

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number
WO 2004/062892 A3

(51) International Patent Classification⁷: **B29C 67/00**

(21) International Application Number:
PCT/US2004/000441

(22) International Filing Date: 9 January 2004 (09.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/340,474 9 January 2003 (09.01.2003) US

(71) Applicant (for all designated States except US):
HEWLETT-PACKARD DEVELOPMENT COMPANY L.P. [US/US]; 20555 S.H. 249, Houston, TX 77070 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NIELSEN, Jeffrey, Allen** [US/US]; 4553 N.W. Elmwood Drive, Corvallis, OR 97330 (US). **KASPERCHIK, Vladek, P.** [US/US]; 4308 NW Jon Pl., Corvallis, OR 97330 (US).

(74) Agents: **HAYMOND, W. Bradley** et al.; Hewlett-packard Company, Intellectual Property Administration, P.O. Box 272400, Mail Stop 35, Fort Collins, CO 80527-2400 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

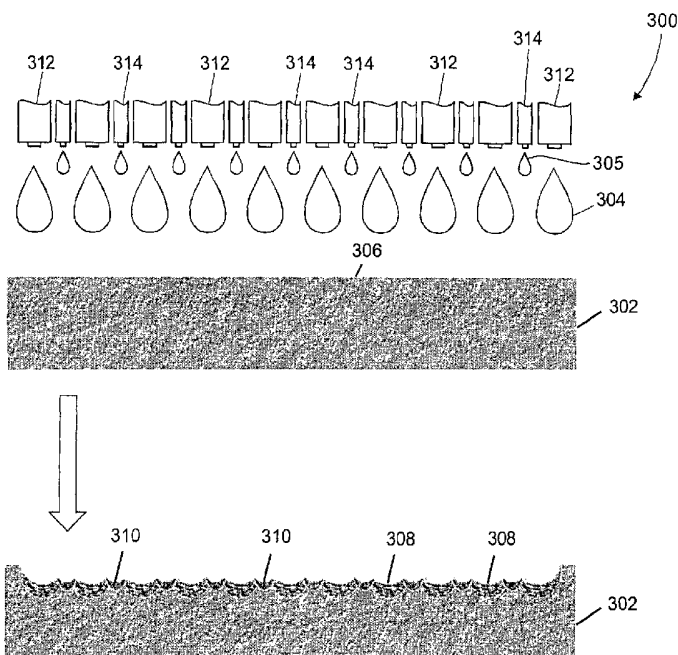
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: METHODS AND SYSTEMS FOR PRODUCING AN OBJECT THROUGH SOLID FREEFORM FABRICATION



(57) Abstract: A Method of producing an object through solid freeform fabrication preferably includes ejecting drops (304,305) of different volumes to form a layer (302) of the object. The drops (304,305) may be binder drops ejected into a build material or may include the build material used to form the object.



(88) Date of publication of the international search report:

10 September 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

In International Application No
PCT/US2004/000441

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B29C67/00

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)
IPC 7 B29C

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 practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 264 679 A (CORP Z) 11 December 2002 (2002-12-11) column 12, line 4 - line 41; claims column 11, line 40 - line 50	1-8, 10
X	DE 199 37 770 A (BAYER AG) 22 February 2001 (2001-02-22) column 2, line 12 - line 46 column 3, line 24 - line 32	1, 4, 5, 10
X	US 6 149 072 A (TSENG AMPERE A) 21 November 2000 (2000-11-21) column 10, line 49 - line 62	1, 4, 10
P, X	WO 03/041875 A (BARNY STEFAN ; VANTICO AG (CH); STUDER PEGGY DIANE (FR); PATEL RANJANA) 22 May 2003 (2003-05-22) page 12, paragraph 2	1, 4, 10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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 document 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

29 June 2004

Date of mailing of the international search report

06/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Van Wallene, A

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/000441

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1264679	A	11-12-2002	US 6007318 A	28-12-1999
			EP 1264679 A2	11-12-2002
			AT 227208 T	15-11-2002
			CA 2275565 A1	02-07-1998
			DE 69716946 D1	12-12-2002
			DE 69716946 T2	17-07-2003
			EP 0949993 A2	20-10-1999
			JP 2001507295 T	05-06-2001
			WO 9828124 A2	02-07-1998
			US 2004012112 A1	22-01-2004
			US 6375874 B1	23-04-2002
			US 2002079601 A1	27-06-2002
DE 19937770	A	22-02-2001	DE 19937770 A1	22-02-2001
			AU 6830900 A	05-03-2001
			CA 2378348 A1	15-02-2001
			WO 0110630 A1	15-02-2001
			EP 1207995 A1	29-05-2002
			JP 2003506228 T	18-02-2003
US 6149072	A	21-11-2000	NONE	
WO 03041875	A	22-05-2003	WO 03041875 A1	22-05-2003