

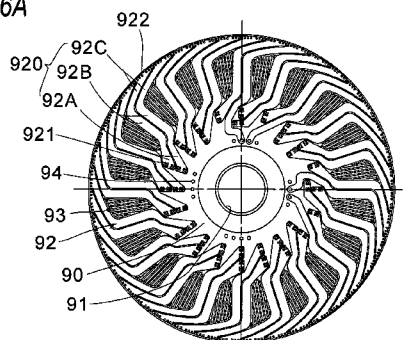


- (51) International Patent Classification:
H02K 3/26 (2006.01) *H02K 15/02* (2006.01)
H02K 23/54 (2006.01) *H02K 21/24* (2006.01)
- (21) International Application Number: PCT/JP2012/052577
- (22) International Filing Date: 31 January 2012 (31.01.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
2011-017414 31 January 2011 (31.01.2011) JP
2011-142461 28 June 2011 (28.06.2011) JP
- (71) Applicant (for all designated States except US): **Hitachi Koki Co., LTD.** [JP/JP]; 15-1, Konan 2-chome, Minato-ku, Tokyo, 1086020 (JP).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **YOSHIDA, Kenichirou. TANIMOTO, Hideyuki.**
- (74) Agent: **Shin-Ei Patent Firm, P.C.;** Toranomom East Bldg. 8F, 7-13, Nishi-Shimbashi 1-chome, Minato-ku, Tokyo, 1050003 (JP).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,

[Continued on next page]

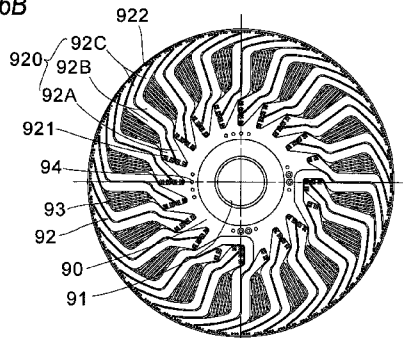
(54) Title: DISK MOTOR, ELECTRIC WORKING MACHINE INCLUDING DISK MOTOR AND METHOD FOR MANUFACTURING DISK MOTOR

FIG. 6A



361: FIRST COIL DISK (UPPER SIDE)

FIG. 6B



361: FIRST COIL DISK (LOWER SIDE)

(57) Abstract: A disk motor including: a rotor; a stator; an output shaft concentrically fixed to the rotor; at least one coil disk which is provided to one of the rotor or the stator, a coil pattern which includes a plurality of radial patterns or radial pattern groups extending outwards in a radial direction from a center part of the coil disk being formed on at least one surface of the coil disk; an electric current supply portion which supplies electric current to the coil pattern; a magnetic flux generating portion which is provided to another of the rotor or the stator and faces the coil pattern; and an intermediate pattern which is formed between adjacent radial patterns or adjacent radial pattern groups on the coil disk.



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, (88) Date of publication of the international search report:
GW, ML, MR, NE, SN, TD, TG). 31 January 2013

Published:

— with international search report (Art. 21(3))

INTERNATIONAL SEARCH REPORT

International application No
PCT/JP2012/052577

A. CLASSIFICATION OF SUBJECT MATTER INV. H02K3/26 H02K23/54 H02K15/02 H02K21/24 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) H02K		
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) 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.
A	JP 2004 080996 A (HITACHI KOKI KK) 11 March 2004 (2004-03-11) cited in the application abstract; figures 1-6 -----	1-29
A	JP 2003 174749 A (MATSUSHITA ELECTRIC IND CO LTD) 20 June 2003 (2003-06-20) abstract; figures 1-6 -----	1-29
A	JP 11 075354 A (DAEWOO ELECTRON CO LTD) 16 March 1999 (1999-03-16) abstract; figures 1-6 -----	1-29
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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		
Date of the actual completion of the international search 5 November 2012	Date of mailing of the international search report 14/11/2012	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Tangocci, Antonio	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/JP2012/052577

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2004080996	A	11-03-2004	NONE	

JP 2003174749	A	20-06-2003	AU 2002347640 A1	17-06-2003
			JP 2003174749 A	20-06-2003
			US 2005037183 A1	17-02-2005
			WO 03049251 A1	12-06-2003

JP 11075354	A	16-03-1999	GB 2327304 A	20-01-1999
			JP 11075354 A	16-03-1999
			US 6005324 A	21-12-1999
