

Title (en)

HEAVILY DOPED SILICON HAIRSPRING FOR TIMEPIECE

Title (de)

HOCHDOTIERTE SILIZIUMFEDER FÜR UHR

Title (fr)

SPIRAL EN SILICIUM FORTEMENT DOPÉ POUR PIÈCE D'HORLOGERIE

Publication

EP 3159746 A1 20170426 (FR)

Application

EP 15190441 A 20151019

Priority

EP 15190441 A 20151019

Abstract (en)

[origin: US2017108831A1] A balance spring for an oscillator of a timepiece, wherein it comprises a component part, in particular at least a coil or a portion of a coil, provided with heavily doped silicon having an ion density greater than or equal to 10^{18} at/cm³, in order to permit the thermo-compensation of the oscillator.

Abstract (fr)

Spiral pour un oscillateur d'une pièce d'horlogerie, caractérisé en ce qu'il comprend une partie, notamment au moins une spire ou une portion de spire, dotée de silicium fortement dopé à une densité ionique supérieure ou égale à 10^{18} at/cm³ afin de permettre la thermo-compensation de l'oscillateur.

IPC 8 full level

G04B 17/06 (2006.01); **G04B 17/22** (2006.01)

CPC (source: CN EP US)

G04B 17/06 (2013.01 - CN); **G04B 17/063** (2013.01 - US); **G04B 17/066** (2013.01 - CN EP US); **G04B 17/22** (2013.01 - EP US); **G04B 17/227** (2013.01 - EP US)

Citation (applicant)

- EP 1258786 A1 20021120 - ROLEX MONTRES [CH]
- EP 1422436 A1 20040526 - CSEMCT SUISSE D ELECTRONIQUE E [CH]

Citation (search report)

- [I] CH 699780 A2 20100430 - RICHEMONT INT SA [CH]
- [I] CH 709076 A2 20150630 - ETA SA MANUFACTURE HORLOGÈRE SUISSE [CH]

Cited by

WO2021170473A1; EP4212965A1; EP4212966A1

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

EP 3159746 A1 20170426; **EP 3159746 B1 20180606**; CN 106597828 A 20170426; CN 106597828 B 20210212; JP 2017083434 A 20170518; JP 6869689 B2 20210512; US 10539926 B2 20200121; US 2017108831 A1 20170420

DOCDB simple family (application)

EP 15190441 A 20151019; CN 201611078699 A 20161019; JP 2016204033 A 20161018; US 201615295449 A 20161017