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(54) **FLOOR ELEMENT**

FUSSBODENELEMENT

ELEMENT DE PLANCHER

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Description

[0001] The invention relates to a floor element, in particular a wooden floor element, comprising a top and a bottom surface as well as a first and a second side, said first side being provided with a tooth integrally formed with said floor element, said second side being provided with a groove, said tooth and said groove being dimensioned in such a manner that for adjacently placed floor elements the tooth of the one floor element and the groove of the other floor element mutually engage for providing a toothed engagement.

[0002] Such a floor element is known for use as parquet floor from DE - A - 101 01 427. The toothed engagement provided on the transversal side of the floor element enables to connect successive floor elements in order to build up the floor.

[0003] A drawback of the known floor element is that the tooth is applied approximately in the middle of the side. On both sides of the tooth extends a side part of the floor element, in order to provide an alignment of adjacently placed floor elements. Although these provisions enable a suitable alignment of adjacent floor elements, they nevertheless form an obstacle to the natural working of the wood from which the element is made. Moreover, some force is required in order to assemble two adjacent floor elements and obtain a correct alignment of the floor elements.

[0004] It is an object of the present invention to provide a floor element requiring nearly no effort for assembling the elements and having a toothed engagement enabling a natural working of the material of which it is made.

[0005] For this purpose a floor element according to the invention is **characterised in that** said groove and said tooth extend substantially over a whole length of lateral sides of said floor element, and wherein said tooth starts from said top surface and is inclined over an angle situated between 20 and 70°, preferably between 35 and 55° with respect to said top surface, said tooth having a length measured as from said top surface of at least one third of the thickness of said floor element. The presence of an inclined tooth starting from the top surface of the floor element enables an easy and quick assembling of two adjacent floor elements by a single shift operation without requiring a substantial effort. Since the tooth extends as from the top surface of the floor element, a tooth length of at least one third of the thickness of the floor element can be provided, thus enabling a reliable engagement. Moreover, the fact that the tooth extends as from the top surface enables a natural movement of the tooth in the groove, thus enabling a natural working of the material.

[0006] A first preferred embodiment of a floor element according to the invention is **characterised in that** said second lateral side is provided with an inclined edge located on said top surface. Since this inclined edge is located on the lateral side where the groove is situated, its inclined profile will fit with the one of the tooth when two elements are adjacently assembled.

[0007] A second preferred embodiment of a floor element according to the invention is **characterised in that** said first lateral side extends substantially perpendicular with respect to said top surface over that part of this first lateral side situated underneath said tooth. This enables to form an alignment reference for a subsequent floor element.

[0008] Preferably said first lateral side is provided with an inclined edge located on said bottom surface. In such a manner some space is created for collecting dust or excess glue which would otherwise form an obstacle to a correct alignment.

[0009] A third preferred embodiment of a floor element according to the invention is **characterised in that** said second lateral side has an offset part extending as from said bottom surface. Sufficient strength is thereby given to the groove.

[0010] A fourth preferred embodiment of a floor element according to the invention is **characterised in that** said floor element further comprises a first and a second transversal side, said first transversal side being with a first hook, made integrally with said element, and extending as from said top surface, said second transversal side being with a second hook, made integrally with said element, and extending as from said bottom surface, said first and second hook being dimensioned in such a manner that for adjacently placed floor elements the first hook of the one floor element and the second hook of the other floor element mutually engage for providing a toothed engagement. The use of hooks makes an engagement on the transversal side possible which is also compatible with the toothed engagement on the lateral sides.

[0011] The invention will now be described in more details by referring to the drawings illustrating an example of floor elements according to the present invention. In the drawings :

figure 1 shows a cross section, in transversal direction, through two adjacently mounted floor elements;
figure 2 shows a cross section, in transversal direction through a floor element;
figure 3 shows a cross section, in longitudinal direction, through two adjacently mounted floor elements;
figure 4 respectively 5 show a first respectively a second transversal side of a floor element; and
figure 6 illustrates what would happen if two adjacent floor elements would shift with respect to each other.

[0012] In the drawings a same reference sign has been assigned to a same or analogous element.

[0013] The floor elements according to the invention are preferably made of wood. However the present invention is not limited to wooden floor elements and other materials such as HDF, fibreboard, multiplex and particle board could be used.

[0014] Figure 1 illustrates two adjacently placed floor elements 1 engaged by means of a toothed engagement.

Each floor element has a top surface 10 and a bottom surface 9 as well as a first l 1 and a second l 2 lateral side. The first lateral side l 1 is provided with a tooth 3 integrally formed with the material of the floor element. The second lateral side l 2 is provided with a groove 2. The groove and the tooth being dimensioned in such a manner that for adjacently placed floor elements the tooth of the one floor element and the groove of the other floor element mutually engage for providing a toothed engagement.

[0015] The tooth 3 has an inclined face 4 starting from the top surface 10. As illustrated in figure 2, the face 4 of tooth 3 is inclined over an angle α situated between 20 and 70°, preferably between 35 and 55 °, and more particular 45°, with respect to the top surface. This inclination enables a reliable toothed engagement and prevents that an upward pressure, which could be caused by the engagement itself, leads to damages. The tooth 4 has a length h, measured as from said top surface of at least one third and preferably at least half of the thickness of said floor element. So for example for a thickness a = 16 mm, the length h = 10,5 mm and for a = 18 respectively 21 mm, h = 10,5 respectively 11,5 mm. With such a length a reliable toothed engagement is obtained. Furthermore the tooth and the groove extend over substantially the whole length of the floor element, thus enabling an engagement over this whole length.

[0016] Underneath the tooth 3 there is a side face 12 of the floor element which extends substantially perpendicular with respect to the bottom surface 9, enabling in such a manner an alignment for subsequent floor elements. The side face 12 is also provided with an inclined edge 8 located at the bottom surface. The edge 8 preferably has an angle β with a bottom surface of for example 45°. The edge 8 creates some space under the floor element in order to collect excess of glue, when the floor element would be glued on the floor, or to collect dust. As can be seen in the figures 1 and 2, the second lateral side of the floor element is also provided with an edge 7 comparable with edge 8. The edges 7 and 8 have a length of preferably g = 3 mm.

[0017] The groove 2 provided on the second lateral side extends over an angle which corresponds with the one of the tooth in order to provide a toothed engagement. The depth of the groove varies in function of the thickness of the floor element and of course of the length of the tooth. So for example d = 9,5 respectively 10,5 mm for a thickness a of 16,18 respectively 21 mm. The thickness j of the tooth is preferably somewhat smaller than the width of the groove in order to enable a smooth engagement and let the wood have its natural working. So for example j = 4,7 mm for c = 5 mm and j = 5,7 mm for c = 6 mm. Of course the values of j and c are related to the values of a.

[0018] The floor element further comprises in its second lateral side l 2 an inclined edge 5 located at the top surface. The edge preferably has an angle γ situated between 20 and 70°, preferably between 35 and 55 °, in particular 45°, with respect to the top surface. The edge 5 makes the transition between the top surface 10 and the entrance of the groove 2. The angles γ and α preferably have corresponding values in such a manner that when two elements are engaged a symmetrical groove profile 11 is obtained on the top surface. The edge 5 preferably has a width of 2,5 mm.

[0019] The presence of the edge 5 not only provides an esthetical aspect to the floor element, but also enables the natural working of the floor element without creating a visual open gap between successive floor elements. Indeed if the tooth would move with respect to the groove, as illustrated in figure 6, the groove shaped profile 11 will allow this movement by the space created by the groove profile. Since the edges are inclined, the overall view will not be affected by this movement.

[0020] The groove does not extend through the whole thickness of the floor element and a distance e is preferably left between the bottom of the groove and the bottom surface 9. This distance is for example e = 4 mm. The second lateral side has furthermore an offset part 6 extending as from the bottom surface. By mounting two floor elements adjacent to each other in longitudinal direction, the offset part 6 will contact the side face 12 of the first lateral side.

[0021] When placing the floor elements, the tooth can easily be engaged by a hinge movement into the groove. The engagement is achieved when the side face 12 contacts the offset part 6. An easy and quick placement of the floor, even by a non-professional, is thus achieved.

[0022] In order to enable an engagement of the transversal sides of the floor element, hooks are provided on the first 13 and second 14 transversal sides of the floor element as illustrated in the figures 3, 4 and 5. The first transversal side 13 is provided with a first hook 15, whereas the second transversal side 14 is provided with a second hook 16. The hooks are integrally made of the material of the floor element. The first hook 15 extends as from the top surface (figure 5) whereas the second hook 16 extends as from the bottom surface. The hooks being dimensioned in such a manner that for adjacently placed floor elements, they mutually engage for providing a toothed engagement as illustrated in figure 3.

[0023] Both hooks have a substantially U-shaped inner contour having one upstanding 17, 19 leg, substantially perpendicular to the top or bottom surface respectively, and another upstanding leg 18, 20 formed by a rib. An opening 21 is provided in the ribs 18 and 20 in order to enable the passage of the tooth.

[0024] The rib extends over substantially 3/5 of the thickness of the floor element. The hooks are necessary as the hinge movement of the lateral side could not be combined with another hinge movement on the transversal sides.

Claims

1. A floor element, in particular a wooden floor element, comprising a top (10) and a bottom (9) surface as well as a first (l1) and a second (l2) side, said first side (l1) being provided with a tooth (3) integrally formed with said floor element, said second side (l2) being provided with a groove (2), said tooth (3) and said groove (2) being dimensioned in such a manner, that for adjacently placed floor elements the tooth (3) of the one floor element and the groove (2) of the other floor element mutually engage for providing a toothed engagement, **characterised in that** said groove (2) and said tooth (3) extend substantially over a whole length of lateral sides (l1, l2) of said floor element, and wherein said tooth (3) starts from said top surface (10) and is inclined over an angle (α) situated between 20 and 70°, preferably between 35 and 55° with respect to said top surface (10), said tooth having a tength (h) measured as from said top surface (10) of at least one third of the thickness (a) of said floor element.

2. A floor element as claimed in claim 1, **characterised in that** said second lateral side is provided with an inclined edge located at said top surface.

3. A floor element as claimed in claim 2, **characterised in that** said edge is inclined over an angle situated between 20 and 70°, preferably between 35 and 55° with respect to said top surface.

4. A floor element as claimed in anyone of the claims 1 to 3, **characterised in that** said first lateral side extends substantially perpendicular with respect to said bottom surface over that part of this first lateral side situated underneath said tooth.

5. A floor element as claimed in anyone of the claims 1 to 4, **characterised in that** said first lateral side is provided with an inclined edge located on said bottom surface.

6. A floor element as claimed in anyone of the claims 1 to 5, **characterised in that** said second lateral side is provided with an inclined edge located on said bottom surface.

7. A floor element as claimed in anyone of the claims 1 to 6, **characterised in that** said second lateral side has an offset part extending as from said bottom surface.

8. A floor element as claimed in claim 7, **characterised in that** said offset part has a top segment extending substantially parallel with respect to said bottom surface.

9. A floor element as claimed in anyone of the claims 1 to 8, **characterised in that** said floor element further comprises a first and a second transversal side, said first transversal side being with a first hook, made integrally with said element, and extending as from said top surface, said second transversal side being with a second hook, made integrally with said element, and extending as from said bottom surface, said first and second hook being dimensioned in such a manner that for adjacently placed floor elements the first hook of the one floor element and the second hook of the other floor element mutually engage for providing a toothed engagement.

10. A floor element as claimed in claim 9, **characterised in that** said first and second hook have a substantially U-shaped inner contour.

Patentansprüche

1. Fußbodenelement, insbesondere ein Holzfußbodenelement, umfassend eine obere Fläche (10) und eine untere Fläche (9) als auch eine erste (l1) und eine zweite (l2) Seite, wobei die erste Seite (l1) mit einer Feder (3) bereitgestellt ist, welche einstückig mit dem Fußbodenelement ausgebildet ist, wobei die zweite Seite (12) mit einer Nut (2) bereitgestellt ist, wobei die Feder (3) und die Nut (2) auf solche Weise bemessen sind, dass bei benachbart angeordneten Fußbodenelementen die Feder (3) des einen Fußbodenelements und die Nut (2) des anderen Fußbodenelements ineinander eingreifen, um einen gezahnten Eingriff bereitzustellen, **dadurch gekennzeichnet, dass** die Nut (2) und die Feder (3) sich im Wesentlichen über die ganze Länge der seitlichen Seiten (l1, 12) des Fußbodenelements erstrecken, und wobei die Feder (3) von der oberen Fläche (10) weg ausgeht und um einen Winkel (α), welcher zwischen 20 und 70° liegt, vorzugsweise zwischen 35 und 55°, in Bezug auf die obere Fläche (10) abgeschrägt ist, wobei die Feder eine Länge (h), gemessen von der oberen Fläche (10) weg, von mindestens einem Drittel der Dicke (a) des Fußbodenelements aufweist.

2. Fußbodenelement nach Anspruch 1, **dadurch gekennzeichnet, dass** die zweite seitliche Seite mit einer schrägen Kante bereitgestellt ist, welche an der oberen Fläche angeordnet ist.

3. Fußbodenelement nach Anspruch 2, **dadurch gekennzeichnet, dass** die Kante um einen Winkel, welcher zwischen 20 und 70° liegt, vorzugsweise zwischen 35 und 55°, in Bezug auf die obere Fläche abgeschrägt ist.

4. Fußbodenelement nach jedem der Ansprüche 1 bis

3, **dadurch gekennzeichnet, dass** die erste seitliche Seite sich im Wesentlichen senkrecht in Bezug auf die untere Fläche über jenen Teil dieser ersten seitlichen Seite erstreckt, welcher unterhalb der Feder angeordnet ist.

5. Fußbodenelement nach jedem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die erste seitliche Seite mit einer schrägen Kante bereitgestellt ist, welche auf der unteren Fläche angeordnet ist.

6. Fußbodenelement nach jedem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** die zweite seitliche Seite mit einer schrägen Kante bereitgestellt ist, welche auf der unteren Fläche angeordnet ist.

7. Fußbodenelement nach jedem der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** die zweite seitliche Seite einen abgesetzten Teil aufweist, welcher sich von der unteren Fläche weg erstreckt.

8. Fußbodenelement nach Anspruch 7, **dadurch gekennzeichnet, dass** der abgesetzte Teil einen oberen Abschnitt aufweist, welcher sich im Wesentlichen parallel in Bezug auf die untere Fläche erstreckt.

9. Fußbodenelement nach jedem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, dass** das Fußbodenelement des Weiteren eine erste und eine zweite Querseite umfasst, wobei die erste Querseite mit einem ersten Haken ausgestattet ist, welcher einstükkig mit dem Element ausgebildet ist und sich von der oberen Fläche aus erstreckt, wobei die zweite Querseite mit einem zweiten Haken ausgestattet ist, welcher einstückig mit dem Element ausgebildet ist und sich von der unteren Fläche aus erstreckt, wobei der erste und der zweite Haken so bemessen sind, dass bei benachbart angeordneten Fußbodenelementen der erste Haken des einen Fußbodenelements und der zweite Haken des anderen Fußbodenelements ineinander eingreifen, um einen gezahnten Eingriff bereitzustellen.

10. Fußbodenelement nach Anspruch 9, **dadurch gekennzeichnet, dass** der erste und der zweite Haken eine im Wesentlichen U-förmige innere Kontur aufweisen.

Revendications

1. Élément de plancher, en particulier élément de plancher en bois, comprenant une surface supérieure (10) et une surface inférieure (9) ainsi qu'un premier (21) et un deuxième (22) côté, ledit premier côté (21) étant pourvu d'une dent (3) formée d'un seul tenant avec ledit élément de plancher, ledit deuxième côté (22) étant pourvu d'une rainure (2), ladite dent (3) et ladite rainure (2) étant dimensionnées de telle manière que pour des éléments de plancher placés de manière adjacente, la dent (3) d'un élément de plancher et la rainure (2) de l'autre élément de plancher s'engagent mutuellement l'un dans l'autre pour fournir un engagement denté, **caractérisé en ce que** ladite rainure (2) et ladite dent (3) s'étendent sensiblement sur toute la longueur des côtés latéraux (21, 22) dudit élément de plancher, **en ce que** ladite dent (3) commence à partir de ladite surface supérieure (10) et est inclinée à un angle (α) situé entre 20 et 70°, de préférence entre 35 et 55° par rapport à ladite surface supérieure (10), ladite dent ayant une longueur (h) mesurée à partir de ladite surface supérieure (10) d'au moins un tiers de l'épaisseur (a) dudit élément de plancher.

2. Élément de plancher tel que revendiqué dans la revendication 1, **caractérisé en ce que** ledit deuxième côté latéral est pourvu d'un bord incliné situé au niveau de la surface supérieure.

3. Élément de plancher tel que revendiqué dans la revendication 2, **caractérisé en ce que** ledit bord est incliné à un angle situé entre 20 et 70°, de préférence entre 35 et 55° par rapport à ladite surface supérieure.

4. Élément de plancher tel que revendiqué dans l'une quelconque des revendications 1 à 3, **caractérisé en ce que** ledit premier côté latéral s'étend de manière sensiblement perpendiculaire à ladite surface inférieure sur cette partie de ce premier côté latéral située en dessous de ladite dent.

5. Élément de plancher tel que revendiqué dans l'une quelconque des revendications 1 à 4, **caractérisé en ce que** ledit premier côté latéral est pourvu d'un bord incliné situé sur ladite surface inférieure.

6. Élément de plancher tel que revendiqué dans l'une quelconque des revendications 1 à 5, **caractérisé en ce que** ledit deuxième côté latéral est pourvu d'un bord incliné situé sur ladite surface inférieure.

7. Élément de plancher tel que revendiqué dans l'une quelconque des revendications 1 à 6, **caractérisé en ce que** ledit deuxième côté latéral a une partie décalée s'étendant à partir de ladite surface inférieure.

8. Élément de plancher tel que revendiqué dans la revendication 7, **caractérisé en ce que** ladite partie décalée a un segment supérieur s'étendant de manière sensiblement parallèle à ladite surface inférieure.

9. Élément de plancher tel que revendiqué dans l'une quelconque des revendications 1 à 8, **caractérisé en ce que** ledit élément de plancher comprend en outre un premier et un deuxième côté transversal, ledit premier côté transversal étant pourvu d'un premier crochet, formé d'un seul tenant avec ledit élément, et s'étendant à partir de ladite surface supérieure, ledit deuxième côté transversal étant pourvu d'un deuxième crochet, formé d'un seul tenant avec ledit élément, et s'étendant à partir de ladite surface inférieure, lesdits premier et deuxième crochets étant dimensionnés de telle manière que pour des éléments de plancher placés de manière adjacente, le premier crochet d'un élément de plancher et le deuxième crochet de l'autre élément de plancher s'engagent mutuellement l'un dans l'autre pour former un engagement denté.

10. Élément de plancher tel que revendiqué dans la revendication 9, **caractérisé en ce que** les premier et deuxième crochets ont un contour intérieur sensiblement en forme de U.

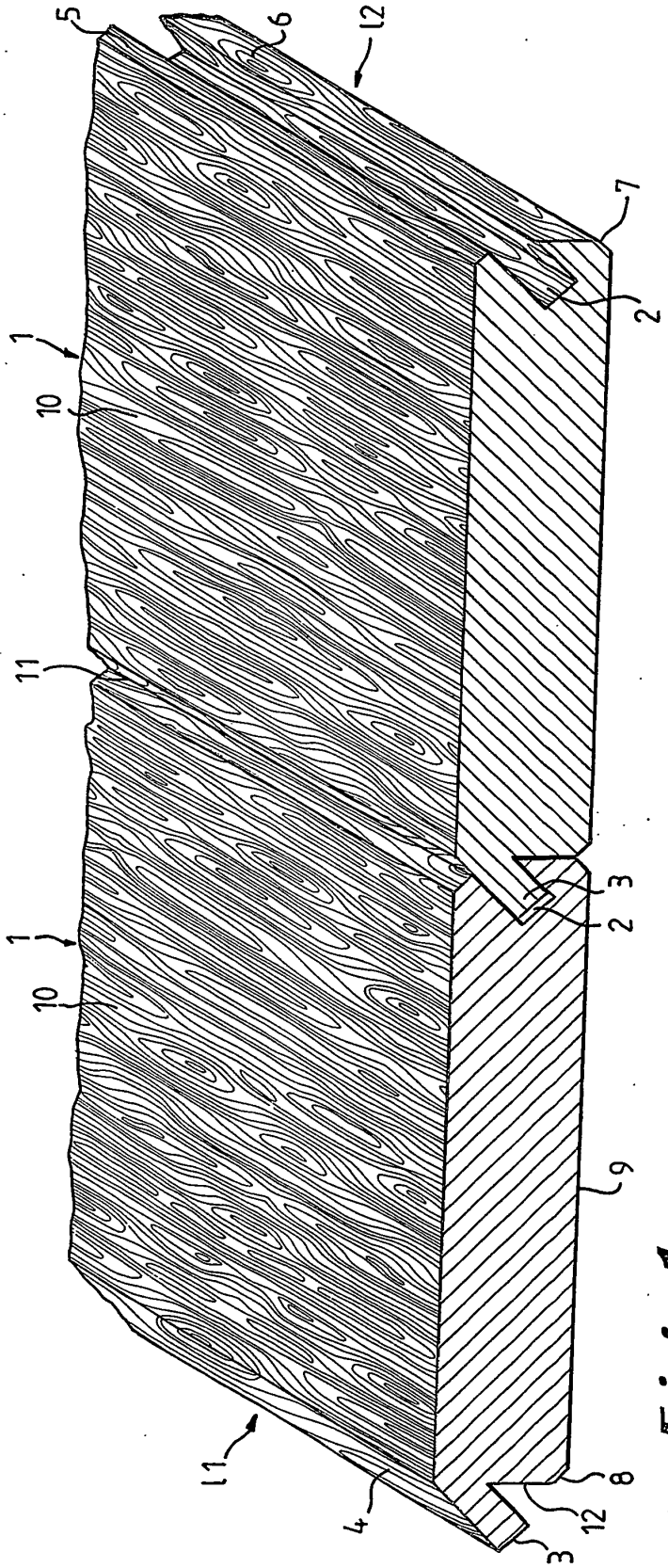


Fig. 1

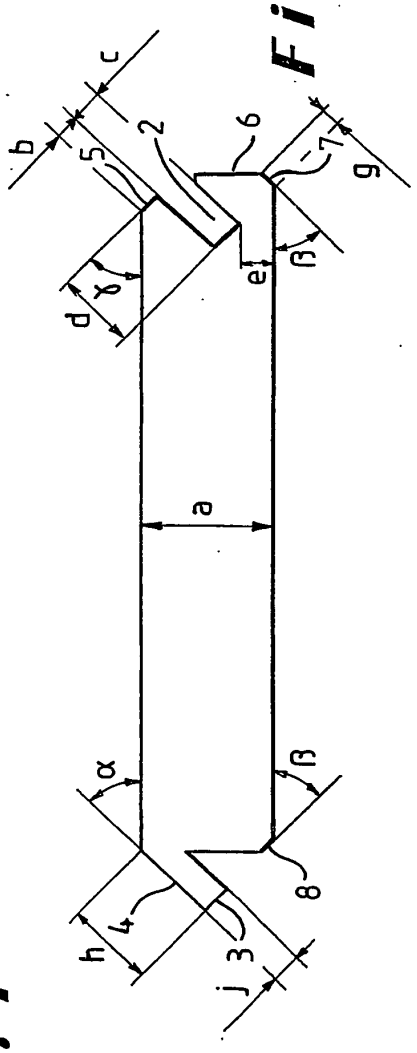


Fig. 2

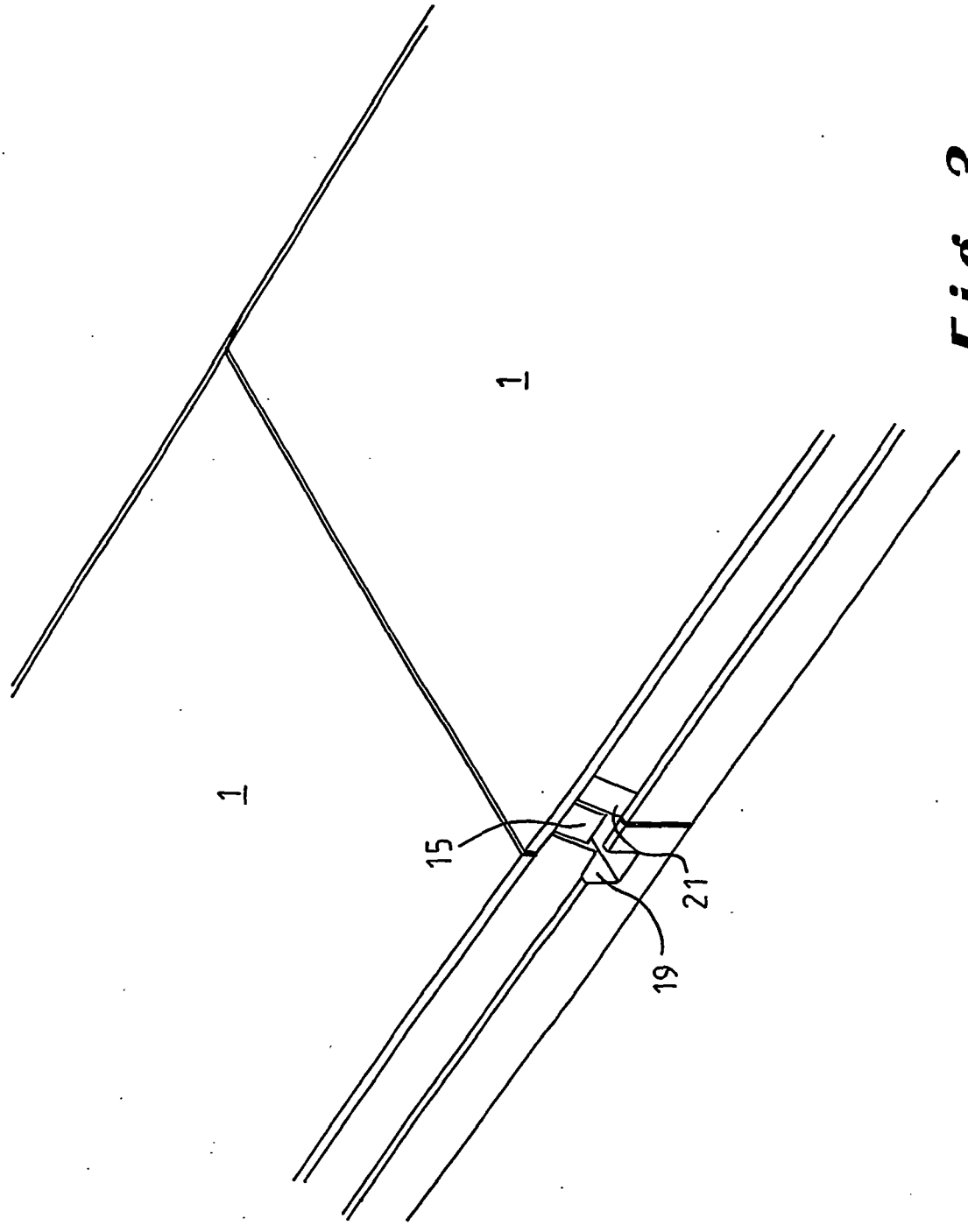


Fig. 3

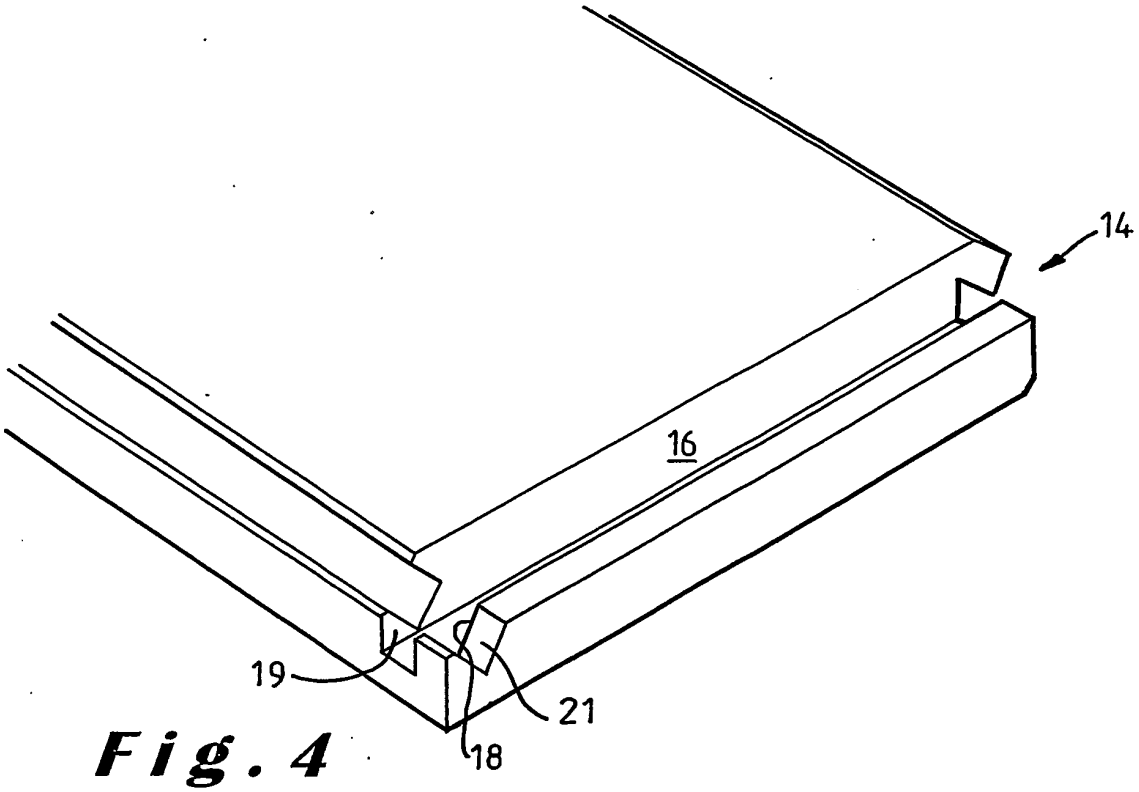


Fig. 4

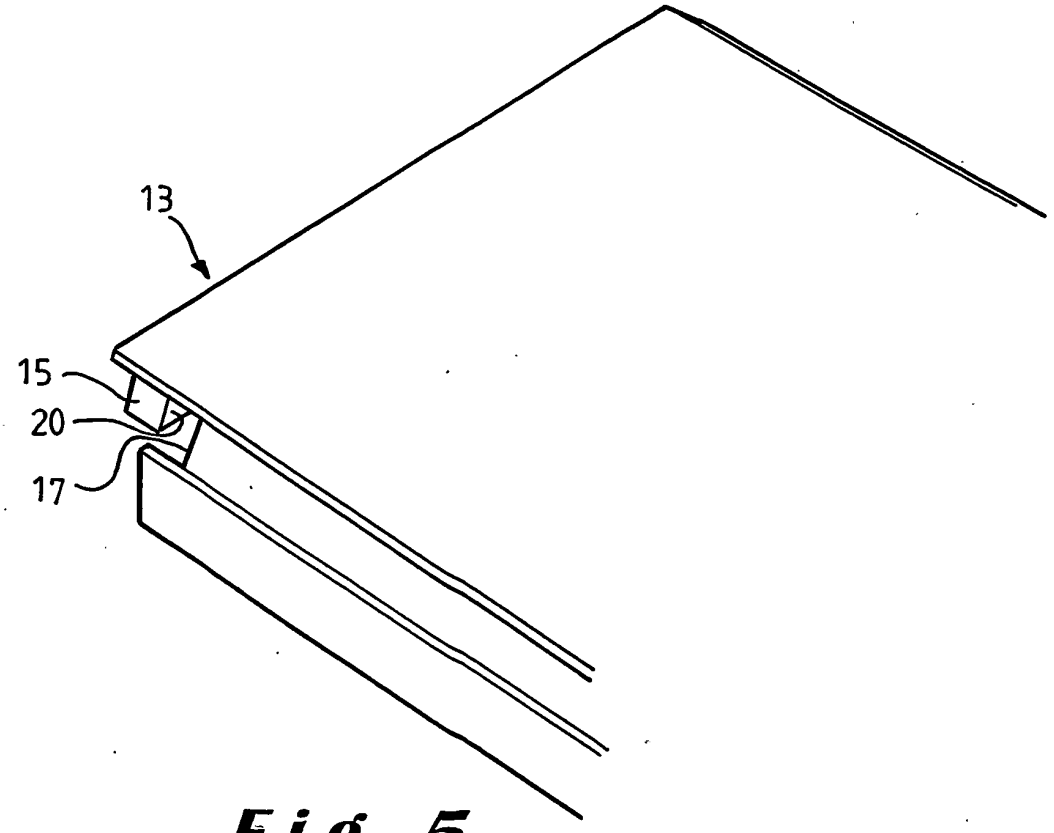


Fig. 5

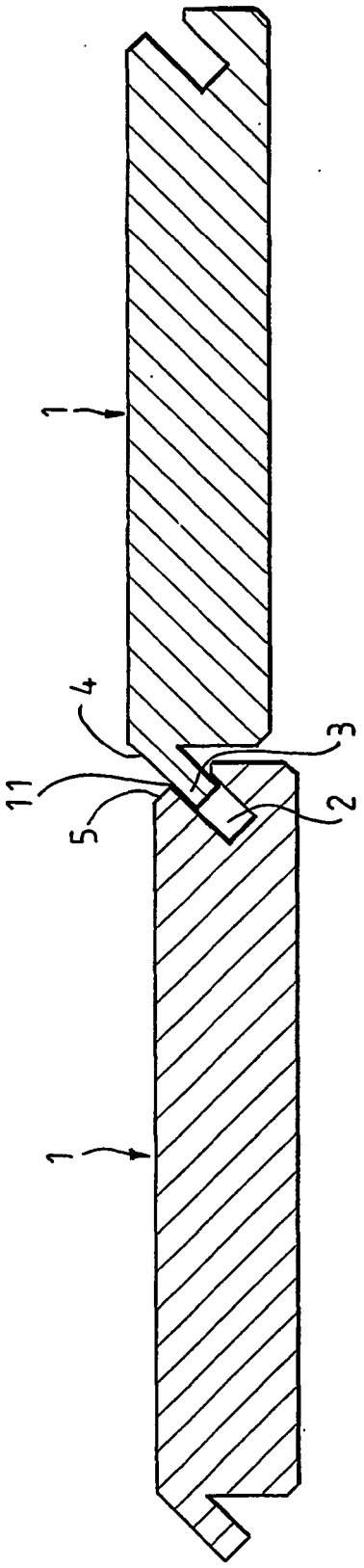


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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