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(54) **COIL SPRING FOR COSMETIC MATERIAL AND COSMETIC CONTAINER**

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(58) **Field of Classification Search**
CPC combination set(s) only.
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,250,042 A * 7/1941 Sundt H01R 13/562
16/108
2,586,646 A * 2/1952 Graham B62D 7/16
267/180

(Continued)

FOREIGN PATENT DOCUMENTS

DE 10237955 A1 3/2004
EP 0970318 A1 1/2000

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 14/263,333 to Yukikazu Ishida, filed Apr. 28, 2014.
(Continued)

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(57) **ABSTRACT**

A coil spring for cosmetic material is a one spring where a first spring part and a second spring part whose winding wire diameters and spring constants differ from one another are continuously and integrally formed via a stepped part. Accordingly, the use of the first spring part and the second spring part allows, for example, achieving absorbing an impact in both directions of an axial direction and sequential movements of the components constituting the cosmetic container, thus allowing providing wide variety of functions with the one spring. For example, the use of the stepped part also allows locking the component constituting the cosmetic container.

8 Claims, 9 Drawing Sheets

