Title (en)

Method and means for transfer of granular materials

Title (de)

Verfahren und Vorrichtung zur Übertragung von körnigem Material

Title (fr)

Procédé et dispositif pour transférer un matériau granuleux

Publication

EP 0997248 A2 20000503 (EN)

Application

EP 99118949 A 19990927

Priority

- EP 99118949 A 19990927
- EP 98124583 A 19981223
- IT MO980196 A 19980928
- IT MO980197 A 19980928
- IT MO980261 A 19981222
- IT MO980262 A 19981222

Abstract (en)

A method includes preparing together first layer means (112, 209, 256) and seconds layer means (108) in order to form layer means (108, 112; 108, 209; 108, 256) of ceramic granular material on support means (102), subjecting at least a portion of said layer means (108, 112; 108, 209; 108, 256) to a vacuum, to transfer together said first layer means (112, 209, 256) and said second layer means (108) of at least a portion of said layer means (108, 112; 108, 209; 108, 256) and pressing said at least a portion of said layer means (108, 112; 108, 209; 108, 256) in order to obtain a ceramic tile (104); an apparatus includes preparing means (206, 213, 210) arranged in order to prepare together first layer means (108) and second layer means (112; 209, 256) of layer means (108, 112; 108, 209; 108, 256) of ceramic granular material on support means (102) and transfer means (114) arranged to transfer together said first layer means (108) and said second layer means(112; 209, 256) into pressing means (118) through vacuum means in order to obtain a ceramic tile (104). <IMAGE>

IPC 1-7 (main, further and additional classification)

B28B 5/00; B28B 13/02

IPC 8 full level (invention and additional information)

B28B 1/00 (2006.01); **B28B 3/00** (2006.01); **B28B 5/00** (2006.01); **B28B 13/02** (2006.01)

CPC (invention and additional information)

B28B 1/005 (2013.01); **B28B 3/00** (2013.01); **B28B 13/02** (2013.01); **B28B 13/0205** (2013.01); **B28B 13/0215** (2013.01); **B28B 13/022** (2013.01); **B28B 13/0295** (2013.01)

Cited by

EP1447190A3; DE102006043270A1; EP1900491A3; DE10108327C1; EP1256427A3; EP1375097A3; US6800229B2; US7267536B2

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

EPO simple patent family

EP 0997248 A2 20000503; EP 0997248 A3 20001220; EP 0997248 B1 20040707; AT 270608 T 20040715; DE 69918511 D1 20040812; DE 69918511 T2 20050825

INPADOC legal status

2011-03-31 [PG25 IT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : IT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20090927

2010-01-29 [PG25 ES] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : ES
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20080929

2009-11-30 [PGFP PT] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE

- Ref Country Code : PT
- Payment date : 20070824
- Year of fee payment : 9

2009-11-26 [REG ES FD2A] ANNOUNCEMENT OF LAPSE IN SPAIN

- Effective date : 20080929

2009-05-29 [PG25 PT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO

- Ref Country Code : PT
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20090327

2009-04-07 [REG PT MM4A] ANNULMENT/LAPSE DUE TO NON-PAYMENT OF FEES, SEARCHED AND EXAMINED PATENT

- Free text : LAPSE DUE TO NON-PAYMENT OF FEES
- Effective date : 20090327

2009-03-31 [PGFP IT] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : IT
- Payment date : 20080929
- Year of fee payment : 10

2007-09-05 [PGFP ES] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : ES
- Payment date : 20070905
- Year of fee payment : 9

2006-07-14 [REG FR ST] NOTIFICATION OF LAPSE
- Effective date : 20060531

2006-05-31 [PG25 FR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : FR
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060531

2006-04-01 [PG25 DE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : DE
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20060401

2005-06-29 [26N] NO OPPOSITION FILED
- Effective date : 20050408

2005-06-29 [REG IE MM4A] PATENT LAPSED

2005-05-25 [GBPC] GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE
- Effective date : 20041007

2005-05-06 [ET] FR: TRANSLATION FILED

2005-02-16 [REG ES FG2A] DEFINITIVE PROTECTION
- Document : ES 2223154 T3

2005-01-14 [REG CH PL] PATENT CEASED

2005-01-03 [NLV1] NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT

2004-11-30 [REG PT SC4A] TRANSLATION IS AVAILABLE
- Free text : AVAILABILITY OF NATIONAL TRANSLATION
- Effective date : 20040924

2004-10-29 [PGFP DE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DE
- Payment date : 20041029
- Year of fee payment : 6

2004-10-07 [PG25 GB] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : GB
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20041007

2004-10-07 [PG25 DK] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : DK
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20041007

2004-10-07 [PG25 GR] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : GR
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20041007

2004-10-07 [PG25 SE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : SE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20041007

2004-09-30 [PG25 MC] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : MC
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20040930

2004-09-30 [PGFP FR] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : FR
- Payment date : 20040930
- Year of fee payment : 6

2004-09-27 [PG25 IE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : IE
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20040927

2004-09-27 [PG25 LU] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : LU
- Free text : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES
- Effective date : 20040927

2004-08-12 [REF] CORRESPONDS TO:
- Document : DE 69918511 P 20040812

2004-08-11 [REG IE FG4D] EUROPEAN PATENTS GRANTED DESIGNATING IRELAND

2004-07-15 [REG CH EP] ENTRY IN THE NATIONAL PHASE

2004-07-07 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : B1
- Designated State(s) : AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

2004-07-07 [REG GB FG4D] EUROPEAN PATENT GRANTED

2004-07-07 [PG25 AT] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : AT
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2004-07-07 [PG25 BE] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : BE
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2004-07-07 [PG25 CH] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CH
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2004-07-07 [PG25 CY] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : CY
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2004-07-07 [PG25 FI] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : FI
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT

- Effective date : 20040707

2004-07-07 [PG25 LI] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : LI
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2004-07-07 [PG25 NL] LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO
- Ref Country Code : NL
- Free text : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT
- Effective date : 20040707

2003-01-02 [17Q] FIRST EXAMINATION REPORT
- Effective date : 20021118

2001-09-05 [AKX] PAYMENT OF DESIGNATION FEES
- Free text : AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

2001-08-01 [17P] REQUEST FOR EXAMINATION FILED
- Effective date : 20010606

2001-02-28 [K1C3] CORRECTION OF PATENT APPLICATION (COMPLETE REPRINT) PUBLISHED
- Effective date : 20001220

2000-12-20 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A3
- Designated State(s) : AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

2000-12-20 [AX] REQUEST FOR EXTENSION OF THE EUROPEAN PATENT TO:
- Free text : AL;LT;LV;MK;RO;SI

2000-05-03 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A2
- Designated State(s) : AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

2000-05-03 [AX] REQUEST FOR EXTENSION OF THE EUROPEAN PATENT TO:
- Free text : AL;LT;LV;MK;RO;SI