



- (51) International Patent Classification:
F03D 3/02 (2006.01)
- (21) International Application Number:
PCT/IB2011/002761
- (22) International Filing Date:
22 November 2011 (22.11.2011)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/416,192 22 November 2010 (22.11.2010) US
- (71) Applicant (for all designated States except US): **FAR WEST RENEWABLE ENERGY, CORP.** [US/US]; 1310 Ranch Road, 620 South Ste. 203-A, Lakeway, TX 78734 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **HASSENFLU, John, Franz** [US/US]; 701 East Sul Ross Avenue, Alpine, TX 79830 (US). **BOEDEKER, Peter, Michael** [US/US]; San Antonio, Texas (US).
- (74) Common Representative: **HASSENFLU, John, Franz**; C/- Ellis Terry, PO Box 10 932, The Terrace, 6143 Wellington (NZ).
- (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, 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, 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.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report (Art. 21(3))
- (88) Date of publication of the international search report:
18 October 2012

(54) Title: A WIND TURBINE

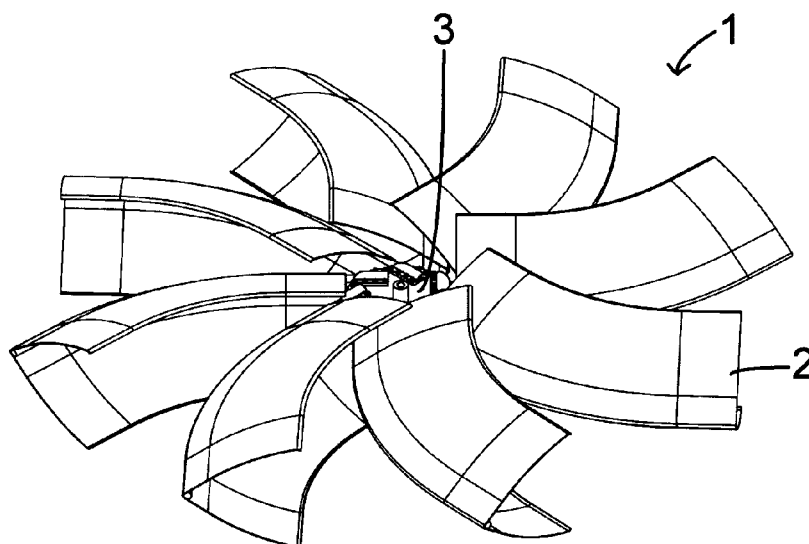


Figure 1

(57) Abstract: A vertical axis wind turbine having multiple blades in which the root of each blade is oriented at an angle to a radial direction from a drive shaft and at least a portion each blade is swept back. The blades preferably have a symmetric partial aerofoil shape of generally V-shaped cross section of generally constant cross section.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 11/02761

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - F03D 3/00 (2012.01)

USPC - 290/55

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)
USPC 290/55

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

IPC(8): F03D 3/00 (2012.01)

USPC: 60/398; 290/43, 44, 54, 55; 415/2.1, 4.1, 4.2, 4.4, 905, 907; 416/132B, 198R; 322/35

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB, USPT, EPAB, JPAB) and Google: wind, turbine, power, plant, vertical, VAWT, v-shape, blade, vane, swept, offset, radial, area, ratio, upwind, downwind, high, velocity, speed

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0243302 A1 (Eisenblaetter) 01 October 2009 (01.10.2009), entire document, especially para [0001], [0035]-[0036] and [0041]; Fig. 2	1-7
Y	US 4,915,580 A (Obidniak) 10 April 1990 (10.04.1990), entire document, especially col 1, ln 7-15; col 11, ln 11-20; col 19, ln 59-65; Fig. 15	1-7
A	US 2008/0047270 A1 (Gilbert) 28 February 2008 (28.02.2008), entire document, especially para [0023]-[0030]; Fig. 3	1-7
A	US 2006/0275105 A1 (Roberts et al) 07 December 2006 (07.12.2006), entire document, especially para [0079]-[0095]; Fig. 5a-b	1-7
A	US 2010/0104417 A1 (Lee) 29 April 2010 (29.04.2010), entire document, especially para [0031]-[0046]; Fig. 1	1-7
A	US 2009/0066090 A1 (Boone) 12 March 2009 (12.03.2009), entire document, especially Fig. 2 and 6	1-7
A	US 2010/0230974 A1 (Cantwell) 16 September 2010 (16.09.2010), entire document, especially para [0022]-[0035]; Fig. 5	1-7
A	US 7,008,171 B1 (Whitworth) 07 March 2006 (07.03.2006), entire document, especially col 4, ln 31-34; Fig. 9	1-7

 Further documents are listed in the continuation of Box C.

* 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

11 June 2012 (11.06.2012)

Date of mailing of the international search report

15 JUN 2012

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Lee W. Young

PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 11/02761

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.: 8-28
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 extra 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 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.:
1-7

- 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/IB 11/02761

Continuation of Box No. III, Observations where Unity of Invention is lacking:

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: claims 1-7 are directed to a vertical axis wind turbine and specifically, to the shape and configuration of rotor blades in a vertical axis wind turbine.

Group II: claims 29-33 are directed to a wind turbine and specifically, to the configuration of magnets arranged in a bladed wind turbine.

The inventions listed in Groups I-II do not related to a single general inventive concept under PCT Rule 13.1 because under PCT Rule 13.2 they lack the same or corresponding technical features for the following reasons:

Group I is drawn to a vertical wind turbine rotor's blade configuration and shape. Group I does not include the inventive concept of the magnet configuration as claimed in Group II.

Group II is drawn to the placement and configuration of magnets with regard to the drive shaft of a wind turbine. Group II does not include the inventive concept of the blade configuration as claimed in Group I.

The only technical features shared by the inventions of Groups I and II are a wind turbine having a drive shaft and a rotor having one or more blades extending from the shaft, however, these technical features were so well known and commonly present in wind turbines of the prior art. See, for example, US 2,547,636 A (Fumagalli). Thus, these shared technical features fail to represent a contribution over the prior art.

The inventions of Groups I and II therefore lack unity of invention under PCT Rule 13.1 because they do not share a same or corresponding special technical feature providing a contribution over the prior art.