

Title (en)

Airfoil with nonlinear cooling passage

Title (de)

Schaufel mit nichtlinearen Kühlkanälen

Title (fr)

Aube munie de canaux de refroidissement non-linéaires

Publication

EP 2565383 A3 20160907 (EN)

Application

EP 12182433 A 20120830

Priority

US 201113222490 A 20110831

Abstract (en)

[origin: EP2565383A2] An example method of manufacturing an airfoil (30) includes providing a ceramic core (64) corresponding to an interior cooling channel (42). A refractory metal core (66) is provided that corresponds to a cooling passage (46). The cores are arranged in a mold (60). An airfoil structure (30) is cast about the cores to provide a turbine engine airfoil. The turbine engine airfoil (30) includes a wall (44) providing the interior cooling channel (42) and an exterior airfoil surface (34). The cooling passage (46) is provided in the wall (44) and fluidly connects the interior cooling channel (42) to the exterior airfoil surface (34). The cooling passage (46) includes multiple inlets (48) and multiple outlets (50) respectively adjoining the interior cooling channel (42) and the exterior airfoil surface (34). At least one of a first inlet (48) and outlet (50) has a different structural flow characteristic than at least one of a second inlet and outlet (48,50).

IPC 8 full level

F01D 5/18 (2006.01)

CPC (source: EP US)

B22C 9/103 (2013.01 - EP); **F01D 5/186** (2013.01 - EP US); **F01D 5/187** (2013.01 - EP US); **F05D 2250/50** (2013.01 - EP US); **F05D 2250/70** (2013.01 - EP US); **F05D 2260/204** (2013.01 - EP US); **F05D 2260/221** (2013.01 - EP US)

Citation (search report)

- [X] EP 1972396 A1 20080924 - UNITED TECHNOLOGIES CORP [US]
- [X] EP 2159375 A2 20100303 - UNITED TECHNOLOGIES CORP [US]
- [X] EP 1790823 A2 20070530 - UNITED TECHNOLOGIES CORP [US]
- [X] US 2005265838 A1 20051201 - LIANG GEORGE [US]
- [X] EP 2131011 A2 20091209 - UNITED TECHNOLOGIES CORP [US]
- [X] GB 2358226 A 20010718 - ALSTOM POWER [CH]

Cited by

EP3406851A1; EP3246110A1; EP3650648A1; US10422232B2; US11339718B2; US10323569B2; US10294798B2; EP2956644A4; EP3460216A1; EP2971667A4; EP3650645A1; US10563517B2; US11149556B2

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 2565383 A2 20130306; EP 2565383 A3 20160907; EP 2565383 B1 20191002; US 2013052037 A1 20130228

DOCDB simple family (application)

EP 12182433 A 20120830; US 201113222490 A 20110831