(54) Title: AIR REMOVAL SYSTEM

(57) Abstract: An air removal unit configured for removing exhaust air from an equipment rack or enclosure includes multiple fans to achieve a high airflow capacity while defining a compact and portable structure. The unit removably installs along an exhaust side of the equipment rack or enclosure to provide capabilities for managing the thermal output of equipment, such as servers, CPUs, communications, internetworking and other types of equipment. The unit includes one or more upper fan modules and one or more lower fan modules positioned below the upper fan modules. The upper and the lower fan modules are arranged in a stacked configuration along the depth of the unit with the lower fan modules positioned in an offset orientation relative to the upper fan modules. The stacked configuration and the offset orientation of the fan modules help to incorporate multiple fans with the unit while maintaining the compact and portable design. The unit is further configured to serve as a door of an equipment rack or enclosure to thereby provide access to the unit and the rack or enclosure during operation. The unit can be incorporated with a ventilation system or a cooling air system associated with an equipment room or data center.
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. H05K7/20

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)

H05K

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 practical, search terms used)

EPO:Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>X</td>
<td>US 6 252 770 81 (YU MING-CHUAN [TW] ET AL) 26 June 2001 (2001-06-26)</td>
<td>1, 2, 5, 9-26</td>
</tr>
<tr>
<td>Y</td>
<td>figures 1-5</td>
<td>3, 4, 6, 7, 8</td>
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<td>A</td>
<td>WO 2004/049773 A (AMERICAN POWER CONV CORP [US]; JOHNSON ROLLIE R [US]; RASMUSSEN NEIL [ ] 10 June 2004 (2004-06-10) figures 4-8, 11-13</td>
<td>3, 4, 6, 7</td>
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See patent family annex.

Further documents are listed in the continuation of Box C.

Date of the actual completion of the International search

29 October 2007

Date of mailing of the international search report

07/11/2007

Authorized officer

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Form PCT/ISA/210 (second sheet) (April 2005)
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<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
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<tr>
<td>US 6252770</td>
<td>26-06-2001</td>
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<td>WO 2004049773</td>
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