

Title (en)

Turbine blade having internal cooling passage

Title (de)

Turbinenschaufel mit innerem Kühlkanal

Title (fr)

Aube de turbine ayant un passage interne de refroidissement

Publication

EP 1849960 A3 20100310 (EN)

Application

EP 07008241 A 20070423

Priority

JP 2006122884 A 20060427

Abstract (en)

[origin: EP1849960A2] A turbine blade can be provided which enhances efficiency of a gas turbine by being efficiently cooled and has a high degree of reliability. The turbine blade includes an internal cooling passage (4,5,7a-7f), and a plurality of projections (16) on a blade ventral side wall surface and a rear side wall surface of the cooling passage on a blade trailing edge side (13) thereof or a plurality of portions (e.g., cylindrical pin fins extending from the blade trailing edge side (13) ventral side wall surface to the blade trailing edge side rear side wall surface) connecting the blade ventral side wall surface with the rear side wall surface. The projections (16) or the portions are arranged so as to have different passage resistances depending on a position on the wall surfaces on the blade trailing edge side. This reduces the necessary amount of the cooling medium while performing efficient cooling.

IPC 8 full level

F01D 5/18 (2006.01); **F01D 5/20** (2006.01); **F01D 9/04** (2006.01)

CPC (source: EP)

F01D 5/187 (2013.01); **F01D 5/20** (2013.01); **F01D 9/041** (2013.01); **F05D 2260/2212** (2013.01); **F05D 2260/22141** (2013.01)

Citation (search report)

- [X] US 4278400 A 19810714 - YAMARIK GEORGE J, et al
- [X] EP 1538305 A2 20050608 - UNITED TECHNOLOGIES CORP [US]
- [XD] JP H05156901 A 19930622 - HITACHI LTD
- [X] EP 1467065 A2 20041013 - UNITED TECHNOLOGIES CORP [US]
- [XP] EP 1674661 A2 20060628 - UNITED TECHNOLOGIES CORP [US]
- [XP] EP 1715139 A2 20061025 - UNITED TECHNOLOGIES CORP [US]
- [X] DE 19807563 A1 19980924 - MITSUBISHI HEAVY IND LTD [JP]
- [XD] JP H06137102 A 19940517 - MITSUBISHI HEAVY IND LTD
- [X] GB 2349920 A 20001115 - ABB ALSTOM POWER CH AG [CH]
- [X] GB 2112467 A 19830720 - UNITED TECHNOLOGIES CORP
- [X] US 5538394 A 19960723 - INOMATA ASAKO [JP], et al
- [X] US 5772397 A 19980630 - MORRIS MARK C [US], et al
- [X] EP 0032646 A1 19810729 - SNECMA [FR]

Cited by

CN107366555A; US11313238B2; US2016333699A1; EP3099901A4; EP2602439A1; CN104791019A; WO2015116338A1; US10208604B2; US8182225B2; WO2009109462A1; WO2013076109A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK RS

DOCDB simple family (publication)

EP 1849960 A2 20071031; **EP 1849960 A3 20100310**; JP 2007292006 A 20071108

DOCDB simple family (application)

EP 07008241 A 20070423; JP 2006122884 A 20060427