



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**03.09.2014 Bulletin 2014/36**

(51) Int Cl.:  
**F24F 1/00** <sup>(2011.01)</sup> **F24F 13/22** <sup>(2006.01)</sup>

(43) Date of publication A2:  
**24.02.2010 Bulletin 2010/08**

(21) Application number: **09167299.8**

(22) Date of filing: **05.08.2009**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL  
PT RO SE SI SK SM TR**

(30) Priority: **22.08.2008 JP 2008213447**

(71) Applicant: **Hitachi Appliances, Inc.**  
**Minato-ku**  
**Tokyo (JP)**

(72) Inventors:  
• **Kosugi, Shinichi**  
**Shizuoka-shi**  
**Shizuoka (JP)**  
• **Oishi, Kenichi**  
**Shizuoka-shi**  
**Shizuoka (JP)**

- **Sato, Ryoji**  
**Shizuoka-shi**  
**Shizuoka (JP)**
- **Kishitani, Tetsushi**  
**Shizuoka-shi**  
**Shizuoka (JP)**
- **Nagahashi, Katsuaki**  
**Shizuoka-shi**  
**Shizuoka (JP)**
- **Sei, Takao**  
**Shizuoka-shi**  
**Shizuoka (JP)**

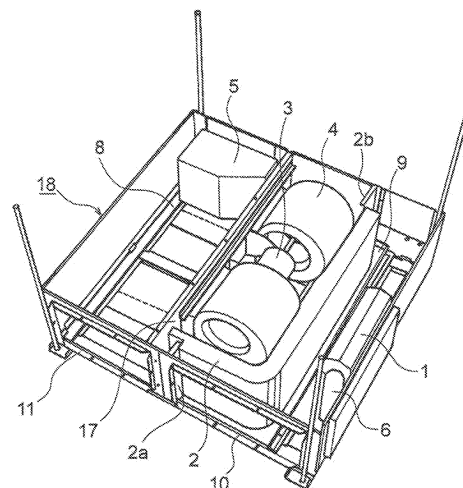
(74) Representative: **Matias, Bruno M.**  
**MERH-IP**  
**Matias Erny Reichl Hoffmann**  
**Paul-Heyse-Strasse 29**  
**80336 München (DE)**

(54) **Indoor embedded type heat source machine**

(57) Provided is an indoor embedded type heat source machine capable of efficiently draining a drain water collected in a drain pan provided on a thin, compact cabinet.

The indoor embedded type heat source machine comprises a cabinet (18) partitioned into an air inlet space and an air outlet space by a separating plate (17), an air inlet (10), through which an air is drawn into the air inlet space, an air outlet (11), through which an air is blown off from the air outlet space, and a fan (4) provided on a side of the air inlet space toward the separating plate. The indoor embedded type heat source machine comprises a compressor provided in the air inlet space so that a length direction thereof is made in parallel to a ceiling or the like, a heat exchanger provided between the fan and the compressor, and a drain pan (9) having a drainage device (9a). The drain pan (9) comprises a heat-exchanger separating plate (2a, 2b) for partitioning thereof into a side, on which an air flows into the heat exchanger, and a side, on which an air flows out from the heat exchanger.

FIG. 1



**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.  
This report shall be considered, for the purposes of  
subsequent proceedings, as the European search report

EP 09 16 7299

| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                       |                                                                                                                                                                                                                                                                              |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Category                                                                                                                                                                                                                                                                                                                                                                | Citation of document with indication, where appropriate, of relevant passages                                                         | Relevant to claim                                                                                                                                                                                                                                                            | CLASSIFICATION OF THE APPLICATION (IPC) |
| Y                                                                                                                                                                                                                                                                                                                                                                       | EP 1 004 831 A2 (MITSUBISHI ELECTRIC CORP [JP]) 31 May 2000 (2000-05-31)<br>* paragraph [0045] - paragraph [0048];<br>figures 8-9 *   | 1,3-7                                                                                                                                                                                                                                                                        | INV.<br>F24F1/00<br>F24F13/22           |
| Y                                                                                                                                                                                                                                                                                                                                                                       | GB 2 300 051 A (TOSHIBA KK [JP])<br>23 October 1996 (1996-10-23)<br>* page 1, line 1 - page 3, line 16;<br>figures 2,3 *              | 1,3-7                                                                                                                                                                                                                                                                        |                                         |
| Y                                                                                                                                                                                                                                                                                                                                                                       | US 2005/132737 A1 (JEON JEONG YONG [KR])<br>23 June 2005 (2005-06-23)<br>* paragraph [0039] - paragraph [0051];<br>figures 1-3 *      | 1,3-7                                                                                                                                                                                                                                                                        |                                         |
| A                                                                                                                                                                                                                                                                                                                                                                       | US 7 000 419 B1 (OHMI TADAHIRO [JP] ET AL)<br>21 February 2006 (2006-02-21)<br>* column 4, line 24 - column 5, line 30;<br>figure 1 * | 1,3-7                                                                                                                                                                                                                                                                        |                                         |
|                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                       |                                                                                                                                                                                                                                                                              | TECHNICAL FIELDS SEARCHED (IPC)         |
|                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                       |                                                                                                                                                                                                                                                                              | F24F<br>F25B                            |
| <b>INCOMPLETE SEARCH</b>                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                       |                                                                                                                                                                                                                                                                              |                                         |
| <p>The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.</p> <p>Claims searched completely :</p> <p>Claims searched incompletely :</p> <p>Claims not searched :</p> <p>Reason for the limitation of the search:<br/>see sheet C</p> |                                                                                                                                       |                                                                                                                                                                                                                                                                              |                                         |
| Place of search                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                       | Date of completion of the search                                                                                                                                                                                                                                             | Examiner                                |
| Munich                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                       | 28 July 2014                                                                                                                                                                                                                                                                 | Anconetani, Mirco                       |
| CATEGORY OF CITED DOCUMENTS                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                       |                                                                                                                                                                                                                                                                              |                                         |
| X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document                                                                                                                                                 |                                                                                                                                       | T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                         |

EPO FORM 1503 03.82 (P04E07)



**INCOMPLETE SEARCH  
SHEET C**

Application Number

EP 09 16 7299

Claim(s) completely searchable:  
1, 3-7

Claim(s) not searched:  
2

Reason for the limitation of the search:

The search has been restricted to the subject-matter indicated by the applicant in his telefax of 18th June 2014 filed in reply to the invitation pursuant to Rule 62a(1) EPC. Hence, the search report has been drawn up on the basis of independent claim 1 and the claims dependent thereon

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 7299

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

28-07-2014

| Patent document<br>cited in search report |    | Publication<br>date | Patent family<br>member(s) |               | Publication<br>date |
|-------------------------------------------|----|---------------------|----------------------------|---------------|---------------------|
| EP 1004831                                | A2 | 31-05-2000          | AU                         | 757671 B2     | 27-02-2003          |
|                                           |    |                     | AU                         | 5962099 A     | 01-06-2000          |
|                                           |    |                     | EP                         | 1004831 A2    | 31-05-2000          |
|                                           |    |                     | ES                         | 2245499 T3    | 01-01-2006          |
|                                           |    |                     | HK                         | 1027390 A1    | 02-12-2005          |
|                                           |    |                     | US                         | 6240740 B1    | 05-06-2001          |
| -----                                     |    |                     |                            |               |                     |
| GB 2300051                                | A  | 23-10-1996          | CN                         | 1132336 A     | 02-10-1996          |
|                                           |    |                     | GB                         | 2300051 A     | 23-10-1996          |
|                                           |    |                     | JP                         | H08271024 A   | 18-10-1996          |
|                                           |    |                     | US                         | 5632155 A     | 27-05-1997          |
| -----                                     |    |                     |                            |               |                     |
| US 2005132737                             | A1 | 23-06-2005          | CN                         | 1629549 A     | 22-06-2005          |
|                                           |    |                     | KR                         | 20050061977 A | 23-06-2005          |
|                                           |    |                     | US                         | 2005132737 A1 | 23-06-2005          |
| -----                                     |    |                     |                            |               |                     |
| US 7000419                                | B1 | 21-02-2006          | EP                         | 1221576 A1    | 10-07-2002          |
|                                           |    |                     | TW                         | 457358 B      | 01-10-2001          |
|                                           |    |                     | US                         | 7000419 B1    | 21-02-2006          |
|                                           |    |                     | WO                         | 0118455 A1    | 15-03-2001          |
| -----                                     |    |                     |                            |               |                     |

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82