



(11) **EP 1 832 820 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
26.09.2007 Bulletin 2007/39

(51) Int Cl.:
F25B 1/00 (2006.01) F25B 13/00 (2006.01)

(43) Date of publication A2:
12.09.2007 Bulletin 2007/37

(21) Application number: **07012492.0**

(22) Date of filing: **24.07.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

(30) Priority: **26.07.2000 JP 2000225427**

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
01950048.7 / 1 304 532

(71) Applicant: **DAIKIN INDUSTRIES, LTD.**
Osaka-shi, Osaka 530-8323 (JP)

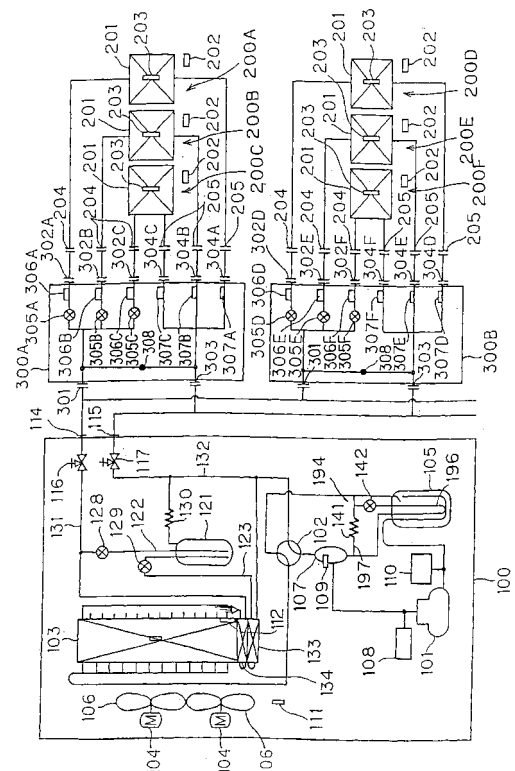
(72) Inventors:
• **Kataoka, Hidehiko**
Kusatsu-shi
Shiga 525-0044 (JP)
• **Nishiura, Yoshihiro**
Kusatsu-shi
Shiga 525-0044 (JP)
• **Sakamoto, Shinichi**
Kusatsu-shi
Shiga 525-0044 (JP)

(74) Representative: **HOFFMANN EITLE**
Patent- und Rechtsanwälte
Arabellastrasse 4
81925 München (DE)

(54) **Air conditioner**

(57) An air conditioner comprising a refrigerant circuit formed of an outdoor unit refrigerant circuit including at least a compressor (101), a four-way valve (102) and an outdoor heat exchanger (103) arranged in an outdoor unit (100), and an indoor heat exchanger (201) arranged in an indoor unit (200) and connected to said outdoor unit refrigerant circuit by a liquid-side pipe and a gas-side pipe, wherein a bypass circuit forming a bypass between said liquid-side and gas-side pipes (131,132) is provided with a receiver (121) for collecting liquid refrigerant, and refrigerant on-off means (128,129) arranged in a liquid pipe connection pipe (122) connecting said receiver (121) to said liquid-side pipe (131) and in a gas pipe connecting pipe (123) connecting said receiver (121) to said gas-side pipe (132), said refrigerant on-off means (128,129) is controlled based on determination of presence/absence of surplus refrigerant performed by determining a current heat exchanging performance of said outdoor heat exchanger (103), and thereby an amount of the refrigerant in said receiver (121) is controlled.

Fig. 1



EP 1 832 820 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 01 2492

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 60 114669 A (TOSHIBA KK) 21 June 1985 (1985-06-21) * the whole document *	1	INV. F25B1/00 F25B13/00
Y	JP 2000 146322 A (ZEXEL CORP) 26 May 2000 (2000-05-26) * paragraph [0017] - paragraph [0057]; figures 1-6 *	1	
A	US 5 937 660 A (LAU ET AL) 17 August 1999 (1999-08-17) * column 2, line 61 - column 8, line 32; figures 1-25 *	1	
E	EP 1 300 637 A (DAIKIN INDUSTRIES, LTD) 9 April 2003 (2003-04-09) * the whole document *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F25B
Place of search		Date of completion of the search	Examiner
Munich		1 August 2007	Szilagy, Barnabas
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			

6
EPO FORM 1503 03.82 (P04C01)

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

EP 07 01 2492

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.

01-08-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 60114669	A	21-06-1985	NONE	
JP 2000146322	A	26-05-2000	NONE	
US 5937660	A	17-08-1999	NONE	
EP 1300637	A	09-04-2003	AU 766170 B2	09-10-2003
			AU 6951201 A	30-01-2002
			CN 1386184 A	18-12-2002
			WO 0206738 A1	24-01-2002
			JP 3584862 B2	04-11-2004
			JP 2002022306 A	23-01-2002