

Title (en)

METHOD FOR CLASSIFYING A LASER PROCESS AND A LASER MATERIAL PROCESSING HEAD USING THE SAME

Title (de)

VERFAHREN ZUR KLASIFIZIERUNG EINES LASERVORGANGS UND LASERMATERIALVERARBEITUNGSKOPF DAMIT

Title (fr)

MÉTHODE DE CLASSEMENT D'UN TRAITEMENT PAR LASER ET TÊTE DE TRAITEMENT DE MATÉRIAUX PAR LASER L'UTILISANT

Publication

EP 2473314 A1 20120711 (EN)

Application

EP 10759806 A 20100903

Priority

- EP 09011375 A 20090904
- EP 2010005434 W 20100903
- EP 10759806 A 20100903

Abstract (en)

[origin: WO2011026638A1] The present invention relates to a method for classifying a laser process of a workpiece by means of a laser material processing head, comprising the steps of recording acoustic data caused by the laser process of the workpiece, transforming the acoustic data into a frequency domain by means of a wavelet decomposition or a windowed fourier transform to generate acoustic frequency features and classifying the acoustic frequency features on the basis of learned acoustic frequency features.

IPC 8 full level

B23K 26/02 (2006.01); **B23K 26/03** (2006.01); **B23K 26/04** (2006.01); **B23K 26/42** (2006.01); **B23K 31/12** (2006.01); **G01N 29/04** (2006.01)

CPC (source: EP)

B23K 26/702 (2015.10); **B23K 31/125** (2013.01); **G01N 29/14** (2013.01); **G01N 29/46** (2013.01); **G01N 2291/267** (2013.01)

Citation (search report)

See references of WO 2011026638A1

Citation (examination)

- US 2008004527 A1 20080103 - COLEMAN D JACKSON [US], et al
- US 5867118 A 19990202 - MCCOY RICHARD D [US], et al
- US 2007105184 A1 20070510 - GREENBAUM ELIAS [US], et al
- WO 2009017483 A1 20090205 - UNIV PENNSYLVANIA [US], et al
- CN 1496479 A 20040512 - NOVOZYMES AS [DK]
- WERSBORG I S G ET AL: "A cognitive approach for a robotic welding system that can learn how to weld from acoustic data", COMPUTATIONAL INTELLIGENCE IN ROBOTICS AND AUTOMATION (CIRA), 2009 IEEE INTERNATIONAL SYMPOSIUM ON, IEEE, PISCATAWAY, NJ, USA, 15 December 2009 (2009-12-15), pages 108 - 113, XP031643852, ISBN: 978-1-4244-4808-1

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 SE SI SK SM TR

DOCDB simple family (publication)

WO 2011026638 A1 20110310; EP 2473314 A1 20120711

DOCDB simple family (application)

EP 2010005434 W 20100903; EP 10759806 A 20100903