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- (54) **GEAR ARRANGEMENT**
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 127 days.

5,194,031 A *	3/1993	Sahler	A63H 31/00 446/103
5,452,622 A *	9/1995	Fenelon	F16H 55/14 264/242
2006/0061666 A1	3/2006	Kaneko et al.	
2008/0141811 A1*	6/2008	Sandner	F16H 55/18 74/434
2010/0139431 A1*	6/2010	Park	F16H 55/18 74/409
2011/0030489 A1	2/2011	Chen et al.	
2011/0174105 A1*	7/2011	Meier	F16D 1/116 74/448

(Continued)

FOREIGN PATENT DOCUMENTS

AT	507 071 B1	2/2010
AT	508 701 B1	5/2011

(Continued)

OTHER PUBLICATIONS

Austrian Preliminary Office Action dated Mar. 4, 2014 in Austrian Application No. A 50381/2013 with English translation of relevant parts.

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- (52) **U.S. Cl.**
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- (58) **Field of Classification Search**
CPC F16H 55/18; F16H 55/12; F16H 55/14;
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See application file for complete search history.

(57) **ABSTRACT**

A gear arrangement has a split spur gear toothing, including a main gear and a gear rotatable relative to it in the circumferential direction, and the main gear has a hub on which the rotatable gear is mounted, and a spring element is disposed between the main gear and the rotatable gear and biases the rotatable gear in the circumferential direction towards the main gear, and a first spur gear toothing part is provided on the main gear and a second spur gear toothing part is provided on the rotatable gear. The rotatable gear is guided by at least one at least approximately annular guide web in the region of the spur gear toothing.

6 Claims, 3 Drawing Sheets

- (56) **References Cited**
U.S. PATENT DOCUMENTS
1,449,903 A * 3/1923 Leow F16H 55/18
74/440
1,558,222 A 10/1925 Beetow
1,619,799 A * 3/1927 Rounds F16H 55/18
74/440
4,745,823 A * 5/1988 Morita F16H 55/18
74/409

