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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, 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, 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.

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- 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))

[Continued on next page]

(54) Title: PROCESS AND APPARATUS FOR FABRICATION OF THREE-DIMENSIONAL OBJECTS

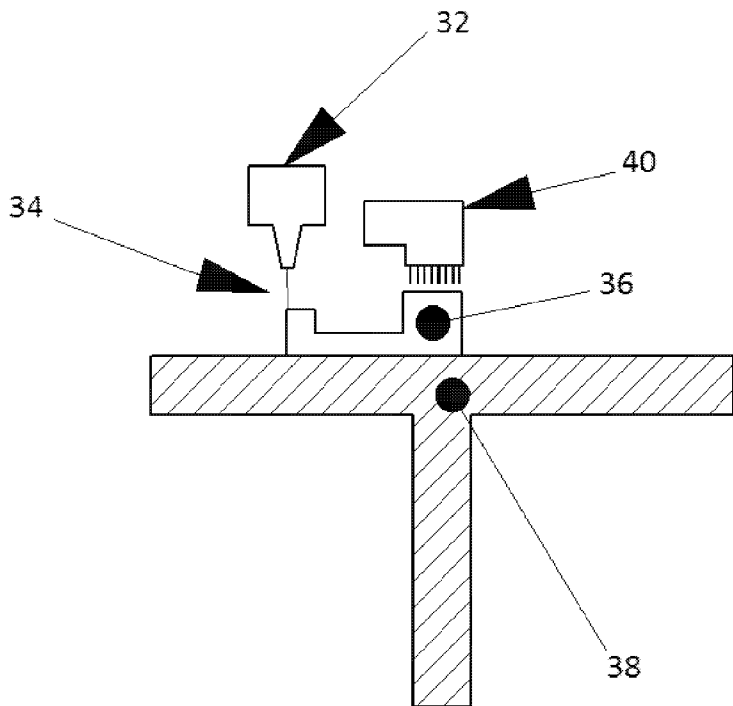


Fig. 2

(57) Abstract: A fabrication process and apparatus for producing three-dimensional objects (36) by depositing a first polymer layer, printing a first ink layer on to the first polymer layer (34), depositing a second polymer layer on to the first ink layer, and printing a second ink layer on to the second polymer layer. The deposition and printing steps may be repeated until a three-dimensional object (36) is formed. The inks used to form at least one of the first and second ink layers may include dyes or pigments so that the three-dimensional object may be a colored three-dimensional object.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/057837

A. CLASSIFICATION OF SUBJECT MATTER
INV. B29C67/00
ADD.
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)
B29C B29K

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 165 406 A (JANG JUSTIN [US] ET AL) 26 December 2000 (2000-12-26) column 21, line 44 - column 22, line 24; claims 1-3,31	1-4,8,9, 11-14, 16, 24-27, 30,35, 38,39, 42-44
X	US 2010/195122 A1 (KRITCHMAN ELIAHU M [IL]) 5 August 2010 (2010-08-05) paragraphs [0011] - [0013]; claims 1,7 ----- -/--	1-4,8,9, 12-14, 16,30, 38,39, 42-44

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 another 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

6 March 2012

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/057837

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-9, 11-14, 16, 24-27, 30, 35, 38, 39, 42-44

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 11-14, 16, 24-27, 30, 35, 38, 39, 42-44

Three dimensional fabrication using electroless metallization catalysts

2. claims: 10, 34, 45

Three dimensional fabrication using ink selected on its solubility parameter in relation to a polymer solubility parameter

3. claims: 15(completely); 28(partially)

Three dimensional fabrication using a releasable ink layer

4. claims: 17-20

Three dimensional fabrication using a soluble support structure

5. claims: 21-23, 46-48

Three dimensional fabrication using an overcoat layer

6. claim: 29

Three dimensional fabrication using a printed target pattern

7. claims: 31-33(completely); 28(partially)

Three dimensional fabrication using a plasticizing ink

8. claims: 36, 37

Three dimensional fabrication using an ink with a pharmaceutical ingredient

9. claims: 40, 41

Three dimensional fabrication using an extruder with an ink printer

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/057837

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/251574 A1 (COLLINS DAVID C [US] ET AL) 16 December 2004 (2004-12-16) paragraphs [0020], [0021], [0031]; claims 1-3 -----	1-4,8,9, 11-14
A	US 2007/108664 A1 (LUAN BENLI [CA]) 17 May 2007 (2007-05-17) column 8, line 46 - column 9, paragraph 66 -----	5-7
A	EP 1 925 428 A1 (TNO [NL]) 28 May 2008 (2008-05-28) paragraphs [0002], [0005], [0006] -----	5-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2011/057837

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6165406	A	26-12-2000	NONE

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			WO 2008063069 A1 29-05-2008
