



- (51) International Patent Classification:
A23P 1/00 (2006.01) A47J 43/04 (2006.01)
A47J 44/00 (2006.01)
- (21) International Application Number:
PCT/US2012/022210
- (22) International Filing Date:
23 January 2012 (23.01.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/435,735 24 January 2011 (24.01.2011) US
61/435,732 24 January 2011 (24.01.2011) US
- (71) Applicant (for all designated States except US): **CORNELL UNIVERSITY** [US/US]; c/o Cornell Center for Technology Enterprise & Commercialization (CCTEC), 395 Pine Tree Road, Suite 310, Ithaca, New York 14850 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **LIPTON, Jeffrey, I.** [US/US]; c/o Cornell Center for Technology Enterprise & Commercialization (CCTEC), 395 Pine Tree Road, Suite 310, Ithaca, New York 14850 (US). **LIPSON, Hod**

[US/US]; c/o Cornell Center for Technology Enterprise & Commercialization (CCTEC), 395 Pine Tree Road, Suite 310, Ithaca, New York 14850 (US).

(74) Agents: **ERLICH, Jacob, N.** et al.; Burns & Levinson, LLP, 125 Summer Street, Boston, Massachusetts 02110 (US).

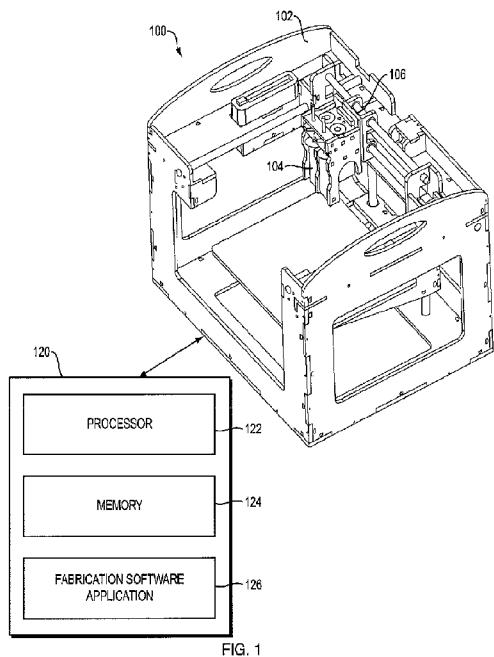
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, 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.

(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, MD, 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,

[Continued on next page]

(54) Title: DEPOSITION OF MATERIALS FOR EDIBLE SOLID FREEFORM FABRICATION

(57) Abstract: Technologies are provided herein for processing edible materials using tools associated with a fabrication system. In one aspect, a fabricator includes a control module and a drive assembly controlled by the control module. The fabricator also includes at least one food processing tool head coupled to the drive assembly that can process material for fabricating an edible structure on a build surface.





SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, 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))

Published:

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

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

1 November 2012

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/022210**A. CLASSIFICATION OF SUBJECT MATTER***A23P 1/00(2006.01)i, A47J 44/00(2006.01)i, A47J 43/04(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)

A23P 1/00; B29C 31/00; B32B 31/00; B05C 11/00; G06F 15/46; H01L 21/00

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: "tool head", "solid freeform fabrication", "three-dimensional food"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6280784 B1 (YANG; JUNSHENG et al.) 28 August 2001 See column 3, line 45 - column 6, line 55; figures 1 - 4.	1,2,3-5,6-8,9-14 ,21
A	See the whole document.	15-20
A	US 2006-0156978 A1 (LIPSON; HOD et al.) 20 July 2006 See the whole document.	1-21
A	US 6280785 B1 (YANG; JUNSHENG et al.) 28 August 2001 See the whole document.	1-21
A	US 05121329A A (CRUMP; S. SCOTT) 09 June 1992 See the whole document.	1-21

 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

30 AUGUST 2012 (30.08.2012)

Date of mailing of the international search report

31 AUGUST 2012 (31.08.2012)

Name and mailing address of the ISA/KR

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

Facsimile No. 82-42-472-7140

Authorized officer

LEE, Sang Won

Telephone No. 82-42-481-8412



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/022210

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6280784 B1	28.08.2001	None	
US 2006-0156978 A1	20.07.2006	US 2006-0160250 A1 US 2011-0169193 A1 US 7625198 B2 US 7939003 B2 WO 2006-020685 A2	20.07.2006 14.07.2011 01.12.2009 10.05.2011 23.02.2006
US 6280785 B1	28.08.2001	None	
US 05121329A A	09.06.1992	EP 0426363 A2 EP 0833237 A2 EP 0833237 A3 EP 0833237 B1 JP 03-158228 A JP 08-002598 B2 JP 2088100 C US 05340433A A	08.05.1991 01.04.1998 22.04.1998 19.09.2001 08.07.1991 17.01.1996 02.09.1996 23.08.1994