

Title (en)

Timepiece with a mechanical movement coupled to an electronic regulator mechanism

Title (de)

Uhr mit einem mechanischen Uhrwerk, das mit einem elektronischen Regulator gekoppelt ist

Title (fr)

Pièce d'horlogerie ayant un mouvement mécanique associé à un régulateur électronique

Publication

EP 1521141 B1 20070530 (FR)

Application

EP 03022031 A 20031001

Priority

EP 03022031 A 20031001

Abstract (en)

[origin: US2005036405A1] There is disclosed a wristwatch having a case containing a mechanical watch movement (10) driven by a spring barrel (14) and provided with a mechanical regulator with a balance and balance-spring, which is associated, via electromagnetic coupling, with an electronic regulator driven by a quartz resonator. The rim of the balance (13) is provided with a pair of permanent magnets (38, 39). The electronic regulator includes a fixed coil (12) arranged for cooperating with said magnets via electromagnetic coupling, a rectifier (58) provided with at least one capacitor, and a circuit (60) for enslaving the frequency of the mechanical regulator to the frequency of the oscillator by braking obtained by briefly short-circuiting the coil. In order to enable a common type of mechanical movement to be used, only the balance of which is altered, the electronic regulator is formed by a structural module (11) that is entirely separate from the mechanical watch movement (10). This module can be fixed to the movement plate, or, conversely, carried by the watchcase independently of said movement, in particular via a casing ring (26). Apart from the coil, all of the rest of the electronic module (11) is preferably located outside the mechanical movement.

IPC 8 full level

G04B 17/00 (2006.01); **G04C 10/00** (2006.01); **G04B 17/06** (2006.01); **G04C 11/08** (2006.01)

CPC (source: EP US)

G04B 17/063 (2013.01 - EP US); **G04C 10/00** (2013.01 - EP US); **G04C 11/084** (2013.01 - EP US)

Cited by

EP3719588A1; US11537085B2; EP1843227A1; WO2007115985A1; US7889028B2

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)

US 2005036405 A1 20050217; **US 7306364 B2 20071211**; AT E363675 T1 20070615; CN 100480902 C 20090422; CN 1603981 A 20050406; DE 60314142 D1 20070712; DE 60314142 T2 20080124; EP 1521141 A1 20050406; EP 1521141 B1 20070530; HK 1075299 A1 20051209; JP 2005106830 A 20050421; JP 4722445 B2 20110713; SG 110187 A1 20050428

DOCDB simple family (application)

US 95293904 A 20040930; AT 03022031 T 20031001; CN 200410085216 A 20040930; DE 60314142 T 20031001; EP 03022031 A 20031001; HK 05107682 A 20050901; JP 2004289802 A 20041001; SG 200405602 A 20040927