Title (en)
ABRASIVE TOOLS

Title (de)
SCHLEIFWERKZEUGE

Title (fr)
OUTILS ABRASIFS

Publication
EP 1066134 A1 20010110 (EN)

Application
EP 99906733 A 19990204

Priority
- US 9902399 W 19990204
- US 4962398 A 19980327
- US 21884498 A 19981222

Abstract (en)
[origin: WO9948646A1] Abrasive tools suitable for precision grinding of hard brittle materials, such as ceramics and composites comprising ceramics, at peripheral wheel speeds up to 160 meters/second are provided. The abrasive tools comprise a wheel core (2) attached to an abrasive rim of dense, metal bonded superabrasive segments (8) by means of a thermally stable bond (6). A preferred tool for backgrinding ceramic wafers contains graphite filler and a relatively low concentration of abrasive grain (4).

IPC 1-7 (main, further and additional classification)
B24D 5/06; B24D 3/08

IPC 8 full level (invention and additional information)
B24D 3/00 (2006.01); **B24D 3/08** (2006.01); **B24D 5/06** (2006.01)

CPC (invention and additional information)
B24D 5/06 (2013.01); **B24D 3/08** (2013.01)

Citation (search report)
See references of WO 9948646A1

Cited by
WO2014137463A1; US9937604B2

Designated contracting state (EPC)
AT BE CH DE DK ES FI FR GB IE IT LI NL SE

EPO simple patent family
WO 9948646 A1 19990930; AT 217235 T 20020515; AU 2657399 A 19991018; AU 732575 B2 20010426; BR 9909194 A 20001205; CA 2324578 A1 19990930; CA 2324578 C 20041102; CN 1130274 C 20031210; CN 1294543 A 20010509; CZ 20003542 A3 20011212; DE 69901438 D1 20020613; DE 69901438 T2 20030227; DE 69901438 T4 20040722; DK 1066134 T3 20020909; DK 1066134 T5 20030106; EP 1066134 A1 20010110; EP 1066134 B1 20020508; EP 1066134 B9 20021113; ES 2174590 T3 20021101; HK 1034221 A1 20040910; HU 0102438 A2 20011128; HU 0102438 A3 20011228; HU 222463 B1 20030728; ID 25820 A 20001109; IL 138434 D0 20011031; JP 2002507491 A 20020312; JP 2006346857 A 20061228; PL 197639 B1 20080430; PL 343171 A1 20010730; SE 1066134 T3 20020508; SE 1066134 T5 20020508; SK 14402000 A3 20011008; TW 393384 B 20000611

INPADOC legal status

2018-01-31 [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 : 20170901

2017-10-31 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20170204

2017-10-15 [REG AT MM01] LAPSE BECAUSE OF NOT PAYING ANNUAL FEES
- Document : AT 217235 T
- Effective date : 20170204

2017-09-01 [REG DE R119] APPLICATION DEEMED WITHDRAWN, OR IP RIGHT LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE
- Document : DE 69901438

2017-01-31 [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 : 20160204

2016-11-30 [REG IE MM4A] PATENT LAPSED

2016-05-31 [PGFP AT] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : AT
- Payment date : 20160122
- Year of fee payment : 18

2016-04-29 [PGFP DE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DE
- Payment date : 20160121
- Year of fee payment : 18

2015-04-30 [PGFP IE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : IE
- Payment date : 20150123
- Year of fee payment : 17

2009-08-31 [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 : 20080204

2009-07-31 [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 : 20080205

2009-06-30 [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 : 20080204

2009-05-04 [REG ES FD2A] ANNOUNCEMENT OF LAPSE IN SPAIN
- Effective date : 20080205

2009-04-30 [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 : 20080229

2009-02-27 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080228

2009-01-30 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080229

2009-01-30 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080205

2008-12-12 [REG FR ST] NOTIFICATION OF LAPSE
- Effective date : 20081031

2008-11-28 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080901

2008-11-03 [NLV4] NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE
- Effective date : 20080901

2008-10-31 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080229

2008-10-31 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080204

2008-10-31 [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 NON-PAYMENT OF DUE FEES
- Effective date : 20080229

2008-10-29 [GBPC] GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE
- Effective date : 20080204

2008-10-14 [EUG] SE: EUROPEAN PATENT HAS LAPSED

2008-09-30 [REG CH PL] PATENT CEASED

2008-09-29 [REG DK EBP] EP PATENT LAPSED

2008-08-31 [BERE] BE: LAPSED
- Owner name : *NORTON CY
- Effective date : 20080228

2008-04-30 [PGFP FR] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : FR
- Payment date : 20070221
- Year of fee payment : 9

2008-01-02 [PGFP IT] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : IT
- Payment date : 20070518
- Year of fee payment : 9

2007-09-28 [REG CH PCAR] CHANGE OF THE ADDRESS OF THE REPRESENTATIVE
- Free text : ISLER & PEDRAZZINI AG;POSTFACH 1772;8027 ZUERICH (CH)

2007-03-27 [PGFP BE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : BE
- Payment date : 20070327
- Year of fee payment : 9

2007-02-28 [PGFP DK] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : DK
- Payment date : 20070228
- Year of fee payment : 9

2007-02-28 [PGFP FI] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : FI
- Payment date : 20070228
- Year of fee payment : 9

2007-02-27 [PGFP CH] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : CH
- Payment date : 20070227
- Year of fee payment : 9

2007-02-27 [PGFP SE] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : SE
- Payment date : 20070227
- Year of fee payment : 9

2007-02-26 [PGFP ES] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : ES
- Payment date : 20070226
- Year of fee payment : 9

2007-02-23 [PGFP GB] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : GB

- Payment date : 20070223
- Year of fee payment : 9

2007-02-22 [PGFP NL] POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE
- Ref Country Code : NL
- Payment date : 20070222
- Year of fee payment : 9

2003-05-02 [26N] NO OPPOSITION FILED
- Effective date : 20030211

2003-04-18 [ET1] FR: TRANSLATION FILED ** REVISION OF THE TRANSLATION OF THE PATENT OR THE CLAIMS

2003-03-03 [NLR4] NL: RECEIPT OF CORRECTED TRANSLATION IN THE NETHERLANDS LANGUAGE AT THE INITIATIVE OF THE PROPRIETOR OF THE PATENT

2003-01-06 [REG DK EBP] EP PATENT LAPSED

2002-11-01 [REG ES FG2A] DEFINITIVE PROTECTION
- Document : ES 2174590 T3

2002-10-31 [ET] FR: TRANSLATION FILED

2002-09-09 [REG DK T3] TRANSLATION OF EP PATENT

2002-08-30 [REG CH NV] NEW AGENT
- Representative's name : ISLER & PEDRAZZINI AG

2002-06-13 [REF] CORRESPONDS TO:
- Document : DE 69901438 20020613

2002-06-12 [REG IE FG4D] EUROPEAN PATENTS GRANTED DESIGNATING IRELAND

2002-05-15 [REG CH EP] ENTRY IN THE NATIONAL PHASE

2002-05-08 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : B1
- Designated State(s) : AT BE CH DE DK ES FI FR GB IE IT LI NL SE

2002-05-08 [REF] CORRESPONDS TO:
- Document : AT 217235 T 20020515

2002-01-01 [REG GB IF02] EUROPEAN PATENT IN FORCE AS OF 2002-01-01

2001-06-13 [17Q] FIRST EXAMINATION REPORT
- Effective date : 20010425

2001-01-10 [17P] REQUEST FOR EXAMINATION FILED
- Effective date : 20000919

2001-01-10 [AK] DESIGNATED CONTRACTING STATES:
- Kind Code of Ref Document : A1
- Designated State(s) : AT BE CH DE DK ES FI FR GB IE IT LI NL SE