

## Title (en)

Collet without deformation of the spiral fixing radius and fabrication method of such a collet

## Title (de)

Spiralrolle ohne Deformation des Fixierungsradius der Spiralfeder und Herstellungsverfahren derartige Spiralrolle

## Title (fr)

Virole sans déformation du rayon de fixation du spiral et procédé de fabrication d'une telle virole

## Publication

**EP 1584994 A1 20051012 (FR)**

## Application

**EP 04008293 A 20040406**

## Priority

EP 04008293 A 20040406

## Abstract (en)

A collet for mounting balance spring, is formed by a metal band whose inner contour includes a discrete number of points of contact with a balance staff distributed along angular apertures  $\alpha$  and in that width "l" of the band varies such that the compression forces of the contact points on the staff do not alter the distance R after driving in, leading to a friction torque allowing annular orientation of the collet on the staff. A collet for mounting a balance spring (9), is formed by a metal band (10) whose inner contour (11) delimits recesses (11a-c) for driving the collet onto a balance staff (2) and whose outer contour (12) includes a function point between the collet and the balance spring located at the end (14) of an arm (14) at a distance R from the center O of the staff greater than that of any other point of the outer contour. The inner contour includes a discrete number of points of contact (1, 3, 5) with the staff, one of the points being aligned with the staff and the function point, the angular apertures  $\alpha$  of the function points not being all identical. The portions of band opposite the points of contact not aligned with the staff and the join point (4) form function of greater width l 6, l 8 than the other parts of the band.

## Abstract (fr)

1. La virole est formée par une bande métallique (10) dont le contour intérieur (11) délimite des évidements (11a, 11b, 11c, 11d) pour le chassage sur un axe (2) de balancier et dont le contour extérieur (12) comporte un point de jonction (4) entre la virole et le spiral (9) situé à l'extrémité d'un bras (14) à une distance R du centre O de l'axe (2) supérieure à celle de tout autre point (6, 8, 13, 15, 17) du contour extérieur (12). Elle est caractérisée en ce que le contour intérieur (11) comporte un nombre discret de points de contact (1, 3, 5, 7) avec l'axe (2) répartis selon des ouvertures angulaires  $\alpha$  identiques ou différentes et en ce que la largeur "l" de la bande (10) varie de façon à ce que les forces de compression des points de contact (1, 3, 5, 7) sur l'axe (2) ne modifient pas sensiblement la distance R après chassage, conduisent à un couple de friction permettant l'orientation angulaire de la virole sur l'axe (2) et n'introduisent aucun balourd. <IMAGE>

## IPC 1-7

**G04B 17/34**; **G04B 17/06**

## IPC 8 full level

**G04B 17/32** (2006.01); **B23K 26/00** (2006.01); **G04B 17/06** (2006.01); **G04B 17/34** (2006.01)

## CPC (source: EP KR US)

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## Citation (applicant)

- CH 347142 A 19600615 - RUBIN ALPHONSE CHARLES [CH]
- CH 508233 A 19701231 - VIROLA SA [CH]
- US 3429120 A 19690225 - CHARPILLOZ ARNOLD
- CH 311287 A 19551130 - ROLEX MONTRES [CH]
- CH 466807 A 19690131 - VIROLA SA [CH]
- US 3430435 A 19690304 - DUMONT MARCEL
- US 4661212 A 19870428 - EHRFELD WOLFGANG [DE], et al
- US 2001038803 A1 20011108 - MORALES ALFREDO M [US], et al

## Citation (search report)

- [YA] FR 2386850 A1 19781103 - FAR FAB ASSORTIMENTS REUNIES [CH]
- [YA] FR 2312810 A1 19761224 - HAAS CARL [DE]
- [A] EP 1302821 A2 20030416 - FRANCK MULLER WATCHLAND SA [CH]
- [A] CH 508914 A 19701231 - LIP SA [FR]
- [A] DE 7112818 U 19730419
- [A] US 2002115016 A1 20020822 - WARREN JOHN B [US]

## Cited by

EP1868045A1; FR2957688A1; EP3023844A1; EP1637940A3; EP3955064A1; EP1826635A1; US9658599B2; EP2104007A1; EP2104008A1; WO2009115463A1; US8523426B2; EP2104006A1; US9459589B2; EP2104005A1; EP2485095A1; US8550699B2; EP2105807A1; US8296953B2; US8622611B2; EP3913441A1

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## DOCDB simple family (application)

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