

Title (en)

Method for reducing or avoiding water drop erosion in steam turbines and corresponding steam turbine

Title (de)

Verfahren zur Verringerung oder Vermeidung der Tropfenschlagerosion in Dampfturbinen und zugehörige Dampfturbine

Title (fr)

Procédé de réduction ou de suppression de l'érosion par impact de gouttes dans des turbines à vapeur et turbine à vapeur associée

Publication

EP 2128387 A3 20120530 (DE)

Application

EP 09161201 A 20090527

Priority

DE 102008026036 A 20080530

Abstract (en)

[origin: EP2128387A2] The method involves crushing secondary drops in a steam turbine (1) at location of appearance or indirect proximity via acoustic excited vibrations. Smaller, lighter and better accelerated droplets follow a steam flow, and the number of water drops and eroding effects of the drop impacts are reduced to subsequent turbine blade series. The secondary drops are crushed using ultrasonic atomization, where a capacitive sound converter is used for production of the ultrasound. A membrane made of plastic or metal is used for the capacitive sound converter. An independent claim is also included for a steam turbine with an auxiliary device for implementation of the method for decrease or avoidance of water drop impact erosion.

IPC 8 full level

F01D 5/28 (2006.01); **F01D 25/32** (2006.01)

CPC (source: EP)

F01D 5/28 (2013.01); **F01D 25/32** (2013.01); **F05D 2220/31** (2013.01); **F05D 2240/122** (2013.01); **F05D 2240/304** (2013.01); **F05D 2260/95** (2013.01); **F05D 2270/114** (2013.01); **F05D 2270/62** (2013.01)

Citation (search report)

- [X1] JP H04284103 A 19921008 - MITSUBISHI HEAVY IND LTD
- [X1] JP S61106901 A 19860524 - HITACHI LTD
- [X1] JP S62251405 A 19871102 - HITACHI LTD
- [X1] US 3923415 A 19751202 - BENEDICT ROBERT P

Cited by

CN102713164A; CN114776390A; CN115400505A; CN116401834A; EP2507481B1

Designated contracting state (EPC)

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 SE SI SK TR

DOCDB simple family (publication)

EP 2128387 A2 20091202; EP 2128387 A3 20120530; DE 102008026036 A1 20091203

DOCDB simple family (application)

EP 09161201 A 20090527; DE 102008026036 A 20080530