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(54) **A flooring system**

(57) The invention provides a flooring system (2) for covering a surface, the flooring system (2) comprising a first portion (4) and a second portion (6), the first portion

(4) being substantially rectangular in cross section and comprising a gripping material (8), wherein at least one channel (10) is provided in the flooring system (2) and the first portion (4) is located in said channel (10).

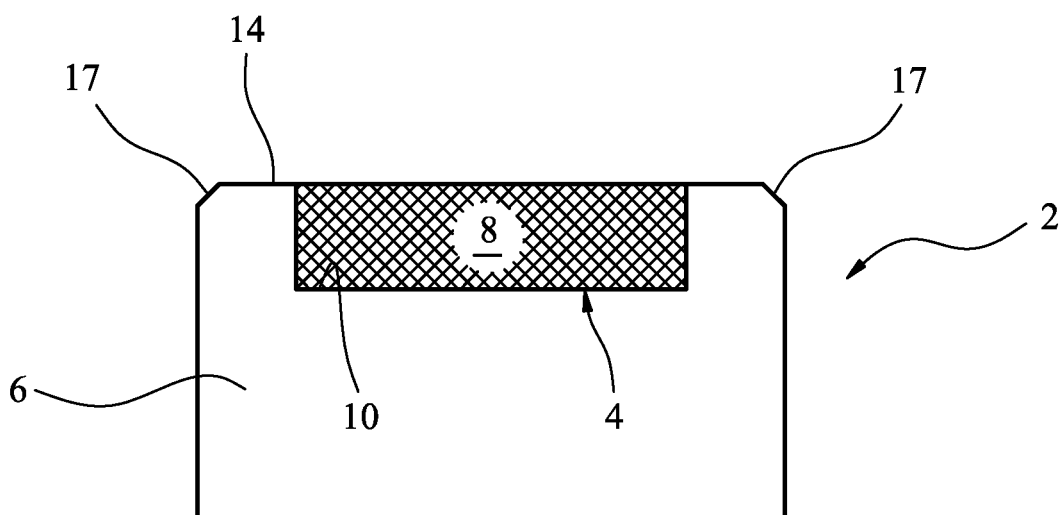


FIG. 2

Description

[0001] The invention relates to a flooring system. Particularly, but not exclusively, the invention relates to a flooring system for decking.

[0002] Decking is commonly used to extend living areas of houses, being used as an alternative to more traditional stone patios. Generally, the decking comprises a series of planks made from, for example, timber, or composite materials, or plastics materials. More often, the decking is made from a selected wood and treated with a preservative to help maintain a smooth and polished appearance.

[0003] It is a known problem that decking can be hazardous to walk on in wet conditions because the surface of the decking becomes extremely slippery. Further, wet conditions encourage algal growth on the decking which results in a layer of slime, adding to the slip hazard. One known way of trying to overcome this problem is by fixing the decking boards sufficiently wide apart to encourage drainage. However, this has the disadvantage of the boards becoming a trip hazard. Another way of attempting to overcome the problem is to provide grooves along the lengths of the boards to provide some drainage, or at least to allow water to move off the surface of the boards.

[0004] It is an object of the invention to provide a flooring system which attempts to overcome the aforementioned problems.

[0005] According to an aspect of the present invention there is provided a flooring system for covering a surface, the flooring system comprising a first portion and a second portion, the first portion being substantially rectangular in cross section and comprising a gripping material, wherein at least one channel is provided in the flooring system and the first portion is located in said channel.

[0006] Advantageously, the provision of a channel in a flooring system, wherein gripping material is provided in the channel, ensures a safer surface on which to walk.

[0007] Preferably, the at least one channel is provided in the second portion. Preferably, said channel extends parallel to the longitudinal axis of the flooring system, preferably parallel to the longitudinal axis of the second portion.

[0008] Preferably, the channel extends substantially the whole length of the flooring system, preferably, the channel extends substantially the whole length of the second portion. Preferably, said channel extends coaxial with the longitudinal axis of the second portion.

[0009] Preferably, the at least one channel is rectangular in cross section. Preferably, said channel is substantially between 2mm and 100mm in depth, preferably substantially between 2mm and 10mm, more preferably substantially 7mm in depth.

[0010] Preferably, the or each channel has a depth which is less than the depth of the second portion.

[0011] Preferably, the at least one channel is substantially between 10mm and 150mm in width, preferably

substantially between 30mm and 100mm in width.

[0012] The width of the channel is preferably at least 8 times, more preferably 10 times, more preferably 11 times its depth.

5 **[0013]** Preferably, the second portion occupies a surface area of at least 50%, preferably at least 70%, more preferably at least 80% of the upper face of the flooring system.

10 **[0014]** Preferably, a plurality of channels is provided in the flooring system. Preferably, said plurality of channels extends parallel to each another, preferably, parallel to the flooring system, more preferably, parallel to the longitudinal axis of second portion.

15 **[0015]** The channels may have flared sidewalls, which are spaced further apart at a top of the channel than at a base of the channel. The flare may be approximately 2° to 4° from the vertical for each sidewall.

20 **[0016]** Preferably, two channels are provided in the second portion, each said channel extending parallel to the second portion. Preferably, the two channels are of equal dimension to each other.

25 **[0017]** Preferably, the first portion extends parallel to the longitudinal axis of the second portion. Preferably, the first portion extends substantially the whole length of the second portion.

[0018] Preferably, the gripping material extends parallel to the first portion. Preferably, the gripping material extends substantially the whole length and preferably substantially the whole width of the first portion.

30 **[0019]** Preferably, the gripping material is adapted to be removable and/or replaceable from the first portion. In this manner, when said material is worn, a person can readily replace the material with new material to ensure the non-slip surface is maintained.

35 **[0020]** Preferably, the gripping material is adapted to lay substantially flush with a surface of the flooring system, most preferably flush with a first edge of the second portion.

40 **[0021]** Preferably, the gripping material is substantially between 2mm and 100mm in depth, preferably substantially between 2mm and 10mm, more preferably substantially 7mm in depth.

45 **[0022]** Preferably, the gripping material is substantially between 10mm and 150mm in width, preferably substantially between 30mm and 100mm in width. Preferably, the gripping material substantially fills the channel.

50 **[0023]** Preferably, the gripping material comprises an elastomer. More preferably, the elastomer is a ter polymer. More preferably, the elastomer is a saturated rubber that cannot be cured by sulphur vulcanization. Most preferably, the elastomer is ethylene propylene diene rubber (EPDM), preferably EPDM granules. Preferably, said granules are in a size range substantially 1mm to 4mm, most preferably substantially 1mm to 3mm. Preferably, the granules are mixed with a binder material. Preferably, the binder material is a moisture curing resin. Preferably, the granules and binder material mix is packed into the first portion by use of a trowel device. The binder may be

a two-part mix, that does not require moisture to cure.

[0024] Advantageously, the granule packing increases the absorption capability of the flooring system.

[0025] Preferably, the gripping material is bound to the first portion by the binder material. Preferably, the gripping material is bound to the channel by the binder material. Preferably, the binder material comprises a polyurethane binder.

[0026] Preferably, the gripping material comprises thermoplastic vulcanizates (TPV), for example, Santoprene®.

[0027] The gripping material may comprise recycled material. Preferably, the recycled material comprises technical scrap. The technical scrap may include reclaimed and recycled EPDM. The scrap may comprise rubber material, for example, car windscreen wiper material, window seal material, tyre material and similar materials which show minimal leeching of carbon.

[0028] Preferably, the gripping material comprises colouring agents, preferably, synthetic colouring agents, preferably mixed with EPDM to make coloured EPDM.

[0029] Preferably, the second portion comprises a natural material, preferably a wooden material. More preferably, the second layer comprises larch, spruce or pine. The second portion may comprise composite materials, or plastics materials.

[0030] Preferably, at least one groove is located on the flooring system. Preferably, a plurality of grooves is provided, preferably each said groove extending parallel to the longitudinal axis of the flooring system.

[0031] The flooring system may be manufactured as a retro fit system.

[0032] Preferably, the flooring system is adapted to surround a swimming pool. The flooring system may be adapted to match a colour of a pool surround. The flooring system may be a terrace, or balcony, or walkway. The flooring system may be a patio or decking in a garden.

[0033] The arrangement of the gripping material in the flooring allows a person to make contact with a gripping surface. In so doing, the person is less likely to slip on the flooring.

[0034] According to another aspect of the invention there is provided a method of manufacturing a flooring system comprising first and second portions, the method comprising:

preparing the second portion with at least one channel provided therein, and
 locating the first portion in said channel, the first portion being substantially rectangular in cross section and comprising a gripping material.

[0035] All of the features described herein may be combined with any of the above aspects, in any combination.

[0036] An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, wherein:

Figure 1 shows a schematic plan view of a flooring system according to the invention;

Figure 2 shows a schematic side view of a flooring system according to the invention; and

Figure 3 shows a schematic plan view of a flooring system according to the invention.

[0037] Figures 1 to 3 show a flooring system 2 according to the invention. The flooring system 2 is rectangular in plan view and comprises a first portion 4 and a second portion 6. When the flooring system 2 is fitted in place, for example, as decking, the second portion 6 forms the lower surface of the system.

[0038] The first portion 4 is located on the second portion 6. The first portion 4 houses a gripping (or non-slip) material 8, for example, an elastomer. The preferred elastomer is a mix of a binder and ethylene propylene diene rubber (EPDM), preferably virgin EPDM. The gripping material 8 may be secured into the first portion 4 by suitable adhesives, or alternatively, may be push fitted or slipped into the first portion 4. The use of EPDM and a binder that is spread into the groove when "wet" or before it sets allows the binder that binds the EPDM together also to bind the second portion 6 to the first portion 4. The use of the first portion 4 described allows flexing and expansion/contraction of a wooden second portion 6; up to 15mm of expansion or contraction can be catered for. The binder does not stain the wood.

[0039] The second portion 6 comprises a substantially rigid material, for example, a wooden material.

[0040] A channel 10 is located in the flooring system 2. The channel 10 is substantially rectangular in cross section and extends along the length of the second portion 6, parallel to the longitudinal axis 12 thereof. The first portion is located in the channel 10. The gripping material 8 substantially fills the channel 10 and extends so as to be flush with an edge 14 of the second portion 6. In this manner, the surface of the flooring system 2 remains level, and a tripping hazard is reduced.

[0041] The channel 10 may typically be approximately 190mm wide, 7 mm deep and as long as the second portion. The channel 10 may optionally have slightly flared sidewalls to aid machining. The sidewalls may flare by approximately 3°. The profile of the second portion 6 is manufactured in one process in this embodiment. The shoulders and groove are produced at the same time.

[0042] Sidewalls 16 are provided on the second portion 6. The sidewalls 16 comprise a shoulder portion 17 which may act as a gully to drain excess fluid from the flooring system 2 and aid in achieving a non-slip surface. The sidewalls 16 extend the length of the flooring system 2, in a direction parallel to the longitudinal axis 12 of the second portion 6.

[0043] Another embodiment of the invention is shown in Figure 3 wherein two first portions 104 are provided in the flooring system 100. Said portions 104 are arranged

to extend parallel to one another and parallel to the longitudinal axis 110 of the second portion 106.

[0044] Grooves 118 are located on each second portion 106. The grooves 118 are cut outs, provided along substantially the whole length of the second portion 106. The grooves 118 act as gulleys to encourage drainage. The grooves 118 may also be provided in the embodiment shown in Figure 1.

[0045] It will be understood that a plurality of first portions 4 of the same or varying widths or lengths may be provided in a flooring system 2 to achieve a safer non-slip surface on which to walk.

[0046] The first portions 4 may extend over approximately 80% to 85% of the upper surface area of the flooring system.

[0047] During assembly, a number of units of the flooring system 2 are laid adjacent to each other, in a similar manner to planks of timber, and secured together in the usual manner for decking materials to provide a floor covering. The floor covering may be a decking area, for example, in a garden or surrounding a pool. The flooring system may be provided as a retrofit, for example by preparing a groove in existing decking and inserting the gripping material in the groove.

[0048] During use, the gripping material 8 may become worn. Advantageously, the present invention provides for said material 8 to be readily removed from the flooring system 2 and replaced with new gripping material 8. The user is able to simply push out the old gripping material 8 and replace it with new material.

[0049] The parallel sides of the groove 10/ 118 facilitate easy placing and replacing of the gripping material 8 compared to a groove with overhanging edges.

[0050] Advantageously, each individual floor system 2 making up the floor covering comprises gripping material 8. The arrangement provides a non-slip surface on which a person can walk with a reduced likelihood of slipping.

[0051] The presence of the gripping material provides an aesthetically pleasing difference to a wooden floor, because the colour and size of the gripping material adds extra options for changing the appearance of the base second portion 106.

[0052] Further advantages of the system described are that the gripping material has sound deadening properties, because of its resilient physical characteristics. This feature also reduces the pain and injury of a fall on the surface. The use of a wet pour method gives good workability.

[0053] The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.

[0054] All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, ex-

cept combinations where at least some of such features and/or steps are mutually exclusive.

[0055] Each feature disclosed in this specification (including any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series of equivalent or similar features.

[0056] The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

Claims

1. A flooring system for covering a surface, the flooring system comprising a first portion and a second portion, the first portion being substantially rectangular in cross section and comprising a gripping material, wherein at least one channel is provided in the flooring system and the first portion is located in said channel.
2. The flooring system of claim 1, in which the at least one channel is provided in the second portion.
3. The flooring system of claim 1 or claim 2, in which the channel extends substantially the whole length of the flooring system.
4. The flooring system of any preceding claim, in which the at least one channel is rectangular in cross section.
5. The flooring system of any preceding claim, in which a plurality of channels is provided in the flooring system, said plurality of channels extending substantially parallel to a longitudinal axis of second portion.
6. The flooring system of any preceding claim, in which two channels are provided in the second portion.
7. The flooring system of any preceding claim, in which the gripping material is adapted to be removable and/or replaceable from the first portion.
8. The flooring system of any preceding claim, in which the gripping material is adapted to lay substantially flush with a surface of the flooring system.
9. The flooring system of any preceding claim, in which the gripping material comprises an elastomer.

10. The flooring system of claim 9, in which the elastomer is ethylene propylene diene rubber (EPDM),
11. The flooring system of claim 10, in which the granules are mixed with a binder material. 5
12. The flooring system of claim 11, in which the gripping material is bound to the first portion by the binder material. 10
13. The flooring system of any preceding claim manufactured as a retro fit system.
14. The flooring system of any preceding claim adapted to surround a swimming pool. 15
15. A method of manufacturing a flooring system comprising first and second portions, the method comprising: 20
- preparing the second portion with at least one channel provided therein, and
- locating the first portion in said channel, the first portion being substantially rectangular in cross section and comprising a gripping material. 25

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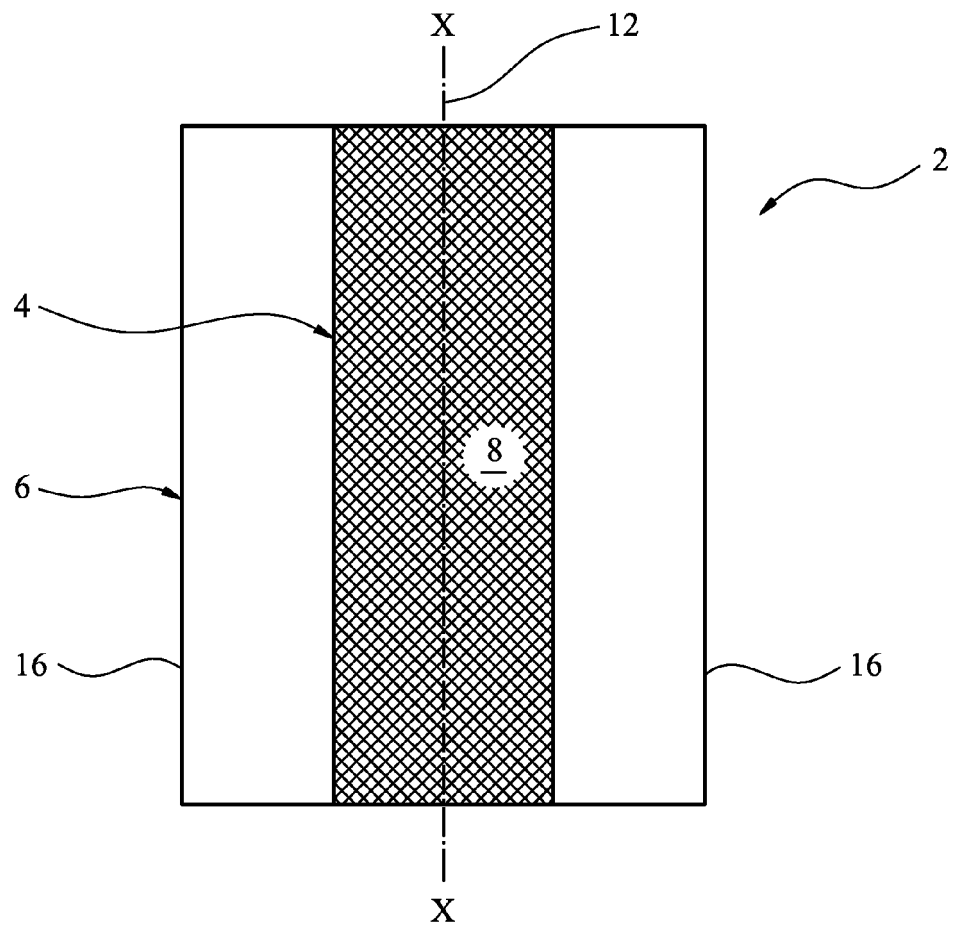


FIG. 1

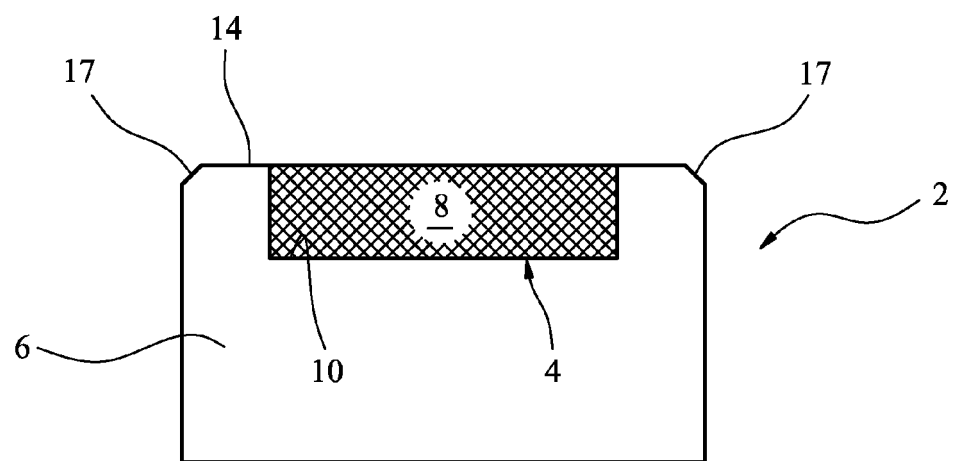


FIG. 2

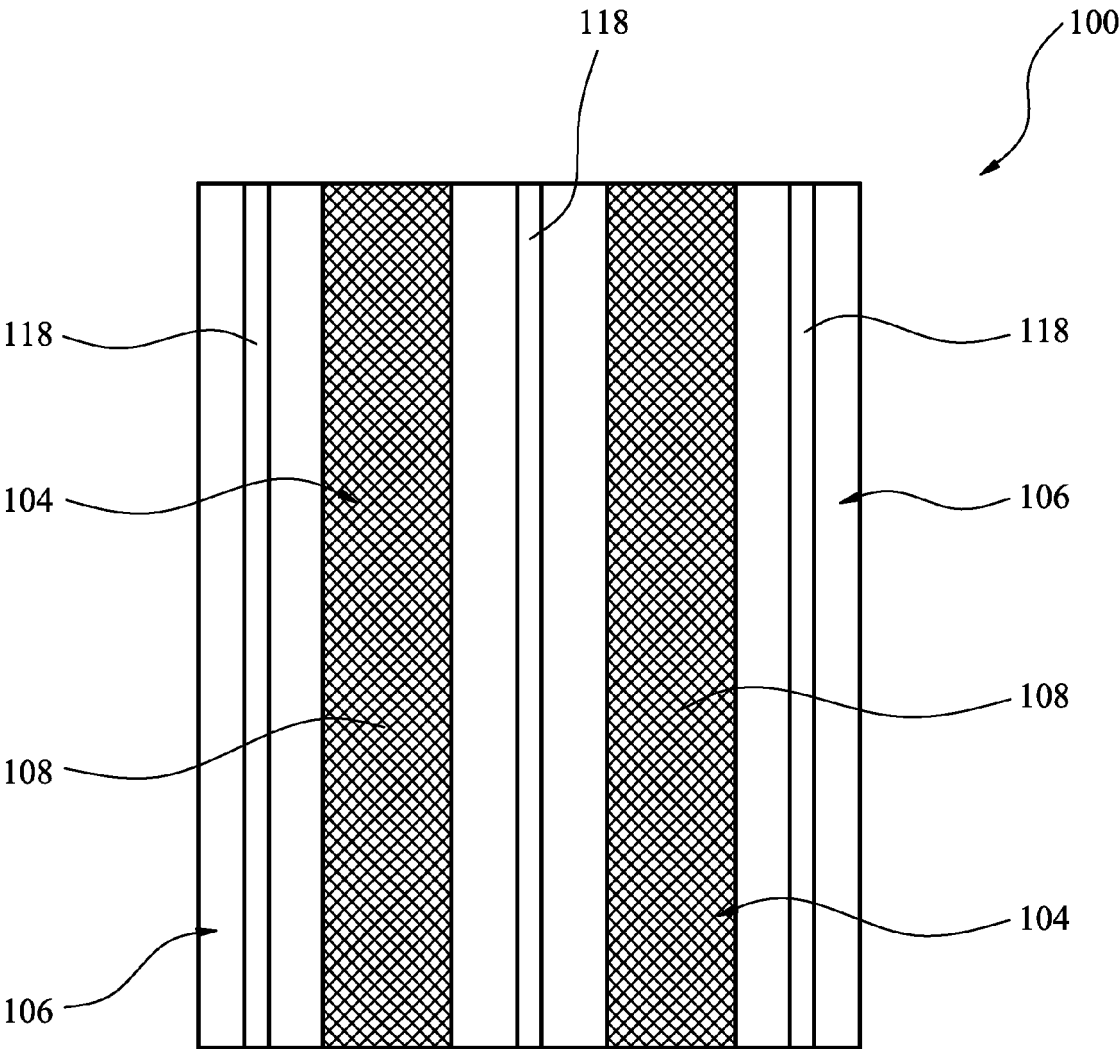


FIG. 3