



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**15.02.2012 Bulletin 2012/07**

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

(43) Date of publication A2:  
**20.10.2010 Bulletin 2010/42**

(21) Application number: **10003781.1**

(22) Date of filing: **08.04.2010**

(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: **09.04.2009 JP 2009094925**

(71) Applicant: **Hitachi Appliances, Inc.**  
**Minato-ku**  
**Tokyo 105-0022 (JP)**

(72) Inventors:  
• **Sekiya, Sachio**  
**Tokyo 100-8220 (JP)**  
• **Yoshida, Yasutaka**  
**Shizuoka 424-0926 (JP)**  
• **Naito, Koji**  
**Shizuoka 424-0926 (JP)**

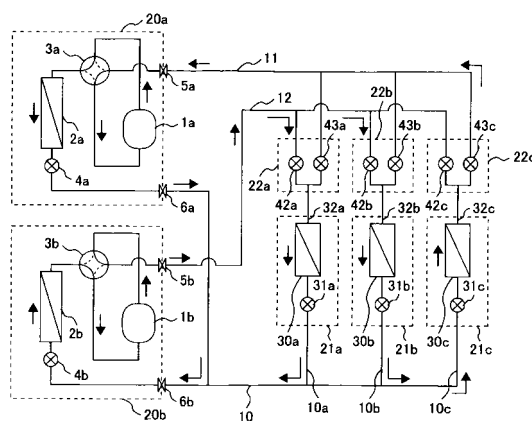
(74) Representative: **Beetz & Partner**  
**Patentanwälte**  
**Steinsdorfstrasse 10**  
**80538 München (DE)**

(54) **Refrigeration cycle apparatus**

(57) The present invention provides a simultaneous cooling and heating type refrigeration cycle apparatus with a simple configuration using outdoor units (20a; 20b) in which a cooling operation and a heating operation can be performed in a switchable manner.

There is provided a refrigeration cycle apparatus including: a first and a second outdoor units (20a; 20b), each including a compressor (1), an outdoor heat exchanger (2), a gas connection port (5), and a liquid connection port (6); a plurality of indoor units (21a; 21b; 21c) in which indoor liquid pipes, indoor heat exchangers (30), and indoor gas pipes (32) are connected in order; and a common liquid pipe through which the liquid connection port of each outdoor unit is communicated with the indoor liquid pipes (10a, 10b, 10c) in the plurality of indoor units (21a; 21b; 21c), wherein each of the indoor gas pipes in the respective indoor units (21a; 21b; 21c) is branched into a first gas pipe (11) and a second gas pipe (12), the first gas pipe (11) is connected to the gas connection port (5) of one of the outdoor units (20a; 20b), the second gas pipe (12) is connected to the gas connection port (5) of the other of the outdoor units (20b; 20a), pipe switching units (3), each switching the respective channels of the first gas pipe (11) and the second gas pipe (12) in each of the indoor units (21a; 21b; 21c), and each of the indoor heat exchangers (30) is communicated with only one of the outdoor units (20a; 20b) by switching the pipe switching units (3).

**FIG. 1**





## EUROPEAN SEARCH REPORT

Application Number  
EP 10 00 3781

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 2008/069066 A1 (DAIKIN IND LTD [JP]; KAWANO SATOSHI [JP]; MATSUOKA SHINYA [JP]) 12 June 2008 (2008-06-12) * figures 6-8 * & EP 2 090 849 A1 (DAIKIN IND LTD [JP]) 19 August 2009 (2009-08-19) * paragraph [0080] - paragraph [0087] * -----	1-8	INV. F25B13/00
A	WO 2008/059922 A1 (HITACHI APPLIANCES INC [JP]; NAITO KOJI [JP]; NAKAMURA KENICHI [JP]; U) 22 May 2008 (2008-05-22) * the whole document * -----	1-8	
			TECHNICAL FIELDS SEARCHED (IPC)
			F25B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 9 January 2012	Examiner Szilagy, Barnabas
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 ..... &amp; : member of the same patent family, corresponding document</p>			

1  
EPO FORM 1503 03.82 (P04C01)

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

EP 10 00 3781

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.

09-01-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008069066 A1	12-06-2008	AU 2007330102 A1	12-06-2008
		CN 101535738 A	16-09-2009
		EP 2090849 A1	19-08-2009
		JP 4389927 B2	24-12-2009
		JP 2008138954 A	19-06-2008
		KR 20090085659 A	07-08-2009
		US 2010043467 A1	25-02-2010
		WO 2008069066 A1	12-06-2008
WO 2008059922 A1	22-05-2008	JP 2008128498 A	05-06-2008
		WO 2008059922 A1	22-05-2008