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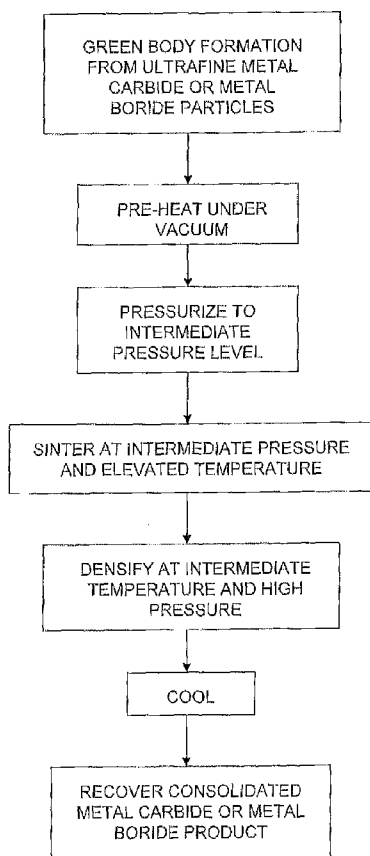
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(54) Title: METHOD OF CONSOLIDATING ULTRAFINE METAL CARBIDE AND METAL BORIDE PARTICLES AND PRODUCTS MADE THEREFROM



(57) Abstract: Ultrafine metal carbide or metal boride particles are consolidated by a method including sintering at intermediate pressures. A green body comprising the ultrafine metal carbide or metal boride particles may be preheated under vacuum and then pressurized to the intermediate sintering pressure. After sintering, the article may be densified at an intermediate temperature below the sintering temperature, and at an elevated pressure above the intermediate sintering temperature. The resultant consolidated metal carbide or metal boride article may then be cooled and used for such applications as armor panels, abrasion resistant nozzles, and the like.



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

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A. CLASSIFICATION OF SUBJECT MATTER INV. C04B35/563 C04B35/575 C04B35/645 C04B35/56 C04B35/58 F41H5/02		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C04B F41H		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, COMPENDEX, INSPEC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 2007/203012 A1 (ODA TAKEHIRO [JP] ET AL) 30 August 2007 (2007-08-30) column 6, line 26 - line 29; examples; table 1 paragraph [0069] - paragraph [0070]	1-6,11, 13-15,18 1-18
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Y	the whole document ----- -/--	1-18
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents :		
A document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *G* document member of the same patent family		
Date of the actual completion of the international search 3 August 2009		Date of mailing of the international search report 04/09/2009
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Munro, Brian

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