

Title (en)
Hairspring for balance-spring resonator

Title (de)
Spiralfeder für Spiralfeder-Unruh-Resonator

Title (fr)
Spiral pour résonateur balancier-spiral

Publication
EP 2151722 A1 20100210 (FR)

Application
EP 08405188 A 20080729

Priority
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Abstract (en)
The hairspring has two plates (1a, 1b) that are integrated with respect to each other by their respective ends and coplanar, where the hairspring is made of single-crystal silicon or quartz. The plates are wound into spirals with an angular offset neutralizing lateral forces exerted on a central axle when one of the ends of each plate is angularly displaced around the central axle with respect to the other end of each plate. Thickness and height of the plates are variable, and the single-crystal silicon is covered with an amorphous silicon dioxide layer.

Abstract (fr)
Spiral pour résonateur balancier-spiral, comportant n lames, n \geq 2, coplanaires, solidaires par au moins une de leurs extrémités homologues respectives et enroulées en spirales avec un décalage angulaire apte à neutraliser les forces latérales susceptibles d'être exercées sur son axe central lorsqu'une des extrémités de chaque lame est déplacée angulairement autour dudit axe central par rapport à son autre extrémité.

IPC 8 full level
G04B 17/06 (2006.01)

CPC (source: EP US)
G04B 17/066 (2013.01 - EP US); **G04B 17/20** (2013.01 - EP US)

Citation (applicant)
EP 1422436 A1 20040526 - CSEMCT SUISSE D ELECTRONIQUE E [CH]

Citation (search report)
• [DA] EP 1422436 A1 20040526 - CSEMCT SUISSE D ELECTRONIQUE E [CH]
• [DA] FR 2447571 A1 19800822 - SCHIEBUHR ERICH [DE]
• [A] US 209642 A 18781105

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WO2012152843A1; EP2407831A1; EP2365403A3; CH704906A1; EP2466393A3; EP2437126A1; EP2485096A1; EP2781967A1; EP3159750A1; EP3159747A1; CN106990699A; RU2714953C2; EP3159749A1; EP3159748A1; RU2707823C2; US10564605B2; US8961003B2; US8672535B2; US10018964B2; EP2908183A1; CN104849995A; WO2011026725A1; US9239569B2; US8764282B2; US8845185B1; US8845186B1; TWI738673B; WO2013045706A2; US9411314B2; EP4224257A1; EP3001257B1; US8562206B2

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