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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, JP, 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,
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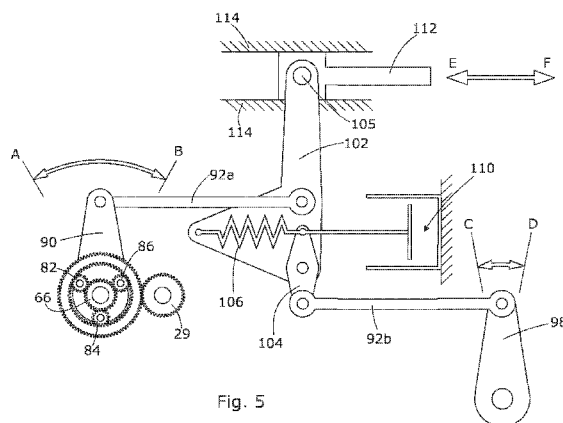


Fig. 5

(57) Abstract: Apparatus for transmitting energy comprising an electrical machine arranged to convert between electrical and mechanical energy, and comprising a rotor (20) and control means (42, 44, 90) arranged to regulate the motion of the rotor to ensure that the power angle of the electrical machine is maintained within a range of a predetermined power angle. A signal generator (2, 6), such as a synchronous machine and associated flywheel, may generate a reference signal relating to the predetermined power angle and be powered by a frequency regulated electrical supply. The control means (42, 44, 90) may be a mechanical control linkage or servo control system and may regulate the output of the motion of the rotor in response to a change in its motion which the control means or a dedicated detection device detects. The electrical machine may be an electric motor, an electricity generator, or a machine switchable between motor and generator modes. The apparatus may generate electricity to supply to a power grid and/or store electricity supplied by a power grid, and the electrical machine may be a synchronous machine where the rotor requires regulation to accommodate grid fluctuations such as low voltage events so as to remain synchronised. The apparatus may comprise an energy storage system that supplies and/or receives power from a power grid.

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2013/050594

A. CLASSIFICATION OF SUBJECT MATTER

INV. H02P9/06 H02P23/00 H02P9/10
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)

H02P H02H 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	US 5 872 435 A (BOLTE EKKEHARD [DE] ET AL) 16 February 1999 (1999-02-16) column 7, line 27 - column 8, line 58; figures 1,2b,9 column 1, line 66 - column 2, line 6 column 3, line 20 - column 4, line 61 column 17, line 46 - line 67 ----- -/--	1-6, 10-12, 14,15, 25-28, 30,32,33

☒ 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

2 December 2013

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11/12/2013

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2013/050594

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.: 34, 35
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.

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2013/050594

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 615 330 A1 (ASKOLL HOLDING SRL [IT]) 11 January 2006 (2006-01-11) paragraph [0029] - paragraph [0031]; claims 1,2; figures 1,2,4 abstract paragraph [0029] - paragraph [0056] -----	1-6, 10-12, 14,15, 25-28, 30,32,33
X	WO 2009/011615 A1 (SHAROV YURY VLADIMIROVICH [RU]; JANKOVIC ILIJA DRAGO [US]; KUZNETSOV O) 22 January 2009 (2009-01-22)	1-6, 8-20, 25-31,33
Y	page 13, line 13 - page 19, line 16; figures 4,6,7,9 -----	7,21-24
Y	WO 2010/063052 A2 (HEHENBERGER GERALD [AT]) 10 June 2010 (2010-06-10) page 5, line 4 - page 7, line 25; figure 2 -----	7,21-24
A	US 4 352 024 A (GEARY CARL H ET AL) 28 September 1982 (1982-09-28) column 3, line 13 - column 8, line 47; figures 1-4 -----	1-33

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2013/050594

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5872435	A	16-02-1999	CN 1158022 A 27-08-1997
			DE 19533161 A1 13-03-1997
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			SG 55230 A1 21-01-2003
			US 5872435 A 16-02-1999

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			EP 1615330 A1 11-01-2006
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			KR 20060048694 A 18-05-2006
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US 4352024	A	28-09-1982	EP 0064189 A2 10-11-1982
			JP S57186022 A 16-11-1982
			US 4352024 A 28-09-1982

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 34, 35

Claims 34, 35 contain references to the drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here. The wording "Apparatus/method ... described with reference to one or more of Figures 1a, 1b, 2, 3, 4, 5 and 6" provides no meaningful definitions.

Claims 34, 35 are drafted as "an apparatus"/"a method ...as hereinbefore described...". The dependency of said claims is therefore not clear and leaves the reader in doubt as to the meaning of the technical features to which it refers, thereby rendering the definition of the subject - matter of said claims unclear. Said claims should be grouped together with the antecedent claims to enable the association of related claims to be readily determined.

It is therefore particularly burdensome for a skilled person to establish the subject-matter for which protection is sought.

The non-compliance with the substantive provisions is to such an extent, that the search was performed taking into consideration the non-compliance in determining the extent of the search (PCT Guidelines 9.19).

The extent of the search was consequently limited to claims 1 - 33, which appear to comprise a reasonable definition of what is understood to be the invention for which protection is sought.

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 Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.