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Wang et al.

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- (54) **SILICON OVERCOIL BALANCE SPRING**
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G04B 17/06 (2006.01)
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G04D 3/00 (2006.01)

(52) **U.S. Cl.**
CPC **G04B 17/066** (2013.01); **G04B 17/32** (2013.01); **G04B 17/325** (2013.01); **G04D 3/0041** (2013.01); **Y10T 29/49579** (2015.01)

(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

A method of producing unitary formed silicon balance spring having an overcoil portion for regulation of a mechanical timepiece, said method including the steps of providing a silicon balance spring having a main body portion, and an outer portion for formation as an overcoil portion, wherein the outer portion extends radially outward from an outermost turn of the main body portion, and wherein said main body portion and said outer portion are integrally formed from a silicon based material and are formed in a co-planar configuration; moving said outer portion in a direction relative to and out of the plane of said main body portion, and in a direction towards over said main body portion and towards the plane of the main body portion; and providing a stress relaxation process to the balance spring so as to relieve internal stresses induced within the balance spring from step (ii); wherein upon movement of said outer portion into the plane of said main body portion, the outer portion is located in an overcoil configuration relative to said main body portion.

12 Claims, 11 Drawing Sheets

