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(54) **COMBINATION STRUCTURE OF A QUICK ASSEMBLY DO-IT-YOURSELF (DIY) WOOD FLOORING**

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(57) **ABSTRACT**

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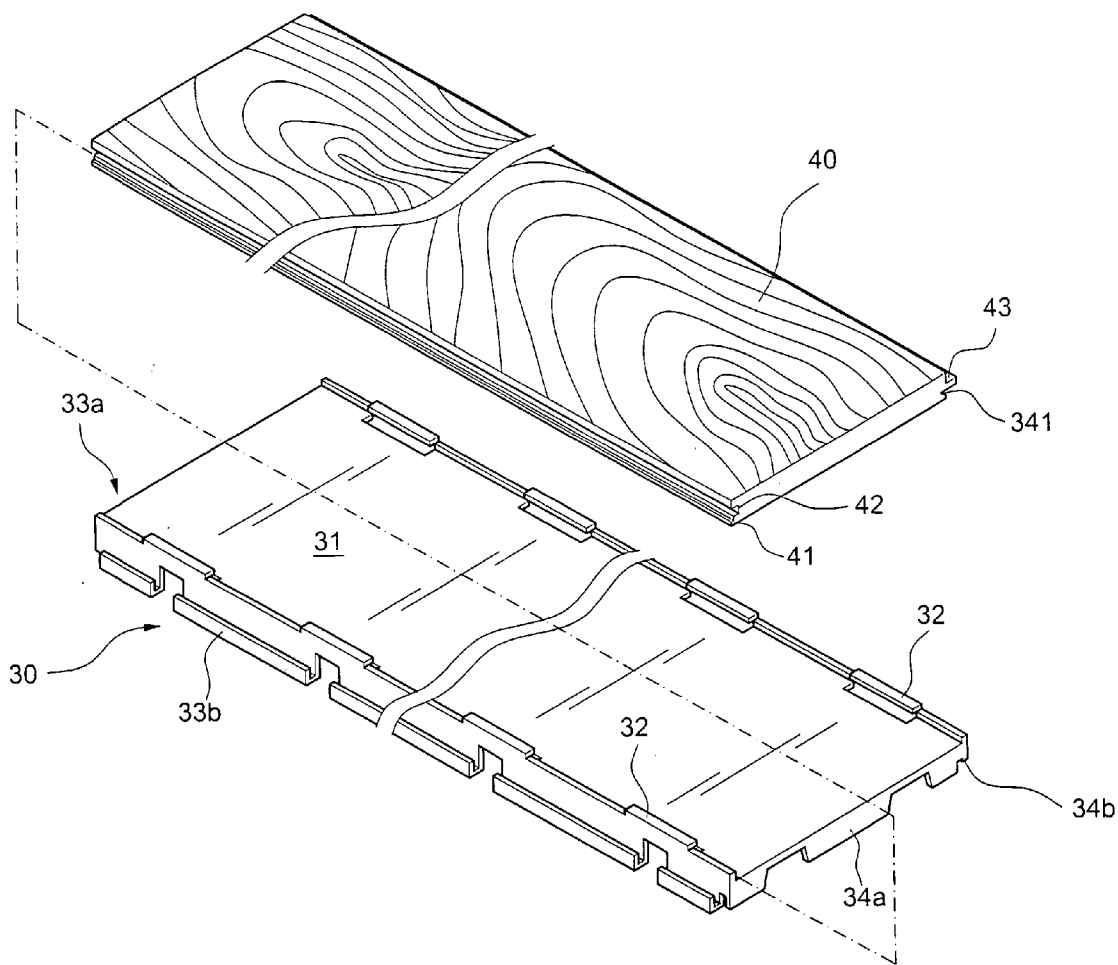
A combination structure of a quick assembly Do-It-Yourself (DIY) wood flooring each unit of which having a plastic base and a wood panel. Both of them are fitted together to form a whole. Two adjacent sides of the plastic base include a plurality of female portions while the other two adjacent sides thereof contain a plurality of male portions for fitting into the corresponding female portions thereof. By taking advantage of the flexibility of the plastic material and the tight connection between the concave portion and the convex portion of the wood panel, the invention may achieve a stable configuration without using nails for fixing purpose, ensure a quick and convenient assembly, and is especially applicable for DIY assembly.

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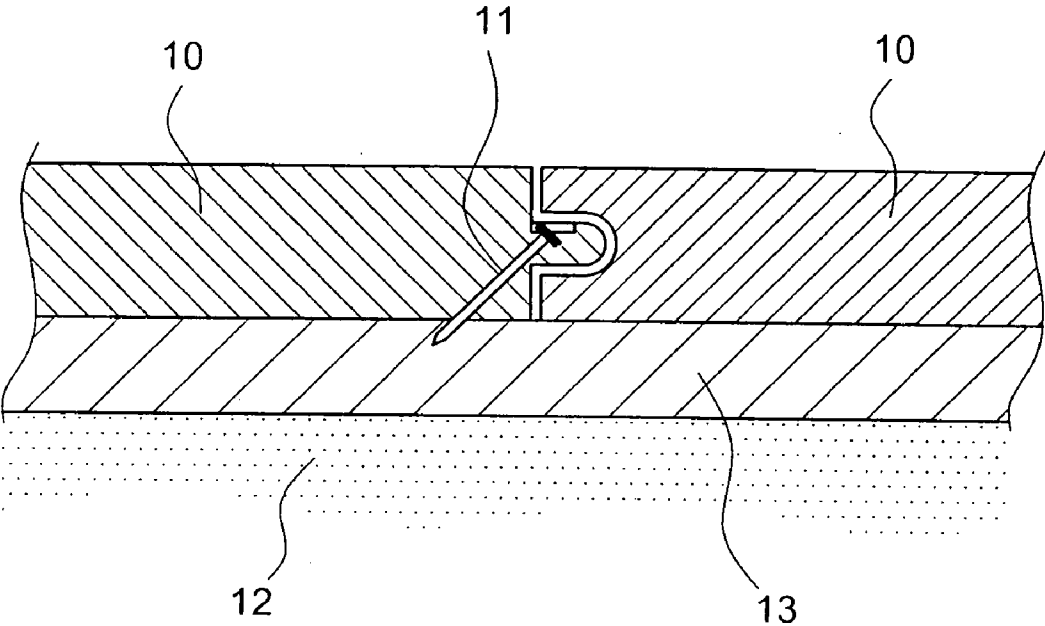


FIG.1
(PRIOR ART)

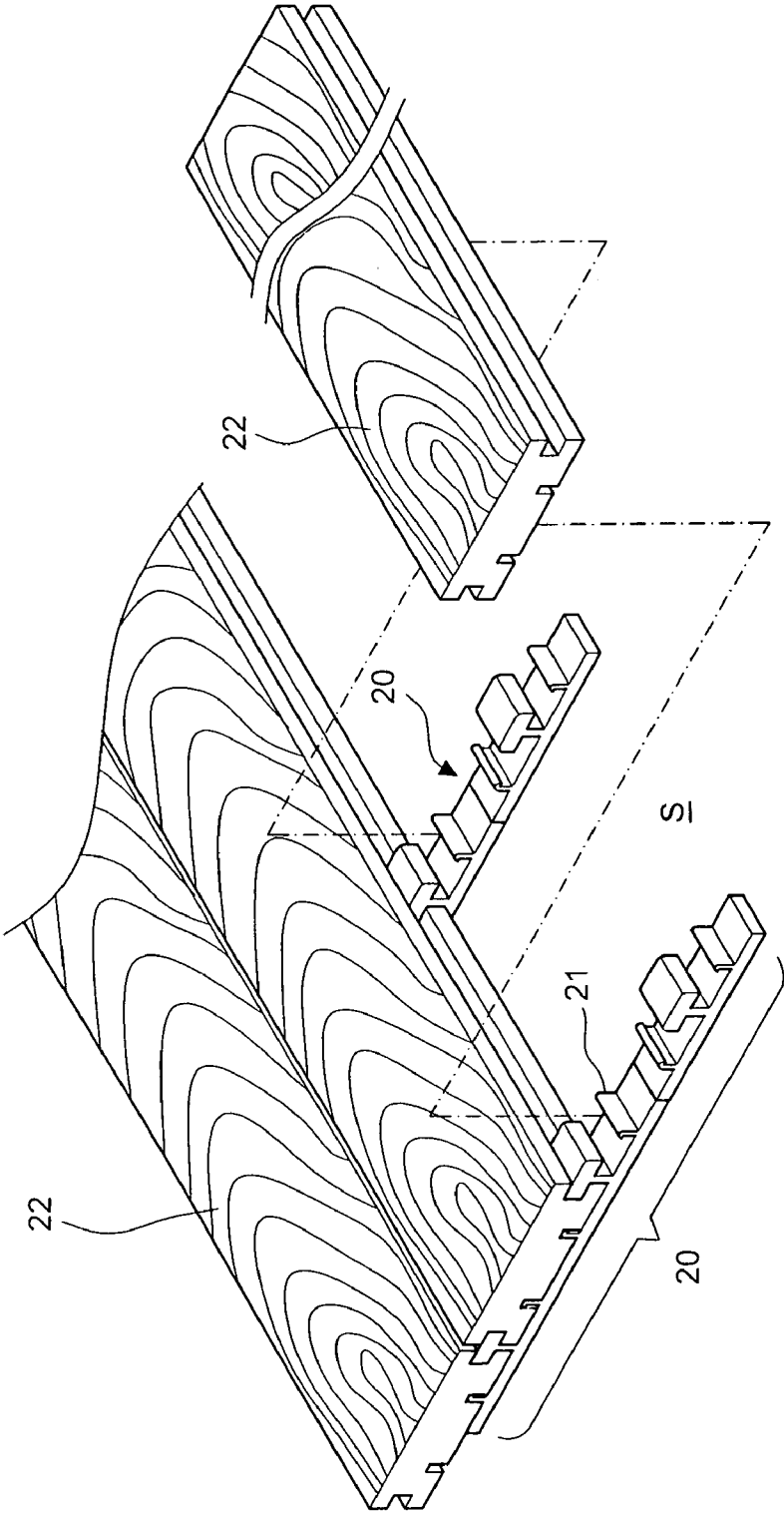


FIG. 2
(PRIOR ART)

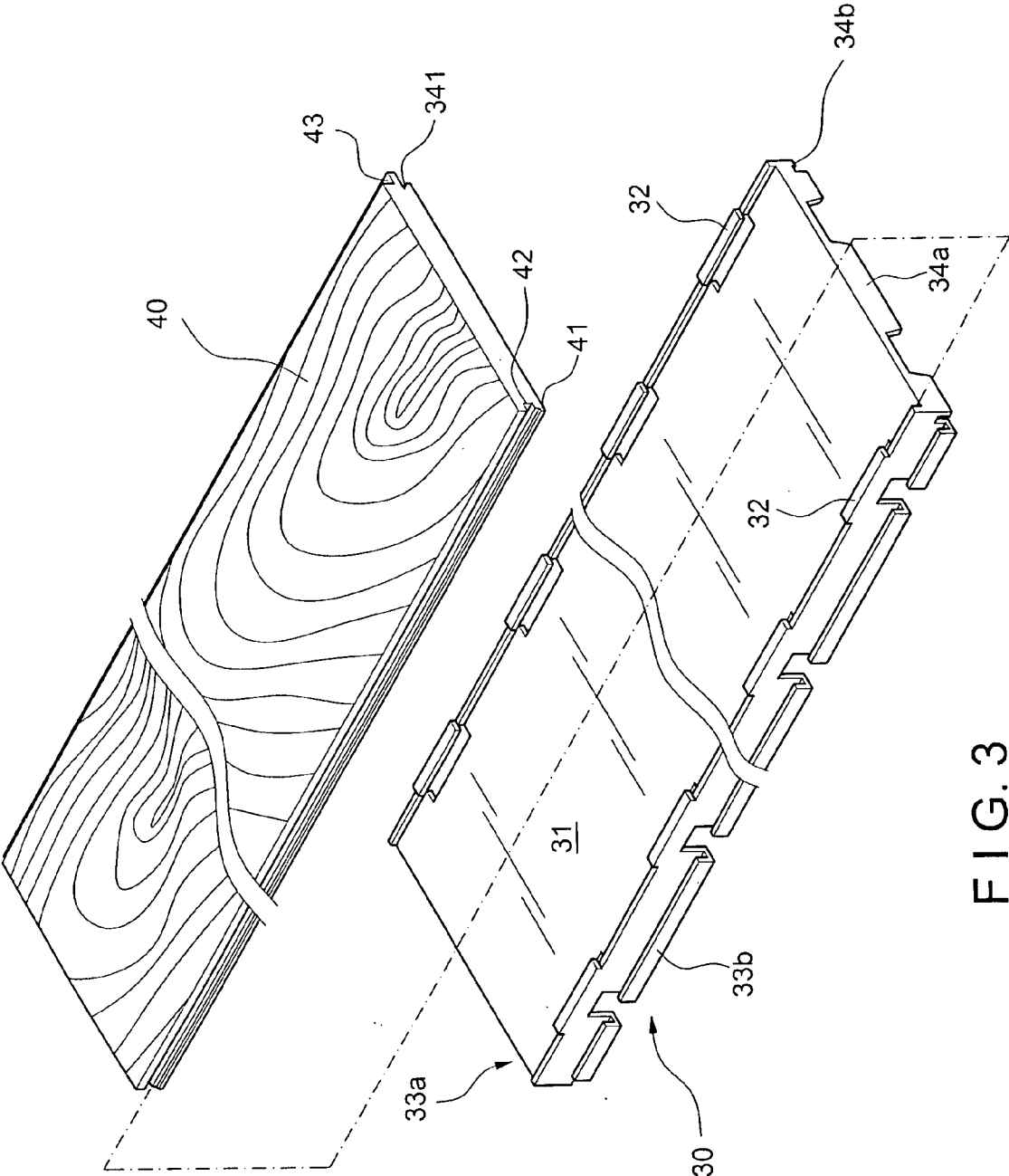


FIG. 3

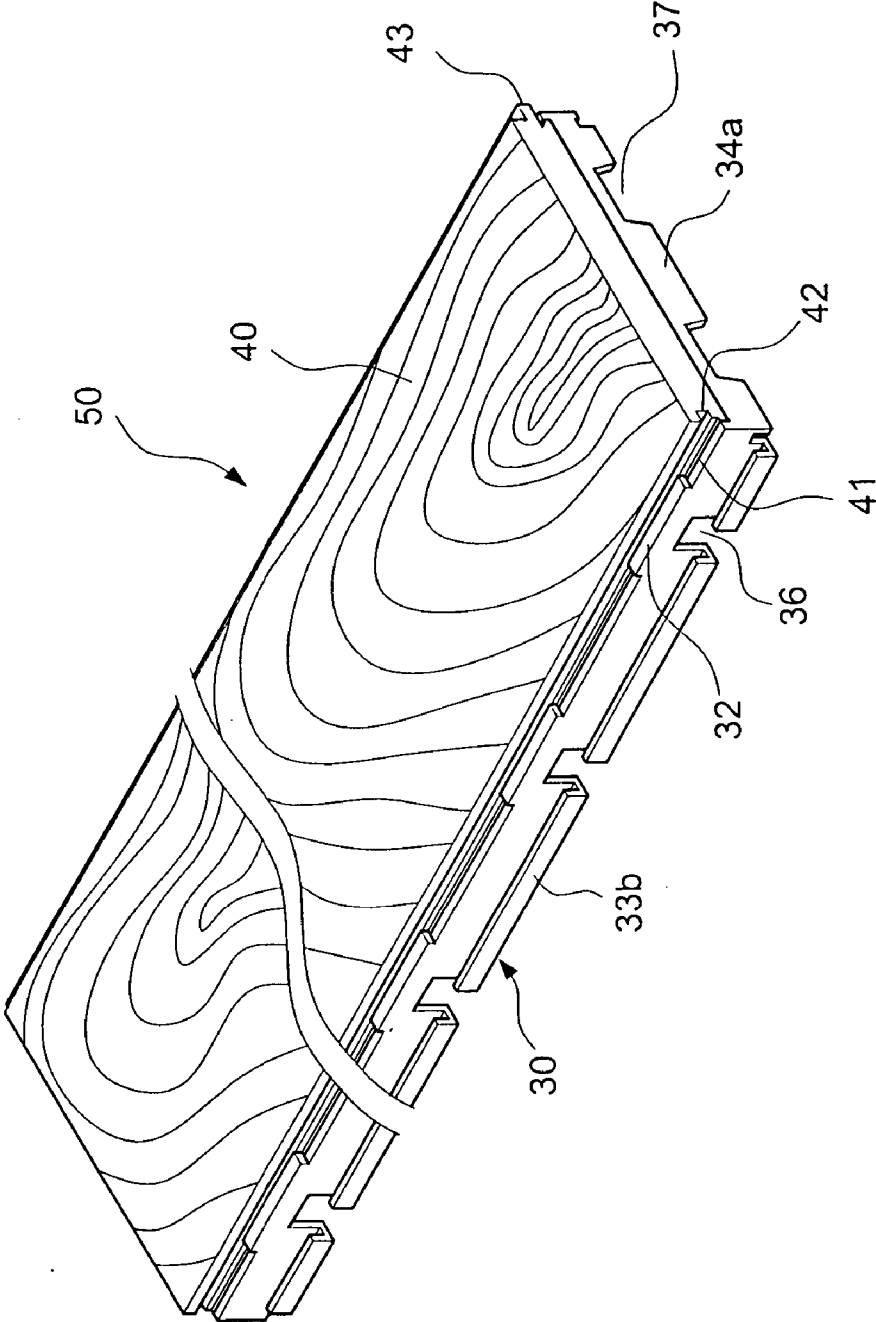


FIG. 4

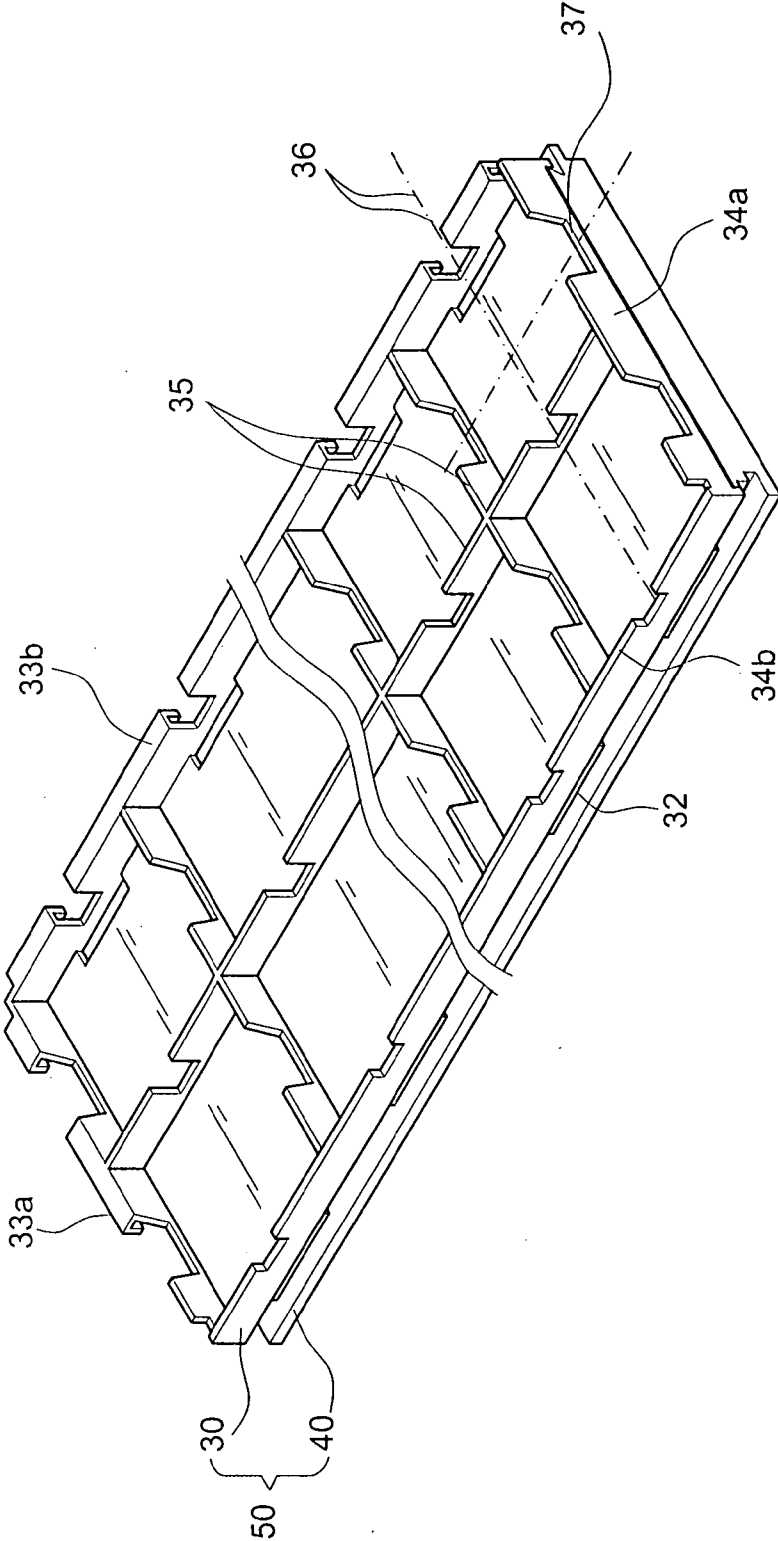


FIG. 5

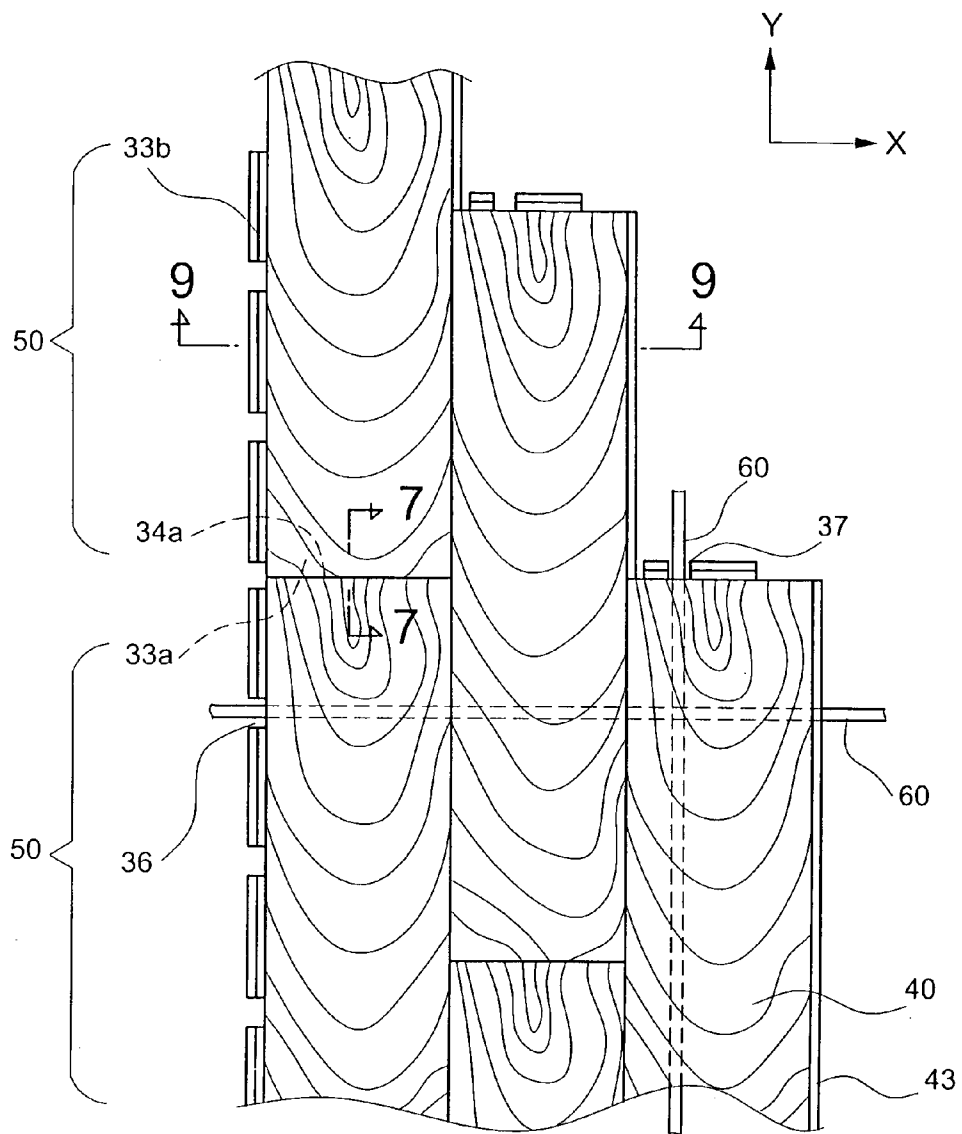


FIG. 6

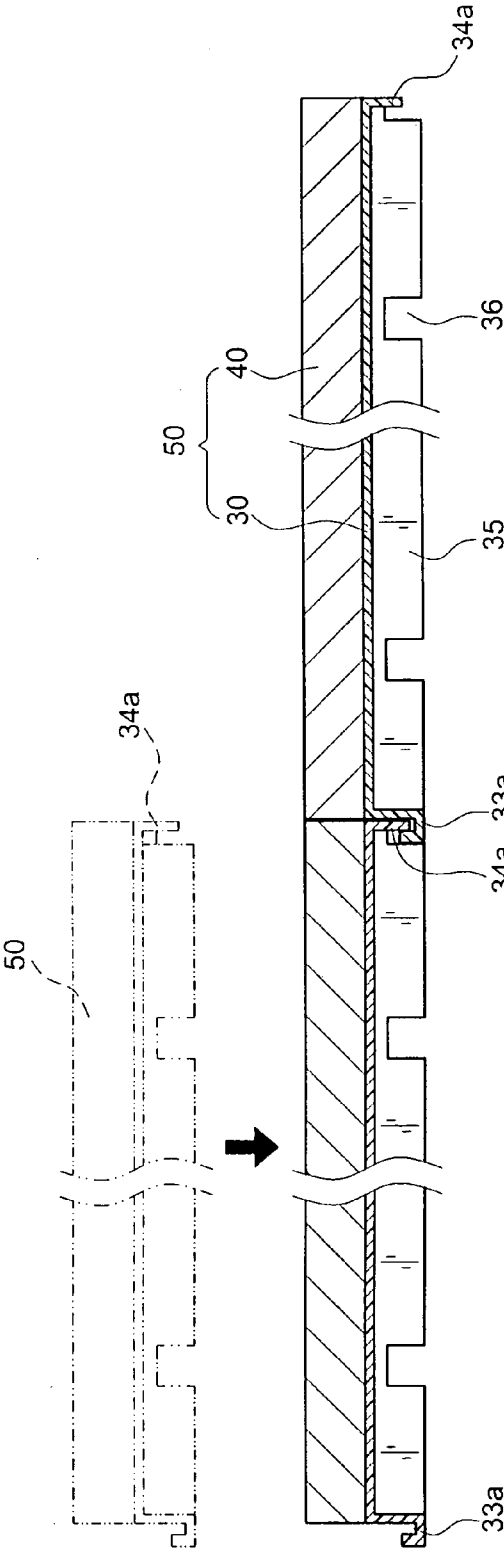


FIG. 7

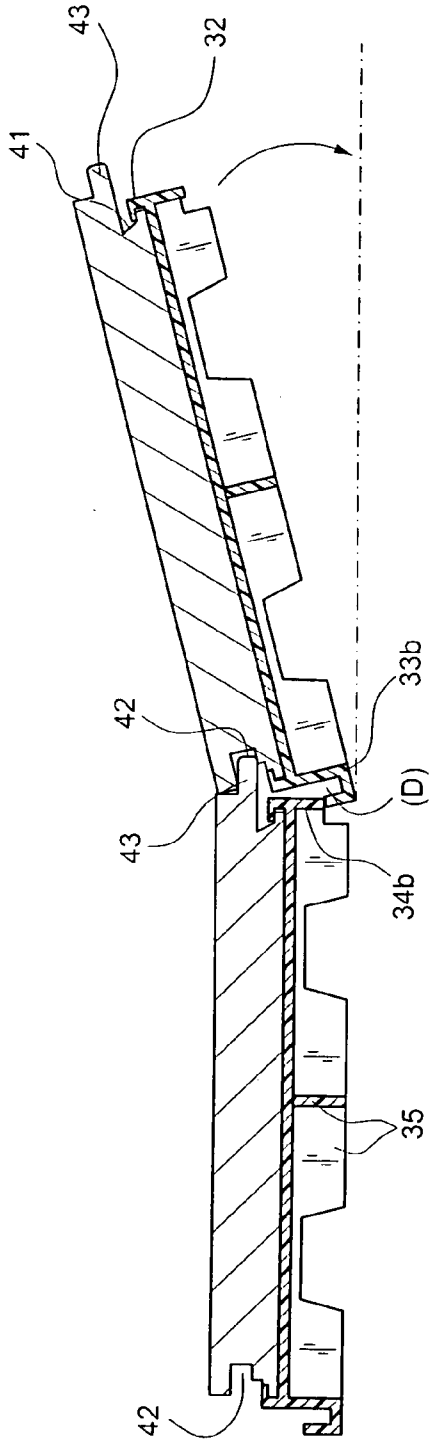


FIG. 8

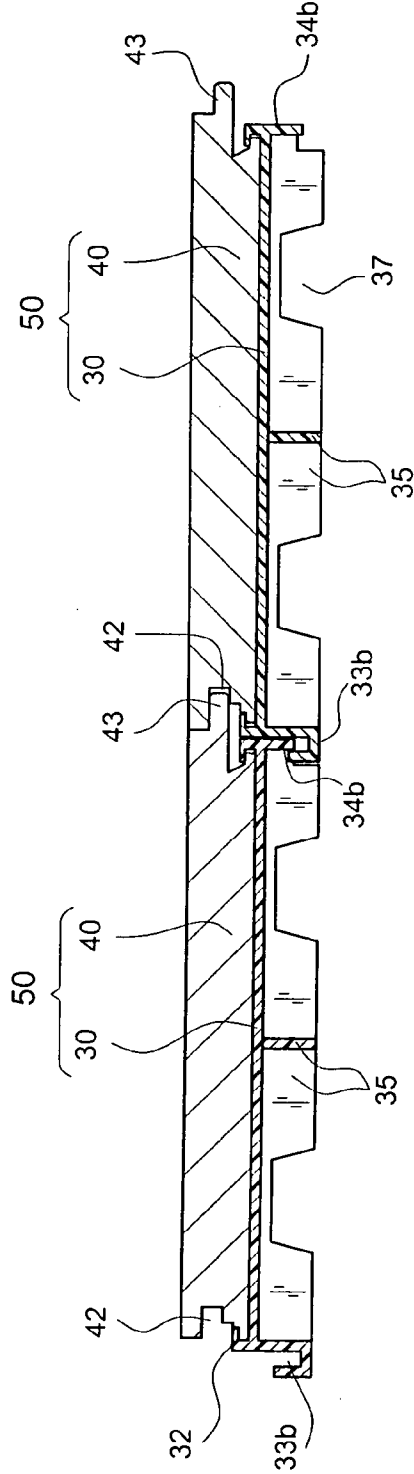


FIG. 9

**COMBINATION STRUCTURE OF A QUICK
ASSEMBLY DO-IT-YOURSELF (DIY) WOOD
FLOORING**

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The invention relates to an improved structure of a solid wood flooring, and more particularly, to a combination structure of a quick assembly Do-It-Yourself (DIY) wood flooring each unit of which includes a solid wood panel and a plastic base so as to have the advantage of quality of the actual solid wood and the advantages of moisture-resistance, anti-deformation and rapid assembly of plastics.

[0003] 2. Description of the Related Art

[0004] Wood flooring, including solid wood flooring, combination type wood and composite type wood, provides a durable surface that is widely received by house owners for its natural warmth, beauty and protection of children against injuries in falling over to the ground.

[0005] As shown in **FIG. 1**, solid wood flooring is, however, made up of separate wood panels **10** laid side-by-side. The connection between the separate wood panels **10** requires nails. Otherwise, an instable connection will easily cause deformation or detachment of the wood panels **10**. However, nailing must rely on the craft and skill of the floor panel layer. Because of this, labor costs are often much higher than the cost of the wood material, resulting in higher overall construction costs and additional financial burden to the user. Furthermore, floor panel layers are often hard to hire if the construction project is small or for only partial interior decoration. Moreover, the floor is easily moistened so that a moisture-resistant layer **13** has to be interposed between the wood panels **10** and the floor **12**. This increases, however, the construction cost and duration.

[0006] In US and Canada, many houses are made up of a lot of wood beam-column and have wooden floor so that nails **11** are often required to fix the wood panels **10** to the beam-column and floor. Once replacing the wood panels **10** is required, material of the house itself may be damaged. In addition, if the nails are used for fixing purpose, the wood panels will be fixed side by side so that the local replacement is not possible, but an overall dismantling is required even for a small-area replacement. This may bring difficulties and cause waste. Also, as a result of overcoming the inconvenience brought by the above mentioned wood floor installation, a kind of wood floor known as DIY arise. For some of the DIY wood floors, people shall make use of a lot of clamps to clip two adjacent wood panels together. This kind of clamp is scattered at the lower edges of the wood panels, and represents the following deficiencies: Wasting the construction time, failure to guarantee the grip of the assembled flooring to the ground, bringing people walking on it an unstable feeling and making noises caused by walking on the uneven surface from time to time.

[0007] Referring to **FIG. 2**, a conventional floor with clamp rails is shown: For this kind of flooring, a predetermined number of parallel clamp rails **20** shall be laid on the floor, on which exist a lot of clamp hooks **21**. Thereafter, wood panels **22** are gradually clamped with the hook **21**

together. However, the disadvantage of this kind of clamp rails lies in the following aspects: 1) laying in parallel must be guaranteed; 2) only suitable for the floor in shape of square or rectangle other than those with irregular shape edges such as round and inclined edges; 3) in addition, what the clamp rails **20** provides to the wood floor **22** is only the linear support so that a gap S between two clamp tracks **20** exists, thereby bringing an unstable feeling to people and causing fracture at the gap S.

[0008] In light of these problems, I, the inventor, have completed this invention after constant study and modifications to the commonly used DIY solid wood flooring.

SUMMARY OF THE INVENTION

[0009] It is a primary object of the invention to provide an improved structure of a DIY wood flooring each unit of which a plastic base and a wood panel. Both of them are fitted together to form a whole. Two adjacent sides of the plastic base include a plurality of female portions while the other two adjacent sides thereof contain a plurality of male portions for fitting into the corresponding female portions thereof. By taking advantage of the flexibility of the plastic material and the tight connection between the concave portion and the convex portion of the wood panel, the invention may achieve a stable configuration without using nails for fixing purpose, ensure a quick and convenient assembly, and is especially applicable for DIY assembly.

[0010] It is another object of the invention to provide an improved structure of a DIY wood flooring under which a plurality of legs are positioned for supporting the wood flooring on the ground. In this way, an automatic adjustment can be done when the surface of the ground is uneven, thereby avoiding noise caused. Meanwhile, the plastic base is water-repellent and directly serves as moisture separator without use of foreign matters like corner blocks and moisture proof cloth installed underneath. Accordingly, the construction cost shall be correspondingly reduced.

[0011] It is a further object of the invention to provide an improved structure of DIY wood flooring in which the bottom side of the plastic base includes a plurality of laterally and longitudinally extending grooves for receiving and handing cable so as to have an aesthetically pleasing contour for the whole flooring.

[0012] It is still another object of the invention to provide an improved structure of DIY solid wood flooring that is secured to the ground without nails or glued joint. When locally damaged, the flooring can be easily replaced without destroying the original material of the ground.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The accomplishment of this and other objects of the invention will become apparent from the following descriptions and its accompanying drawings of which:

[0014] **FIG. 1** is a cutaway view of a conventional solid wood floor;

[0015] **FIG. 2** is a cutaway view of another conventional solid wood floor;

[0016] **FIG. 3** is an exploded view of the invention;

[0017] FIG. 4 is a perspective view of the invention after assembly;

[0018] FIG. 5 is a perspective bottom view of the invention;

[0019] FIG. 6 is a schematic drawing of the assembly of wood panels in accordance with the invention;

[0020] FIG. 7 is a cross-sectional view taken along the line 7-7 in FIG. 6;

[0021] FIG. 8 is a cross-sectional view of two wood panels, showing the action of joining them together; and

[0022] FIG. 9 is a cross-sectional view taken along the line 9-9 in FIG. 6.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0023] First of all, referring to FIGS. 3 through 5, the invention includes a plastic base 30 and a solid wood panel 40.

[0024] The plastic base 30 is constructed as an elongated body and made of polypropylene (PP), polyethylene (PE), or acrylonitrile butadiene styrene (ABS) by an injection molding process. The plastic base 30 includes a plurality of built-in hooks 32 facing each other on both of the longer sides of an upper surface 31 thereof. A first female portion 33a and a second female portion 33b are disposed on two certain side edges adjacent to each other. A first and a second male portion 34a and 34b are located at the other two adjacent sides of the plastic base 30 for engaging into the corresponding female portions 33a, 33b of another plastic base 30. In addition, as shown in FIG. 5, the bottom of the plastic base 30 is hollow and provided with a plurality of legs 35. Moreover, at least one transversal groove 36 and longitudinal groove 37 are formed at the bottom of the plastic base 30 for receiving cables.

[0025] The wood panel 40 contains two parallel grooves 41 formed at both longer sides of the wood panel 40 and left to match the hooks 32, permitting people to insert the wood panel 40 into the upper surface 31 of the plastic base 30 to form a combination body 50 as shown in FIG. 4. Meanwhile, a concave portion 42 and a convex portion 43 are correspondingly formed above the two grooves 41 of the wood panel 40, respectively.

[0026] As shown in FIG. 6, the assembly of the invention shall be separated into two parts: the longitudinal X-X assembly and the transversal Y-Y assembly. Firstly the longitudinal X-X assembly means that the first male portion 34a of a composite body 50 are fitted from top to bottom into the first female portion 33a of the previous composite body 50 (see FIG. 7). Since the female portion and the male portion are integrally formed together with the plastic base 30 and the plastic itself is very flexible, a tight engagement is ensured when the first male portions 34a is fitted into the first female portions 33a. Meanwhile, no nails are required for fixing purpose. Regarding the transversal Y-Y assembly, as shown in FIGS. 8 and 9, the second female portion 33b of the composite body 50 is clamped in an inclined position to the second male portion 34b, which requires the second male portion 34b to be designed to extend downwards in

height less than the leg 35 so as to leave a gap at the bottom to form distance D. In this way, a smooth joining of the second female portion 33b and the second male portion 34b can be achieved. Meanwhile, the concave portion 42 of the wood panel 40 will be mounted onto the corresponding convex portion 43 of the wood panel 40, permitting both of the combination bodies 50 be joined together (as shown as FIG. 9) when the combination body 50 is inclined and downwardly compressed.

[0027] Again, as shown in FIG. 6, since at the bottom of the plastic base 30 of the composite body 50 in accordance with the invention are the transversal groove 36 and the longitudinal groove 37 provided for receiving cables 60 for purpose of power supply, telecommunication, and network etc., it is very convenient.

[0028] In addition, as shown in FIG. 9, the plastic base 30 of the invention is supported by a lot of legs 35 on the floor other than having its bottom directly touch the floor. Therefore, when the floor is a little bit uneven, the legs 24 at the bottom of the plastic base 30 can be adjusted depending on the actual condition of the floor. In this way, noise caused by the uneven floor will be avoided when anyone steps on the flooring of the invention.

[0029] By use of the above mentioned technical method, the flooring of the invention is easy in assembly. Besides, the plastic base 30 shall also be reclaimed and melted into plastic again so as to realize the resource recovery.

[0030] The invention is not only suitable for DIY, but also easy for laying the solid wood flooring 31 to a small room. When the solid wood flooring 31 is locally damaged, it can be locally repaired unlike the conventional one in which a whole piece must be replaced. Thus, the invention is more economical and practical than the prior art.

[0031] Many changes and modifications in the above-described embodiment of the invention can, of course, be carried out without departing from the scope thereof. Accordingly, to promote the progress in science and the useful arts, the invention is disclosed and is intended to be limited only by the scope of the appended claims.

What is claimed is:

1. A combination structure of a quick assembly Do-It-Yourself (DIY) wood flooring, each unit of the wood flooring comprising:

- a) a plastic base made of plastics by an injection molding process, the plastic base having hooks facing each other on both of the longer sides of an upper surface thereof with their ends directed inwardly, the bottom side of the plastic base being hollowed out and having a plurality of legs for supporting the plastic base on the ground, two adjacent sides of the plastic base each having a plurality of female portions with the opening directed upwards while the other two adjacent sides of the plastic base each includes a plurality of male portions extending downwards for fitting into the corresponding female portions, the male portions at the longer sides having a smaller length than the supporting legs so as to create a gap to allow the attachment of the female

portions of one wood flooring in an inclined position to the male portions of another wood flooring in place; and

- b) a wood panel having two parallel grooves formed at both longer sides of the wood panel and left to match the hooks of the plastic base, thereby permitting a smooth insertion of the wood panel into the upper surface of the plastic base to form a whole, a concave portion and a convex portion being correspondingly formed above the two grooves of the wood panel, respectively.

2. The combination structure of a quick assembly Do-It-Yourself (DIY) wood flooring as recited in claim 1 wherein the bottom side of the plastic base includes a plurality of laterally and longitudinally extending grooves for receiving cables.

3. The combination structure of a quick assembly Do-It-Yourself (DIY) wood flooring as recited in claim 1 wherein the female portions are disposed at the left and the front side of the plastic base while the male portions are positioned at the right and rear side thereof.

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