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(54) **SUPPORTING PROFILE FOR FLOOR ELEMENTS**

(57) The present invention relates to a supporting profile (3) for supporting floor elements provided with a supporting body (1) made of a shock-absorbing or vibration-damping material which is suitable for fitting in a receiving groove (2) of the supporting profile (3) and which, in use, serves as a support for the floor elements, wherein

the supporting body (1) comprises a base part and a removable levelling strip and wherein the levelling strip is connected to the base part by means of a tear or score line, as a result of which the levelling strip can be detached in order to reduce the height of the supporting body (1).

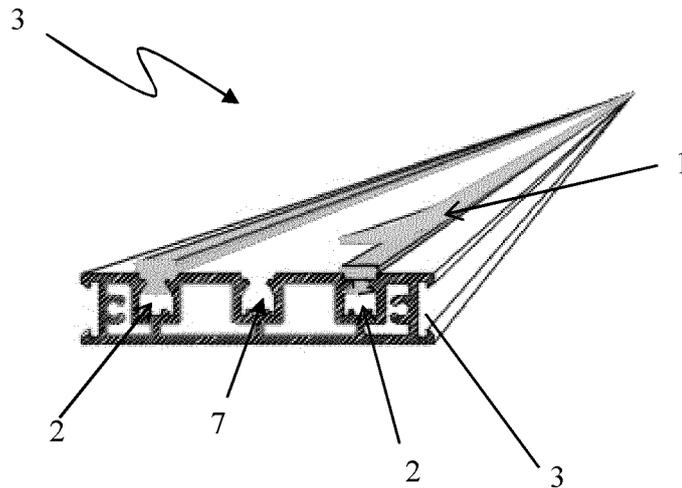


Fig. 2

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Description

[0001] The present invention relates to a supporting profile for supporting floor elements comprising a receiving groove which extends in the length direction and a supporting body made of a shock-absorbing or vibration-damping material which is provided in said receiving groove and which, in use, serves as a support for the floor elements. The respective floor elements are preferably wooden or plastic floor elements, more particularly ceramic or concrete floor elements, or floor elements made of natural stone. The floor elements are in particular terrace tiles or decking boards.

[0002] Supporting profiles for supporting floor elements are widely known and often form part of a so-called support system for floors or decks. Such support systems are often used in cases where, for example, a flat roof is to be turned into a satisfactory outside space or decking is to be laid on an uneven surface or even surface, e.g. balcony decking of apartments, hotels or restaurants.

[0003] With the known floor (decking) support systems, use is made of optionally height-adjustable tile support pads on which the floor elements (tile elements) are placed at a suitable distance apart and at a distance from a surface located underneath. As a result thereof, screed and tile adhesive are no longer necessary, the rainwater can be drained off by means of the open joints and lines can easily be laid in the free space under the floor surface. In order to be able to maintain the same joint width everywhere, the upper surface of the tile support pad is provided with a number of tile holders extending transversely on the upper surface. The floor elements should be placed so as to abut the tile holders.

[0004] Because the above-described system is limited with regard to the number of laying patterns which can be formed, in more recent floor support systems, the floor elements are no longer placed directly on the tile support pads, but bar-shaped supporting profiles of on average 2 to 3 metres are firstly provided on the tile support pads on which the various floor elements are then placed subsequently. In their upper surface, the known supporting profiles have a groove which extends in a length direction and in which a supporting body of a shock-absorbing or vibration-damping material is contained. This supporting body firstly has a vibration- (shock-) absorbing and sound-insulating effect. In addition, the supporting body will prevent the floor elements which are situated thereon from being displaced.

[0005] Certain floor elements, in particular floor elements made of natural stone and, to a lesser degree, ceramic floor elements, do not have a uniform thickness. In order to compensate for variations in the surface of floor elements and to correct the resultant differences in height between adjacent floor elements, it is known to place rubber shims under the floor elements or to start filling in at the location of the points of support at the bottom of the tile. However, this way of working is time-consuming.

[0006] It is therefore an object of the present invention to provide a solution for the above-described problem, so that (dimensional) variations in the height (thickness) between different floor elements, in particular floor elements made of natural stone or ceramic material, can be compensated for.

[0007] The object of the invention is achieved by providing a supporting profile for supporting floor elements comprising a receiving groove which extends in the length direction and a supporting body made of a shock-absorbing or vibration-damping material which is provided in said receiving groove and which, in use, serves as a support for the floor elements, wherein the supporting body comprises a base part and a removable levelling strip and wherein the removable levelling strip is connected to the base part by means of a tear or score line, as a result of which the levelling strip can be detached in order to reduce the height of the supporting body. Such a supporting body preferably forms part of a support system for floor elements, in particular a decking support system for floor elements. The floor elements are preferably tile elements or boards. The supporting profile according to the invention has the advantage that dimensional variations in the floor elements can be compensated for by removing the levelling strip. Such a supporting body makes it possible, if necessary, for example if two adjacent floor elements are not perfectly level due to a difference in thickness, to remove the levelling strip under one floor element, so that the difference in height is compensated for and the floor elements come to lie perfectly level.

[0008] In an alternative embodiment, it is also possible to use an adhesive connection instead of a tear or score line to connect the levelling strip to the base part. In a preferred embodiment, it is also possible that several levelling strips, for example a first, a second and third levelling strip, are provided one above the other on the base body, wherein the first levelling strip is connected to the base part by means of a tear or score connection and the various levelling strips are connected to each other so as to be mutually detachable by means of a tear or score line or by means of an adhesive connection. Several levelling strips offer the advantage that any dimensional variations between adjacent floor elements can be compensated for even better. It is important that the levelling strip can be separated from the base part or, in case there are several levelling strips, from each other in a relatively simple way and, where appropriate, from the base part.

[0009] In a preferred embodiment of the supporting profile according to the invention, said profiled section is of a bar-shaped design. The supporting profile is preferably made of aluminium. However, the supporting profile may also be made of wood or metal. In particular, the supporting profile has a length of between 1 and 6 metres, preferably of between 2 metres and 3 metres.

[0010] The supporting profile according to the invention preferably has a height of at most 20 mm, more par-

ticularly a height of at most 16 mm. Such a thin profiled section offers the advantage that it requires little space, which is ideal in some circumstance (locations) where the working height is limited.

[0011] According to a more preferred embodiment of the supporting profile according to the invention, said supporting profile furthermore comprises a guide groove for an accessory for positioning the floor elements or connecting adjacent supporting profiles. Examples of possible accessories are a tile holder (cruciform or T-shaped), an end element, a coupling piece, etc. The accessories are displaceable (slidable) in the guide groove, so that they can be positioned perfectly, based on the selected floor elements and the selected laying pattern.

[0012] In a preferred embodiment of the supporting profile according to the invention, the one end of the base part has a geometry which engages in the receiving groove of the supporting profile in order to be secured in said receiving groove. Preferably, the supporting body is made of a shock-absorbing or vibration-damping material which is compressible, as a result of which the supporting body, partly due to the shape of the end of the base body, is arranged in the receiving groove in a clamping manner. The one or several levelling strips are provided on the other end of the base body. Materials having anti-slip properties may also be considered as base material for manufacturing the supporting body.

[0013] According to a specific embodiment of the supporting profile according to the invention, the base part has a height of between 5 and 20 mm, and the levelling strip has a height of between 1 and 5 mm, preferably of between 1 and 3 mm. In case several levelling strips are used which together form a levelling part, it is for example possible to choose to provide three levelling strips with a height of 1 mm each or to provide, for example, two levelling strips with a height of 2 mm each.

[0014] In a more preferred embodiment of the supporting profile according to the invention, the supporting body is manufactured by means of extrusion.

[0015] In a more specific embodiment of the supporting profile according to the invention, the supporting body is made of a thermoplastic elastomer (TPE). Obviously, other materials may also be considered, such as for example TPV, rubber, vulcanised rubber, etc.

[0016] The supporting profile according to the invention as described above and as described in the claims is not only suitable for supporting floor elements, but is, by extension, also suitable for supporting window parts, more particularly a window or glass panel of a glass balustrade. Thus, a glass balustrade comprising a supporting profile suitable for supporting a glass panel, the supporting profile having the features as described in this description and these claims, forms a part of this patent text.

[0017] In order to explain the properties of the present invention in more detail and to indicate additional advantages and particulars thereof, there now follows a more detailed description of a supporting body and the sup-

porting profile according to the invention in which it is contained. It will be clear that nothing in the following description may be interpreted as a limitation of the scope of protection defined in the claims.

[0018] In this description, reference numerals are used to refer to the attached drawings, in which:

- **Fig. 1:** shows a cross section of the supporting body in which a part of the levelling strip is detached from the base body;
- **Fig. 2:** shows a perspective view of a supporting profile according to the invention;
- **Fig. 3:** shows a diagrammatic view of a support system for floor elements in the form of tile elements, on which the supporting profile according to the invention which has been placed on a tile support pad is visible.

[0019] The supporting body (1) illustrated in Fig. 1 is provided to be placed (incorporated), as shown in Fig. 2, in a supporting profile (2) according to the present invention for supporting floor elements (4), such as boards made of wood or plastic, or tile elements made of natural stone, ceramic material or rubber, or grate elements made of metal or plastic. In use, the floor elements (4) will rest on at least a part of the supporting body (1). Due to the fact that the supporting body (1) is made of a shock-absorbing or vibration-damping material, the supporting body (1) will have a shock-absorbing or vibration-damping and sound-insulating effect. The supporting body (1) will also ensure that the floor elements (1), once fitted, are more difficult to displace, in other words, the supporting body (1) also has an anti-slip effect. Materials which may be considered for forming the supporting body are: PTE, PVE, rubber, vulcanised rubber, or another suitable shock-absorbing or vibration-damping material.

[0020] The supporting body (1) comprises a base part (5) and a removable (first) levelling strip (6), wherein the levelling strip is connected to the base part (5) by means of a weakened connection, such as a tear or score line or an adhesive connection, as a result of which the levelling strip can be detached in a relatively simple and quick manner in order thus to reduce the height of the supporting body (1), if necessary.

[0021] In practice, the base part (5) of the supporting body (1) has a height of between 5 and 20 mm, whereas the levelling strip has a height of between 1 and 5 mm.

[0022] It is also possible to provide several levelling strips, for example a second and third levelling strip on top of the first levelling strip (6), with the various levelling strips being connected to each other so as to be mutually detachable - by means of a tear or score line or by means of an adhesive connection. Several levelling strips offer the advantage that any dimensional variations between adjacent floor elements can be compensated for even better. The main concern is that the levelling strip (6) can be separated in a relatively simple way from the base part (5) or, in case several levelling strips are present,

from each other and from the base part (5), as the case may be. If there are several levelling strips, it is possible to choose to provide, for example, three levelling strips which are each 1 mm high or to provide, for example, two levelling strips which are each 2 mm high.

[0023] There are a number of ways (techniques) to manufacture the supporting body, in particular:

- 1) Extrusion or co-extrusion of the supporting body, in which case the levelling strip in the mould concept is made of the same material, e.g.: TPE, PVC or another suitable material;
- 2) Co-extrusion of the base part and removable levelling part in various materials. Due to the fact that the properties of the materials differ, they can only adhere to each other to a slight degree, so that the removable part can easily be stripped off (detached);
- 3) Extrusion of the base part where the geometry is designed, as it were, wherein the base part and removable part snap-fit (click-fit) onto each other mechanically. These may immediately be extruded or co-extruded as one piece or be extruded separately and fitted afterwards;
- 4) A combination of 2 and 3.

[0024] In order to secure the supporting body (1) in the supporting profile (3) in a satisfactory way, the one end of the base part has a geometry which engages in the receiving groove (2) of the supporting profile (3).

[0025] In practice, the supporting profile (3) in which the supporting body (1) is placed (provided) is usually of a bar-shaped design (other forms are also possible). The supporting profile (3) comprises a number of grooves and/or recesses which extend in the length direction. In the illustrated embodiment, two receiving grooves (2) (left and right) are provided for a supporting body (1) and a central guide groove (7) for a suitable accessory (8) suitable for positioning the floor elements (4) or connecting adjacent supporting profiles (3), such as for example a tile holder (cruciform, T-shaped) or an end piece. The supporting profile (3) may be made of aluminium, wood, stainless steel, metal or plastic.

[0026] The supporting profile (3) forms part of a modular support system for floor elements, in particular a decking support system. Such a support system is diagrammatically illustrated in Fig. 3 and comprises:

- one or several supporting profiles (3) according to the invention for supporting one or several floor elements (4);
- a number of terrace pedestals (9) provided for supporting one or several supporting profiles (3),
- one or several accessories (8) suitable for positioning the floor elements (4) or connecting adjacent supporting profiles (3).

[0027] In order to secure the accessories in the guide groove (7) in a satisfactory and relatively simple and time-

saving way, the accessories (8) are provided with a securing eyelet which makes it possible to fixedly secure the accessory in the guide groove (7) by means of a blind rivet connection.

Claims

1. Supporting profile (3) for supporting floor elements (4) comprising a receiving groove (2) which extends in the length direction and a supporting body (3) made of a shock-absorbing or vibration-damping material which is provided in said receiving groove (2) and which, in use, serves as a support for the floor elements (4), **characterized in that** the supporting body (1) comprises a base part (5) and a removable levelling strip (6), wherein the removable levelling strip (6) is connected to the base part (5) by means of a tear or score line, as a result of which the levelling strip (6) can be detached in order to reduce the height of the supporting body (1).
2. Supporting profile (3) according to Claim 1, **characterized in that** said profiled section is of a bar-shaped design.
3. Supporting profile (3) according to Claim 1 or 2, **characterized in that** said supporting profile (3) furthermore comprises a guide groove (7) for an accessory (8) for positioning the floor elements (4) or connecting adjacent supporting profiles (3).
4. Supporting profile (3) according to one of the preceding claims, **characterized in that** the supporting profile (3) is made of aluminium.
5. Supporting profile (3) according to one of the preceding claims, **characterized in that** the one end of the base part (5) has a geometry which engages in the receiving groove (2) of the supporting profile (3) in order to be secured in said receiving groove (2).
6. Supporting profile (3) according to one of the preceding claims, **characterized in that** the supporting body (1) is manufactured by means of extrusion.
7. Supporting profile (3) according to one of the preceding claims, **characterized in that** the supporting body (1) is made of a thermoplastic elastomer (TPE).
8. Supporting profile (3) according to one of the preceding claims, **characterized in that** the base part (5) has a height of between 5 and 20 mm, and the levelling strip (6) has a height of between 1 and 5 mm.

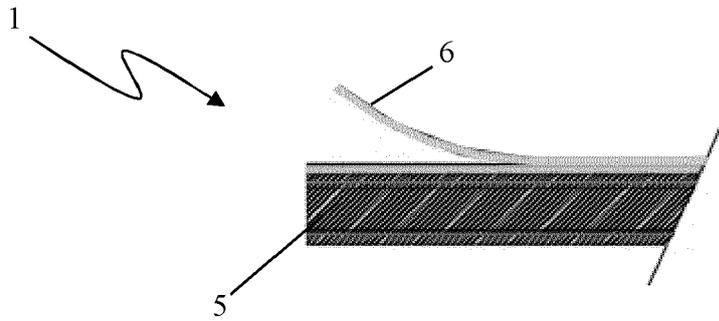


Fig. 1

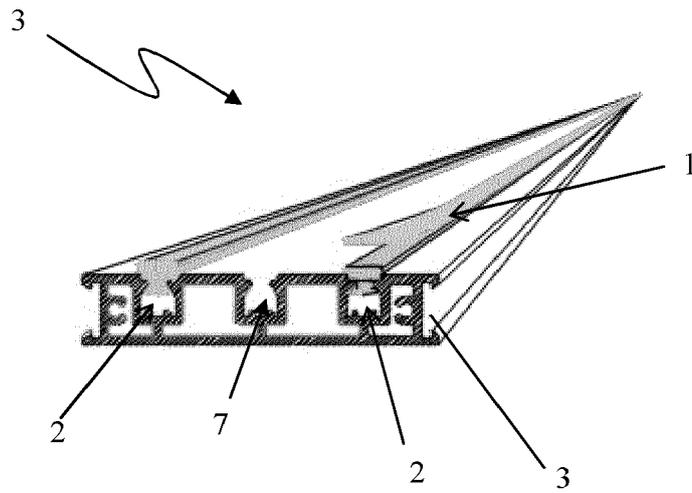


Fig. 2

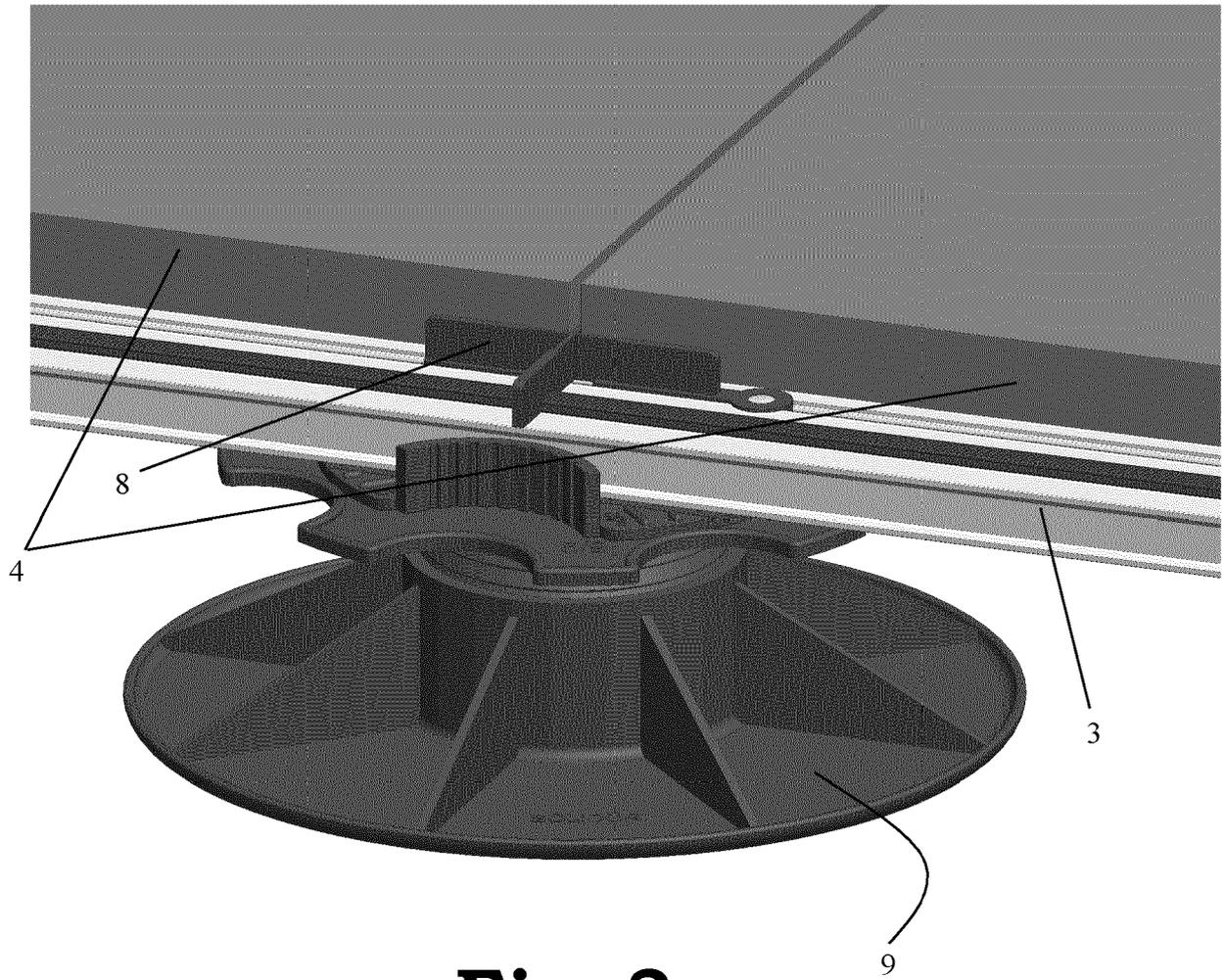


Fig. 3



EUROPEAN SEARCH REPORT

Application Number
EP 20 15 1129

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 299 19 909 U1 (DOMIG HERMANN [AT]) 22 March 2001 (2001-03-22) * paragraphs [0002], [0035], [0036], [0085]; figures 1-3 * -----	1-8	INV. E04F15/024 E04F15/02 E04F15/22
A	EP 0 607 462 A1 (MERO WERKE KG [DE]) 27 July 1994 (1994-07-27) * column 6, line 9 - line 16; figure 1 * -----	1-8	
A	DE 20 2015 105013 U1 (IPS GMBH IND POLYMER SOLUTIONS [DE]) 30 October 2015 (2015-10-30) * paragraphs [0001], [0019], [0024], [0051]; claim 13; figure 4 * -----	1-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			E04F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 4 March 2020	Examiner Warthmüller, Almut
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 & : member of the same patent family, corresponding document	
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 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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04-03-2020

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