Title (en)

SHROUDED FLUID TURBINE WITH BOUNDARY LAYER ENERGISING ELEMENTS

Title (de)

UMMANTELTE FLÜSSIGKEITSTURBINE MIT GRENZSCHICHTERREGUNGSELEMENTEN

Title (fr)

TURBINE À FLUIDE CARÉNÉE AYANT DES ÉLÉMENTS D'EXCITATION DE COUCHE LIMITE

Publication

EP 2836700 A1 20150218 (EN)

Application

EP 13718019 A 20130410

Priority

- US 201261622294 P 20120410
- US 2013035980 W 20130410

Abstract (en)

[origin: US2013266439A1] The present disclosure relates to fluid turbines having a turbine shroud assembly formed with mixing elements (e.g., both inwardly and outwardly curving elements) having airfoil cross sections. These airfoils form ringed airfoil shapes that provide a means of controlling the flow of fluid over the rotor assembly or over portions of the rotor assembly. The fluid dynamic performance of the ringed airfoils directly affects the performance of the turbine rotor assembly. The mass and surface area of the shrouds result in load forces on support structures. By delaying or eliminating the separation of the boundary layer over the ringed airfoils, boundary layer energizing members (e.g., vortex generators, flow control ports) on the ringed airfoils increase the power output of the fluid turbine system and allow for relatively shorter chord-length airfoil cross sections and therefore reduced mass and surface area of the shroud assemblies.

IPC 8 full level

F03D 1/04 (2006.01)

CPC (source: CN EP US)

F01D 1/04 (2013.01 - US); **F03D 1/04** (2013.01 - CN EP); F05B 2240/122 (2013.01 - CN EP US); F05B 2240/123 (2013.01 - CN EP US); F05B 2240/1231 (2013.01 - CN EP US); F05B 2240/124 (2013.01 - CN EP US); F05B 2240/133 (2013.01 - CN EP US); F05B 2250/182 (2013.01 - CN EP US); Y02E 10/72 (2013.01 - CN EP US)

Citation (search report)

See references of WO 2013155187A1

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)

US 2013266439 A1 20131010; CA 2870290 A1 20131017; CN 104395601 A 20150304; EP 2836700 A1 20150218; WO 2013155187 A1 20131017; WO 2013155187 A8 20141030

DOCDB simple family (application)

US 201313860173 A 20130410; CA 2870290 A 20130410; CN 201380030365 A 20130410; EP 13718019 A 20130410; US 2013035980 W 20130410