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(54) **ROOF EDGE WITH LIGHTING ELEMENT**

(57) The invention concerns a roof edge comprising a decor plate, a subprofile, and a connection between the decor plate and the subprofile, wherein the subprofile comprises a lighting channel configured for accommodating a lighting element.

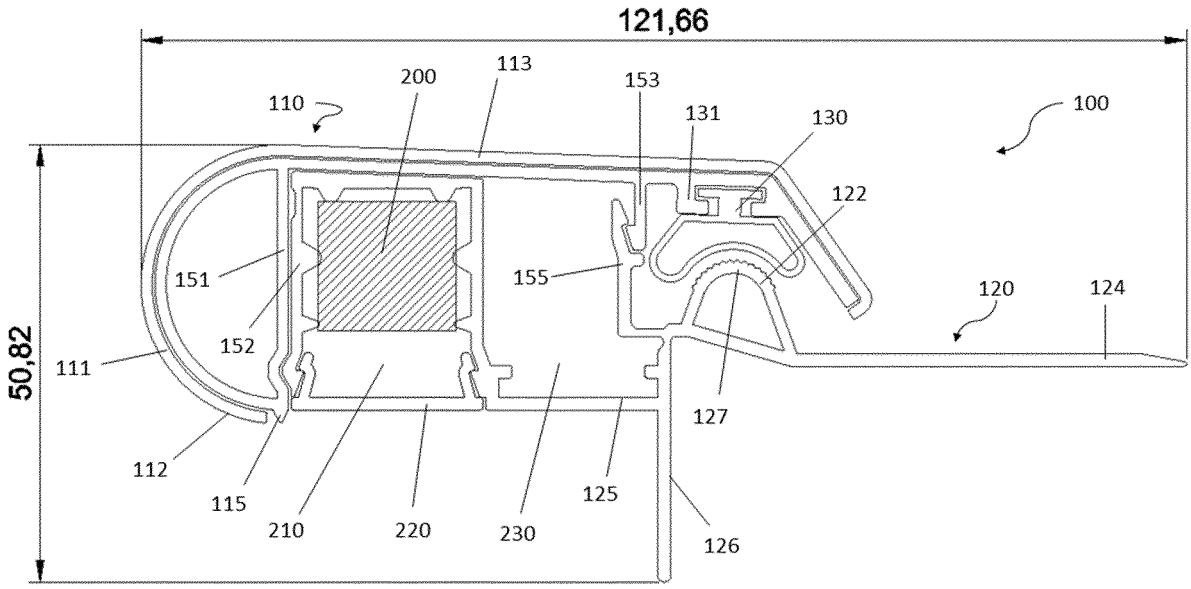

FIG. 6

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Description

TECHNICAL FIELD

[0001] The invention concerns roof edges with a lighting element and a related kit of parts.

TECHNOLOGICAL BACKGROUND OF THE INVENTION

[0002] Roof edges are a common construction element. They are used inter alia to protect walls against rainwater and create a watertight connection between a horizontally arranged roof seal and the vertically constructed façade. They also have an aesthetic function for the outer skin of a building. Some existing roof edges comprise a subprofile and a decor plate which can be fastened together. The subprofile fixes the decor plate to the roof, and the decor plate determines the appearance of the roof edge. Such roof edgings are easy to produce and exist in all sorts of materials and forms.

[0003] Usually, there is need for aesthetic and/or functional lighting in the vicinity of these profiles. A lighting element may also be integrated in the roof edge. This allows the illumination of one or more façades in an efficient and aesthetic manner.

[0004] However, in existing roof edges, the subprofile and the decor plate cannot always be easily connected together. A compromise must be found between the ease with which the subprofile and decor plate can be connected together, and the robustness of the connection between the subprofile and decor plate. In particular if an additional lighting element is provided in the roof edge, installation becomes more difficult. The wiring required for this brings new problems, such as the need for a better seal and the need for the presence of an electrical specialist.

[0005] Because the present systems are not integrated, the installer must himself always ensure that all parts purchased separately are compatible with one another and fit together.

[0006] Thus there is a need for roof edges with an integrated lighting element, in which the parts can easily be connected together. There is also a need for roof edges with an integrated lighting element, in which the connection between the components is very robust. There is also a need for roof edges with an integrated lighting element with a good appearance from every perspective. There is also a need for roof edges with an integrated lighting element which efficiently protect the walls against rainwater. There is furthermore a need for roof edges with an integrated lighting element which can be installed easily, quickly and efficiently. There is furthermore a need for roof edges with an integrated lighting element with excellent resistance to deformation.

SUMMARY

[0007] The invention and preferred embodiments offer a solution to one or more of the above-mentioned needs.

[0008] Thus a roof edge is provided comprising a decor plate, a subprofile, and a connection between the decor plate and the subprofile, wherein the subprofile comprises a lighting channel configured for accommodating a lighting element.

[0009] The present invention offers a definitive solution in which the attachment of the roof seal is easily implemented in a base profile which is already provided with lighting and wiring. The electrical connection need merely be made by the electrician inside the building. The present invention also provides a recyclable (removable) system in which all residual streams can easily be recycled separately.

[0010] In some preferred embodiments, the subprofile comprises a cable duct.

[0011] In some preferred embodiments, the connection comprises a support plate, a connecting plate, and a clamping element. Preferably, the connecting plate is clamped against the support plate by clamping of the clamping element.

[0012] In some preferred embodiments, the clamping element clamps against a support rib. Preferably, the support rib forms a first upright wall of a cable duct. Preferably, the clamping element and the support rib form a click-fastening system, preferably via a clamping tooth.

[0013] In some preferred embodiments, the connecting plate forms part of an upright wall of the lighting channel.

[0014] In some preferred embodiments, the roof edge comprises a cover plate, configured for covering the lighting channel, wherein the cover plate is translucent or transparent.

[0015] In some preferred embodiments, the cover plate can be click-fastened to the lighting channel.

[0016] In some preferred embodiments, the decor plate, preferably a top part of the decor plate, is translucent or transparent.

[0017] A decor plate is also provided for a roof edge as described herein. The decor plate preferably comprises a support plate and a clamping element, wherein there is sufficient distance between the support plate and the clamping element to accommodate a lighting channel and a cable duct.

[0018] A subprofile is also provided for a roof edge as described herein. The subprofile preferably comprises a lighting channel, configured for accommodating a lighting element.

[0019] In some preferred embodiments, the subprofile comprises a cable duct.

[0020] A method is also provided for installing a roof edge as described herein on a substrate. The method preferably comprises the steps of:

- providing a first part of a substrate;

- placing of one or more subprofiles on the substrate, wherein preferably a lighting element and/or a supply cable are integrated in advance in one or more subprofiles;
- optionally, providing a second part of a substrate;
- fixing of the one or more subprofiles to the substrate;
- arranging a roof covering on the subprofile; and,
- fixing of one or more decor plates to the one or more subprofiles.

[0021] The present invention provides for installation without the need for gluing and/or bonding by heating the roof seal. By integrating the supply cable and/or the lighting element in advance, for example in the factory, the installer need merely mechanically attach the subprofiles.

[0022] In some preferred embodiments, the second part of a substrate is slid under the one or more subprofiles.

[0023] A kit of parts is also provided, comprising a decor plate as described herein, and a subprofile as described herein.

[0024] In some preferred embodiments, the kit furthermore comprises a lighting element and a supply cable; the kit preferably comprises a cover plate.

[0025] In some preferred embodiments, the kit furthermore comprises instructions for performing a method for installing a roof edge as described herein, preferably the method as described herein.

DESCRIPTION OF THE FIGURES

[0026] To better illustrate the features, structures or characteristics of the present invention, the appended drawings show - without restrictive character - some preferred embodiments of the present invention. The following description of the appended figures is merely illustrative in nature and not intended to restrict the present art, its application and/or usage. The numbering used in the appended figures serves for easier identification of specific elements without restricting the shown elements and/or embodiments of the present invention thereto.

FIG. 1 shows a 3D illustration of a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention.

FIG. 2 shows a 3D illustration of a top view of a subprofile (120) for a roof edge (100) according to a preferred embodiment of the invention.

FIG. 3 shows a 3D illustration of a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention.

FIG. 4 shows a 3D illustration of a top view of a subprofile (120) for a roof edge (100) according to a preferred embodiment of the invention during a method according to a preferred embodiment of the invention.

FIG. 5 shows a 3D illustration of a top view of a subprofile (120) for a roof edge (100) according to a preferred embodiment of the invention during a method according to a preferred embodiment of the invention.

FIG. 6 shows a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention.

FIG. 7 shows a 3D illustration of a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention.

FIG. 8 shows a 3D illustration of a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention.

[0027] Throughout the figures, the following numbering is used:

100 - roof edge;

110 - decor plate; 111 - outer part of decor plate; 112 - bottom part of decor plate; 113 - top part of decor plate; 115 - protrusion; 117 - serrated lower edge of decor plate;

120 - subprofile; 122 - top end of subprofile; 124 - contact face; 125 - support face; 126 - facade lip; 127 - serrated upper edge of top end of subprofile;

130 - rubber seal; 131 - seal holder;

150 - fixing mechanism; 151 - support plate; 152 - connecting plate; 153 - clamping element; 154 - serrated connecting face; 155 - support rib;

200 - lighting element; 205 - supply cable; 210 - lighting channel; 215 - cavity in lighting channel; 220 - cover plate; 230 - cable duct; 235 - cavity in cable duct;

300 - substrate; 301 - first part of substrate; 302 - second part of substrate; 310 - roof covering.

DETAILED DESCRIPTION

[0028] Before the aspects and embodiments of the present invention are described, it must be understood that this invention is not restricted to specific systems, methods and/or combinations as described herein, since such aspects and embodiments may naturally vary. It should also be clear that specific aspects and embodiments described herein are not intended to be restrictive,

since the scope of the present invention is determined solely by the appended claims. Reference signs in the present description and in the appended claims are also not restrictive for the scope of the present invention.

[0029] The terms "comprise", "comprises", "comprising" as used below are synonymous with "inclusive", "include", "including", or "contain", "contains", "containing", and are inclusive or open and do not exclude additional unnamed parts, elements, components and/or method steps. Where reference is made to specific parts, elements, components and/or method steps in a specific embodiment of the present invention, the possible presence of other parts, elements, components and/or method steps is not excluded.

[0030] The singular forms "a " and "the" comprise both the singular and the plural unless the context clearly indicates otherwise.

[0031] Sequential terms such as "first", "second", "third" etc. are used in the present description and in the appended claims to distinguish between comparable elements, and not necessarily to describe a sequential or chronological order unless clearly indicated to the contrary. It is clear that these terms are interchangeable under the correct circumstances and that the embodiments of the invention described in this application are able to function in orders other than that described or explained in this application.

[0032] The term "approximate" in the present description and in the appended claims is used to offer flexibility to a numerical range by determining that a specific value may lie "a bit above" or "a bit below" a stated value or numerical range. For example, if reference is made to a measurable value such as a parameter, a quantity, a time duration etc., it is intended to include variations of +/- 10% or less, preferably +/- 5% or less, more preferably +/- 1% or less, and even more preferably +/- 0.1% or less, of and from the specified value, insofar as these variations are able to function in the invention described herein. It should be understood that the value to which the term "approximate" refers is also disclosed in itself. The listing and/or summary of numerical values using a digit range includes all numbers and fractions which fall within the associated ranges, including the specified end points.

[0033] The terms "substantially", "mainly" or "roughly" refer to the complete or almost complete scope or degree of an action, feature, property, state, structure, object and/or result. For example, an object which is "mainly" enclosed means for example that the object is completely or almost completely enclosed. For example, an object which stands "roughly" perpendicularly means for example that the object stands completely or almost completely perpendicularly to a reference plane. The exact permissible extent of deviation from absolute completeness may in some cases depend on the specific context. In general however, the extent of fulfilment is such that the general result is the same as with absolute and total fulfilment. The use of "mainly" is equally applicable if used in a negative connotation to refer to the complete or almost complete absence of an action, feature, property, state, structure, object or result. For example, a composition which is "roughly free" from particles may be completely free from particles or almost free from particles, such that the effect would be the same as if the composition were completely free from particles. In other words, a composition which is "roughly free from" an ingredient or element may still contain such an ingredient or element if there is no measurable effect thereof.

[0034] Relative terms such as "left", "right", "in front of', "behind", "above", "below" etc. are used in the present description and in the appended claims for descriptive purposes and not necessarily to describe permanent positions or orientations, depending on the context in which these terms are used. It is understood that the terms used may, under suitable circumstances, be mutually interchangeable, so that the embodiments described herein may for example also be used in positions or orientations other than those shown. The terms "adjacent to", "next to" or "against" one another are used in the present description and in the appended claims for descriptive purposes and not necessarily to describe permanent positions, depending on the context in which these terms are used. For example, objects which are described as "adjacent to" each other may be in physical contact with each other, or in each other's immediate vicinity, or in the same general region or area, depending on the context in which the term is used.

[0035] In the following passages, various aspects of the invention are defined in more detail. Each aspect so defined may be combined with another aspect or aspects unless the contrary is clearly indicated. In particular, a feature described as "preferred" or "advantageous" may be combined with other features or properties which are described as "preferred" and/or "advantageous". A reference in this description to "one embodiment" or "an embodiment" means that a particular function, structure or characteristic described in connection with the embodiment is applicable in at least one embodiment of the present invention. Where the phrases "in one embodiment" or "an embodiment" appear at different points in this specification, they do not necessarily refer to the same embodiment, although this is not excluded. Also, the described features, structures or characteristics may be combined in any suitable fashion, as will be clear to the person skilled in the art on the basis of this description. The embodiments described and claimed in the claims may be used in any combination.

[0036] In the present description, reference is made to the appended drawings which form part thereof and which illustrate specific embodiments of the invention. References in brackets or in bold linked to specific elements illustrate the elements concerned as examples, without thereby restricting the elements. It must be understood that other embodiments may be used, and structural or logical changes may be made, without leaving the scope of the present invention. The following de-

tailed description should not be regarded as restrictive, and the scope of the present invention is defined by the appended claims.

[0037] Unless defined otherwise, all terms as used in the present description and in the appended claims, including technical and scientific terms, have the meaning usually understood by the person skilled in the art. As a further guidance, definitions are included for further explanation of terms which are used in the description of the invention. All documents which are mentioned in the present description are hereby included as a whole by reference.

[0038] A roof edge is described herein which comprises a decor plate and a subprofile. A connection is provided between the decor plate and the subprofile. The subprofile comprises a lighting channel configured for accommodating a lighting element.

[0039] Such a roof edge has the advantage that the lighting can easily be installed by only one installer, and that the seal can be mounted directly. An electrician is no longer required since he need merely finish the connections inside the building. The present roof edge provides an integrated solution which be installed rapidly, easily and safely. The device can also be removed rapidly, easily and safely, and is thereby recyclable. A watertight seal to IP 67 can be guaranteed for the lighting. The roof covering such as EPDM can be applied without adhesive using the clamping principle, wherein silicone and other residual materials can be avoided.

[0040] Integrating the lighting in this profile not only ensures aesthetic improvement but also has a functional purpose. With this integration, the roof/wall can be made watertight in one installation movement, and the wall/environment provided with functional lighting.

[0041] In some embodiments, the lighting channel comprises teeth configured for clamping the lighting element, for example an LED strip. The teeth are preferably dimensioned as failsafe, whereby they can still be used if the clamping of the lighting element is too low or too high. The lighting channel preferably comprises a rear wall and two side walls. In some preferred embodiments, one of the two side walls forms part of a connecting plate. In some preferred embodiments, another side wall also forms a side wall of the cable duct. The person skilled in the art will understand that other forms of the lighting channel are possible and that there is no restriction to this shape. The preferred shape however allows inclusion of a distance between the LED and the diffuser (plastic cover plate), which benefits the distribution of the light. The person skilled in the art will understand that another LED strip may be used which does not provide this distance but is also functional.

[0042] Preferably, the lighting channel has a width of at least 10 and at most 40 mm, preferably at least 20 and at most 30 mm. Preferably, the lighting channel has a height of at least 10 and at most 40 mm, preferably at least 20 and at most 40 mm, preferably at least 25 and at most 35 mm.

[0043] In some preferred embodiments, the lighting channel is accessible along the lower edge of the subprofile. This allows replacement of the lighting element without removing the subprofile from the roof.

[0044] Preferably, the lighting element comprises an LED strip. In some embodiments, the LEDs may be adjustable with respect to colour and/or light intensity (dimmable). LED strips have the advantage that the length can be adapted and they can be reconnected to IP 67 standard. The person skilled in the art can choose suitable LED strips, preferably with a guaranteed service life and retention of lumen value.

[0045] Preferably, the lighting element comprises ambient lighting which may serve as facade lighting. The lighting need not comprise functional lighting.

[0046] The slot-like opening of the lighting channel allows subsequent installation of an LED strip.

[0047] The lighting element, preferably an LED strip, is preferably already mounted in the factory. The installer has no further work to do here. The LED strip is preferably developed such that this can be cut at predefined positions in order to adapt the roof edge to the actual length of the roof.

[0048] A decor plate is also provided here for a roof edge as described herein. Embodiments of the decor plate are also embodiments of the roof edge, and vice versa. The decor plate preferably comprises a support plate and a clamping element, wherein there is sufficient distance between the support plate and the clamping element to accommodate a lighting channel and a cable duct, preferably at least 10 mm and at most 100 mm, preferably at least 20 mm and most 90 mm, preferably at least 30 mm and most 60 mm. This ensures an optimum clamping force.

[0049] Preferably, the decor plate has the properties described herein. Such a decor plate may be very efficiently attached to a subprofile, which facilitates installation of the roof edges. In some embodiments, the decor plate consists of aluminium. Such decor plates have excellent weather resistance.

[0050] The decor plate preferably comprises a protrusion for discharge of rainwater. The decor plate is connected to the subprofile, preferably by means of a connection as described above.

[0051] The term "protrusion" as used herein refers to a rib which is arranged on the lowest part of the decor plate. In some embodiments, the protrusion has a width between 0.0 cm and 2.0 cm, or between 0.1 cm and 1.9 cm, or between 0.5 cm and 1.5 cm, and/or a height between 0.0 cm and 2.0 cm, or between 0.1 cm and 1.9 cm, or between 0.5 cm and 1.5 cm.

[0052] Rainwater which runs off the decor plate flows onto the protrusion and then falls down. Preferably, the protrusion is arranged on the lowest part of the decor plate, for example around 40 mm from the vertical facade.

[0053] During normal use, the roof edge rests on a wall and the protrusion is situated at a safe distance from the wall, so that outflowing water falls down at a safe distance

from the wall. The distance between the wall and the facade lip during normal use is determined by the distance between the protrusion and the facade lip. In some embodiments, the distance between the facade lip and the protrusion is equal to 10.0 mm to 20.0 mm, 12.0 mm to 16.00 mm, or around 14.00 mm. This ensures that the wall remains dry.

[0054] In some embodiments, the roof edge comprises several decor plates with joints inbetween. In these embodiments, the joints between two adjacent decor plates are preferably sealed by means of one or more joint clips.

[0055] In some embodiments, the decor plate comprises 2 parts. A first part preferably comprises the functional elements, such as e.g. the protrusion, the clamping element or the seal holder. A second part preferably comprises a covering function. The second part is preferably placed above the first part.

[0056] A subprofile is also provided for a roof edge as described herein. Embodiments of the subprofile are also embodiments of the roof edge and vice versa. The subprofile preferably comprises a lighting channel configured for accommodating a lighting element.

[0057] Preferably, the subprofile comprises the characteristics described herein. A decor plate as described above may be efficiently arranged on such a subprofile.

[0058] In some embodiments, the subprofile comprises aluminium. Preferably, the subprofile is made of aluminium. Such subprofiles have an excellent weather resistance.

[0059] In some embodiments, the subprofile comprises a horizontal contact face and a vertical support face. In normal use, the contact face rests on the wall on which the roof edge is placed. In normal use, the support face is oriented vertically and is positioned against the wall on which the roof edge is placed.

[0060] In a preferred embodiment, the subprofile comprises a facade lip. In some embodiments, the decor plate comprises a facade lip. Preferably, the facade lip is arranged on the lowest part of the decor plate and/or the subprofile. The decor plate is connected to the subprofile, preferably by means of a connection as described above.

[0061] The term "facade lip" as used here refers to an ornamental plate which is a part of the decor plate or subprofile. In some embodiments, the facade lip has a length of 3.0 to 50.0 cm, from 4.0 to 25.0 cm, for example from 4.0 to 22.0 cm. In some embodiments, the facade lip is rectangular.

[0062] In normal use, the facade lip is oriented vertically and the facade lip is parallel to the wall on which the roof edge rests. Preferably, the facade lip is configured such that, in normal use, it lies close to the wall, wherein the term "close" preferably expresses a distance which is less than 6.0, 4.0 or 2.0 cm. The facade lip provides a visual screening of the interior of the roof edge, which improves the aesthetic properties of the roof edge.

[0063] In some embodiments, the roof edge comprises several subprofiles, and preferably a gap is left between two subprofiles placed next to one another, in order to absorb the thermal expansion of the profiles. In some embodiments, the subprofiles have a length between 1.0 and 5.0 m, or 2.0 and 4.0 m, or 2.5 and 3.5 m, or 3.0 m, and a gap is left between adjacent subprofiles of between 1.0 and 10.0 mm, or between 2.0 and 9.00 mm, between 3.0 and 8.0 mm, between 4.0 and 7.0 mm, or between 5.0 and 6.0 mm. Preferably, at least a 5.0 mm gap is left per 3.0 m subprofile.

[0064] In some preferred embodiments, the subprofile comprises a cable duct. Preferably, the cable duct has a width of at least 10 and most 40 mm, preferably at least 20 and most 30 mm. Preferably, the cable duct has a height of at least 10 and most 40 mm, preferably at least 20 and most 40 mm, preferably at least 25 and most 35 mm.

[0065] The cable duct may also here be referred to as a routing duct. The cable duct may run up to the connection point, which leads to a simpler connection.

[0066] The cable duct preferably comprises a rear wall and two side walls. In some preferred embodiments, the cable duct has one side wall in common with the lighting channel. This ensures a compact construction. The combined use of the side wall has advantages for the compactness of the profile. All chambers are brought as close together as possible, which ensures that the profile is easy to extrude and the material quantity remains minimal. In some preferred embodiments, a second side wall forms part of the support rib. This ensures a rigid and compact solution. The upright side wall and support rib ensure that the chambers do not deform during mounting and clamping of the decor plate.

[0067] With respect to dimensions, preferably a balance is found between size (as small as possible for aesthetic reasons) and functionality (large enough to accommodate cables and connectors).

[0068] In some embodiments, the supply cable is a standard copper cable with both live and neutral conductors, 12 V as standard, maximum 24 V.

[0069] In some preferred embodiments, the connection comprises a support plate, a connecting plate, and a clamping element. Preferably, the connecting plate is clamped against the support plate by clamping of the clamping element.

[0070] In some embodiments, the support plate and/or the clamping element comprises a click-fastening system. The presence of the lighting channel and cable duct increases the distance between the clamp at the front and the clamp at the support rib. The greater the distance, the more difficult the clamping. Clamping via a click-fastening system solves this problem.

[0071] In some embodiments, the support plate and the clamping element form parts of the decor plate, and the connecting plate is a part of the subprofile. A configuration in which the connecting plate is part of the decor plate, and in which the clamping element and support plate are parts of the subprofile, is also possible. In some embodiments, the clamping element is a clamping hook. In some embodiments, the clamping hook is a curved

part with a spring connection to the top part of the decor plate. In more preferred embodiments, the clamping element comprises a clamping tooth, preferably as a click-fastening system with the support rib.

[0072] Such roof edges are rigid, robust and very easy to assemble. It is sufficient to simply slide the decor plate over the subprofile so that the connecting plate slides between the support plate and the clamping element until the connecting plate is fixedly clamped between the support plate and the clamping element.

[0073] A roof edge with a limitedly visible front side is possible using said configuration. This guarantees watertightness and allows the limitedly visible front side.

[0074] Preferably, the support plate is substantially inflexible and the clamping element is configured as a spring. Also, preferably, the connecting plate is substantially inflexible. In this way, the connecting plate can be efficiently clamped between the support plate and the clamping element. The entire profile is dimensioned so as to guarantee maximum compactness, minimal material usage and optimum shape rigidity during extrusion and also during installation.

[0075] In some embodiments, the support plate and/or the connecting plate have a roughened surface. Preferably, the support plate and the connecting plate have a roughened surface. The roughening increases the friction between the connecting plate on one side and the support plate and/or clamping element on the other. One example of a suitably roughened surface is a serrated surface. Thus, in some embodiments, the support plate and/or the connecting plate comprise serrations; preferably, both the support plate and the connecting plate comprise serrations. The roughened surfaces of the connecting plate and the support plate are configured to engage in one another in order to form a connecting face. If the support plate and the connecting plate comprise serrations, the serrations of the support plate are configured to engage in the serrations of the connecting plate in order to form a serrated connecting face.

[0076] Preferably, the serrations are asymmetric. In these embodiments, the toothing of the serrations runs in a direction opposite to the extent direction of the roof seal.

[0077] In some preferred embodiments, the clamping element and the connecting plate both comprise serrations, and the serrations of the clamping element are configured to engage in the serrations of the connecting plate in order to form a serrated connecting face.

[0078] In some preferred embodiments, the support plate, the connecting plate and the clamping element all comprise serrations, and the serrations of the support plate and the clamping element are configured to engage in the serrations of the connecting plate in order to form serrated connecting faces.

[0079] The term "serrated surface" as used herein refers to a surface with alternating ribs and grooves. An alternative to the term "serrated surface" is "corrugated surface". In some embodiments, the serrated surface comprises successive ribs with a triangular cross-section, wherein the cross-section of each rib has a base which is between 0.0 mm and 2.0 mm, or between 0.1 mm and 1.9 mm, or between 0.5 mm and 1.5 mm long, and wherein the cross-section of each rib has a height which is between 0.0 mm and 2.0 mm, or between 0.1 mm and 1.9 mm, or between 0.5 mm and 1.5 mm high. In some embodiments, the tips of the triangular cross sections of the ribs are rounded, for example the rounding of the tips of the ribs describes a circle sector over an angle between 0.0° and 3.0°, or between 0.1° and 2.9°, or between 0.5° and 2.5°, or between 1.0° and 2.0°. By the provision of a surface roughness on the support plate and/or the connecting plate, the coefficient of friction between the support plate and the connecting plate is increased. Thus in an efficient fashion, a rigid connection can be formed between the decor plate and the subprofile. Serrations are easy to create, for example by means of extrusion, and allow an excellent mechanical connection to be created between the decor plate and the subprofile. Serrations improve the mechanical strength of the connection between the decor plate and a corresponding subprofile.

[0080] In some embodiments, the support plate and the clamping element are part of the decor plate, and the connecting plate is part of the subprofile.

[0081] In some embodiments, the support plate and the clamping element are each part of the subprofile, and the connecting plate is part of the decor plate.

[0082] In some embodiments, this subprofile has a top end which comprises a roughened surface. The lower edge of the top part of the decor plate also has a roughened surface. Preferably, these roughened surfaces are serrated. In these embodiments, the upper edge of the top end of the subprofile, together with the lower edge of the top part of the decor plate, cooperate in order to clamp the roof coverings efficiently. In particular, the roof covering is clamped between the serrated upper edge of top end of the subprofile one side and the serrated lower edge of the top part of the decor plate on the other. Thus roof coverings can be connected to the roof edge in a robust watertight fashion.

[0083] In some preferred embodiments, the clamping element clamps against a support rib. This allows the provision of more stability between the decor plate and the subprofile. Preferably, the support rib forms a first upright wall of a cable duct. This improves accessibility to the cable duct and makes it easier to carry out actions thereon. This also ensures improved compactness between the decor plate and the subprofile.

[0084] In some preferred embodiments, the connecting plate forms part of an upright wall of the lighting channel.

[0085] In some preferred embodiments, the roof edge comprises a cover plate, configured for covering the lighting channel. The cover plate is preferably at least partly light-permeable (translucent, semi-opaque) or transparent. This ensures that in daylight, for example, the lighting

element is not visible. A cover plate also ensures a more diffuse spread of the light. A cover plate also protects the lighting element against weather factors. In some embodiments, the cover plate is click-fastenable, preferably click-fastened to the lighting channel, thereby (partially) closing the lighting channel.

[0086] In some embodiments, the cover plate is at least partially non-transparent. Such a cover plate may screen the lighting element selected, whereby patterns may be created on the wall.

[0087] The cover plate may also be referred to herein as a diffuser. The purpose of the diffuser is to distribute the emitted light. This is important for example at positions where two LED strips are interrupted.

[0088] By use of a diffuser, the visual interruption of the LED will be minimal. The cover plate is preferably made of plastic, but alternatively may be made of metal, for example a metal mesh or grille. Preferably, the cover plate is semi-opaque and/or transparent black.

[0089] In some preferred embodiments, the cover plate is click-fastened to the lighting channel.

[0090] In the case of profiles installed without lighting, the person skilled in the art may install a non-transparent aluminium version of the cover plate. For example, in areas in which the LED is not required, the person skilled in the art may install a closed profile which however has the same cross-section as the zone in which the LED is installed. The form of the diffuser is a consequence of the aluminium profile and will therefore change if alternative forms are used for the aluminium profile.

[0091] In some preferred embodiments, the decor plate is at least partially light-permeable (translucent, semi-opaque) or transparent. Preferably , the top part of the decor plate is at least partially light-permeable. This ensures a more diffuse spread of the light upward. In some embodiments, the decor plate, preferably the top part of the decor plate, is at least partially non-transparent. Such a decor plate may screen the lighting element at selected positions, whereby patterns can be created. The decor plate may also here be referred to as a diffuser. The purpose of the diffuser is to distribute the emitted light. This is important for example at positions where two LED strips are interrupted. By use of a diffuser, the visual interruption of the LED will be minimal. The decor plate, or the top part thereof, may be made of plastic but alternatively may be made of metal, for example a metal mesh or grille.

[0092] In some embodiments, the lighting channel comprises one or more cavities for the supply cable. In some embodiments, the cable duct comprises one or more cavities for the supply cable. In this way, the supply cable can be conducted from the subprofile to the inner edge of the building shell.

[0093] Such a cavity is preferably a slot measuring around 10 cm in length. The size of the slot should preferably allow passage of the cable, for example 16 mm x 5 mm. In a preferred embodiment, the slot is positioned on the upper edge of the base profile so as to facilitate mounting and removal. Preferably, the extruded profiles are machined in the factory where extrusion takes place.

[0094] The lighting element is preferably supplied via a supply cable which preferably enters the lighting channel along a slot in the lighting channel. The supply cable may then be conducted along an optional cable duct to a new cavity. In some preferred embodiments, both cavities are arranged at the same location, whereby the supply cable need not run along the cable duct.

[0095] In some embodiments, no cavity is made in the lighting channel. In some embodiments, the cavity in the cable duct is not arranged at the same location as the coupling between the supply cable and the lighting element, so the supply cable runs along the cable duct.

[0096] The correlation of the cavities is not necessary and a different routing of cables is possible. The advantage of arranging the cavity on the top side of the subprofile, however, is easy installation and/or removal of the cables.

[0097] In some embodiments, the cavity in the lighting channel lies at the height of the lighting element. In some embodiments, the cavity in the cable duct lies at the height of the substrate. In some embodiments, the cavity lies in the lighting channel, preferably at the height of the lighting element, higher than the cavity in the cable duct, preferably at the height of the substrate. Preferably, the supply cable is flexible in order to absorb this height difference in the cable duct.

[0098] In some embodiments, the roof edge comprises a seal, preferably a rubber seal. This may be arranged between the lower edge of the decor plate, which is optionally serrated, and the top end of the subprofile, which is optionally serrated. In some embodiments, the decor plate and/or the subprofile comprise a seal holder.

[0099] In some embodiments, the decor plate and/or the subprofile consist of aluminium. Preferably, the decor plate and/or the subprofile are made of aluminium, which results in a roof edge with excellent weather resistance. In some embodiments, the lighting channel and/or the cable duct consist of aluminium. Preferably, the subprofile, including the lighting channel and the optional cable duct, consist of one piece, for example one piece of extruded aluminium. The present invention may thus offer a watertightness of IP67 and guaranteed durability thanks to the use of aluminium.

[0100] In comparison with roof edges from the prior art, for example roof edges made of zinc, aluminium roof edges according to the present invention are extremely quick and easy to install.

[0101] In addition, the present aluminium roof edges have excellent resistance against deformation. This is particularly true if the roof edges are made of extruded medium.

[0102] In some embodiments, the subprofile is prepunched. Thus, a roofer need not drill the subprofile himself during installation.

[0103] Preferably, the subprofile is made of aluminium and the subprofile is prepunched. Aluminium subprofiles

are difficult to drill on a building site. So prepunched aluminium subprofiles are much easier to install than aluminium subprofiles which are not prepunched.

[0104] In some embodiments, the subprofile and/or the decor plate are lacquered. If the subprofile and the decor plate are lacquered, they may have the same or different colours. Thus a desired appearance may be obtained. The colours of the decor plate and subprofile can easily be selected, independently of one another. For example, the subprofile can be produced in the colour of the facade on which it is placed.

[0105] A method is also provided for installing a roof edge as described herein on a substrate. Embodiments of the method are also embodiments of the roof edge and vice versa. The rapidity of installation and removal can be achieved by the specific sequence as described in the installation instructions.

[0106] The method preferably comprises the steps:

- providing a first part of a substrate;
- placing of one or more subprofiles on the substrate;
- arranging a supply cable along a subprofile and along the first part of the substrate; wherein preferably, a lighting element and/or a supply cable are integrated in advance in one or more subprofiles;
- optionally, providing a second part of a substrate;
- fixing of the one or more subprofiles to the substrate;
- arranging a roof covering on the subprofile; and
- fixing of one or more decor plates to the one or more subprofiles.

[0107] In some embodiments, the method comprises the step of integrating a lighting element and/or a supply cable in the one or more subprofiles in advance. This may take place during production of the subprofiles. It is an advantage of the method that installation can take place by a roofer. An electrician is only required for the final connection.

[0108] It is also an advantage of the invention that no scaffolding is necessary to work on the underside of the roof edge; everything can be done from the edge of the roof.

[0109] In some embodiments, the dimensions are specified in advance and the individual parts are custom-made.

[0110] In some preferred embodiments, the second part of a substrate is slid under the one or more subprofiles.

[0111] Each piece of supply cable is preferably finally connected to a roof passage (roof opening). This allows each light to be actuated individually.

[0112] Preferably, the substrate is contained in a roof, for example a flat roof or a sloping roof.

[0113] In some embodiments, joints between two adjacent decor plates are sealed by means of one or more joint clips.

[0114] In some embodiments, the subprofile is attached to the substrate using screws.

[0115] in some embodiments, the substrate is made of wood.

[0116] In some embodiments, the roof edge comprises several subprofiles which are placed next to one another on the substrate. In these embodiments, preferably a gap is left between two subprofiles positioned next to one another, in order to absorb the thermal expansion of the profiles.

[0117] In some embodiments, the roof covering is bonded to the subprofile. This has the advantage that a roofer can seal a roof with just a single layer of roof covering.

[0118] A kit of parts is also provided, comprising a decor plate as described herein, and a subprofile as described herein. Embodiments of the kit are also embodiments of the roof edge and vice versa. Roof edges can be assembled highly efficiently with such a kit.

[0119] In some preferred embodiments, the kit furthermore comprises a lighting element and a supply cable; the kit preferably comprises a cover plate. Possibly, the kit is custom-made. Preferably, the lighting element and/or the wiring in the kit is already integrated in advance in the lighting channel and/or the cable duct (prewired).

[0120] In some embodiments, the kit comprises a seal, preferably a rubber seal. This may be arranged between the lower edge of the decor plate, which is optionally serrated, and the top end of the subprofile, which is optionally serrated. In some embodiments, the decor plate and/or the subprofile comprise a seal holder.

[0121] In some preferred embodiments, the kit furthermore comprises instructions for performing a method for installing a roof edge as described herein, preferably the method as described herein. Preferably, the kit contains a laying plan. Thus a roof edge is quickly assembled.

[0122] In some embodiments, the kit contains a corner piece. Preferably, the corner piece also contains a lighting element as described herein.

EXAMPLES

Example 1

[0123] By way of example, reference is made to Figures 1 and 2. Figure 1 shows a roof edge (100) which comprises a decor plate (110), a subprofile (120) and a lighting element (200). Figure 2 shows a top view of the subprofile (120) without the decor plate (110).

[0124] The decor plate (110) illustrated in Figure 1 determines the appearance of the roof edge (100) to passers-by and comprises an outer part (111), a bottom part (112) and a top part (113). The bottom part (112) of the decor plate (110) comprises a protrusion (115). The protrusion (115) is a linear rib on the bottom part (112) of the decor plate (110. Rainwater flowing off the decor plate (110) flows onto the protrusion (115) and then falls down. During normal use, the roof edge (100) rests on a wall and the protrusion (115) is situated at a certain distance from the wall, so that the draining water flows downward

at a safe distance from the wall. This ensures that the wall remains dry.

[0125] The subprofile (120) comprises a horizontal contact face (124) and a vertical support face (125). In normal use, the contact face (124) rests on the wall on which the roof edge is placed. In normal use, the support face (125) is oriented vertically and is positioned against the wall on which the roof edge rests.

[0126] The subprofile (120) of the roof edge (100) rests on a wall in normal use. The subprofile (120) comprises a top end (122). The upper edge (127) of the top end of the subprofile (120) is serrated and cooperates with the lower edge (117) of the top part (113) of the decor plate (110) in order to clamp the roof covering efficiently. In particular, the roof covering is clamped between the serrated upper edge (127) of the top end (122) of the subprofile (120) on one side and the serrated lower edge (117) of the top part (113) of the decor plate (110) on the other.

[0127] The decor plate (110) and the subprofile (120) are connected together by means of a fixing mechanism (150). The fixing mechanism (150) comprises a support plate (151), a connecting plate (152) and a clamping element (153, in this case a clamping hook. The connecting plate (152) is clamped between the support plate (151) and the clamping element (153). In **Figures 1 and 2,** the connecting plate (152) is part of the subprofile (120), and the support plate (151) and the clamping element (153) are parts of the decor plate (110). However, in an alternative configurations, the connecting plate (152) is a part of the decor plate (110, and the support plate (151) and clamping element (153) are parts of the subprofile (120).

[0128] To create the connection, the connecting plate (152) is inserted and then clamped against the support plate (151) by clamping of the clamping element (153) against a support rib (155). The hook shape of the clamping element (153) facilitates the sliding of the connecting plate (152) between the support plate (151) and the clamping element (153).

[0129] The support plate (151) and the connecting plate (152) are both serrated. The clamping of the connecting plate (152) and the support rib (155) between the clamping element (153) and the support plate (151) causes the serrations of the connecting plate (152) to grip on the serrations of the support plate (151) in order to form a serrated connecting face (154), so that a rigid connection is formed between the decor plate (110) and the subprofile (120).

[0130] The roof edge (100) also comprises a lighting element (200) which is arranged in a lighting channel (210). The lighting channel (210) comprises a rear wall and two side walls. In **Figures 1 and 2,** one of the two side walls forms part of the connecting plate (152), while the other side wall also forms a side wall of the cable duct (230). The lighting element (200) is supplied via a supply cable (205) which enters the lighting channel (210) at a cavity (215). The supply cable (205) may then be conducted along an optional cable duct (230) to a new cavity (235). In **Figures 1 and 2,** both cavities (215, 235) are arranged at the same location, whereby the supply cable (205) need not run along the cable duct (230).

[0131] The cable duct (230) also comprises a rear wall and two side walls. In **Figures 1 and 2,** the cable duct (230) has one side wall in common with the lighting channel (210), while the other side wall forms part of the support rib (155).

[0132] The lighting channel (210) also comprises a translucent cover plate (220) which can be click-fastened into the lighting channel (210).

Example 2

[0133] By way of further example, reference is made to **Figures 3 and 4. Figure 3** shows a roof edge (100) which comprises a decor plate (110), a subprofile (120) and a lighting element (200). **Figure 4** shows a top view of the subprofile (120) without the decor plate (110).

[0134] In **Figures 3 and 4,** there is no cavity in the lighting channel (215). The cavity in the cable duct (235) is also not arranged at the same location as the coupling between the supply cable (205) and the lighting element (200), so the supply cable (205) runs along the cable duct (230).

[0135] If necessary, the installer may himself provide a cavity in the subprofile (120) at a specific position, and feed the supply cable (205) through this. The position of the cavity is thus not restricted to the position of a previously made cavity (215, 235).

Example 3

[0136] By way of further example, a method for installing a roof edge (100) as provided herein is discussed, and illustrated in **Figure 5.**

[0137] The supply cable (205) is already connected by the manufacturer to the subprofiles (120). On installation, the installer correctly routes the supply cable (205) from the profile through the wood to the roof passage or into the air gap.

[0138] The method comprises the following steps:

- providing a first part of a (wooden) substrate (301);
- placing of one or more subprofiles (120) on the substrate (300); (illustrated in **Figure 5A)**
- providing a second part of a (wooden) substrate (302); for example, by sliding the second part of the substrate (302) under the one or more subprofiles (120); (illustrated in **Figure 5B);** in this figure, the supply cable lies loosely in the expansion joint of the substrate;
- fixing of one or more subprofiles (120) to the substrate (300); for example, by means of screws;
- arranging a roof covering (310) on the subprofile (120); thereby covering the first part (301) and the second part (302) of the substrate and the supply cable (205) (illustrated in **Figure 5C);**

- fixing of one or more decor plates (110) to the one or more subprofiles (120) (illustrated in **Figure 5D);** and
- optionally, arranging one or more joint clips for sealing between two adjacent decor plates (110).

[0139] By means of the joint clips, the joint between two adjacent decor plates (110) is neatly sealed.

[0140] The subprofile (120) is prepunched. This facilitates installation; when prepunched subprofiles (120) are used, a roofer need not drill through the subprofile (120) during installation.

[0141] The multiple subprofiles (120) are placed next to one another on the substrate (300). A gap is left between two subprofiles (120) which are placed next to one another, in order to absorb the thermal expansion of the subprofiles (120). In particular, in the present example, the subprofiles are 3.0 m long and a gap of 5.0 mm is left between adjacent subprofiles (120).

[0142] In this example, the roof covering (310) is bonded to the subprofile (120). This has the advantage that a roofer can seal a roof with just one single layer of roof covering (310). For roof edges (110) from the prior art which consist of one piece, however, flashing or an extra sealing strip of bitumen must be used. The term "flashing" refers to a thin piece of material which is not water-permeable. An example of suitable flashing is a vulcanised EPDM strip around 0.5 m wide.

[0143] Bonding to the subprofile (120) is not however necessary. The present invention allows the seal to be clamped to the roof edge without glue or other adhesive. The system is thereby removable and in particular recyclable.

[0144] Both the subprofile (120) and the decor plate (110) are lacquered in this example. They may be lacquered in the same or different colours so that a desired appearance can be obtained, for example a colour accent or an equal appearance. One possibility is that the subprofile (120) and/or the decor plate (110) are lacquered in the colour of the facade on which the roof edge (100) is placed.

Example 4

[0145] **Figure 6** illustrates a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention, with typical dimensions indicated in mm.

[0146] The roof edge (100) comprises a rubber seal (130). This is arranged between the lower edge of the decor plate (110), which comprises a seal holder (131), and the top end of the subprofile (122), which is serrated. This ensures firstly a watertight seal. Secondly, the rubber seal absorbs any height differences.

[0147] The decor plate (110) in **Figure 6** consists of 2 parts. A first part contains the functional elements such as the protrusion (115), the clamping element (153) and the seal holder (130). A second part has a covering function and is placed on top of the first part.

[0148] The support plate (155) and the clamping element (153) in **Figure 6** form a click-fastening system.

Example 5

[0149] **Figures 7 and 8** each show a 3D illustration along a lateral cross-section of a roof edge (100) according to a preferred embodiment of the invention. The roof edge (100) comprises a rubber seal (130). This is placed between the lower edge of the decor plate (110), which comprises a seal holder (131), and the top end of the subprofile (122), which is serrated (127). This ensures firstly a watertight seal. Secondly, the rubber seal absorbs any height differences.

[0150] The support plate (155) and the clamping element (153) in Figures 7 and 8 form a click-fastening system.

[0151] The supply cable (205) enters the cable duct (230) at a cavity (215) in the lighting channel (210), and exits the cable duct (230) at a cavity (235) in the cable duct. The cavity in the lighting channel (210) lies at the height of the lighting element (200). The cavity in the cable duct (235) lies at the height of the substrate (300).

Claims

1. Roof edge (100) comprising a decor plate (110), a subprofile (120), and a connection (150) between the decor plate (110) and the subprofile (120), wherein the subprofile (120) comprises a lighting channel (210) configured for accommodating a lighting element (200).

2. Roof edge according to Claim 1, wherein the subprofile (120) comprises a cable duct (230).

3. Roof edge according to Claim 1 or 2, wherein the connection (150) comprises a support plate (151), a connecting plate (152), and a clamping element (153), and wherein the connecting plate (152) is clamped against the support plate (151) by clamping of the clamping element (153).

4. Roof edge according to Claim 3, wherein the clamping element (153) clamps against a support rib (155), preferably wherein the support rib (155) forms a first upright wall of a cable duct (230), preferably wherein the clamping element (153) and the support rib (155) form a click-fastening system.

5. Roof edge according to Claim 3 or 4, wherein the connecting plate (152) forms part of an upright wall of the lighting channel (210).

6. Roof edge according to any one of Claims 1 to 5, furthermore comprising a cover plate (220), configured for covering the lighting channel (210); wherein

the cover plate (220) is translucent or transparent.

7. Roof edge according to any one of Claims 1 to 6, wherein the decor plate (110), preferably a top part (113) of the decor plate (110), is translucent or transparent.

8. Decor plate (110) for a roof edge (100) according to any one of Claims 1 to 6, the decor plate (110) preferably comprising a support plate (151) and a clamping element (153), wherein there is sufficient distance between the support plate (151) and the clamping element (153) to accommodate a lighting channel (210) and a cable duct (230).

9. Subprofile (120) for a roof edge (100) according to any one of Claims 1 to 6, the subprofile (120) preferably comprising a lighting channel (210) configured for accommodating a lighting element (200).

10. Subprofile (120) according to Claim 9, wherein the subprofile (120) comprises a cable duct (230).

11. Method for installing a roof edge (100) according to any one of Claims 1 to 7 on a substrate (300), the method comprising the steps of:

- providing a first part of a substrate (301);
- placing of one or more subprofiles (120) on the substrate (300); wherein preferably a lighting element (200) and/or a supply cable (205) are integrated in advance in one or more subprofiles (120);
- optionally, providing a second part of a substrate (302);
- fixing of the one or more subprofiles (120) to the substrate (300);
- arranging a roof covering (310) on the subprofile (120); and,
- fixing of one or more decor plates (110) to the one or more subprofiles (120).

12. Method according to Claim 11, wherein the second part of a substrate (302) is slid under the one or more subprofiles (120).

13. Kit of parts comprising a decor plate (110) according to Claim 8, and a subprofile (120) according to Claim 9 or 10.

14. Kit according to Claim 13, furthermore comprising a lighting element (200) and a supply cable (205); the kit preferably comprising a cover plate (220).

15. Kit according to Claim 13 or 14, furthermore comprising instructions for performing a method for installing a roof edge (100) according to any one of Claims 1 to 7, preferably the method according to Claim 11 or 12.

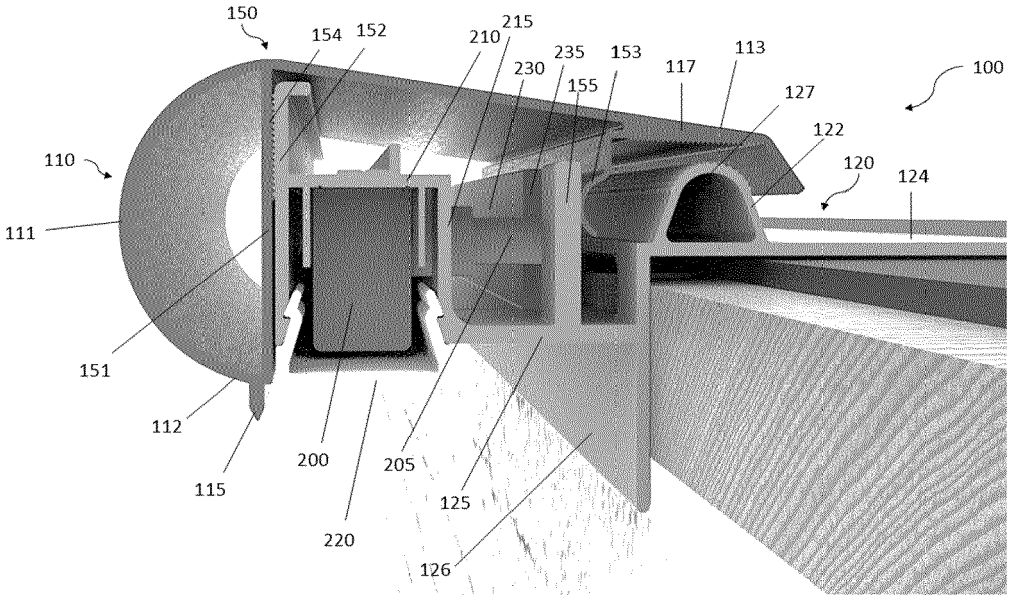
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FIG. 1

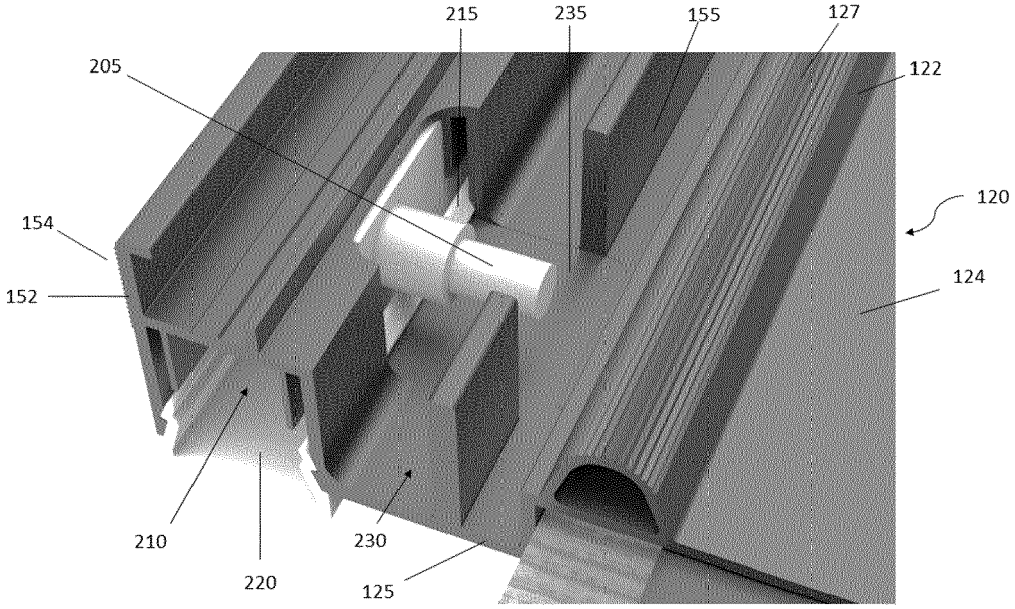
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FIG. 2

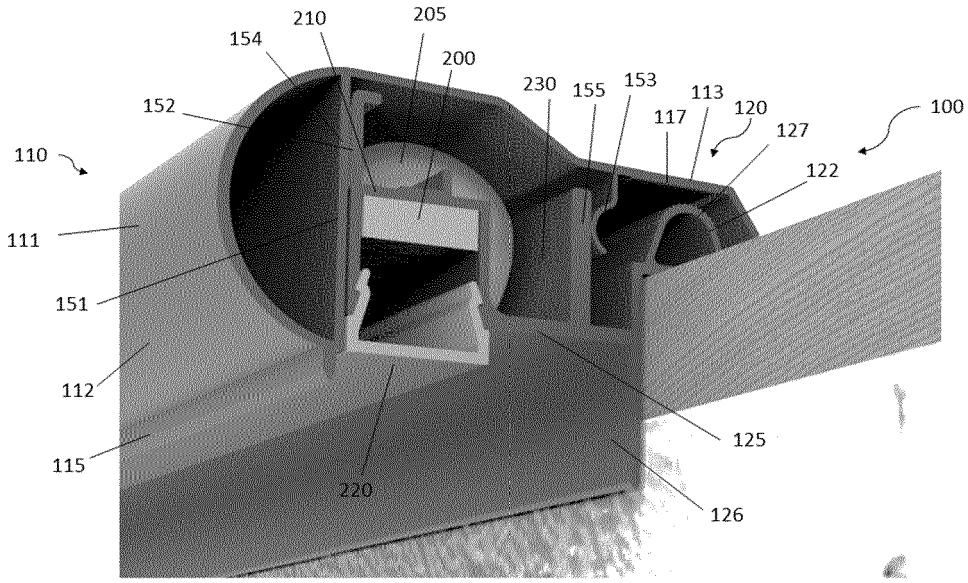
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FIG. 3

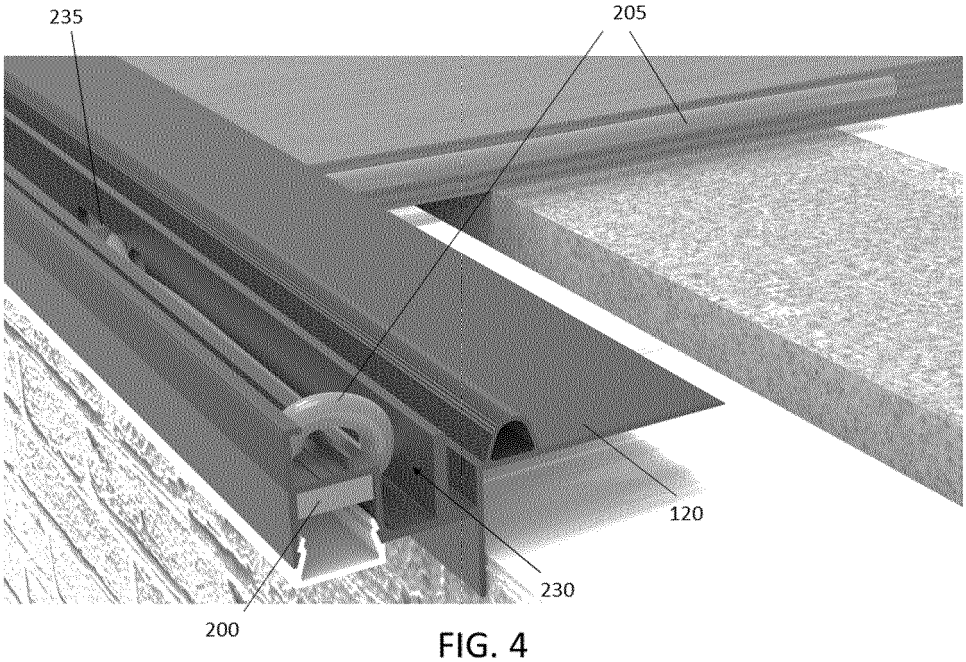
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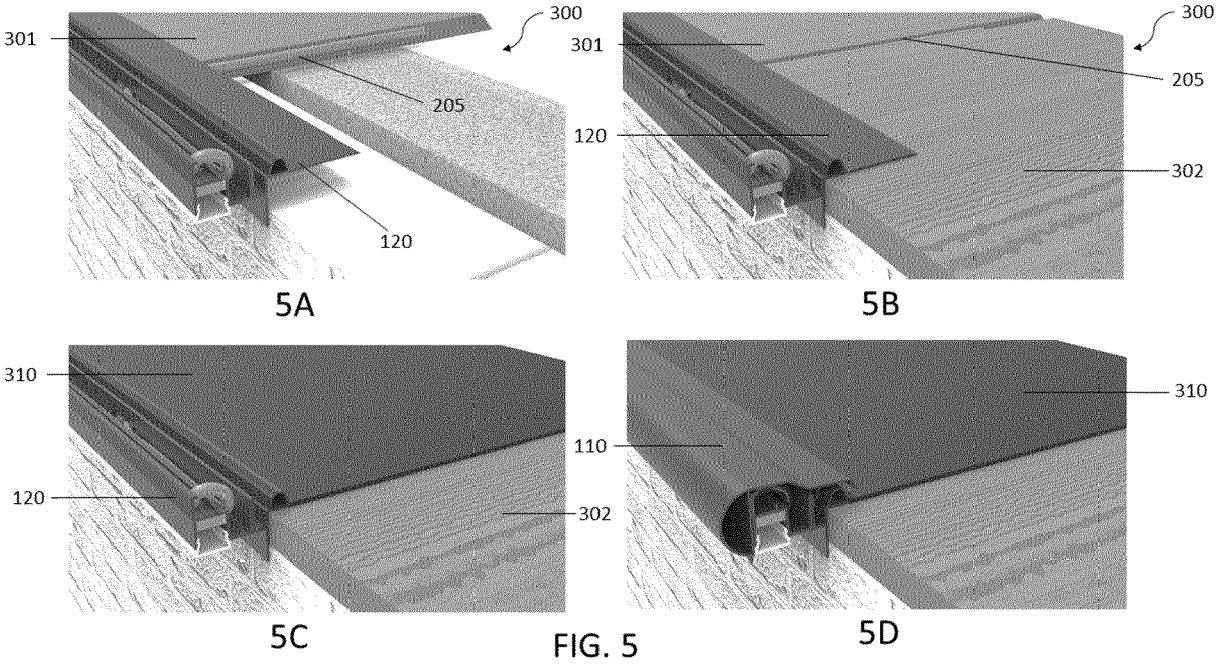
FIG. 4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5B
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5C
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5D

FIG. 5

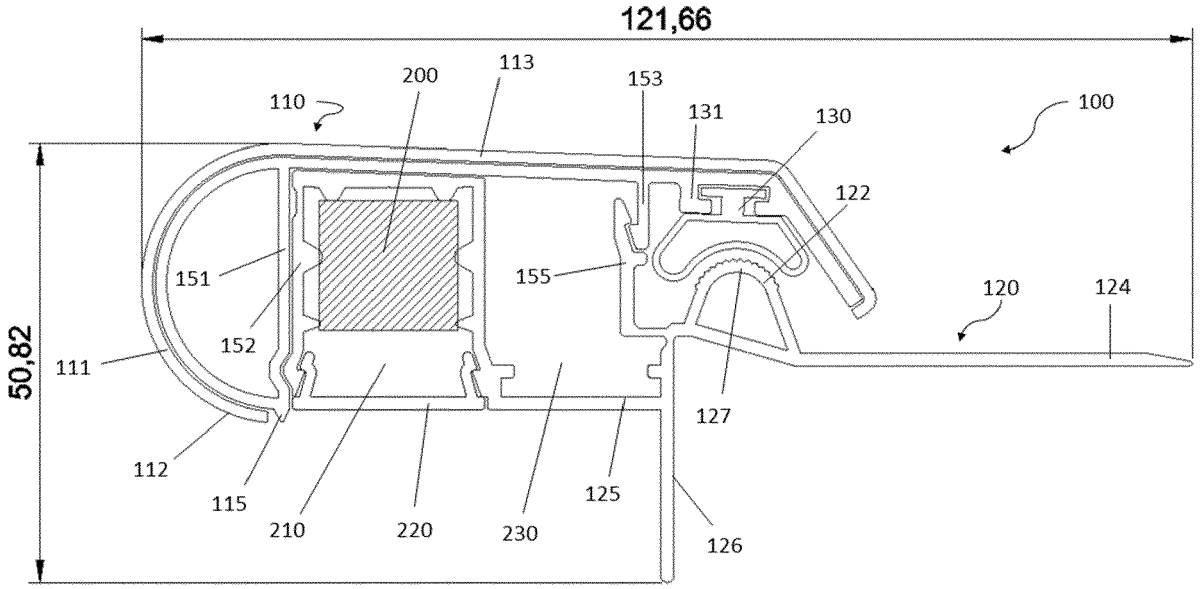
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FIG. 6

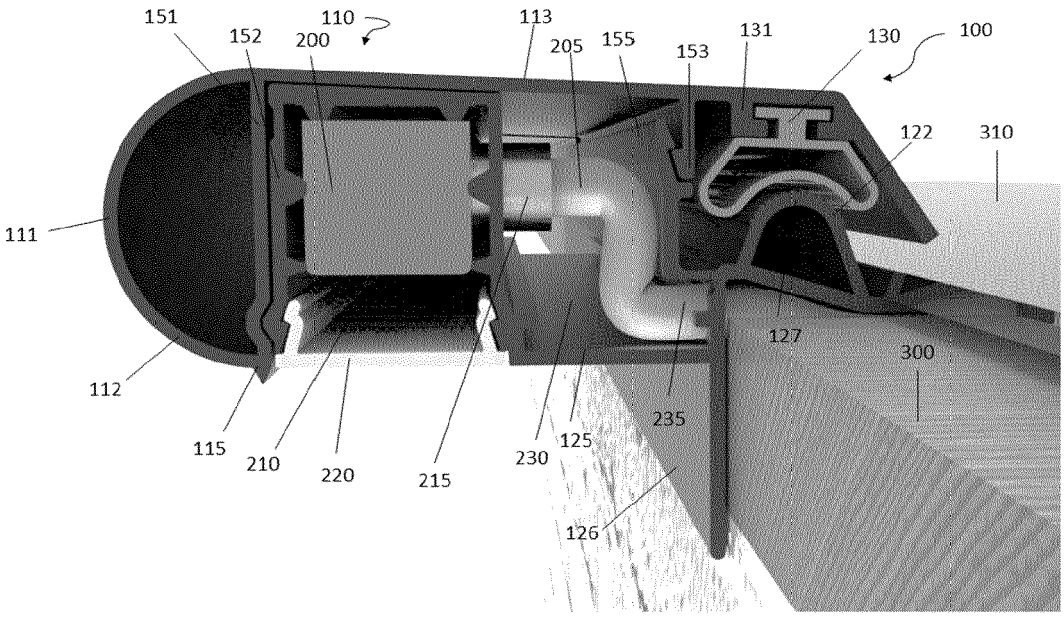
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FIG. 7

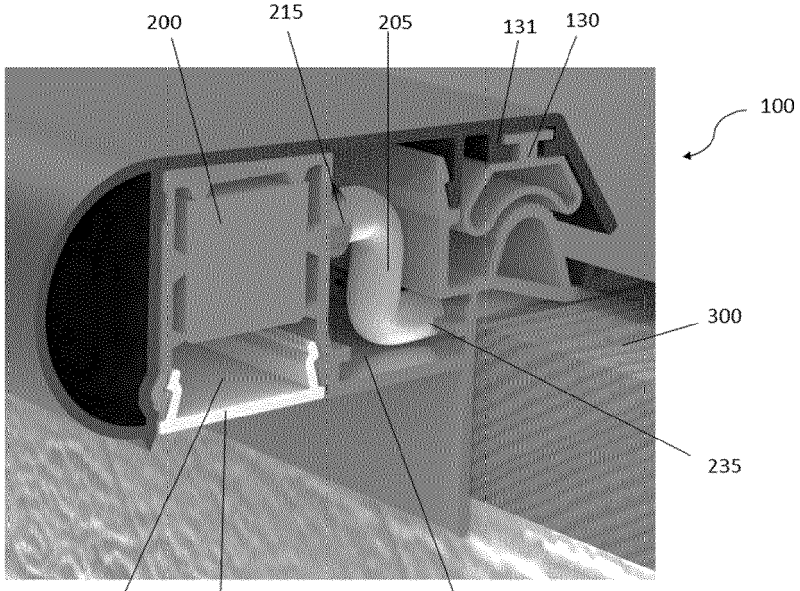
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FIG. 8

Europäisches Patentamt
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EUROPEAN SEARCH REPORT

Application Number
EP 22 18 1423

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	19 October 2022	Demeester, Jan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82