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(54) Method of building architectural panels

(57) According to the present invention there is provided a method of building architectural panels. In this respect fixtures (3) each constituted of a nail, screw or rivet, are driven in a bed (1) of a fence, gate or a wall of a building in such a way that a part of each fixture (3) protrudes from the bed (1). A groove (4c) or holes (4d), formed in a face member (4), are fitted over the fixtures (3), and the face member (4) is secured to the bed (1) by an adhesive (5). This method eliminates the need for providing grooves in the beds (1) by a special cutter or providing a easily damageable projection on the face member (4), and facilitates the attachment of the face members (4) to the beds (1).

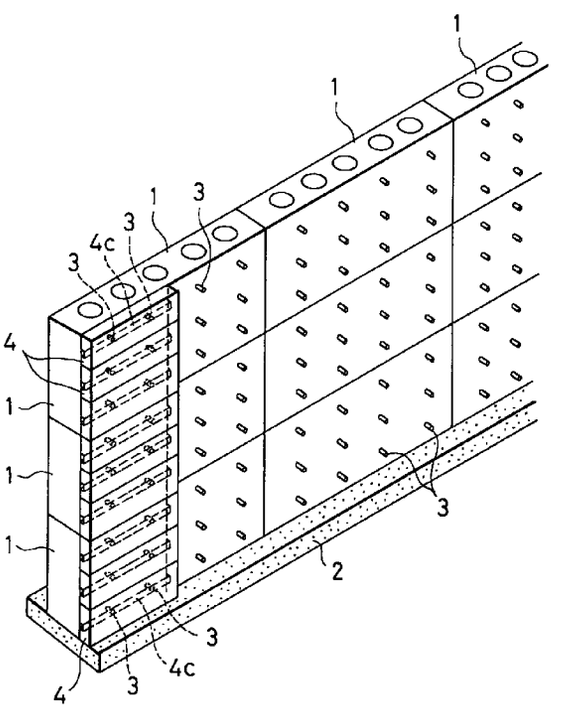

FIG. 1

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Description

The present invention relates to a method of building architectural panels for a fence, a gate or a building wall.

A conventional fence is built by fixing and stacking concrete blocks side by side and one on another with readymixed concrete. It is however difficult to build fences having various appearances with such stacked blocks. To provide fences with various appearances, a groove may be formed in the bed, such as the aforementioned block, and a projection may be formed in the back of the face member, such as a tile, so that the face member can be attached to the bed by fitting the projection of the face member in the groove of the bed and adhering both together, as disclosed in, for example, Japanese Examined Utility Model Publication No. 22042/1994.

With the projection of the face member fitted in the groove of the bed, however, the projection of the face member may be broken during transportation. Particularly, to form a groove in the bed, constituted of an existing concrete block, by a concrete cutter, the groove should be made narrow (generally, about 3 mm). This requires that the projection should also be formed narrow, so that the projection becomes easier to break. Further, if a projection is formed in a brittle face member, it is easily broken when fitted in the groove in the bed. Similar problems arise when face members are attached to beds to construct the facing of a gate or the wall of a building.

Accordingly, it is a primary object of the present invention to provide a method of building architectural panels, which are structured in such a way that face members, which are to be attached to beds to build a fence, a gate or the wall of a building, permit the fence or gate to have a variety of appearances, and that the face members are easily attachable to the beds without providing grooves in the beds by a special cutter or providing a easily damageable projection on the face member.

It is another object of this invention to provide a method of building architectural panels which improve the appearance of a fence, a gate or the wall of a building and have an enhanced strength though they are light.

It is a further object of this invention to provide a method of building architectural panels which are easy to transport and handle.

Other objects of the present invention will become readily apparent from the following detailed description.

According to the present invention, there is provided a method of building architectural panels, which comprises the steps of driving fixtures, each constituted of a nail, screw or rivet, fit in a bed of a fence, gate or a wall of a building in such a way that a part of each fixture protrudes from the bed; fitting a groove or holes, formed in a face member, over the fixtures; and securing the face member to the bed by an adhesive. It is preferable that the face member has a base made of a synthetic resin foam member and a mixture of an incombustible powdery material and an incombustible adhesive is coated on the surface of the base of the face member to provide a stony finish. It is also preferable that the bed is made of a synthetic foam member.

According to the method of this invention, fixtures, such as nails, are driven fit in each bed, the groove or holes formed in each face member are fitted over the fixtures, and the face member is fixed to the bed by an adhesive. Positions where the fixtures are to be secured may be marked so that the fixtures can easily be provided on the bed by securing the fixtures at the marked positions.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view showing one example of a fence to which a building method according to the present invention is applied;

Fig. 2A is a perspective view exemplifying a face member to which the building method of this invention is applied;

Fig. 2B is a partially cross-sectional side view of the face member;

Figs. 3A, 3B and 3C are diagrams illustrating a building method according to one embodiment of this invention;

Fig. 4 is a perspective view exemplifying this invention as adapted for a gate post;

Fig. 5 is a perspective view showing another example in which this invention is adapted for a gate post;

Fig. 6 is a vertical cross-sectional view showing an example in which this invention is adapted for the wall of a building;

Fig.7A is a perspective view showing a face member to which a panel building method of this invention is applied; and

Fig. 7B is a cross-sectional view showing the face member attached to a bed.

In Fig. 1, reference numeral "1" denotes beds (blocks) which are to be stacked on a concrete sill 2 to build a fence. The beds 1 are prepared from concrete, resin, stones or ceramics. A fence is built by stacking the individual beds 1 one on another with readymixed concrete or an adhesive in between as needed. Reference numeral "3" denotes fixtures which are to be secured to the surface of each bed 1. Nails, rivets or screws are used as the fixtures 3.

Reference numeral "4" denotes a face member formed by synthetic resin foam member. As shown in Figs. 2A and 2B, the face member 4 is prepared by uniformly coating a mixture of an incombustible powdery material, such as sand or gravel, and an incombustible, weather-resistive synthetic resin adhesive on the surface of a base 4a made of a synthetic resin foam member and then drying the mixture. Accordingly, a top layer 4b has a stony finish. A groove 4c is formed along and in the back of the face member 4.

In building this fence, first, holes 1a are bored by a drill 6 in the bed 1 at positions where marks (not shown)

have previously been put, as shown in Fig. 3A. Next, the fixtures 3 are driven into the holes 1a by a hammer 7 in such a way that a part of each fixture 3 protrudes from the top surface of the bed 1, as shown in Fig. 3B. As shown in Fig. 3C, an adhesive 5 should have previously been applied to the back of the face member 4. Then, the groove 4c of the face member 4 is fitted over the fixtures 3 so that the back of the face member 4 is securely fixed to the top surface of the bed 1 by the engagement of the groove 4c with the fixtures 3 and the adhesive 5. Although the face member 4 is adhered only to one side of the bed 1 in the illustrated example, the face member 4 may be adhered to the back too. In this example, a total of six face members 4 are attached to a single bed 1, in two rows horizontally with three face members 4 arranged in the vertical direction in each row. The correlation between the quantities of the bed 1 and the face members 4 may however be changed in various ways; for example, a single face member 4 may be attached to a single bed 1. In adhering the face member 4 to the bed 1 by the adhesive 5, the groove 4c formed in the face member 4 holds the adhesive 5 and also serves to prevent the downward flow of the adhesive 5.

According to the method of this invention, the fixtures 3 are driven in the bed 1 and the groove 4c in the face member 4 is fitted over the fixtures 3 to attach the face member 4 to the bed 1. This method requires no special tool such as a concrete cutter, thus facilitating the attachment of the face member 4 to the bed 1. Further, this method eliminates the need for providing an attachment projection which is easy to break.

According to this embodiment, the base of the face member 4 is made of a synthetic resin foam member and a mixture of an incombustible powdery material and incombustible adhesive is coated as the top layer 4b on the top surface of the base 4a to provide a stony finish. The use of the foam member for the face member 4 makes the face member 4 lighter. As a coat of a mixture of an incombustible powdery material and incombustible adhesive is used as the top layer 4b to provide a stony finish, fire-proof and water-proof are provided in addition to the improved appearance and the enhanced strength. If the bed 1 is made of a foam member, the panel becomes lighter and becomes easier to transport and handle. The use of a foam member for the bed 1 eliminates the need for the drill 6 shown in Fig. 3A and requires only the hammer 7 as shown in Fig. 3B to fix the fixtures 3.

Fig. 4 shows an example in which the method of this invention is adapted for a gate, and illustrates the gate under construction. In building the gate in Fig. 4, first, a support 9 made of an aluminum alloy extruded shape is secured onto the sill 2. Next, beds 8 made of a foam member, which have holes 8a, are fitted over the support 9. The fixtures 3 should have been driven in the outer surface of each bed 8. With the groove 4c fitted on the fixtures 3, each face member 4 is secured to the bed 6 by an adhesive. This method allows the beds 8 to be stacked one on another by fitting the beds 8 on the support 9, thus facilitating the construction, and allows the beds 8 to be supported by the support 9 so that the beds 8 do not move freely, thus increasing the strength.

In the example of Fig. 5, the fixtures 3 are driven in a reinforced concrete gate post 10 having a circular cross section, a groove 11a formed in an arcuate face member 11 is fitted on the fixtures 3 and the face member 11 is secured to the gate post 10 by an adhesive.

In the example of Fig. 6, a bed 14, made of a foam member, resin plate, wood plate or the like, is attached by fixtures 13 or an adhesive to a stud 12, which constitutes the wall portion of a building, the fixtures 3 are driven in the bed 14, the groove 4c of the face member 4 is fitted on the fixtures 3, and the face member 4 is securely fixed to the bed 14 by an adhesive.

The example of Fig. 7A is a modification of the face member 4 of this invention. This modification has a plurality of holes 4d formed in the face member 4 instead of the groove 4c. In this example, the individual holes 4d are fitted on the fixtures 3 and the face member 4 is fixed to the bed I by means of the adhesive 5 intervening between the beds 1 and the face member 4, as shown in Fig. 7B. This fixing structure of fitting such holes 4d on the fixtures can be adapted for a gate post, a gate or the wall of a building.

The layout of the fixtures 3 for securing the bed 1, 8 or 14, and the specific shapes of the face member 4 or 11, or the groove 4c or 11a are not limited to those illustrated and may be modified in various other forms. For example, two or more grooves 4c or 11a may be formed in the face member 4 or 11 so that those grooves may be fitted on the fixtures 3.

Claims

1. A method of building architectural panels, comprising the steps of:

   driving fixtures (3), each constituted of a nail, screw or rivet, fit in a bed (1) of a fence, gate or a wall of a building in such a way that a part of each fixture (3) protrudes from the bed (1);

   fitting a groove (4c) or holes (4d), formed in a face member (4), over said fixtures (3); and

   securing the face member (4) to the bed (1) by an adhesive (5).

2. The method according to claim 1, wherein said face member (4) has a base (4a) made of a synthetic resin foam member and a mixture of an incombustible powdery material and an incombustible ahdesive is coated on a surface of said base (4a) of said face member (4) to provide a stony finish.

3. The method according to claim 1 or 2, wherein said bed (1) is made of a synthetic resin foam member.

4. The method according to any preceding claim, wherein said bed (1) is made of a synthetic resin foam member.

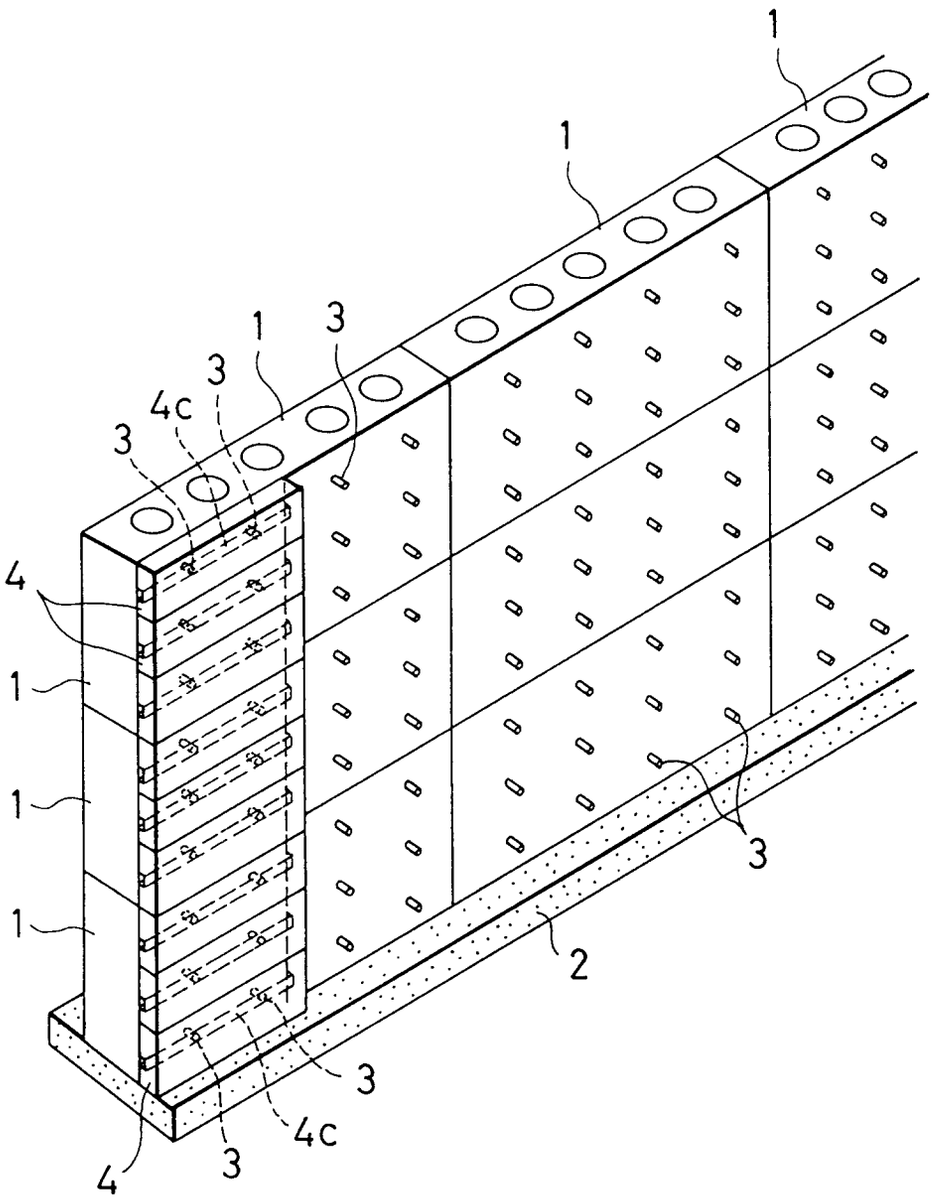

FIG. 1

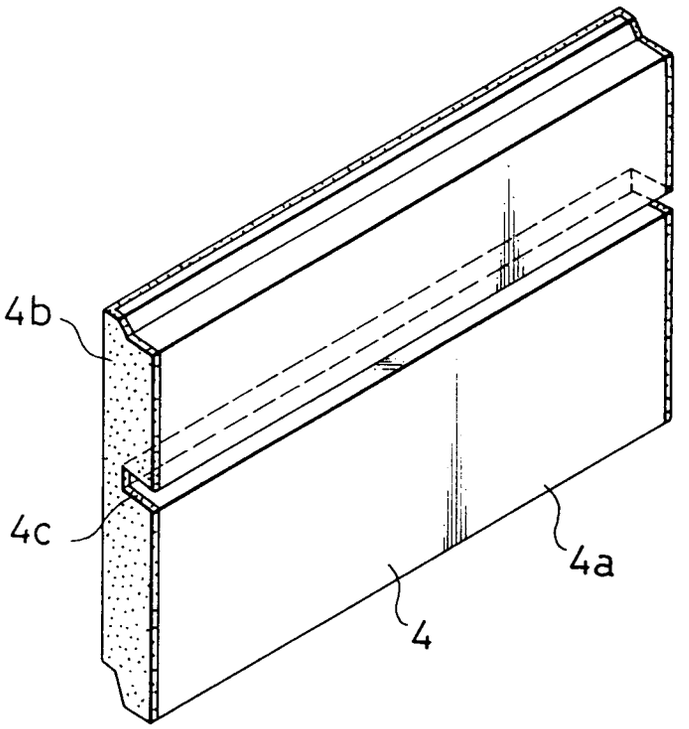

FIG. 2A

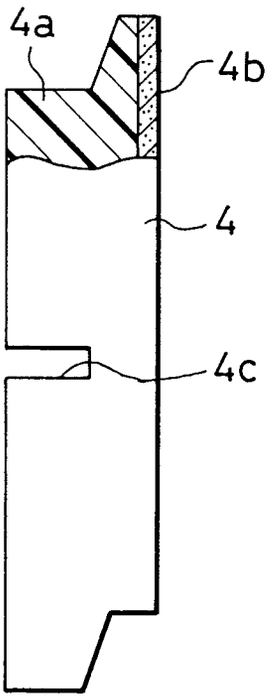

FIG. 2B

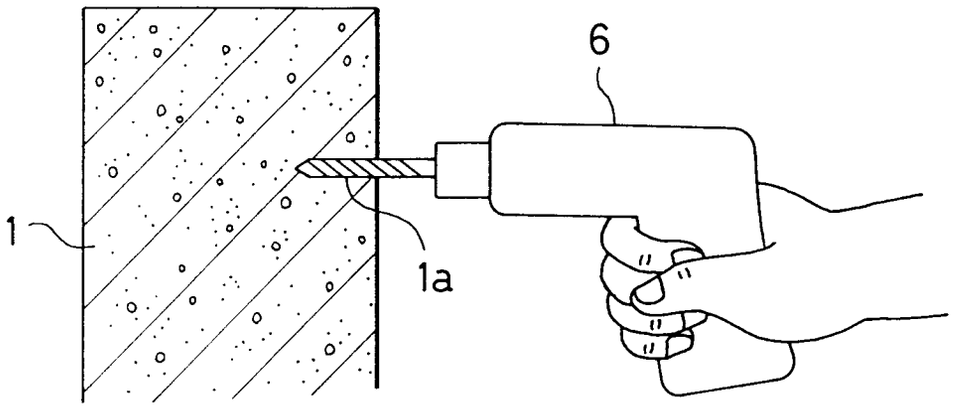

FIG. 3A

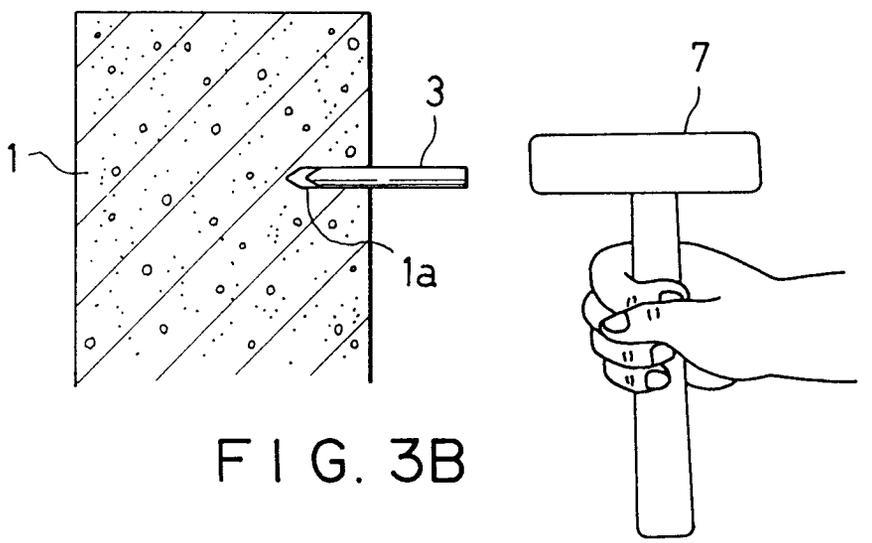

FIG. 3B

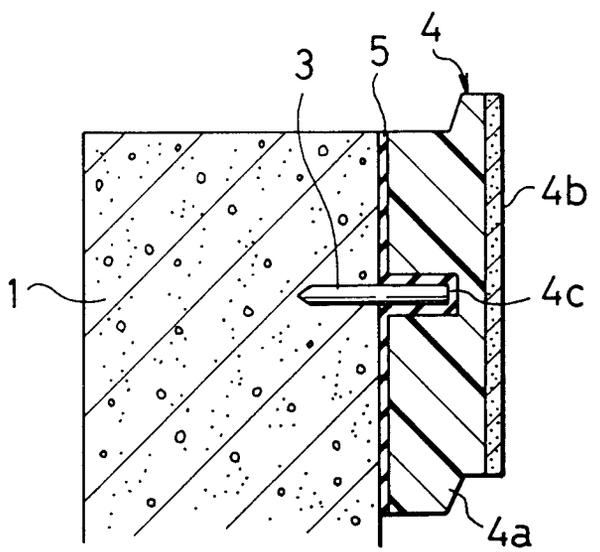

FIG. 3C

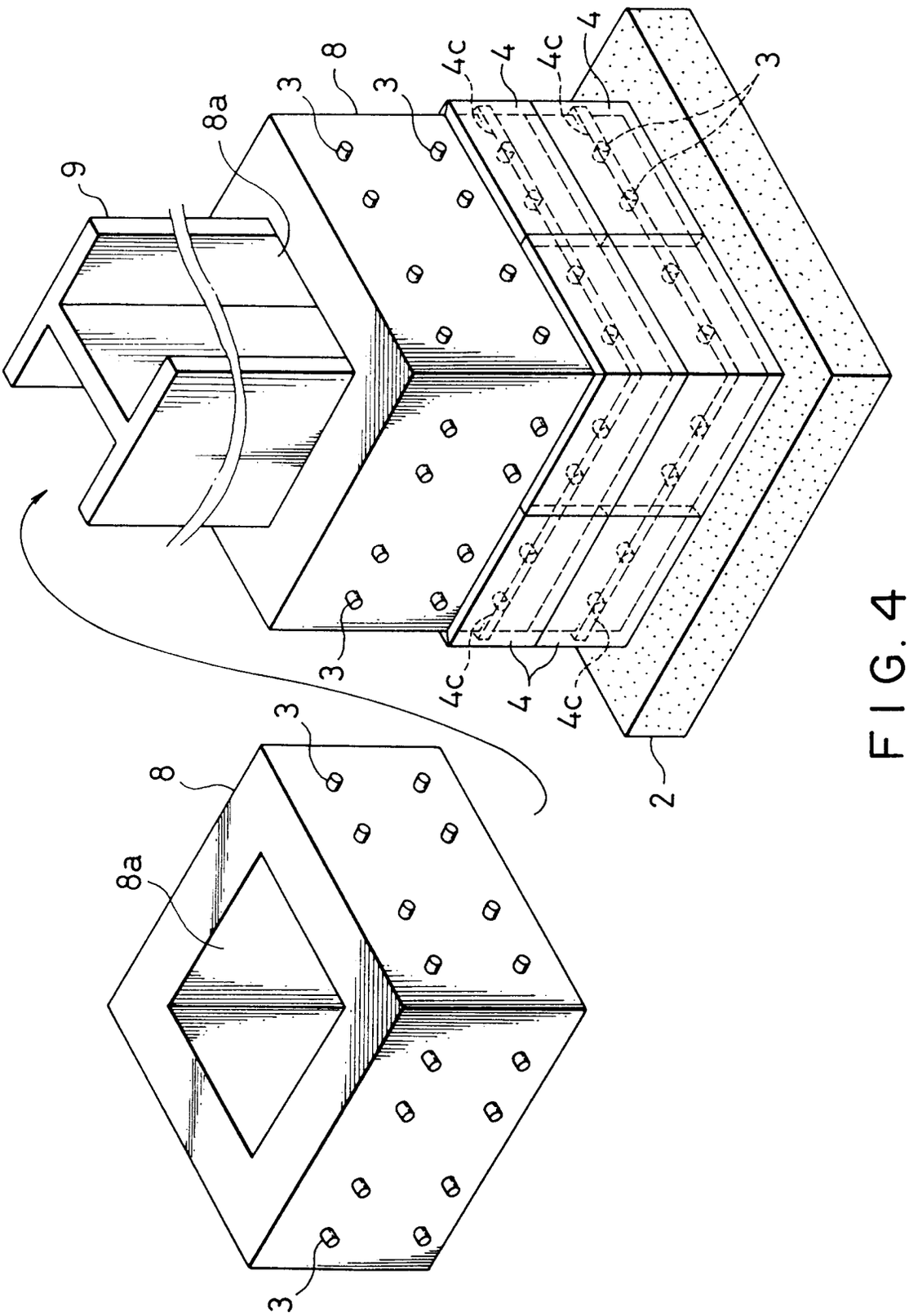

FIG. 4

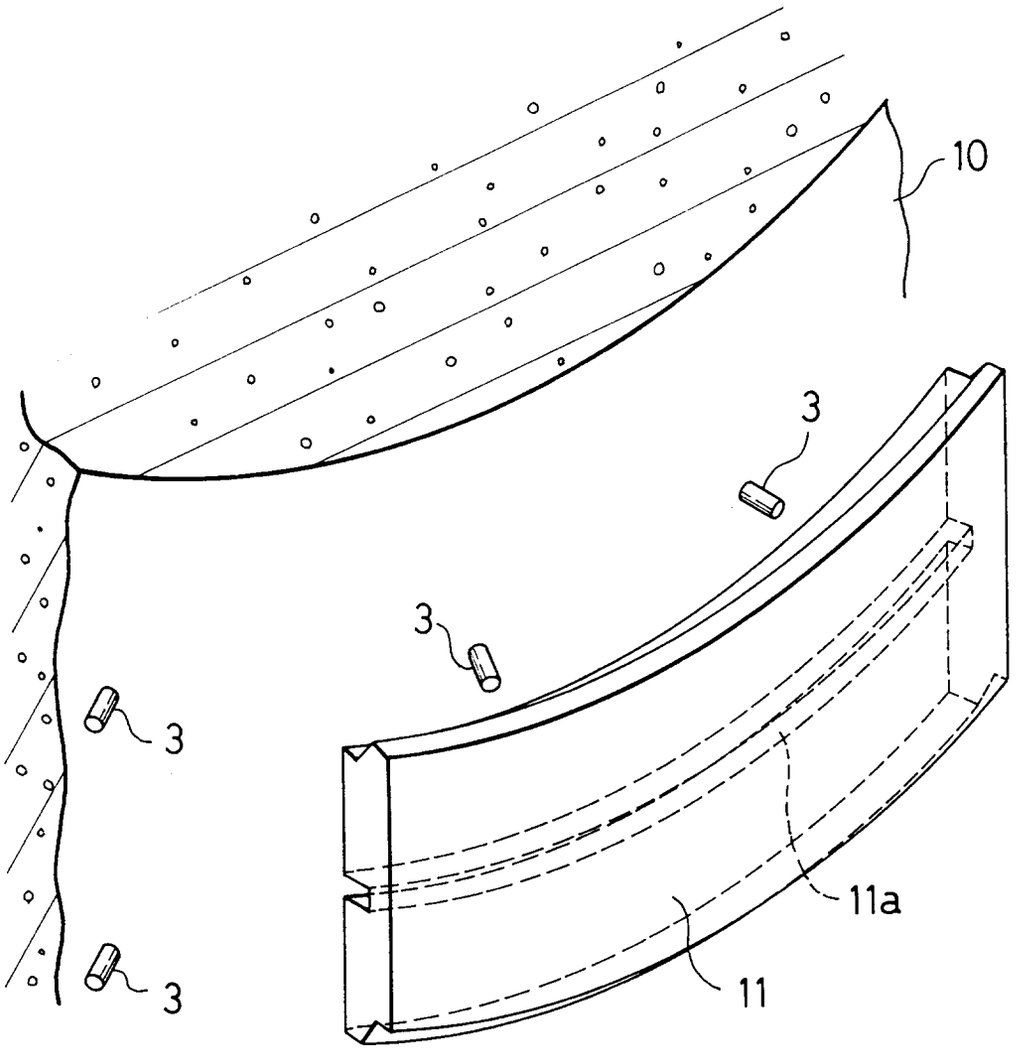

FIG. 5

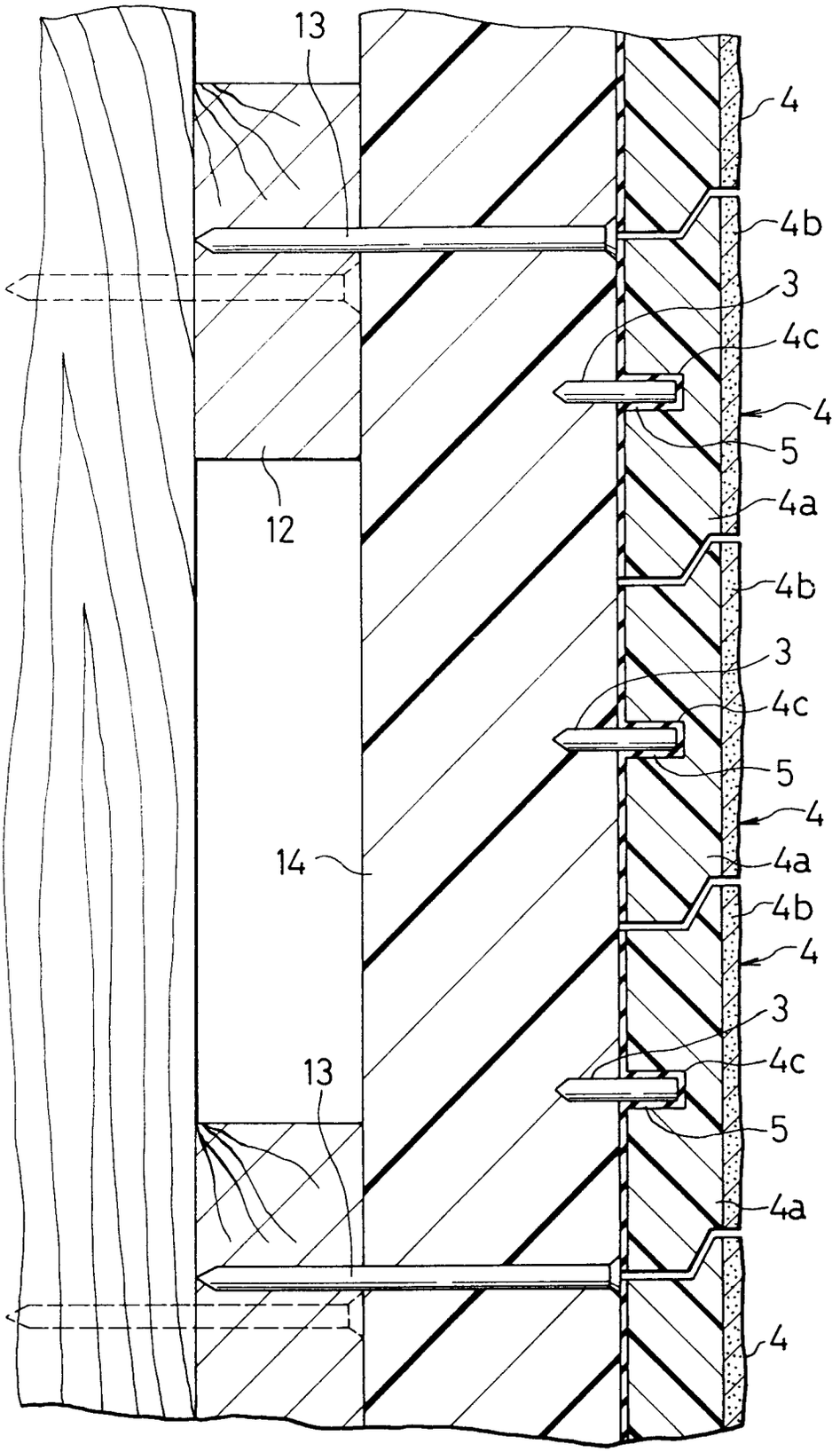

FIG. 6

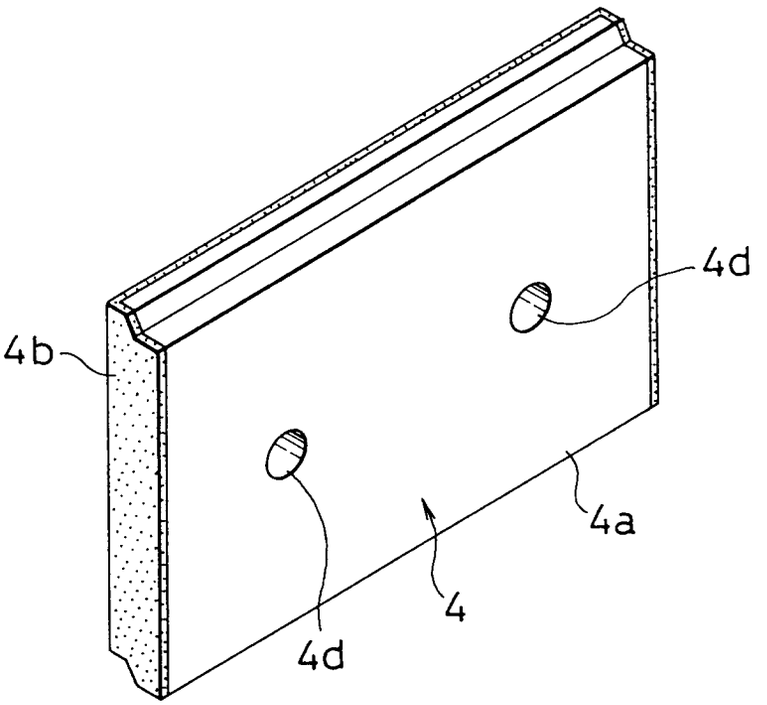

FIG. 7A

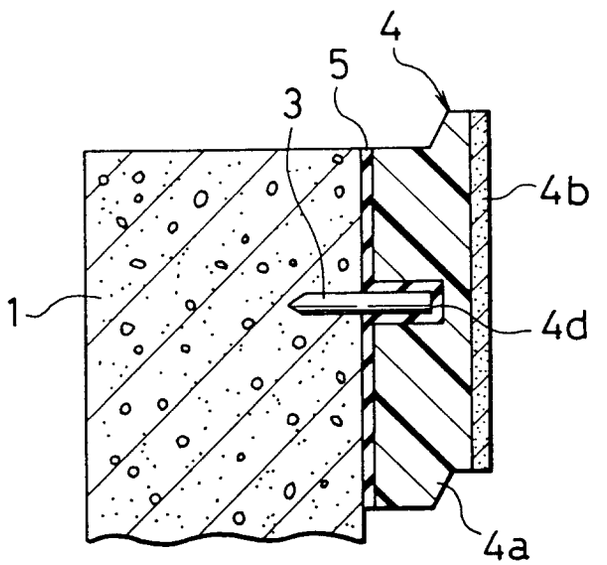

FIG. 7B

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 11 1079

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	DE-A-42 04 588 (BAYER) * column 2, line 2 - column 4, line 15; figures 1-24 *	1	E04F13/08 E04C2/52
Y	US-A-5 048 254 (MERLAU) * column 2, line 59 - column 5, line 35; figures 1-10 *	1	
A	DE-A-31 25 938 (CALUPLAST-FARBENFABRIKEN WICHMANN GMBH & CO.) * page 6, line 20 - page 8, line 6 * * page 8, line 16 - page 10, line 14; figure 1 *	1,2	
A	FR-A-2 274 752 (MANUFACTURE FRANCAISE DES CHAUSSURES "ERAM") * page 1, line 21 - page 5, line 24; examples 1-9 *	1,3,4	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
E04F E04C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	1 December 1995	Ayiter, J

CATEGORY OF CITED DOCUMENTS

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