, it may be such that in the second

position, the lamp housing is able to be locked in the installation-opening due to pressure applied from the elongated member to an inner part of the installation-opening. The inner part may for example be the backside of a ceiling, i.e. the loft.

[0031] Further, in the second position, the contacting-surface may be prevented from going through the slot from the outer surface to the inner surface by having a front side of the contacting-surface matching the outer surface. For example, by at least having the contacting surface angled relative to the elongated member with an angle given by the wedge angle, as previously described.

[0032] In one embodiment of the present invention, in the second position, and when not in an installation hole, the contacting-surface is not prevented from leaving the outer surface.

[0033] Alternatively, in the second position, and when not in an installation hole, the contacting-surface is prevented from leaving the outer surface by having a part of the elongated member below the pivot axis, wherein the part of the elongated member below the pivot axis is thinner than a part of the elongated member above the pivot point. The part of the elongated member above the pivot axis may for example be between 1.5 and 2 mm.

Lamp housing

[0034] In one embodiment of the present invention, the part of the outer surface is a part that extends around one or more sides of the slot. In this embodiment, the part that extends around one or more sides of the slot may facilitate that the elongated member, specifically the protruding part, is properly maintained in the first position during installation in the hole. In this way, it is facilitated that the pushing surface is also maintained inside the lamp housing, such that it is secured that the elongated member is in its place, i.e. its first position, and can be shifted to the second position.

[0035] In an alternative embodiment of the present invention, the part of the outer surface is a part that is recessed around one or more sides of the slot. In this embodiment, it may be possible to have the elongated member positioned substantially parallel to the outer surface, for example if the outer surface is partly cylindrical. The elongated member may be able to fit into part that is recessed around one or more sides of the slot. Thus, if the lamp housing is cylindrical, the recessed part may facilitate that the lamp housing is able to be inserted into the installation-opening. In this embodiment, the elongated member may be flush with the outer surface such that the dimensions defined by the outer surface, defines the installation opening.

[0036] In one embodiment of the present invention, the lamp housing further comprises a flange extending radially from the outer surface. The lamp housing may then in the second position be maintained between the elongated member and the flange.

[0037] In some embodiments, the inner surface is configured for holding a lamp or for holding

a main body that holds a lamp. Preferably, the inner surface or at least part of the inner surface is curved such as like a parabola. Having a curved surface, such as a parabola may facilitate that light from a lamp is emitted from the lamp into the parabola, where it may be reflected, and further be emitted out of the lamp housing such that light leaving the light house forms a single directional beam.

[0038] In further embodiments, the lamp housing comprises a top part adapted with a hole. The hole may be for wiring to a lamp or to a main body that holds a lamp.

[0039] In a preferred embodiment, there are two or more slots and a locking device as herein described for each of the slots.

Example 1 - Locking device:

[0040] With reference to **Fig. 1**, there is shown an embodiment of the locking device according to the present invention. According to the present invention, the locking device **1** comprises: an elongated member **2**; a protruding part **3** from the elongated member **2**, wherein the protruding part **3**, comprises a bottom part **4**; and a top part **5**, wherein the top part comprises a pushing-surface **6** and a contacting-surface **7**. The pushing-surface **6** is configured with extension means **8**, here shown as a threaded hole, such that the pushing surface **6** can be extended with an extension part. The elongated locking device **1** further comprises attachment means defining the pivot axis **9**.

[0041] Further, there is a back side **10** of the contacting-surface **7**, the backside being angled relative to the contacting surface **7**. As also shown in this figure, there is a part **11** of the elongated member **2** below the pivot axis **9**, wherein the part **11** of the elongated member **2** below the pivot axis **9** is thinner than a part of the elongated member **2** above the pivot point **9**. The locking device **1** is formed as a pawl, in that the pushing-surface **6** and the contacting-surface **7** are parallel and the pushing-surface **6** and the contacting-surface **7** are separated by a distance **12** that is identical to the distance between the outer surface and the inner surface of the lamp housing. As can also be seen, a cross-section of the bottom part **4** has an area that is smaller than a total area of the pushing-surface **6** and the contacting-surface **7**. Also, the elongated member **2** is wider than the protruding part **3**.

Example 2 - Locking device (further details):

[0042] With reference to **Fig. 2**, there is shown an embodiment of the locking device according to the present invention. According to the present invention, the locking device **1** comprises: an elongated member **2**; a protruding part **3** from the elongated member **2**, wherein the protruding part **3**, comprises a bottom part **4**; and a top part **5**, wherein the top part comprises a pushing-surface **6** and a contacting-surface **7**. The pushing-surface **6** is configured with

extension means **8**, here shown as a threaded hole, such that the pushing surface **6** can be extended with an extension part. The elongated locking device **1** further comprises attachment means **9** defining the pivot axis. Further, there is a back side **10** of the contacting-surface **7**, the backside being angled relative to the contacting surface **7**. As also shown in this figure, there is a part **11** of the elongated member **2** below the pivot axis **9**, wherein the part **11** of the elongated member **2** below the pivot axis **9** is thinner than a part of the elongated member above the pivot point **9**. The locking device **1** is formed as a pawl, in that the pushing-surface **6** and the contacting-surface **7** are parallel and the pushing-surface **6** and the contacting-surface **7** are separated by a distance **12** that is identical to the distance between the outer surface and the inner surface of a lamp housing. As can also be seen in this figure, a shortest distance from the pivot axis to the contacting-surface and a shortest distance **13** from the elongated member **2** to the contacting-surface **7**, defines a wedge angle **14**, such that the lamp housing is able to be wedged in the installation-opening by the elongated member.

Example 3 - Locking device (further details):

[0043] With reference to **Fig. 3**, there is shown an embodiment of the locking device according to the present invention from a top view. From this view, it can be seen that the elongated member **2** is wider than the protruding part **3**.

Example 4 - Lamp housing:

[0044] With reference to **Fig. 4**, there is shown an embodiment of the lamp housing **15** according to the present invention from a perspective, comprising an outer surface **16** and an inner surface **17**; a first slot **18** going through the outer surface **16** into the inner surface **17**. Another slot **18** configured as the first slot is also shown. Part **19** of the outer surface **16** has a part that is recessed around all the sides of the slot **18**, wherein the elongated member is able to be in the first position. The lamp housing **15** further comprises a flange **20** extending radially from the outer surface **16**.

Example 5 - Lamp housing (further details):

[0045] With reference to **Fig. 5**, there is shown an embodiment of the lamp housing **15** according to the present invention from a side view, comprising an outer surface **16** and an inner surface **17** (not to be seen from this view); a first slot **18** going through the outer surface **16** into the inner surface **17**. Part **19** of the outer surface **16** has a part that is recessed around all the sides of the slot **18**, wherein the elongated member is able to be in the first position. The lamp housing **15** further comprises a flange **20** extending radially from the outer surface **16**. From this view, fastening means **21** are on the outer surface, such that attachment means **9** on the elongated member can be connected to the outer surface **16**.

Example 6 - Lamp housing with locking device (assembled and installed in an installation-opening):

[0046] With reference to **Fig. 6**, there is shown a lamp housing **15** with a locking device **1** according to the present invention from a side view. The lamp **15** housing is installed in an installation-opening **22**. The locking device is shown in its second position, where the elongated member **2** is positioned with an angle relative to the outer surface **16** of the lamp housing **15**, such that the bottom part **4** is outside the slot **18**, and such that the top part **5** is partly inside the slot, whereby the contacting-surface **7** is contacting the outer surface **16** and the pushing-surface **6** is between the inside of the housing and the outer surface **16**, whereby the lamp housing **15** is able to be wedged in the installation-opening **22** by the elongated member **2**. In this embodiment, the pushing surface is extended with an extension part **23** such that in the second position, the extension part **23** is inside the lamp housing.

Example 7 - Lamp housing:

[0047] With reference to **Fig. 7**, there is shown another embodiment of the lamp housing **15** according to the present invention from a first perspective, comprising an outer surface **16** and an inner surface **17**; a first slot **18** going through the outer surface **16** into the inner surface **17**. The inner surface can be seen through a hole which is formed in the top part of the housing. Part of the outer surface **19** has a part that extends around three sides of the slot **18**, wherein the elongated member is able to be in the first position. The lamp housing **15** further comprises a flange **20** extending radially from the outer surface **16**.

Example 8 - Lamp housing:

[0048] With reference to **Fig. 8**, there is shown another embodiment of the lamp housing **15** according to the present invention from a first perspective, comprising an outer surface **16** and an inner surface **17** (not to be seen from this perspective); a first slot **18** going through the outer surface **16** into the inner surface **17**. Part of the outer surface **19** has a part that extends around three sides of the slot **18**, wherein the elongated member is able to be in the first position. The lamp housing **15** further comprises a flange **20** extending radially from the outer surface **16**.

Example 9 - Lamp housing:

[0049] With reference to **Fig. 9**, there is shown another embodiment of the lamp housing **15** according to the present invention from a first perspective, comprising an outer surface **16** (not

to be seen from this perspective) and an inner surface **17**; a first slot **18** going through the outer surface **16** into the inner surface **17**. The lamp housing **15** further comprises a flange **20** extending radially from the outer surface **16**. In this embodiment, part of the inner surface **17** is curved like a parabola.

REFERENCES CITED IN THE DESCRIPTION

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- [EP2372237A \[0002\]](#)
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PATENTKRAV

1. Lampehus (15) til indsættelse i en installationsåbning (22), omfattende:

- en ydre overflade (16) og en indre overflade (17);
- 5 - en sprække (18) der går gennem den ydre overflade (16) ind i den indre overflade (17);
- en låseindretning (1) forbundet til den ydre overflade (16), hvilken låseindretning (1) omfatter:
 - et aflangt element (2);
 - 10 - en fremspringende del (3) fra det aflange element (2), hvor den fremspringende del (3) omfatter
 - en nedre del (4); og
 - en øvre del (5), hvor den øvre del omfatter en skubbeblade (6) og en kontaktflade (7), og
- 15 hvor det aflange element (2) er i stand til at dreje på en drejeakse (9) mellem en første position og en anden position, således at:
 - i den første position er det aflange element (2) anbragt således, at den nedre del (4) er inde i sprækken (18), og således at den øvre del (5) er inde i huset (15), hvorved kontaktfladen (7) og skubbebladen (6) er inde i lampehuset (15);
 - 20 - i den anden position er det aflange element (2) anbragt således, at den nedre del (4) er uden for sprækken (18), og således at den øvre del (5) delvist er inde i sprækken (18), hvorved kontaktfladen (7) er i kontakt med en del af den ydre overflade (19), og skubbebladen (6) er mellem indersiden af huset (15) og den ydre overflade (16), hvorved lampehuset (15) kan kiles ind i installationsåbningen (22) af det aflange element (2),
 - 25

kendetegnet ved at

det aflange element endvidere omfatter en del (11) af det aflange element (2) under drejeaksen (9), hvor delen (11) af det aflange element (2) under drejeaksen (9) er tyndere end en del af det aflange element (2) over drejepunktet (9).

5

2. Lampehus (15) ifølge krav 1, hvor låseindretningen (1) er en ikke-fjederbelastet låseindretning, og/eller hvor låseindretningen (1) er formet som en pal.

10 3. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor skubbefladen (6) og kontaktfladen (7) er parallelle og/eller har et område, der er identisk med og/eller mindre end et område af sprækken (18).

15 4. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor delen (19) af den ydre overflade (16) er en del, der strækker sig omkring én eller flere sider af sprækken (18), og/eller hvor delen (19) af den ydre overflade (16) er en del, der er for-
sænket omkring én eller flere sider af sprækken (18).

20 5. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor skubbefladen (6) og kontaktfladen (7) er adskilt med en afstand (12), der er identisk med afstanden mellem delen (19) på den ydre overflade (16) og den indre overflade (17).

25 6. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor skubbefladen (6) er konfigureret til at blive skubbet på fra indersiden af lampehuset (15), således at det aflange element (2) er i stand til at dreje mellem den første position og den anden position, og/eller hvor skubbefladen (6) er konfigureret med forlængelsesmidler (8), således at skubbefladen kan forlænges med en forlængelsesdel (23), således at forlængelsesdelen (23) i den anden position er inde i lampehuset (15).

30 7. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor et tværsnit af den nedre del (4) har et område, der er mindre end et samlet areal af skubbefladen (6) og kontaktfladen (7).

35 8. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor det aflange element (2) yderligere omfatter fastgørelsesmidler, der definerer drejeaksen (9), hvor fastgørelsesmidlet er konfigureret til at blive fastgjort til et fastgørelsesmiddel (21) på

den ydre overflade (16).

- 5 9. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor en korteste afstand fra drejeaksen (9) til kontaktfladen (7) og en korteste afstand fra det aflange element (2) til kontaktfladen (7) definerer en kilevinkel (14), således at lampehuset (5) kan kiles ind i installationsåbningen (22) af det aflange element (2), og/eller hvor kilevinklen (14) er mellem 5 og 35 grader, såsom mellem 10 og 25 grader, eller såsom mellem 15 og 17 grader.
- 10 10. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor det aflange element (2) og den fremspringende del (3) er lavet som en enkelt komponent, og/eller hvor det aflange element (2) er bredere end den fremspringende del (3), og/eller hvor det aflange element (2) er lavet af et fleksibelt materiale.
- 15 11. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor lampehuset (15) yderligere omfatter en flange (20), der strækker sig radialt fra den ydre overflade (16), og hvor den indre overflade (17) er konfigureret til at bære en lampe eller til at bære en hoveddel, der bærer en lampe.
- 20 12. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor lampehuset (15) i den første position er i stand til at blive indsat i installationsåbningen (22).
- 25 13. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor kontaktfladen (7) i den første position forhindres i at gå gennem sprækken fra den indre overflade (17) til den ydre overflade (16) ved at have en bagside (10) af kontaktfladen (7), der vender mod den indre overflade (17), og/eller hvor kontaktfladen (7) er i stand til at gå gennem sprækken (18) fra den indre overflade (17) til den ydre overflade (16), fordi bagsiden (10) er vinklet i forhold til kontaktfladen (7), og/eller hvor kontaktfladen (7) er i stand til at gå gennem sprækken (18) fra den indre overflade (17) til den ydre overflade (16), fordi låseindretningen (1) er fleksibel.
- 30 14. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor skubbebladen (6) i den anden position er mellem den indre overflade (17) og den ydre overflade (16).

15. Lampehus (15) ifølge et hvilket som helst af de foregående krav, hvor lampehuset (15) i den anden position er i stand til at være låst i installationsåbningen (22), fordi der påføres tryk fra det aflange element (2) til en side af installationsåbningen (22) og /eller til den indre del af installationsåbningen (22).

DRAWINGS

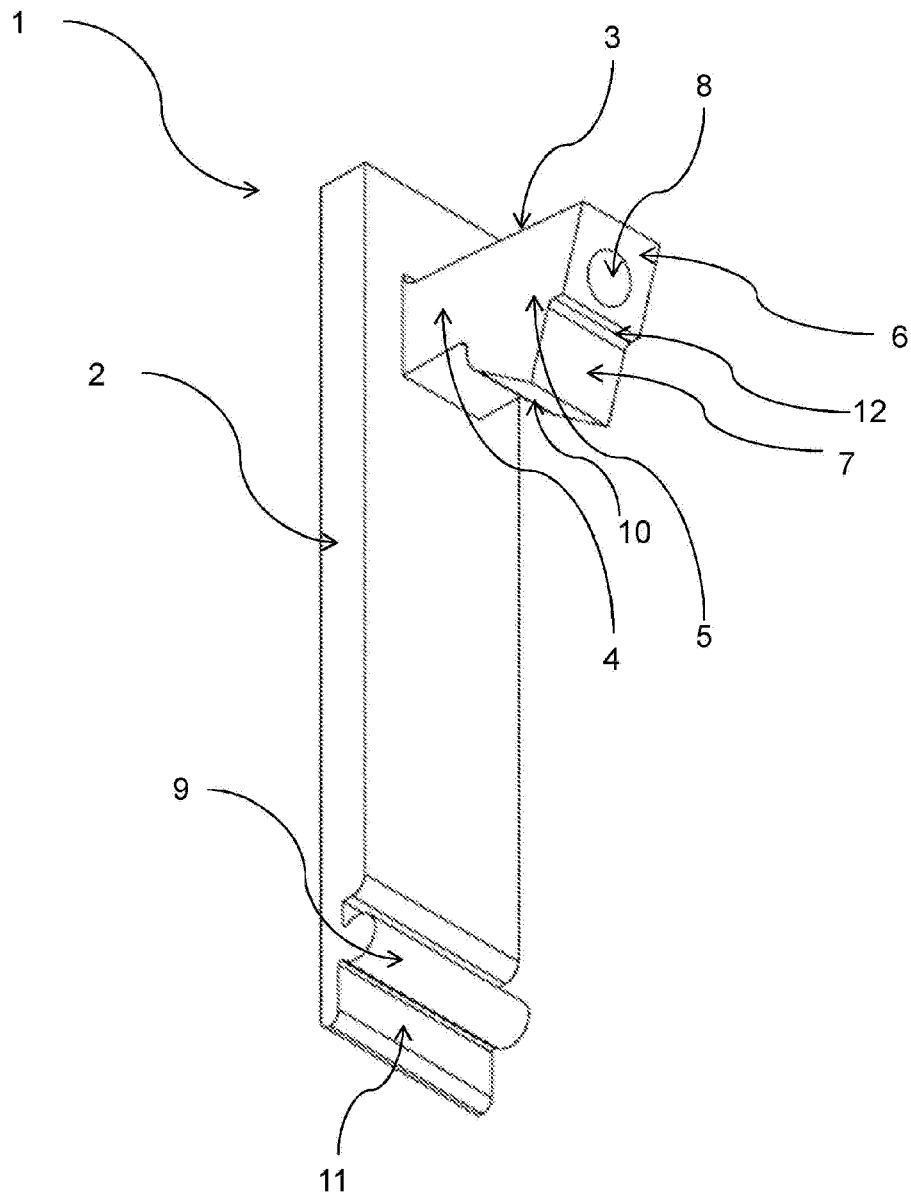


Fig. 1

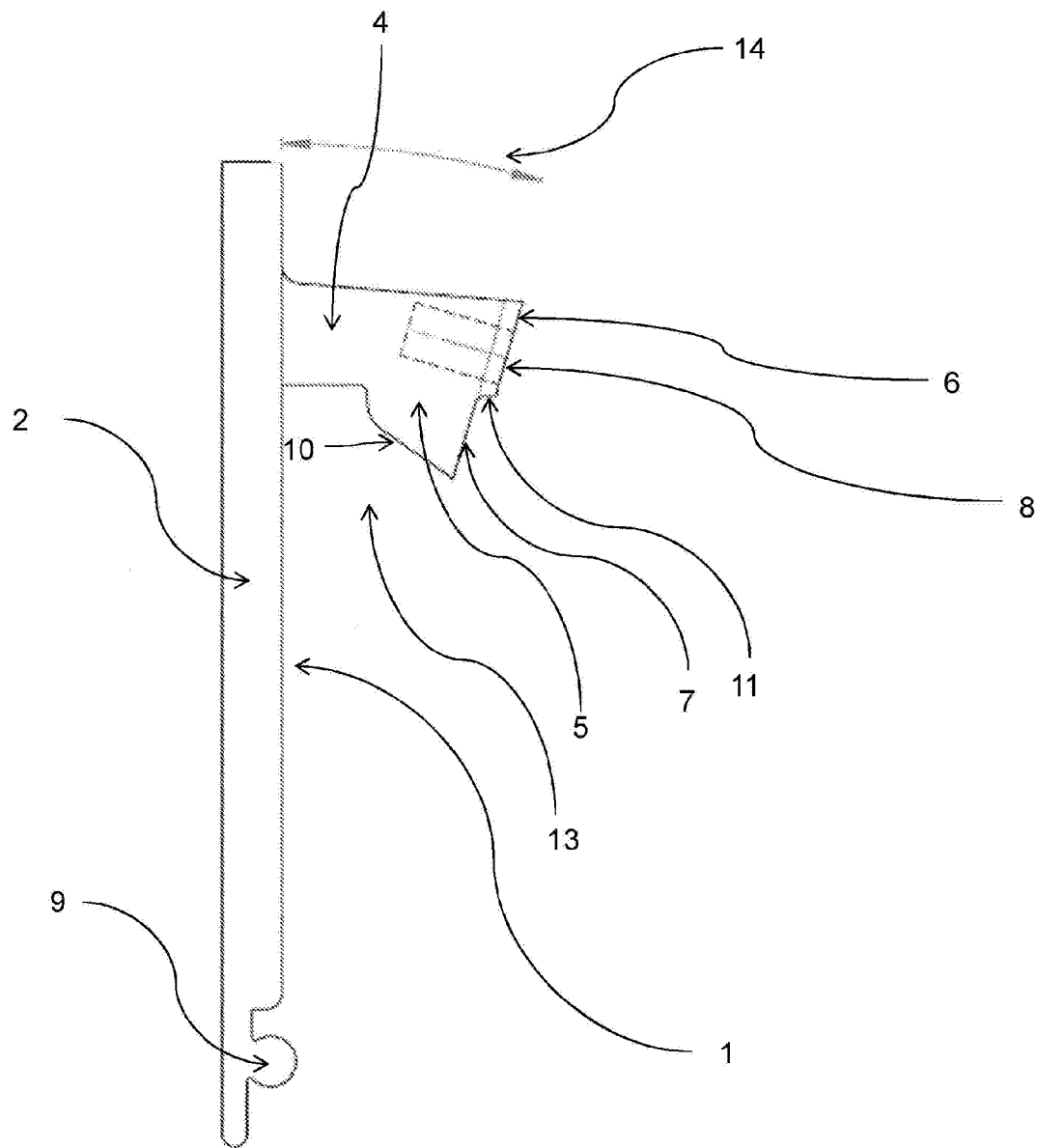


Fig. 2

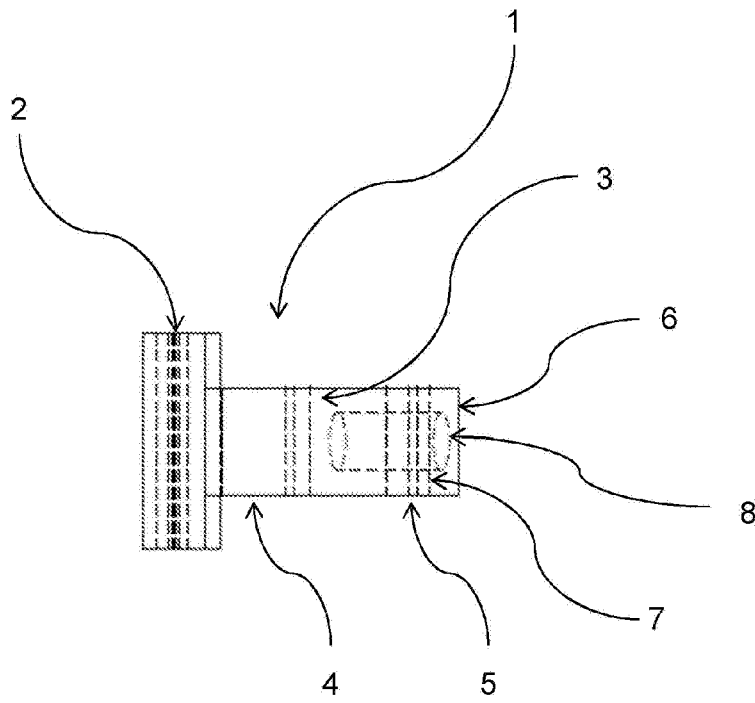


Fig. 3

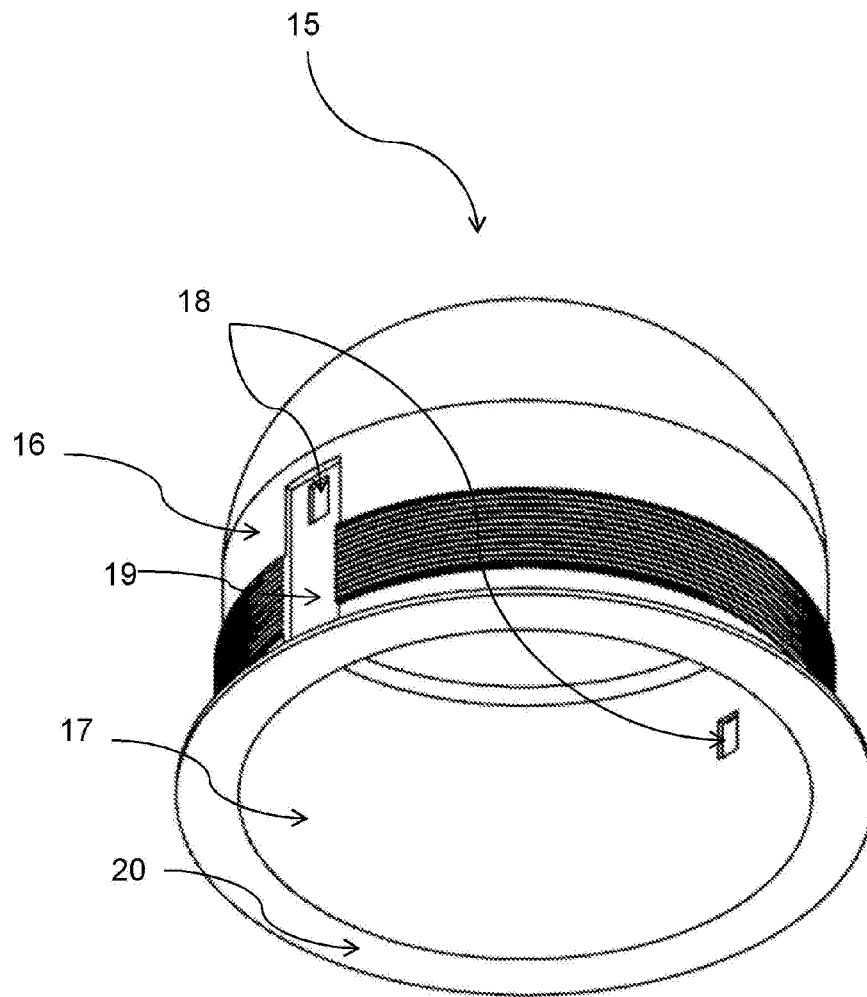


Fig. 4

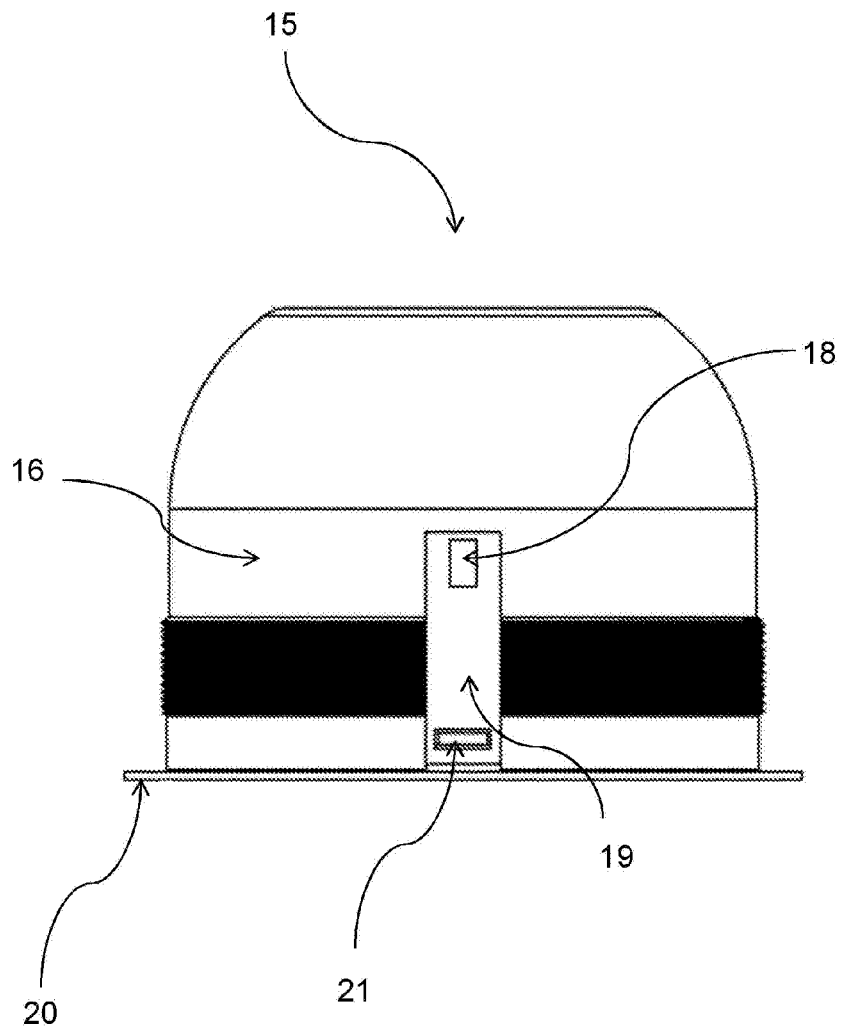


Fig. 5

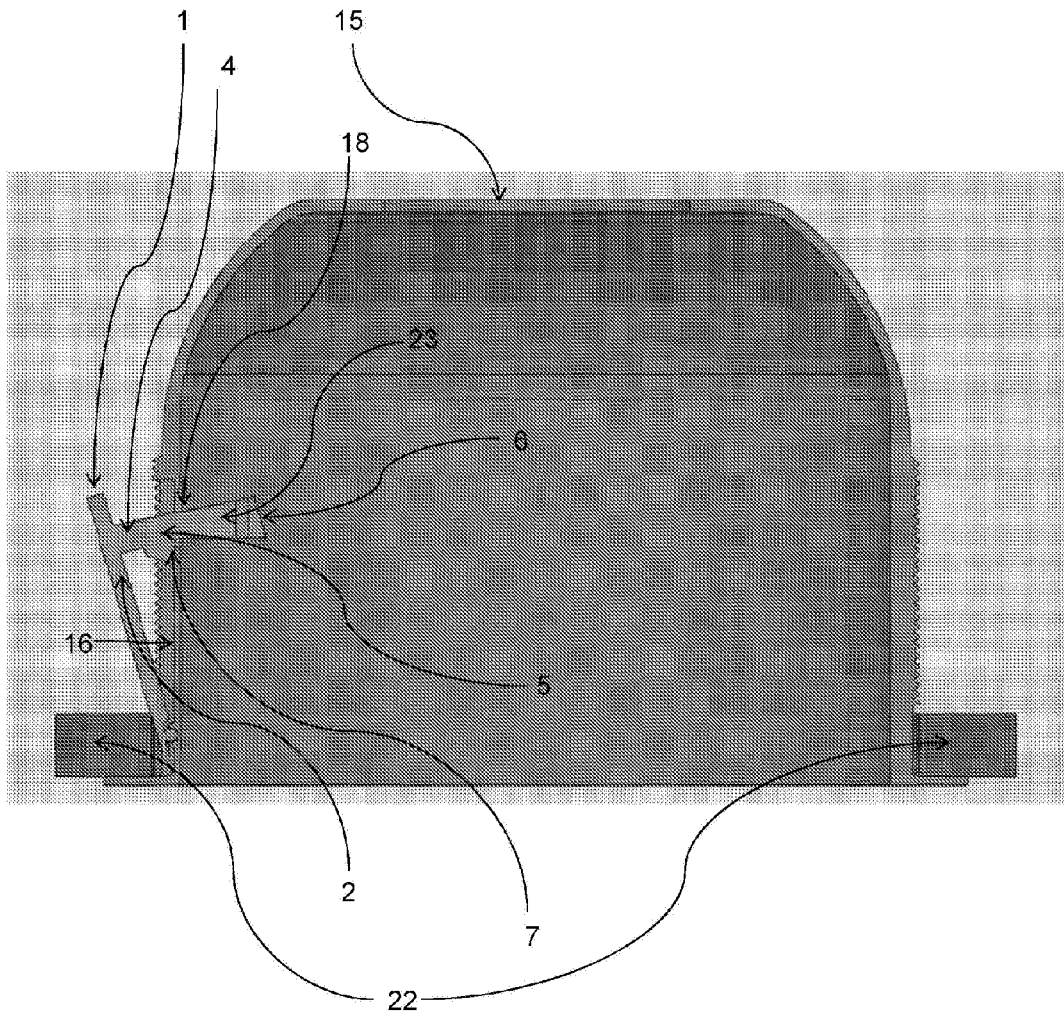


Fig. 6

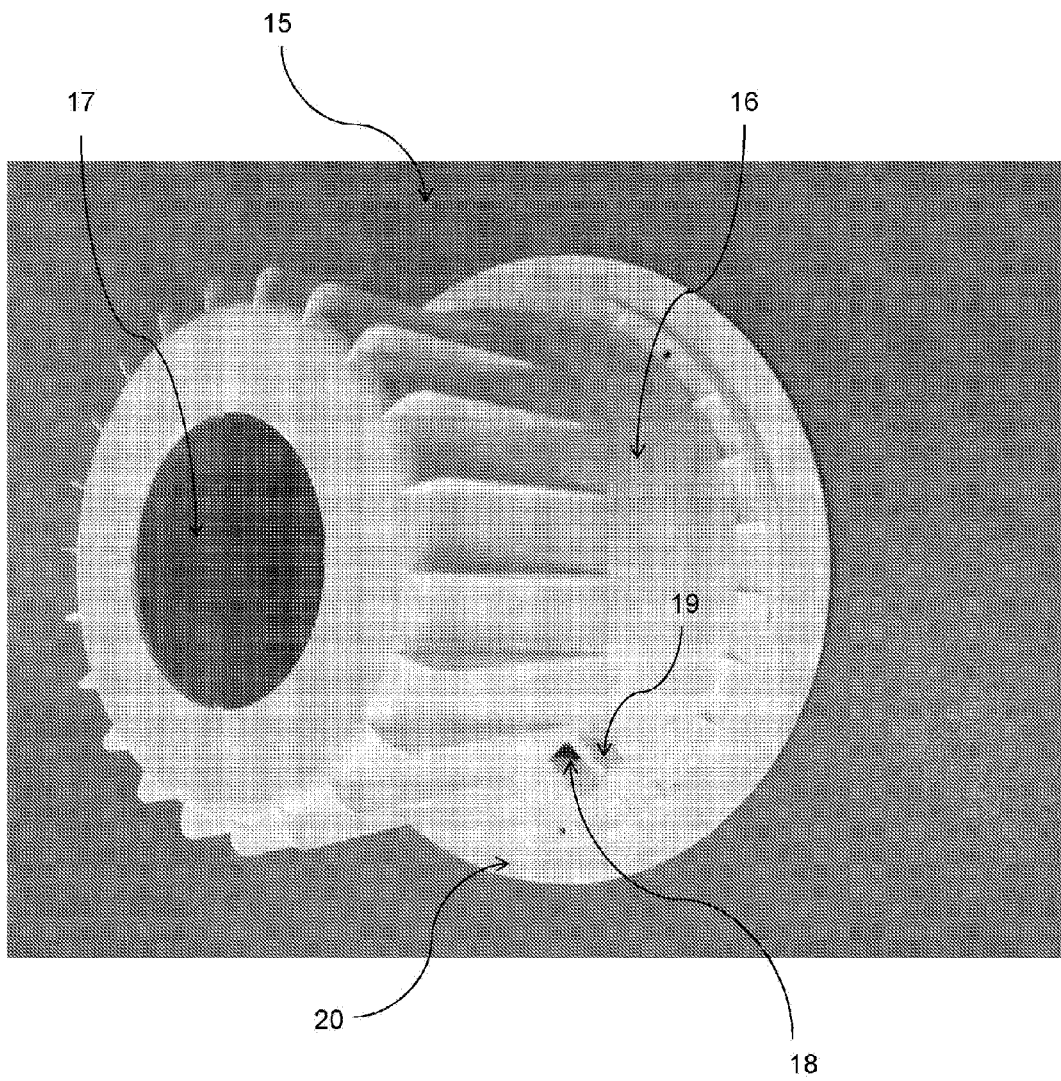


Fig. 7

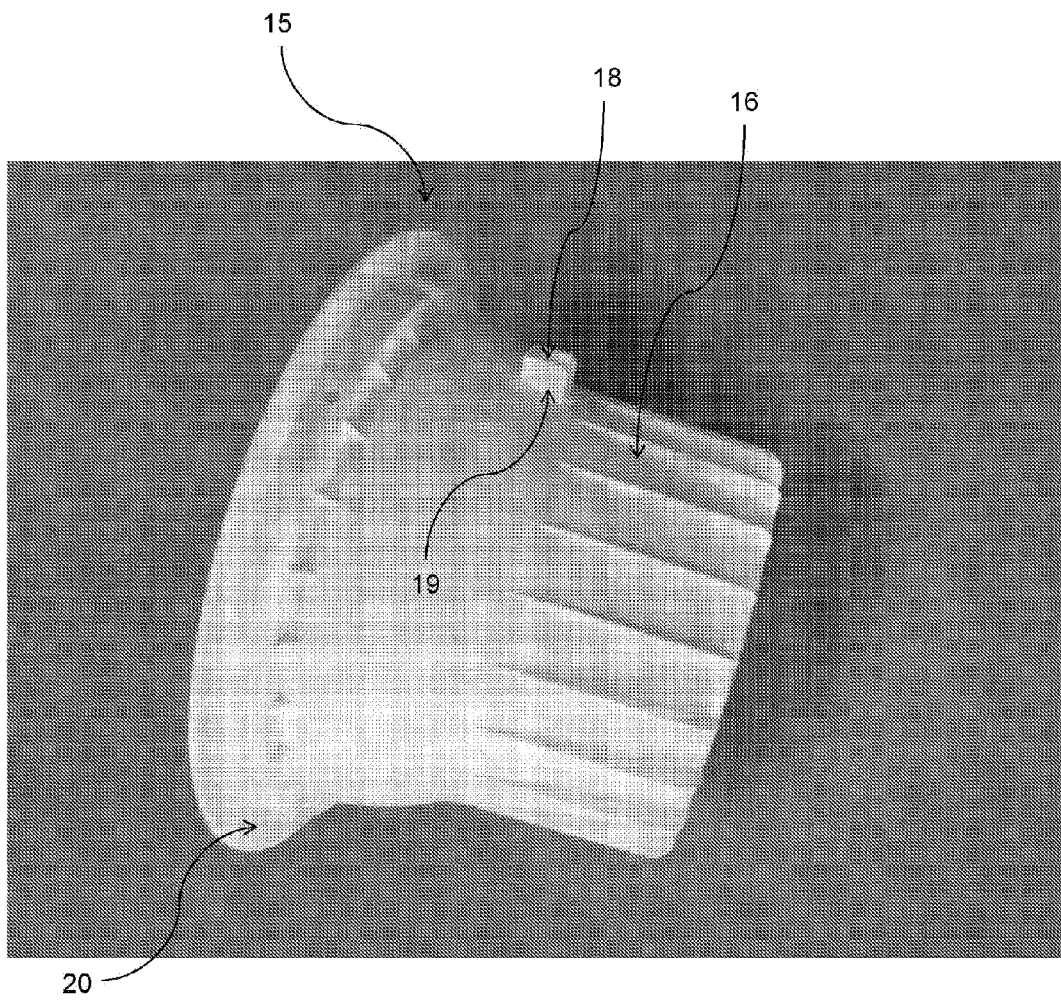


Fig. 8

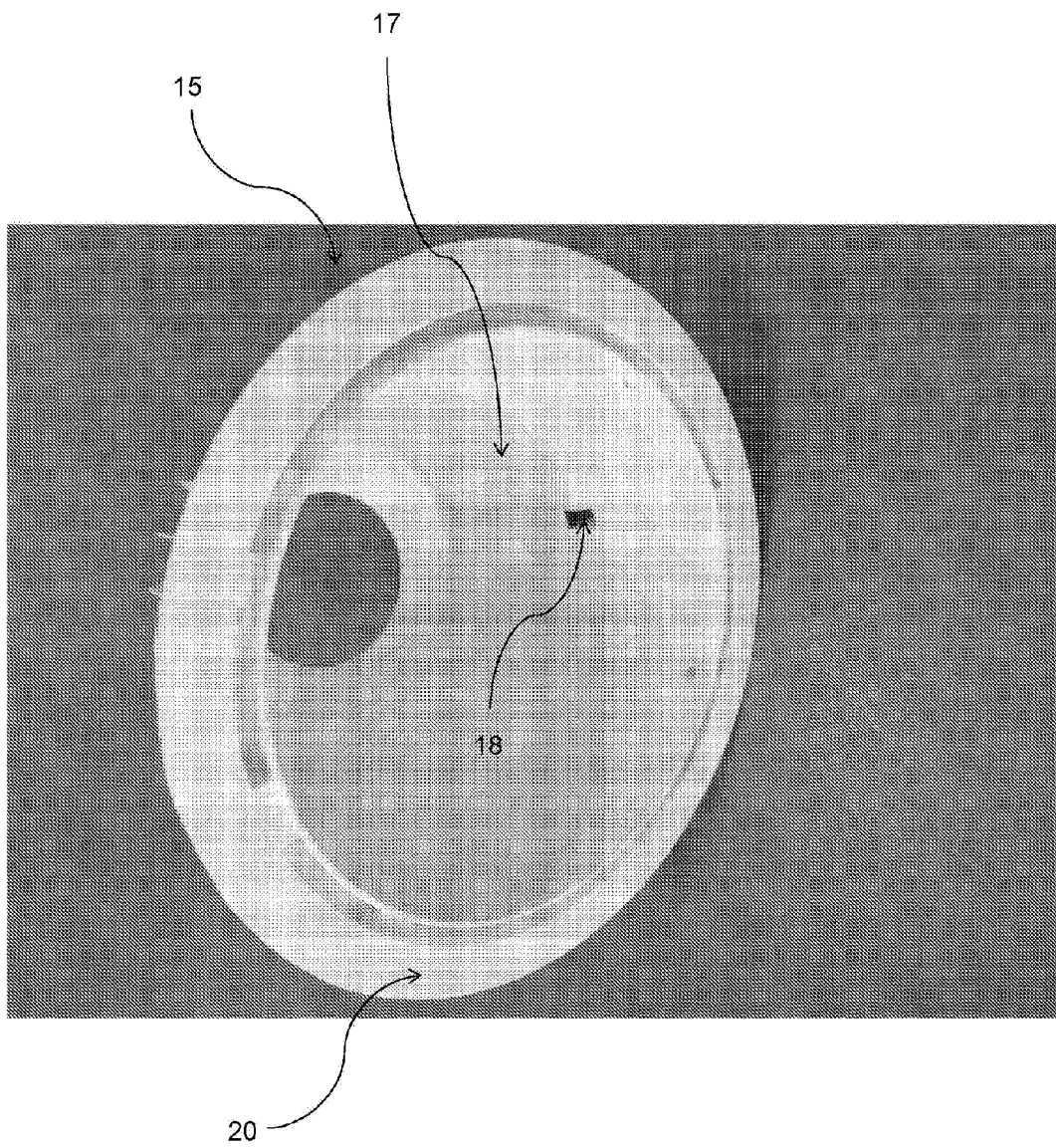


Fig. 9