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• **Namgung, Dong Woo**
Incheon 22765 (KR)

(72) Inventors:
• **Namgung, Suhyeon**
Incheon 22764 (KR)
• **Namgung, Dong Woo**
Incheon 22765 (KR)

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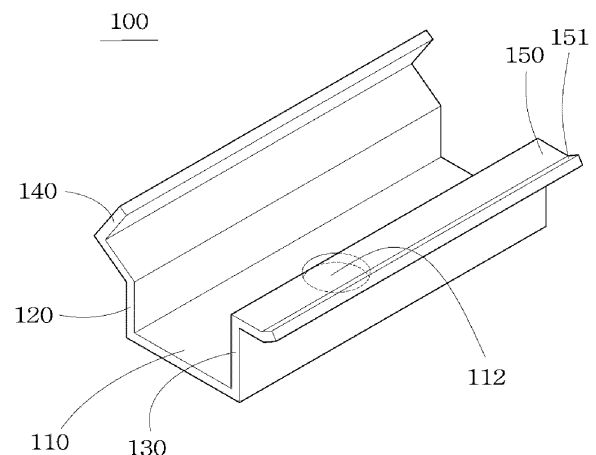
(74) Representative: **Jacobi, Markus Alexander**
Patentanwlte
Isenbruck Bsl Hrschler PartG mbB
Eastsite One
Seckenheimer Landstrasse 4
68163 Mannheim (DE)

(71) Applicants:
• **Namgung, Suhyeon**
Incheon 22764 (KR)

(54) **DECK INSTALLATION STRUCTURE USING CLIP MEMBERS FOR DECK INSTALLATION**

(57) According to an aspect of the present invention, a deck installation structure using clip members may be provided, the deck installation structure comprising: base frames spaced apart from each other at predetermined intervals to be installed parallel to each other in the horizontal direction; clip members fixed at configured intervals along the longitudinal direction of the base frames; and a deck installed in the longitudinal direction on the base frames to be coupled and supported by the fixed clips, wherein the clip member comprises: a base plate screw-coupled to an upper portion of the base frame; a first elastic plate which is bent and extended upward from one end of the base plate and provides an elastic force to spread outward; a second elastic plate which is bent and extended upward from the other end of the base plate and provides an elastic force to spread outward on the opposite side of the first elastic plate; a detachable guide protrusion bent outward to have a triangular or hemispherical shape at an end of the first elastic plate to be coupled to a detachable guide groove provided on one side of the deck; and a center wing bent laterally at an end of the second elastic plate to be fitted into a center groove provided on the other side of the deck.

FIG. 4



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Description

[Technical Field]

[0001] The present invention relates to a deck installation structure, and more particularly, to a deck installation structure using clip members for deck installation, in which a detachable guide protrusion and a center wing, which are detachably coupled to a deck, are formed on first and second elastic plates in which elastic forces to spread in both directions of a clip member are applied, respectively, so that elastic support is provided by the clip member upon assembly of the deck, thereby preventing the deck from being separated, and allowing assembly and disassembly operations to be conveniently performed.

[Background Art]

[0002] Recently, in construction of terraces of suburban houses, pensions, or the like, mountain sidewalks or walking trails installed along roads within parks, and the like, composite wood decks having various advantages have been used for installation and construction.

[0003] As a related art that is relevant thereto, a "deck fixing clip" of Korean Patent Registration No. 10-1810954 has been proposed.

[0004] FIG. 1 is a perspective view showing a deck fixing clip according to the related art, FIG. 2 is a perspective view showing a state in which a deck is installed on a base frame by the deck fixing clip according to the related art, and FIG. 3 is an enlarged sectional view showing a main part in a state in which the deck is installed between deck fixing clips according to the related art.

[0005] A deck fixing clip 1 according to the related art may be formed by integrally forming a bottom part 10, a first vertical part 20, a second vertical part 30, a latching protrusion 40, and an elastic pressing part 50 by using a steel plate having a predetermined length and a predetermined thickness.

[0006] The bottom part 10 may have a predetermined width in a left-right direction, may include a screw-coupling hole 12 formed through a surface center portion of the bottom part 10, and may be seated and fixed onto a base frame 2 by a screw.

[0007] The first vertical part 20 may be bent in a vertical direction on one side of the bottom part 10, the second vertical part 30 may be bent in the vertical direction on an opposite side of the bottom part 10 so as to correspond to the first vertical part 20, the latching protrusion 40 may be bent so as to protrude outward on an upper portion of the second vertical part 30, and the elastic pressing part 50 may be bent so as to be parallel to the bottom part 10 on an upper portion of the latching protrusion 40.

[0008] The elastic pressing part 50 may serve to latch an opposite side of a deck 3 corresponding to the latching protrusion 40 when the deck 3 is installed so as to be

coupled and separated in a longitudinal direction on the base frame 2 arranged in a lateral direction.

[0009] In addition, the elastic pressing part 50 may include an accommodation groove 52 having a hemispherical shape and formed concentrically with the screw-coupling hole 12 at an end of the elastic pressing part 50 so that when the deck fixing clip 1 is fixed onto the base frame 2, after making a known driver to stand upright by the accommodation groove 52, the screw may be coupled through the screw-coupling hole 12.

[0010] As shown in FIG. 2, when the deck 3 is installed so as to be coupled and separated on the base frame 2, deck fixing clips 1 configured as described above may be arranged at a predetermined interval in concave grooves 2A formed in an upper portion of the base frame 2, and fixedly coupled to the base frame 2 by a medium of a coupling device, such as a known screw, inserted into the screw-coupling hole 12 in a horizontal plane 10A that forms the bottom part 10. Thereafter, the deck 3 may be coupled between the deck fixing clips 1 so as to be fixed onto the base frame 2.

[0011] In other words, as shown in FIG. 3, the deck 3 may be installed such that while the elastic pressing part 50 of the deck fixing clip 1 arranged on one side of the deck 3 is primarily inserted into and latched to a first latching groove 3A by a worker, the first vertical part 20 may make close contact with a close contact groove 3B. Thereafter, the latching protrusion 40 of the deck fixing clip 1 arranged on an opposite side of the deck 3 may be latched to a second latching groove 3C by the worker so that the deck 3 may be installed between the deck fixing clips 1. In this case, the second vertical part 30 may be elastically deformed toward the first vertical part 20 within an assembly gap S by an external force applied by the worker upon the coupling of the deck 3, and restored.

[0012] As shown in FIG. 6, the deck fixing clip 1 may firmly fix the deck 3 installed to be seated on the base frame 2 by a pressing structure of the elastic pressing part 50 having a predetermined elasticity and a latching structure of the latching protrusion 40, so that the deck 3 may be prevented from being arbitrarily separated upward between the deck fixing clips 1.

[0013] Meanwhile, in case where the deck 3 is to be replaced due to breakage or damage, when a tool is inserted into the assembly gap S formed between decks 3 to lift the opposite side of the deck 3 upward in a reverse order of the coupling in a state of FIG. 6, the deck fixing clip 1 arranged on the opposite side of the deck 3 may be elastically deformed by the external force applied by the worker upon the separation of the deck 3.

[0014] In other words, the latching protrusion 40 of the deck fixing clip 1 arranged on the opposite side of the deck 3 may be elastically deformed toward the first vertical part 20 so as to be released from the second latching groove 3C.

[0015] Thereafter, when the deck 3 is completely lifted upward, the elastic pressing part 50 of the deck fixing clip 1 arranged on one side of the deck 3 may be separated

and released from the first latching groove 3A, thereby easily separating the deck 3 from the deck fixing clip 1.

[0016] The assembly gap S may be formed between the decks 3. This is to ensure a space in which the deck fixing clip 1 may be elastically deformed by the assembly gap S when the deck 3 is coupled to and separated from the deck fixing clip 1.

[0017] In other words, the deck fixing clip 1 may be elastically deformed smoothly by the assembly gap S upon the coupling and the separation of the deck 3 so that the deck 3 may be easily coupled or smoothly separated between the deck fixing clips 1.

[0018] According to the related art, since the elastic pressing part 50 is formed integrally with the latching protrusion 40 to interwork with the latching protrusion 40 in a lateral direction in which the latching protrusion 40 is elastically deformed upon installation and separation, there was a structural problem of limiting the elastic deformation of the latching protrusion 40.

[0019] In other words, upon the elastic deformation of the latching protrusion 40, although the elastic pressing part 50 extending in the lateral direction from an end of the latching protrusion 40 has to move in the lateral direction in proportion to a lateral movement amount of the latching protrusion 40, since an extending end of the elastic pressing part 50 is inserted into and fixed to the first latching groove 3A of the deck 3, a lateral or longitudinal movement amount of the elastic pressing part 50 is inevitably limited, which limits the elastic deformation of the latching protrusion 40.

[0020] As described above, according to the related art, interference fit by a strong external force was unavoidable upon an installation operation due to a structure in which the elastic deformation of the latching protrusion 40 is limited, and there was a problem that the deck 3 may be damaged, or the deck 3 may be deformed by residual stress caused by the interference fit during this process.

[0021] In addition, according to the related art, since there is no available clearance capable of accommodating an error that may occur during a construction process, there was a difficulty that a screw-coupling position of the deck fixing clip 1 has to be accurately constructed, and when the position is not accurate, there was inconvenience that screw-coupling positions of the deck fixing clip 1 have to be corrected and reworked one by one during an assembly process of the deck 3.

[0022] Meanwhile, according to the related art, although an available clearance may be ensured by widening a gap between the deck fixing clips 1 upon assembly of the deck, in this case, a gap between the deck 3 and the deck fixing clip 1 may be widened without allowing the deck 3 and the deck fixing clip 1 to make close contact with each other, so that there may be a problem that the deck 3 may be easily separated from the deck fixing clip 1 during use of the deck 3 or due to deformation such as natural contraction and expansion after construction.

[0023] In addition, according to the related art, a position of the first latching groove 3A of the deck 3 has to be in proximity to a top surface of the deck 3 due to a structural position of the elastic pressing part 50, which inevitably makes a thickness from the top surface of the deck 3 to the first latching groove 3A thin so as to reduce durability of a corresponding region, so that there was a structural vulnerability problem of easily causing breakage during use.

[0024] In addition, according to the related art, since a separate accommodation groove 52 for screw-coupling the deck fixing clip 1 has to be formed in the elastic pressing part 50, there was a problem of an increased manufacturing cost caused by an increase in a mold and a process of the deck fixing clip 1.

[Disclosure]

[Technical Problem]

[0025] The present invention has been devised to solve the problems described above, and an object of the present invention is to form a detachable guide protrusion and a center wing, which are detachably coupled to a deck, on first and second elastic plates in which elastic forces to spread in both directions of a clip member are applied, respectively, so that elastic support is provided by the clip member upon assembly of the deck, thereby preventing the deck from being separated, and allowing assembly and disassembly operations to be conveniently performed.

[0026] Another object of the present invention is to simplify a clip structure by eliminating the need to form a separate accommodation groove for screw coupling as in the related art, so that a mold and a manufacturing process are reduced, thereby reducing a production cost.

[0027] Still another object of the present invention is to locate a matching position between a clip member and a deck at a middle point based on a thickness of the deck, so that a stable structure is provided, thereby preventing breakage caused by an external force.

[Technical Solution]

[0028] To achieve the objects described above, according to one aspect of the present invention, there is provided a deck installation structure using clip members, the deck installation structure including: base frames installed parallel to each other in a lateral direction while being spaced apart from each other at a predetermined interval; clip members fixed at a set interval in a longitudinal direction of the base frame; and a deck installed in a longitudinal direction on the base frames, so as to be coupled and supported by the clip members,

wherein the clip member includes: a base plate screw-coupled to an upper portion of the base frame; a first elastic plate bent and extending upward from

one end of the base plate, and configured to provide an elastic force to spread outward;
 a second elastic plate bent and extending upward from an opposite end of the base plate, and configured to provide an elastic force to spread outward on an opposite side of the first elastic plate;
 a detachable guide protrusion bent outward to have a triangular or hemispherical shape at an end of the first elastic plate, and coupled to a detachable guide groove provided on one side of the deck; and
 a center wing bent in a lateral direction at an end of the second elastic plate, and fitted to a center groove provided on an opposite side of the deck.

[0029] In this case, the detachable guide protrusion may be bent outward to have the triangular or hemispherical shape, and coupled to the detachable guide groove provided on the one side of the deck.

[0030] In this case, a coupling position of the detachable guide protrusion and the detachable guide groove may be located at a middle point based on a thickness of the deck.

[0031] In addition, after the center wing of the clip member and the center groove of the deck are first coupled to each other, the detachable guide protrusion on an opposite side may be coupled to the detachable guide groove of the deck.

[0032] In this case, a coupling position of the center wing and the center groove may be located at a middle point based on a thickness of the deck.

[Advantageous Effects]

[0033] According to the present invention as described above, a detachable guide protrusion and a center wing, which are detachably coupled to a deck, may be formed on first and second elastic plates in which elastic forces to spread in both directions of a clip member are applied, respectively, so that elastic support can be provided by the clip member upon assembly of the deck, thereby preventing the deck from being separated, and allowing assembly and disassembly operations to be conveniently performed.

[0034] In addition, according to the present invention, a clip structure can be simplified by eliminating the need to form a separate accommodation groove for screw coupling as in the related art, so that a mold and a manufacturing process can be reduced, thereby reducing a production cost.

[0035] In addition, according to the present invention, a matching position between a clip member and a deck may be located at a middle point based on a thickness of the deck, so that a stable structure can be provided, thereby preventing breakage caused by an external force.

[Description of Drawings]

[0036]

FIG. 1 is a perspective view showing a deck fixing clip according to the related art.

FIG. 2 is a perspective view showing a state in which a deck is installed on a base frame by the deck fixing clip according to the related art.

FIG. 3 is an enlarged sectional view showing a main part in a state in which the deck is installed between deck fixing clips according to the related art.

FIG. 4 is a perspective view showing a clip member for deck installation according to the present invention.

FIG. 5 is a perspective view showing a state in which a deck is installed on a base frame by the clip member for deck installation according to the present invention.

FIGS. 6a to 6c are enlarged sectional views showing main parts in states in which the deck is installed between clip members for deck installation according to the present invention.

FIG. 7 is an enlarged sectional view showing an installation example of the clip member for deck installation according to the present invention.

FIG. 8 is a perspective view showing a clip member for deck installation according to another embodiment of the present invention.

FIG. 9 is a front view showing a clip member for deck installation according to still another embodiment of the present invention.

FIG. 10 is a front view showing a clip member for deck installation according to yet another embodiment of the present invention.

FIG. 11 is a view illustrating a deck construction example using the clip member for deck installation disclosed in FIG. 10.

[Best Mode]

[0037] With respect to embodiments according to the concept of the present invention disclosed in the present disclosure, specific structural or functional descriptions have been illustrated for the purpose of describing the embodiments according to the concept of the present invention only, so that the embodiments according to the concept of the present invention may be implemented in various forms, and are not restricted to the embodiments described in the present disclosure.

[0038] Since various modifications can be made to the embodiments according to the concept of the present invention, and the embodiments according to the concept of the present invention may have various forms, the embodiments will be illustrated in the drawings and described in detail in the present disclosure. This, however, is by no means to restrict the embodiments according to the concept of the present invention to specific disclosed

forms, and the embodiments according to the concept of the present invention encompass modifications, equivalents, or substitutes included in the idea and technical scope of the present invention.

[0039] Hereinafter, the embodiments will be described in detail with reference to the accompanying drawings. However, the scope of the patent application is not limited or restricted by the embodiments. The same reference numerals presented in each of the drawings represent the same members.

[0040] FIG. 4 is a perspective view showing a clip member for deck installation according to the present invention, FIG. 5 is a perspective view showing a state in which a deck is installed on a base frame by the clip member for deck installation according to the present invention, FIGS. 6a to 6c are enlarged sectional views showing main parts in states in which the deck is installed between clip members for deck installation according to the present invention, and FIG. 7 is an enlarged sectional view showing an installation example of the clip member for deck installation according to the present invention.

[0041] As shown in the drawings, a deck construction structure according to the present invention may largely include a base frame 200, a clip member 100, and a deck 300.

[0042] The base frame 200 may be a component configured to provide a base for constructing the deck 300, a metal angular pipe and the like may be used as the base frame 200, and base frames 200 may be installed parallel to each other in a lateral direction while being spaced apart from each other at a predetermined interval.

[0043] In other words, the base frame 200 may be installed in advance on a floor where the deck 300 is to be installed so as to provide a base such as a horizontal or vertical base. The base frame 200 may have a predetermined length, and the base frames 200 may be installed parallel to each other in the lateral direction while being spaced apart from each other at the predetermined interval on the floor where the deck 300 is to be installed, such as terraces of suburban houses, pensions, or the like, and mountain sidewalks or walking trails installed along roads within parks.

[0044] The base frame 200 may be formed of one material selected from a synthetic resin, wood, and a metal pipe so as to ensure predetermined rigidity for supporting the deck 300.

[0045] Hereinafter, the clip member 100 will be described with reference to FIGS. 4 to 6.

[0046] According to the present invention, a plurality of clip members 100 may be fixedly installed at a set interval in a longitudinal direction of the base frame 200.

[0047] The clip member 100 may include a base plate 110 coupled to an upper portion of the base frame 200 by using a screw-type fastening member.

[0048] The base plate 110 may be a thin metal plate in the form of a flat plate, and may have a structure facing the base frame 200. In this case, a screw through-hole 112 to which the base frame 200 is screw-coupled may be

formed at a center of the base plate 110.

[0049] In addition, a first elastic plate 120 bent and extending upward from one end of the base plate 110 may be formed.

[0050] The first elastic plate 120 may be a thin metal plate in the form of a flat plate, which is connected integrally with the base plate 110, and may be manufactured by using a type of plate spring.

[0051] The first elastic plate 120 may be designed to press and fix a side surface of the deck 300 by applying an elastic force to spread outward upon installation of the deck 300.

[0052] In addition, a second elastic plate 130 bent and extending upward from an opposite end of the base plate 110 may be formed.

[0053] The second elastic plate 130 may be designed to press and fix a side surface of the deck 300 by applying an elastic force to spread outward on an opposite side of the first elastic plate 120.

[0054] In this case, a detachable guide protrusion 140 bent outward to have a triangular or hemispherical shape at an end of the first elastic plate 120, and coupled to a detachable guide groove 310 provided on one side of the deck 300 may be formed.

[0055] In this case, the detachable guide protrusion 140 may have an exterior having a triangular shape.

[0056] In addition, the detachable guide protrusion 140 may also have a hemispherical shape as shown in FIG. 8.

[0057] Facing triangular or hemispherical inclined surfaces of the detachable guide protrusion 140 and the detachable guide groove 310 provided on the one side of the deck 300 may slide with respect to each other while being spaced apart from each other.

[0058] This may allow detachable coupling between the clip member 100 and the deck 300 to be easily achieved with a relatively less force upon installation and dismantling operations of the deck 300, which may reduce efforts of a worker.

[0059] In this case, a matching position of the detachable guide protrusion 140 may be located at a middle point based on a thickness of the deck 300.

[0060] In other words, a position of the detachable guide groove 310 that matches the detachable guide protrusion 140 may also be located at a middle portion of the deck 300.

[0061] This may prevent a structure of the deck 300 from being vulnerable by an operation of processing the detachable guide groove 310 on the side surface of the deck 300.

[0062] In addition, a center wing 150 bent in a lateral direction at an end of the second elastic plate 130 may be formed. The center wing 150 may be fitted in the lateral direction to a center groove 320 provided on an opposite side of the deck 300, thereby preventing the deck 300 from being lifted.

[0063] In this case, after the center wing 150 of the clip member 100 and the center groove 320 of the deck 300 are first coupled to each other, the detachable guide

protrusion 140 on an opposite side may be coupled to the detachable guide groove 310 of the deck 300.

[0064] In this case, a coupling position of the center wing 150 and the center groove 320 may be located at a middle point based on a thickness of the deck 300.

[0065] This may become the same coupling position as a coupling position of the detachable guide protrusion 140 and the detachable guide groove 310.

[0066] In addition, a width of the center groove 320 may be wider than a thickness of the center wing 150. This is to ensure the center groove 320 to enter in a diagonal direction rather than the lateral direction so as to be coupled when the center groove 320 of the deck 300 enters the center wing 150 of the clip member 100 as shown in FIGS. 6a to 6c.

[0067] In this case, an entry guide 151 having an inclined shape may be formed by bending an end of the center wing 150 upward, so that the center groove 320 of the deck 300 may be induced to enter easily.

[0068] In this case, as shown in FIG. 6b, during a process of coupling the center groove 320 formed on the one side of the deck 300 to the center wing 150 formed on the second elastic plate 130 of the clip member 100, each of the second elastic plate 130 and the center wing 150 may be elastically deformed in a direction in which a coupling force of the deck 300 is applied.

[0069] Thereafter, when the center wing 150 is seated in the center groove 320, the opposite side of the deck 300 may be pressed so that the detachable guide groove 310 and the detachable guide protrusion 140 of the clip member 100 may be coupled to each other.

[0070] In this case, the detachable guide protrusion 140 and the first elastic plate 120 may be elastically deformed in a direction in which a pressing force is applied by a force that presses the deck 300.

[0071] When the detachable guide groove 310 is seated on the detachable guide protrusion 140, elastic forces to spread outward may be applied in the first elastic plate 120 and the second elastic plate 130 of the clip member 100 so as to compress a first plate pressing surface and a second plate pressing surface formed on the side surfaces of the deck 300, respectively, thereby allowing a fixing force to be applied.

[0072] FIG. 9 is a front view showing a clip member for deck installation according to still another embodiment of the present invention. Referring to FIG. 9, a heat treatment process may be performed on points C in which the first elastic plate 120 and the second elastic plate 130 on both sides of the base plate 110 are bent, points C in which the first elastic plate 120 and the detachable guide protrusion 140 are bent, and points C where the second elastic plate 130 and the center wing 150 are bent, so that elastic strength and durability may be improved.

[0073] FIG. 10 is a front view showing a clip member for deck installation according to yet another embodiment of the present invention, and FIG. 11 is a view illustrating a deck construction example using the clip member for deck installation disclosed in FIG. 10. Referring to FIGS.

10 and 11, a bending region of the detachable guide protrusion 140 and the first elastic plate 120 may be formed as a horizontal or acute straight surface, thereby forming a latching sill 141.

[0074] As shown in FIG. 11, a configuration of the latching sill 141 shown in FIG. 10 may induce coupling with a small force upon matching of the deck 300, whereas a separation prevention force may be provided according to a reverse scale structure (or a hook shape) when the deck 300 is lifted in a vertical direction so as to be separated from the clip member 100.

[0075] In order to disassemble the deck 300 from a separation prevention structure described above, as shown in FIG. 11, a disassembly tool 400 may be fitted to a gap between the detachable guide protrusion 140 and the deck 300, and twisted in a lever manner to forcibly release the detachable guide protrusion 140. In this case, an entry guide 142 configured to induce the disassembly tool 400 to be easily fitted may be formed by bending an end of the detachable guide protrusion 140.

[0076] In addition, a latching groove 313 corresponding to a structure of the latching sill 141 may be formed in the deck 300.

[0077] As described above, the present invention is not restricted to a specific exemplary embodiment described above, various changes can be made by those of ordinary skill in the art to which the present invention pertains without departing from the gist of the present invention as claimed in the claims, and such modifications are within the scope of the described claims.

Claims

1. A deck installation structure using clip members, the deck installation structure comprising:

base frames installed parallel to each other in a lateral direction while being spaced apart from each other at a predetermined interval;
clip members fixed at a set interval in a longitudinal direction of the base frame; and
a deck installed in a longitudinal direction on the base frames, so as to be coupled and supported by the clip members,
wherein the clip member includes:

a base plate screw-coupled to an upper portion of the base frame;
a first elastic plate bent and extending upward from one end of the base plate, and configured to provide an elastic force to spread outward;
a second elastic plate bent and extending upward from an opposite end of the base plate, and configured to provide an elastic force to spread outward on an opposite side of the first elastic plate;

a detachable guide protrusion bent outward to have a triangular or hemispherical shape at an end of the first elastic plate, and coupled to a detachable guide groove provided on one side of the deck; and
a center wing bent in a lateral direction at an end of the second elastic plate, and fitted to a center groove provided on an opposite side of the deck.

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2. The deck installation structure of claim 1, wherein the detachable guide protrusion is bent outward to have the triangular or hemispherical shape, and coupled to the detachable guide groove provided on the one side of the deck.

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3. The deck installation structure of claim 2, wherein a coupling position of the detachable guide protrusion and the detachable guide groove is located at a middle point based on a thickness of the deck.

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4. The deck installation structure of claim 1, wherein, after the center wing of the clip member and the center groove of the deck are first coupled to each other, the detachable guide protrusion on an opposite side is coupled to the detachable guide groove of the deck.

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5. The deck installation structure of claim 4, wherein a coupling position of the center wing and the center groove is located at a middle point based on a thickness of the deck.

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FIG. 1

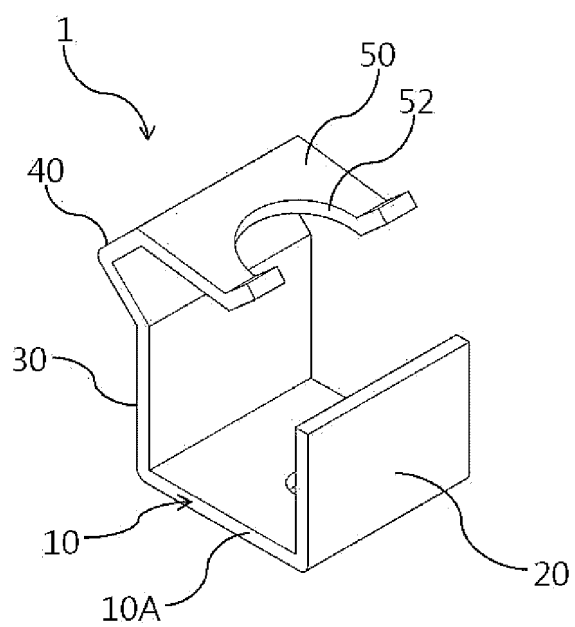


FIG. 2

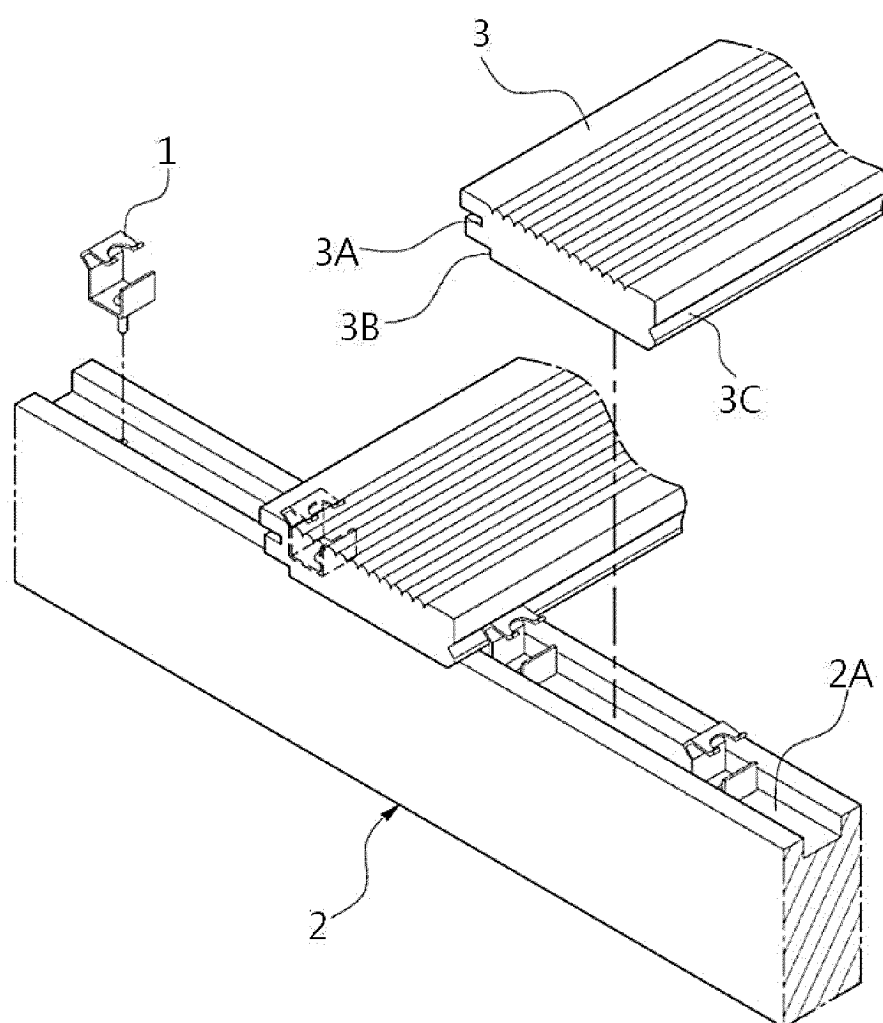


FIG. 3

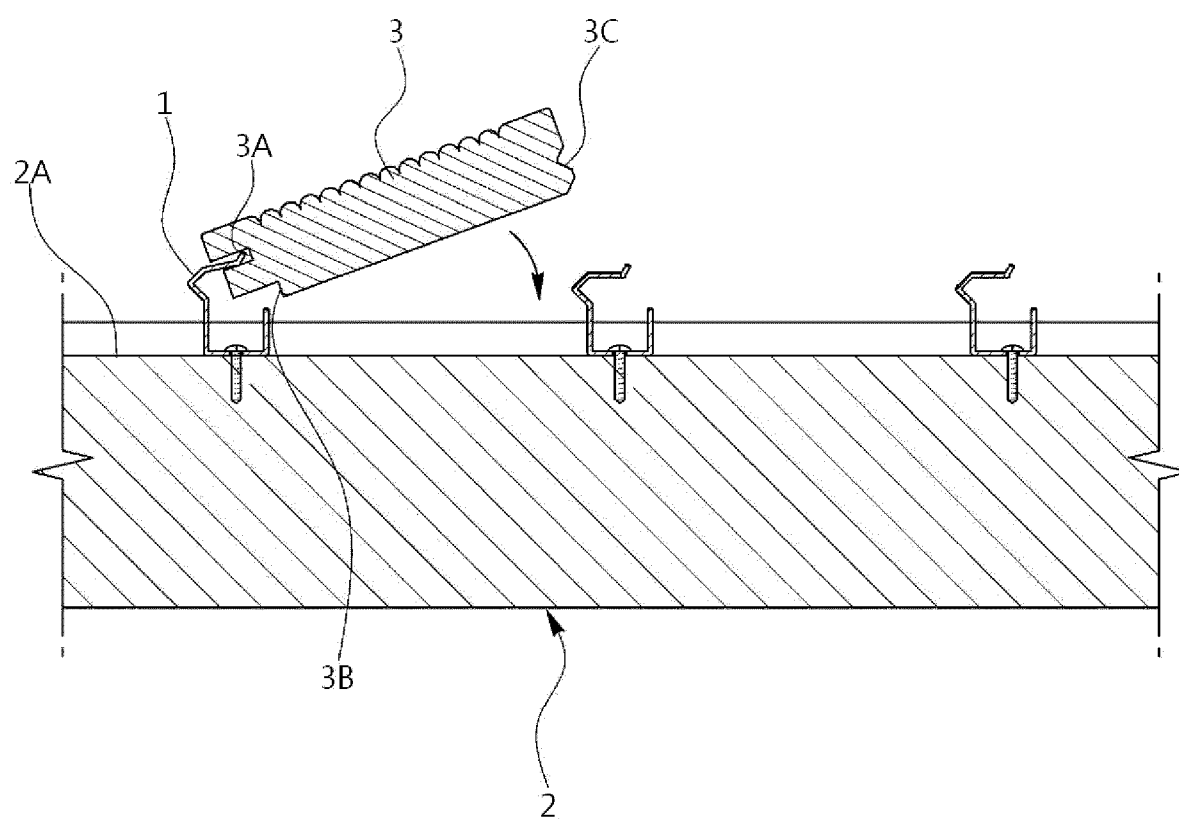


FIG. 4

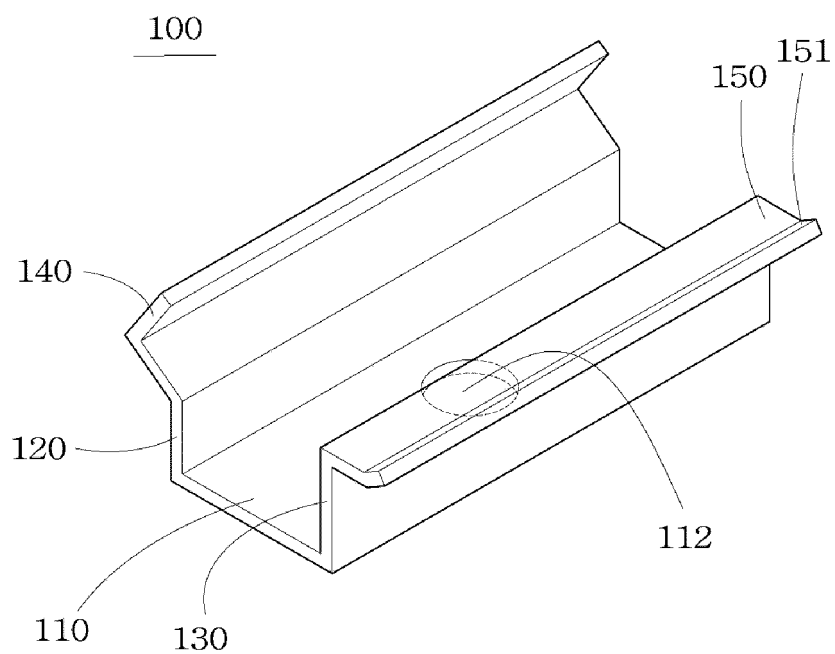


FIG. 5

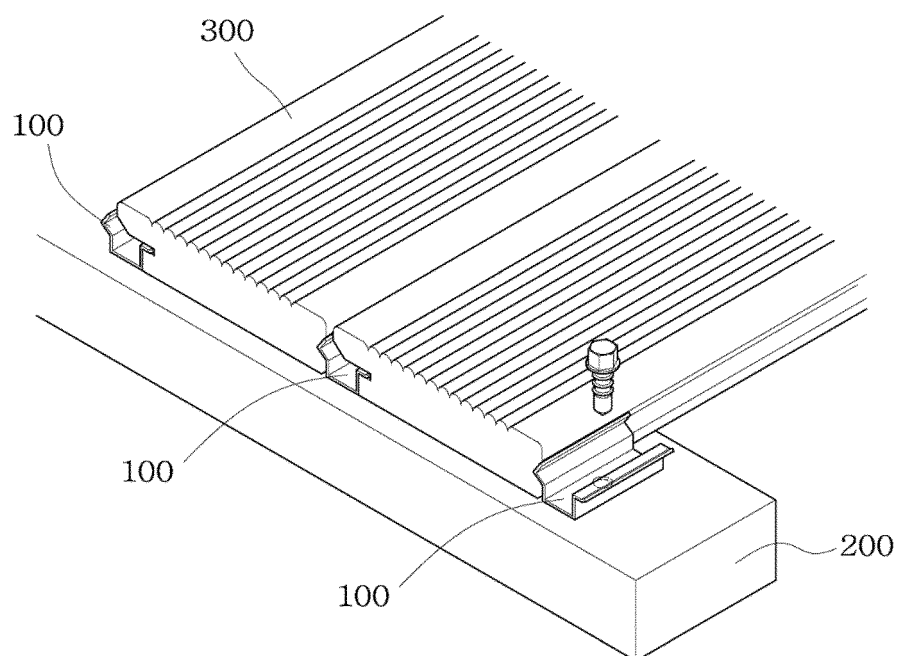


FIG. 6a

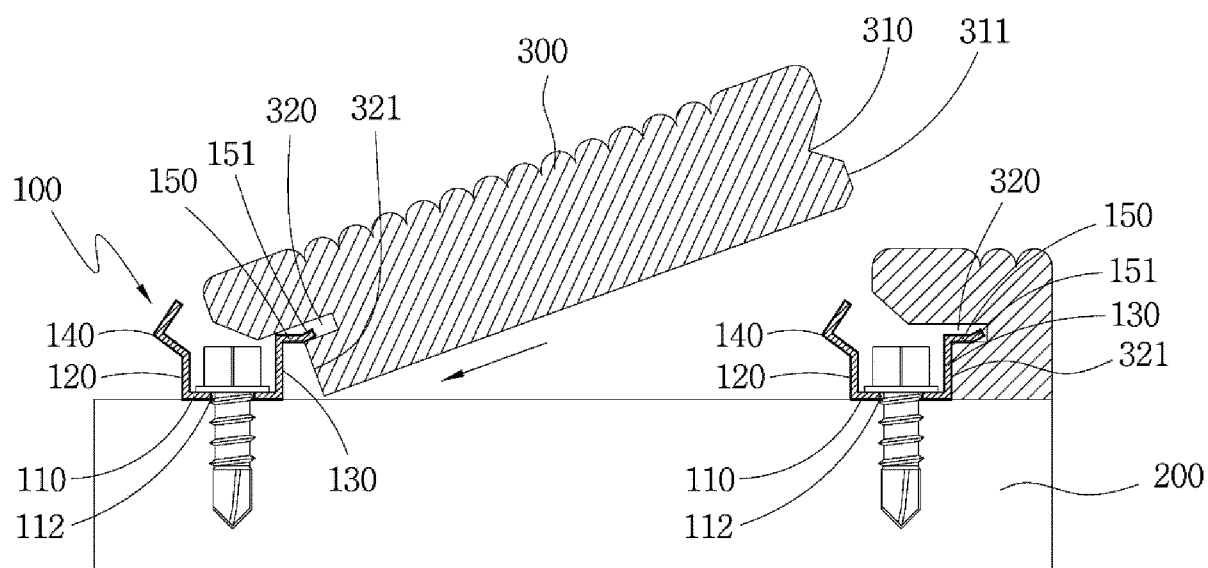


FIG. 6b

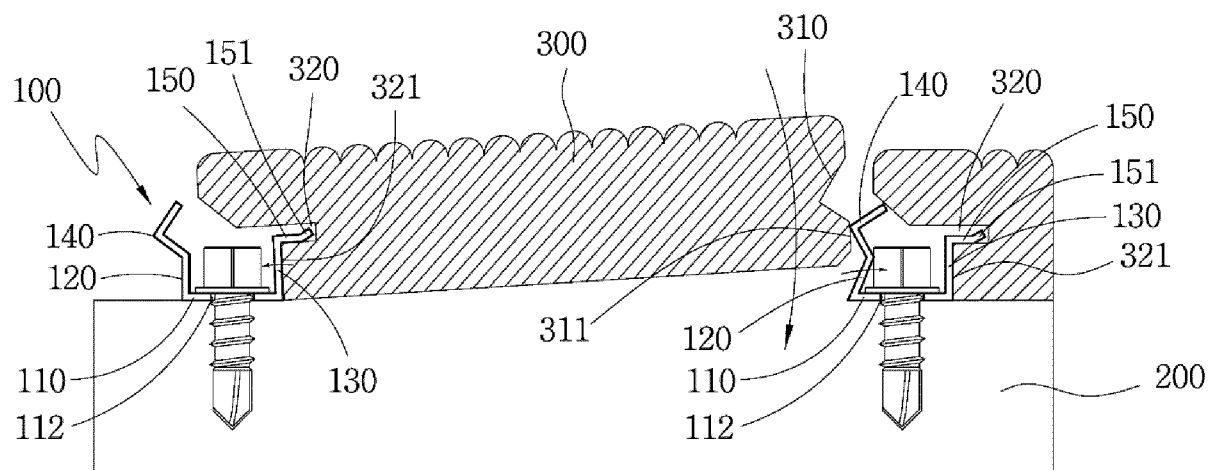


FIG. 6c

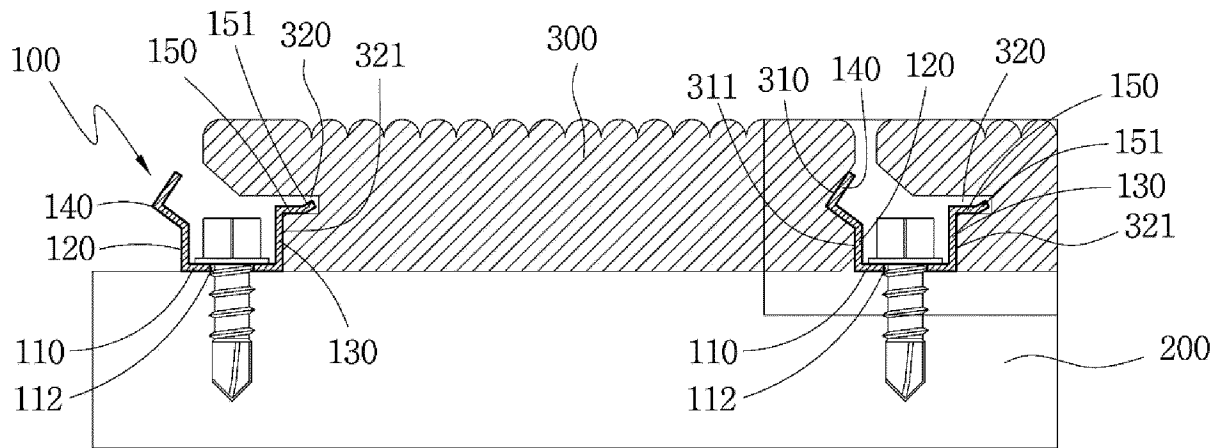


FIG. 7

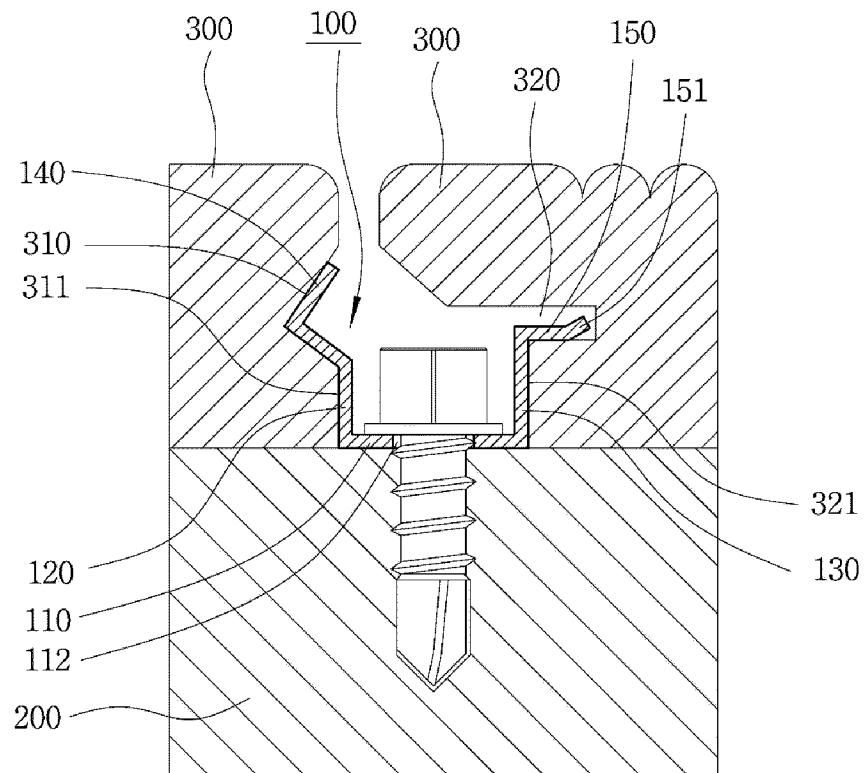


FIG. 8

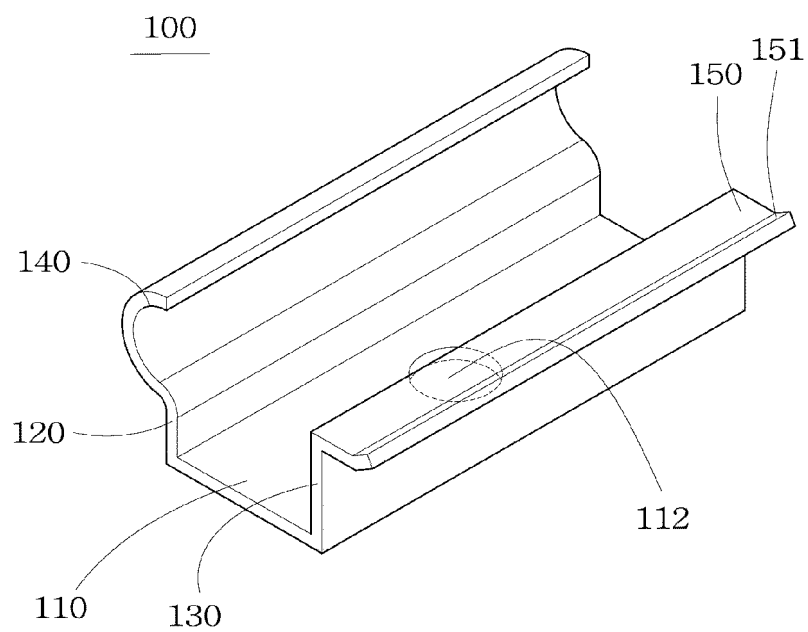


FIG. 9

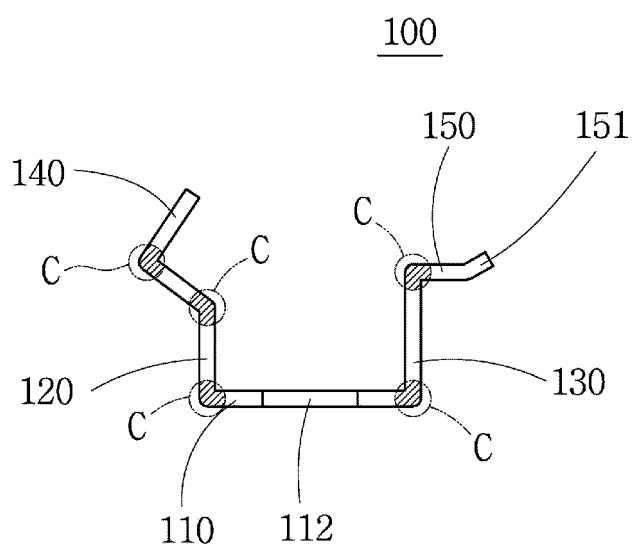


FIG. 10

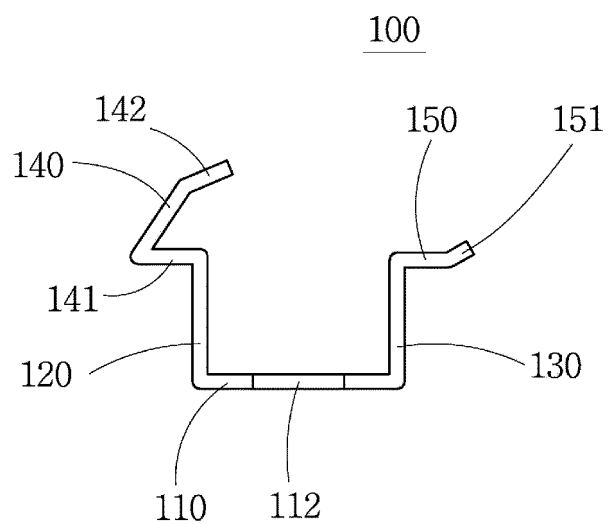
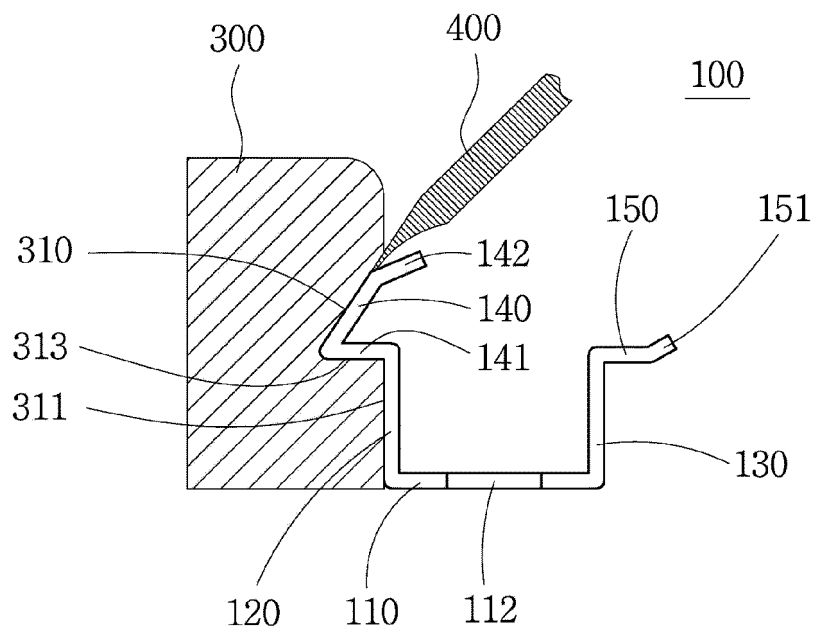


FIG. 11



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2023/011705

A. CLASSIFICATION OF SUBJECT MATTER

E01C 5/00(2006.01)i; E04F 15/02(2006.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E01C 5/00(2006.01); E04B 5/00(2006.01); E04F 13/08(2006.01); E04F 13/21(2006.01); E04F 15/02(2006.01);
E04F 15/024(2006.01)

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

Korean utility models and applications for utility models: IPC as above

Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 데크(deck), 클립(clip), 가이드(guide), 홈(groove), 탄성력(elastic force)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2008-031827 A (TAMAOKI et al.) 14 February 2008 (2008-02-14) See paragraphs [0061]-[0064] and figures 1, 4, 15-18 and 22.	1-5
A	JP 2001-132194 A (SEKISUI CHEM. CO., LTD.) 15 May 2001 (2001-05-15) See paragraphs [0027]-[0028] and figures 4-5.	1-5
A	JP 2011-202382 A (SEKISUI CHEM. CO., LTD.) 13 October 2011 (2011-10-13) See paragraph [0020] and figures 1-2.	1-5
A	KR 10-2013-0056702 A (SAMSUNG EVERLAND INC.) 30 May 2013 (2013-05-30) See paragraphs [0026]-[0029] and figures 2-4.	1-5
A	US 2007-0234670 A1 (MARTEL, David) 11 October 2007 (2007-10-11) See paragraph [0025] and figures 5A-5D.	1-5

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

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“P” document published prior to the international filing date but later than the priority date claimed

“T” 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

“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

“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

“&” document member of the same patent family

Date of the actual completion of the international search

06 December 2023

Date of mailing of the international search report

06 December 2023

Name and mailing address of the ISA/KR

Korean Intellectual Property Office

Government Complex-Daejeon Building 4, 189 Cheongsaro, Seo-gu, Daejeon 35208

Facsimile No. +82-42-481-8578

Authorized officer

Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2023/011705

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JP 2011-202382 A	13 October 2011	JP 5570857 B2	13 August 2014
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		CN 103133464 B	30 March 2016
		KR 10-1284588 B1	11 July 2013
US 2007-0234670 A1	11 October 2007	CA 2584953 A1	13 September 2008
		CA 2584953 C	17 July 2012
		CA 2777636 A1	13 September 2008
		CA 2777636 C	12 August 2014
		US 7805902 B2	05 October 2010

REFERENCES CITED IN THE DESCRIPTION

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