

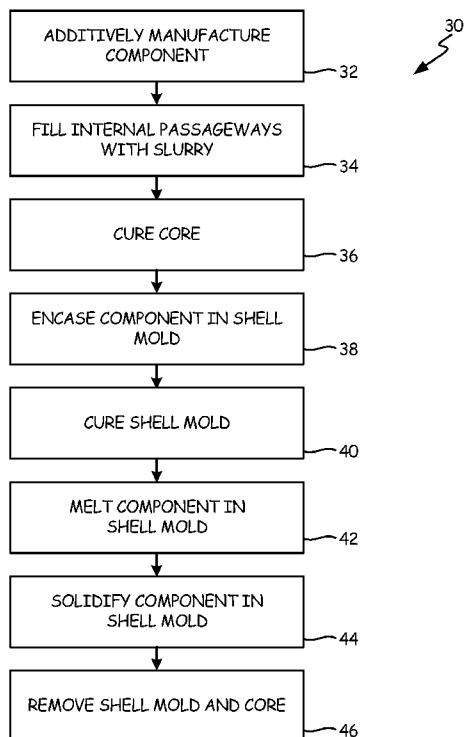


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[Continued on next page]

(54) Title: REGENERATING AN ADDITIVELY MANUFACTURED COMPONENT



(57) Abstract: One embodiment includes a method to regenerate a component (10). The method includes additively manufacturing a component (10) to have voids greater than 0 percent but less than approximately 15 percent in a near finished shape. The component (10) is encased in a shell mold (22). The shell mold (22) is cured. The encased component (10) is placed in a furnace and the component (10) is melted. The component (10) is solidified in the shell mold (22). The shell mold (22) is removed from the solidified component (10).

Fig. 2

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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.

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A. CLASSIFICATION OF SUBJECT MATTER**B23K 26/342(2014.01)i, B22F 3/105(2006.01)i, C22C 19/00(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)

B23K 26/342; B22C 9/04; B05D 3/02; A61C 13/00; B22D 33/04; B29C 33/52; B29C 67/00; B05D 3/12; B29C 45/26; B22F 3/105; C22C 19/00

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: additively manufacturing, void, 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.
Y	US 2004-0211547 A1 (GEGEL et al.) 28 October 2004 See paragraphs [0006]-[0007], [0017]-[0023], [0032]-[0034] and figures 1A-6B.	1-20
Y	US 2013-0071562 A1 (SZUROMI et al.) 21 March 2013 See paragraphs [0004], [0037]-[0041] and figure 5.	1-20
A	US 6270710 B1 (BARTEL et al.) 07 August 2001 See column 1, lines 45-50, column 2, lines 6-61 and figures 3-4.	1-20
A	EP 2052693 A1 (ENVISIONTEC GMBH) 29 April 2009 See paragraphs [0001], [0015], [0041]-[0042] and figures 1-3.	1-20
A	US 5296308 A (CACCAVALE, CHARLES F.) 22 March 1994 See column 2, lines 40-55, column 7, lines 19-24 and figures 1, 5-6.	1-20

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

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"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

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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