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- (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.

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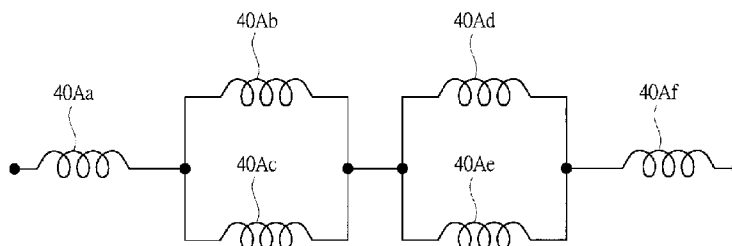
Published:

- with international search report (Art. 21(3))
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- (88) **Date of publication of the international search report:**
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(54) **Title:** DISK MOTOR AND ELECTRIC-POWERED WORKING MACHINE

FIG. 7



(57) **Abstract:** A disk motor includes a rotor, a stator, and an output shaft which is coaxially integrated with the rotor, a coil disk is provided in one of the rotor and the stator, a magnetic-flux generating part is provided in the other of the rotor and the stator, and the coil disk is configured by laminating a plurality of coil substrates each on which a coil pattern is printed. Among these coil substrates, in the coil substrates 40Aa and 40Af on both ends in the laminating direction having relatively good heat dissipation effect, the coils are electrically connected in series to each other, and, in the coil substrates 40Ab to 40Ae on an inner side in the laminating direction having relatively poor heat dissipation effect, at least a part of the coils is electrically connected in parallel to each other.



INTERNATIONAL SEARCH REPORT

International application No

PCT/JP2012/000614

A. CLASSIFICATION OF SUBJECT MATTER

INV. H02K3/04 H02K3/26 H02K23/54
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 61 199451 A (FANUC LTD) 3 September 1986 (1986-09-03) abstract; figures 1-5 -----	2-5,7-10
A	JP 60 128842 A (HITACHI LTD) 9 July 1985 (1985-07-09) abstract; figures 1-14 -----	2-5,7-10



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

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Date of mailing of the international search report

14/11/2012

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2012/000614

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1, 6
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 1, 6

Claims 1 and 6 do not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The independent claims attempt to define the subject-matter in terms of the result to be achieved. The technical features necessary for achieving the claimed result are disclosed in claims 2-4. Claim 1 refers to a first heat quantity generated in a first coil substrate when a predetermined voltage is applied thereto, and to a second heat quantity generated in a second coil substrate when a predetermined voltage is applied thereto and which is smaller than the first heat quantity. This is merely the statement of a result to be achieved or desired, and no technical features are disclosed in claim 1 which lead to the claimed technical effect. Independent claim 6 refers to a first current flowing in a first coil substrate when a predetermined voltage is applied thereto, and to a second current flowing in a second coil substrate when a predetermined voltage is applied thereto and which is smaller than the first current. This is also merely the statement of a result to be achieved or desired, and no technical features are disclosed in claim 6 which lead to the claimed technical effect. Furthermore, it is to be noted that the heat generated in a coil is the consequence of the amount of current flowing therethrough, and also of the resistance of the conductors constituting the coil. A reasonable search is therefore impossible for claims 1 and 6.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/JP2012/000614

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 61199451	A	03-09-1986	NONE	

JP 60128842	A	09-07-1985	NONE	
