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(54) **Roof ventilation device**

(57) A roof ventilation device comprising:
skirting means;
spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

anti-ponding means which extend from the skirting means;

wherein, the anti-ponding means is hingably attached to the skirting means.

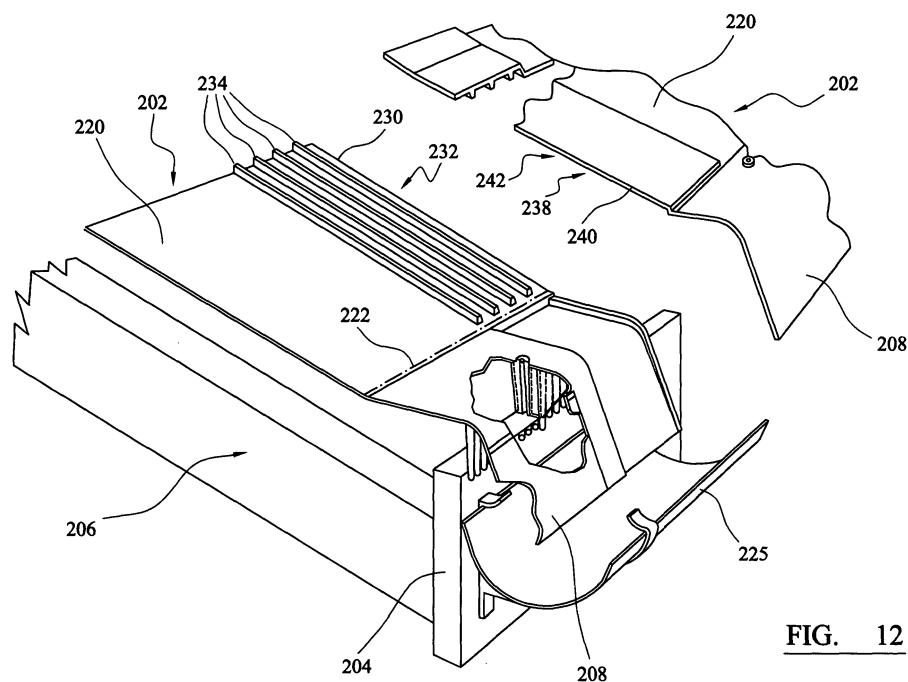


FIG. 12

Description

[0001] The present invention relates to roof ventilation devices, particularly, although not exclusively, to roof ventilation devices suitable for retrofitting to existing tiled roofs.

[0002] Roofs of buildings, for example houses, require ventilation towards their eaves in order to allow air to exit the roof space and prevent condensation build up therein. The usual way to achieve this ventilation is to provide a ventilation device having spacing elements at the eaves of the roof, that is, where the roof meets the side wall, which provides ventilation apertures to allow air to pass between the roof space and outside. In order to prevent the ingress of water through the ventilation apertures and thus into the roofspace, it is usual to provide a water impermeable skirt to the ventilation device which extends over the eaves of the roof but is laterally spaced therefrom to thereby allow water to run over the skirt without entering the ventilation apertures.

[0003] It is also known in the art to provide a ventilation device with a so-called anti-ponding strip, which extends towards the roof from a rear side of the ventilation device. The anti-ponding strip provides a gradual slope from the roof to the ventilation device to thereby allow sufficient drainage in order to minimize the occurrence of water ponding where the device meets the roof.

[0004] It is also known to provide a so called bird comb, which is a unit having a number of flexible fingers extending upwardly from the ventilation device. A bird comb is required where non-planar roof tiles are to be used as a final roof covering. The bird comb, in use, prevents birds and/or rodents accessing the space between the roof and the underside of non-planar tiles.

[0005] One roof ventilation device known in the art is disclosed in EP 0 340 856. This device comprises a skirt having spacer elements protruding therefrom, an integral anti-ponding strip and integral bird comb. A number of problems with this device exist. For example, as discussed above, a bird comb is not always necessary and therefore may need to be removed (usually by cutting and thus wasting material) before fitting the ventilation device to the roof. Also, roofs can have widely varying pitches, for example between about 17.5° and about 60° and therefore a user may be required to have a number of different devices for use with roofs of a different pitch.

[0006] It is an aim of the embodiments of the invention to provide a solution to the above mentioned or other problems.

[0007] According to a first aspect of the present invention there is provided a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

anti-ponding means which extend from the skirting

means;

wherein, the anti-ponding means is hingably attached to the skirting means.

[0008] Advantageously, the same device may be fitted to a variety of roofs each having different pitches, because the anti-ponding means may extend from the skirting means at different angles by virtue of the anti-ponding means being hingably attached thereto.

[0009] Preferably, the anti-ponding means extend from an edge of the skirting means, preferably an elongate edge thereof, preferably a rear edge thereof.

[0010] Preferably, the anti-ponding means is hingably attached to the skirting means such that the anti-ponding means may extend from the rearside of the skirting means at any angle between approximately 5° and 90°, more preferably, between approximately 5° and 85°, more preferably any angle between approximately 10° and 70° and most preferably, at any angle between approximately 15° and 60°.

[0011] Preferably, the skirting means is generally "r" shaped in cross section. Preferably, the skirting means comprises an upper section and a lower section. Preferably, the lower section forms an obtuse angle with the upper section, which is preferably between about 91° and 130°, more preferably between about 100° and 125°, more preferably between about 110° and 120° and most preferably between about 112° and 118°. Preferably, the upper section of the skirting means incorporates the rearside thereof.

[0012] Preferably, the upper section of the skirting means is operable, in use, to be positioned generally above eaves of a roof. Preferably, the lower section of the skirting means is operable, in use, to be positioned generally adjacent eaves of a roof.

[0013] Preferably, the skirting means is operable, in use, to extend from a position generally above eaves of a roof, around the eaves of a roof, to a position generally adjacent eaves of a roof.

[0014] Preferably, the spacing means comprises at least one spacing member. Preferably, the spacing means comprises a plurality of spacing members. Preferably, the or each spacing member extends downwardly from the skirting means, preferably from an underside thereof and preferably from the upper section thereof.

[0015] Preferably, an end of the spacing means distal to the skirting means is operable to abut an upper face of eaves of a roof, more preferably, an upper face of a fascia fitted to eaves of a roof.

[0016] Advantageously and preferably, in use, the or each spacing member extends between an underside of the skirting means and an upper face of eaves of a roof to thereby define a ventilation space between the skirting means and the eaves of a roof to allow air to pass between the roofspace and outside thereby preventing condensation build up under the roof.

[0017] Preferably, the anti-ponding means is operable, in use, to extend from a rearside of the skirting means

toward a point on a roof distal to the skirting means to preferably provide a gradual change in gradient from the pitch of the roof to the skirting means and preferably thereby reduce the occurrence of water ponding where the device meets a roof.

[0018] Preferably, the device further comprises barrier means operable, in use, to prevent insects or the like entering the space between the skirting means and eaves of a roof. Preferably, the barrier means provide apertures between the skirting means and eaves of a roof such that air may freely flow therebetween, but insects may not. In particular, it is preferable to prevent a nesting, wasp or the like entering the space between the device and the roof by preferably providing apertures which are about 5mm or less in one direction, such that, preferably, an insect with abdomen larger than 5mm cannot pass therethrough. More preferably, the apertures are about 4mm or less in one direction, such that, preferably, an insect with abdomen larger than 4mm cannot pass therethrough.

[0019] In one embodiment, the barrier means may comprise a plurality of teeth which may extend downwardly from an underside of the skirting means. Preferably, the plurality of teeth are spaced 4mm or less from each other at their widest spacing. The plurality of teeth may be arranged to align above a fascia of eaves of a roof, in use. In an alternative, preferred embodiment, the teeth may be aligned to extend from an underside of the skirting means to abut a front face of a fascia of eaves of a roof, in use, to thereby serve as a way to align the device next to the eaves.

[0020] Preferably, the device is adapted to have a bird comb attached thereto. Preferably, the device further comprises bird comb alignment means. Preferably, the bird comb alignment means are situated on the skirting means, preferably on the upper section thereof.

[0021] In a particularly preferred embodiment the device is supplied with an attachable bird comb which preferably, when assembled and in use, extends upwardly and outwardly from eaves of a roof (ie. substantially forward of vertical). Bird combs known in the art align vertically, in use, or are angled slightly back towards the roof in use. This can lead to the bird comb being installed incorrectly when tiles are added to the roof and thus can render the bird comb largely ineffective. However, the arrangement of the device and the present bird comb results in the bird comb projecting generally forward of vertical (with reference to a vertical fascia) and, in use, ensures that the bird comb is correctly installed ie. folded forward (away from the roof) when tiles are added.

[0022] According to a second aspect of the present invention there is provided a roof ventilation assembly comprising a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

antiponding means which extend from the skirting means; and

a bird comb attached to an upper section of the skirting means of the roof ventilation device and which extends upwardly and forwardly of eaves of a roof, in use.

[0023] According to a third aspect of the present invention there is provided a roof ventilation kit comprising a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

antiponding means which extend from the skirting means;

the kit further comprising a bird comb attachable to the skirting means which, when attached to the skirting means and in use, extends upwardly and forwardly of eaves of a roof .

[0024] Preferably, the antiponding means is hingably attached to the skirting means of the roof ventilation device of the second and/or third aspect.

[0025] The kit may comprise fixing means operable to fix the device to a surface, in use. The fixing means may comprise nails, screws or the like.

[0026] Preferably, the roof ventilation device further comprises joining means operable to join a further roof ventilation device thereto. Preferably, the device is elongate having joining means at ends thereof. Preferably, the joining means is situated substantially along at least a portion of at least one edge of the device. Preferably, the joining means is situated along at least a portion of two edges of the device, which two edges are preferably opposite edges.

[0027] Preferably, the joining means comprises a male joining means preferably along an edge of the device and preferably a female joining means preferably along an edge of the device. Preferably, the male joining means and the female joining means are situated along at least a portion of opposite edges of the device. Advantageously and preferably, roof ventilation devices may be joined to form a continuous roof ventilation unit comprising a plurality of discrete devices. In this manner, the device may be fitted to eaves of a roof having varying length.

[0028] Preferably, the male joining means comprises a tongue member preferably having at least one rib extending from a surface thereof, preferably an upper surface thereof. Preferably, the tongue member comprises at least two ribs extending from a surface thereof, preferably an upper surface thereof.

[0029] Preferably, the female joining means is adapted to accommodate the male joining means. Preferably, the

female joining member and the male joining member are arranged for inter-engagement.

[0030] Preferably, the female joining member comprises a groove member which groove member is preferably adapted to accommodate the tongue member.

[0031] Preferably, the groove member comprises an elongate aperture which preferably comprises at least one rib extending, preferably downwardly, from an inner surface thereof.

[0032] Preferably, in use, two roof ventilation devices may be joined by inserting the tongue into the groove and applying a force such that the ribs of the tongue ride over the ribs of the groove.

[0033] Preferably, the ribs of the tongue extend generally parallel to an elongate edge of the tongue. Preferably, the ribs of the groove extend generally parallel to the elongate aperture thereof.

[0034] Advantageously, the provision of ribs on the male joining member and within the female joining member provides easier joining of two devices than is known in the prior art because firstly, the groove is held open and cannot bow or collapse along its length and secondly, the ribs interengage to provide a resistance to the devices becoming disengaged after engagement, yet this resistance can be overcome, if required, by a fitter of such devices.

[0035] In an alternative embodiment, the female joining means may comprise an overlap section which may comprise at least one rib extending from a surface thereof, preferably downwardly extending from a lower surface thereof. Preferably, the overlap section comprises a plurality of ribs extending from a surface thereof. Preferably, in use, the overlap section is overlapped over the male joining means and preferably the spaces between the ribs of the overlap section accommodate the ribs of the male joining means.

[0036] Advantageously, the provision of joining means having ribs which inter-engage, in use, provides lateral resistance to an assembly of two or more devices becoming disengaged. This feature is not known in prior art devices.

[0037] Therefore, according to a fourth aspect of the present invention there is provided a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

antiponding means which extend from the skirting means; and

joining means along at least a portion of an edge thereof operable to join successive roof ventilation devices together;

wherein the joining means comprises either a male or

female member which male or female member comprises at least one rib protruding therefrom.

[0038] Preferably, at least a portion of the joining means are situated on the antiponding means, preferably along an edge thereof.

[0039] Preferably, the device further comprises fixing guide means operable to guide a user at which points the device should be fixed to a surface, which surface is preferably a fascia of eaves of a roof.

[0040] Preferably, the fixing guide means are located on the skirting means, preferably on the upper section thereof. Preferably, the device further comprises guiding means. Preferably, the guiding means extend from an underside of the skirting means at a position that preferably corresponds to the fixing guide means. Preferably, the guiding means are operable, in use, to guide fixing means to the surface to which the device is to be fitted, which is preferably a fascia of eaves of a roof.

[0041] The fixing guide means may comprise indicia or preferably a depression which preferably indicates a position on the device at which the device may be fixed to a surface, which may be achieved by nails or screws for example. In one embodiment, the fixing guide means comprises a plurality of raised buttons having generally centrally disposed depressions.

[0042] The guiding means may comprise a hollow tube which is preferably generally cylindrical and which preferably extends, in use, between an underside of the upper section of the skirting means and the fascia of eaves of a roof.

[0043] The guiding means may be incorporated in the spacing means.

[0044] Ventilation devices known in the art offer no guidance to a user as to where or how to affix the device to a surface, this can lead to a device being ineffectively fixed to a surface and thus liable to the device becoming unattached, or, alternatively, may be over zealously attached thus wasting time and fixing materials.

[0045] According to a fifth aspect of the present invention there is provided a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

antiponding means which extend from the skirting means; and

fixing guide means.

[0046] Ventilation devices known in the art offer no way of guiding the fixing means to the surface to which the device is to be attached. Thus, a user may think that the device is securely attached to a surface, while in fact the fixing means, which may be a nail or screw, wanders off course and doesn't engage with the surface sufficiently, or at all.

[0047] According to a sixth aspect of the present invention there is provided a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof;

antiponding means which extend from the skirting means; and

guiding means.

[0048] Preferably, the guiding means are operable to guide fixing means between the device and a surface to which the device is to be secured. The fixing means may comprise a nail or a screw, for example.

[0049] According to a seventh aspect of the present invention there is provided a roof ventilation device comprising:

skirting means;

spacing means operable, in use, to define a space between the skirting means and eaves of a roof; and

antiponding means which extend from the skirting means.

[0050] Roof ventilation devices known in the art comprise a continuous skirt which is normally about a metre in length. Further, the known skirt is often made of a rigid material. A user may wish to remove or fit a conventional gutter to the fascia over which the device is situated. However, in order to achieve this, a user may be required to access gutter brackets which are situated under the skirt. Thus a user may be forced to try and bend the roof ventilation device to gain access or to remove the device all together which is a very time consuming, demanding task.

[0051] Preferably, the skirting means, preferably the lower region thereof, is separated into discrete sections. Preferably, the skirting means is provided with hinging means to allow at least one of the discrete sections to be hingable with regard to the device thus preferably allowing a user to lift a discrete section to access an area underneath the discrete section.

[0052] Preferably, the or each discrete section is less than about 500mm in length, more preferably, less than about 400mm in length, more preferably, less than about 300mm in length and most preferably less than about 280mm in length. Preferably, the or each discrete section is greater than about 50mm, more preferably, greater than about 100mm and most preferably, greater than about 150mm. In a particularly preferred embodiment, the or each discrete section is between about 230mm and 250mm.

[0053] Advantageously, a user may lift a section of the skirt to access, for example, a gutter, which may be located under the skirt, in use.

[0054] All of the features disclosed herein may be combined with any of the above aspects and in any combination.

[0055] For a better understanding of the invention and to show how embodiments of the same may be carried into effect, reference will be made, by way of example, to the accompanying diagrammatic drawings in which:

Figure 1 shows a side view of a first embodiment of a roof ventilation device in a first configuration;

Figure 2 shows a side view of a first embodiment of a roof ventilation device in a second configuration;

Figure 3 shows a perspective partial cutaway view of a first embodiment of a roof ventilation device in a first stage of being fitted to a roof;

Figure 4 shows a perspective partial cutaway view of a first embodiment of a roof ventilation device in a second stage of being fitted to a roof;

Figure 5 shows a perspective partial cutaway view of two roof ventilation devices fitted on a roof;

Figure 5a shows an enlargement of a part of figure 5;

Figure 5b shows an enlargement of a part of figure 5;

Figure 6 shows an enlarged perspective partial cutaway view of a first embodiment of a roof ventilation device fitted on a roof;

Figure 7 shows a perspective partial cutaway view of two roof ventilation devices having a comb segment fitted thereto;

Figure 7a shows an enlargement of a part of figure 7;

Figure 7b shows an enlarged view of a part of figure 7;

Figure 8 shows perspective view of two roof ventilation devices having a comb segment fitted thereto and roof tiles fitted thereover;

Figure 8a shows an enlarged view of a part of figure 8.

Figure 9 shows a side view of a second embodiment of a roof ventilation device in a first configuration;

Figure 10 shows a side view of a second embodiment of a roof ventilation device in a second configuration and having a bird comb attached thereto;

Figure 11 shows a side view of a second embodiment of a roof ventilation device in a third configuration;

Figure 12 shows a perspective partial cutaway view of two second embodiment roof ventilation devices; and

Figure 13 shows an enlarged cutaway view of part of a second embodiment of a roof ventilation device.

[0056] Referring to figure 1 there is shown a side view of a roof ventilation device 102 fitted to a fascia 104 along the eaves 105 of a roof 106. The roof 106 of figure 1 extends away from the eaves 105 at an angle of approximately 17.5° to the horizontal as indicated by "θ" marked on figure 1. This is known as the pitch of the roof 106.

[0057] The device 102 comprises an elongate skirt 108 which is generally "r" shaped in cross section as shown in figure 1 which, in use, is fitted to the roof 106 so that its elongate axis is generally parallel to the eaves 105 of the roof 106. In more detail, the skirt 108 has an upper region 109 and a lower region 111 which are joined by a curved or angled region 113. The lower region 111 extends away from the upper region at an angle of about 118°. The skirt 108, in use, extends from a position above the fascia 105 downwardly over an upper region of the fascia 105.

[0058] Extending downwardly from an underside of the upper region 109 of the skirt 108 are two plates 110, one toward each elongate end of the skirt 108, which have a generally right angled notch 112 in a lower corner thereof, distal to the skirt 108 which, in use, abuts an upper outer corner 114 of the fascia 104 to define a space between the skirt 108 and the eaves 105. The angle of the notch 112 with regard to the upper region 109 of the skirt results in the upper region 109 of the skirt 108 sloping gently downwardly with regard to a horizontal upper edge of the fascia 104. Further, the angle of the notch 112 with regard to the lower region 111 of the skirt results in the lower region diverging gently away from a vertical side wall of the fascia 104. The plates further comprise a second notch 115 toward where the plates 110 meet the lower region 111 of the skirt 108. This second notch 115 allows a gutter to be fitted to the fascia as will be described below.

[0059] Between the two plates 110, along the elongate length of the skirt 108, projecting generally downwardly from the underside of the upper region 109 of the skirt 108 are a plurality of fingers 116. The spacing fingers 116 project slightly less far from the skirt 108 than an upper side of the notch 112 which abuts the fascia 104. The fingers 116 provide a barrier to insects entering under the device 102 and, potentially nesting there. The fingers 116 are arranged such that a gap of no more than 4mm exists, thus insects are prevented entering between the device and the roofspace.

[0060] Extending from a rear elongate edge 118 of the skirt 108 is an antiponding strip 120. The antiponding strip 120 extends away from the skirt 108 until an edge

thereof distal to the skirt 108 abuts the roof 106. The anti-ponding strip 120 is connected to the skirt via a hinge 122 such that the angle at which it extends away from the skirt 108 may be altered depending on the pitch of the roof. In the present embodiment, the skirt 108 and the anti-ponding strip are formed from a flexible plastic material and therefore the hinge is in the form of a thinning of material accompanied by a slight kink in the material at the hinge point. However, it is envisaged that other types of hinge may be used.

[0061] Projecting upwardly from the upper region of the skirt 108 is a bird comb 124. The bird comb 124 comprises a plurality of fingers 126 which extend upwardly from a fixing strip 128. The fixing strip 128 abuts an upper face of the upper region 109 of the skirt 108.

[0062] Referring now to figure 2, there is shown a side on view of a roof ventilation device 102 fitted to a fascia 204 along the eaves 205 of a roof 206. The roof 206 of figure 2 extends away from the eaves 205 at an angle of approximately 60° to the horizontal as indicated by "θ¹" marked on figure 2.

[0063] The ventilation device 102 is able to be used on the high pitched roof of figure 2 because the hinge 122 allows the anti-ponding strip 120 to pivot with regard to the skirt 108.

[0064] Referring now to figure 3 there is shown a perspective partial cutaway view of the ventilation device 102 fitted to the roof 106. A gutter 128 (as are known in the art) is fitted to a front face of the fascia 104. The lower region 111 of the skirt 108 extends into the channel of the gutter 128. An upper edge of the gutter 128 proximal to the fascia 104 extends into the notch 115 of the plate 110, thus a ventilation device as described herein may be used with existing gutters.

[0065] Along the right hand edge 130 of the anti-ponding strip 120 which is generally perpendicular to the fascia 104 is a fixing region 132 which allows a further device 102 to be fixed thereto. The fixing region 132 comprises three upwardly protruding ribs 134 each being parallel with the edge 130, laterally spaced therefrom and co-extensive therewith. The fixing region 132 also comprises three raised buttons 136 each situated at different distances from the skirt 108, but aligned parallel with the edge 130.

[0066] The fixing region 132 comprises the "male" fixing parts. A corresponding fixing region 138 comprising the female fixing parts is situated along the opposite edge 140 (the left hand edge).

[0067] Referring also to figures 4, 5 and 5a, the left hand edge 140 comprises an elongate slot 142 along the length thereof into which the opposite edge 130 is fitted. Toward an outer edge of the slot 142 are three depressions 144 on the inner side of the upper wall which accommodate the buttons 136 (see in particular figure 5a).

[0068] In use, to fit two devices 102 together, the fixing region 132 of the first device 102 is inserted into the fixing region 138 of the second device 102. In more detail, an end of the edge 130 distal to the skirt 108 is inserted into

the slot 140 as is shown in figure 4. The ribs 134 prise the slot 140 open along its length, thus allowing the remainder of the edge 130 to enter the slot 140 by twisting the first device 102 into a position parallel to the second device 102. The first device 102 is then pushed so that the depressions 144 inside the slot 142 ride over the buttons 136 until the buttons 136 are accommodated in the depressions 144.

[0069] Further, referring also now to figure 5b, a right hand edge 146 of the skirt 108 proximal to the edge 130 comprises a groove 148 into which a corresponding lip 150 on the left hand edge of the skirt 108 is insertable. Therefore, when securing two devices 102 together as described above, when twisting the first device 102 into a position parallel to the second device 102, the skirt 108 of the first device is lifted, the two devices 102 moved together such that they overlap, the skirt 108 then lowered so that the lip 150 is inserted into the groove 148.

[0070] In this manner, several devices 102 may be secured together depending on the length of roof to be ventilated.

[0071] Referring to figure 6 there is shown an enlarged view of a partial cutaway section of the skirt 108 of the device 102. An upper face of the upper region 109 of the skirt 108 comprises a number of oval shaped buttons 152 protruding therefrom. Each button 152 has a centrally disposed indentation 154. Beneath the indentations 154, protruding from an underside of the upper region of the skirt are elongate pins 156 which, in use, serve to guide a nail or screw (used to secure the device to a fascia) directly to the fascia. An upper face of the upper region 109 of the skirt 108 also comprises a number of upwardly extending frusto-conical protrusions 158 which serve to locate a bird brush as will be described hereunder.

[0072] Figure 7 shows two ventilation devices 102 joined together and fitted to a roof as discussed above. The devices 102 are fitted with a bird comb 124 having a plurality of fingers 126 which extend upwardly from a fixing strip 128.

[0073] An underside of the fixing strip 128 has a plurality of oval shaped recesses 160 therein which accommodate the oval shaped buttons 152 of the skirt 108. Further, the oval shaped recesses 160 have a centrally disposed aperture 162 which corresponds with the indentation 154 of the buttons 152. The fixing strip 128 further comprises a plurality of apertures 164 therein being of a size to allow the frusto-conical protrusions 158 to extend therethrough.

[0074] In use, if in the particular use a bird comb 124 is required to be used, the bird comb 124 is located such that the oval shaped recesses 160 sit over the buttons 152 and the frusto-conical protrusions 158 extend through the apertures 164. The apertures 164 are slightly smaller than the base of the frusto-conical protrusions 158 meaning that the bird comb 124 is held in place on the skirt 108 by friction when it is pushed thereonto. The bird comb 124 may then be secured to the device 102 and the device in turn secured to the fascia 104, by driving

a nail or screw (not shown) through the aperture 162, through the indentation 154 and into the fascia 104 (being guided by the elongate pins 156).

[0075] Referring now to figures 8 and 8a, there is shown a cutaway section of a roof 106 fitted with two ventilation devices 102 having a bird comb 124 fitted thereto. A layer of felt 166 is laid over the anti-ponding strip 120, upon which a layer of roof tiles 168 are positioned. The roof tiles 168 are positioned so that they bend the fingers 126 forward toward the gutter 128 to thereby prevent birds or rodents accessing the space between the tiles 168 and the felt 166, a particular problem where roof tiles are none planar.

[0076] Referring now to figures 9 to 13 there is shown a second embodiment of a roof ventilation device 202. Figures 9, 10 and 11 show the second embodiment of the roof ventilation device 202 in three configurations because the roofs 206 of figures 9, 10 and 11 each have a different pitch as indicated by " θ^2 ", " θ^3 " and " θ^4 " of figures 9, 10 and 11 respectively. The approximate pitches of the three roofs 206 are as follows: $\theta^2 = 15^\circ$; $\theta^3 = 30^\circ$; and $\theta^4 = 60^\circ$.

[0077] The device 202 is shown in figures 9, 10 and 11 fitted to a fascia 204 along the eaves 205 of the roofs 206. The device 202 comprises an elongate skirt 208 which is generally "r" shaped in cross section which, in use, is fitted to the roof 206 so that its elongate axis is generally parallel to the eaves 205 of the roof 206. In more detail, the skirt 206 has an upper region 209 and a lower region 211 which are joined by an angled region 213. The lower region 211 extends away from the upper region at an angle of about 115° . The skirt, in use, extends from a position generally above the fascia 205 to the angled region 213, which alters the direction of the skirt, to extend downwardly and outwardly over an upper region of the fascia 205.

[0078] Along the elongate length of the skirt 208, projecting generally downwardly from the underside of the upper region 209 thereof are a plurality of spacing means in the form of hollow tubes 216. The tubes 216, in use, abut an upper surface of the fascia 204 to thereby define a space between the skirt 208 and the eaves. In one embodiment, the tubes are approximately 10mm to 12mm in diameter and are separated at about 100mm intervals.

[0079] Projecting from an upperside of the upper region 209 of the skirt 208, directly above the tubes 216, is a raised button 217 having a centrally disposed depression 221. The depression 221 is generally coaxial with its associated tube 216. In use, a user may position the end of a nail or screw (not shown) in the depression 221 and fix the device to a roof by hammering the nail/screwing the screw (not shown) through the device, down the tube 216 which serves to guide the nail/screw (not shown) directly to the fascia 204.

[0080] Projecting downwardly from an underside of the upper region 209 of the skirt 208 are a plurality of fingers 219. The fingers 219 are equally spaced and taper gently

from the skirt 208 down to their opposite ends such that the maximum gap between the fingers 219 is 4mm. The fingers 219 are arranged to form a line which is generally parallel with the elongate axis of the skirt 208. The fingers 219 extend from the skirt 208 further than the tubes 216 and are laterally spaced therefrom such that they are closer to the angled region 213 of the skirt 208 than the tubes 216. In use, the line of fingers 219 may be used to locate the device on a fascia 204 by pushing the device onto the fascia 204 until the line of fingers 219 abuts an outer edge of the fascia 204. In one embodiment, the fingers protrude about 2mm further from the skirt 208 than the tubes 216 and thus overhang the fascia edge by about 2mm, in use. In front of each tube 216, ie. between the tube and the lower region 211 of the skirt, it is preferred to provide a finger 219 of longer length, ie. about 4 to 6mm longer than the tube 216.

[0081] Extending from a rear elongate edge 218 of the skirt 208 is an anti-ponding strip 220. The anti-ponding strip 220 extends away from the skirt 208 until an edge thereof distal to the skirt 208 abuts the roof 206. The anti-ponding strip 220 is connected to the skirt via a hinge 222 such that the angle at which it extends away from the skirt 208 may be altered depending on the pitch of the roof. In the present embodiment, the skirt 208 and the anti-ponding strip 220 are formed from a flexible plastic material and therefore the hinge is in the form of a thinning of material accompanied by a slight kink in the material at the hinge point. However, it is envisaged that other types of hinge may be used.

[0082] Extending downwardly from an underside of the upper region 209 of the skirt 208 are two plates 210, one toward each elongate end of the skirt 208, which do not extend lower than the lowermost extent of the fingers 219. The plates 210 are shaped such that a gutter 225 may be fitted to the under the skirt 208, or such that the device may be fitted to eaves of a roof without removal of an existing gutter 225.

[0083] As can be seen with reference to figures 9 to 11, the upper region of the skirt 208 extends back beyond a position generally parallel to the top of the fascia 204 to a position proximal to the roof.

[0084] Referring now to figure 10, projecting upwardly from the upper region of the skirt 208 is a bird comb 224. The bird comb 224 comprises a plurality of fingers 226 which extend upwardly from a fixing strip 228. The fixing strip 228 abuts an upper face of the upper region 209 of the skirt 208. The bird comb 224, extends generally upwardly and forwardly, ie. toward the gutter 225 such that when fitting tiles to the roof 206, the fingers 226 are pushed forward toward the gutter 225 and not backward toward the roof 206. The fixing strip 228 comprises a plurality of depressions along its underside of a shape and size to accommodate the buttons 217 of the skirt 208, which, in use, serve to align the bird comb 224 on the skirt 208.

[0085] Referring to figure 12 there is shown a perspective partial cutaway view of the ventilation device 202

fitted to the roof 206. A gutter 225 (as are known in the art) is fitted to a front face of the fascia 204. The lower region 211 of the skirt 208 extends into the channel of the gutter 225.

5 **[0086]** Along the right hand edge 230 of the anti-ponding strip 220 which is generally perpendicular to the fascia 204 is a fixing region 232 which allows a further device 202 to be fixed thereto. The fixing region 232 comprises four upwardly protruding ribs 234 each being parallel with the edge 230, laterally spaced therefrom and co-extensive therewith.

10 **[0087]** The fixing region 232 comprises the "male" fixing parts. A corresponding fixing region 238 comprising the female fixing parts is situated along the opposite edge 240 (the left hand edge).

15 **[0088]** The left hand edge 240 comprises an overlap section 242 along the length thereof which overlaps the opposite edge 230 in use. The overlap section 242 comprises three downwardly extending ribs 244 projecting from the underside thereof which are each parallel and coextensive with the edge 240.

20 **[0089]** In use, to fit two devices 202 together, the fixing region 238 of the second device 202 is overlapped over the fixing region 232 of the first device 202 and an end region of the skirt 208 of the second device 202 is overlapped over the skirt region of the first device 202.

25 **[0090]** Referring now to figure 13 which is an enlarged cutaway view of figure 12, there is shown in detail the arrangement of the underside of the skirt 208 and the fascia 204 of the roof 206. The fingers 219 are shown extending below the upper extent of the fascia 204 and abutted against a front wall thereof. Also, a tube 216 is shown extending toward and abutting an upper surface of the fascia 204.

30 **[0091]** The lower region 211 of the skirt 208 is shown having a very narrow slit 242 generally perpendicular to the elongate axis of the skirt 208 extending from a lower edge thereof toward the angled region 213. A plurality of similar slits 242 are situated at intervals along the skirt 208. An elongate groove 244 which is generally parallel with the elongate axis of the skirt 208 is situated on the lower region 211 of the skirt 208 at a position proximal to the angled region 213 and just above the extend of the slit 242. This arrangement of slits 242 and groove 244 separates the lower region 211 of the skirt 208 into discrete sections which are each liftable, by pivoting about the groove 244, to access, for example gutter brackets 245 so that a gutter 225 may be removed or fitted without the need to remove the device 202 from the roof 206.

35 **[0092]** A roof ventilation device 102, 202 made in accordance with the present invention has many advantages over roof ventilation devices known in the art. Firstly, the roof ventilation device 102, 202 has an anti-ponding strip 120, 220 hingably mounted thereto thereby allowing the device 102, 202 to be readily used with roofs of differing pitches.

40 **[0093]** Also, the device 102, 202 does not have an

integral bird comb 124, 224. In many instances, such as when using planar tiles, a bird comb 124, 224 is not required. It is therefore common to have to remove an integral bird comb (usually by cutting it off) before fitting the device.

[0094] The device 102, 202 comprises an advantageous system of linking together two or more devices 102, 202 which is easy to use and provides secure engagement. Also, the device 102, 202 comprises guideways for nails or screws to ensure that the device is securely fitted to a fascia.

[0095] Attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

[0096] All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

[0097] Each feature disclosed in this specification (including any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0098] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. A roof ventilation device comprising:

skirting means;
spacing means operable, in use, to define a space between the skirting means and eaves of a roof;
anti-ponding means which extend from the skirting means;

wherein, the anti-ponding means is hingably attached to the skirting means.

2. A roof ventilation device according to claim 1, wherein the anti-ponding means is hingably attached to the skirting means such that the antiponding means may extend from the rearside of the skirting means at any angle between approximately 5° and 90°.

3. A roof ventilation device according to any preceding claim, wherein the roof ventilation device further comprises joining means operable to join a further roof ventilation device thereto wherein the joining means comprises a male joining means along an edge of the device and wherein the male joining means comprises a tongue member having at least one rib extending from a surface thereof.

4. A roof ventilation device according to any preceding claim, wherein the female joining means comprise an overlap section which comprises at least one rib downwardly extending from a lower surface thereof.

5. A roof ventilation device according to any preceding claim, wherein the device further comprises fixing guide means operable to guide a user at which points the device should be fixed to a surface.

6. A roof ventilation device according to claim 5, wherein the device further comprises guiding means which extend from an underside of the skirting means at a position that corresponds to the fixing guide means.

7. A roof ventilation device according to claim 6, wherein the guiding means comprises a hollow tube which is generally cylindrical and which extends, in use, between an underside of the upper section of the skirting means and the fascia of eaves of a roof.

8. A roof ventilation device according to any preceding claim, wherein the skirting means is separated into discrete sections.

9. A roof ventilation device according to claim 8, wherein the skirting means is provided with hinging means to allow at least one of the discrete sections to be hingable with regard to the device thus allowing a user to lift a discrete section to access an area underneath the discrete section.

10. A roof ventilation assembly comprising a roof ventilation device comprising:

skirting means;
spacing means operable, in use, to define a space between the skirting means and eaves of a roof;
antiponding means which extend from the skirting means; and
a bird comb attached to an upper section of the skirting means of the roof ventilation device and which extends upwardly and forwardly of eaves of a roof, in use.

11. A roof ventilation kit comprising a roof ventilation device comprising:

skirting means;
 spacing means operable, in use, to define a
 space between the skirting means and eaves of
 a roof;
 antiponding means which extend from the skirt- 5
 ing means;
 the kit further comprising a bird comb attachable
 to the skirting means which, when attached to
 the skirting means and in use, extends upwardly
 and forwardly of eaves of a roof. 10

12. A roof ventilation device comprising:

skirting means;
 spacing means operable, in use, to define a 15
 space between the skirting means and eaves of
 a roof;
 antiponding means which extend from the skirt-
 ing means; and
 joining means along at least a portion of an edge 20
 thereof operable to join successive roof ventila-
 tion devices together;

wherein the joining means comprises either a male
 or female member which male or female member 25
 comprises at least one rib protruding therefrom.

13. A roof ventilation device comprising:

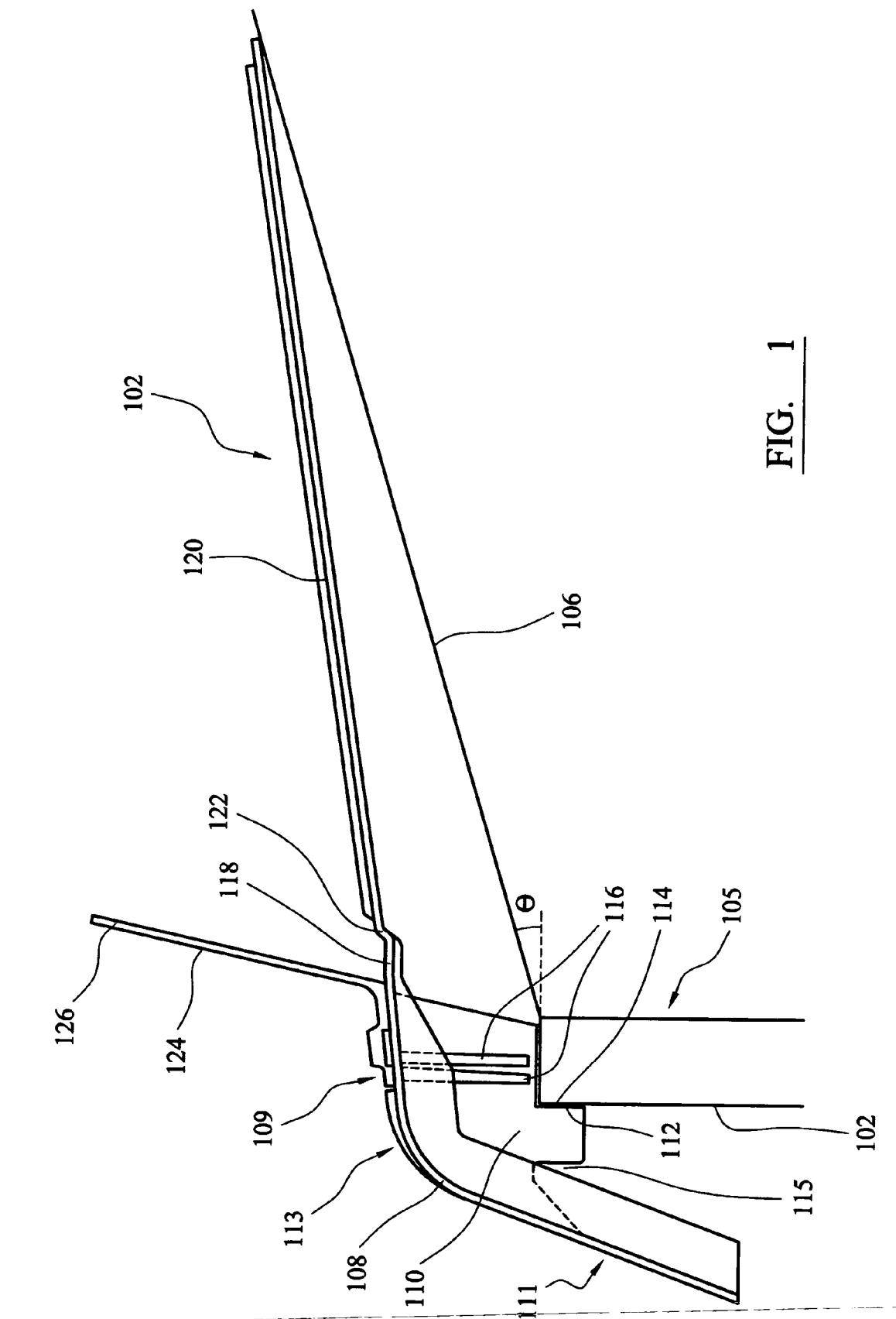
skirting means; 30
 spacing means operable, in use, to define a
 space between the skirting means and eaves of
 a roof;
 antiponding means which extend from the skirt-
 ing means; and 35
 fixing guide means.

14. A roof ventilation device comprising:

skirting means; 40
 spacing means operable, in use, to define a
 space between the skirting means and eaves of
 a roof; antiponding means which extend from
 the skirting means; and
 guiding means operable to guide fixing means 45
 between the device and a surface to which the
 device is to be secured.

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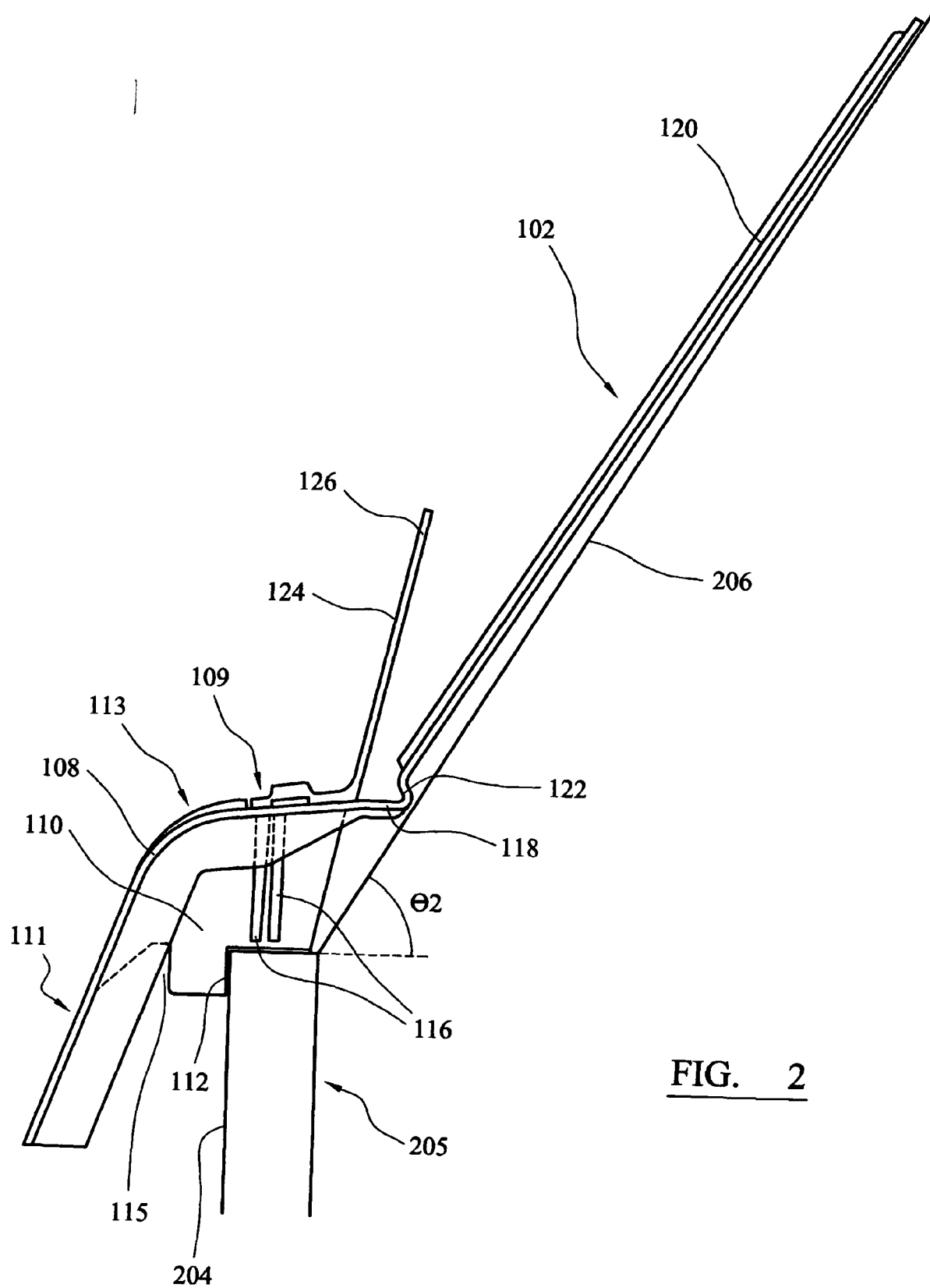


FIG. 2

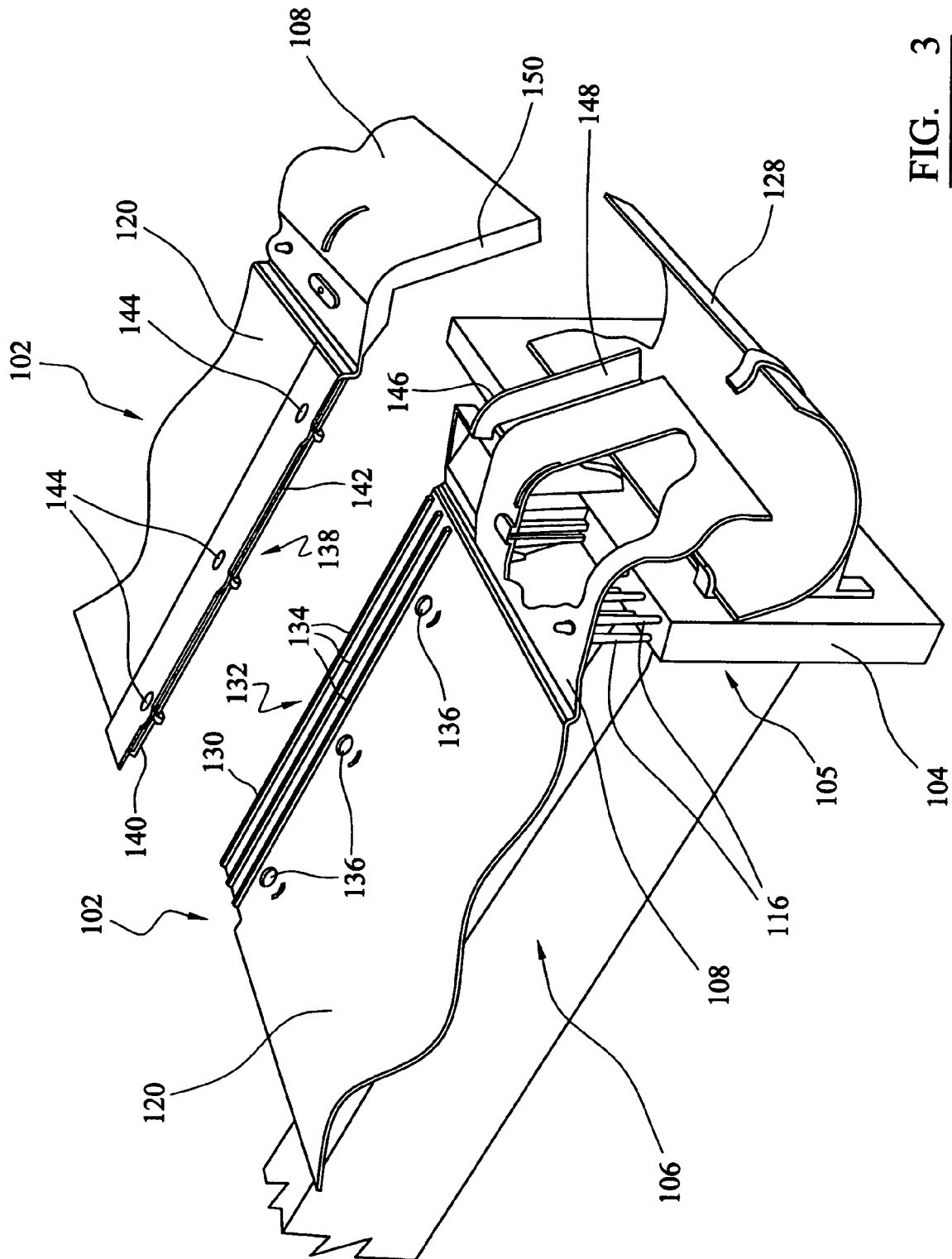


FIG. 3

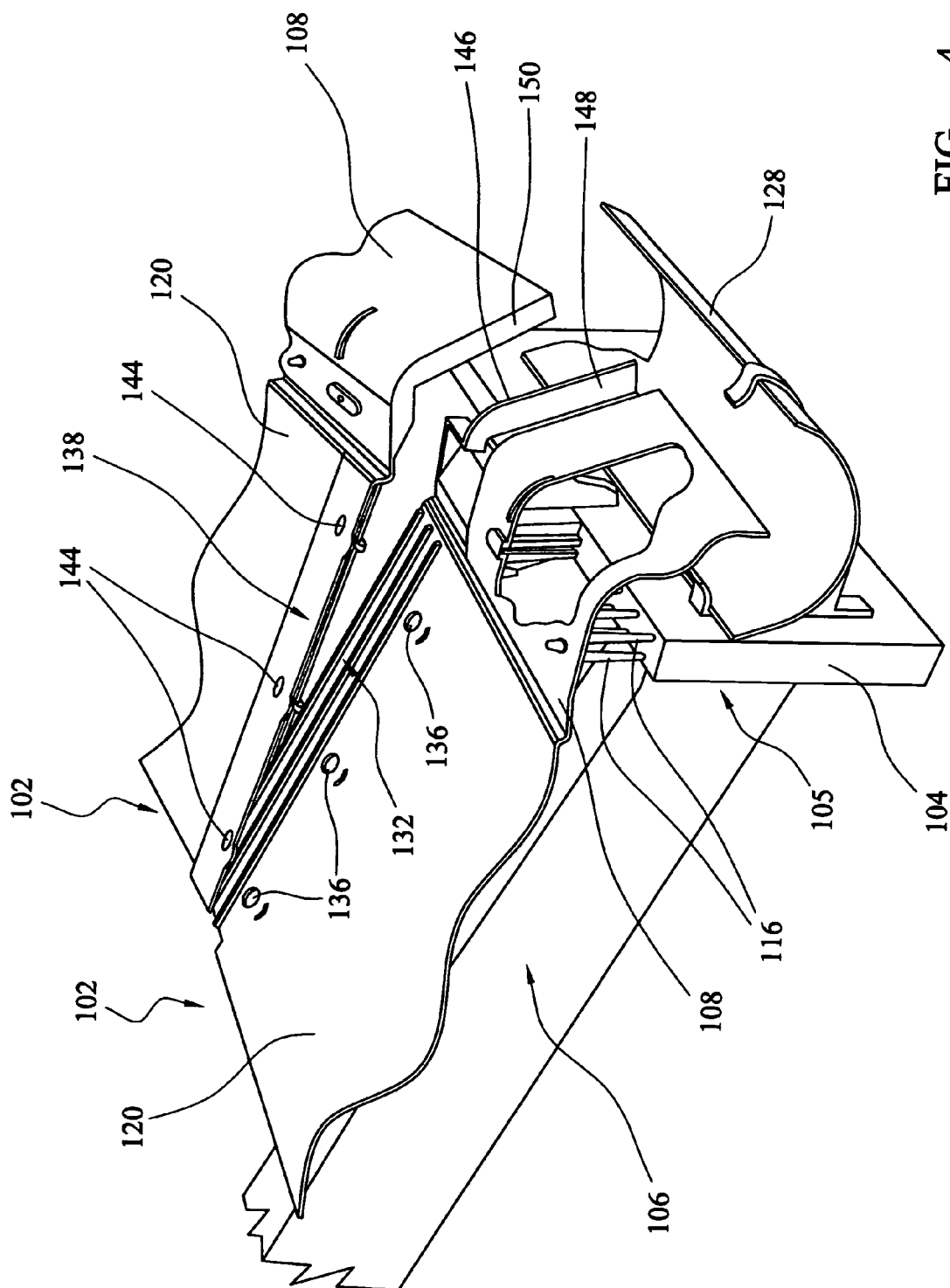
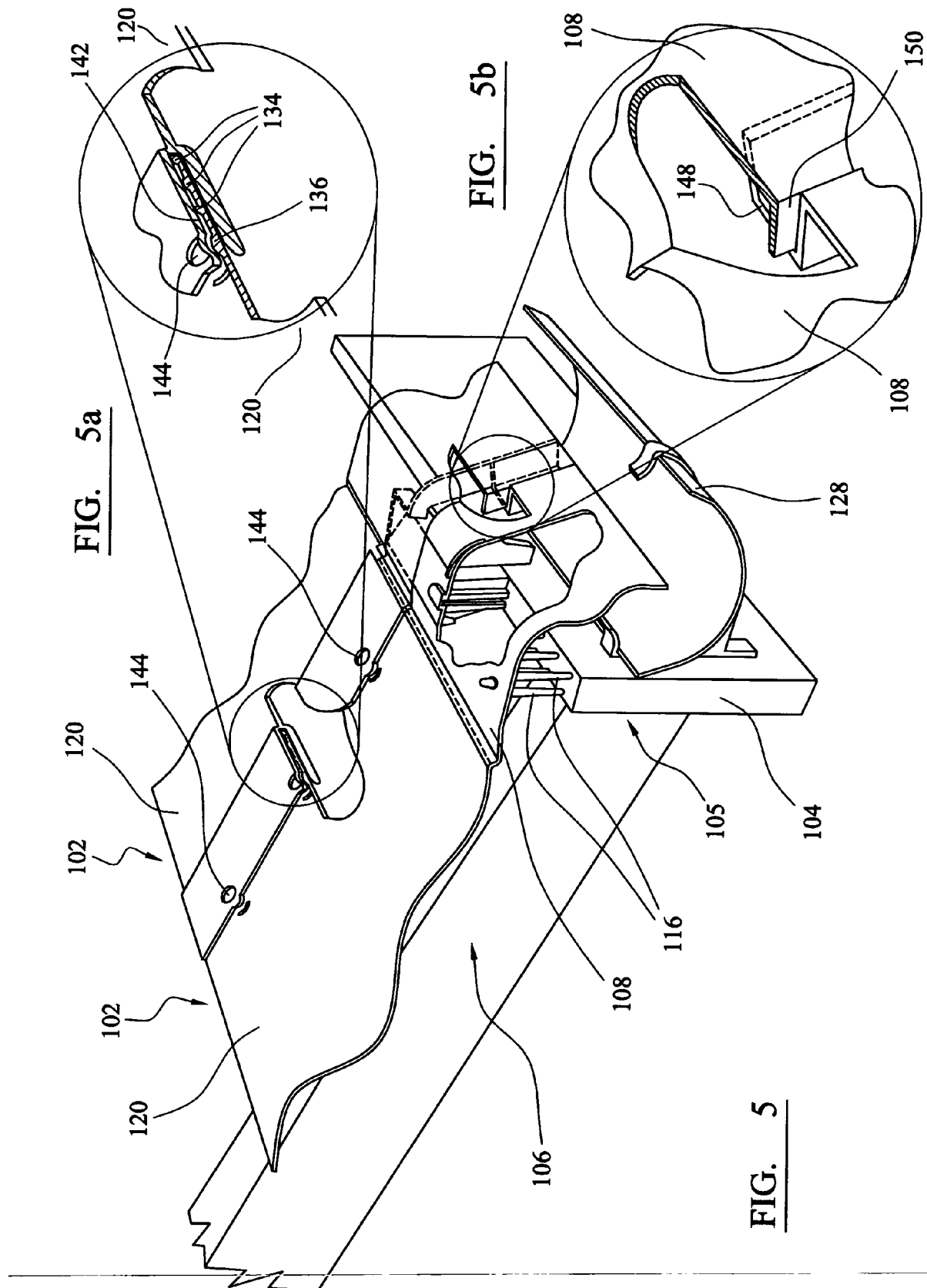


FIG. 4



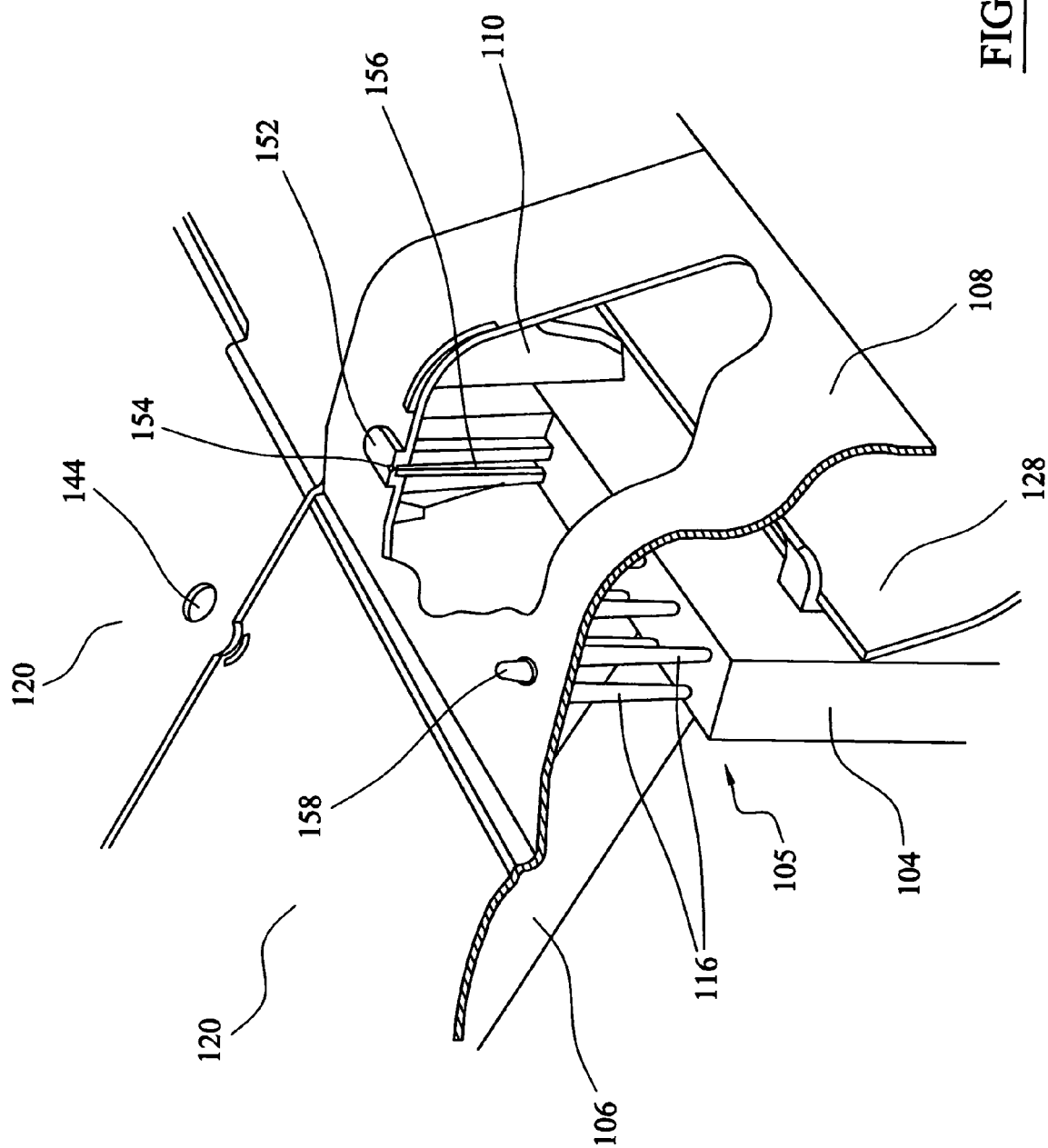


FIG. 6

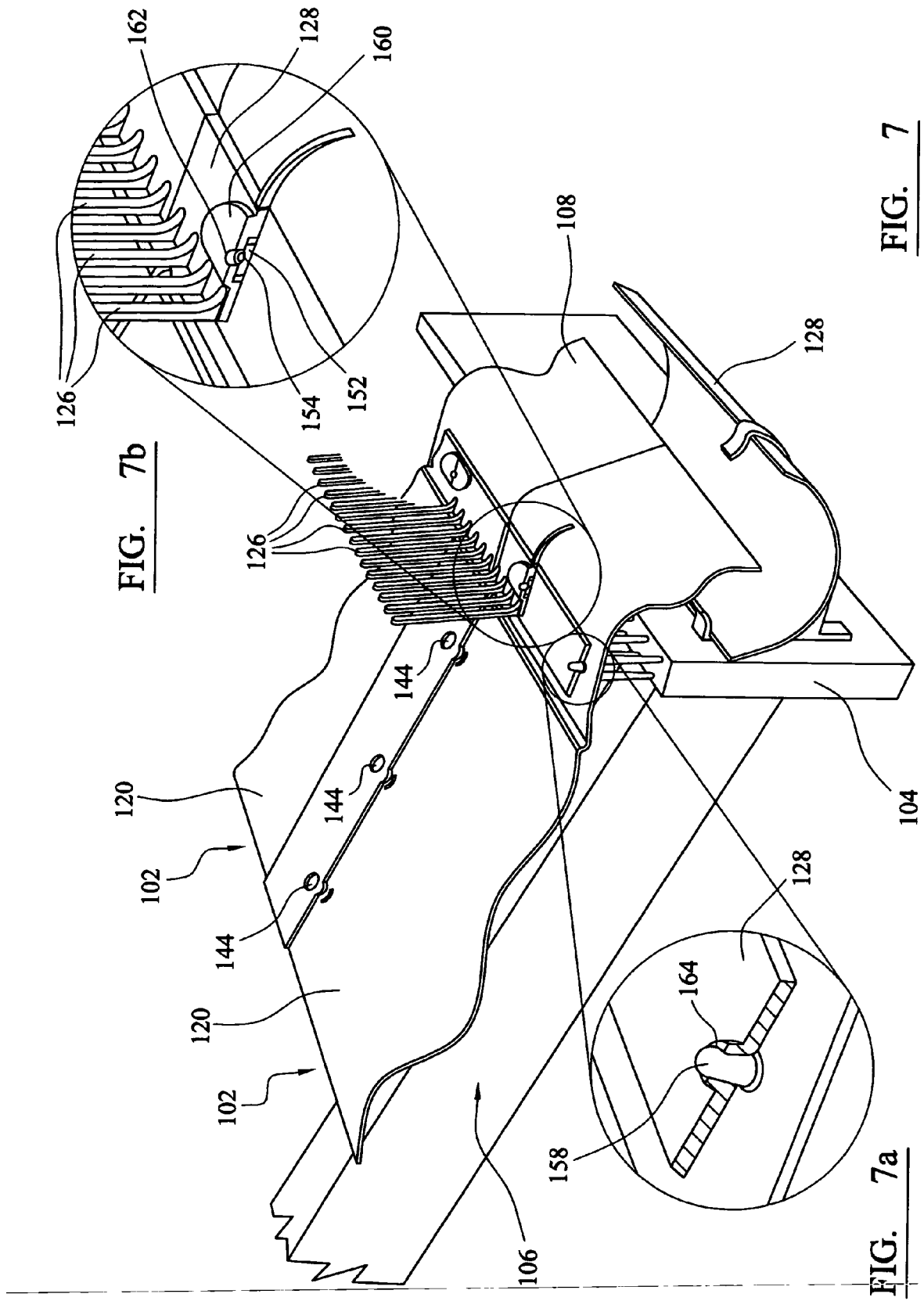
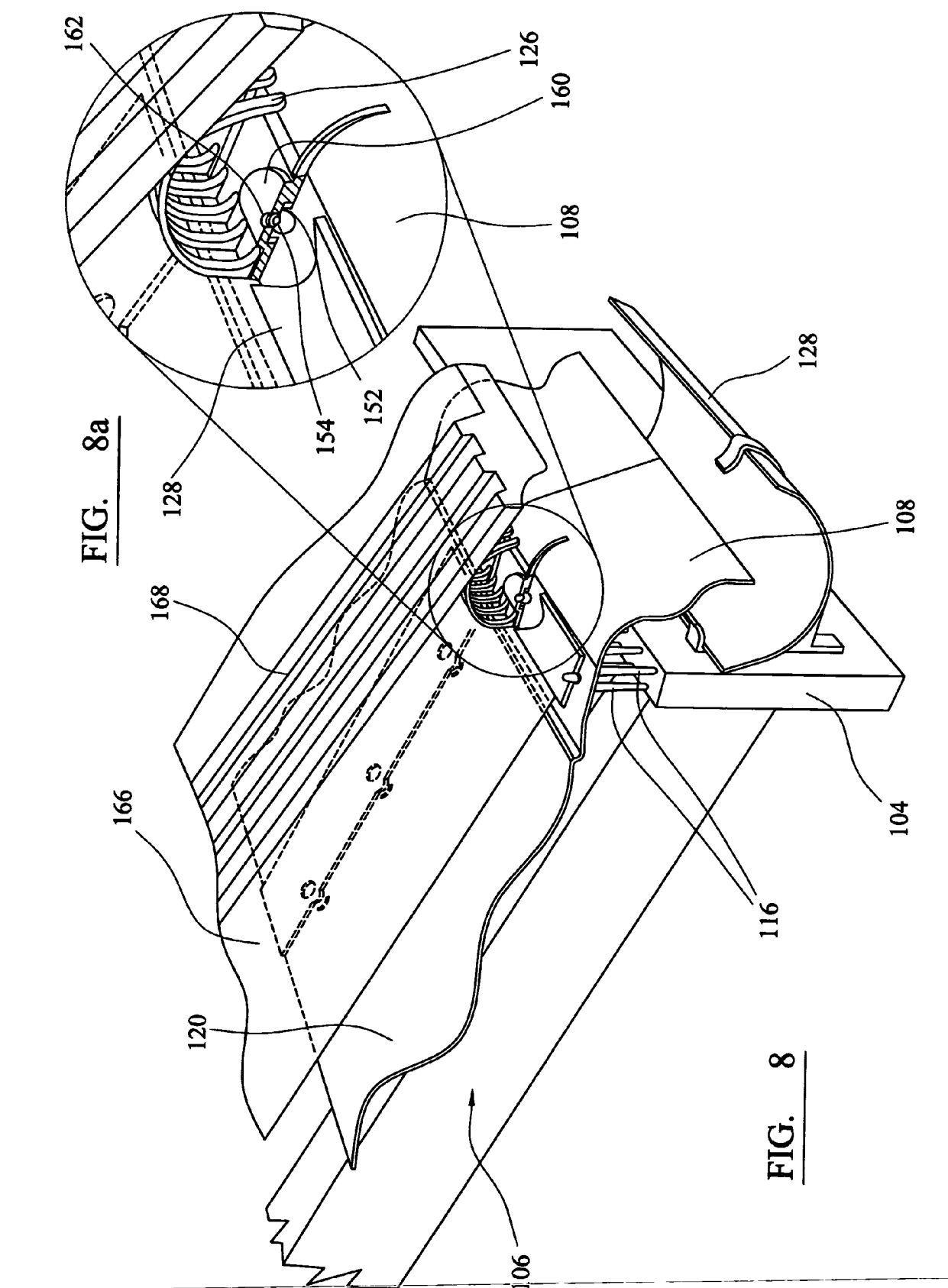


FIG. 7a

FIG. 7b

FIG. 7



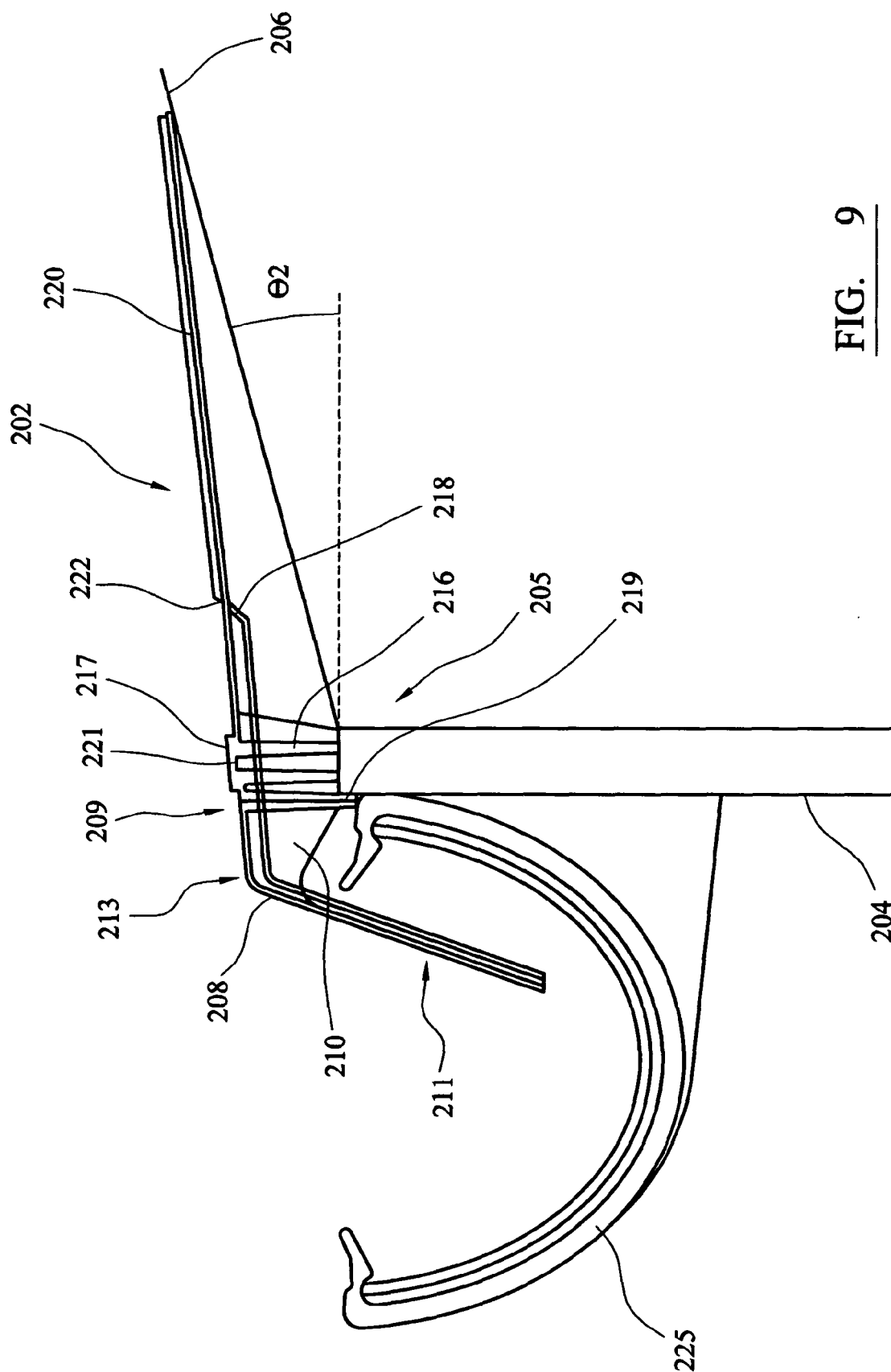


FIG. 9

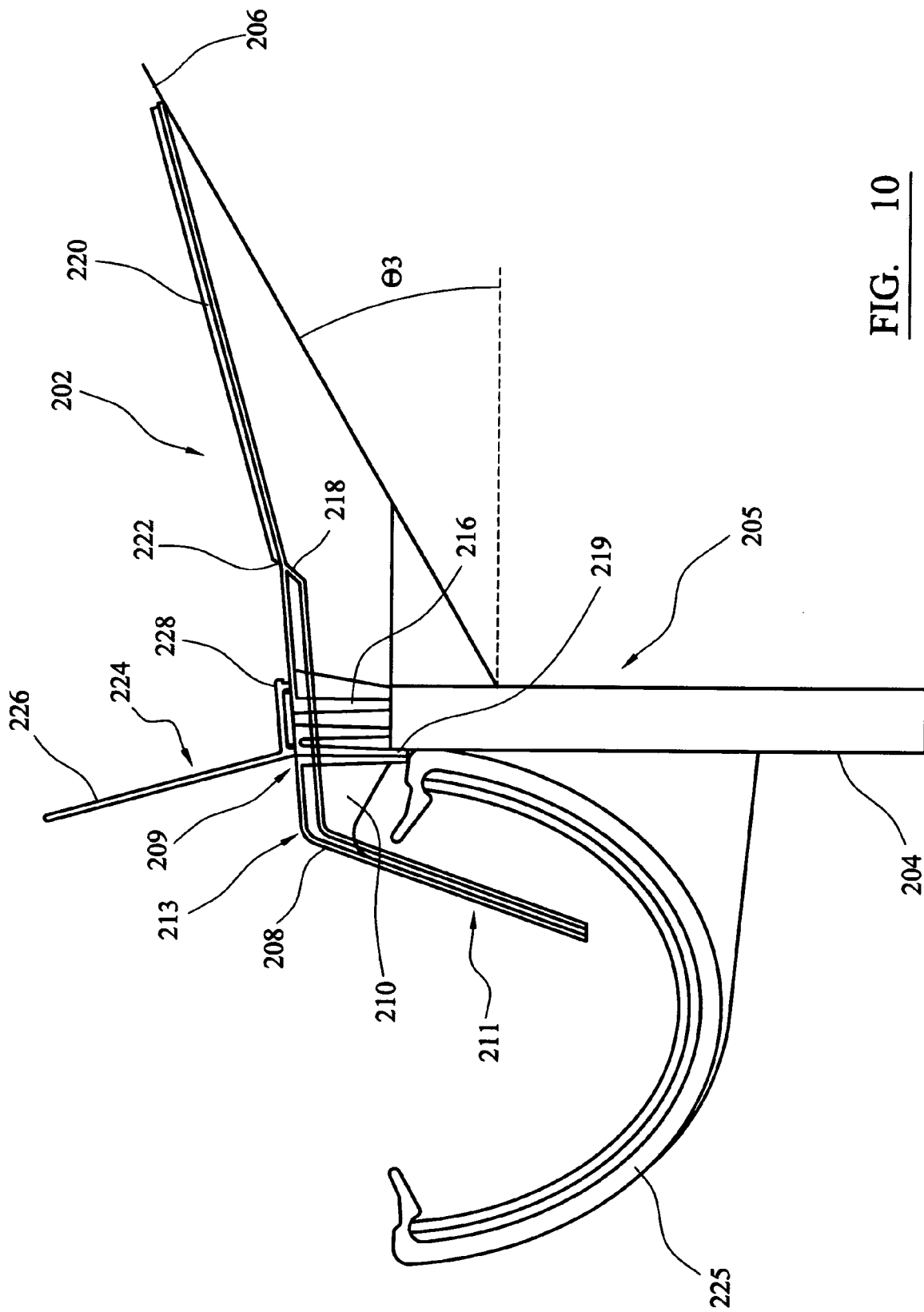


FIG. 10

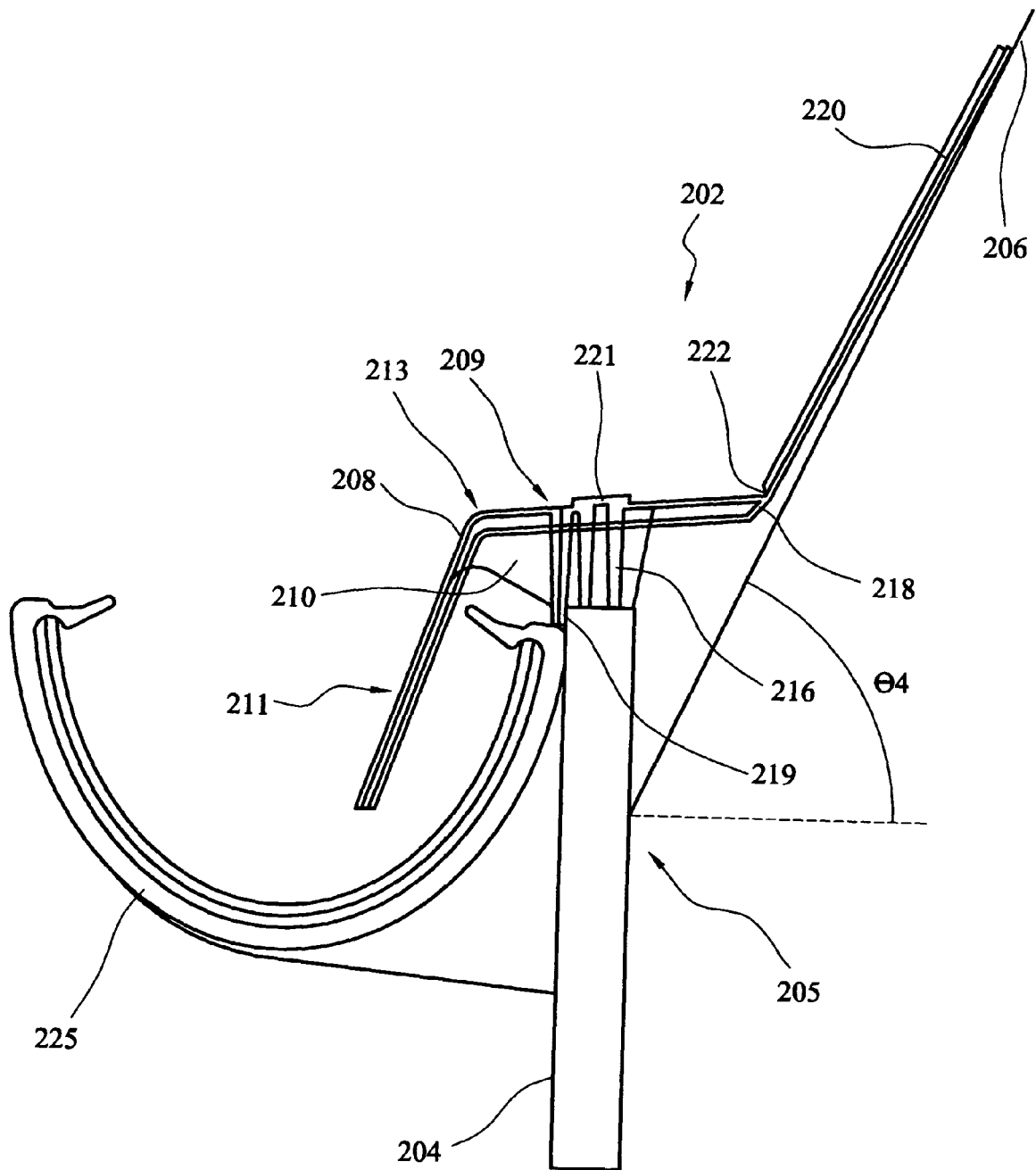


FIG. 11

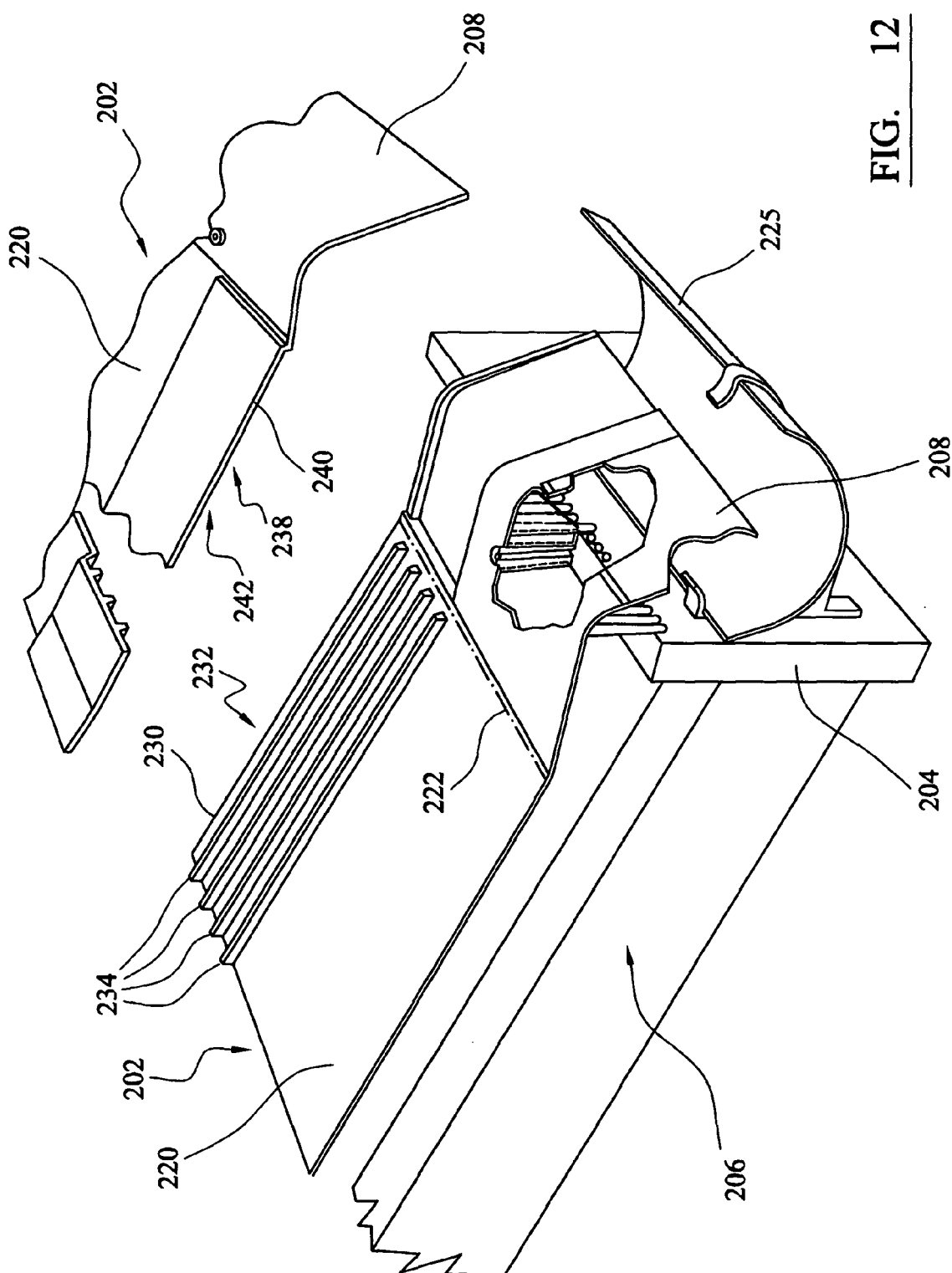


FIG. 12

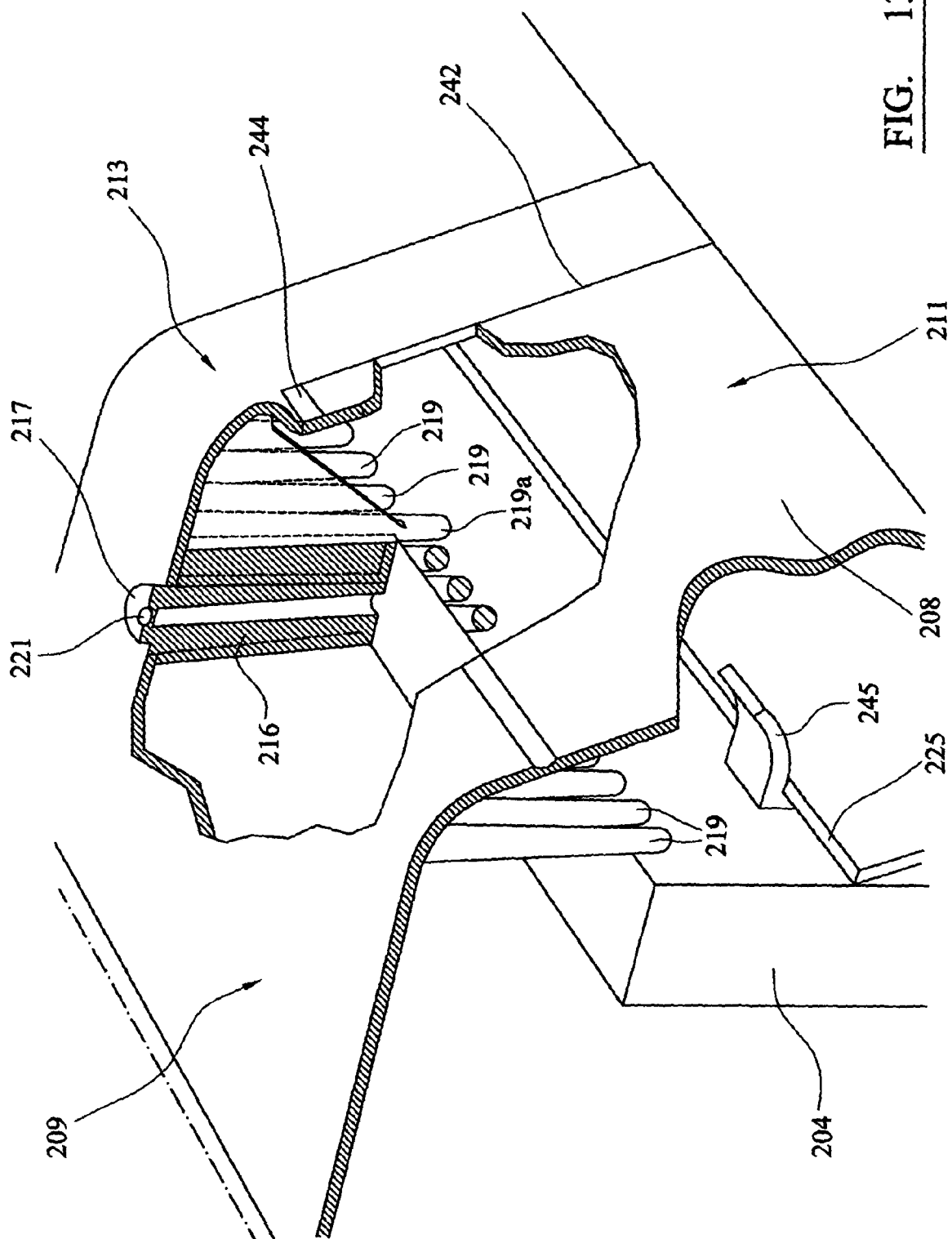


FIG. 13

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0340856 A [0005]