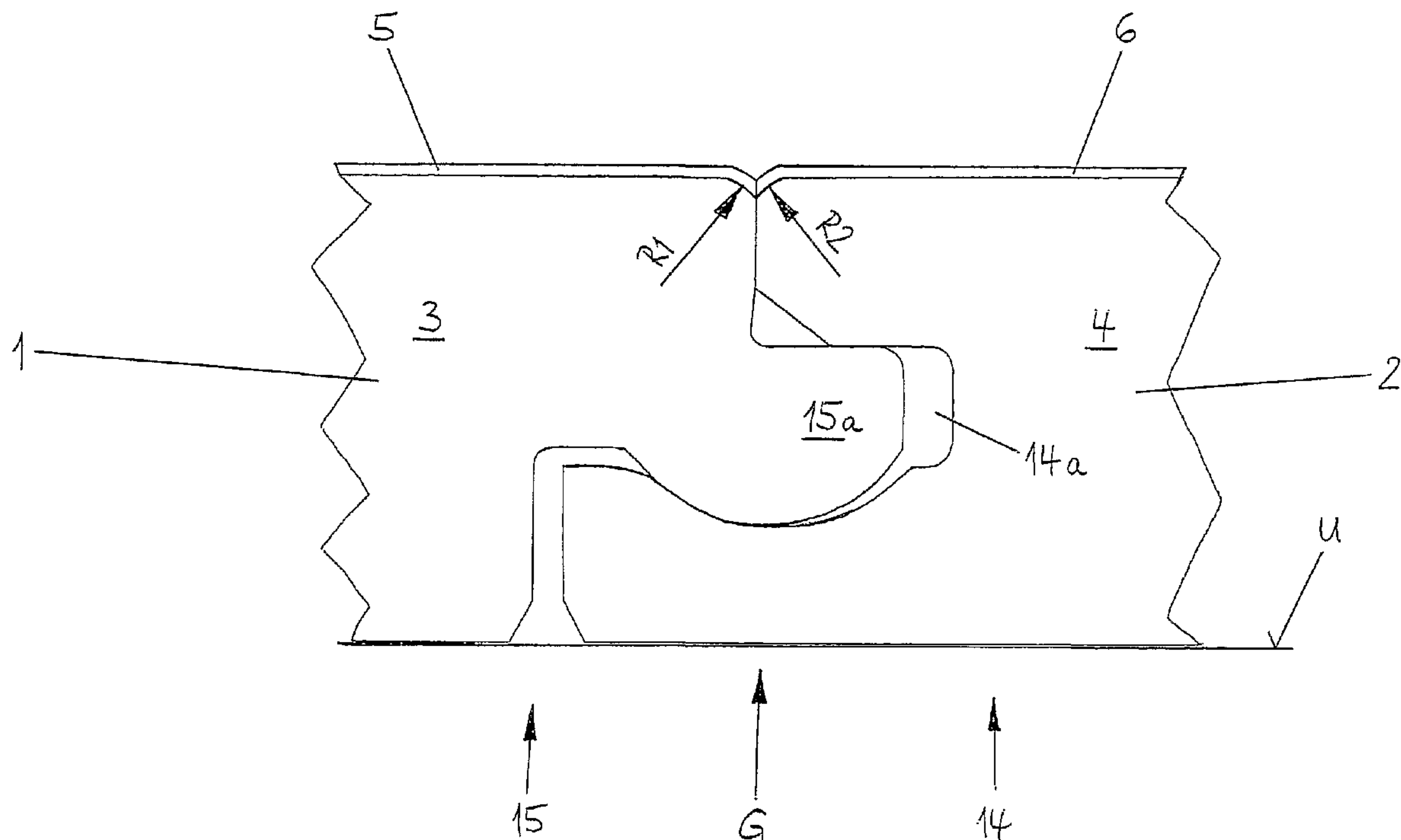




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(54) Title: FLOOR PANEL



(57) **Abrégé/Abstract:**

The invention relates to a floor panel (1, 2) comprising a carrier plate (3, 4) to which a useful layer (5, 6) provided with a decorative image divided into various sections is applied, said decorative image being protected from wear by abrasionproof particles. The surface of the useful layer has a relief of recesses and raised parts. The recesses comprising certain image sections of the decorative image are surrounded by the raised parts comprising other image sections of the decorative image, said decorative image being coated with a transparent layer of lacquer. According to the invention, the recesses of the relief are produced by a chemical reacting with the lacquer, and the abrasionproof particles are contained in the layer of lacquer.

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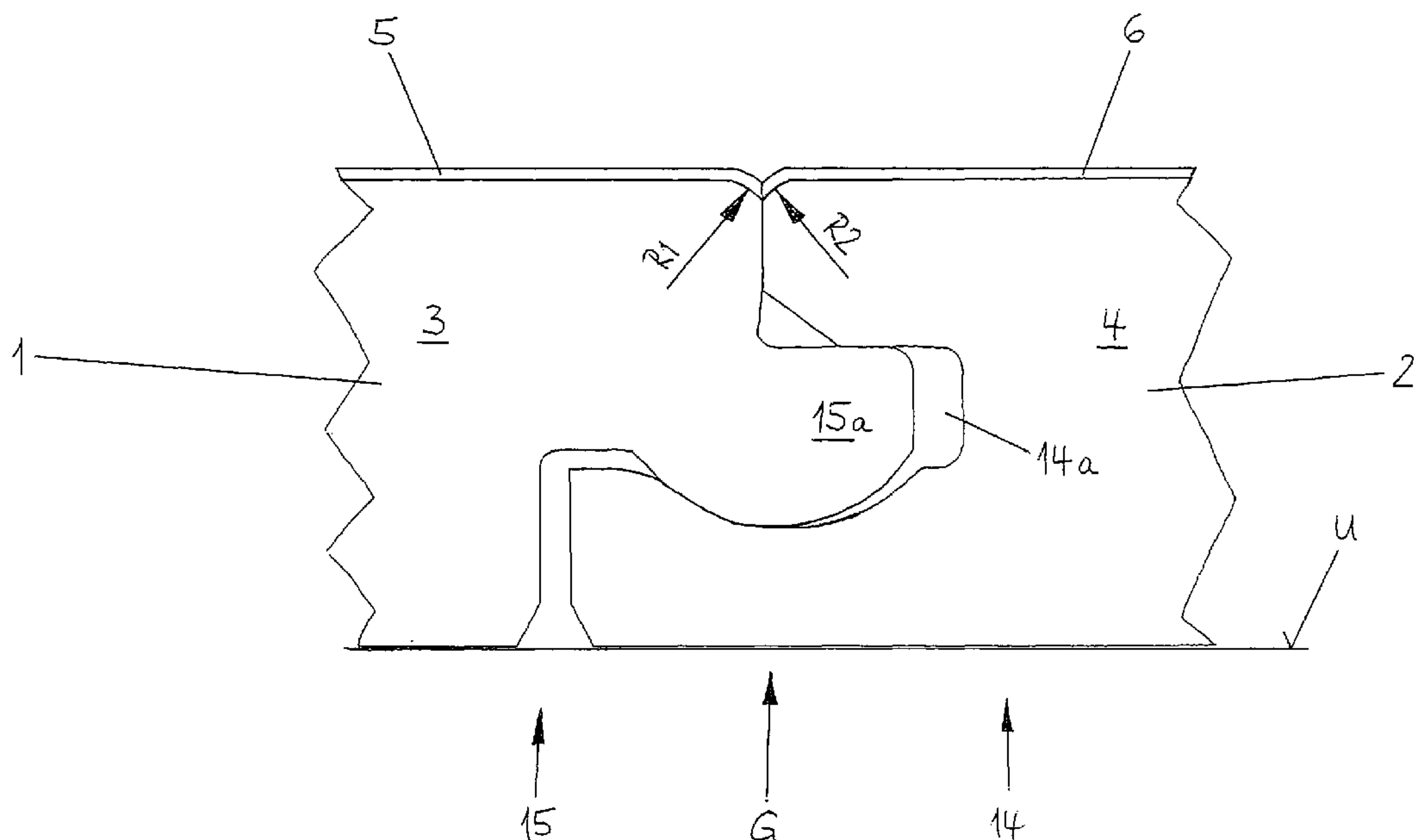
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(54) Title: FLOOR PANEL

(54) Bezeichnung: FUSSBODENPANEEL



(57) Abstract: The invention relates to a floor panel (1, 2) comprising a carrier plate (3, 4) to which a useful layer (5, 6) provided with a decorative image divided into various sections is applied, said decorative image being protected from wear by abrasionproof particles. The surface of the useful layer has a relief of recesses and raised parts. The recesses comprising certain image sections of the decorative image are surrounded by the raised parts comprising other image sections of the decorative image, said decorative image being coated with a transparent layer of lacquer. According to the invention, the recesses of the relief are produced by a chemical reacting with the lacquer, and the abrasionproof particles are contained in the layer of lacquer.

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Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

(57) **Zusammenfassung:** Die Erfindung betrifft ein Fussbodenpaneel (1, 2) mit einer Trägerplatte (3, 4), auf der eine Nuttschicht (5, 6) mit einer dekorativen in unterschiedliche Abbildungsbereiche unterteilten Abbildung angebracht ist, wobei die dekorative Abbildung mit abriebfesten Partikeln vor Verschleiss geschützt ist, und die Oberfläche der Nuttschicht ein Relief mit Vertiefungen und Erhöhungen aufweist, und wobei die Vertiefungen mit bestimmten Abbildungsbereichen und die Erhöhungen mit anderen Abbildungsbereichen der dekorativen Abbildung in Überdeckung sind, wobei die dekorative Abbildung mit einer transparenten Lackschicht überzogen ist, dass die Vertiefungen des Reliefs durch eine mit dem Lack reagierende Chemikalie erzeugt sind, und dass die abriebfesten Partikel in der Lackschicht angeordnet sind.

26th January 2006

Floor panel

The invention relates to a floor panel comprising a carrier panel portion on which there is disposed a duty layer with a decorative representation subdivided into different representation regions, wherein the decorative representation is protected from wear with abrasion-resistant particles, and the surface of the duty layer has a relief with recesses and raised portions, and wherein the recesses are in overlapping relationship with certain representation regions and the raised portions are in overlapping relationship with other representation regions of the decorative representation.

So-called laminated panel portions are known, from which floor panels are produced for the purposes of imitating wood, ceramic or natural stone surfaces. The laminated panel portions generally have a duty layer which is formed from at least two mutually superposed papers and which are disposed on a carrier panel portion of wood material. Medium density or high density fibreboards, chipboards etc. are used as the wood material. Generally panel portions of large area are pressed and then divided up into a plurality of individual panels which are subjected to further processing to constitute floor panels. The floor panels are generally rectangular. One of the papers of the duty layer is printed upon with a graphic representation of the surface to be imitated. The printed paper however generally has a low level of resistance to abrasion and for that reason must be protected from abrasion wear with a transparent paper provided with abrasion-resistant particles, a so-called overlay. Powdered particles are used for that purpose, which comprise for example aluminium oxide, a material from which inter alia grinding sand is produced. A relief is impressed onto that overlay with a pressing tool. The duty layer accordingly comprises a layer for visual imitation and a layer for tactile imitation of a surface. In other words: the haptics of the surface is matched to the graphics which reproduce the material to be imitated.

The paper provided with the representation is saturated with resins, for example phenol or melamine resin or mixed forms, after application of

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the representation. The resins can contain additives for example for the purposes of better workability and fillers for reducing the material costs. The overlay is also provided with resin. The two papers are later joined together and to the carrier panel portion by fusing the resin in a hot pressing operation.

A general state of the art is known from DE 196 04 905 A1. This involves a flat element which can be used for floor coverings. The flat element has a decorative layer of an genuine wood veneer. That natural product determines both the visual aspect and also the surface structure of the flat element. The surface is lacquered. Hard-substance particles are embedded in the lacquering.

US No 3 958 054 discloses inter alia a decorative floor which has a support layer of granular vinyl resin-bearing crumbly material. The resinous granular material is fused to obtain a porous layer into which a printing ink is introduced.

A floor panel of the general kind set forth is known from US 2003/0205013 A1. This involves a panel having a decorative paper which is impregnated with melamine resin and which performs the optical decorative function. Provided for the structure-imparting function of the surface is a separate overlay which must be embossed with a structured pressing plate.

The disadvantage of that arrangement is growth of the resin-impregnated decorative paper by virtue of wetting with melamine resin. The resin must be heated for the impregnation operation and applied in a fluid condition. The absorption of resin causes the growth of the decorative paper. That leads to problems with the exactitude of the covering of the representation and the surface structure. In order to ensure that the impregnated paper is always of the same dimensions US 2003/0205013 A1 proposes monitoring storage of the paper, namely in regard to time, temperature and humidity

The use of the resin-impregnated papers causes problems and is costly. It gives rise to problems because growth in respect of length and width of the paper which is printed upon with the representation occurs. The size of the paper is variable after the impregnation operation, because

of the fact that the paper is wetted with fluid resin and because of the growth that this involves. The size of the paper depends on influencing factors such as air humidity, paper quality, resin quality and so forth. After the impregnation operation a surface structure must be imparted to the resin paper with a pressing tool. The surface structure however is generally not in exactly overlapping relationship with the graphic representation, because of the variable paper size. Two steps are therefore required to produce an impregnated paper. In a first step the decorative print is reduced in length and width and applied by printing to the paper with a given degree of shrinkage. In a second step the paper is wetted with resin and grows, in which case the paper is intended to adapt in the grown condition to the size of the pressing tool. The process is inaccurate because of the variable paper growth.

The use of resin-impregnated papers also requires a so-called backing counteracting paper, namely a paper which has to be applied to the underside of the carrier panel portion in order to provide a balance in relation to the papers which form the duty layer on the top side of the carrier panel portion. Without the counteracting paper, severe distortion of the floor panel would occur after hot pressing of the paper layers with the carrier panel portion.

The complexity involved in processing resin and paper increases the reject rate in the production of the impregnated decorative print. Papers which are larger than or less than the desired target size cannot be used for a laminating operation because the representation and the embossing would not be in mutually overlapping relationship.

In addition the energy and equipment costs for pressing resin-bearing papers with a carrier panel portion are high for the reason that high temperatures and large amounts of heat have to be introduced into the layers to be joined together, in order to fuse the resin and join the layers together in that way.

A further advantage is found in the arrangement of the abrasion-resistant particles. Two alternative ways of integrating the particles are known. Alternative 1: the particles are disposed in the overlay paper.

They are mixed with the paper fibres during production of the overlay paper. The overlay paper is then resin-impregnated. Alternative 2: the overlay paper is free of particles. Instead they are mixed into a resin, in which case however the overlay paper is coated with the resin/particle mixture only on one side and the opposite side of the overlay paper is coated with particle-free resin. For embossing the relief, the side, which is resin-coated in particle-free fashion, of the overlay paper must be facing towards the pressing tool in order to prevent abrasion of the surface of the pressing tool by the hard particles.

Both the above-mentioned alternatives suffer from the disadvantage that the relief surface is formed as far as a certain depth from particle-free material. That particle-free material wears rapidly in use of the floor panel. The rate of wear slows down only when, due to the panel wearing away, that layer in which the abrasion-resistant particles are distributed emerges. It will be noted however that then the surface relief is already damaged.

The object of the invention is to provide a floor panel which has an exact overlap of representation regions of a decoration and the associated surface structures, wherein the floor panel affords a wear-resistant relief surface and is simple and inexpensive to produce.

In accordance with the invention that object is attained in that the decorative representation is resin-free and covered with a lacquer layer, the recesses of the relief are produced by a chemical which reacts with the lacquer and the abrasion-resistant particles are arranged in the lacquer layer.

The lacquered decorative representation can be applied in the form of a preliminary product for example to a paper or a film and is joined thereto in order to produce a laminated panel portion. Lower pressures and temperatures are sufficient for making the connection, than for connecting resin-impregnated papers to a wood material panel portion. In that way it is possible to simplify laminate presses or laminate rollers if in that way floor panels without resin impregnation are processed. A heating device can be entirely eliminated depending on the respective method of making the join between the carrier panel portion and the preliminary

product. Distortion of the floor panel elements is prevented because of the small amount of heat applied. It is therefore possible to dispense with a backing counteracting paper. The graphic representation can also be printed without taking account of a degree of shrinkage. That simplifies the imitation of photographed surfaces because the step of a reduction in size in the production of the print and the step of subsequently increasing the size by means of growth of the paper are avoided. As embossing of the paper surface is eliminated, no problems arise in connection with the orientation of the representation and the surface structure and a precise overlap in respect of the surface structure and the representation regions of the graphic representation is achieved. In that way for example a knot of a wood imitation can be felt at the embossed surface and is also graphically represented exactly at the same location, in a deeper layer. The representation is visible through the transparent lacquer. The tactile as well as the visual impressions are matched to each other in respect of location and precisely overlap each other. That provides an improved imitation of wood, ceramic, natural stone surfaces and so forth.

The relief of the duty layer is formed by the lacquer layer. Abrasion-resistant particles are distributed in the lacquer layer and extend to the lacquer surface. Therefore, between the graphic representation and the relief surface, there is no particle-free region which could quickly wear away. The anti-wear effect due to the abrasion-resistant particles therefore occurs immediately upon use of the floor surface. The relief surface is particularly well protected from an abrasive loading.

The decorative representation and the lacquer layer are arranged on a prefabricated decorative paper in a simple fashion and the decorative paper is joined to the carrier panel portion in the finished condition of the floor panel. Alternatively, instead of a decorative paper, it is also possible to provide a decorative film. A decorative film comprising plastic material has the advantage for example that it can be stretched. By virtue of that property it can be better wrapped around and can be used for example for three-dimensional coating of an edge shape.

The lacquered decorative paper is desirably applied to the carrier panel portion with an adhesive. Any suitable physically binding or chemically reacting adhesive can serve as the adhesive. It is also possible to use contact adhesives, for example in the form of a double-sided film which is disposed between the decorative paper and the carrier panel portion. The adhesive can be applied to the paper or the film prior to the pressing operation.

It is helpful if, at least at two oppositely disposed edges of the carrier panel portion, the lacquered decorative paper forms a partial wrapping around the edges. The edges of the carrier panel portion are generally subjected to cutting machining. Wood fibres of the wood material of the carrier panel portion are exposed. As a result the dry wood material can easily absorb moisture and swell. Wrapping the machined edge entirely or partially retards the penetration of moisture into the wood material. The operation of applying the duty layer comprising lacquered decorative paper is preferably effected after the cut-off edge has been milled on the carrier panel portion. In that situation the decorative paper projects beyond the cut-off edges which are to be coated. It is then pressed thereagainst and glued to the carrier panel portion. It can either be cut to the required length or it is shortened after the gluing operation to the required dimension.

Because the surface of the floor panel is structured the butting edges of two panels are never disposed opposite to each other in coincident relationship. The height of the edge of a floor panel varies in a range between the highest location of the surface relief and the deepest location thereof. In other words: the configuration of the edge of a floor panel is irregularly wavy. The configuration is produced during the cutting machining of the edge of the floor panel. The edge configuration corresponds to the profile which the relief has in the plane in which the edge machining operation is effected.

In the assembled condition a deeper subregion of the edge of a floor panel in accordance with the state of the art can bear against a region, at a higher level, of the edge of an adjacent panel. As a result, edge regions

which are disposed at a high position project from a floor surface and are at risk of being broken. They are easily damaged by impacts thereagainst. In order to prevent such breakage the carrier panel portion of the proposed floor panel desirably has cut-off edges on the side of the duty layer, at the
5 outer edge portions thereof. That protects the edges from peeling or chipping off. The edges are less delicate because a recess is formed in the region of a join between adjacent floor panels and the lower edges are protected from impacts and wear.

In a simple configuration two mutually opposite cut-off edges of the
10 carrier panel portion are enclosed with a self-adhesive decorative film. That has the following advantage: on a carrier panel portion which is for example of a rectangular shape, two mutually opposite cut-off edges can be enclosed completely with the duty layer. Enclosing the other two edges is complicated and expensive from the point of view of production process
15 engineering because, in the region of each corner, there is rather more area of the duty layer than is required for enclosing the edge. An excess residue of the duty layer must be cut off either before or after the step of wrapping it around each edge of a rectangular floor panel.

The proposed edge protection by virtue of wrapping the floor panel
20 can alternatively be achieved by coating with a self-adhesive decorative film. That simplifies manufacture. For that purpose firstly first edges have to be wrapped with the duty layer. They are then processed or machined at the ends, for example with a milling tool, in order to remove projecting pieces of the duty layer. That affords a clean surface for coating with the
25 decorative film.

For the sake of completeness it should be mentioned that it is also possible to work with a decorative film without self-adhesive properties, which has to be applied with another suitable adhesive. The decorative film does not have to have any abrasion-resistant particles because the cut-off
30 edges are set back under the surface of a finished floor and as a result are subjected to a low degree of abrasion.

The enclosing wrapping can coat the edge of the floor panel beyond the cut-off edges. That provides that an even greater part of the machined

edge of the floor panel is protected from moisture penetrating thereinto. Even if the edges of the carrier panel portion have groove-and-tongue profiles, a pair of oppositely disposed edges can be entirely or partially enclosed with the duty layer. Complete enclosure of the tongue profile involves a high level of complication and expenditure. Enclosing a tongue profile as far as the tongue or almost as far as same and enclosing the free end of an upper groove wall of the groove profile is simple from the production engineering point of view because the duty layer only has to be bent over at the cut-off edge. Additional bends for example around the top side of the tongue profile or into the groove of the groove profile increase the technical complication and expenditure.

The edges of the carrier panel portion can have positively locking locking profiles with undercut configurations which in the laid condition in the plane of the floor panels prevent the floor panels from pulling apart in a direction perpendicular to the locking profiles. Equally the edges of the carrier panel portion can have conventional groove-and-tongue profiles which must be joined with the addition of glue.

The enclosing wrapping enjoys particular significance for floors which are to have given laying patterns, such as for example a fishbone pattern which is assembled from wood slats. Hitherto floor panels are primarily produced, which can have a representation of a plurality of wood slats. For example floor panels with the visual appearance of the bottom of a ship. Laying patterns such as fishbone patterns cannot be produced with large floor panels because the configuration of the join between the panels would disturb the visual appearance of the fishbone pattern. In addition wood slats can merely be partially represented lying at the edge of a floor panel. The represented slat portions at the edge would have to be assembled during the laying operation by fitting exactly against the adjacent panel in such a way that two represented slat portions supplement each other to form a complete wood slat. In that situation it would be necessary to attend to a precise image at the joins in order to avoid a displacement of those slat portions which are intended jointly to represent a wood slat.

One solution for laying patterns of that kind provides that, instead of representations of a plurality of wood slats on a large floor panel, individual wood slats are in the form of small floor panels. Each floor panel forms the image of a single wood slat. The laying pattern is therefore no longer a representation. Instead the laying pattern is produced by means of the individual imitated wood slats which, like original wood slats, are arranged in any pattern.

The step of laying individual wood slat imitations increases the proportion of joins in a floor. Joins which hitherto were represented in the form of printed joins on floor panels of large area are now real joins. For that reason, correspondingly greater significance is afforded to protection for the machined edges of the floor panels, the smaller that the floor panels are. Because of the comparatively high proportion of joins involved with small floor panels, for example when cleaning more moisture can penetrate into the carrier panel portions than in the case of a floor made up of large-area panels. The joins however are adequately protected from the absorption of moisture by enclosing the edges of small floor panels, as described above.

A paper or film layer can be disposed on the underside of the carrier panel portion to provide protection from moisture or as a measure for damping the sound of footsteps. That layer can be joined to the underside of the carrier panel portion, by spot or point joins. It is therefore possible to save on a join over the full area of the carrier panel portion, like the way in which a backing counteracting paper is joined to the carrier panel portion.

The invention is shown by way of example hereinafter in a drawing and described in detail with reference to individual Figures in which:

Figure 1 shows a view of part of two locked floor panels with cut-off edge, wherein a top side of the panel is provided with a lacquered duty layer,

Figure 2 shows a diagrammatic view of a duty layer,

Figure 3 shows a view of part of two locked floor panels with cut-off edge, wherein a top side of the panel is provided with a lacquered duty layer, and with partial enclosure of milled locking profiles, and

Figure 4 shows a view of part of two locked floor panels without cut-off edge, wherein a top side of the panel is provided with a lacquered duty layer.

Figure 1 shows two floor panels 1 and 2 according to the invention which are locked together. Each floor panel 1 and 2 respectively has complementary locking profiles at oppositely disposed edges so that the profile of one edge and the profile of the other edge of a floor panel fit each other in such a way that a respective similar floor panel can be fixed to the free edge of a laid floor panel. Accordingly the floor panel 1, on the edge remote from the tongue profile 15 is provided with a groove profile (not shown) and the floor panel 2, in opposite relationship to its groove profile 14, has a tongue profile (not shown).

The two floor panels 1 and 2 have a carrier panel portion 3 and 4 respectively, on the top side of which is disposed a duty layer 5 and 6 respectively.

For the purposes of describing the structure of the duty layer 5 and 6 respectively, Figure 2 diagrammatically shows a portion of the duty layer. As can be seen therefrom the duty layer comprises a paper 7 which is printed with a decorative graphic representation 8 and which, provided with the graphics, can be referred to as the decorative paper 7. The graphic representation 8 is sub-divided into different representation regions 9 and 10. To protect the representation 8 from abrasion wear, it is coated with a transparent lacquer 11. The thickness of the lacquer layer 11 and the thickness of the paper 7 are shown in Figure 2 without proportionality. The lacquer 11 is transparent and is mixed with abrasion-resistant particles 12 for the purposes of affording a high level of resistance to wear. The particles 12 extend to the lacquer surface. The lacquer surface also has a surface relief 13 which precisely matches the graphic representation 8 on the paper 7. Recesses and raised portions of the surface relief 13 are respectively in overlapping relationship with given representation regions 9

and 10 respectively of the graphic representation 8. The recesses of the surface relief 13 have been produced by a chemical which is applied prior to the lacquer coating and which after application of the lacquer 11 reacts therewith. Figure 2 shows deep locations – recesses 13a – of the relief 13, which are protected with a thin lacquer layer, as well as higher regions – raised portions 13b – of the surface relief 13, which are protected with a thicker lacquer layer. The deep locations 13a of the surface relief are in overlapping relationship with representation regions 9 of the graphic representation 8. In that way the tactile and the visual impressions supplement each other and that arrangement affords a particularly good imitation of floor surface. A recess in the lacquer layer 11 can extend at a maximum as far as the printed paper 7. Such recess lacks the protective lacquer layer. Such recesses should preferably be of a small area so that they are well protected from wear by surrounding raised regions.

15 A duty layer as shown in Figure 2 is prefabricated. To produce a floor panel 1 and 2 respectively the prefabricated duty layer 5 and 6 respectively is mounted to a carrier panel portion 3 and 4 respectively.

As shown in Figure 1 and 3 the floor panels 1 and 2 lie with the underside of the carrier panel portions 3 and 4 which comprise wood material, on a laying substrate surface U, for example a soft underlay which damps the sound of footsteps.

The carrier panel portions 3 and 4 of the floor panels 1 and 2 have a break or cut-off at the edges at the top side. In the present case the edge cut-offs are formed by milled radii R1 and R2. The radius R1 of the carrier panel portion 3 is enclosingly wrapped with the duty layer 5. The radius R2 of the carrier panel portion 4 of the adjacent floor panel 2 is enclosingly wrapped with the duty layer 6. The edges of the floor panels 1 and 2, at the junction thereof, are somewhat deeper than the surface of the floor panels 1 and 2. In that way they are protected from breakage and being worn away, in the laid condition.

The floor panels 1 and 2 have locking profiles. These are in the form of modified groove-and-tongue profiles 14 and 15 respectively. As shown in Figures 1 and 3 the tongue 15a is fitted in positively locking relationship

into the groove 14a, in which case an undercut configuration as between the tongue profile 15 and the groove profile 14 prevents the tongue profile 15 from being pulled out of the groove profile 14 when the locked floor panels 1 and 2 are lying on a laying surface U. It will be appreciated that it is also possible to provide conventional groove-and-tongue profiles which do not have any undercut configuration and have to be glued, or the like.

In many cases panel floors are laid in a floating fashion. In other words they have a gap relative to the walls of the room in which they are laid. Frequently, to damp the sound of footsteps, a soft underlay is used, which serves as the laying surface U for the floor panels 1 and 2. In order to promote sinking of the floor into such a soft underlay at the joining location between the floor panels 1 and 2, the locking profiles 14 and 15 which afford a positively locking action form a common hinge G in the locked condition, as is shown in Figure 1 and in Figure 3 which is described hereinafter. The hinged flexibility which is incorporated into the join protects the locking profiles from breakage.

Figures 3 and 4 show alternative embodiments of floor panels 1 and 2 respectively with locking profiles 14 and 15. The configuration of the geometry and the function of the locking profiles 14 and 15 respectively corresponds to the above-described configuration shown in Figure 1. Therefore the same references are used for the same features.

In Figure 3, the only difference in relation to the configuration shown in Figure 1 is at the edges of the floor panels 1 and 2. There the duty layer 5 and 6 respectively is passed over the cut-off edges of the carrier panel portions 3 and 4 further into the join between the butting edges. At the edge of the floor panel 1 the enclosure formed by the duty layer 5 extends almost as far as the top side of the tongue 15a of a tongue profile. At the edge of the floor panel 2 the free end of an upper groove wall of a groove profile 14 is almost completely covered by the duty layer 6. The entire join of the locked groove-and-tongue profiles 14 and 15 is of a labyrinth-like configuration. The join has a portion which is towards the top side of the floor panels 1 and 2 and a portion which is towards the underside of the floor panels 1 and 2. The tongue 15a and the groove 14a are disposed

approximately at the centre of the carrier panel portions between the above-mentioned portions of the join. The portion of the join which is towards the top side of the floor panels 1 and 2 is heavily stressed in everyday use by dirt and moisture which penetrates thereinto. Less
5 moisture and dirt penetrate into the other portions of the join. For normal situations of use of floor panels 1 and 2 in the domestic area therefore, it is sufficient to provide a wrapping enclosure in the region of that portion of the join, which is towards the top side of the floor panels 1 and 2.

Figure 4 shows a particularly simple embodiment of floor panels 1
10 and 2 which are shown as lying on a laying surface U. Those floor panels do not have cut-off edges of the carrier panel portions 3 and 4. The surfaces of the carrier panel portions 3 and 4 are flat. The duty layers 5 and 6 are disposed on the flat surface of the carrier panel portions 3 and 4. The ends of the duty layers 5 and 6 bear in butting relationship against
15 each other. A tongue profile 15 and a groove profile 14 engage behind each other and connect the adjacent panels. The tongue profile 15 and the groove profile 14 form a common hinge G. It will be appreciated that the carrier panel portions 3 and 4 could also alternatively be provided with another locking profile which has a positively locking action, or they can
20 have a conventional profile which is free of an undercut configuration and which has to be connected with glue.

List of references

	1	floor panel
	2	floor panel
	3	carrier panel portion
5	4	carrier panel portion
	5	duty layer
	6	duty layer
	7	paper
	8	graphic representation
10	9	representation region
	10	representation region
	11	lacquer
	12	abrasion-resistant particles
	13	surface relief
15	13a	recess
	13b	raised portion
	14	groove profile
	14a	groove
	15	tongue profile
20	15a	tongue
	G	hinge
	R1	radius
	R2	radius
	U	laying surface

Claims

1. A floor panel (1, 2) comprising a carrier panel portion (3, 4) on which there is disposed a duty layer (5, 6) with a decorative representation (8) subdivided into different representation regions (9, 10), wherein the decorative representation (8) is protected from wear with abrasion-resistant particles (12), and the surface of the duty layer (5, 6) has a relief (13) with recesses (13a) and raised portions (13b), and wherein the recesses (13a) are in overlapping relationship with certain representation regions (9) and the raised portions (13b) are in overlapping relationship with other representation regions (10) of the decorative representation (8), characterised in that the decorative representation (8) is resin-free and covered with a transparent lacquer layer (11), the recesses (13a) of the relief (13) are produced by a chemical which reacts with the lacquer and the abrasion-resistant particles (12) are arranged in the lacquer layer (11).

2. A floor panel according to claim 1 characterised in that the decorative representation (8) and the lacquer layer (11) are arranged on a prefabricated decorative paper (7) and that the decorative paper (7) is connected in the finished condition to the carrier panel portion (3, 4).

3. A floor panel according to claim 2 characterised in that the lacquered decorative paper (7) is fitted to the carrier panel portion (3, 4) with an adhesive.

4. A floor panel according to one of claims 1 to 3 characterised in that the lacquered decorative paper (7) forms a partial wrapping enclosure of the edges at least at two oppositely disposed edges of the carrier panel portion (3, 4).

5. A floor panel according to one of claims 1 to 4 characterised in that on the side of the duty layer (5, 6) the carrier panel portion (3, 4) has cut-off edges at the outer edge portions thereof.

6. A floor panel according to one of claims 1 to 5 characterised in that two oppositely disposed cut-off edges of the carrier panel portion (3, 4) are covered with a self-adhesive decorative film.

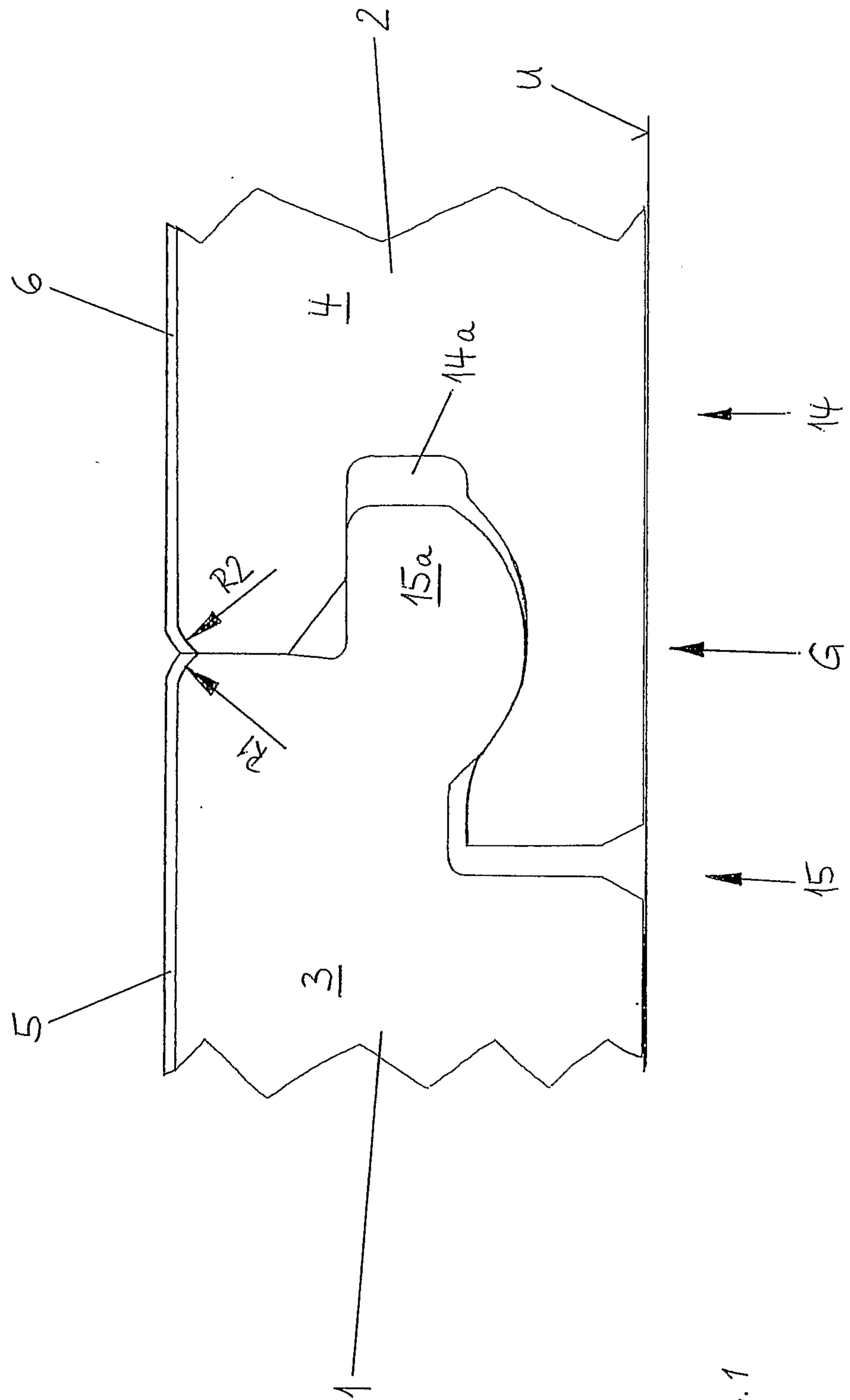


Fig. 1

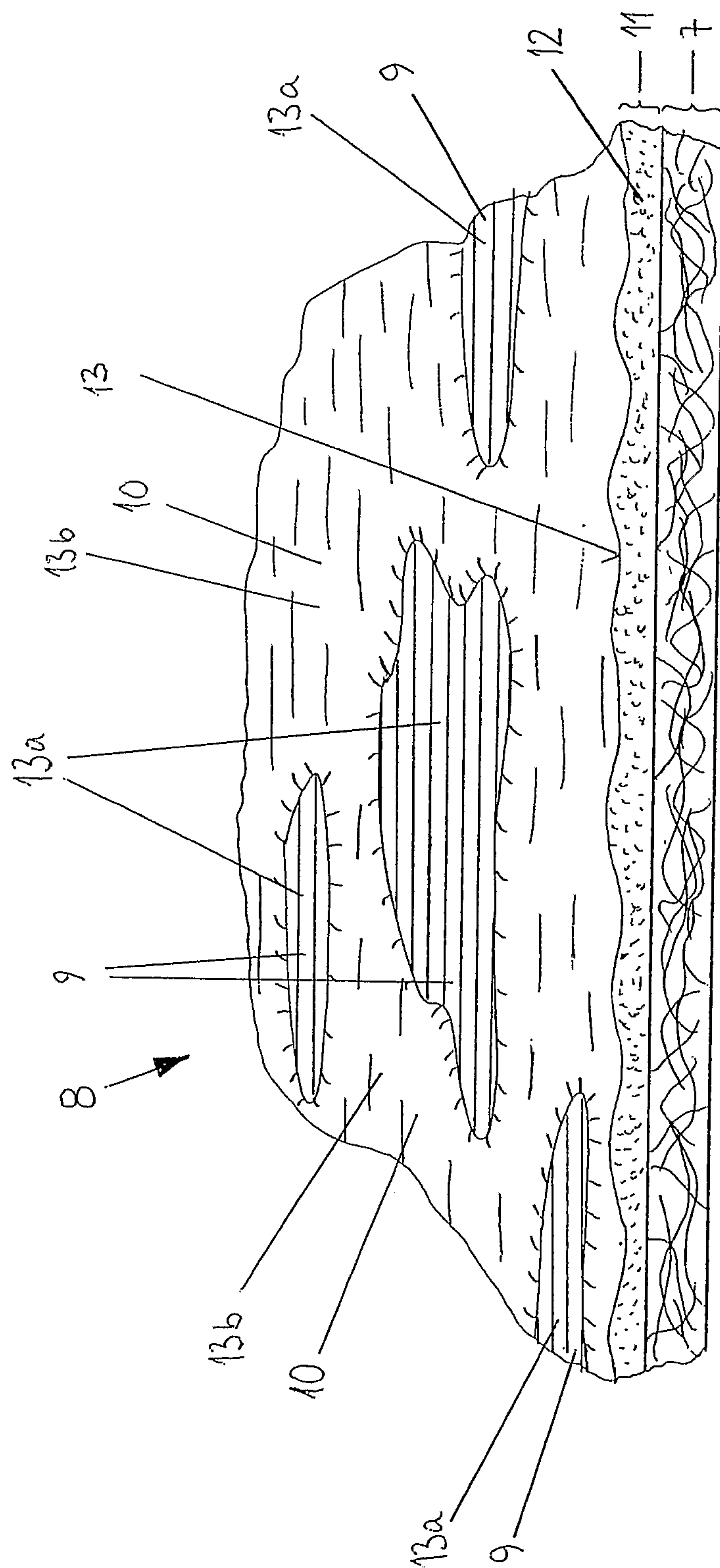


Fig. 2

