



(43) International Publication Date
13 December 2012 (13.12.2012)

- (51) International Patent Classification:
C30B 23/00 (2006.01) *H01L 21/02* (2006.01)
C30B 29/36 (2006.01)
- (21) International Application Number:
PCT/KR2012/004481
- (22) International Filing Date:
7 June 2012 (07.06.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10-2011-0054628 7 June 2011 (07.06.2011) KR
- (71) Applicant (for all designated States except US): **LG IN-
NOTEK CO., LTD.** [KR/KR]; Seoul Square, 541, Nam-
daemunno 5-ga, Jung-gu, Seoul 100-714 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SHIN, Dong Geun**
[KR/KR]; Seoul Square, 541, Namdaemunno 5-ga, Jung-
gu, Seoul 100-714 (KR). **SON, Chang Hyun** [KR/KR];
Seoul Square, 541, Namdaemunno 5-ga, Jung-gu, Seoul
100-714 (KR).
- (74) Agent: **SEO, Kyo Jun**; 9th Fl. Hyun Juk Bldg., 832-
41, Yeoksam-dong, Gangnam-gu, Seoul 135-080 (KR).
- (81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KZ,
LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG,
MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM,
PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE,
SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

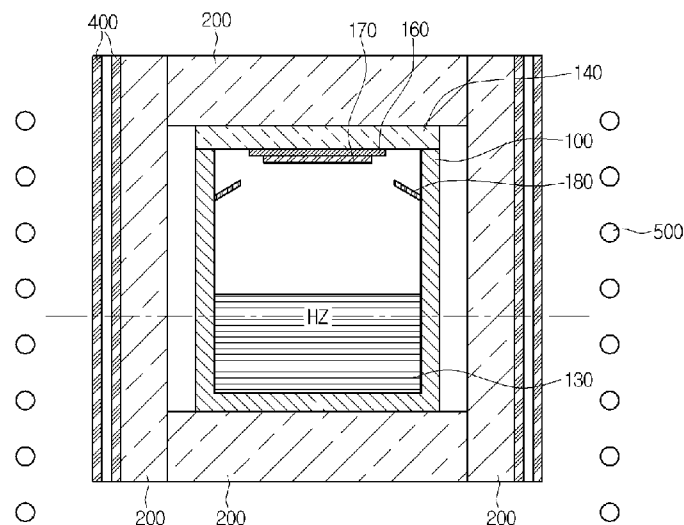
Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

- (88) Date of publication of the international search report:
4 April 2013

(54) Title: APPARATUS FOR FABRICATING INGOT AND METHOD FOR FABRICATING INGOT

[Fig. 1]



(57) Abstract: An apparatus for fabricating an ingot includes a crucible for receiving a raw material, wherein the raw material has a shape extending in one direction.

A. CLASSIFICATION OF SUBJECT MATTER*C30B 23/00(2006.01)i, C30B 29/36(2006.01)i, H01L 21/02(2006.01)i*

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)

C30B 23/00; C30B 15/00; C30B 19/10; C30B 1/00; C23C 16/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords:silicon carbide, crucible, silicon carbide fiber, polycarbosilane

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2005-0257734 A1 (ROLAND MADAR et al.) 24 November 2005 See the abstract and paragraph [11]- paragraph [45]	1-18
A	US 2005-0160965 A1 (NOBORU OHTANI et al.) 28 July 2005 See the abstract, fig. 4a and paragraph [35] - paragraph [129]	1-18
A	US 2009-0101062 A1 (SAKAMOTO HIDEMITSU) 23 April 2009 See the whole document	1-18



Further documents are listed in the continuation of Box C.



See patent family 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 application or patent 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 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

29 JANUARY 2013 (29.01.2013)

Date of mailing of the international search report

29 JANUARY 2013 (29.01.2013)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JO Soo Ik

Telephone No. 82-42-481-5893



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2012/004481

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005-0257734 A1	24.11.2005	AU 2003-263226 A1	02.12.2003
		AU 2003-263226 A8	02.12.2003
		DE 60324793 D1	02.01.2009
		EP 1511884 A2	09.03.2005
		EP 1511884 B1	19.11.2008
		FR 2839730 A1	21.11.2003
		FR 2839730 B1	27.08.2004
		JP 04-578964 B2	03.09.2010
		JP 2006-503781 A	02.02.2006
		JP 2006-503781 T	02.02.2006
		JP 4578964 B2	10.11.2010
		KR 10-1031407 B1	26.04.2011
		US 7655091 B2	02.02.2010
		WO 03-097905 A2	27.11.2003
		WO 03-097905 A3	27.11.2003
		WO 0309-7905A2	27.11.2003
		WO 0309-7905A3	08.04.2004
US 2005-0160965 A1	28.07.2005	AT 491055 T	15.12.2010
		DE 60335252 D1	20.01.2011
		EP 1493848 A1	05.01.2005
		EP 1493848 A4	22.08.2007
		EP 1493848 B1	08.12.2010
		JP 04-157326 B2	01.10.2008
		JP 04-160769 B2	08.10.2008
		JP 04-160770 B2	08.10.2008
		JP 2003-300796 A	21.10.2003
		JP 2003-300797 A	21.10.2003
		JP 2003-342099 A	03.12.2003
		KR 10-0773624 B1	05.11.2007
		US 2008-0020212 A1	24.01.2008
		US 2010-0083897 A1	08.04.2010
		US 2010-0089311 A1	15.04.2010
		WO 03-085175 A1	16.10.2003
		WO 0308-5175A1	16.10.2003
US 2009-0101062 A1	23.04.2009	CN 101203635 A0	18.06.2008
		CN 101203635 B	28.09.2011
		EP 1895031 A1	05.03.2008
		JP 04-225296 B2	18.02.2009
		JP 2006-347852 A	28.12.2006
		KR 10-0897312 B1	14.05.2009
		KR20080009333A	28.01.2008
		US 8052793 B2	08.11.2011
		WO 2006-137500 A1	28.12.2006