

Title (en)
Part for clockwork

Title (de)
Bauteil für Uhrwerk

Title (fr)
Pièce pour mouvement d'horlogerie

Publication
EP 2757423 B1 20180711 (FR)

Application
EP 13151669 A 20130117

Priority
EP 13151669 A 20130117

Abstract (en)
[origin: EP2757423A1] The pin has a pivot (3) formed with ends. Metal e.g. austenitic steel, austenitic cobalt alloy or austenitic nickel alloy, is adapted to limit sensitivity of the pin to magnetic fields. An outer surface of the pivot is hardened to predetermined depth relative to a core of the pin. The hardened outer surface includes diffused atoms of a chemical element e.g. non-metal chemical element such as nitrogen and/or carbon, where hardness of the hardened outer surface is about more than 1000 HV. An independent claim is also included for a method for fabricating a pivot pin.

IPC 8 full level
G04B 1/16 (2006.01); **G04B 13/02** (2006.01); **G04B 15/14** (2006.01)

CPC (source: EP RU US)
G04B 1/16 (2013.01 - EP US); **G04B 13/02** (2013.01 - EP US); **G04B 15/14** (2013.01 - EP US); **G04B 1/04** (2013.01 - RU);
Y10T 29/49 (2015.01 - EP US)

Citation (examination)
CH 694465 A5 20050131 - PREC ENGINEERING AG [CH]

Citation (opposition)
Opponent : ROLEX SA
• JP 2003214526 A 20030730 - SEIKO EPSON CORP
• EP 2757423 A1 20140723 - OMEGA SA [CH]
• WO 9835067 A1 19980813 - VACUUMSCHMELZE GMBH [DE]
• WO 2010079472 A1 20100715 - ISCAR LTD [IL], et al
• JP 2008063602 A 20080321 - TOSHIBA CORP
• CH 554501 A 19740930 - SUISSE HORLOGERIE RECH LAB
• CH 477718 A 19690514 - PETIGNAT MAURICE [CH], et al
• JP S5884968 A 19830521 - SEIKO INSTR & ELECTRONICS
• EP 2065107 A1 20090603 - DAMASKO KONRAD [DE]
• JP H06308260 A 19941104 - DAIDO HOXAN INC
• "Nitriding", WIKIPEDIA, December 2012 (2012-12-01), pages 1 - 5, XP055582511
• BB STRAUMAL ET AL.: "Ionic Nitriding of Austenitic and Ferritic steel with the aid of a high aperture", HALL CURRENT ACCELERATOR, 2001, pages 1457 - 1462, XP009049460
• DICTIONNAIRE LAROUSSE EN LIGNE, « NITRURATION », Retrieved from the Internet <URL:https://www.larousse.fr/dictionnaires/ francais / nitruration/54679>
• ENCYCLOPÉDIE LAROUSSE EN LIGNE, Retrieved from the Internet <URL:https://www.larousse.fr/encyclopedie/divers/nitruration/73497>

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EP3940112A1; EP3273304A1; EP3273303A1; EP3273305A1; CH717663A1; EP3285123A1; EP3273306A1; US11144011B2; EP3339968A1; EP3663865A1; CH715613A1; WO2022223479A1; WO2023036928A1; EP3273307A1; US10761482B2; EP3258325A1; EP3584640A1; US11131965B2; EP4177677A1; US11982977B2; EP2757423B1

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 2757423 A1 20140723; EP 2757423 B1 20180711; CN 103941572 A 20140723; CN 110376868 A 20191025; HK 1200221 A1 20150731; JP 2014137376 A 20140728; JP 2016033523 A 20160310; JP 2018136328 A 20180830; JP 2020034570 A 20200305; JP 2022009719 A 20220114; JP 2022173431 A 20221118; JP 6420752 B2 20181107; RU 2014101336 A 20150727; RU 2625254 C2 20170712; US 2014198625 A1 20140717; US 2015378309 A1 20151231; US 9182742 B2 20151110; US 9389587 B2 20160712

DOCDB simple family (application)
EP 13151669 A 20130117; CN 201410022528 A 20140117; CN 201910758457 A 20140117; HK 15100660 A 20150121; JP 2014006503 A 20140117; JP 2015240807 A 20151210; JP 2018070668 A 20180402; JP 2019200748 A 20191105; JP 2021177240 A 20211029; JP 2022155179 A 20220928; RU 2014101336 A 20140116; US 201414154673 A 20140114; US 201514852074 A 20150911