

19



Europäisches Patentamt
European Patent Office
Office européen des brevets

11

Publication number:

**0 289 680
A3**

12

EUROPEAN PATENT APPLICATION

21

Application number: 87308666.4

51

Int. Cl.⁵: H01F 1/04, H01F 41/02

22

Date of filing: 30.09.87

30

Priority: 30.04.87 JP 104623/87

43

Date of publication of application:
09.11.88 Bulletin 88/45

84

Designated Contracting States:
AT CH DE FR GB IT LI NL

88

Date of deferred publication of the search report:
06.06.90 Bulletin 90/23

71

Applicant: SEIKO EPSON CORPORATION
4-1, Nishishinjuku 2-chome
Shinjuku-ku Tokyo-to(JP)

72

Inventor: Akioka, Koji
c/o SEIKO EPSON CORPORATION 3-5, Owa
3-chome
Suwa-shi Nagano-ken(JP)
Inventor: Kobayashi, Osamu
c/o SEIKO EPSON CORPORATION 3-5, Owa
3-chome
Suwa-shi Nagano-ken(JP)
Inventor: Shimoda, Tatsuya
c/o SEIKO EPSON CORPORATION 3-5, Owa
3-chome
Suwa-shi Nagano-ken(JP)

74

Representative: Miller, Joseph et al
J. MILLER & CO. Lincoln House 296-302 High
Holborn
London WC1V 7JH(GB)

54

Permanent magnet and method of producing the same.

57

A permanent magnet made from an alloy comprising at least one rare earth element, iron and boron characterised in that the average grain diameter of the crystals of the alloy is not more than 150 μ m, the carbon content and the oxygen content of the alloy being not more than 400 ppm and not more than 1000 ppm respectively.

EP 0 289 680 A3



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X,P	PATENT ABSTRACTS OF JAPAN, vol. 11, no. 232 (C-437)[2679], 29th July 1987; & JP-A-62 47 455 (SUMITOMO SPECIAL METALS CO.) 02-03-1987 ---	1-4,9	H 01 F 1/04 H 01 F 41/02
A	FR-A-2 586 323 (SEIKO EPSON CORP.) * Claims 1,5; page 10, lines 14-24; page 15, lines 6-16 * ---	1-7,9-11	
A	EP-A-0 175 214 (K.K. TOSHIBA) * Claims 1-5,9; page 6, lines 19-32; page 8, table 1 * ---	1-9	
A	JOURNAL OF APPLIED PHYSICS, vol. 57, no. 8, part 2B, April 1985, pages 4106-4108; E.B. BOLTICH et al.: "Magnetic characteristics of R2Fe14B systems prepared with high purity rare earths (R = Ce,Pr,Dy, and Er)" * Abstract; page 4106, right-hand column, paragraph 2; page 4107, table 1 * -----	1,2,9,10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			H 01 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21-02-1990	Examiner DECANNIERE L.J.
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	