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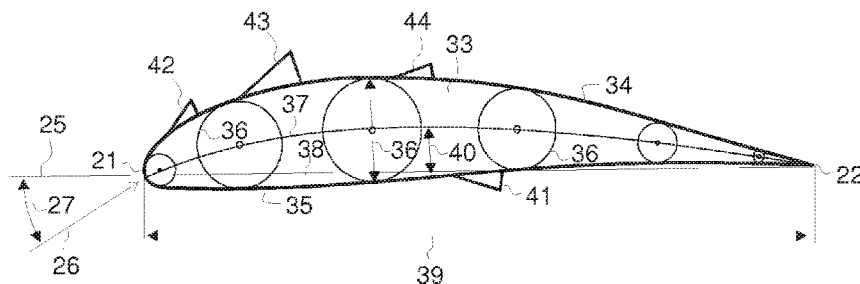
(71) Applicant and  
(72) Inventor: CORTEN, Gustave Paul [NL/NL]; Schoemakerstraat 103, NL-1825 CD Alkmaar (NL).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: WIND TURBINE WITH SLENDER BLADE



(57) Abstract: Wind turbine with a rotor blade wherein said blade is relatively insensitive to turbulence because it is more slender than according to the prior art and is nevertheless able to generate sufficient lift by virtue of the fact that flow enhancing means such as vortex generators combat flow separation. The slenderness is defined by the chord numbers  $C$  and  $D$  of which  $C$  is defined as  $C = Nc_c r \lambda^2 / R^2$ , in which  $N$  is the number of blades,  $c_c$  is the local chord,  $r$  the radial position, the tip speed ratio and  $R$  the rotor radius. Subsequently, the chord should be less than what follows from the equation  $C = M$  in which  $M = -1.19 + 9.74C_p - 21.01C_p^2 + 17.50C_p^3$  and  $C_p$  is the power coefficient. A wind turbine according to the invention is subject to about 2-12% less operational loads and to about 5-40% reduced survival wind speed loads compared to classical designs.



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## INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER INV. F03D1/06 F03D7/02 F03D11/00		
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) 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 practical, 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	WO 00/15961 A (LM GLASFIBER AS [DK]; GRABAU PETER [DK]) 23 March 2000 (2000-03-23) abstract; figures 1-3	7-31
X	WO 2005/035978 A (REPOWER SYSTEMS AG [DE]; QUELL PETER [DE]; PETSCHER MARC [DE]) 21 April 2005 (2005-04-21) abstract; figures 1,2	7-31
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X	WO 90/11929 A (WHEELER GARY O [US]) 18 October 1990 (1990-10-18) the whole document	7-31
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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 document 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  4 October 2007		Date of mailing of the international search report  17/10/2007
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  Avramidis, Pavlos

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NL2007/050137

## Box 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, 32-34  
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 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 fee, this Authority did not invite payment of any additional fee.
  
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.
- No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/NL2007/050137

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 1-6, 32-34

Claims 1 and 2 attempt to define the subject-matter by essential features which are mainly dependent on the wind. However, the wind cannot be part of a claimed apparatus.

In particular, a 10 minutes averaged lift coefficient is a statistical value based on the wind conditions.

The claims 32, 33 and 34 are claiming methods, in particular methods for manufacturing a wind turbine and a blade wind turbine respectively.

However, they do not define any manufacturing step as such.

Moreover, they too, try to define the subject-matter by features dependent on the wind conditions.

Those claims are so unclear, that a meaningful search is not possible.

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, 8.5), 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/NL2007/050137
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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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