

(19)



(11)

EP 3 101 355 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
23.09.2020 Bulletin 2020/39

(51) Int Cl.:
F24F 7/00 ^(2006.01) **F24F 13/02** ^(2006.01)
F16L 5/02 ^(2006.01)

(21) Application number: **15170741.1**

(22) Date of filing: **04.06.2015**

(54) **AIR VENT**

ENTLÜFTUNGSÖFFNUNG

ÉVENT D'AIR

(84) Designated Contracting States:
**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**

(43) Date of publication of application:
07.12.2016 Bulletin 2016/49

(73) Proprietor: **Fresh AB**
360 32 Gemla (SE)

(72) Inventors:
• **HONETH, Hans**
363 31 Rottne (SE)

• **BATEMAN, Philip Kenneth Roderick**
Bracknell, Berkshire RG42 6PA (GB)

(74) Representative: **Boden, Keith McMurray**
Fry Heath & Spence LLP
Unit A, Faraday Court
Faraday Road
Crawley, West Sussex RH10 9PU (GB)

(56) References cited:
DE-A1- 2 945 749 GB-A- 2 283 312
GB-A- 2 464 294 GB-A- 2 467 109
JP-U- S55 179 276

EP 3 101 355 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to an air vent for ventilating an enclosed space within a building structure to an external environment, such as to the atmospheric environment external of a building structure, and in particular which allows for installation of the vent from within the building structure.

[0002] Various vents exist for ventilating building structures, and which allow for installation from within the building structure. One such vent is disclosed in GB-A-2467109, where the outer, peripheral sealing flange of the external cover tapers rearwardly, such that on installing the vent, by pushing through a channel, the sealing flange is deflected inwardly by the internal surface of the channel.

[0003] These existing vents suffer from a number of drawbacks, however, and it is an aim of the present invention to provide an improved vent.

[0004] GB-A-2464294 discloses an adjustable ventilation coupling for enabling air flow to/from a wall, ceiling or floor cavity of a structure, comprising adaptors arranged to engage in use with respective external and internal vents, and connectors which connect the adaptors to an air transfer duct so that the lateral spacing can be varied whilst maintaining the adaptors in a desired orientation.

[0005] In one aspect the present invention provides an air vent for providing ventilation through a bore in a building structure according to claim 1.

[0006] Preferred embodiments of the present invention will now be described hereinbelow with reference to the accompanying drawings, in which:

Figure 1 illustrates a perspective view from one, outer end of an air vent in accordance with a preferred embodiment of the present invention, with the cover unit in the withdrawn, non-deployed position;

Figure 2 illustrates a perspective view from the other, inner end of the vent of Figure 1, with the cover unit in the non-deployed position;

Figure 3 illustrates a perspective view from the one end of the vent of Figure 1, with the cover unit in the deployed position, with the cover unit in the deployed position;

Figure 4 illustrates an exploded side view of the vent of Figure 1;

Figure 5 illustrates a fragmentary, horizontal longitudinal sectional view (along section I-I in Figure 1) of the first body of the vent of Figure 1;

Figure 6 illustrates a horizontal longitudinal sectional view (along section I-I in Figure 1) of the second body of the vent of Figure 1;

Figure 7 illustrates a vertical longitudinal sectional view (along section II-II in Figure 1) of the vent of Figure 1, with the cover unit in the non-deployed position;

Figure 8 illustrates a vertical longitudinal sectional view in enlarged scale of detail A in Figure 7;

Figure 9 illustrates a vertical longitudinal sectional view (along section II-II in Figure 1) of the vent of Figure 1, with the cover unit in the deployed position;

Figure 10 illustrates a vertical longitudinal sectional view in enlarged scale of detail B in Figure 9;

Figures 11(a) to (f) illustrate the operative steps in fitting the air vent of Figure 1 to a wall structure; and

Figure 12 illustrates packaging for the air vent of Figure 1 which incorporates a pusher tool in accordance with one embodiment of the present invention.

[0007] The air vent comprises a first body 3, which is located to an internal side of a building structure, a second body 5, which is located to an external side of the building structure and is coupled to the first body 3 to provide a continuous duct which extends through the building structure, and a cover unit 7 which is movably disposed within the second body 5 between a first non-deployed position, as illustrated in Figure 1, and a deployed position, as illustrated in Figure 2.

[0008] In this embodiment the building structure is a cavity wall W, which comprises an inner leaf L1, an outer leaf L2 and a cavity C between the inner and outer leaves L1, L2, as illustrated in Figures 11(a) to (f), with the vent being adapted to be inserted through a bore B formed in the wall W.

[0009] The first body 3 comprises a tubular member 15 having inner and outer ends 17, 19, in this embodiment having circular section, which extends into the bore B of the wall W, and a fixing member 21 at the inner end 17 of the tubular member 15, which provides for fixing of the first body 3 to the wall W.

[0010] The tubular member 15 includes at least one engagement section 23 which provides for engagement with a counterpart engagement section 53 on the second body 5, as will be described in more detail hereinbelow.

[0011] In this embodiment the at least one engagement section 23 extends around only part of the periphery of the tubular member 15, whereby the first and second bodies 3, 5, when in a first angular relation, provide for inter-engagement of the engagement sections 23, 53, and, when in a second angular relation, provide for dis-engagement of the engagement sections 23, 53, such that the first and second bodies 3, 5 can be freely moved axially in relation to one another.

[0012] In this embodiment the tubular member 15 includes first and second engagement sections 23 which

extend around only part of the periphery of the tubular member 15, here in first and second segments which are arranged in spaced annular relation. In this embodiment the first and second engagement sections 23 are arranged in opposite, symmetrical relation, here each extending over a 90 degree arc of the peripheral surface of the tubular member 15.

[0013] In this embodiment the at least one engagement section 23 comprises a plurality of engagement elements 25 which are arranged in spaced relation along the axial length of the tubular member 15 and provide for engagement with counterpart engagement elements 53 on the second body 5, as will be described in more detail hereinbelow.

[0014] In this embodiment, as illustrated in Figure 5, the engagement elements 25 each comprise a tooth or detent, here having a first, tapered forward surface 31, which allows the counterpart engagement elements 55 of the second body 5 to pass relatively easily thereover when the first and second bodies 3, 5 are moved in axial relation to collapse the same, and a second, locking surface 33, against which the counterpart engagement elements 55 of the second body 5 are locked to prevent the first body 3 being withdrawn from the second body 5; with such withdrawal requiring rotation of the first body 3 in relation to the second body 5, as described hereinabove.

[0015] In this embodiment the fixing member 21 comprises an outwardly-extending flange 37, which is fixed against an inner surface, here by fixing screws at apertures 39.

[0016] The second body 5 comprises a tubular member 45 having inner and outer ends 47, 49, in this embodiment having circular section, which extends into the bore B of the wall W and slideably receives the first body 3 therewithin, and an attachment member 51 at the outer end 49 of the tubular member 45, which provides for attachment of the vent cover assembly 7.

[0017] The tubular member 45 includes at least one engagement section 53 which provides for engagement with the at least one engagement section 23 on the first body 3, in order to allow the first and second bodies 3, 5 to be locked in axial relation.

[0018] In this embodiment the at least one engagement section 53 extends around only part of the periphery of the tubular member 45, whereby the first and second bodies 3, 5, when in a first angular relation, provide for inter-engagement of the engagement sections 23, 53, and, when in a second angular relation, provide for disengagement of the engagement sections 23, 53, such that the body sections 3, 5 can be freely moved axially in relation to one another.

[0019] In this embodiment the tubular member 45 includes first and second engagement sections 53 which extend around only part of the periphery of the tubular member 45, here in first and second segments which are arranged in spaced annular relation. In this embodiment the first and second engagement sections 53 are arranged in opposed, symmetrical relation, here each ex-

tending over a 45 degree arc of the peripheral surface of the tubular member 45.

[0020] In this embodiment the at least one engagement section 53 comprises at least one engagement element 55 which provide for engagement with counterpart engagement elements 25 on the first body 3.

[0021] In this embodiment the at least one engagement section 53 comprises a plurality of engagement elements 55 which are arranged in spaced relation along the axial length of the tubular member 45 and provide for engagement with counterpart engagement elements 25 on the first body 3.

[0022] In this embodiment, as illustrated in Figure 6, the engagement elements 55 each comprise a tooth or detent, here having a first, tapered forward surface 61, which allows the counterpart engagement elements 25 of the first body 3 to pass relatively easily thereover when the first and second bodies 3, 5 are moved in axial relation to collapse the same, and a second, locking surface 63, against which the counterpart engagement elements 25 of the first body 3 are locked to prevent the first body 3 being withdrawn from the second body 5; with such withdrawal requiring rotation of the first body 3 in relation to the second body 5, as described hereinabove.

[0023] In this embodiment the at least one engagement section 53 is resiliently coupled to a main section of the tubular body 45, here by forming the at least one engagement section 53 as a tab, such as to facilitate sliding of the counterpart engagement elements 25, 55 thereover when the first and second bodies 3, 5 are moved in axial relation to collapse the same.

[0024] In this embodiment the tubular member 45 includes projections 65 at the one, inner end 47 thereof which can be cut in accordance with the width of the wall W, such that the length of the second body 5 can be made shorter than the width of the wall W but such that the one, inner end of the second body 5 extends into the inner leaf L1 across the cavity C,

[0025] In this embodiment the attachment member 51 defines a recess 71 in which the vent cover assembly 7 is slideably disposed between a first, withdrawn or non-deployed position, as illustrated in Figure 1, and a second, deployed position, as illustrated in Figure 2.

[0026] In this embodiment the attachment member 51 includes a stop 73, here in the form of an annular flange, against which the vent cover assembly 7 is disposed in the withdrawn or non-deployed position.

[0027] In this embodiment the attachment member 51 includes at least one aperture 75 therein, which receives and through which extends the locking element 85 of at least one locking member 83 of the cover unit 7 when the cover unit 7 is moved to the deployed position.

[0028] In this embodiment the attachment member 51 includes at least one guide 77, here in the form of a path or track, which receives the at least one locking member 83 of the cover unit 7 and acts to guide the locking element 85 of the at least one locking member 83 to the at least one aperture 75.

[0029] In this embodiment the attachment member 51 includes at least one detent 79 which is located outwardly of the at least one aperture 75, and is configured to prevent the locking element 85 of the at least one locking member 83 being moved outwardly beyond the at least one aperture 75.

[0030] In this embodiment the attachment member 51 includes a plurality of locking apertures 75 therein, here arranged in spaced annular relation, through which extend the locking elements 85 of a plurality of locking members 83 of the cover unit 7 when the cover unit 7 is moved to the deployed position.

[0031] In this embodiment the attachment member 51 includes a plurality of guides 77, which receive the locking members 83 of the cover unit 7 and act to guide the locking elements 85 of the locking members 83 to the apertures 75.

[0032] In this embodiment the attachment member 51 includes a plurality of detents 77 which are located outwardly of the respective apertures 75.

[0033] The cover unit 7 comprises a body member 81 which is slideably disposed within the attachment member 51 of the second body 5, and at least one locking member 83 which is configured to extend through the at least one aperture 75 in the attachment member 51 when the cover unit 7 is in the deployed position.

[0034] In this embodiment the at least one locking member 83 comprises a locking element 85 which is radially-outwardly biased to the body member 81, such that the locking element 85 is disposed in a radially-inward position when the cover unit 7 is in the non-deployed position, as illustrated in Figures 7 and 8, with the distal end of the locking element 85 being located in the at least one guide 77 in the attachment member 51, and disposed in a radially-outward position when the cover unit 7 is in the deployed position, as illustrated in Figures 9 and 10, with the locking element 85 extending through the at least one aperture 75 in the attachment member 51 and locking the cover unit 7 in the deployed position.

[0035] In this embodiment the body member 81 includes at least one recess 87 at the periphery thereof, and the at least one locking member 83 includes a biasing element 89, here a compression spring, which is disposed within the at least one recess 87 and acts to bias the locking element 85 radially outwardly, such as to cause the locking element 85 to extend through the respective aperture 75 in the attachment member 51 when the cover unit 7 is in the deployed position.

[0036] In this embodiment the cover unit 7 includes a plurality of locking members 83, which are configured to extend through respective ones of the plurality of the apertures 75 in the attachment member 51 of the second body 5, such as to lock the cover unit 7 in the deployed position.

[0037] The cover unit 7 further comprises an annular seal 91 which is configured to provide a weathertight seal about the periphery of the bore B formed in the wall W.

[0038] In this embodiment the seal 91 comprises a sup-

port element 93 which is fixed to the body member 81, and a seal element 95, which is configurable between a withdrawn or non-deployed configuration, as illustrated in Figures 7 and 8, in which the seal element 95 is disposed radially inwardly of the attachment member 51 of the second body 5, and a deployed configuration, as illustrated in Figures 9 and 10, in which the seal element 95 extends radially outwardly of the attachment member 51 of the second body 5, such that the seal element 95 is engageable with an outer surface of the wall W about the bore B formed in the wall W.

[0039] In this embodiment the seal element 95 is formed of a resilient material and defines a frusto-conical section which tapers outwardly and rearwardly from a forward edge thereof when in the deployed configuration, as illustrated in Figures 9 and 10, and is folded forwardly and inwardly when in the non-deployed configuration, as illustrated in Figures 7 and 8.

[0040] In this embodiment the seal member 91 is formed of a rubber or elastomer, here a thermoplastic elastomer.

[0041] In this embodiment the body member 81 provides a grille 97, here a slatted grille, through which passes an air flow.

[0042] Fitting of the air vent in a wall W, here a cavity wall, will be described hereinbelow with reference to Figures 11(a) to (e).

[0043] In a first step, as illustrated in Figure 11(a), a bore B of predetermined diameter is formed in the wall W, here extending through the inner and outer leaves L1, L2.

[0044] The operative then measures the thickness of the wall W in order to ensure that the length of the second body 5, when fitted, is such that the proximal end 47 of the second body 5 will be located within the inner leaf L1. If the second body 5 needs to be shortened, the projections 65 at the proximal end 47 of the second body 5 are cut accordingly.

[0045] Subsequently, as illustrated in Figure 11(b), a holding tool 101 is attached to the cover unit 7, and the air vent, with the cover unit 7 in the withdrawn or non-deployed position and the first engagement sections 23, 53 of the first and second bodies 3, 5 disengaged, is inserted into the bore B in the wall W, such that the attachment member 51 at the distal end 49 of the second body 5 extends beyond the outer surface of the wall W. In this position, the apertures 75 in the attachment member 51 are located externally of the wall W.

[0046] In this embodiment the holding tool 101 is a line, such as a string line.

[0047] Then, as illustrated in Figure 11(c), using a pusher tool 103, the cover unit 7 is moved from the withdrawn position to the deployed position, in which the locking elements 85 of the locking members 83 are biased to extend through the apertures 75 in the attachment member 51 and the seal element 95 of the seal member 91 adopts the deployed position, providing a frusto-conical element which is outwardly and rearwardly flared.

[0048] In this embodiment the pusher tool 103 is a rod, here formed by part of the packaging 201 in which the air vent is supplied.

[0049] In one embodiment, as illustrated in Figure 12, the packaging 201 is configured such that part of the packaging 201, here part of the lid 203, is detachable along a separation line 204, and pre-configured with fold lines 205 to form the pusher tool 103 by folding.

[0050] In this embodiment the packaging 201 is cardboard packaging.

[0051] In one embodiment the holding and pusher tools 101, 103 could be provided by a single tool which provides a rod and an engagement element at the distal end.

[0052] Then, as illustrated in Figure 11(d), the holding tool 101 is pulled rearwardly in order to draw the cover unit 7 and the body members 3, 5 attached thereto rearwardly or inwardly. As will be seen, the locking elements 85, which project radially outwardly of the attachment member 51 engage the outer surface of the wall W when the cover unit 7 is drawn rearwardly, thereby fixing the cover unit 7 in relation to the wall W, and, in this position, the seal element 95 of the seal member 91 engages the outer surface of the wall W, such as to provide a weathertight seal around the aperture as defined by the bore B in the wall W.

[0053] Subsequently, as illustrated in Figure 11(e), while retaining the holding tool 101, the first body 3 is rotated in relation to the second body 5 such that the first engagement sections 23, 53 of the first and second bodies 3, 5 are engaged, and moved axially into the bore B in the wall W until the flange 37 as provided by the stop 21 engages the inner surface of the wall W. In this position, the air vent is held in position by engagement of the flange 37 against the inner wall and the locking elements 85 against the outer surface of the wall W, and the bodies 3, 5 are held in relative position by the respective engagement sections 23, 53 thereof, which cannot be released until the first body 3 is rotated in relation to the second body 5.

[0054] In this embodiment, as illustrated in Figure 11(f), the first body 3 is fixed to the wall using fixings 107 which pass through the apertures 39 in the flange 37.

[0055] Finally, it will be understood that the present invention has been described in its preferred embodiments and can be modified in many different ways without departing from the scope of the invention as defined by the appended claims.

Claims

1. An air vent for providing ventilation through a bore (B) in a building structure, the air vent comprising a first body (3), which is locatable to a first, internal side of the building structure, a second body (5), which is locatable to a second, external side of the building structure and is coupled to the first body (3) to provide a duct which extends through the building

structure, and a cover unit (7); **characterized in that** the cover unit (7) is movably disposed within the second body (5) between a first, non-deployed position in which the cover unit (7) is withdrawn within the second body (5) to a second, deployed position in which the cover unit (7) is deployed from the second body (5).

2. The air vent of claim 1, wherein the first and second bodies (3, 5) are arranged in axial sliding relation and each include at least one engagement section (23, 53) which, when inter-engaged, prevent the first and second bodies (3, 5) from being axially extended, optionally the at least one engagement section (23, 53) on each of the first and second bodies (3, 5) extends around only part of the peripheral surface thereof, whereby the first and second bodies (3, 5), when in a first angular relation, provide for inter-engagement of the engagement sections (23, 53), and, when in a second angular relation, provide for disengagement of the engagement sections (23, 53), such that the first and second bodies (3, 5) can be axially extended or collapsed in relation to one another, optionally the first body (3) includes first and second engagement sections (23) which are arranged as first and second segments in spaced annular relation, optionally the first and second segments are arranged in opposite, symmetrical relation, each optionally extending over less than a 120 degree arc of the peripheral surface, optionally the second body (5) includes first and second engagement sections (53) which are arranged as first and second segments in spaced annular relation, optionally the first and second segments are arranged in opposite, symmetrical relation, each optionally extending over less than a 60 degree arc of the peripheral surface, optionally the at least one engagement section (23) on the first body (3) comprises a plurality of engagement elements (25) which are arranged in spaced axial relation and the at least one engagement section (53) on the second body (5) comprises at least one engagement element (55) which engages with a respective one of the engagement elements (25) on the first body (3), optionally the engagement elements (25) on the first body (3) include a first, tapered forward surface (31), which allows the at least one engagement element (55) on the second body (5) to pass thereover when the first and second bodies (3, 5) are moved in axial relation to collapse the same, and a second, locking surface (33), against which the at least one engagement element (55) on the second body (5) is locked to prevent the first body (3) being withdrawn from the second body (5).
3. The air vent of claim 1 or 2, wherein the at least one engagement section (23, 53) of at least one of the first and second bodies (3, 5) is resiliently coupled

so as to facilitate sliding of the counterpart engagement sections (23, 53) thereover when the first and second bodies (3, 5) are moved in axial relation to collapse the same.

4. The air vent of any of claims 1 to 3, wherein the first body (3) comprises a tubular member (15) having first and second ends (17, 19), which extends into the bore (B) of the building structure, optionally the first body (3) further comprises a fixing member (21) at the first, inner end (17) of the tubular member (15), which provides for engagement to the first side of the building structure, optionally the fixing member (21) comprises an outwardly-extending flange (37) which can be fixed to the first side of the building structure.
5. The air vent of any of claims 1 to 4, wherein the second body (5) comprises a tubular member (45) having first and second ends (47, 49), which extends into the bore (B) of the building structure, optionally the tubular member (45) of the second body (5) includes projections (65) at the first, inner end (47) thereof which can be cut in accordance with a width of the building structure.
6. The air vent of claim 5, wherein the second body (5) further comprises an attachment member (51) at the second, outer end (49) of the tubular member (45) thereof, which provides for attachment of the cover unit (7), optionally the attachment member (51) defines a recess (71) in which the cover unit (7) is slideably disposed between the non-deployed position and the deployed position, optionally the attachment member (51) includes a stop (73) for engagement with the cover unit (7) when in the non-deployed position.
7. The air vent of any of claims 1 to 6, wherein the attachment member (51) includes at least one aperture or recess (75), and the cover unit (7) comprises a body member (81) which is slideably disposed to the second body (5), and at least one locking member (83) which includes a locking element (85) which is configured to engage the at least one aperture or recess (75) in the attachment member (51) when the cover unit (7) is in the deployed position so as to lock the cover unit (7) in the deployed position to the attachment member (51), optionally the at least one aperture or recess (75) in the attachment member (51) is a through aperture such that the locking element (85) extends radially outwardly through the through aperture when the cover unit (7) is in the deployed position.
8. The air vent of claim 7, wherein the locking element (85) of the at least one locking member (83) is radially-outwardly biased, such that the locking element

(85) is disposed in a radially-inward position when the cover unit (7) is in the non-deployed position, and disposed in a radially-outward position when the cover unit (7) is in the deployed position.

9. The air vent of claim 8, wherein the body member (81) of the cover unit (7) includes at least one recess (87) at a periphery thereof, and the at least one locking member (83) includes a biasing element (89) which is disposed within the at least one recess (87) of the body member (81) of the cover unit (7) and acts to bias the locking element (85) radially outwardly.
10. The air vent of any of claims 7 to 9, wherein the attachment member (51) includes at least one guide (77), optionally in the form of a path or track, which receives the at least one locking member (83) and acts to guide the locking element (85) of the at least one locking member (83) to the at least one aperture or recess (75) of the attachment member (51).
11. The air vent of any of claims 7 to 10, wherein the attachment member (51) includes at least one stop (73) which is located outwardly of the at least one aperture or recess (75) thereof, and is configured to prevent the locking element (85) of the at least one locking member (83) being moved outwardly beyond the at least one aperture or recess (75) of the attachment member (51).
12. The air vent of any of claims 7 to 11, wherein the attachment member (51) includes a plurality of apertures or recesses (75), and the cover unit (7) comprises a plurality of locking members (83), the locking elements (85) of the locking members (83) being configured to engage respective ones of the apertures or recesses (75) of the attachment member (51), optionally the attachment member (51) includes a plurality of guides (77), which receive respective ones of the locking members (83) and act to guide the locking elements (85) of the locking members (83) to the apertures or recesses (75) of the attachment member (51), optionally the attachment member (51) includes a plurality of stops (73) which are located outwardly of the respective apertures or recesses (75) thereof.
13. The air vent of any of claims 7 to 12, wherein the body member (81) of the cover unit (7) is slideably disposed within the attachment member (51) and supports the at least one locking member (83).
14. The air vent of any of claims 7 to 13, wherein the cover unit (7) further comprises an annular seat member (91) which is attached to the body member (81) thereof and configured to provide for a weathertight seal about the periphery of the bore (B) in the

building structure when the cover unit (7) is in the deployed position, optionally the seal member (91) comprises a support element (93) which is fixed to the body member (81) of the cover unit (7), and a seal element (95) which is configurable between a withdrawn or non-deployed configuration, in which the seal element (95) is disposed radially inwardly of the attachment member (51), and a deployed configuration, in which the seal element (95) extends radially outwardly of the attachment member (51), such that the seal element (95) is engageable with an outer surface of the building structure about the bore (B) in the building structure, optionally the seal element (95) is formed of a resilient material and defines a frusto-conical section which tapers outwardly and rearwardly from a forward edge thereof when in the deployed configuration, and is folded forwardly and inwardly when in the non-deployed configuration, optionally the seal member (91) is formed of a rubber or elastomer, optionally a thermoplastic elastomer, optionally the body member (81) of the cover unit (7) provides a grille, optionally a slatted grille, through which in use passes an air flow.

Patentansprüche

1. Entlüfter zur Bereitstellung einer Belüftung durch eine Bohrung (B) in einer Gebäudestruktur, worin der Entlüfter umfasst, einen ersten Körper (3), der an einer ersten, inneren Seite der Gebäudestruktur angeordnet werden kann, einen zweiten Körper (5), der an einer zweiten, äußeren Seite der Gebäudestruktur angeordnet werden kann und mit dem ersten Körper (3) gekoppelt ist, um eine Leitung bereit zu stellen, die sich durch die Gebäudestruktur erstreckt, und eine Abdeckeinheit (7);
dadurch gekennzeichnet, dass die Abdeckeinheit (7) in dem zweiten Körper (5) zwischen einer ersten Nicht-Benutzungs-Position, bei der die Abdeckeinheit (7) in den zweiten Körper (5) zurückgefahren ist, zu einer zweiten, Benutzungs-Position, bei der die Abdeckeinheit (7) aus dem zweiten Körper (5) ausgefahren ist, bewegbar angeordnet ist.
2. Entlüfter nach Anspruch 1, worin der erste und zweite Körper (3, 5) axial gleitend angeordnet sind und jeder mindestens einen Eingriffsbereich (23, 53) umfasst, der bei jeweiligem Eingriff verhindert, dass sich der erste und zweite Körper (3, 5) axial erstreckt, wahlweise worin sich der mindestens eine Eingriffsbereich (23, 53) auf jedem des ersten und zweiten Körpers (3, 5) um nur einen Teil der Umfangsoberfläche davon erstreckt, wobei der erste und zweite Körper (3, 5) in einer ersten Winkelstellung einen gegenseitigen Eingriff der Eingriffsbereiche (23, 53) liefert, und in einer zweiten Winkelstellung ein Lösen

der Eingriffsbereiche (23, 53) liefert, so dass sich der erste und zweite Körper (3, 5) relativ zueinander axial erstrecken oder zusammenschieben, wahlweise worin der erste Körper (3) einen ersten und zweiten Eingriffsbereich (23) umfasst, die als erste und zweite Segmente ringförmig beabstandet angeordnet sind, wahlweise worin die ersten und zweiten Segmente symmetrisch abgewandt voneinander angeordnet sind und sich jeweils wahlweise über weniger als einen 120 Grad Bogen der Umfangsoberfläche erstrecken, wahlweise worin der zweite Körper (5) erste und zweite Eingriffsbereiche (53) umfasst, die als erste und zweite Segmente ringförmig beabstandet angeordnet sind, wahlweise worin das erste und zweite Segment abgewandt symmetrisch angeordnet sind und sich jeweils wahlweise über weniger als einen 60 Grad Bogen der Umfangs-Oberfläche erstrecken, wahlweise worin der mindestens eine Eingriffsbereich (23) auf dem ersten Körper (3) mehrere Eingriffselemente (25) umfasst, die axial beabstandet angeordnet sind, und worin der mindestens eine Eingriffsbereich (53) auf dem zweiten Körper (5) mindestens ein Eingriffselement (55) umfasst, das mit jeweils einem der Eingriffselemente (25) auf dem ersten Körper (3) eingreift, wahlweise worin die Eingriffselemente (25) auf dem ersten Körper (3) eine erste sich verjüngende vordere Oberfläche (31) aufweist, die ermöglicht, dass das mindestens eine Eingriffselement (55) auf dem zweiten Körper (5) darüber gleitet, wenn der erste und zweite Körper (3, 5) axial bewegt werden, um diese ineinander zu schieben, und eine zweite, Sperrfläche (33), gegen die das mindestens eine Eingriffselement (55) auf dem zweiten Körper (5) gesperrt wird, um zu verhindern, dass der erste Körper (3) aus dem zweiten Körper (5) gezogen wird.

3. Entlüfter nach Anspruch 1 oder 2, worin der mindestens eine Eingriffsbereich (23, 53) von mindestens einem des ersten und zweiten Körpers (3, 5) federnd gekoppelt ist, um ein Gleiten des Gegen-Eingriffsbereichs (23, 53) darüber zu erleichtern, wenn der erste und zweite Körper (3, 5) axial bewegt werden, um diese ineinander zu schieben.
4. Entlüfter nach einem der Ansprüche 1 bis 3, worin der erste Körper (3) ein röhrenförmiges Element (15) mit einem ersten und zweiten Ende (17, 19) umfasst, das sich in die Bohrung (B) der Gebäudestruktur erstreckt, wahlweise worin der erste Körper (3) weiter ein Fixierungselement (21) an einem ersten inneren Ende (17) des röhrenförmigen Elements (15) umfasst, das einen Eingriff mit der ersten Seite der Gebäudestruktur liefert, wahlweise worin das Fixierungselement (21) eine sich nach außen erstreckende Flansch (37) umfasst, die an die erste Seite der Gebäudestruktur befestigt werden kann.

5. Entlüfter nach einem der Ansprüche 1 bis 4, worin der zweite Körper (5) ein röhrenförmiges Element (45) mit einem ersten und zweiten Ende (47, 49) umfasst, das sich in die Bohrung (B) der Gebäudestruktur erstreckt, wahlweise worin das röhrenförmige Element (45) des zweiten Körpers (5) Vorsprünge (65) an dem ersten inneren Ende (47) davon umfasst, die gemäß einer Weite der Gebäudestruktur geschnitten werden kann.
6. Entlüfter nach Anspruch 5, worin der zweite Körper (5) weiter ein Anbringungselement (51) an dem zweiten, äußeren Ende (49) des röhrenförmigen Elements (45) davon umfasst, das eine Anbringung der Abdeckeinheit (7) liefert, wahlweise worin das Anbringungselement (51) eine Vertiefung (71) definiert, in der die Abdeckeinheit (7) gleitend zwischen der Nicht-Benutzungs-Position und der Benutzungs-Position vorgesehen ist, wahlweise worin das Anbringungselement (51) einen Stopper (73) zum Eingriff mit der Abdeckeinheit (7), wenn in der Nicht-Benutzungsposition, umfasst.
7. Entlüfter nach einem der Ansprüche 1 bis 6, worin das Anbringungselement (51) mindestens eine Öffnung oder Vertiefung (75) umfasst, und worin die Abdeckeinheit (7) ein Körper-Element (81) aufweist, das an dem zweiten Körper (5) gleitend vorgesehen ist, und mindestens ein Sperrelement (83), das ein Sperr-Teil (85) umfasst, welches ausgestaltet ist, mit der mindestens einen Öffnung oder Vertiefung (75) in dem Anbringungselement (51) in Eingriff zu kommen, wenn die Abdeckeinheit (7) in der Benutzungs-Position ist, um die Abdeckeinheit (7) in der Benutzungs-Position an dem Anbringungselement (51) zu sperren, wahlweise worin die mindestens eine Öffnung oder Vertiefung (75) in dem Anbringungselement (51) einer Durchgangsöffnung ist, so dass sich das Sperr-Teil (85) radial nach außen durch die Durchgangsöffnung erstreckt, wenn die Abdeckeinheit (7) in der Benutzungs-Position ist.
8. Entlüfter nach Anspruch 7, worin das Sperr-Teil (85) des mindestens einen Sperrelements (83) radial nach außen vorgespannt ist, so dass das Sperr-Teil (85) in einer radial nach innen Position angeordnet ist, wenn die Abdeckeinheit (7) in der Nicht-Benutzungs-Position ist, und in einer radial nach außen gerichteten Position ist, wenn die Abdeckeinheit (7) in der Benutzungs-Position ist.
9. Entlüfter nach Anspruch 8, worin das Körper-Element (81) der Abdeckeinheit (7) mindestens eine Vertiefung (87) an einem Umfang davon umfasst, worin das mindestens eine Sperrelement (83) ein Spannelement (89) umfasst, das in der mindestens einen Vertiefung (87) des Körper-Elements (81) der Abdeckeinheit (7) vorgesehen ist und das Sperr-Teil (85) radial nach außen spannt.
10. Entlüfter nach einem der Ansprüche 7 bis 9, worin das Anbringungselement (51) mindestens eine Führung (77) umfasst, wahlweise in der Form eines Pfads oder Wegs, der das mindestens eine Sperrelement (83) aufnimmt und das Sperr-Teil (85) des mindestens einen Sperrelements (83) zu der mindestens einen Öffnung oder Vertiefung (75) des Anbringungselements (51) führt.
11. Entlüfter nach einem der Ansprüche 7 bis 10, worin das Anbringungselement (51) mindestens einen Stopper (73) umfasst, der außerhalb der mindestens einen Öffnung oder Vertiefung (75) davon angeordnet und ausgestaltet ist, zu verhindern, dass das Sperr-Teil (85) des mindestens einen Sperrelements (83) nach außen über die mindestens eine Öffnung oder Vertiefung (75) des Anbringungselements (51) bewegt wird.
12. Entlüfter nach einem der Ansprüche 7 bis 11, worin das Anbringungselement (51) mehrere Öffnungen oder Vertiefungen (75) aufweist, und worin die Abdeckeinheit (7) mehrere Sperrelemente (83) umfasst, worin die Sperr-Teile (85) der Sperrelemente (83) ausgestaltet sind, mit jeweils einer der Öffnungen oder Vertiefungen (75) des Anbringungselements (51) in Eingriff zu kommen, wahlweise worin das Anbringungselement (51) mehrere Führungen (77) aufweist, die jeweils eines der Sperrelemente (83) aufnimmt und die Sperr-Teile (85) der Sperrelemente (83) zu den Öffnungen oder Vertiefungen (75) des Anbringungselements (51) führt, wahlweise worin das Anbringungselement (51) mehrere Stopper (73) umfasst, die außerhalb der jeweiligen Öffnungen oder Vertiefungen (75) davon angeordnet sind.
13. Entlüfter nach einem der Ansprüche 7 bis 12, worin das Körper-Element (81) der Abdeckeinheit (7) gleitend in dem Anbringungselement (51) angeordnet ist und das mindestens eine Sperrelement (83) trägt.
14. Entlüfter nach einem der Ansprüche 7 bis 13, worin die Abdeckeinheit (7) weiter ein ringförmiges Dicht-Teil (91) umfasst, das an das Körper-Element (81) davon angebracht und ausgestaltet ist, eine Wetterdichte Dichtung um den Umfang der Bohrung (B) in der Gebäudestruktur zu liefern, wenn die Abdeckeinheit (7) in der Benutzungs-Position ist, wahlweise worin das Dicht-Teil (91) ein Trägerelement (93) umfasst, das an dem Körper-Element (81) der Abdeckeinheit (7) angebracht ist, und ein Dichtungselement (95), das zwischen einer zurückgezogenen oder Nicht-Benutzungs-Konfiguration, in der das Dichtungselement (95) radial in dem Anbringungselement (51) vorgesehen ist, und einer Benutzungs-

Konfiguration, in der sich das Dichtungselement (95) radial außerhalb des Anbringungselements (51) erstreckt, einstellbar ist, so dass das Dichtungselement (95) mit einer äußeren Oberfläche der Gebäudestruktur um die Bohrung (B) in der Gebäudestruktur in Eingriff gebracht werden kann, wahlweise worin das Dichtungselement (95) aus einem elastischen Material gebildet ist und einen abgestumpften Bereich ausbildet, der sich in der Benutzungs-Konfiguration nach außen verjüngt und von einer vorderen Kante davon nach hinten, und in der Nicht-Benutzungs-Konfiguration nach vorne und nach innen gefaltet ist, wahlweise worin das Dicht-Teil (91) aus einem Gummi oder Elastomer gebildet ist, wahlweise einem thermoplastischen Elastomer, wahlweise worin das Körper-Element (81) der Abdeckeinheit (7) ein Gitter liefert, wahlweise, wahlweise ein Laten-Gitter, durch das bei Verwendung ein Luftstrom gelangt.

Revendications

1. Événement d'air pour fournir une ventilation à travers un alésage (B) dans une structure de bâtiment, l'événement d'air comprenant un premier corps (3), qui peut être placé d'un premier côté, interne, de la structure de bâtiment, un second corps (5), qui peut être placé d'un second côté, externe, de la structure de bâtiment et est couplé au premier corps (3) pour fournir un conduit qui s'étend à travers la structure de bâtiment, et une unité de couvercle (7) ; **caractérisé par le fait que** l'unité de couvercle (7) est disposée de manière mobile à l'intérieur du second corps (5) entre une première position, non déployée, dans laquelle l'unité de couvercle (7) est rétractée à l'intérieur du second corps (5) et une seconde position, déployée, dans laquelle l'unité de couvercle (7) est déployée du second corps (5).
2. Événement d'air selon la revendication 1, dans lequel les premier et second corps (3, 5) sont disposés en relation de coulissement axial et comprennent chacun au moins une section d'engagement (23, 53) qui, lorsqu'elles sont mutuellement engagées, empêchent les premier et second corps (3, 5) d'être étendus axialement, facultativement l'au moins une section d'engagement (23, 53) sur chacun des premier et second corps (3, 5) s'étend autour d'uniquement une partie de la surface périphérique de celui-ci, ce par quoi les premier et second corps (3, 5), lorsqu'ils sont dans une première relation angulaire, permettent un engagement mutuel des sections d'engagement (23, 53) et, lorsqu'ils sont dans une seconde relation angulaire, permettent un désengagement des sections d'engagement (23, 53), de telle sorte que les premier et second corps (3, 5) peuvent être axialement étendus ou repliés l'un par rapport à

l'autre, facultativement le premier corps (3) comprend des première et seconde sections d'engagement (23) qui sont agencées sous la forme de premier et second segments en relation annulaire espacée, facultativement les premier et second segments sont disposés en relation symétrique opposée, chacun s'étendant facultativement sur un arc de moins de 120 degrés de la surface périphérique, facultativement le second corps (5) comprend des première et seconde sections d'engagement (53) qui sont agencées sous la forme de premier et second segments en relation annulaire espacée, facultativement les premier et second segments sont disposés en relation symétrique opposée, chacun s'étendant facultativement sur un arc de moins de 60 degrés de la surface périphérique, facultativement l'au moins une section d'engagement (23) sur le premier corps (3) comprend une pluralité d'éléments d'engagement (25) qui sont disposés en relation axiale espacée et l'au moins une section d'engagement (53) sur le second corps (5) comprend au moins un élément d'engagement (55) qui s'engage avec l'un respectif des éléments d'engagement (25) sur le premier corps (3), facultativement les éléments d'engagement (25) sur le premier corps (3) comprennent une première surface avant effilée (31), qui permet à l'au moins un élément d'engagement (55) sur le second corps (5) de passer sur celle-ci lorsque les premier et second corps (3, 5) sont déplacés en relation axiale pour les replier, et une seconde surface de verrouillage (33) contre laquelle l'au moins un élément d'engagement (55) sur le second corps (5) est verrouillé pour empêcher le premier corps (3) d'être retiré du second corps (5).

3. Événement d'air selon la revendication 1 ou 2, dans lequel l'au moins une section d'engagement (23, 53) d'au moins l'un des premier et second corps (3, 5) est couplée élastiquement de façon à faciliter un coulissement des sections d'engagement homologues (23, 53) sur celle-ci lorsque les premier et second corps (3, 5) sont déplacés en relation axiale pour les replier.

4. Événement d'air selon l'une quelconque des revendications 1 à 3, dans lequel le premier corps (3) comprend un élément tubulaire (15) ayant des première et seconde extrémités (17, 19), lequel s'étend dans l'alésage (B) de la structure de bâtiment, facultativement le premier corps (3) comprend en outre un élément de fixation (21), à la première extrémité interne (17) de l'élément tubulaire (15), qui permet un engagement avec le premier côté de la structure de bâtiment, facultativement l'élément de fixation (21) comprend une bride s'étendant vers l'extérieur (37) qui peut être fixée au premier côté de la structure de bâtiment.

5. Événement d'air selon l'une quelconque des revendications 1 à 4, dans lequel le second corps (5) comprend un élément tubulaire (45) ayant des première et seconde extrémités (47, 49), lequel s'étend dans l'alésage (B) de la structure de bâtiment, facultativement l'élément tubulaire (45) du second corps (5) comprend des saillies (65) à la première extrémité interne (47) de celui-ci, lesquelles peuvent être coupées selon une largeur de la structure de bâtiment. 5
6. Événement d'air selon la revendication 5, dans lequel le second corps (5) comprend en outre un élément d'attachement (51) à la seconde extrémité externe (49) de l'élément tubulaire (45) de celui-ci, qui permet un attachement de l'unité de couvercle (7), facultativement l'élément d'attachement (51) définit un évidement (71) dans lequel l'unité de couvercle (7) est disposée de manière coulissante entre la position non déployée et la position déployée, facultativement l'élément d'attachement (51) comprend un arrêt (73) pour un engagement avec l'unité de couvercle (7) lorsqu'elle est dans la position non déployée. 10 15 20
7. Événement d'air selon l'une quelconque des revendications 1 à 6, dans lequel l'élément d'attachement (51) comprend au moins une ouverture ou évidement (75), et l'unité de couvercle (7) comprend un élément corps (81) qui est disposé de manière coulissante sur le second corps (5), et au moins un élément de verrouillage (83) qui comprend un organe de verrouillage (85) qui est configuré pour engager l'au moins une ouverture ou évidement (75) dans l'élément d'attachement (51) lorsque l'unité de couvercle (7) est dans la position déployée de façon à verrouiller l'unité de couvercle (7) dans la position déployée à l'élément d'attachement (51), facultativement l'au moins une ouverture ou évidement (75) dans l'élément d'attachement (51) est une ouverture traversante de telle sorte que l'organe de verrouillage (85) s'étend radialement vers l'extérieur à travers l'ouverture traversante lorsque l'unité de couvercle (7) est dans la position déployée. 25 30 35 40
8. Événement d'air selon la revendication 7, dans lequel l'organe de verrouillage (85) de l'au moins un élément de verrouillage (83) est sollicité radialement vers l'extérieur, de telle sorte que l'organe de verrouillage (85) est disposé dans une position radialement vers l'intérieur lorsque l'unité de couvercle (7) est dans la position non déployée, et disposé dans une position radialement vers l'extérieur lorsque l'unité de couvercle (7) est dans la position déployée. 45 50
9. Événement d'air selon la revendication 8, dans lequel l'élément corps (81) de l'unité de couvercle (7) comprend au moins un évidement (87) à une périphérie de celui-ci, et l'au moins un élément de verrouillage (83) comprend un organe de sollicitation (89) qui est disposé à l'intérieur de l'au moins un évidement (87) de l'élément de corps (81) de l'unité de couvercle (7) et agit pour solliciter l'organe de verrouillage (85) radialement vers l'extérieur. 5
10. Événement d'air selon l'une quelconque des revendications 7 à 9, dans lequel l'élément d'attachement (51) comprend au moins un guide (77), facultativement sous la forme d'un trajet ou d'une piste, qui reçoit l'au moins un élément de verrouillage (83) et agit pour guider l'organe de verrouillage (85) de l'au moins un élément de verrouillage (83) jusqu'à l'au moins une ouverture ou évidement (75) de l'élément d'attachement (51). 10
11. Événement d'air selon l'une quelconque des revendications 7 à 10, dans lequel l'élément d'attachement (51) comprend au moins un arrêt (73) qui est situé vers l'extérieur de l'au moins une ouverture ou évidement (75) de celui-ci, et qui est configuré pour empêcher l'organe de verrouillage (85) de l'au moins un élément de verrouillage (83) d'être déplacé vers l'extérieur au-delà de l'au moins une ouverture ou évidement (75) de l'élément d'attachement (51). 15 20 25
12. Événement d'air selon l'une quelconque des revendications 7 à 11, dans lequel l'élément d'attachement (51) comprend une pluralité d'ouvertures ou évidements (75), et l'unité de couvercle (7) comprend une pluralité d'éléments de verrouillage (83), les organes de verrouillage (85) des éléments de verrouillage (83) étant configurés pour engager des ouvertures respectives ou évidements respectifs (75) de l'élément d'attachement (51), facultativement l'élément de fixation (51) comprend une pluralité de guides (77), qui reçoivent des éléments de verrouillage respectifs (83) et agissent pour guider les organes de verrouillage (85) des éléments de verrouillage (83) jusqu'aux ouvertures ou évidements (75) de l'élément d'attachement (51), facultativement l'élément d'attachement (51) comprend une pluralité d'arrêts (73) qui sont situés vers l'extérieur des ouvertures ou évidements respectifs (75) de celui-ci. 30 35 40 45
13. Événement d'air selon l'une quelconque des revendications 7 à 12, dans lequel l'élément corps (81) de l'unité de couvercle (7) est disposé de manière coulissante à l'intérieur de l'élément d'attachement (51) et supporte l'au moins un élément de verrouillage (83). 50
14. Événement d'air selon l'une quelconque des revendications 7 à 13, dans lequel l'unité de couvercle (7) comprend en outre un élément joint annulaire (91) qui est fixé à l'élément corps (81) de celle-ci et configuré pour permettre une étanchéité aux intempéries autour de la périphérie de l'alésage (B) dans la structure de bâtiment lorsque l'unité de couvercle (7) est dans la position déployée, facultativement l'élément 55

joint (91) comprend un élément de support (93) qui est fixé à l'élément corps (81) de l'unité de couvercle (7), et un organe de joint (95) qui est configurable entre une configuration rétractée ou non déployée, dans laquelle l'organe de joint (95) est disposé radialement vers l'intérieur de l'élément d'attachement (51), et une configuration déployée, dans laquelle l'organe de joint (95) s'étend radialement vers l'extérieur de l'élément d'attachement (51), de telle sorte que l'organe de joint (95) est apte à être engagé avec une surface externe de la structure de bâtiment autour de l'alésage (B) dans la structure de bâtiment, facultativement l'organe de joint (95) est formé d'un matériau élastique et définit une section tronconique qui s'effile vers l'extérieur et vers l'arrière à partir d'un bord avant de celui-ci lorsqu'il est dans la configuration déployée, et qui est pliée vers l'avant et vers l'intérieur lorsqu'il est dans la configuration non déployée, facultativement l'élément joint (91) est formé d'un caoutchouc ou élastomère, facultativement d'un élastomère thermoplastique, facultativement l'élément corps (81) de l'unité de couvercle (7) fournit une grille, facultativement une grille à lamelles, à travers laquelle, en utilisation, passe un écoulement d'air.

30

35

40

45

50

55

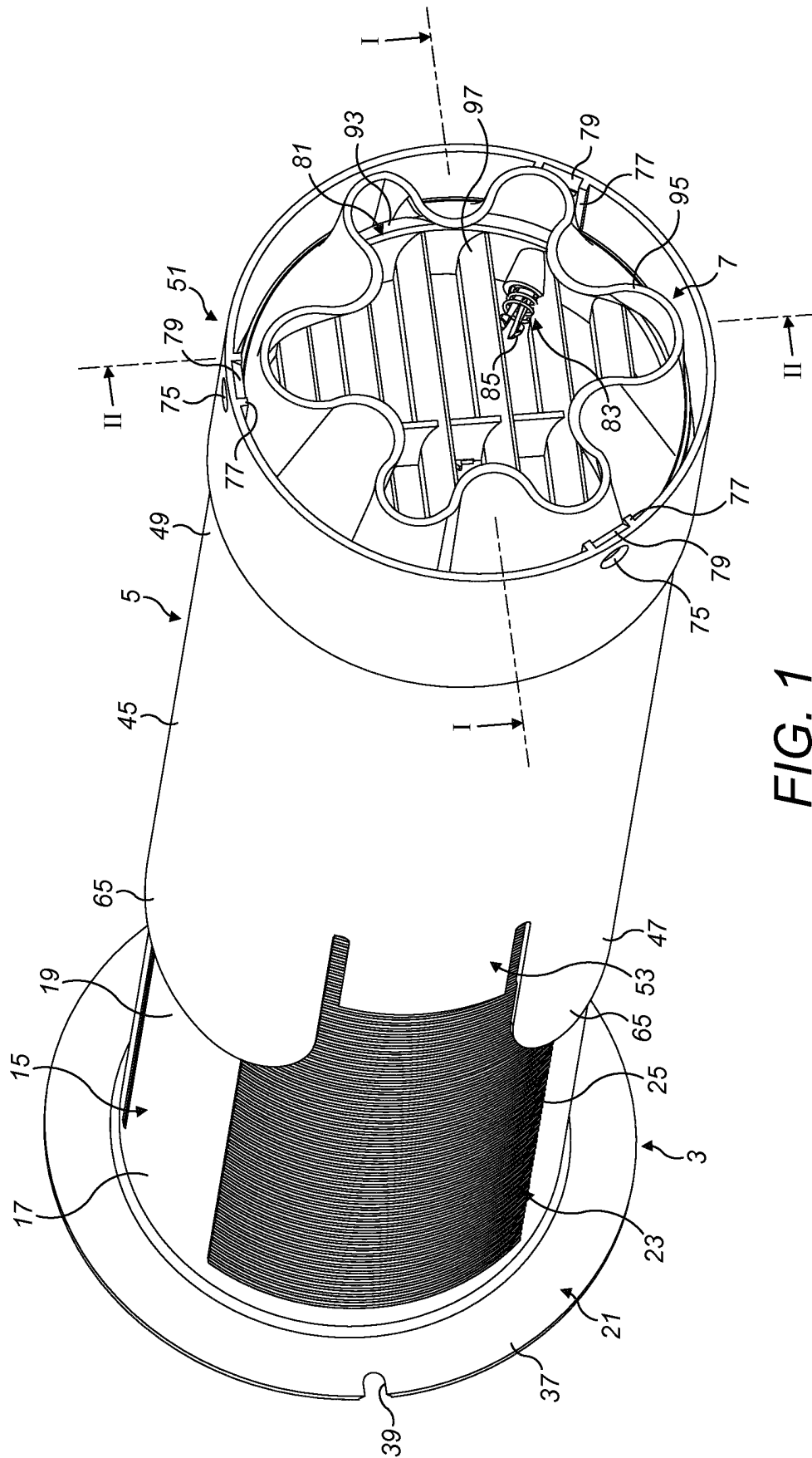
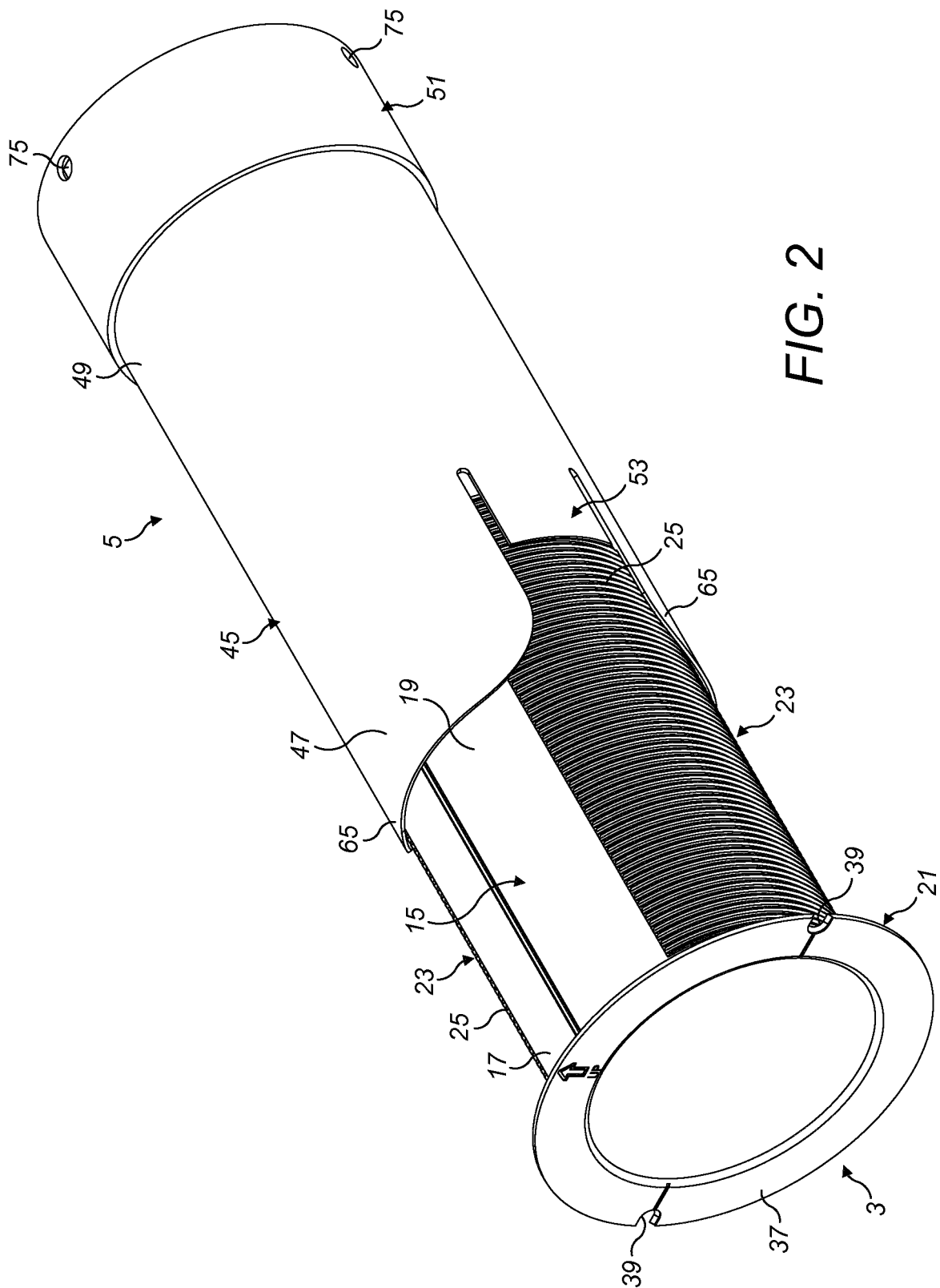


FIG. 1



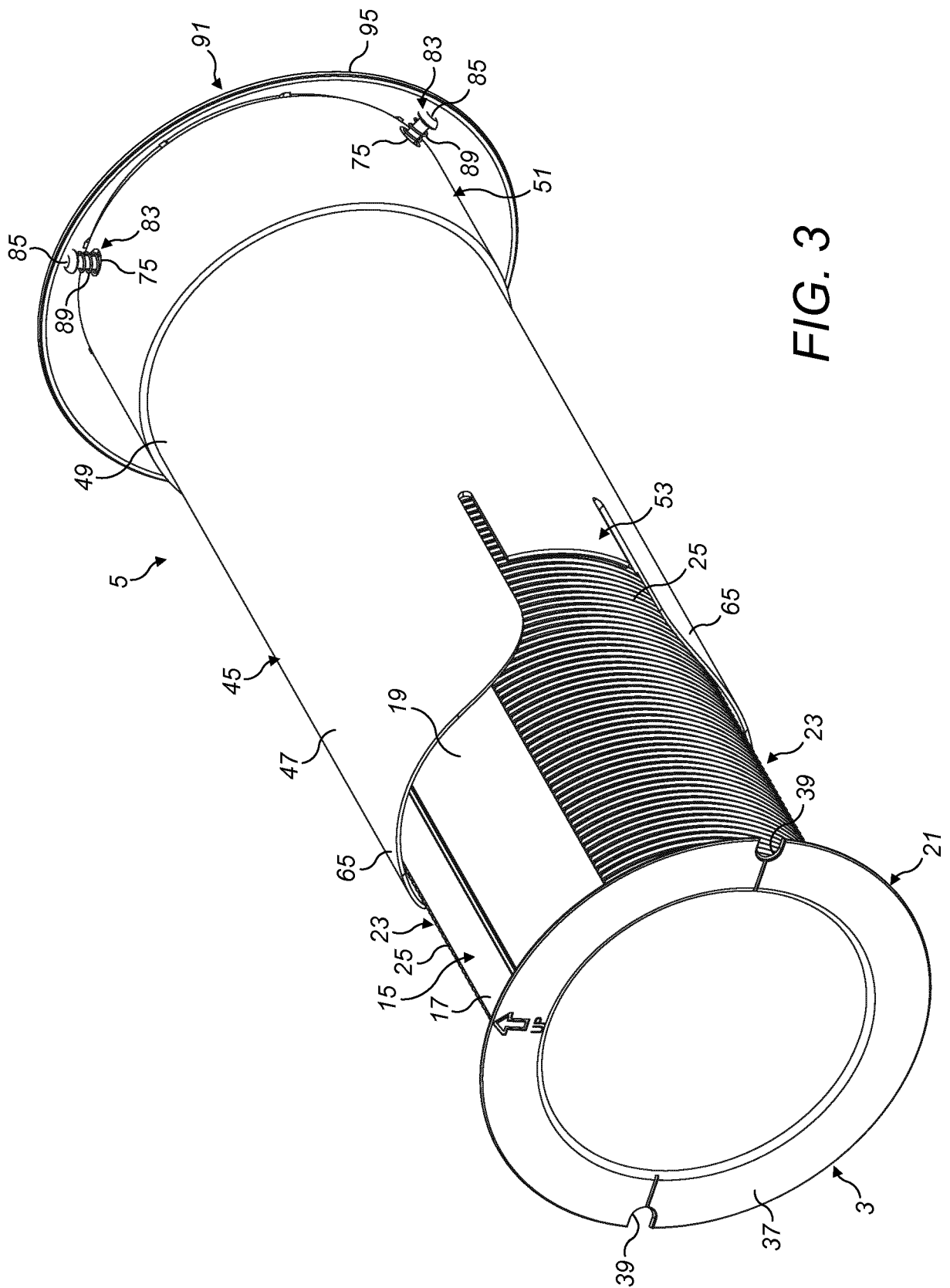


FIG. 3

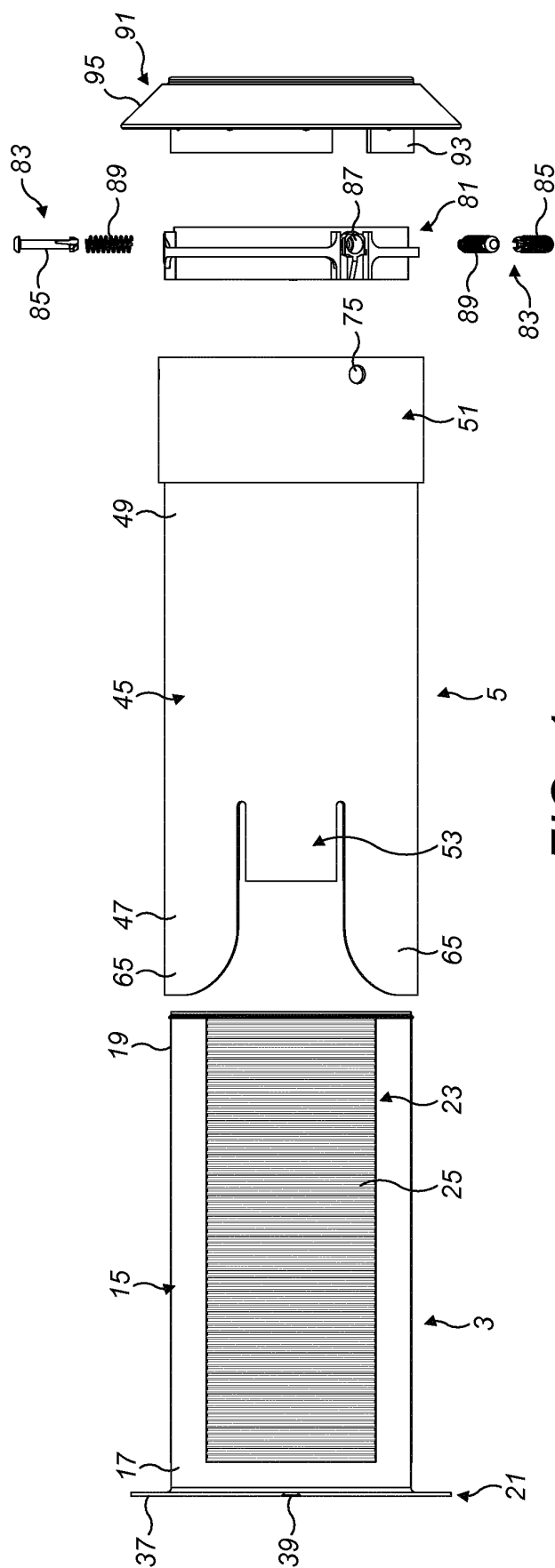


FIG. 4

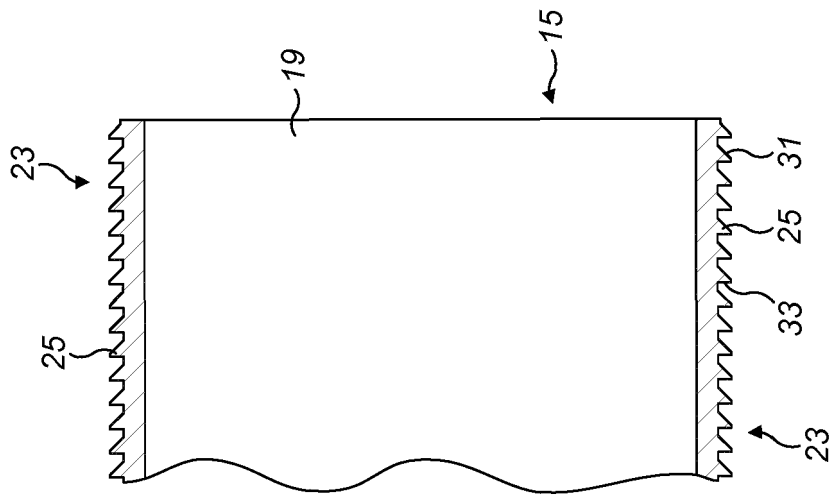


FIG. 5

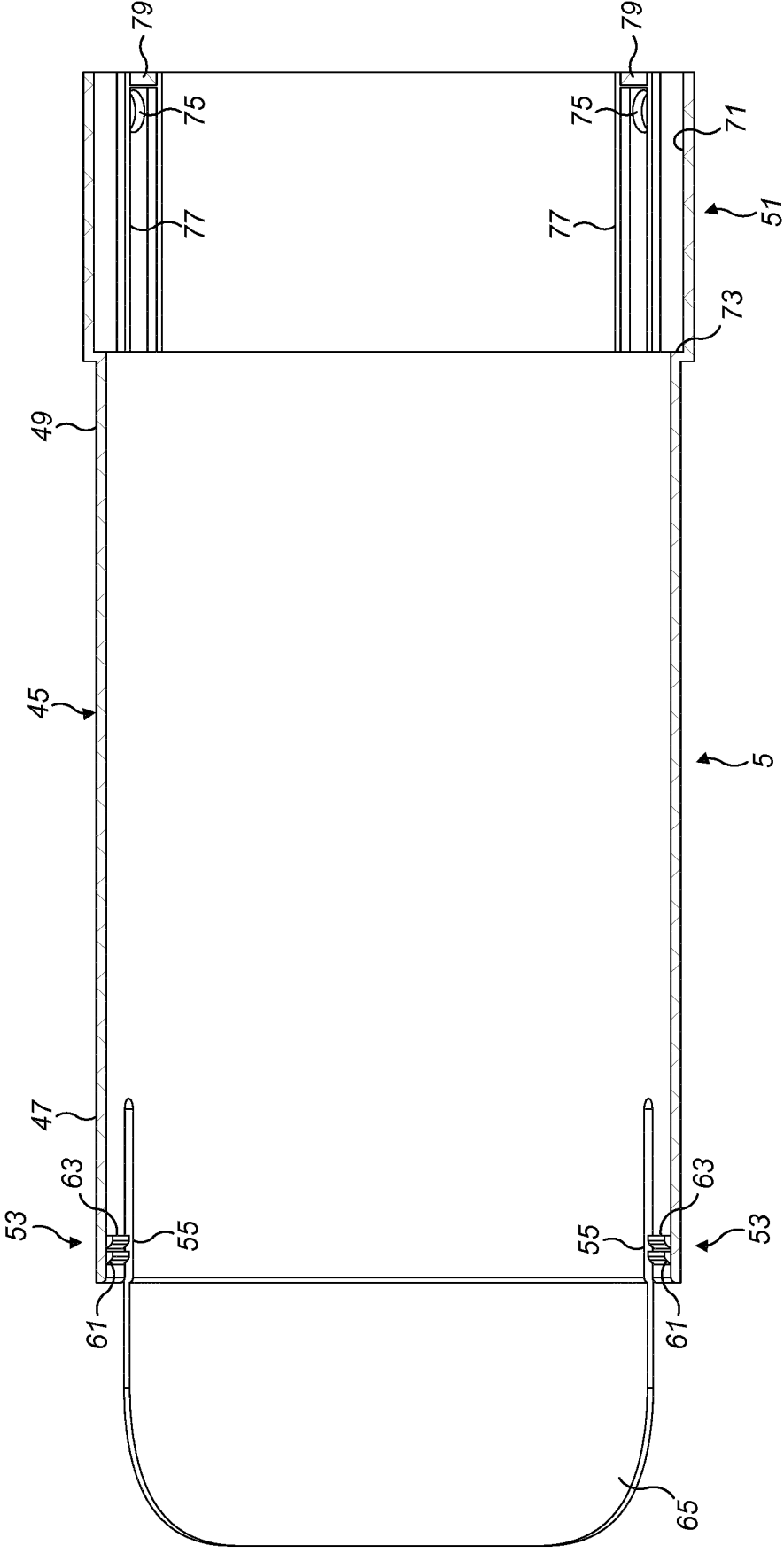
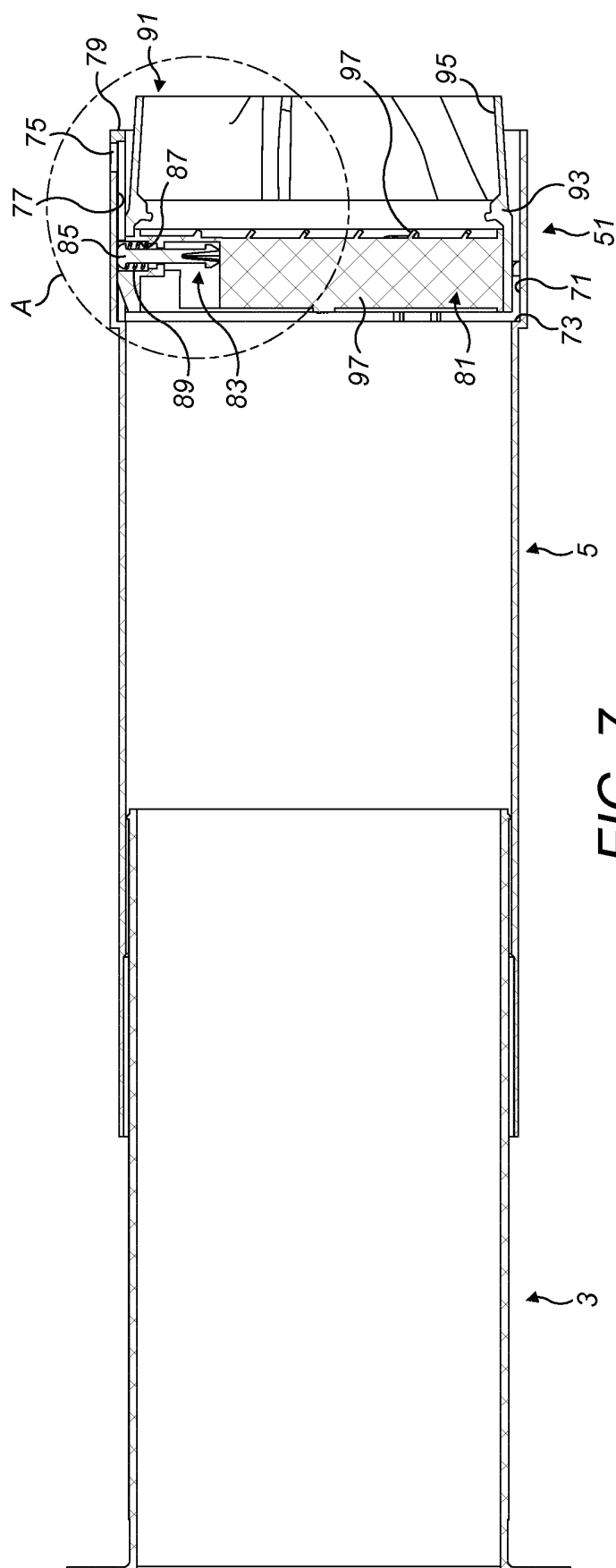


FIG. 6



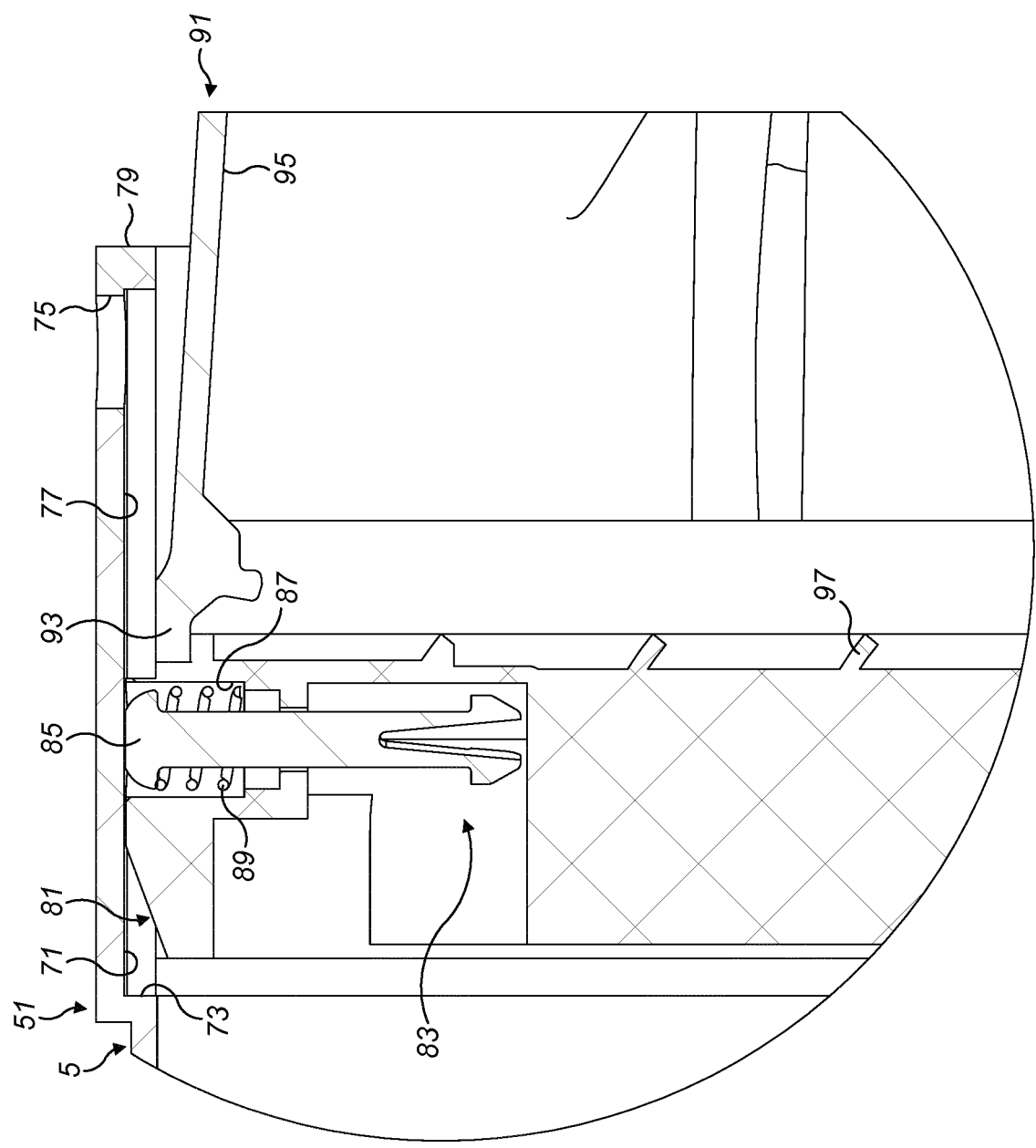
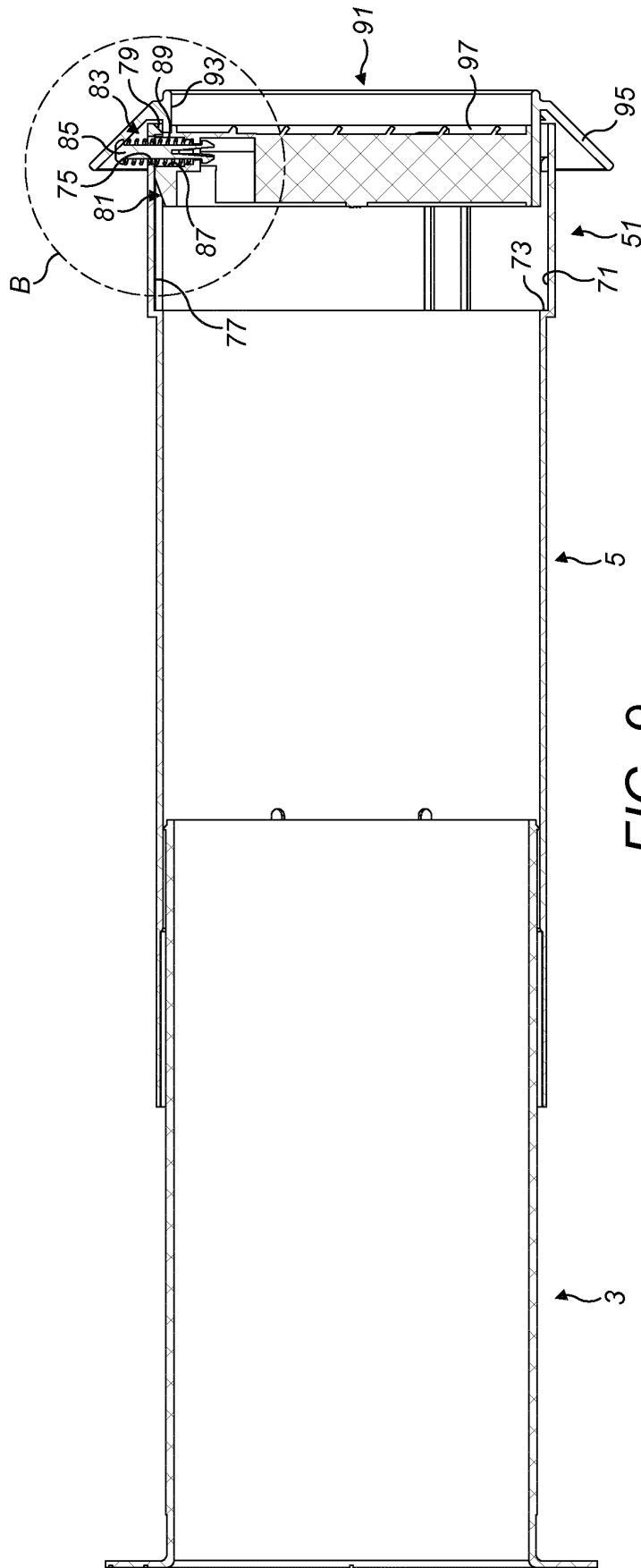


FIG. 8



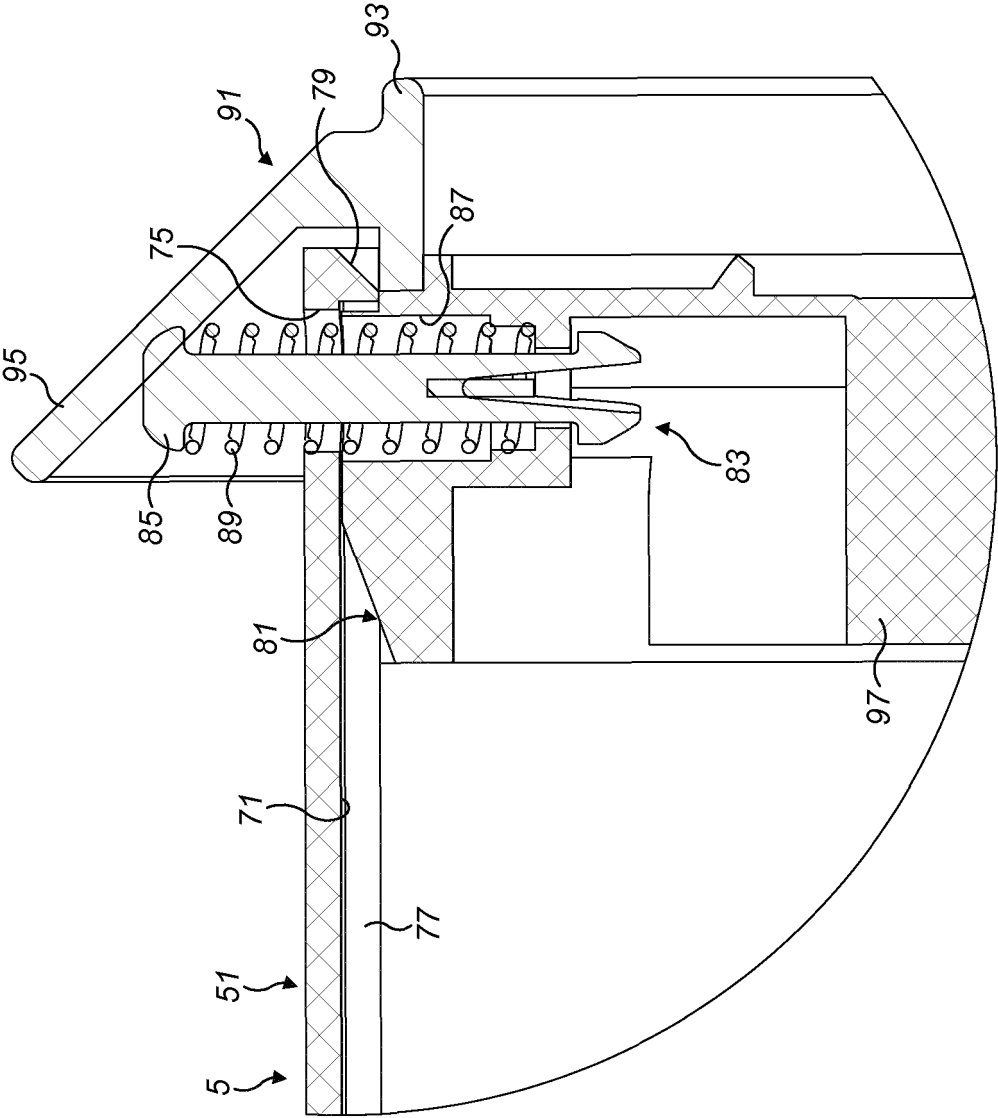


FIG. 10

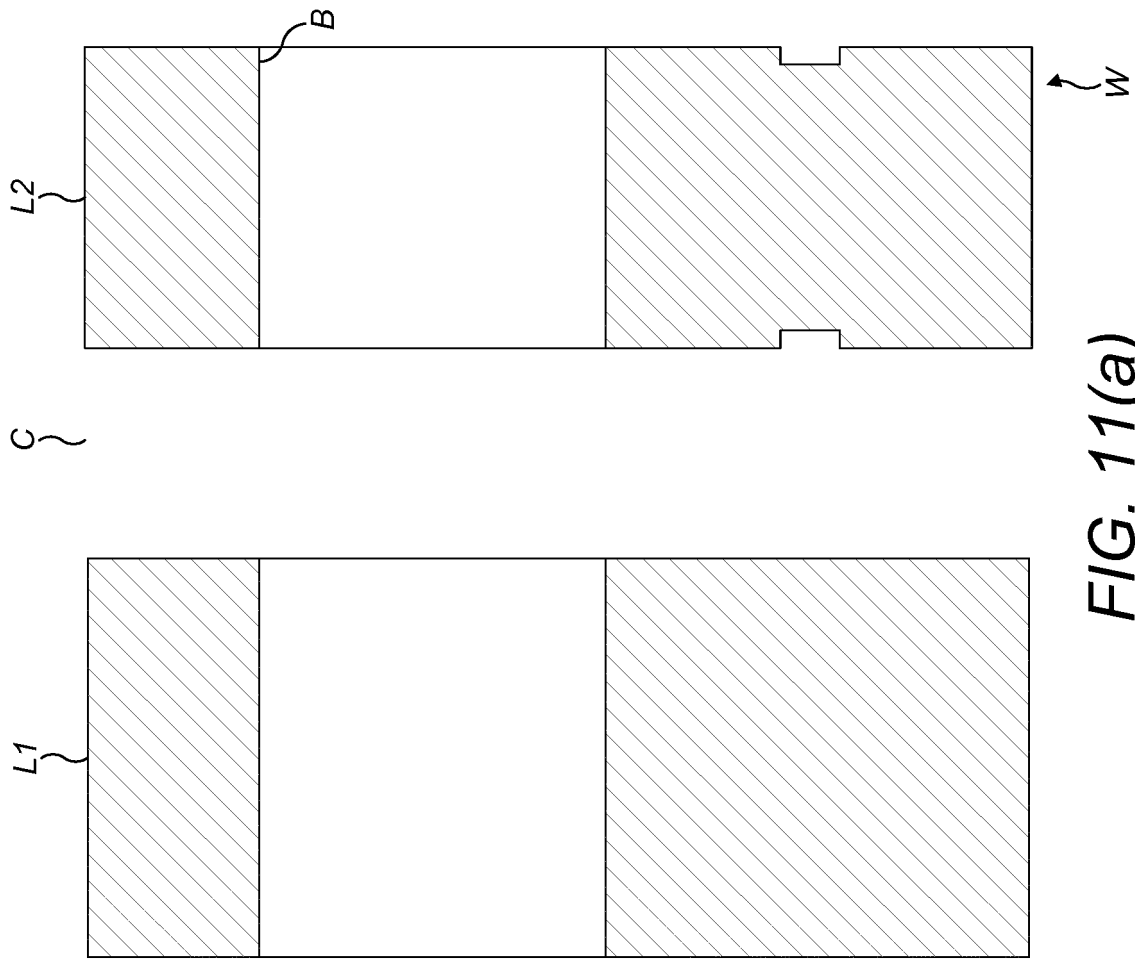


FIG. 11(a)

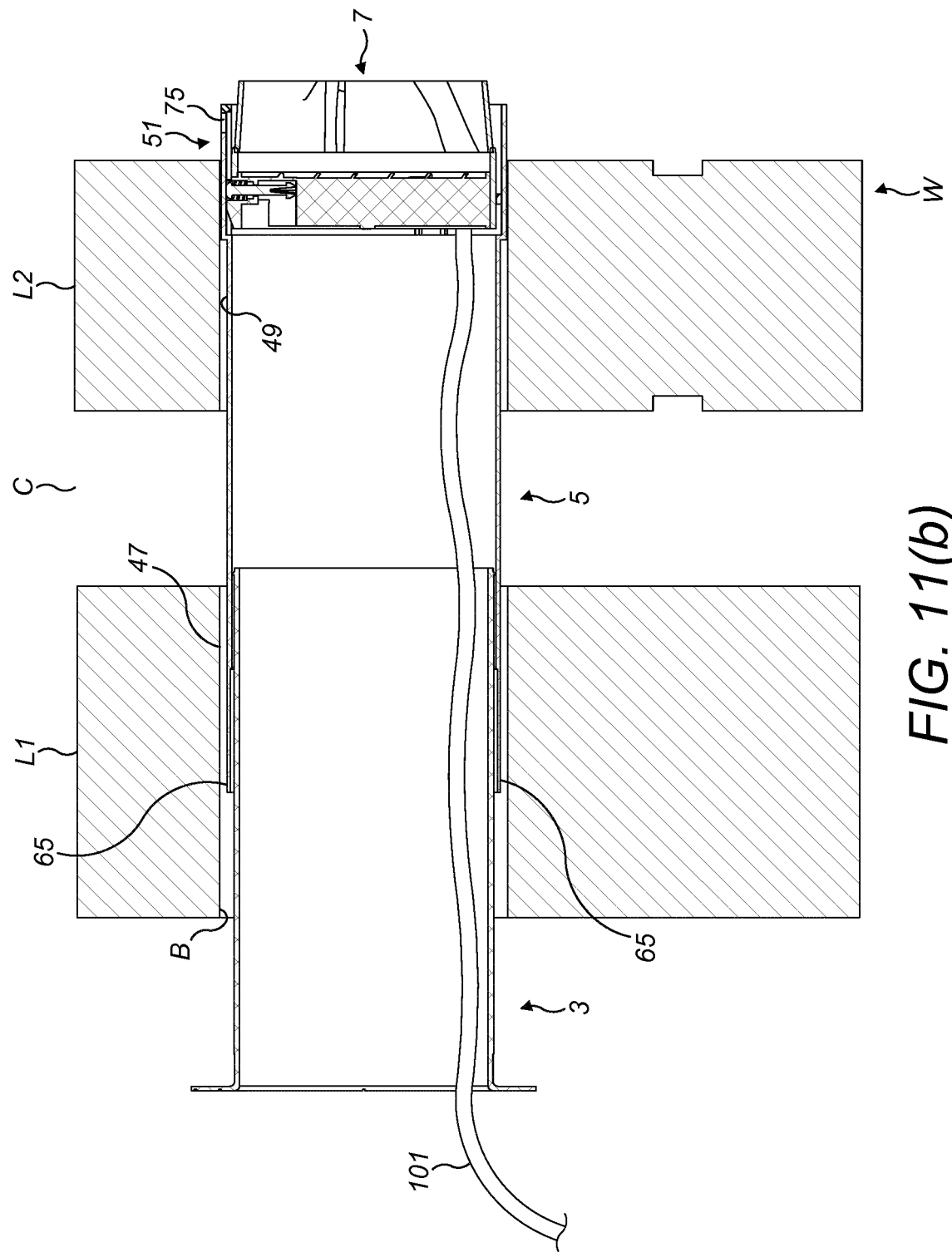


FIG. 11(b)

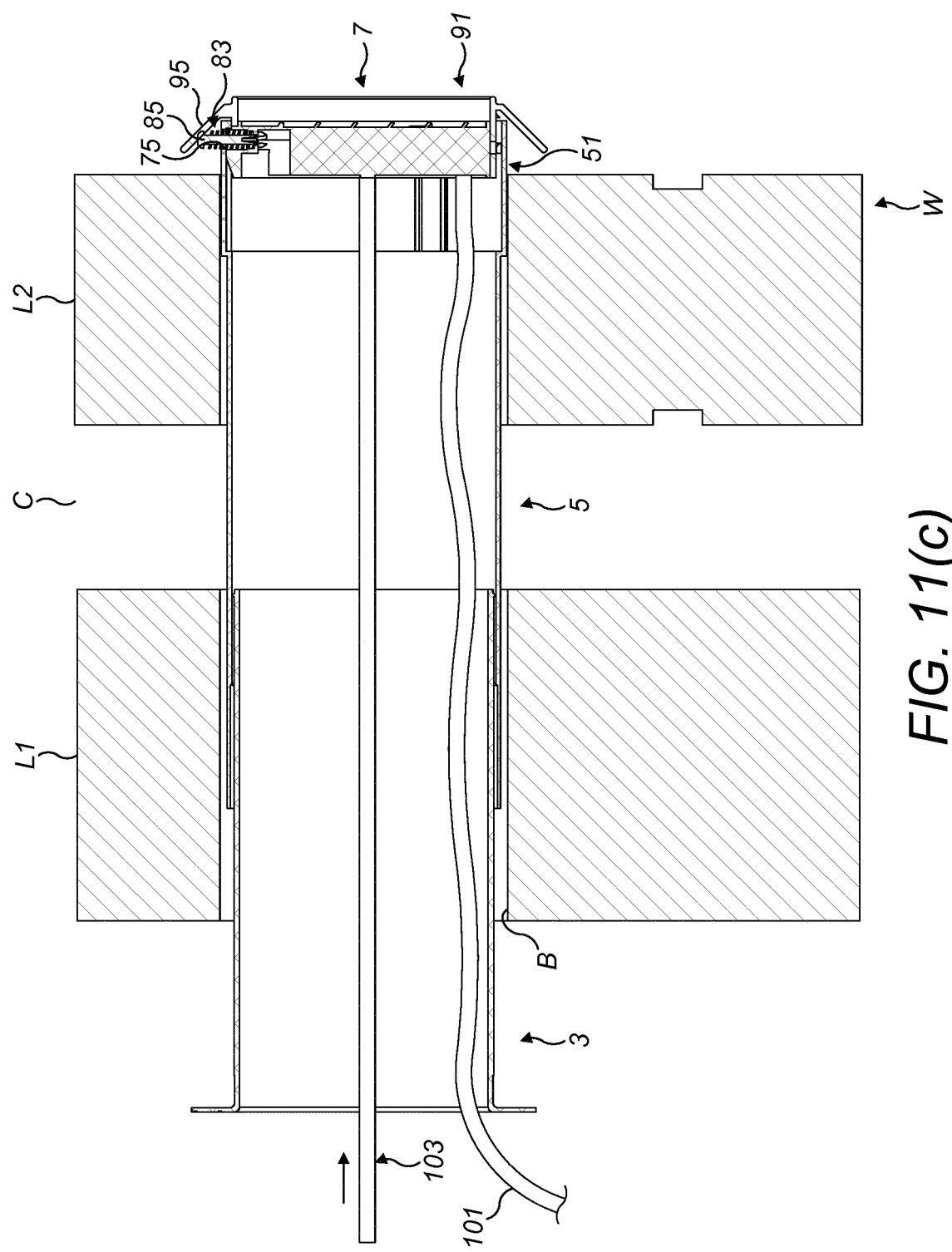


FIG. 11(c)

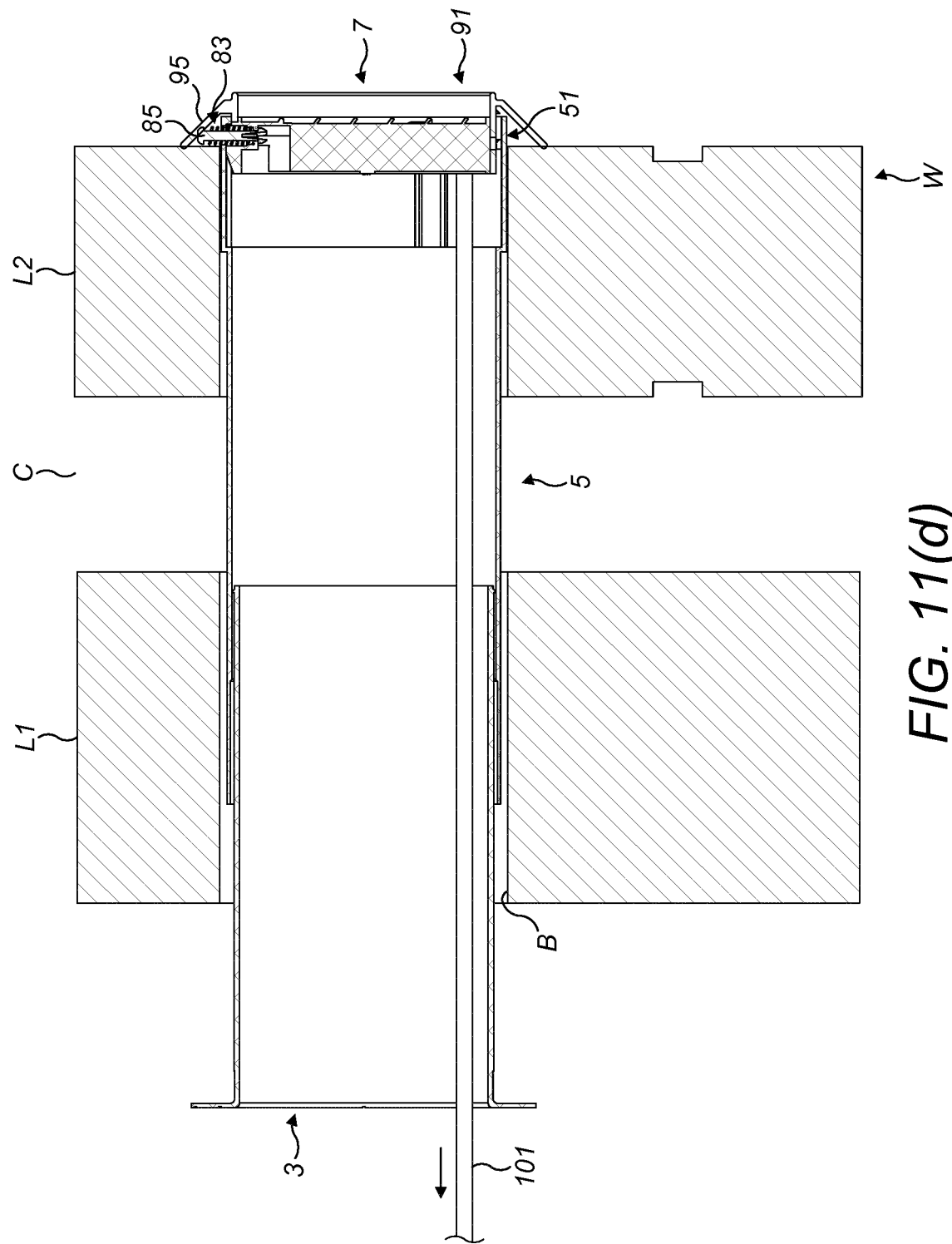


FIG. 11(d)

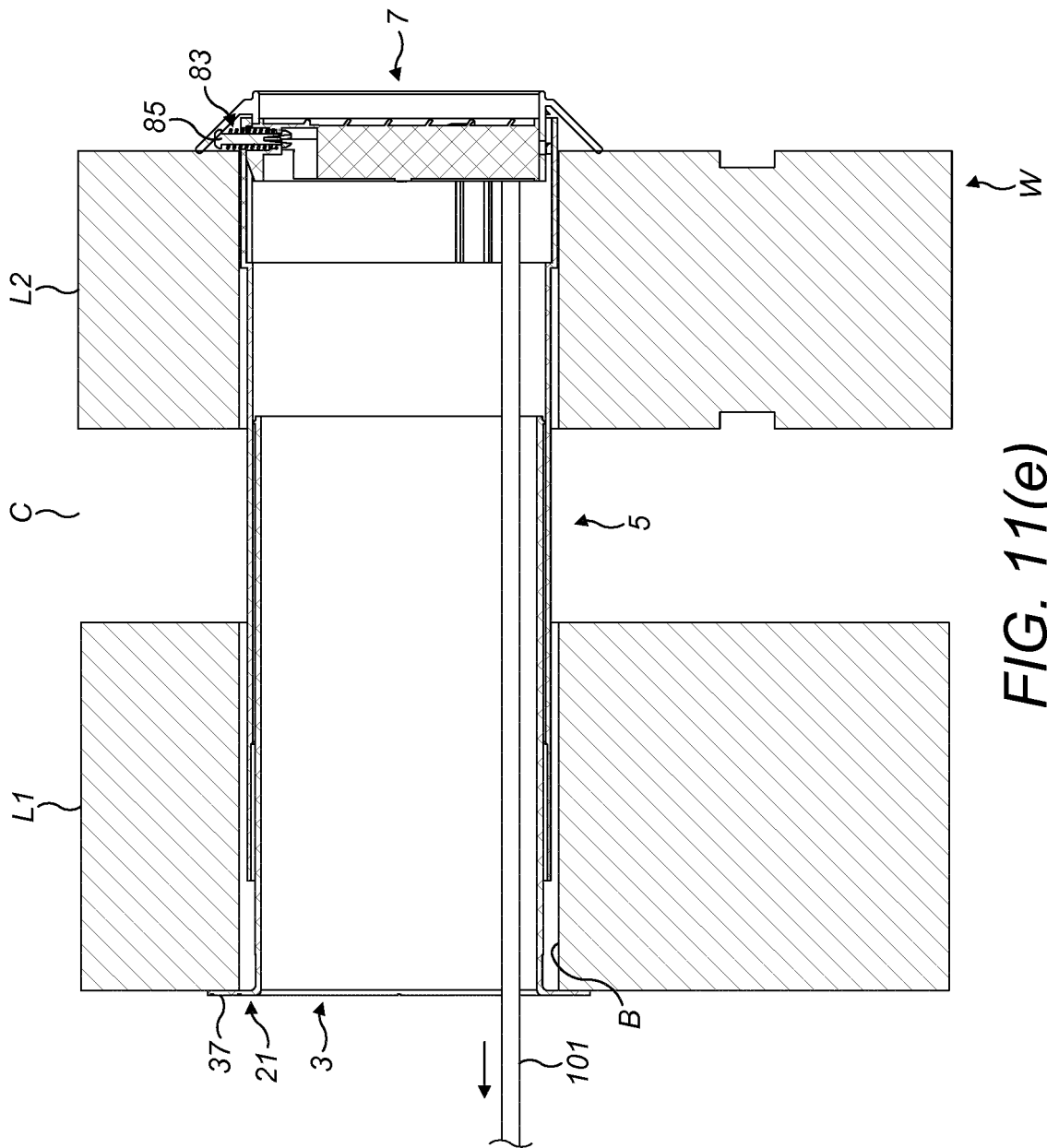


FIG. 11(e)

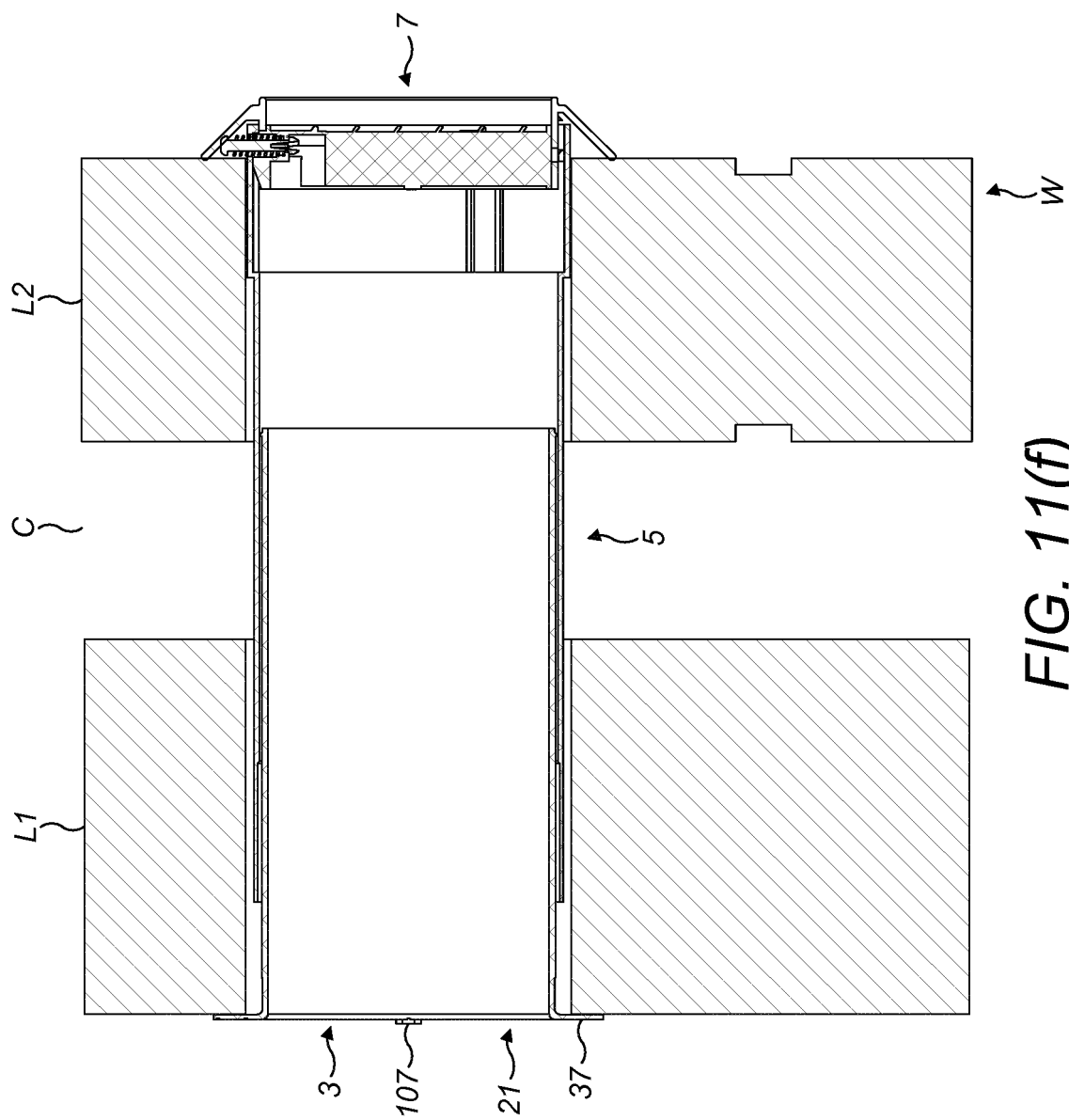


FIG. 11(f)

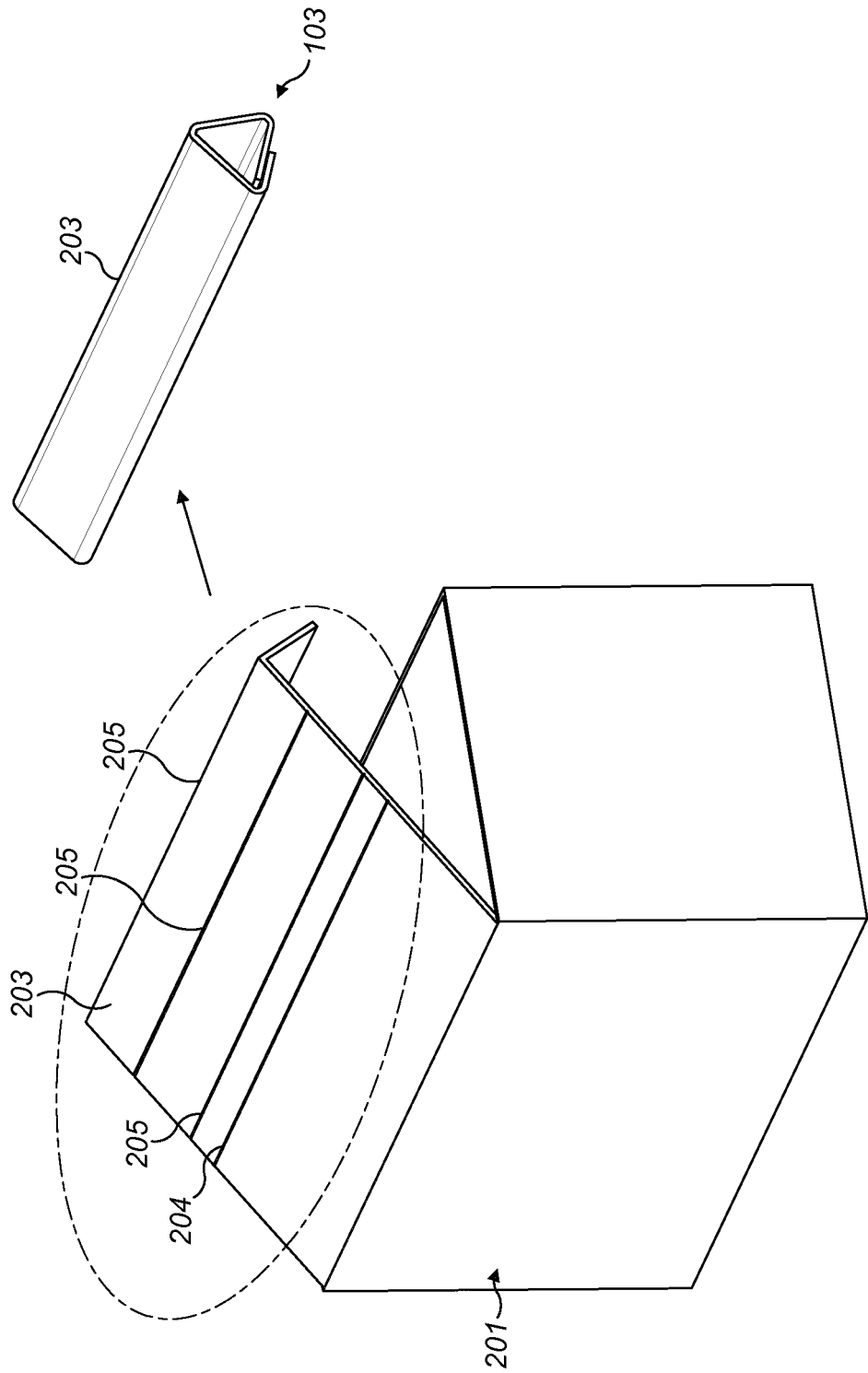


FIG. 12

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- GB 2467109 A [0002]
- GB 2464294 A [0004]