Title (en)

METHOD FOR HARMONIC TUNING OF AT LEAST ONE GONG FOR A CHIMING MECHANISM OF A WATCH

Title (de)

VERFAHREN ZUM HARMONISCHEN STIMMEN MINDESTENS EINES KLANGS EINES SCHLAGWERKMECHANISMUS EINER ARMBANDUHR

Title (fr)

PROCEDE D'ACCORDAGE HARMONIQUE D'AU MOINS UN TIMBRE D'UN MECANISME DE SONNERIE D'UNE MONTRE

Publication

EP 4012511 B1 20230823 (FR)

Application

EP 20213374 A 20201211

Priority

EP 20213374 A 20201211

Abstract (en)

[origin: CN114624984A] The invention relates to a method for tuning at least one gong of a timepiece. The gong is fastened by one end thereof to a gong carrier, which can be mounted on a suitable support in the watchcase. The gong is knocked by the hammer to vibrate on the support of the measuring instrument to determine frequency peaks in the audible frequency band by a fast Fourier transform. A comparison of the vibration frequency within the plane XY and the vibration frequency of the out-of-plane Z in the first natural mode is performed, and a ratio calculation is performed, where f1p is the vibration frequency within the plane XY, and f1h is the vibration frequency of the out-of-plane Z. If the ratio r is less than or equal to a desired value of 0.006, the gong has been tuned. On the other hand, if the ratio is greater than a desired value of 0.006, a gong adjustment operation is performed, and the method is repeated as many as the number of times the ratio r is necessary to be less than or equal to 0.006 from the striking of the gong. Preferably, all natural frequencies of the gong in the audible frequency band must be tuned.

IPC 8 full level

G04D 7/00 (2006.01); **G04B 21/08** (2006.01)

CPC (source: CN EP US)

G04B 21/06 (2013.01 - CN); **G04B 21/08** (2013.01 - US); **G04D 7/00** (2013.01 - US); **G04D 7/002** (2013.01 - EP); **G10K 1/00** (2013.01 - US); G04B 21/08 (2013.01 - EP)

Citation (examination)

- EP 2290479 B1 20131113 - MONTRES BREGUET SA [CH]
- CH 708885 B1 20181214 - RICHEMONT INT SA [CH]

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 4012511 A1 20220615; **EP 4012511 B1 20230823**; CN 114624984 A 20220614; CN 114624984 B 20240524; JP 2022093253 A 20220623; JP 7165245 B2 20221102; US 2022187770 A1 20220616

DOCDB simple family (application)

EP 20213374 A 20201211; CN 202111507385 A 20211210; JP 2021134546 A 20210820; US 202117400760 A 20210812