



(11) **EP 2 113 393 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**11.04.2012 Bulletin 2012/15**

(51) Int Cl.:  
**B44C 3/02 (2006.01) B44F 9/02 (2006.01)**

(21) Application number: **08008164.9**

(22) Date of filing: **29.04.2008**

(54) **Floor panel, method for manufacturing floor panels and transfer foil**

Bodenpaneel, Verfahren zur Herstellung von Bodenpaneelen und Transferfolie

Panneau de plancher, procédé de fabrication des panneaux de plancher et film de transfert

(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:  
**04.11.2009 Bulletin 2009/45**

(73) Proprietor: **Flooring Industries Limited, SARL  
8070 Bertrange (LU)**

(72) Inventor: **Segaert, Martin  
8900 Ieper (BE)**

(74) Representative: **Schacht, Benny Marcel Corneel et  
al  
Unilin Industries, BVBA  
Ooigemstraat 3  
8710 Wielsbeke (BE)**

(56) References cited:  
**EP-A- 0 914 972 WO-A-01/96689  
DE-U1-202004 001 037 US-A- 1 904 718  
US-A1- 2006 150 557 US-A1- 2007 051 064**

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 2 113 393 B1**

## Description

**[0001]** This invention relates to floor panels and a method for manufacturing floor panels.

**[0002]** More particularly, the invention relates to floor panels substantially consisting of a substrate and a top layer provided on this substrate, such as a veneer layer, cork layer, vinyl layer, a wooden top layer or a laminate top layer.

**[0003]** In particular, the invention relates to floor panels having a synthetic material-based top layer comprising a printed decor. Said decor may be printed directly on the substrate, whether or not by the intermediary of primer layers. The decor can also be provided on a material sheet, such as a paper sheet, which is taken up in said top layer. Further, the top layer may also comprise a protective layer, which is situated above the printed decor and which comprises, for example, wear-resistant particles, such as aluminum oxide. It is not excluded that this protective layer also comprises a material sheet, such as a paper sheet. Such laminate floor panel may be manufactured, for example, by means of a DPL (Direct Pressure Laminate) or HPL (High Pressure Laminate) technique. In the case of a DPL technique, one or more material sheets provided with resin are brought together with the substrate into a press device, where, under the influence of increased pressure and temperature, they are connected to each other as well as to the substrate. In the case of a HPL technique, the top layer is separately formed on the basis of two or more material sheets provided with resin, before the thus obtained top layer is provided on the substrate, for example, by gluing them on the substrate.

**[0004]** It is known that such floor panels may be intended for forming a floating floor covering and that during installation, they are mutually coupled at their edges, for example, by means of mechanical coupling parts, whether or not made in one piece with the floor panel, which provide for a mutual locking of the floor panels in horizontal as well as in vertical direction, for example, as described in the international patent applications WO 94/26999, WO 97/47834, WO 01/98603 and WO 01/96688. However, they may also be coupled to each other at their edges by means of a glued into each other traditional tongue and groove connection.

**[0005]** From WO 01/96688, it is known that such floor panels may be provided with a chamfer, such as a bevel, at one or more edges, in the proximity of the upper side thereof. In the case of floor panels substantially consisting of a substrate and a top layer provided on this substrate, such chamfer may or may not extend from the upper side of the floor panel into the substrate. From WO 01/96688, it is also known to provide the surface of such chamfers with a decorative covering.

**[0006]** For the decorative covering of the surface of such chamfer, various possibilities are known, such as lacquering or printing it, for example, with a transfer print or a print accomplished in another manner. For examples

of existing decorative coverings for chamfers, reference is made to the aforementioned WO 01/96688 and WO 2007/054812.

**[0007]** Printing, more particularly printing by means of a transfer printing procedure, offers the advantage in respect to lacquering the surface of the chamfer that a motif can be smoothly realized in the decorative covering, that colors matching the floor panel can be realized on the chamfer, that a smoother and cleaner production process can be obtained, that a less rough finish of the respective surface can be achieved and that other technical effects, such as gloss, can be achieved. Disadvantageous with transfer printing is that it is difficult to manufacture the herewith applied matching transfer foils in limited numbers. With relatively small series of floor panels, the minimum order quantities of such transfer foils easily exceed the quantities required to this aim. Hereby, large surpluses are produced and the price of such small series may increase considerably.

**[0008]** Directly printing the surface of a chamfer, such as presented in WO 2007/054812, has the disadvantage that a well-covering colored decorative layer is difficult to realize with a light color. Such decorative layer is desirable, for example, when the floor panel itself or the top layer of this floor panel is of a relatively light color or tint. One or more preceding treatments of the surface of the chamfers is desirable in order to obtain a good covering in such case. Directly printing the surface of a chamfer has the advantage that it entails a high complexity in the manufacturing process. So, adjustments of the ink colors may be necessary when another series of floor panels is printed.

**[0009]** Primarily, the present invention aims at a floor panel with one or more chamfers which are covered with an alternative decorative covering. According to various preferred embodiments of the invention, also a solution is offered for one or more of the disadvantages of the floor panels of the state of the art. To this aim, the invention, according to its first aspect, relates to a floor panel, wherein the floor panel at one or more edges, in the proximity of the upper side, is provided with a chamfer, wherein the surface of said chamfer is provided with a decorative covering, with as a characteristic that said decorative covering comprises at least a first decorative layer and a second decorative layer, which decorative layers are provided on top of each other, wherein the first decorative layer remains at least partially visible through the second decorative layer provided thereupon. It is clear that according to the invention, the first decorative layer as well as the second decorative layer have to contribute to the final appearance of the decorative covering of the surface of the chamfer. Preferably, said chamfer relates to an inclination or a so-called bevel, although according to the invention other forms of chamfers are not excluded. Preferably, such chamfer is formed by removing a material portion from the upper surface of the floor panel at one or more of the aforementioned edges, as is known as such from WO 01/96688. However, according to the in-

vention they may also be obtained in another manner, for example, by impressing, deforming or reshaping the upper surface, or by folding this upper surface. Such techniques for forming chamfers are known as such, for example, from WO 2006/066776, WO 2006/088417, WO 2006/058548 or WO 2006/090287.

**[0010]** By forming a decorative covering on the chamfer by means of superposing at least two decorative layers, the floor panel of the invention allows achieving various new effects.

**[0011]** The invention is applied, amongst others, for floor panels substantially consisting of a substrate and a top layer provided on this substrate, and primarily for the floor panels where the respective chamfer extends from the upper side across the top layer into the substrate. In fact, for these floor panels a decorative covering on the substrate of the chamfer is most desirable. It is noted that such substrate as such may consist of one or several layers or other portions. Further is noted that the substrate may be built up of any materials. For example, the substrate substantially may consist of real wood, plywood, particle board, MDF or HDF (Medium Density Fiberboard or High Density Fiberboard), filled synthetic material, such as WPC (Wood Plastic Composite) or purely synthetic material, such as polyvinylchloride or polyethylene.

**[0012]** In the case that the floor panel relates to a laminate floor panel, this preferably concerns a laminate floor panel manufactured by means of the above-mentioned DPL technique. The laminate top layer of such floor panels is thin, for example, less than 0.3 mm thick. In these floor panels, a possible chamfer preferably extends to beneath the laminate top layer, for example, into the underlying substrate. As a substrate, in a laminate floor panel preferably a board material, such as MDF, HDF or particle board is used.

**[0013]** Preferably, the floor panel of the invention relates to a floor panel representing, at least at its upper side, a wood motif. This may concern, for example, a floor panel with a veneer top layer, a wooden top layer, or a floor panel having, at least at its upper side, a printed decor representing a wood motif, as this may be the case with a laminate floor panel. However, it is clear that according to the invention other motifs, such as stone motifs or fantasy motifs, are not excluded.

**[0014]** Preferably, said second decorative layer is made translucent or transparent for the major part of said surface, such that the appearance of the major part of this surface can be determined, at least in part, by said first decorative layer. In this embodiment, said first decorative layer can show the basic color or the basic colors of the surface, whereas the second decorative layer, for example, superposes a motif or pattern hereon.

**[0015]** Said second decorative layer may be realized according to a plurality of possibilities.

**[0016]** According to a first possibility, said second decorative layer preferably has at least a portion in the form of a motif, such as a wood motif or portions of a wood

motif, more particularly wood pores and/or wood nerves. This portion is preferably made opaque or barely transparent, however, may also be translucent.

**[0017]** Preferably, the motif or pattern of the second decorative layer is made more finely than a possible motif in said first decorative layer. In the case of a wood motif, for example, the first decorative layer may represent the global color of the respective wood species, whereas the second decorative layer is transparent or translucent for the major part thereof, however, has a motif of, for example, wood pores or wood nerves. Preferably, the motif of the second decorative layer is made, at least for the major part thereof, if not completely, opaque or barely transparent. However, it is not excluded that this motif comprises translucent portions.

**[0018]** According to a particular preferred embodiment of this first possibility, the basic color in the first decorative layer may be obtained by means of solidified substance, such as by means of lacquers, paints or inks, and the motif of the second decorative layer may be obtained by a substantially transparent or translucent transfer print, which, as aforementioned, represents a barely transparent or opaque portion in the form of said motif. The advantage of such embodiment is that a substantially transparent transfer print with a motif is simpler to choose in order to match several series of floor panels, such that the large minimum delivery quantities with transfer films do not need to form a problem anymore. The underlying first decorative layer then preferably adapts itself to the respective series of floor panels. By means of this embodiment, it is also obtained that the possibly rougher surface of the first decorative layer may be covered by means of the transfer print.

**[0019]** A second decorative layer, which is provided by means of transfer printing, offers still further advantages. So, for example, dirt will accumulate less on such transfer print than on a solidified substance, such as lacquer; such transfer print may have a protective function, such as wear resistance, in respect to the underlying layers; by means of such transfer print, gloss or relief may be imparted to the underlying layers.

**[0020]** According to a second possibility, said second decorative layer preferably has at least one colored translucent portion. Such translucent portion may be applied for influencing at least locally the color of the underlying first decorative layer. In this manner, the appearance of the same underlying first decorative layer can be influenced by the selection of the second decorative layer. Thus, by means of this second possibility, it is thus possible to have the first decorative layer, by means of the selection of the second decorative layer, match floor panels of differing color or tint.

**[0021]** According to a third possibility, said second decorative layer has at least a translucent or transparent portion, wherein this portion imparts a matted or glossy effect to the underlying second decorative layer. By means of this third possibility, too, the appearance of the same underlying first decorative layer can be influenced

by the selection of the second decorative layer. By means of this third possibility, it is thus possible to have the same first decorative layer, by means of the selection of the second decorative layer, match floor panels of differing gloss degree.

**[0022]** It is clear that two or more of the above-mentioned possibilities can be combined with each other on the surface of the same chamfer.

**[0023]** According to a deviating possibility for realizing said second decorative layer, it may consist of a print which is provided by means of transfer printing, wherein this print substantially consists of the aforementioned not or barely transparent portion and wherein the first decorative layer then, instead of there through, remains at least partially visible in between this not or barely transparent portion. For example, this may relate to a transfer print wherein only a print in the form of wood pores is deposited above said first decorative layer, without herein depositing transparent or translucent portions on this first decorative layer.

**[0024]** According to a particular embodiment of the present invention, said floor panel forms part of a series of floor panels intended for forming a floor covering, wherein the color and/or the motif of said decorative covering in its entity, thus, at least the color and/or the motif of the first and/or the second decorative layer, is adapted to the tint and/or the motif of the individual respective floor panel from said series. Such adaptation may be performed solely by means of said first decorative layer.

**[0025]** It is clear that with a series of floor panels, a series of floor panels is intended which represent the same global motif and which are intended to be taken up in the same floor covering, such as, for example, floor panels representing naturally varnished oak. Thus, said adaptation relates to an adaptation to individual floor panels, which form part of the same series of floor panels and which thus possibly form a somewhat lighter or somewhat darker plank in the same global motif.

**[0026]** Said adaptation can be controlled by a detection of the tint of the individual floor panels or on the basis of information about this tint obtained in another manner, for example, by reading a code which is present at or on these floor panels. Floor panels with a chamfer, wherein the decorative covering of the chamfer is adapted to the tint of the general decor of the individual floor panels, are known as such from WO 2007/054812, where also methods are presented for controlling said adaptation by means of information in respect to the tint and/or the motif of the respective floor panels.

**[0027]** Generally, it is preferred that said second decorative layer consists substantially or entirely of a print provided by means of transfer printing. As aforementioned, the present invention allows applying one and the same transfer foil in different series of floor panels in that the underlying first decorative layer can provide for its matching. At the same time, by such transfer printing it is possible to provide a motif or pattern on the surface of the respective chamfer in a simple manner. Also when

the color or the tint of the entire decorative covering must be adapted to the tint and/or the motif of the individual floor panels, this adaptation can be performed entirely by means of the underlying first decorative layer and the motif of the second decorative layer can remain unaltered.

**[0028]** Generally, it is also preferable that said first decorative layer substantially consists of a solidified substance, such as paint, lacquer, ink or the like. With such substance, a color can be provided in a simple manner, which color, as aforementioned, can be adapted according to the tint of the floor panel. With such substance, a global color can be provided in a simple manner, which color, as aforementioned, possibly may be adapted according to the tint of the floor panel. The possible adaptation to the global tint of the individual floor panels does not necessarily have to be an adaptation by which exactly the same tint is obtained on the chamfer, but may be restricted to a choice from two or more tints, for example, one lighter and one darker tint, which then respectively matches several individual floor panels with a lighter or darker tint from the same series.

**[0029]** Preferably, said first decorative layer is substantially free from motifs or patterns. Preferably, this relates to a first decorative layer of uniform or quasi uniform color or tint, although a certain variation in the color, whether or not intended, is not excluded.

**[0030]** Preferably, said first decorative layer and/or said second decorative layer cover at least substantially the entire said surface of the chamfer. It is possible that the decorative layer concerned extends beyond this surface, towards the underside as well as to the upper side of the floor panel.

**[0031]** The first and/or second decorative layer may also be provided locally, which means that these layers do not necessarily have to cover the entire height and/or length of the surface of the chamfer.

**[0032]** According to a second independent aspect, the present invention also aims at an alternative method for manufacturing floor panels with chamfers, which, according to preferred embodiments thereof, allows a smooth and/or economical production of such floor panels. To this aim, the invention according to its second aspect relates to a method for manufacturing floor panels, wherein the floor panel is provided with a chamfer at one or more edges and wherein said chamfer is provided with a decorative covering, with the characteristic that said decorative covering is provided in two separate steps, namely a first step wherein a first decorative layer is provided and a second step wherein a second decorative layer is provided, whether directly or indirectly, at least above a portion of said first decorative layer, wherein said portion of the first decorative layer remains at least partially visible underneath said second decorative layer.

**[0033]** It is clear that the method of the second aspect can be applied for manufacturing the floor panels of said first aspect of the invention or the preferred embodiments thereof. Herein, in said first and second step then respec-

tively said first and second decorative layers mentioned in the first aspect are provided.

**[0034]** Preferably, in said first step a jetting technique is applied, whereas in said second step a print, such as a transfer print, may be applied. Thus, for example, in the first step jetting heads may be applied of the type known as such from DE 90 02 976 U1, and wherein, for example, superfluously applied substance may be drawn off immediately. In the second step, for example, pressing devices may be used which are of the type known as such from WO 03/086779, and wherein, for example, the transfer foil is printed with a heated belt onto the surface of the chamfer.

**[0035]** The present disclosure also relates to an alternative transfer foil for covering surfaces, in particular of the type which can be applied for covering a surface of a chamfer or another edge of a panel, such as a laminate panel. To this end, the invention according to its third aspect relates to a transfer foil of the type which can be used for covering the surface of a chamfer, with the characteristic that the transfer foil comprises a transferable layer which is made at least partially translucent or transparent, however, imparts a decorative aspect to said surface.

**[0036]** It is clear that such transfer foil can be applied for realizing the second decorative layer mentioned in the first and in the second aspects. However, according to the third aspect, it may also be used in other applications, such as when finishing the edge or chamfer at a furniture panel, ceiling panel or wall panel. Such panel preferably has a similar construction as the floor panels mentioned in connection with the first and second aspects.

**[0037]** According to a first possibility, the aforementioned decorative aspect is obtained in that said transfer foil comprises at least a portion in the form of a motif, such as a wood motif. Such portion preferably is made opaque or barely transparent, although it is not excluded that this portion is made translucent.

**[0038]** According to a second possibility, said decorative aspect is obtained in that the transfer foil comprises at least a colored translucent portion.

**[0039]** According to a third possibility, said decorative aspect is obtained in that the transfer foil comprises at least a glossy or a matte translucent portion.

**[0040]** Of course, two or more of the aforementioned three possibilities can be combined in the same transfer foil.

**[0041]** It is clear that a transfer foil with the features of said first, second and/or third possibility can be applied for realizing a second decorative layer as described by means of the first aspect respectively in connection with the first, second and third possibility thereof.

**[0042]** According to a deviating variant of the third aspect, said transferable layer, instead of being made at least partially translucent or transparent, substantially consists of said not or barely transparent portion. It is clear that the transfer foil of this deviating variant can be

applied for realizing a second decorative layer meeting the features of the deviating variant thereof mentioned in the first aspect.

**[0043]** With the intention of better showing the characteristics of the invention, hereafter, as an example without any limitative character, some preferred embodiments are described, with reference to the accompanying drawings, wherein:

Figure 1 represents a floor panel with the characteristics of the present invention;

Figure 2 represents a cross-section according to the line II-II indicated in figure 1;

Figure 3, at a larger scale, represents a view of the area indicated by F3 in figure 2; and

Figure 4 represents a method by which the floor panel of the figures 1 through 3 can be manufactured and which also shows the characteristics of the second aspect of the invention.

**[0044]** Figure 1 shows an oblong floor panel 1 having a pair of long opposite edges 2-3 and a pair of short opposite edges 4-5. Next to the upper side of the long opposite edges 4-5, the floor panel 1 is provided with chamfers 6. The surface 7 of the chamfers is provided with a decorative covering 8. It is clear that such chamfer 6 can also be realized at only one of the long edges 2 and/or that one or more of the short opposite edges 4-5 are provided with one or the other chamfer, whether or not having the decorative covering of the invention.

**[0045]** It is clear that the invention may also be applied for other than oblong floor panels. For example, it may also be applied for floor panels having edges of substantially the same length.

**[0046]** At its upper side 9, the represented floor panel 1 has a printed decor 10 representing a wood motif, and the decorative covering of the chamfer also is provided with a wood motif. In this case, more particularly wood pores 11 are represented.

**[0047]** Figure 2 clearly shows that the respective chamfer 6 is made in the form of an inclination or a bevel, such that, when coupling two of such floor panels 1, so-called V-grooves are created in the floor surface. According to an alternative, not represented embodiment, also rather U-shaped grooves can be formed.

**[0048]** Figure 2 also clearly shows the construction of the floor panel 1. In this case, a floor panel 1 is concerned, more particularly a laminate floor panel, which substantially consists of a substrate 12 and a top layer 13 provided on this substrate 12, in this case a top layer 13 on the basis of synthetic material. At the underside 14 of the substrate 12, also a backing layer or balancing layer 15 is provided. Said printed decor 10 is provided on a material sheet 16, such as a paper sheet, which is provided with resin and taken up into the top layer 13. The top layer 13 further also comprises a protective layer 17, in this case also on the basis of a material sheet, such as a paper layer, situated above the printed decor 10 and

being provided with resin and wear-resistant particles. The laminate floor panel 1 represented here, for example, may relate to a DPL laminate floor panel. It is clear that the invention can also be applied in other floor panels 1 having a printed decor 10.

**[0049]** Said chamfer 6 extends from the upper side 9 of the floor panel 1 across the top layer 13 into the substrate 12. Herein, said decorative covering 8 is provided at least on the exposed surface of the substrate 12.

**[0050]** Further, the floor panel 1 of figures 1 and 2, at least at its opposite long edges 2-3 and preferably also at its opposite short edges 4-5, is provided with mechanical coupling means or coupling parts 18, by which they can be interconnected at their edges 2-3, 4-5 during installation. In this case, coupling parts 18 are concerned, which substantially are made as a tongue 19 and a groove 20, which, in coupled condition of two of such floor panels 1, effect a locking in a vertical direction V1 perpendicular to the upper side 9 of the floor panels 1. In the present case, this tongue 19 and groove 20 further are provided with locking parts 21, which, in coupled condition of two of such floor panels 1, effect a locking in a horizontal direction H1 perpendicular to the respective edge 2-3 and in the plane of the upper side 9. In this case, the coupling parts 18 and associated locking parts 21 are made in one piece with the aforementioned substrate 12. Of course, this is not essential for the spirit of the present invention. Such coupling means 18 are known as such from WO 97/47834.

**[0051]** Figure 3 represents an enlarged schematic image of said decorative covering 8 which is applied on said chamfer 6. The particularity of this decorative covering 8 is that it is built up at least of a first decorative layer 22 and a second decorative layer 23, which are provided on top of each other and wherein the first decorative layer 22 remains at least partially visible through the second decorative layer 23 provided there above.

**[0052]** The here represented second decorative layer 23, which in the example also forms the upper decorative layer of the decorative covering 8, is made for the major part translucent or transparent, whereas this second decorative layer 23 also shows at least a not or barely transparent portion 24 in the form of a motif. In this case, this relates to portions of a wood motif, more particularly wood pores 11. As mentioned in the introduction, by means of the second decorative layer 23 also other effects can be obtained, such as a discoloration of an underlying layer 22 or the addition of gloss effects to an underlying layer 22.

**[0053]** The first decorative layer 22 entirely covers the surface 7 of the chamfer 6 and is substantially free from motifs or patterns. Herein, the first decorative layer 22 has a substantially uniform color, which remains visible through the translucent or transparent portion of the second decorative layer 23. In the example, the first decorative layer 22 substantially consists of a solidified substance, such as paint or lacquer.

**[0054]** In this case, said second decorative layer 23

consists of a print provided by means of transfer printing.

**[0055]** Figure 4 shows a method with the characteristics of the second aspect of the present invention. Such method can be applied for realizing floor panels 1 from figures 1 through 3. According to such method, the floor panel 1, in a preceding treatment not represented here, has been provided with a chamfer 6, for example, by means of a machining treatment performed at an upper edge of such floor panel 1, and such chamfer 6 is provided with a decorative covering 8. According to the invention, this decorative covering 8 is accomplished in two separate steps. In a first step S1, a first decorative layer 22 is provided on the surface 7 of the chamfer 6 and in a second step S2 a second decorative layer 23 is provided at least over a portion of said first decorative layer 22.

**[0056]** In the represented case, the first decorative layer 22 is supplied in liquid, possibly viscous form. To this aim, any technique or application device 25 can be used. The first step may be performed, for example, by means of a jetting, sputtering or printing technique. As already mentioned, to this aim the jetting heads mentioned in the introduction or a printing head, such as an inkjet printing head, respectively, can be applied. The sputtering technique for covering chamfers with paint or lacquer is known as such, for example, from US 2004/0255541. Possibly, the substance 26 of the first decorative layer 22 can be forcedly dried before the second decorative layer 23 is applied. It is clear that the first decorative layer 22 does not necessarily have to be supplied in liquid form. For example, it may also consist of a film, such as a transfer foil, or any other solid layer-shaped covering.

**[0057]** In the example, the second decorative layer 23 is applied by means of transfer printing. Herein, the transferable layer 27 is transferred from a transfer foil 28 with the characteristics of the third aspect to the chamfer 6 and on top of the already provided first decorative layer 22. The transfer is accomplished by supplying pressure and heat by means of one or more rollers 29 and/or belts. The transfer foil 28 applied here comprises a transferable layer 27, which, for the major part thereof, is made translucent or transparent, however, imparts a decorative aspect in the form of portions of a wood motif, namely, wood pores 11, at the surface 7 of the chamfer 6.

**[0058]** To those skilled in the art, it is clear that the transferable layer 27 of a transfer foil 28 can be situated on a carrier tape 30, which is discharged after the transfer. Such transfer foil 28 also may comprise further layers, such as an adherence layer, which is transferred along in order to adhere the print onto the surface to be covered, and a release layer providing for a separable connection with said carrier tape and either being transferred along or not. For a possible general construction of such transfer foil 28, reference is also made to EP 1 208 016.

**[0059]** According to the deviating variants of the invention mentioned in the introduction, said transferable layer 27, instead of being made at least partially translucent or transparent, also consist substantially of said not or barely transparent portion 24. In this case, the transfer-

able layer 27 might consist, for example, solely of said portions of the wood motif, for example, the wood pores 11. Such deviating variants are interesting, for example, in case an extra matte finish of the respective chamfer 6 is desired. For example, then the gloss degree can be determined by the first decorative layer 22, which, for example, is formed of a liquid substance 26, such as a lacquer or paint or ink, whereas for forming the second decorative layer 23 by means of transfer printing solely a not or barely transparent portion 24 in the form of a motif is transferred, such as a wood motif or portions thereof. Lacquers, paints and inks can provide a matte finish in a simpler manner than transfer prints, although it is not excluded to vary the gloss degree of transfer prints.

**[0060]** It is noted that in the example of figures 3 and 4, the first decorative layer 22 is provided directly on the surface 7 of the chamfer 6, whereas the second decorative layer 23 is provided directly on the already provided first decorative layer 22. However, this is not necessary. One or more primer layers of any material can be applied on the surface 7 of the chamfer 6 before the first decorative layer 22 is applied and/or one or more intermediate layers can be provided on the first decorative layer 22 before the second decorative layer 23 is applied. Further, another one or more extra layers, whether or not being decorative, can be applied on this second decorative layer 23, too.

**[0061]** Further, it is noted that the application device 25 of one or both decorative layers 22-23 can be controlled, for example, in function of the global tint of the individual printed decor 10 of each floor panel 1.

**[0062]** The present invention is in no way limited to the herein above-described embodiments, however, such floor panels and methods may be realized according to various variants, without leaving the scope of the present invention as defined by the appended claims.

## Claims

1. Floor panel, wherein this floor panel (1), at one or more edges (2-3), next to the upper side (9), is provided with a chamfer (6), wherein the surface (7) of said chamfer (6) is provided with a decorative covering (8), **characterized in that** said decorative covering (8) comprises at least a first decorative layer (22) and a second decorative layer (23), which decorative layers (22-23) are provided on top of each other, wherein the first decorative layer (22) remains at least partially visible through the second decorative layer (23) provided on top thereof, both layers contributing to the final appearance of the decorative covering.
2. Floor panel according to claim 1, **characterized in that** the floor panel (1) has, at least at its upper side (9), a printed decor (10) representing a wood motif.
3. Floor panel according to claim 1 or 2, **characterized in that** said second decorative layer (23) for the major part of said surface (7) is made translucent or transparent.
4. Floor panel according to any of the preceding claims, **characterized in that** said second decorative layer (23) has at least a not or barely transparent portion in the form of a motif, such as a wood motif or portions of a wood motif, more particularly wood pores (11) and/or wood nerves.
5. Floor panel according to any of the preceding claims, **characterized in that** said second decorative layer (23) substantially consists of a print, which is applied by means of transfer printing.
6. Floor panel according to claim 5, **characterized in that** said print substantially consists of said not or barely transparent portion (24) and that the first decorative layer (22) instead of there through remains at least partially visible in between this not or barely transparent portion (24) of the second decorative layer (23).
7. Floor panel according to any of the preceding claims, **characterized in that** said first decorative layer (22) covers said surface (7) substantially entirely.
8. Floor panel according to any of the preceding claims, **characterized in that** said first decorative layer (22) substantially consists of a solidified substance, such as paint, lacquer, ink or the like.
9. Floor panel according to any of the preceding claims, **characterized in that** said first decorative layer (22) is substantially free from motifs or patterns.
10. Method for manufacturing floor panels, wherein the floor panel (1) is provided with a chamfer (6) at one or more edges (2-3) and wherein said chamfer (6) is provided with a decorative covering (8), **characterized in that** said decorative covering (8) is provided in two separate steps (S1-S2), namely a first step (S1) wherein a first decorative layer (22) is provided and a second step (S2) wherein a second decorative layer (23) is provided at least above a portion of said first decorative layer (22), either directly or indirectly there above, wherein said portion of the first decorative layer (22) remains at least partially visible underneath said second decorative layer (23), both layers contributing to the final appearance of the decorative covering.
11. Method according to claim 10, **characterized in that** it is applied for manufacturing floor panels (1) with the characteristics of any of the claims 1 to 9.

## Patentansprüche

1. Fußbodenpaneel, wobei dieses Fußbodenpaneel (1) an einem oder mehreren Rändern (2-3) in Nähe der Oberseite (9) mit einer Abfasung (6) versehen ist, wobei die Oberfläche (7) besagter Abfasung (6) mit einer dekorativen Abdeckung (8) versehen ist, **dadurch gekennzeichnet, dass** besagte dekorative Abdeckung (8) mindestens eine erste dekorative Schicht (22) und eine zweite dekorative Schicht (23) umfasst, welche dekorativen Schichten (22-23) aufeinander angebracht sind, wobei die erste dekorative Schicht (22) mindestens teilweise durch die darauf angebrachte zweite dekorative Schicht (23) hindurch sichtbar bleibt, wobei beide Schichten zum letztendlichen Erscheinungsbild der dekorativen Abdeckung beitragen. 5
2. Fußbodenpaneel nach Anspruch 1, **dadurch gekennzeichnet, dass** das Fußbodenpaneel (1) mindestens an seiner Oberseite (9) ein gedrucktes Dekor (10) aufweist, das ein Holzmotiv darstellt. 10
3. Fußbodenpaneel nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** besagte zweite dekorative Schicht (23) für den größten Teil besagter Oberfläche (7) durchscheinend oder durchsichtig ausgeführt ist. 15
4. Fußbodenpaneel nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** besagte zweite dekorative Schicht (23) mindestens einen nicht oder kaum durchsichtigen Teil in Form eines Motivs aufweist, wie etwa eines Holzmotivs oder Teile eines Holzmotivs, spezieller Holzporen (11) und/oder Holznerven. 20
5. Fußbodenpaneel nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** besagte zweite dekorative Schicht (23) im Wesentlichen aus einem Aufdruck besteht, der mittels Transferdruck angebracht ist. 25
6. Fußbodenpaneel nach Anspruch 5, **dadurch gekennzeichnet, dass** besagter Aufdruck im Wesentlichen aus besagtem nicht oder kaum durchsichtigem Teil (24) besteht und dass die erste dekorative Schicht (22), anstatt hier hindurch, mindestens teilweise zwischen diesem nicht oder kaum durchsichtigen Teil (24) der zweiten dekorativen Schicht (23) sichtbar bleibt. 30
7. Fußbodenpaneel nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** besagte erste dekorative Schicht (22) besagte Oberfläche (7) im Wesentlichen vollständig bedeckt. 35
8. Fußbodenpaneel nach einem der vorgenannten An-

sprüche, **dadurch gekennzeichnet, dass** besagte erste dekorative Schicht (22) im Wesentlichen aus einer ausgehärteten Substanz, wie etwa Farbe, Lack, Tinte oder dergleichen besteht.

9. Fußbodenpaneel nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** besagte erste dekorative Schicht (22) im Wesentlichen frei von Motiven oder Mustern ist.
10. Verfahren zur Herstellung von Fußbodenpaneelen, wobei das Fußbodenpaneel (1) an einem oder mehreren Rändern (2-3) mit einer Abfasung (6) versehen wird und wobei besagte Abfasung (6) mit einer dekorativen Abdeckung (8) versehen wird, **dadurch gekennzeichnet, dass** besagte dekorative Abdeckung (8) in zwei separaten Schritten (S1-S2) angebracht wird, nämlich einem ersten Schritt (S1), worin eine erste dekorative Schicht (22) angebracht wird, und einem zweiten Schritt (S2), worin eine zweite dekorative Schicht (23) mindestens über einem Teil besagter erster dekorativer Schicht (22) angebracht wird, entweder direkt oder indirekt darüber, wobei besagter Teil der ersten dekorativen Schicht (22) mindestens teilweise unter besagter zweiter dekorativer Schicht (23) sichtbar bleibt, wobei beide Lagen zum letztendlichen Erscheinungsbild der dekorativen Abdeckung beitragen.
11. Verfahren nach Anspruch 10, **dadurch gekennzeichnet, dass** es zur Herstellung von Fußbodenpaneelen (1) mit den Merkmalen eines der Ansprüche 1 bis 9 angewendet wird.

## Revendications

1. Panneau de sol, dans lequel ce panneau de sol (1), à un ou plusieurs bords (2-3), à côté du côté supérieur (9), est muni d'un chanfrein (6), la surface (7) dudit chanfrein (6) étant munie d'un revêtement décoratif (8), **caractérisé en ce que** ledit revêtement décoratif (8) comprend au moins une première couche décorative (22) et une deuxième couche décorative (23), lesdites couches décoratives (22-23) étant prévues l'une par-dessus l'autre, la première couche décorative (22) restant visible au moins en partie à travers la deuxième couche décorative (23) prévue par dessus, les deux couches contribuant à l'aspect final du revêtement décoratif.
2. Panneau de sol selon la revendication 1, **caractérisé en ce que** le panneau de sol (1) possède, au moins sur son côté supérieur (9), un décor imprimé (10) représentant un motif bois.
3. Panneau de sol selon la revendication 1 ou 2, **caractérisé en ce que** ladite deuxième couche déco-

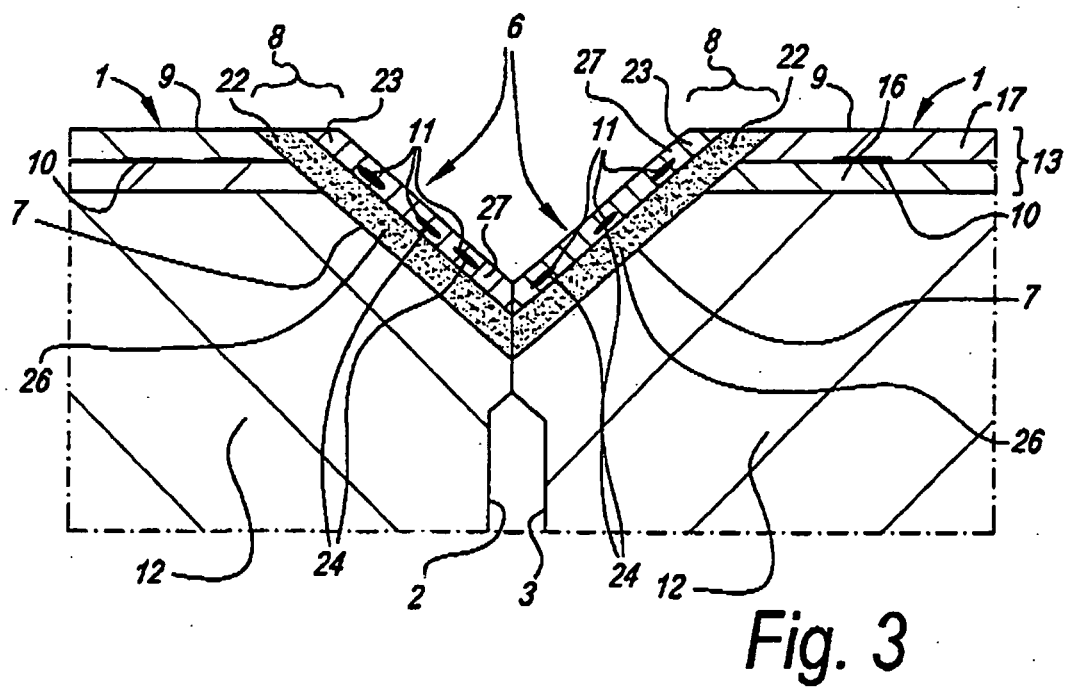
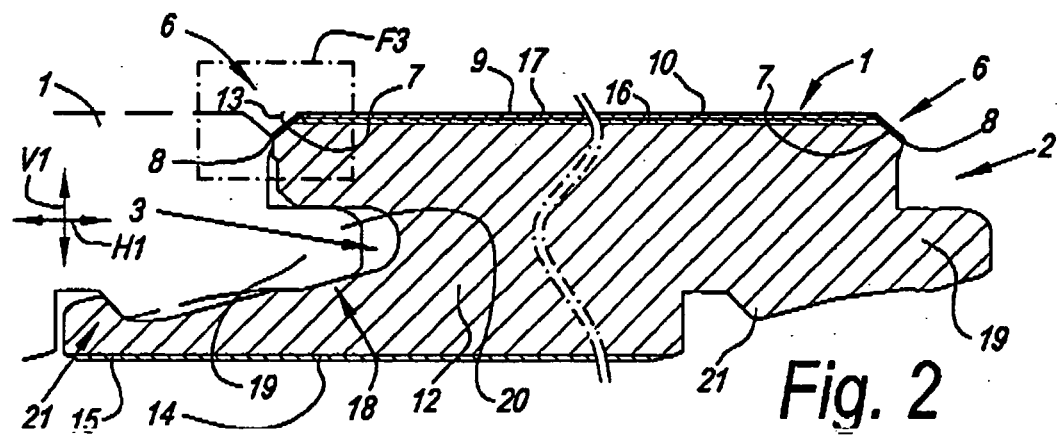
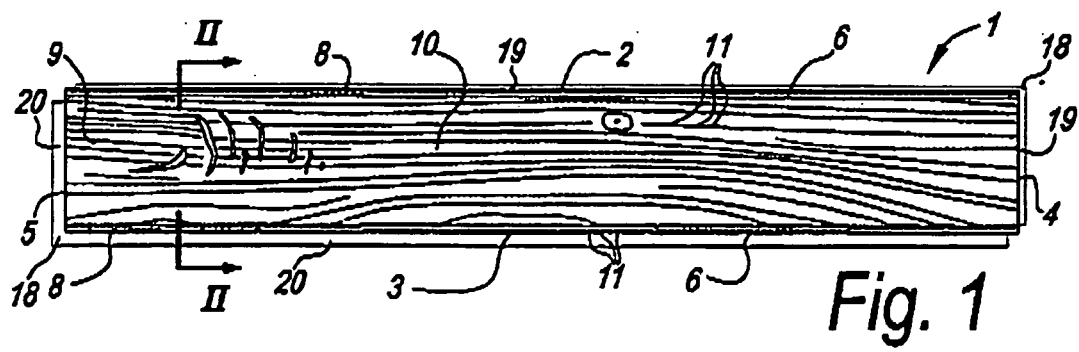


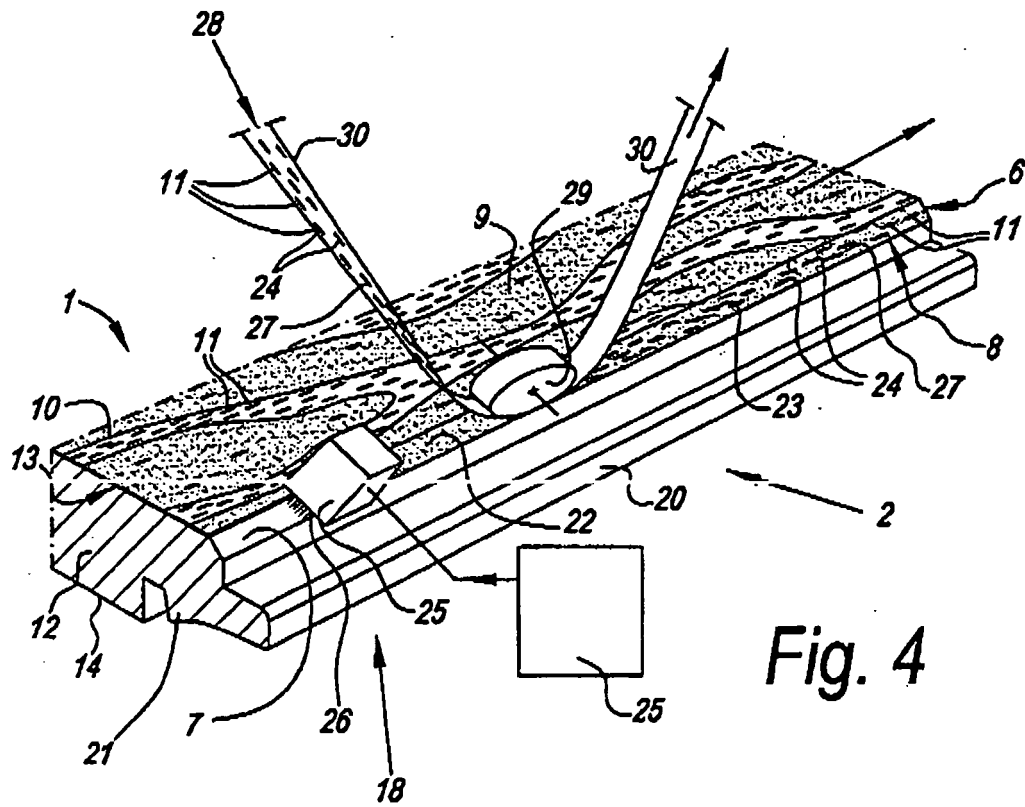
rative (23), pour la majeure partie de ladite surface (7), est rendue translucide ou transparente.

4. Panneau de sol selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite deuxième couche décorative (23) possède au moins une portion qui n'est pas transparente ou qui est à peine transparente sous la forme d'un motif, tel qu'un motif bois ou des portions d'un motif bois, plus particulièrement des pores de bois (11) et/ou des nervures de bois. 5 10
5. Panneau de sol selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite deuxième couche décorative (23) est constituée essentiellement d'un imprimé qui est appliqué au moyen d'une impression par transfert. 15
6. Panneau de sol selon la revendication 5, **caractérisé en ce que** ledit imprimé est constitué essentiellement de ladite portion (24) qui n'est pas transparente ou qui est à peine transparente, et **en ce que** la première couche décorative (22) au lieu de rester visible au moins en partie à travers la deuxième couche, reste au moins partiellement visible entre cette portion (24) de la deuxième couche décorative (23) qui n'est pas transparente ou qui est à peine transparente. 20 25
7. Panneau de sol selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite première couche décorative (22) recouvre ladite surface (7) de manière essentiellement complète. 30
8. Panneau de sol selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite première couche décorative (22) est constituée essentiellement d'une substance solidifiée telle que de la peinture, de la laque, de l'encre ou analogue. 35 40
9. Panneau de sol selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite première couche décorative (22) est essentiellement exempte de motifs ou de dessins. 45
10. Procédé pour fabriquer des panneaux de sol, dans lequel le panneau de sol (1) est muni d'un chanfrein (6) à un ou plusieurs bords (2-3) et dans lequel ledit chanfrein (6) est muni d'un revêtement décoratif (8), **caractérisé en ce que** ledit revêtement décoratif (8) est fourni en deux étapes séparées (S1-S2), plus précisément une première étape (S1) dans laquelle on procure une première couche décorative (22) et une deuxième étape (S2) dans laquelle on procure une deuxième couche décorative (23) au moins par dessus une portion de ladite première couche décorative (22), soit directement soit indirectement par dessus ladite portion, ladite portion de la première 50 55

couche décorative (22) restant visible au moins en partie en dessous de ladite deuxième couche décorative (23), les deux couches contribuant à l'aspect final du revêtement décoratif.

11. Procédé selon la revendication 10, **caractérisé en ce qu'on** l'applique pour la fabrication de panneaux de sol (1) possédant les caractéristiques selon l'une quelconque des revendications 1 à 9.





**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**

- WO 9426999 A [0004]
- WO 9747834 A [0004] [0050]
- WO 0198603 A [0004]
- WO 0196688 A [0004] [0005] [0006] [0009]
- WO 2007054812 A [0006] [0008] [0026]
- WO 2006066776 A [0009]
- WO 2006088417 A [0009]
- WO 2006058548 A [0009]
- WO 2006090287 A [0009]
- DE 9002976 U1 [0034]
- WO 03086779 A [0034]
- US 20040255541 A [0056]
- EP 1208016 A [0058]