

Title (en)

METHOD FOR MANUFACTURING A BALANCE FOR A TIMEPIECE

Title (de)

VERFAHREN ZUR HERSTELLUNG EINER UNRUH FÜR UHREN

Title (fr)

PROCEDE DE FABRICATION D'UN BALANCIER POUR PIECE D'HORLOGERIE

Publication

**EP 3796102 A1 20210324 (FR)**

Application

**EP 20201790 A 20171222**

Priority

- EP 20201790 A 20171222
- EP 17210299 A 20171222

Abstract (en)

[origin: US2019196408A1] A process for producing a metal alloy balance wheel by molding, the process including the following steps: a) making a mold in the negative shape of the balance wheel, b) getting hold of a metal alloy that has a thermal expansion coefficient of less than 25 ppm/° C. and is able to be in an at least partly amorphous state when it is heated to a temperature between its glass transition temperature and its crystallization temperature, c) putting the metal alloy into the mold, the metal alloy being heated to a temperature between its glass transition temperature and its crystallization temperature so as to be hot-molded and to form a balance wheel, d) cooling the metal alloy to obtain a balance wheel made of the metal alloy, e) releasing the balance wheel obtained in step d) from its mold.

IPC 8 full level

**G04B 17/22** (2006.01); **G04B 18/00** (2006.01)

CPC (source: CN EP US)

**G04B 17/063** (2013.01 - CN US); **G04B 17/066** (2013.01 - CN US); **G04B 17/222** (2013.01 - CN EP US); **G04B 17/227** (2013.01 - CN EP US); **G04B 18/006** (2013.01 - CN EP US); **G04D 3/0038** (2013.01 - CN); **B22C 9/00** (2013.01 - CN EP US); **B22D 15/00** (2013.01 - CN EP US); **B22D 25/026** (2013.01 - CN EP US); **B22D 27/04** (2013.01 - CN EP US); **C22C 14/00** (2013.01 - CN EP US); **C22C 16/00** (2013.01 - CN EP US); **C22C 21/00** (2013.01 - CN EP US); **C22C 38/08** (2013.01 - CN EP US); **G04C 3/04** (2013.01 - CN US)

Citation (applicant)

EP 3170579 A1 20170524 - SWATCH GROUP RES & DEV LTD [CH]

Citation (search report)

- [A] EP 3170579 A1 20170524 - SWATCH GROUP RES & DEV LTD [CH]
- [A] EP 2395402 A1 20111214 - MONTRES BREGUET SA [CH]
- [A] EP 2703909 A1 20140305 - SWATCH GROUP RES & DEV LTD [CH]
- [T] AGILENT: "Material Expansion Coefficients", LASER AND OPTICS USER'S MANUAL, 31 December 2002 (2002-12-31), USA, XP055485562, Retrieved from the Internet <URL:https://psec.uchicago.edu/thermal\_coefficients/cte\_metals\_05517-90143.pdf> [retrieved on 20180619]

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 3502787 A1 20190626**; **EP 3502787 B1 20201118**; CN 109960137 A 20190702; CN 109960137 B 20210409; CN 112965355 A 20210615; EP 3796102 A1 20210324; EP 3796102 B1 20220420; JP 2019113533 A 20190711; JP 6770049 B2 20201014; US 11307535 B2 20220419; US 11640140 B2 20230502; US 2019196408 A1 20190627; US 2022163923 A1 20220526

DOCDB simple family (application)

**EP 17210299 A 20171222**; CN 201811455309 A 20181130; CN 202110265760 A 20181130; EP 20201790 A 20171222; JP 2018216249 A 20181119; US 201816150524 A 20181003; US 202217669476 A 20220211