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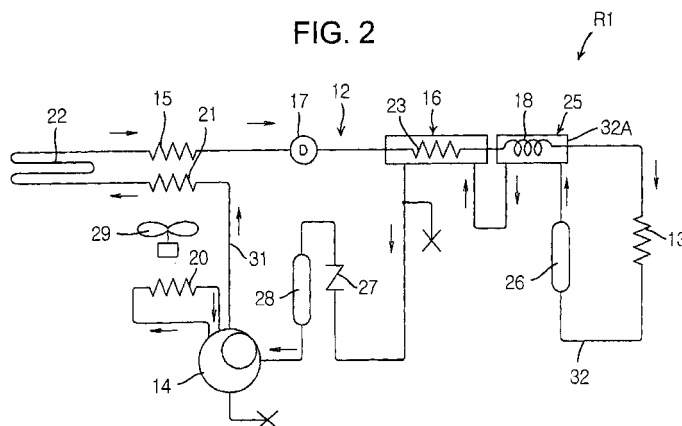
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(54) **Refrigerating apparatus**

(57) There is disclosed a refrigerating apparatus which can more efficiently cool the inside of a chamber to an ultralow temperature. In a refrigerating apparatus R1 which condenses a refrigerant discharged from a compressor 14, reduces a pressure of the refrigerant by a capillary tube 18 and evaporates the refrigerant by an evaporator 13 to exert a cooling function, the capillary

tube 18 is passed through a suction piping line 32 through which the refrigerant returning from the evaporator 13 to the compressor 14 flows, to constitute a double tube structure. Furthermore, the suction piping line 32 (a piping line 32A) formed in the double tube structure by passing the capillary tube 18 therethrough is surrounded with an insulating material 35.

FIG. 2





EUROPEAN SEARCH REPORT

Application Number
EP 10 01 5097

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	FR 1 362 140 A (M. GIOVANNI BORGHİ) 29 May 1964 (1964-05-29)	1,5,7	INV. F25B40/00 F25B7/00 F25B9/00 F25B41/06
Y	* the whole document *	2,4,6	
X	EP 1 477 749 A1 (NOVOA SERGIO DANIEL [AR]) 17 November 2004 (2004-11-17) * the whole document *	1,7	
Y	US 3 733 845 A (LIEBERMAN D) 22 May 1973 (1973-05-22) * column 4, line 35 - column 10, line 53; figure 1 *	2,4	
Y	EP 2 019 271 A1 (SANYO ELECTRIC CO [JP]) 28 January 2009 (2009-01-28) * paragraphs [0033] - [0065]; figure 6 *	4	
Y	EP 1 441 187 A2 (SAMSUNG ELECTRONICS CO LTD [KR]) 28 July 2004 (2004-07-28) * paragraph [0021]; figure 1 *	6	
Y	US 4 147 037 A (GELBARD ROBERT B ET AL) 3 April 1979 (1979-04-03) * column 5, line 20 - line 23, paragraph 6; figure 2 *	6	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 11 April 2011	Examiner Ritter, Christoph
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			

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EPO FORM 1503 03.82 (P04C01)



Application Number

EP 10 01 5097

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:

see additional sheet(s)

☐ 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 10 01 5097

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, 2, 4-7

refrigerating apparatus with cascade heat exchanger

2. claims: 1, 3-7

refrigerating apparatus with non-azeotropic mixed
refrigerants

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

EP 10 01 5097

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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