



US008393601B2

(12) **United States Patent**  
**de Mola**

(10) **Patent No.:** **US 8,393,601 B2**  
(45) **Date of Patent:** **Mar. 12, 2013**

(54) **VIBRATION ISOLATION FASTENER INSERT**

(75) **Inventor:** **Manuel Loret de Mola**, Jupiter, FL (US)

(73) **Assignees:** **Applied Concepts Aircraft Solutions, Inc.**, Stuart, FL (US); **The Young Engineers, Inc.**, Lake Forest, CA (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 328 days.

(21) **Appl. No.:** **12/286,972**

(22) **Filed:** **Oct. 4, 2008**

(65) **Prior Publication Data**

US 2010/0086377 A1 Apr. 8, 2010

(51) **Int. Cl.**  
**F16F 7/00** (2006.01)

(52) **U.S. Cl.** ..... **267/141.5**; 403/226

(58) **Field of Classification Search** ..... 403/76, 403/122, 141-143, 165, 167, 168, 203, 220-228, 403/305, 308, 338, 367-371, 374.1-374.4, 403/408.1; 244/119, 129.1, 131; 267/140.11-140.13, 140.2-140.4, 141, 141.1-141.5; 24/289, 290, 297, 453, 457, 458; 52/787.1-787.12, 52/716.8; 411/338, 82, 82.1, 173-175; 428/117, 428/118, 137; 248/608, 609, 635; 464/71, 464/89

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

876,912 A *	1/1908	Pike	411/381
1,295,868 A *	3/1919	Dodds	411/379
1,410,004 A *	3/1922	Dodds	411/379
1,811,736 A *	6/1931	Bezel	403/143
1,864,080 A *	6/1932	Madge	267/141.4

1,964,432 A *	6/1934	Geyer	403/226
2,538,658 A *	1/1951	Saurer	267/141.5
2,631,048 A *	3/1953	Palmer	285/95
2,926,881 A *	3/1960	Painter	267/141.4
2,929,426 A *	3/1960	Hamman	411/117
3,009,746 A *	11/1961	Haushalter	384/222
3,058,765 A *	10/1962	Thomas	403/133
3,137,887 A *	6/1964	Mannino et al.	52/787.1
3,181,850 A *	5/1965	Bajer	267/153
3,339,609 A *	9/1967	Cushman	411/82.1
3,429,598 A *	2/1969	Scheublein, Jr. et al.	403/128
3,434,261 A *	3/1969	Rohe	52/787.12
3,912,206 A *	10/1975	Jong	244/118.1
4,069,864 A *	1/1978	Novoryta et al.	165/86
4,092,078 A *	5/1978	Klotz et al.	403/221
4,196,775 A *	4/1980	Groh	165/68
4,530,491 A *	7/1985	Bucksbee et al.	267/141
4,577,450 A *	3/1986	Large	52/787.12
4,679,958 A *	7/1987	Mizusawa et al.	403/143
4,689,928 A *	9/1987	Dutton et al.	52/235
4,725,159 A *	2/1988	Wood, Jr.	403/133
4,761,860 A *	8/1988	Krauss	247/13.6
4,981,735 A *	1/1991	Rickson	428/36.9
5,069,431 A *	12/1991	Kakimoto et al.	267/141
5,141,203 A *	8/1992	Baker et al.	248/638
5,143,456 A *	9/1992	Jordens et al.	384/275
5,154,530 A *	10/1992	Dresselhouse	403/138

(Continued)

*Primary Examiner* — Michael P Ferguson

(74) *Attorney, Agent, or Firm* — Joseph E. Mueth

(57) **ABSTRACT**

A vibration isolation fastener insert comprising: a rigid cylindrical hub having an externally extending flange and a through longitudinal opening to receive a fastener. An elastomeric bushing around the hub has a slot therein receiving the external flange. An upper housing is disposed around the side of the bushing and has a flange over the top of the bushing. A lower housing is disposed around the external side of the upper housing and has a flange extending below a lower surface of the bushing.

**8 Claims, 5 Drawing Sheets**

