

Title (en)

Method to tune the natural frequency of turbine blades by using the orientation of the secondary axes

Title (de)

Methode um die Eigenfrequenz von Turbinenschaufeln durch die Orientierung der sekundären Kristallachsen zu beeinflussen

Title (fr)

Méthode pour influencer la fréquence propre des aubes de turbine par l'orientation des axes secondaires

Publication

EP 1217170 A3 20031015 (EN)

Application

EP 01306925 A 20010814

Priority

US 73550300 A 20001214

Abstract (en)

[origin: EP1217170A2] Tuning of turbine bucket torsional and stripe mode natural frequencies can be effected without altering any turbine bucket physical features, such as weight and/or shape, and without affecting flexure frequencies. The tuning of certain turbine bucket natural frequencies serves to avoid detrimental blade resonance, thus improving the reliability of a gas turbine. The method includes investment casting the turbine bucket with a single crystal alloy, and tuning the natural frequency of the turbine bucket without modifying physical features of the turbine bucket by placing a crystal seed along a desired direction according to a relative orientation of an engine axial direction. <IMAGE>

IPC 1-7

F01D 5/14; **F01D 5/28**; **B22D 27/00**; **B22D 25/00**; **F01D 5/16**; **C30B 11/14**

IPC 8 full level

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CPC (source: EP KR US)

B22D 27/045 (2013.01 - EP US); **F01D 1/00** (2013.01 - KR); **F01D 5/16** (2013.01 - EP US); **F01D 5/26** (2013.01 - EP US); **F05D 2230/21** (2013.01 - EP US); **F05D 2300/607** (2013.01 - EP US)

Citation (search report)

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- [X] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 05 31 May 1999 (1999-05-31)
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