PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 :
B44F 1/02, 1/04, B44C 5/04, B44F 7/00, 1/10

A1

(11) International Publication Number: **WO 00/56558**

(43) International Publication Date: 28 September 2000 (28.09.00)

(21) International Application Number: PCT/CZ00/00021

(22) International Filing Date: 24 March 2000 (24.03.00)

(30) Priority Data:
PUV 9169-99 24 March 1999 (24.03.99) CZ

(71) Applicant *(for all designated States except US)*: 3 DTS, A.S. [CZ/CZ]; Šafaříkova 1216, 407 47 Varnsdorf (CZ).

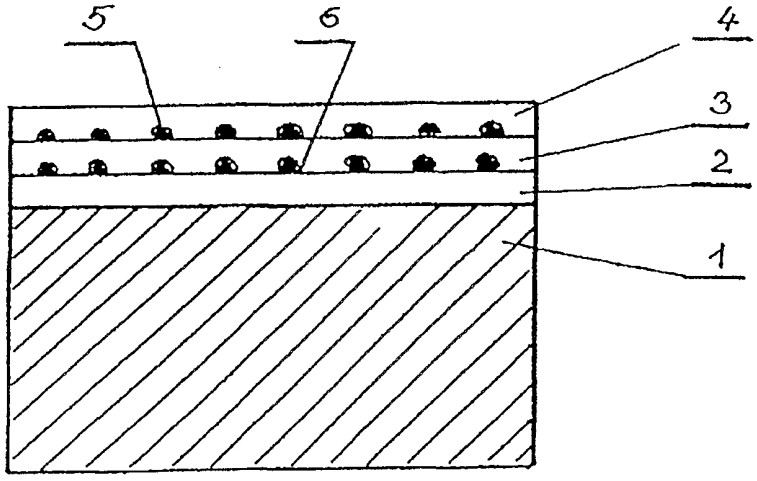
(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: ŠORM, Michal [CZ/CZ]; Nad Kaplankou 339, 190 00 Praha 9 (CZ).

(74) Agent: PATENTSERVIS PRAHA A.S.; Jívenská 1/1273, 140 21 Praha 4 (CZ).

(81) Designated States: AL (Utility model), AM (Utility model), AT, AT (Utility model), AU (Petty patent), AZ, BA, BB, BG (Utility model), BR (Utility model), BY (Utility model), CA, CH, CN (Utility model), CU, CZ, DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES (Utility model), FI, FI (Utility model), GB, GE (Utility model), GH, GM, HR, HU (Utility model), ID, IL, IS, JP (Utility model), KE (Utility model), KG (Utility model), KP, KR (Utility model), KZ (Utility model), LC, LK, LR, LS, LT, LU, LV, MD (Utility model), MG, MK, MN, MW, MX (Utility model), NO, NZ, PL (Utility model), PT (Utility model), RO, RU (Utility model), SD, SE, SG, SI, SK, SK (Utility model), SL, TJ (Utility model), TM, TR, TT, UA (Utility model), UG, US, UZ, VN, YU (Petty patent), ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: A CERAMIC TILE PROVIDED WITH A DECOR



(57) Abstract

The invention realates to a ceramic tile provided with a decor caused by means of light effects obtained by passage of light through an at least partially transparent material with a system of arranged formations. The tile is provided with a transparent material, preferably a tile glaze (3). A front printing (5) is provided on the face side of said tile glaze (3) and a back printing (6) is provided behind the back side of said tile glaze (3). The printings (5, 6) are formed by a plane raster containing parallel lines and slits or characters grouped into formations with slits between them, whereby the number of said formations of said back printing (6) and of said slits of said face printing (5) differ and the prevailing direction of formations of said rear printing (6) is to more than 50 % identical with the direction of the slits of said face printing (5). The present invention produces printed decors on hard, at least partially transparent materials, so as on glazes of ceramic tiles in a wide variety of patterns and colour in a simple way and at acceptable costs.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	**ES**	Spain	**LS**	Lesotho	**SI**	Slovenia
AM	Armenia	**FI**	Finland	**LT**	Lithuania	**SK**	Slovakia
AT	Austria	**FR**	France	**LU**	Luxembourg	**SN**	Senegal
AU	Australia	**GA**	Gabon	**LV**	Latvia	**SZ**	Swaziland
AZ	Azerbaijan	**GB**	United Kingdom	**MC**	Monaco	**TD**	Chad
BA	Bosnia and Herzegovina	**GE**	Georgia	**MD**	Republic of Moldova	**TG**	Togo
BB	Barbados	**GH**	Ghana	**MG**	Madagascar	**TJ**	Tajikistan
BE	Belgium	**GN**	Guinea	**MK**	The former Yugoslav Republic of Macedonia	**TM**	Turkmenistan
BF	Burkina Faso	**GR**	Greece			**TR**	Turkey
BG	Bulgaria	**HU**	Hungary	**ML**	Mali	**TT**	Trinidad and Tobago
BJ	Benin	**IE**	Ireland	**MN**	Mongolia	**UA**	Ukraine
BR	Brazil	**IL**	Israel	**MR**	Mauritania	**UG**	Uganda
BY	Belarus	**IS**	Iceland	**MW**	Malawi	**US**	United States of America
CA	Canada	**IT**	Italy	**MX**	Mexico	**UZ**	Uzbekistan
CF	Central African Republic	**JP**	Japan	**NE**	Niger	**VN**	Viet Nam
CG	Congo	**KE**	Kenya	**NL**	Netherlands	**YU**	Yugoslavia
CH	Switzerland	**KG**	Kyrgyzstan	**NO**	Norway	**ZW**	Zimbabwe
CI	Côte d'Ivoire	**KP**	Democratic People's Republic of Korea	**NZ**	New Zealand		
CM	Cameroon			**PL**	Poland		
CN	China	**KR**	Republic of Korea	**PT**	Portugal		
CU	Cuba	**KZ**	Kazakstan	**RO**	Romania		
CZ	Czech Republic	**LC**	Saint Lucia	**RU**	Russian Federation		
DE	Germany	**LI**	Liechtenstein	**SD**	Sudan		
DK	Denmark	**LK**	Sri Lanka	**SE**	Sweden		
EE	Estonia	**LR**	Liberia	**SG**	Singapore		

A CERAMIC TILE PROVIDED WITH A DECOR

Field of the Invention

The present invention relates to creating of various decors on at least transparent and hard materials so as on glazes of ceramic tiles which decors are based on optical phenomena.

Background of the Invention

Ceramic tiles covered by a glaze are routinely provided with a decor. The decor is printed on said tile prior to providing this tile with a glaze. Another known method is to provide the glaze with a printing or to provide said printed glaze with another glaze layer. But all the mentioned methods can also be combined.

It is known to provide plate-like facing materials, so as ceiling or wall panels, tiles, advertisement boards and like elements, with decors using special or unusual light effects, light reflected back by matt or glossy surfaces, light reflected back after the light passage through the material surface layers by objects provided with reflective surfaces provided in the interior of said material or by light reflected after the light passage through the whole material by means of mirrors provided on the back side of said material.

It is also known to produce colour decors showing a rainbow effect caused by a light passage through a system of

transparent materials and optical layers, where the resulting decor varies in accordance with the illumination and view angles.

It is also known to produce hidden decors giving a colour effect by illuminating the respective element provided with a surface relief which relief is comprised of a series of traces formed by planar or relief structures, whereby, said structures exhibiting a light diffraction effect, when, at given illumination and a view angles one or more images are generated.

Another already known solution is represented by a decor of an object, which decor is evoked in dependency on a variable angle of view, which object comprises a translucent plate-like element and , further, two mutually crossing rasters, which rasters are placed adjacently on both opposite sides of said plate, whereby, based on light interference phenomenon, a certain system of lines, the so called moiré effect is produced.

Patent CZ 274,488 discloses a decor in the form of a relief pattern on a sheet of organic or inorganic glass. On the back surface, said glass sheet is decorated by a raster, which raster is comprised of optional elements and the face surface of said glass is decorated either by a negative of said raster, which raster is enlarged or diminished within the range of 0 to 15 % or by another raster which raster is differing from said back surface raster by plus minus 15 %, whereby, by mutual optical overlaying of both rasters a three dimensional pattern is created which pattern forms a three dimensional glass decor. The elements can consist of lines or circles, etc. To enhance the effect, it is possible to provide the back surface of said glass e.g. with a paint layer or with

a milky glass. Optionally, it is also possible to combine the three dimensional decor with a normal flat printing or with another traditional decorative technique.

None of the above mentioned solutions makes possible to create in one arrangement of the optical environment a whole number of patterns accompanied by light effects that would be of a satisfactory quality and that would be created in a simple manner and at moderate costs.

Summary of the Invention

It is an object of present invention to create various decors and colour effects on at least partially transparent and hard materials so as on a glaze of ceramic tiles in a simple manner by means of optical phenomena.

The subject matter of the present invention is a ceramic tile provided with a decor. The decor is produced by means of light effects. The light effects are obtained by light passage through an at least partially transparent material which material is provided with a system of arranged formations, whereby, the formations consist in that they comprise a face printing on the face side of said at least partially transparent material which face side is formed by a tile glaze and further a back printing situated behind the back side of said partially transparent material, whereby, said printing is formed by a plane raster containing parallel lines and slits or characters grouped into formations having slits between them, whereby, the number of said formations of said back surface printing and of said slits of said face printing is different and the prevailing direction of said back printing formations is to more than 50 % identical with the direction of said slits of said face printing.

Preferably, the tile glaze thickness is at least 0,1 mm.

Further, it is preferable if said face printing is formed by a line raster which line raster comprises a system of parallel lines and slits and if said back printing is formed by a system of characters which characters are grouped into lines, whereby, said lines are separated by slits from each other.

Optionally, said face printing is also formed by a line raster which raster comprises a system of parallel lines and slits and said back printing comprises a system of characters which characters are grouped into formations which formations have the form of curves with slits between said curves.

Preferably, the direction of said back printing formations locally diverges by an angle up to 30 degrees away from the to more than 50 % identical prevailing direction of said formations.

In one preferable embodiment of said ceramic tile, the tile glaze is provided by a face printing on the front face side of said glaze, whereby, said back printing, situated behind the back side of said tile glaze, is formed on the front face side of a bottom glaze which bottom glaze is provided between said tile glaze and a base ceramic body of said tile, whereby, the face side of said tile glaze is covered by a top glaze.

Said top glaze can also be provided with a printing.

According to another preferable embodiment, said tile glaze is provided by a face printing on said front face side, whereby, said back printing situated behind the back side of said tile glaze is provided on said front face side of said bottom glaze

which bottom glaze is situated between said tile glaze and said basic ceramic body of said tile, whereby, said printing is made by an abrasion resistant ink.

The subject matter of this invention makes possible to create decors on hard materials, e.g. on ceramic tiles or glazes of ceramic tiles which decors are of such a quality that could not be reached by the usual decorative techniques. The invention is relatively simple to practice and the products are of moderate costs and, therefore, suitable for a broad use. In case that fired inks and crushed glass are used, the printed materials are very abrasion resistant. Therefore, such materials provide a possibility to use the resulting product e.g. as facing tiles. This technical solution makes also possible to imitate easily also the so called metallic pigments having the colours of copper, silver or gold, etc. The desired colour depends only on choosing the appropriate combination of optical methods used in the decor production.

Further, it is preferable if the direction of the printing formations on the rear back side of said tile declines locally by up to 30 degrees away of the for more then 50 % identical prevailing direction of formations. By this measure, it is then possible to produce locally more or less differentiated interference maxima and minima that are manifested by a substantial brightening of the face decor or in reverse by its darkening what can be used to express shadow and light in the objects depicted.

Brief Description of the Drawings

An embodiment of a ceramic tile with a decor according to this invention is described below with reference to the drawing

attached showing a sectional view of a ceramic tile with a decor.

Detailed Description of the Invention

A special pattern and a colour effect of a ceramic tile according to this invention are obtained on the basis of such optical phenomena as are the diffraction of a light ray, interference, dispersion, reflection and by mutual exposing or covering of the corresponding points of a face and a back printings on an at least partially transparent and hard material of said ceramic tile glaze in relation to the angle of view.

The material that is to be used to obtain the effect according to the present invention is an at least partially transparent and hard material, a tile glaze 3, a plate material of certain thickness. The tile glaze 3 is provided with printed patterns both at its face side and behind its back side, the pattern having the form of a plane line raster or a raster with characters grouped into formations, the formations being in the form of lines and slits, whereby, the prevailing direction of said slits of said printing of said back printing 6 is, in an extent being more than 50 %, identical with the direction of slits of said face printing 5. The face side of said material is understood to be the front face side facing away of said ceramic basic body 1 of said tile and the back side is understood to be the back inner side of said material which is turned to said ceramic base body 1 of said tile.

It is apparent that so as the angle of view is changed and depending on the thickness of the transparent material the mutually co-operating points of both printings 5, 6 change. So e.g. in the view direction at an angle of 90 degrees to the

front face side of said material, the light conditions of the points situated at intersections of a line perpendicular to said front face side with the face printing 5 and to that with the back printing 6 mutually co-operate. Then, when the view angle to the same point on the front face side is changed by an angle α so that the view angle to this point on the front face side of said material is 90 degrees + α, the light conditions of the points situated at the intersections of both printings 5, 6 with a line situated at the changed angle with regard to the front face side of said material co-operate, and thereby, the view is changed in comparison to the previous view direction because the intersection point of the changed line with the back printing 6 differs from the intersection point of said perpendicular line with said back printing 6.

The above mentioned optical phenomena can be used, individually or mutually combined, to provide a desired decor exhibiting various patterns and colour effects,

For example, it is possible to use diffraction, dispersion and interference in such a way that in said printing 5 of said face side 3 of said at least partially transparent material, tile glaze 3, diffraction openings or gaps are formed, what produces interfaces between different optical environments, whereby, the passing light rays bend at interfaces of different optical densities and partially decompose to individual spectral colours and along their further optical path they then interfere depending on their mutual vicinity. The bright or the dark interference points on said back printing 6 than influence the resulting brightness of said decor. The diffraction openings can be made e.g. by a laser gun, which gun removes some parts of the previously printed surface or by a special printing procedure or in the most easy way by admixing transparent grains of a size corresponding to

the thickness of the printings 5, 6, e.g. of grains of crushed glass or of Iceland spar, into the printing inks in accordance with a graphic design. The method of making diffraction openings can exhibit an influence on break-up of light spectrum to some extent. The strongest effect is obtained by using crushed glass as it brings about multiple refraction and thereby contributes to a higher spectral break-up.

In accordance with the present invention light ray reflection can be accomplished e.g. by a printing applied to the back printing 6 using inks of various ability to reflect light, whereby, small mirror areas are formed. But it is also possible to use a composition of inks and crushed transparent material, e.g. of crushed glass. Such a composition forms both mirror surfaces and refractory interfaces in its crystal system. Such refractory interfaces can both break up and partially interfere the incoming light rays. The above mentioned reflexive or combined reflexive effect then varies both with the angle of view and with the transparency of individual points of said face printing 5.

The mutual exposing or hiding of points can be reached e.g. as follows. If the plate is provided with a printing 5 on its face side and a printing 6 on its back side and the front face side of said material is transparent at least partially at various places according to the intended graphic design, its colour always depends on light conditions of individual points of the back printing 6, i.e. the effects of individual colour points of both printings 5, 6 interact at the same time. At places where there are different light conditions in the back printing 6, e.g. with regard to colour or brightness, etc., for individual points situated next to each other, the colour interactions of the colours of the front and the rear printings 5, 6 change simultaneously with the change of the

angle of view. This can be used e.g. in such a way that a certain configuration of points, e.g. a pattern, is visible only if viewed from a specific angle and in a pre-defined colour. If the viewing angle is changed, the pattern disappears or changes its colour.

The above mentioned solutions influence the pattern and the colour scheme of the printed materials in such a way which cannot be realised on hard, at least partially transparent materials by the commonplace methods in the same final quality and in case that fired inks and crushed glass are used the printed materials are very abrasion resistant. It is an advantage of this solution that it is stable and rather simple and provides products at moderate costs. Tiles according to this invention can e.g. easily imitate colour of the so called metallic pigments, so as copper, silver, gold, etc.

A specific application product of this invention is represented by a ceramic tile provided with a glaze.

Such ceramic tile can have shape of a rectangular, square, polygon or other. A cross-section of such ceramic tile is shown in the attached drawing.

The tile consists of a basic ceramic body 1. The tile glaze 3 is provided with a face printing 5 on its front face side. Behind the rear back side of said tile glaze 3 a back printing 6 is provided on a bottom glaze 2, which bottom glaze 2 is situated between the tile glaze 3 and the base ceramic body 1 of said tile. The face side of said tile glaze 3 is protected by a top glaze 4.

The face printing 5 consists of a system of narrow slits, in the simplest case formed by substantially parallel lines

printed by an abrasion resistant ink. Thickness of such lines is e.g. 0.1 to 2 mm, their pitch is 0.1 to 1.5 mm. There is a general rule that the smaller dimensions provide results of a better quality. But the dimensions specified are sufficient to evoke the desired effect. The back printing 6 is formed by a chaotic formation of characters, whereby the formation is made so that more than 50 % of said formations has the same direction (forms lines) so as the formation of slits of the face printing 5. That means that the prevailing direction of the back printing 6 is substantially parallel to the direction of slits of the face printing 5. In this way a state is obtained when in the narrow slits of the face printing 5 light rays are diffracted and at their incidence on the back printing 6 after their passage through said at least partially transparent tile glaze additional diffraction and interference take place at the interfaces of different optical environments. By mutual light interactions of said slits of said face printing 5 and of the set of features of said back printing 6 a colour shift and interference take place what results in the resultant unusual brightening of the face side printing which printing layer exhibits a colour shift which colour shift cannot be obtained by other technology.

Locally, it is possible to produce different characteristics by non-keeping the above mentioned condition regarding the parallelity of both directions to more than 50% and by locally declining the direction of said slits by an angle which angle is up to 30 degrees, whereby, locally, more or less differentiated interference minima or maxima are obtained. The minima and maxima are manifested in said places by a substantial brightening of the face printing or by darkening of said face printing. This can be used effectively to express light and shadow in the patterns depicted.

For example, it is so possible to create printings 5, 6 arranged in four quadrants of a basic circle is such a way, which is described later, both on the back and the face printing of said quadrant of said basic circle with co-ordinates +y, -x, i.e. of the left upper quadrant. Diameter of the basic circle, as well as the number of slits are proportional only to the tile size. The back printing 6 consists of a system of characters in the form of a certain number of curves, whereby, their form nears to the form of a line in the third of the quadrant which is next to the centre of said circle. The face printing 5 is formed by a system of line-like slits of a smaller number then as is the number of characters in the back printing 6. When the printings 5 and 6 are put together, they create a mutually shifted interference network having its maxima at intersections of said characters and slits, whereby said maxima are less dense in the third of said quadrant which is adjacent to the centre of said basic circle and their connecting lines are nearing to the form of a line deflected by several degrees away from the axis of said basic circle. On the other hand, in the third which is adjacent to the circumference of said basic circle the interference maxima are dense and their connecting lines form a circle of a radius greater than the radius of said basic circle. When such systems are then adapted as printings 5, 6, interference phenomenon is produced resulting from the difference in the number of characters and slits and in the effect of a narrow slit used for light ray interference. The result of such an effect is a colour effect of a pattern, especially if the remaining quadrants of the basic circle are also arranged in this way.

Similar other arrangement of interference maxima and minima are also possible to obtain the required pattern and colour effects. For example, it is possible to make a back printing 6

consisting of a system of characters in the form of inclined curves of a wave form and a face printing 5 in the form of a formation of parallel slits. According to the form of such of printing formations 5, 6, it is then possible to obtain both geometric patterns having areas of different brightness and of one or more colours, and virtually 3-dimensional patterns or ornamental patterns or patterns with pictorial motives.

In case of a ceramic tile embodiment according to the example the top glaze 4 can also be provided with a printing. If abrasion resistant inks are used a top glaze 4 is not necessary at all.

Industrial Use

The present invention will find broad use in producing printed decors on hard, at least partially transparent materials, so as on glazes of ceramic tiles in a wide variety of patterns and colour in a simple way and at acceptable costs.

Claims

1. A ceramic tile provided with a decor caused by means of light effects obtained by passage of light through an at least partially transparent material with a system of arranged formations, characterised in that said tile is provided with a face printing (5) on the face side of said at least partially transparent material formed by a tile glaze (3) and a back printing (6) behind the back side of said material and this at least on a part of said area of said front face side of said material and an area behind said back side of said material, whereby said printings (5,6) are formed by a plane raster containing parallel lines and slits or characters grouped into formations with slits between them, whereby the number of said formations of said back printing (6) and of said slits of said face printing (5) differ and the prevailing direction of formations of said rear printing (6) is to more than 50 % identical with the direction of the slits of said face printing (5).

2. A ceramic tile of Claim 1, characterised in that the thickness of said glaze is at least 0.1 mm.

3. A ceramic tile of Claims 1 or 2, characterised in that said face printing (5) is formed by a line raster containing a system of parallel lines and slits and said back printing (6) is formed by a system of characters grouped into rows having slits between them.

4. A ceramic tile of Claims 1 or 2, characterised in that said face printing (5) is formed by a line raster containing a system of parallel lines and slits and said back printing (6) is formed by a system of characters

grouped into formations in the form of curves having slits between them.

5. A ceramic tile of anyone of the Claims 1 to 4, characterised in that the direction of said formations of said back printing (6) locally declines by an angle of up to 30 degrees from the more then to 50 % identical prevailing direction of said formations.

6. A ceramic tile of anyone of the Claims 1 to 5, characterised in that the tile glaze (3) is provided by a face printing (5) on its front face side, whereby said back printing (6) behind the back side of said tile glaze (3) is formed on the front face side of a bottom glaze (2) provided between said tile glaze (3) and a basic ceramic body (1) of said tile, whereby, the face side of said tile glaze (3) is covered by a top glaze (4).

7. A ceramic tile of the Claims 6, characterised in that the top glaze (4) is provided with a printing.

8. A ceramic tile of anyone of the Claims 1 to 5, characterised in that the tile glaze (3) is provided by a face printing (5) on the front face side of said tile glaze (3), whereby the back printing (6) behind the back side of said tile glaze (3) is provided on the front face side of said bottom glaze (2) which bottom glaze (2) is provided between said tile glaze (3) and said base ceramic body (1) of said tile, whereby, said printing (5) is made by an abrasion resistant ink.

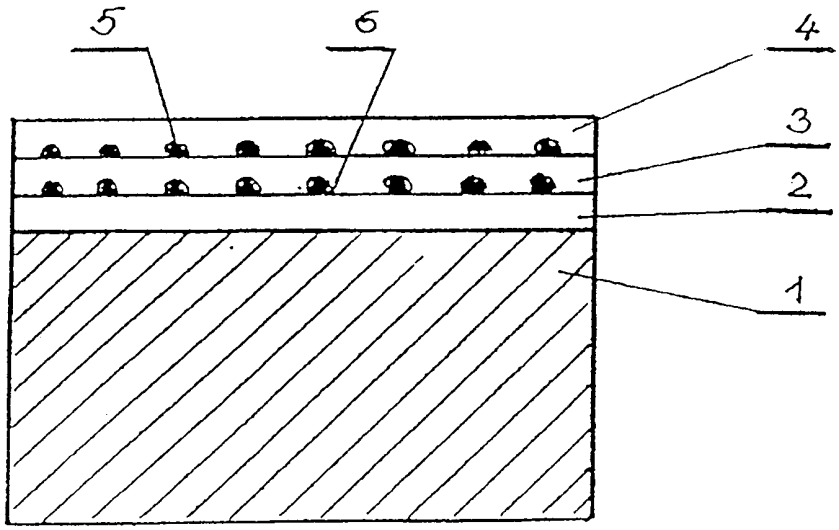


Fig. 1

INTERNATIONAL SEARCH REPORT

Inter. ınal Application No
PCT/CZ 00/00021

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B44F1/02 B44F1/04 B44C5/04 B44F7/00 B44F1/10

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)
IPC 7 B44F B44C E04F

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 practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 94 02 364 U (PAUL MALIK EUROKERAM GMBH & CO) 21 April 1994 (1994-04-21) the whole document	1
A	FR 2 650 976 A (DUPONT S T) 22 February 1991 (1991-02-22) page 2, line 34 -page 3, line 26	1
A	EP 0 540 335 A (YANG DENIG) 5 May 1993 (1993-05-05) column 1, line 52 -column 2, line 44 column 3, line 30 - line 38	1

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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 such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
2 August 2000	11/08/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Herrmann, J

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Inter ›nal Application No
PCT/CZ 00/00021

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	DATABASE WPI Section Ch, Week 199510 Derwent Publications Ltd., London, GB; Class L02, AN 1995-067736 XP002144160 & CZ 9 301 009 A (KOVO S & P ZAVOD EMG KURIVODY), 18 January 1995 (1995-01-18) abstract -----	1

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter ɔnal Application No
PCT/CZ 00/00021

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 9402364 U	21-04-1994	NONE	
FR 2650976 A	22-02-1991	NONE	
EP 0540335 A	05-05-1993	CN 1064041 A	02-09-1992
		AU 2613392 A	06-05-1993
		CA 2080666 A	30-04-1993
		JP 5215910 A	27-08-1993
		US 5294494 A	15-03-1994
CZ 9301009 A	18-01-1995	NONE	