



(51) International Patent Classification:

F16J 15/14 (2006.01) *B21K 3/04* (2006.01)
F01D 5/08 (2006.01)

(21) International Application Number:

PCT/US2013/068750

(22) International Filing Date:

6 November 2013 (06.11.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

13/722,253 20 December 2012 (20.12.2012) US

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

(72) Inventors: **BOGUE, William**; 1 West Main Street, Hebron, CT 06248 (US). **PRIHAR, Ron, I.P.E.**; 50 Pochontas Drive, West Hartford, CT 06117 (US).

(74) Agent: **MILLER, Thomas, A.**; Miller, Matthias & Hull LLP, One North Franklin, Suite 2350, Chicago, IL 60606 (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, IR, IS, JP, KE, KG, 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, 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, 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))

(54) Title: CLOSURE OF COOLING HOLES WITH A FILLING AGENT

(57) Abstract: A method for filling cooling holes in a component of a gas turbine engine is disclosed. The component may include a plurality of first cooling holes extending through the wall of the component. The method may comprise the steps of exposing the outer surface of the component, filling the plurality of first cooling holes with a polyimide, curing the polyimide to block the passage of cooling fluid through the plurality of first cooling holes, and applying a thermal barrier coating over the outer surface of the component. The method may further include the step of installing a second plurality of cooling holes in the wall of the component wherein the plurality of second cooling holes penetrate the thermal barrier coating and the wall of the component and allow cooling fluid to pass therethrough.



WO 2014/099161 A1