(11) **EP 1 041 349 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 17.10.2001 Bulletin 2001/42

(51) Int Cl.7: **F24F 1/00**, F25B 45/00

(43) Date of publication A2: **04.10.2000 Bulletin 2000/40**

(21) Application number: 00106829.5

(22) Date of filing: 30.03.2000

(84) Designated Contracting States:

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 01.04.1999 JP 9457399

01.04.1999 JP 9457799 18.06.1999 JP 17206499 30.06.1999 JP 18493999

(71) Applicant: MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

Kadoma-shi, Osaka 571-8501 (JP)

(72) Inventors:

Sato, Shigehiro
 Kusatsu-shi, Shiga 525-0045 (JP)

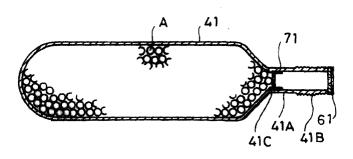
- Numoto, Hironao Otsu-shi, Shiga 520-2101 (JP)
- Motegi, Hitoshi Kusatsu-shi, Shiga 525-0057 (JP)
- Watanabe, Yukio, Room 1108,
 Co-op Nomura Kyoto Min
 Minami-ku, Kyoto-shi, Kyoto 601-8037 (JP)
- Nakatsuno, Eiji Otsu-shi, Shiga 520-2276 (JP)
- Takeuchi, Hiroyuki
 Otsu-shi, Shiga 520-2264 (JP)
- (74) Representative: Körfer, Thomas, Dipl.-Phys. et al Mitscherlich & Partner, Patent- und Rechtsanwälte, Sonnenstrasse 33 80331 München (DE)

(54) Replacing gas apparatus for an air conditioner

(57) In a replacing gas collecting trap apparatus of the present invention used for installing an air conditioner, an outdoor unit includes a compressor and an outdoor unit heat exchanger into both of which refrigerant gas is charged, an indoor includes an indoor unit heat exchanger which is opened into atmosphere, the outdoor unit and the indoor unit are connected through a

connecting pipe, air in the indoor unit heat exchanger or the connecting pipe is replaced by replacing gas and then, the replacing gas is collected. The apparatus further comprises an absorbent for absorbing the replacing gas, and a container body having a base for introducing the replacing gas, and the base is provided with a lid made of resin material or metal material having low gaspermeability.

FIG.3





EUROPEAN SEARCH REPORT

Application Number EP 00 10 6829

	DOCUMENTS CONSID	ERED TO BE I	RELEVANT		
Category	Citation of document with of relevant pass		ropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
Х	US 5 718 119 A (NAI 17 February 1998 (ET AL)	1,21	F24F1/00 F25B45/00
Y	* abstract * * column 4, line 20 * column 7, line 13 * figures 1,5 *			2,3,23	
Υ	US 5 161 385 A (SCH 10 November 1992 (1 * abstract * * claim 7 *		ST W)	2,3	
Y	PATENT ABSTRACTS OF vol. 1997, no. 09, 30 September 1997 (-& JP 09 113073 A (2 May 1997 (1997-05 * abstract *	(1997-09-30) (YAZAKI CORP)	,	23	
	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 04, 30 April 1999 (1999-04-30)			4,5,7,9, 10,25	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Y A	-& JP 11 014203 A (CO LTD), 22 January * abstract; figures	1999 (1999-	LECTRIC IND 01-22)	6,11-15, 24,26, 27,29, 31,34, 35,41, 42,44,45 8,16,17,	G01L G01M G01K
	US 5 779 773 A (CAM 14 July 1998 (1998- * abstract * * figures 3,7,11 *	 FRANCOIS E 07-14)	Γ AL) -/	6	
	The present search report has t	peen drawn up for all	claims		
	Place of search	Date of comp	letion of the search		Examiner
	THE HAGUE	6 Augi	ust 2001	De (Graaf, J
X : partio Y : partio docur A : techn O : non-v	TEGORY OF CITED DOCUMENTS cularly relevant if taken alone rularly relevant if combined with anothent of the same category cological background written disclosure nediate document	ner	T: theory or principle E: earlier patent doc after the filing date D: document cited in L: document cited fo &: member of the sa document	e underlying the in ument, but publis on the application or other reasons	vention hed on, or

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 00 10 6829



EUROPEAN SEARCH REPORT

Application Number EP 00 10 6829

Cata	Citation of document with in	dication, where appropriate.	Relevant	CLASSIFICATION OF TH
Category	of relevant passa	to claim	APPLICATION (Int.Cl.7)	
Y	US 5 025 633 A (FUR		11,14,15	
	25 June 1991 (1991-0	96-25)	1.0	
Α	* abstract *	- column 6, line 24 *	. 18	
	* figures 1,5,6 *	CO141111 0, 11116 24		
γ	US 4 413 746 A (MATS	SUTANI YOSHIHIDE)	12,13	
	8 November 1983 (198			
Α	* abstract *		18,19	
	* figures 1,2 *	wa es- ma		
Υ	GB 2 086 048 A (SUNI		24,26,	
Α	6 May 1982 (1982-05- * abstract *	-06)	27,29,31	
^	* figures 1-4 *		28,30	
.,	•			
Υ	US 4 793 717 A (MANS 27 December 1988 (19	SKE WENDELL J)	34,35,	
	71 necember, 1300 (1)	700-12-2/)	41,42, 44,45	
Α	* the whole document	*	28-31	
E	EP 1 041 348 A (MATS	SUSHITA ELECTRIC IND C	0 1.4.7-9	TECHNICAL FIELDS SEARCHED (Int.CI.7
	LTD) 4 October 2000	(2000-10-04)	21	The state of the s
	* the whole document	*		
E	EP 1 041 347 A (MATS	SUSHITA ELECTRIC IND C	0 11,15	
	LTD) 4 October 2000	(2000-10-04)		
	* the whole document	· **		
P,X	EP 0 962 728 A (MATS	SUSHITA ELECTRIC IND C	0 16	
	LTD) 8 December 1999			
	* figures 8A,9,10,16	e? no see see		
		-/		
		·		
	The present search report has be	en drawn up for all claims		
	Place of search	Date of completion of the search		Examiner
	THE HAGUE	6 August 2001	De G	iraaf, J
CA	TEGORY OF CITED DOCUMENTS	T: theory or princip	le underlying the inv	rention
	ularly relevant if taken alone	after the filing da		ed on, or
docur	ularly relevant if combined with anothe nent of the same category	L : document cited	for other reasons	
	ological background written disclosure		same patent family, o	

EPO FORM 1503 03.82 (P04C01)



LACK OF UNITY OF INVENTION SHEET B

Application Number EP 00 10 6829

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-3, 21, 23

A replacing gas collecting apparatus comprising a metal or flexible film container body.

2. Claims: 4-10

A replacing gas collecting trap apparatus comprising a baffle plate for securely holding an absorbent.

3. Claims: 11-15

A replacing gas collecting trap apparatus comprising a base portion for introducing the replacing gas and a closing lid or valve provided onto said base portion.

4. Claims: 16-20, 22

A replacing gas collecting trap apparatus comprising a container body divided into at least two chambers, charged with respectively an absorbent and a replacing gas.

5. Claims: 24-33

A replacing gas collecting trap apparatus comprising an internal pressure indicating portion provided on the container body.

6. Claims: 34-45

A replacing gas collecting trap apparatus comprising a temperature indicating portion provided on the container body.



EUROPEAN SEARCH REPORT

Application Number EP 00 10 6829

Catagor	Citation of document with i	ndication, where appropriate,	Reievant	CLASSIFICATION OF THE
Category	of relevant pass		to claim	APPLICATION (Int.Cl.7)
A	PATENT ABSTRACTS OF vol. 1995, no. 07, 31 August 1995 (199 -& JP 07 103620 A (LTD;OTHERS: 03), 18 April 1995 (1995 * abstract *	95-08-31) (NIPPON PISTON RING CO	11,14	
A	EP 0 433 211 A (CAF 19 June 1991 (1991- * page 8, line 1 -	06-19)	17	
A	DE 298 09 250 U (AF OESCHGER GERHARD VO 4 February 1999 (19 * page 2, line 21 -	99-02-04)	34	
A	US 3 197 945 A (R Z 3 August 1965 (1965 * figures 1-3 *		36	
Α	US 5 388 417 A (HUG 14 February 1995 (1	HES JR ANDREW J ET AL) 995-02-14)		TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 4 996 848 A (NEL 5 March 1991 (1991-			
A	US 3 944 403 A (SIM 16 March 1976 (1976			
A	GB 2 112 123 A (MIY 13 July 1983 (1983-			
A	US 5 882 384 A (TOM 16 March 1999 (1999			
A	US 3 736 899 A (MAN 5 June 1973 (1973-0	SKE W) 6-05) 		
	The present search report has t	peen drawn up for all claims		
	Place of search	Date of completion of the search		Examiner
	THE HAGUE	6 August 2001	De	Graaf, J
X : partic Y : partic docui A : techr O : non-	TEGORY OF CITED DOCUMENTS cularly relevant if taken alone cularly relevant if combined with anothent of the same category nological background written disclosure mediate document	L. : document cited fo	cument, but publis e n the application or other reasons	hed on, or

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

EP 00 10 6829

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.

06-08-2001

Patent docume cited in search rep		Publication date	Patent family member(s)	Publication date
US 5718119	Α	17-02-1998	JP 9292168 A	11-11-199
US 5161385	Α	10-11-1992	NONE	
JP 09113073	Α	02-05-1997	JP 2819104 B	30-10-199
JP 11014203	Α	22-01-1999	NONE	
US 5779773	Α	14-07-1998	FR 2730423 A BE 1010543 A DE 19605257 A GB 2297923 A,B GB 2329597 A,B	14-08-199 06-10-199 22-08-199 21-08-199 31-03-199
US 5025633	Α	25-06-1991	NONE	
US 4413746	Α	08-11-1983	DE 3208032 A GB 2096703 A,B	28-10-198 20-10-198
GB 2086048	Α	06-05-1982	NONE	***************************************
US 4793717	A	27-12-1988	CA 1211002 A DE 3378074 D EP 0094154 A JP 1636442 C JP 3000562 B JP 58202825 A	09-09-198 27-10-198 16-11-198 31-01-199 08-01-199 26-11-198
EP 1041348	Α	04-10-2000	JP 3154986 B JP 2000283610 A JP 3154989 B JP 2000292038 A	09-04-200 13-10-200 09-04-200 20-10-200
EP 1041347	Α	04-10-2000	JP 3154990 B JP 2000292039 A	09-04-200 20-10-200
EP 0962728	A	08-12-1999	JP 11173709 A CN 1247599 T WO 9931445 A	02-07-1999 15-03-2000 24-06-1999
JP 07103620	Α	18-04-1995	NONE	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~
EP 0433211	Α	19-06-1991	US 5071768 A ES 2087140 T HK 152696 A JP 3029210 B	10-12-1991 16-07-1996 16-08-1996 04-04-2006

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

FORM P0459

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

EP 00 10 6829

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.

06-08-2001

	atent document ed in search repo	rt	Publication date		atent family nember(s)	Publication date
EР	0433211	Α		JP KR	4066837 A 153256 B	03-03-199 01-12-199
DE	29809250	U	04-02-1999	NONE		
US	3197945	Α	03-08-1965	NONE	was not no are the circ _{side} , use not con soo use no co	and the first that and the top has our year ope and
US	5388417	Α	14-02-1995	NONE		
US	4996848	Α	05-03-1991	BR CA MX US US	9004856 A 2026370 A 164241 B 5392610 A 5293756 A	10-09-199 29-03-199 27-07-199 28-02-199 15-03-199
US	3944403	Α	16-03-1976	GB AU DE	1456231 A 6605274 A 2409171 A	24-11-197 28-08-197 12-09-197
GB	2112123	Α	13-07-1983	NONE		
US	5882384	Α	16-03-1999	NONE		
US	3736899	Α	05-06-1973	NONE		

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