



(11) **EP 2 292 984 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**17.12.2014 Bulletin 2014/51**

(51) Int Cl.:  
**F24F 1/00** <sup>(2011.01)</sup> **F24F 13/15** <sup>(2006.01)</sup>  
**F24F 13/14** <sup>(2006.01)</sup>

(43) Date of publication A2:  
**09.03.2011 Bulletin 2011/10**

(21) Application number: **10003179.8**

(22) Date of filing: **25.03.2010**

(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**  
Designated Extension States:  
**AL BA ME RS**

(30) Priority: **23.07.2009 JP 2009172016**

(71) Applicant: **Mitsubishi Electric Corporation**  
**Tokyo 100-8310 (JP)**

(72) Inventors:  
• **Ishikawa, Masato**  
**Tokyo 102-0073 (JP)**  
• **Ooishi, Masayuki**  
**Tokyo 102-0073 (JP)**

- **Suzuki, Akimoto**  
**Tokyo 102-0073 (JP)**
- **Ikeda, Hisanori**  
**Tokyo 102-0073 (JP)**
- **Kinami, Masahide**  
**Tokyo 102-0073 (JP)**
- **Yokota, Shuuhei**  
**Tokyo 102-0073 (JP)**
- **Koyanagi, Youhei**  
**Tokyo 102-0073 (JP)**

(74) Representative: **Pfenning, Meinig & Partner GbR**  
**Patent- und Rechtsanwälte**  
**Theresienhöhe 11a**  
**80339 München (DE)**

(54) **Wind direction adjusting apparatus and indoor unit of air conditioner**

(57) There is provided a wind direction adjusting apparatus in which an energy saving effect is obtained by restraining an increase in draft resistance, and an indoor unit of an air conditioner having the wind direction adjusting apparatus provided therein. An wind direction adjusting apparatus 200 includes a base member 40, a first wind direction plate 12 provided on the base member 40 so as to be rotatable about a reference center of rotation A, a second wind direction plate 22 provided on the first wind direction plate 12 so as to be rotatable about a coupled center of rotation B, a moving member 30 provided

with the first wind direction plate 12 and the second wind direction plate 22 so as to be rotatable about a first center of rotation C and a second center of rotation D respectively, and driving means 50 configured to move the moving member 30 relatively with respect to the base member 40, and an angle formed between a first imaginary line L1 connecting the reference center of rotation A and the coupled center of rotation B and a second imaginary line L2 connecting the coupled center of rotation B and the second center of rotation D varies according to the amount of relative movement of the moving member 30.

**EP 2 292 984 A3**

**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 10 00 3179

**DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category | Citation of document with indication, where appropriate, of relevant passages                                            | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC)    |
|----------|--------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------|
| X        | JP 2006 275318 A (MITSUBISHI ELECTRIC CORP) 12 October 2006 (2006-10-12)<br>* abstract; figures 1-6 *                    | 1,5               | INV.<br>F24F1/00<br>F24F13/15<br>F24F13/14 |
| X        | JP H11 173652 A (MITSUBISHI ELECTRIC CORP) 2 July 1999 (1999-07-02)<br>* abstract; figures 3-7,12,15 *                   | 1,5               |                                            |
| X        | JP S61 145248 U (UNKNOWN) 8 September 1986 (1986-09-08)<br>* figures 7-9 *                                               | 1,5               |                                            |
| A,D      | JP 2007 132636 A (MITSUBISHI ELECTRIC CORP) 31 May 2007 (2007-05-31)<br>* figures 1-16 *                                 | 1,5               |                                            |
| A        | US 2006/079171 A1 (LU LEGEND [TW]) 13 April 2006 (2006-04-13)<br>* paragraph [0027] - paragraph [0033];<br>figures 4-7 * | 1                 |                                            |
|          |                                                                                                                          |                   | TECHNICAL FIELDS SEARCHED (IPC)            |
|          |                                                                                                                          |                   | F24F                                       |

**INCOMPLETE SEARCH**

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.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

1

EPO FORM 1503 03/02 (P04E07)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                             |                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------|
| Place of search<br><b>Munich</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Date of completion of the search<br><b>12 November 2014</b> | Examiner<br><b>Anconetani, Mirco</b> |
| CATEGORY OF CITED DOCUMENTS<br>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<br>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 |                                                             |                                      |



**INCOMPLETE SEARCH  
SHEET C**

Application Number  
EP 10 00 3179

5

10

15

20

25

30

35

40

45

50

55

Claim(s) completely searchable:  
1, 5

Claim(s) not searched:  
2-4

Reason for the limitation of the search:

The search has been restricted to the subject-matter indicated by the applicant in his letter of 7th October 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 10 00 3179

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.

12-11-2014

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)       | Publication<br>date      |
|-------------------------------------------|---------------------|----------------------------------|--------------------------|
| JP 2006275318 A                           | 12-10-2006          | JP 4698262 B2<br>JP 2006275318 A | 08-06-2011<br>12-10-2006 |
| JP H11173652 A                            | 02-07-1999          | JP 3792032 B2<br>JP H11173652 A  | 28-06-2006<br>02-07-1999 |
| JP S61145248 U                            | 08-09-1986          | NONE                             |                          |
| JP 2007132636 A                           | 31-05-2007          | JP 4377370 B2<br>JP 2007132636 A | 02-12-2009<br>31-05-2007 |
| US 2006079171 A1                          | 13-04-2006          | NONE                             |                          |