

Title (en)

Manufacturing method for a hairspring assembly of a timepiece made of micro-machinable material or silicon

Title (de)

Herstellungsverfahren einer Spiralfederanordnung einer Uhr aus mikro-bearbeitbarem Material oder Silizium

Title (fr)

Procédé de fabrication d'un ensemble spiral de pièce d'horlogerie en matériau micro-usinable ou en silicium

Publication

EP 2397919 B1 20171108 (FR)

Application

EP 10166685 A 20100621

Priority

EP 10166685 A 20100621

Abstract (en)

[origin: EP2397919A1] The method involves breaking volume of a balance spring assembly (1) into elementary volumes that are perpendicular to each other and that form same number of sub-components. One sub-component is realized to form a component forming a terminal curve (4) e.g. Phillips curve, of the assembly and directly joining a flat hairspring (2) at a point in space, where the projection of the curve into a base plane (P) is located external to the hairspring. The curve is in a plane orthogonal to that of the hairspring. The sub-components are assembled at junction areas by an assembling unit. Independent claims are also included for the following: (1) a balance spring assembly comprising a flat hairspring and a terminal curve (2) a time piece comprising a point of attachment.

IPC 8 full level

G04B 17/06 (2006.01); **G04D 3/00** (2006.01)

CPC (source: EP US)

G04B 17/066 (2013.01 - EP US); **G04D 3/0041** (2013.01 - EP US); **Y10T 29/49609** (2015.01 - US)

Cited by

CN109739075A; US11703804B2; TWI796444B

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)

EP 2397919 A1 20111221; **EP 2397919 B1 20171108**; CN 102289184 A 20111221; CN 102289184 B 20130717; HK 1161759 A1 20120803; JP 2012002813 A 20120105; JP 5823180 B2 20151125; US 2011310710 A1 20111222; US 8757868 B2 20140624; WO 2011160885 A1 20111229

DOCDB simple family (application)

EP 10166685 A 20100621; CN 201110211398 A 20110620; EP 2011057459 W 20110510; HK 12102210 A 20120305; JP 2011134572 A 20110616; US 201113164124 A 20110620