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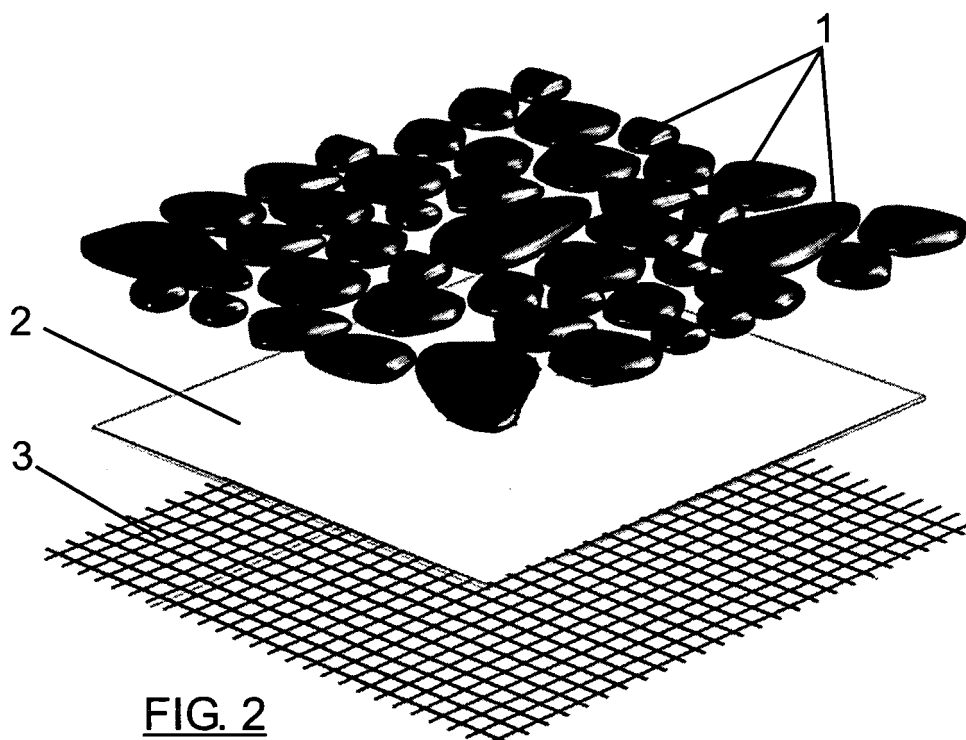
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(54) **Covering plate and manufacturing process**

(57) The present invention relates to covering plates comprising one or more metallic pieces in the form of

pebbles and to a manufacturing process for manufacturing said covering plates which comprises manufacturing the metallic pieces in the form of pebbles.



**FIG. 2**

## Description

### Field of the Invention

**[0001]** The present invention is comprised within the field of floorings and coverings and specifically those floorings and coverings covered with pebbles.

### State of the Art

**[0002]** There are currently floorings and coverings comprising a cover of natural pebbles that are widely used in facings in building sites, stairs, columns, shower plates, walls, street floors, etc.

**[0003]** The origin of these natural stones or pebbles are mainly rivers or beaches, being more scarce every day due to the fact that many countries have already protected their extraction because of environmentally friendly issues, therefore it is increasingly difficult to obtain them.

**[0004]** It is therefore necessary to find an alternative to the extraction of natural pebbles.

### Description of the Invention

**[0005]** The present invention relates to covering plates comprising one or more metallic pieces in the form of pebbles and to a manufacturing process for manufacturing them which, as it does not use natural pebbles, overcomes the previously described problems.

**[0006]** Thus, an aspect of the invention relates to a covering plate formed by one or more metallic pieces in the form of a pebble with different dimensions and conformations, the piece or pieces of which are fixed on a support of non-deformable material.

**[0007]** In a particular embodiment of the present invention, the support of non-deformable material is formed by a mortar from cement, the metallic piece or pieces in the form of pebbles being embedded in said mortar.

**[0008]** In another particular embodiment, the support of non-deformable material is formed by a resistant mesh, the metallic piece or pieces in the form of pebbles being fixed to the resistant mesh by means of an adhesive. This covering plate is fixed at the lower surface of the mesh to a cement baseplate.

**[0009]** Another particular aspect of the invention relates to a process for manufacturing the previously described covering plates which comprises, in the first place, manufacturing the metallic pieces in the form of pebbles (1).

**[0010]** In a particular embodiment, the metallic pieces in the form of pebbles (1) are manufactured from the injection casting of metallic material, said metallic material can be for example aluminum, ZAMAC or any metallic material known in the state of the art. The metallic material can come from recyclable materials, for example. Before the casting of said material, such material is optionally ground. It is then poured into molds with the se-

lected shapes, for example, natural pebble shapes, they are thus manufactured in a perfectly calibrated manner and with the desired size and finishing, whether it is smooth, rough, shiny or matt or with colors.

**[0011]** In another particular embodiment, the metallic pieces in the form of pebbles (1) are manufactured from the die-cutting of metallic sheets with punching machines or by means of jet or laser cutting. The metallic pieces are eroded by means of their introduction in drums with gravel or sand by the application of vibration or movement, finally obtaining metallic pieces in the form of pebbles (1).

**[0012]** The metallic pieces in the form of a pebble (1) are then placed in a support or mold with the shape of a box, for example, with the dimensions corresponding to the covering plate that is to be obtained. In a particular embodiment, the metallic pieces are arranged in said support with an arrangement in the reverse direction to that which it will finally have in the covering plate.

**[0013]** Once the pieces have been arranged in the support, an adhesive (2) is applied by means of gluing machines, the resistant meshes (3) are then fixed on the metallic pieces, both being joined by means of the adhesive. The resistant meshes can be, for example, fiberglass, paper or metallic or wire meshes. The covering plates are then passed through a drying tunnel oven at a temperature comprised in a range between 40-170°C for 3 minutes. And they are finally extracted from the mold, obtaining as an end product covering plates which can be adhered to a cement support.

**[0014]** In a particular embodiment, the covering plate is formed by a single metallic piece in the form of a pebble (Figure 1), or by multiple pieces in the form of pebbles (Figure 2).

### Description of the Drawings

#### [0015]

Figure 1 shows a covering plate formed by a single metallic piece in the form of a pebble (1), an adhesive (2) and a resistant mesh (3).

Figure 2 shows a covering plate formed by multiple metallic pieces in the form of pebbles (1), an adhesive (2) and a resistant mesh (3).

### Detailed Description of an Embodiment

**[0016]** The following specific embodiments which are provided herein serve to illustrate the nature of the present invention, are included only for illustrative purposes and must not be interpreted as limitations to the invention which is claimed herein.

**[0017]** Thus, in an embodiment, the covering plate is shown in Figure 1, and comprises a single metallic piece in the form of a pebble (1') fixed on a resistant mesh (3) by means of an adhesive (2). Said metallic piece in the form of a pebble covers virtually the entire surface of the

resistant mesh.

**[0018]** In another embodiment, the covering plate is shown in Figure 2 and comprises multiple metallic pieces in the form of pebbles (1), fixed on a resistant mesh (3) by means of an adhesive (2).

## Claims

1. A covering plate comprising at least one piece in the form of pebbles fixed on a support of non-deformable material **characterized in that** the piece or pieces in the form of pebbles are metallic. 10
2. The covering plate according to claim 1, **characterized in that** the support of non-deformable material is formed by a mortar from cement, the metallic piece or pieces in the form of pebbles being embedded in said mortar. 15
3. The covering plate according to claim 1, **characterized in that** the support of non-deformable material is a resistant mesh. 20
4. The covering plate according to claim 3, **characterized in that** the metallic piece or pieces in the form of pebbles are fixed to the resistant mesh by means of an adhesive. 25
5. The covering plate according to claim 4, **characterized in that** the resistant mesh together with the metallic piece or pieces in the form of a pebble are fixed at the lower surface of the mesh to a cement baseplate. 30
6. A manufacturing process for manufacturing covering plates according to any of claims 4-5, **characterized in that** it comprises: 35
  - a) manufacturing metallic pieces (1) in the form of pebbles 40
  - b) arranging said pieces inside a mold with dimensions corresponding to those of the covering plate to be obtained
  - c) covering the upper surface of the pieces by means of an adhesive 45
  - d) arranging on the pieces covered with adhesive a resistant mesh for its fixing to said pieces
  - e) drying the assembly
  - f) extracting the assembly from the mold 50
7. The process according to claim 6, **characterized in that** it comprises a step g) of fixing the assembly on a cement baseplate. 55
8. The process for manufacturing covering plates according to any of claims 6-7, wherein the step a) of manufacturing the metallic pieces is carried out by

means of metal injection casting.

9. The process for manufacturing covering plates according to any of claims 6-7, wherein the step a) of manufacturing the metallic pieces is carried out by means of die-cutting metallic sheets and eroding the metallic pieces.
10. A process for manufacturing covering plates according to claim 9, **characterized in that** the erosion is carried out by means of introducing the die-cut pieces together with gravel in drums and applying vibration or movement.

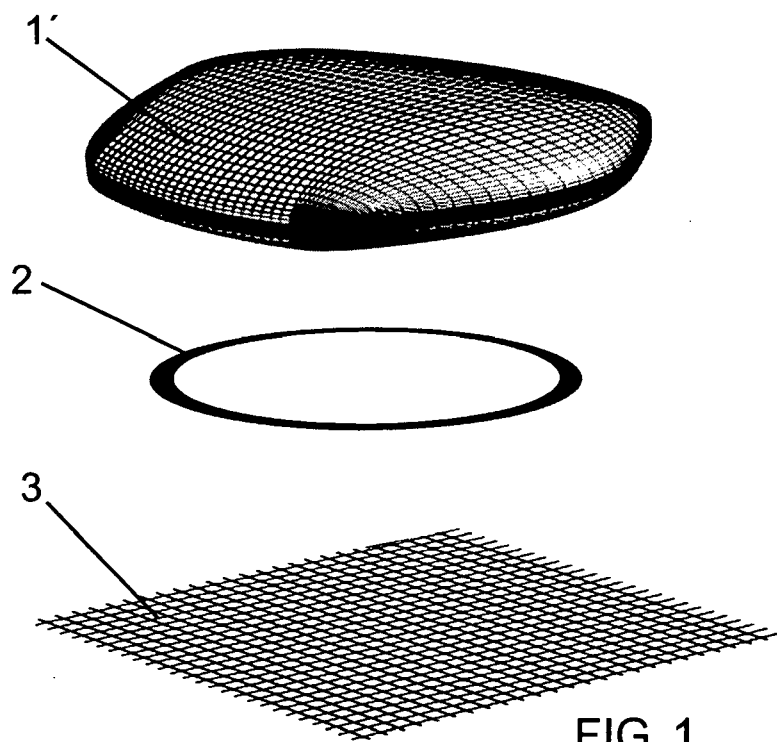


FIG. 1

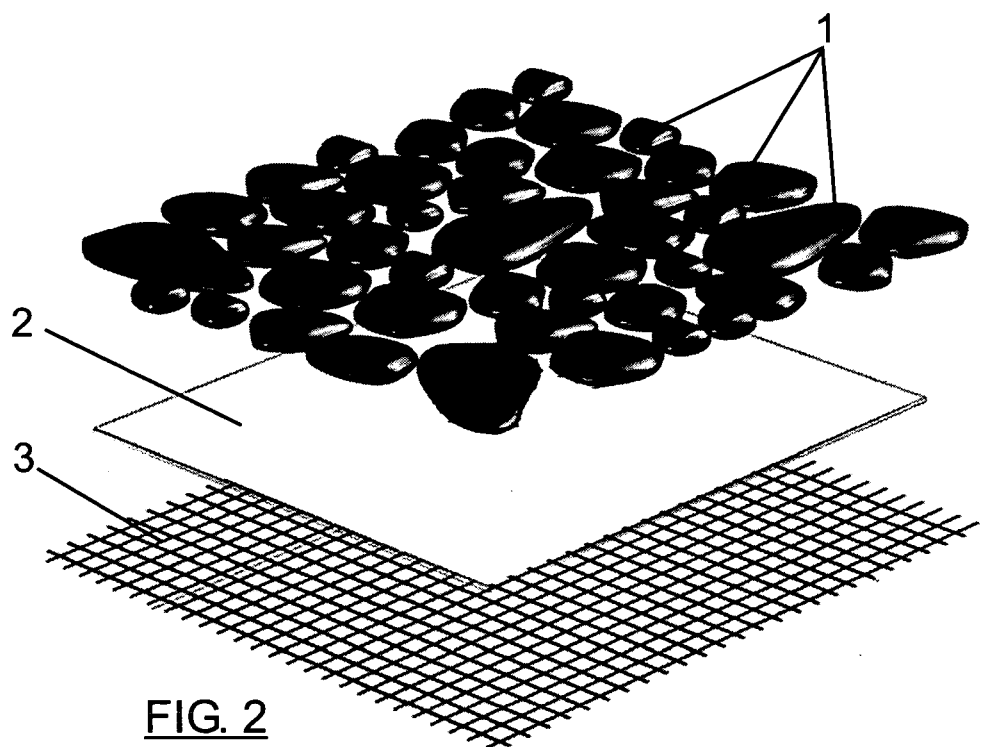


FIG. 2



## EUROPEAN SEARCH REPORT

Application Number  
EP 08 38 0209

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 October 2008	Examiner Severens, Gert
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 &amp; : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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EP 08 38 0209

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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