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(54) **INSTALLATION UNIT FOR FACILITATING THE INSTALLATION OF A WINDOW FRAME, A SEALING COLLAR, AND A METHOD FOR INSTALLING A WINDOW FRAME IN AN OPENING IN A ROOF STRUCTURE**

(57) An installation unit for facilitating the installation of a window frame in a roof structure is disclosed. It comprises an installation sheet and at least one insulation member attached to an outer side of the installation sheet. The installation unit is adapted for being arranged in the opening in the roof structure, such that it lines the opening and such that at least one insulation member is in contact with the roof structure. The installation unit may comprise more than one insulation member and/or form part of a sealing collar. In use, the installation unit is arranged in the opening in the roof structure with its length direction parallel to the roof plane, and when placing a window frame in the opening, the window frame comes into engagement with the inner side of the installation sheet.

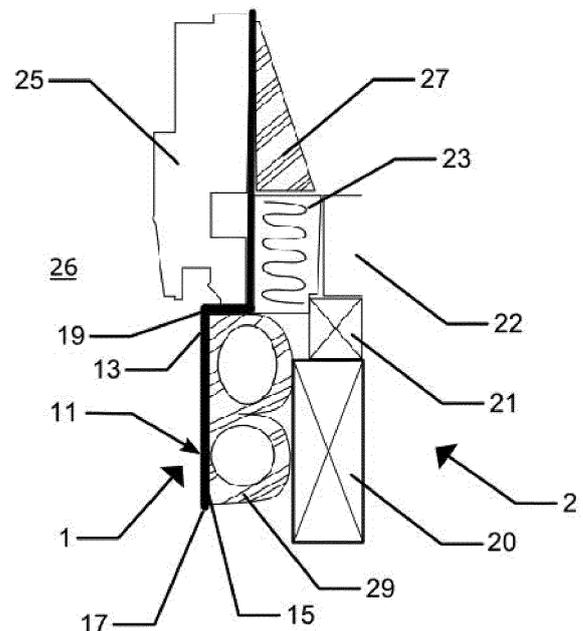


Fig. 2

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Description

Technical field

[0001] The present invention relates to an installation unit for facilitating the installation of a window frame in a roof structure. The invention further relates to a sealing collar including an installation unit for use when installing a window frame in a roof structure. The invention also relates to a method of installing a window frame in a roof structure using an installation unit for facilitating the installation.

Background art

[0002] When installing a window in a roof of a building, an opening is made in the roof structure to make room for the window and allow natural light to reach the interior of the building. The opening causes a reduction in the thermal insulation properties of the roof. To overcome this problem, the installation of the window often includes installing additional insulation members surrounding the window frame, either in the form of separate members or of an insulating frame composed of a plurality of insulation members. In order to achieve an optimal thermal insulation, the insulation members are arranged in tight connection with the window frame, typically by arranging them so that they extend into the opening prepared for the window in the roof structure.

[0003] The applicant's prior application EP2273028 describes an insulating frame composed of four insulation members for this use.

[0004] Unfortunately, having the insulation members extending into the opening complicates the installation process, making it more time consuming. It is therefore an object of the invention to provide an installation unit, which facilitates the installation of a window frame in an opening in a roof structure with an insulation member extending into the opening, and a method for installing a window frame.

Summary

[0005] According to a first aspect, the invention relates to an installation unit, which comprises an installation sheet and at least one insulation member, where the installation sheet has an inner side adapted for engagement with the window frame and an outer side opposite the inner side, where the inner side and outer side are meeting in an edge, where at least one insulation member is attached to the outer side of the installation sheet, extending in a length direction of the installation unit, and where the installation unit is adapted for being arranged in the opening in the roof structure with its length direction parallel to the roof plane, such that it lines the opening and such that at least one insulation member comes into contact with the roof structure.

[0006] By the installation unit lining the opening is un-

derstood that the installation sheet extends substantially orthogonally to the roof plane, extending into the roof structure.

[0007] The insertion of the window frame in the opening lined with the installation unit results in that an outwards force towards the roof structure is applied to the inner side of the installation sheet and thus causes the insulation member on the outer side to compress. This will result in a pressure, which ensures a tight contact between the window frame and the installation sheet and between the insulation member and the roof structure. The installation sheet thereby obtains a good thermal connection with the window frame and the insulation member obtains a good thermal connection with the roof structure. In an embodiment the insulation member is made from an elastic insulating material, which will ensure an even better connection between the installation unit and the window frame.

[0008] The installation sheet, which is relatively smooth compared to typical insulating materials, facilitates the installation of the window frame by acting as a shoehorn, helping the window frame to slide into the opening in the roof structure. It thus prevents an undesired deformation of the insulating material of the insulation member caused by friction between it and the window frame, and helps the window frame to slide down into the intended position in the opening in the roof structure.

[0009] Furthermore, the installation sheet evens out any variations in the pressure resulting from the compression of the insulation member(s), which may for example result from some sections of the insulation member being compressed more than others. This allows the insulation member to compensate for variations in the shape and dimensions of the opening in the roof structure without resulting in an uneven pressure and friction on the window frame, for example allowing the insulation member to be locally compressed by the ends of battens, which have been interrupted when making the opening in the roof structure, while being less compressed between the battens.

[0010] For this purpose, the installation sheet may be of a relatively rigid material, such as for example plywood, but it is presently preferred to use a polymer such as for example polypropylene, polyethylene, or polyvinylchloride. Metals are presently less preferred due to their relatively high thermal conductivity.

[0011] Preferably, the inner side of the installation sheet has a smooth texture with a static coefficient of friction less than 0.6. By a static coefficient of friction is understood the coefficient of friction of two materials at rest, and by a smooth texture is understood that the roughness of the inner side is low. Consequently, when installing the window frame the friction between the window frame and the inner side is low, whereby the installation of the window frame is further facilitated.

[0012] For use with window frames made wholly or partially of wood the coefficient of friction of the installation

sheet is preferably less than 0.5, more preferably less than 0.3. For use with window frame made of polymers or metals, which typically have a lower coefficient of friction than wood, the requirement on the coefficient of friction of the installation sheet may be lower.

[0013] In some embodiments, the inner side of the installation sheet has a friction reducing coating. Consequently, a reduction in the coefficient of friction is obtained compared to an uncoated inner side, and the installation of a window frame is facilitated.

[0014] The window frame will typically comprise top, bottom, and side frame members. The installation sheet may then be provided with dimensions at least in the length direction matching the corresponding dimension of the top, bottom, and/or side members of the window frame. Consequently, the installation sheet extends across the entire length or width of the window frame, which facilitates the installation. The installation sheet, the insulation member, or the entire installation unit may be slightly longer than the window frame member, which it is intended to engage in the mounted state, in order to allow installation units extending perpendicular to each other, for example along the top and a side of the window frame, to be able to meet and form an insulating frame extending around the window frame. Shorter lengths are, however, also possible. Particularly it is envisaged that the installation sheet may extend only over a part of the length of the corresponding window frame member while the insulation member extends over the entire length.

[0015] The installation sheet may also match the height of the window frame member engaging that installation sheet, when the window frame is installed in the opening, and/or it may extend deeper into the roof structure in the mounted state than the window frame, for example in order to support insulation member(s) adapted to be located deep in the roof structure. In such cases the installation sheet may help facilitate the installation of lining panels or the like to be mounted on the interior side after installation of the window frame.

[0016] The installation sheet may be provided as a large sheet, which is modified on site to match the dimensions of the top, bottom, and/or side members of the window frame. Likewise, a combined sheet and insulation material may be provided, possibly in a rolled-up state, and cut to appropriate length on site for use as installation units.

[0017] When installing the window frame in an incline roof structure, the need for compensating for variations in the shape and dimensions of the opening in the roof structure is typically most prominent along the sides of the window frame extending in the direction of inclination of the roof structure. It may therefore be advantageous to use installation units only along these two sides.

[0018] Installation units may, however, be used along all sides of the window frame and it is even possible to use one single installation unit, which extends along all four sides of the window frame.

[0019] This may for example be achieved by a first

edge of the installation sheet extending perpendicular to length direction of the installation unit being attached to a second edge of the installation sheet, so that continuous inner and outer sides are formed. By a continuous inner and outer side is understood that a trace along the inner side or the outer side parallel to an unattached edge arrives at the origin of the trace. The first edge may be attached to the second edge using for example glue, adhesive staples, snap-lock, hook and loop, or welds.

[0020] Another way is to use an installation frame formed from a plurality of installation units. These installation units may be interconnected by the means described above, but they may also be interconnected by means of hinge-like structures, such as for example film hinges, which will allow the installation frame to be interconnected at delivery but still be in a compact state. Still another option is to use brackets for interconnecting the installation units. These brackets may be connected to the installation unit by any of the means for attachment mentioned herein, snap-locks presently being preferred, and the brackets may have a hinge-function as described in the applicant's co-pending but not yet published applications DK 2019 70037 and DK 2019 70038.

[0021] In some embodiments, the installation unit comprises two or more insulation members that are attached to the outer side of the installation sheet, one insulation member being arranged above another in a height direction of the installation unit extending perpendicular to length direction of the installation unit. In other words, the height direction is perpendicular to the roof plane in the mounted state, and the one insulation member is located closer to the exterior side of the roof structure than the other(s). In this way the two or more insulation members may come into contact with different parts of the roof structure, one insulation member for example being adapted for engagement with ends of battens and another for engagement with a rafter.

[0022] The two or more insulation members may compress and/or deform independently and thereby adapt more precisely to the shape and dimensions of the opening in the roof structure and of the window frame than what is possible with a single insulation member.

[0023] By each insulation member coming into contact with the roof structure is understood that the roof structure must touch some surface of each insulation member.

[0024] In some embodiments, the two or more insulation members are different types of insulation members. The thermal insulation can be improved as the different insulation members can be arranged in a pattern optimizing the thermal insulation according to the shape and thermal properties of the window frame and the roof structure with which the installation unit is intended to be used.

[0025] Different types of insulation members may have different shapes and/or be made of different materials or combinations of materials.

[0026] A type of insulation member is a soft insulating foam, which is slotted in at least one direction. The insulation member may be slotted in two directions. The in-

insulation member may be slotted in two directions which are orthogonal. The slotting may be in a direction perpendicular with the length axis of the insulation member. The insulation member may be a rectangular cuboid.

[0027] A type of insulation member has a wedge shaped cross-sectional shape in a plane perpendicular to the length direction.

[0028] A type of insulation member has a tube shaped cross-sectional shape in a plane perpendicular to the length direction.

[0029] A type of insulation member is a multi-tube insulation member, including two or more tube-shaped sections extending substantially in parallel, such as for example a double-tube insulation member having a cross-sectional shape resembling the number 8 or the letter B.

[0030] An insulation member or a part thereof may be removed from the installation unit during installation, so that the remaining insulation members may obtain a more optimal fit with the window frame and roof structure. Weakenings or cutting indications may be provided in order to facilitate such a removal of material.

[0031] Regardless of the number and type of insulation members, the insulation member(s) may be attached to the installation sheet using for example glue, adhesive, staples, snap-lock, hook and loop, or welds.

[0032] In order to prevent an unintentional displacement of installation unit during the insertion of the window frame in the opening in the roof structure the installation unit may be attached to the roof structure. For this purpose, the installation unit may be provided with means for attachment such as for example straps, brackets, adhesive, or a combination thereof. These means for attachment may be intended only for providing a temporary attachment to the roof structure, securing the position of the installation unit until the window frame is in its intended position, or may provide a permanent attachment, which may contribute to the attachment of the roof window to the roof structure.

[0033] Also or alternatively, the installation unit may be provided with means for attachment to the window frame. These may contribute to the attachment of the roof window to the roof structure and/or they may contribute to the overall insulating properties by preventing the formation of a gap between the installation unit and the window frame. Examples of such means for attachment are adhesive, staples, snap locks, hook-and-loop type fasteners, such as Velcro®, or a combination thereof.

[0034] Unless otherwise stated embodiments and features described with reference to the first aspect of the invention also applies to the other aspects of the invention, which will be described below, and vice versa.

[0035] In a second a second aspect, the invention relates to a sealing collar for use when installing a window frame in a roof structure, comprising a plate portion having top, bottom, and side members, where said plate portion has an inner edge and an outer edge opposite the inner edge, where said inner edge defines a collar open-

ing when the sealing collar is in the mounted condition, and where said plate portion is adapted for surrounding a window frame by the inner edge, where the top, bottom and side members of the plate portion are made from a substantially dimensionally stable material, wherein shape and size of the collar opening substantially matches shape and size of the window frame, when the sealing collar is in the mounted condition, and where an installation unit according to the first aspect of the invention is connected to the plate portion via at least one installation unit holder.

[0036] By having a sealing collar with the installation unit connected to the plate portion, a convenient and controlled handling of the installation unit may be obtained. Furthermore, optimal positioning of the installation unit may be facilitated by its attachment to the sealing collar.

[0037] By substantially stable material is understood a material, which retains its intended dimensions during handling and which is sufficiently stiff to allow the sealing collar to rest on battens of a roof structure without sagging at the spaces between battens. The sealing collar may be folded during transportation or installation, possibly folded around the installation units or parts thereof to protect them during transportation and handling, but should return to its original size and shape when unfolded. Examples of such materials are corrugated card board and corrugated plastic board, but simple sheets made from polymers, such as polyethylene and polypropylene, may also be employed. If the plate portion is not to be folded, plywood, fiber boards and like materials may also be used.

[0038] The installation unit holder is preferably made from plastic, a waterproof membrane, roofing felt, strings, straps, or like flexible, but preferably substantially unelastic material. If using a waterproof membrane or other wind-proof material extending over substantially the entire length of the installation unit, the installation unit holder may contribute to wind-proofing the transition between the roof window frame and the roof structure.

[0039] In some embodiments, the installation unit holder has predefined dimensions, which allows for the installation unit to be moved between a delivery position, where the installation unit is located on an exterior side of the plate portion, and an installed position, where the installation unit is located inside the opening defined by the inner edge of the plate portion.

[0040] The predefined dimensions entails that the installation unit can be positioned in a predefined depth in relation to the plane of the roof structure thereby ensuring that the installation unit is not pushed too deep into the roof structure, neither when being brought into the installed position nor by being pushed down during the installation of the roof window frame.

[0041] Consequently, the installation unit can be in the delivery position while the sealing collar is being arranged on the roof structure, the collar opening is aligned with the opening in the roof structure, and work is performed in the opening. When the roof structure is ready for re-

ceiving the installation unit it can be moved into the opening defined by the inner edge of the inner portion and inserted into the opening in the roof structure. This minimizes the risk of damaging the installation unit and secures correct positioning of the installation unit.

[0042] In a third aspect, the invention relates to a method for installing a window frame in an opening in a roof structure defining a roof plane using an installation unit for facilitating the installation, comprising an installation sheet and at least one insulation member, where the installation sheet has an inner side and an outer side opposite the inner side, where the inner side and outer side are meeting in an edge, and where at least one insulation member is attached to the outer side of the installation sheet, extending in a length direction of the installation unit, where the method comprises the steps of:

arranging the installation unit in the opening in the roof structure with its length direction parallel to the roof plane, such that it lines the opening and such that at least one insulation member comes into contact with the roof structure,
placing a window frame in the opening, which is lined with the installation unit, such that the window frame comes into engagement with the inner side of the installation sheet, thereby compressing at least one insulation member.

[0043] Before insertion of the window frame in the opening, the installation unit(s) is/are arranged such that a distance between installation sheets on either side of the window frame and/or between installation sheets at the top and bottom of the window frame and/or between an installation sheet one side and the roof structure on the other is smaller than the corresponding dimension, i.e. width and/or length of the window frame. This ensures a compression of the insulation member(s) when the window frame is placed in the opening and hence a tight contact between the window frame and the installation unit and between the installation unit and the roof structure.

[0044] During installation, the installation unit may be attached to the roof structure, for example to battens and/or rafters, while allowing for movement of at least a part of the installation sheet and the insulation member in a direction substantially perpendicular to the plane of the installation sheet.

[0045] The installation unit may be attached to the roof structure using screws, nails, glue, staples, or welds. Alternatively, or as a supplement, it may be attached to a sealing collar as described above.

[0046] The invention is particularly useful when mounting a window in a roof structure including rafters and battens. The sealing collar, if any, will then typically be arranged to rest on the exterior side of the battens.

Brief description of the drawings

[0047]

5 Fig. 1a-1b shows a cross-sectional view of a roof structure, an installation unit with one insulation member, and a window frame.

Fig. 2 shows a cross-sectional view of a roof structure, an installation unit with a plurality of insulation members, and a window frame.

10 Fig. 3 shows a window frame and four installation units in an opening in a roof structure seen from the exterior side.

Fig. 4 shows a top view of a sealing collar with an installation unit.

15 Fig. 5 shows a cross-sectional view of a roof structure, a sealing collar with an installation unit, and a window frame.

20 Detailed description of the embodiments

[0048] Fig. 1 shows a roof structure 2, here represented by a roof rafter 20, a counter-batten 21, and an end of a roof batten 22 adapted for supporting a roofing (not shown). The roof batten 22 has been interrupted and the roofing removed to form an opening 26 in the roof structure suitable for receiving a roof window frame 25.

[0049] An installation unit 1 comprising an installation sheet 11 and an insulation member 23 is arranged in the opening 26 in the roof structure 2, such that it lines the opening and such that the insulation member 23 is in contact with the roof structure 2, here with the side of the counter-batten 21 and the end surface of the batten 22. The installation sheet extends has an inner side 13 adapted for engagement with the window frame 25 and an outer side 15 opposite the inner side 13, where the inner side 13 and outer side 15 are meeting in an edge 17. The insulation member 23 is attached to the outer side 15 of the installation sheet 11.

[0050] It is to be understood that the installation unit 1 extends with its length direction L parallel to the roof plane and substantially over along the entire length of the opening 26 in the roof structure 2.

[0051] Fig. 1a shows the window frame 25 being inserted into the opening defined by the installation sheet unit 1 and hence into the opening 26 in the roof structure 2. The window frame 25 is beginning to come into engagement with the inner side 13 of the installation sheet 11, but the insulation member 23 is not yet fully compressed. In this embodiment an upper or exterior section 18 of the installation sheet 11 is bent slightly outwards over the roof structure in order to help the window frame get into the opening by acting as a funnel. The bent section 18 may be cut off or bent further down to be plane with the roof plane when the installation of the window frame is complete. The advantages of providing a bent section will also apply to other embodiments, where no insulation member 23 is attached to the upper or exterior

section 18.

[0052] Fig. 1b shows the window frame 25 fully inserted into the opening 26 in the roof 2. The window frame 25 is in engagement with the inner side 13 of the installation sheet 11 and the insulation member 23 is fully compressed.

[0053] The window frame 25 is here resting on a ledge 19 on the installation sheet 11, which extends further into the opening 26 in the roof structure than the section of the installation sheet supporting the insulation member 23. The space thus formed between the installation sheet 11 and the roof structure 2, here the rafter 20 and the counter-batten 21, may be filled with an insulation material (not shown) from the interior side.

[0054] Fig. 2 shows another embodiment of an installation unit 1 comprising an installation sheet 11 arranged in the opening 26 of a roof structure 2 having roof rafters 20, a counter-batten 21, and a roof batten 22. In this figure as well as in the following the same reference numbers as in Fig. 1a and 1b are used for features having substantially the same function even though they may not be identical.

[0055] In the embodiment in Fig. 2 a plurality of insulation members 23, 27, 29 are attached to the outer side 15 of the installation sheet 11.

[0056] The first insulation member 23 has a rectangular cuboid shape and is adapted for engaging the ends of the battens 22 as well as possibly the counter-batten 21 just as in Figs 1a and 1b. For this purpose, the insulation material may be slotted in a direction substantially parallel to the length direction of the batten.

[0057] The second insulation member 27 is a wedge shaped insulation member, which is adapted to be located underneath a flashing member (not shown) weatherproofing the joint between the window frame and the roof structure. It is typically of a material with better weather-resistance and UV-resistance properties than the first insulation member.

[0058] The third insulation member 29 is a combined tube shaped insulation member having a cross-sectional shape resembling the letter B. The tubes make the insulation member 29 highly deformable and hence allow it to accommodate big variations in the distance between the installation sheet 11 and the roof structure, thus making the installation unit 1 highly versatile. As the third insulation member is arranged at the interior side it does not need particular weather resistance.

[0059] If wishing for example to use the installation unit in Fig. 2 in a roof structure, which is not as deep as the one shown in Fig. 2, the lowermost tube of the third insulation member 29 can be removed, and it is likewise possible to adapt the shape of other insulation members for particular installation situation by removing material.

[0060] Fig. 3 shows a roof structure 2 represented by rafters 20 and battens 22 and with an opening 26. Four installation units 1 are arranged one along each side of the opening in the roof structure, so that they form an insulating frame extending all around a window frame 25

arranged in the opening 26.

[0061] Each installation unit 1 includes an installation sheet 11, the inner side 13 of which is in engagement with window frame 25, and four insulation members 23 attached to the outer side 15 of the installation sheet 11. These installation units are made by standard units of installation sheet material and insulation material, which are cut to size on site only to the extent necessary, i.e. not fitting exactly with the length of the respective window frame members along which they extend in the mounted state. The relative length of the installation sheets 11 and the insulation members 23 is only intended as an example and may vary depending for example on the materials used and it is to be understood that one insulation member may cover the entire length of the installation sheet. Furthermore, it is noted that the insulation members 23 shown in Fig. 3 are substantially wider than those shown in Figs 1 and 2, thereby potentially providing better insulation and/or increased potential for compression, which will allow a high degree of adaptation to highly irregular roof structures.

[0062] Fig. 4 shows a sealing collar 3 for use around a window frame (not shown) in a roof structure (not shown), comprising a plate portion 31 having top 32, bottom 33 and side 34, 35 members. The plate portion 31 has an inner edge 36 and an outer edge 37 opposite the inner edge 36, where said inner edge 36 defines a collar opening 30 adapted for surrounding a window frame, the shape and size of the collar opening 30 substantially matching shape and size of the window frame, when the sealing collar 3 is in the mounted condition. The top 32, bottom 33 and side 34, 35 members of the plate portion 31 are made from a substantially dimensionally stable material to ensure a dimensionally stable opening and that the sealing collar may rest on battens of a roof structure without sagging at the spaces between battens.

[0063] Four installation units 1 each including an installation sheet 11 and an insulation member 23 attached to an outer side 15 thereof are connected to the inner portion 31 via installation unit holders 38. In this embodiment each installation unit is connected to the sealing collar via two installation unit holders, but it is also possible to use more holders on each installation unit or to use one wider installation unit holder, possibly extending over substantially the entire length of the installation unit. The installation unit holders 38 are here made of straps of a textile material having such a length that when they are fully extended the installation unit is located in the correct intended depth in relation to the roof structure (not shown).

[0064] In the state of delivery (not shown), the installation units are preferably arranged on the exterior side of the sealing collar, and the installation unit holders may then be used as "hinges" for "swinging" the installation units from a position on the exterior side of the sealing collar to the mounted position shown in Fig. 4, where they are positioned in the opening in the roof structure as described with reference to the other figures. The insulation

members 23 are here partially hidden underneath the sealing collar 3 in the mounted state as will also be described with reference to Fig. 5.

[0065] The details regarding the installation unit holders described above apply to all embodiment of the invention.

[0066] Fig. 5 shows another embodiment of a sealing collar 3 in a cross-sectional view mounted at an opening 26 in a roof structure 2 having a rafter 20, a counter-batten 21, and a batten 22. The installation unit 1 is attached to the inner edge 36 of the sealing collar 3 by the outer side 15 of the installation sheet 11, i.e. with a hinge-like joint instead of the strap-like installation unit holders 38 in Fig. 4. This may be achieved by joining two different members or pieces of material, possibly using a piano-type hinge, or the sealing collar and the installation sheet could be formed in one with a weakening serving as a hinge between.

[0067] In this embodiment the sealing collar 3 extends over the edge of the opening in the roofs structure so that the insulation members 23, 29 are located underneath the sealing collar when seen from the exterior side in a direction perpendicular to the roof plane, i.e. corresponding to the view in Fig. 4. If wishing to have insulation underneath a flashing (not shown) as in Fig. 2, separate insulation members or an insulation frame may be arranged on top of the sealing collar.

[0068] Here too the installation sheet 11 has a ledge projecting underneath the interior side of the window frame 25, but this need not be the case. Likewise, the installation sheet does not need to extend all the way down along the interior insulation member 29. It could instead be L-shaped with the interior insulation member 29 attached to the horizontal leg 19 of the L.

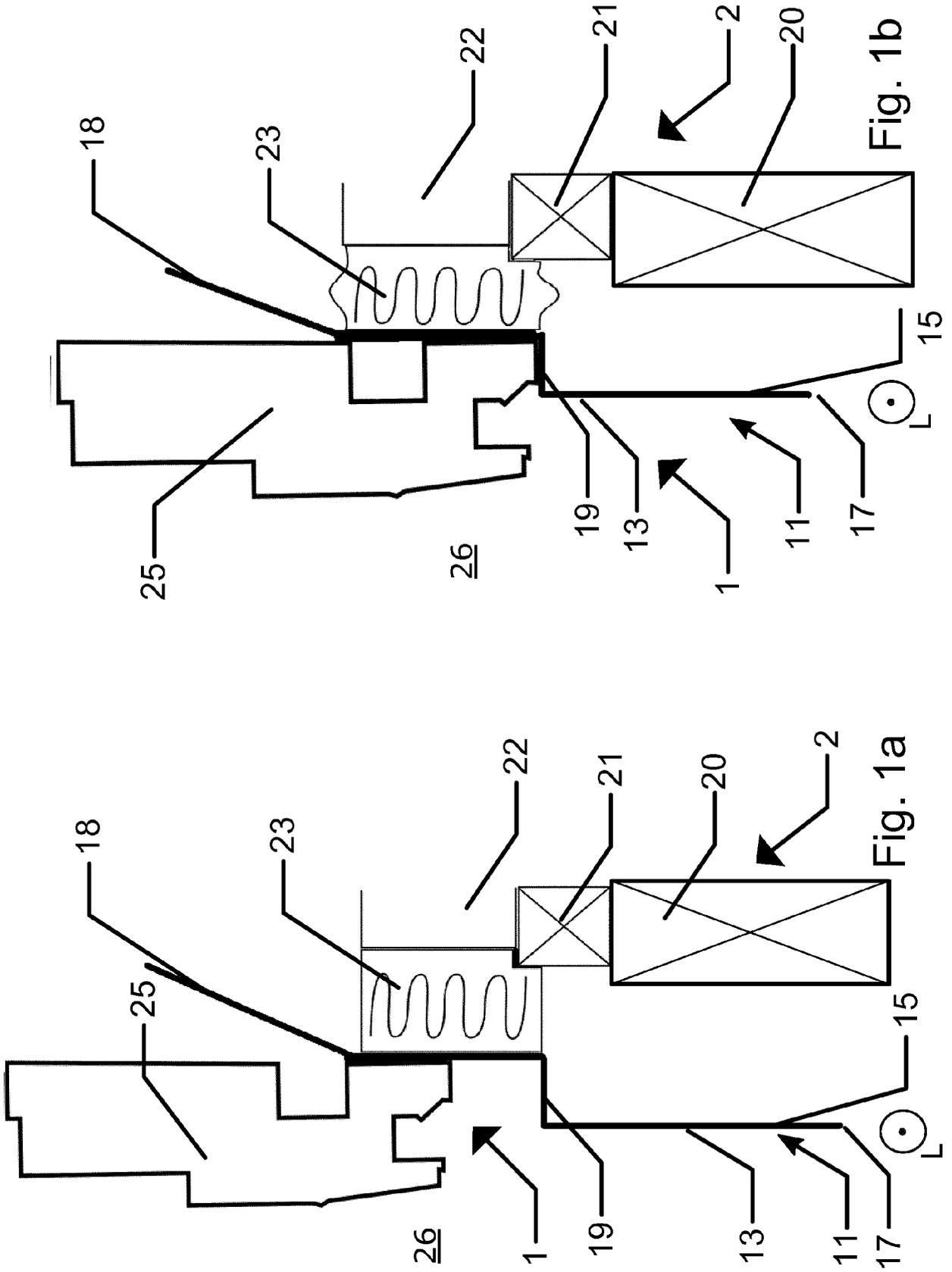
Claims

1. Installation unit adapted for facilitating the installation of a window frame in an opening in a roof structure defining a roof plane, which installation unit comprises an installation sheet and at least one insulation member, where the installation sheet has an inner side adapted for engagement with the window frame and an outer side opposite the inner side, where the inner side and outer side are meeting in an edge, where at least one insulation member is attached to the outer side of the installation sheet, extending in a length direction of the installation unit, and where the installation unit is adapted for being arranged in the opening in the roof structure with its length direction parallel to the roof plane, such that it lines the opening and such that at least one insulation member is in contact with the roof structure.
2. Installation unit according to claim 1, where the inner side of the installation sheet has a smooth texture with a static friction coefficient less than 0.6.
3. Installation unit according to claim 1 or 2, where the inner side of the installation sheet has a friction reducing coating.
4. Installation unit according to any of the preceding claims, where two or more insulation members are attached to the outer side of the installation sheet, one insulation member being arranged above another in a height direction of the installation unit extending perpendicular to length direction of the installation unit.
5. Installation unit according to claim 4, where the two or more insulation members are different types of insulation members.
6. Installation unit according to any of the preceding claims, where at least one dimension of the installation sheet substantially matches a dimension of the window frame, preferably the length of the installation sheet substantially matching the length of the window frame.
7. Installation unit according to any of the preceding claims, where a first edge of the installation sheet extending perpendicular to length direction of the installation unit is attached to a second edge of the installation sheet, so that continuous inner and outer sides are formed.
8. Installation unit according to any of the preceding claims, where the installation sheet is made from a polymer, such as for example polypropylene, polyethylene, or polyvinylchloride.
9. Installation unit according to any of the preceding claims, further comprising means for attachment to a window frame and/ or a roof structure.
10. Sealing collar for use when installing a window frame in a roof structure, comprising an inner portion having top, bottom, and side members, where said inner portion has an inner edge and an outer edge opposite the inner edge, where said inner edge defines a collar opening when the sealing collar is in the mounted condition, where said inner portion is adapted for surrounding a window frame by the inner edge, where the top, bottom and side members of the inner portion are made from a substantially dimensionally stable material, wherein shape and size of the collar opening substantially matches shape and size of the window frame, when the sealing collar is in the mounted condition, and where an installation unit according to one or more of claims 1 to 9 is connected to the inner portion via at least one installation unit holder.

11. Sealing collar according to claim 10, where the installation unit holder has predefined dimensions, which allows for the installation unit to be moved between a delivery position, where the installation unit is located on an exterior side of the inner portion, and an installed position, where the installation unit is located inside the opening defined by the inner edge of the inner portion. 5
12. Method for installing a window frame in an opening in a roof structure defining a roof plane using an installation unit for facilitating the installation, which installation unit comprises an installation sheet and at least one insulation member, where the installation sheet has an inner side and an outer side opposite the inner side, where the inner side and outer side are meeting in an edge, and where at least one insulation member is attached to the outer side of the installation sheet, extending in a length direction of the installation unit, 10
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where the method comprises the steps of:
- A) arranging the installation unit in the opening in the roof structure with its length direction parallel to the roof plane, such that it lines the opening and such that at least one insulation member comes into contact with the roof structure, and 25
- B) placing a window frame in the opening, which is lined with the installation unit, such that the window frame comes into engagement with the inner side of the installation sheet, thereby compressing at least one insulation member. 30
13. Method according to claim 12, further comprising the step of 35
- C) attaching the installation unit to the roof structure before step B), and/or attaching the installation unit to the window frame after step B).
14. Method according to claim 12 or 13, further comprising the step of 40
- D) interconnecting a plurality of installation units to form an installation frame.
15. Method according to one or more of claims 12-14, further comprising the step of E) removing an insulation member or a part thereof from the installation unit. 45

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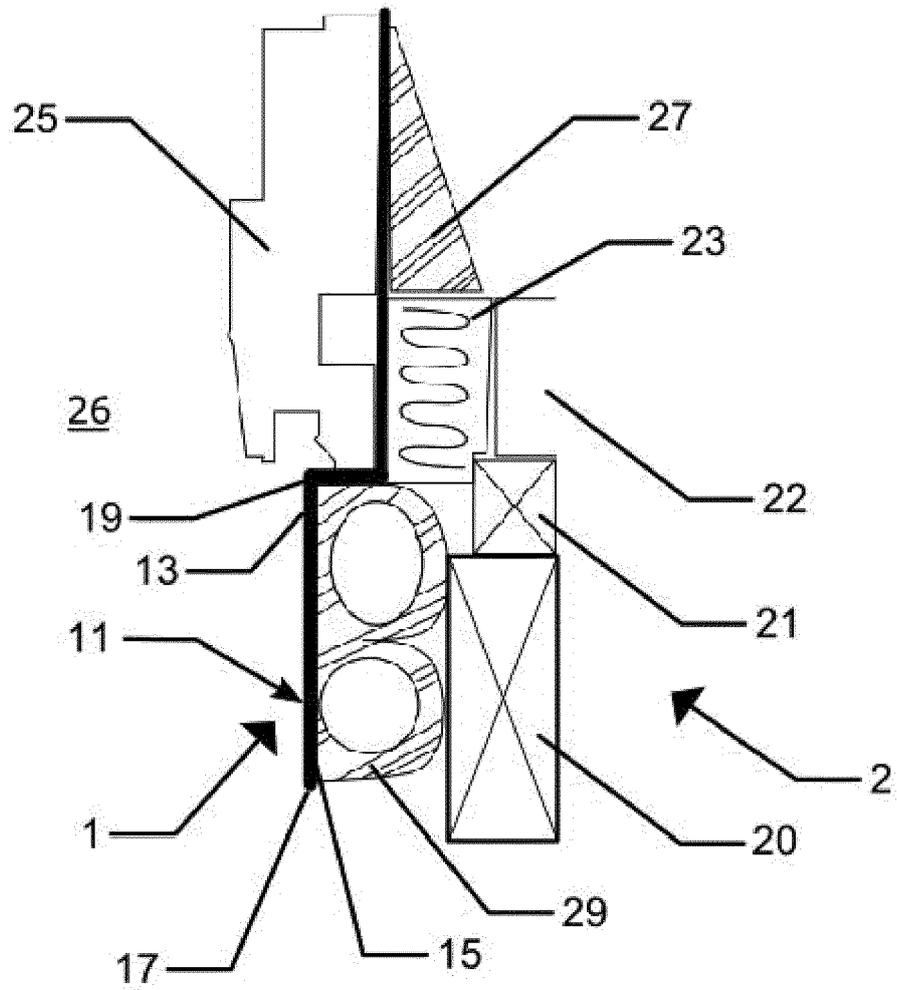
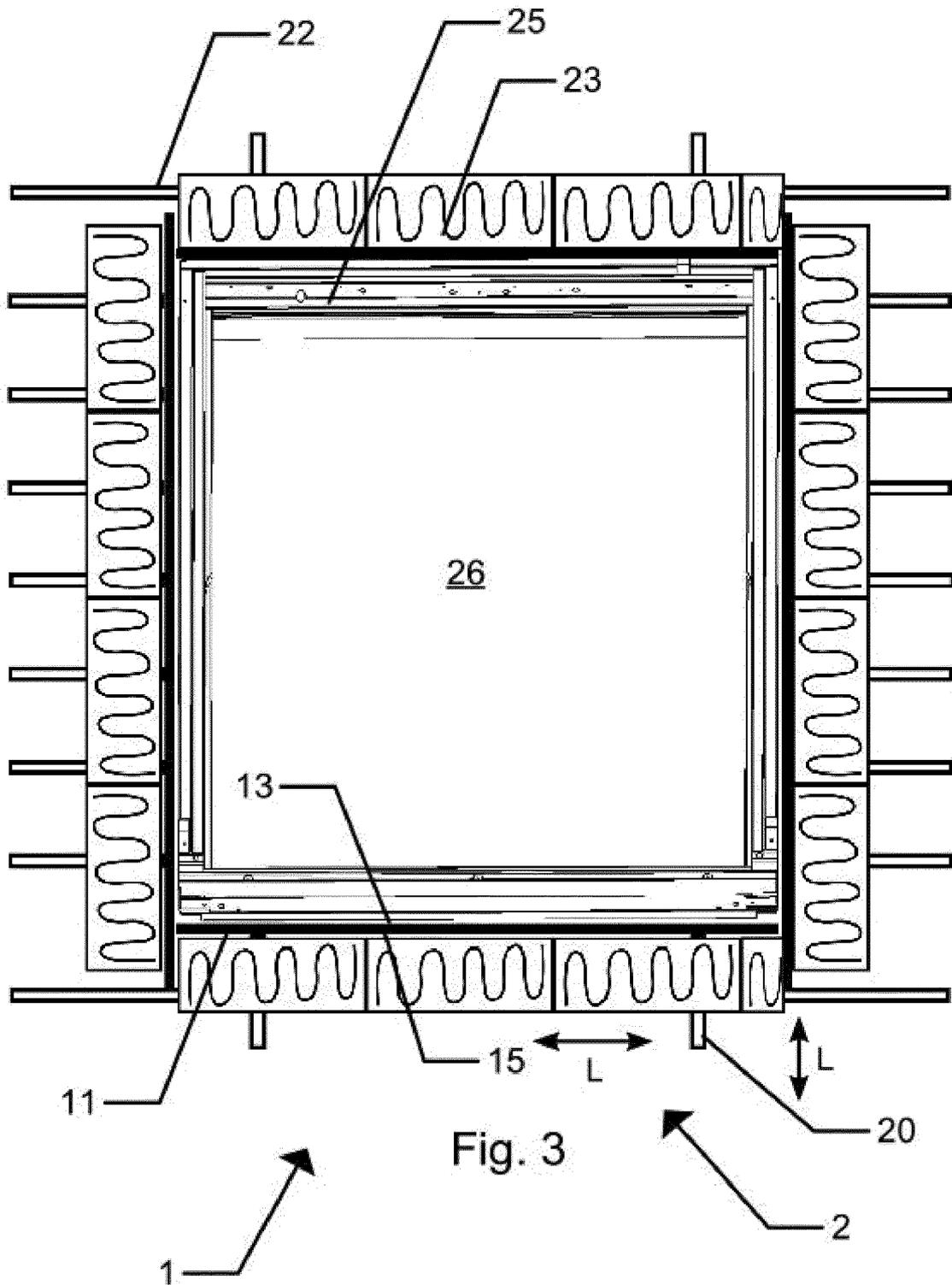


Fig. 2



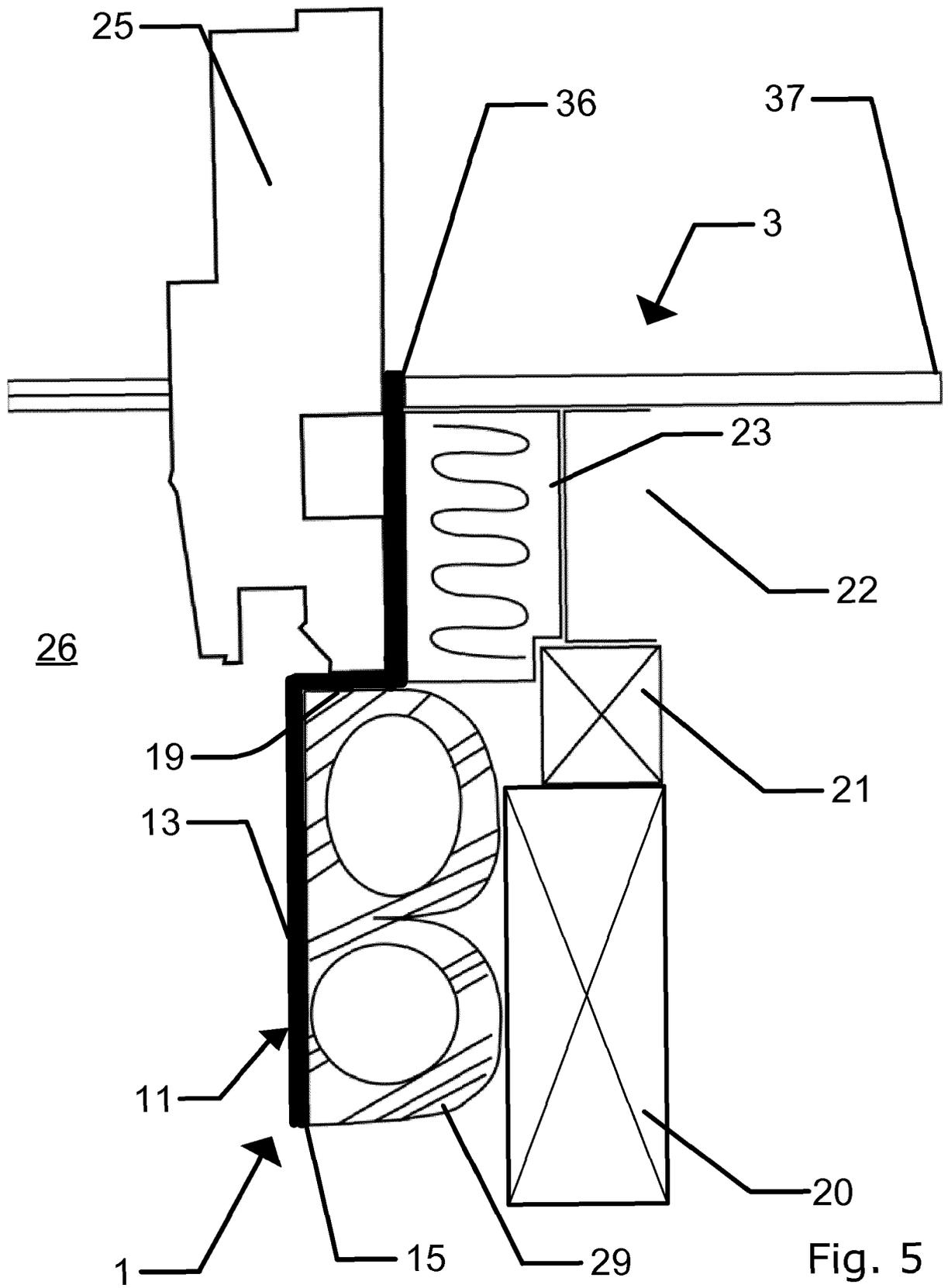


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 19 17 8227

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 2 466 032 A1 (VKR HOLDING AS [DK]) 20 June 2012 (2012-06-20) * figure 5 *	1-15	INV. E04D13/03 E04D12/00 E04D13/147
X	EP 2 915 932 A1 (KEYLITE ROOF WINDOWS LTD [GB]) 9 September 2015 (2015-09-09) * figure 1 *	1-8	
X	DE 10 2015 202882 A1 (ODENWALD-CHEMIE GMBH [DE]) 18 August 2016 (2016-08-18) * figures 1-2 *	1-8	
X	EP 2 505 759 A2 (A I B SLACZKA SZPURA DYTOKO SPOLKA JAWNA [PL]) 3 October 2012 (2012-10-03) * figure 4 *	1-8	
X	EP 2 354 410 A2 (TREMCO ILLBRUCK PROD GMBH [DE]) 10 August 2011 (2011-08-10) * figure 1 *	1-8	
X,P	EP 3 330 452 A1 (VKR HOLDING AS [DK]) 6 June 2018 (2018-06-06) * figure 4 *	1-8	
X,P	EP 3 404 164 A1 (VKR HOLDING AS [DK]) 21 November 2018 (2018-11-21) * figure 2b *	1-8	TECHNICAL FIELDS SEARCHED (IPC) E04D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 September 2019	Examiner Demeester, Jan
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/02 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 19 17 8227

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-09-2019

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15

20

25

30

35

40

45

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2466032 A1	20-06-2012	CN 102561608 A	11-07-2012
		DK 2466032 T3	27-11-2017
		EP 2466032 A1	20-06-2012
		EP 3181776 A1	21-06-2017
		HU E035064 T2	02-05-2018
		PL 2466032 T3	28-02-2018
EP 2915932 A1	09-09-2015	NONE	
DE 102015202882 A1	18-08-2016	NONE	
EP 2505759 A2	03-10-2012	EP 2505759 A2	03-10-2012
		PL 216500 B1	30-04-2014
EP 2354410 A2	10-08-2011	DE 102011000218 A1	11-08-2011
		DE 202010000317 U1	17-08-2011
		EP 2354410 A2	10-08-2011
EP 3330452 A1	06-06-2018	CN 208056997 U	06-11-2018
		DK 201670961 A1	14-06-2018
		EP 3330452 A1	06-06-2018
EP 3404164 A1	21-11-2018	EP 3404164 A1	21-11-2018
		WO 2018210937 A1	22-11-2018

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2273028 A [0003]
- DK 201970037 [0020]
- DK 201970038 [0020]