(72) Inventors:
• **Jang, Won-Jae**
Sosa-Ku, Bucheon, Gyeonggi-Do (KR)
• **Choi, Chang-Min**
Gwanak-Ku, Seoul (KR)
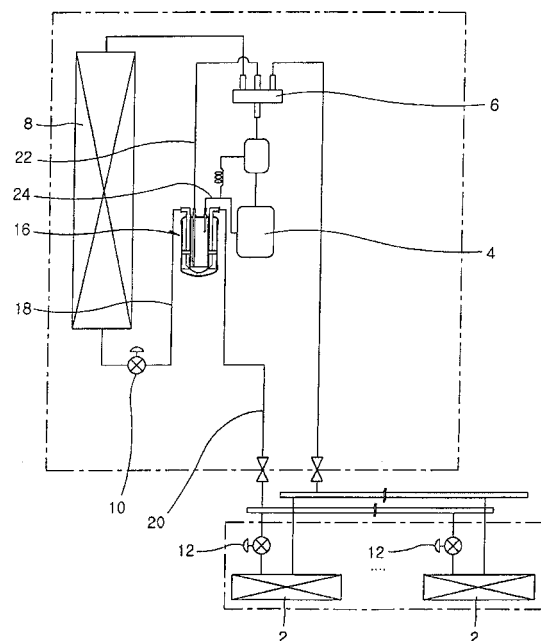
(74) Representative: **Cohausz & Florack**
Patentanwälte
Kanzlerstrasse 8a
40472 Düsseldorf (DE)

(54) **Refrigerating cycle of air-conditioner**

(57)   A refrigerating cycle of an air-conditioner includes: a compressor 4 for compressing a refrigerant; an outdoor heat exchanger 8 disposed outdoors and used as a condenser or an evaporator; indoor heat exchangers 2 disposed indoors and performing an air-cooling/heating operation; expansion valves 10 and 12 installed between the outdoor heat exchanger 8 and the indoor heat exchanger 2 and changing a refrigerant to a low temperature and a low pressure state; and an accumulator/receiver assembly 16 in which a receiver unit 30 for separating oil contained in the refrigerant supplied to the evaporator and an accumulator unit 42 for supplying only a gas refrigerant to the compressor 4 are formed as one body for a heat exchange. As the liquid refrigerant supplied to the evaporator is overcooled and the gas refrigerant supplied to the compressor is overheated, even if the refrigerant pipe is formed long, the compression lowering of the refrigerant can be prevented and thus the compressor can be protected.

FIG. 2

EP 1 329 675 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 02 02 3361

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 1 096 210 A (MITSUBISHI DENKI KABUSHIKI KAISHA) 2 May 2001 (2001-05-02) * abstract; figures 9,10 * * column 12, line 13 - column 14, line 10 * ---	1-3,5	F25B13/00 F25B40/00 F25B43/00
X	US 3 212 289 A (BOTTUM) 19 October 1965 (1965-10-19) * column 2, line 14 - line 24 * * column 2, line 66 - column 3, line 2 * * column 3, line 14 - line 44 * * column 3, line 57 - line 59; figure 3 * ---	1,2,5,6	
X	US 3 420 071 A (BOTTUM) 7 January 1969 (1969-01-07) * column 3, line 61 - line 72 * * column 4, line 54 - column 5, line 2 * ---	1,2,4	
X	US 5 491 981 A (KIMA) 20 February 1996 (1996-02-20) * column 3, line 9 - line 56 * ---	1,2,5	
X	US 4 236 381 A (IMRAL) 2 December 1980 (1980-12-02) * column 3, line 19 - line 62 * ---	1,2,5	TECHNICAL FIELDS SEARCHED (Int.Cl.7) F25B
X	US 4 942 743 A (GREGORY) 24 July 1990 (1990-07-24) * column 4, line 46 - column 5, line 8 * -----	1	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 September 2003	SOGNO, M

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.** EP 02 02 3361

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.

22-09-2003

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1096210	A	02-05-2001	JP EP	2001124442 A 1096210 A2	11-05-2001 02-05-2001
US 3212289	A	19-10-1965	NONE		
US 3420071	A	07-01-1969	NONE		
US 5491981	A	20-02-1996	KR JP JP	136759 B1 2825432 B2 8014710 A	01-07-1998 18-11-1998 19-01-1996
US 4236381	A	02-12-1980	NONE		
US 4942743	A	24-07-1990	NONE		

EPO FORM P0459

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