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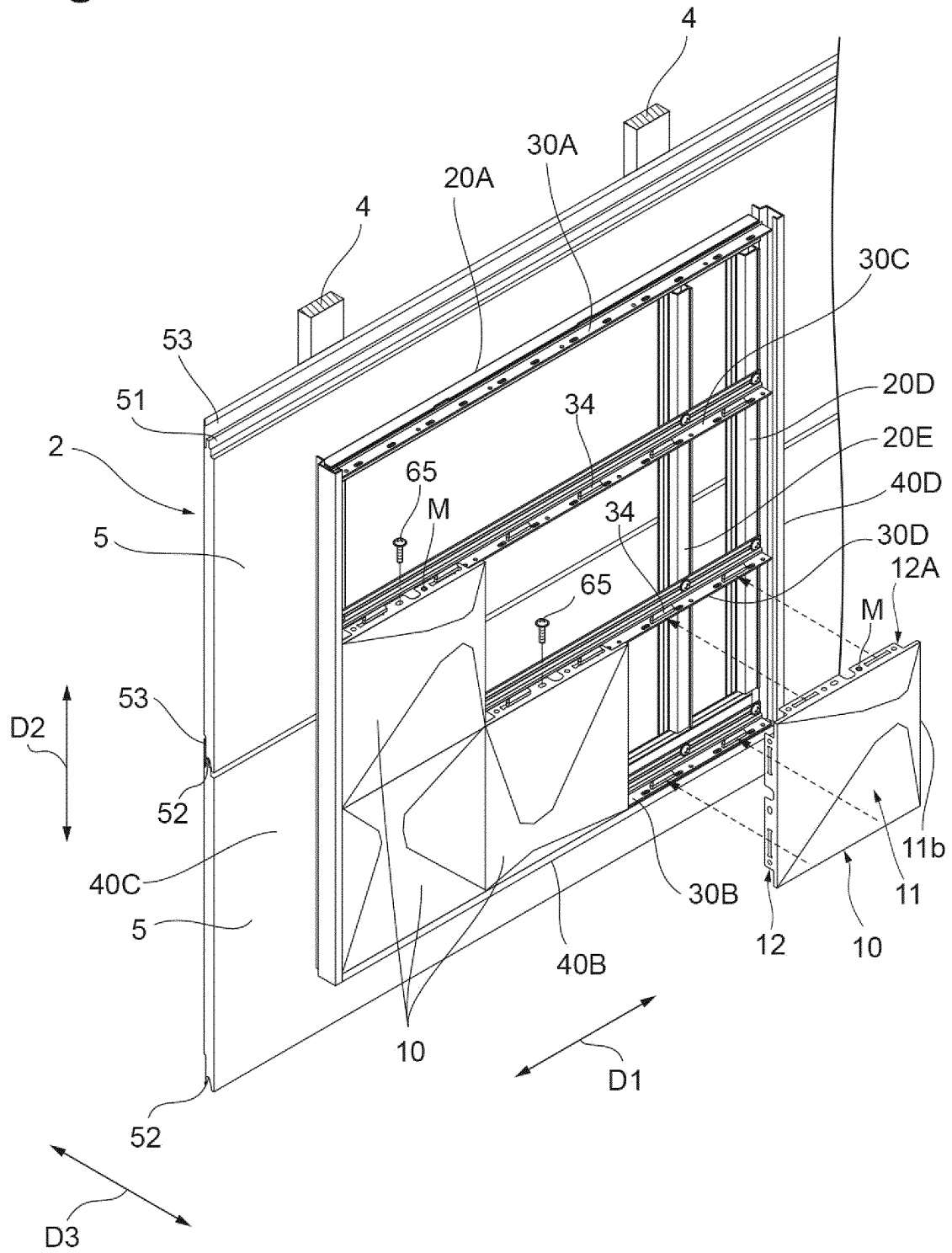
(54) **DECORATIVE STRUCTURE, PANEL MATERIAL, AND METHOD FOR CONSTRUCTING DECORATIVE STRUCTURE**

(57) A decorative structure includes: a plurality of base materials extending in a first direction and provided in parallel with each other at predetermined intervals in a second direction intersecting the first direction; and a plurality of panel materials, each of the plurality of panel materials being attached to two base materials adjacent to each other in the second direction among the plurality of base materials. Each of the plurality of base materials includes a protrusion protruding in the second direction. Each of the plurality of panel materials includes a body

including an outer edge portion having a square shape in a plan view, and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body. The four legs have the same shape as each other, and an insertion hole into which the protrusion can be inserted is provided in each of the four legs. The panel material is attached by inserting the protrusion of one of the two base materials through the insertion hole provided in one of the four legs.

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Fig.19



Description

Technical Field

5 [0001] The present disclosure relates to a decorative structure, a panel material, and a method for constructing a decorative structure.

Background Art

10 [0002] Panel materials are sometimes placed on the outer walls of buildings. For example, Patent Document 1 describes an exterior structure in which a panel material is attached to a base material attached to a wall surface.

Citation List

15 Patent Literature

[0003] Patent Document 1: Japanese Unexamined Patent Application Publication No. 2003-253847

Summary of Invention

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Technical Problem

[0004] In the exterior structure described in Patent Document 1, panel locking bolts are provided at a predetermined pitch in the vertical direction on the base material, and the panel material is attached by hooking a hook-shaped notch provided on the side surface of the panel material on the panel locking bolts. Therefore, the direction in which the panel material is attached is fixed. In the present technical field, it is desired to freely change the direction in which the panel material is attached.

[0005] The present disclosure describes a decorative structure, a panel material, and a method for constructing a decorative structure capable of changing the direction in which a panel material is attached.

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Solution to Problem

[0006] A decorative structure according to one aspect of the present disclosure includes: a plurality of base materials extending in a first direction and provided in parallel with each other at predetermined intervals in a second direction intersecting the first direction; and a plurality of panel materials, each of the plurality of panel materials being attached to two base materials adjacent to each other in the second direction among the plurality of base materials. Each of the plurality of base materials includes a protrusion protruding in the second direction. Each of the plurality of panel materials includes a body including an outer edge portion having a square shape in a plan view, and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body. The four legs have the same shape as each other. An insertion hole into which the protrusion can be inserted is provided in each of the four legs. The panel material is attached by inserting the protrusion of one of the two base materials through the insertion hole provided in one of the four legs.

[0007] In this decorative structure, the panel material is attached by inserting the protrusion of one of two base materials adjacent to each other in the second direction into the insertion hole provided in one of the four legs of the panel material. The four legs are provided along four sides of the outer edge portion having a square shape in a plan view, extend from the outer edge portion in a direction intersecting with the body, and have the same shape as each other. That is, the four legs of the panel material are rotationally symmetric about the center point of the body at 90°, 180°, 270°, and 360°. Therefore, the panel material can be attached to the base material even if the panel material is rotated by any angle of 90°, 180°, 270°, or 360° about the central point of the body. As a result, it is possible to change the direction in which the panel material is attached.

[0008] The decorative structure may further include a plurality of elongated support members that support the plurality of base materials. Each of the plurality of support members may include a protruding piece that extends in a direction in which the support member extends and protrudes in a third direction intersecting the first direction and the second direction. The plurality of base materials may be positioned by the protruding piece. In this case, the plurality of base materials are positioned by the protruding pieces of the support members. Therefore, when the decorative structure is constructed, the work of attaching the base material can be simplified.

[0009] The plurality of base materials may include a first base material located at one end of the plurality of base materials in the second direction. The plurality of support members may include a first support member that supports

the first base material. The first support member may extend in the first direction and may overlap the first base material when viewed from the third direction. A groove into which the protruding piece of the first support member fits may be provided in the first base material. In this case, the first base material can be positioned by fitting the protruding piece of the first support member in the groove of the first base material. Therefore, when the decorative structure is constructed, the work of attaching the first base material can be simplified.

[0010] The plurality of base materials may further include a second base material located at the other end of the plurality of base materials in the second direction. The plurality of support members may further include a second support member that supports the second base material. The second support member may extend in the first direction and may overlap the second base material when viewed from the third direction. The second base material may further include a projection that is contact with the protrusion of the second support member in the second direction. In this case, the projection of the second base material is brought into contact with the protruding piece of the second support member in the second direction, whereby the second base material is positioned in the second direction. Therefore, when the decorative structure is constructed, the work of attaching the second base material can be simplified.

[0011] The plurality of base materials may further include a third base material located between the first base material and the second base material in the second direction. The plurality of support members may further include a plurality of third support members that support the third base material. The plurality of third support members may extend in the second direction and may be provided in parallel with each other in the first direction. Missing portions into which the third base material fits may be provided in the protruding pieces of the plurality of third support members. In this case, the third base material can be positioned by fitting the third base material to the missing portions provided on the protruding pieces of the plurality of third support members. Therefore, when the decorative structure is constructed, the work of attaching the third base material can be simplified.

[0012] A panel material according to another aspect of the present disclosure includes: a body including an outer edge portion having a square shape in a plan view; and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body. The four legs have the same shape as each other. An insertion hole into which a protrusion of a base material can be inserted is provided in each of the four legs.

[0013] In this panel material, the four legs are provided along four sides of the outer edge portion having a square shape in a plan view, extend from the outer edge portion in a direction intersecting with the body, and have the same shape as each other. That is, the four legs of the panel material are rotationally symmetric about the center point of the body at 90°, 180°, 270°, and 360°. Therefore, the panel material can be attached to the base material even if the panel material is rotated by any angle of 90°, 180°, 270°, or 360° about the central point of the body. As a result, it is possible to change the direction in which the panel material is attached.

[0014] A method for constructing a decorative structure according to still another aspect of the present disclosure includes: a step of attaching a plurality of base materials so that each of the plurality of base materials extends in a first direction and the plurality of base materials are arranged in parallel with each other at predetermined intervals in a second direction intersecting the first direction; and a step of attaching a panel material to two base materials adjacent to each other in the second direction among the plurality of base materials. Each of the plurality of base materials includes a protrusion protruding in the second direction. The panel material includes a body including an outer edge portion having a square shape in a plan view, and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body. The four legs have the same shape as each other. An insertion hole into which the protrusion can be inserted is provided in each of the four legs. In the step of attaching the panel material, the panel material is attached by inserting the protrusion of one base material of the two base materials into the insertion hole provided in one of the four legs.

[0015] In this method for constructing the decorative structure, the panel material is attached by inserting the protrusion of one of two base materials adjacent to each other in the second direction into the insertion hole provided in one of the four legs of the panel material. The four legs are provided along four sides of the outer edge portion having a square shape in a plan view, extend from the outer edge portion in a direction intersecting with the body, and have the same shape as each other. That is, the four legs of the panel material are rotationally symmetric about the center point of the body at 90°, 180°, 270°, and 360°. Therefore, the panel material can be attached to the base material even if the panel material is rotated by any angle of 90°, 180°, 270°, or 360° about the central point of the body. As a result, it is possible to change the direction in which the panel material is attached.

Advantageous Effects of Invention

[0016] According to each aspect and each embodiment of the present disclosure, the direction in which the panel material is attached can be changed.

Brief Description of Drawings

[0017]

FIG. 1 is a perspective view showing a decorative structure according to an embodiment.
 FIG. 2 is a perspective view showing support members and base materials of the decorative structure shown in FIG. 1.
 FIG. 3 is a perspective view showing the panel material shown in FIG. 1.
 FIG. 4 is an enlarged view showing a leg of the panel material shown in FIG. 3.
 FIG. 5 is a perspective view showing the support member shown in FIG. 2.
 FIG. 6(a) is a cross-sectional view taken along the line VIa-VIa of FIG. 5. FIG. 6(b) is a cross-sectional view taken along the line VIb-VIb of FIG. 5.
 FIG. 7 is a perspective view showing the base material shown in FIG. 2.
 FIG. 8 is a cross-sectional view taken along the line VIII-VIII of FIG. 7.
 FIG. 9 is a perspective view showing the crown molding shown in FIG. 1.
 FIG. 10 is a flowchart showing a method for constructing the decorative structure shown in FIG. 1.
 FIG. 11 is a view for explaining a step of marking shown in FIG. 10.
 FIG. 12 is a view for explaining a step of attaching the support member shown in FIG. 10.
 FIG. 13 is a cross-sectional view taken along line XIII-XIII of FIG. 12.
 FIG. 14 is a view for explaining a step of attaching the base material shown in FIG. 10.
 FIG. 15 is a cross-sectional view taken along the line XV-XV of FIG. 14.
 FIG. 16 is a cross-sectional view taken along the line XVI-XVI of FIG. 14.
 FIG. 17 is an enlarged view of a part of FIG. 14.
 FIG. 18 is a view for explaining a step of attaching the crown molding shown in FIG. 10.
 FIG. 19 is a view for explaining a step of attaching the panel material shown in FIG. 10.
 FIG. 20 is a view for explaining a step of attaching the panel material shown in FIG. 10.
 FIG. 21 is a view for explaining a step of attaching the upper crown molding shown in FIG. 10.
 FIG. 22 is a view showing another example of an outer wall.
 FIG. 23 is a perspective view showing another example of a panel material.

Description of Embodiments

[0018] Hereinafter, embodiments of the present disclosure will be described in detail with reference to the drawings. In the description of the drawings, the same components are designated with the same reference signs, and the redundant description is omitted. In each drawing, a lateral direction D1 (first direction), a longitudinal direction D2 (second direction), and a direction D3 (third direction) are shown. The longitudinal direction D2 is a direction (vertical direction) intersecting with (here, orthogonal to) the lateral direction D1 and the direction D3. The direction D3 is a direction intersecting with (here, orthogonal to) the lateral direction D1 and the longitudinal direction D2. The longitudinal direction D2 is a vertical direction, for example, and the lateral direction D1 and the direction D3 are horizontal directions, for example.

[0019] FIG. 1 is a perspective view showing a decorative structure according to an embodiment. FIG. 2 is a perspective view showing support members and base materials of the decorative structure shown in FIG. 1. A decorative structure 1 shown in FIG. 1 is used for decorating a building. In the present embodiment, the decorative structure 1 is constructed on the outer wall 2. Examples of the outer wall 2 include an outer wall composed of metal siding panels, an outer wall made of reinforced concrete (RC), an outer wall made of a ceramic-based outer covering material, and an outer wall made of autoclaved lightweight concrete (ALC).

[0020] In the example shown in FIGS. 1 and 2, the outer wall 2 is formed by a plurality of siding panels 5 attached so as to extend in the horizontal direction. The siding panel 5 is an elongated metal siding. The siding panel 5 includes a male end portion 51, a female end portion 52, and a fixing portion 53. The male end portion 51 is provided at one end of the siding panel 5 in the shorter direction of the siding panel 5 and extends along the longer direction of the siding panel 5 over the entire length of the siding panel 5. The female end portion 52 is provided at the other end of the siding panel 5 in the shorter direction of the siding panel 5, and extends along the longer direction of the siding panel 5 over the entire length of the siding panel 5. The male end portion 51 and the female end portion 52 are configured to be able to fit to each other. Specifically, the male end portion 51 has a protruding shape protruding in the shorter direction of the siding panel 5. The female end portion 52 has a recessed shape recessed in the shorter direction of the siding panel 5.

[0021] The fixing portion 53 is a portion for fixing the siding panel 5 to the furring strip 4. The fixing portion 53 is provided at a position closer to the back surface than the male end portion 51 at one end in the shorter direction of the siding panel 5, and extends along the longer direction of the siding panel 5 over the entire length of the siding panel 5. The siding panel 5 is fixed to the furring strip 4 by driving fixing members 54 (see FIG. 13) such as a nail or the like into the fixing portion 53. The siding panel 5 is not fixed to the furring strip 4 at the female end portion 52. Therefore, even if an

external force is applied to the outer wall 2 due to an earthquake or the like, the outer wall 2 deforms in response to the external force. That is, it is possible to obtain the follow-up property to the external force caused by an earthquake or the like.

[0022] In the example shown in FIGS. 1 and 2, each siding panel 5 is arranged to extend in the lateral direction D1. The plurality of siding panels 5 are arranged in the longitudinal direction D2. In other words, the siding panel 5 is attached to the furring strip 4 extending in the longitudinal direction D2 so as to extend in the horizontal direction. Specifically, each siding panel 5 is disposed such that the male end portion 51 and the fixing portion 53 are positioned above and the female end portion 52 is positioned below. The female end portion 52 of the upper siding panel 5 and the male end portion 51 of the lower siding panel 5 are fitted to each other, so that the two siding panels 5 adjacent to each other in the longitudinal direction D2 are connected.

[0023] As shown in FIGS. 1 and 2, the decorative structure 1 includes a plurality of panel materials 10, a plurality of support members 20, a plurality of base materials 30, and a plurality of crown moldings 40. In the present embodiment, the decorative structure 1 includes nine panel materials 10, five support members 20, four base materials 30, and four crown moldings 40.

[0024] The panel material 10 is a decorative member. Each panel material 10 is attached to two base materials 30 which are adjacent to each other in the longitudinal direction D2 among the base materials 30. The panel material 10 can be installed in four directions. Specifically, the panel material 10 is rotationally symmetric about the central axis CX of a body 11 at 90°, 180°, 270°, and 360°, except for the surface 11a of the body 11 described later. Therefore, the panel material 10 is attached in a direction rotated by any one of 90°, 180°, 270° and 360° about the central axis CX of the body 11. The material of the panel material 10 is, for example, a metal such as aluminum or titanium, or a resin such as plastic or vinyl chloride. The panel material 10 is produced, for example, by punching a metal plate and then bending the plate.

[0025] The panel material 10 will be described in detail with further reference to FIGS. 3 and 4. FIG. 3 is a perspective view showing the panel material shown in FIG. 1. FIG. 4 is an enlarged view showing a leg of the panel material shown in FIG. 3. As shown in FIG. 3, the panel material 10 includes the body 11 and four legs 12.

[0026] The body 11 is a plate-like portion having a square shape in a plan view. The body 11 has a surface 11a exposed to the outside. The surface 11a is a decorative surface. The surface 11a has an asymmetric decoration with respect to the central axis CX. In the example shown in FIG. 3, the decoration of the surface 11a has a shape raised toward the outside. The body 11 has an outer edge portion 11b having a square shape in a plan view.

[0027] The four legs 12 are plate-like portions for attaching the panel material 10 to the base materials 30. The four legs 12 are provided along four sides of the outer edge portion 11b of the body 11, and project from the outer edge portion 11b in a direction intersecting the body 11 (surface 11a). Each leg 12 extends along the outer edge portion 11b. The four legs 12 have the same shape as each other. Only one leg 12A of the four legs 12 is marked with a mark M. That is, the leg 12A is the same as any other leg 12 except for the mark M.

[0028] As shown in FIG. 4, through holes 12a and 12b, insertion holes 12c and 12d, a through hole 12e, and a depression 12f are provided in each leg 12.

[0029] The through holes 12a and 12b are provided at both end portions of the leg 12 in the longer direction of the leg 12. The through hole 12a and the through hole 12b are line-symmetric with respect to the center line Lc of the leg 12 in the longer direction as a symmetry axis. The through holes 12a and 12b are used for fixing the panel materials 10 in the uppermost row to the uppermost base material 30 (base material 30A). Each of the through holes 12a and 12b has a shape into which a shaft portion of a fixing member 65 (see FIG. 20) such as a screw or the like can be inserted. In the present embodiment, the through holes 12a and 12b are round holes.

[0030] The insertion hole 12c is provided at a position closer to the center line Lc than the through hole 12a in the longer direction of the leg 12. The insertion hole 12d is provided at a position closer to the center line Lc than the through hole 12b in the longer direction of the leg 12. The insertion hole 12c and the insertion hole 12d are line-symmetric with respect to the center line Lc as a symmetry axis. Each of the insertion holes 12c and 12d is a slotted hole extending in the longer direction of the leg 12, and has a shape into which a protrusion 34 (see FIG. 7) of the base material 30 can be inserted. The insertion holes 12c and 12d are slightly larger than the outer shape of the protrusion 34 in order to facilitate the insertion of the protrusion 34. Narrowed portions 12g and 12h are provided near the center of the insertion holes 12c and 12d in the longer direction in order to reduce the backlash of the protrusions 34, respectively. R angles are formed at both ends of the insertion holes 12c and 12d in the longer direction. The protrusions 34 of the base material 30 are inserted into the insertion holes 12c and 12d when the panel material 10 is attached to the base material 30 other than the uppermost row.

[0031] The through hole 12e is provided at a position closer to the center line Lc than the insertion hole 12d in the longer direction of the leg 12. The through hole 12e has a shape into which a shaft portion of a fixing member 65 (see FIG. 19) can be inserted. In the present embodiment, the through hole 12e is an elongated hole extending in the longer direction of the leg 12. The through hole 12e is used for fixing the panel material 10 other than the uppermost row to the base material 30. The depression 12f is provided at a position closer to the center line Lc than the insertion hole 12c in

the longer direction of the leg 12. The through hole 12e and the depression 12f are provided at positions that are line-symmetric with respect to the center line Lc as a symmetry axis. The depression 12f is used for avoiding interference between the head portion of the fixing member 65 for fixing the panel material 10 one row below the panel material 10 on which the depression 12f is provided to the base material 30 and the leg 12. In other words, the head portion of the

[0032] Since the leg 12A is shown in FIG. 4, the mark M is further provided. The mark M is used to improve the discrimination of the orientation of the panel material 10.

[0033] The support member 20 is an elongated member for supporting the base material 30. The material for forming the support member 20 is aluminum, for example. The support member 20 is produced, for example, by extrusion molding. The support member 20 defines a position at which the decorative structure 1 is attached.

[0034] The support member 20 will be described in detail with further reference to FIGS. 5, 6(a) and 6(b). FIG. 5 is a perspective view showing the support member shown in FIG. 2. FIG. 6(a) is a cross-sectional view taken along the line VIa-VIa of FIG. 5. FIG. 6(b) is a cross-sectional view taken along the line VIb-VIb of FIG. 5. As shown in FIGS. 5, 6(a) and 6(b), the support member 20 includes an upper plate 21, side plates 22 and 23, a bottom plate 24, and a protruding piece 25.

[0035] The upper plate 21 is a plate-like portion on which the base material 30 is mounted. The upper plate 21 is provided over the entire length of the support member 20 along the longer direction of the support member 20. The upper plate 21 has a mounting surface 21a on which the base material 30 is mounted. The side plates 22 and 23 are plate-like portions that support the upper plate 21. The side plates 22 and 23 are provided over the entire length of the support member 20 along the longer direction of the support member 20. The side plates 22 and 23 are provided so as to face each other across the upper plate 21, and extend in a direction intersecting the upper plate 21. One end of the side plate 22 is connected to one end of the upper plate 21 in the shorter direction of the upper plate 21. One end of the side plate 23 is connected to the other end of the upper plate 21 in the shorter direction of the upper plate 21. The upper plate 21, the side plate 22 and the side plate 23 constitute a mounting table on which the base material 30 is mounted. The mounting table has a U-shaped cross-sectional shape in a cross-section crossing the longer direction of the support member 20.

[0036] The bottom plate 24 is a portion for fixing the support member 20 to the outer wall 2. The bottom plate 24 is provided over the entire length of the support member 20 along the longer direction of the support member 20. One end of the bottom plate 24 is connected to the other end of the side plate 22. The bottom plate 24 extends substantially in parallel with the upper plate 21 from the other end of the side plate 22 in a direction away from the upper plate 21. A groove 24a for positioning fixing members 61 and 62 (see FIG. 12) such as a screw is provided in the bottom plate 24. The groove 24a extends along the longer direction of the bottom plate 24 and is provided over the entire length of the bottom plate 24. The distal ends of the fixing members 61 and 62 are positioned in the groove 24a of the bottom plate 24, and the fixing members 61 and 62 are driven into the groove 24a, whereby the support member 20 is fixed to the outer wall 2.

[0037] The protruding piece 25 is connected to one end of the side plate 23 and protrudes from the mounting surface 21a of the upper plate 21. The protruding piece 25 is provided over the entire length of the support member 20 along the longer direction of the support member 20, and is partially missing in the longer direction of the support member 20. In other words, several missing portions 25a are provided in the protruding piece 25. The missing portion 25a has a shape into which the base material 30 can be fitted. The length of the missing portion 25a in the longer direction is substantially the same as that of a base 31 (see FIG. 7) described later in the shorter direction of the base 31.

[0038] In the example shown in FIG. 2, five support members 20 are arranged. In order to distinguish them, the upper support member 20, the lower support member 20, the left support member 20, the right support member 20, and the middle support member 20 are referred to as a support member 20A (second support member), a support member 20B (first support member), a support member 20C (third support member), a support member 20D (third support member), and a support member 20E (third support member), respectively (see FIG. 12 and the like).

[0039] The support members 20A to 20D are arranged in a rectangular shape along the outer periphery of the decorative structure 1. The support members 20A and 20B extend in the lateral direction D1 and are arranged in parallel with each other. The support members 20C and 20D extend in the longitudinal direction D2 and are arranged in parallel with each other. Each of the support members 20A to 20D is disposed such that the mounting surface 21a faces away from the outer wall 2 and the bottom plate 24 is positioned inside. The support member 20E is disposed between the support members 20C and 20D and extends along the furring strip 4. That is, the support members 20C to 20E extend in the longitudinal direction D2 and are provided in parallel with each other in the lateral direction D1.

[0040] The base material 30 is a member for attaching the panel material 10. The base material 30 is an elongated member. The material for forming the base material 30 is aluminum, for example. The base material 30 is produced, for example, by extrusion molding.

[0041] The base material 30 will be described in detail with further reference to FIGS. 7 and 8. FIG. 7 is a perspective view showing the base material shown in FIG. 2. FIG. 8 is a cross-sectional view taken along the line VIII-VIII of FIG. 7.

As shown in FIGS. 7 and 8, the base material 30 includes the base 31, a mounting plate 32, a joint 33, the protrusion 34, a projection 35, and a bulge 36.

[0042] The base 31 is a plate-like portion mounted on the upper plate 21 of the support member 20 and fixed to the support member 20. The base 31 is provided over the entire length of the base material 30 along the longer direction of the base material 30. The base 31 has a surface 31a and a surface 31b opposite to the surface 31a. The surface 31b is in contact with the mounting surface 21a of the support member 20. Two grooves 31c for positioning fixing members 63 (see FIG. 14) such as a screw are provided on the surface 31a of the base 31. The groove 31c extends along the longer direction of the base 31 and is provided over the entire length of the base 31. A groove 31d extending from the surface 31a to the surface 31b on an end surface opposite to the mounting plate 32 is provided on the base 31. The distance between one end of the base 31 in the longer direction of the base 31 and the groove 31d nearest to the one end is substantially equal to the length (width) of the upper plate 21 in the shorter direction of the upper plate 21.

[0043] The mounting plate 32 is a plate-shaped portion for attaching the panel material 10 to the base material 30. The mounting plate 32 is provided over the entire length of the base material 30 along the longer direction of the base material 30. The mounting plate 32 is provided at a right angle to the base 31. The mounting plate 32 has a surface 32a and a surface 32b opposite to the surface 32a. The surface 32a faces toward the base 31.

[0044] A plurality of protrusions 34 are provided on the surface 32a. Each protrusion 34 protrudes in the direction normal to the surface 32a and extends in the longer direction of the base material 30. The protrusion 34 has a tapered shape that becomes thinner toward the distal end in order to facilitate insertion into the insertion holes 12c and 12d. That is, in the cross section intersecting with the longer direction of the base material 30, the protrusion 34 has a pentagonal cross section. The plurality of protrusions 34 are provided at regular intervals in the longer direction of the base material 30. The interval between the two adjacent protrusions 34 is substantially the same as the interval between the insertion hole 12c and the insertion hole 12d of the leg 12. A constriction 34a is provided at the root portion of the protrusion 34. The length of the constriction 34a in the direction in which the protrusion 34 protrudes is about the same as the thickness of one leg 12.

[0045] Through holes 32c, 32d and 32e are provided in the mounting plate 32 to penetrate through the mounting plate 32. The through holes 32c, 32d and 32e penetrate through the mounting plate 32 from the surface 32a toward the surface 32b. The through holes 32c and 32d are used for fixing the panel material 10 in the uppermost row to the uppermost base material 30 (base material 30A). The through holes 32c and 32d have a shape into which the shaft portion of the fixing member 65 (see FIG. 20) can be inserted. The through holes 32c and 32d are elongated holes extending in the longer direction of the base material 30. The through holes 32c and 32d are provided so as to sandwich the protrusion 34 in the longer direction of the base material 30.

[0046] The through hole 32e is used for fixing the panel material 10 other than the uppermost row to the base material 30. The through hole 32e has a shape into which the shaft portion of the fixing member 65 (see FIG. 19) can be inserted. The through hole 32e is a round hole. The through hole 32e is provided so as to be adjacent to the through hole 32d in the longer direction of the base material 30. In the longer direction of the base material 30, the through hole 32c, the protrusion 34, the through hole 32d, and the through hole 32e are arranged in this order. In the mounting plate 32, combinations of a through hole 32c, a protrusion 34, a through hole 32d, and a through hole 32e are provided at regular intervals.

[0047] The joint 33 connects the base 31 and the mounting plate 32. The joint 33 is provided along the longer direction of the base material 30 over the entire length of the base material 30. The joint 33 connects the base 31 and the mounting plate 32 such that the base 31 and the mounting plate 32 are perpendicular to each other. One end of the joint 33 is connected to the surface 31a of the base 31, and the other end of the joint 33 is connected to the surface 32a of the mounting plate 32. A step portion is formed between the surface 31b and the joint 33.

[0048] The projection 35 and the bulge 36 are portions for locking the base material 30 to the support member 20. The projection 35 is provided on a surface forming a step portion of the joint 33 and extends over the entire length of the base material 30 in the longer direction of the base material 30. The projection 35 projects to the same plane as the surface 31b of the base 31. A groove 37 is defined by the projection 35, the base 31 and the joint 33. The bulge 36 is provided on the surface 32b and extends over the entire length of the base material 30 in the longer direction of the base material 30. The bulge 36 and the projection 35 are perpendicular to each other, and a recess 38 is defined by the bulge 36 and the projection 35.

[0049] In the example shown in FIG. 2, the four base materials 30 extend in the lateral direction D1 and are arranged in parallel with each other at a predetermined interval in the longitudinal direction D2. In order to distinguish them, the base material 30 positioned at one end (upper end) in the longitudinal direction D2 is referred to as a base material 30A (second base material), the base material 30 positioned at the other end (lower end) in the longitudinal direction D2 is referred to as a base material 30B (first base material), and the base materials 30 positioned between the base material 30A and the base material 30B are referred to as a base material 30C (third base material) and a base material 30D (third base material) in order from the top (see FIG. 14, etc.).

[0050] The base material 30A is arranged such that the surface 31b faces the mounting surface 21a and the protrusion

34 protrudes downward, and the other base materials 30B, 30C and 30D are arranged such that the surface 31b faces the mounting surface 21a and the protrusion 34 protrudes upward. The base material 30A overlaps with the support member 20A when viewed from the direction D3. The base material 30B overlaps with the support member 20B when viewed from the direction D3. The base materials 30C and 30D are provided so as to intersect the support members 20C, 20E and 20D. The locking structure between the support member 20 and the base material 30 will be described in detail in the description of a method for constructing the decorative structure 1.

[0051] The crown molding 40 is a member for hiding a bonder. The material for forming the crown molding 40 is, for example, a metal such as aluminum and titanium. The crown molding 40 is formed, for example, by extrusion molding. The leg 12 of the panel material 10, the support member 20 and the base material 30 are covered by the crown molding 40.

[0052] The crown molding 40 will be described in detail with further reference to FIG. 9. FIG. 9 is a perspective view showing the crown molding shown in FIG. 1. As shown in FIG. 9, the crown molding 40 includes an upper plate 41, side plates 42 and 43, a bottom plate 44, and a locking piece 45.

[0053] The upper plate 41 is a plate-like portion for covering a bonder. The upper plate 41 is provided along the longer direction of the crown molding 40 over the entire length of the crown molding 40. The side plates 42 and 43 are plate-like portions that support the upper plate 41. Each of the side plates 42 and 43 is provided along the longer direction of the crown molding 40 over the entire length of the crown molding 40. The side plates 42 and 43 are provided so as to face each other across the upper plate 41, and extend in a direction intersecting the upper plate 41. One end of the side plate 42 is connected to one end of the upper plate 41 in the shorter direction of the upper plate 41. One end of the side plate 43 is connected to the other end of the upper plate 41 in the shorter direction of the upper plate 41.

[0054] The bottom plate 44 is a portion for fixing the crown molding 40 to the support member 20. The bottom plate 44 is provided over the entire length of the crown molding 40 along the longer direction of the crown molding 40. One end of the bottom plate 44 is connected to the other end of the side plate 42, and the bottom plate 44 extends substantially in parallel with the upper plate 41 from the other end of the side plate 42 in a direction away from the upper plate 41. The crown molding 40 is fixed to the side plate 23 of the support member 20 by driving fixing members 64 (see FIGS. 18 and 21) such as a screw into the bottom plate 44. The locking piece 45 is connected to the other end of the side plate 23 and protrudes inward from the other end of the side plate 23. The locking piece 45 is provided along the longer direction of the crown molding 40 over the entire length of the crown molding 40. The locking piece 45 is in contact with the leg 12 of the panel material 10.

[0055] In the example shown in FIG. 1, the four crown moldings 40 are located at the upper end, the lower end, and the left and right ends of the decorative structure 1, respectively, and form a frame of the decorative structure 1. In order to distinguish them, the upper crown molding 40, the lower crown molding 40, the left crown molding 40, and the right crown molding 40 are referred to as a crown molding 40A, a crown molding 40B, a crown molding 40C, and a crown molding 40D, respectively (see FIGS. 18 and 21, etc.). The crown moldings 40A to 40D are disposed such that the bottom plates 44 are placed on the side plates 23 of the support members 20A to 20D, and the locking pieces 45 are in contact with the legs 12, respectively.

[0056] The fixing members 61 to 65 are made of stainless steel, for example. The fixing members 61 to 65 may be subjected to a high corrosion-resistant surface treatment. In order to prevent rainwater from entering, a fixing member with a packing may be used as the fixing members 61 to 65. The packing is made of, for example, ethylene propylene diene rubber (EPDM).

[0057] Next, a method for constructing the decorative structure 1 will be described with reference to FIGS. 10 to 21. FIG. 10 is a flowchart showing a method for constructing the decorative structure shown in FIG. 1. FIG. 11 is a view for explaining a step of marking shown in FIG. 10. FIG. 12 is a view for explaining a step of attaching the support member shown in FIG. 10. FIG. 13 is a cross-sectional view taken along line XIII-XIII of FIG. 12. FIG. 14 is a view for explaining a step of attaching the base material shown in FIG. 10. FIG. 15 is a cross-sectional view taken along the line XV-XV of FIG. 14. FIG. 16 is a cross-sectional view taken along the line XVI-XVI of FIG. 14. FIG. 17 is an enlarged view of a part of FIG. 14. FIG. 18 is a view for explaining a step of attaching the crown molding shown in FIG. 10. FIG. 19 is a view for explaining a step of attaching the panel material shown in FIG. 10. FIG. 20 is a view for explaining a step of attaching the panel material shown in FIG. 10. FIG. 21 is a view for explaining a step of attaching the upper crown molding shown in FIG. 10.

[0058] As shown in FIG. 10, a step S1 of marking is performed first. In the step S1 of marking, a dashed line L1 is drawn on the outer wall 2 at a position where the decorative structure 1 is attached. The position where the decorative structure 1 is attached is, for example, the outer periphery of the decorative structure 1. The outer periphery of the decorative structure 1 is determined in accordance with the number of panel materials 10 to be installed in the lateral direction D1 and the longitudinal direction D2. In the step S1 of marking, a dashed line L2 indicating the position of the furring strip 4 is further drawn on the outer wall 2.

[0059] Subsequently, a step S2 of attaching the support member 20 is performed. In the step S2 of attaching the support member 20, the support members 20A to 20D are arranged on the outer wall 2 along the dashed line L1. Specifically, the support members 20A to 20D are disposed such that the bottom plate 24 faces the center of the frame

surrounded by the dashed line L1, the protruding piece 25 protrudes outward (away from the outer wall 2), and the other end of the side plate 23 extends along the dashed line L1. Further, the support member 20E is disposed on the outer wall 2 along the dashed line L2. Specifically, the support member 20E is disposed such that the protruding piece 25 protrudes outward (away from the outer wall 2) and the distal end of the bottom plate 24 extends along the dashed line L2.

5 **[0060]** Each support member 20 is fixed to the outer wall 2 by a fixing member 61 and a fixing member 62. Each support member 20 is fixed by a fixing member 61 or a fixing member 62 at three positions along the longer direction, for example. A fixing member 61 is used for the bottom plate 24 located on the furring strip 4, and a fixing member 62 shorter than the fixing member 61 is used for the bottom plate 24 not located on the furring strip 4. The fixing members 61 and 62 are driven in a state in which the distal ends of the fixing members 61 and 62 are positioned in the groove 24a. As a result, the fixing member 61 penetrates through the bottom plate 24, the siding panel 5, and the furring strip 4, and the fixing member 62 penetrates through the bottom plate 24 and sticks in the siding panel 5.

10 **[0061]** The support members 20A and 20B are disposed across two furring strips 4 adjacent to each other in the lateral direction D1. Each of the support members 20A and 20B is fixed by the fixing members 61 on the two furring strips 4, and fixed by the fixing member 62 at the right end. The support members 20C to 20E are disposed across two siding panels 5 adjacent to each other in the longitudinal direction D2. Each of the support members 20C and 20E is fixed by the fixing members 61 at both ends and near the center in the longitudinal direction D2. The support member 20D is fixed by the fixing members 62 at both ends and near the center in the longitudinal direction D2. At this time, the fixing members 61 and 62 are driven into the vicinity of the male end portion 51 of the siding panel 5 so as not to hinder the follow-up property of the outer wall 2 at the centers of the support members 20C to 20E.

15 **[0062]** Subsequently, a step S3 of attaching the base material 30 is performed. In the step S3 of attaching the base material 30, a plurality of base materials 30 are attached so as to extend in the lateral direction D1 and to be arranged in parallel with each other at predetermined intervals in the longitudinal direction D2. Specifically, the base material 30A is attached to the support member 20A. More specifically, as shown in FIG. 15, the base 31 of the base material 30A is superposed on and placed on the upper plate 21 of the support member 20A such that the protrusion 34 protrudes downward. At this time, the projection 35 of the base material 30A is pressed against the protruding piece 25 of the support member 20A from below, and the protruding piece 25 of the support member 20A is fitted into the recess 38 of the base material 30A. Then, the base material 30A is fixed to the upper plate 21 of the support member 20A by the fixing members 63 at three positions along the longer direction, for example.

20 **[0063]** The base material 30B is attached to the support member 20B. More specifically, as shown in FIG. 16, the base 31 of the base material 30B is placed on the upper plate 21 of the support member 20B such that the protrusion 34 protrudes upward. At this time, while the protruding piece 25 of the support member 20B is inserted into the groove 37 of the base material 30B, the base 31 of the base material 30B is superposed on the upper plate 21 of the support member 20B and placed thereon. Then, the base material 30B is fixed to the upper plate 21 of the support member 20B by the fixing members 63 at three positions along the longer direction, for example.

25 **[0064]** Each of the base materials 30C and 30D is attached across the support members 20C to 20E. More specifically, as shown in FIG. 17, the base 31 of each of the base materials 30C and 30D is placed across the upper plates 21 of the support members 20C to 20E such that the protrusion 34 protrudes upward. At this time, the base 31 and the projection 35 of each of the base materials 30C and 30D are fitted into the missing portions 25a of the support members 20C to 20E, and the positions of the base materials 30C and 30D in the lateral direction D1 are adjusted so that the grooves 31d of the base materials 30C and 30D overlap the corner formed by the upper plate 21 and the side plate 22 of the support member 20C. The base materials 30C and 30D are fixed to the upper plate 21 of each support member 20 by the fixing member 63, on the upper plates 21 of the support members 20C to 20E.

30 **[0065]** Note that the fixing member 63 is driven in a state where the distal end of the fixing member 63 is positioned in the groove 31c. As a result, the fixing member 63 penetrates through the base 31 and the upper plate 21.

35 **[0066]** Subsequently, a step S4 of attaching the crown molding 40 (crown moldings 40B to 40D) is performed. In the step S4 of attaching the crown molding 40, the crown moldings 40B to 40D are attached. Specifically, the crown moldings 40B to 40D are disposed so that the bottom plates 44 are superposed on the side plates 23 of the support members 20B, 20C and 20D, respectively, and that the locking pieces 45 of the crown moldings 40B to 40D form a U-shape. The crown moldings 40B to 40D are fixed to the side plates 23 of the support members 20B, 20C and 20D by the fixing members 64 in the vicinity of both ends in the longer direction of the crown molding 40, respectively. The fixing member 64 penetrates through the bottom plate 44 and the side plate 23.

40 **[0067]** Subsequently, a step S5 of attaching the panel material 10 is performed. In the step S5 of attaching the panel material 10, each panel material 10 is attached to two base materials 30 adjacent to each other in the longitudinal direction D2 among the base materials 30. Each panel material 10 is attached to the base material 30 by inserting the protrusions 34 of the base material 30 into the insertion holes 12c and 12d provided in at least one of the four legs 12. For example, in the work instruction sheet, the direction of the panel material 10 is indicated by the direction (top, bottom, left and right) of the mark M. For example, when the mark M indicates the bottom, a worker orients the direction of the panel material 10 so that the leg 12A is located below.

[0068] Specifically, as shown in FIG. 19, first, the lower left panel material 10 is attached to the base material 30D and the base material 30B. Specifically, the first and second protrusions 34 from the left end of the base material 30B are inserted through the insertion holes 12c and 12d of the lower leg 12 among the four legs 12, respectively, and the first and second protrusions 34 from the left end of the base material 30D are inserted through the insertion holes 12c and 12d of the upper leg 12 among the four legs 12, respectively. As a result, since the through hole 12e of the upper leg 12 and the first through hole 32e from the left end of the base material 30D overlap each other in the longitudinal direction D2, the fixing member 65 is inserted through the through hole 12e and screwed into the through hole 32e.

[0069] Here, the distance in the longitudinal direction D2 between the surface 32a of the mounting plate 32 of the base material 30B and the surface 32a of the mounting plate 32 of the base material 30D is larger than the distance between the legs 12 of the panel material 10 facing each other by about the thickness of one leg 12. In this configuration, the upper leg 12 is fitted into the constriction 34a of the protrusion 34 of the base material 30D. Although a slight space is formed between the protrusion 34 and the peripheral edges of the insertion holes 12c and 12d in the constriction 34a, the leg 12 is fixed by the fixing member 65. On the other hand, the lower leg 12 is not fitted into the constriction 34a of the protrusion 34 of the base material 30B, but is positioned above the constriction 34a. At this position, there is almost no space between the protrusion 34 and the peripheral edges of the insertion holes 12c and 12d, and further movement of the leg 12 is suppressed by the narrowed portions 12g and 12h. Therefore, even if the lower leg 12 is not fixed to the base material 30B by the fixing member, the possibility of shifting its position is reduced.

[0070] The lengths of the insertion holes 12c and 12d in the lateral direction D1 are larger than the length of the protrusion 34 in the lateral direction D1, and the through hole 12e is an elongated hole extending in the lateral direction D1. Therefore, the position of the panel material 10 in the lateral direction D1 can be finely adjusted before the upper leg 12 is fixed to the base material 30B. Here, the left end of the panel material 10 is brought into contact with (the locking piece 45 of) the crown molding 40C to position the panel material 10. Then, another panel material 10 is sequentially attached to the right side of the attached panel material 10 by the same procedure.

[0071] Further, in the second row from the bottom, panel materials 10 are attached to the base material 30C and the base material 30D. Similarly, the panel materials 10 are attached to the base material 30C and the base material 30D in order from the left end. Specifically, the first and second protrusions 34 from the left end of the base material 30D are inserted through the insertion holes 12c and 12d of the lower leg 12 among the four legs 12, respectively, and the first and second protrusions 34 from the left end of the base material 30C are inserted through the insertion holes 12c and 12d of the upper leg 12 among the four legs 12, respectively. At this time, the head portion of the fixing member 65 used for fixing the lower panel material 10 is inserted into the depression 12f of the lower leg 12. As a result, since the through hole 12e of the upper leg 12 and the first through hole 32e from the left end of the base material 30C overlap each other in the longitudinal direction D2, the fixing member 65 is inserted through the through hole 12e and screwed into the through hole 32e.

[0072] Here, the distance in the longitudinal direction D2 between the surface 32a of the mounting plate 32 of the base material 30C and the surface 32a of the mounting plate 32 of the base material 30D is larger than the distance between the legs 12 of the panel material 10 facing each other by about the thickness of one leg 12. In this configuration, the upper leg 12 is fitted into the constriction 34a of the protrusion 34 of the base material 30C. On the other hand, since the leg 12 of the lower panel material 10 is already fitted into the constriction 34a of the protrusion 34 of the base material 30D, the lower leg 12 is not fitted into the constriction 34a of the protrusion 34 of the base material 30D but is located above the constriction 34a. At this position, there is almost no space between the protrusion 34 and the peripheral edges of the insertion holes 12c and 12d, and further movement of the leg 12 is suppressed by the narrowed portions 12g and 12h. Therefore, even if the lower leg 12 is not fixed to the base material 30D by the fixing member, the possibility of shifting its position is reduced.

[0073] Then, the left end of the panel material 10 is brought into contact with (the locking piece 45 of) the crown molding 40C to position the panel material 10. Then, another panel material 10 is sequentially attached to the right side of the attached panel material 10 by the same procedure.

[0074] Further, in the uppermost row, panel materials 10 are attached to the base material 30A and the base material 30C. The panel materials 10 are also attached to the base material 30A and the base material 30C in order from the left end. Specifically, the first and second protrusions 34 from the left end of the base material 30C are inserted through the insertion holes 12c and 12d of the lower leg 12 among the four legs 12, respectively, and the upper leg 12 among the four legs 12 are placed on the surface 32b of the mounting plate 32 of the base material 30A. At this time, the head portion of the fixing member 65 used for fixing the lower panel material 10 is inserted into the depression 12f of the lower leg 12. As a result, the through hole 12a of the upper leg 12 overlaps with the first through hole 32d from the left end of the base material 30A in the longitudinal direction D2, and the through hole 12b of the upper leg 12 overlaps with the second through hole 32c from the left end of the base material 30A in the longitudinal direction D2. Therefore, the fixing members 65 are inserted through the through holes 12a and 12b and screwed into the through holes 32d and 32c, respectively.

[0075] Here, the distance in the longitudinal direction D2 between the surface 32b of the mounting plate 32 of the base

material 30A and the surface 32a of the mounting plate 32 of the base material 30C is larger than the distance between the legs 12 of the panel material 10 facing each other by about the thickness of one leg 12. Since the leg 12 of the lower panel material 10 is already fitted into the constriction 34a of the protrusion 34 of the base material 30C, the lower leg 12 is not fitted into the constriction 34a of the protrusion 34 of the base material 30C but is located above the constriction 34a. At this position, there is almost no space between the protrusion 34 and the peripheral edges of the insertion holes 12c and 12d, and further movement of the leg 12 is suppressed by the narrowed portions 12g and 12h. Therefore, even if the lower leg 12 is not fixed to the base material 30C by the fixing member, the possibility of shifting its position is reduced.

[0076] The through holes 32c and 32d are elongated holes extending in the lateral direction D1. Therefore, the position of the panel material 10 in the lateral direction D1 can be finely adjusted before the upper leg 12 is fixed to the base material 30A. Here, the left end of the panel material 10 is brought into contact with (the locking piece 45 of) the crown molding 40C to position the panel material 10. Then, another panel material 10 is sequentially attached to the right side of the attached panel material 10 by the same procedure.

[0077] The position of each panel material 10 in the lateral direction D1 is finely adjusted so as to align the positions in the lateral direction D1 of the adjacent panel materials 10 in the longitudinal direction D2.

[0078] Subsequently, a step S6 of attaching the crown molding 40A is performed. In the step S6 of attaching the crown molding 40A, similarly to the step S4 of attaching the crown molding 40, the crown molding 40A is disposed such that the bottom plate 44 is superposed on the side plate 23 of the support member 20A and the locking piece 45 is in contact with the legs 12 of the panel materials 10 in the uppermost row. The crown molding 40A is fixed to the side plate 23 of the support member 20A by the fixing members 64 in the vicinity of both ends of the crown molding 40A in the longer direction of the crown molding 40A.

[0079] As described above, the decorative structure 1 is constructed on the outer wall 2.

[0080] In the decorative structure 1, the panel material 10 and the method for constructing the decorative structure 1 described above, the panel material 10 is attached by inserting the protrusions 34 of one of the two base materials 30 adjacent to each other in the longitudinal direction D2 into the insertion holes 12c and 12d provided in at least one leg 12 of the four legs 12 of the panel material 10. The four legs 12 are provided along four sides of the outer edge portion 11b having a square shape in a plan view, extend from the outer edge portion 11b in a direction intersecting (orthogonal to) the body 11, and have the same shape as each other. That is, except for the surface 11a, the panel material 10 is rotationally symmetric about the central axis CX of the body 11 at 90°, 180°, 270°, and 360°. In other words, the four legs 12 of the panel material 10 are rotationally symmetric about the central axis CX of the body 11 at 90°, 180°, 270°, and 360°. Therefore, the panel material 10 can be attached to the base material 30 even if the panel material 10 is rotated by any angle of 90°, 180°, 270°, or 360° about the central axis CX of the body 11. As a result, it is possible to change the direction in which the panel material 10 is attached.

[0081] The surface 11a of the panel material 10 has an asymmetrical decoration with respect to the central axis CX. Therefore, the decorative structure 1 can produce various appearances by arbitrarily attaching each panel material 10 at any one of the rotation angles of 90°, 180°, 270° and 360° for each panel material 10. Therefore, it is possible to improve the design of the decorative structure 1.

[0082] Each of the plurality of support members 20 includes the protruding piece 25 which extends in a direction in which the support member 20 extends and protrudes in the direction D3. Since each base material 30 is positioned by the protruding piece 25 of the support member 20, the work of attaching the base material 30 can be simplified, and the construction accuracy of the base material 30 can be improved.

[0083] Specifically, the plurality of support members 20 include the support member 20A for supporting the base material 30A, the support member 20B for supporting the base material 30B, and the support members 20C to 20E for supporting the base materials 30C and 30D. The base material 30A is attached to the support member 20A in a state in which the projection 35 of the base material 30A is brought into contact with the protruding piece 25 of the support member 20A in the longitudinal direction D2. Since the position of the base material 30A in the longitudinal direction D2 is determined by this contact, the work for the worker to adjust the position of the base material 30A in the longitudinal direction D2 can be omitted. This makes it possible to simplify the work of attaching the base material 30A.

[0084] The base material 30B is attached to the support member 20B in a state in which the protruding piece 25 of the support member 20B is fitted into the groove 37 provided in the base material 30B. Since the position of the base material 30B in the longitudinal direction D2 is determined by this fitting structure, the work for the worker to adjust the position of the base material 30B in the longitudinal direction D2 can be omitted. This makes it possible to simplify the work of attaching the base material 30B.

[0085] The base materials 30C and 30D are attached to the support members 20C, 20D and 20E in a state in which the base materials 30C and 30D are fitted into the missing portions 25a provided in the protruding pieces 25 of the support members 20C, 20D and 20E. Since the positions of the base materials 30C and 30D in the longitudinal direction D2 are determined by these fitting structures, the work for the worker to adjust the position of the base materials 30C and 30D in the longitudinal direction D2 can be omitted. This makes it possible to simplify the work of attaching the base materials 30C and 30D.

[0086] In this way, the base material 30 can be systematically attached to the support member 20.

[0087] The leg 12A of the panel material 10 is marked with the mark M. This makes it possible to indicate the direction in which the panel material 10 is attached by the direction (top, bottom, left and right) of the mark M in the work instruction sheet. Therefore, the worker can easily judge the direction in which the panel material 10 is attached, so that the workability of the panel material 10 can be improved.

[0088] The support members 20A to 20E are mounted on the outer wall 2, and the base materials 30A to 30D are mounted on the support members 20A to 20E. Further, the plurality of panel materials 10 are attached to the base materials 30A to 30D. Therefore, the panel material 10 can be attached without influence of the shape of the outer wall 2.

[0089] The support members 20C to 20E are arranged in the longitudinal direction D2 orthogonal to a direction (lateral direction D1) in which the siding panel 5 extends, and are attached across two siding panels 5 adjacent to each other in the longitudinal direction D2. This configuration makes it difficult for the female end portion 52 of the upper siding panel 5 and the male end portion 51 of the lower siding panel 5 to disengage from each other. As a result, the wind pressure resistance performance of the outer wall 2 can be improved.

[0090] The panel material 10 at the left end is positioned by bringing the left end of the panel material 10 into contact with (the locking piece 45 of) the crown molding 40C. The panel material 10 other than the left end is positioned by bringing the left end of the panel material 10 into contact with the right end of the panel material 10 located on the left side of the panel material 10. This configuration makes it possible to reduce the gap (joint) between the two panel materials 10 adjacent to each other in the lateral direction D1.

[0091] The protrusions 34 of the base materials 30C and 30D are inserted through the insertion holes 12c and 12d provided in the leg 12 of the lower panel material 10 and the insertion holes 12c and 12d provided in the leg 12 of the upper panel material 10, and the legs 12 of the two panel materials 10 adjacent to each other in the longitudinal direction D2 are attached to the base materials 30C and 30D. This configuration makes it possible to reduce the gap (joint) between the two panel materials 10 adjacent to each other in the longitudinal direction D2.

[0092] It should be noted that the decorative structure, the panel material, and the method for constructing the decorative structure according to the present disclosure are not limited to the above-described embodiments.

[0093] In the above-described embodiments, the outer wall 2 on which the decorative structure 1 is installed is configured by attaching a plurality of siding panels 5 so as to extend in the horizontal direction, but the outer wall 2 is not limited to this configuration. For example, as shown in FIG. 22, the outer wall 2 on which the decorative structure 1 is installed may be configured by attaching a plurality of siding panels 5 so as to extend in the vertical direction. In this case, the decorative structure 1 may be provided by being rotated 90 degrees clockwise. The decorative structure 1 may be installed on not only the outer wall but also the inner wall.

[0094] As the shape of the decoration of the surface 11a, any shape can be adopted. For example, as shown in FIG. 23, the decorative shape of the surface 11a may be a shape inclined from one side to the other side among a pair of mutually facing sides of the outer edge portion 11b.

[0095] In the above embodiments, the decorative structure 1 includes nine panel materials 10, but the number of panel materials 10 can be changed depending on the size of the desired decorative structure 1. The lengths of the support members 20A and 20B, the base materials 30A to 30D, and the crown moldings 40A and 40B are adjusted depending on the number of the panel materials 10 in the lateral direction D1. The lengths of the support members 20C to 20E and the crown moldings 40C and 40D, and the number of the base materials 30 are adjusted depending on the number of the panel materials 10 in the longitudinal direction D2.

[0096] In the above-described embodiments, the support members 20A to 20E have the same shape but may have different shapes. Similarly, in the above-described embodiments, the base materials 30A to 30D have the same shape but may have different shapes. For example, the base material 30A may include at least the projection 35 which is contact with the protruding piece 25 of the support member 20A in the longitudinal direction D2, and the groove 37 may not be provided. At least the groove 37 which is fitted into the protruding piece 25 of the support member 20B may be provided in the base material 30B, and the base material 30B may not include the bulge 36. The base materials 30C and 30D may have a shape that fits into the missing portions 25a provided in the support members 20C to 20E, and the groove 37 may not be provided.

[0097] In the above embodiments, the crown moldings 40A to 40D have the same shape, but may have different shapes.

Reference Signs List

[0098]

1	decorative structure
2	outer wall
4	furring strip
5	siding panel

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	10	panel material
	11	body
	11a	surface
	11b	outer edge portion
5	12	leg
	12a	through hole
	12b	through hole
	12c	insertion hole
	12d	insertion hole
10	12e	through hole
	20	support member
	20A	support member (second support member)
	20B	support member (first support member)
	20C, 20D, 20E	support member (third support member)
15	21	upper plate
	21a	mounting surface
	22	side plate
	23	side plate
	24	bottom plate
20	24a	groove
	25	protruding piece
	25a	missing portion
	30	base material
	30A	base material (second base material)
25	30B	base material (first base material)
	30C, 30D	base material (third base material)
	31	base
	31a	surface
	31b	surface
30	31c	groove
	31d	groove
	32	mounting plate
	32a	surface
	32b	surface
35	32c	through hole
	32d	through hole
	32e	through hole
	33	joint
	34	protrusion
40	34a	constriction
	35	projection
	36	bulge
	37	groove
	38	recess
45	40, 40A, 40B, 40C, 40D	crown molding
	41	upper plate
	42	side plate
	43	side plate
	44	bottom plate
50	45	locking piece
	51	male end portion
	52	female end portion
	53	fixing portion
	54, 61 to 65	fixing member
55	CX	central axis
	D1	lateral direction (first direction)
	D2	longitudinal direction (second direction)
	D3	direction (third direction)

L1	dashed line
L2	dashed line
Lc	center line
M	mark

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Claims**1.** A decorative structure comprising:

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a plurality of base materials extending in a first direction and provided in parallel with each other at predetermined intervals in a second direction intersecting the first direction; and
a plurality of panel materials, each of the plurality of panel materials being attached to two base materials adjacent to each other in the second direction among the plurality of base materials,
15 wherein each of the plurality of base materials comprises a protrusion protruding in the second direction, wherein each of the plurality of panel materials comprises a body including an outer edge portion having a square shape in a plan view, and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body,
20 wherein the four legs have the same shape as each other, and an insertion hole into which the protrusion can be inserted is provided in each of the four legs, and
wherein the panel material is attached by inserting the protrusion of one of the two base materials through the insertion hole provided in one of the four legs.

2. The decorative structure according to claim 1, further comprising a plurality of elongated support members that support the plurality of base materials,

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wherein each of the plurality of support members comprises a protruding piece that extends in a direction in which the support member extends and protrudes in a third direction intersecting the first direction and the second direction, and

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wherein the plurality of base materials are positioned by the protruding piece.

3. The decorative structure according to claim 2,

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wherein the plurality of base materials include a first base material located at one end of the plurality of base materials in the second direction,
wherein the plurality of support members include a first support member that supports the first base material, wherein the first support member extends in the first direction and overlaps the first base material when viewed from the third direction, and
40 wherein a groove into which the protruding piece of the first support member fits is provided in the first base material.

4. The decorative structure according to claim 3,

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wherein the plurality of base materials further include a second base material located at the other end of the plurality of base materials in the second direction,
wherein the plurality of support members further include a second support member that supports the second base material,
wherein the second support member extends in the first direction and overlaps the second base material when viewed from the third direction, and
50 wherein the second base material further comprises a projection that is in contact with the protrusion of the second support member in the second direction.

5. The decorative structure according to claim 4,

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wherein the plurality of base materials further include a third base material located between the first base material and the second base material in the second direction,
wherein the plurality of support members further include a plurality of third support members that support the third base material,

wherein the plurality of third support members extend in the second direction and are provided in parallel with each other in the first direction, and
 wherein missing portions into which the third base material fits are provided in the protruding pieces of the plurality of third support members.

6. A panel material comprising:

a body including an outer edge portion having a square shape in a plan view; and
 four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body,
 wherein the four legs have the same shape as each other, and an insertion hole into which a protrusion of a base material can be inserted is provided in each of the four legs.

7. A method for constructing a decorative structure, the method comprising:

a step of attaching a plurality of base materials so that each of the plurality of base materials extends in a first direction and the plurality of base materials are arranged in parallel with each other at predetermined intervals in a second direction intersecting the first direction; and
 a step of attaching a panel material to two base materials adjacent to each other in the second direction among the plurality of base materials,
 wherein each of the plurality of base materials comprises a protrusion protruding in the second direction, and
 wherein the panel material comprises a body including an outer edge portion having a square shape in a plan view, and four legs provided along four sides of the outer edge portion and extending from the outer edge portion in a direction intersecting the body,
 wherein the four legs have the same shape as each other, and an insertion hole into which the protrusion can be inserted is provided in each of the four legs, and
 wherein in the step of attaching the panel material, the panel material is attached by inserting the protrusion of one base material of the two base materials into the insertion hole provided in one of the four legs.

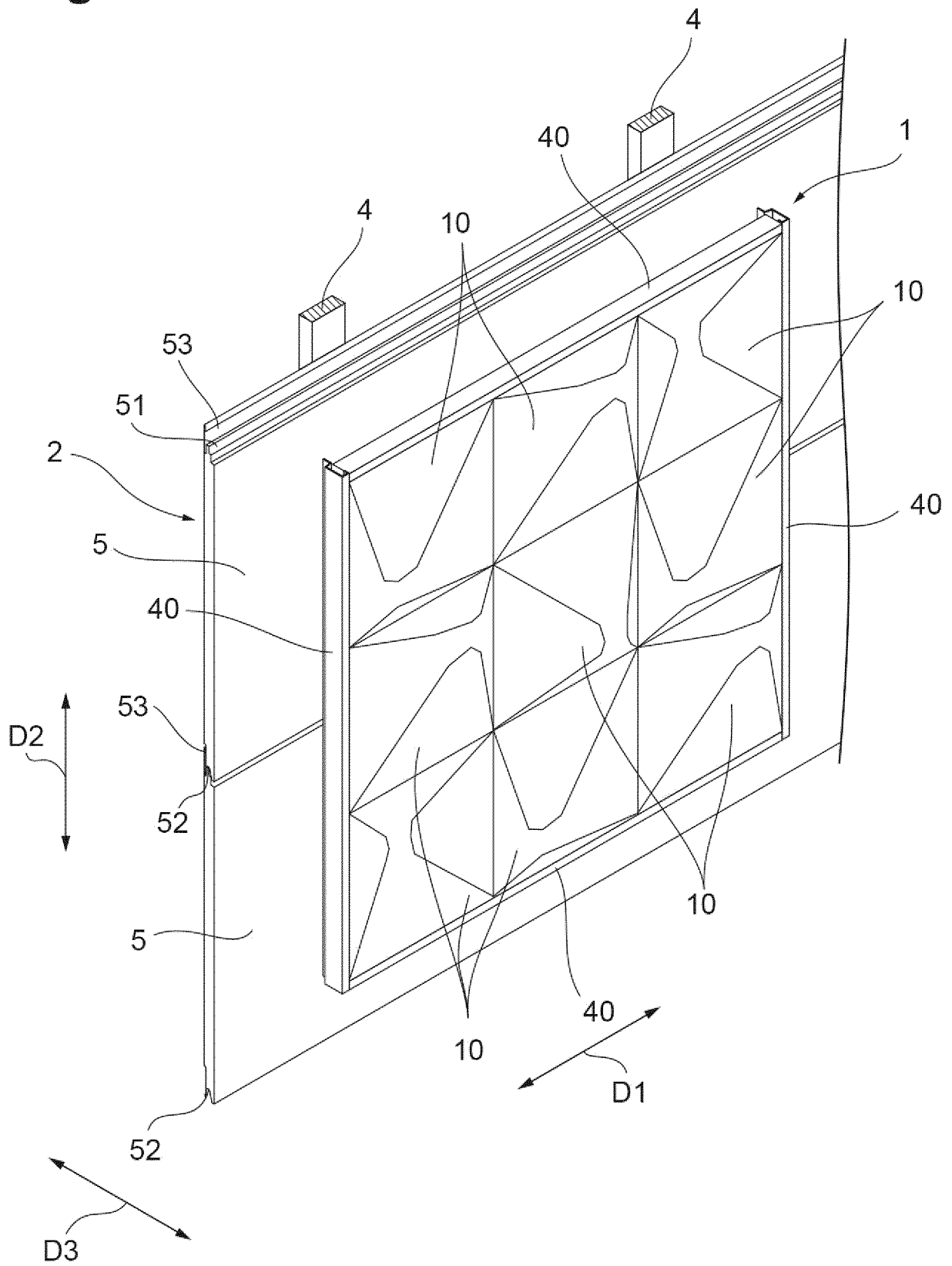
Fig.1

Fig.2

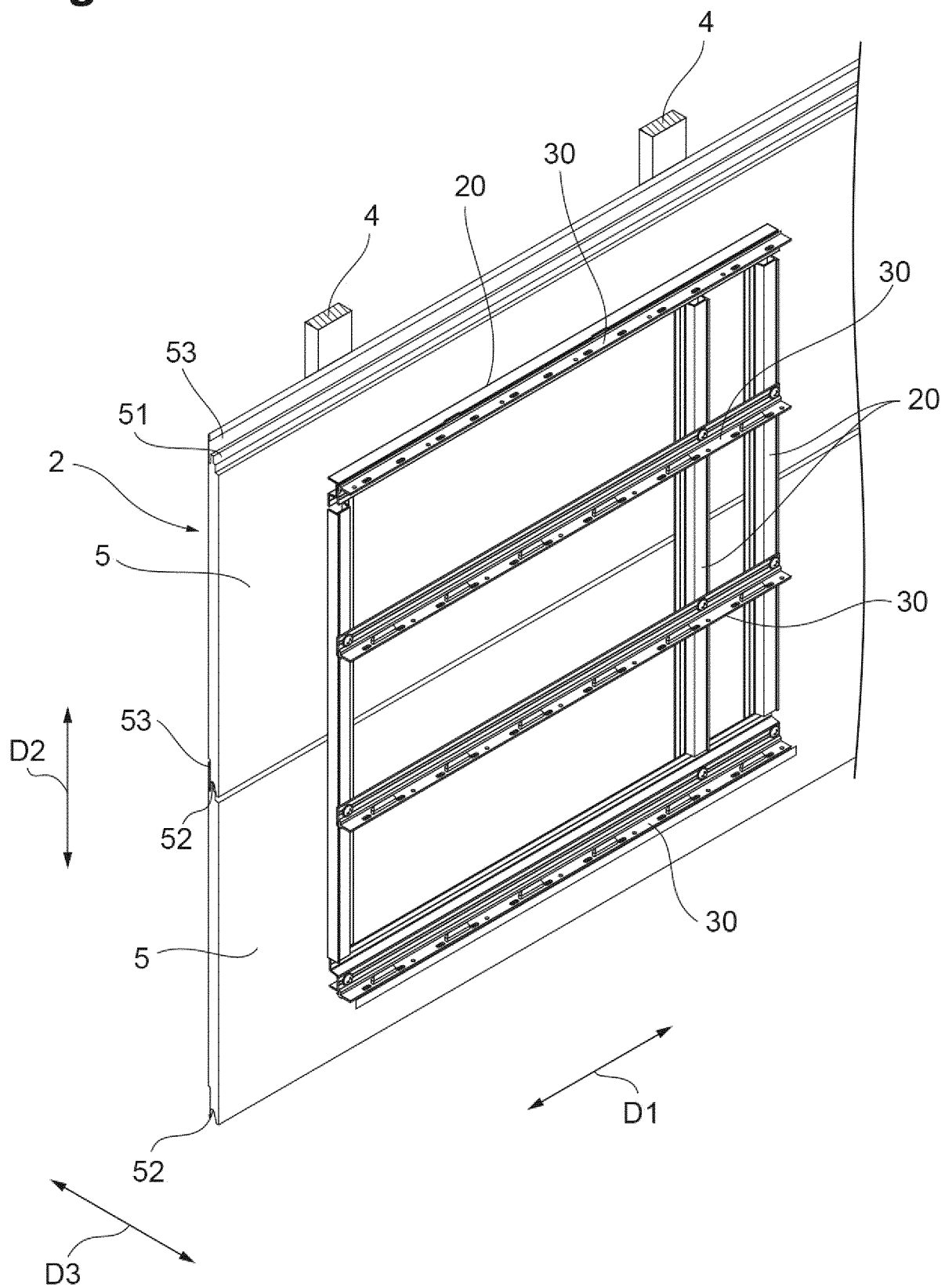


Fig.3

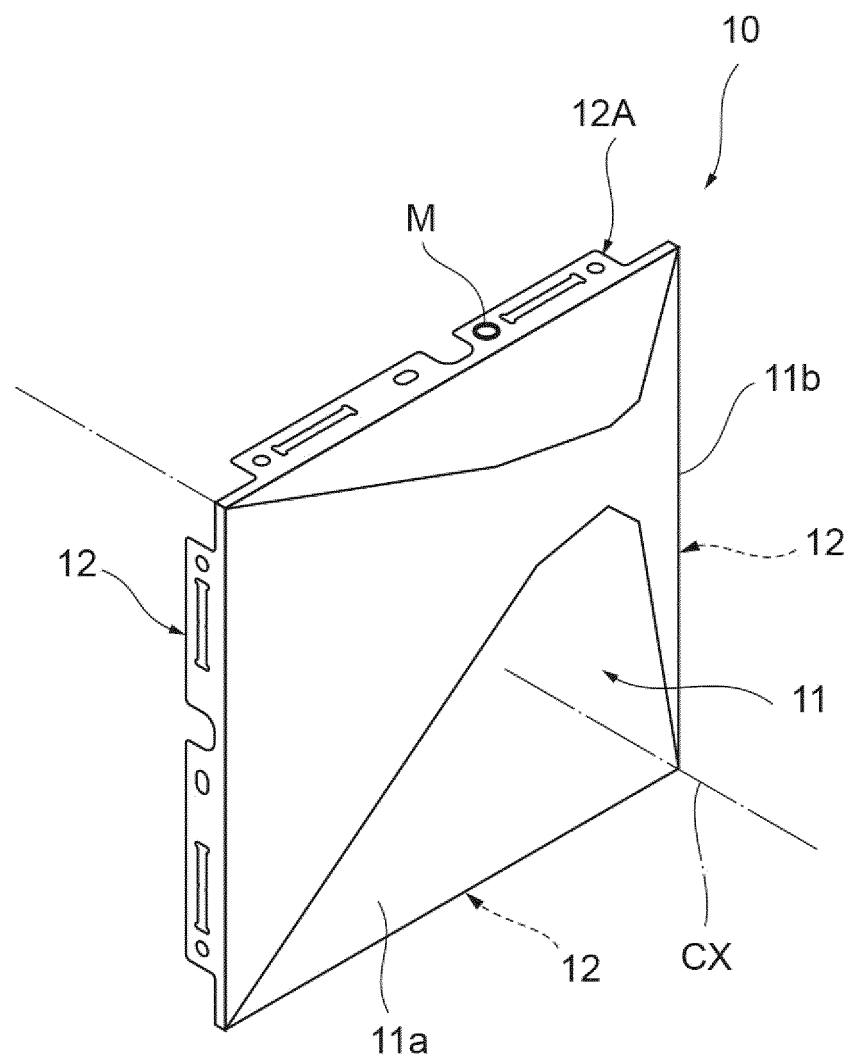


Fig.4

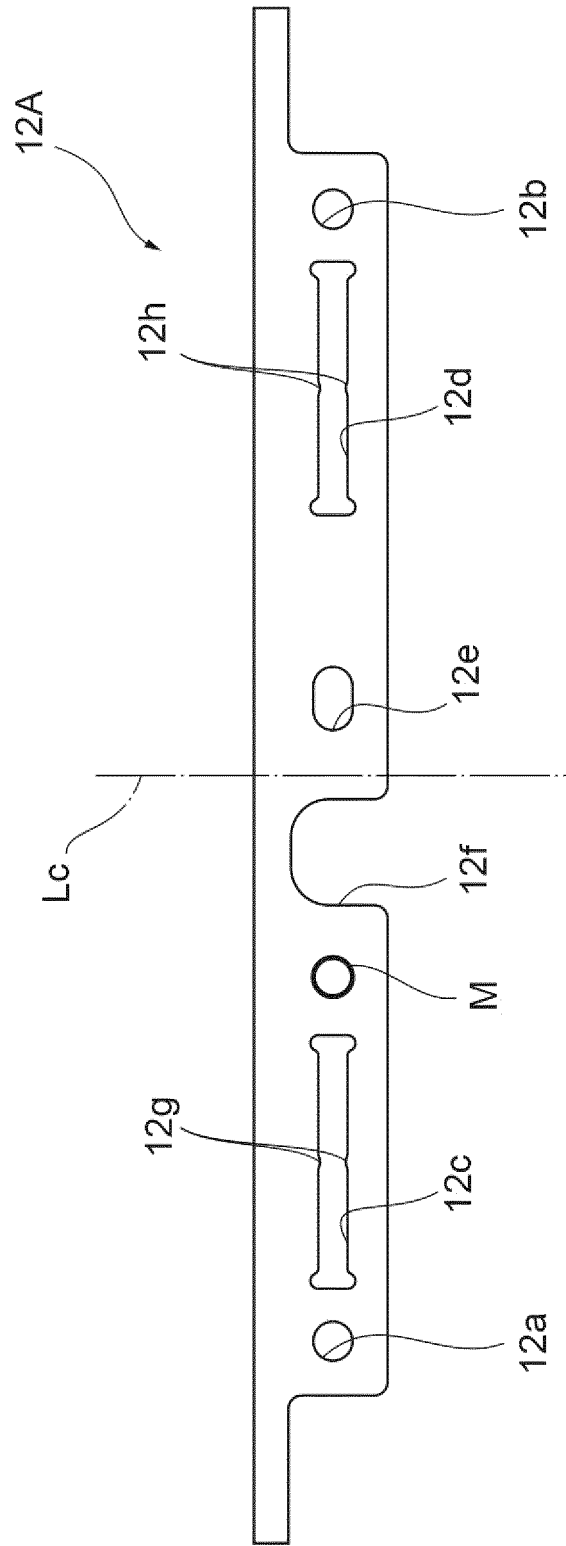


Fig.5

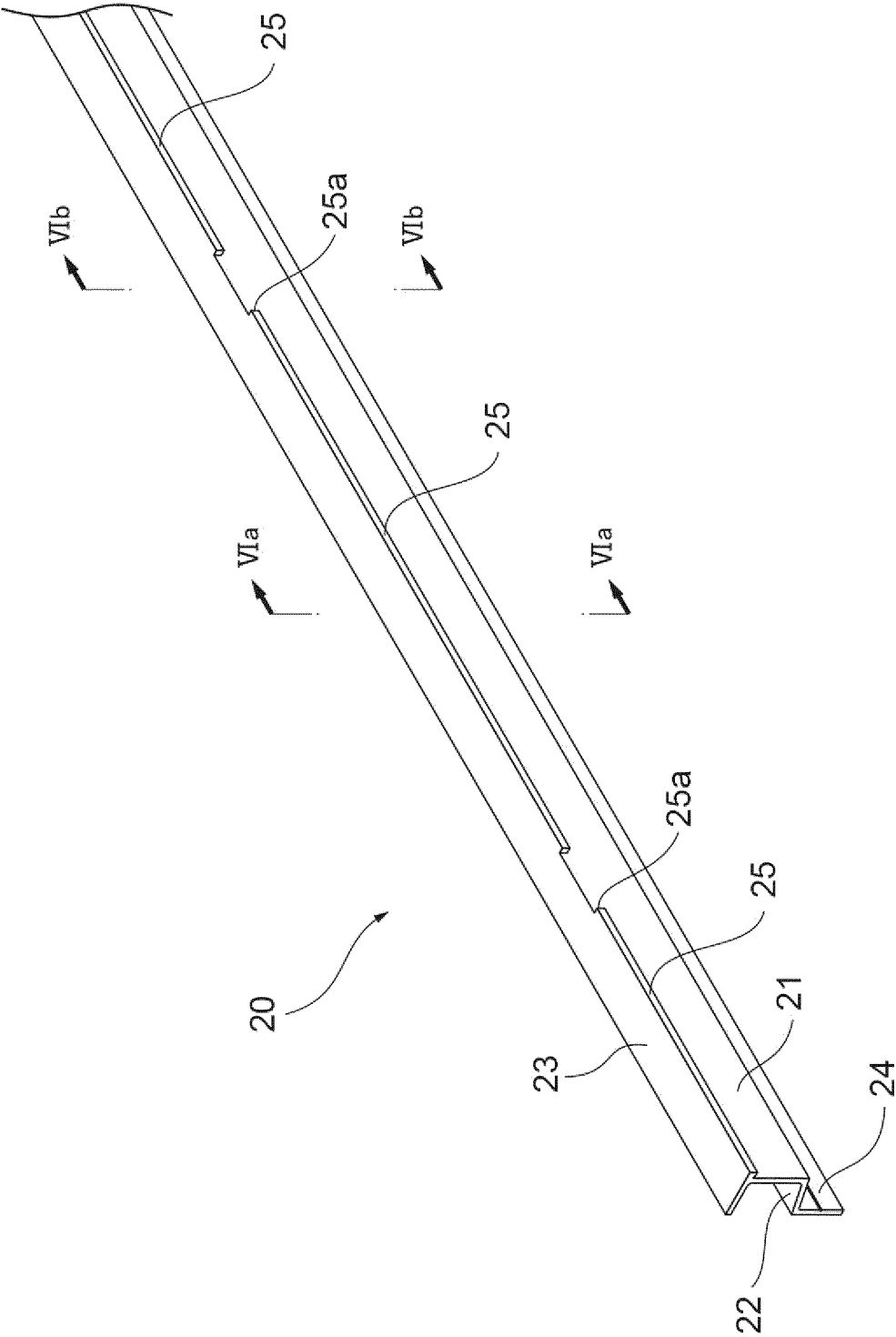


Fig.6

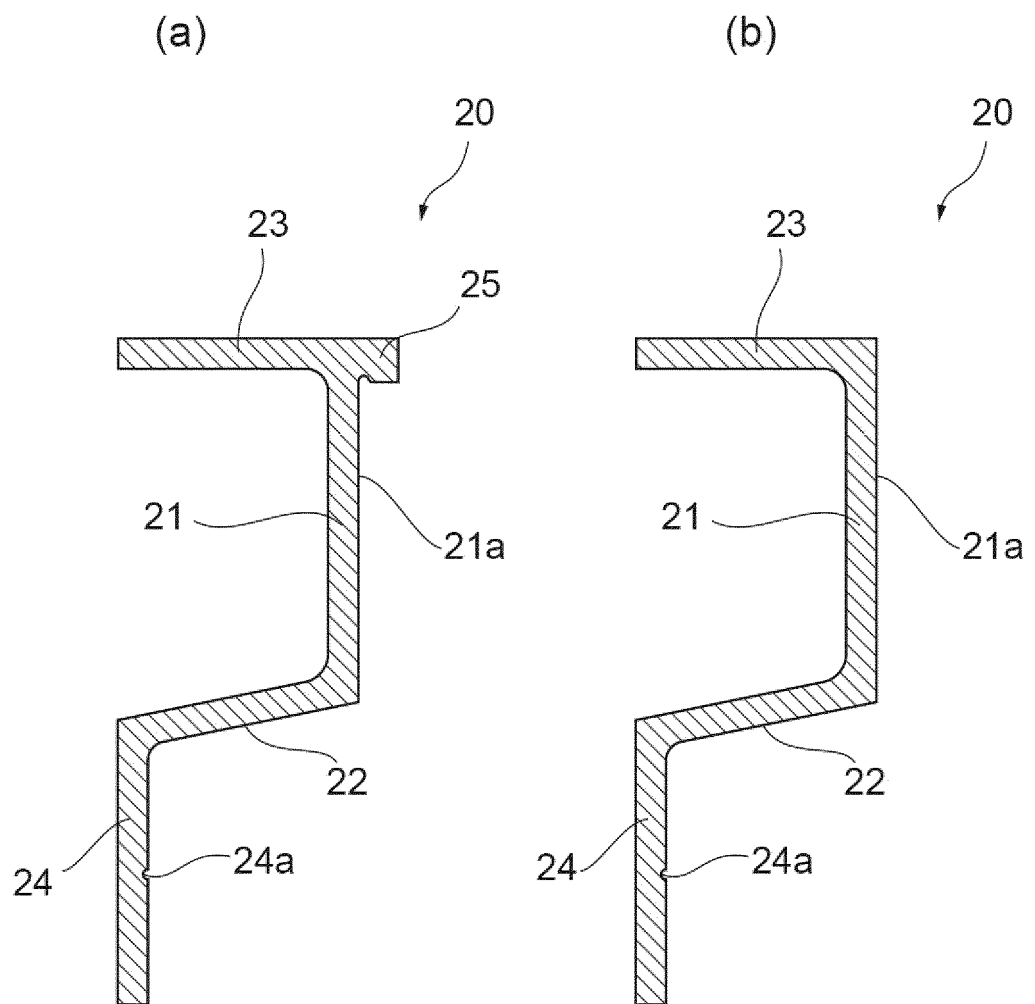


Fig. 7

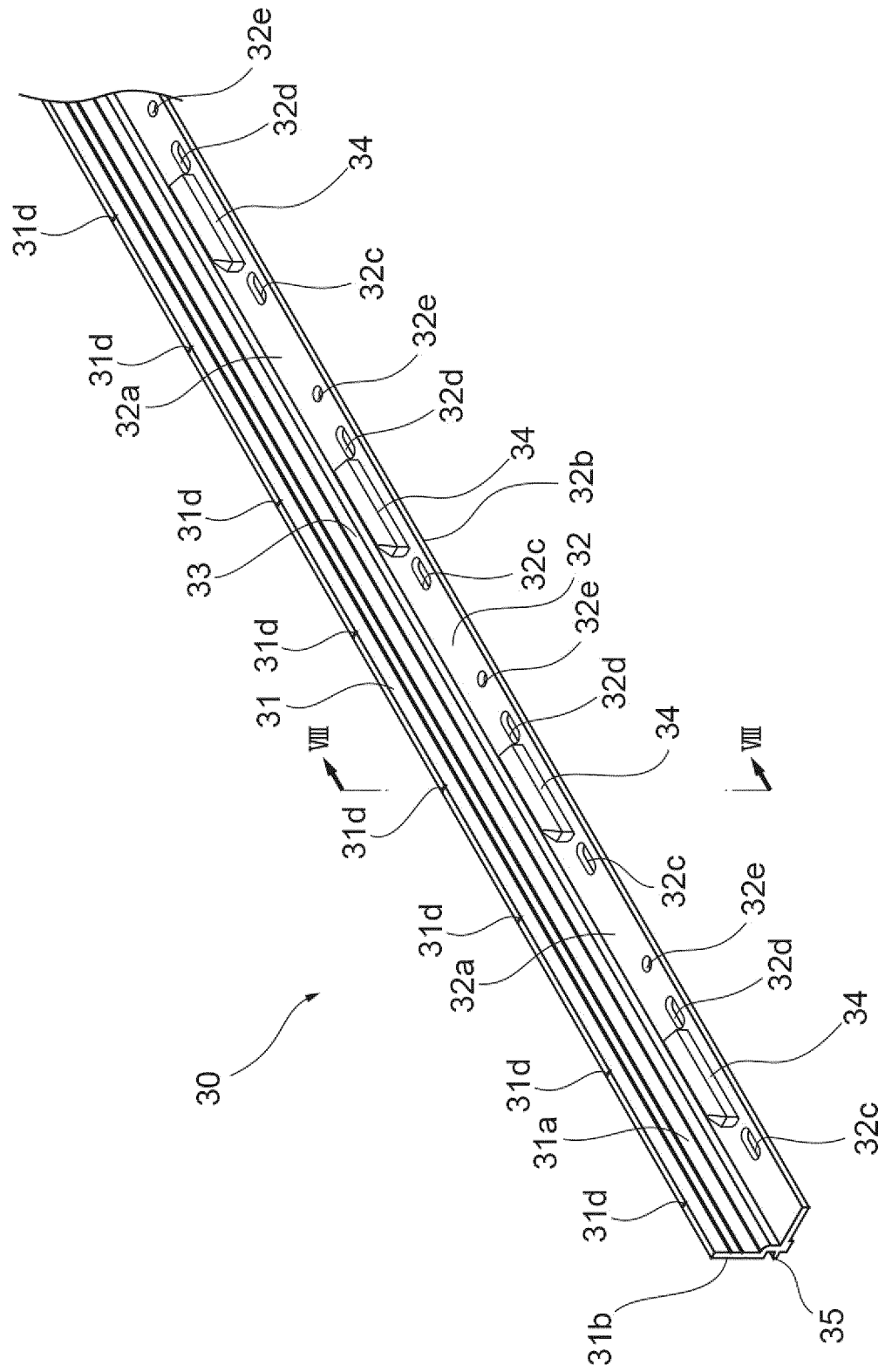


Fig.8

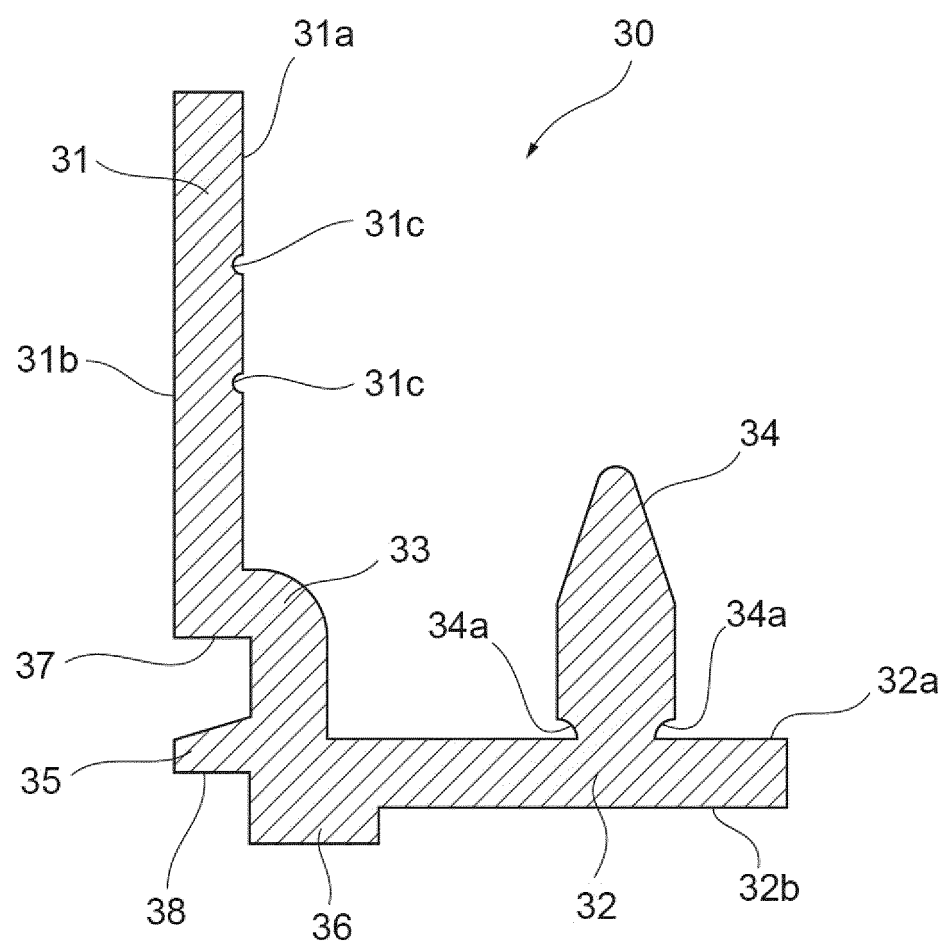


Fig.9

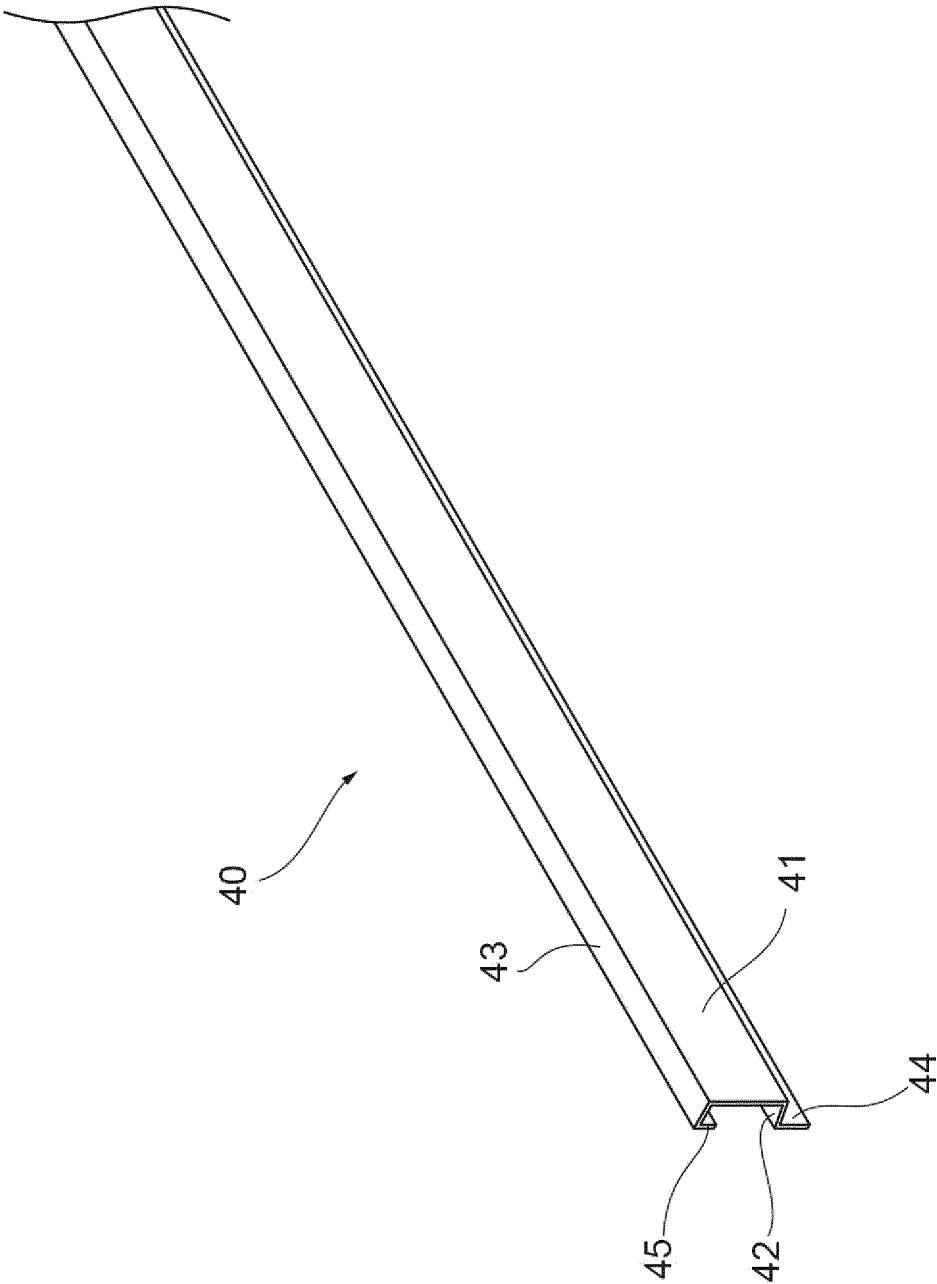


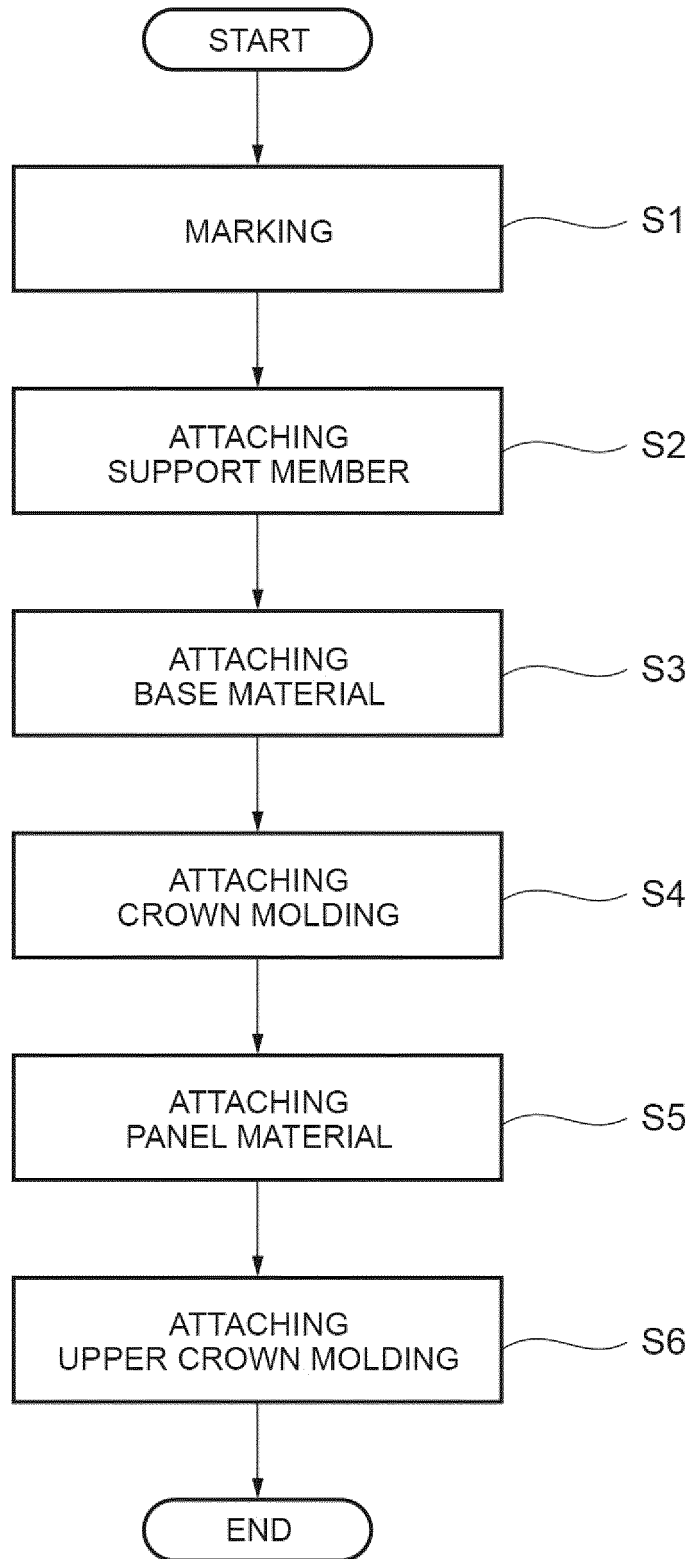
Fig.10

Fig.11

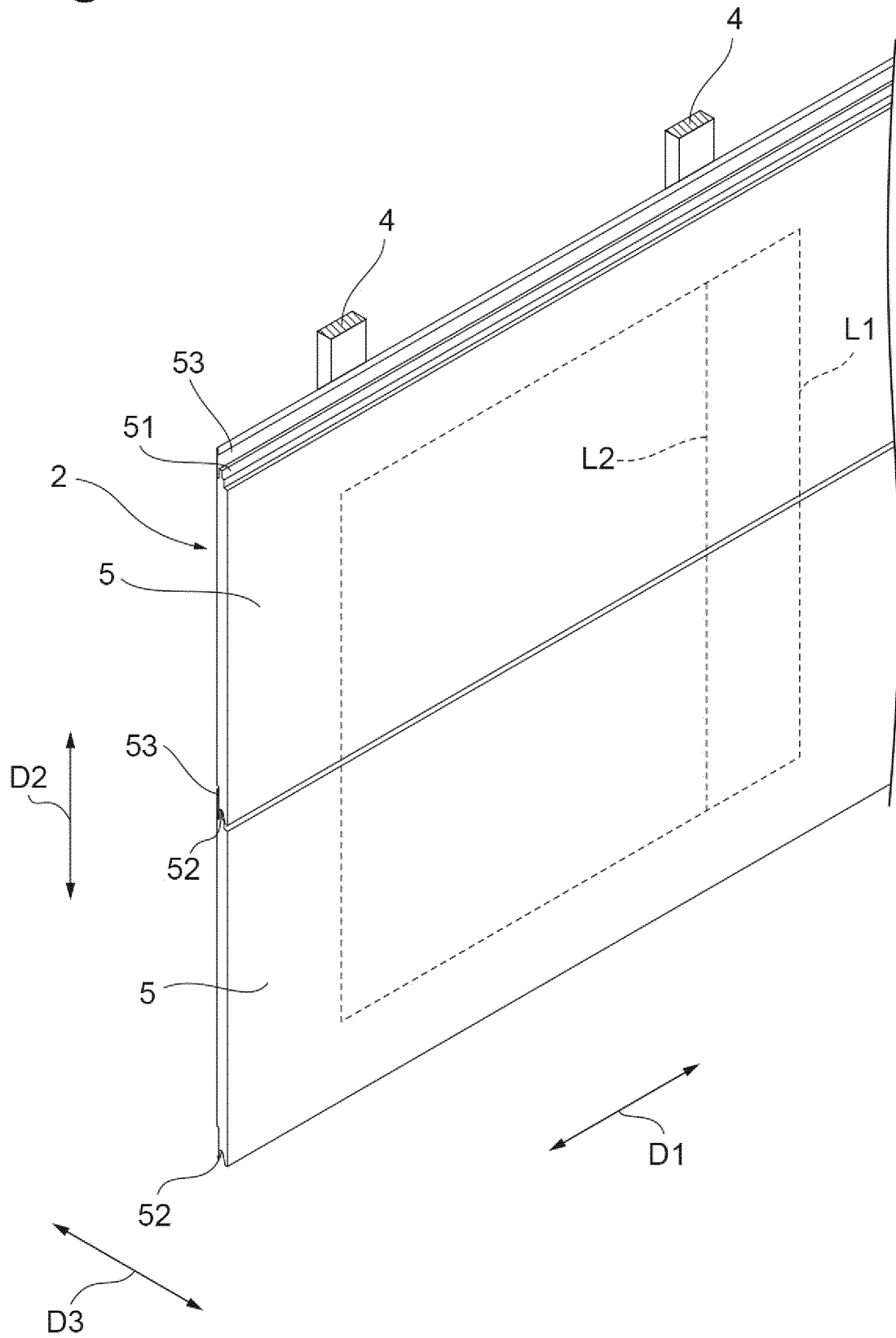


Fig.12

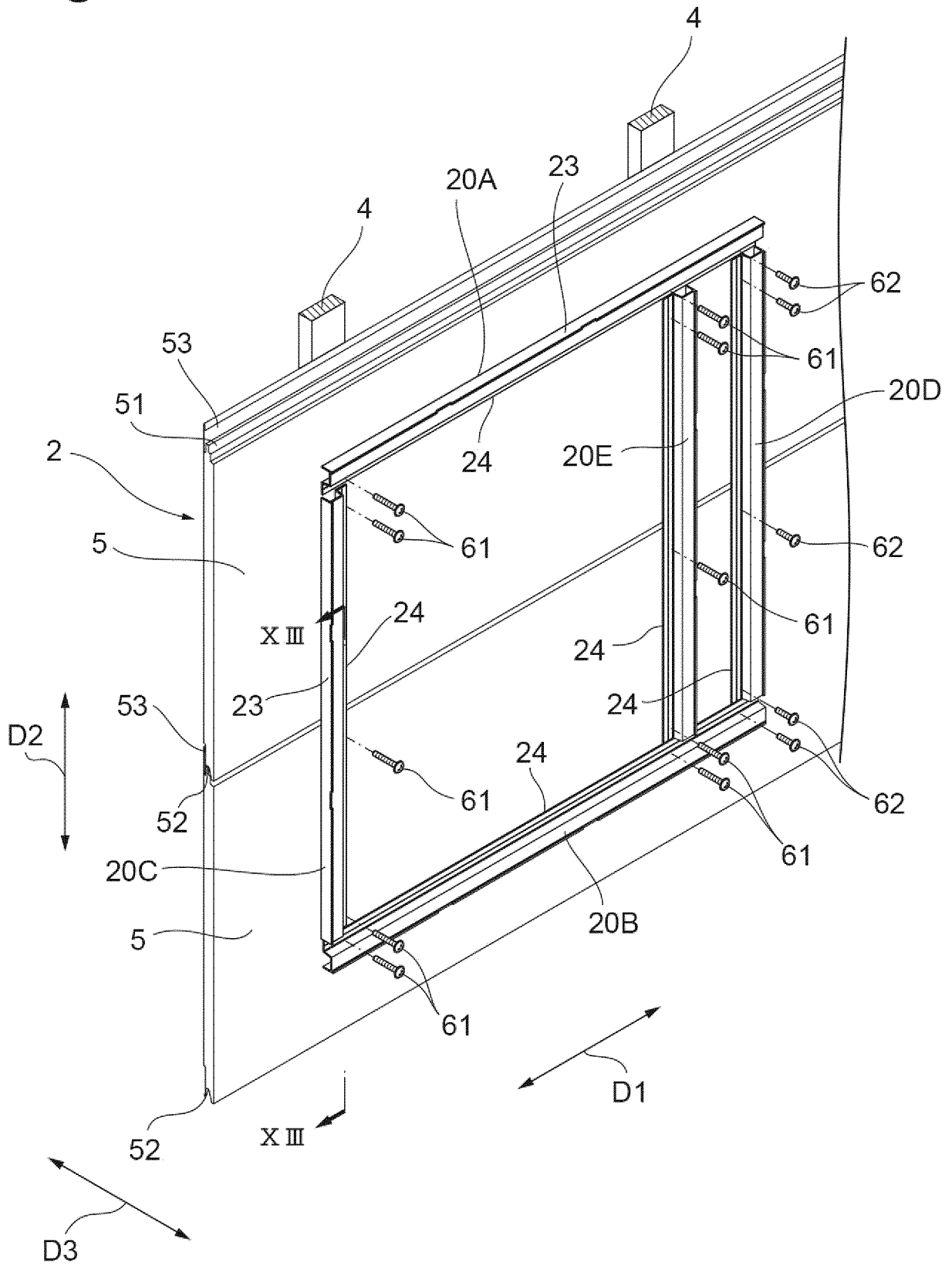


Fig.13

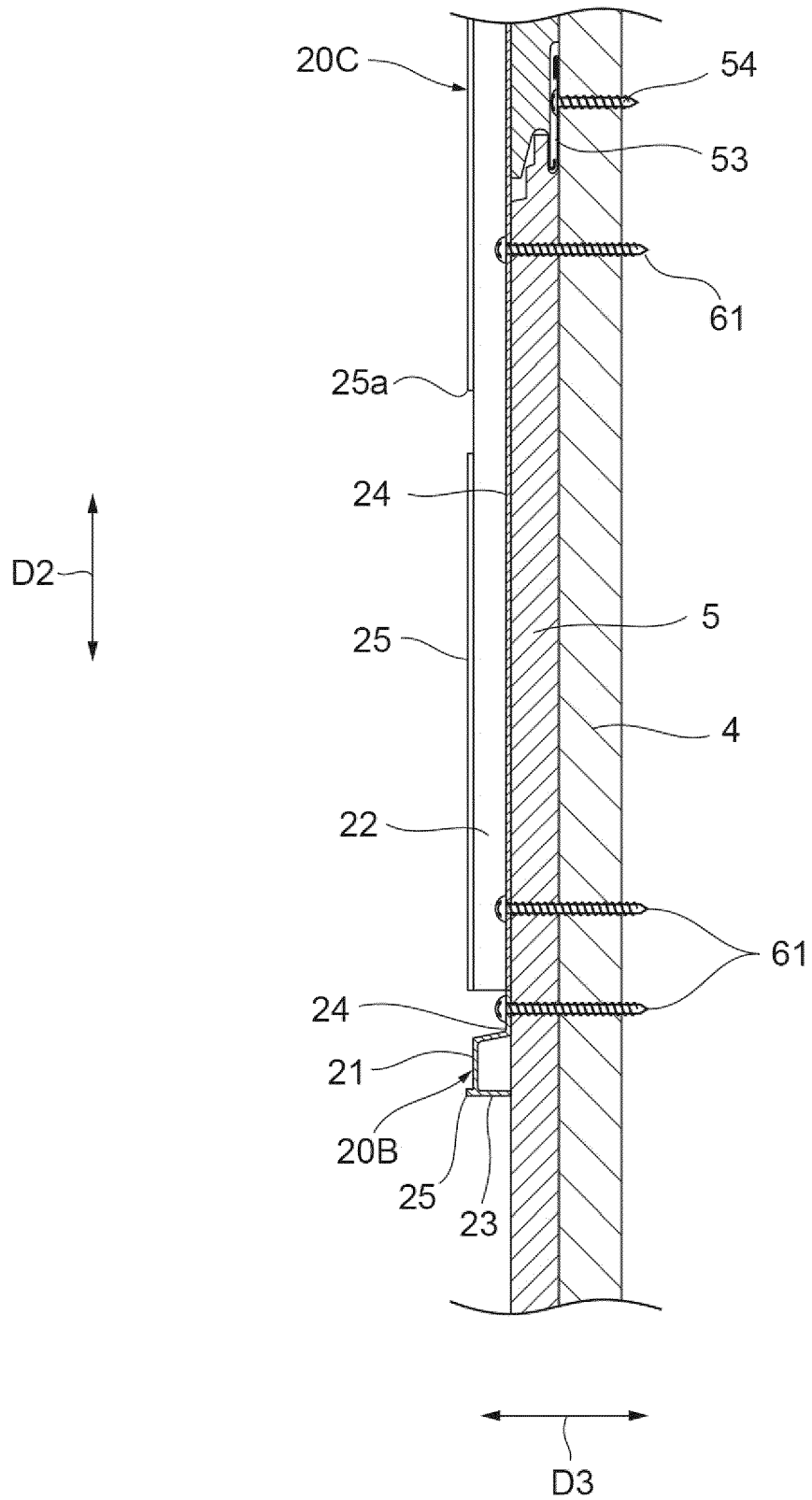


Fig.14

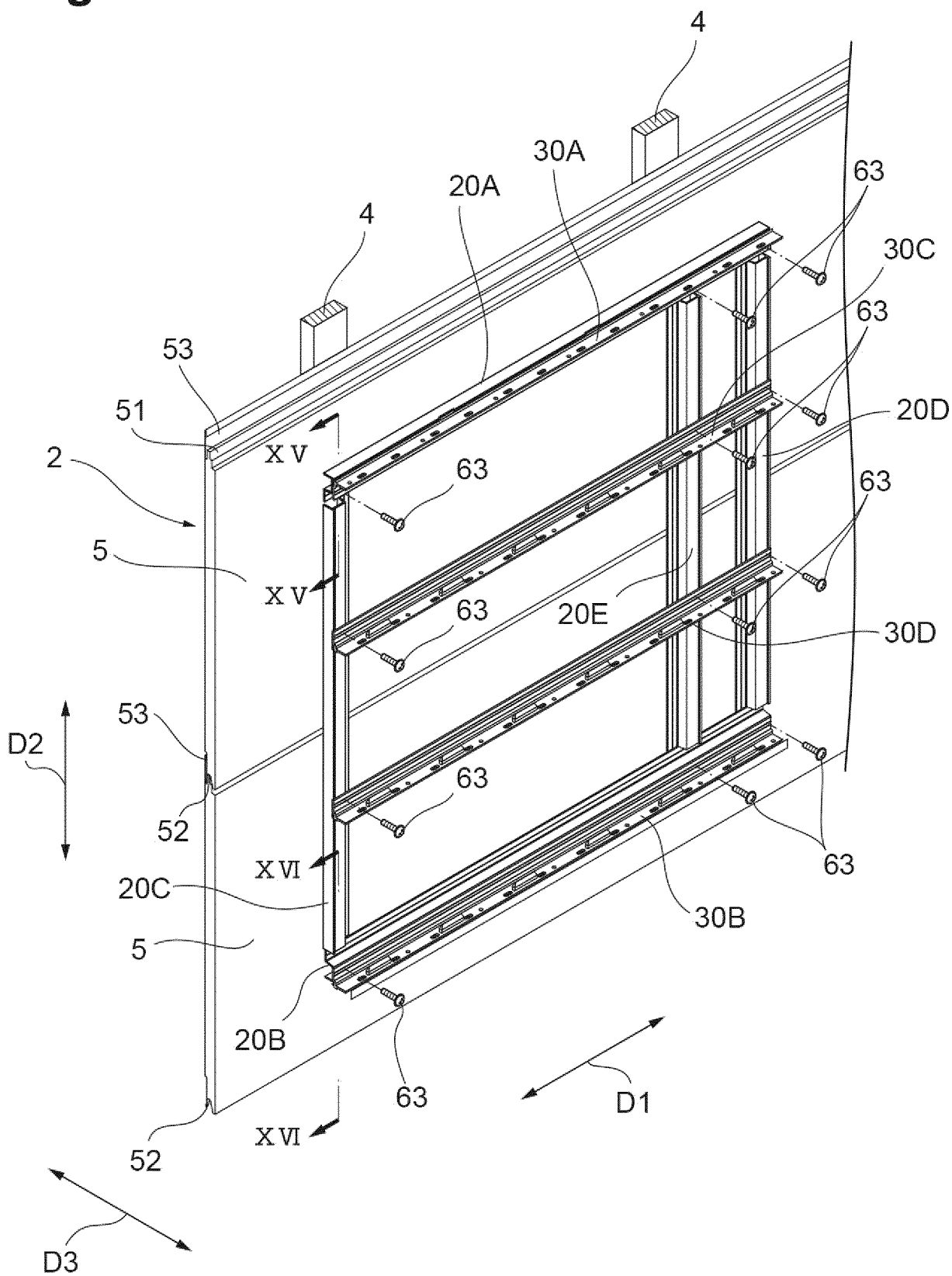


Fig.15

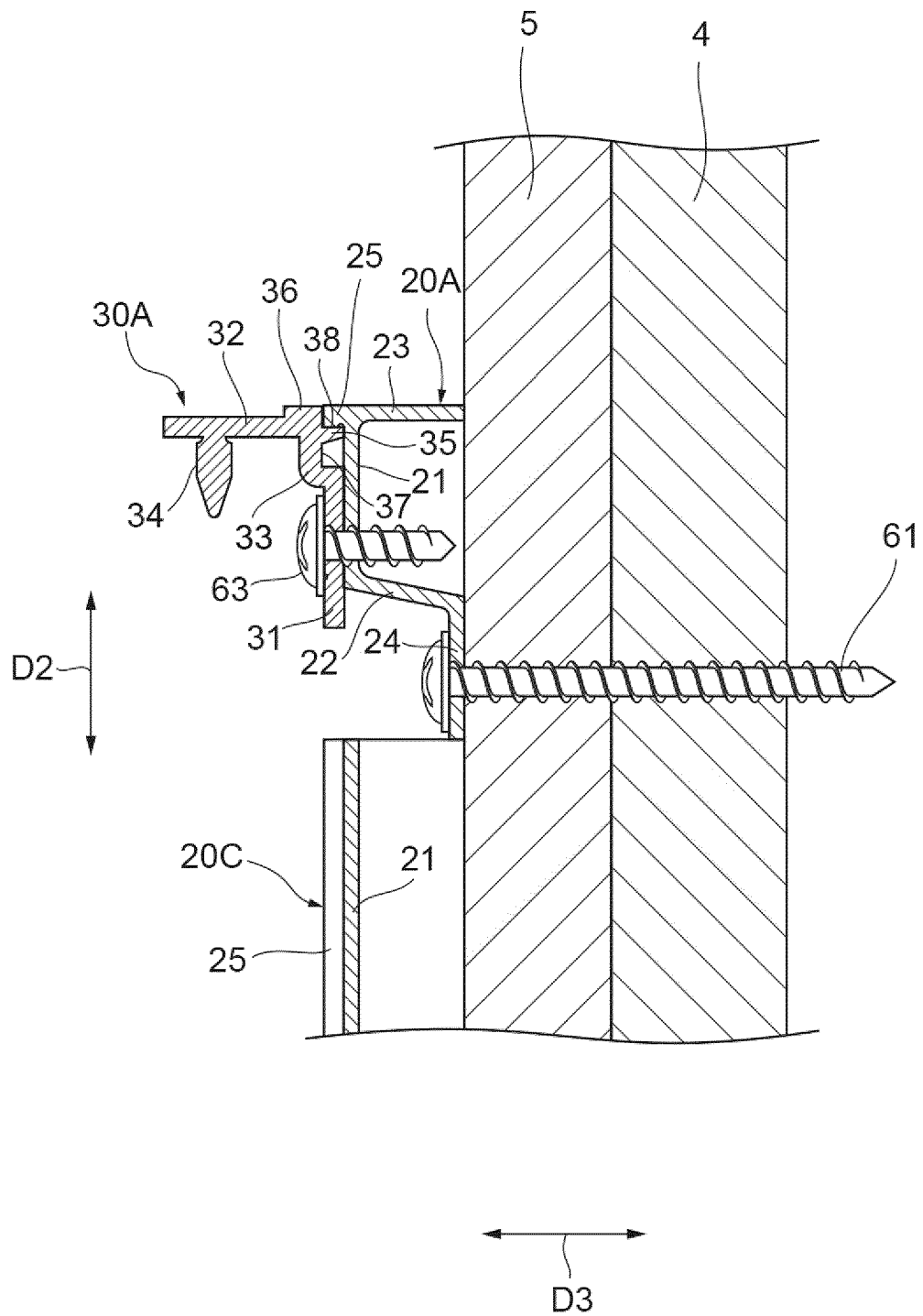


Fig.16

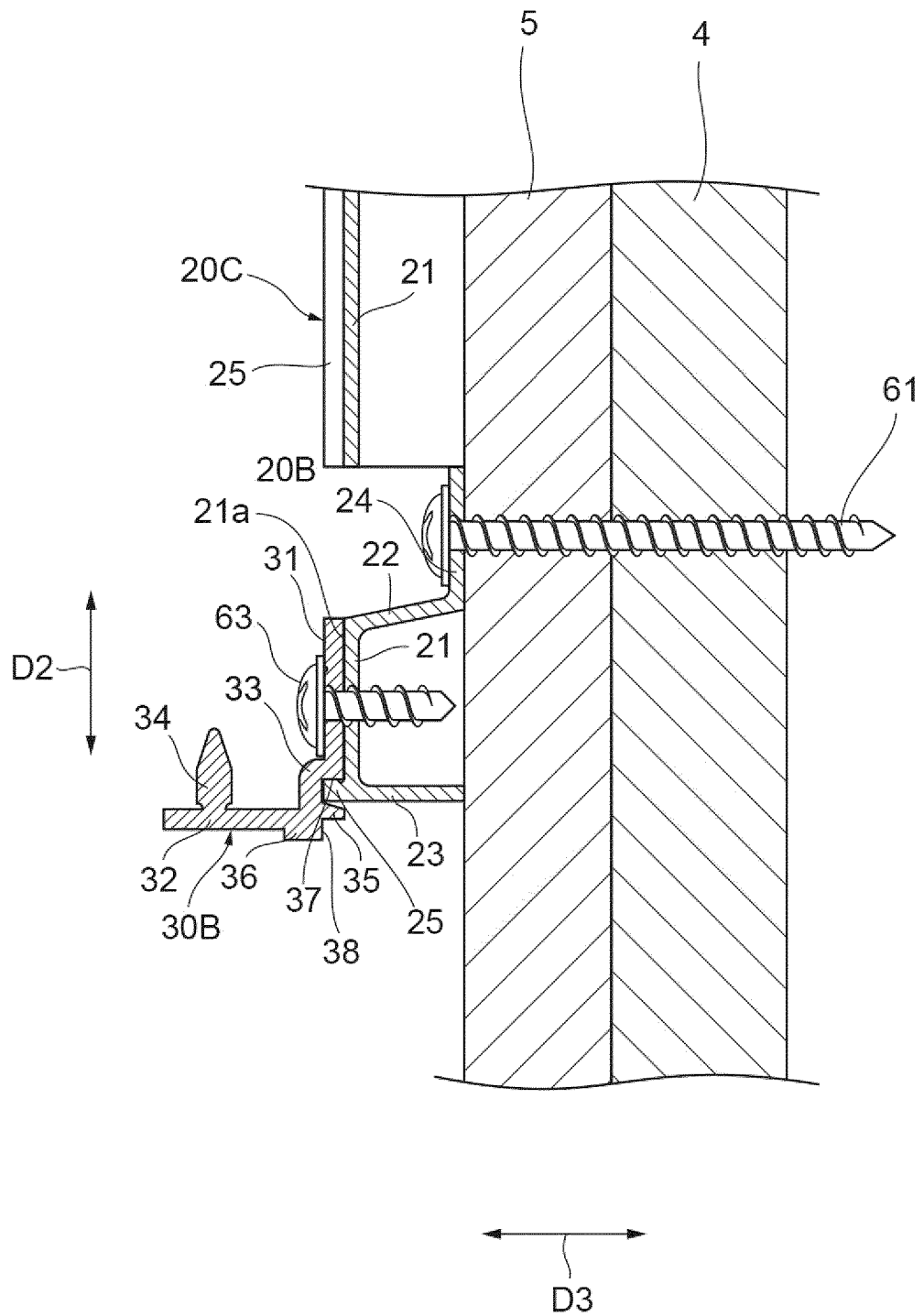


Fig. 17

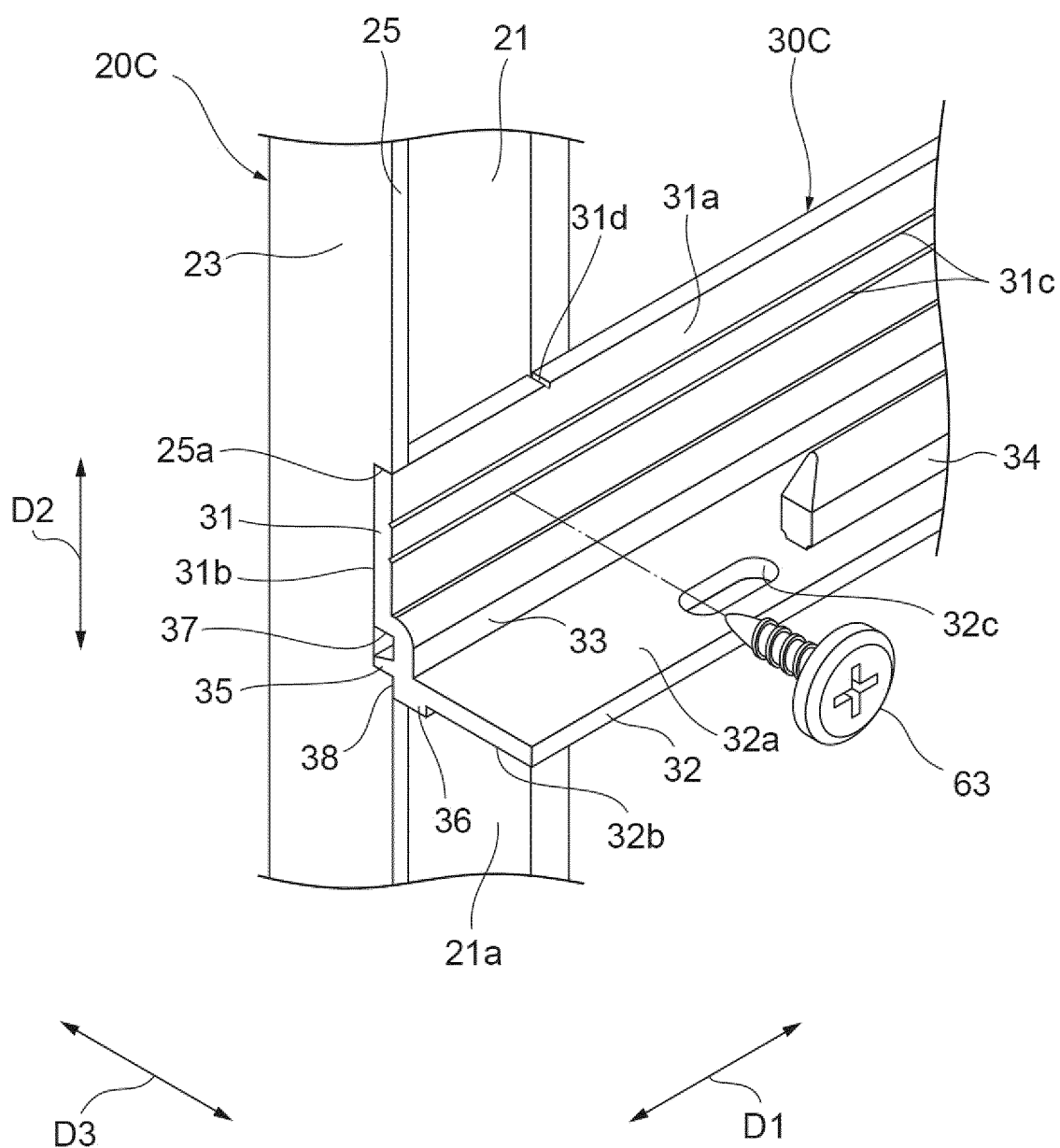


Fig.18

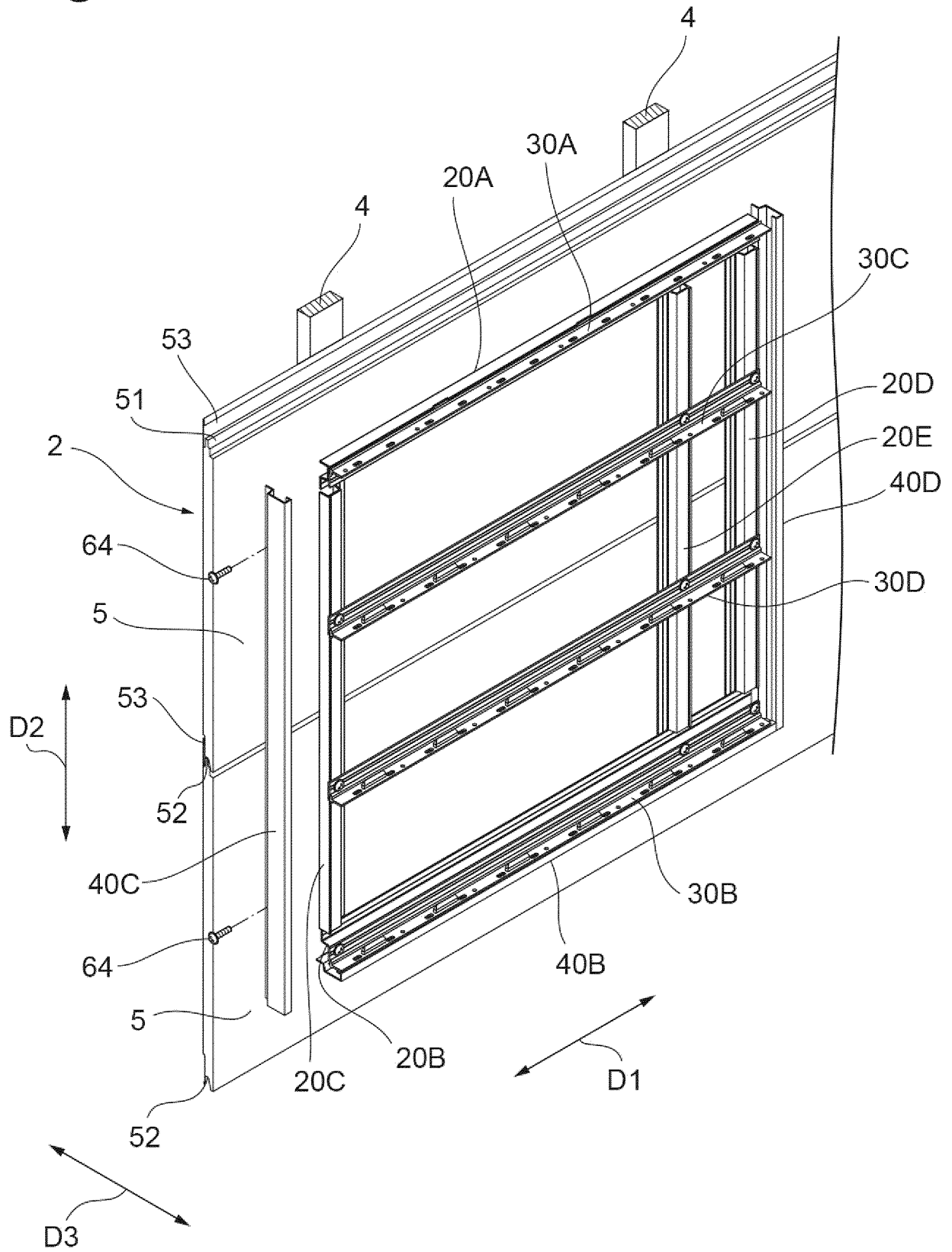


Fig. 19

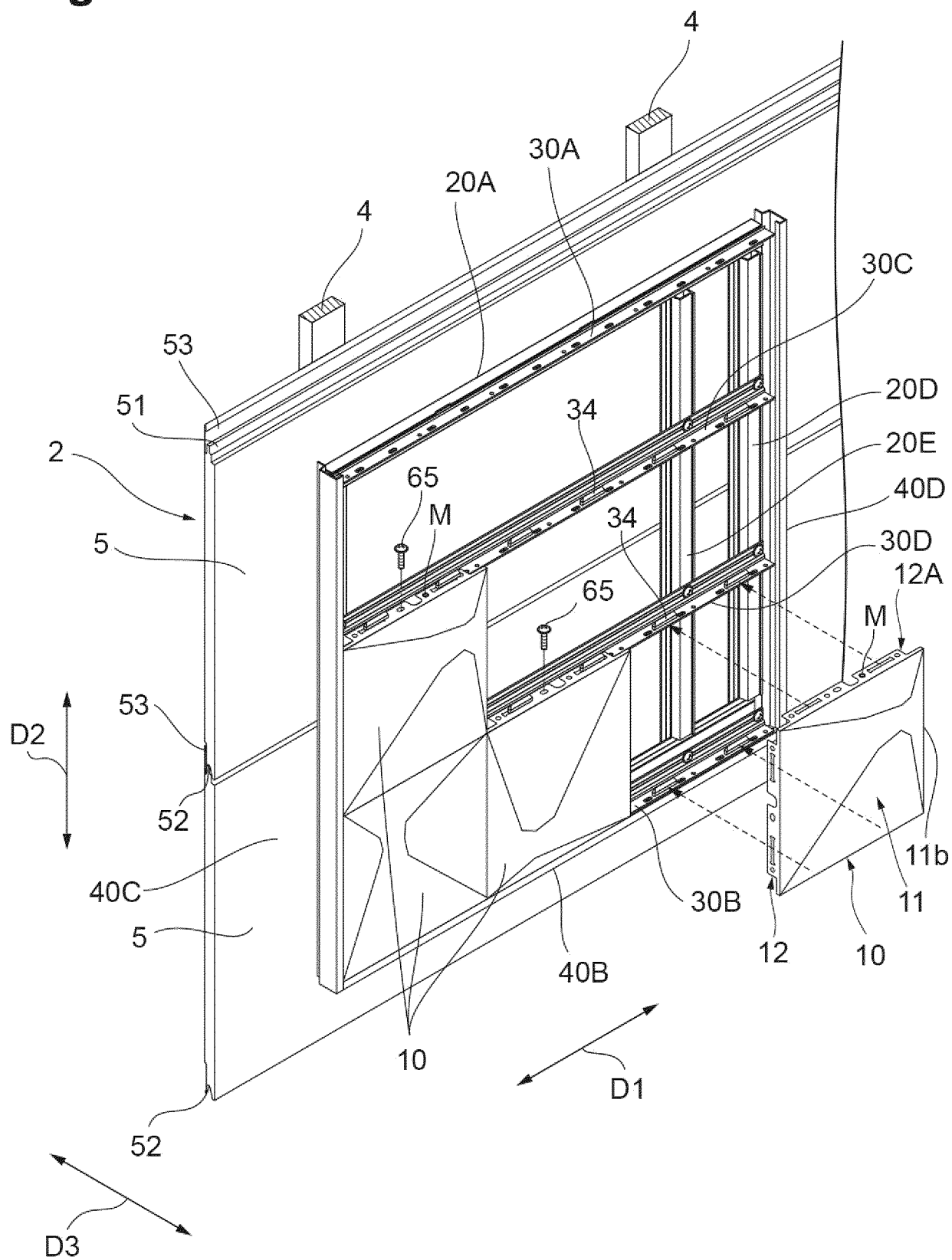


Fig.20

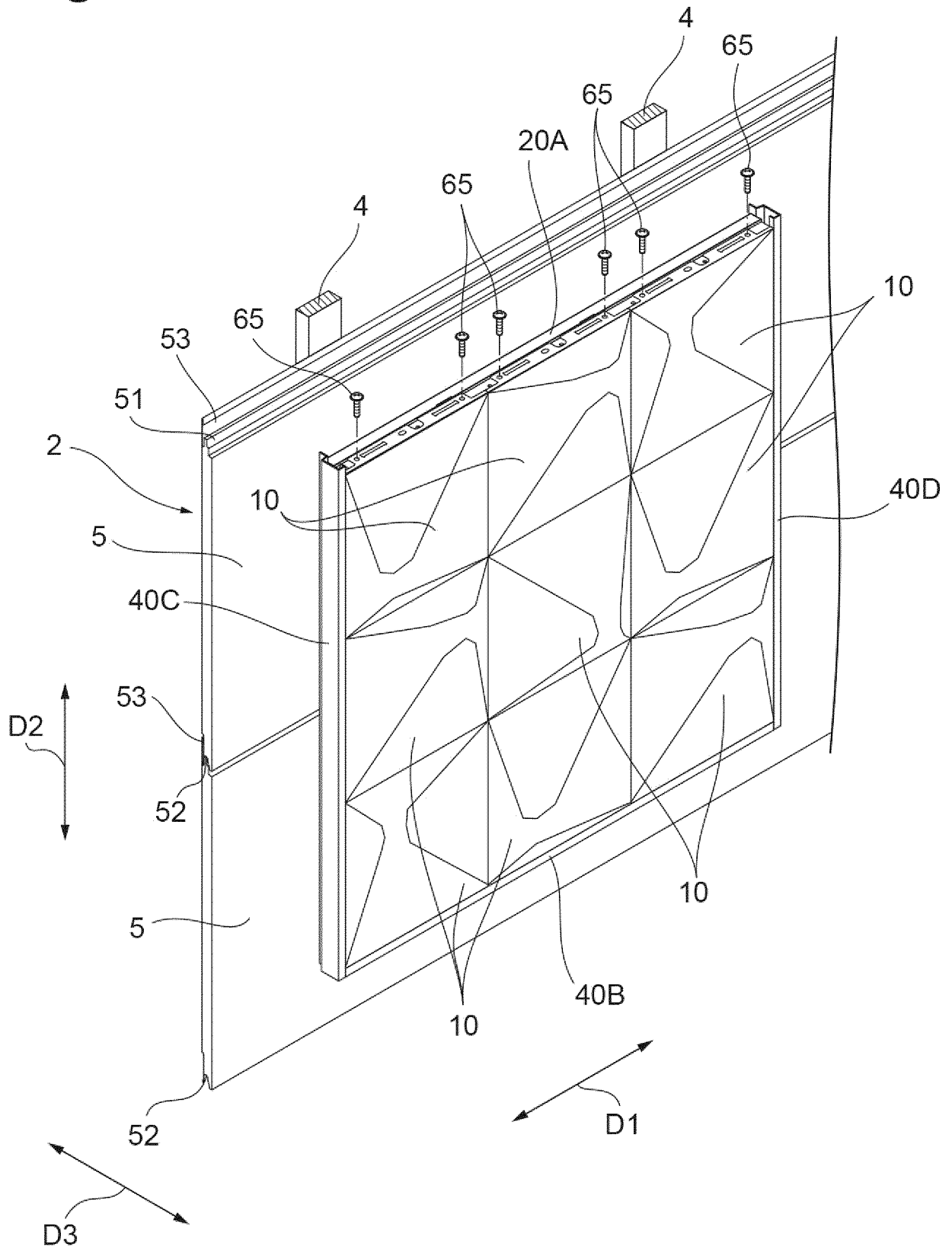


Fig.21

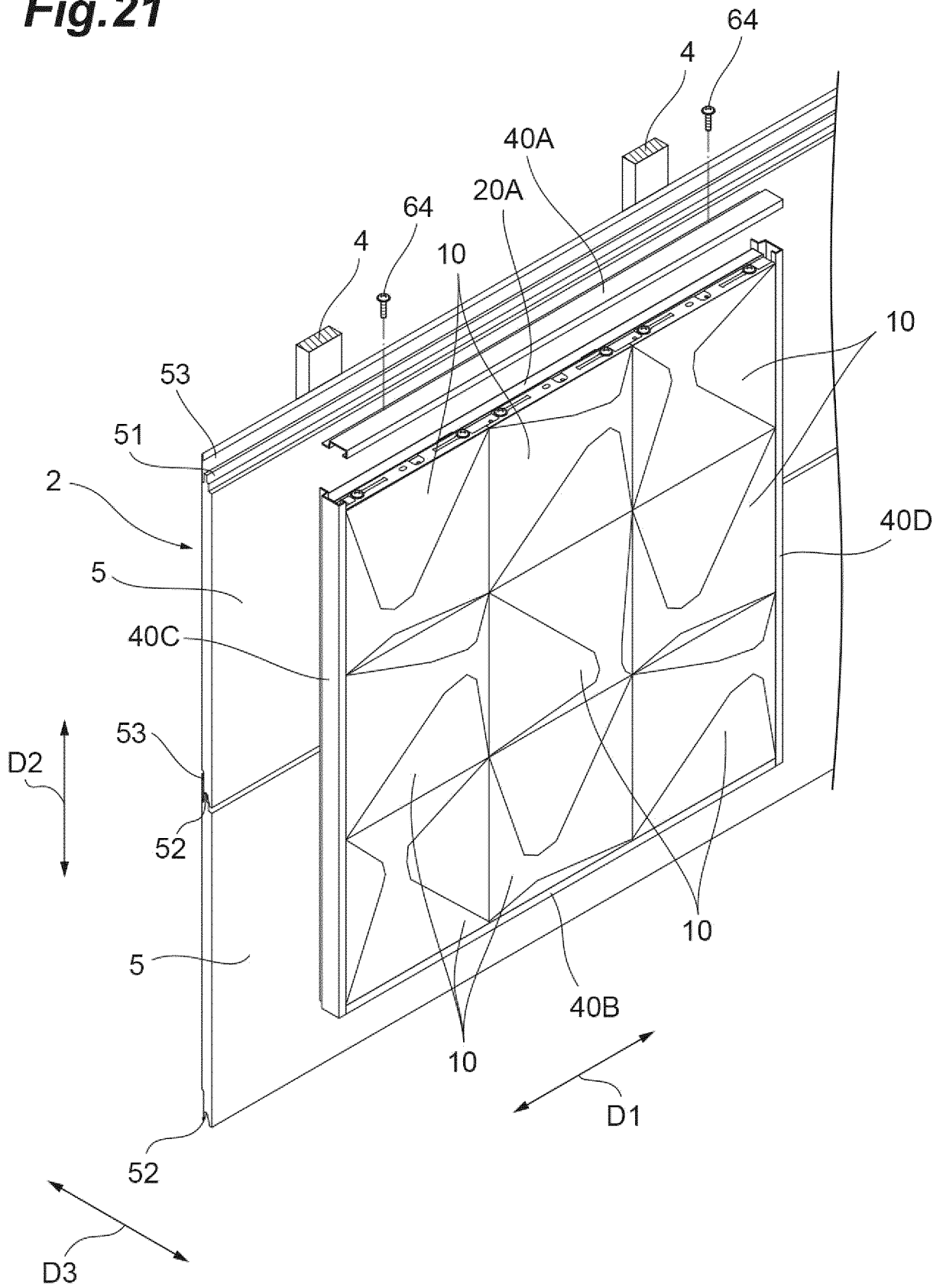


Fig.22

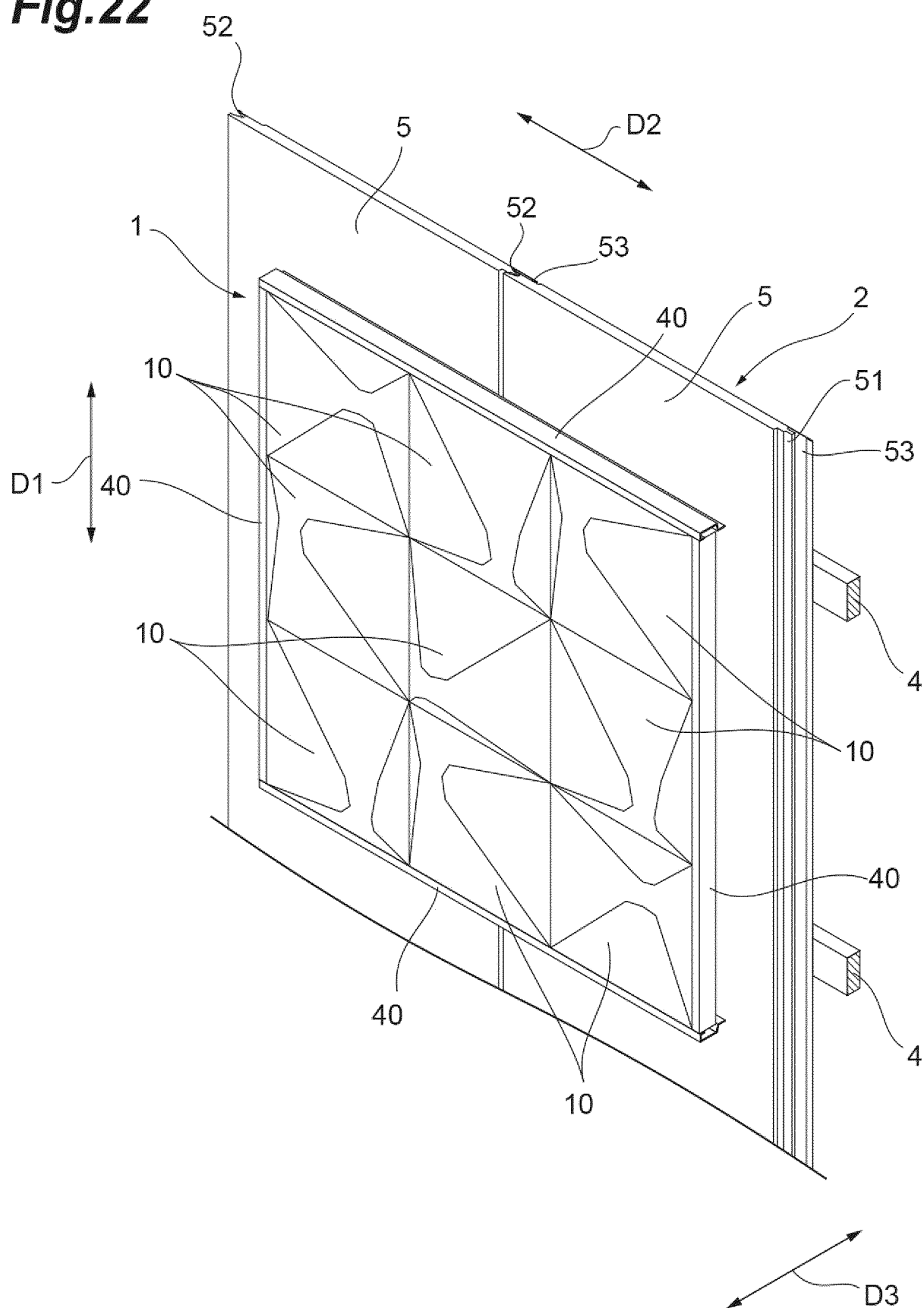
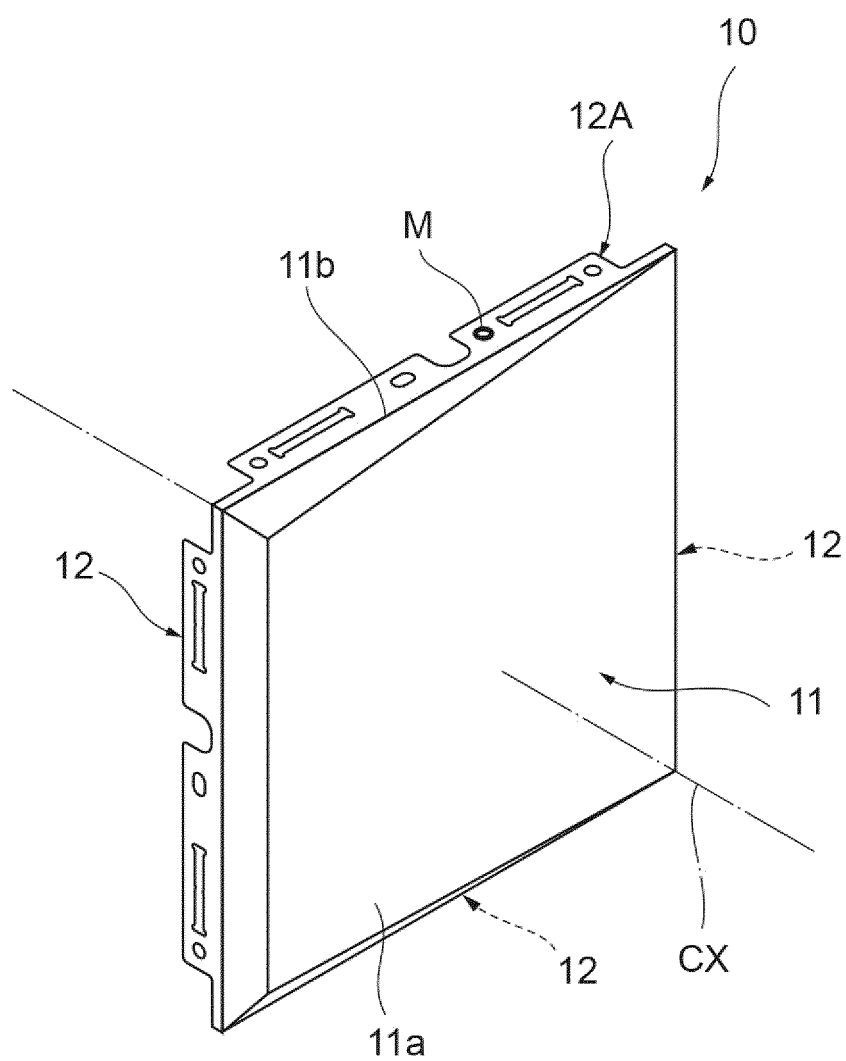


Fig. 23



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/017522

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A. CLASSIFICATION OF SUBJECT MATTER

E04F 13/08 (2006.01) i; E04F 13/12 (2006.01) i
FI: E04F13/08 101M; E04F13/12 F; E04F13/08 101F

According to International Patent Classification (IPC) or to both national classification and IPC

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E04F13/08; E04F13/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan	1922-1996
Published unexamined utility model applications of Japan	1971-2021
Registered utility model specifications of Japan	1996-2021
Published registered utility model applications of Japan	1994-2021

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 4-161649 A (FURUKAWA ALUM CO., LTD.) 05 June 1992 (1992-06-05) page 3, upper left column, lines 6-13, page 3, lower left column, line 13 to page 4, upper right column, line 16, page 4, lower left column, line 14 to lower right column, line 10, page 4, lower right column, line 17 to page 5, upper right column, line 2, page 5, lower right column, lines 8-12, fig. 1-9, 14-16	1, 6-7 2-5
Y A	US 2171221 A (ROESCH PORCELAIN CONSTRUCTION, INC.) 29 August 1939 (1939-08-29) page 1, left column, line 35 to right column, line 22, fig. 1-2	1, 6-7 2-5
A	FR 2759104 A1 (ARCHIDEE) 07 August 1998 (1998-08-07) entire text all drawings	1-7

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☒ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

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* Special categories of cited documents:	"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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Date of the actual completion of the international search
31 May 2021 (31.05.2021)Date of mailing of the international search report
15 June 2021 (15.06.2021)

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Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/017522

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 58945/1989 (Laid-open No. 149044/1990) (DAIETSU KK) 18 December 1990 (1990-12-18) entire text all drawings	1-7
A	JP 11-336289 A (DAINIPPON PRINTING CO., LTD.) 07 December 1999 (1999-12-07) entire text all drawings	1-7
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 61749/1990 (Laid-open No. 20548/1992) (TOKYU CONSTRUCTION CO., LTD.) 20 February 1992 (1992-02-20) entire text all drawings	1-7

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/JP2021/017522

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Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
JP 4-161649 A	05 Jun. 1992	(Family: none)	
US 2171221 A	29 Aug. 1939	(Family: none)	
FR 2759104 A1	07 Aug. 1998	(Family: none)	
JP 2-149044 U1	18 Dec. 1990	(Family: none)	
JP 11-33689 A	07 Dec. 1999	(Family: none)	
JP 4-20548 U1	20 Feb. 1992	(Family: none)	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2003253847 A [0003]