

(19)



(11)

EP 2 148 023 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
27.01.2010 Bulletin 2010/04

(51) Int Cl.:
E04F 15/024^(2006.01) E04F 15/08^(2006.01)

(21) Application number: **09425284.8**

(22) Date of filing: **15.07.2009**

(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 MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(71) Applicant: **Teknofloor S.R.L.**
San Casciano in Val di Pesa (Florence) (IT)

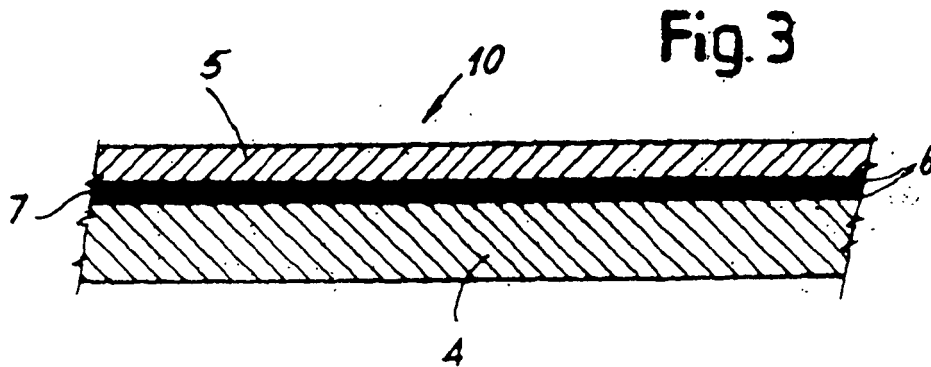
(72) Inventor: **Zecchi, Cristiano**
Certaldo, Località Fiano (FI) (IT)

(30) Priority: **21.07.2008 IT FI20080136**

(54) A panel for raised floors and a raised floor including such panels

(57) A water-repellent panel (10) for raised floors includes at least a support layer (4) made of ceramic material, porcelain stoneware or ceramic granite. The panel

is preferably deprived of wooden parts, cement materials or calcium sulphate or similar and preferably includes a surface finishing layer (5) glued to the support layer (4).



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Description

Technical Field

[0001] The present invention relates to the improvement to raised floors, and in particular to the supports or panels for the realization of raised floors of this type.

Actual Technique

[0002] Known are raised floors systems to allow the laying of cables, ducts or other beneath the walking surface. Such system comprehend usually a supporting structure which place a distance between the walking surface and the under flooring, and panels which create the walking surface itself.

[0003] Generally the above mentioned panels include a support made of wood, calcium sulphate or other material, generically indicated as "support", on which it is glued a thick finishing of various types, indicated as "upper finishing". The perimeter of the panel can or cannot present a protection border. The ensemble of support, upper finishing and possible border, if present, is then indicated as "panel". The presence of supports of wood or other non water-repellent materials prevents the realization of external raised floors together with exposing the above mentioned panels to the risk of irreparable damages in the event of absorption of humidity from the support.

Summary of the invention

[0004] Scope of the present invention is the realization of a panel for raised floors which will overcome all or part o of the inconvenient of the panels and supports known to date.

[0005] According to the invention it is previewed a water-repellent panel for the realization of raised floors, providing characteristically a support in so-called porcelain stoneware or ceramic granite (the terms porcelain stoneware, ceramic, ceramic granite or the indication of the same through their chemical description are to be considered equivalent and therefore equally be a part of the present invention) and it is lacking of wooden parts, calcium sulphate or other similar materials having water absorbent characteristics. According to some forms of realization, the panel can encompass a support layer of appropriate thickness and an upper finishing layer, advantageously applied for the gluing. The layer of superficial finishing can be realized in ceramic material. In this case the panel is finished and does not require the addition of further layer of finishing on the upper surface. In addition, with other forms of realization, the support, of proper thickness, can be used to hold self idle finishing to be installed in the construction site such as self posing fitted carpeting, self posing ,PVC self posing or other materials.

[0006] Each panel can be made of by a unique thick-

ness of ceramic (gross or finished) or by pairing a ceramic support of appropriate thickness and an upper finishing. Preferably, in this second instance can be foreseen the addition of a reinforcement layer between the support itself and the finishing layer. The reinforcement layer can be constituted of a net, for example a net of polymeric material, or a layer of unwoven material, in synthetic fibres or other appropriate material. The upper finishing can be realized in ceramic material, for example the same ceramic material of which the support layer is made of. The total panel thickness can be chosen in such a way as to withstand the break-through when subjected to static or dynamic loads to which this type of floors have to be able to support.

[0007] The support layer and the upper finishing layer can be glued together with an appropriate glue, of such characteristics to fill in adequately the interstices between the two layers. In some forms of realization the adhesive impregnate or encompass the intermediate reinforcement layer, which is interposed between the support and the upper finishing layer. The reinforcement layer is for this scope opportunely permeable to the adhesive and/or equipped with openings and/or hatches and/or holes, for example constituted by the meshes of the net structure. The adhesive can be a bi- component polyurethane adhesive to other performances which will enable both a chemical and mechanical anchorage between the support and the finishing, that is an anchorage obtained thanks to the penetration of the adhesive in the micro porosities of the support and finishing.

[0008] The reinforcement layer is preferably made of a material suitable to create anchorage for the splinters that can be created in case of accidental break-through of the support and/or the finishing layer. This way, also thanks to the presence of the adhesive which encompass the reinforcement layer and which is in contact with the lower surface of the finishing layer and the upper surface of the support, it is avoided that the splinters originate from an accidental rupture, for example a break-through of the support and/or of the finishing layer, shall be dispersed creating a danger due to their cutting edges. In all the various configurations and forms of realization the panel can be equipped with a perimeter border, or can be devoid of it and can present any suitable dimension.

Brief description of the drawings

[0009] The invention shall be better understood following the description and the included drawing, which shows the practical forms of realization which do not restrain the invention. In particular, the drawings show:

- Figure 1 a schematic lateral view of a panel in a first realization type
- Figure 2 a schematic lateral view of a panel in a second realization type
- Figure 3 an enlarged partial section of a support in

the realization type of which at Fig. 2

Detailed description of types of realization of the invention

[0010] In the attached drawing and with an initial particular reference to Figures 1 and 2, with the numbering "1" is indicated the surface over which has to be installed the raised floor and with the numbering "2" the support structure of the raised floor. The latter can be constituted by a series of columns "2A", each equipped of a foot "2B" and a head "2C". The foot "2B" is intended to lean on the surface "1" over which the raised floor is to be realized, while the head is usually placed in correspondence of the convergence of the four apexes of corresponding four panels of the raised floor, so that each panel is supported by four columns. Usually and in a well known practice the columns "2A" can be registered.

[0011] In Figures 1 and 2 with numbering "10" is indicated the panel which can constitute a simple support over which is then applied a possible surface finishing layer, otherwise it can in itself include a multi layer structure, as shown in Figure 2, so as to create directly with such multi layer structure a panel of the raised floor equipped of surface finishing.

[0012] In the realization type in Figure 1, the panel "10" is constituted by a single plate "3" made for example of a ceramic material, so-called porcelain stoneware or ceramic granite, over which a finishing layer can be applied.

[0013] In the realization type in Figure 2, vice versa, the panel "10" is equipped of a surface layer of finishing. In particular, with numbering 4 is indicated the lower layer formed by a porcelain stoneware support united to a superficial/exterior layer of finishing (5) of ceramic or other material.

[0014] As shown in particular in the enlargement in Figure 3, in case of a panel made of a support layer "4" and of a finishing layer "5", between the two layers 4 and 5 is arranged a layer of adhesive "6" which joins the lower surface of the finishing layer "5" to the upper surface of the support "4". Between the two paired surfaces is arranged a reinforcing flexible structure, constituted for example by a net "7" in suitable polymeric material, such as polypropylene. In other types of realization the reinforcement layer "7" can be constituted of a textile structure (usually a unwoven material) in glass fibre or other suitable fibre material for consistence and mechanic resistance, such as Kevlar. The reinforcement layer "7" incorporated in the adhesive supplies a further endurance to a break through and in particular it constitutes an anchorage structure which keeps adherent the splinters that can be formed by the break through of the panel.

[0015] In both cases the panel "10" is deprived of wood or other non water-repellent material which will be faulty for the reasons already stated above. According to the invention, with the supports and the panels, it is possible to realize steady raised floors with permanent characteristics, without the potential inconvenient that with time or

in determinate conditions are incurred when using wood or non water-repellent materials as a support. Therefore, the panels as per the invention, allow the realization of panels for raised floors both for interior and exterior applications.

[0016] It is intended that the drawing is merely a simplification given only as a practical demonstration of the invention, that can vary in types and dispositions, without loosing the scope of the concept at the base of the invention. Potential presence of referral numbers in the enclosed claims has the scope to facilitate the reading of the claims with reference to the description and the drawing, and does not limit the scope of protection represented by the claims themselves.

Claims

1. A water-repellent panel for raised floors, **characterised by** the fact of including at least a support layer made of ceramic material, porcelain stoneware or ceramic granite.
2. Panel as per claim 1, **characterised by** the fact to be deprived of wooden parts, cement materials or calcium sulphate or similar.
3. Panel as per claim 1 or 2, **characterised by** the fact of including a surface finishing layer glued to such support layer.
4. Panel as per claim 3, **characterised by** the fact that such surface finishing layer is realized in ceramic material.
5. Panel as per claims 3 or 4, **characterised by** the fact that such surface finishing layer is anchored by gluing to the support layer beneath.
6. Panel as per claims 3, 4 and 5, **characterised by** the fact that between such support layer and such surface finishing layer is arranged a reinforcement structure.
7. Panel as per claim 6, **characterised by** the fact that such reinforcement structure is constituted by a net.
8. Panel as per claim 7, **characterised by** the fact that such net is a net in polymeric material.
9. Panel as per claim 6, **characterised by** the fact that such reinforcement structure is constituted by a layer of fibres.
10. Panel as per claim 9, **characterised by** the fact that such reinforcement structure is constituted by unwoven material.

11. Panel as per claim 9 or 10, **characterised by** the fact that such reinforcement structure is constituted at least in part by glass fibres.

12. A raised floor including a plurality of panel as per one or more of the previous claims and a carrying structure over which such panels are laid out.

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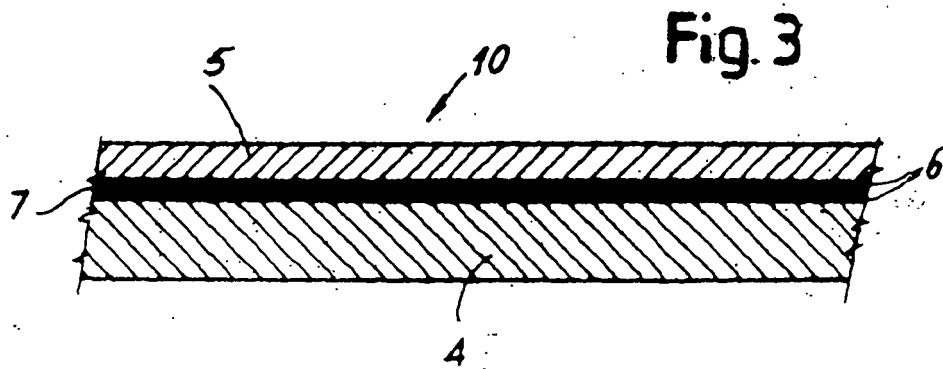
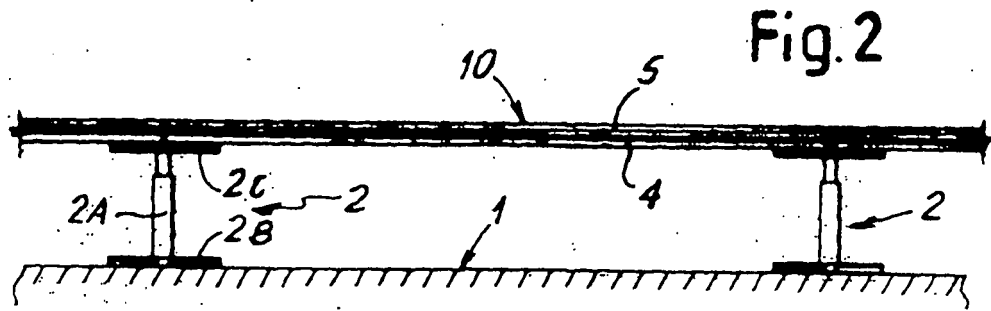
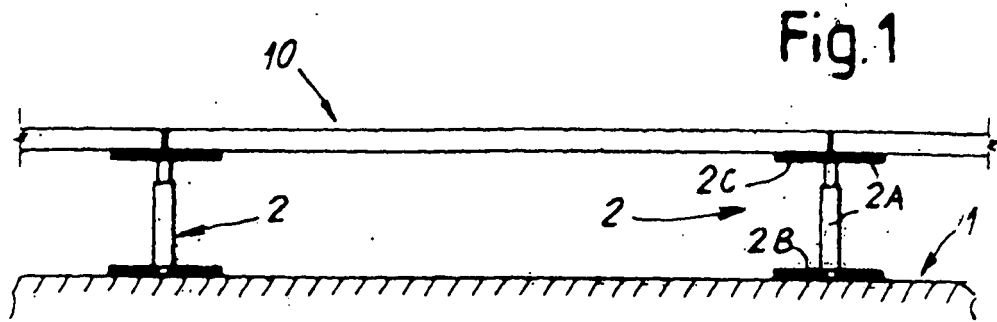
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EUROPEAN SEARCH REPORT

Application Number
EP 09 42 5284

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
2	Place of search Munich	Date of completion of the search 16 October 2009	Examiner Bouyssy, Vincent
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		& : member of the same patent family, corresponding document	

EPO FORM 1503 03.82 (F04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-10-2009

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82