



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 189 007 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
09.02.2005 Bulletin 2005/06

(51) Int Cl.7: **F28D 7/10**

(43) Date of publication A2:
20.03.2002 Bulletin 2002/12

(21) Application number: **01121546.4**

(22) Date of filing: **10.09.2001**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Pasqualini, Piero**
20010 Marcallo Con Casone-Milano (IT)

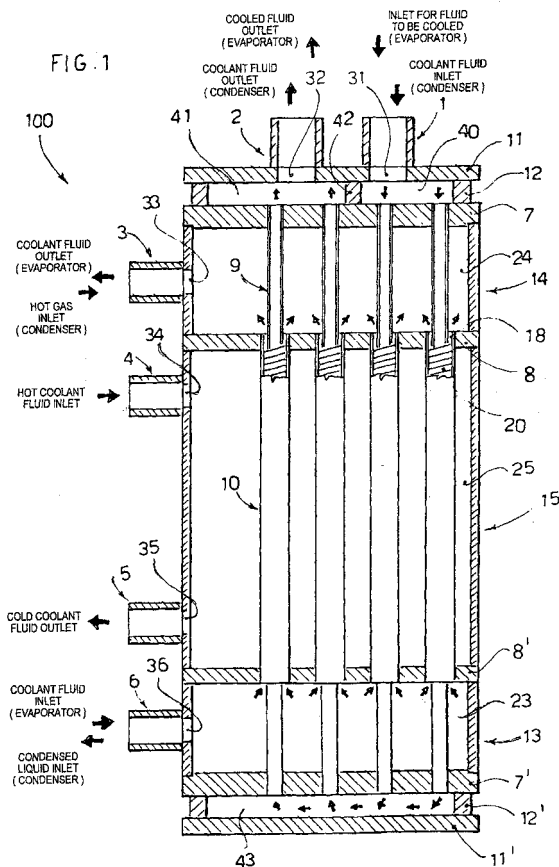
(74) Representative: **Petruzzello, Aldo et al**
Racheli & C. S.p.A
Viale San Michele del Carso, 4
20144 Milano (IT)

(30) Priority: **19.09.2000 IT MI002039**

(71) Applicant: **Pasqualini, Piero**
20010 Marcallo Con Casone-Milano (IT)

(54) **Heat exchanger**

(57) A heat exchanger comprising pair of coaxially disposed tubes (9, 10) and fixed to tube plates (7, 8, 8', 7') so as to form a top chamber (24), an intermediate chamber (25) and a bottom chamber (23), the heat exchanger being suitable to be employed in an evaporator, a condenser or an evaporative condenser.



EP 1 189 007 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 12 1546

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 0 031 919 A (HOECHST AG) 15 July 1981 (1981-07-15) * page 5, lines 19-39 * * page 7, lines 34-36 * * page 8; figures 1,2 *	1-4,7-11	F28D7/10
X	PATENT ABSTRACTS OF JAPAN vol. 0111, no. 55 (M-589), 20 May 1987 (1987-05-20) & JP 61 285389 A (TOSHIBA CORP), 16 December 1986 (1986-12-16) * abstract; figure 1 *	1-4,7,8	
X	EP 0 437 768 A (ROCKWELL INTERNATIONAL CORP) 24 July 1991 (1991-07-24) * column 5, line 1 - column 6, line 44; figures 2-4 *	1-4,7,9,11	
X	WO 90/12992 A (MAEKINEN KALervo PAEIVIOE) 1 November 1990 (1990-11-01) * the whole document *	1-6	
Y	US 4 326 582 A (ROSMAN IRWIN E ET AL) 27 April 1982 (1982-04-27) * column 3, lines 28-44; figures 2-4 *	7-10	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	GB 2 129 110 A (HUETOETECHNIKA IPARI SZOEVETKE) 10 May 1984 (1984-05-10) * the whole document *	7-10	F28D F28B F25B
A	US 5 377 500 A (YANG TEN S) 3 January 1995 (1995-01-03) * page 2, lines 15-29; figures 1,2 *	3	
A	GB 1 056 075 A (ESCHER WYSS AG) 25 January 1967 (1967-01-25) * figures 1,2 *	11-19	
	-/--	3	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 December 2004	Examiner Leclaire, T
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	

EPO FORM 1503 03.82 (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 12 1546

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)
A	US 4 284 133 A (GIANNI SEBASTIAN J ET AL) 18 August 1981 (1981-08-18) * column 1, lines 8-19; figures 1,2 *	3	
A	US 5 735 342 A (NITTA MINORU) 7 April 1998 (1998-04-07) * abstract; figures 1,12 * * column 1, lines 44-46 *	9,10,12	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 December 2004	Examiner Leclaire, T
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			

EPO FORM 1503 03.82 (P04001)

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

EP 01 12 1546

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.

21-12-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0031919	A	15-07-1981	DE 2951549 A1	02-07-1981
			EP 0031919 A1	15-07-1981
			JP 56097790 A	06-08-1981
JP 61285389	A	16-12-1986	NONE	
EP 0437768	A	24-07-1991	US 5048597 A	17-09-1991
			DE 69009439 D1	07-07-1994
			DE 69009439 T2	24-05-1995
			EP 0437768 A1	24-07-1991
			JP 2928645 B2	03-08-1999
			JP 4036596 A	06-02-1992
WO 9012992	A	01-11-1990	FI 891969 A	27-10-1990
			WO 9012992 A1	01-11-1990
US 4326582	A	27-04-1982	NONE	
GB 2129110	A	10-05-1984	NONE	
US 5377500	A	03-01-1995	FR 2707374 A3	13-01-1995
			GB 2279138 A	21-12-1994
GB 1056075	A	25-01-1967	CH 402027 A	15-11-1965
			DE 1936542 U	14-04-1966
US 4284133	A	18-08-1981	CA 1121801 A1	13-04-1982
			DE 3029500 A1	09-04-1981
			FR 2465981 A1	27-03-1981
			GB 2059042 A ,B	15-04-1981
			JP 56053388 A	12-05-1981
US 5735342	A	07-04-1998	WO 9744628 A1	27-11-1997