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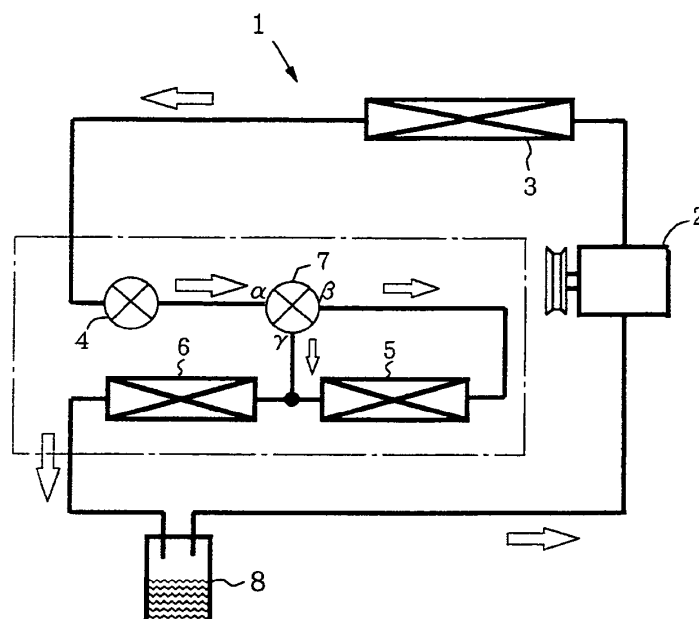
(54) **Cooling cycle**

(57) Theme : A cooling cycle for a twin air conditioning system which provide with a structure that eliminates the disadvantage arising from providing expansion devices with different control systems on each evaporator, thereby holding down manufacturing costs and eliminating or simplifying the work of tuning the system.

Means of Resolution : A structure having compressor 2 which raises the pressure of the coolant to beyond the supercritical pressure, radiator 3 which cools the coolant which has been pressurized by compressor 2, ex-

pansion device 4 which reduces the pressure of the coolant flowing from the radiator so that the pressure on the outlet side of the radiator is held to a prescribed pressure determined by the temperature of the coolant on the outlet side of the radiator, first and second evaporators 5, 6 which evaporate coolant whose pressure has been reduced in expansion device 4, and a flow regulator means (flow regulator valve 7) which regulates the quantity of coolant supplied to evaporators 5, 6 respectively.

Figure 1



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EP 04 02 2996

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 092 379 A (NISHIDA SHIN [JP] ET AL) 25 July 2000 (2000-07-25)	1	INV. F25B9/00 F25B5/02 F25B5/04
Y	* figure 14 * -----	2-7	
Y	DE 19 08 722 B1 (AEG) 20 August 1970 (1970-08-20) * figure 1 * -----	2,3,5	
Y	JP 2003 139422 A (DAIKIN IND LTD) 14 May 2003 (2003-05-14) * paragraphs [0003], [0030], [0042]; figure 4 * -----	4,6,7	
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
The Hague		19 November 2014	Kuljis, Bruno
CATEGORY OF CITED DOCUMENTS		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	
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			



Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

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:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-7

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 04 02 2996

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: 1-7

Cooling cycle with two evaporators fitted with a single expansion device and flow regulator means regulating the quantity of coolant supplied to the evaporator on the upstream side and the quantity of coolant supplied to the evaporator on the downstream side.

2. claims: 8, 9

Cooling cycle with two evaporators provided with an expansion device each and thermal load forecasting means which forecasts the thermal load on the respective evaporators, a ratio-determining means which determines the ratio of the degree of opening for each expansion device from the thermal load of each evaporator forecast using this thermal load forecasting means, and a control means which controls and maintains the ratio determined by said ratio-determining means for the degree of opening of the valves of said first and second expansion devices so that the pressure on the outlet side of said radiator remains at a constant pressure determined by the temperature of the coolant on the outlet side of said radiator.

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

EP 04 02 2996

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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
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19-11-2014

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		JP 4045654 B2	13-02-2008
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82