

## LINKING STRUCTURE FOR STUD FOR UNIT HOUSE

### Description

#### 5 Technical Field

[0001] The present invention relates to a coupling structure of a stud which is used in a prefabricated house and to a coupling structure of a stud for a prefabricated house which prevents the entry of wind and rain and which can enhance design.

#### 10 Background Art

[0002] Conventionally, as a structure for sealing a gap in a prefabricated house, a joint seal structure in a prefabricated box disclosed in patent literature 1 is proposed. The seal structure is formed with a sealing member which is inserted from indoor into a joint in the prefabricated box; and an elastic plate member which is fitted to rails provided in  
15 columns for the joint and which is located on an indoor side with respect to the sealing member.

[0003] In this seal structure, a double seal structure of the sealing member and the elastic plate member is adopted, and thus sufficient sealing is provided. Specifically, the sealing member such as a T-type joiner is inserted from indoor into the joint in the  
20 prefabricated house, then the elastic plate member such as sponge is fitted between the rails provided on the indoor side of the columns for the joint and thus a double sealed state is provided.

### Citation List

#### Patent Literature

25 [0004] Patent Literature 1: Japanese Utility Model Registration No. 2507289

### Summary of Invention

#### Technical Problem

[0005] However, in the seal structure disclosed in patent literature 1, a pair of rails needs to be previously provided on the indoor side of columns adjacent to each other so  
30 as to be opposite each other. Hence, in order for the seal structure to be used, two types of columns that include the rails whose orientations are different are needed, and thus the number of types of columns is disadvantageously increased.

[0006] Moreover, the elastic plate member such as sponge which is fitted to the rails is clearly different in texture from the other materials of the prefabricated house. Hence, when the seal structure as described above is fitted to the noticeable indoor side, for example, a sense of discomfort may be provided to a person who sees the seal structure, and hence, there is still room for improvement in design. Furthermore, the elastic plate member such as sponge is problematic in water resistance and durability.

[0007] Hence, the present invention is made so as to remove the problems described above, and an object of the present invention is to provide a coupling structure of a stud for a prefabricated house which is durable so as to be used repeatedly and which can enhance design on an indoor side while preventing the entry of wind and rain.

#### Solution to Problem

[0008] In order to achieve the above object, a first means in the present invention is provided such that a coupling structure of a stud 10 which is formed such that coupling pieces 21 provided along the coupling side surfaces of wall panels 20 are fixed to the surface of the stud 10 on an indoor side installed between the wall panels 20 on left and right sides in a prefabricated house P includes: a fixed nut 11 which is previously fixed to the stud 10; a fixed bolt 12 which screws to the fixed nut 11 from the indoor side of the coupling pieces 21 so as to fix the coupling pieces 21 to the stud 10; elastic fin-shaped sealing members 13 which are previously fixed along the left and right coupling side surfaces of the stud 10 so as to seal gaps between the stud 10 and the wall panels 20; and a cover member 14 which is removably fitted to the coupling pieces 21 from the indoor side and engages with a gap of the wall panels 20 on the indoor side so as to cover the fixed bolt 12 that is fixed to the stud 10.

[0009] The stud 10 of a second means is formed of a C-type channel material, the fixed nut 11 is welded to a position in which the fixed bolt 12 is inserted through the slit 10A of the stud 10 thereinto and is screwed, the side of the slit 10A is arranged so as to make contact with the surfaces of the coupling pieces 21 on an outdoor side and passing-through portions 21A through which the fixed bolt 12 is inserted are formed in the coupling pieces 21 by being cut out.

[0010] In a third means, the sealing member 13 includes: an adhesion portion 13A which is adhered to the side surface of the stud 10; and two rows of crimp contact pieces 13B which are protruded from the adhesion portion 13A toward the coupling side

surface of the adjacent wall panel 20, and when the stud 10 is fixed to the coupling pieces 21, the crimp contact pieces 13B seal the gaps between the stud 10 and the wall panels 20.

[0011] In a fourth means, the cover member 14 has a thickness which has the same height as the inner surfaces of skeletons of the wall panels 20, and the cover member 14 is removably attached to the coupling pieces 21 of the wall panels 20 by magnetism.

#### Advantageous Effects of Invention

[0012] As in claim 1, the elastic fin-shaped sealing members 13 which are previously fixed along the left and right coupling side surfaces of the stud 10 so as to seal the gaps between the stud 10 and the wall panels 20 is provided, and thus when the wall panels 20 are installed on both sides of the stud 10, the sealing members 13 simultaneously seal the gaps. Hence, the sealing members 13 prevents the entry of wind and rain.

[0013] The cover member 14 is provided which engages with the gap of the wall panels 20 from the indoor side so as to cover the fixed bolt 12 that is fixed to the stud 10, and thus it is possible to enhance design on the indoor side. Moreover, the wall panel 20 has a symmetrical configuration, and thus it is possible to perform rational fitting.

[0014] As in claim 2, the stud 10 is formed of a C-type channel material, the fixed nut 11 is welded to the position in which the fixed bolt 12 is inserted through the slit 10A of the stud 10 therinto and is screwed, the side of the slit is arranged so as to make contact with the surfaces of the coupling pieces 21 on the outdoor side and the passing-through portions 21A through which the fixed bolt 12 is inserted are formed in the coupling pieces 21 by being cut out, with the result that the stud 10 and the wall panels 20 are fixed together in a state where the slit 10A of the stud 10 overlaps the gap between the coupling pieces 21 of the wall panels 20. Consequently, the coupling structure itself of the stud 10 and the wall panels 20 can interrupt rain and wind, and thus it is possible to reliably prevent the entry of wind and rain.

[0015] As in claim 3, the sealing member 13 includes: the adhesion portion 13A which is adhered to the side surface of the stud 10; and the two rows of crimp contact pieces 13B which are protruded from the adhesion portion 13A toward the coupling side surface of the adjacent wall panel 20, and when the stud 10 is fixed to the coupling pieces 21, the crimp contact pieces 13B seal the gaps between the stud 10 and the wall panels 20, with the result that the sealing members 13 is durable so as to be used

repeatedly together with the stud 10.

[0016] As in claim 4, the cover member 14 has a thickness which has the same height as the inner surfaces of skeletons of the wall panels 20, and the cover member 14 is removably attached to the coupling pieces 21 of the wall panels 20 by magnetism, with the result that it is possible to achieve excellent appearance design of the prefabricated house P on the indoor side. Moreover, since the cover member 14 is attached to the coupling pieces 21 by magnetism, the cover member 14 is easily fitted thereto and can be repeatedly used any number of times.

[0017] As described above, according to the present invention, the original object is achieved in which durability is high so as to achieve repeated use and in which it is also possible to enhance appearance design while preventing the entry of wind and rain.

#### Brief Description of Drawings

[0018] Fig. 1 is a perspective view showing an example of use of the present invention;

Fig. 2 is an exploded perspective view showing a coupled state in the present invention;

Fig. 3 is an exploded perspective plan view showing the coupled state in the present invention;

Fig. 4 is a cross-sectional plan view showing the coupled state in the present invention; and

Fig. 5 is an exploded perspective view showing a stud in the present invention.

#### Description of Embodiments

[0019] An embodiment of the present invention will be described below. The present invention is a coupling structure of a stud 10 which couples together wall panels 20 in a prefabricated house P that is produced in a factory and is assembled locally (see Fig. 1).

[0020] In other words, the stud 10 is installed between the wall panels 20 on left and right sides (see Fig. 2). On the side surfaces on the left and right sides of the wall panel 20, coupling pieces 21 are provided along the coupling side surfaces of the stud 10. The coupling pieces 21 of the wall panels 20 are fixed to the surface of the stud 10 on the indoor side (see Fig. 3).

[0021] The illustrated stud 10 is formed of a C-type channel material. Fixed nuts 11 are provided therewithin, and with fixed bolts 12 for screwing to the fixed nuts 11 from the indoor side of the coupling pieces 21, the coupling pieces 21 are fixed to the stud 10

(see Fig. 4). Hence, the fixed nuts 11 are welded to positions in which the fixed bolts 12 are inserted through the slit 10A of the stud 10 thereinto and are screwed.

[0022] When the surface of the stud 10 on the indoor side and the surfaces of the coupling pieces 21 on an outdoor side are brought into contact with each other, a gap between the coupling pieces 21 overlaps the slit 10A in the stud 10 (see Fig. 3). In the illustrated coupling pieces 21, tip end portions are bent toward the slit 10A so as to form insertion portions 21B, and when the stud 10 and the coupling pieces 21 are fixed together, the insertion portions 21B are inserted through the slit 10A into the stud 10 (see Fig. 4).

[0023] Furthermore, on the left and right coupling side surfaces of the stud 10, elastic fin-shaped sealing members 13 are provided which makes contact with the coupling side surfaces of the wall panels 20 (see Fig. 5). When the wall panels 20 are installed on both sides of the stud 10, gaps between the stud 10 and the wall panels 20 are sealed with the sealing members 13 (see Fig. 4). Consequently, it is possible to prevent the entry of wind and rain through the gaps of the wall panels 20.

[0024] The illustrated sealing member 13 includes an adhesion portion 13A and a pair of crimp contact pieces 13B (see Fig. 3). Specifically, the adhesion portion 13A is a band-shaped part which is adhered to the side surface of the stud 10, and the crimp contact pieces 13B are integrally formed so as to be protruded from the adhesion portion 13A.

[0025] The crimp contact pieces 13B are formed in the shape of two rows of fins which are protruded from the adhesion portion 13A toward the coupling side surface of the adjacent wall panel 20, and the gap between the stud 10 and the wall panel 20 are double-sealed (see Fig. 4).

[0026] After the coupling pieces 21 of the wall panels 20 are fixed to the stud 10, a cover member 14 is fitted to the coupling pieces 21 from the indoor side (see Fig. 3). The cover member 14 is a strip-shaped member which engages with a gap of the wall panels 20 on the indoor side, and the cover member 14 covers the fixed bolt 12 which is fixed to the stud 10 (see Fig. 4).

[0027] Since the cover member 14 has a thickness which has the same height as the inner surfaces of skeletons of the wall panels 20, when the cover member 14 engages with the gap of the wall panels 20, the surfaces of the wall panels 20 are flush with the

surface of the cover member 14 (see Fig. 4).

[0028] Furthermore, a permanent magnet is provided in the cover member 14, and thus the cover member 14 is removably attached to the coupling pieces 21 of the wall panels 20 by magnetism. Hence, the cover member 14 can easily be fitted by performing  
 5 only an operation of bringing the cover member 14 close to the coupling pieces 21 from the indoor side.

[0029] The configuration of the prefabricated house P in the present invention is not limited to the illustrated example, and the configurations and the shapes of the stud 10, the wall panel 20, the sealing member 13, the cover member 14 and the like can be  
 10 arbitrarily changed. The design can freely be changed without departing from the spirit of the present invention.

#### Reference Signs List

|    |          |                         |
|----|----------|-------------------------|
|    | [0030] P | prefabricated house     |
|    | 10       | stud                    |
| 15 | 10A      | slit                    |
|    | 11       | fixed nut               |
|    | 12       | fixed bolt              |
|    | 13       | sealing member          |
|    | 13A      | adhesion portion        |
| 20 | 13B      | crimp contact piece     |
|    | 14       | cover member            |
|    | 20       | wall panel              |
|    | 21       | coupling piece          |
|    | 21A      | passing-through portion |
| 25 | 21B      | insertion portion       |

## Claims

1. A coupling structure of a stud for a prefabricated house which is formed such that coupling pieces provided along coupling side surfaces of wall panels are fixed to a surface of the stud on an indoor side installed between the wall panels on left and right sides in the prefabricated house, the coupling structure comprising:

a fixed nut which is previously fixed to the stud;

a fixed bolt which screws to the fixed nut from the indoor side of the coupling pieces so as to fix the coupling pieces to the stud;

elastic fin-shaped sealing members which are previously fixed along left and right coupling side surfaces of the stud so as to seal gaps between the stud and the wall panels; and

a cover member which is removably fitted to the coupling pieces from the indoor side and engages with a gap of the wall panels on the indoor side so as to cover the fixed bolt that is fixed to the stud.

2. The coupling structure of the stud for the prefabricated house according to claim 1,

wherein the stud is formed of a C-type channel material, the fixed nut is welded to a position in which the fixed bolt is inserted through a slit of the stud thereinto and is screwed, a side of the slit is arranged so as to make contact with surfaces of the coupling pieces on an outdoor side and passing-through portions through which the fixed bolt is inserted are formed in the coupling pieces by being cut out.

3. The coupling structure of the stud for the prefabricated house according to claim 1,

wherein the sealing member includes: an adhesion portion which is adhered to the side surface of the stud; and two rows of crimp contact pieces which are protruded from the adhesion portion toward the coupling side surface of the adjacent wall panel, and

when the stud is fixed to the coupling pieces, the crimp contact pieces seal the

gaps between the stud and the wall panels.

4. The coupling structure of the stud for the prefabricated house according to claim 1,

- 5 wherein the cover member has a thickness which has the same height as inner surfaces of skeletons of the wall panels, and the cover member is removably attached to the coupling pieces of the wall panels by magnetism.