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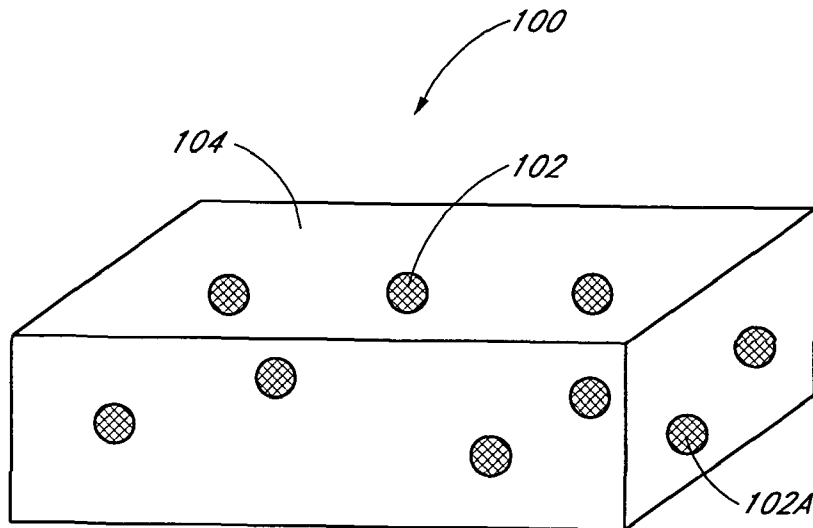
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Declaration under Rule 4.17:
— of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: POLYMER MATRIX COMPOSITES WITH NANO-SCALE REINFORCEMENTS



(57) Abstract: Embodiments of the present invention provide polymer matrix nanocomposites reinforced with nano-scale materials such as nanoparticles and carbon nanotubes and methods of fabricating. The nanomaterials are provided within relatively low weight fractions, for example in the range of approximately 0.01 to about 0.4% by weight and distributed within the matrix by a magnetic mixing procedure to provide substantially uniform reinforcement of the nanocomposites. Advantageously, these nanocomposites provide significantly enhanced tensile strength, strain to failure, and fracture toughness over corresponding neat matrices.

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/220730 A1 (MALNOU ALAIN [FR] ET AL) 6 October 2005 (2005-10-06) cited in the application paragraphs [0016] - [0018]; claims	1-24
X	US 2005/228099 A1 (BRINGLEY JOSEPH F [US] ET AL) 13 October 2005 (2005-10-13) claims 1,7-10; examples	1-24
X	WO 03/020226 A (OREAL [FR]; CARRION DANUVIO [US]; COLEMAN-NALLY DEBRA [US]; GRAVES GAR) 13 March 2003 (2003-03-13) claims 1,5,10,20; examples	1-24
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
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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. *&* document member of the same patent family
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