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(54) Title: HIGHLY QUENCHABLE FE-BASED RARE EARTH MATERIALS FOR FERRITE REPLACEMENT

(57) Abstract: The present invention relates to highly quenchable Fe-based rare earth magnetic materials that are made by rapid solidification process and exhibit good magnetic properties and thermal stability. More specifically, the invention relates to isotropic Nd-Fe-B type magnetic materials made from a rapid solidification process with a lower optimal wheel speed and a broader optimal wheel speed window than those used in producing conventional magnetic materials. The materials exhibit remanence (B_r) and intrinsic coercivity (H_{ci}) values of between 7.0 to 8.5 kG and 6.5 to 9.9 kOe, respectively, at room temperature. The invention also relates to process of making the materials and to bonded magnets made from the magnetic materials, which are suitable for direct replacement of anisotropic sintered ferrites in many applications.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : H01F 1/057; C04B 35/04; B22D 11/00
 US CL : 148/302, 101; 420/121, 83; 252/62.62.54; 164/164/459, 463, 474, 475, 477, 479
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 U.S. : 148/302, 101; 420/121, 83; 252/62.62.54; 164/164/459, 463, 474, 475, 477, 479

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 practicable, search terms used)
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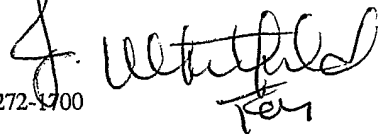
C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EPO 0 242 187 A1 (YAJIMA et al.) 21 October 1987 (21.10.1987), page 3, line 15 to page 4, line 10; page 11, Table 4, Alloy 7; page 13, Table 6, Alloy Nos. 3 and 4; page 15, Table 8, Alloy Nos. 5 to 7; page 16, Table 9, Alloy No. 6; and page 17, Table 10, Alloy No. 3.	1-21 and 29 to 33
Y	US 2002/0084440 A1 (OHMORI et al.) 04 July 2002 (04.07.2002), page 3, lines 54 to 56 and page 12, line 40.	22-28
X	US 6,302,972 (HIROSAWA et al.) 16 October 2001 (16.10.2001), column 2, lines 28 to 67 and column 3, lines 1 to column 4, line 32.	1-21 and 29-33
E	US 2004/0079445 A1 (CHEN et al.) 29 April 2004 (29.04.2004).	1-33
A	US Re. 34,838 (MOHRI et al.) 31 January 1996 (31.01.1995).	1-33

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"T"
"A" document defining the general state of the art which is not considered to be of particular relevance	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
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