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(54) Heat exchanger and refrigeration cycle device using the same

(57) Heat exchanger, more especially evaporator for use in a refrigeration cycle device in which carbon dioxide is used as a refrigerant, including a pair of plate materials (76,70B), the whole periphery of a peripheral portion of an outer plate (76) as at least one of the plate materials (76) being secured to the other plate material (70B) constituting a bottom surface of an inner tank (70) to consti-

tute a sealed refrigerant passage space (77) between the plate materials (76,70B), a portion of the outer plate (76) other than the peripheral portion being provided with a plurality of secured inner portions (78) which are secured at predetermined intervals to the bottom surface (70B), and a plurality of refrigerant inlet tubes (16A) and refrigerant outlet tubes (16B) being attached so as to communicate with the refrigerant passage space (77).

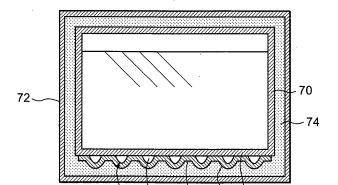


FIG. 2

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78

76 70B

16

77



EUROPEAN SEARCH REPORT

Application Number EP 07 00 3912

Category		ndication, where appropriate,	Relevant	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2 626 130 A (LEC		to claim	INV.
^	20 January 1953 (19	53-01-20)	-,-	F28F3/12
Υ		! - column 3, line 51;	4,5	F25B39/02
Α	figures 1-4 *		3	F28F3/14 F25B9/00
Υ	JP 2003 185271 A (MCO LTD) 3 July 2003 * paragraph [0025];		4,5	12369700
Υ	7 October 2004 (200	; STEVENS RODNEY [AU])	5	
А	EP 0 157 061 A1 (JA 9 October 1985 (198 * page 4, line 23 -	CQUEMIN PIERRE) 5-10-09) Tine 34; figure 2 *	1-5	
А	figure 8 *	 WU NANPING [US]) :002-12-26) - paragraph [0006]; - paragraph [0059] *	4	TECHNICAL FIELDS SEARCHED (IPC) F28F F24H
A	US 3 141 500 A (WAL 21 July 1964 (1964- * figures 1-4 *		3	F25B
Α	US 2 908 149 A (HAL 13 October 1959 (19 * figures 1-5 *		1-5	
А	US 4 700 445 A (RAS 20 October 1987 (19 * figures 6,7 *		2	
	The present search report has	been drawn up for all claims		
	Place of search	Date of completion of the search		Examiner
	The Hague	7 November 2013	De	lval, Stéphane
C	ATEGORY OF CITED DOCUMENTS	T : theory or principl E : earlier patent do		
Y : part docu	icularly relevant if taken alone icularly relevant if combined with anot Iment of the same category	after the filing dat	e n the application	I
A : tech	nological background			

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

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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 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-11-2013

	Patent document ed in search report		Publication date	Patent family Publication member(s) date
US	2626130	Α	20-01-1953	NONE
JP	2003185271	Α	03-07-2003	NONE
WO	2004085927	A1	07-10-2004	EP 1631771 A1 08-03-20 JP 4319678 B2 26-08-20 JP 2006521528 A 21-09-20 NZ 542600 A 31-05-20 US 2006011149 A1 19-01-20 WO 2004085927 A1 07-10-20
EP	0157061	A1	09-10-1985	NONE
US	2002195234	A1	26-12-2002	NONE
US	3141500	Α	21-07-1964	NONE
US	2908149	Α	13-10-1959	NONE
US	4700445	Α	20-10-1987	NONE

FORM P0459

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