

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>CAOC-1001PCT</b>	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US	International filing date ( <i>day/month/year</i> ) 03 April 2018 (03.04.2018)	(Earliest) Priority Date ( <i>day/month/year</i> ) 04 April 2017 (04.04.2017)	
Applicant <b>CAO, Calvin Cuong</b>			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

**I. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of:
  - the international application in the language in which it was filed.
  - a translation of the international application into \_\_\_\_\_, which is the language of \_\_\_\_\_
  - a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
- b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).
- c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

**1. Certain claims were found unsearchable** (see Box No. II).

**2. Unity of invention is lacking** (see Box No. III).

1. With regard to the **title**,

- the text is approved as submitted by the applicant.
- the text has been established by this Authority to read as follows:

2. With regard to the **abstract**,

- the text is approved as submitted by the applicant.
- the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

3. With regard to the **drawings**,

- a. the figure of the drawings to be published with the abstract is Figure No. 1
  - as suggested by the applicant.
  - as selected by this Authority, because the applicant failed to suggest a figure.
  - as selected by this Authority, because this figure better characterizes the invention.
- b. none of the figures is to be published with the abstract.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US

A. CLASSIFICATION OF SUBJECT MATTER		<i>H02J 3/28 (2006.01)</i> <i>H02P 9/48 (2006.01)</i>	
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)			
H02J 3/00, 3/28, 3/38, 3/46, H02P 9/00, 9/06, 9/48			
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)			
PatSearch, esp@cenet, USPTO, Google			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category*	Citation of document, with indication, where appropriate, of the relevant passages		Relevant to claim No.
A	<b>US 2010/0270864 A1 (GENERAL ELECTRIC COMPANY)</b> <b>28.10.2010, paragraphs [0019]-[0024], fig. 2-4</b>		1-11
A	<b>US 2014/0316593 A1 (EARL ENERGY, LLC)</b> 23.10.2014		1-11
A	<b>WO 2009/134115 A2 (GREEN-TECH HOLDINGS SDN. BHD. et al.)</b> <b>05.11.2009</b>		1-11
A	<b>US 2015/0229162 A1 (CARLOS GOTTFRIED)</b> 13.08.2015		1-11
Further documents are listed in the continuation of Box C.		See patent family annex.	
* Special categories of cited documents:	“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	
“A” document defining the general state of the art which is not considered to be of particular relevance	“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	
“E” earlier document but published on or after the international filing date	“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	
“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)	“&”	document member of the same patent family	
“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			
Date of the actual completion of the international search	Date of mailing of the international search report		
20 June 2018 (20.06.2018)	12 July 2018 (12.07.2018)		
Name and mailing address of the ISA/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, Russia, 125993 Facsimile No: (8-495) 531-63-18, (8-499) 243-33-37	Authorized officer  S. Chernyakova  Telephone No. 8 (495)-531-64-81		

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

## PCT

### WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

To:

EISENHUT, Heidi  
LOZA & LOZA, LLP 305 North Second Avenue, #127  
Upland, CA 91786  
United States of America

(PCT Rule 43bis.1)

Date of mailing (*day/month/year*)

12 July 2018 (12.07.2018)

Applicant's or agent's file reference

CAOC-1001PCT

**FOR FURTHER ACTION**

See paragraph 2 below

International application No. PCT/US	International filing date ( <i>day/month/year</i> ) 03 April 2018 (03.04.2018)	Priority date ( <i>day/month/year</i> ) 04 April 2017 (04.04.2017)
International Patent Classification (IPC) or both national classification and IPC H02J 3/28 (2006.01) H02P 9/48 (2006.01)		
<b>Applicant</b> <b>CAO, Calvin Cuong</b>		

4. This opinion contains indications relating to the following

items: X Box No. I Basis of the opinion

Box No. II Priority

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

Box No. IV Lack of unity of invention

**X** Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

Box No. VI Certain documents cited

Box No. VII Certain defects in the international application

Box No. VIII Certain observations on the international application

#### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/RU: Federal Institute of Industrial Property, Berezhkovskaya nab., 30-1, Moscow, G-59, GSP-3, Russia, 125993 Facsimile No: (8-495) 531-63-18, (8-499) 243-33-37	Date of completion of this opinion  20 June 2018 (20.06.2018)	Authorized officer  S. Chernyakova  Telephone No. 8 (495)-531-64-81
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**Box No. I Basis of this opinion**

1. With regard to the **language**, this opinion has been established on the basis of:  
**X** the international application in the language in which it was filed.  
  
a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
  - a. forming part of the international application as filed:  
  
in the form of an Annex C/ST.25 text file.  
  
on paper or in the form of an image file.
  - b. furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c. furnished subsequent to the international filing date for the purposes of international search only:  
  
in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).  
  
on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

## 1. Statement

<b>Novelty (N)</b>	<b>Claims</b>	<b>1-11</b>	<b>YES</b>
	Claims		NO
<b>Inventive step (IS)</b>	<b>Claims</b>	<b>1-11</b>	<b>YES</b>
	Claims		NO
<b>Industrial applicability (IA)</b>	<b>Claims</b>	<b>1-11</b>	<b>YES</b>
	Claims		NO

## 1. Citations and explanations:

**D1 – US 2010/0270864 A1**

D1 is the closest prior art for the inventions according to independent claims 1, 11.

From D1 ([0019]-[0024], fig. 2-4) an apparatus and a method for power generation are known. Wherein the apparatus comprises: an energy storage device; a direct current motor electrically coupled to at least one first energy storage device via a motor controller; a multi-phase alternating current generator having a rotor mechanically coupled to the motor through a mechanical drive mechanism; transformer electrically coupled to an output phase of the multi-phase alternating current generator, wherein the transformer is configured to one of step up or step down the voltage present on at least two output phases of the generator; a voltage regulator coupled to an output of the transformer, the regulator configured to regulate the voltage to a predetermined voltage value.

Inventions of claims 1, 11 differ from D1 in that the mechanical drive mechanism including a flywheel, wherein the motor drives the generator and flywheel via the mechanical drive mechanism, the apparatus for power generation comprises a system controller configured to control operation of the apparatus for power generation; a motor controller configured to control at least the speed of the motor based on control signaling received from a system controller and drive the motor with power supplied from at least one first energy storage device; and a first battery controller coupled to an output of the voltage regulator, wherein the first battery controller is configured to charge at least one first energy storage device and a second energy storage device.

**Therefore, the inventions according to the claims 1-11 meet the criterion of novelty.**

**Said features of the independent claims 1, 11 are unknown from the state of the art and unobvious to the skilled person, and are intended to increase the system charging for the energy storage device.**

**Therefore, the inventions according to the claims 1-11 meet the criterion of inventive step.**

**The inventions according to the claims 1-11 meet the criterion of industrial applicability.**