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(54) **A flooring system**

System zur Fußbodenverlegung

Système de plancher

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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] GB 2 339 437 A discloses a wooden decking element with a non-slip insert located within a groove outwardly tapering towards its base. A method of producing said element, comprises inserting an adhesive or resin mixed with a non-slip material, in a malleable or liquid state into the groove prior to setting.

[0006] US 2002/004553 A1 discloses the use of aqueous, isocyanate-free, polyurethane dispersions with a solid content of ≥ 30 wt. % and a solvent content of ≤ 30 wt. % in sports floor covering.

[0007] 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 second portion and wherein the gripping material is located in said channel so as to ensure a safer surface on which to walk and the gripping material is substantially flush with an upper edge of the second portion of the flooring system; characterised in that the gripping material (8) comprises ethylene propylene diene rubber (EPDM) granules mixed with a binder material.

[0008] Preferably, said channel extends parallel to the longitudinal axis of the flooring system, preferably parallel to the longitudinal axis of the second portion.

[0009] 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.

[0010] Preferably, said channel is substantially between 2mm and 100mm in depth, preferably substantially between 2mm and 10mm, more preferably substantially 7mm in depth.

[0011] Preferably, the or each channel has a depth which is less than the depth of the second portion.

[0012] Preferably, the at least one channel is substantially between 10mm and 150mm in width, preferably substantially between 30mm and 100mm in width.

[0013] The width of the channel is preferably at least 8 times, more preferably 10 times, more preferably 11 times its depth.

[0014] Preferably, the second portion occupies a surface area of at least 70%, preferably at least 80% of the upper face of the flooring system.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] 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.

[0019] 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.

[0020] 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.

[0021] 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.

[0022] Preferably, the gripping material is substantially between 2mm and 100mm in depth, preferably substantially between 2mm and 10mm, more preferably substantially 7mm in depth.

[0023] 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.

[0024] More preferably, the elastomer is a ter polymer. More preferably, the elastomer is a saturated rubber that cannot be cured by sulphur vulcanization. Most prefera-

bly, 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.

[0025] Advantageously, the granule packing increases the absorption capability of the flooring system.

[0026] Preferably, the gripping material is bound to the channel 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.

[0027] Preferably, the gripping material comprises thermoplastic vulcanizates (TPV), for example, Santoprene(R).

[0028] 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.

[0029] Preferably, the gripping material comprises colouring agents, preferably, synthetic colouring agents, preferably mixed with EPDM to make coloured EPDM.

[0030] 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.

[0031] 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.

[0032] The flooring system may be manufactured as a retro fit system.

[0033] 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.

[0034] 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.

[0035] According to another aspect of the invention there is provided a method of manufacturing a flooring system comprising first and second portions, the first portion being substantially rectangular in cross section and comprising a gripping material; the method comprising: preparing the second portion with at least one channel provided therein, and locating the gripping material in said channel so as to ensure a safer surface on which to walk and such that the gripping material is substantially

flush with an upper edge of the second portion (6) of the flooring system; characterised in that a gripping material is used which comprises ethylene propylene diene rubber (EPDM) granules mixed with a binder material.

[0036] All of the features described herein may be combined with any of the above aspects, in any combination.

[0037] 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.

[0038] 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.

[0039] The first portion 4 is located on the second portion 6. The first portion 4 houses a gripping (or non-slip) material 8, an elastomer. The 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.

[0040] The second portion 6 comprises a substantially rigid material, for example, a wooden material.

[0041] 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.

[0042] 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.

[0043] 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.

[0044] 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.

[0045] 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.

[0046] 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.

[0047] The first portions 4 may extend over approximately 80% to 85% of the upper surface area of the flooring system.

[0048] 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.

[0049] 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.

[0050] 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.

[0051] 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.

[0052] 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.

[0053] 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.

Claims

1. A flooring system (2) for covering a surface, the flooring system 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 second portion (6) and wherein the gripping material (8) is located in said channel (10) so as to ensure a safer surface on which to walk and the gripping material (8) is substantially flush with an upper edge of the second portion (6) of the flooring system (2);

characterised in that the gripping material (8) comprises ethylene propylene diene rubber (EPDM) granules mixed with a binder material.

2. The flooring system (2) of claim 1, in which the channel (10) extends substantially the whole length of the flooring system (2).

3. The flooring system (20) of any preceding claim, in which the at least one channel (10) is rectangular in cross section.

4. The flooring system (2) of any preceding claim, in which a plurality of channels (10) is provided in the flooring system, said plurality of channels extending substantially parallel to a longitudinal axis of the second portion (6).

5. The flooring system (2) of any preceding claim, in which two channels (10) are provided in the second portion (6).

6. The flooring system (2) of any preceding claim, in which the gripping material (8) is adapted to be removable and/or replaceable from the first portion (4).

7. The flooring system of claim 1, in which the gripping material is bound to the channel (10) by the binder material.

8. A method of manufacturing a flooring system (2) comprising first and second portions (4, 6), the first portion (4) being substantially rectangular in cross section and comprising a gripping material (8); the method comprising:

preparing the second portion (6) with at least one channel (10) provided therein, and locating the gripping material (8) in said channel (10) so as to ensure a safer surface on which to walk and such that the gripping material (8) is substantially flush with an upper edge of the sec-

ond portion (6) of the flooring system (2);

characterised in that a gripping material (8) is used which comprises ethylene propylene diene rubber (EPDM) granules mixed with a binder material.

Patentansprüche

1. Bodenbelagsystem (2) zum Abdecken einer Oberfläche, wobei das Bodenbelagsystem umfasst: einen ersten Abschnitt (4) und einen zweiten Abschnitt (6), wobei der erste Abschnitt (4) im Wesentlichen rechteckig im Querschnitt ist und ein Greifmaterial (8) umfasst; wobei mindestens ein Kanal (10) im zweiten Abschnitt (6) bereitgestellt ist und wobei das Greifmaterial (8) sich derart in dem Kanal (10) befindet, dass eine sicherere Lafoberfläche gewährleistet wird und das Greifmaterial (8) im Wesentlichen bündig mit einer oberen Kante des zweiten Abschnitts (6) des Bodenbelagsystems (2) ist; **dadurch gekennzeichnet, dass** das Greifmaterial (8) Granulat aus Ethylenpropylendiengummi (EPDM) gemischt mit einem Bindematerial umfasst.
2. Bodenbelagsystem (2) nach Anspruch 1, wobei sich der Kanal (10) im Wesentlichen über die ganze Länge des Bodenbelagsystems (2) erstreckt.
3. Bodenbelagsystem (20) nach einem der vorstehenden Ansprüche, wobei mindestens ein Kanal (10) im Querschnitt rechteckig ist.
4. Bodenbelagsystem (2) nach einem der vorstehenden Ansprüche, wobei eine Mehrzahl von Kanälen (10) im Bodenbelagsystem bereitgestellt wird, wobei sich die Mehrzahl von Kanälen im Wesentlichen parallel zur Längsachse des zweiten Abschnitts (6) erstreckt.
5. Bodenbelagsystem (2) nach einem der vorstehenden Ansprüche, wobei zwei Kanäle (10) im zweiten Abschnitt (6) bereitgestellt sind.
6. Bodenbelagsystem (2) nach einem der vorstehenden Ansprüche, wobei das Greifmaterial (8) angepasst ist, um von dem ersten Abschnitt (4) entnehmbar und/oder austauschbar zu sein.
7. Bodenbelagsystem nach Anspruch 1, wobei das Greifmaterial vom Bindematerial mit dem Kanal (10) verbunden ist.
8. Verfahren zum Herstellen eines Bodenbelagsystems (2), das einen ersten und einen zweiten Abschnitt (4, 6) umfasst, wobei der erste Abschnitt (4)

im Querschnitt im Wesentlichen rechteckig ist und ein Greifmaterial (8) umfasst, wobei das Verfahren umfasst:

Vorbereiten des zweiten Abschnitts (6), wobei mindestens ein Kanal (10) darin bereitgestellt wird, und
Platzieren des Greifmaterials (8) derart in dem Kanal (10), dass eine sicherere Lafoberfläche gewährleistet wird und das Greifmaterial (8) im Wesentlichen bündig mit einer oberen Kante des zweiten Abschnitts (6) des Bodenbelagsystems (2) ist;

dadurch gekennzeichnet, dass ein Greifmaterial (8) verwendet wird, das granulat aus Ethylenpropylendiengummi (EPDM) gemischt mit einem Bindematerial umfasst.

Revendications

1. Un système de revêtement de sol (2) pour couvrir une surface, le système de revêtement de sol comprenant : une première portion (4) et une deuxième portion (6), la première portion (4) étant sensiblement de section transversale rectangulaire et comprenant un matériau agrippant (8); dans lequel au moins une rainure (10) est prévue dans la deuxième portion (6) et dans lequel le matériau agrippant (8) est situé dans ladite rainure (10) de façon à assurer une surface plus sûre sur laquelle marcher et le matériau agrippant (8) est sensiblement de niveau avec un bord supérieur de la deuxième portion (6) du système de revêtement de sol (2); **caractérisé en ce que** le matériau agrippant (8) comprend des granulés de caoutchouc éthylène-propylène-diène monomère (EPDM) mélangés à un matériau liant.
2. Le système de revêtement de sol (2) de la revendication 1, dans lequel la rainure (10) s'étend sensiblement sur toute la longueur du système de revêtement de sol (2).
3. Le système de revêtement de sol (20) de toute revendication précédente, dans lequel une rainure (10) au moins est de section transversale rectangulaire.
4. Le système de revêtement de sol (2) de toute revendication précédente, dans lequel une pluralité de rainures (10) est prévue dans le système de revêtement de sol, ladite pluralité de rainures s'étendant de façon sensiblement parallèle à l'axe longitudinal de la deuxième portion (6).

5. Le système de revêtement de sol (2) de toute revendication précédente, dans lequel deux rainures (10) sont prévues dans la deuxième portion (6).
6. Le système de revêtement de sol (2) de toute revendication précédente, dans lequel le matériau agrippant (8) est adapté pour pouvoir être retiré de la première portion (4) et/ou remplacé. 5
7. Le système de revêtement de sol de la revendication 1, dans lequel le matériau agrippant est lié à la rainure (10) par le matériau liant. 10
8. Une méthode de fabrication d'un système de revêtement de sol (2) comprenant une première portion et une deuxième portion (4, 6), la première portion (4) étant sensiblement de section transversale rectangulaire et comprenant un matériau agrippant (8) ; la méthode comprenant : 15

la préparation de la deuxième portion (6) avec au moins une rainure (10) prévue dans celle-ci, et 20

le positionnement du matériau agrippant (8) dans ladite rainure (10) de façon à assurer une surface plus sûre sur laquelle marcher et de façon à ce que le matériau agrippant (8) soit sensiblement de niveau avec un bord supérieur de la deuxième portion (6) du système de revêtement de sol (2) ; 25 30

caractérisé en ce qu'un matériau agrippant (8) soit utilisé comprenant des granules de caoutchouc éthylène-propylène-diène monomère (EPDM) mélangés à un matériau liant. 35

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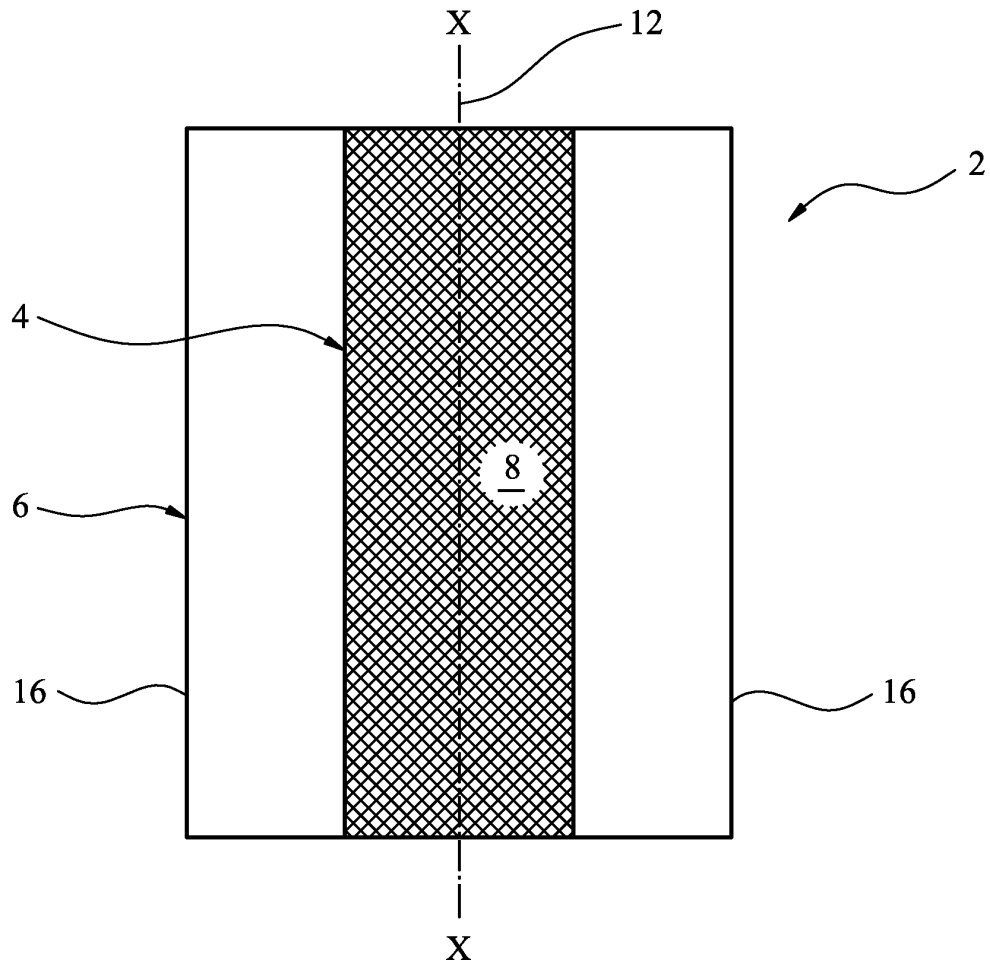


FIG. 1

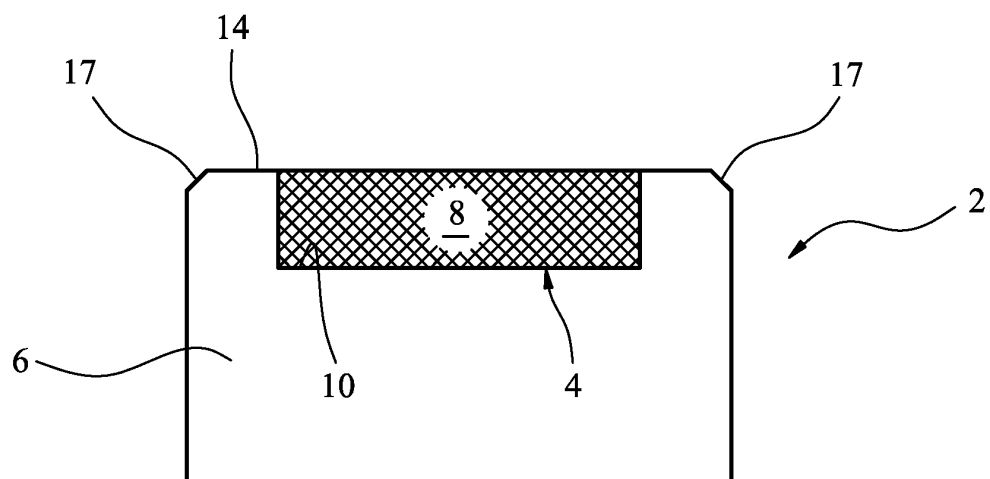


FIG. 2

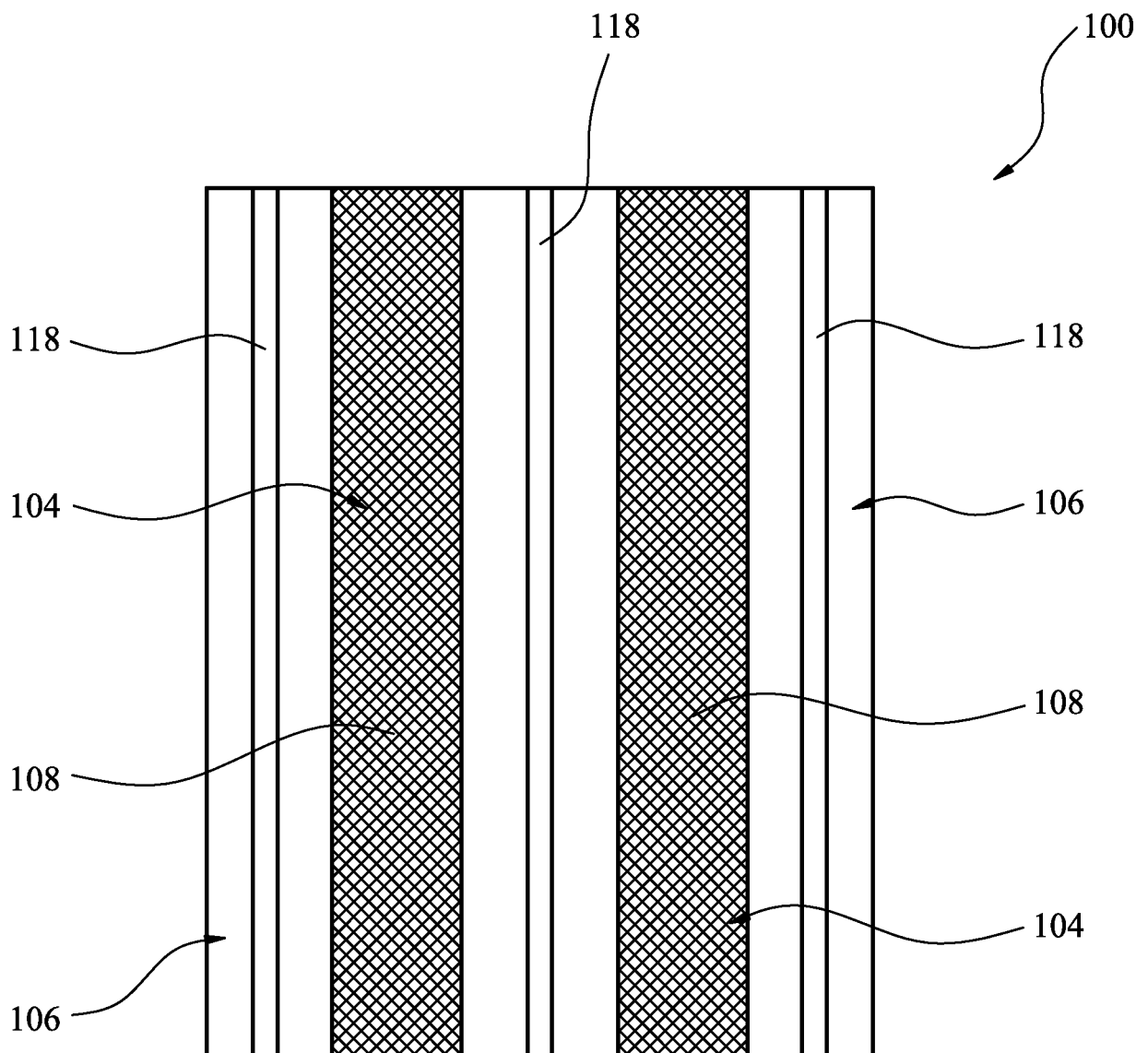


FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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