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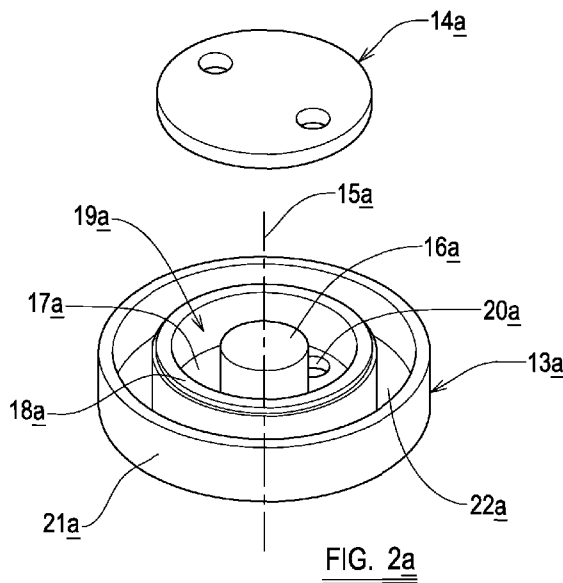
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— with international search report (Art. 21(3))

[Continued on nextpage]

(54) **Title:** ELECTRICAL DEVICES



(57) **Abstract:** An electromagnetic arrangement comprises a ferrite core (9a). A primary transformer winding (6a) is connected in series with an inductor winding (23a). The primary transformer winding (6a) and the inductor winding (23a) are each wound around part of the main body (13a) of the core (9a). A secondary winding (10a) is attached to a separate ferrite plate (14a). The electromagnetic connector is configured to couple power in an electrical distribution system that operates with a high frequency alternating current.

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— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h)) (88) Date of publication of the international search report^{6 J} 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2012/050744

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01F38/00
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)
H01F H02J

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. |
|-----------|--|-----------------------|
| X | FR 2 590 070 AI (VEECO INSTR INC [US]) 15 May 1987 (1987-05-15) page 9, line 4 - page 10, line 36; figures 3-5 | 1-3 |
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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

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"&" document member of the same patent family

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| Date of the actual completion of the international search 27 March 2013 | Date of mailing of the international search report 10/04/2013 |
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| 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 Van den Berg, G |
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INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2012/050744

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
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| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | WO 2006/053386 A1 (RHEEM AUSTRALIA PTY LTD [AU] ; ECHTNER GEORGE [AU] ; BOURKE BRENDAN VINC) 26 May 2006 (2006-05-26) | 15,16, 18,22, 25-28, 34,35, 40,41, 43,44, 50-54, 57,61,62 |
| Y | paragraphs [0001] , [0006] , [0007] , [0021], [0022], [0032], [0066], [0095] , [0096] , [0101] figures 3 , 8 , 9 | 17, 19-21, 23,36, 37,45, 48,49, 59,60 |
| Y | ----- DE 10 2009 019285 A1 (OSRAM GMBH [DE]) 4 November 2010 (2010-11-04) | 17, 19-21, 23,33, 36,37, 45,48, 49,59,60 |
| X | paragraphs [0002] , [0006] , [0023] , [0033] , [0034] | |
| X | ----- US 2011/056734 A1 (ANDREWS PETER S [US] ET AL) 10 March 2011 (2011-03-10) | 63-67, 69-74 |
| Y | paragraphs [0001] , [00032] , [0005] , [0020], [0040], [0042], [0046], [0050] paragraphs [0055], [0056]; figures 2 , 3B-3E, 5E | 33 |
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2012/050744

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.:
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:

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:

see additional sheet

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

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14

Claims 1 - 14 relate to an electromagnetic connector (for a power supply) based on a transformer configuration.

2-3. claims: 15-74

Claims 15 - 62 are directed to an electrical device comprising a flexible printed circuit board provided with two groups of elongate tracks, wherein the tracks in the first group are spaced apart from and at least interdigitated with the tracks in the second group to strengthen the flexible printed circuit board.

Claims 63 - 74 define a printed circuit board comprising a thermal via hole which does not have a circular cross-section.

INTERNATIONAL SEARCH REPORT

Information on patent family members

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| International application No PCT/GB2012/050744 |
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