

Title (en)

Hairspring for oscillator balance of a clock piece and method for manufacturing same

Title (de)

Spirale für Unruh-Oszillator einer Uhr, und ihr Herstellungsverfahren

Title (fr)

Spiral pour oscillateur balancier de pièce d'horlogerie et son procédé de fabrication

Publication

**EP 2407831 B1 20220907 (FR)**

Application

**EP 11405279 A 20110711**

Priority

- EP 10405134 A 20100712
- EP 11405279 A 20110711

Abstract (en)

[origin: EP2407831A1] The hairspring has leaf (2) that is provided with specific thickness and height. The leaf is comprised with several apertures (3) extending in height-wise direction and bridges (5) that are provided at apertures in alternate manner. The apertures are distributed over entire length of leaf. Equidistant portions (4) joined to one another are comprised in leaf and separated by apertures. The leaf is made of silicon, quartz and diamond. Core of leaf is made of silicon, and external material of leaf is made of silicon dioxide. An independent claim is included for method of manufacturing hairspring.

IPC 8 full level

**G04B 17/06** (2006.01)

CPC (source: EP US)

**G04B 17/066** (2013.01 - EP US); **Y10T 29/49609** (2015.01 - US)

Citation (examination)

- JP 2006214821 A 20060817 - SEIKO INSTR INC
- WO 2012152843 A1 20121115 - LVMH SWISS MFT SA [CH], et al

Cited by

US9645549B2; RU2605502C1; EP2717103A1; CH706087A1; EP2767869A1; EP2767870A3; EP2884346A1; EP2887152A3; EP2730980A1; EP2884347A1; US2016299470A1; EP2804054A1; JP2014228542A; US9188958B2; US9197183B2; EP2889703A2; US9268307B2; WO2012152843A1; WO2014053336A1; WO2015198262A1; WO2015198261A1; WO2014203085A1; EP2889702A2; US9348313B2; EP4398047A1; DE102023135139A1; DE102023133827A1; WO2014072317A3; WO2015090815A3; TWI721025B; WO2014072317A2; US9317015B2; US9778620B2; JP2015535931A

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 2407831 A1 20120118; EP 2407831 B1 20220907**; CN 102331704 A 20120125; JP 2012021984 A 20120202; JP 5851135 B2 20160203; US 2012008468 A1 20120112; US 8562206 B2 20131022

DOCDB simple family (application)

**EP 11405279 A 20110711**; CN 201110225244 A 20110711; JP 2011152481 A 20110711; US 201113179079 A 20110708