



(11) **EP 2 096 230 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
05.12.2012 Bulletin 2012/49

(51) Int Cl.:
E04F 13/08 ^(2006.01) **E04F 15/02** ^(2006.01)
B27M 3/04 ^(2006.01)

(21) Application number: **08003452.3**

(22) Date of filing: **26.02.2008**

(54) **Multiply panel for floor, ceiling or wall coverings**

Multiply-Tafel für Böden, Decken oder Wandabdeckungen

Panneau multiple pour revêtement de sol, plafond, ou mur

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT
RO SE SI SK TR**

(43) Date of publication of application:
02.09.2009 Bulletin 2009/36

(73) Proprietor: **Kronoplus Technical AG
9052 Niederteufen (CH)**

(72) Inventors:
• **Mizanin, Martin, Dipl. Ing.
08006 Presov 6 (SK)**
• **Nachaj, Pavol, Dipl. Ing.
08005 Presov 5 (SK)**
• **Kotul'ák, Jozef, Dipl. Ing.
09302 Vranov nad Topľou 2 (SK)**

(74) Representative: **Heselberger, Johannes
Bardehle Pagenberg Partnerschaft
Patentanwälte, Rechtsanwälte
Prinzregentenplatz 7
81675 München (DE)**

(56) References cited:
EP-A- 1 207 246 EP-A- 1 770 230
EP-A1- 1 184 527 EP-A1- 1 493 879
WO-A-01/48332 WO-A-94/01628
WO-A-96/27721 WO-A-03/087498
WO-A-2004/015221 WO-A-2007/141605
WO-A1-01/98604 DE-B3- 10 332 490
DE-C1- 10 163 435 JP-A- 2006 037 520
US-A1- 2004 237 454 US-B1- 6 247 285

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 096 230 B1

Description

1. Field of the invention

[0001] The present invention relates to a panel for a floor, ceiling or wall covering.

2. Technical Background

[0002] From the prior art a number of different floor, ceiling or wall panels are known. In the simplest case the same consist of a board of massive wood. Floor, ceiling or wall panels made of massive wood are however expensive and can usually only be installed by skilled experts. However, massive wood panels provide a very attractive and decorative surface. To avoid the high costs of massive wood panels and to provide at the same time the attractive surface of such a panel, for example veneer panels were developed. Veneer consists of thin sheets, usually in the range of 0.3 - 6.0 mm, made from a high quality wood, which are glued onto a cheaper carrier material. One disadvantage of these materials is that the decorative layer made from high quality wood usually shows a different behavior when subjected to heat and moisture than the material of the carrier, which leads to distortions of the panels. In order to deal with this problem so-called pre-finished flooring use a number of thin rod-like wooden elements as carrier, which are arranged underneath the decorative wood layer, to achieve a compensation for the different expansion behavior of the different materials (confer to figure 1). However, such pre-finished floorings are still relatively expensive and require a skilled expert for installation.

[0003] A further disadvantage of such floorings is, that the wooden carrier elements can not be provided with integral mechanical connecting means as for example groove or tongue connecting means. Therefore, these floorings are glued, which makes the installation correspondingly complex and expensive.

[0004] From the prior art further laminate panels are known for floor, ceiling or wall coverings. Laminate panels are comparably inexpensive in contrast to the above mentioned panels. Laminate panels consist in simplest form of a carrier board of MDF or HDF with a thickness of 4 - 8 mm, which are provided with a printed décor paper on their upper surface. The carrier board is commonly provided on its lower side with a so-called counter acting paper, which serves to act against a distortion of the carrier board caused by the décor layer. The décor layer is usually provided with a thin abrasion resistant layer, which consists of small corundum particles, which are imbedded in a resin. The decorative upper surface of the laminate panels thus does not consist of real wood, but rather of the above mentioned printed décor paper. The problems of pre-finished wood flooring with regard to the different expansion behavior of the decorative wood layer and the carrier material is thus avoided, so that relatively inexpensive materials can be used as carrier materials

for laminate panels. Further, such laminate panels are usually provided with tongue and groove connecting means, or with so-called "click" connections, which allows a simple and easy installation process. One disadvantage of laminate panels compared to pre-finished flooring is the limited life-time. Further, although improvements have been made in the past, laminate panels do not yet provide the natural texture and look of wood veneer or massive wood panels.

[0005] Prior art document JP 2006-37520 discloses panels with coupling means arranged at the edge of the panels. The joining surface of coupling bars and panels is - according to the figures of this document - perpendicular to the front and rear surfaces.

[0006] Document EP 1 770 230 A1 discloses panels with coupling bars or latches, whereby the joining surface of coupling bar and panel is perpendicular, as one can derive from Fig. 9.

[0007] Documents DE 101 63 435 C1 and DE 103 32 490 B3 also show panels with coupling bars provided at the edge of the panel, whereby the joining surface is perpendicular, as one can see from the figures of these documents.

[0008] Document US 2004/237454 A1 discloses a decorative laminate panel comprising a core material and front and rear surfaces. The panel further comprises separate edge profile members, which have a joining surface with the core of the panel, which is perpendicular to the front and rear surface.

[0009] Document EP 1 207 246 A1 also relates to a decorative laminate panel having a water resistant edge ; whereby the joining surface of edge and panel is perpendicular to the front and rear surface of the panel.

[0010] Document WO 2004/015221 A1 refers to panels comprising separate connecting means being arranged at the edge of the panels, which connecting means are for example extruded into grooves milled into the edge surfaces of the panels.

[0011] Document WO 03/087498 A1 shows floor boards for floorings comprising a coupling latch at the edge of the panel, whereby the joining surface is perpendicular to the surface of the panel, as shown in Fig. 9 of this document.

[0012] Document WO 94/01628 shows a snap-together flooring system, wherein the flooring panels are provided with connector elements attached thereto. The connector elements are attached to the panels by means of additional tongues or ribs in the shape of barbs having enlarged heads that fit into elongated grooves in the base of the panels. Thus, the connector elements are not glued to the panels.

[0013] Document WO 96/27721 discloses a flooring or wall panel having locking means in the form of groove and tongue elements, which are assembled to the panels. The joining surface of groove and tongue elements with the panel is perpendicular to the surface of the panel.

[0014] Document EP 1 493 879 A1 discloses a floor plate with a core consisting of a wood material comprising

a decorative layer formed by a cold ceramic coating containing magnesium oxide and ammonium polyphosphate. The coupling means are integrally formed in form of groove and tongue elements into the core of wood material.

[0015] Document WO 01/98604 A1 discloses a floor board with coupling means at its side edges. The coupling means are made from plastic material and are fixed to the core of the floor boards by means of longitudinal legs, being arranged in deep grooves cut into the edges of the wooden core of the boards.

[0016] Document EP 1 184 527 A1 discloses a panel for a parquet floor comprising an intermediate layer made from a soft wood and a coupling bar made from a material harder than the intermediate layer. This document does not disclose the use of a coupling bar in form of a frame surrounding the base plate.

[0017] Document WO 2007/141605 discloses a floor panel according to the preamble of independent claim 1. In this panel, the material of the coupling bar is a fibre filled synthetic material composite and the joining surface of coupling bar and base plate is perpendicular arranged to the front surface.

[0018] Based on this prior art it is the object of the present invention to provide a panel for a floor, ceiling or wall covering which eliminates or reduces the disadvantages of the prior art. The invention in particular tries to solve the problem to provide a panel for a floor, ceiling or wall covering, which combines the advantages of pre-finished floor coverings and laminate and which avoids the disadvantages of both. It is in particular the object of the invention to provide a panel for a floor, ceiling or wall covering, which can be produced by using inexpensive wood-based materials and which nevertheless is very durable and has an attractive and decorative surface, which is easy and cost efficient to install and which provides a high dimensional stability.

[0019] These and other objects, which will become apparent when studying the following description of the invention are solved by a panel for a floor, ceiling or wall covering, according to claim 1.

3. Detailed description of the invention

[0020] The panel for a floor, ceiling or wall covering according to the invention comprises at least a base plate from a first material, namely a relatively inexpensive wood composite material. The plate comprises a front surface, a rear surface and a circumferential border. The front surface is the face of the panel which is in installed condition usually parallel with and facing away from the floor, wall or ceiling it is covering. The rear surface is the surface of the plate opposite of the front surface and is usually parallel therewith. The circumferential border denotes the edge or edges of the panel. If the panel has e.g. a flat rectangular shape the circumferential border consists essentially of the four edges of the rectangle. Furthermore, the panel according to the invention com-

prises at least one coupling bar made from a second material different than the first material, like for example soft or hard wood, which bar is provided with mechanical connection means and extends along the entire circumferential border to allow a connection with correspondingly shaped panels, in order to produce a covering for a floor, wall or ceiling. The coupling bar(s) is(are) glued to the border of the base plate by a suitable adhesive as e.g. a heavy duty wood glue. Advantageously, the mechanical connection means are provided in the form of tongue and groove type connection means which are preferably cut or milled in the coupling bar to form an integrated unit therewith.

[0021] The provision of the coupling bar allows the use of relatively cheap materials, such as chip board or oriented strand board (OSB), for the base plate, i.e. materials which are usually not suitable as material for the base plate of such panels, due to a lack of structural strength, which prohibits milling or cutting of mechanical connection means into these materials. In other words: the coupling bar allows the use of materials for the base plate, which can usually not be provided with reliable integrated mechanical connection means, due to a lack of strength thereof. Therefore, a base plate from a cheap material such as chip board provided with a coupling bar from a second material such as soft wood, allows to provide a relatively cheap panel for a floor, ceiling or wall covering having mechanical connection means, which allow to easily connect a plurality of similar panels with each other to provide a covering.

[0022] Furthermore, the base plate may be covered with a decorative covering layer which may for example be wood veneer. As explained above, the different expansion behavior of veneer and cheap base material such as inexpensive types of wood, usually makes it necessary to provide an intermediate layer between the veneer and the base plate. However, according to the invention the coupling bar allows to use materials for the base plate having similar expansion behavior as the upper layer like e.g. a suitably treated wood composite material or plastic material such that both may be glued together without the necessity for an intermediate layer. In other words: since the coupling bar serves for the mechanical connection it is now possible to choose a material for the base plate which is not necessarily strong enough to be provided with connection means on its own as long as it has a suitable expansion behavior. Thus, it is now possible to use relatively inexpensive composite wooden materials for the base plate which were considered as unsuitable heretofore.

[0023] In yet another preferred embodiment of the invention, the rear surface is covered with a countermove layer. This layer may consist of veneer as well. In a preferred embodiment of the invention, the covering layer is a high quality veneer and the lower layer is a low quality veneer to save costs. The counteracting layer serves to prevent a distortion of the panel, when the covering layer is applied to the front surface. Alternatively, the counter-

move layer consists essentially of a synthetic foil.

[0024] According to the invention, the coupling bar is flush with the front surface of the base plate and/or the covering layer covers both the base plate and at least a portion of the coupling bar. This is advantageous not only for aesthetic reasons but it also increases the stability of the panel in the region where the coupling bar and the base plate are joining. In particular it makes the finished floor, ceiling or wall covering more stable with respect to concentrated (i.e. point like) loads. In yet another embodiment of the panel, the coupling bar is also flush with the rear surface of the base plate.

[0025] According to the invention, the coupling bar is provided in form of a frame surrounding the base plate on its entire perimeter.

[0026] In a preferred embodiment of the invention, the mechanical connection means are provided as tongue- and groove type connections means, as they are well known in the art of e.g. laminate floorings and as they are for example described in the co-owned US 6,247,285 or EP 1 157 176. Advantageously, the groove and tongue connecting means are milled or cut into the coupling bar, so that coupling bar and connecting means form an integrated unit. Alternatively or as a pre-processing, tongue and groove may also be cut into the coupling bar.

[0027] According to the invention, the coupling bar is glued to the base plate. The gluing results in a stable connection between the coupling bar and the base plate. Further to the invention, the joining surface of the coupling bar and the base plate is not perpendicular but rather inclined to the front surface to some extent. Thereby, the base plate and the coupling bar are inclined with respect to the plane of the front or rear surface of the base plate, such that the area of the joining surface is increased. This results in a more stable connection between the coupling bar and the base plate.

[0028] In a preferred embodiment the base plate is made from chip board or particle board. Chip and particle board is a relatively inexpensive wood material, fabricated from wood particles, such as wood chips, saw mill shavings, or saw dust and a synthetic resin or other suitable binder, which are pressed together. Another material which may be used for the base plate is medium density fiberboard MDF or HDF, although this material is usually more expensive than chip board. Another material which may be used for the base plate is oriented strand board (OSB) or waver board which is a wood product formed by layering strands or flakes of wood in specific orientations and which is also relatively inexpensive. Generally, particularly preferred materials are other composite material on lignocelluloses basis.

[0029] In a preferred embodiment of the invention, the coupling bar is made from soft wood. Soft wood is wood from conifers which are needle bearing trees such as pine, spruce, cedar, fir, larch, douglas-fir, hemlock, cypress, redwood and yew. Soft wood has the advantage that it is easy to work. Another notable advantage of the soft wood is its low swelling value. In a further embodi-

ment of the mention, the coupling bar is made from hard wood. Hard wood is wood from broad-leaved or angiosperm trees.

4. Description of preferred embodiments

[0030] In the following, the figures are described in detail.

Figure 1 schematically shows the structure of a pre-finished wood floor according to the prior art;

Figure 2 schematically shows the structure of a panel not according to the present invention since the joining surfaces of coupling bar and base plate are not inclined, before connection means are milled into the coupling bars;

Figure 3 shows a panel not according to the present invention since the joining surfaces of coupling bar and base plate are not inclined, with mechanical connection means in the form of simple groove and tongue means;

Figure 4 exemplarily shows a detail example of a preferred geometry of groove and tongue connecting means, which may be milled into coupling bars;

Fig. 5 shows an alternative way to connect a coupling bar to the border of a base plate; and

Figs. 6a/b are schematically views of two panels, whereby Fig. 6a is not in accordance with the invention.

[0031] In figure 1 a pre-finished wood floor element 10 according to the state of the art is shown. Below a covering layer 12 of wood veneer, a plurality of small wood rods 11 are provided which serve for a re-compensation of the different expansion behaviors of the covering layer 12 and a base plate 13.

[0032] In figure 2 a panel 20 for a floor, ceiling or wall covering is schematically shown, which panel is according to the present invention with the exception that the joining surfaces of coupling bar and base plate are not inclined. The proportions are not true to scale but have been chosen to allow for a better presentation. As can be seen from figure 2, the base plate 21 is provided with two coupling bars 22 on its edges or borders and a thin decorative covering layer 23 and a counteracting layer 24. In this embodiment the base plate 21 is an inexpensive chip board material and the decorative covering layer 23 is a high quality wood veneer. The counteracting layer 24 is in turn made from a lower quality wood veneer. For the coupling bars 22 spruce wood may be used. The

covering layer 23 and the lower layer 24 may have a thickness ranging mainly from 0,3 - 6 mm. The base plate 21 may have a thickness of 6 - 20 mm. The main elements 21, 22, 23 and 24 of the panel 20 are attached to each other by a suitable adhesive, as known to the skilled person. Reference number 28 denotes the joining surface of plate 21 and coupling bar 22. As can be seen from the figure the joining surface 28 is essentially perpendicular to surface 23 and thus not in accordance with the invention.

[0033] Figure 3 shows a similar panel as fig. 2 but with groove and tongue connecting means milled or cut into the coupling bars. A base plate 31 made from chip board is provided with a decorative covering layer 34 and a counteracting layer 35. A coupling bar 33 on the left side of the base plate is provided with a groove 37 and a coupling bar 32 on the opposite side of the base plate is provided with a tongue 36. Obviously, the arrangement is only exemplary and could e.g. also be reversed. If two of the panels 30 shown are to be connected, the tongue 36 of the first panel snugly fits into the groove 37 of the second panel such that a firm and stable connection between two panels is established. Reference number 38 denotes the joining surfaces of plate 31 and coupling bars 33 respectively 32. Also in this case the joining surface 38 is essentially perpendicular to surface 34 and thus not in accordance with of the invention.

[0034] Figure 4 shows a more sophisticated example for tongue and groove connecting means as are contemplated by the present invention. Two coupling bars 41 and 42 of two similarly build panels (not shown) are shown, having mechanical connection means in the form of a tongue 43 respectively a groove 44.

[0035] Figure 5 shows an embodiment of the present invention in which the joining surface 53 of the coupling bar 54 with the base plate 51 is not perpendicular to the decorative surface 52 of panel 50. This inventive embodiment has the advantage that the area of the joining surface 53 is greater than in the case when the joining surface 53 is perpendicular to the decorative surface 52 of the panel 50. Since in the shown embodiment in figure 5 the angle between the joining surface 53 and the upper side 52 of the panel 50 is approximately 45°, the joining area between the coupling bar 54 and the base plate 51 is approximately 1,4 kinds larger than in perpendicular case. This alignment advantageously increases the stability of the connection between the coupling bar 54 and the base plate 51. In particular, it is more stable with respect to concentrated (point like) load in the region of joining surface. 56 denotes a counteracting layer.

[0036] Figs. 6a and 6b show schematically two possible alternatives for the arrangement of coupling bars at the edges or borders of a panel. In fig. 6a the panel 61 has a generally rectangular shape and two coupling bars 62 are provided to the left and to the right of the panel as seen from above. The embodiment shown in Fig. 6a is therefore not in accordance with the invention. In fig. 6b the panel 63 also has a generally rectangular shape,

but it is provided with four coupling bars 64 on all four edges of the panel, i.e. essentially on the whole circumferential border of the base plate in accordance with the invention. The bars 64 thus form a frame around the panel 63, surrounding the base plate essentially on its entire perimeter. As one can see the shorter bars are somewhat longer than the edge of the panel they are attached to. In this way coupling gaps at the corner of the panel are prevented. Obviously, as an alternative, also the longer bars could extend beyond the edge of the panel to achieve the same effect. It should be noted that the coupling bars are only schematically shown and are in practice provided with mechanical coupling means, which are e.g. milled in the coupling bars 62, 64 after the bars are attached onto the edges of the panels 61 respectively 63.

Claims

1. Panel (20; 30; 50) for a floor, ceiling or wall covering, comprising:

a base plate (21; 31; 51) made from a first material having a front surface, a rear surface and a circumferential border; the first material being a composite wooden material; and at least one coupling bar (22; 32, 33; 41, 42; 54) made from a second material different from the first material, which coupling bar is provided with mechanical connection means (36, 37; 43, 44; 55) and extends along the circumferential border of the base plate to allow a connection with other correspondingly shaped panels (20; 30; 50), and which coupling bar (22; 32, 33; 41, 42; 54) is flush with the front surface,

characterized in that the second material is wood, and the coupling bar (22; 32, 33; 41, 42; 54) is glued to the base plate (21; 31; 51), whereby the joining surface of the coupling bar and the base plate is inclined to the front surface, such that the area of the joining surface is increased,

and **in that** the coupling bar (22; 32, 33; 41, 42; 54) is provided in form of a frame surrounding the base plate (21; 31; 51) on its entire perimeter.

2. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to claim 1, **characterized in that** the front surface of the base plate (21; 31; 51) is provided with a decorative covering layer (23; 34; 52).
3. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to any of the preceding claims, **characterized in that** the rear surface of the base plate (21; 31; 51) is covered with a countermove layer (24; 35; 56).

4. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to claim 2 or claims 2 and 3, **characterized in that** the covering layer (23; 34; 52) and/or the countermove layer (24; 35; 56) comprise a wood veneer. 5
5. Panel (20; 30; 50) for a floor, ceiling or wall covering according to claims 2 and 3, **characterized in that** the covering layer (23; 34; 52) comprises a wood veneer and the countermove layer (24; 35; 56) essentially consists of a synthetic foil. 10
6. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to any of the preceding claims, **characterized in that** the coupling bar (22; 32, 33; 41, 42; 54) is flush with the rear surface of the base plate (21; 31; 51). 15
7. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to any of the preceding claims, **characterized in that** the mechanical connection means are tongue- and groove type connection means (36, 37; 43, 44). 20
8. Panel (20; 30; 50) for a floor, ceiling or wall covering, according to any of the preceding claims, **characterized in that** the composite wooden material of the first material is chip board or oriented strand board OSB material. 25 30
- Patentansprüche**
1. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag, aufweisend: 35
- eine Basisplatte (21; 31; 51) hergestellt aus einem ersten Material mit einer Vorderseite, einer Rückseite und einem umlaufenden Rand, wobei das erste Material ein Holzverbundwerkstoff ist; und 40
- zumindest einen Kupplungsstab (22; 32, 33; 41, 42; 54) hergestellt aus einem zweiten Material, welches von dem ersten Material unterschiedlich ist, welcher Kupplungsstab mit mechanischen Verbindungsmitteln (36, 37; 43, 44; 55) versehen ist und sich entlang des umlaufenden Rands der Basisplatte erstreckt, um eine Verbindung mit anderen korrespondierend geformten Paneelen (20; 30; 50) zu ermöglichen, und 45 50
- welcher Kupplungsstab (22; 32, 33; 41, 42; 54) bündig mit der vorderen Oberfläche ist, **dadurch gekennzeichnet, dass** das zweite Material Holz ist und der Kupplungsstab (22; 32, 33; 41, 42; 54) an die Basisplatte geklebt ist (21; 31; 51), wobei die Verbindungsfläche von Kupplungsstab und Basisplatte zur vorderen Oberfläche hin geneigt ist, so dass die Fläche der Ver-
- bindungsfläche vergrößert ist, und dadurch, dass der Kupplungsstab (22; 32, 33; 41, 42; 54) in Form eines Rahmens bereitgestellt ist, der die Basisplatte (21; 31; 51) an deren gesamten Umfang umgibt.
2. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die vordere Oberfläche der Basisplatte (21; 31; 51) mit einer dekorativen Deckschicht (23; 34; 52) versehen ist.
3. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die rückseitige Oberfläche der Basisplatte mit einer Gegenzugschicht (24; 35; 56) versehen ist.
4. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der Ansprüche 2 oder 2 und 3, **dadurch gekennzeichnet, dass** die Abdeckschicht (23; 34; 52) und/oder die Gegenzugschicht (24; 35; 56) ein Holzfurnier umfasst.
5. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der Ansprüche 2 und 3, **dadurch gekennzeichnet, dass** die Abdeckschicht (23; 34; 52) ein Holzfurnier umfasst und die Gegenzugschicht (24; 35; 56) im Wesentlichen aus einer synthetischen Folie besteht.
6. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Kupplungsstab (22; 32, 33; 41, 42; 54) bündig mit der rückseitigen Oberfläche der Basisplatte (21; 31; 51) ist.
7. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die mechanischen Verbindungsmittel Verbindungsmittel vom Nut- und Federtyp sind (63, 37; 43, 44).
8. Paneel (20; 30; 50) für einen Fußboden-, Decken- oder Wandbelag gemäß einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Holzwerkstoffmaterial des ersten Materials Pressspan oder Oriented Strand Board Material (OSB) ist.
- Revendications**
1. Un panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher, comprenant :
- une plaque de base (21 ; 31 ; 51) réalisée en un

premier matériau présentant une surface frontale, une surface arrière et une bordure circonférentielle ; le premier matériau étant un matériau composite en bois ; et

au moins une barre de couplage (22 ; 32, 33 ; 41, 42 ; 54) réalisée en un second matériau différent du premier matériau, barre de couplage qui est pourvue de moyens de liaison mécanique (36, 37 ; 43, 44 ; 55) et s'étend le long de la bordure circonférentielle de la plaque de base pour permettre une liaison avec d'autres panneaux conformés de manière correspondante (20 ; 30 ; 50), cette barre de couplage (22 ; 32, 33 ; 41, 42 ; 54) arrivant au ras de la surface frontale,

caractérisé en ce que le second matériau est du bois et **en ce que** la barre de couplage est collée à la plaque de base (21 ; 31 ; 51) de sorte que la surface de jonction de la barre de couplage et la plaque de base soit inclinée par rapport à la surface frontale, de façon à accroître l'aire de la surface de jonction, et **en ce que** la barre de couplage (22 ; 32, 33 ; 41, 42 ; 54) est réalisée sous la forme d'un cadre entourant la plaque de base (21 ; 31 ; 51) sur la totalité de son périmètre.

2. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon la revendication 1, **caractérisé en ce que** la surface frontale de la plaque de base (21 ; 31 ; 51) est pourvue d'une couche de recouvrement décorative (23 ; 34 ; 52).

3. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon l'une des revendications précédentes, **caractérisé en ce que** la surface arrière de la plaque de base (21 ; 31 ; 51) est recouverte d'une couche de contrebalancement (24 ; 35 ; 56).

4. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon la revendication 2 ou selon les revendications 2 et 3, **caractérisé en ce que** la couche de couverture (23 ; 34 ; 52) et/ou la couche de contrebalancement (24 ; 35 ; 56) comprennent un placage de bois.

5. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon les revendications 2 et 3, **caractérisé en ce que** la couche de recouvrement (23 ; 34 ; 52) comprend un placage de bois et la couche de contrebalancement (24 ; 35 ; 56) consiste essentiellement en une feuille synthétique.

6. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon l'une des revendications précédentes, **caractérisé en ce que** la barre de couplage (22 ; 32, 33 ; 41, 42 ; 54) arrive au ras

de la surface arrière de la plaque de base (21 ; 31 ; 51).

7. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon l'une des revendications précédentes, **caractérisé en ce que** les moyens de liaison mécanique sont des moyens de liaison de type à rainure et languette (36, 37 ; 43, 44).

8. Panneau (20 ; 30 ; 50) pour un revêtement mural, de plafond ou de plancher selon l'une des revendications précédentes, **caractérisé en ce que** le matériau composite en bois du premier matériau est un matériau de panneau de particules ou de panneau à brins orientés OSB.

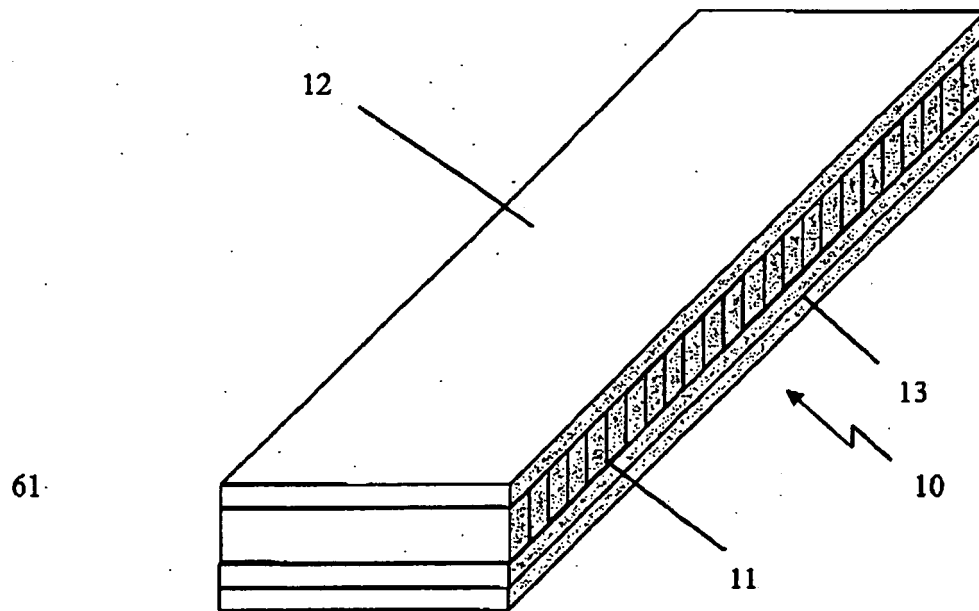


Fig. 1
(Prior art)

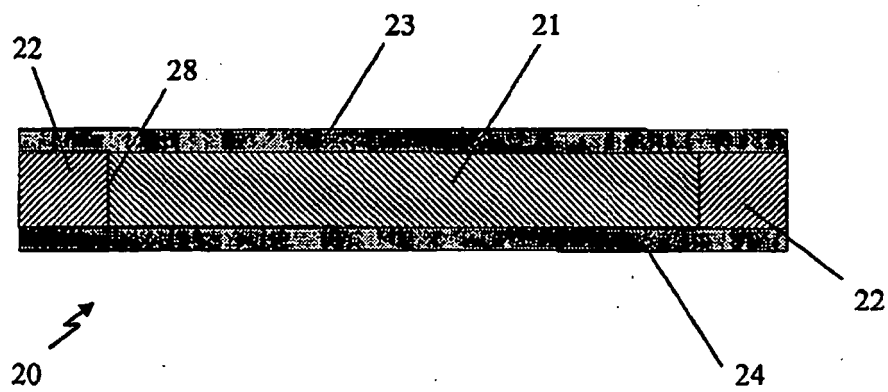


Fig. 2

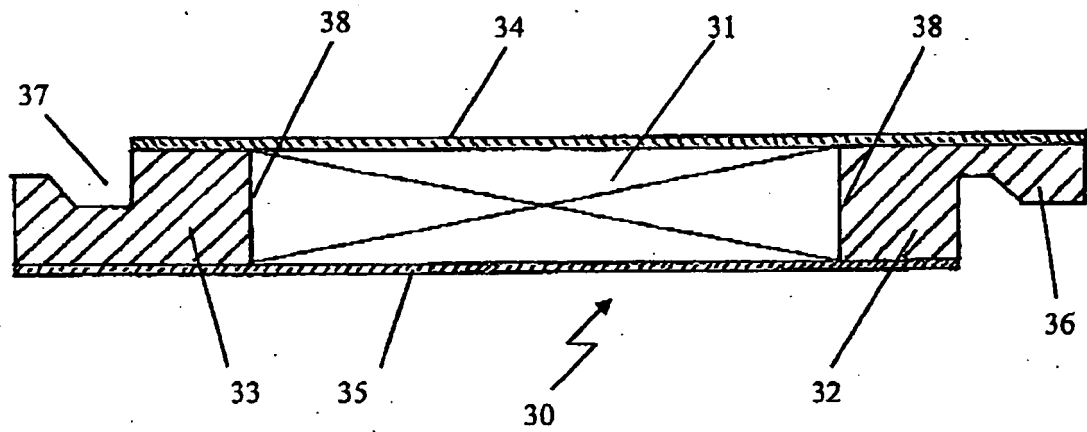


Fig. 3

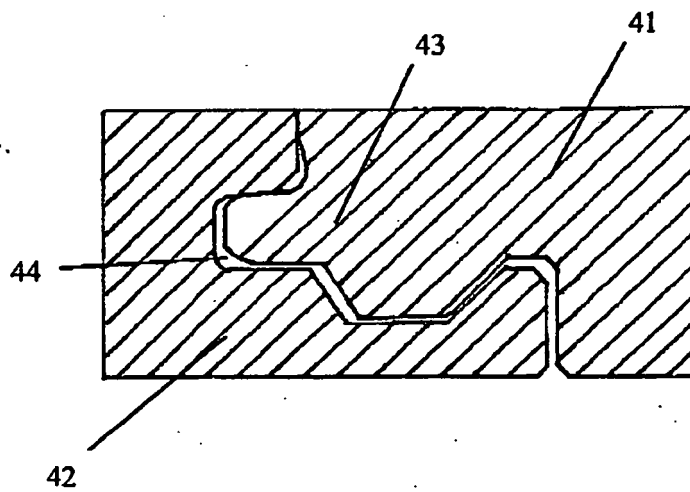


Fig. 4

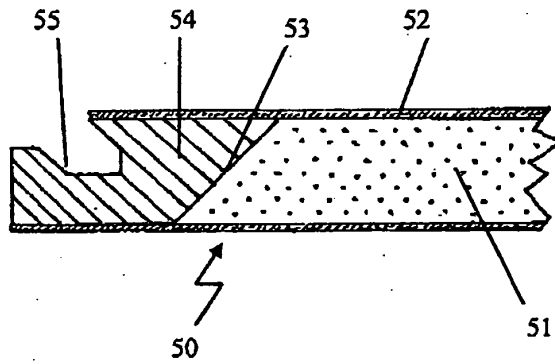


Fig. 5

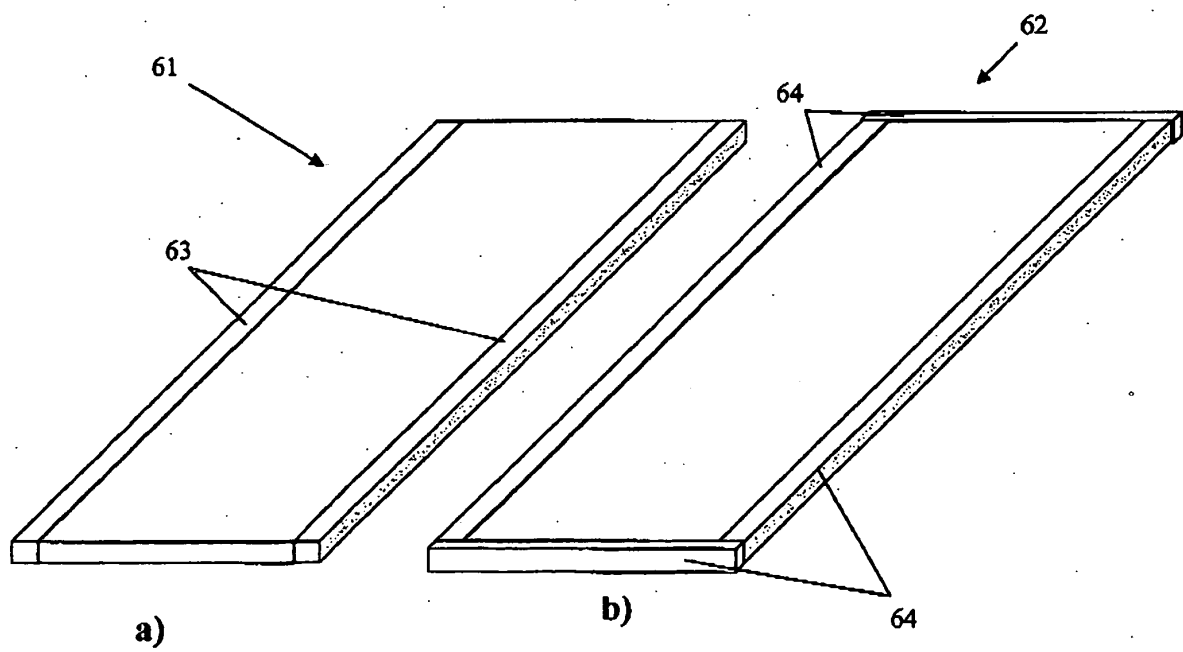


Fig. 6

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2006037520 A [0005]
- EP 1770230 A1 [0006]
- DE 10163435 C1 [0007]
- DE 10332490 B3 [0007]
- US 2004237454 A1 [0008]
- EP 1207246 A1 [0009]
- WO 2004015221 A1 [0010]
- WO 03087498 A1 [0011]
- WO 9401628 A [0012]
- WO 9627721 A [0013]
- EP 1493879 A1 [0014]
- WO 0198604 A1 [0015]
- EP 1184527 A1 [0016]
- WO 2007141605 A [0017]
- US 6247285 B [0026]
- EP 1157176 A [0026]