

Title (en)

ALLOYING LOW-LEVEL ADDITIVES INTO HOT-WORKED ND-FE-B MAGNETS

Publication

EP 0434113 A3 19920408 (EN)

Application

EP 90203171 A 19901201

Priority

US 45343489 A 19891219

Abstract (en)

[origin: EP0434113A2] Diffusion-alloying techniques are used to introduce low quantities of powdered metal additives into hot-worked Nd-Fe-B magnets. The powdered metal is added to rapidly solidified ribbons of the magnetic alloy prior to hot working. Diffusion-alloying during hot-working permits the final chemistry of the magnet and more specifically the grain boundaries to be determined during the final processing steps. Elements which diffuse into the matrix, such as zinc, copper and nickel, enhance the coercivity by as much as 100 percent in die-upset magnets. At optimum levels, approximately 0.5-0.8 weight percent, the metal additives do not diminish the remanence or energy product of the magnet.

IPC 1-7

H01F 1/053

IPC 8 full level

C22C 1/04 (2006.01); **C22C 33/02** (2006.01); **C22C 38/00** (2006.01); **H01F 1/053** (2006.01); **H01F 1/057** (2006.01); **H01F 41/02** (2006.01)

CPC (source: EP)

C22C 1/0441 (2013.01); **H01F 1/0576** (2013.01)

Citation (search report)

- [Y] US 4881985 A 19891121 - BREWER EARL G [US], et al
- [A] DE 3839545 A1 19890608 - HITACHI METALS LTD [JP]
- [XP] US 4950450 A 19900821 - CHATTERJEE DILIP K [US], et al
- [Y] PATENT ABSTRACTS OF JAPAN vol. 13, no. 513 (E-847)(3861) 16 November 1989 & JP-1 208 813 (MATSUSHITA) 22 August 1989
- [A] PATENT ABSTRACTS OF JAPAN vol. 13, no. 97 (E-723)(3445) 7 March 1989 & JP-63 272 009
- [XP] APPLIED PHYSICS LETTERS. vol. 56, no. 22, May 1990, NEW YORK US pages 2252 - 2254; C.D FUERST ET AL: 'Enhanced coercivities in die -upset Nd-Fe-B magnets with diffusion-alloyed additives (Zn,Cu, and Ni)'

Designated contracting state (EPC)

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