

CORRECTED VERSION

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
22 August 2013 (22.08.2013)



(10) International Publication Number
WO 2013/123008 A8

(51) International Patent Classification:

F02C 7/00 (2006.01) *F02C 9/00* (2006.01)
F02C 7/12 (2006.01) *F01D 25/08* (2006.01)

(21) International Application Number:

PCT/US2013/025881

(22) International Filing Date:

13 February 2013 (13.02.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/599, 359 15 February 2012 (15.02.2012) US
13/544, 210 9 July 2012 (09.07.2012) US

(71) Applicant: **UNITED TECHNOLOGIES CORPORATION** [US/US]; One Financial Plaza, Hartford, CT 06101 (US).

(72) Inventors: **XU, Jinquan**; 11 Ledgewood Road, Groton, CT 06340 (US). **LEVASSEUR, Glenn**; 51 Nelkin Road, Colchester, CT 06415 (US).

(74) Agents: **NELSON, Stuart** et al.; KINNEY & LANGE, P.A., 312 So. Third St., Minneapolis, MN 55415 (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, 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, PA, 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, 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, ML, MR, NE, SN, TD, TG).

Published:

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

(48) Date of publication of this corrected version:

4 September 2014

(15) Information about Correction:

see Notice of 4 September 2014

(54) Title: GAS TURBINE ENGINE COMPONENT WITH CONVERGING/DIVERGING COOLING PASSAGE

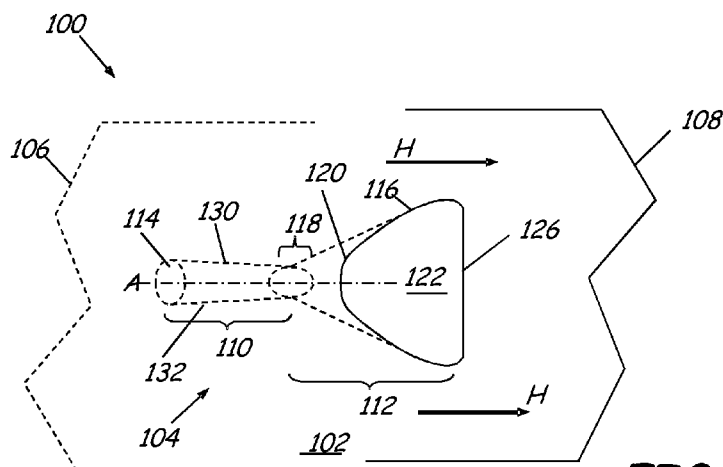


FIG. 4B

(57) Abstract: A component for a gas turbine engine includes a gas path wall having a first surface and a second surface and a cooling hole extending through the gas path wall from the first surface to the second surface. The cooling hole includes an inlet portion having an inlet at the first surface, an outlet portion having an outlet at the second surface, and a transition defined between the inlet and the outlet. The inlet portion converges in a first direction from the inlet to the transition and diverges in a second direction from the inlet to the transition. The outlet portion diverges at least in one of the first and second directions from the transition to the outlet.