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(54) **Method for manufacturing mosaic tesserae with an antique appearance, and mosaic tesserae obtainable thereby**

Verfahren zum Herstellen von Mosaiksteinen mit antikem Aussehen, und Mosaik mit Steinen herstellbar nach dem Verfahren

Procédé pour la fabrication de pierres mosaïques ayant une apparence antique, et mosaïque avec pierres obtenables selon le procédé

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Description

[0001] The present invention relates to a method for manufacturing antique mosaic tesserae and to a mosaic comprising tesserae as obtainable thereby.

[0002] Various processes have long been used to manufacture mosaic tesserae.

[0003] Their common characteristic is the fact that the tesserae are shaped by cutting a matrix which can be constituted by a slab of marble or by a glazed tile.

[0004] Cutting is performed by using a plurality of circular blades which are all keyed on a single motorized shaft rotationally driven by an adapted motor unit.

[0005] Said blades, rotated and locked on the shaft with gaps which are preset according to the dimensions of the tesserae to be produced, cut the marble or the tile starting from the exposed surface until they cut through the entire thickness.

[0006] This process is repeated for the planar directions that compose the perimeter and the tesserae are thus produced with a perfect shape, with sharp and straight edges.

[0007] Another method for forming said tesserae consists in performing pre-scoring, on both faces of the matrix, with a sort of glass cutter provided with a wheel made of diamond or equivalent material, and in then fracturing said matrix along the pre-scoring lines, which in this case are perfectly straight too.

[0008] Current market trends, however, requires ceramic material for cladding, both for floors and for walls, to resemble as much as possible an antique appearance; and products which do not have a systematically repeated appearance, which unmistakably shows their origin to be an industrial process, become particularly valuable and therefore acquire a proportional commercial value; products which at least appear to be the result of almost hand-made small-batch production are particularly in demand.

[0009] This requirement is felt even more for mosaics, which are decorative compositions of very ancient origin.

[0010] Another specific problem of mosaics composed of tesserae manufactured according to conventional technologies is the fact that after laying, due to the limited contact surface of the tesserae and to the consequently limited surface for gluing to the application surface, if said tesserae are stressed for example by intensive treading, some of them may detach from the laying surface, spoiling the figurative composition of the mosaic and even compromising its integrity due to the natural tendency of the effects of weather to creep through the openings left by the missing tesserae, attacking and degrading the foundation adhesive.

[0011] Finally, the technology used, i.e., the cutting of the marble or of the tiles starting from the exposed surface, causes a significant waste of valuable material due to the loss produced by the thickness of the blades when they cut into it.

[0012] The principal aim of the present invention is to solve the above problems of the prior art by providing a method for manufacturing antique mosaic tesserae which makes them visually different from each other, as if manufactured by hand one by one, and at the same time makes them significantly more stable once they have been laid and also allows a significant saving in the material used to manufacture them.

[0013] This aim and other objects are achieved by a method for manufacturing antique mosaic tesserae as defined in claim 1.

[0014] These objective are also achieved by a mosaic as defined in claim 3.

[0015] Further characteristics and advantages will become apparent from the description of a preferred embodiment of a method for manufacturing antique mosaic tesserae and of tesserae manufactured thereby, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a schematic partial view of a preparatory step for placing an inverted slab-like matrix under a cutting unit;

Figure 2 is a view of the same portion of matrix subjected to scoring of its laying face;

Figure 3 is a view of some tesserae, still in the inverted position, obtained after fracturing the scored matrix;

Figure 4 is a slightly enlarged-scale schematic sectional view of some tesserae that have been laid so as to form a mosaic;

Figure 5 is a perspective view of a tessera obtained with the method according to the invention.

[0016] With particular reference to the above figures, the reference numeral 1 generally designates a cutting unit composed of a plurality of circular blades 2 keyed on a motorized shaft 3 which is rotationally driven by a corresponding motor 4.

[0017] A slab-like matrix 5, preferably constituted by a slab of marble or by an already-glazed tile, is placed below the blades 2.

[0018] The cutting unit 1, by moving downwards to a preset level, scores the back, and only the back, of said matrix 5, forming thereon lines 6 for preferential fracture caused by the reduced resisting cross-section of the thickness, at the same time saving the valuable material used for the exposed face.

[0019] The scoring is performed usually, but not exclusively, in the two perpendicular planar directions (i. e., along the directions that form the edges of the perimeters of the tesserae to be manufactured), so as to create on the back of the matrix 5 a sort of grid which has, in the example, a square mesh.

[0020] The matrix 5 is then passed, for example, through a fracturing machine of a conventional type, which separates the various tesserae 7 formed previously by the grid.

[0021] The fracture of the bridges 8 that join the various tesserae 7 produces an irregular and absolutely random shape of the edges of each tessera, making each tessera 7 different from the others.

[0022] After fracture, the resulting tesserae 7 are all placed in a so-called "tumbling barrel", so that said irregular and sharp edges become rounded and safe.

[0023] It should also be noted that the fracture forms, on the body of each tessera 7, four faces 9 slightly recessed with respect to the corresponding parallel sides 9a of the exposed face.

[0024] This fact forms, between multiple tesserae 7 arranged side by side so as to compose a mosaic, wider interstices which are penetrated by the adhesive material, which accordingly acts not only on the laying face but also on the lateral faces 9, considerably increasing the force with which each tessera 7 grips the surface on which it is laid.

[0025] It has thus been found that the described invention achieves the intended aim and objects.

[0026] The invention thus conceived is susceptible of modifications and variations, all of which are within the scope of the inventive concept as defined by the claims.

[0027] Moreover, all the details may be replaced with other technically equivalent elements within the scope of the claims.

[0028] In the practical execution of the invention, the materials used, as well as the shapes and the dimensions, may be any according to requirements without thereby abandoning the scope of the protection of the appended claims.

[0029] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A method for manufacturing antique mosaic tesserae (7) **characterized in that** it comprises the steps of:
 - placing a slab-like matrix under a cutting unit, said matrix being upside-down so that the exposed face is directed away from said unit;
 - scoring the laying side along at least two directions and to a preset and adjustable depth, creating preferential fracture lines;
 - fracturing said slab-like matrix scored on the laying face;
 - tumbling the resulting tesserae in order to round their edges, the resulting tesserae having recessed lateral faces (9) with respect to the corresponding sides of the upper surface to

be exposed.

2. A method according to claim 1, **characterized in that** said at least two directions are determined in a planar fashion by the edges of the tesserae to be produced.
3. A mosaic having tesserae (7) as obtainable by the method of claim 1 or claim 2, wherein the tesserae are arranged with interstices which are penetrated by adhesive material which acts on the laying and lateral (9) faces, and not on the exposed face.

Patentansprüche

1. Verfahren zur Herstellung antiker Mosaiksteine (7), **dadurch gekennzeichnet, dass** es besteht aus:

- Anordnen einer plattenähnlichen Matrix unter einer Schneideinheit, wobei die Matrix umgedreht liegt, so dass die Sichtfläche von der Einheit abgewandt ist;
- Einritzen der oben liegenden Seite entlang wenigstens zweier Richtungen und mit einer vorbestimmten und einstellbaren Tiefe, Schaffen bevorzugter Bruchlinien;
- Zerschneiden der auf der oben liegenden Seite eingeritzten plattenähnlichen Matrix;
- Trommelpolieren der erhaltenen Mosaiksteine um ihre Ecken abzurunden;

wobei die sich ergebenden Mosaiksteine seitliche Flächen (9) aufweisen, die gegenüber den korrespondierenden Seiten der oberen Sichtflächen zurückgesetzt sind.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, dass** die wenigstens zwei Richtungen durch die Kanten der herzustellenden Mosaiksteine planar bestimmt sind.
3. Mosaik mit Mosaiksteinen (7) wie sie durch das Verfahren von Anspruch 1 oder Anspruch 2 gewonnen werden, wobei die Mosaiksteine mit Hohlräumen angeordnet sind, die mit einem Klebematerial durchdrungen sind, das auf die untere und die seitlichen (9) Flächen wirkt und nicht auf die Sichtfläche.

Revendications

1. Procédé de fabrication de tesselles mosaïques anciennes (7), **caractérisée en ce qu'il** comprend les étapes consistant à :
 - placer une matrice de type plaque sous une

unité de sciage, ladite matrice étant tournée à l'envers de sorte que la face exposée est dirigée hors de ladite unité ;

- former des rayures sur le côté de la pose le long d'au moins deux directions et suivant une profondeur préréglée et ajustable, créant des lignes de cassure préférentielles ; 5
- casser ladite matrice de type plaque rayée sur la face de la pose ;
- basculer les tesselles obtenues afin d'arrondir leurs bords, 10

les tesselles obtenues ayant des faces latérales évidées (9) par rapport aux côtés correspondants de la surface supérieure à exposer. 15

2. Procédé selon la revendication 1, **caractérisé en ce que** lesdites au moins deux directions sont déterminées d'une façon planaire par les bords des tesselles à produire. 20

3. Mosaïque comportant des tesselles (7) telles que réalisables par le procédé de la revendication 1 ou de la revendication 2, les tesselles étant disposées avec des interstices dans lesquels pénètre une matière adhésive qui agit sur les faces du côté de la pose et latérales (9) et non sur la face exposée. 25

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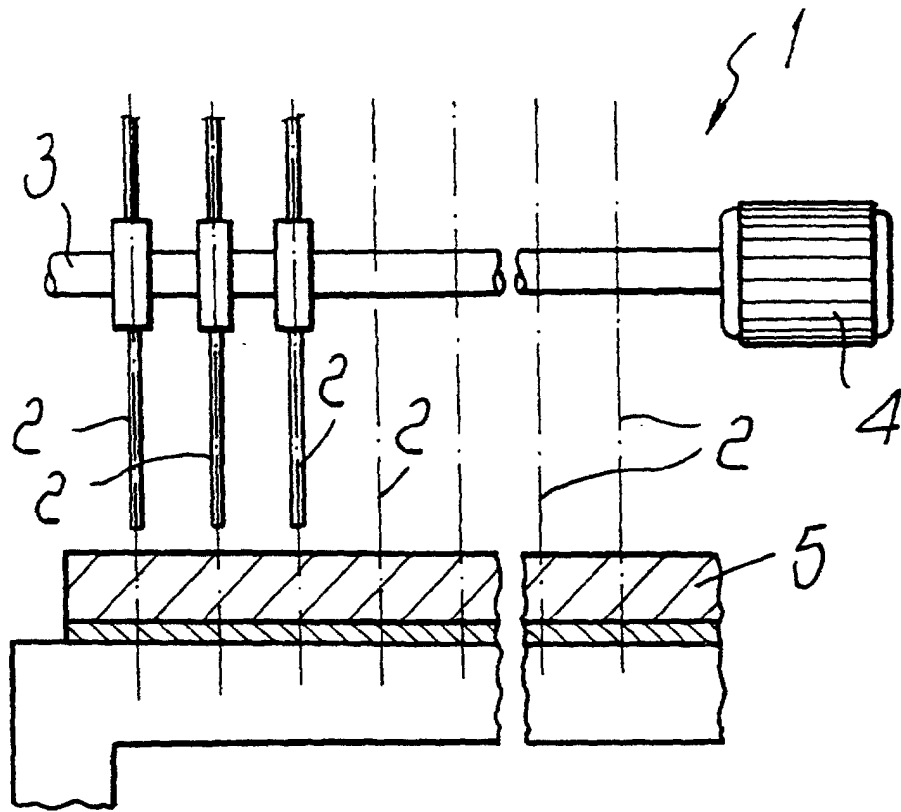


Fig. 1

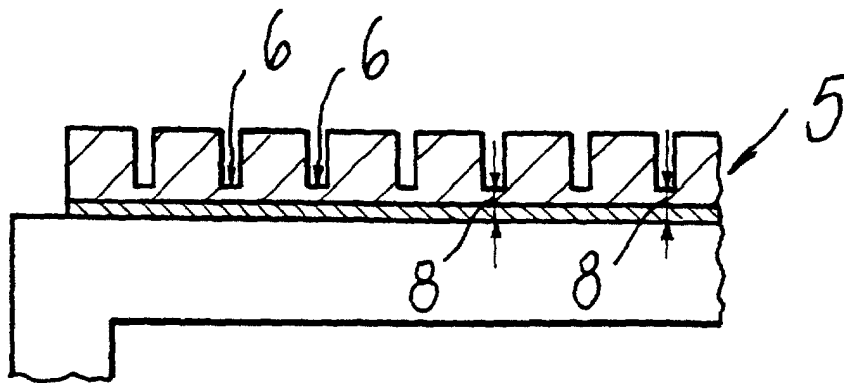


Fig. 2

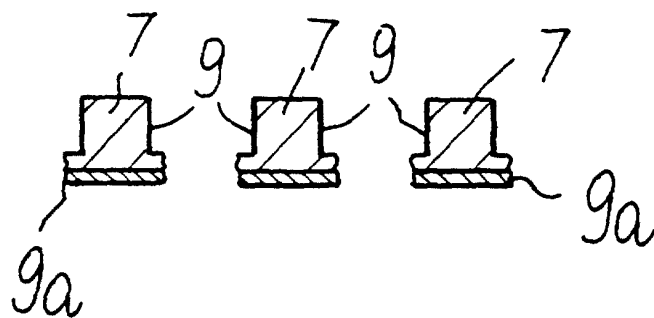


Fig. 3

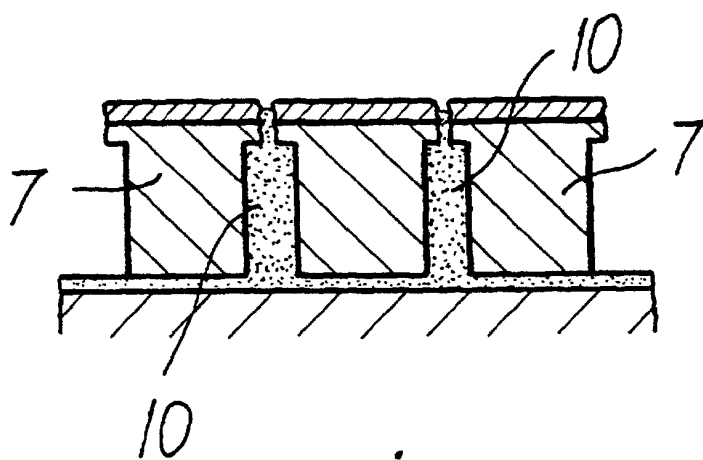


Fig. 4

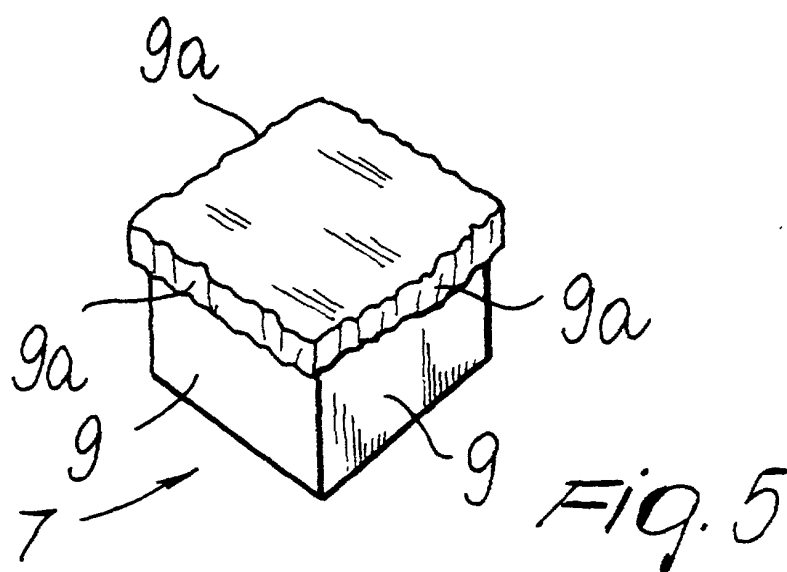


Fig. 5