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(54) **DESIGNER CERAMIC GRAVESTONE**

(57) The gravestone is made of a piece of porcelainous material. An enamel is applied to said piece and fired. Digital and photographic re-touch programmes are used to assemble the decorative components that the client decides to select for the gravestone. When the composition is complete, transfer printing takes place on

a digital laser printer. The transfer is enamelled and dried in order to be applied to the enamelled surface of the piece of porcelainous material, which will be refired in the kiln in order to fuse the two enamels, resulting in a high-shine gravestone suitable for exterior use.

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## Description

**[0001]** The aim of the present invention is to make use of the inherent properties of ceramics, stoneware, crystal glass, glass-ceramic, porcelaneous stoneware or porcelain, in such a way that these materials can be used, starting from certain dimensions, in the production of gravestones that have the novelty of permanently displaying photographs of the loved ones, flower arrangements, borders, images of favorite saints of the deceased, landscapes particularly loved by the deceased, various typologies and textures of letters of the alphabet or any other detail of particular interest that reminds us of the life of the deceased in some way.

**[0002]** Concretely, said materials are used in the form of compacted slabs in a mold of ceramic, glass or other ceramic material that can take on a great many textures, including those that imitate marble in any of its forms or granite. However, it is also possible to produce textures of the most varied patterns, many of them being very suitable for achieving a beautiful background of fine material that sets off the photograph and ornamentation mentioned above. Once fired, a novel gravestone is obtained of the state of the art and specific to the object of the present invention, achieving a combination of factors, color and physical appearance that cannot be obtained with traditional gravestones, its esthetic effect being highly valued.

**[0003]** We thus obtain a standardized system for construction of gravestones, of simple assembly, versatile since it is applicable to various textures and colors on which photographs and ornamental motifs can be provided as desired and that takes advantage of the natural properties of hardness, strength and insulation, coloring and esthetic appearance of a material that until now has had numerous uses, but has never been used as a gravestone in cemeteries. In particular, it is a durable material, which displays very stable behavior against all variables, both physical and chemical, and is long-lasting.

**[0004]** Gravestones are known in various types of materials, generally of a stony character, among which the marbles and granites stand out, for insertion in the fronts of niches or for placing on tombs, which cannot be combined with the decorative elements of the gravestones according to the present invention, since they are constructed with very different materials, moreover specific structures and particular operations are required for each type of gravestone, as each has its own particular properties. Document ES 231346 U proposes the construction of a frame of crystal glass in the back of the gravestone for protecting the photographs and other ornamentation that are displayed between the crystal glass and the gravestone. Document ES 1044794 U relates to a gravestone for embellishing the closure of a niche, characterized in that it is made from a plate of rigid material of minimal thickness, on which a waterproofing sheet of paper is glued, bearing imprints of various funeral motifs, printed out by computer, resulting in a gravestone of poor

durability. Document ES 228291 U proposes a gravestone for niches and tombs constituted by a molding in ceramic material or porcelain, whose visible face has decorative bas-reliefs of motifs and patterns, enameled and fired, defining an unalterable surface, being provided on the back surface with a flat peripheral edge for fitting to the surface of the niche or tomb, but it is not possible to incorporate therein the ornamental motifs of the gravestone according to the present invention.

**[0005]** The use of the base material, flat ceramic, porcelain or stoneware, is unknown for this type of application, only ceramic bas-reliefs being known, but no document describes a structure or a configuration of gravestone in ceramic as proposed by the present invention.

**[0006]** The known systems do indeed use ceramic material for accessories, such as vases or figures, or as has been said, for producing figures in bas-relief, but their use does not extend to flat textures or quadrangular shapes.

**[0007]** The invention according to this patent is constituted from a piece of porcelaneous, glass or other ceramic material on which an enamel is applied. Once fired in the kiln, the enameled article is obtained. Using digital and photographic retouching programs, the decorative elements that the client decides to select for the gravestone are assembled. Among said decorative elements, it is possible to choose a granite or marble texture or even a fancy texture, colors, grain size, orientation of the veins, size of the veins, the photograph of the deceased or of a favorite saint, landscapes, flowers, borders, decorated edges and corners, lettering with textures in gold, silver, bronze and any other element supplied by the client. Once the gravestone has been composed, a transfer print is produced in a digital laser printer. The printer produces a maximum size of 43 mm x 29.7 mm, although with advances in information technology it may be possible to obtain transfers with larger dimensions in future. Therefore, since the dimensions of the gravestone are greater than those of the transfer, partitions are produced and it is printed in as many parts as there are on the gravestone, composing it by juxtaposition of the various parts. The transfer is enameled and dried for application on the enameled surface of the porcelaneous article described above. With this application we obtain an article with the final design that will be fired in the kiln again, for the two enamels to be fused. A shiny gravestone is obtained, suitable for outdoor use. It can also be produced directly, instead of by transfer, using an ink-jet printer, obtaining the same result.

**[0008]** Industrial application of this invention occurs in the industry for making gravestones from basic materials that are alternatives to marble and granite, being applicable both to gravestones for niches and to gravestones for tombs.

**[0009]** As one embodiment of the invention, the following is a description of a gravestone made from a piece of porcelaneous material on which enamel is applied, and it is then fired in the kiln. Using programs for digital

and photographic retouching, the decorative elements that constitute the ornamentation of the gravestone are assembled, said decorative elements being selected from a basic texture of pink-colored marble with the veins oriented diagonally toward the right, a color photo of the deceased, a bouquet of violets, a border at the edges and corners and lettering for the name and the date of birth and death with textures in gold. Once composed, the gravestone is produced by transfer printing on a digital laser printer. Then the article is enameled and is left to dry, for the transfer to be applied on the enameled surface. It is fired again in the kiln, thus obtaining a shiny gravestone that is suitable for outdoor use.

producing the same result.

## Claims

1. A designer ceramic gravestone, **characterized in that** it is constituted from a piece of porcelaneous material, on which an enamel is applied, obtaining, once fired in the kiln, the enameled article. Using programs for digital and photographic retouching, the decorative elements that the client decides to select for the gravestone are assembled. Said decorative elements can be selected from a texture of granite or of marble as well as a fancy texture, colors, grain size, orientation of the veins, size of the veins, the photograph of the deceased or of a favorite saint, landscapes, flowers, borders, decorated edges and corners, lettering with textures in gold, silver, bronze and any other element supplied by the client. Once composed, the gravestone is produced by transfer printing on a digital laser printer. The transfer is enameled and dried ready for application on the enameled surface of the piece of porcelaneous material, obtaining, with said application, an article with the final design that will be fired in the kiln again, for fusion of the two enamels, resulting in a shiny gravestone that is suitable for outdoor use.
2. The designer ceramic gravestone as claimed in claim 1, **characterized in that** the material of the article is glass or some other ceramic material.
3. The designer ceramic gravestone as claimed in claim 1, **characterized in that** the laser printer produces a maximum size of 43 mm x 29.7 mm, although with advances in information technology it may be possible in future to obtain printing with larger dimensions. Since the dimensions of the gravestone are greater than those of the transfer, partitions are produced and printing is done in parts according to the size of the gravestone, it being composed by juxtaposition of the various parts.
4. The designer ceramic gravestone as claimed in claim 1, **characterized in that** transfer is carried out by direct application by means of an ink-jet printer,

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/ES 2007/000267

## A. CLASSIFICATION OF SUBJECT MATTER

see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E04H 13/00, B44C 5/04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CIBEPAT, EPODOC, GRAVE, MARKER, MEMORIAL, CONMEMORATIV, COMPUTER, GRAPHIC, PHOTO, PRINTER, OVEN, FIRE, ENAMEL, VARNISHG, SMALT, GLAZ, GLAS, RESIN, LAQUER, PORCELAIN, CERAMIC

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2215595 A (MANVILLE) 24.09.1940, the whole document.	1
Y	AU 0730042 A (PROMARC INTERNATIONAL) 22.02.2001, abstract.	1
A	GB 463588 A (OXFORD VARNISH) 02.04.1937, the whole document.	1,2
A	GB 2054458 A (TOPPAN PRINTING) 18.02.1981, the whole document.	1
A	ES 2150846 A1 (MANRIQUE RAMOS) 01.12.2000, the whole document.	1
A	US 4367110 (YOSHIKAWA) 04.01.1986, the whole document.	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.		
"E" earlier document but published on or after the international filing date		
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"O" document referring to an oral disclosure use, exhibition, or other means	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art
"P" document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/ ES 2007/000267

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US2215595 5 A	24.09.1940	NONE	-----
AU 730042 B	22.02.2001	AU 4002797 A	23.04.1998
GB463588 8 A	02.04.1937	NONE	-----
GB 2054458 AB	18.02.1981	SE 8004836 A AU 5963180 A DE 3024919 A JP 56008300 A JP 56010710 U FR 2460784 AB JP 56017198 U JP 56028821 A ES 8105203 A JP 56150510 A JP 60008231 B JP 1285718 C JP 56157315 A JP 59039310 B JP 1261443 C US 4367110 A US 4396448 A AU 534456 B SE 433061 BC IL 60395 A IT 1149993 B	03.01.1981 15.01.1981 22.01.1981 28.01.1981 29.01.1981 30.01.1981 14.02.1981 23.03.1981 16.08.1981 21.11.1981 01.03.1985 09.10.1985 04.12.1981 21.09.1984 25.04.1985 04.01.1983 02.08.1983 02.02.1984 07.05.1984 31.07.1985 10.12.1986
ES 2150846 AB	01.12.2000	WO 9950075 A CA 2326428 A AU 2935699 A EP 1127705 A EP 19990910382 BR 9909426 A	07.10.1999 07.10.1999 18.10.1999 29.08.2001 26.03.1999 16.10.2001
US 4367110 A	04.01.1983	SE 8004836 A AU 5963180 A DE 3024919 A JP 56008300 A JP 56010710 U FR 2460784 AB JP 56017198 U GB 2054458 AB JP 56028821 A ES 8105203 A AU 534456 B SE 433061 BC IL 60395 A IT 1149993 B	03.01.1981 15.01.1981 22.01.1981 28.01.1981 29.01.1981 30.01.1981 14.02.1981 18.02.1981 23.03.1981 16.08.1981 02.02.1984 07.05.1984 31.07.1985 10.12.1986

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CLASSIFICATION OF SUBJECT MATTER

*E04H 13/00* (2006.01)

*B44C 5/04* (2006.01)

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- ES 231346 U [0004]
- ES 1044794 U [0004]
- ES 228291 U [0004]