

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 November 2006 (23.11.2006)

PCT

(10) International Publication Number
WO 2006/123095 A3

(51) International Patent Classification:

G04B 17/06 (2006.01) **G04D 3/00** (2006.01)
G04B 17/32 (2006.01) **F16F 1/10** (2006.01)

(21) International Application Number:

PCT/GB2006/001637

(22) International Filing Date: 4 May 2006 (04.05.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0509886.8 14 May 2005 (14.05.2005) GB
0522838.2 9 November 2005 (09.11.2005) GB

(71) Applicant and

(72) Inventor: **LEVINGSTON, Gideon** [GB/FR]; 50 Avenue
Francis de Croisset, F-06130 Grasse (FR).

(74) Agents: **CALDERBANK, Roger** et al.; Mewburn Ellis
LLP, York House, 23 Kingsway, London Greater London
WC2B 6HP (GB).

(81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,
LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI,
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,
SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

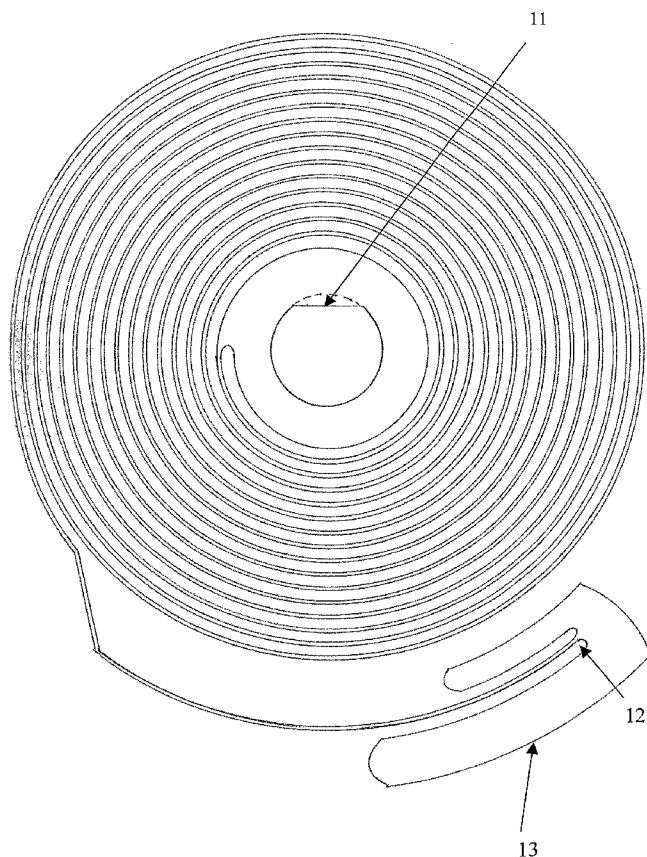
(84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT,
RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

[Continued on next page]

(54) Title: BALANCE SPRING, REGULATED BALANCE WHEEL ASSEMBLY AND METHODS OF MANUFACTURE THEREOF



(57) Abstract: A balance spring comprising a flat spiral coil and a non-elastic inner attachment part formed by laser beam cutting. The spring has an outer attachment plate in the plane of the coil formed with a channel which receives and protects the outer winding of the coil. The outer attachment plate has a curved attachment edge which allows the location of the oscillator dead point to be varied without affecting spring frequency.



(88) Date of publication of the international search report:

16 August 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.