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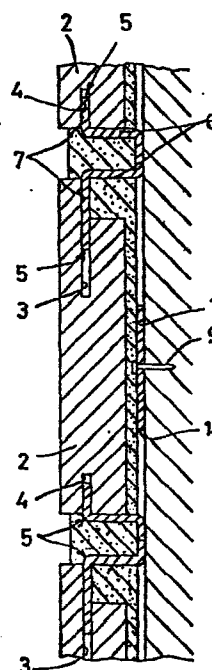
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(54) **Support plate for tiles.**

(57) A support plate for tiles (2) is proposed which comprises a rectangular metal plate (1) formed with a plurality of tile support pieces (5) struck out of the metal plate (1). The end portions of tile support pieces (5) are bent to form flanges (7) which are adapted to fit into a groove (3, 4) or grooves (3, 4) provided in a tile (2).

FIG.5



SUPPORT PLATE FOR TILES

The present invention relates to a support plate for tiles to be set on the surface of a building.

So far, tiles have been set on the surface of a building by applying mortar on the surface or on the tile back and pressing them against the surface. Consequently, the work of tiling with uniform spaces between the tiles and making their surfaces even has required a great deal of skill.

The conventional tiling method has another disadvantage that the lower rows of tiles will come off if the load of the tiles laid thereupon exceeds the limit which can be withstood by them. Because of this possibility, the number of rows of tiles which can be set in one day was restricted.

The conventional tiling method has still another disadvantage that it requires a large quantity of mortar and that liquid cement has to be sprayed upon the surface of mortar for the acceleration of the hardening of mortar with a concomitant result of soiling the tiles and the surroundings with the cement.

It is an object of the present invention to provide a support plate for tiles which obviates the necessity of a great deal of skill for setting tiles with uniform

spaces between the tiles and making their surfaces even.

It is another object of the present invention to provide a support plate for tiles which permits tile-setting without restrictions on the number of rows of tiles which can be set in one day and yet precludes the possibility of the peeling-off of the lower tiles.

In accordance with the present invention, there is provided a support plate for tiles comprising a rectangular metal plate having a plurality of tile support pieces, said support pieces each having a web portion perpendicular to said metal plate and a flange portion parallel with said metal plate.

With the above-described objects in view and as will become apparent from the following detailed description, the present invention will be more clearly understood in connection with the accompanying drawings.

Fig. 1 is a partially cutaway front view of part of a wall tiled by use of the support plates according to the present invention;

Figs. 2 to 4 are front views of the first, second and third embodiments;

Fig. 5 is a sectional view taken along line V-V of Fig. 2;

Fig. 6 is a sectional view taken along line VI-VI of Fig. 3;

Fig. 7 is a sectional view taken along line VII-VII of Fig. 4; and

Figs. 8 and 9 are sectional views of other embodiments.

Referring now to Fig. 1, a plurality of rectangular metal plates 1 are nailed or otherwise mounted on the surface of a building. L-shaped tile support pieces 5 are struck out of the surface of each metal plate 1 in such positions as to conform to the positions of tiles 2 to be arranged on the surface of the metal plate 1.

In the first embodiment shown in Figs. 2 and 5, the tile support pieces 5 are struck out of the surface of each metal plate 1 at intervals. Their end portions are bent in opposite directions, leaving webs 6 perpendicular to the metal plate 1. Flanges 7 are bent so as to run parallel with the metal plate 1. Each tile 2 designed for this embodiment is supported by two pairs of vertically spaced support pieces 5. (Fig. 2) In each pair of vertically spaced support pieces 5, the vertical length of the upper (i.e. downward) flange 7 is longer than that of the lower (i.e. upward) flange 7.

To mount the tile 2 on the metal plate 1 of this embodiment, the upper (downward) flanges 7 are fitted into a groove 3 provided in the upper edge of the tile 2. Then the lower (upward) flanges 7 are allowed to fit into a groove 4 provided in the lower edge of the

tile 2. For this way of mounting the tile 2 on the metal plate 1 of this embodiment, the groove 3 should be deeper than the groove 4.

In the second embodiment shown in Figs. 3 and 6, all the flanges 7 are bent in the same (i.e. upward) direction. Each tile 2 designed for this embodiment is provided with two grooves 8 running parallel with the metal plate. One of the grooves is provided in the back middle of the tile 2, while the other is provided in its lower edge. To mount the tile 2 on the metal plate 1 of this embodiment, the tile is lowered so that the upper edges of the flanges 7 will fit into the L-shaped grooves 8.

In the third embodiment shown in Figs. 4 and 7, all the flanges 7 are bent in the same (i.e. upward) direction. Each tile 2 designed for this embodiment is provided with a single L-shaped groove 8 in the back thereof to allow the flanges 7 to fit therein so that it can be mounted on the metal plate 1 of this embodiment in the same manner as in the second embodiment. Each time a tile 2 is mounted on the metal plate 1, tongues 11 formed by C-shaped cuts 10 in the metal plate 1 are pryed by means of a screwdriver or the like so as to bring the lower edges of the tongues 11 into contact with the upper edge of the tile 2 and thereby secure

the tile in position.

In the fourth embodiment shown in Figs. 8 and 9, the tile support pieces 5 are substantially the same as those of the first embodiment except that the upper and lower flanges 7 are of the same length. Each tile 2 designed for this embodiment is provided with an L-shaped grooves 8 (Fig. 8) or a T-shaped groove 15 (Fig. 9) in the back thereof. To mount the tile 2 on the metal plate 1 of these embodiments, the groove 8 or 15 is filled with mortar and then the tile 2 is pressed against the metal plate 1 and forced down so as to allow the upward flange 7 to fit into the vertical portion of the L- or T-shaped groove 8 or 15. Since the upper and lower flanges are of the same length, the support plates can be mounted upside down.

Although only two rows of tiles 2 are mounted on each metal plate 1 in the preferred embodiments shown in the drawings, the metal plate 1 may be of a larger size so as to be capable of bearing more than two rows of tiles 2.

In the embodiments shown in the drawings, the metal plates 1 are secured to the surface of a building by means of nails 9 (Figs. 5, 6 and 7) driven through holes 12 (Figs. 2, 3 and 4). However, the metal plates 1 may be secured by spot welding.

If a space is left between the back of the metal plate 1 and the surface of a building, the space may be stuffed with mortar or foamed plastics poured through the openings 14 formed by striking the tile support pieces 5.

When the necessary number of tiles 2 have been mounted on the metal plates 1, the space left between adjacent tiles 2 is filled with mortar 13 (Fig. 7).

The present invention obviates the necessity of stretching a string for aligning each row of tiles 2, and gives a good appearance to the tiled wall because of uniform space left between the tiles 2.

The present invention has further advantages that it permits tile-setting without restrictions on the number of rows of tiles 2, that the metal plates 1 can be manufactured at low cost because the tile support pieces 5 can be formed simply by press work, and that the tiles 2 can be protected from cracking or peeling-off even if the tiled wall is jolted.

The present invention has a still further advantage that since the metal plate 1 can be made in any curved form, the tiles can be easily set even on a curved wall surface.

What are claimed are:

1. A support plate for tiles comprising a rectangular metal plate having a plurality of tile support pieces, said support pieces each having a web portion perpendicular to said metal plate and a flange portion parallel with said metal plate.
2. A support plate for tiles as set forth in claim 1, wherein said flange portions of said support pieces extend from said web portions in the same direction.
3. A support plate for tiles as set forth in claim 1, wherein said flange portions extend alternately in one direction and the opposite direction in one vertical column.
4. A support plate for tiles as set forth in claim 3, wherein said flange portions extending in one direction are longer than said flange portions extending in the other direction.
5. A support plate for tiles as set forth in claim 3, wherein said flange portions extending in one direction are of the same length as said flange portions extending in the opposite direction.

FIG. 1

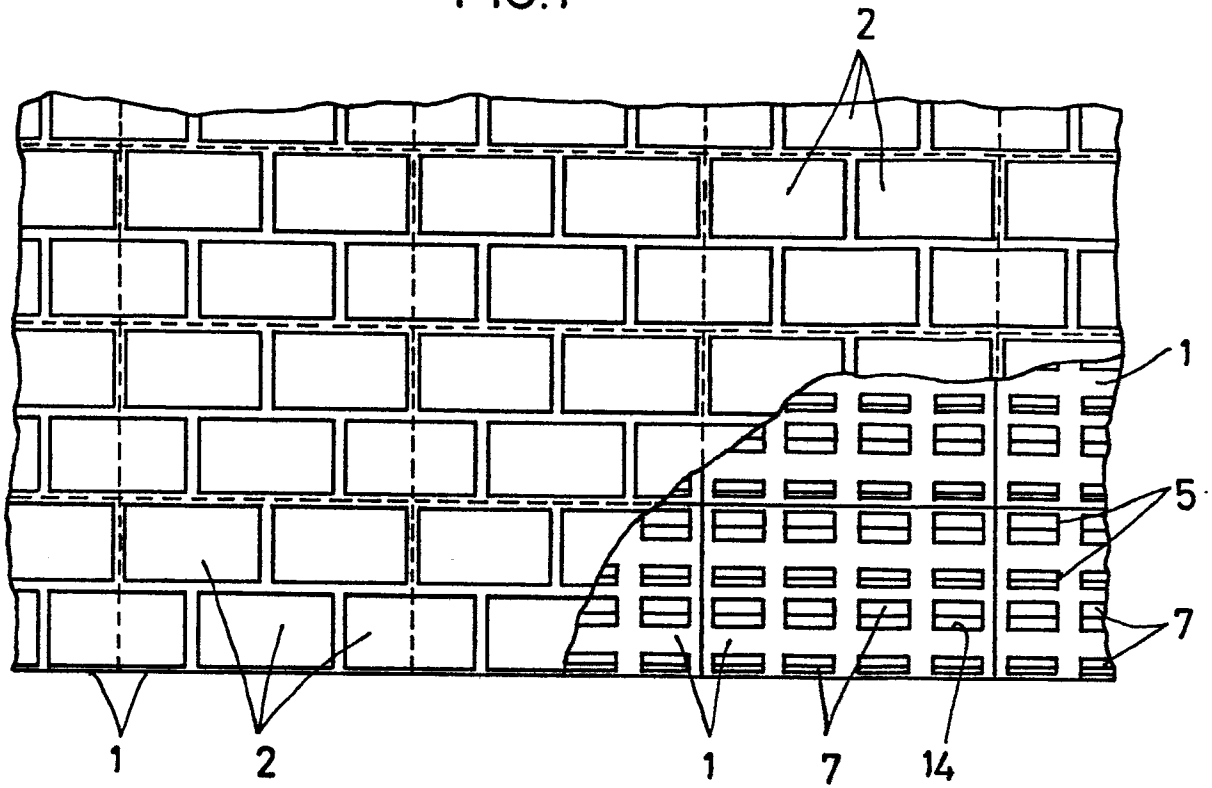


FIG. 2

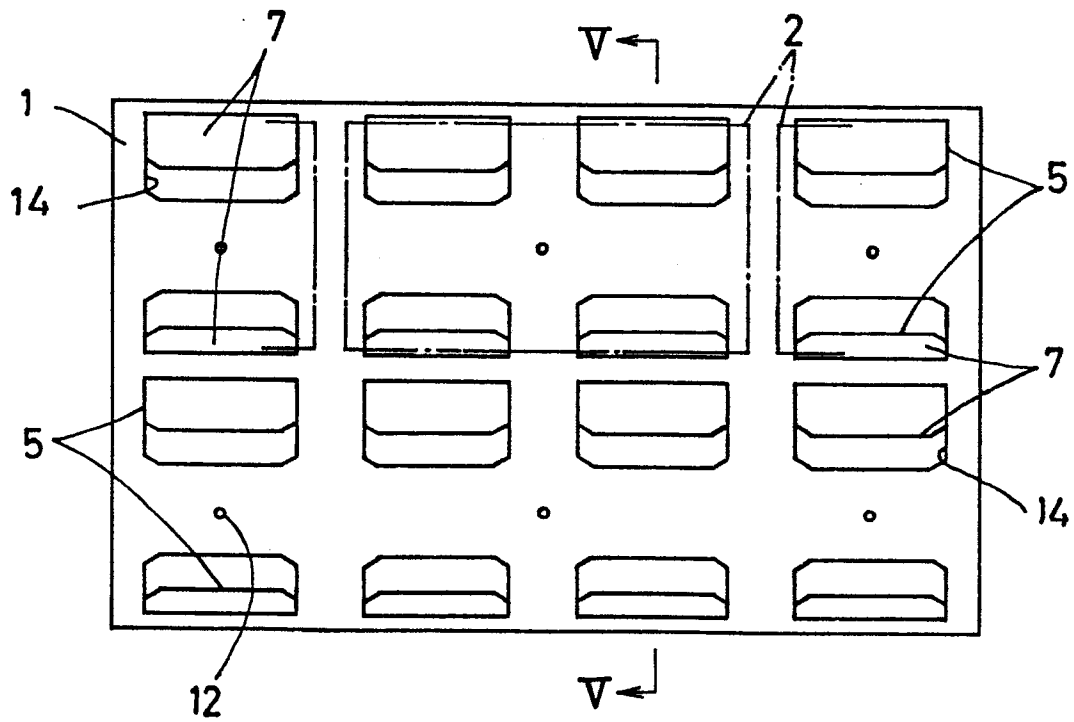


FIG. 3

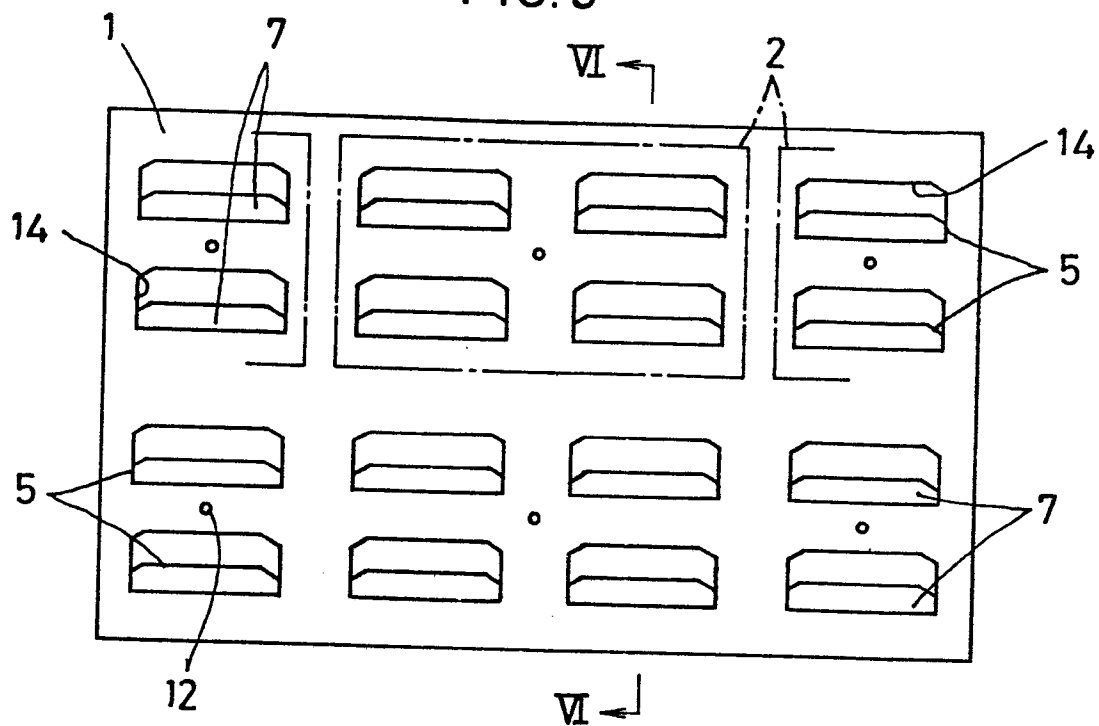


FIG. 4

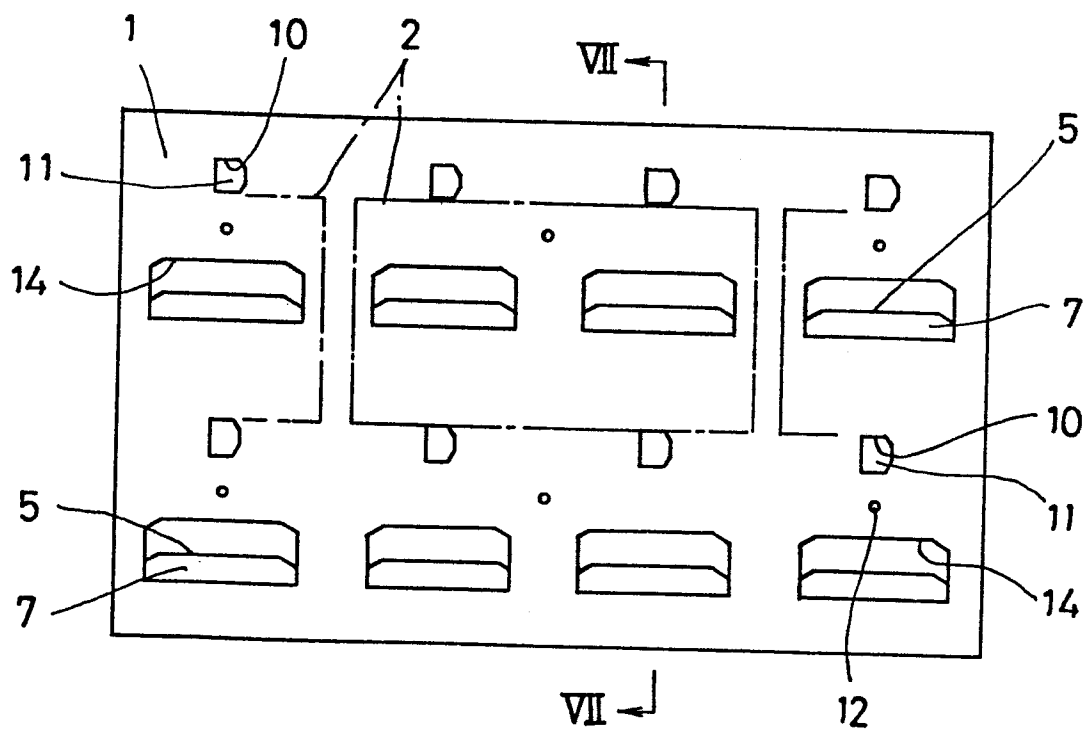


FIG.5

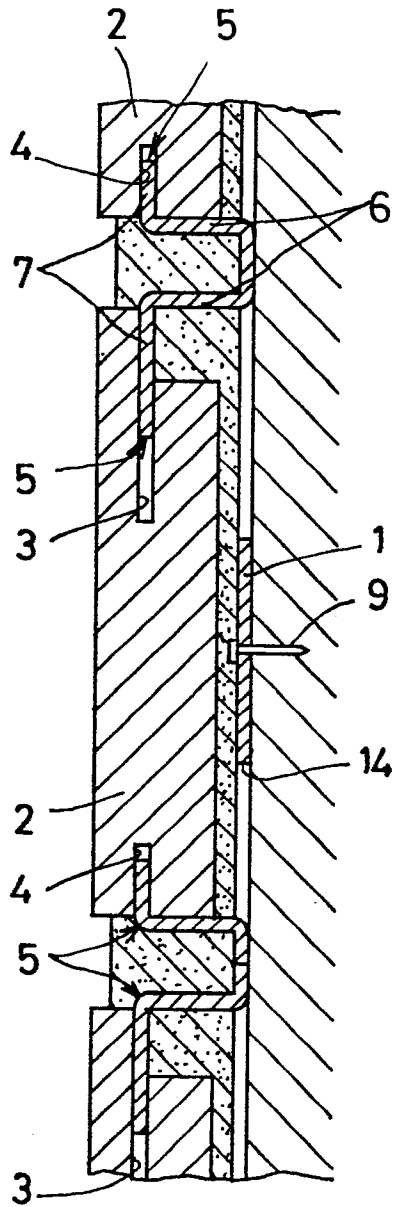


FIG.6

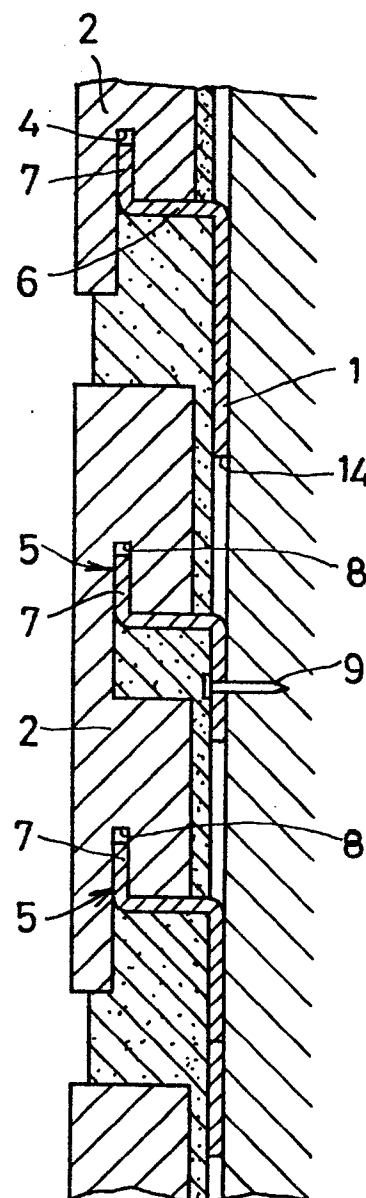


FIG.7

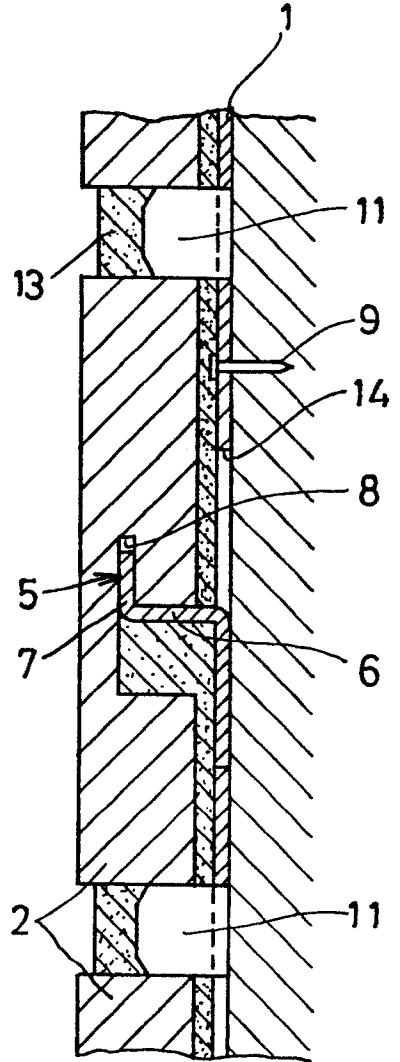


FIG. 8

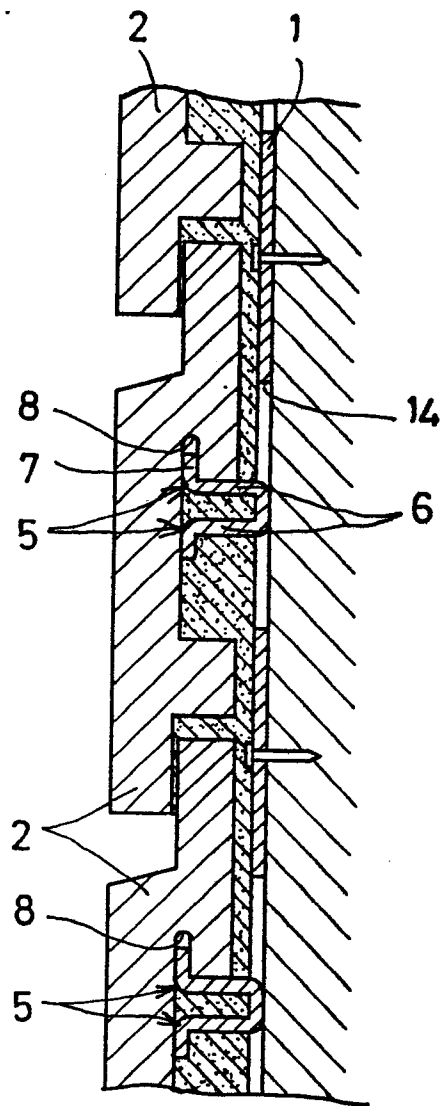
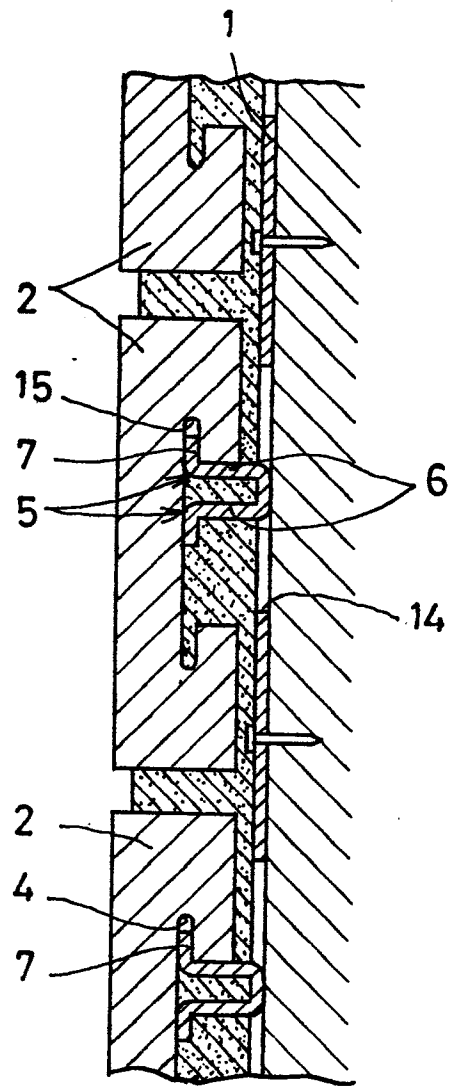


FIG. 9





European Patent
Office

EUROPEAN SEARCH REPORT

0190377
Application number

EP 85 10 1175

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. 4)
X	US-A-2 043 706 (MYERS) * Page 1, line 52 - page 2, line 32; figures 1-5 *	1,3,5	E 04 F 13/08
X	--- US-A-3 015 193 (AMORUSO) * Column 2, lines 3-26; column 3, line 1 - column 4, line 11; figures 1-4 *	1,2	
X	--- US-A-2 832 102 (AMORUSO) * Column 2, line 4 - column 4, line 22; figures 1,2 *	1,2	
Y		4	
Y	--- GB-A-2 108 173 (OSAWA) * Page 1, line 122 - page 2, line 11; page 3, lines 15-42; figures 2,7,12-19 *	4	TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
	-----		E 04 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-08-1985	Examiner AYITER J.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			