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[Continued on next page]

(54) Title: COOLING SYSTEM OF A WIND TURBINE

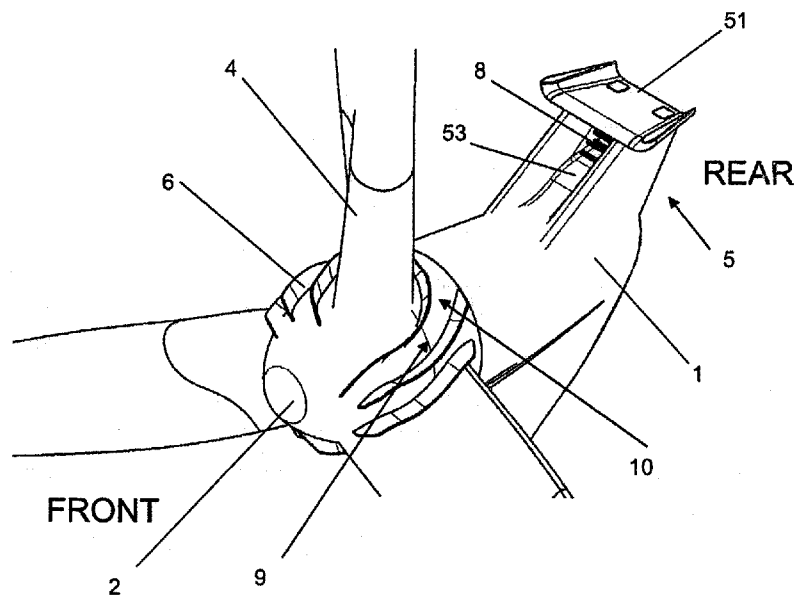


Fig. 1

(57) Abstract: A cooling system of a wind turbine is provided which includes a generator (10), a housing portion (1), and a hub (2) which is rotatable with respect to the housing portion (1) and drivingly connected to the generator (10). The hub (2) supports at least one blade (4). The housing portion (1) and the hub (2) enclose a cavity for accommodating at least said generator. Heat exchange means (6) are provided on the outer surface of said hub (2) for transferring at least a part of heat produced by said generator (10) in operation to the outside.





— *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))*

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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
 INV. F03D11/00 F03D9/00 H02K7/18 H02K5/18
 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 F03D

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	DE 196 36 591 A1 (KLINGER FRIEDRICH PROF DR ING [DE] KLINGER FRIEDRICH [DE]) 12 March 1998 (1998-03-12) column 2, line 47 - column 3, line 5; claim 2; figure 2	1-3,9-19
X	US 2006/113804 A1 (COSTIN DANIEL P [US]) 1 June 2006 (2006-06-01)	1-8,19
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 4 September 2013	Date of mailing of the international search report 17/09/2013
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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 Di Renzo, Raffaele
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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/050523

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/095222 A1 (WOB BEN ALOYS [DE]) 28 November 2002 (2002-11-28) page 3, line 7 - page 5, line 4; figures -----	1,2,16, 19
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A	WO 2010/085963 A2 (VESTAS WIND SYS AS [DK]; SIVALINGAM KRISHNAMOORTHY [SG]; BAHUGUNI ANAN) 5 August 2010 (2010-08-05) abstract; figures -----	9-15
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X	WO 2011/006810 A2 (SIEMENS AG [DE]; JUNGE MARTIN [DE]; JOECKEL ANDREAS [DE]) 20 January 2011 (2011-01-20)	21,22
Y	page 2, line 27 - page 3, line 3 page 6, line 26 - line 31 page 9, line 14 - line 18; figures 5,6 -----	20
A	WO 2011/031165 A1 (BLAASTER WIND TECHNOLOGIES AS [NO]; PETTERSEN TOROLF [NO]; PETTERSEN O) 17 March 2011 (2011-03-17) page 1, lines 14,15 page 4, line 1 - page 5, line 6; figures -----	19-22
A	US 2011/266909 A1 (LOKHANDWALLA MURTUZA [US] ET AL) 3 November 2011 (2011-11-03) paragraph [0022] - paragraph [0032]; figures -----	19-22

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/050523

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: 1-20

A cooling system of a wind turbine comprising heat exchange means provided on the outer surface of the hub for transferring heat produced by the generator to the outside.

2. claims: 21, 22

A segmented synchronous generator for a large scale wind turbine.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/050523

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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