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(54) **A process for modelling tiles and slabs**

(57) The process comprises the following stages: cutting at least one groove (2) into the upper surface (1a) to a depth therein which is only a part thereof; fixing a thin and flexible temporary support element (3) to the upper surface (1a); making at least one recess (4) which, starting from the lower surface (1b) covers the entire width of the body of the tile (1) in a position cor-

responding to the groove (2), but not the support element (3); the recess (4) separating the body of the tile (1) into at least two parts, totally separated; nearing the two parts of the tile by bending the thin and flexible temporary support element (3) which keeps the at least two parts of tile (1) (separated by the recess (4)) united, so that the tile (1) is fashioned into the non-flat predetermined conformation.

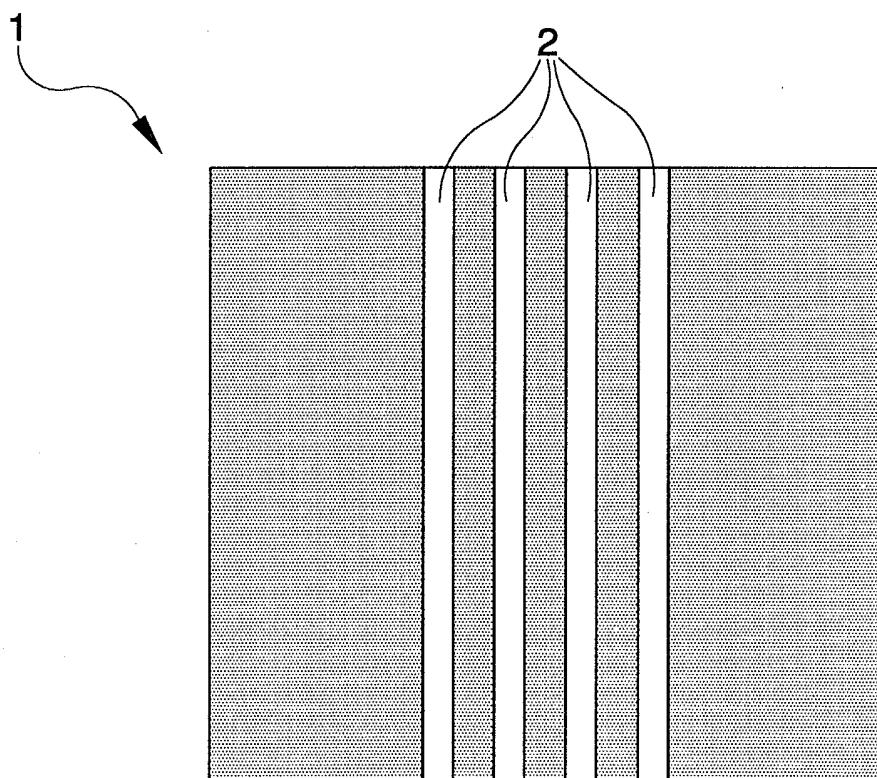


Fig. 1

Description

[0001] The invention relates to a process for modelling tiles and/or slabs which have a "visible", or upper surface, and a laying surface, or lower surface, where the tiles or slabs are not flat.

[0002] It is usefully applied in tiles and/or slabs made of all types of material. In particular, it is applicable in ceramic tiles, marble slabs or tiles made of natural stone and stone material in general.

[0003] In realization of floors with tiles or slabs special pieces are frequently made, such as wainscoting, cornering and the like, in which the same tile or slab used for the floor is also used for the special pieces.

[0004] The prior art includes comer finishes using ceramic tiles, one of which applications consists in making special products formed by pressing or extrusion and fired in a kiln.

[0005] These are expensive processes which among others exhibit the drawback of always requiring movement and storage of special pieces which do not have the simple shape of a tile or slab, and which are characterised by a non-modifiable conformation.

[0006] The main aim of the present invention is to obviate the drawbacks in the prior art by providing a process for modelling tiles and/or slabs so that they take on a non-flat configuration without any need for complex and expensive known constructional technologies.

[0007] The invention proposes in particular to solve the problem of tile or slab modelling when comer pieces are to be made, with convex in-view surfaces. These aims and advantages and others besides are all attained by the present invention, as it is characterised in the claims that follow.

[0008] Further characteristics and advantages of the present invention will better emerge from the detailed description that follows of the various stages of the process of the invention, as well as a possible but non-exclusive embodiment of the invention, illustrated purely by way of a non-limiting example in the accompanying figures of the drawings, in which:

figure 1 shows, in a plan view, the result of a first operative stage of the invention;

figure 2 shows a section made according to line I-I of figure 1;

figure 3 shows, in the section of figure 2, the result of a second operative stage of the invention;

figure 4 schematically shows, in the same section as in figure 3, performance of a subsequent stage of the invention;

figure 5 schematically shows the result of the operative stage shown in figure 4;

figure 6 schematically shows a laying operation of the product of the invention.

[0009] With reference to the figures of the drawings, 1 denotes in its entirety a tile or slab exhibiting a visible

surface, or what is usually called an upper surface 1a (the decorated surface) and a laying surface, usually called a lower surface 1b.

[0010] In order to give the tile 1 a non-flat predetermined surface, the invention provides a process having the following work stages on the tile:

cutting at least one groove 2 into the upper surface 1a to a depth therein which is only a part thereof; fixing a thin and flexible temporary support element 3 to the upper surface 1a; making at least one recess 4 which, starting from the lower surface 1b covers the entire width of the body of the tile 1 in a position corresponding to the groove 2, but not the support element 3; the recess 4 separating the body of the tile 1 into at least two parts, totally separated; nearing the two parts of the tile by bending the thin and flexible temporary support element 3 which keeps the at least two parts of tile 1 (separated by the recess 4) united, so that the tile 1 is fashioned into the non-flat predetermined conformation.

[0011] In the figures of the drawings particular reference is made to a process which includes the following operational stages:

cutting a plurality of grooves 2 into the upper surface 1a to a depth therein which is only a part thereof; fixing a thin and flexible temporary support element 3 to the upper surface 1a; making a plurality of recesses 4 which, starting from the lower surface 1b cover the entire width of the body of the tile 1 in a position corresponding to the grooves 2, but not the support element 3; the recesses 4 separating the body of the tile 1 into a plurality of parts, totally separated; nearing the plurality of parts of the tile by bending the thin and flexible temporary support element 3 which keeps the plurality of parts of tile 1 (separated by the recesses 4) united, so that the tile 1 is fashioned into the non-flat predetermined conformation.

[0012] The support element 3 can be removed and is advantageously self-adhesive, i.e. is constituted by a sheet of self-adhesive material which can be easily applied to the upper surface 1a once the grooves 2 have been made.

[0013] The tile 1 with the support element 3 applied thereon is then subjected to a cutting operation, schematically illustrated in figure 4, in which a plurality of recesses 4 are cut, starting from the lower surface 1b and covering the whole width of the tile 1 body at a same position as the grooves 2 but not cutting the support element 3.

[0014] The recesses 4 separate the body of the tile 1 into a plurality of parts, totally separated one from another.

[0015] The recesses 4 are made using V-shaped

grinders, each of which generates - in the still-flat tile - a groove which is delimited by two converging sides towards a corresponding groove 2 on the opposite upper surface 1a.

[0016] Once the tile 1 has been cut it is in two parts, totally separate one from another, but held together in the original positions thereof, before the cut, by the support element 3, which is flexible and thus enables a different reciprocal positioning of the parts.

[0017] At moment of laying, this reciprocal positioning possibility can be used to make, as is schematically illustrated in figure 6, a non-flat conformation which is in particular constituted by an angular convex finishing, i. e. with the upper surface 1a in a convex conformation.

[0018] This conformation can easily be realized through a bending of the portion of the support element 3 which keeps the parts of the tile 1 united; in this way the tile 1 can be bent to reach the desired non-flat conformation.

[0019] After setting, for example using cement or grout 6, the support element 3 can easily be removed.

Claims

1. A process for modelling tiles and slabs, having an upper surface and a lower surface, into predetermined non-flat conformations, **characterised in that** it comprises the following stages:

cutting at least one groove (2) into the upper surface (1a) to a depth of the tile or slab which is only a part of the tile or slab;

fixing a thin and flexible temporary support element (3) to the upper surface (1a);

making at least one recess (4) which, starting from the lower surface (1b) covers the entire width of the body of the tile (1) in a position corresponding to the groove (2), but not the support element (3); the recess (4) separating the body of the tile (1) into at least two parts, totally separated;

nearing the two parts of the tile (1) by bending the thin and flexible temporary support element (3) which keeps the at least two parts of tile (1) (separated by the recess (4)) united, so that the tile (1) is fashioned into the non-flat predetermined conformation.

2. The process for modelling tiles and slabs of claim 1, **characterised in that** it comprises the following stages:

cutting a plurality of the at least one groove (2) into the upper surface (1a) to a depth of the tile or slab which is only a part of the tile or slab;

fixing the thin and flexible temporary support element (3) to the upper surface (1a);

making a plurality of the at least one recess (4) which, starting from the lower surface (1b) cover the entire width of the body of the tile (1) in a position corresponding to the plurality of the at least one groove (2), but not the support element (3); the plurality of the at least one recess (4) separating the body of the tile (1) into a plurality of parts, totally separated;

nearing the plurality of parts of the tile by bending the thin and flexible temporary support element (3) which keeps the plurality of parts of tile (1) (separated by the plurality of recesses (4)) united, so that the tile (1) is fashioned into the non-flat predetermined conformation.

3. The process of any one of the preceding claims, **characterised in that** the support element (3) is removable.
4. The process of claim 3, **characterised in that** the support element (3) is self-adhesive.
5. The process of any one of the preceding claims, **characterised in that** each single recess of the plurality of recesses (4) is made with at least one V-shaped cutting tool, which cutting tool generates in the tile (1) a cut which is delimited by two sides converging towards a corresponding groove (2) present in the upper surface (1a).

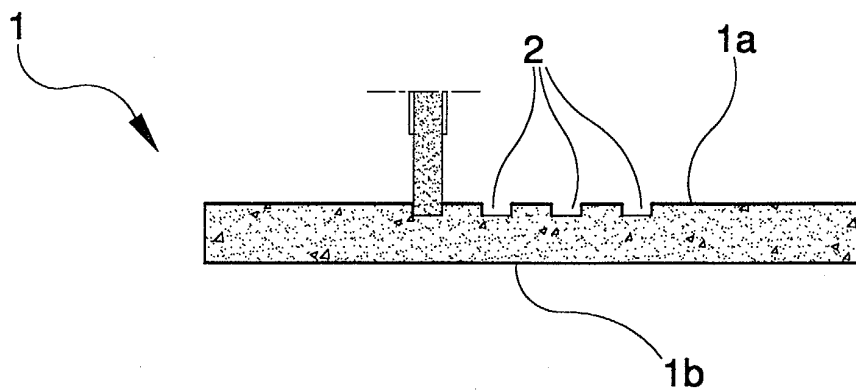


Fig. 2

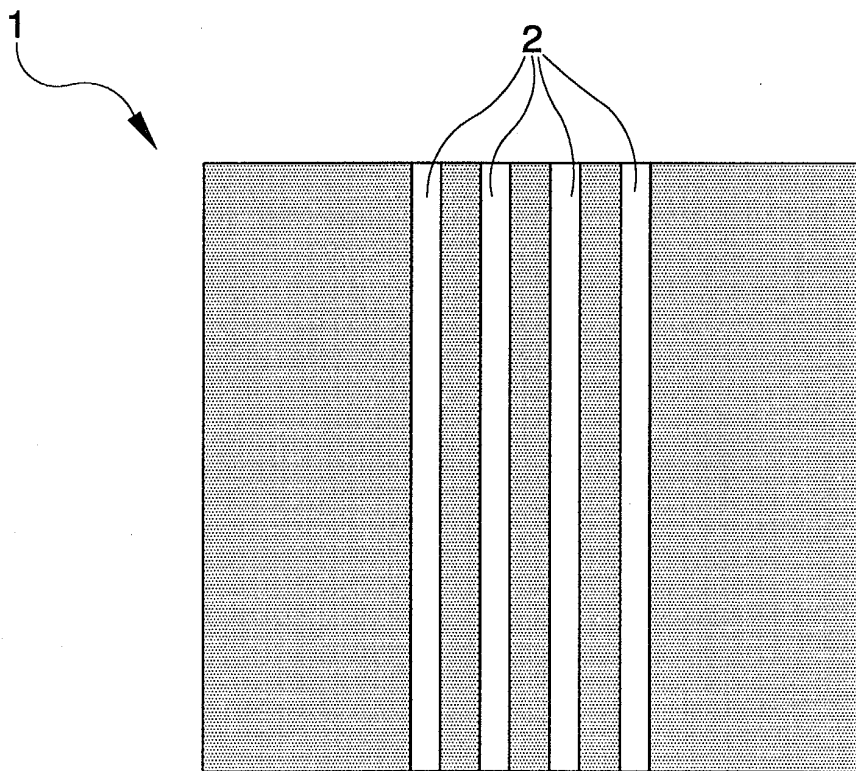


Fig. 1

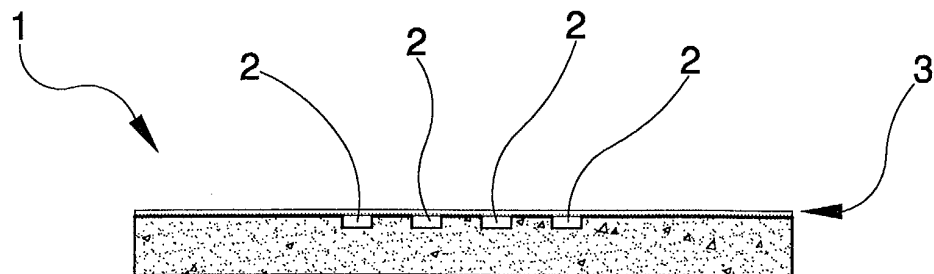


Fig. 3

Fig. 4

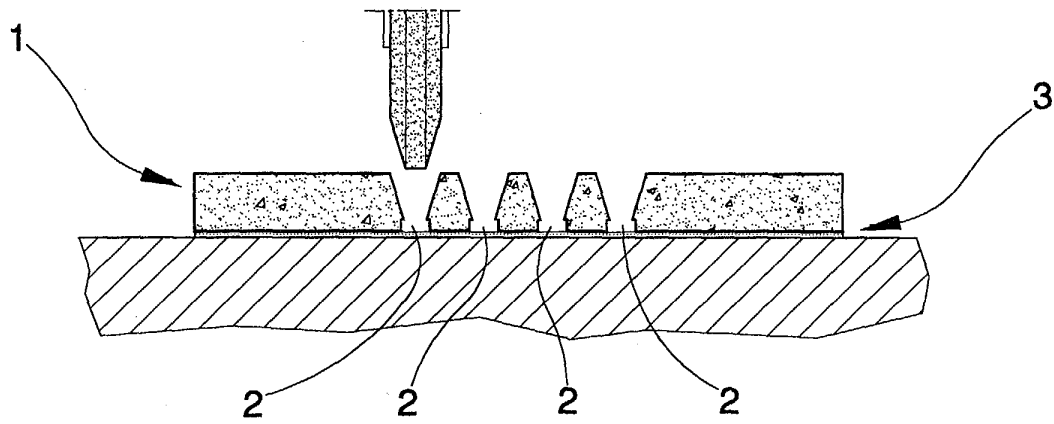


Fig. 5

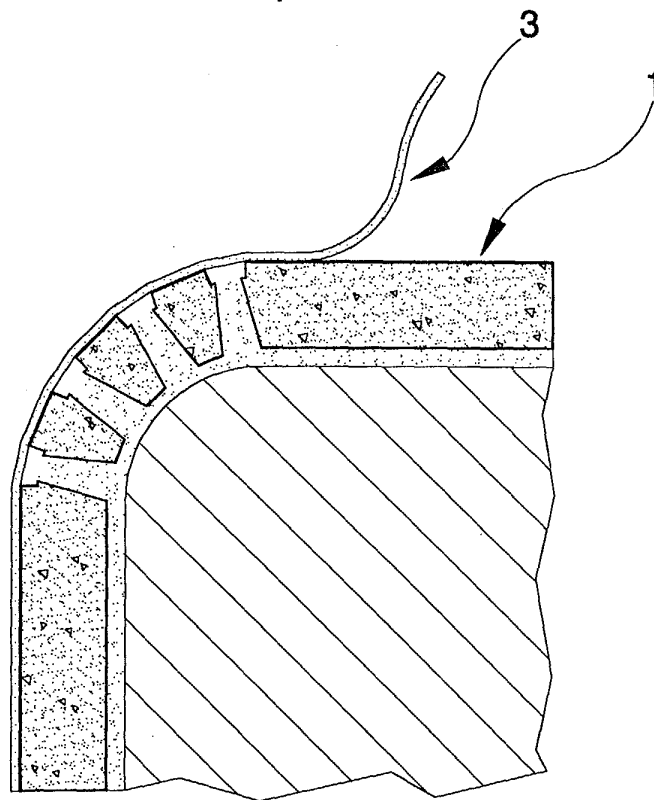
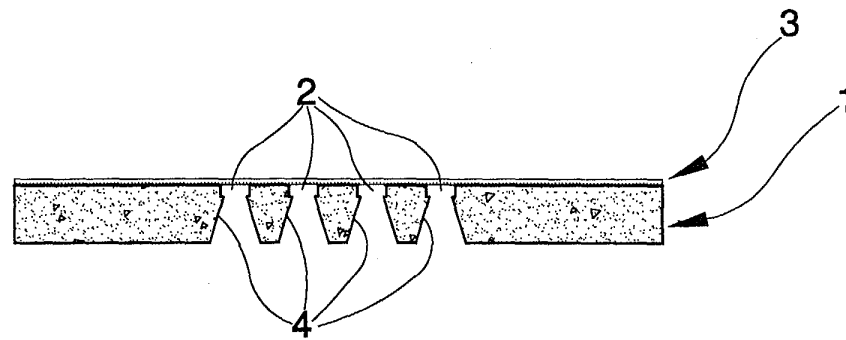


Fig. 6



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EUROPEAN SEARCH REPORT

Application Number
EP 04 07 5870

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A	US 5 380 392 A (IMAMURA NOBUHIRO ET AL) 10 January 1995 (1995-01-10) * column 3, line 36 - line 57 * * column 4, line 21 - line 30 * * figures 4-6 * -----	1-5	B28D1/30 B28D1/00 B28D7/04
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A	GB 1 205 039 A (GORDON COLLINS) 9 September 1970 (1970-09-09) * the whole document * -----	1-5	
A	DE 41 00 226 A (GEISENHAINER ROLF) 9 July 1992 (1992-07-09) * the whole document * -----	1-5	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B28D B44C B28B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 January 2005	Examiner Rijks, M
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 07 5870

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