

(19) World Intellectual Property
Organization
International Bureau



WIPO | PCT



(10) International Publication Number
WO 2018/200548 A8

(43) International Publication Date
01 November 2018 (01.11.2018)

(51) International Patent Classification:

B22F 3/00 (2006.01) *B33Y 70/00* (2015.01)
B22F 3/10 (2006.01) *B33Y 10/00* (2015.01)
B22F 3/26 (2006.01) *B33Y 40/00* (2015.01)
B22F 7/06 (2006.01)

(21) International Application Number:

PCT/US2018/029176

(22) International Filing Date:

24 April 2018 (24.04.2018)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/489,233 24 April 2017 (24.04.2017) US

(71) Applicant: **DESKTOP METAL, INC.** [US/US]; 63 3rd
Avenue, Burlington, MA 01803 (US).

(72) Inventors: **GIBSON, Michael, Andrew**; Desktop Metal, Inc., 63 3rd Avenue, Burlington, MA 01803 (US). **KERNAN, Brian, Daniel**; Desktop Metal, Inc., 63 3rd Avenue, Burlington, MA 01803 (US). **TUNCER, Nihan**; Desktop Metal, Inc., 63 3rd Avenue, Burlington, MA 01803 (US). **FONTANA, Richard, Remo**; Desktop Metal, Inc., 63 3rd Avenue, Burlington, MA 01803 (US).

(74) Agent: **MAZZARESE, Robert, A.** et al.; Strategic Patents, P.C., P.O. Box 920629, Needham, MA 02492 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,

(54) Title: ADDITIVE FABRICATION WITH INFILTRATABLE STRUCTURES

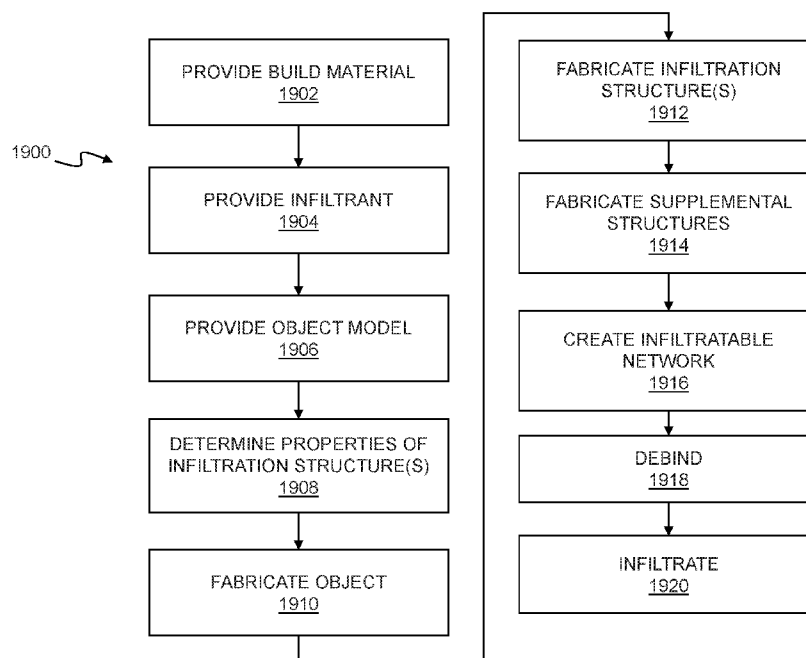


Fig. 19

(57) Abstract: An infiltratable material forms a net shape containing a porous network that can be infiltrated with a supplemental material, commonly referred to as an infiltrant, e.g., by heating the infiltrant so that it melts and wicks into the porous network of the net shape. By using additive fabrication technologies to spatially dispose an infiltrant about an infiltratable structure, a composite structure can be created that advantageously controls the amount of infiltrant applied to the infiltratable structure and the spatial distribution of the infiltrant about and/or within the infiltratable structure prior to infiltration.

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

Published:

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

(48) Date of publication of this corrected version:

29 November 2018 (29.11.2018)

(15) Information about Correction:

see Notice of 29 November 2018 (29.11.2018)