

Title (en)
High frequency balance wheel for timepiece

Title (de)
Hochfrequenzunruh für Uhr

Title (fr)
Balancier haute fréquence pour pièce d'horlogerie

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Application
EP 13184692 A 20100611

Priority
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Abstract (en)

The balance comprises: a hub arranged to cooperate with an axis perpendicular to a plane of the balance; a serge device (5) continuously or discontinuously connected to the hub by a joining surface (6); and an inertia counterweight (7) attached to the serge device in a housing (8) that includes a periphery of the serge device for receiving the counterweight. The counterweight comprises a guide unit (9) complementary to a complementary guiding unit included in the housing, and two parts adjustable in translation with relative to each other in a plane parallel to the plane of the balance. The balance comprises: a hub arranged to cooperate with an axis perpendicular to a plane of the balance; a serge device (5) continuously or discontinuously connected to the hub by a joining surface (6); and an inertia counterweight (7) attached to the serge device in a housing (8) that includes a periphery of the serge device for receiving the counterweight. The counterweight comprises a guide unit (9) complementary to a complementary guiding unit included in the housing, and two parts adjustable in translation with relative to each other in a plane parallel to the plane of the balance. One of the parts is stationary in translation with respect to the serge device. Each of the parts is made of a material that is denser than a first material of the serge device. The counterweight is held in the housing by an elastic holding unit arranged to allow the introduction of the counterweight in the housing and to prevent its extraction. The elastic holding unit is formed by a clipping unit that comprises the counterweight and is arranged to cooperate elastically with a complementary clipping unit comprising the serge device. The clipping unit is constituted by a resilient lip that comprises the counterweight. The resilient lip is arranged to deflect in a compressed position for a first displacement stroke of the counterweight in the housing to allow the introduction and to relax in a relaxed position in a recess formed in the housing constituting the complementary clipping unit in an operating position or in a second displacement stroke of the counterweight. The resilient lip includes a stop surface in the relaxed position arranged to abut a complementary stop surface disposed in the housing. The counterweight comprises a first portion having the guiding unit and a second portion formed by a manipulated screw, a thread or an internal thread, and cooperates with the internal thread comprising the first portion. The internal thread is spaced from the serge device or the junction surface. The screwing or unscrewing of the manipulated screw towards or away an end of a screw of the serge device. The first portion is stationary in translation. An end of the first portion comprises the screw that is stationary in translation. The manipulated screw has a shoulder and a groove adapted to cooperate with a complementary groove. The shoulder forms the serge device. The balance further comprises: a disengaging unit provided on a side of the hub and arranged to allow insertion of the counterweight to the hub and to allow the positioning of the manipulated screw by cooperation between the shoulder and the groove; and two flyweights attached to the serge device. The manipulated screw is remote from the hub. The counterweight comprises two inertia regulating screws. The guide unit includes a complementary profile to that of the complementary guiding unit. The flyweights are symmetrical in pairs with respect to a plane passing through the hub and the axis and/or are symmetrical in pairs with respect to the hub. The counterweight has a planar surface or parallel surface parallel to the plane of the balance or an end surface perpendicular to the plane of the balance and at a radial end of the axis, and an airfoil radiated and/or sloping to reduce its friction in the air in any section perpendicular to the plane of the balance and to a plane passing through the axis. The planar surface serves as a platform for balancing adjustment and frequency adjustment operations. The joining surface is perforated and comprises ribs traversing the entire thickness of the junction surface and/or pockets formed over only a part of the thickness of the junction surface and separated by the ribs.

Abstract (fr)

L'invention concerne un balancier (1) d'horlogerie, à réglage d'inertie, comportant une masselotte d'inertie (7) rapportée dans un logement (8) d'une serge périphérique (5) reliée à un moyeu (2) par une surface de jonction (6). Chaque masselotte (7) comporte deux parties (10, 11) réglables en translation l'une par rapport à l'autre, l'une étant immobile en translation par rapport à ladite serge (5). Une première partie (10) comporte des moyens de guidage (9) dans le logement (8), et une deuxième partie (11) est constituée par une vis réglante (12) coopérant avec ladite première partie (10), et dont le filetage est à distance de ladite serge (5). Ladite masselotte (7) est maintenue dans ledit logement (8) par des moyens de maintien élastique (13) agencés pour autoriser l'introduction de ladite masselotte (7) dans ledit logement (8) et pour interdire son extraction. L'invention concerne un balancier-spiral ou une pièce d'horlogerie incorporant un tel balancier (1).

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Citation (applicant)
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• FR 1301938 A 19620824 - LIP SA
• EP 1562087 A1 20050810 - MONTRES BREQUET SA [CH]
• GB 2416408 A 20060125 - LEVINGSTON GIDEON R [FR]
• CH 16676 A 18990115 - SANDOZ HENRI [CH]

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