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(71) Applicant(s)
**Trade Fabrication Systems Ltd
(Incorporated in the United Kingdom)
Unit 9 Deacon Trading Estate, Earle Street,
Earlestown, NEWTON-LE-WILLOWS, Merseyside,
WA12 9XH, United Kingdom**

(72) Inventor(s)
James Stanley Richardson

(74) Agent and/or Address for Service
**Marks & Clerk
Sussex House, 83-85 Mosley Street, MANCHESTER,
M2 3LG, United Kingdom**

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(56) Documents Cited
**JP 070305487 A US 4832995 A US 4543765 A
US 4406099 A**

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(54) Abstract Title
Flooring panel

(57) The flooring panel 2 has a tongue 3 and/or groove 4 for connecting with an adjacent similar panel 1, with at least one portion of the tongue or groove being provided with an adhesive coating 5 that has a peel-off protective layer 6. Also disclosed is a flooring panel with a water absorbent removable protective layer which acts to protect the panel during construction work, after which it is removed.

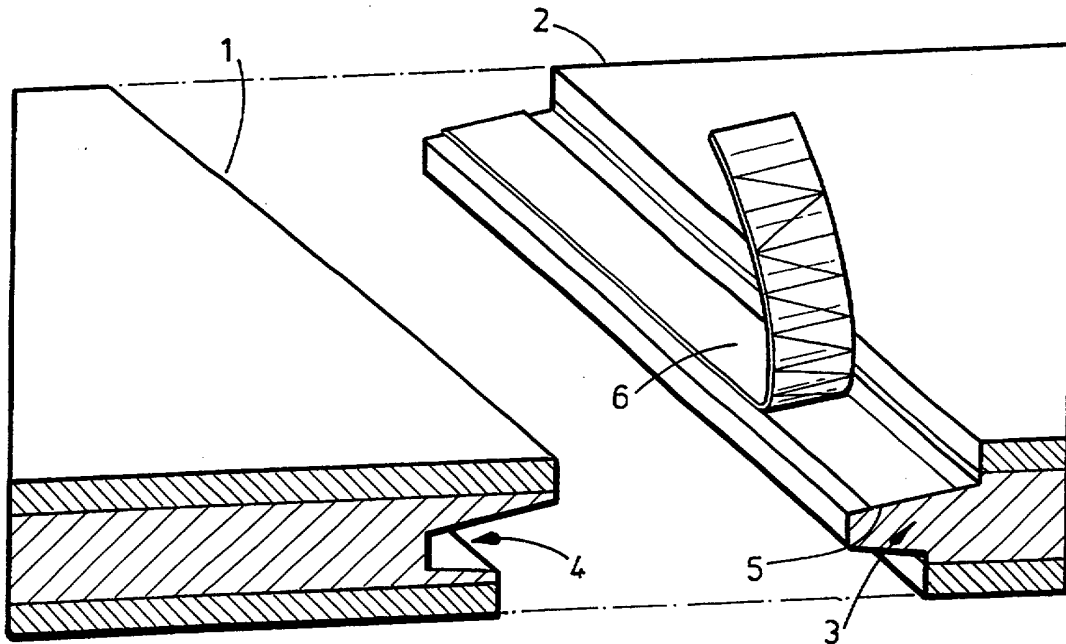


FIG. 1

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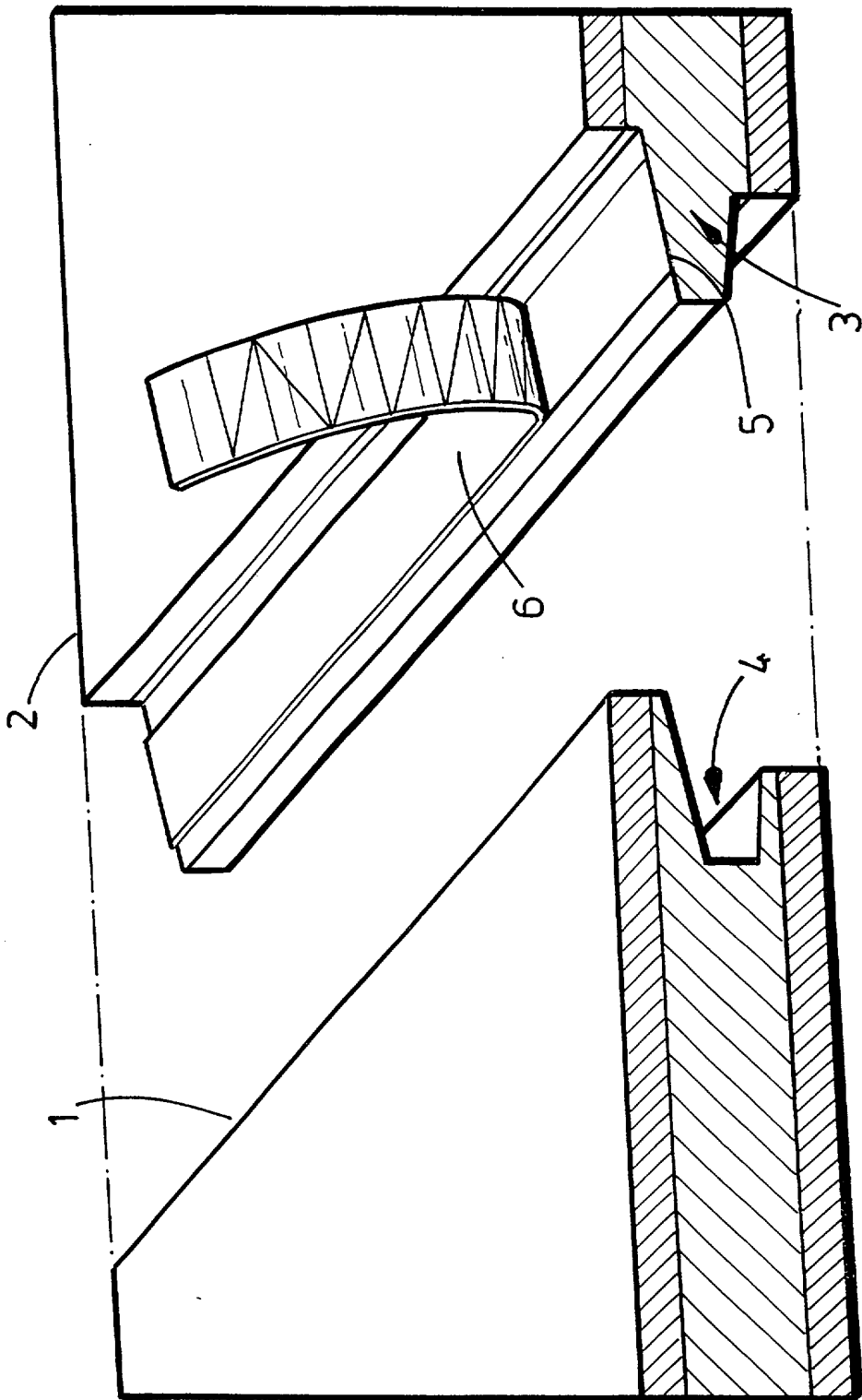


FIG. 1

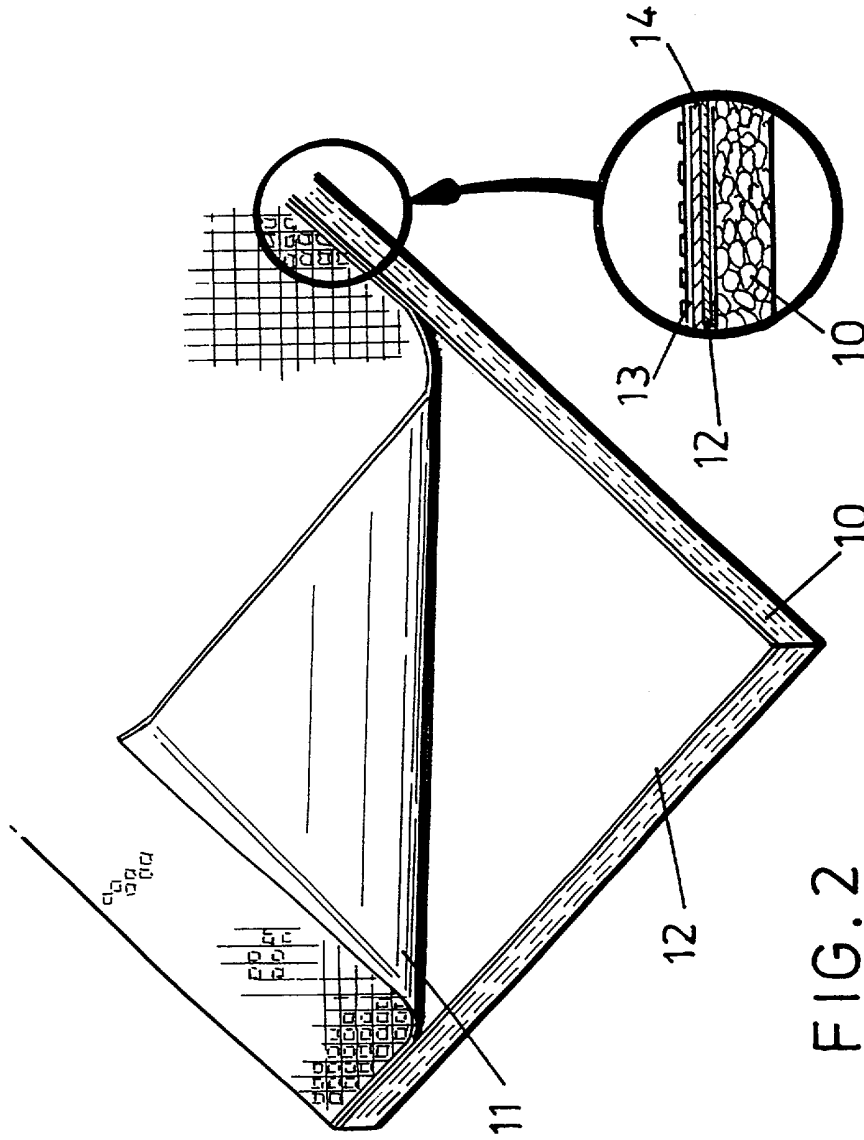


FIG. 2

FLOORING PANELS

The present invention relates to flooring panels, particularly but not exclusively for use during construction of new buildings.

Many problems occur with the laying of new flooring in buildings, as the flooring must be in place early enough to enable the construction workers to walk around the structure safely in order to continue the construction or refurbishment of the building. This means that the flooring is often laid before the roof of the building and the windows have been installed, and before the walls are plastered. Damage can therefore be caused to the flooring due to the ingress of rain and snow, wind damage, and plaster and/or paint being spilled onto the floor.

It is known to adhere a moisture resistant protective layer to the flooring panels which may be removed once construction of the building has been completed. The protective layer is typically formed of polyethylene and prevents damage to the surface of the floor due to wind and rain, whilst dirt such as mud, spilled plaster and/or paint is easily removed with the protective layer. However, the surface of the protective layer can become dangerously slippery in wet conditions, or when, for example, paint has been spilled onto the floor.

In addition, in order to install the floor, which is usually formed of chipboard or plywood panels or wooden floorboards having complementary tongue and groove edges, glue must be applied to the tongues, grooves or both to ensure that the floor is properly connected together and will not move over time. Movement of the flooring panels may cause annoying squeaking as the floor is walked on. A water-based glue is usually employed for this purpose. It is difficult to apply the glue in wet conditions, as it may be washed out of the joint, thus reducing the effectiveness of the bond. In addition, poor workmanship can mean that the glue is not evenly applied. Moreover, as the construction workers must apply the glue using a squeezable bottle, when the bottle has been emptied there is a tendency for workers to wait until work is started on the next flooring panel before replacing the bottle, thus adding to problems of uneven application of the glue.

Problems in the flooring can result in remedial work having to be undertaken at a later date, which can be time consuming, inconvenient and expensive to carry out.

It is an object of the present invention to obviate or mitigate these problems with the prior art flooring systems.

According to a first aspect of the present invention there is provided a flooring panel having a tongue and/or a groove for connection to complementary features on an adjoining panel, wherein at least a section of one of the tongue or groove is provided with an adhesive coating, the adhesive coating being provided with a peel-off protective layer.

The adhesive may thus be applied to the flooring panel in the factory, so that an even layer of adhesive is supplied and there are no problems due to wet conditions on site or uneven application of adhesive.

Preferably the peel-off protective layer is a silicone release paper.

The adhesive is preferably a hot melt pressure sensitive adhesive.

The adhesive is preferably applied to the tongue and may additionally be provided in the groove. The adhesive may be applied to both sides of the tongue.

According to a second aspect of the present invention, there is provided a flooring panel having a removable protective coating thereon, the removable protective coating being water absorbent.

The water absorbency of the protective coating gives much greater non-slip properties than with prior art systems so that the flooring is much safer than previously. In particular, the protective coating prevents water standing in puddles on the floor, which can be dangerous. The flooring is thus non-slip in both wet and dry conditions.

Preferably, the removable protective coating is formed of a laminate of a lower, water resistant material, and an upper, water absorbent material. The layers are preferably fused together. The lower, water resistant material prevents damage to the flooring panel, although could be omitted if a suitable water resistant adhesive was used.

Preferably the water absorbent material is a nonwoven material such as a spunbonded material, most preferably a polypropylene material.

The water resistant material is preferably polyethylene.

Preferably also, the protective coating has a roughened upper surface so that it has further non-slip properties.

The protective coating is preferably a peel-off coating applied to an adhesive film. The adhesive film preferably has a roughened surface which also imparts non-slip properties to the flooring after the protective coating has been removed.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic representation of tongue and groove flooring panels according to the first aspect of the present invention; and

Figure 2 is a perspective view of a flooring panel according to the second aspect of the present invention.

Referring to figure 1 of the accompanying drawings, there is illustrated two flooring panels 1, 2. Each flooring panel 1, 2 is identical, and has a tongue 3 along one edge thereof and a groove 4 along another edge thereof. For ease of illustration, only the groove 4 of panel 1, and the tongue 3 of panel 2 are shown. The flooring panels are formed of plywood, and are 2.4 m long x 0.6 m wide, although any size or construction of flooring panel may be used, such as chipboard or other wood based materials. In the case of a square or rectangular flooring panel rather than an elongated floorboard, a tongue and groove are provided along opposite shorter edges, as well as along opposite longer edges.

A line of hot melt pressure sensitive adhesive 5 is applied to the upper side of each tongue 3, and a peel off silicone release paper 6 is applied to the adhesive to provide a protective layer thereto. The application of the adhesive 5 and peel off paper 6 is carried out before the flooring panels are provided to a construction site, thus ensuring that each flooring panel is pre-supplied with the correct amount of adhesive.

As the flooring is installed at the construction site, the first floor panel 1 is laid onto the supporting structure, and is secured to the supporting structure by nailing or otherwise. The second floor panel 2 is then offered up to the first panel, and the peel off paper strip 6 is removed from the adhesive 5. The tongue 3 of panel 2 is then inserted into groove 4 of panel 1 so that the adhesive 5 contacts groove 4. Panel 2 is then secured to the supporting structure. Further panels are connected in a similar way to cover the whole floor.

Adhesive may additionally be provided to the underside of tongue 3, and/or to the groove 4, in which case peel off strips 6 need to be removed from all areas of adhesive before the panels are fitted together.

The pre-application of the adhesive before the panels are delivered to the construction site means that the adhesive is evenly applied, and that the flooring can be laid in wet conditions without any danger that the adhesive will not adhere to the tongue. This means that there is a much reduced possibility of unevenness in the completed floor, and therefore the need to carry out remedial work to the floor at a later date.

Referring now to figure 2 of the accompanying drawings, there is illustrated a flooring panel 10 having a removable protective film 11 and an adhesive film 12. The flooring panel 10 may be a tongue and groove panel having a pre-applied adhesive according to the first aspect of the present invention, and will not be further described. The film 11 is formed of a two-layer laminate, that is an upper layer 13 and a lower layer 14.

Upper layer 13 is formed of a water absorbent spunbonded, nonwoven material such as a polypropylene. Lower layer 14 is formed of a water resistant material such as a polyethylene. The two layers of film 11 are fused together. Upper layer 13 may have surface asperities in order to improve further its non-slip properties.

Adhesive film 12 is a hot melt adhesive that is sufficient to hold the protective film 11 in place but which will allow it to be peeled away after construction has been completed.

The adhesive film 12 is first applied to the flooring panel 10, and the laminated protective film 11 is then applied to the adhesive film, with water-resistant layer 14 being adhered to the adhesive 12, and water-absorbent layer 13 being uppermost. The flooring panel is then supplied to a construction site, and the flooring is installed, with the film 11 forming the upper surface of the floor that the construction workers walk upon.

The join between adjacent flooring panels 10 is covered by an adhesive tape (not shown), to ensure that there is no water ingress into the joins between flooring panels, thus avoiding damage to the edges of the panels.

Once the flooring is installed, the water absorbent layer can absorb water to ensure that there is no standing water on the flooring and thus that the surface of the flooring is non-slip, with the water resistant layer preventing the moisture from damaging the flooring panel 10 underneath. The water absorbent layer will dry out due to evaporation in dry conditions, allowing further water to be absorbed at a later date and the construction workers to walk safely on the floor surface.

On completion of the building, the surface of the film 11 is first brushed or otherwise roughly cleaned to remove large items of surface dirt, the adhesive tape is removed and then the film 11 is peeled away from adhesive 12. Adhesive 12 remains in position and dries out so that its surface is no longer adhesive. The surface of adhesive 12 becomes roughened as the film 11 is peeled away due to an uneven contact between the film 11 and adhesive 12 caused by surface irregularities in water-resistant layer 14. This imparts non-slip properties to adhesive 12, which gives further safety to people walking on the flooring before any carpeting or other floor covering is installed.

In an alternative embodiment of the second aspect of the present invention, a water-resistant adhesive 12 may be used, and so film 11 may be formed of only the water-absorbent layer 13.

It should be appreciated that the flooring panels according to the first and second aspects of the present invention are not just suitable for use in the construction of new buildings. For example, the floor panels may be decorative panels designed to be applied on top of a basic flooring, for use in the domestic “do-it-yourself” market, where the user may not have the appropriate skills to apply adhesive evenly, or where a protective layer may be required so that decoration of the walls of a room may be carried out after the flooring has been laid.

CLAIMS

1. A flooring panel having a tongue and/or a groove for connection to complementary features on an adjoining panel in use, wherein at least a section of one of the tongue or groove is provided with an adhesive coating, the adhesive coating being provided with a peel-off protective layer.
2. A flooring panel according to claim 1, wherein the peel-off protective layer is a silicone release paper.
3. A flooring panel according to claim 1 or 2, wherein the adhesive is a hot melt pressure sensitive adhesive.
4. A flooring panel according to claim 1, 2 or 3, wherein the adhesive is applied to the tongue.
5. A flooring panel according to claim 4, wherein the adhesive is applied to one side of the tongue only.
6. A flooring panel according to claim 4, wherein the adhesive is applied to both sides of the tongue.
7. A flooring panel according to any of claims 4 to 6, wherein the adhesive is additionally provided in the groove.
8. A flooring panel substantially as hereinbefore described, with reference to figure 1 of the accompanying drawings.
9. A flooring panel having a removable protective coating thereon, the removable protective coating being water absorbent.

10. A flooring panel according to claim 9, wherein the removable protective coating is formed of a laminate of a lower, water resistant material, and an upper, water absorbent material.
11. A flooring panel according to claim 10, wherein the layers are fused together.
12. A flooring panel according to any of claims 9 to 11, wherein the water absorbent material is a nonwoven material.
13. A flooring panel according to claim 12, wherein the water absorbent material is a spunbonded material.
14. A flooring panel according to claim 12 or 13, wherein the water absorbent material is a polypropylene material.
15. A flooring panel according to any of claims 9 to 14, wherein the water resistant material is polyethylene.
16. A flooring panel according to any of claims 9 to 15, wherein the protective coating has a roughened upper surface.
17. A flooring panel according to any of claims 9 to 16, wherein the protective coating a peel-off coating applied to an adhesive film.
18. A flooring panel according to claim 17, wherein the adhesive film has a roughened surface.
19. A flooring panel according to any one of claims 9 to 18, wherein the removable protective coating has an upper surface that is non-slip.
20. A flooring panel substantially as hereinbefore described with reference to figure 2 of the accompanying drawings.



Application No: GB 9923120.1
Claims searched: 9-20

Examiner: Charles Jarman
Date of search: 27 February 2001

Patents Act 1977
Further Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
 UK CI (Ed.S): E1D (DLEQWCV, DLEQWCW, DLEQWSV, DLEQWSW, DCG)
 Int CI (Ed.7): E04F
 Other: Online: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	US 4832995 A (McLAUHLIN) e.g. see column 4, lines 55-58	9
X	US 4543765 A (BARRET) e.g. see column 7, lines 40-41.	9
X	US 4406099 A (BARRET) e.g. see column 7, lines 34-35	9

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



Application No: GB 9923120.1
Claims searched: 1-8

Examiner: Charles Jarman
Date of search: 30 January 2001

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
 UK Cl (Ed.S): E1D (DLEQWCV, DLEQWCW, DLEQWSV, DLEQWSW, DCG)
 Int Cl (Ed.7): E04F
 Other: Online: WPI, PAJ, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	JP 7305487 (NODA CORP) See abstract	-

<p>X Document indicating lack of novelty or inventive step</p> <p>Y Document indicating lack of inventive step if combined with one or more other documents of same category.</p> <p>& Member of the same patent family</p>	<p>A Document indicating technological background and/or state of the art.</p> <p>P Document published on or after the declared priority date but before the filing date of this invention.</p> <p>E Patent document published on or after, but with priority date earlier than, the filing date of this application.</p>
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