

Title (en)
Composite balance and method of manufacturing thereof

Title (de)
Composite-Unruh und Herstellungsverfahren dafür

Title (fr)
Balancier composite et son procédé de fabrication

Publication
EP 2104005 A1 20090923 (FR)

Application
EP 08153093 A 20080320

Priority
EP 08153093 A 20080320

Abstract (en)
The balance (45') has a hub (39') connected to a felloe (37') by arms (40'-43'), where composite balance is formed in a silicon based layer. The felloe has a crenated ring (23') whose density is higher than that of the silicon based layer for increasing inertia of the balance. The ring is mounted in a recess formed in one of main surfaces of the felloe. A cylinder (25') is mounted on one of main surfaces of the hub, where the cylinder and the crenated ring are formed from metallic material. An independent claim is also included for a method for fabricating a composite balance.

Abstract (fr)
L'invention se rapporte à un balancier composite (45, 45') formé dans une couche (21) en un matériau à base de silicium et comportant un moyeu (39, 39') relié à une serge (37, 37') par au moins un bras (40, 41, 42, 43). Selon l'invention, la serge (37,37') comporte au moins une partie supplémentaire (23, 23') de plus grande densité que ledit matériau à base de silicium permettant d'augmenter l'inertie dudit balancier. L'invention se rapporte également à un procédé 1 de fabrication d'un tel balancier. L'invention concerne le domaine des mouvements horlogers.

IPC 8 full level
G04B 17/06 (2006.01); **G04D 3/00** (2006.01)

CPC (source: EP KR US)
G04B 17/063 (2013.01 - EP KR US); **G04D 3/0038** (2013.01 - EP KR US); **G04D 3/0069** (2013.01 - EP KR US)

Citation (applicant)
• EP 1655642 A2 20060510 - ETA SA MFT HORLOGERE SUISSE [CH]
• EP 1584994 A1 20051012 - NIVAROX SA [CH]

Citation (search report)
• [E] WO 2008080570 A2 20080710 - COMPLITIME S A [CH], et al
• [XA] GB 2416408 A 20060125 - LEVINGSTON GIDEON R [FR]
• [A] GB 1083209 A 19670913 - TISSOT HORLOGERIE
• [A] FR 1301938 A 19620824 - LIP SA
• [A] EP 0732635 A1 19960918 - SUISSE ELECTRONIQUE MICROTECH [CH]

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Designated extension state (EPC)
AL BA MK RS

DOCDB simple family (publication)
EP 2104005 A1 20090923; CN 101978327 A 20110216; CN 101978327 B 20120718; EP 2257855 A1 20101208; EP 2257855 B1 20121205; EP 2485095 A1 20120808; EP 2485095 B1 20130619; HK 1154087 A1 20120420; JP 2011525614 A 20110922; JP 2013068638 A 20130418; JP 2013231732 A 20131114; JP 5443626 B2 20140319; JP 5603458 B2 20141008; KR 20100138927 A 20101231; RU 2010142923 A 20120427; RU 2468405 C2 20121127; TW 201007395 A 20100216; TW I438589 B 20140521; US 2011103196 A1 20110505; US 8550699 B2 20131008; WO 2009115464 A1 20090924

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EP 08153093 A 20080320; CN 200980110011 A 20090313; EP 09721945 A 20090313; EP 12164386 A 20090313; EP 2009053001 W 20090313; HK 11108315 A 20110809; JP 2011500163 A 20090313; JP 2013000879 A 20130108; JP 2013127296 A 20130618; KR 20107020597 A 20090313; RU 2010142923 A 20090313; TW 98109209 A 20090320; US 93353809 A 20090313