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(21) International Application Number: PCT/US98/25954 (22) International Filing Date: 7 December 1998 (07.12.98) (30) Priority Data: 60/069,832 16 December 1997 (16.12.97) US 09/010,073 21 January 1998 (21.01.98) US (71) Applicant: MATERIALS INNOVATION, INC. [US/US]; 17 Interchange Drive, West Lebanon, NH 03784 (US). (72) Inventors: BEANE, Glenn, L.; 71 Stevens Road, Hanover, NH 03755 (US). DERESH, Lev; 14 Pierce Road, Plainfield, NH 03781 (US). HUA, Zong, Lu; Stone Farm Apartment 333, 42 Wolf Road, Lebanon, NH 03766 (US). LASHMORE, David, S.; 60 Farr Road, Lebanon, NH 03766 (US). (74) Agent: WASSERMAN, Fran, S.; Materials Innovation, Inc., 17 Interchange Drive, West Lebanon, NH 03784 (US).			(81) Designated States: AL, AU, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, HR, HU, ID, IL, IS, JP, KG, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, SL, TR, TT, UZ, VN, YU, Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

(54) Title: **FERROMAGNETIC POWDER FOR LOW CORE LOSS, WELL-BONDED PARTS**

(57) Abstract

The present invention includes a method of making ferromagnetic powder, and a method of making soft magnetic parts, as well as the part structures, of an armature, a stator and a rotor from the ferromagnetic powder. The present invention describes a rotor comprising: ferromagnetic particles consolidated into a shape of a cylinder defining a void through which passes an elongated shaft for rotating the rotor; a hollow cylinder casing encasing the rotor cylinder. The present invention also includes a method of making ferromagnetic powder particles involving the following steps: providing ferromagnetic particles (100); cleaning the ferromagnetic particles (102); providing solution (104); reacting the ferromagnetic particles with agitation (106); decanting solution (108); rising the ferromagnetic particles (110, 112); sealing the ferromagnetic particle powder (114), this step is optional; drying the ferromagnetic powder (116). The result is a ferromagnetic powder comprising ferromagnetic particles coated with a material that does not degrade at temperatures above 150 degrees C, and having transverse rupture strength of about 8000-20000 pounds/square inch before sintering. The coating includes from two to four parts of an oxide and one part of chromate, molybdate, oxalate, phosphate or tungstate.

