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(54) **Turbine engine and load reduction device thereof**

(57) A fan rotor apparatus includes: a rotatable fan disk defining a central aperture and carrying an array of airfoil-shaped fan blades around its periphery, the disk having a forward end and an aft end; and an annular,

generally axially-extending forward fan shaft extending through the aperture and coupled to the fan disk for rotation therewith, where the forward fan shaft joins the fan disk at or near the forward end.

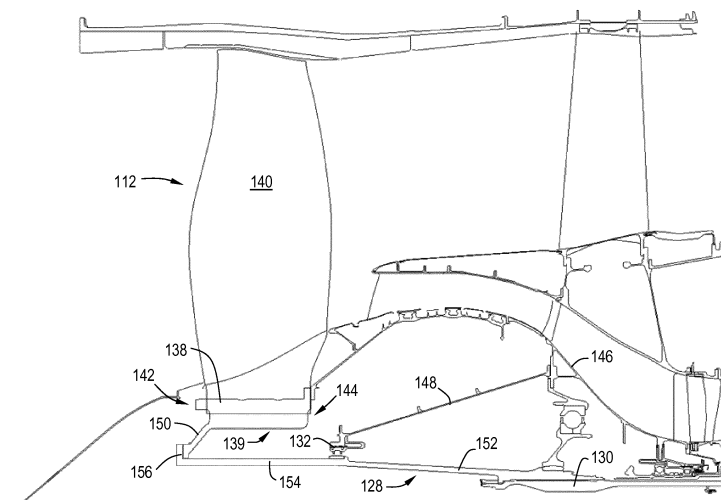


FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 12 16 5454

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* abstract * * column 1, line 7 - line 40 * * column 7, line 6 - column 8, line 53 * * figure 1 *	4,5	
Y	----- US 2005/129343 A1 (BOUCHY GAELE [FR] ET AL) 16 June 2005 (2005-06-16) * abstract * * paragraph [0045] - paragraph [0057] * * figures * -----	4,5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F01D
Place of search		Date of completion of the search	Examiner
Munich		12 November 2015	Mielimonka, Ingo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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