



- (51) International Patent Classification: C30B 15/02 (2006.01) C30B 15/00 (2006.01)
- (21) International Application Number: PCT/US2014/034453
- (22) International Filing Date: 17 April 2014 (17.04.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 61/813,871 19 April 2013 (19.04.2013) US
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- (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, BN, 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, IR, IS, JP, KE, KG, KN, KP, KR, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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,

[Continued on next page]

(54) Title: REGENERATING AN ADDITIVELY MANUFACTURED COMPONENT TO CURE DEFECTS AND ALTER MICROSTRUCTURE

(57) Abstract: One embodiment includes a method to regenerate a component. The method includes additively manufacturing the component with at least a portion of the component in a near finished shape. The component is encased in a shell mold, the shell mold is cured, the enclosed component is placed in a furnace and the component is melted, the component is solidified in the shell mold, and the shell mold is removed from the solidified component.

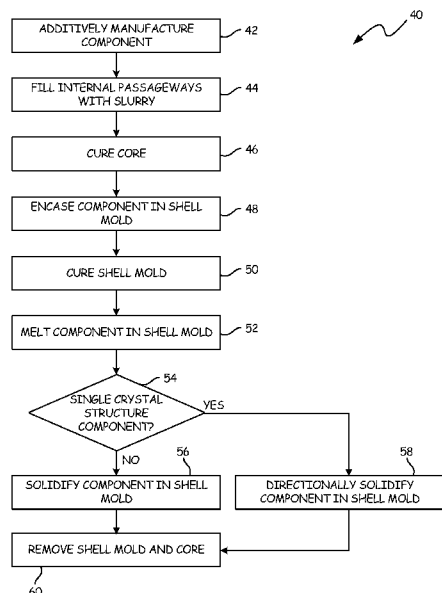


FIG. 3





TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

— 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))

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

(88) Date of publication of the international search report:
5 March 2015

Published:

— with international search report (Art. 21(3))

A. CLASSIFICATION OF SUBJECT MATTER**C30B 15/02(2006.01)i, C30B 15/00(2006.01)i**

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

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
C30B 15/02; B22C 9/02; B23K 26/20; B22C 9/10; B23K 26/03; B05D 3/06; B23K 9/04; C30B 15/00Documentation 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 modelsElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS(KIPO internal) & Keywords: additive manufacturing, encasing, shell mold, curing, melting, solidifying**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2013-0004680 A1 (GODFREY, D. G. et al.) 03 January 2013 See abstract; paragraphs [0035]-[0042]; claims 1-20; and figure 3.	1-20
A	US 2005-0040147 A1 (HOEBEL, M. et al.) 24 February 2005 See abstract; paragraphs [0035], [0036]; claims 1, 6; and figure 1.	1-20
A	US 2010-0025001 A1 (LEE, C-P. et al.) 04 February 2010 See abstract; paragraphs [0038], [0039]; claims 1, 3; and figure 1.	1-20
A	US 2005-0205232 A1 (WANG, H-P. et al.) 22 September 2005 See abstract; paragraphs [0089]-[0094]; and claims 1-10; and figure 1.	1-20
A	GASSER, A. et al., 'Laser Additive Manufacturing', Laser Technik Journal, 2010, Vol. 7, pages 58-63 See abstract; and pages 59, 61.	1-20

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

* Special categories of cited documents:

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Date of the actual completion of the international search

07 January 2015 (07.01.2015)

Date of mailing of the international search report

07 January 2015 (07.01.2015)

Name and mailing address of the ISA/KR



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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2014/034453

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2005-0205232 A1	22/09/2005	AT 361800 T CA 2511154 A1 CA 2511154 C CN 1718326 A CN 1718326 C DE 602004006342 D1 DE 602004006342 T2 EP 1495820 A1 EP 1495820 B1 EP 1614488 A1 EP 1614488 B1 JP 04902146 B2 JP 2005-028455 A JP 2006-051542 A US 2005-0006047 A1 US 7413001 B2	15/06/2007 06/01/2006 18/09/2012 11/01/2006 11/01/2006 21/06/2007 21/05/2008 12/01/2005 09/05/2007 11/01/2006 26/03/2014 21/03/2012 03/02/2005 23/02/2006 13/01/2005 19/08/2008