Title (en)

Gasturbine comprising cooling control means which are made partially of Shape Memory Materials (SMM)

Title (de)

Gasturbine mit Steuerungsmittel zur Kühlung, welche teilweise aus einer Gedächtnislegierung bestehen

Title (fr)

Turbine à gaz avec des moyens de contrôle de refroidisment comprenant partialement des alliages à mémoire de forme

Publication

EP 2455584 B1 20150617 (DE)

Application

EP 11187629 A 20111103

Priority

CH 19472010 A 20101119

Abstract (en)

[origin: EP2455584A1] The machine has a rotor, and a stator (28) including a swirl passage to guide a secondary flow of a cooling medium to a pre-swirl nozzle. A control unit completely or partially made of shape-memory alloy is arranged in an area of the pre-swirl nozzle to control the secondary flow based on temperature in an automated manner. The control unit includes a curved membrane made of shape-memory alloy and projected into the swirl passage, where the membrane changes flow cross section of the swirl passage by changing a curvature of the membrane. The control unit is selected from a group consisting of a membrane, an adjusting device (37), a wall element (38), a guide plate (39), an adjusting element (40), torsion elements, a cover, cover elements, and an elongation unit.

IPC 8 full level

F01D 5/08 (2006.01); **F01D 5/18** (2006.01); **F01D 17/14** (2006.01); **F01D 25/08** (2006.01)

CPC (source: EP US)

F01D 5/08 (2013.01 - EP US); **F01D 5/187** (2013.01 - EP US); **F01D 9/02** (2013.01 - US); **F01D 17/14** (2013.01 - EP US); **F01D 17/16** (2013.01 - US); **F01D 25/08** (2013.01 - EP US); **F01D 25/12** (2013.01 - US); F05D 2270/303 (2013.01 - US); F05D 2300/505 (2013.01 - EP US)

Cited by

EP3130750A1; EP2679771A1; CN103511083A; US9127558B2; US9188010B2; WO2014022620A1; US10724382B2

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

DOCDB simple family (publication)

EP 2455584 A1 20120523; **EP 2455584 B1 20150617**; CH 704124 A1 20120531; JP 2012112382 A 20120614; JP 5933232 B2 20160608; US 2012128473 A1 20120524; US 2016138410 A1 20160519; US 9267382 B2 20160223

DOCDB simple family (application)

EP 11187629 A 20111103; CH 19472010 A 20101119; JP 2011253752 A 20111121; US 201113297288 A 20111116; US 201615007542 A 20160127