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(54) Title: METHODS AND APPARATUSES RELATED TO ENERGY PRODUCTION AND TRANSMISSION

(57) Abstract: The present invention provides methods and apparatuses related to the generation and transmission of electrical energy. Embodiments of the present invention provide linear generators and towers and tower base sections suitable for use with electrical generators and with electrical transmission lines. Embodiments of the present invention provide methods of transmitting and generating electrical power. Embodiments of the present invention provide an electrical generation and transmission system, comprising one or more electricity generators each configured to support and interlace electrical power with an electrical transmission line, or comprising two or more wind turbine systems, each comprising a tower configured to support a wind turbine generator and to support electrical transmission lines, and a wind turbine generator mounted with the tower, and an electrical power transmission line mounted with the towers and configured to transmit electrical power along the transmission line and to interface electrical power with the wind turbine generators.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2009/033480

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - F03D 9/00 (2009.01) USPC - 290/44 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - F03D 9/00 (2009.01) USPC - 290/44 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) Patbase, Google Patents		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 7,075,189 B2 (HERONEMUS et al) 11 July 2006 (11.07.2006) entire document	5-6,11-16,18-21 --- 8,17
Y	US 4,478,537 A (BIRDY et al) 23 October 1984 (23.10.1984) entire document	8
Y	US 6,100,600 A (PFLANZ) 08 August 2000 (08.08.2000) entire document	17
A	US 2005/0121214 A1 (GOULD) 09 June 2005 (09.06.2005) figures 1, 5; paragraphs [0037], [0041]	5-6, 8, 11-21
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 03 June 2009		Date of mailing of the international search report <b>16 JUN 2009</b>
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: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US2009/033480

**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.: 1-4, 7  
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:  
Claims 1-4 cite the phrase "as described herein", which is unclear as claims must not refer to the description, as specified in Rule 6.2 (a).  
Claim 7 cites the phrase "figures 4a through e", which is unclear as claims must not refer to drawings, unless the figure number is surrounded by parentheses, as specified in Rule 6.2(a).
  
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 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.:  
5-6, 8, 11-21

**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.

Continuation of Box III.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

Species I) a support tower comprising 6 elongated members each having a roughly hexagonal cross section, wherein the 6 members are mounted with each other such that an inner section is formed having a roughly hexagonal cross-section, figure 4d.

Species II) a support tower comprising an elongated member having a roughly hexagonal cross-section, and 6 reinforcing members mounted internal to the hexagonal cross section and extending from a vertex on the hexagonal cross-section to an axis roughly in the center of the hexagonal cross-section, figure 4b

Species III) a support tower comprising a plurality of roughly cylindrical members, mounted with each other to form an elongated member, figures 4a, 4c.

The claims are deemed to correspond to the species listed above in the following manner:

Species I) Figure 4d; claim 8

Species II) Figure 4b; claim 9

Species III) Figures 4a, 4c; claim 10

The following claims are generic: claims 5-6, 11-21

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

Species I) Figure 4d; have the special technical feature of 6 elongated members each having a roughly hexagonal cross section, wherein the 6 members are mounted with each other such that an inner section is formed having a roughly hexagonal cross-section. This special technical feature is not present in species II, III.

Species II) Figure 4b; have the special technical feature of an elongated member having a roughly hexagonal cross-section, and 6 reinforcing members mounted internal to the hexagonal cross section and extending from a vertex on the hexagonal cross-section to an axis roughly in the center of the hexagonal cross-section. This special technical feature is not present in species I, III.

Species III) Figures 4a, 4c; have the special technical feature of an elongated member having a roughly hexagonal cross-section, and 6 reinforcing members mounted internal to the hexagonal cross section and extending from a vertex on the hexagonal cross-section to an axis roughly in the center of the hexagonal cross-section. This special technical feature is not present in species I, II.

Species I, II and III lack unity of invention because even though the inventions of these species require the technical feature of electrical generators or wind turbines mounted on towers having mounting interfaces with the foundation and with an electrical transmission line, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of US 2005/0121214 A1 (GOULD) 09 June 2005, figures 1, 5; paragraphs [0037], [0041].

Since none of the special technical features of the Species I, II and III inventions is found in more than one of the inventions, unity of invention is lacking.