

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference IEM180075PCT	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/CN2018/104991	International filing date ( <i>day/month/year</i> ) 11 September 2018 (11.09.2018)	Priority date ( <i>day/month/year</i> ) 12 September 2017 (12.09.2017)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant GREE ELECTRIC APPLIANCES (WUHAN) CO., LTD			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 17 March 2020 (17.03.2020)
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From the INTERNATIONAL SEARCHING AUTHORITY

To:

**PCT**

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference <b>IEM180075PCT</b>		Date of mailing (day/month/year) <b>29 November 2018</b>
International application No. <b>PCT/CN2018/104991</b>		International filing date (day/month/year) <b>11 September 2018</b>
International Patent Classification (IPC) or both national classification and IPC <b>H05K 7/20(2006.01)i; H05K 5/04(2006.01)i</b>		Priority date (day/month/year) <b>12 September 2017</b>
Applicant <b>GREE ELECTRIC APPLIANCES (WUHAN) CO., LTD</b>		

**FOR FURTHER ACTION**  
See paragraph 2 below

1. This opinion contains indications relating to the following items:

- 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
- 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/	Date of completion of this opinion	Authorized officer
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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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## Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established 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)).
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 43bis.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:
  - 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 13ter.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 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.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 forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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## Box No. II      Priority

1.  The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.
2.  This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:
  - [1] Upon verification, the priority claim is valid.

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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	Novelty (N)	Claims	5, 7-12, 14, 15, 19, 20, 23-25 1-4, 6, 13, 16-18, 21, 22, 26-28	YES NO
	Inventive step (IS)	Claims	None 1-28	YES NO
	Industrial applicability (IA)	Claims	1-28 None	YES NO
2. Citations and explanations :				
[1] Reference is made to the following document:				
[2] D1: CN 107148195 A (08 September 2017)				
[4] Novelty and Inventive Step (PCT Article 33(2) and (3))				
[5] D1 discloses (see description, paragraphs [0006] - [0050], and figure 1) an electrical cabinet body and an electrical cabinet, comprising: a cabinet body 1 (equivalent to the cabinet body (1)), having an inner cavity; and heat dissipation members 2, fixedly provided on an outer side the cabinet body; at least one group of heat dissipation members 2 have a strip shape, and the cross sections thereof have a branched structure (equivalent to the tree-shaped fins (2) provided on the cabinet body (1)); the heat dissipation members 2 having a strip shape each have a stem 21 (equivalent to the stem (20)) connected to the cabinet body, and a plurality of branches 22 (equivalent to the branches (21) connected to the stem (20)) connected to the stem and extending out from at least one side of the stem. The heat dissipation members, which have cross sections having a branched structure, are provided on an outer side of the cabinet body corresponding to the space in which the amount of heat dissipation is high (equivalent to the tree-shaped fins (2) being arranged in rows on an outer surface of the cabinet body (1)). The stems and the branches are integrally formed, and the stems and a fixing surface of the cabinet body are integrally formed (equivalent to the cabinet body (1) and the tree-shaped fins (2) being integrally extruded and formed); the electrical cabinet body is made of an all-aluminum alloy material (equivalent to the cabinet body (1) being a thermally conductive material, the cabinet body (1) being aluminum alloy; and as an fixing surface of the cabinet body and the stems are integrally formed, it is implicitly disclosed that the tree-shaped fins are aluminum alloy). Figure 1 discloses that "the heat dissipation members 2 each further comprises a top portion connected to the tip of the stem, and the top portion has a plane larger than the tip of the stem". Figure 1 further discloses that "there are two or more layers of branches (21), there are a plurality of tree-shaped fins (2), the branches (21) each have an arc shape, the cabinet body is a U-shaped body, and the cross section of the electrical cabinet is rectangular".				
[6] 1. Therefore, claims 1 and 21 lack novelty and do not involve an inventive step with respect to D1.				
[7] 2. Dependent claims 2-4, 6, 13, 16-18, 22, 26, and 27 are disclosed in D1 (see citation above). Therefore, claims 2-4, 6, 13, 16-18, 22, 26, and 27 lack novelty and do not involve an inventive step.				
[8] 3. Some of the features of dependent claims 5, 7, 8, 14, 15, and 19 are disclosed in D1 (see citation above), and the remaining features are customary means in the art. Therefore, claims 5, 7, 8, 14, 15, and 19 are novel, but do not involve an inventive step.				
[9] 4. The additional features of dependent claims 9-12, 20, and 23-25 are customary means in the art. Therefore, claims 9-12, 20, and 23-25 are novel, but do not involve an inventive step.				
[10] 5. Claim 28 sets forth a heat dissipation structure. When claim 28 refers to the tree-shaped fin of claims 21, 22, 26, and 27, on the basis of the commentary with regard to claims 21, 22, 26, and 27, claim 28 lacks novelty and does not involve an inventive step. When claim 28 refers to the tree-shaped fin of claims 23-25, on the basis of the commentary with regard to claims 23-25, claim 28 is novel, but does not involve an inventive step.				
[12] Industrial Applicability				

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/CN2018/104991****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**

[13] The technical solutions of claims 1-28 are industrially applicable and comply with PCT Article 33(4).