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(54) **Method for manufacturing coated panels and a press element**

Verfahren zum Herstellen beschichteter Paneele und eines Presselements

Procédé pour la fabrication des panneaux recouvrés et d'un élément de presse

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Description

[0001] This invention relates to a method -for manufacturing coatedfloor panelsor coated furniture panels.

[0002] More particularly, the invention relates to a method for manufacturing coated floor panels or coated furniture panels, which are of the type comprising a substrate and a decorative top layer provided on top thereof. This may relate, for example, to floor panels substantially consisting of a substrate, for example, a MDF or HDF (Medium or High Density Fiberboard) panel and a top layer provided thereon, such as a laminate top layer.

[0003] In particular, the invention relates to a method for manufacturing coated panels with a printed decor with a transparent or translucent layer of synthetic material extending there above. It is known that such decor, whether or not by the intermediary of primer layers, can be printed directly on the substrate. However, the decor also may be provided on a material sheet, such as a paper sheet, which is incorporated in said top layer. The transparent or translucent synthetic material layer forms a protective layer above the printed decor and may comprise, 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, according to 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, in a press device, where, by means of a pressing element and 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 formed separately 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 it on the substrate.

[0004] Further, it is known, for example, from WO 01/96689, that at the surface or the decorative side of such coated panels, a relief of impressed portions can be formed, by which, for example, the natural structure of the motif represented in said decor can be imitated. In this way, for example, in the case that the decor represents a wood motif, one may work with a relief imitating a wood structure. Such wood structure possibly may correspond to the underlying decor, by which then so-called impressions in register with the printed decor are obtained.

[0005] For realizing a relief at the decorative side, as known, structured press elements are applied. For manufacturing such press elements, various techniques are known, for example, from WO 2006/0066776, upon which the preamble of claim 1 has been based. WO 2006/063803 discloses press elements having zones of different gloss degree. However, the press elements obtained by means of such methods still leave much to be desired.

[0006] EP-A-2 060 658 and EP-A-2 045 363, which both are documents falling under Art.54(3) and which both are not relevant to the question of inventive step, disclose methods for manufacturing press elements having zones of different gloss degree.

[0007] The present invention aims at an alternative method for manufacturing coated floor panels or coated furniture panels, which, according to various preferred embodiments of the invention, can offer advantages in respect to the state of the art.

[0008] To this aim, the present invention relates to method for manufacturing coated To this aim, the present invention relates to a method for manufacturing coated floor panels or coated furniture panels, wherein these panels are of the type comprising at least a substrate, a decor and a top layer on the basis of synthetic material, wherein the method comprises at least the following steps:

- producing a press element, wherein this press element is provided with a relief at its surface or pressing side, said relief comprising higher-situated zones and lower-situated zones;
- forming the aforementioned coated panels, wherein said press element is applied for forming impressed portions in the decorative side of the coated panels by means of said relief, and more particularly in the decorative side of boards, from which then such coated panels can be obtained;

with the characteristic that, when producing said press element, in a first step said relief or at least a portion of this relief is formed, and in a second, subsequent step a surface structure determining a mutually different gloss degree is realized at the surface of, at the one hand, at least a number of said higher-situated zones and, on the other hand, at least a number of said lower-situated zones.

[0009] By "determining the gloss degree", it is meant that by means of the respective zones, corresponding zones of different gloss degree are formed at the decorative side of the formed coated panel. Preferably, this relates to a difference in gloss degree clearly manifesting itself as matte and glossy at the decorative side of the coated panels. Preferably, a difference in gloss degree is obtained at the decorative side, wherein the matte zones have a gloss degree of 10, or still better less than 10, whereas the glossy zones have a gloss degree of more than 10, or still better of more than 20. Independently from the respective absolute gloss degree, at the decorative side of the coated panel preferably a difference between the glossy and matte zones of at least 10 is obtained, all this measured according to DIN 67530.

[0010] When the gloss degree on the press plate is measured, a glossy zone preferably corresponds to a gloss degree of more than 40, and still better of more than 100, and a matte zone to a gloss degree of less than 40, also measured according to DIN 67530.

[0011] It is clear that higher-situated zones on the press element result in deeper-situated impressed portions of the obtained coated panel. Due to the fact that zones, according to their level on the press element, or on the decorative side of the floor panel, can be provided with another gloss degree, it is possible to achieve in a smooth manner special effects at the decorative side of the manufactured coated panels, such as special depth effects. Also, at the decorative side of such coated panel, better imitations of certain natural products, such as of certain wood species, can be realized.

[0012] It is noted that said surface structure determining the gloss degree can be obtained by realizing a microstructure, such as a roughness, at the respective surface of the pressing plate and/or by forming a cover layer at the respective surface, such as a layer of chromium.

[0013] Preferably, for said press element a plate is applied which is substantially flat at the pressing side, wherein this plate is provided with protruding portions and these protruding portions form said higher-situated zones and the substantially flat areas lying in between form said lower-situated zones. It is noted that such protruding portions preferably protrude not more than 1 mm and still better not more than 0.5 mm above the lower-situated zones. It is clear that also in the lower-situated zones, level differences may be present, which then preferably are not more than 0.2 mm and still better are not more than 0.07 mm.

[0014] Preferably, for the material of the press element of the invention metal, such as a steel alloy or a copper alloy, is applied.

[0015] In the step of forming the coated panels, preferably use is made of the also above-described DPL technique.

[0016] Preferably, the higher-situated zones of the press element show a gloss degree-determining surface structure over the majority of their surface, which differs from the gloss degree-determining surface structure of the majority of the lower-situated zones, wherein the higher-situated zones preferably show a higher gloss degree than the lower-situated zones. In such manner, it is possible to achieve at the decorative side of the coated panel effects in a particularly convincingly manner, wherein impressed portions are present as matte or glossy accents in the respectively predominantly glossy or matte surface.

[0017] In a particularly preferred embodiment, the press element is provided with a relief having the form of a wood structure, wherein said higher-situated zones comprise at least wood pores of this wood structure and wherein then preferably substantially only the wood pores are provided with the surface structure determining a different gloss degree.

[0018] It is clear that the present invention is not restricted to manufacturing coated panels representing a wood structure or wood motif. The present invention can also be applied when the printed decor and the pertaining structure relate to a stone motif, a stone structure, respectively, or if this concerns fantasy motifs, fantasy structures, respectively.

[0019] In general, the surface of the higher-situated zones, which is provided with a different gloss degree, preferably shows a higher gloss degree in respect to the surface of the lower-situated zones. In such manner, impressed portions can be emphasized most efficiently and subtle.

[0020] Moreover, the present invention is particularly interesting when said decor represents a motif and when said relief and the motif of said decor are in mutual correspondence, such that said impressed portions in the decorative side follow said motif at least partially or coincide therewith at least partially. Here, this relates to impressed portions provided, so to say, "in register" with the underlying motif of the, preferably printed, pattern. This embodiment allows obtaining particularly convincing imitations of, for example, solid wood.

[0021] Preferably, in the step of making said press element, on the one hand, at least a first series of treatments is performed on the press element, wherein at least said higher-situated zones are formed, and, on the other hand, at least a second series of treatments is performed on the press element, wherein substantially either only the higher-situated zones or only the lower-situated zones of this press element are subjected to this second series of treatments. According to this method, the step of making the press element can be performed smoothly and efficiently. Preferably, when performing at least a portion of said second series of treatments either the lower-situated zones or the higher-situated zones, respectively, of the already formed relief are physically or chemically shielded from the treatment concerned. Hereby, the second series of treatments can be performed selectively on the respective zones in a simpler manner.

[0022] Said shielding can be achieved by means of a material layer provided on the respective zone, which material layer is resistant to the respective treatment and which, after performing this second series of treatments, either is removed or not. So, for example, a lacquer may be used which is resistant against etching, whether or not electrochemically, with certain agents. Hereby, this may relate to a UV or air-drying lacquer. The application of such material layer may take place by means of any application technique, for example, by means of a printing technique, a spreading technique or an application technique by means of a device comprising one or more rollers, wherein the rollers concerned may or may not be engraved and may or may not be compressible, such as it is the case with a rubber roller. Said application technique may or may not be digitally controlled. In particular, a technique may be applied which as such is known from WO 2007/147376.

[0023] For said first series of treatments, one or a combination of two or more of the following treatments can be applied:

- a chemical or electrochemical etching treatment;

- a machining treatment by means of a mechanical tool;
- a machining treatment from the list of spark erosion, laser treatment and ultrasonic treatment;
- a mechanical or galvanic polishing treatment;
- a treatment wherein a covering layer is applied;
- a chromium plating;
- a treatment wherein a matte microstructure is obtained on the relief.

[0024] For said second series of treatments, one or a combination of two or more of the following treatments can be applied:

- a chemical or electrochemical etching treatment;
- a mechanical or galvanic polishing treatment;
- a treatment wherein a covering layer is applied;
- a hard chromium plating;
- a treatment wherein a glossy microstructure is obtained on said protruding portions;
- a treatment wherein material is applied selectively.

[0025] In the following, several particular combinations of the above possibilities are discussed specifically.

[0026] According to a first possibility, in a first series of treatments the pressing plate or another press element can be provided with a structure in any manner, for example, by etching, after which the lower-situated zones of the pressing plate are shielded and the higher-situated zones are polished by means of the technique of electropolishing.

[0027] According to a second possibility, in a first series of treatments the pressing plate or any other press element can be substantially entirely or entirely chromium-plated matte or sandblasted, after which the pressing plate is selectively chromium-plated at the height of the higher-situated zones. This can be achieved, for example, by shielding, in the chromium bath, the lower-situated zones by means of a resistant material layer.

[0028] According to a third possibility, in a first series of treatments, the pressing plate or any other press element can be chromium-plated substantially entirely or entirely glossy, after which the pressing plate selectively is chromium-plated matte or is sandblasted at the height of the lower-situated zones. This can be achieved, for example, by shielding the higher-situated zones by means of a resistant material layer.

[0029] Generally, the higher-situated zones of a press element with the characteristics of the present invention preferably cover less than 20% and still better less than 10% of the surface of the entire pressing side of the press element concerned.

[0030] The invention also relates to a coated floor panel or coated furniture panel, which is obtained by a method according to the invention.

[0031] Preferably, the impressed portions of such coated panel substantially show another gloss degree than the remaining, preferably substantially flat portions of the decorative side. Herein, the impressed portions can be made glossier or more matte.

[0032] With the intention of better showing the characteristics of the invention, hereafter, as an example without any limitative character, several preferred embodiments are described, with reference to the accompanying drawings, wherein:

Figure 1 represents a cross-section through the top layer of a coated panel obtained by means of the method of the present invention;
Figure 2 schematically represents a step of the method of the present invention;
Figure 3 schematically represents another step of the method of the present invention according to a view on the area indicated by F3 in figure 2; and
Figure 4 , in a similar view, represents a variant.

[0033] Figure 1 represents a coated panel 1, which can be obtained according to the invention. Such panel comprises at least a substrate 2, a decor 3 and a top layer 4 on the basis of synthetic material 5. Herein, the decor 3 more particularly relates to a print, which is provided on a material sheet 6 and which, provided with synthetic material 5, is included in the top layer 3 as a so-called decor layer 7. Above this decor layer, a protective layer 8 on the basis of synthetic material is provided, which in this case also comprises a material sheet 7 provided with synthetic material or resin.

[0034] It is noted that such top layer also can comprise hard particles situated at least above the printed decor, however, such hard particles are not represented here. This may relate, for example, to aluminum oxide particles with an average grain size between 0.1 and 200 μm.

[0035] According to the invention, the coated panel 1 has impressed portions 10 at the decorative side 9, in this case, this relates at least to impressed portions 10 for imitating wood pores. In the represented example, the impressed portions 10 have a higher gloss degree than the remaining portions 11 of the decorative side 9.

[0036] Figure 2 schematically represents the step S1 of the method of the invention wherein the coated panel 1 is formed. Herein, the coated panel 1 of figure 1 is formed by means of the also above-mentioned DPL technique. To this aim, at least the substrate 2 or a board comprising this substrate 2, the decorative layer 7 and the protective layer 8 are brought into a press device 12, where they are consolidated by means of a press element 13. In the represented case, the stack also comprises a so-called backing layer or balancing layer 14 at the underside, which layer is intended for being provided at the underside of the substrate 2 and in this case also substantially consists of a material sheet 6, such as a paper sheet, provided with synthetic material 5 or resin.

[0037] Figure 2 clearly shows that the press element 13 is provided with a relief 16 at its surface or pressing side 15, said relief showing higher-situated zones 17 and lower-situated zones 18. In the step of forming the coated

panels 1, said press element 13 is applied for forming, by means of the relief 16, the already mentioned impressed portions 10 and the structure of the remaining portions 11 in the decorative side 9 of the coated panels, or more particularly in the decorative sides of boards from which such coated panels can be obtained.

[0038] The particularity of the present invention is represented, amongst others, in figure 3. This figure 3 clearly represents a part of the step S0 for producing the press element 13. Herein, the press element 13 is being provided with a relief 16 at its surface or pressing side 15. The press element or pressing plate 13 represented at the top in figure 3 is provided with the relief 16 in a first step, or at least is provided with at least a portion of this relief 16. The relief 16 realized in this first step shows the same or at least virtually the same gloss degree-determining surface structure at the surface of the higher-situated zones 17 as well as at the surface of the lower-situated zones 18. Here, this relates to a relatively matte surface structure, which is represented schematically by means of the rough surface. Such relief 16 and surface structure can be achieved, for example, by means of an etching technique or a milling technique or a combination of both.

[0039] In a subsequent step, indicated here by arrow 19, a mutually differing gloss degree-determining surface structure is realized at the surface of, on the one hand, at least a number of the higher-situated zones 17 and, on the other hand, at least a number of the lower-situated zones 18. To this aim, as represented, the lower-situated zones 18 are shielded with a material layer 20, such that they are not or less affected by the treatment or treatments performed in said subsequent step and thus substantially retain their surface structure realized in said first step. For example, the treatment concerned may relate at least to a treatment in which the technique of electro-polishing is applied, by which a higher gloss degree is achieved at the location of the higher-situated zones 18.

[0040] Figure 4 shows another variant, wherein in said subsequent step a covering layer 21 is provided on said higher-situated zones 17 or at least on a number thereof, whereas the lower-situated zones 16 are left undisturbed by the presence of said material layer 20. Said covering layer may relate, for example, to a chromium layer, preferably of the type that can be obtained by means of the technique of hard chromium plating, by which a higher gloss degree can be achieved at the higher-situated zones 18.

[0041] It is clear that said material layer 20 preferably is removed after the respective zones 17-18 have obtained their final, gloss degree-determining surface structure.

[0042] It is noted that the technique of the present invention preferably is applied for manufacturing floor panels, which preferably are of the type which can be installed free from glue. Glue-free installable floor panels are known as such, for example, from WO 97/47834. However, the respective technique can also be applied for manufacturing furniture panels.

[0043] According to the invention, any material can be applied as a substrate. So, for example, a wood-based board material, such as chipboard, MDF or HDF (Medium Density Fiberboard or High Density Fiberboard) or plywood, can be applied.

[0044] Further, it is noted that the impressed portions, or at least the majority thereof, which according to the invention are provided in the decorative side of the coated panels, and thus in particular when impressed portions for imitating wood pores are concerned, preferably are situated entirely above the printed decor, or in other words do not penetrate into this printed decor or do not penetrate through this printed decor. Namely, the impressed portions preferably remain restricted to the layer of synthetic material provided above the printed decor, or still better remain restricted to said protective layer.

[0045] As represented by means of figure 2, the coated panel obtained by means of the invention preferably also comprises a backing layer.

[0046] Preferably, the consolidation in the press device, as in the case of figure 2, is obtained substantially or exclusively by means of said synthetic material or the resin. Such resin may be, for example, a thermo-hardening resin, such as melamine formaldehyde resin.

[0047] It is also noted that the invention preferably is applied for manufacturing coated panels, such as floor panels, wherein hard particles are present in the top layer, such as particles of aluminum oxide or silicon carbide.

[0048] It is clear that the embodiments of the present invention represented in the figures represent still further preferred embodiments mentioned in the introduction. For example, it is clear that the press element 13 applied in the examples relates to a plate, which is substantially flat at the pressing side 15, which plate is provided with protruding portions then forming said higher-situated zones 17, whereas the substantially flat zones lying in between form said lower-situated zones 18. Moreover, the higher-situated zones 17 show the respective, gloss degree-determining surface structure over the majority of their surface.

[0049] The present invention is in no way limited to the above-described embodiments, on the contrary may such methods and coated floor panels or coated furniture panels be realized according to various variants, without leaving the scope of the present invention, as defined by the appended claims.

Claims

1. Method for manufacturing coated floor panels or coated furniture panels, wherein these panels (1) are of the type comprising at least a substrate (2), a decor (3) and a top layer (4) on the basis of synthetic material (5), wherein the method comprises at least the following steps:

- producing a press element (13), wherein this press element (13) is provided with a relief (16) at its surface or pressing side (15), said relief (16) comprising higher-situated zones (17) and lower-situated zones (18);
- forming the aforementioned coated panels (1), wherein said press element (13) is applied for forming impressed portions (10) in the decorative side (9) of the coated panels (1) by means of said relief (16), and more particularly in the decorative side (9) of boards, from which then such coated panels (1) can be obtained;
with the characteristic that, when producing said press element (13), in a first step said relief (16) or at least a portion of this relief (16) is formed, and in a second, subsequent step (19) a surface structure determining a mutually different gloss degree is realized at the surface of, at the one hand, at least a number of said higher-situated zones (17) and, on the other hand, at least a number of said lower-situated zones (18).

2. Method according to claim 1, **characterized in that** for said press element (13) a plate is applied, which is substantially flat at the pressing side (15), wherein this plate is provided with protruding portions and these protruding portions form said higher-situated zones (17) and the substantially flat zones lying in between form said lower-situated zones (18).

3. Method according to claim 1 or 2, **characterized in that** said higher-situated zones (17) show a gloss degree-determining surface structure over the majority of their surface, which surface structure differs from the gloss degree-determining surface structure of the majority of the lower-situated zones (18), wherein the higher-situated zones (17) preferably show a higher gloss degree than the lower-situated zones (18).

4. Method according to any of the preceding claims, **characterized in that** the press element (13) is provided with a relief (16) having the form of a wood structure, wherein said higher-situated zones (17) comprise at least wood pores of this wood structure and wherein then preferably substantially only the wood pores are provided with the different gloss degree-determining surface structure.

5. Method according to any of the preceding claims, **characterized in that** the surface of the higher-situated zones (17), which is provided with a different gloss degree in respect to the surface of the lower-situated zones (18), has a higher gloss degree.

6. Method according to any of the preceding claims, **characterized in that** said decor (3) represents a motif and that said relief (16) and the motif of said decor (3) are in accordance with each other, such that said impressed portions (10) in the decorative side (9) follow said motif at least partially or at least partially coincide therewith.

7. Method according to any of the preceding claims, **characterized in that** in the step of producing said press element (13), on the one hand, at least a first series of treatments is performed on the press element (13), wherein at least said higher-situated zones (17) are formed, and, on the other hand, at least a second series of treatments is performed on the press element (13), wherein substantially either only the higher-situated zones (17) or only the lower-situated zones (18) of this press element (13) are subjected to this second series of treatments.

8. Method according to claim 7, **characterized in that** when performing at least a part of said second series of treatments, either the lower-situated zones (18) or the higher-situated zones (17), respectively, of the already formed relief are physically or chemically shielded from the treatment concerned.

9. Method according to claim 8, **characterized in that** said shielding is achieved by means of a material layer (20) provided on the respective zone (17-18), which material layer is resistant to the respective treatment and which, after performing this second series of treatments, either is removed or not.

10. Method according to any of the claims 7 to 9, **characterized in that** said first series of treatments comprises one or a combination of two or more of the following treatments:

- a chemical or electrochemical etching treatment;
- a machining treatment by means of a mechanical tool;
- a machining treatment from the list of spark erosion, laser treatment and ultrasonic treatment;
- a mechanical or galvanic polishing treatment;
- a treatment wherein a covering layer is applied;
- a chromium plating;
- a treatment wherein a matte microstructure is obtained on the relief.

11. Method according to any of the claims 7 to 10, **characterized in that** said second series of treatments comprises one or a combination of two or more of the following treatments:

- a chemical or electrochemical etching treatment;
- a mechanical or galvanic polishing treatment;
- a treatment wherein a covering layer is applied;

- a hard chromium plating;
- a treatment wherein a glossy microstructure is obtained on said protruding portions.

Patentansprüche

1. Verfahren zur Herstellung beschichteter Bodenplatten oder beschichteter Möbelplatten, wobei diese Platten (1) derart beschaffen sind, dass sie wenigstens ein Substrat (2), ein Dekor (3) und eine obere Schicht (4) auf der Basis eines synthetischen Materials (5) umfassen, wobei das Verfahren wenigstens die folgenden Schritte umfasst:

   - Herstellen eines Presselementes (13), wobei das Presselement (13) mit einem Relief (16) an dessen Oberfläche oder Pressseite (15) versehen ist, wobei das Relief (16) höher gelegene Bereiche (17) und niedriger gelegene Bereiche (18) umfasst;
   - Bilden der oben genannten beschichteten Platten (1), wobei das Presselement (13) verwendet wird, um eingepresste Abschnitte (10) auf der dekorativen Seite (9) der beschichteten Platten (1) mittels des Reliefs (16) zu bilden, und insbesondere auf der dekorativen Seite (9) von Brettern, aus denen dann solche beschichtete Platten (1) erhalten werden können;
   mit dem Merkmal dass, wenn das Presselement (13) erzeugt wird, in einem ersten Schritt das Relief (16) oder wenigstens ein Teil dieses Reliefs (16) gebildet wird, und in einem zweiten, nachfolgenden, Schritt (19) eine Oberflächenstruktur, die einen gegenseitig unterschiedlichen Glanzgrad auf der Oberfläche von, einerseits, wenigstens einer Anzahl der höher gelegenen Bereiche (17) und, andererseits, wenigstens einer Anzahl an niedriger gelegenen Bereichen (18) bestimmt, realisiert wird.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** für das Presselement (13) eine Platte zur Verfügung gestellt ist, welche an der Pressseite (15) im Wesentlichen eben sein kann, wobei diese Platte mit vorstehenden Abschnitten zur Verfügung gestellt ist, und diese vorstehenden Abschnitte die höher gelegenen Bereiche (17) bilden, und die dazwischenliegenden im Wesentlichen flachen Bereiche die niedriger gelegenen Bereiche (18) bilden.

3. Verfahren nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die höher gelegenen Bereiche (17) über den größten Teil ihrer Oberfläche eine Glanzgrad bestimmende Oberflächenstruktur zeigen, wobei die Oberflächenstruktur des größten Teils der niedriger gelegenen Bereiche (18) von der den Glanzgrad bestimmenden Oberflächenstruktur abweicht, wobei die höher gelegenen Bereiche (17) bevorzugt einen höheren Glanzgrad zeigen als die niedriger gelegenen Bereiche (18).

4. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Presselement (13) mit einem Relief (16) zur Verfügung gestellt ist, das die Form einer Holzstruktur aufweist, wobei die höher gelegenen Bereiche (17) wenigstens Holzporen dieser Holzstruktur umfassen, und wobei dann bevorzugt im Wesentlichen nur die Holzporen mit der einen unterschiedlichen Glanzgrad bestimmenden Oberflächenstruktur zur Verfügung gestellt sind.

5. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** die Oberfläche der höher gelegenen Bereiche (17), die mit einem unterschiedlichen Glanzgrad hinsichtlich der Oberfläche der niedriger gelegenen Bereiche (18) zur Verfügung gestellt ist, einen höheren Glanzgrad aufweist.

6. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Dekor (3) ein Motiv darstellt und dass das Relief (16) und das Motiv des Dekors (3) übereinstimmen, derart, dass die eingepressten Bereiche (10) auf der dekorativen Seite (9) dem Motiv wenigstens teilweise folgen oder wenigstens teilweise mit ihm zusammentreffen.

7. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** bei dem Schritt der Herstellung des Presselementes (13) einerseits wenigstens eine erste Behandlungsreihe auf dem Presselement (13) durchgeführt wird, wobei wenigstens die höher gelegenen Bereiche (17) gebildet werden, und, andererseits wenigstens eine zweite Behandlungsreihe auf dem Presselement (13) durchgeführt wird, wobei im Wesentlichen entweder nur die höher gelegenen Bereiche (17) oder nur die niedriger gelegenen Bereiche (18) dieses Presselementes (13) dieser zweiten Behandlungsreihe unterzogen werden.

8. Verfahren nach Anspruch 7, **dadurch gekennzeichnet, dass** bei der Durchführung wenigstens eines Teils der zweiten Behandlungsreihe jeweils entweder die niedriger gelegenen Bereiche (18) oder die höher gelegenen Bereiche (17) des bereits geformten Reliefs physikalisch oder chemisch von der betreffenden Behandlung abgeschirmt werden.

9. Verfahren nach Anspruch 8, **dadurch gekennzeichnet, dass** das Abschirmen mittels einer Materialschicht (20) erreicht wird, die auf dem jeweiligen Bereich (17-18) zur Verfügung gestellt ist, wobei die

Materialschicht gegen die jeweilige Behandlung resistent ist und wobei sie nach der Durchführung dieser zweiten Behandlungsreihe entweder entfernt wird oder nicht.

10. Verfahren nach einem der Ansprüche 7 bis 9, **dadurch gekennzeichnet, dass** die erste Behandlungsreihe eine Behandlung oder eine Kombination von zwei oder mehreren der folgenden Behandlungen umfasst:

- eine chemische oder elektrochemische Ätzbehandlung;
- eine maschinelle Behandlung mittels eines mechanischen Werkzeugs;
- eine maschinelle Behandlung ausgewählt aus Funkenerosion, Laserbehandlung und Ultraschallbehandlung;
- mechanische oder galvanische Polierbehandlung
- eine Behandlung, bei der eine Deckschicht angewendet wird;
- eine Verchromung;
- eine Behandlung, bei der eine matte Feinstruktur auf dem Relief erhalten wird.

11. Verfahren nach einem der Ansprüche 7 bis 10, **dadurch gekennzeichnet, dass** die zweite Behandlungsreihe eine der Behandlungen oder eine Kombination aus zwei oder mehreren der folgenden Behandlungen umfasst:

- eine chemische oder elektrochemische Ätzbehandlung;
- eine mechanische oder galvanische Polierbehandlung;
- eine Behandlung, bei der eine Deckschicht angewendet wird;
- eine Hartverchromungsplatierung;
- eine Behandlung, bei der eine glänzende Mikrostruktur auf den vorstehenden Abschnitten erhalten wird.

Revendications

1. Procédé de fabrication de panneaux de plancher revêtus ou de panneaux de mobilier revêtus, où ces panneaux (1) sont du type comprenant au moins un substrat (2), un décor (3) et une couche supérieure (4) sur la base d'un matériau synthétique (5), où le procédé comprend au moins les étapes suivantes :

- produire un élément de pression (13), où cet élément de pression (13) est pourvu d'un relief (16) à sa surface ou côté de pression (15), ledit relief (16) comprenant des zones situées plus haut (17) et des zones situées plus bas (18) ;
- former les panneaux revêtus précités (1), où ledit élément de pression (13) est appliqué pour former des portions empreintes (10) dans le côté décoratif (9) des panneaux revêtus (1) au moyen dudit relief (16), et plus particulièrement dans le côté décoratif (9) de planches à partir desquelles de tels panneaux revêtus (1) peuvent être obtenus ;

avec la caractéristique que, lors de la production dudit élément de pression (13), dans une première étape, ledit relief (16) ou au moins une portion de ce relief (16) est formé, et dans une deuxième étape suivante (19), une structure de surface déterminant un degré de gloss mutuellement différent est réalisé à la surface, d'une part, d'au moins un nombre desdites zones situées plus haut (17) et, d'autre part, au moins un nombre desdites zones situées plus bas (18).

2. Procédé selon la revendication 1, **caractérisé en ce que** pour ledit élément de pression (13), une plaque est appliquée, qui est sensiblement plate au côté de pression (15), où cette plaque est pourvue de portions saillantes, et ces portions saillantes forment lesdites zones situées plus haut (17), et les zones sensiblement plates situées entre forment lesdites zones situées plus bas (18).

3. Procédé selon la revendication 1 ou 2, **caractérisé en ce que** lesdites zones situées plus haut (17) ont présentent une structure de surface déterminant le degré de gloss sur la majorité de leur surface, ladite structure de surface diffère de la structure de surface de détermination du degré de gloss de la majorité des zones situées plus bas (18), où les zones situées plus haut (17) présentent de préférence un degré de gloss plus élevé que les zones situées plus bas (18).

4. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** l'élément de pression (13) est pourvu d'un relief (16) ayant la forme d'une structure de bois, où lesdites zones situées plus haut (17) comprennent au moins des pores de bois de cette structure de bois, et où ensuite de préférence, sensiblement seulement les pores de bois sont pourvus de la structure de surface déterminant le degré de gloss différent.

5. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la surface des zones situées plus haut (17), qui est pourvue d'un degré de gloss différent relativement à la surface des zones situées plus bas (18), présente un degré de gloss plus élevé.

6. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit décor (3) représente un motif, et que ledit relief (16) et le motif

dudit décor (3) sont en accord l'un avec l'autre de telle sorte que lesdites portions empreintes (10) dans le côté décoratif (9) suivent ledit motif au moins partiellement ou coïncident au moins partiellement avec celui-ci.

7. Procédé selon l'une quelconque des revendications précédentes, **caractérisé en ce que**, lors de l'étape de production dudit élément de pression (13), d'une part, au moins une première série de traitements est exécutée sur l'élément de pression (13), où au moins lesdites zones situées plus haut (17) sont formées et, d'autre part, au moins une deuxième série de traitements est exécutée sur l'élément de pression (13), où sensiblement soit seulement les zones situées plus haut (17) soit seulement les zones situées plus bas (18) de cet élément de pression (13) sont soumises à cette deuxième série de traitements.

8. Procédé selon la revendication 7, **caractérisé en ce que** lors de l'exécution d'au moins une partie de ladite deuxième série de traitements, soit les zones situées plus bas (18) soit les zones situées plus haut (17) respectivement du relief déjà formé sont protégées physiquement ou chimiquement contre le traitement concerné.

9. Procédé selon la revendication 8, **caractérisé en ce que** ladite protection est atteinte au moyen d'une couche de matériau (20) réalisée sur la zone respective (17-18), ladite couche de matériau est résistante au traitement respectif et qui, après l'exécution de cette deuxième série de traitements, est soit retirée soit non retirée.

10. Procédé selon l'une quelconque des revendications 7 à 9, **caractérisé en ce que** ladite première série de traitements comprend un ou une combinaison de deux ou plus des traitements suivants :

- un traitement d'attaque chimique ou électrochimique ;
- un traitement d'usinage au moyen d'un outil mécanique ;
- un traitement d'usinage de la liste de l'électroérosion, traitement au laser et traitement ultrasonique ;
- un traitement de polissage mécanique ou galvanique ;
- un traitement où une couche de recouvrement est appliquée ;
- un plaquage au chrome ;
- un traitement où une microstructure matte est obtenue sur le relief.

11. Procédé selon l'une quelconque des revendications 7 à 10, **caractérisé en ce que** ladite deuxième série de traitements comprend un ou une combinaison de deux ou plus des traitements suivants :

- un traitement d'attaque chimique ou électrochimique ;
- un traitement de polissage mécanique ou galvanique ;
- un traitement où une couche de recouvrement est appliquée ;
- un plaquage au chrome dur ;
- un traitement par lequel une microstructure à gloss est obtenue sur lesdites portions saillantes.

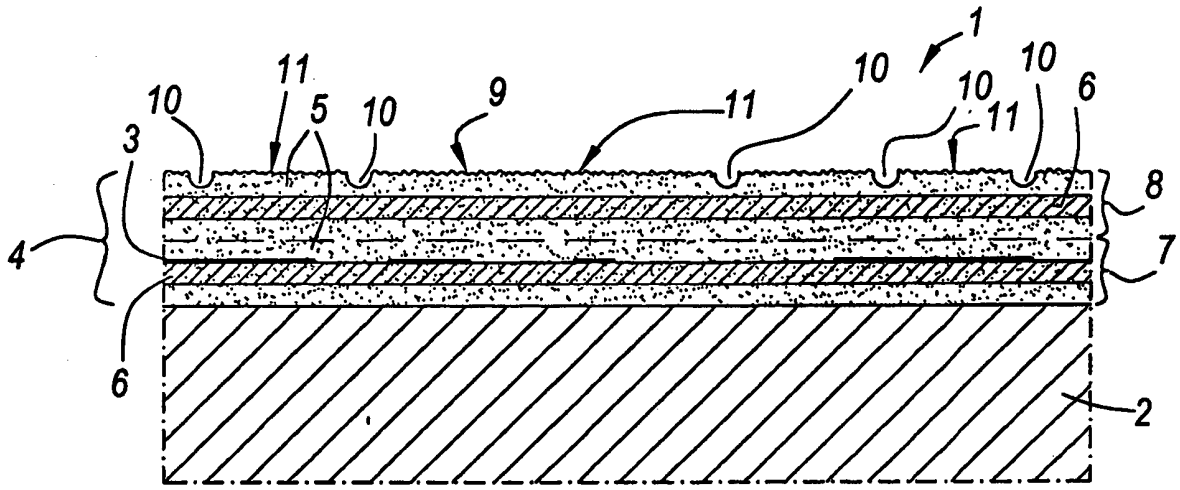

1
11
10
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6
2

Fig. 1

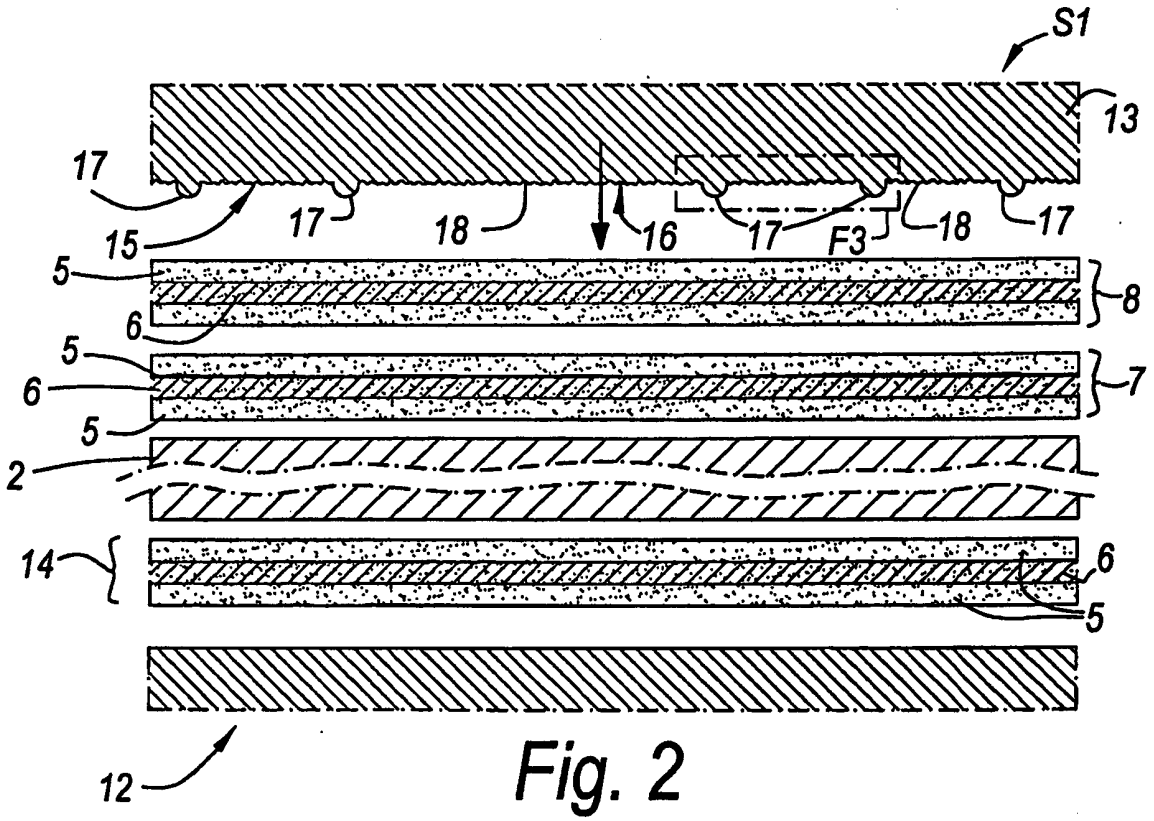

S1
13
17
17
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17
F3
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12

Fig. 2

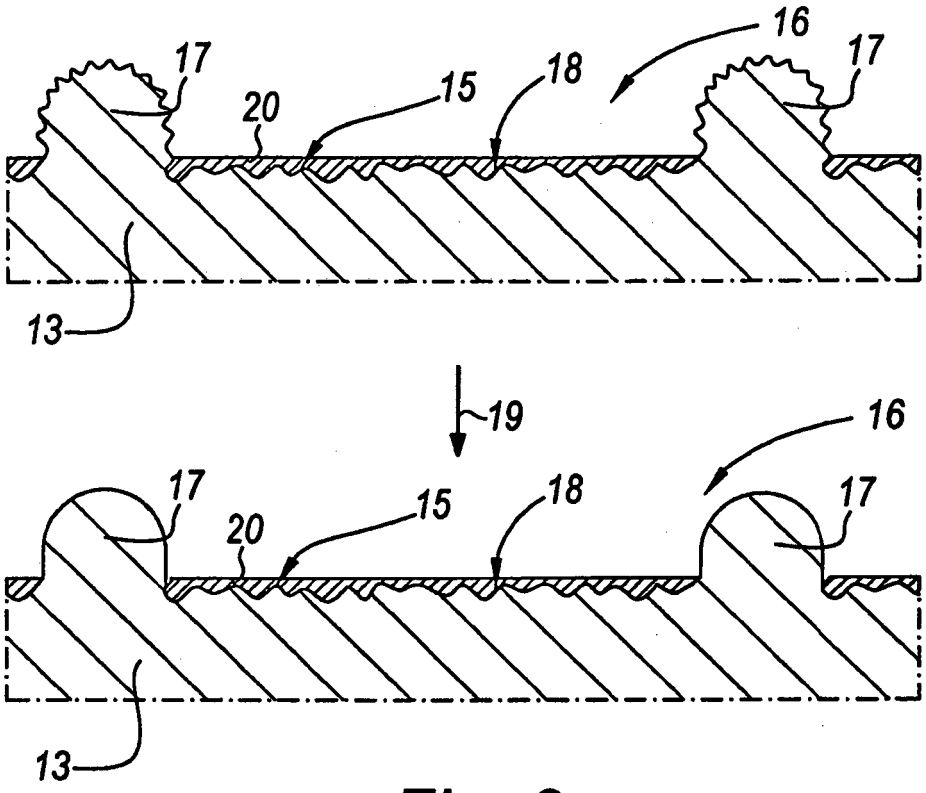


Fig. 3

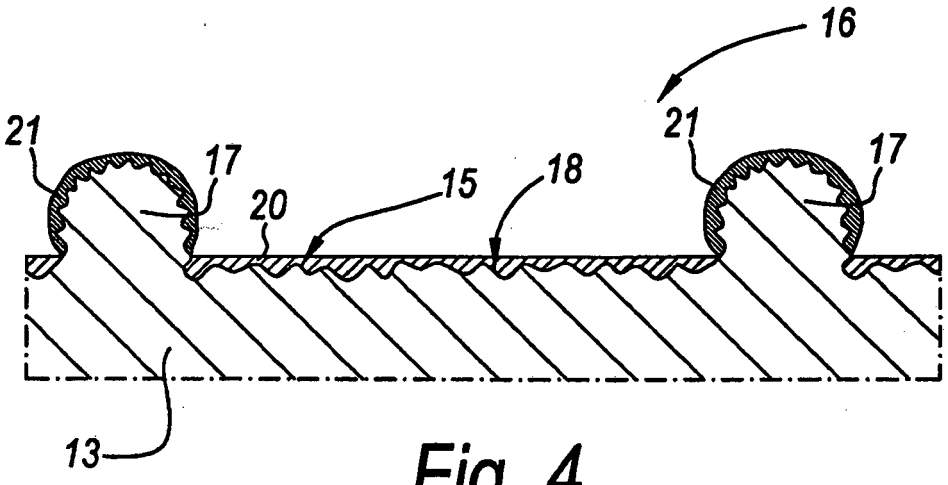


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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