



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
20.08.2008 Bulletin 2008/34

(51) Int Cl.:
F24F 1/00 (2006.01) F28F 1/32 (2006.01)

(43) Date of publication A2:
20.09.2006 Bulletin 2006/38

(21) Application number: **06003441.0**

(22) Date of filing: **20.02.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **22.02.2005 JP 2005045035**

(71) Applicant: **Matsushita Electric Industrial Co., Ltd.**
Kadoma-shi
Osaka
571-8501 (JP)

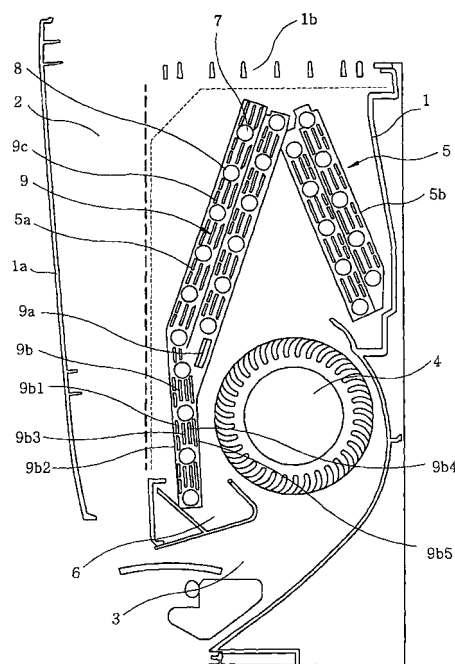
(72) Inventors:
• **Masahide, Nakayama**
Kusatsu-shi
Shiga 525-0057 (JP)
• **Kenji, Shirai**
Kusatsu-shi
Shiga 525-0057 (JP)
• **Naoto, Fujita**
Higashiomi-shi
Shiga 529-1551 (JP)

(74) Representative: **Samson & Partner**
Patentanwälte
Widenmayerstraße 5
80538 München (DE)

(54) **Air conditioner**

(57) An air conditioner includes a housing (1) provided with one or more air suction openings (2) and one or more air discharge openings (3); a cross flow fan (4) disposed in the housing (1); and a fin attached heat exchanger unit (5) disposed between the air suction openings and the cross flow fan and having a front heat exchanger (5a), where a coolant tube (7) is arranged in a lower portion of the front heat exchanger (5a) in a single row and in an upper portion thereof in two rows; and a rear heat exchanger (5b), where the coolant tube is arranged in two rows, the front and rear heat exchanger being coupled in a substantially inverted "V" shape. A fin (8) of the front heat exchanger is provided with a slit (9a) at a joint portion of the lower and upper portion thereof and a protrusion is formed at the slit to interfere with a suction air flow.

FIG. 1





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 00 3441

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	JP 11 183077 A (FUJITSU GENERAL LTD) 6 July 1999 (1999-07-06) * the whole document * * abstract *	1-6	INV. F24F1/00 F28F1/32
Y	JP 2003 202118 A (DAIKIN IND LTD) 18 July 2003 (2003-07-18) * the whole document * * abstract *	1-6	
A	WO 2005/010442 A (MATSUSHITA ELECTRIC IND CO LTD [JP]; KAWANO YUSUKE; BAMBAMA SAHIRO; TO) 3 February 2005 (2005-02-03) * figure 3 *	1,6	
D,A	JP 09 210452 A (DAIKIN IND LTD) 12 August 1997 (1997-08-12) * the whole document * * abstract *	1	
A	JP 2002 054840 A (HITACHI LTD) 20 February 2002 (2002-02-20) * the whole document * * abstract *	1,2	TECHNICAL FIELDS SEARCHED (IPC) F24F F28F
A	JP 10 220788 A (DAIKIN IND LTD) 21 August 1998 (1998-08-21) * the whole document * * abstract *	1	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 15 May 2008	Examiner Lienhard, Dominique
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

1
EPO FORM 1503 03.82 (P04C01)

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

EP 06 00 3441

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.

15-05-2008

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 11183077	A	06-07-1999	NONE	
JP 2003202118	A	18-07-2003	JP 3613272 B2	26-01-2005
WO 2005010442	A	03-02-2005	CN 1823244 A	23-08-2006
			KR 20060052808 A	19-05-2006
JP 9210452	A	12-08-1997	JP 3612846 B2	19-01-2005
JP 2002054840	A	20-02-2002	NONE	
JP 10220788	A	21-08-1998	NONE	