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- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



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(54) Title: DISCONTINUOUS CARBON FIBER REINFORCED METAL MATRIX COMPOSITE

(57) **Abstract:** Disclosed are methods and materials for preparing metal matrix composite (MMC) components that have low weight, good thermal conductivity and a controllable in-plane coefficient of thermal expansion. One embodiment of the invention features a metal matrix composite that includes a metal alloy and random in-plane discontinuous fibers. In some embodiments, the metal alloy includes aluminum, copper or magnesium. In certain embodiments, the metal matrix composite includes additives that enable solution hardening. In other embodiments, the metal matrix composite includes additives that enable precipitation hardening. Another embodiment of the invention features a method of manufacturing a metal matrix composite. The method includes contacting random in-plane discontinuous fibers with a binder, and pressurizing the random in-plane discontinuous fibers and the binder to form a bound preform. The preform is pressurized to a pressure greater than the molten metal capillary breakthrough pressure of the bound preform. Subsequently, the bound preform is placed in a mold, infiltrated with a molten infiltrant, and the molten toform infiltrant is cooled the metal matrix composite.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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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, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

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