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(54) **SAFETY RAIL ARRANGEMENT AND EAVES PROTECTOR**

(57) A safety rail arrangement (100) is presented. The safety rail arrangement (100) comprises at least one rail portion (20), and an eaves protector (10) adapted for arranging to cover and attaching to an eaves (110). The eaves protector (10) comprises a first portion (15) of an

interlocking joint (30) of the arrangement (100), wherein the first portion (15) is at a first side of the eaves protector (10) and adapted such that the at least one rail portion (20) is couplable or joinable to the eaves protector (10) by the interlocking joint (30) for forming a safety rail.

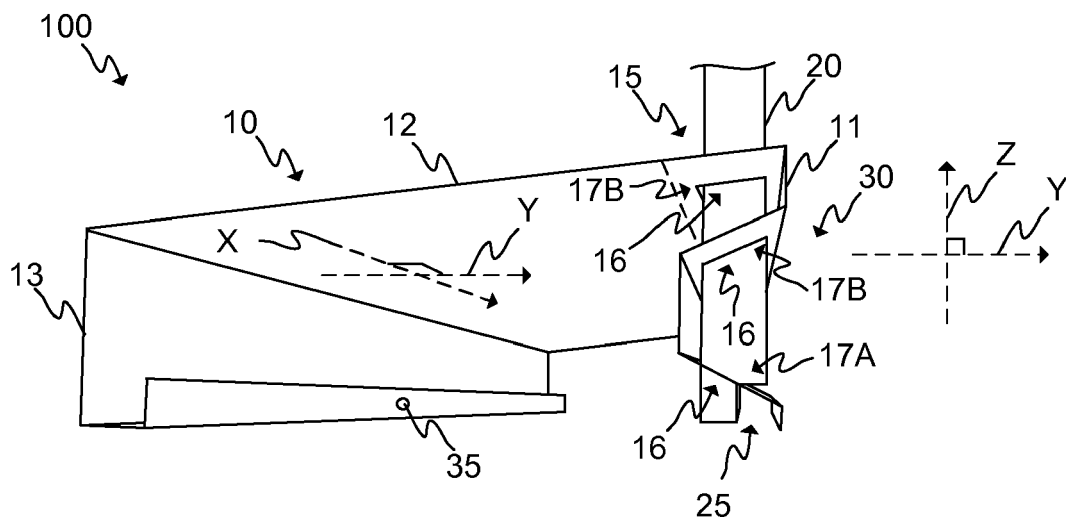


FIG. 1A

Description

FIELD OF THE INVENTION

[0001] The present invention relates in general to safety structures at eaves and eaves protecting elements. In particular, however not exclusively, the present invention concerns safety rail arrangements to be arranged at eaves, for example, to prevent persons falling over the eaves.

BACKGROUND

[0002] There are known safety structures and safety rails. Typically, safety rails are being arranged at the edge of a structure or a building, for instance. The arranging often requires drilling holes to the structure, such as to a concrete element, at the edge of the building into or through which the vertical safety rail element is then being placed. Drawback of these safety rails is that the drilling, for instance, requires a lot of work and damages the structure to which the safety rails are being attached.

[0003] In some attempts, the safety rail is arranged at the eaves having an eaves protector being placed to cover the eaves. The eaves protector is first being attached to the eaves after which the safety rail element is attached to the eaves protector by screws. Assembling these safety rails require attaching the safety element while operating close to the edge of the structure, such as of a building, thus making the assembly challenging and potentially dangerous.

SUMMARY

[0004] An objective of the present invention is to provide a safety rail arrangement and an eaves protector for a safety rail arrangement. Another objective of the present invention is that the safety rail arrangement and the eaves protector facilitate the assembly of the safety rail and at least alleviate some of the drawbacks in the known attempts.

[0005] The objectives of the invention are reached by a safety rail arrangement and an eaves protector as defined by the respective independent claims.

[0006] According to one aspect, a safety rail arrangement is provided. The safety rail arrangement comprises at least one rail portion, and an eaves protector adapted for arranging to cover and to be attached to an eaves. The eaves protector comprises a first portion of an interlocking joint of the arrangement, wherein the first portion is at a first side of the eaves protector and adapted such that the at least one rail portion is couplable to the eaves protector by the interlocking joint for forming a safety rail.

[0007] The first side may be a side of the eaves protector extending in parallel to a longitudinal direction of the eaves protector, that is to a first direction, and in parallel to a third direction being perpendicular relative to the first direction. The third direction may essentially be

the direction of gravity when the eaves protector is in use.

[0008] Furthermore, the first portion may comprise at least one first support contact surface for supporting the at least one rail portion in the third direction, preferably against gravity when in use.

[0009] Furthermore, the eaves protector may comprise a first side portion and a cover portion, wherein the first side portion is arranged to extend perpendicularly with respect to the cover portion, and wherein the first side portion comprises the first portion of the interlocking joint. The cover portion may preferably be arranged to provide cover for the eaves by covering the eaves from above when in use. In some embodiments, the top surface of the cover portion may be tilted for preventing, for example, water from accumulating on the eaves protector when in use.

[0010] Alternatively or in addition, the eaves protector may comprise a first side portion, a cover portion and a second side portion, wherein the first and the second side portions are arranged to extend perpendicularly with respect to the cover portion, and wherein the first side portion comprises the first portion of the interlocking joint.

[0011] The first portion may comprise at least two openings. In some embodiments, the first portion may comprise three openings. The openings may preferably be aligned and adapted for receiving the at least one rail portion through them. In addition, the first portion may comprise at least one first support contact surface for supporting the at least one rail portion in the third direction, preferably against gravity when in use, when the at least one rail portion has been arranged through the openings. The support portion may be an area of the first portion for receiving thereon the rail portion, such as the lower end of the rail portion, when being arranged through the openings.

[0012] The first portion may further comprise the third opening arranged aligned with the at least two openings and adapted for receiving the at least one rail portion through it, wherein the at least one first support contact surface is arranged at the third opening. Alternatively, the first portion may comprise an area defining the at least one first support contact surface and adapted for receiving thereon the at least one rail portion.

[0013] Furthermore, a shape of the openings corresponds to a cross-section of the at least one rail portion such that the at least one rail portion is arrangeable through the openings.

[0014] Furthermore, the first portion may comprise at least one first support contact surface for supporting the at least one rail portion in a third direction, preferably against the gravity when in use.

[0015] The interlocking joint may comprise in the first portion at least two second support contact surfaces for supporting the at least one rail portion in directions perpendicular with respect to the third direction. In some embodiments, the second support contact surfaces may be the edges of some of the openings. A distance between the at least two second support contact surfaces

may be at least three centimeters.

[0016] Furthermore, a distance between the first support contact surface and closest second support contact surface may be at least five centimeters.

[0017] Furthermore, a cross-section of the first portion may substantially be S-shaped.

[0018] The at least one rail portion may comprise at least one third portion for receiving a second rail portion. The third portion may comprise an opening for receiving the second rail portion. The cross-section of the opening and the second rail portion may be substantially J-shaped.

[0019] The at least one rail portion may comprise a second portion of the interlocking joint, wherein the second portion is adapted with respect to the at least one first support contact surface for supporting the at least one rail portion in the third direction.

[0020] The safety rail arrangement may comprise at least two rail portions, each comprising at least one third portion for receiving a second rail portion, and at least one second rail portion, and wherein the eaves protector comprises at least two first portions. Preferably, when the rail portions are coupled or joined, that is no requiring any additional attachment means, to first portions, the third portions align such that the second rail portion may be arranged attached to each of the third portions. In some embodiments, each third portion comprises an opening adapted for receiving the at least one second rail portion through it.

[0021] In various embodiments, the eaves protector may be of a metal sheet, such as of aluminum or comprising zinc, and the first portion may comprise four folds such that the first portion defines three consecutive layers. Each of the layer may comprise an opening which the openings are aligned for receiving a rail portion through them. In some embodiments, two consecutive of the four folds may both have 115 degrees angle, preferably, in the same direction.

[0022] According to a second aspect, an eaves protector for a safety rail arrangement is provided. The eaves protector is adapted for arranging to cover and attaching to an eaves. The eaves protector comprises a first portion of an interlocking joint of the arrangement, wherein the first portion is at a first side of the eaves protector. The first side may be a side of the eaves protector extending in parallel to a longitudinal direction of the eaves protector, that is to a first direction, and in parallel to a third direction being perpendicular relative to the first direction. The first portion is adapted such that at least one rail portion is couplable or joinable to the eaves protector by the interlocking joint for forming a safety rail, wherein the first portion comprises at least one first support contact surface for supporting the at least one rail portion in the third direction, preferably against gravity when in use. The first portion further comprises at least two openings, wherein the openings are aligned and adapted for receiving the at least one rail portion through them. The first portion further comprises either a third opening arranged

aligned with the at least two openings and adapted for receiving the at least one rail portion through it, wherein the at least one first support contact surface is arranged at the third opening, or, alternatively or in addition, an area defining the at least one first support contact surface and adapted for receiving thereon the at least one rail portion, such as the lower end of the rail portion when being arranged through the at least two, or three, openings.

[0023] The present invention provides a safety rail arrangement and an eaves protector for a safety rail arrangement. The present invention provides advantages over known solutions such that the safety rail is easier and safer to assemble because the rail portions can be coupled or joined to the eaves protector by the interlocking joint and, thus, no attachment means, such as screws, are necessary for attaching the rail to the eaves protector. Furthermore, the eaves protector provides protection for the eaves while simultaneously providing support and rigidity to the structure of the safety rail by way of attaching the eaves protector to the eaves.

[0024] Various other advantages will become clear to a skilled person based on the following detailed description.

[0025] The expression "a number of" may herein refer to any positive integer starting from one (1).

[0026] The expression "a plurality of" may refer to any positive integer starting from two (2), respectively.

[0027] The terms "first", "second" and "third" are herein used to distinguish one element from other element, and not to specially prioritize or order them, if not otherwise explicitly stated.

[0028] The exemplary embodiments of the present invention presented herein are not to be interpreted to pose limitations to the applicability of the appended claims. The verb "to comprise" is used herein as an open limitation that does not exclude the existence of also un-recited features. The features recited in depending claims are mutually freely combinable unless otherwise explicitly stated.

[0029] The novel features which are considered as characteristic of the present invention are set forth in particular in the appended claims. The present invention itself, however, both as to its construction and its method of operation, together with additional objectives and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF FIGURES

[0030] Some embodiments of the present invention are illustrated by way of example, and not by way of limitation, in the figures of the accompanying drawings.

Figures 1A and 1B illustrate schematically a safety rail arrangement according to an embodiment of the present invention.

Figure 2 illustrates schematically a safety rail arrangement according to an embodiment of the present invention.

Figures 3A-3C illustrate schematically an eaves protector according to an embodiment of the present invention.

Figures 4A-4D illustrate schematically a rail portion according to an embodiment of the present invention.

Figures 5A and 5B illustrate schematically a safety rail arrangement according to an embodiment of the present invention.

Figure 6 illustrates schematically a second rail portion according to an embodiment of the present invention.

Figures 7A and 7B illustrate schematically a further eaves cover according to an embodiment of the present invention.

DETAILED DESCRIPTION OF SOME EMBODIMENTS

[0031] Figures 1A and 1B illustrate schematically a safety rail arrangement 100 according to an embodiment of the present invention. The safety rail arrangement 100 may comprise at least one rail portion 20. Furthermore, the safety rail arrangement 100 may comprise an eaves protector 10 adapted for arranging to cover and to be attached to an eaves (shown in Fig. 2). The eaves protector 10 may comprises a first portion 15 of an interlocking joint 30 of the arrangement 100, wherein the first portion 15 may be at a first side of the eaves protector 10 and adapted such that the at least one rail portion 20 may be couplable or joinable, that is without additional attachment means, to the eaves protector 10 by the interlocking joint 30 for forming a safety rail, a part of which is illustrated in Figs. 1A and 1B.

[0032] In various embodiments, the eaves protector 10 may comprise a first side portion 11 and a cover portion 12, wherein the first side portion 11 is arranged to extend perpendicularly with respect to the cover portion 12. The first side portion 11 may preferably comprise the first portion 15 of the interlocking joint 30. The cover portion 12 may be adapted, when in use, to cover the eaves from above, such as from the rain falling from above.

[0033] In some embodiments, the cover portion 12 may, when arranged to cover the eaves, form a tilted or sloped surface for removing water from said surface, thus increasing the life time of the protector 10. The tilting or sloping may, preferably, be arranged away from the rail portion 20, for example, to prevent water, snow or things from falling from the roof of a building.

[0034] In various embodiments, the eaves protector 10 may comprise a first side portion 11, a cover portion 12

and a second side portion 13, wherein the first 11 and the second 13 side portions are arranged to extend perpendicularly with respect to the cover portion 12. The first side portion 11 may preferably comprise the first portion 15 of the interlocking joint 30.

[0035] In various embodiments, the first portion 11 may comprise at least two openings 16. In some embodiments, the first portion 11 may comprise three openings 16. The openings 16 may preferably be aligned and adapted for receiving the at least one rail portion 20 through them.

[0036] In various embodiments, a shape of the openings 16 corresponds to a cross-section of the at least one rail portion 20 such that the at least one rail portion 20 is arrangeable through the openings 16.

[0037] In various embodiments, the first portion 15 may comprise at least one first support contact surface 17A for supporting the at least one rail portion 20 in a third direction Z, preferably against the gravity when in use.

[0038] In some embodiments, the first support contact surface 17A may be an area of the eaves protector 10, preferably comprised in the first portion 15, onto which the at least one rail portion 15 may be arranged.

[0039] According to an embodiment, such as shown in Figs. 1A and 1B, the at least one rail portion 20 may comprise a second portion 25 of the interlocking joint 30. The second portion 25 may be such that it comprises different kind of cross-section with respect to the cross-section of the rest of the rail portion 20, for instance. According to various embodiments, the length of the second portion 25 in the third direction Z may be from one centimeter up to ten centimeters, preferable from two centimeters to five centimeters, or specifically 2.5 centimeters.

[0040] In Figs. 1A and 1B, the cross-section of the second portion 25 is substantially U-shaped corresponding to the shape of the opening 16 defining the first support contact surface 17A. The rest of the rail portion 20 in Figs. 1A and 1B has a substantially C-shaped cross-section, wherein the U-shaped second portions 25 may be part of the C-shape of the rest of the rail portion 20, as visible in Figs. 1A and 1B, for instance. Therefore, the edge of the C-shaped rail portion 20 defines a surface which comes into contact with the eaves protector 10, that is the first support contact surface 17A thereof, while the U-shaped second portion 25 extends through the opening 16, thus also providing support in the first X and second Y directions.

[0041] According to various embodiments, the cross-section of the second portion 25 may be I-shaped and the cross-section of the rest of the rail portion 20 is C- or U-shaped.

[0042] Regarding I-, C- or U-, or, for example, V-shapes, or similar kinds of shapes, the advantage of these shapes is that the rail portion 20 as well as the eaves protector 10 may be manufactured from a metal sheet, such as of aluminum or zinc or steel, by bending or folding the elements in question. Thus, for example,

holes may be provided on the metal sheet before folding. Furthermore, the metal sheet may be first machined by a sheet metal machinery device, after which it may be folded or bent into the right form.

[0043] Regarding the directions, the side portions 11, 13 extend, as well as the cover portion 12, substantially in a first direction X. The first X and the third Z directions are substantially perpendicular with respect to each other. Furthermore, a second direction Y is substantially perpendicular with respect to the first X and the third Z directions.

[0044] In various embodiments, the interlocking joint 30 may comprise in the first portion 15 at least two second support contact surfaces 17B for supporting the at least one rail portion 20 in directions perpendicular with respect to the third direction Z. According to a preferable embodiment, a distance, that is in the third direction Z, between the at least two second support contact surfaces 16B may be at least three centimeters.

[0045] According to an embodiment, the first portion 15 may comprise at least one first support contact surface 17A and at least one, preferably at least two, second support contact surfaces 17B, such as shown in Figs. 1A and 1B. In an embodiment, a distance between the first support contact surface 17A and closest second support contact surface 17B may be at least five centimeters or at least 10 centimeters in order to obtain a safety rail which can better withstand force applied to the safety rail because the support surfaces 17A, 17B are far enough from each other thus providing two points of support. In some embodiments, the distance between the first support contact surface 17A and closest second support contact surface 17B may be at most 20 centimeters in order for the first portion 15 not getting too big in the third direction Z.

[0046] According to various embodiments, the length of the rail portion 20 may be in the range from 60 centimeters to 150 centimeters, preferably from 80 centimeters to 135 centimeters, and most preferably from 100 centimeters to 125 centimeters.

[0047] According to various embodiments, the eaves protector 10 may comprise eaves attachment means 35 for attaching the eaves protector 10 to the eaves. In Fig. 1A, the eaves attachment means 35 is a hole in the second portion 13 through which a screw may be arranged.

[0048] Figure 2 illustrates schematically a safety rail arrangement 100 according to an embodiment of the present invention. The eaves protector 10 is shown arranged on an eaves 110, for example, the concrete eaves of a building, such as a multistorey building. As can be seen, the eaves protector 10 may be attached to the eaves 10 by attachment means 115, such as concrete nails or screws or the like. In Fig. 2, the eaves protector 10 has been attached from the first 11 and the second 13 side portions.

[0049] Figure 2 further illustrates ventilation channels or spaces 50A, 50B. The first ventilation channel or space 50A may be arranged between the second side portion

13 and the eaves 110. There may also be a further ventilation channel or space between at least part of the first side portion 11 and the eaves 110. Still further, a second ventilation channel 50B may be arranged between the cover part 12 and the eaves 110. The ventilation channels facilitate the removal of moisture between the eaves protector 10 and the eaves 110.

[0050] Figures 3A and 3B illustrate schematically an eaves protector 10 according to an embodiment of the present invention. The eaves protector 10 may be adapted for arranging to cover and attaching to an eaves 110. The eaves protector 10 may comprise a first portion 15 of an interlocking joint 30 of the arrangement 100. The first portion 15 may be at a first side 11 of the eaves protector 10 and adapted such that the at least one rail portion 20 may be couplable to the eaves protector 10 by the interlocking joint 30 for forming a safety rail.

[0051] Figure 3A illustrates the eaves protector 10 from below by a perspective view, that is from the side of the eaves 110 on which the eaves protector 10 is designed to be arranged on and attached to the eaves 110. As can be seen, the eaves protector 10 may comprise at least two first portions 15 for receiving the rail portions 20. According to this particular embodiment, the first portions 15 are arranged into the ends of the eaves protector 10 with respect to the first direction X. The first portions 15 may comprise three openings 16 arranged to align in similar manner as illustrated in Figs. 1A and 1B. Fig. 3B illustrates the eaves protector 10 directly from the side of the eaves 110 on which the protector 10 is to be arranged. Fig. 3C illustrates a cross-section of the eaves protector 10 according to the embodiment.

[0052] Figures 4A-4D illustrate schematically a rail portion 20 according to an embodiment of the present invention. Fig. 4A illustrates the rail portion 20 from a perspective, Fig. 4B from a side, Fig. 4C the cross-section of the rail portion 20 at point A (shown in Fig. 4B) of the rest 21 of the rail portion 20, and Fig. 4D the cross-section of the rail portion 20 at point B (shown in Fig. 4B) of the second portion 25 of the rail portion 20.

[0053] The rail portion 20, as illustrated in Fig. 4A, may comprise a third portion 45 for attaching or coupling or joining a second rail portion to the rail portion 20. The third portion 45 may be, for example, an opening through which the second rail portion may be arranged through. The cross-section of the opening may preferably be such that the second rail portion fits through it is supported at least in perpendicular directions with respect to the direction in which it is to be moved when arranged through the opening. The second rail portion or portions, thus, typically define the horizontal part(s) of the safety rail. The third portions 45 may be arranged at various points of the rail portion 20 or portions 20.

[0054] In Figs. 4A and 4B, the at least one rail portion 20 may comprise a second portion 25 of the interlocking joint 30. The second portion 25 may be such that it comprises different kind of cross-section with respect to the cross-section of the rest of the rail portion 20, for instance.

The length of the second portion 25 in the third direction Z may be from one centimeter up to ten centimeters, preferable from two centimeters to five centimeters, or specifically 2.5 centimeters. In Figs. 4A and 4B, the cross-section of the second portion 25 is substantially U-shaped. The rest 21 of the rail portion 20 in Figs. 4A and 4B has a substantially C-shaped cross-section, wherein the U-shaped second portion 25 may essentially be part of the C-shape of the rest 21 of the rail portion 20. Therefore, the edge of the C-shaped rail portion 20 defines a surface which comes into contact with the eaves protector 10, that is the first support contact surface 17A thereof, while the U-shaped second portion 25 extends through the opening 16. Fig. 4D illustrates the U-shaped cross-section of the second portion 25 according to the particular embodiment.

[0055] Figures 5A and 5B illustrate schematically a safety rail arrangement 100 according to an embodiment of the present invention. The safety rail arrangement 100 may comprise four, or more, rail portions 20 coupled to the eaves protector 10 by the interlocking joints 30. Furthermore, the safety rail arrangement 100 may comprise three, or more, second rail portions 40 forming the horizontal part(s) of the safety rail.

[0056] In addition, the safety rail arrangement 100 may comprise further eaves cover(s) 60-62. The further eaves cover(s) 60-62 may be made of the same material as the eaves protector 10 and, optionally, adapted to be attached to the eaves protector 10 and/or another one of the further eaves cover 60-62 and/or to the eaves 110.

[0057] Figure 6 illustrates schematically a second rail portion 40 according to an embodiment of the present invention. The second rail portion 40 may be configured such that it may be coupled to the rail portion(s) 20 by the third portion(s) 45 of the rail portion(s) 20. According to some embodiments, the third portion 45 may be, such as shown in Fig. 4A, an opening corresponding to the cross-section of the second rail portion 20, and through which the second rail portion 40 is arrangeable. Preferably, the cross-section may be such that it provides support at least in the third Z and second Y directions when in use.

[0058] Figures 7A and 7B illustrate schematically a further eaves cover 60-62 according to an embodiment of the present invention. The further eaves cover 60-62 may be attached to the eaves protector 10 by screws, bolts or nails, or rivet. Alternatively or in addition, the further eaves cover 60-62 may be attached to the eaves 110 by attachment means such as screws. Fig. 7B illustrates the cross-section of the further eaves cover 60-62 according to an embodiment of the present invention. The shape of the cross-section may, preferably, be J-shaped. As can be seen, the cross-section of the further eaves cover 60-62 may resemble the cross-section of the second side portion 13 of the eaves protector 10, thus providing ventilation channels between the eaves 110 and the further eaves cover(s) 60-62. The width of the further eaves cover 60-62 in the third direction Z, when in use, may range,

for example, from 10 to 70 centimeters, such as 14 centimeters, 30 centimeters or 60 centimeters.

[0059] According to various embodiments, the length of the eaves protector 10 in the first direction X may be, for example, about three meters. However, the length of the eaves protector 10 may range from one meter to four meters, such as be two meters or 2.5 meters. Similar lengths may, according to various embodiments, apply for the further eaves cover(s) 60-62.

[0060] Furthermore, the length of the second rail portion 40 may also be, in the first direction X when in use, for example, about three meters. However, the length of the second rail portion 40 may range from one meter to four meters, such as be two meters or 2.5 meters.

[0061] According to various embodiments, the eaves protector 10 and/or the second rail portion(s) 40 may be arranged consecutively and, optionally, attached to each other. This is illustrated in Fig. 5B which shows second rail portions 40 attached to each other. The attaching may be implemented by, for example, interlocking joints or attachment means, such as bolts or rivets.

[0062] The scope of the present invention is determined by the attached claims together with the equivalents thereof. A person skilled in the art will appreciate the fact that the disclosed embodiments were constructed for illustrative purposes only, and other arrangements applying many of the above principles could be readily prepared to best suit each potential use scenario.

Claims

1. A safety rail arrangement (100) comprising

- at least one rail portion (20), and
- an eaves protector (10) adapted for arranging to cover and attaching to an eaves (110), wherein the eaves protector (10) comprises a first portion (15) of an interlocking joint (30) of the arrangement (100), wherein the first portion (15) is at a first side of the eaves protector (10), wherein the first side is a side of the eaves protector (10) extending in parallel to a longitudinal direction of the eaves protector (10), that is to a first direction (X), and in parallel to a third direction (Z) being perpendicular relative to the first direction (X), and adapted such that the at least one rail portion (20) is couplable or joinable to the eaves protector (10) by the interlocking joint (30) for forming a safety rail, wherein the first portion (15) comprises at least one first support contact surface (17A) for supporting the at least one rail portion (20) in the third direction (Z), preferably against the gravity when in use, and at least two openings (16), wherein the openings (16) are aligned and adapted for receiving the at least one rail portion (20) through them,

characterised in that the first portion (15) further comprises

- a third opening (16) arranged aligned with the at least two openings (16) and adapted for receiving the at least one rail portion (20) through it, wherein the at least one first support contact surface (17A) is arranged at the third opening (16), or
 - an area defining the at least one first support contact surface (17A) and adapted for receiving thereon the at least one rail portion (20).
2. The safety rail arrangement (100) according to claim 1, wherein the eaves protector (10) comprises a first side portion (11) and a cover portion (12), wherein the first side portion (11) is arranged to extend substantially perpendicularly with respect to the cover portion (12), and wherein the first side portion (11) comprises the first portion (15) of the interlocking joint (30).
 3. The safety rail arrangement (100) according to claim 1, wherein the eaves protector (10) comprises a first side portion (11), a cover portion (12) and a second side portion (13), wherein the first (11) and the second side portions (13) are arranged to extend perpendicularly with respect to the cover portion (12), and wherein the first side portion (11) comprises the first portion (15) of the interlocking joint (30).
 4. The safety rail arrangement (100) according to any one of the preceding claims, wherein a shape of the openings (16) corresponds to a cross-section of the at least one rail portion (20) such that the at least one rail portion (20) is arrangeable through the openings (16).
 5. The safety rail arrangement (100) according to any one of the preceding claims, wherein the first portion (11) comprises at least one first support contact surface (17A) for supporting the at least one rail portion (20) in a third direction (Z), preferably against the gravity when in use.
 6. The safety rail arrangement (100) according to claim 5, wherein the interlocking joint (30) comprises in the first portion (15) at least two second support contact surfaces (17B) for supporting the at least one rail portion (20) in directions perpendicular with respect to the third direction (Z).
 7. The safety rail arrangement (100) according to claim 6, wherein a distance between the at least two second support contact surfaces (17B) is at least three centimeters.
 8. The safety rail arrangement (100) according to claims 5 and 6, wherein a distance between the first support contact surface (17A) and closest second support contact surface (17B) is at least five centimeters.
 9. The safety rail arrangement (100) according to any one of the preceding claims, wherein a cross-section of the first portion (11) of the interlocking joint (30) is substantially S-shaped.
 10. The safety rail arrangement (100) according to any one of the preceding claims, wherein the at least one rail portion (20) comprises at least one third portion (45) for receiving a second rail portion (40).
 11. The safety rail arrangement (100) according to any one of the preceding claims, wherein the at least one rail portion (20) comprises a second portion (25) of the interlocking joint (30), wherein the second portion (25) is adapted with respect to the at least one first support contact surface (17A) for supporting the at least one rail portion (20) in the third direction (Z).
 12. The safety rail arrangement (100) according to any one of the preceding claims, comprising at least two rail portions (20), each comprising at least one third portion (45) for receiving a second rail portion (40), and at least one second rail portion (40), and wherein the eaves protector (10) comprises at least two first portions (15) of the interlocking joint (30).
 13. The safety rail arrangement (100) according to any one of the preceding claims, wherein the eaves protector (10) is of a metal sheet, and the first portion (15) of the interlocking joint (30) comprises four folds such that the first portion (15) of the interlocking joint (30) defines three consecutive layers.
 14. The safety rail arrangement (100) according to claim 13, wherein two consecutive folds of the four folds both have 115 degrees angle.
 15. An eaves protector (10) for a safety rail arrangement (100), wherein the eaves protector (10) is adapted for arranging to cover and attaching to an eaves (110), wherein the eaves protector (10) comprises a first portion (15) of an interlocking joint (30) of the arrangement (100), wherein the first portion (15) is at a first side of the eaves protector (10), wherein the first side is a side of the eaves protector (10) extending in parallel to a longitudinal direction of the eaves protector (10), that is to a first direction (X), and in parallel to a third direction (Z) being perpendicular relative to the first direction (X), and adapted such that at least one rail portion (20) is couplable or joinable to the eaves protector (10) by the interlocking joint (30) for forming a safety rail, wherein the first portion (15) comprises at least one first sup-

port contact surface (17A) for supporting the at least one rail portion (20) in the third direction (Z), preferably against the gravity when in use, and at least two openings (16), wherein the openings (16) are aligned and adapted for receiving the at least one rail portion (20) through them, **characterised in that** the first portion (15) further comprises

- a third opening (16) arranged aligned with the at least two openings (16) and adapted for receiving the at least one rail portion (20) through it, wherein the at least one first support contact surface (17A) is arranged at the third opening (16), or
- an area defining the at least one first support contact surface (17A) and adapted for receiving thereon the at least one rail portion (20).

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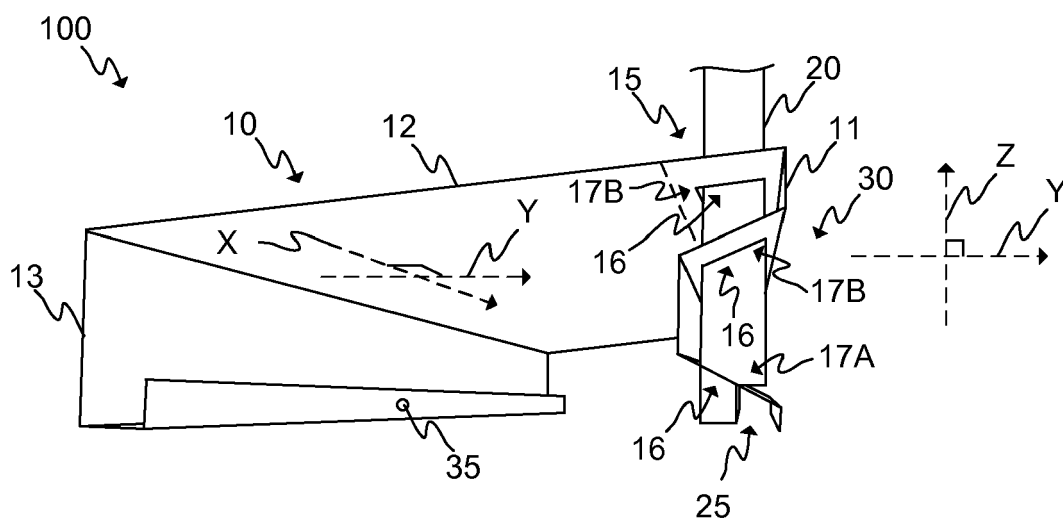


FIG. 1A

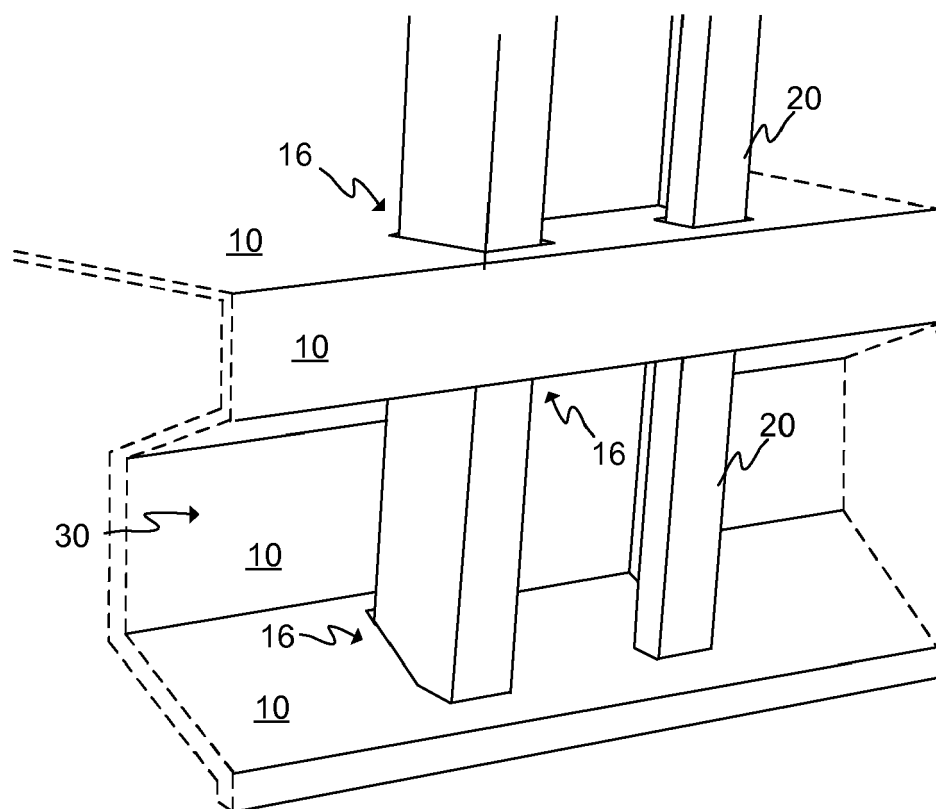
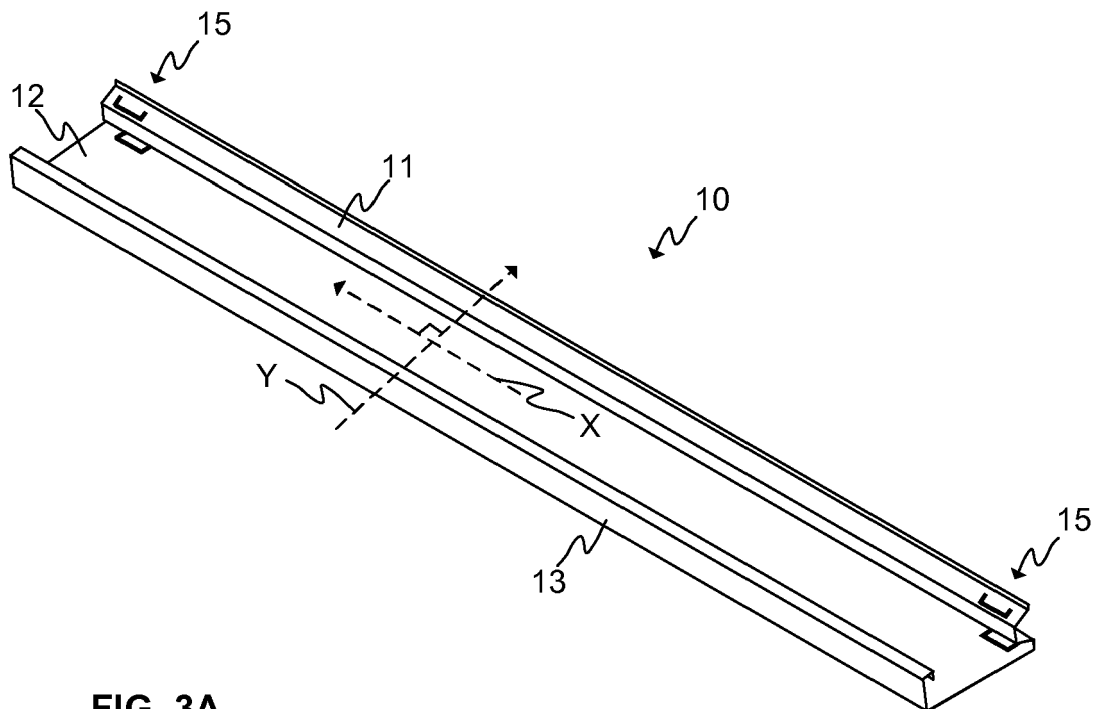
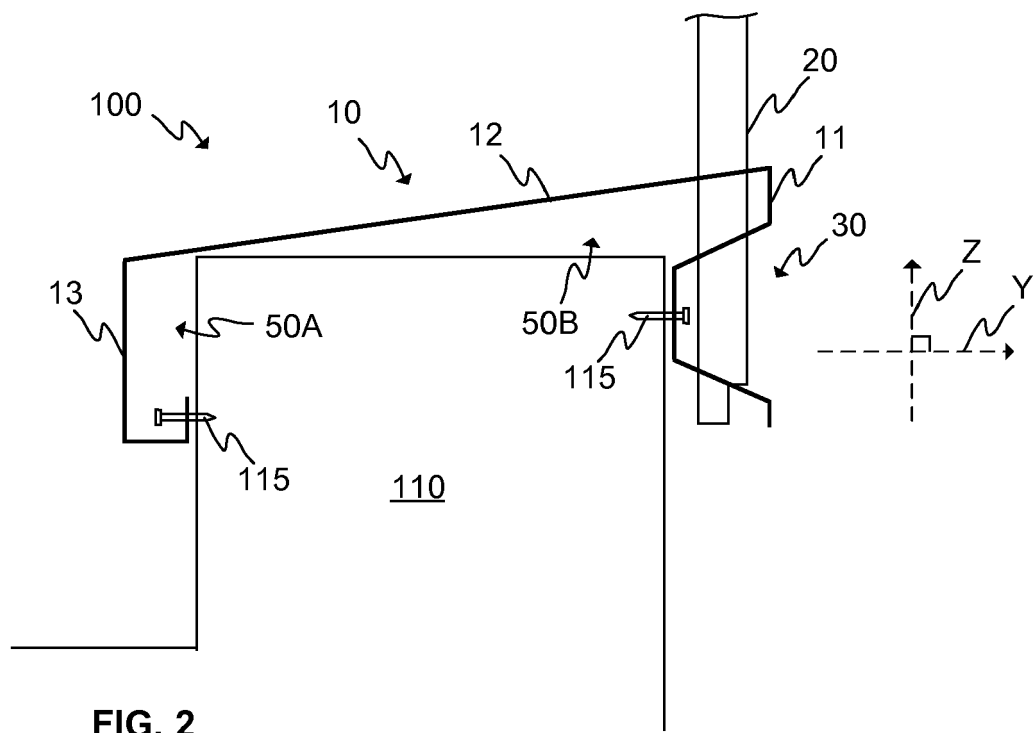


FIG. 1B



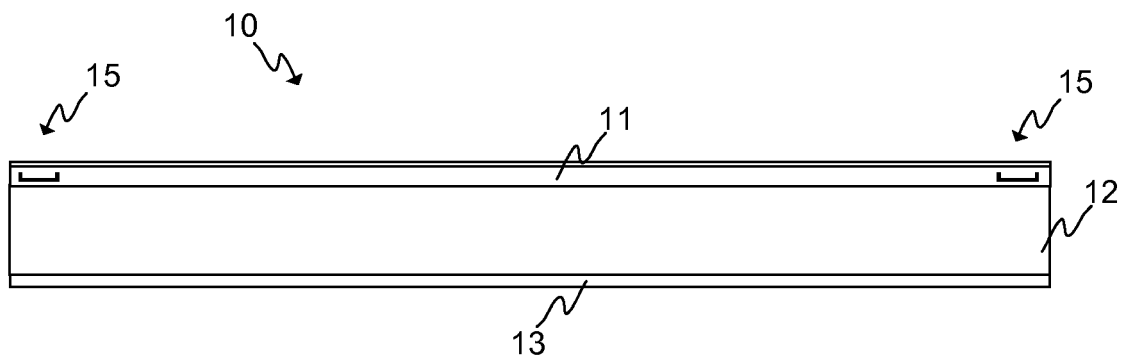


FIG. 3B

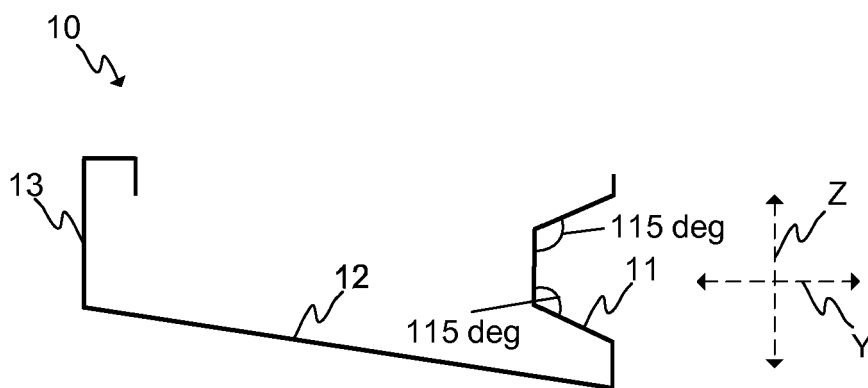


FIG. 3C

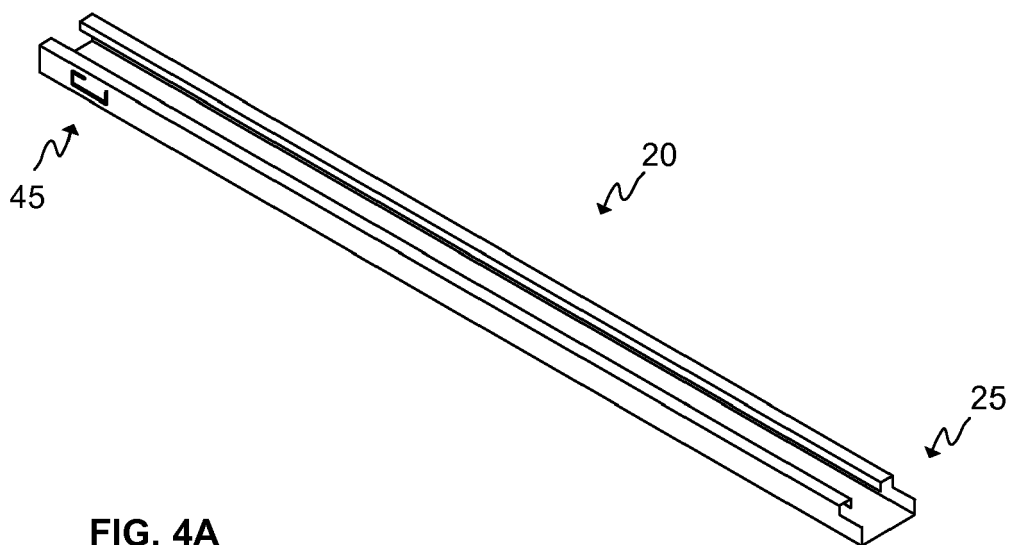


FIG. 4A

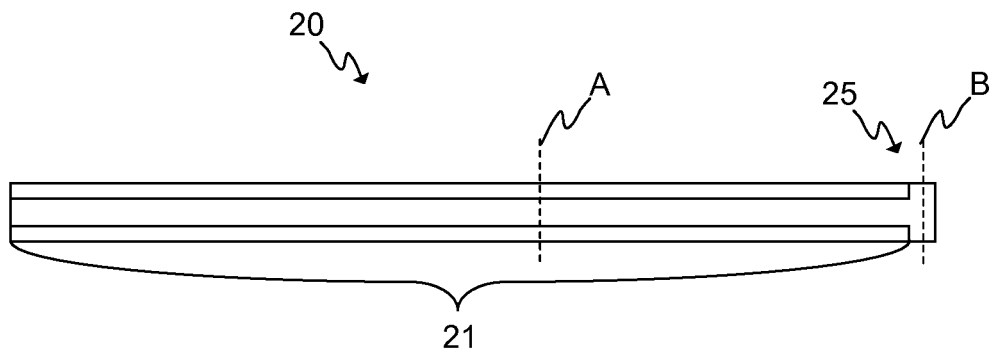


FIG. 4B

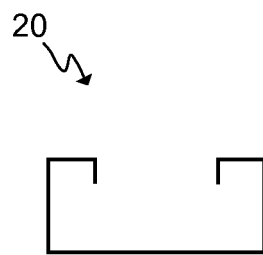


FIG. 4C

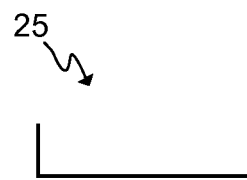


FIG. 4D

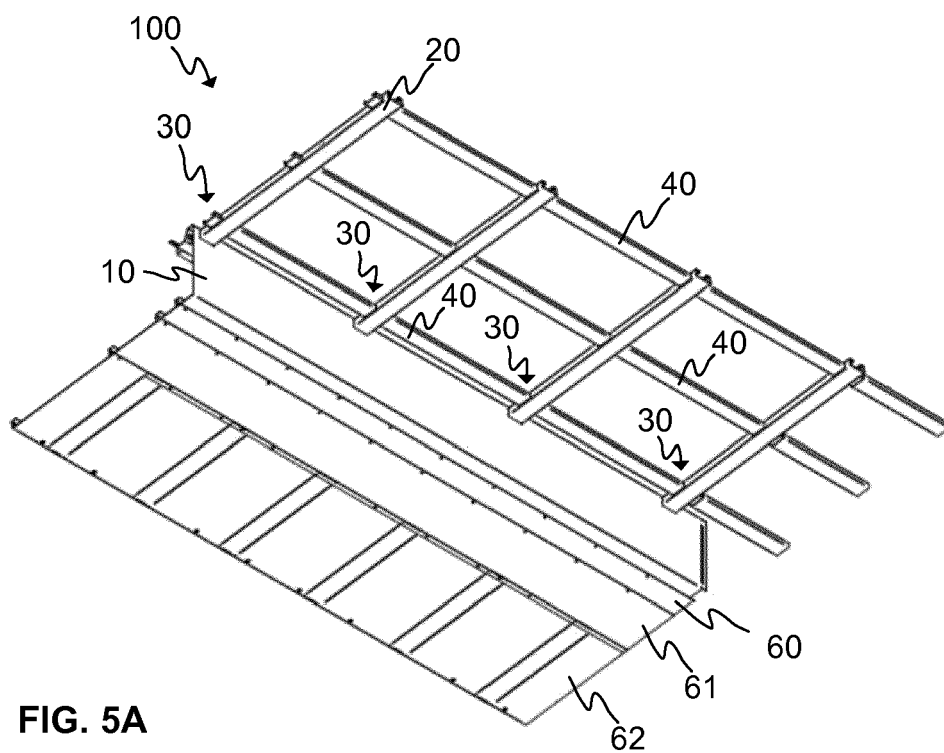


FIG. 5A

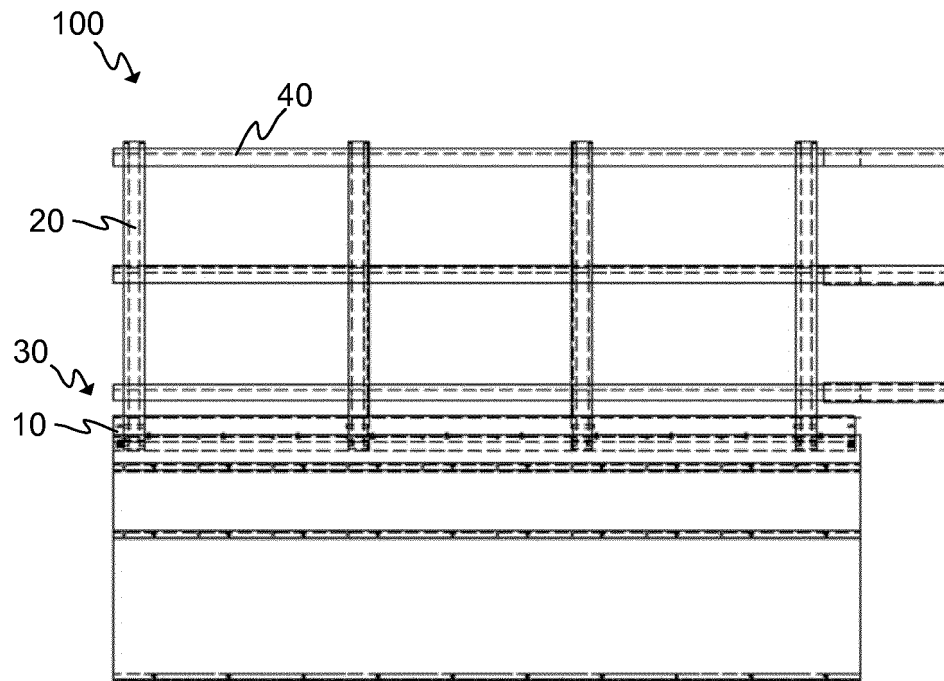


FIG. 5B

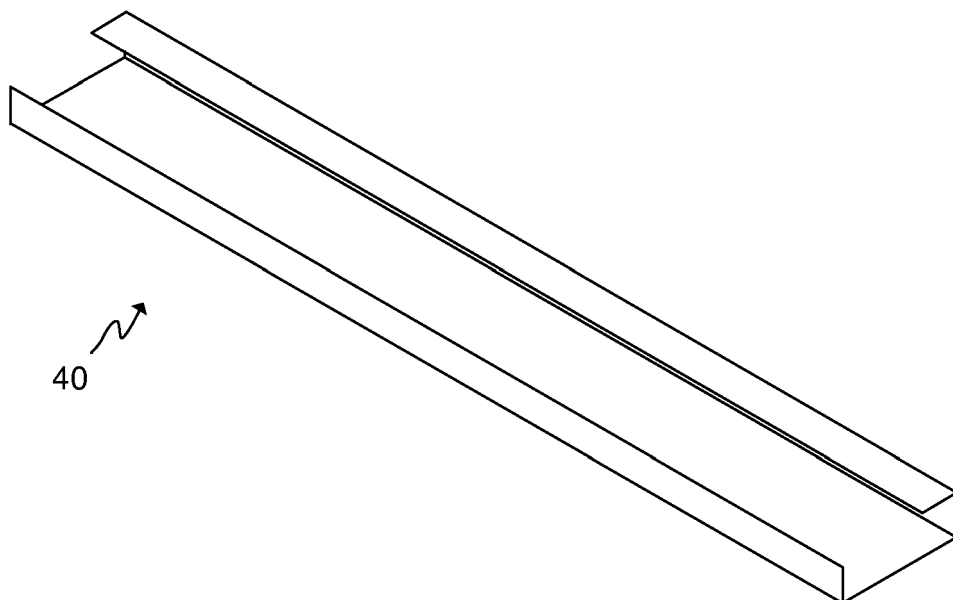


FIG. 6

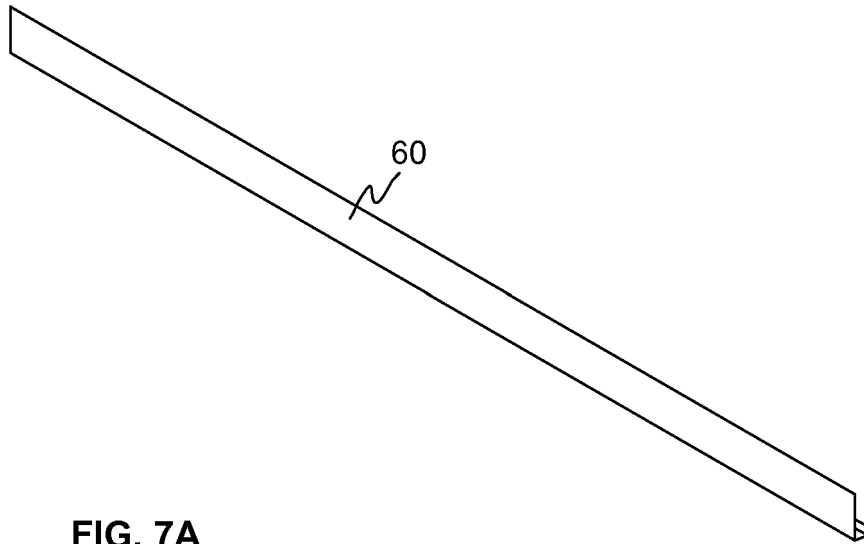


FIG. 7A



FIG. 7B



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A	* figures 1-3 *	14	
A	JP S60 108638 U (-) 24 July 1985 (1985-07-24) * figure 4 *	1-15	
A	FR 2 941 480 A1 (FRENEHARD & MICHAUX SA [FR]) 30 July 2010 (2010-07-30) * figure 1 *	1-15	
A	FR 2 666 610 A1 (OUEST ETANCHEITE [FR]) 13 March 1992 (1992-03-13) * figures 3, 4 *	1-15	
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			E04G E04F E04D
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		17 December 2019	Tryfonas, N
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