

Title (en)

Hairspring with two spiral springs with improved isochronism

Title (de)

Spirale mit zwei Spiralfedern mit verbessertem Isochronismus

Title (fr)

Spiral à deux ressort-spiraux à isochronisme amélioré

Publication

EP 2613206 B1 20220511 (FR)

Application

EP 12194292 A 20121126

Priority

EP 12150230 A 20120105

Abstract (en)

[origin: EP2613206A1] The spring (1) has hairsprings (3, 5) comprising curves extending in planes, where each curve has continuously variable pitch. The curves are symmetrical relative to a straight line (A) parallel to the planes, and pass through a median projection plane (P) of an attachment element (4). Each curve is arranged such that specific relation is zero to reduce displacements of center of mass during contraction and expansion. Each hairspring has H-shaped counterweights (8, 8', 9, 9') to compensate for unbalance formed by a mass of the element and personalize anisochronism slope of the balance spring. The specific relation includes a moment of the balance spring of order n, length of the balance spring and curvilinear abscissa along the balance spring to the power of n and parameterization of the balance spring by the abscissa. The balance spring is formed from silicon and includes a part coated with silicon dioxide.

IPC 8 full level

G04B 17/06 (2006.01)

CPC (source: EP US)

G04B 17/063 (2013.01 - US); **G04B 17/066** (2013.01 - EP US)

Citation (examination)

EP 2405312 A1 20120111 - MONTRES BREGUET SA [CH]

Cited by

EP3181938B1; EP3181940B1

Designated contracting state (EPC)

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DOCDB simple family (publication)

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