

Title (en)
Spiral with immobile mass centre

Title (de)
Spiralfeder mit unbeweglichem Massenzentrum

Title (fr)
Spiral à centre de masse immobile

Publication
EP 2405313 B1 20170816 (FR)

Application
EP 11169540 A 20110610

Priority
• EP 10169068 A 20100709
• EP 11169540 A 20110610

Abstract (en)
[origin: EP2405312A1] The spring (1) has an attachment member (4) securing an end of a curve of a hairspring (3) to an end of a curve of another hairspring (5) to form a dual balance spring in series, where a part of the spring is coated with silicon dioxide. The curves respectively extend in two parallel planes. The curves are symmetrical relative to a straight line parallel to the planes passing through a median plane of projection of the attachment member. Each curve respects a specific relation to reduce displacements of center of mass of the spring during contraction and expansion of the spring. The curves of the hairsprings include a continuously variable pitch.

IPC 8 full level
G04B 17/06 (2006.01)

CPC (source: EP KR US)
G04B 17/06 (2013.01 - KR); **G04B 17/066** (2013.01 - EP US)

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 2405312 A1 20120111; CN 102314144 A 20120111; CN 102314144 B 20130619; EP 2405313 A1 20120111; EP 2405313 B1 20170816; HK 1165870 A1 20121012; JP 2012018169 A 20120126; JP 5350441 B2 20131127; KR 20120005949 A 20120117; US 2012008467 A1 20120112; US 8480294 B2 20130709

DOCDB simple family (application)
EP 10169068 A 20100709; CN 201110190740 A 20110708; EP 11169540 A 20110610; HK 12106587 A 20120705; JP 2011152652 A 20110711; KR 20110062572 A 20110628; US 201113177845 A 20110707