

NAIL-LESS AND LEAKING-PROOF FLOOR TILES HAVING DOUBLE LAYERS OF TENONS AND MORTISES

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BACKGROUND OF THE INVENTION

The present invention relates to nail-less and leaking-proof floor tiles having double layers of tenons and mortises, especially to nail-less and leaking-proof floor tiles wherein each floor tile is equipped with a top layer of main tenons and main mortises and a sub-layer of sub-tenons and sub-mortises by which the floor tile can be assembled to other adjacent tiles both transversely and longitudinally in a row to cover a floor. In addition, a protruding layer is disposed at the bottom of the sub-layer of the nail-less and leaking-proof floor tile. Each lateral edge of the protruding layer is defined by an indented skew slope so that a triangle-like clearance is formed at the bottom joint of each adjacent tiles assembled together. The clearance provides the necessary space to retain the extra amount of fastening agent at the bottom, preventing it from leaking out onto the top of the floor tiles.

Please refer to Figs. 1, 2. A conventional assembling floor tile is formed by a main body A1 made up of an upper layer, a lower layer, and a middle layer sandwiched therebetween. Diagonally, tenons and mortises define four lateral edges A11, A12, A13, and A14 of the main body A1 as shown in Fig. 1. A longer tenon A111 is disposed at the longer lateral edge A11 of the main body A1, while a shorter tenon A120 is at the shorter lateral edge A12 thereof. A longer mortise A130 is disposed at the longer lateral edge A13 of the main body A1, and a shorter mortise A140 is at the shorter lateral edge A14 thereof. In assembly, the tenons and mortises A111, A112, A130, and A140 of the main body A1 of a floor tile is capable of being coupled with that of other adjacent tiles so as to extend the floor tiles transversely and longitudinally in a row on a flat surface as shown in Fig. 2.

Yet, there is a main disadvantage to such conventional floor tile. To attach the floor tiles onto the surface of ground, fastening agent is applied onto the bottom the

floor tile. When the top of the floor tiles is pressed to stick the tiles securely onto the ground, the extra amount of the fastening agent is easily leaked out onto the top face of the tiles, forming some protruding dots on the flat surface of the floor tiles. It is not only an eyesore on a smooth and flat surface of the tiles, but sometimes also a hinderance for a smooth walking.

SUMMARY OF THE PRESENT INVENTION

It is therefore the primary object of the present invention to provide nail-less and leaking-proof floor tiles having two layers of tenons and mortises, especially to nail-less and leaking-proof floor tiles wherein each floor tiles is provided with a top layer of main tenons and main mortises and a sub-layer of sub-tenons and sub-mortises by means of which the floor tiles is capable of being coupled transversely and longitudinally with other adjacent tiles in a row on a flat surface. In addition, a protruding layer is disposed at the underside of the sub-layer. Each lateral edges of the protruding layer is defined by an indented skew slope which forming a clearance at each assembled tiles provide a necessary space to retain the extra amount of fasening agent at the bottom therein so as to prevent the fastening agent from leaking out onto the flat top of the floor tiles.

BRIEF DECRPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a conventional floor tile.

Fig. 2 is an assembled view of the conventional floor tile.

Fig. 3A is top view of the present invention.

Fig. 3B is a sectional view of the present invention.

Fig. 3C is a bottom view of the present invention.

Fig. 3D is an inverted sectionally view of the present invention.

Fig. 3E is a left sectional view of the present invention.

Fig. 3F is a right sectional view of the present invention.

Fig. 4 is a sectionally enlarged view showing the coupling of the shorter main tenon and sub-tenon with the shorter main mortise and sub-mortise of two adjacent floor tiles of the present invention.

Fig. 5 is a sectionally enlarged view showing the coupling of the longer main tenon and sub-tenon with the longer main mortise and sub-mortise of two adjacent floor tiles of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Figs. 3A-3F. The present invention relates to nail-less and leaking-proof floor tiles having double layers of tenons and mortises, especially to nail-less and leaking-proof floor tiles wherein each floor tile is equipped with main tenons and main mortises at the top layer and sub-tenons and sub-mortises at the sub-layer. The floor tile is provided with a flat top 1 at the top layer. Diagonally, main tenons and mortises define the four lateral edges disposed under the flat top 1 respectively. A longer main tenon 21 is disposed at one longer edge of each floor tile, while a shorter main tenon 22 at one shorter edge of the tile thereof as shown in Fig. 3A. A longer main mortise 31 is disposed at the other longer edge of the floor tile and a shorter main mortise 32 at the other shorter edge of the tile thereof as shown in Figs. 3B, 3E. The longer main tenon 21 of one floor tile is capable of coupling with the corresponding longer main mortise 31 of another floor tile adjacent to it, and that of another floor tile to that of a third floor tile following, etc. so as to extend the floor tiles transversely in a flat surface. Likewise, the shorter main tenon 22 of one floor tile can be engaged with the corresponding shorter main mortise 32 of another floor tile adjacent to it and that of another floor tile to that of a third floor tile, etc. so as to extend the floor tiles longitudinally in a flat surface.

Please refer to Figs. 3B, 3C 3F. Diagonally, a sub-layer of sub-tenons and sub-mortises is disposed under the top layer of the main tenons 21, 22, and the main

mortises 31, 32. A longer sub-tenon 41 is disposed at one longer edge of the sub-layer, and a longer sub-mortise 51 at the other longer edge of the sub-layer thereof. A shorter sub-tenon 42 is disposed at one shorter edge of the sub-layer while a shorter sub-mortise 52 is provided at the other shorter edge of the sub-layer. Thus, in the same way as the main tenons 21, 22, and the main mortises 31, 32 of the top layer, the longer and shorter sub-tenons 41, 42 of one floor tile are capable of being engaged respectively with either of the longer and shorter mortises 51, 52 of other tiles adjacent to its four edges so as to assemble the floor tiles in a row both transversely and longitudinally in a flat surface. In addition, referring to Figs. 3C, 3D, a protruding layer 6 is disposed at the underside of the sub-layer thereof wherein each of the four lateral edges of the protruding layer 6 is defined by an indented skew slope 61 which forms a clearance at the bottom of the nail-less and leaking-proof floor tile of the present invention to retain extra amount of fastening agent therein.

Please refer to Figs 4, and 5. In assembly, each of the nail-less and leaking-proof floor tile is securely coupled with other tiles at its four adjacent edges by means of the two layers of tenons and mortises as stated above. The top layer and the sub-layer of each adjacent floor tiles form a close joint while the main tenons 21, 22 thereof are coupled with the main mortises 31, 32 thereof and the sub-tenons 41, 42 thereof with the sub-mortises 51, 52 thereof respectively. Meanwhile, a triangle-like gap S defined by the clearance formed by the indented skew slope 61 of the protruding layer 6 is disposed at the bottom of each adjacent floor tiles to provide space for receiving extra amount of fastening agent therein.

In practical use, fastening agent is applied onto the bottom face 7 of the floor tiles thereof so as to stick the tiles onto the surface of the ground. And the extra amount of the fastening agent will be stopped by the secure joint of the sub-tenons 41, 42, and the sub-mortises 51, 52, and guided by the indented skew slope 61 of the protruding layer 6 to be retained at the triangle-like space S therein. Therefore, the extra fastening agent is prevented from leaking out onto the top face of the floor tiles to

provide a smooth and flat surface for the assembled nail-less and leaking-proof floor tiles.

In addition, referring to Fig. 3C and Fig.5, two track grooves 71 can also be adapted to the bottom face 7 of the nail-less and leaking-proof floor tiles, facilitating the storing of the fastening agent as well as the attachment of the floor tiles onto the surface of the ground.

CLAIMS

What is claimed is:

1. Nail-less and leaking-proof floor tiles having double layers of tenons and mortises, especially to nail-less and leaking-proof floor tiles wherein each floor tiles is provided with a top layer of main tenons and main mortises and a sub-layer of sub-tenons and sub-mortises by means of which the tile is capable of being coupled with other adjacent tiles so as to extend the floor tiles both transversely and longitudinally in a row on a flat surface; said floor tile is characterized by that, the top layer of each tile has:

--a flat top under which, diagonally, main tenons and main mortises define the four lateral edges of the top layer thereof respectively; a longer main tenon being disposed at one longer lateral edge of said top layer, while a longer main mortise at the other longer lateral edge thereof; a shorter main tenon being provided at one shorter lateral edge of said top layer, and a shorter main mortise at the other shorter lateral edge thereof;

--said longer main tenon of a floor tile is capable of being coupled with said longer main mortise of another tile adjacent to it, and that of another tile to that of a third, etc. so as to extend the floor tiles transversely in a row on a flat surface;

--likewise, said shorter tenon of a floor tile can be engaged with said shorter mortise of another tile and that of another tile to that of a third, etc. so as to extend the floor tiles longitudinally in a row on a flat surface;

--in addition, a sub-layer of sub-tenons and sub-mortises is disposed under the top layer of each floor tile; and in the same way as said main tenons and mortises, the sub-tenons and sub-mortises of the tile are diagonally disposed at the four lateral edges of the sub-layer and are transversely and longitudinally coupled with that of



other adjacent tiles when said main tenons and mortises of one tile are joined to that of others;

--a protruding layer is disposed at the underside of the sub-layer, each lateral edge of said protruding layer being defined with an indented skew slope which forming a clearance between two assembled tiles is capable of retaining extra amount of fastening agent at the space therein so as to prevent the fastening agent from leaking out onto the top of the floor tile to provide a smooth and flat surface of the nail-less and leaking-proof floor tiles for use;

--in addition, two track grooves can also be adapted at the bottom of the protruding layer, facilitating the storing of the extra amount of fastening agent as well as the attachment of the floor tiles onto the ground.



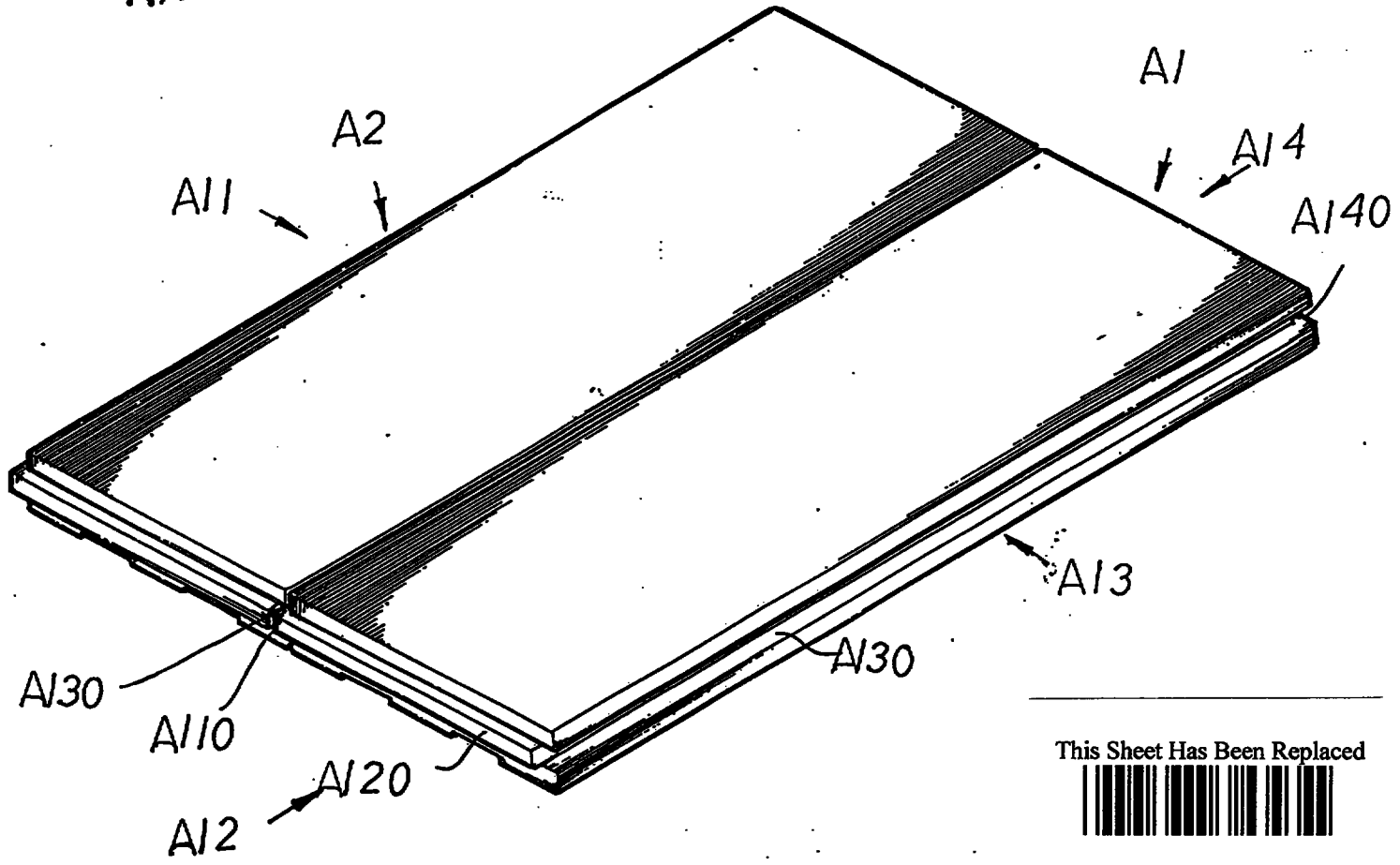
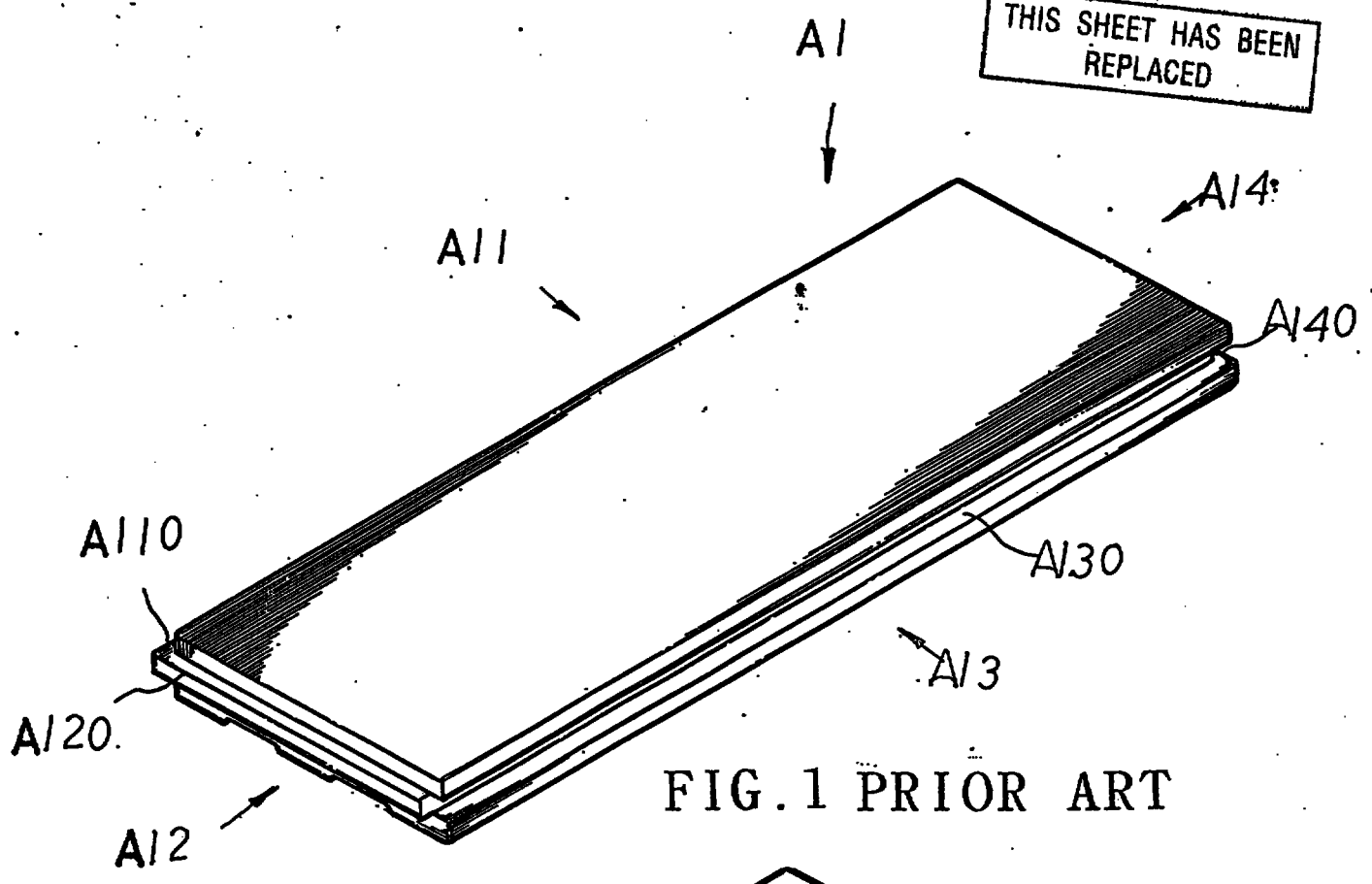
ABSTRACT OF THE DISCLOSURE

NAIL-LESS AND LEAKING-PROOF TILES HAVING DOUBLE LAYERS OF TENONS AND MORTISES

Nail-less and leaking-proof floor tiles have two layers of tenons and mortises wherein each of the floor tiles is provided with a top layer of main tenons and main mortises and a sub-layer of sub-tenons and sub-mortises by means of which a floor tile is capable of being coupled with other adjacent tiles both transversely and longitudinally so as to extend the floor tiles in a row on a flat surface. In addition, a protruding layer is disposed at the underside of the sub-layer thereof. Each lateral edges of the protruding layer is defined by an indented skew slope which forming a clearance between each assembled tiles provide a necessary space to retain the extra amount of fastening agent at the bottom therein so as to prevent the fastening agent from leaking out onto the top of the tile, providing a smooth and flat surface of the nail-less and leaking-proof floor tiles for use.

Figure 5

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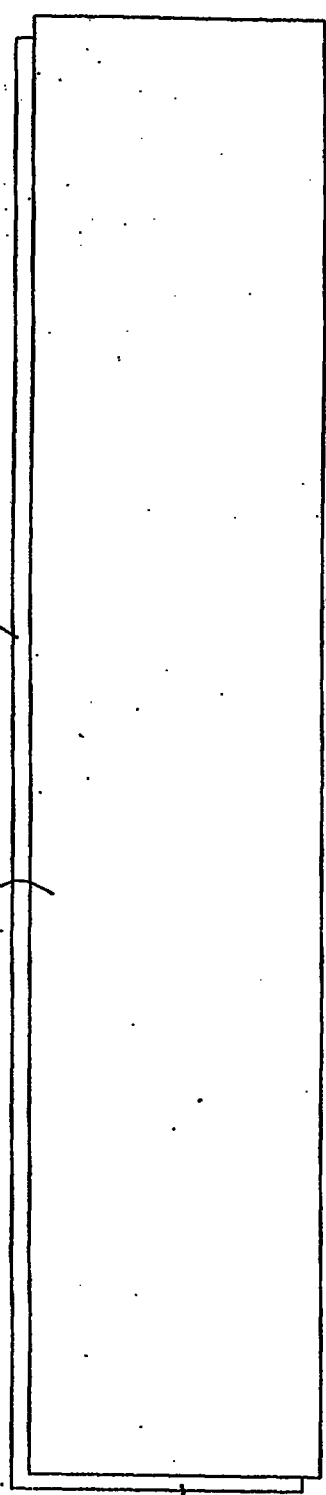


FIG. 3A

22

32

31

42

6

61

7

FIG. 3B

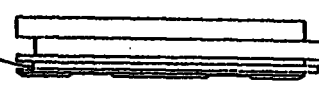
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71

61

52

51



21

42

61

FIG. 3E

FIG. 3C

FIG. 3F

7

61



FIG. 3D

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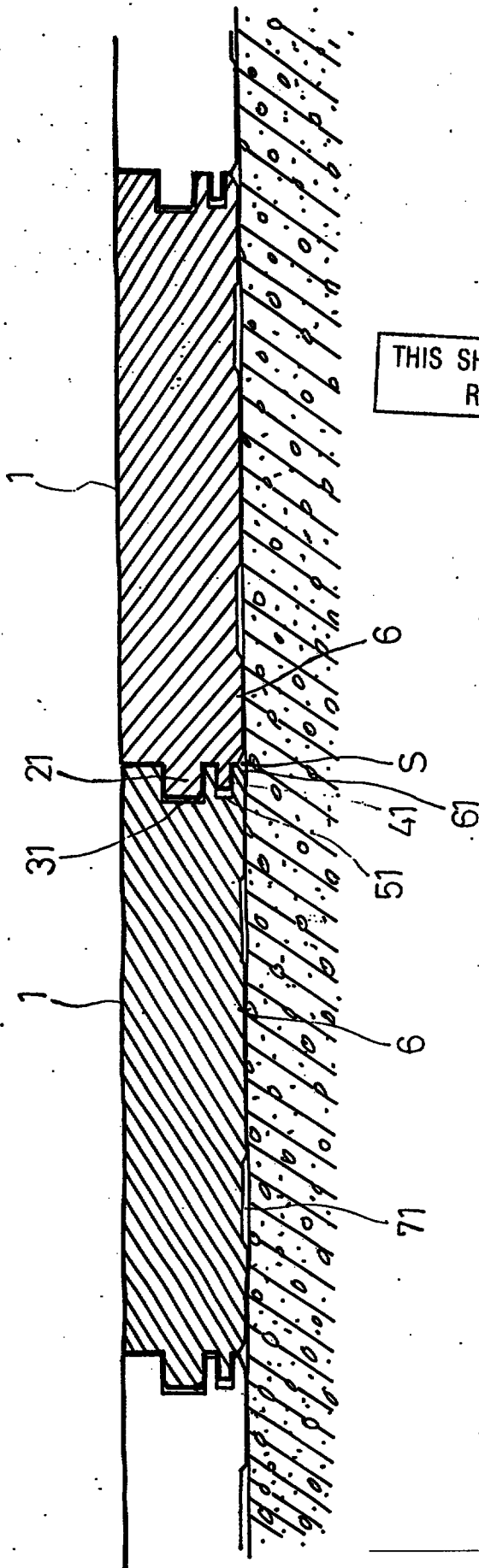


FIG. 5

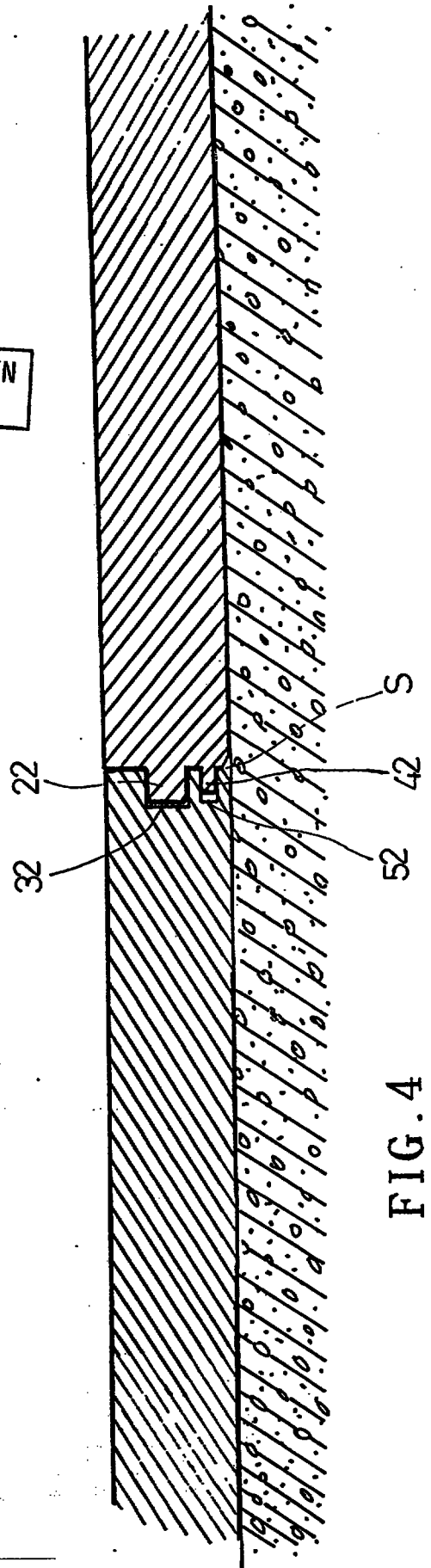


FIG. 4



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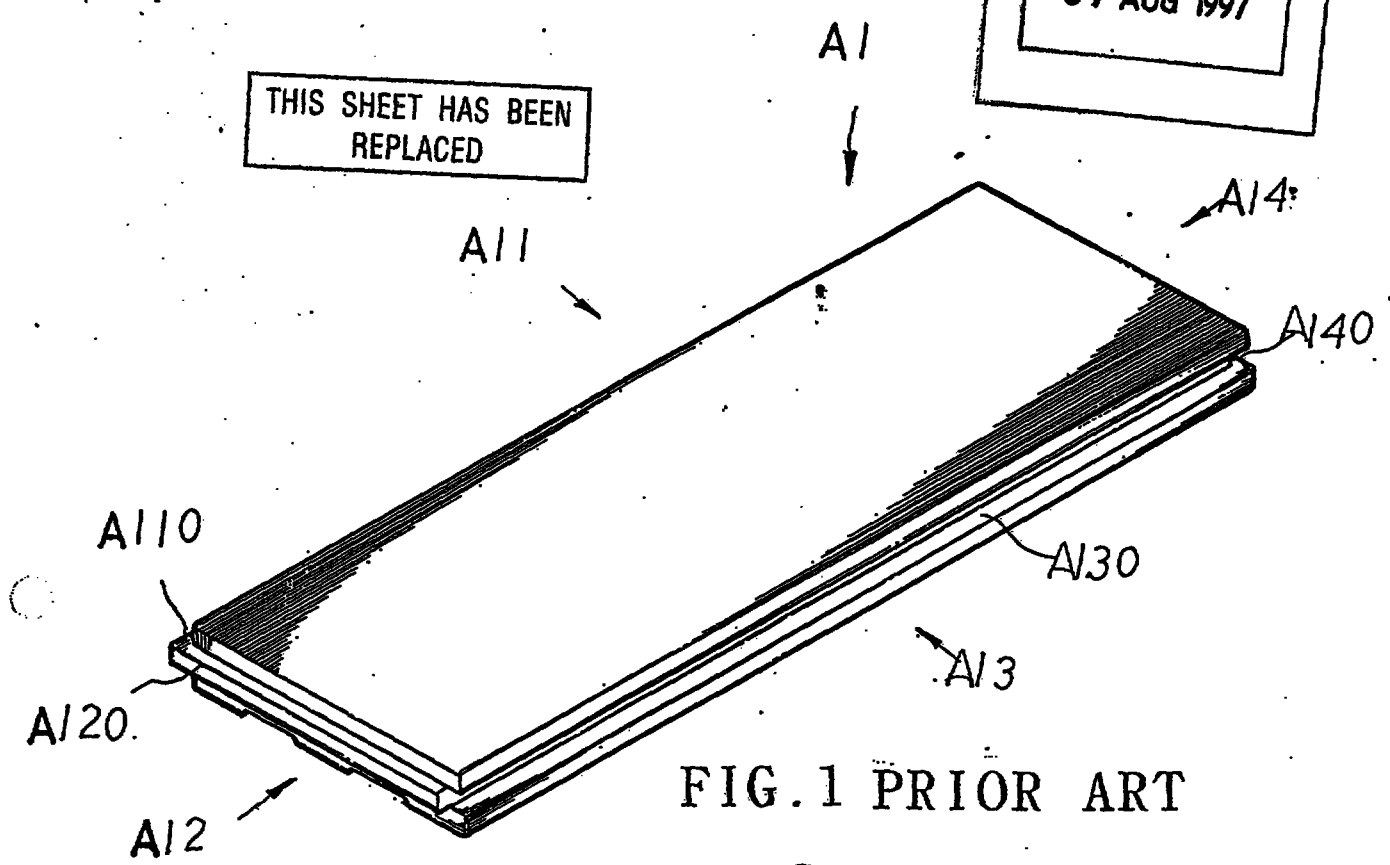


FIG. 1 PRIOR ART

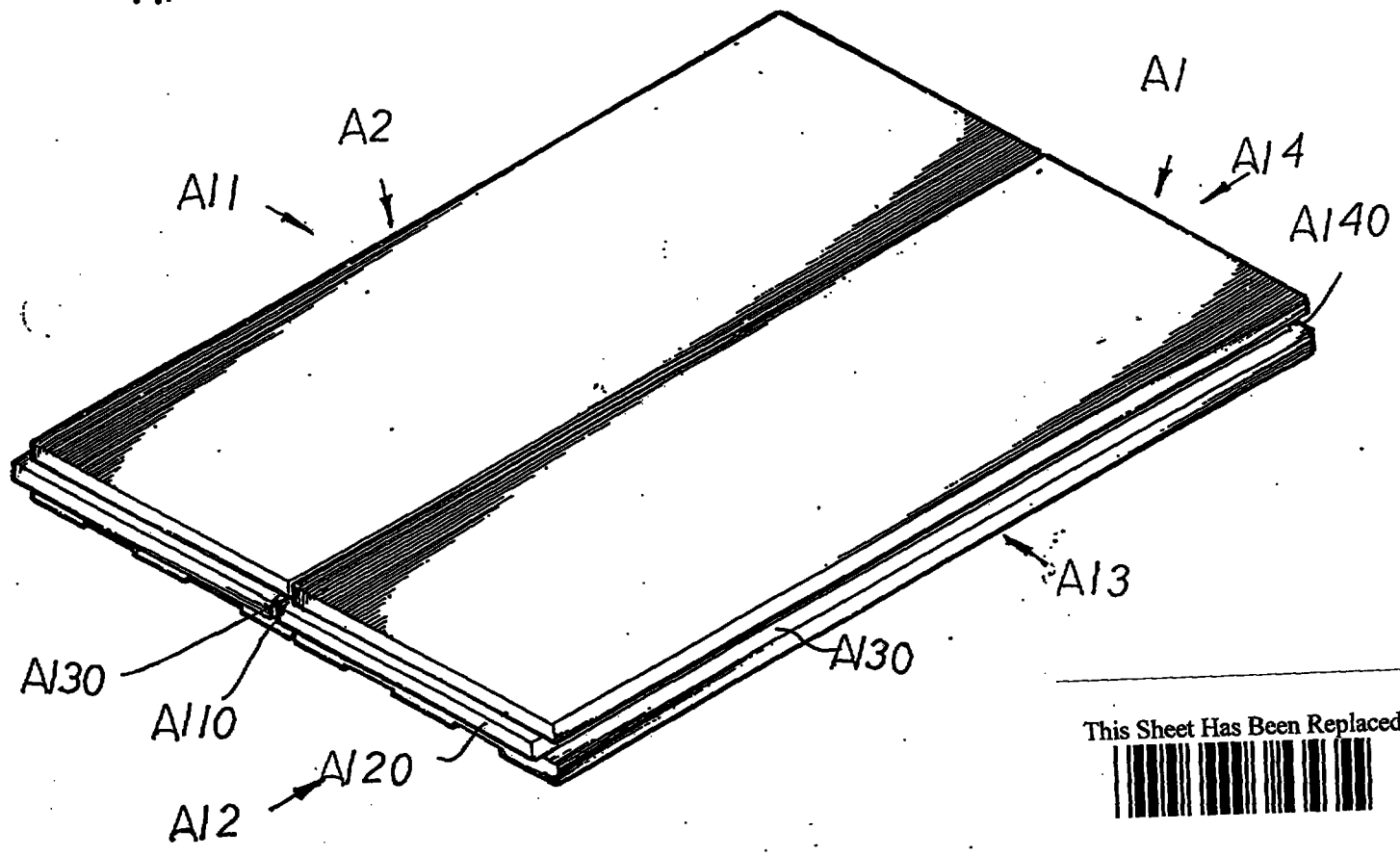


FIG. 2 PRIOR ART

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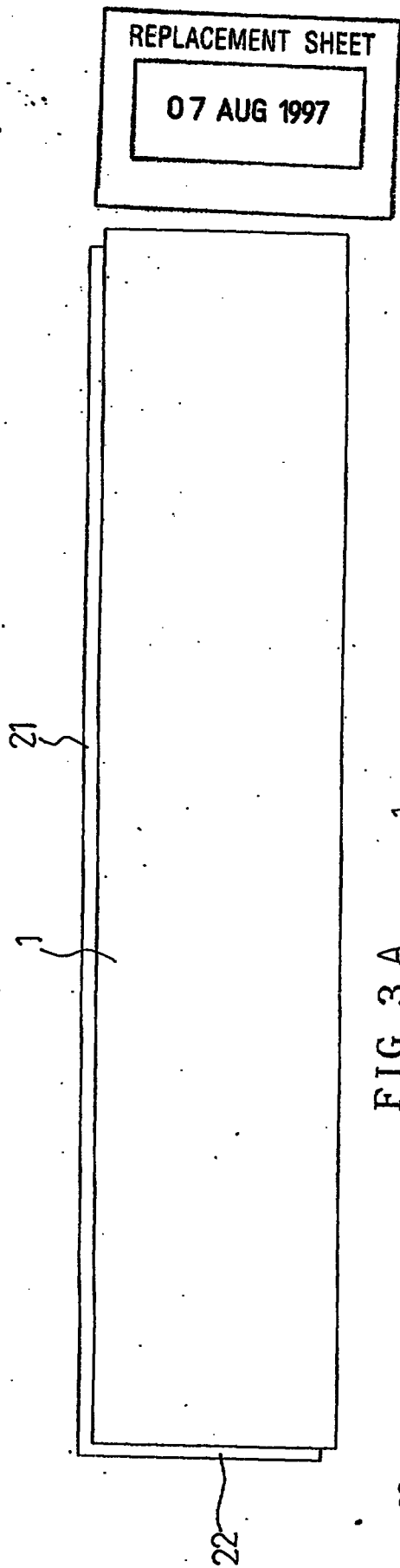


FIG. 3A

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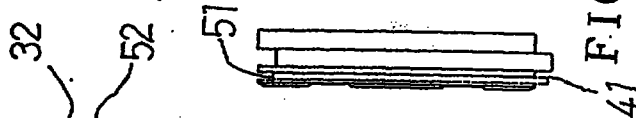


FIG. 3B

61

6

31 42

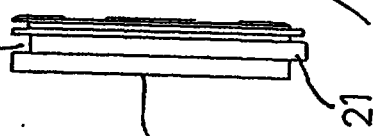


FIG. 3C

41

61

42

21

FIG. 3E

7

61

FIG. 3D

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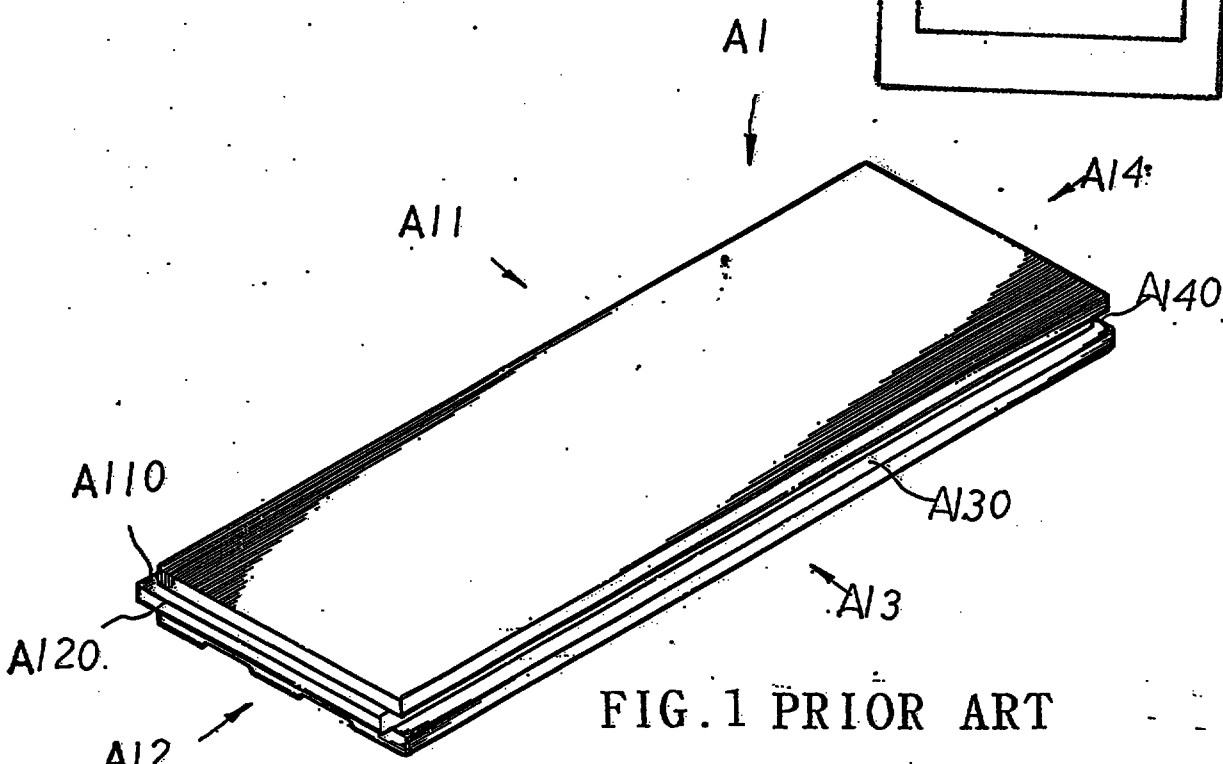


FIG. 1 PRIOR ART

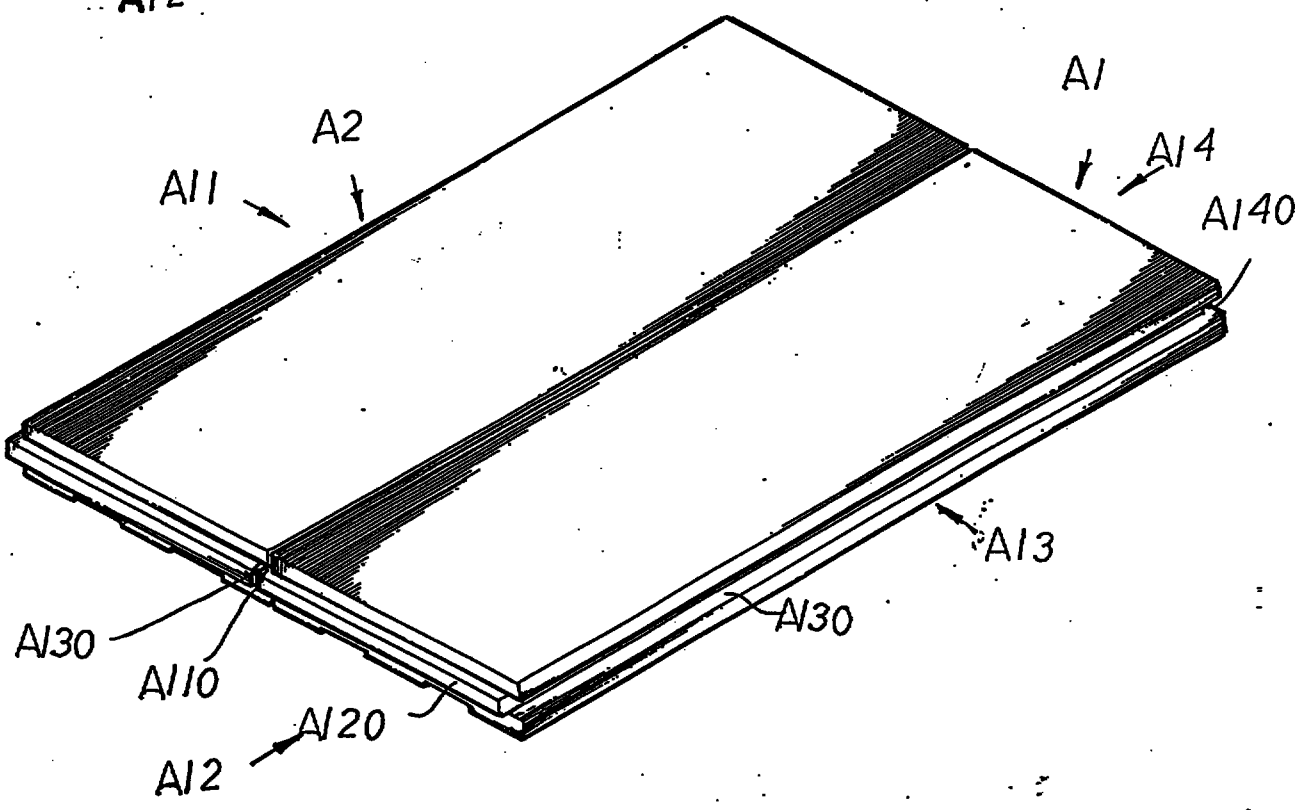


FIG. 2 PRIOR ART

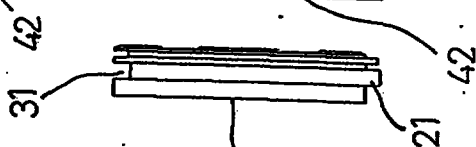
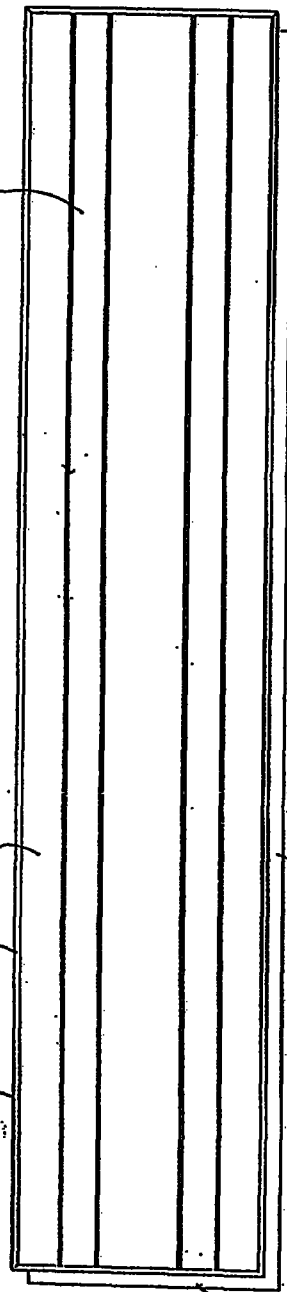
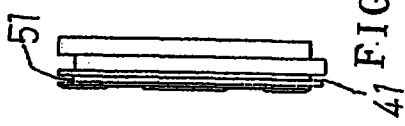
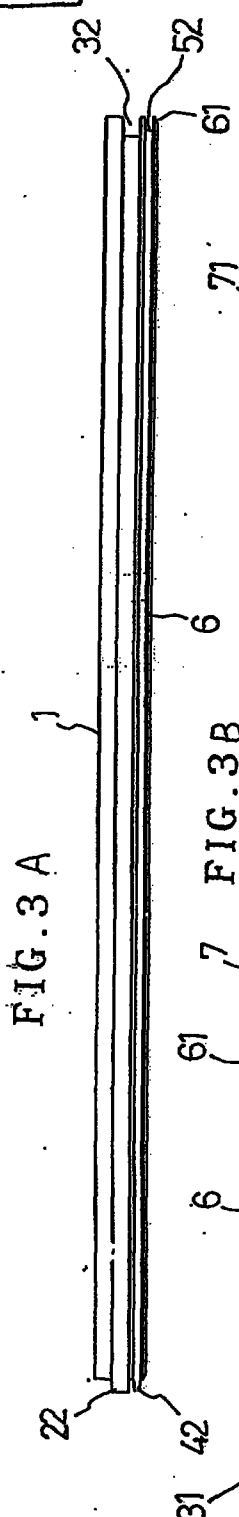
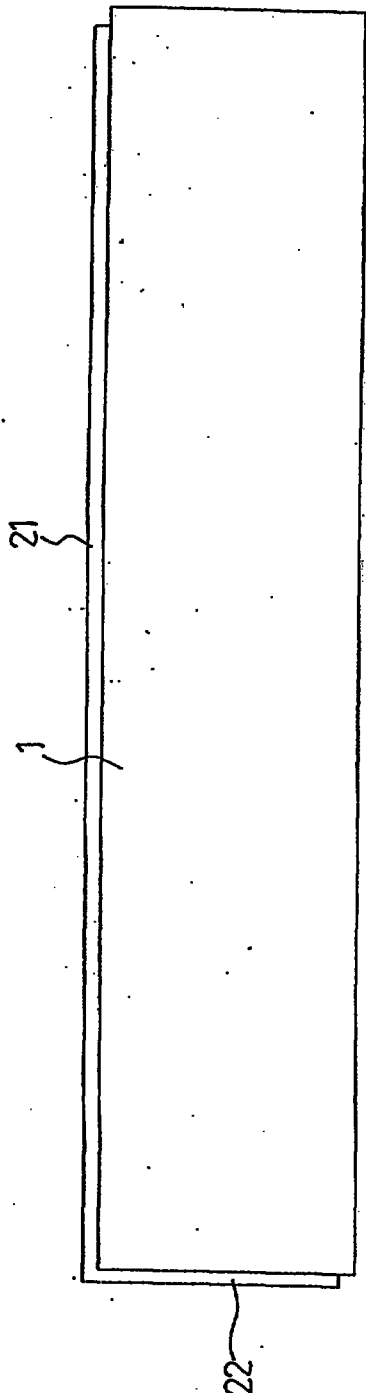


FIG. 3D

FIG. 3E

FIG. 3C

FIG. 3B

FIG. 3F

FIG. 3A

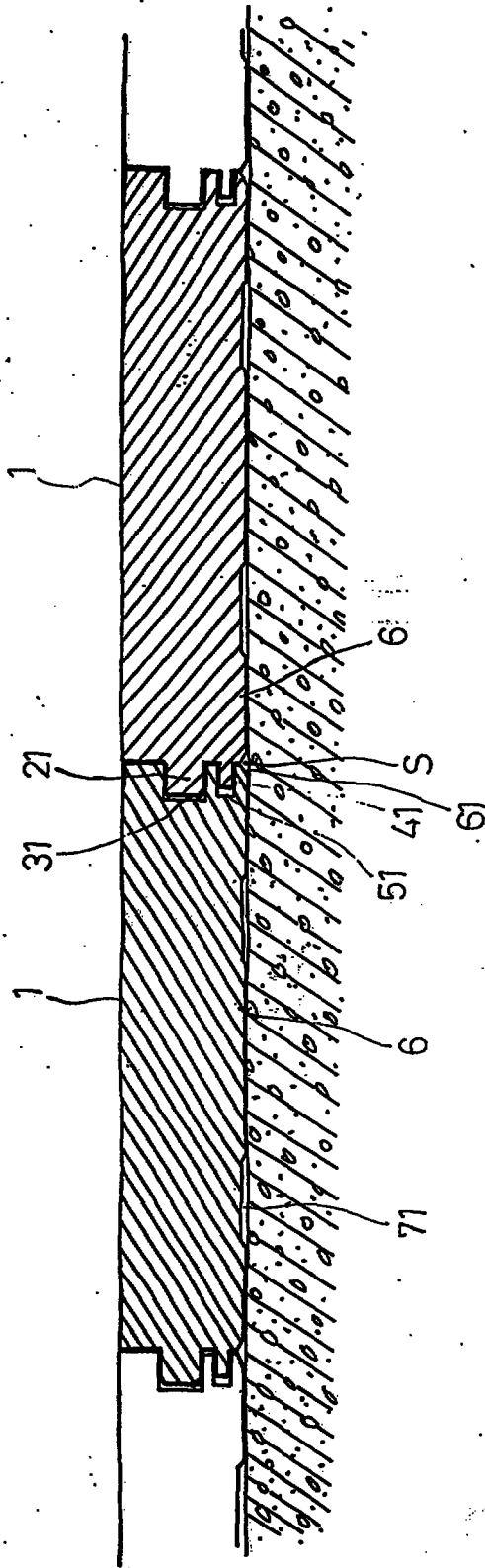


FIG. 5

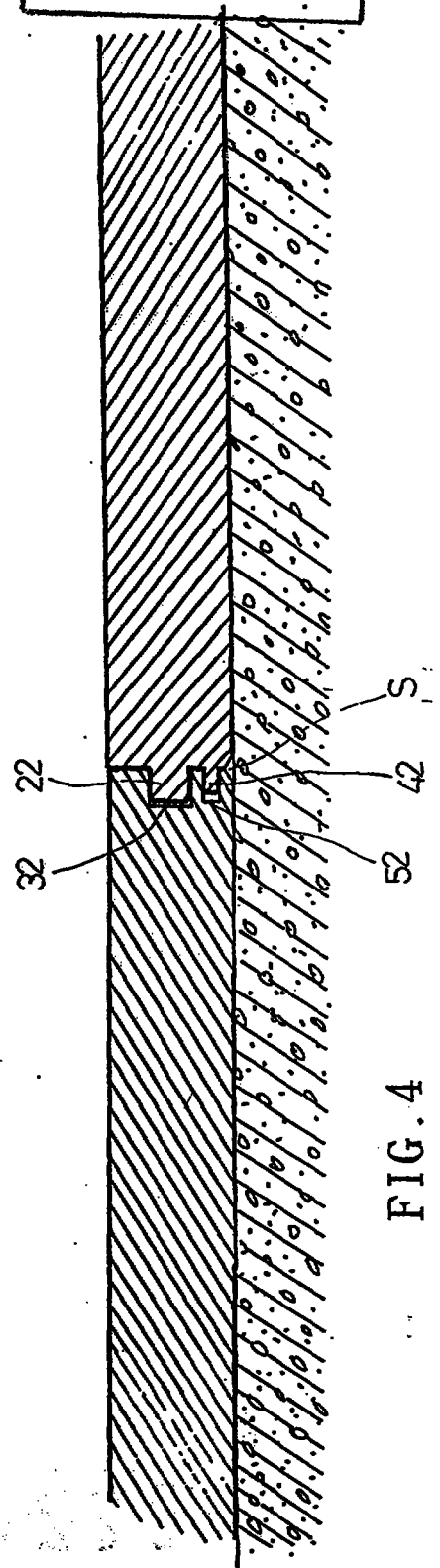


FIG. 4