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(54) **Sports floor**

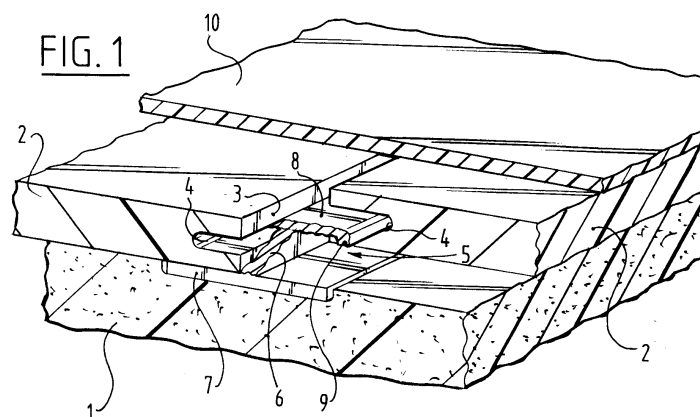
(57) A floor comprises:

- a resilient under-layer (1);
- at least two mutually adjacent plate parts (2) which are placed on the under-layer (1) and which on their edge zones directed toward each other have respective longitudinal grooves (4) which are arranged at equal distances relative to the upper surfaces of the plate parts (2);
- a top layer (10) arranged on the plate parts (2); and
- at least one connecting plate which slots fittingly into the grooves (4) of both plates (2);

wherein the connecting plate forms part of a generally I-shaped connecting profile (5) which comprises a second connecting plate (7) arranged at a dis-

tance from the first connecting plate (8) and connected via a body (6), wherein each connecting plate (7,8) comprises two flanges extending on either side of the body (6), which flanges co-act pairwise with a part of said edge zones extending therebetween;

wherein both flanges have different widths on one side of the body (6), wherein the narrower flange slots into the groove (4) and the wider flange lies between the plate parts (2) and the under-layer (1), wherein the upper surface of the lower flange is flat and the lower surface of a plate part (2) is flat and said flat upper surface of said flange and said flat lower surface of said plate part (2) are in mutual contact.



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Description

[0001] The invention relates to a floor which is for instance suitable as a sports floor or a ballet floor. Demands are made of such floors in terms of resilience, durability and slip-resistance.

[0002] Known floors consist of a resilient under-layer and a number of plate part layers, wherein each layer consists of a number of plate parts placed mutually abutting, and wherein the seams of a layer are covered by plate parts of at least one adjacent layer. A top layer is then placed on this plurality of plate part layers.

[0003] As indicated above, the plate part layers are arranged in order to prevent cracking of a top layer at the position of a seam between two plate parts.

[0004] A drawback of such plate systems is that laying thereof is very labour-intensive. In addition, the quality of the floor depends on the manner in which the different plate part layers are laid relative to each other. This likewise affects the resilience of a floor.

[0005] DE-U-86 04 004 discloses a floor, such as a sports floor, comprising:

- a resilient under-layer;
- at least two mutually adjacent plate parts which are placed on the under-layer and which on their edge zones directed toward each other have respective longitudinal grooves which are arranged at equal distances relative to the upper surfaces of the plate parts;
- a top layer arranged on the plate parts which is common to at least a number of plate parts; and
- at least one connecting plate which slots fittingly into the grooves of both plates;

wherein the connecting plate forms part of a generally I-shaped connecting profile which comprises a second connecting plate arranged at a distance from the first connecting plate and connected via a body, wherein each connecting plate comprises two flanges extending on either side of the body, which flanges co-act pairwise with a part of said edge zones extending therebetween;

wherein both flanges have different widths on one side of the body, wherein the narrower flange slots into the groove and the wider flange lies between the plate parts and the under-layer.

[0006] The sports floor known from said German publication comprises a generally I-shaped connecting profile, wherein each lower flange has an upward directed end longitudinal edge. The whole lower flange as well as said longitudinal edge are received fittingly in correspondingly formed recesses in each relevant plate part. As a consequence of the undercut structure the plate parts can only be connected to a connecting profile by sliding the connecting profile along its full length in longitudinal direction into said recess and longitudinal grooves. This is an extremely unpractical method of working and in some circumstances makes laying of a

floor without open seams in an enclosed sports area basically impossible.

[0007] In respect of the above the invention provides a floor which has the special feature that the upper surface of the lower flange is flat and the lower surface of a plate part is flat and said flat upper surface of said flange and said flat lower surface of said plate part are in mutual contact.

[0008] According to a further preferred embodiment the floor according to the invention has the special feature that the flange slotting into the groove has a bent longitudinal edge for clamping coupling to the wall of a groove of a plate part.

[0009] According to another embodiment a curing mass is arranged in the space between the first connecting plate and the walls of the groove. A stronger connection of two plate parts is hereby obtained and the gaps between two plate parts are filled up, whereby a level floor surface is obtained.

[0010] These and other features are further elucidated with reference to the annexed drawing.

[0011] Figure 1 shows a perspective view with partly cut-away parts of an embodiment according to the invention.

[0012] Figure 2 shows a cross-section of the embodiment of figure 1.

[0013] Figure 3 shows a floor according to the invention in perspective view with partly cut-away parts.

[0014] Figure 4 shows a variant.

[0015] Figure 1 shows a floor according to the invention. This floor comprises a resilient under-layer 1 consisting for instance of a flocculated foam of polyethylene. On this under-layer 1 are placed plate parts 2, which each have a groove 4 arranged in the peripheral side 3. Both plate parts 2 are mutually connected by means of an I-shaped connecting profile 5. This connecting profile 5 consists of a body 6 and connecting plates 7 and 8 arranged at right angles on both ends of the body. The second lower connecting plate 7 is embodied wider than the first upper connecting plate 8. When groove 4 of plate part 2 is placed round upper connecting plate 8, the plate can hereby support on lower connecting plate 7. The upper connecting plate is moreover provided with a bent edge 9, whereby connecting plate 8 fixedly clamps plate part 2.

[0016] Further arranged on plate parts 2 is a top layer 10 which is connected to plate parts 2 with for instance a glue. This top layer can for instance be sport linoleum.

[0017] Figure 2 shows a cross-section of the floor of figure 1. Figure 2 likewise shows the floor consisting of an under-layer 1, plate parts 2, a connecting piece 5 and top layer 10. The space 11 present between plate parts 2 and connecting piece 5 is preferably filled with a cured mass, such as for instance a polyurethane adhesive and/or a polyurethane mass with cured binder. An extra-strong connection of plate parts 2 is hereby obtained.

[0018] The plate parts are preferably manufactured from shredded paper-money bonded by polyurethane

and a binder. The thus manufactured plate parts 2 have desired mechanical properties such as strength and damping properties. Connecting piece 5 is preferably manufactured from aluminium, but may also be manufactured from other materials, for instance a plastic.

[0019] Figure 3 shows a perspective view of a number of mutually coupled plates. In figure 3 can be seen the plate parts 2 provided with a groove 4 along the peripheral edge 3. As in the foregoing figures, the plate parts are shown covered with a top layer 10. Further arranged in the floor according to the invention is an opening 12 for passage of for instance a post required in a sport. Close to the edges adjoining for instance a wall the floor is further provided with finishing profiles 13 which are arranged inter alia to compensate variations in the floor length resulting from expansion or shrinkage due to heat or moisture.

[0020] Figure 4 shows a variant wherein an I-shaped connecting profile 17 comprises a rib 19 arranged in the line of the body 18. This rib 19 is embodied such that it fills the space on the top of the connecting piece between the two plate parts 2, whereby a flat floor is obtained even without cured mass.

2. Floor as claimed in claim 1, wherein the flange slotting into the groove has a bent longitudinal edge for clamping coupling to the wall of a groove of a plate part.

3. Floor as claimed in claim 1, wherein a cured mass is arranged in the space between the first flanges and the walls of the groove.

4. Floor as claimed in claim 3, wherein the cured mass is a polyurethane mass with cured binder.

5. Floor as claimed in claim 1, wherein the plate parts are manufactured from shredded paper-money bonded by polyurethane and a binder.

6. Floor as claimed in claim 1, wherein the resilient under-layer is manufactured from polyethylene flocculated foam.

7. Floor as claimed in claim 1, wherein the connecting profile consists of aluminium.

Claims

1. Floor, such as a sports floor, comprising:

- a resilient under-layer;
- at least two mutually adjacent plate parts which are placed on the under-layer and which on their edge zones directed toward each other have respective longitudinal grooves which are arranged at equal distances relative to the upper surfaces of the plate parts;
- a top layer arranged on the plate parts which is common to at least a number of plate parts; and
- at least one connecting plate which slots fittingly into the grooves of both plates;

wherein the connecting plate forms part of a generally I-shaped connecting profile which comprises a second connecting plate arranged at a distance from the first connecting plate and connected via a body, wherein each connecting plate comprises two flanges extending on either side of the body, which flanges co-act pairwise with a part of said edge zones extending therebetween; wherein both flanges have different widths on one side of the body, wherein the narrower flange slots into the groove and the wider flange lies between the plate parts and the under-layer,

wherein the upper surface of the lower flange is flat and the lower surface of a plate part is flat and said flat upper surface of said flange and said flat lower surface of said plate part are in mutual contact.

FIG. 1

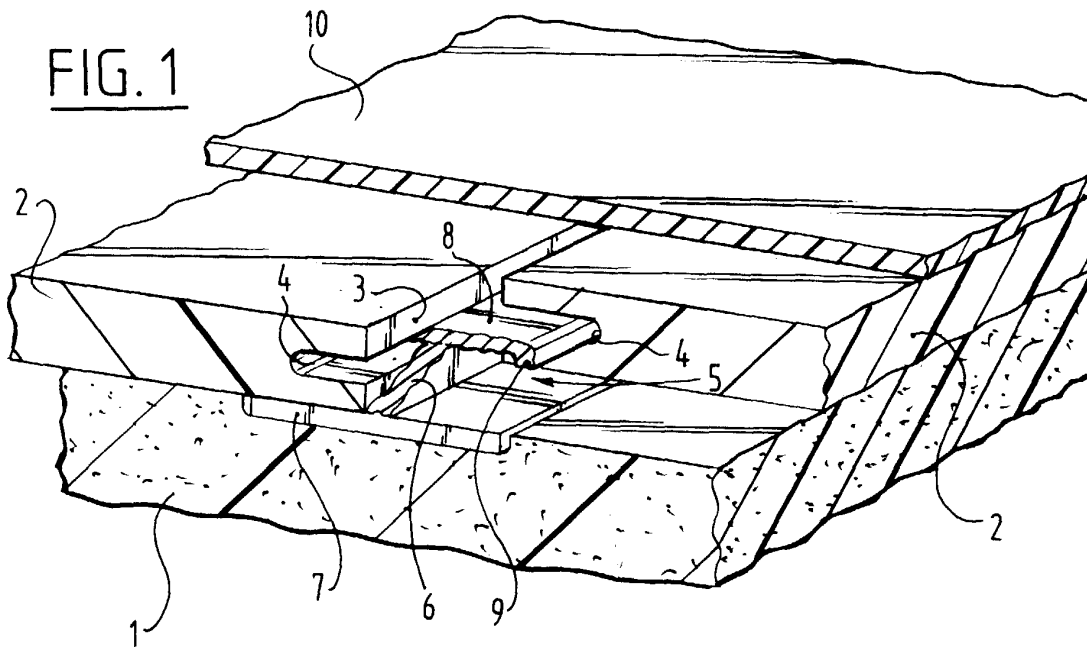


FIG. 2

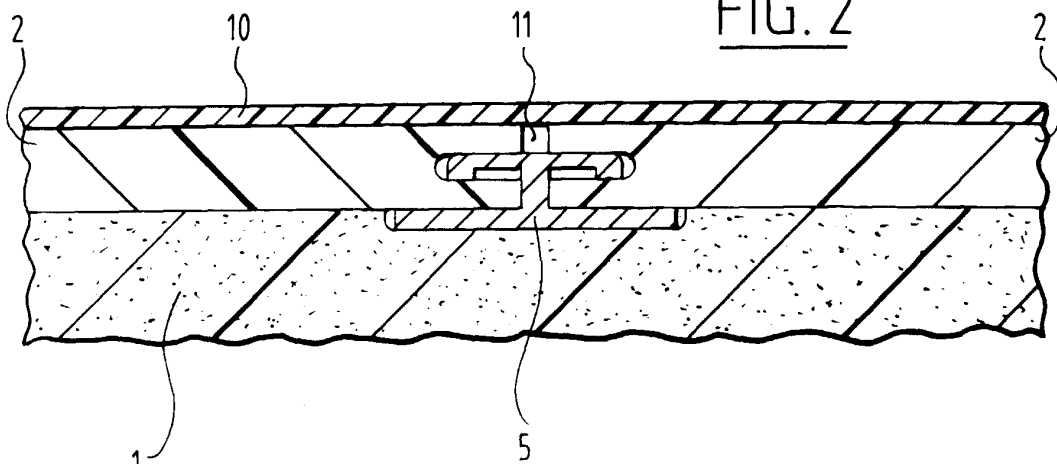
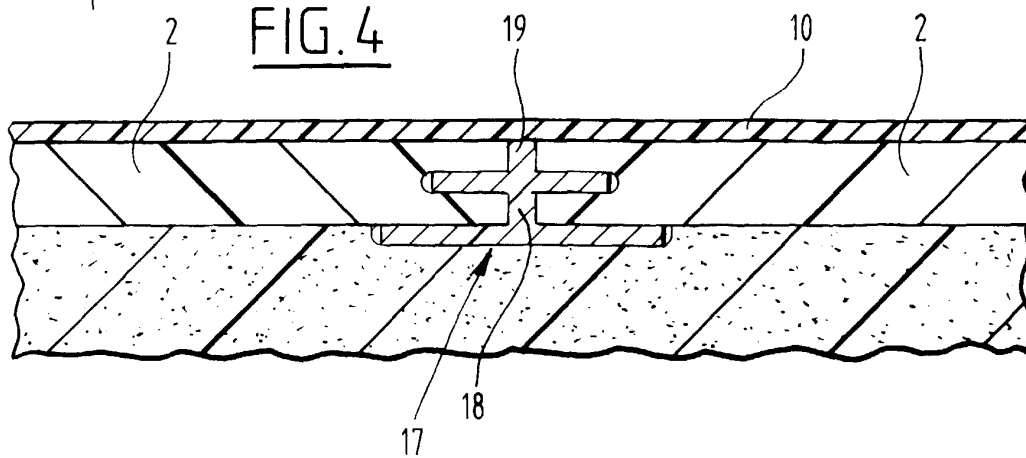
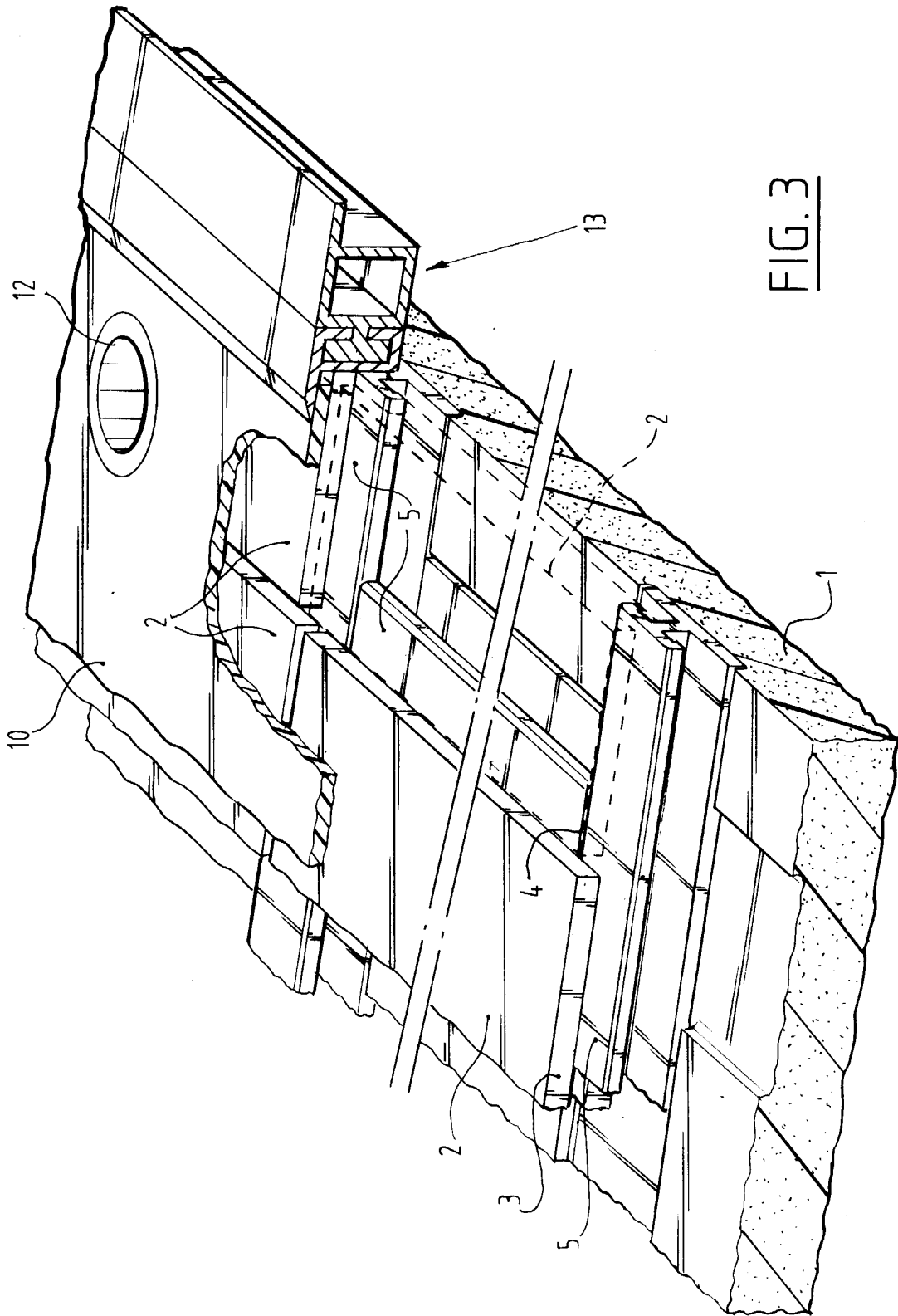


FIG. 4







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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 2304

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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04F E01C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 13 October 1999	Examiner Ayiter, J
CATEGORY OF CITED DOCUMENTS 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 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 & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 99 20 2304

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
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