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(54) **Metallic alloy nanocomposite for high-temperature structural components and methods of making**

(57) A nanocomposite comprising a plurality of nanoparticles dispersed in a metallic alloy matrix, and a structural component formed from such a nanocomposite. The metallic matrix comprises at least one of a nickel-based alloy and an iron-based alloy. The nanocomposite contains a higher volume fraction of nanoparticle dispersoids

than those presently available. The structural component include those used in hot gas path assemblies, such as steam turbines, gas turbines, and aircraft turbine. A method of making such nanocomposites is also disclosed.

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Office

EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	PEREZ R J B ET AL: "Thermal stability of nanocrystalline Fe-10 wt.% Al produced by cryogenic mechanical alloying" NANOSTRUCTURED MATERIALS, ELSEVIER, NEW YORK, NY, US, vol. 7, no. 5, 1996, pages 565-572, XP004008196 ISSN: 0965-9773 * the whole document *	1-10	INV. C22C1/05
X	RODRIGUEZ R ET AL: "Tensile and creep behavior of cryomilled Inco 625" ACTA MATER; ACTA MATERIALIA FEB 25 2003, vol. 51, no. 4, 25 February 2003 (2003-02-25), pages 911-929, XP002430292 * the whole document *	1-10	
X	US 5 635 654 A (HEBSUR MOHAN G [US] ET AL) 3 June 1997 (1997-06-03) * abstract *	1-10	
X	M ET AL: "Synthesis of nanocrystalline M50 steel powders by cryomilling" NANOSTRUCTURED MATERIALS, ELSEVIER, NEW YORK, NY, US, vol. 7, no. 8, November 1996 (1996-11), pages 847-856, XP004015565 ISSN: 0965-9773 * the whole document *	1-10	TECHNICAL FIELDS SEARCHED (IPC) C22C B22F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 7 May 2007	Examiner ALVAZZI DELFRATE, M
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
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82