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(54) Connecting member for combining floor decking elements, especially terrace decking elements, and modular set of floor decking elements

(57) Invention refers to a connecting member for combining floor decking elements and a modular set of floor decking elements, especially terrace decking elements, consisting of main floor decking elements, connecting members and, optionally, auxiliary elements, and is characterized in that the main elements (1) have preferably rectangular shape, auxiliary elements have square shape (2) and/or triangular shape (3) and all the elements are equipped on each of their edges with at least one profiled orifice (5), the connecting members (6) having a base (7) and being symmetrically positioned against each other, two catches (8) connected with a rib (9) mounted on a base (7) , the catches (8) having a shape that maps a shape of orifices (5) and being inserted into the orifices, the base (7) is optionally equipped on its bottom surface with protrusions (11), and the set includes additionally either half-connecting members (6') inserted into main or auxiliary floor decking elements ending surface of the floor being arranged, or includes slats (4), equipped with orifices (5), ending the surface of the floor, all the elements of the set being in a form ready for assembling.

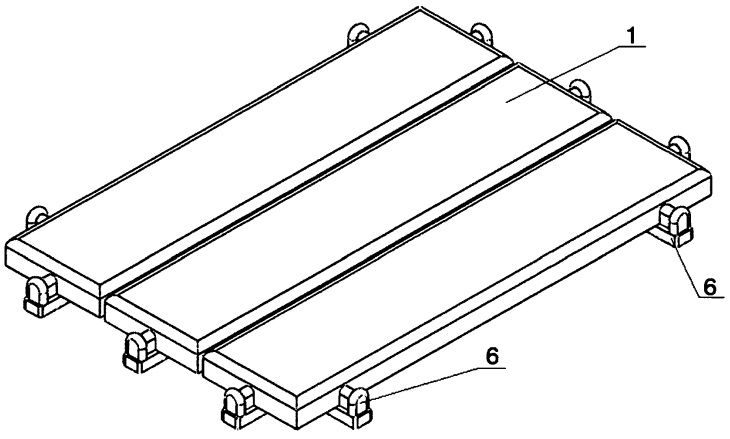

Fig. 16

EP 2 426 290 A2

Description

[0001] Object of the invention is a connecting member for combining floor decking elements, especially terrace decking elements and a modular set of floor decking elements, especially terrace decking elements.

[0002] Systems of terrace floors composed of wooden or modified plastic elements are known, which require to be trimmed depending on floor size, and a system of its fixing is complicated and involves various preliminary works, such as drilling orifices in a base and/or bearers or ground beams and forming permanent joints based on e.g. screws and strut pins. Thus, in such cases a time-consuming process of assembling systems and employing an experienced specialist is inevitable.

[0003] In an up-to-now unpublished description P-388172, the present Authors have disclosed relatively complex construction of terrace systems, in which drilling orifices in a base and fixing carrying elements of a terrace by means of screws is necessary. In that system, trimming of individual floor elements depending on sizes of a terrace or other base being finished is also necessary. Although the floor elements themselves are "sticked" in a simple way into connecting members that fix them, yet a simple and fast disassembly of the connecting members and other elements carrying the terrace floor is not possible.

[0004] Object of the invention is a connecting member for combining floor decking elements, especially terrace decking elements, characterized in that it is provided with a base and two catches connected with a rib, mounted on it symmetrically against each other, the base being equipped on its bottom surface with protrusions.

[0005] An element base is protruded on both its ends beyond edges of the catches and forms symmetrically on both edges of the connecting member horizontal shelves, located along the rib on both its sides. The protrusions on the element base can have a form of dentils, crimping, waves or a shape of a trapezoid section.

[0006] External side surfaces of the catches are equipped with convex profiling.

[0007] A modular set of floor decking elements, especially terrace decking elements, that is constituted of main floor decking elements, connecting members and optionally auxiliary floor decking elements, is characterized in that the main elements have preferably rectangular shape, whereas the auxiliary elements have a square shape and/or triangular shape and all the elements are equipped on each of their edges with at least one profiled orifice, the connecting elements being equipped with a base and two catches connected with a rib, symmetrically positioned against each other, mounted on a base, the catches having a shape that maps the shape of orifices and being inserted into these orifices, the base being optionally equipped on its bottom surface with protrusions, and the set additionally includes either halves of connecting members inserted into main or auxiliary floor decking elements that end a surface of the floor being arranged, or slats finishing the floor surface equipped with orifices, all elements of the set being in a form ready to be assembled.

[0008] Object of the invention is shown in an embodiment on a drawing, on which fig. 1 shows a main rectangular element of a set of floor decking elements, fig. 2 shows the element of fig. 1 in a side view, fig. 3 - the element of fig. 1 from bottom, in fig. 4 a general view of the connecting member including crimping on its base is shown, on fig. 5 the element of fig. 4 in a front view is shown, on fig. 6 - a half-connecting member corresponding to the element of fig. 4, on fig. 7 - a general view of the connecting member including its profiling on a rib connecting the catches, on fig. 8 - the connecting member of fig. 7 in a front view, on fig. 9 - the connecting member including convex profiling on side walls of the catches, on fig. 10 - the element of fig. 9 is shown in a front view, on fig. 11 - the connecting member including a widened base, edges of which protrude beyond a line of catches, on fig. 12 - the element of fig. 11 in a front view, on fig. 13 and 14 - a triangle-shaped floor decking element, on fig. 15 - a square-shaped floor decking element, on fig. 16 - a set of three rectangular floor decking elements upon partial assembling, on fig. 17 - a finishing slat to a set of floor decking elements, on fig. 18 - a schematic view of terrace floor arranged from a set including rectangular and triangular elements of floor decking ended with finishing slats.

[0009] The connecting member 6 consists of a base 7, on which symmetrically on its opposite ends identical catches 8, equipped with flat side surfaces 13 or optionally on external side walls equipped with convex profiling 14, are located and connected from the internal side with a rib 9, which can be equipped with a convex profiling 9', an edge of the base 7 that protrudes between the catches 8 forming an internal horizontal shelf 10 or 10' or 10" in various variants of the embodiment. Shelves 10, 10',i 10" are located along the rib 9. The base 7 of the connecting member 6 is equipped on its bottom surface with antislip protrusions 11 and can be protruded on both extremities of the connecting member beyond lines of the catches 8 and can form symmetrically flat external shelves 12. The base of the connecting member can be shaped in such a way, that its side surfaces are equipped with cavities 7' or 7".

[0010] A modular set of floor decking elements consists of main elements 1, preferably having rectangular shape (a shape of boards) and, optionally, of auxiliary floor decking elements of square shape 2 and triangular shape 3. All the mentioned elements of the set are equipped on each of their edges with assembling orifice or orifices 5. The set can also include finishing slats 4. The set includes connecting members 6 and, optionally, half-connecting members 6'.

[0011] The connecting member and the set of the invention provide easy and fast assembling of floor decking elements e.g. floor boards, especially terrace floor boards, through direct laying of the elements on a base.

All the elements of the system are preferably made of materials resistant to weather conditions. As they are made of plastic, rubber, natural rubber or their blends, the connecting members insulate floor elements from subfloor, absorb shocks and prevent from inward capillary transport of moisture e.g. to wooden floor elements. They also are not subject to deformation.

[0012] The set of the invention makes it possible to assemble floor elements without damaging the subfloor while drilling orifices or during other type of mechanical treatment. Thanks to this, there is no risk e.g. of damaging insulating coats in terrace subfloors or other surfaces, onto which elements of the set are placed.

[0013] The modular set of floor decking elements makes it possible to make floor in a floating system (the floor freely lies on a base, i.e. it is by no means connected to the subfloor). This makes it possible to lay floor terrace also in a place where there is a ready floor of another type e.g. ceramic tiles permanently fastened with a glue. The set can be repeatedly assembled and disassembled e.g. for a winter period. Disassembling of the assembled set does not damage its individual elements.

[0014] Elements of floor decking (floor elements) can be easily replaced, in case they are damaged. The same set of elements can be used e.g. in another building, upon its disassembling, renewed arranging and, optionally, purchasing lacking elements.

[0015] The principal advantage of the set of the invention is that it is easy to be assembled, which can be made on one's own, without a use of specialized tools. All the elements of the set are ready to be assembled.

[0016] Under the term "elements are ready to be assembled" it is to be understood that these elements do not require any mechanical working or chemical treatment, neither in a target place of their use nor at intermediate distribution stages, by a contractor of a given floor terrace at any stage between purchase of the elements and its assembling. Thus, floor elements do not require trimming to a specified dimension, sanding, protecting with chemical agents or painting. The whole process of treatment of elements of the set is made by a manufacturer. The set of the invention provides a possibility of assembling the whole floor by a purchaser in a target place without subjecting it to any treatment. The set works like "building blocks for children", which can be selected as one wishes at purchasing, and setting-up of them involves only repeated insertion of connecting members into elements of floor decking.

[0017] The terms "floor" or "flooring" in the meaning of the present invention are terms to be used interchangeably and refer to the set of floor decking elements. Upon combining its individual elements, the set of the invention constitutes ,floor", e.g. terrace deck.

[0018] The set of the invention is at least composed of connecting members and main floor decking elements, these preferably being rectangular wooden terrace boards. They can be of different length. Edges at the end of surface of floor assembled of the set of the invention are made in such a way, that either half-connecting members are inserted into orifices of extreme floor elements or finishing slats are inserted into a free end of common connecting members.

[0019] The set can also include auxiliary triangular-shaped or square-shaped elements of floor decking. These elements make it possible to assemble floor of more complex, e.g. trapezoidal shapes, on a subfloor. Example of such arrangement of the set is shown on fig. 18. Auxiliary triangular-shaped elements make it possible to cover the subfloor with a floor from a side of a skew edge.

[0020] Main and auxiliary elements of floor decking are mutually fit to each other with dimensions, to enable easy assembling. A predetermined width of main floor rectangular elements determines dimensions of the remaining elements of the set, which makes it possible to arrange floor having any esthetic mosaic forms. Dimensions of auxiliary elements are strictly connected with dimensions of main elements, and it is also necessary to maintain equal dilatation distances between individual elements. Accordingly, dimensions of e.g. triangular auxiliary elements can slightly (e.g. 3 to 5 mm) differ from the width of rectangular main elements. The rectangular floor elements have preferably arbitrary length being a multiplicity of their width including allowance resulting from adding width of expansion gaps, so that it could be possible to arrange it for example perpendicularly to each other, e.g. elements having length three times greater than its width (plus width of two dilatation gaps) can be located alternately perpendicularly to similar three elements located in parallel. Depending on their length, elements of floor decking can have 2, 3, 4 or more assembling orifices 5 on their edges.

[0021] Preferably elements of floor decking are wooden boards or elements of plastic and/or wooden-like and/or wooden-derived materials, e.g. blends of plastics with sawdust or wooden dust. Preferably floor elements can be made of high-grade wood designed to be used outdoors. It can origin from exotic or European trees. The elements can be subject to any treatment during production to improve their quality and to enhance their resistance to weather conditions they can be e.g. oiled, impregnated or thermally modified.

[0022] Elements of floor decking can be either without hollow spaces /ducts inside or can include such spaces inside. The only limitation here is a necessity of making assembling orifices and stable fixing of connecting members.

[0023] The connecting member of the invention constitutes a repeatable element of the modular set, which does not involve any additional fixing. Stability of connecting members combined with floor elements is secured through ideal matching of sizes and a shape of the connecting member to a shape of assembling orifices present in floor elements. More precisely, two catches of each connecting member along with a part of a rib that joins them are located in connecting orifices and just

these parts of the connecting members must ideally fit to orifices. To reinforce such a connection, side walls of the catches can be equipped with convex profiling 14 (in other words: longitudinal crimping) shown on fig. 7 and fig. 9. Pulling out of connecting members from assembling orifices is then slightly more difficult, and the connection is more permanent. Connecting members are equipped with a base that is widened as compared to a size of the catches. In a space between the catches on both sides of the rib that connects them, which is more narrow than the catches, there are internal horizontal shelves 10, on which elements of floor decking upon assembling the set floor are mounted. Yet a part of that space is not used, because between elements of floor decking upon their assembling, louvers always remain.

[0024] To reinforce the floor construction, connecting members can be equipped with additional horizontal external shelves 12 formed by pulling out of the base beyond external edges of catches 8. Such variant of embodiment of connecting member is shown on fig. 11. Such additional protruding external shelves on connecting members prevent from their deformation and deflection with time. That causes also that catches are not "squeezed" more deeply into assembling orifices under the influence of stress, which in turn provides permanent leveling out of terrace floor. Then, disassembly of terrace floor is more easy, because connecting members can be easily levered at a place of protruding external shelf 12. Connecting members shown on fig. 4 or fig. 11 have cavities 7' or 7", which on the one hand, prevent from depositing of moisture on shelf 10 through dilatation gaps, and on the other hand - make it easier to assemble the set, as cavities 7', 7" in a natural way are fitted to a shape of fingers.

[0025] Thanks to the connecting members of the invention, elements of floor decking are placed on a base, ideally equal-spaced, and form a very esthetic and even surface. The connecting members of the invention make it possible to combine fast: terrace floors, summerhouses, garden parts, bathrooms, or recreational elements of edges of swimming pools or other pools.

[0026] The connecting member is made of plastic, rubber, natural rubber or their blends, which exhibit slight elasticity, and - at the same time - the member is hard and elastic to a such extent that it is not deformed while loaded. The connecting member is symmetrical as a whole, which additionally makes more easy its inserting into identical assembling orifices.

[0027] The set of the invention can be additionally reinforced by applying glue at places, where the connecting members are inserted into assembling orifices. The glues can be typical glues used in such cases, e.g. silicone-based glues. Such additional gluing elements of the set seals microfissures and prevents from accessing of moisture to them.

Claims

1. Connecting member for combining floor decking elements, especially terrace decking elements, **characterized in that** it is equipped with a base (7), mounted symmetrically against each other on it there are two catches (8) connected with a rib (9), the base (7) being equipped on its bottom surface with protrusions (11).

2. Connecting member according to Claim 1, **characterized in that** its base (7) is protruded on its both ends beyond edges of catches (8) and forms symmetrically on both edges of the connecting member horizontal shelves (10) or (10') or (10") located along the rib (9) on both its sides.

3. Connecting member according to Claim 1, **characterized in that** protrusions (11) can have a form of dentils, crimping, waves or a shape of trapezoid section.

4. Connecting member according to Claim 1, **characterized in that** the external side surfaces of catches (8) are equipped with convex profiling (14).

5. Modular set of floor decking elements, especially terrace decking elements, consisting of main floor decking elements, connecting members and, optionally, auxiliary floor decking elements, **characterized in that** the main elements (1) have preferably rectangular shape, auxiliary elements have square shape (2) and/or triangular shape (3) and all the elements are equipped on each of their edges with at least one profiled orifice (5), the connecting members (6) having a base (7) and being symmetrically positioned against each other, two catches (8) connected with a rib (9) mounted on a base (7), the catches (8) having a shape that maps a shape of orifices (5) and being inserted into the orifices, the base (7) is optionally equipped on its bottom surface with protrusions (11), and set includes additionally either half connecting members (6') inserted into main or auxiliary floor decking elements ending surface of the floor being arranged, or includes slats (4), equipped with orifices (5), ending the surface of the floor, all the elements of the set being in a form ready for assembling.

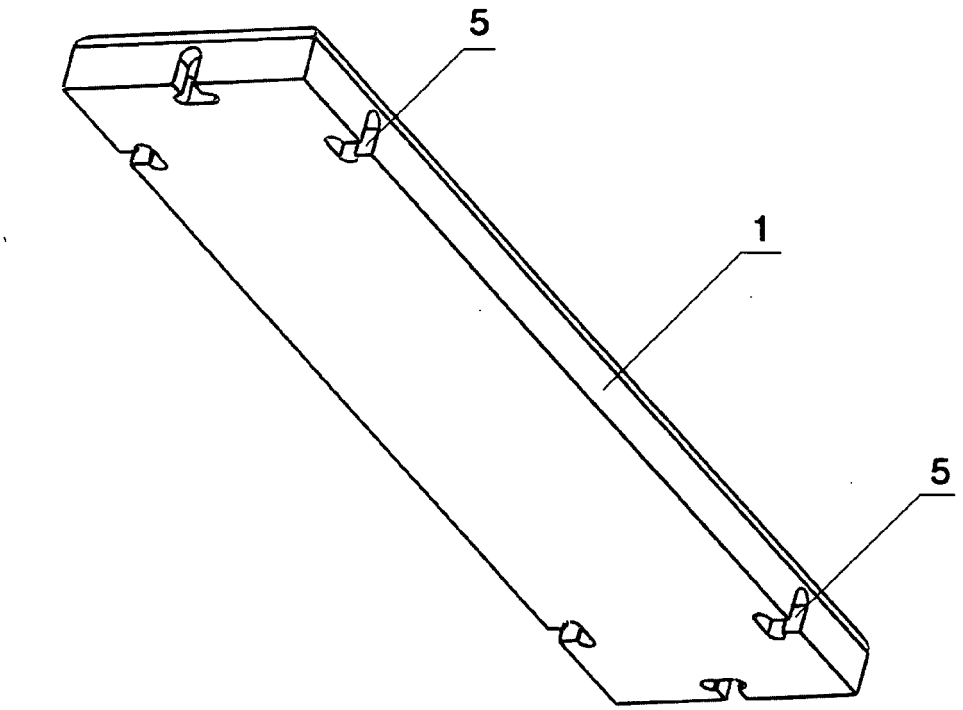

Fig. 1

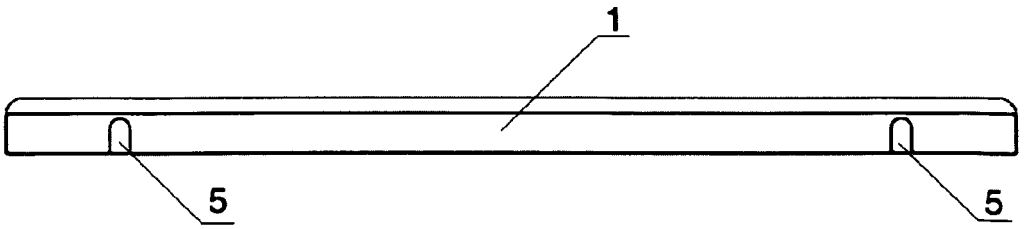

Fig. 2

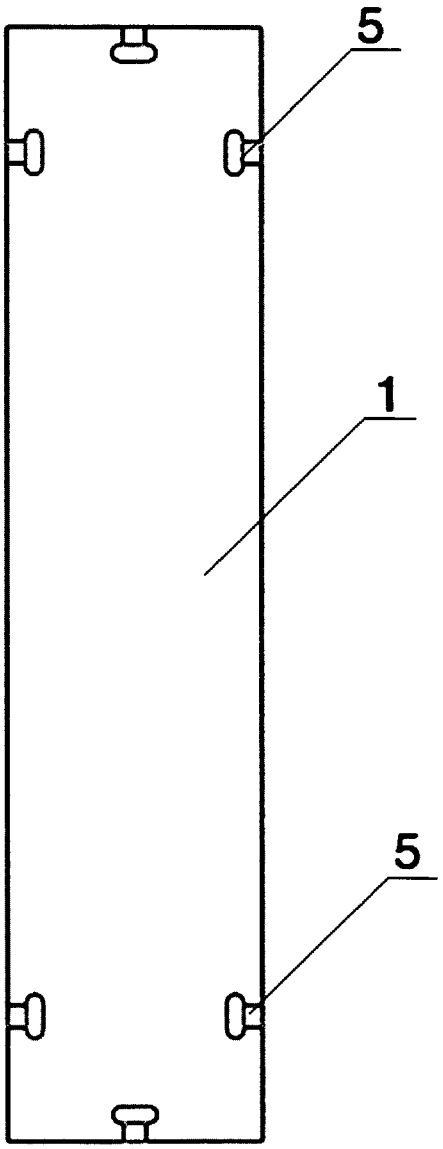

Fig. 3

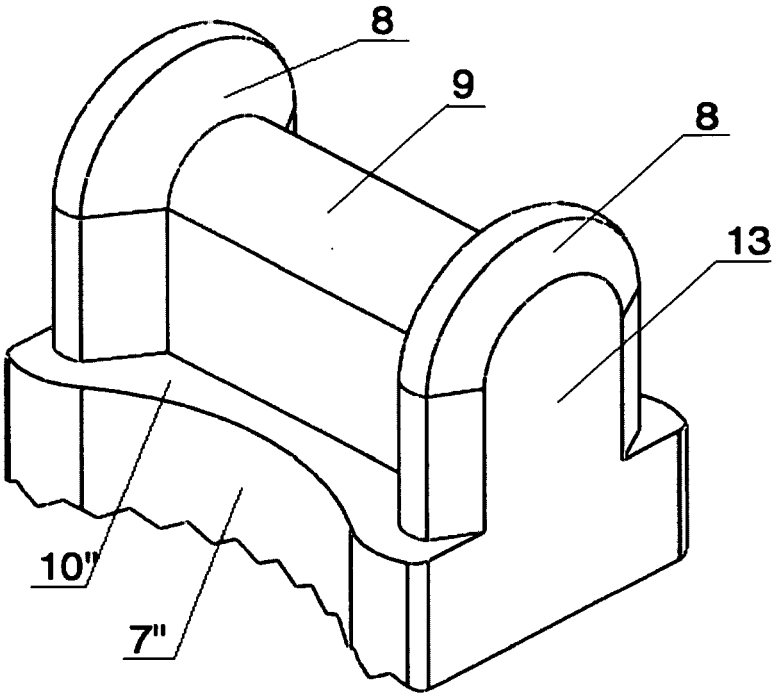

Fig. 4

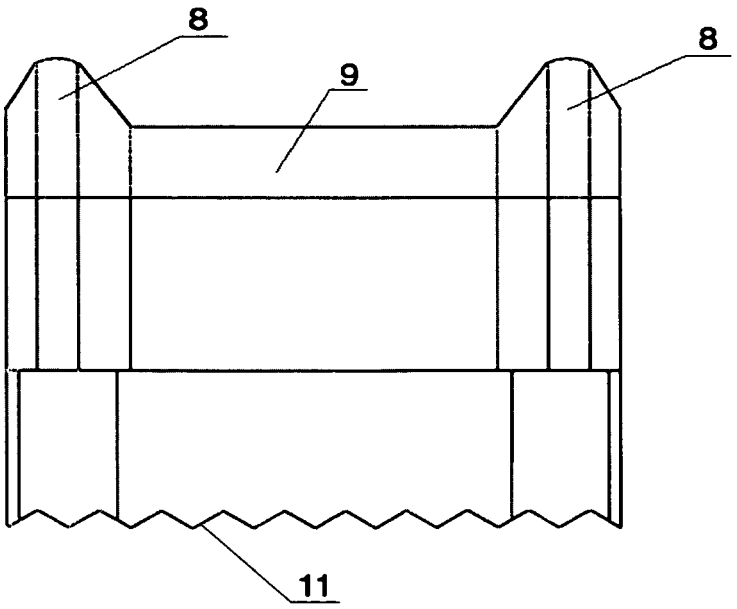

Fig. 5

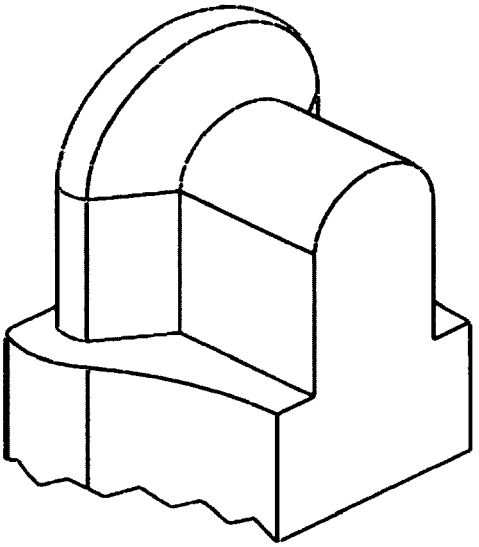

Fig. 6

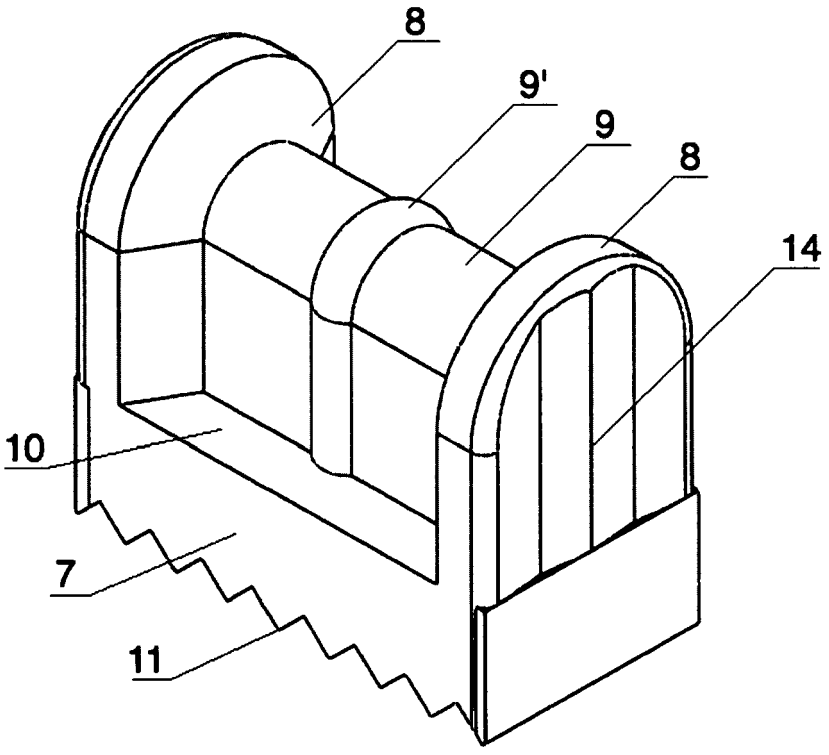

Fig. 7

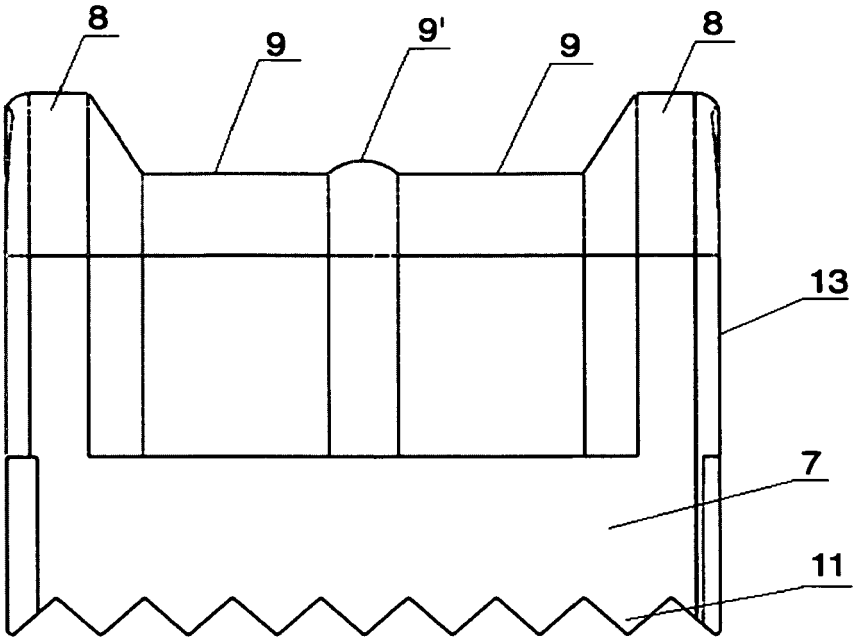

Fig. 8

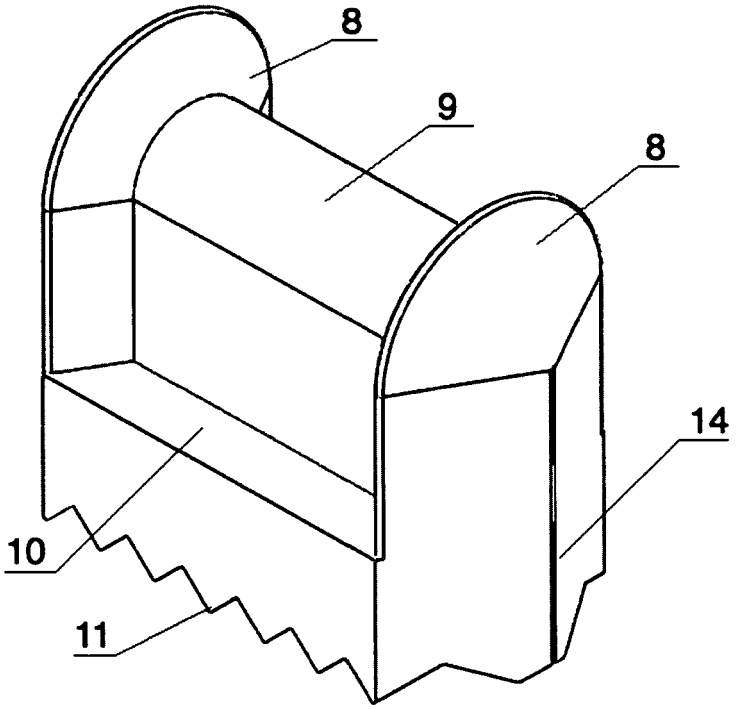

Fig. 9

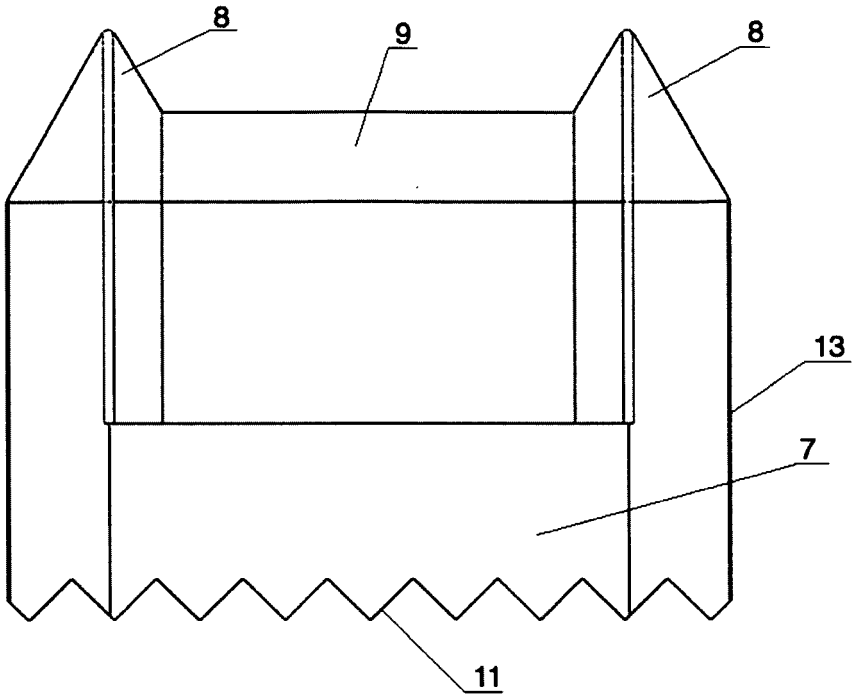

Fig. 10

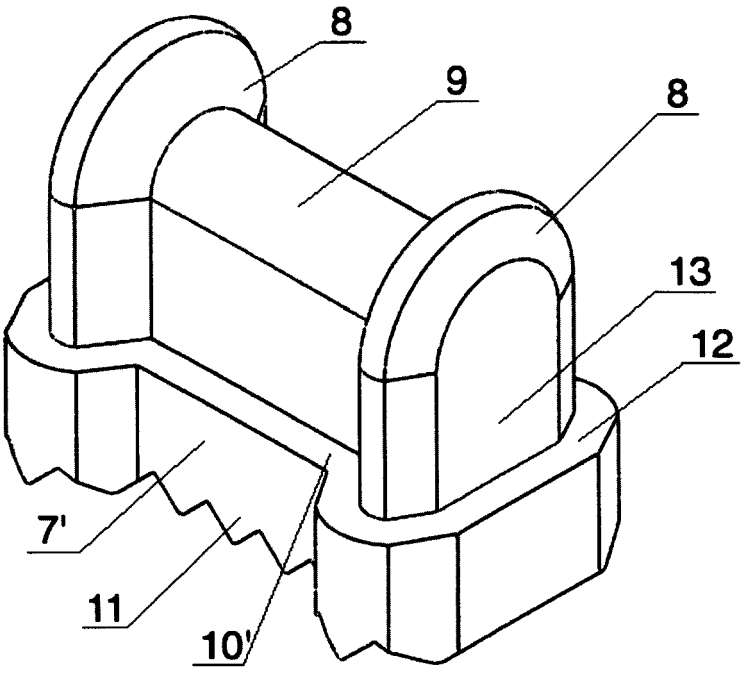

Fig. 11

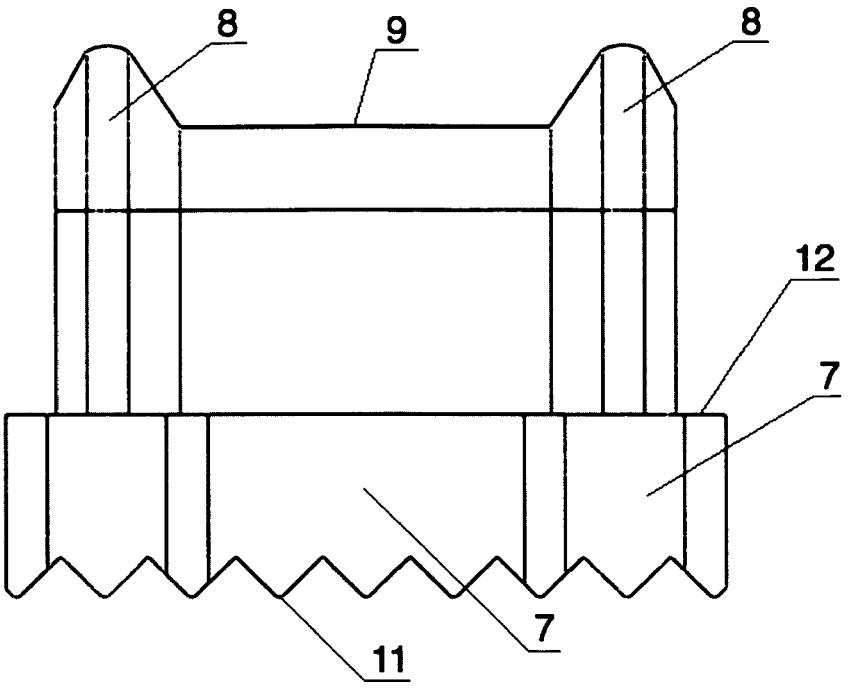

Fig. 12

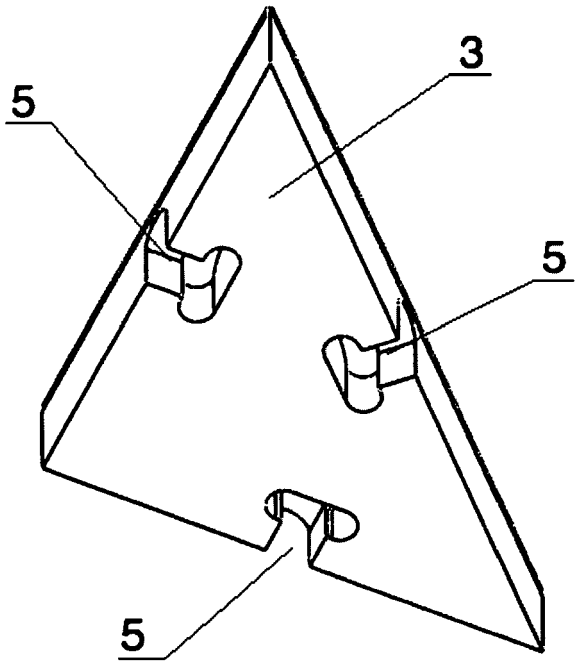

Fig. 13

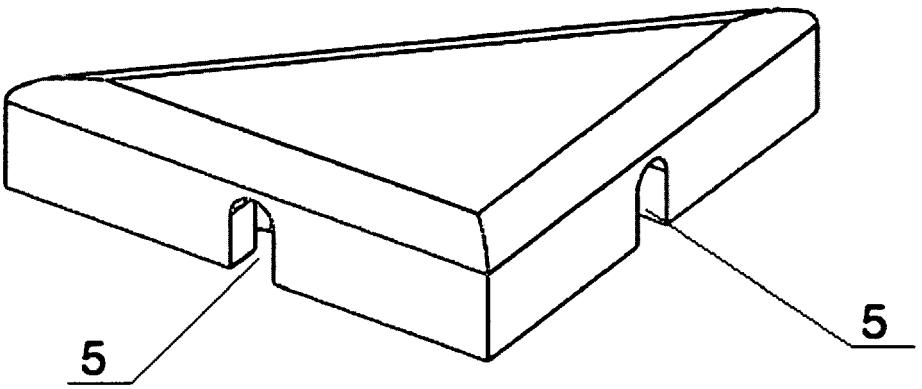

Fig. 14

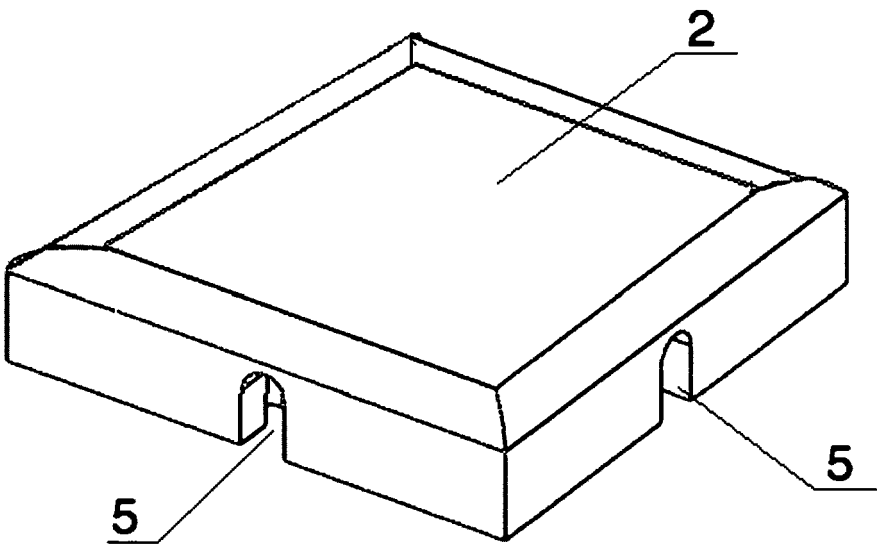

Fig. 15

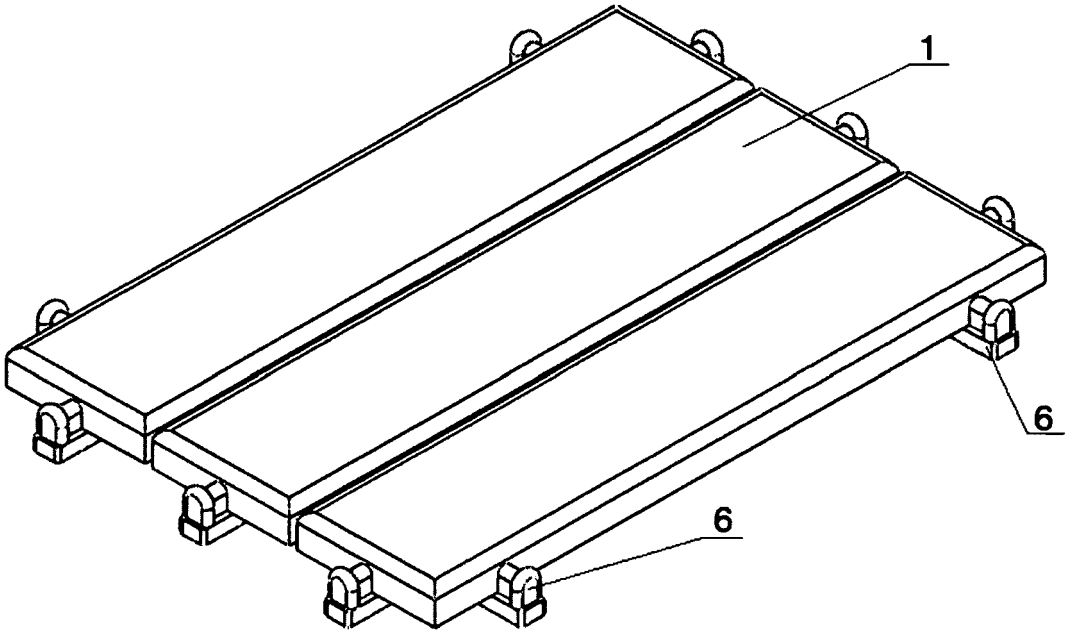

Fig. 16

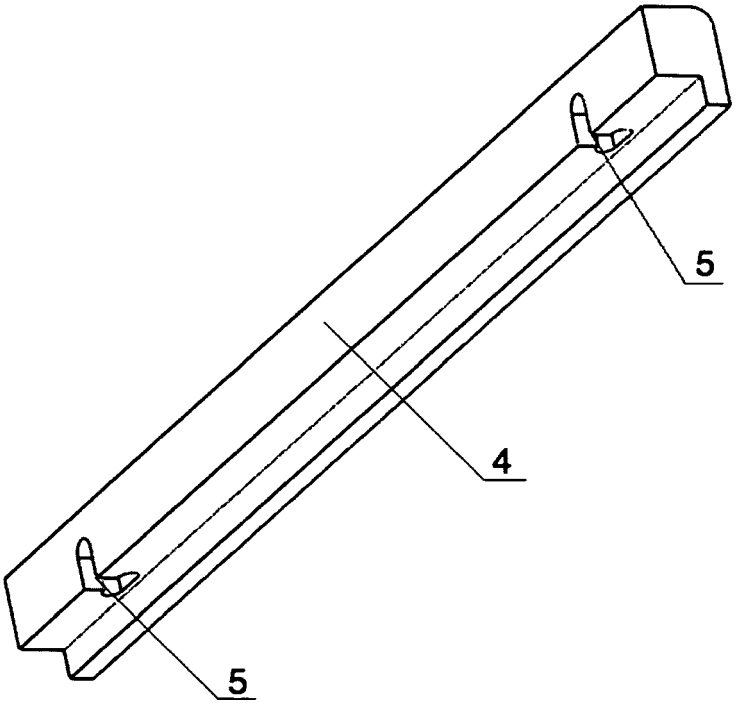

Fig. 17

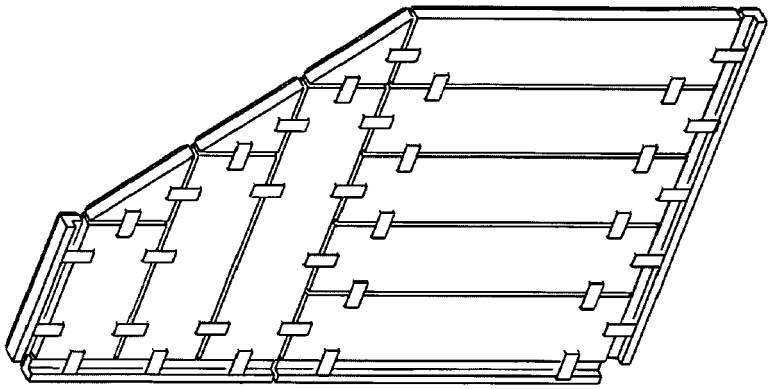

Fig. 18