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(57) Sammendrag:
An outdoor slat wall panel for being mounted on an exterior surface of a building or construction so that the outdoor slat wall panel may form the final exterior surface of the building or construction. The slat wall panel comprises at least a first and a second slat and a support plate, the first and second slats being arranged on an outer surface of the support plate so that outer surfaces of the first and second slats face the environment when the wall panel is mounted on the building, wherein the support plate is a corrugated plate comprising ridges separated by grooves, said slats, ridges, and grooves extending in a longitudinal direction of the support plate, wherein a first of said corrugations comprises a first of said ridges, and a second of said corrugations comprises a second of said ridges, said first and second ridges being separated by one of said grooves.

Fortsættes...

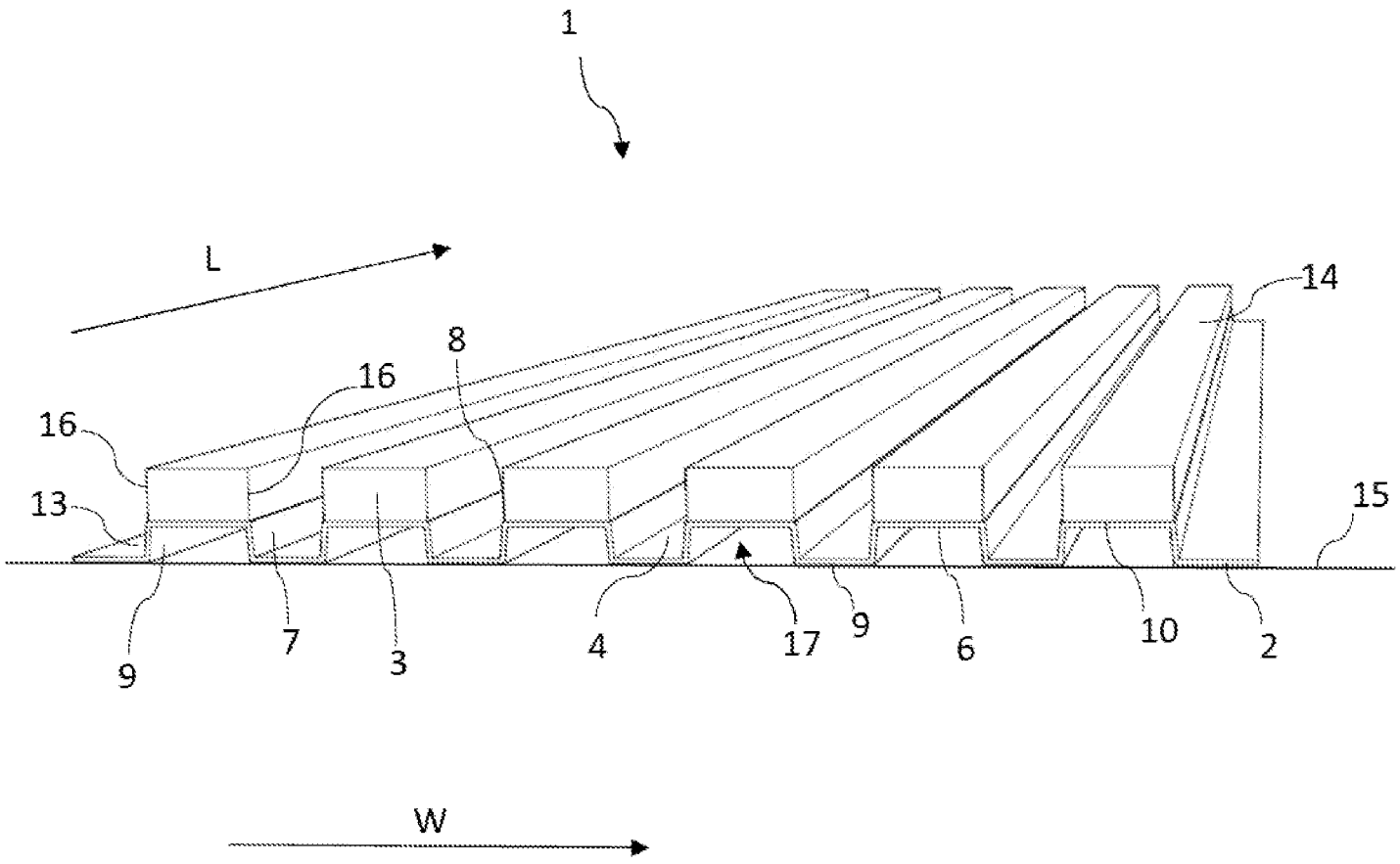

FIG. 5

The present invention relates to an outdoor slat wall panel and to a method of manufacturing an outdoor slat wall panel.

Technical Field

The present disclosure relates to an outdoor slat wall panel for being mounted on an exterior surface of a building or construction so that the outdoor slat wall panel may form the final exterior surface of the building or construction. The slat wall panel comprises at least a first and a second slat and a support plate, the first and second slats being arranged on an outer surface of the support plate so that outer surfaces of the first and second slats face the environment when the wall panel is mounted on the building, wherein the support plate is a corrugated plate comprising ridges separated by grooves, said slats, ridges, and grooves extending in a longitudinal direction of the support plate, wherein a first of said corrugations comprises a first of said ridges, and a second of said corrugations comprises a second of said ridges, said first and second ridges being separated by one of said grooves.

Additionally, the disclosure relates to a method of manufacturing an outdoor slat wall panel for being mounted on an exterior surface of a building.

Background Art

Decoration of internal wall surfaces is often an important aspect when furnishing a room. For this purpose, so-called slat wall panels have become popular in recent years due to their minimalistic appearance and sometimes additional acoustic features. A slat wall panel is an arrangement that can be installed on a wall or in a ceiling in e.g. a home, office, or store, where it can help to break up the room by creating a decoration wall or help to reduce sound reverberation in noisy areas of the room. The slat wall panel can be decorative in itself; however, it is also possible to decorate the slat wall panel with different items, such as pictures, mirrors, hangers, or the like. Slat wall panels are usually installed by drilling a hole in the slat wall panel and/or by the use of screws, nails or glue, which may leave a mark on the slat wall panel.

The inventors of the present invention have investigated how to

transfer technical and aesthetic advantages and features of prior art interior slat wall panels to be used as exterior slat wall panels. The prior art interior slat wall panels would quickly deteriorate if exposed to outdoor weather conditions and are insufficiently resistant to harsh weather and other external conditions like external forces applied or blows. Fixing any damage to the slat wall panels and maintaining them can be expensive and/or inconvenient. KR 200311679 Y1 discloses an interior slat wall panel designed to absorb sound within a specific frequency range.

Summary of Invention

With this background, it is therefore an object of the present disclosure to provide an outdoor slat wall panel that solves or at least alleviates one or more the above or other problems.

According to a first aspect of the present disclosure, this object is achieved by an outdoor slat wall panel of the kind mentioned in the introduction, wherein the first slat is arranged on an outer top surface of the first ridge and the second slat is arranged on an outer top surface of the second ridge. The first slat has an inner surface facing and connected to an outer surface of the first ridge. The second slat has an inner surface facing and connected to an outer surface of the second ridge. The first slat is arranged at a distance from the second slat to form an oblong spacing between the slats, said oblong spacing extending in the longitudinal direction and being aligned with said one groove positioned between the first and second ridges.

Potential advantages of the outdoor slat wall panel of the present disclosure may include mounting of the outdoor slat wall panel on an exterior surface of a building without damaging the exterior surface.

Another advantage may be that a resistant outdoor slat wall panel is provided which can withstand harsh outdoor conditions, while allowing easy and accessible decoration or redecoration of an exterior wall of a building with limited effort.

Another advantage may be that the slat wall panel may be mounted to the building without requiring any visible drill holes or openings, which could

otherwise contribute to the deterioration of the wall panel with time, and which may provide an aesthetically pleasing appearance of the building.

The slat wall panel comprises at least a first and second slat arranged on a support plate. The slat wall panel comprises a plurality of slats, such as at least 2, 3, 4, 5, 10, or 20 slats. The slats may alternatively be called lamellas. The slat wall panel may be ribbed or embossed.

A corrugated plate or corrugated sheet, which may be denoted a “bølgeplade" in Danish, can generally have a 3-dimensional structure and can feature enhanced resistance against horizontal and vertical loads. The corrugated plate may comprise a plurality of corrugations. The corrugations comprise ridges and grooves. The ridges and grooves may create a 3-dimensional structure, such that projections or ridges and depressions or grooves are formed on the support plate and the support plate does not constitute an even surface. The corrugated plate may have a wave-like structure.

In an embodiment, the support plate comprises or essentially consists of a metal, such as aluminium or a metal alloy such as steel, and/or the slats are wooden slats. The slats may alternatively comprise a material such as wood, composite wood, a polymer such as PVC, a metal, or a combination thereof. The slats may consist of wood. The support plate may comprise metal or metal alloys, polymer, wood and/or a combination of those. The slats may be laminated or comprise a surface layer of wood or a surface that appears to be wood but isn’t (e.g. a print on a plastic polymer coating) or veneer wood. The slat wall panel may comprise a composite material.

The slats are arranged on an outer or front surface of a support plate. The outer or front surface of the support plate is adapted to face the environment and/or away from the surface of the building on which the support plate is attached. The slat wall panel may alternatively be mounted on an interior surface of a building. When the slat wall panel is mounted on an interior wall, the front surface is adapted to face the room in which it is mounted.

In an embodiment, the slats substantially cover an exterior surface of the ridges in a substantially entire length of the ridges. Additionally or alternatively, the slats substantially cover the entirety of the exterior surface of a wall of a

building.

Generally, each slat may be fastened to the support plate. The fastening may be achieved by means of nails, rivets, screws, staples, and/or glue.

The slat wall panel may comprise an adhesive such that the inner surface of the slat is retained on the outer surface of the ridge of the support plate by means of the adhesive. The adhesive may be selected from a list of adhesives such as glue, paste, film, strips, etc.

The slat wall panel may comprise a fastener such as a screw, the fastener retaining the slat to the support plate.

The slat wall panel may comprise an opening and/or an aperture. The opening may be adapted to receive a fastener. The opening may be a through hole. The fastener may not extend through the slat.

Each slat may have an inner surface facing and being connected to an outer surface of the respective ridge of the support plate. The inner surface may be flat, plane or substantially straight. Alternatively, the inner surface may comprise a curved portion. The inner surface of the slat may have a width - extending in the width direction- equal to the width of the outer surface of the ridge of the support plate, where it is connected to. Alternatively, the width of the inner surface of the slat may be smaller than the outer surface of the ridge, such that the ridge extends slightly away from the slat in the width direction. The two surfaces mentioned above may be adjacent to each other. The connection between the inner surface of the slat and the outer surface of the ridge may be fixed.

Each slat may have a slat back fastened to the support plate. The slat back may comprise the inner surface of the slat.

Each slat back may be partly fastened to support plate leaving the slat back partly free from the support plate. In some embodiments, each slat may be stapled to the support plate. Each slat may be stapled to the support plate with staples placed at a specific staple distance. The staple distance may vary along the length of each slat and/or between slats. Alternatively and/or additionally, the slat back may be partially glued to the support plate. The majority of the slat back of at least one of the slats may be glued to the support plate

with a minority of the slat back not glued to the support plate. By leaving the slat back partly free from the support plate, a track may be formed between the slat and the support plate. The slat back may be completely fixed to the support plate. In some embodiments, a track may be comprised in at least one of the first and second slats, such that the panel fitting can be attached to the slat wall panel non-destructively. Alternatively, the slats may be fixed to the support plate via needle or glue.

In an embodiment, the support plate comprises or substantially consists of substantially plane material pieces connected at angles to form the corrugations. Additionally, the first and second ridges, potentially each of all of the ridges, of the support plate may have a substantially square, rectangular, or trapezoidal cross-section.

In a further embodiment, each of the slats has a square or rectangular cross-section including two side surfaces, one of said side surfaces of the first slat facing one of said side surfaces of the second slat.. The two side surfaces may be opposing. The square or rectangular cross-section may provide a flat surface on the ridge which may enhance the abutment and secure attachment of the slat onto the outer top surface of the ridge.

In a yet further embodiment, a width of the oblong spacing between the first and second slats is 10 to 30 mm, said width extending in a width direction perpendicular to said longitudinal direction of the support plate.

In another embodiment, a depth of the support plate is 5 to 20 mm, preferably approximately 10 mm, said depth extending in a depth direction perpendicular to the longitudinal and width directions of the support plate. The depth direction may coincide with a height direction. The ridges of the corrugations of the support plate may comprise a top surface and the grooves may comprise a bottom surface, the distance of the top and bottom surface being equal to the depth of the support plate. The top surface of the ridge is configured to be attached to the slat. The depth of the support plate may be defined as the distance between a bottom surface of the support plate extending in the longitudinal direction and the top surface of the ridge. The top surfaces of the ridges may extend in the longitudinal direction, such that the bottom surface of the

support plate and the top surface of the support plate are parallel with each other. The bottom surface of the support plate may be defined by the outer surface of the grooves of the corrugations.

In an embodiment, a width of each of the first and second slats is 20 to 60 mm, preferably 30 to 50 mm, more preferably approximately 40 mm, said width extending in a width direction perpendicular to said longitudinal direction of the support plate.

Each slat may generally comprise a slat front. The slat front is adapted to face away from the wall onto which the slat wall panel is mounted. In some embodiments, the slat fronts have a width in the range of 2 to 6 cm, preferably in the range of 3 - 5 cm or 3 - 4 cm, as mentioned above.

The distance between the slat back and the slat front defines a slat thickness. The slat thickness may be equal to the slat height or slat depth. Generally, the at least two slats are of the same thickness. The slat thickness may be in the range of 0.05 to 3 cm, preferably 2 cm.

In an embodiment, a wall thickness of the support plate is in the range of 0.05 to 1.5 mm, preferably approximately 1 mm. The support plate may comprise walls. The wall thickness of the support plate may preferably be below 2mm, such that the manufacture of the support plate is economical as well as feasible in terms of craftmanship. The support plate may comprise an inner and outer surface, the inner surface being configured to be mounted onto the building surface, while the outer surface being configured to face away from the building surface the slat wall panel is attached to. The inner and outer surfaces are positioned oppositely from each other, constituting the walls of the support plate. The distance between the inner and outer surface of the support plate corresponds to the wall thickness of the support plate.

In another embodiment, each corrugation of the support plate comprises two inclined side surfaces and the top surface, each of the inclined surfaces forming an approximately 85 degree angle with a width direction perpendicular to said longitudinal direction of the support plate. The inclined surfaces of the corrugation may form an angle with a bottom surface of the support plate extending in the width direction, the angle being preferably acute in the range of

45 to 90 degrees, preferably 85 degrees. The inclination of the side surfaces of the corrugations may provide increased resistance, easy manufacturing and allow the stacking of the corrugated plates. Alternatively, the angle may be obtuse. In an alternative embodiment, each of the corrugations of the support plate has a triangular cross-section comprising two inclined surfaces forming an acute angle between them. In this embodiment, the slats may also have a triangular shape, fitting on top of the corrugations.

Preferably, each slat further comprises two opposing slat sides extending between the slat front and the slat back. Each slat side may extend substantially perpendicular to the slat front. Alternatively, at least one of the slat sides extends from the slat front at an acute angle or an obtuse angle. At least one of the slats may optionally have a trapezoid cross section. At least one of the slat sides may be rounded. Alternatively and/or additionally, at least one of the slats may have a triangular cross section, with a slat front facing away from the support plate, and one of the angles facing the support plate. In these embodiments, the slat may be fastened to the support plate at the two sides partly facing the support plate. In these embodiments, the slat thickness is defined as the distance between the slat front and the angle opposite the slat front.

In embodiments where at least one slat has a slat side extending at an acute angle from the slat front, the track may be formed between the triangular space between the slat and support plate.

In embodiments where at least one slat has a rounded slat side the track may be formed between the space formed between the slat and support plate.

In embodiments, where the track is formed in at least one of the first and second slats, the track is formed in one of the slat sides. A track may be formed in both slat sides. The track may be formed between the slat front and slat back. Alternatively, the track may be formed at a corner between the slat back and a slat side.

Generally, the at least two slats are arranged on the support plate with a mutual slat distance leaving an oblong spacing between slats.

In preferred embodiments, the at least two slats are arranged at a mutual distance to extend in parallel on the support plate with a slat side of a first slat

facing a slat side of a second slat. The oblong spacing being formed between the slats may reveal a part of the support plate, thereby giving the slat wall panel a striped appearance alternating between slat and support plate. In presently preferred embodiments, the slat distance is in the range of 1 to 5 cm, more preferably approx. 3 cm. The equal mutual distance between the slats may allow for easy manufacturing, reduced costs and be aesthetically pleasing. The slats, the ridges and the grooves extend in the longitudinal direction across the slat wall panel.

In an embodiment, the slat wall panel comprises at least six slats or beams arranged at a mutual distance to form the oblong spacing between the slats. The six slats, six respective ridges and the oblong spacing formed between the slats extend in the longitudinal direction across the slat wall panel. In this embodiment, the width of the panel extending from the first slat to the sixth slat is in the range of 10 to 200 cm, 20 to 50 cm, more preferably approx. 40 cm. The weight of such wall panel depends on the material choice and size of the panel and is in the range of 5 to 30 kg, preferably 10 to 20 kg.

The support plate may be made of a compliant material. The support plate may alternatively be made of a felt material. Having a support plate of felt has the advantage of providing soundproofing effects. Thus, the slat wall panel may act as an acoustic panel. It further has the advantage of being a compliant material in which an attachment wing can non-destructively form a track. Alternatively and/or additionally, in embodiments where the support plate is a compliant material, the support plate may be made from a soft wood material.

In embodiments where the support plate is a resilient material such as for a slat wall panel for outside use, the support plate may be made of a material such as metal, wood, concrete, or brick. A support plate made of metal or wood may be a framing with the at least two slats fastened to the metal or wood frame. The support plate may comprise a plurality of beams or lamellas extending on the surface of the building, such as beams extending transversely relative to the oblong opening. The beams may alternatively extend parallel to the oblong spacing. In such embodiment, the beams or lamellas may comprise or constitute the slats.

The slats may comprise ridges or recesses, extending in the longitudinal direction and/or width direction. The ridges or recesses may provide for attachment to external components such as mounting brackets or provide an aesthetically varying result.

In an embodiment, the slat wall panel is configured to be mounted on a vertical surface of a building, such that the slats and the oblong spacing extend along and in parallel with the height of the surface of the building.

In an embodiment, the oblong spacing formed between the slats on the support plate comprises holes adapted to receive fasteners to mount the slat wall panel on the surface of the building. Such holes may be provided along the oblong spacing at mutual distance with each other. The holes may be provided in each of the oblong spacing formed between two neighbouring slats or in some of them.

When the outdoor slat wall panel is mounted on a surface of a vertical wall of a building such that the slats extend in parallel with the height of the wall, apertures are formed between the ridges of the corrugations and the surface of the wall of the building. The slat wall panel may alternatively be mounted onto a horizontal wall. The aperture may be a rectangular spacing or opening. When mounted on an exterior wall of a building, such apertures may facilitate the drainage of rainwater, which may be guided to flow down and away from the slat wall panel, thus not resulting in stagnant water inside the wall panel or on the slats. In an embodiment, the apertures may be covered or closed such that no rainwater is allowed to enter into the aperture. The cover may be a flap positioned in each of the apertures or a common flap covering all apertures at once. Alternative covers may be envisaged. Alternatively, the wall panel may be provided such that the two longitudinal ends of the support panel are closed, with a flange projecting outwardly of the support plate.

In an embodiment, the support plate comprises a thermal insulation material attached, adhered or abutting to an inner surface of the support plate. The thermal insulation material may comprise expanded polystyrene, mineral wool, polyurethane foam or phenolic foam, topped off with a reinforced cement based, mineral or synthetic finish and/or plaster. The thermal insulation may be

attached to each of the corrugations of the support plate or to some of them. The thermal insulation material may provide an exterior thermal insulation for the walls of the buildings where the outdoor slat wall panel is intended to be mounted. The thermal insulation material may be deformable. The thermal insulation may alternatively be attached to an outer surface of the support plate, facing towards the exterior, such that the slats are attached onto a surface of the thermal insulation.

The slat wall panel comprises a waterproof coating on at least a surface of the slat wall panel configured to face the exterior.

According to a second aspect of the invention, a method of manufacturing an outdoor slat wall panel is provided for being mounted on an exterior surface of a building, comprising the steps of:

providing a support plate, the support plate being a corrugated plate comprising ridges separated by grooves, wherein a first of said corrugations comprises a first of said ridges, and a second of said corrugations comprises a second of said ridges, said first and second ridges being separated by one of said grooves,

providing at least a first and a second slat,

arranging the first slat and the second slat on an outer surface of the support plate so that outer surfaces of the first and second slats face the environment when the wall panel is mounted on the building, said slats, ridges, and grooves extending in a longitudinal direction of the support plate,

arranging the first slat on an outer top surface of the first ridge and the second slat on an outer top surface of the second ridge, the first slat having an inner surface facing and connected to an outer surface of the first ridge, the second slat having an inner surface facing and connected to an outer surface of the second ridge, and

arranging the first slat at a distance from the second slat to form an oblong spacing between the slats, said oblong spacing extending in the longitudinal direction and being aligned with said one groove positioned between the first and second ridges. The method may further comprise the step of allowing the adhered slats to harden on the support plate. An additional step of the

method may be to provide a fastener such as a screw at the inner surface or back surface of the support plate, preferably on an inner or bottom surface of each corrugation, such that a force is applied on the inner surface of the support plate and towards the slat, which may keep the slats and support plate in tight contact with each other. Such fastener may not protrude or extend outside of the slat. The inner or bottom surface of the ridge may be positioned oppositely from the top surface of the ridge, configured to face towards the surface of the building the slat wall panel is adapted to be mounted on.

According to a third aspect of the invention, a building is provided with an exterior surface of the building covered by an outdoor slat wall panel according to the above embodiments. One or more of the exterior surfaces of the building may be covered entirely or partly by an outdoor slat wall panel. Additionally or alternatively, a building may be provided with an interior surface of the building covered by the slat wall panel according to the above embodiments.

Other presently preferred embodiments and further advantages will be apparent from the subsequent detailed description and drawings.

Brief Description of Drawings

In the following, embodiments of the present disclosure will be described with reference to the schematic drawings, in which:

Fig. 1 is a perspective view of a support plate of an embodiment of an outdoor slat wall panel.

Fig. 2 is a perspective view of a slat wall panel according to an embodiment and where one slat is shown in an exploded view.

Fig. 3 is a perspective view of an outdoor slat wall panel according to an embodiment of Fig. 2.

Fig. 4a is a cross-sectional side view taken along the line IVa-IVa of Fig. 1.

Fig. 4b is a cross-sectional side view taken along the line IVb-IVb of Fig. 3.

Fig. 5 is a top perspective view of an outdoor slat wall panel according

to an embodiment of Fig. 4b and mounted on a surface of a building.

Reference numerals herein may refer to similar elements across various embodiments and figures as described herein.

Description of Embodiments

In the following detailed description, specific embodiments of the outdoor slat wall panels of the present disclosure and, potentially, of the present invention will be described. However, it is to be understood that features of the embodiments are exchangeable between the embodiments and may be combined in different ways, unless anything else is specifically indicated. It may also be noted that, for the sake of clarity, the dimensions of certain components illustrated in the drawings may differ from the corresponding dimensions in real-life implementations.

Referring initially to Figs. 1-3, a perspective view of a slat wall panel 1 and a support plate 2 according to an embodiment are illustrated. The outdoor slat wall panel 1 is for being mounted on an exterior surface of a building (not shown). The slat wall panel 1 comprises at least a first and a second wooden slat 3i, 3ii and the metallic support plate 2. The first and second slats 3i, 3ii are arranged on an outer surface 13 of the support plate 2. In Fig. 2, one of the slats 3 is not attached to the slat wall panel 1 but is shown as a separate part to be inserted next to another slat of the slat wall panel 1. The first and second slats 3i, 3ii are arranged at a mutual distance to form an oblong spacing 4 between the slats 3i, 3ii, thereby revealing a part of the support plate 2. The slat wall panel 1 may, however, comprise more slats than shown in Figs 1-3. The support plate 2 is a corrugated plate and comprises at least a first and a second corrugation 5i, 5ii. The corrugations extend in a width direction W and a longitudinal direction L. The width direction W is perpendicular to the longitudinal direction L. The corrugated plate comprises in these embodiments a plurality of corrugations 5i, 5ii. The support plate 2 consists of plane material pieces connected at angles to form the corrugations. The corrugations 5i, 5ii comprise ridges 6i, 6ii and grooves 12i, 12ii. The ridges are separated by the grooves. The corrugated plate has a wave-like three-dimensional structure.

The inner direction is generally defined facing towards the interior of a building, while the outer direction is defined oppositely from the inner direction and facing towards the exterior or the environment. The inner, top or front wording have in this context a similar meaning and may be used interchangeably. The outer, bottom or back wording have in this context a similar meaning and may be used interchangeably.

Turning to Figs 4a - 4b, the first and second corrugations 5i, 5ii comprise a first and a second ridge 6i, 6ii respectively, better shown in Fig. 4a. The first and second corrugations 5i, 5ii further comprise a first and a second groove 12i, 12ii respectively. As shown in Fig. 4b, the first slat 3i is arranged on a top surface 8i of the first ridge 6i and the second slat 3ii is arranged on a top surface 8ii of the second ridge 6ii. Each of the slats have an inner surface 10 facing and connected to an outer surface 11 of the respective ridge. The slats, the ridges and the grooves extend in the longitudinal direction L of the support plate 2. The oblong spacing 4 extends in the longitudinal direction L and is aligned with one groove 12i positioned between the first 6i and second 6ii ridges.

The support plate 2 here essentially consists of metal, such as aluminium, and the slats 3i, 3ii are wooden slats. The support plate has an inner or bottom surface 9 being configured to be mounted onto the building surface, and an outer or top surface 13 being configured to face away from the building surface. Each of the ridges 6i, 6ii of the support plate 2 has a trapezoidal cross-section. Each of the slats 3i, 3ii has a rectangular cross-section, having at least two flat surfaces facing each other. Each of the ridges 6i, 6ii of the support plate comprises two inclined surfaces 7 and the top surface 8i, 8ii. The inclined surface 7 forms an 85 degree angle with a width direction W perpendicular to the longitudinal direction L of the support plate 2. The inclined surfaces 7 and the trapezoidal cross-section of the ridges for an enhanced resistance of the support plate, easy manufacturing and easy stacking of the corrugated plates.

The width of the oblong spacing 4 between the slats 3i, 3ii is 30mm. The width extends in the width direction W, the width direction W being perpendicular to the longitudinal direction L. The height of the ridge 6i, 6ii of the support plate 2 is in this embodiment 10 mm. The height extends in a height direction

H being perpendicular to the longitudinal direction L. The width of the slats 3i, 3ii is 40 mm, the width extending in a width direction. The thickness of the support plate is 1 mm. The thickness is defined as the distance of the outer or top surface 13 and the inner or bottom surface 9 of the support plate, for example in the position of the ridge 6i, 6ii. The thickness of the support plate is better shown in Fig. 5. The top surface of the ridge 6i, 6ii is configured to be attached to the slat 3i, 3ii. The total width of the support plate 2 and slat wall panel 1 shown in Figs 4a - 4b, comprising six slats and six corresponding ridges on the corrugate plate, is approx. 45 cm including the side flanges on the two sides of the panel in the width direction. The height of the ridges 6i, 6ii shown in Fig. 4a is approx. 15mm. The height of the slats shown in Fig. 4b is approx. 20mm. The height of the ridge 6i, 6ii is defined as the distance between the bottom surface 9 of the support plate extending in the longitudinal direction L and the top surface 13 of the ridge. The top surfaces 13 of the ridges extend in the longitudinal direction L, such that the bottom surface 9 of the support plate 2 and the top surface 13 of the support plate 2 are parallel with each other. The bottom surface 9 of the support plate is here defined by the outer surface of the grooves 12i, 12ii of the corrugations. The outer surface of the groove is configured to be mounted onto or towards the exterior surface of the building. The depth or height of the support plate is in this embodiment approximately 10 mm, the depth extending in a depth direction perpendicular to the longitudinal and width directions of the support plate 2. The depth direction coincides with the height direction H.

Turning to Fig. 5, a perspective top view of the outdoor slat wall panel 1 is shown when mounted on an exterior surface 15 of a building. The slat wall panel is in this embodiment mounted such that the longitudinal direction L extends across the height of the building surface 15, when the building surface is of a vertical wall. A plurality of slats 3 is comprised on the wall panel 1, with the support plate 2 abutting on the building surface 15. In an alternative embodiment, thermal insulation may be provided between the bottom surface 9 of the support plate 2 and the building surface 15. The support plate 2 is a corrugated plate comprising a plurality of corrugations. The inner surface 10 of the slats 3

face and are connected to the outer surface 8 of the respective ridge 6, such that the slats 3 cover entirely the top part of the respective ridges 6. The slats 3 are glued onto the top surface 11 of the respective ridges 6. As shown, the slats 3, the ridges 6, the grooves 12 and the oblong spacing 4 extend in the longitudinal direction L of the support plate 2.

The slat 3 has a rectangular cross section with a slat front defined by the outer surface 14 and a slat back defined by the inner surface 10. Each slat 3 comprises two opposing slat sides 16 extending between the slat front and the slat back. Each slat side 16 extends in this embodiment substantially perpendicular to the slat front. The slats 3 are arranged on the support plate 2 with a mutual slat distance leaving the oblong spacing 4 between the slats. The oblong spacing 4 is thus formed between two neighbouring slats 3 and respective ridges 6. The oblong spacing 4 is shaped as an elongated track or recess. The oblong spacing 4 has a height equal to the height of the ridge 6 and of the respective slat 3. In this embodiment, the slat thickness equals the slat height or slat depth. The inclined surfaces 7 of the ridges 6 form an acute angle with the bottom surface 9 of the support plate 2. The bottom surface 9 is planar, substantially parallel and adjacent with the surface 15 of the building the panel 1 is mounted onto. Apertures 17 are formed by the ridges 6 and the building surface 15. Such apertures 17 are here openings, having a trapezoidal cross-section and extending in the longitudinal direction L across the entire length of the wall panel 1. Alternatively, the apertures 17 may be closed or filled with another material. In the embodiment shown in Fig. 5, the total width of the wall panel 1 isapprox. 48 cm, the total length of the panel 1 is approx. 240cm and the total height of the panel 1 is approx. 3.5 cm. The wall panel is scalable in size, thus these dimensions may vary according to specific embodiments and variations.

List of reference signs

1	Slat wall panel
2	Support plate
3i	First slat
3ii	Second slat
3	Slat
4	Oblong spacing
5i	First corrugation
5ii	Second corrugation
6i	First ridge
6ii	Second ridge
6	Ridge
7	Inclined surface of ridge
8i	Top surface of first ridge
8ii	Top surface of second ridge
9	Bottom or inner surface of support plate
10	Inner surface of slat
11	Outer or top surface of ridge
12i	First groove
12ii	Second groove
12	Groove
13	Outer or top surface of support plate
14	Outer surface of slat
15	Building surface
16	Sides of slat
17	Aperture
α	Angle of inclined surface
L	Longitudinal direction
W	Width direction
H	Height direction

P A T E N T K R A V

1. Udendørs lamelvægspanel (1) til montering på en ydre overflade af en bygning,

hvor lamelvægspanelet (1) omfatter mindst en første og en anden lamel (3i, 3ii) og en støtteplade (2), hvor den første og anden lamel er arrangeret på en ydre overflade af støttepladen (2), således at ydre overflader af den første og anden lamel vender mod omgivelserne, når lamelvægspanelet er monteret på bygningen,

kendetegnet ved, at

støttepladen er en bølgeplade omfattende bølgetoppe (6i, 6ii) adskilt af bølgedale eller riller (12i, 12ii), hvor nævnte lameller, bølgetoppe og riller strækker sig i en langsgående retning af støttepladen,

hvor en første af nævnte bølger omfatter en første af nævnte bølgetoppe, og en anden af nævnte bølger omfatter en anden af nævnte bølgetoppe, hvor den første og anden bølgetop er adskilt fra hinanden af én af nævnte riller,

hvor den første lamel (3i) er arrangeret på en ydre topoverflade af den første bølgetop, og den anden lamel er arrangeret på en ydre topoverflade af den anden bølgetop, hvor den første lamel har en indre overflade, som vender mod og er forbundet til en ydre overflade af den første bølgetop, og den anden lamel har en indre overflade, som vender mod og er forbundet til en ydre overflade af den anden bølgetop, og

hvor den første lamel (3i) er arrangeret i en afstand fra den anden lamel (3ii) for at danne et aflangt mellemrum (4) mellem lamellerne (3i, 3ii), hvor nævnte aflange mellemrum (4) strækker sig i den langsgående retning og er placeret på linje med nævnte ene rille placeret mellem den første og den anden bølgetop.

2. Udendørs lamelvægspanel (1) ifølge krav 1, hvor støttepladen (2) omfatter eller i det væsentlige består af et metal, såsom aluminium, eller en metallegering, såsom stål, og hvor lamellerne (3i, 3ii) er trælameller.

3. Udendørs lamelvægspanel (1) ifølge krav 1 eller 2, hvor støttepladen omfatter eller i det væsentlige består af i det væsentlige plane materialestykker, som er forbundet i vinkler for at danne bølgerne.

4. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de

foregående krav, hvor hver af den første og anden lamel har et i det væsentlige kvadratisk eller rektangulært tværsnit omfattende to sideoverflader, hvor den ene af nævnte sideoverflader af den første lamel vender mod den ene af nævnte sideoverflader af den anden lamel..

5. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de foregående krav, hvor en bredde af det aflange mellemrum (4) mellem den første og anden lamel (3i, 3ii) er 10 til 30 mm, hvor nævnte bredde strækker sig i en bredderetning, som er vinkelret på nævnte langsgående retning af støttepladen.

6. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de foregående krav, hvor en dybde af støttepladen er 5 til 20 mm, fortrinsvis ca. 10 mm, hvor nævnte dybde strækker sig i en dybderetning, som er vinkelret på den langsgående retning og bredderetningen af støttepladen.

7. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de foregående krav, hvor en bredde af hver af den første og anden lamel (3i, 3ii) er 20 til 60 mm, fortrinsvis 30 to 50 mm, mere fortrinsvis 40 mm, hvor nævnte bredde strækker sig i en bredderetning, som er vinkelret på nævnte langsgående retning af støttepladen.

8. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de foregående krav, hvor hver bølge af støttepladen omfatter to hældende sideoverflader og topoverfladen, hvor hver af de hældende overflader danner en ca. 85 graders vinkel med en bredderetning, som er vinkelret på nævnte langsgående retning af støttepladen.

9. Udendørs lamelvægspanel (1) ifølge et hvilket som helst af de foregående krav, hvor en vægtykkelse af støttepladen er 0,05 til 1,5 mm, fortrinsvis ca. 1 mm.

10. Metode til fremstilling af et udendørs lamelvægspanel (1) til montering på en på en ydre overflade af en bygning, omfattende de følgende trin:

at tilvejebringe en støtteplade (2), hvor støttepladen er en bølgeplade omfattende bølgetoppe adskilt af bølgedale eller riller, hvor en første af nævnte bølger omfatter en første af nævnte bølgetoppe, og en anden af nævnte bølger omfatter en anden af nævnte bølgetoppe, hvor den første og anden bølgetop er adskilt fra hinanden af én af nævnte riller,

at tilvejebringe mindst en første og en anden lamel (3i, 3ii),

at arrangere den første lamel (3i) og den anden lamel (3ii) på en ydre overflade af støttepladen (2), således at ydre overflader af den første og anden lamel vender mod omgivelserne, når vægpanelet er monteret på bygningen, hvor nævnte lameller, bølgetoppe og riller strækker sig i en langsgående retning af støttepladen,

at arrangere den første lamel (3i) på en ydre topoverflade af den første bølgetop og den anden lamel på en ydre topoverflade af den anden bølgetop, hvor den første lamel har en indre overflade, som vender mod og er forbundet til en ydre overflade af den første bølgetop, hvor den anden lamel har en indre overflade, som vender mod og er forbundet til en ydre overflade af den anden bølgetop, og

at arrangere den første lamel (3i) i en afstand fra den anden lamel (3ii) for at danne et aflangt mellemrum (4) mellem lamellerne (3i, 3ii), hvor nævnte aflange mellemrum (4) strækker sig i den langsgående retning og er på linje med nævnte ene rille, som er placeret mellem den første og anden bølgetop.

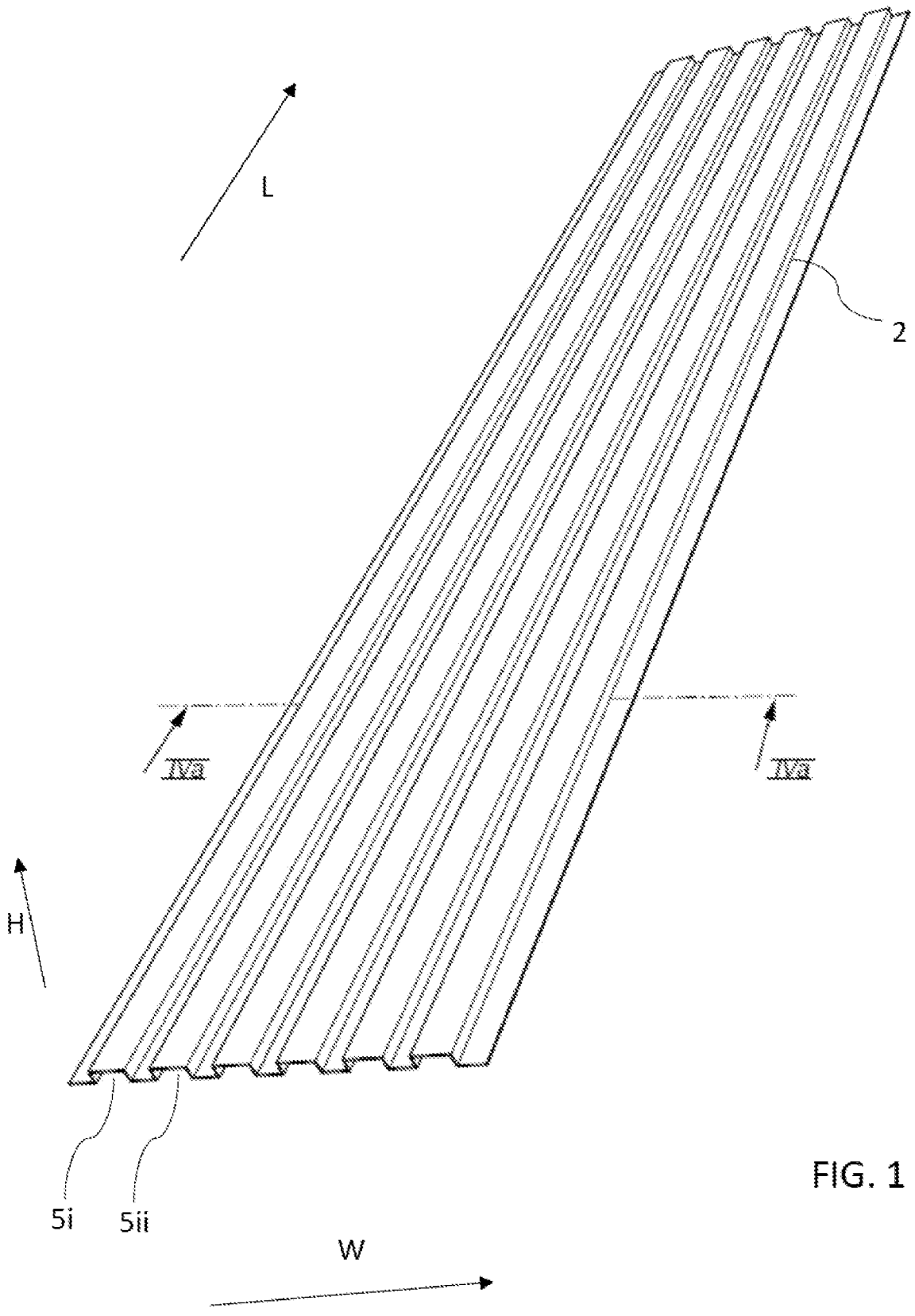

FIG. 1

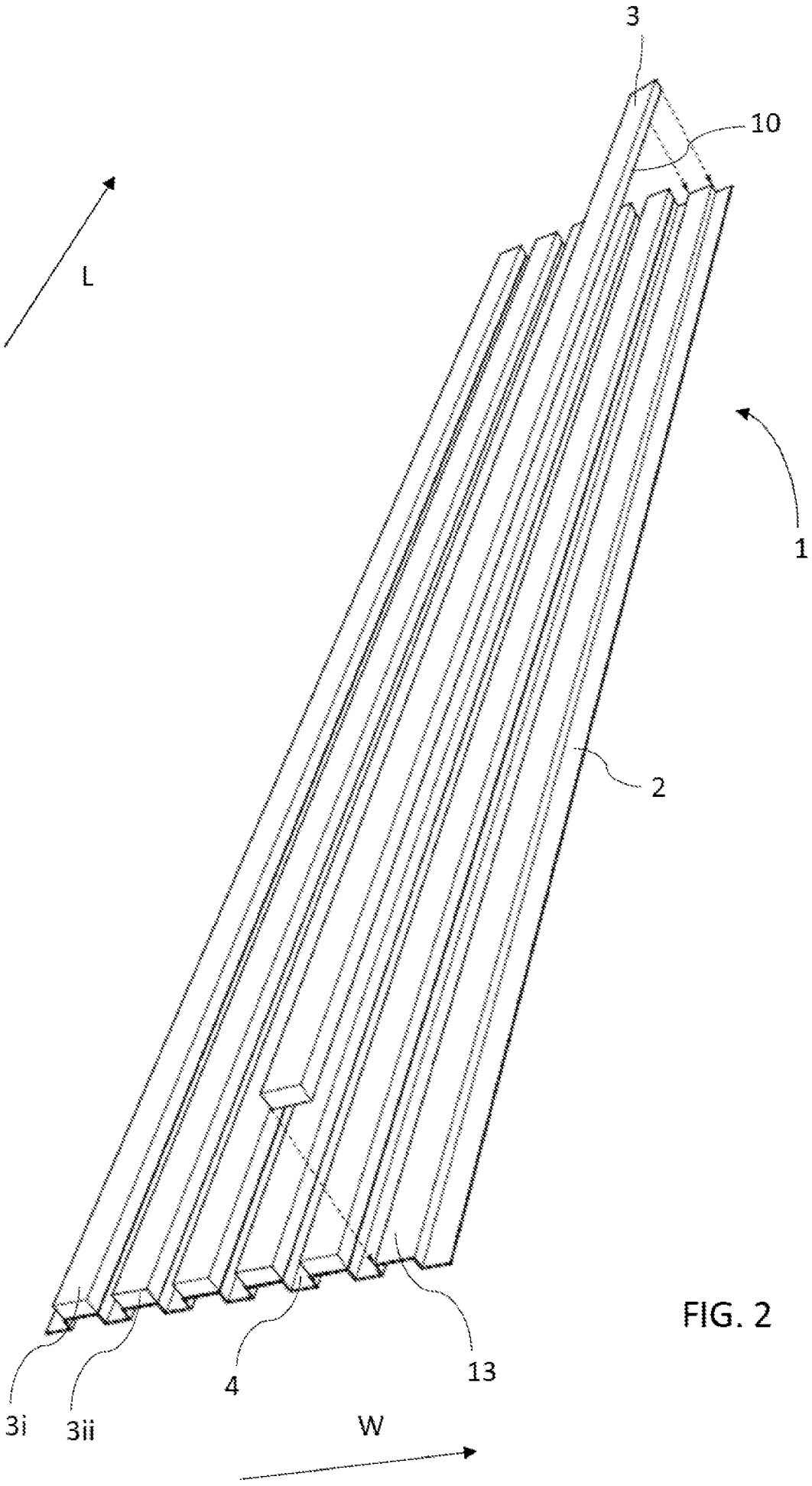

FIG. 2

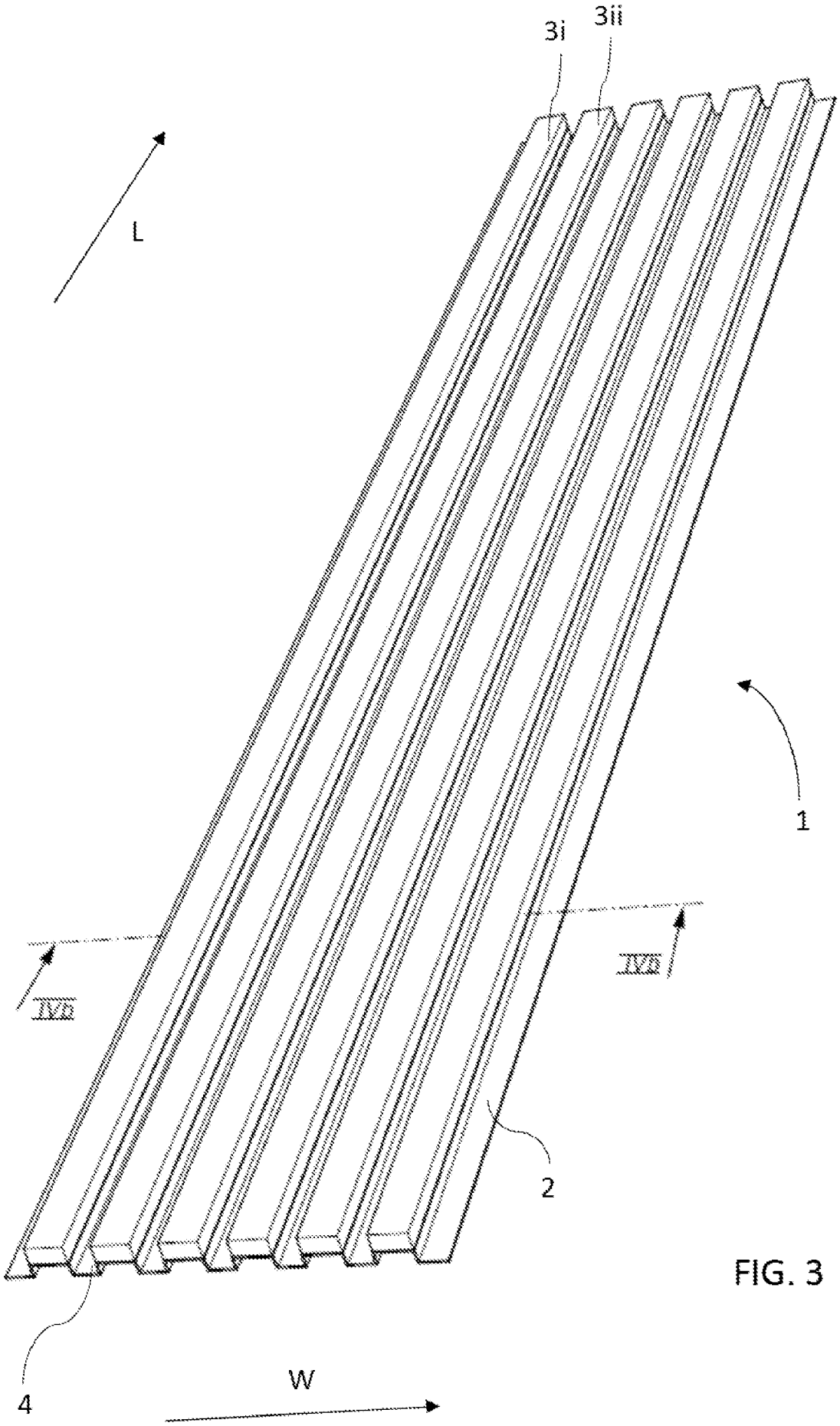

FIG. 3

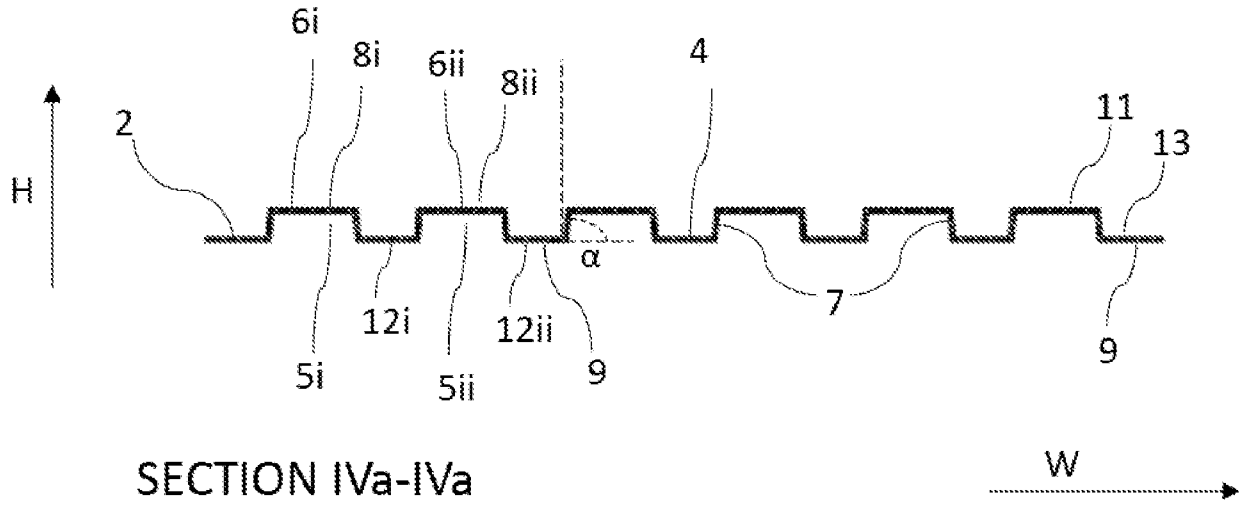
6i
8i
6ii
8ii
4
2
11
13
H
α
7
12i
12ii
9
5i
5ii
9
SECTION IVa-IVa
W

FIG. 4a

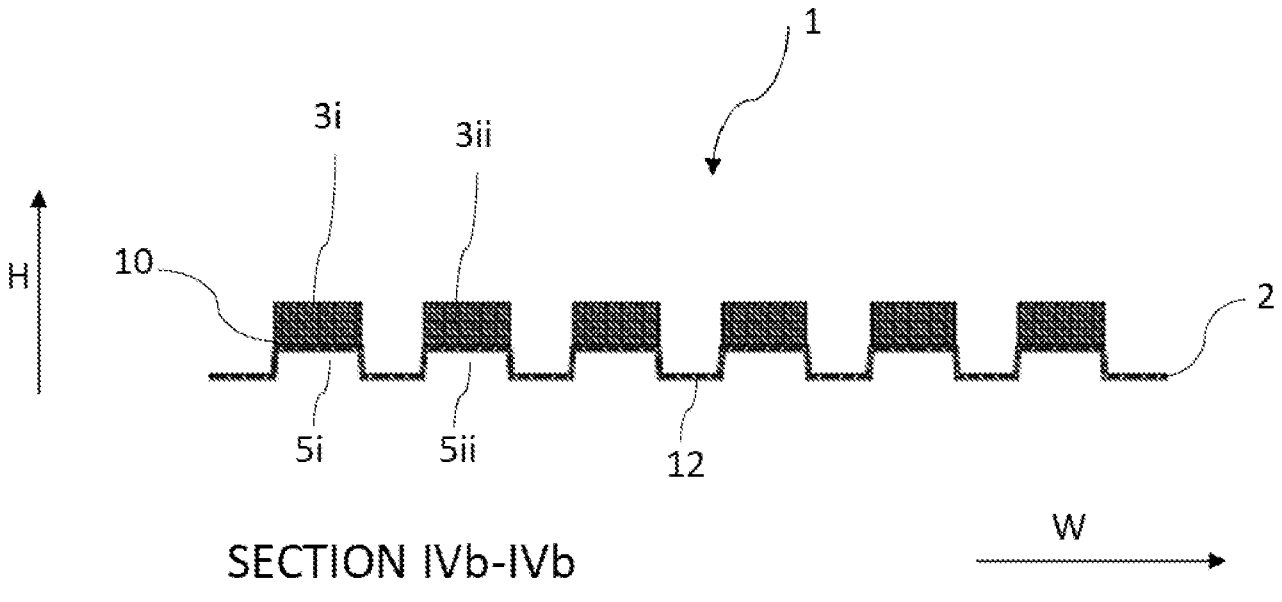
1
3i
3ii
H
10
2
5i
5ii
12
SECTION IVb-IVb
W

FIG. 4b

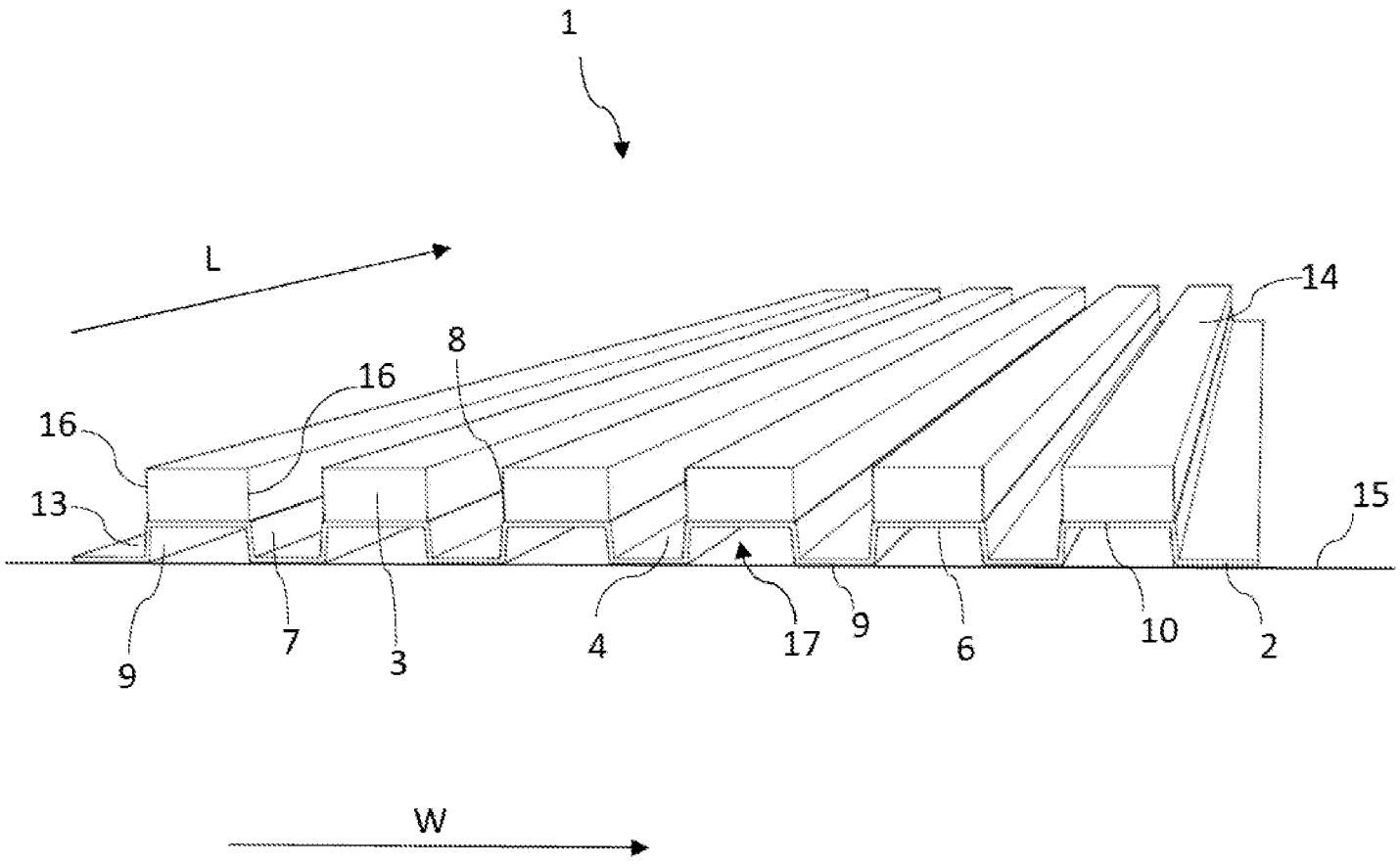

FIG. 5

DANISH PATENT AND TRADEMARK OFFICE

Search report - patent

Application No.
PA 2023 70561

1. ☐ Certain claims were found unsearchable (See Box No. I).
2. ☐ Lack of unity of invention was found prior to search (See Box No. II).

A. Classification

E04B 1/86 (2006.01); E04C 2/00 (2006.01); E04C 2/08 (2006.01); E04C 2/26 (2006.01); E04F 13/072 (2006.01); E04F 13/073 (2006.01); E04F 13/08 (2006.01)

According to International Patent Classification (IPC)

B. Fields searched

PCT-minimum documentation searched (classification system followed by classification symbols)

IPC and CPC: B32B, E04B, E04C, E04F, G10K

Documentation searched other than PCT-minimum documentation

DK, NO, SE, FI: IPC E04F

Electronic database consulted during the search (name of database and, where practicable, search terms used)

EPODOC, FULL TEXT: ENGLISH

C. Documents considered to be relevant

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant for claim No.
X	KR 200311679 Y1 (CHOI WON-GAP) 09/05/2003. See whole document especially page 3 and figures.	1-10
A	US 2022/0028363 A1 (KOSHITOUGE HARUKI et al.) 27/01/2022. See abstract and figures.	1-10
A	EP 2483478 A1 (BRUNBAUER WOLFGANG) 08/08/2012. See abstract and figures.	1-10
A	DK 201500526 A1 (DESIGN BY GØSTA APS) 03/04/2017. See abstract and figures.	1-10
A	WO 83/01081 A1 (GRAENGES ALUMINIUM AB) 31/03/1983. See abstract and figures.	1-10

☒ Further documents are listed in the continuation of Box C

* Special categories of cited documents:

"A" Document defining the general state of the art which is not considered to be of particular relevance.

"D" Document cited in the application.

"E" Earlier application or patent but published on or after the filing date.

"L" Document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified).

"O" Document referring to an oral disclosure, use, exhibition, or other means.

"P" Document published prior to the filing date but later than the priority date claimed.

"T" Document not in conflict with the application but cited to understand the principle or theory underlying the invention.

"X" Document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an essential difference when the document is taken alone.

"Y" Document of particular relevance; the claimed invention cannot be considered to involve an essential difference when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" Document member of the same patent family.

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Date of completion of the search report
23/04/2024

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Search report - patent

Application No.
PA 2023 70561

C. Documents considered to be relevant (continuation)

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant for claim No.
A	US 2013/0152498 A1 (KRAUSE G MATT) 20/06/2013. See abstract and figures.	1-10

Search report - patent

Application No.
PA 2023 70561

Box No. I Certain claims were found unsearchable

This search report has not been established in respect of certain claims for the following reasons:

1. ☐ Claims Nos.:
   because they relate to subject matter not required to be searched. Specifically:

2. ☐ Claims Nos.:
   because they relate to parts of the patent application that do not comply with the prescribed requirements to such an extent that no meaningful search can be carried out. Specifically:

3. ☐ Claims Nos.:
   because of other matters. Specifically:

Box No. II Lack of unity of invention was found prior to search

Prior to search, multiple independent inventions were found in the patent application. Specifically:

Search report - patent

Application No.
PA 2023 70561

Supplemental Box

Continuation of Box [.]