

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

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| Applicant's or agent's file reference 06PCT0003 | FOR FURTHER ACTION | | See item 4 below |
| International application No. PCT/CN2006/001492 | International filing date (<i>day/month/year</i>) 29 June 2006 (29.06.2006) | Priority date (<i>day/month/year</i>) 10 March 2006 (10.03.2006) | |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | | |
| Applicant ZENG, Qinggan | | | |

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|---|-------------------------------------|---|---------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|---|--------------------------|------------|-------------------------|--------------------------|-------------|--|--------------------------|--------------|---|
| <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 5 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> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input 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 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 |
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report | | | | | | | | | | | | | | | | | | | | | | |
| <input 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 16 September 2008 (16.09.2008) |
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Translation

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: 200233
Room 2415, 103 Cao Bao Road, Shanghai, P.R. CHINA
SHANGHAI SHEN HUI PATENT AGENT LTD.
WU, Baogen

PCT

WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY

(PCT Rule 43 bis.1)

Date of mailing

(day/month/year)

28 DEC 2006 (28.12.2006)

Applicant's or agent's file reference

06PCT0003

FOR FURTHER ACTION

see paragraph 2 below

International application No.

PCT/CN2006/001492

International filing date (day/month/year)

29.Jun. 2006 (29.06.2006)

Priority date (day/month/year)

10.Mar. 2006 (10.03.2006)

International Patent Classification (IPC) or both national classification and IPC

See supplemental box

Applicant

ZENG, Qinggan et al.

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 43 bis.1(a)(i) with regard to novelty, inventive step or 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 66.1 bis(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.

3. For further details, see notes to Form PCT/ISA/220.

| | | |
|---|--|---|
| <p>Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451</p> | <p>Date of completion of this opinion 8.Dec. 2006 (08.12.2006)</p> | <p>Authorized officer WANG, Jinzhu  Telephone No. 86-10-62084368</p> |
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CN2006/001492

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. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing

 - b. format of material
 - on paper
 - in electronic form

 - c. time of filing/furnishing
 - contained in the international application as filed
 - filed together with the international application in electronic form
 - furnished subsequently to this Authority for the purposes of search

3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto 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.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CN2006/001492

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

1. Statement:

| | | | |
|-------------------------------|--------|------------|-----|
| Novelty (N) | Claims | 4,6,7-9,11 | YES |
| | Claims | 1-3,5,10 | NO |
| Inventive step (IS) | Claims | None | YES |
| | Claims | 1-11 | NO |
| Industrial applicability (IA) | Claims | 1-11 | YES |
| | Claims | None | NO |

2. Citations and explanations

References are made to the following documents: D1: CN1588587A D2: CN1390356A D3: CN2093433U D4: CN1043819A D5: CN2084186U D6: CN2483812Y

1. Novelty:

Claim 1: D1 discloses a system for cooling a transformer(referring to the last paragraph in page 2 – paragraph 2 in page 3 and fig 1), wherein these cooling pipes 2(the same as the heat source box 5 in claim 1) are connected with the dielectrical medium liquid in the transformer 11 through one or more distributor heads 3 and one or more collector heads 4. The circular cooling water box 5(the same as the separating type heat pipe in claim 1) includes a box body 6(the same as the heat gatherer box 7 in claim 1), a cool water input pipe 7, a hot water output pipe 8 and a water-cooling member 9. So all the features of claim 1 are disclosed by D1, claim 1 has no novelty under PCT Article 33(2).

Claims 2-3: Fig. 1 in D1 discloses a pump is provided on the collector heads 4 (the same as the additive features of claim 2); and D1 discloses a inner-hot type heat exchanger(the same as the additive features of claim 3). So when claim 1 has no novelty, claims 2-3 have no novelty under PCT Article 33(2).

Claims 5,10: D2 discloses an equipment for cooling a electrical transformer(referring to paragraph 2 in page 10 – paragraph 5 in page 11 and figs 6-7), wherein it includes cooling oil supply pipes 46 and cooling water supply pipes 50(the same as the features in claim 1), and the heat exchanger 44 is inner-cool type shown in figs(the same as the additive features of claim 5), and the shell-pipw type heat exchanger is used(the same as the additive features of claim 10). So all the features of claims 5,10 are disclosed by D2, claim 1 has no novelty under PCT Article 33(2).

All the features of claims 4,6,7-9,11 are not disclosed by D1-D5 and other documents in ISR, so claims 4,6,7-9,11 have novelty under PCT Article 33(2).

2. Inventive step:

Claim 4: D3 discloses a water cooler(referring to the abstract and fig), wherein the outer walls of the cooling pipes are provided with wing panels for radiating heat, the skilled person in the art can easily combine the above features in D3 with D1, so when claim 3 has no novelty, claim 4 can't be considered involve inventive steps under PCT Article 33(3).

Claim 6: D4 discloses a oil-water cooler(referring to the abstract and fig), wherein the cooling water gets through the oil box(the same as the additive features of claim 6), the skilled person in the art can easily combine the above features in D4 with D2, so when claim 5 has no novelty, claim 6 can't be considered involve inventive steps under PCT Article 33(3).

Claims 7-9, 11: D5 discloses an evaporation type cooler(referring to the last paragraph in page 3- paragraph 1 in page 4 and fig. 2), wherein the air cooler 5 is metal double rolling-sheet type wing panel pipe(the same as the additive features of claim 9). Though the pipe configuration methods of the metal wing panel pipes in the additive features of claims 7,8 aren't disclosed by D5, but the skilled person in the art can easily change the pipes in D5 to the configuration of pipes in claims 7, 8. And the skilled person in the art can easily combine the above features in D5 with D1. D6 discloses a multiple cooler for electrical engine main transformer(referring to the abstract and and fig.), wherein the water/oil heat radiator includes water/oil heat radiator panel-wing sheet(the same as the additive features of claim 11). the skilled person in the art can easily combine the above features in D6 with D1. So when claim 1 has no novelty, claims 7-9, 11 can't be considered involve inventive steps under PCT Article 33(3).

3. Utility:

Claims 1-11 are industrially applicable (Article 33(4) PCT) because the said power lines can be made and used in the industries.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/CN2006/001492

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of : International Patent Classification (IPC) or both national classification and IPC

H01F27/10 (2006.01) i

H01F27/12 (2006.01) i

H01F27/16 (2006.01) i

H01F27/18 (2006.01) i