

(12) **United States Patent**  
**Dimelow**

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(54) **ROTOR ASSEMBLY**  
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7,108,484 B2 \* 9/2006 Thenaisie ..... F01D 5/323  
416/221  
2004/0086387 A1 5/2004 Fitts et al.  
2005/0207892 A1 9/2005 Kanebako et al.  
2006/0165530 A1 7/2006 Corbin et al.

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JP A-1-237304 9/1989

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**FOREIGN PATENT DOCUMENTS**

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**OTHER PUBLICATIONS**

Feb. 14, 2014 Search Report issued in British Application No. GB 1312283.3.  
Nov. 15, 2012 British Search Report issued in British Patent Application No. GB1212750.2.

(30) **Foreign Application Priority Data**  
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\* cited by examiner

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(52) **U.S. Cl.**  
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(57) **ABSTRACT**

A rotor assembly includes a rotor disc and a plurality of circumferentially-spaced, radially outwardly extending rotor blades. The rotor disc has a rim and a plurality of circumferentially spaced slots provided in the rim of the rotor disc, each rotor blade having a root, the root of each rotor blade being arranged in a corresponding one of the slots in the rim of the rotor disc, and at least one of the slots having a chocking device accommodated within a space between a radially outer surface of the slot and a radially inner surface of the root of the rotor blade. The chocking device includes at least a first spring and a second spring, the first and second springs each abutting a radially inner surface of the root of the corresponding rotor blade and arranged transversely relative to a longitudinal axis of the slot.

(58) **Field of Classification Search**  
None  
See application file for complete search history.

(56) **References Cited**  
U.S. PATENT DOCUMENTS

3,353,788 A \* 11/1967 Weeds ..... F01D 5/323  
416/221  
5,123,813 A \* 6/1992 Przytulski ..... F01D 5/26  
403/372

**14 Claims, 6 Drawing Sheets**

