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(54) **Decorative plate-like element for covering floors and walls**

(57) A plate-like element (1) for covering floors and walls, comprising a supporting base (2) coupled to a plate (3) of stone-like material that is at least partially

optically transparent, at least one decorative element (4) being interposed between the supporting base and the plate.

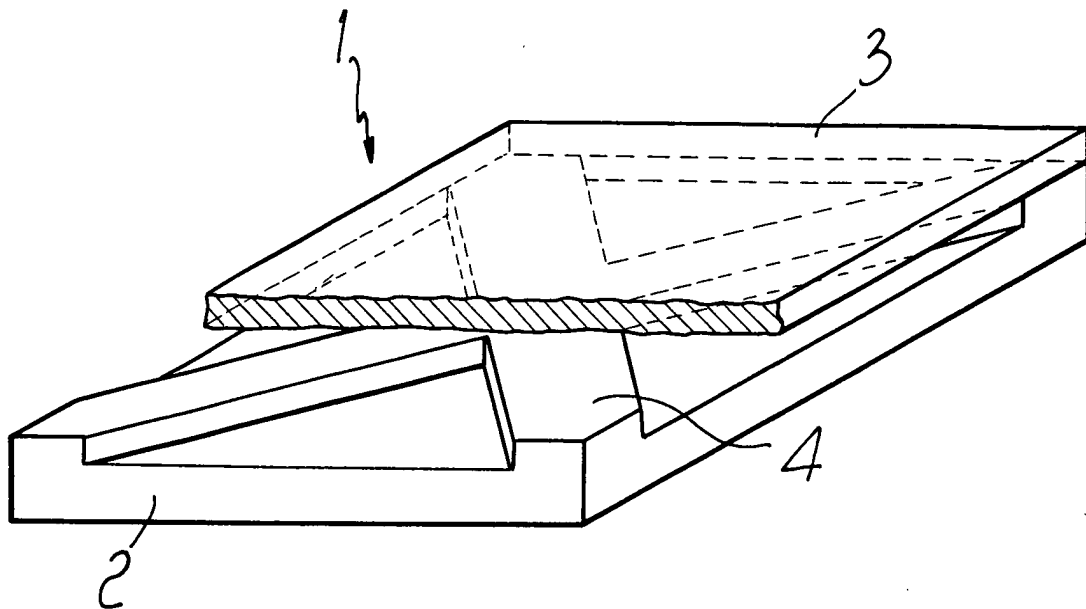


Fig. 1

Description

[0001] The present invention relates to a plate-like element for covering floors and walls, particularly suitable to be used as a tile, mosaic tessera and the like.

[0002] The use of rocks, such as marbles and granites, as ornamental stones and as materials for producing plates used for covering the surfaces of buildings is known since antiquity.

[0003] Tiles or plates made of marble or granite are currently in use which have, on their outer surface, decorative patterns, such as engravings, reliefs and color effects.

[0004] It is known that some stone-like materials have the property of being semitransparent and of refracting light.

[0005] These stone-like materials can include, for example, crystalline marbles and quartz-rich granites.

[0006] Another particular characteristic of these stone-like materials is the fact that they are permeable to solvents colored with organic or inorganic pigments.

[0007] These solvents can in fact penetrate in the granules of crystalline marbles and in microfissures of quartz granules, carrying a solid phase composed of coloring substances of various kinds and organic pigments.

[0008] The aim of the present invention is to utilize, in combination or separately, the properties offered by materials such as crystalline marbles, quartz-rich granites and the like, in order to provide tiles, plates, mosaic tesserae and the like with decorative or color effects.

[0009] This aim and these and other objects that will become better apparent hereinafter are achieved by a plate-like element for covering floors and walls, characterized in that it comprises a supporting base coupled to a plate of stone-like material that is at least partially optically transparent, at least one decorative element being interposed between the supporting base and the plate.

[0010] Further characteristics and advantages of the present invention will become better apparent from the following detailed description of a preferred but not exclusive embodiment of a plate-like element for covering floors and walls according to the invention, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a partially sectional perspective view of a plate-like element according to the invention, taken at a plate made of stone-like material that is at least partially optically transparent;

Figure 2 is a partially sectional perspective view of the plate-like element according to the invention, taken at a supporting base;

Figure 3 is a perspective view of a plate-like element according to the invention, which shows a particular decorative element by means of a cutout of a plate made of stone-like material that is at least partially

optically transparent;

Figure 4 is a front view of a plate-like element according to the invention, taken from the side of a plate of stone-like material that is at least partially optically transparent and in which decorative elements are visible;

Figure 5 is a perspective view of a possible embodiment of a plate of stone-like material that is at least partially optically transparent;

Figure 6 is a front view of part of a covering provided by means of plate-like elements according to the invention;

Figure 7 is a sectional view, taken along the line VII-VII of Figure 6;

Figure 8 is a perspective view of a three-layered plate, produced during the manufacture of the plate-like element according to the invention, subjected to cutting on the part of an appropriate tool.

[0011] With reference to the figures, a plate-like element for covering floors and walls, generally designated by the reference numeral 1, according to the invention, comprises a supporting base 2, which is coupled, at a larger surface, to a plate 3 made of stone-like material that is at least partially optically transparent.

[0012] Also according to the invention, at least one decorative element 4 is enclosed between the coupled opposite surfaces of the supporting base 2 and of the plate 3.

[0013] The decorative element 4 can equally consist of materials of any type and shape, such as wood elements, optionally shaped in an appropriate manner, filament-like elements made of valuable metallic material, such as gold or silver, paper, which can be optionally variously illustrated, fabric and so forth.

[0014] The decorative element 4 might also be constituted by, or comprise, means suitable to give a color effect which are constituted for example by a coloring.

[0015] Coloring can be provided, for example, by means of colored solvents, applied preferably but not necessarily to the surface of the plate 3 that is coupled to the supporting base 2.

[0016] As shown in Figure 2, the use of colored solvents allows to convey pigments into the plate 3, so as to achieve color penetration.

[0017] In this regard, it has been observed by way of experimental tests that the following formulation of the solvent phase is suitable for the specific purpose: 10% acetone, 15% cyclohexanone, 40% styrene, 13% toluene or xylene, 10% ethyl acetate, 2% ethyl alcohol, 10% trichloroethylene.

[0018] The solid phase can be chosen among a wide range of commercially available organic pigments and colors.

[0019] With reference to Figure 1, it can be noted that the decorative element 4 can also be a relief or an engraving or any combination of these decorative forms.

[0020] Engravings and reliefs can be formed equally

on the plate 3 or on the supporting base 2 or on both.

[0021] It is also obvious that any combination of the above described decorative elements 4 is within the scope of the present invention.

[0022] An important aspect of the invention is that the supporting base 2 can be made of the same material as the plate 3 or even of different material, since the type of material used to produce the supporting base 2 is irrelevant for the intended purpose, which will become better apparent hereinafter.

[0023] Conveniently, as shown in particular in Figures 6 and 7, the supporting base 2 can also consist of a wall portion or alternatively of a floor portion onto which the plate 2 is to be coupled, interposing the decorative elements 4.

[0024] With reference to Figure 5, the plate 3 can advantageously have, on its surface designed to be coupled to the supporting base 2, a recess 3a, for example in a central position and designed to accommodate the decorative element 4, and a connecting edge 3b, which delimits the recess 3a and is designed to abut against the supporting base 2.

[0025] As shown more clearly in Figure 7, the connecting edge 3b conveniently allows to have a surface for the application of adhesives or cementing materials of any kind.

[0026] Moreover, the supporting base 2 may also be rigidly coupled to the plate 3 by way of perimetric coupling means, not shown in the above mentioned figures, which can be constituted for example by clamps or the like or by screw connections, which allow to clamp together the supporting base 2 and the plate 3.

[0027] The essential particularity of the present invention is that the decorative element or elements 4, i.e., the elements suitable to give a decorative appearance to the plate-like element 1, are trapped between the supporting base 2, made of any material, and the plate 3 made of a stone-like material that is at least partially optically transparent, such as for example a crystalline marble or a quartz-rich granite.

[0028] It has in fact been observed that by way of the semitransparent and light-refracting properties of materials such as crystalline marble or quartz-rich granite, the decorative elements 4 can in any case be perceived on the outer surface of the plate 3.

[0029] In particular, if the decorative element 4 comprises colored solvents placed on the surface of the plate 3 that is in contact with the supporting base 2, the vision of the colors and therefore of the color effects is transmitted on its opposite surface, due to the combined effect of the partial permeability to particular solvents and of the optical properties of materials such as crystalline marble or quartz-rich granite.

[0030] From the above description it is evident that one of the main features of the present invention is that the visible surface of the plate-like element 1 does not consist of a backing surface, made for example of marble or granite, that is colored or treated or decorated in

various manners; rather, the color or decorative effect appears on the surface despite being internal to the plate-like element 1 according to the present invention.

[0031] This phenomenon occurs indeed because of the conduction of light and of the semitransparent characteristics of the materials used to provide the plate 3, and of their permeability to particular colored solvents.

[0032] With reference to Figure 8, a possible method for manufacturing the plate-like element 1 according to the invention is described briefly hereinafter and merely as an example.

[0033] Decorative processes, such as engraving and/or relief sculpting, or coloring processes or other processes suitable to provide decorative elements 4 as described above are performed on the two larger surfaces of an initial plate 5 made of crystalline marble or quartz-rich granite (or made of any other at least partially optically transparent stone-like material), which has a thickness of possibly approximately 16 mm.

[0034] Then a supporting base 2, having any thickness, is coupled to each one of the surfaces of the initial plate 5, for example by gluing with transparent or colored adhesives or by cementing, accordingly producing a three-layered plate 6.

[0035] The resulting three-layered plate 6 is then parted at the initial plate 5, for example halfway or along a preset cutting plane, by means of a suitable tool, accordingly obtaining two plate-like elements 1 according to the present invention.

[0036] In the final step of the manufacturing process, the plate-like elements 1 are subjected to finishing processes, such as polishing of the plate 3, in order to allow optimum visual perception of the embedded decorative elements, and to all those known processes that are normally performed on marble or granite products.

[0037] In practice it has been observed that the invention allows to provide tiles, mosaics made of marble of granite or the like with decorative effects that are not directly applied to their external surface but are included therein yet are still visually perceivable.

[0038] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0039] In practice, the materials employed, so long as they are compatible with the contingent use, as well as the shapes and dimensions, may be any according to requirements.

[0040] All the details may further be replaced with other technically equivalent elements.

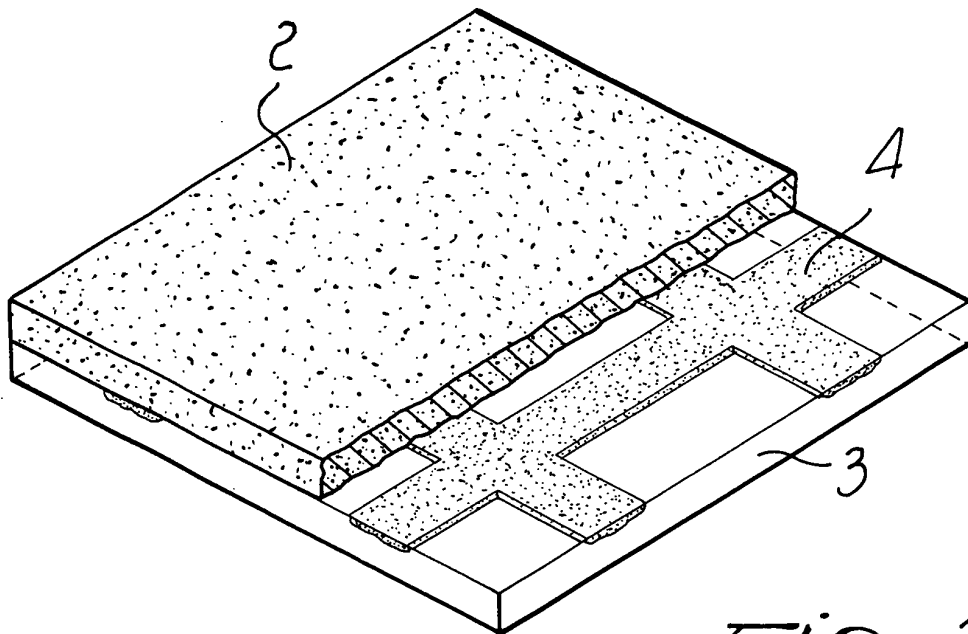
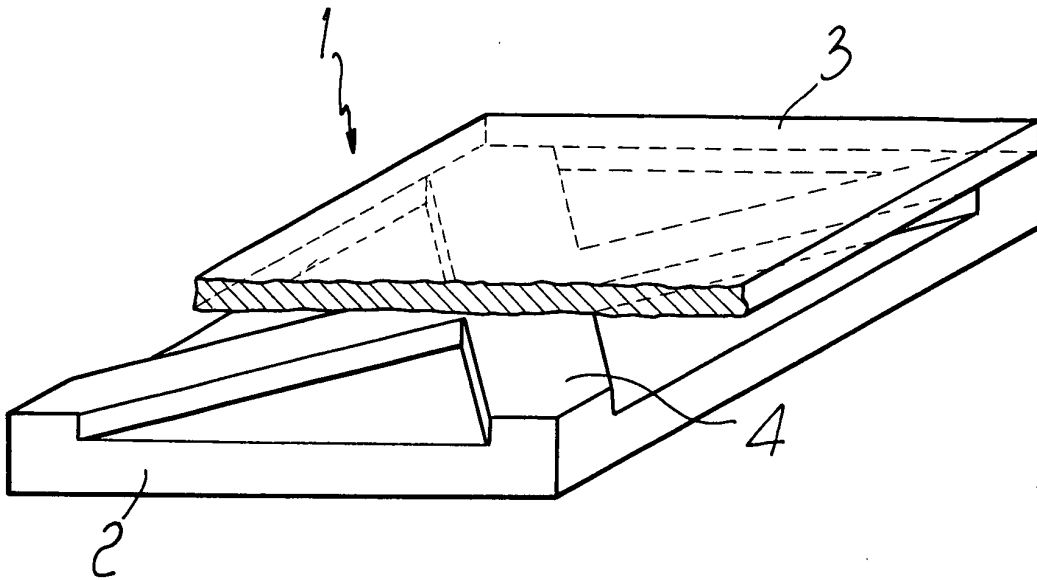
[0041] The disclosures in Italian Patent Application No. VR2001A000064 from which this application claims priority are incorporated herein by reference.

[0042] 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 plate-like element for covering floors and walls, **characterized in that** it comprises a supporting base coupled to a plate of stone-like material that is at least partially optically transparent, at least one decorative element being interposed between said supporting base and said plate. 10
2. The plate-like element according to claim 1, **characterized in that** said at least partially optically transparent stone-like material is a crystalline marble. 15
3. The plate-like element according to claim 1, **characterized in that** said at least partially optically transparent stone-like material is a quartz-rich granite. 20
4. The plate-like element according to claim 1, **characterized in that** said supporting base is a portion of a floor. 25
5. The plate-like element according to claim 1, **characterized in that** said supporting base is a portion of a wall. 30
6. The plate-like element according to claim 1, **characterized in that** said at least one decorative element is a material. 35
7. The plate-like element according to claim 6, **characterized in that** said material is a wooden element. 40
8. The plate-like element according to claim 6, **characterized in that** said material is a filament-like element made of valuable metallic material. 45
9. The plate-like element according to claim 6, **characterized in that** said material is substantially paper-like. 50
10. The plate-like element according to claim 6, **characterized in that** said material is fabric. 55
11. The plate-like element according to claim 1, **characterized in that** said at least one decorative element is a sculpting provided in said plate.
12. The plate-like element according to claim 1, **characterized in that** said at least one decorative element is a sculpting provided in said supporting base.
13. The plate-like element according to claim 11 or 12, **characterized in that** said sculpting is a relief.
14. The plate-like element according to claim 11 or 12, **characterized in that** said sculpting is an engraving.
15. The plate-like element according to claim 1, **characterized in that** said at least one decorative element comprises means suitable to give a color effect.
16. The plate-like element according to claim 15, **characterized in that** said means suitable to give a color effect comprise a coloring provided on said plate.
17. The plate-like element according to claim 15 or 16, **characterized in that** said means suitable to give a color effect comprise a coloring provided on said supporting base.
18. The plate-like element according to claim 16 or 17, **characterized in that** said coloring is provided by means of colored solvents.
19. The plate-like element according to one or more of the preceding claims, **characterized in that** said plate has a thickness of 1 to 15 mm.
20. The plate-like element according to one or more of the preceding claims, **characterized in that** said plate is polished.
21. The plate-like element according to one or more of the preceding claims, **characterized in that** said supporting base is coupled to said plate by gluing.
22. The plate-like element according to one or more of the preceding claims, **characterized in that** said supporting base is coupled to said plate by cementing.
23. The plate-like element according to one or more of the preceding claims, **characterized in that** said supporting base is coupled to said plate by perimeter coupling means.
24. The plate-like element according to claim 21, **characterized in that** said perimeter coupling means comprise clamps.



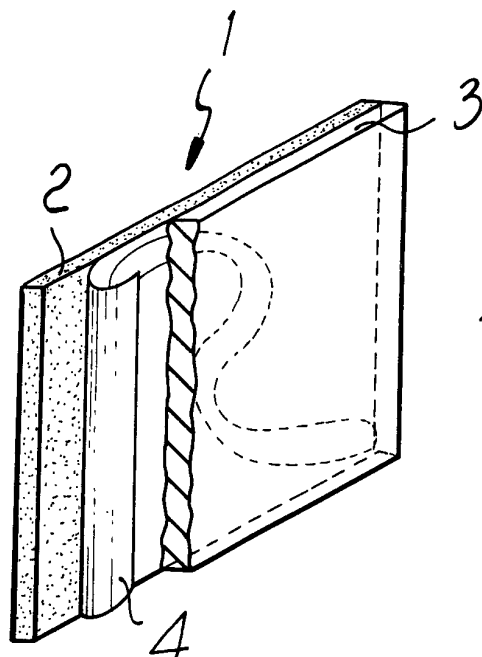


Fig. 3

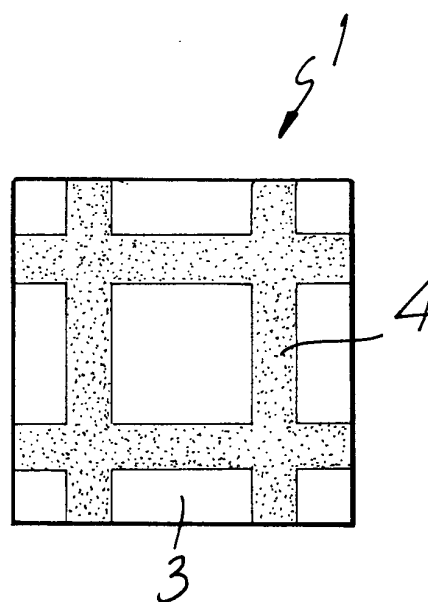


Fig. 4

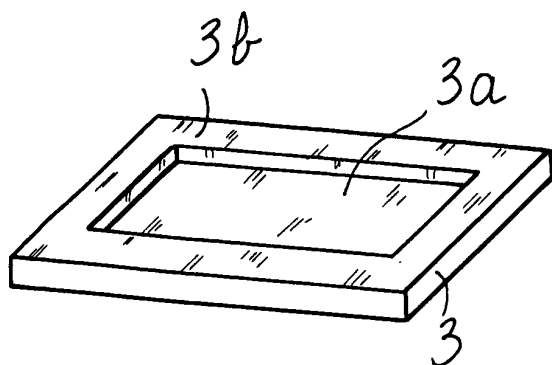


Fig. 5

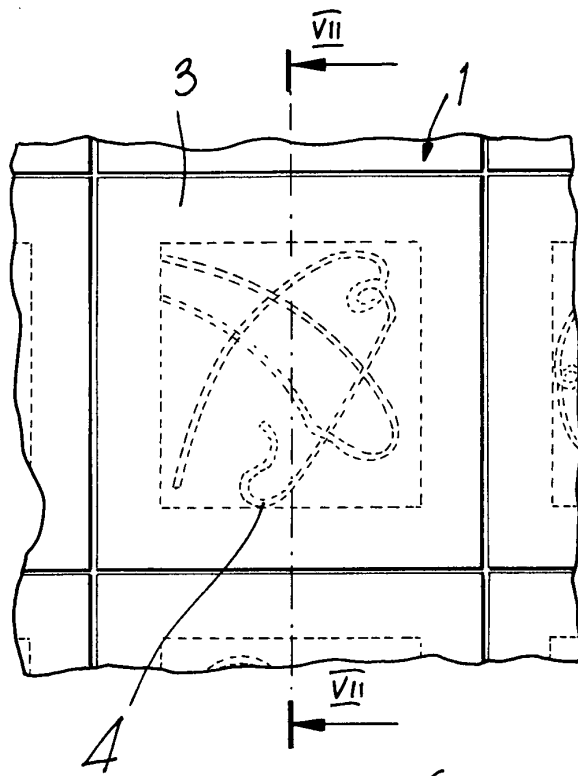


Fig. 6

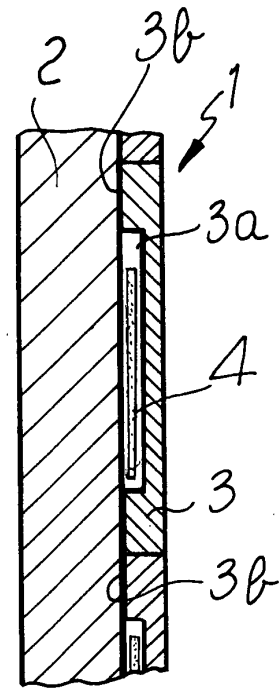


Fig. 7

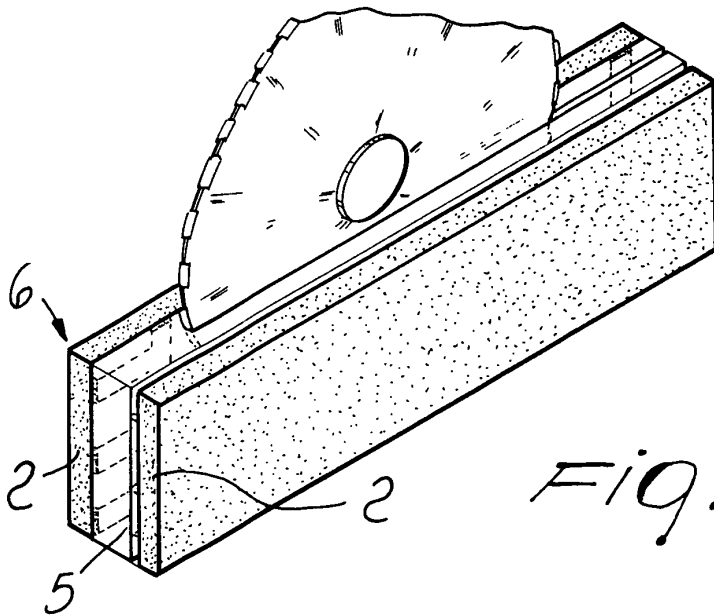


Fig. 8



European Patent
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Application Number
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Place of search MUNICH		Date of completion of the search 10 October 2002	Examiner Bouyssy, V
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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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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