



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
22.12.2004 Bulletin 2004/52

(51) Int Cl.7: **F25B 13/00**, F25B 29/00,
F25B 43/00

(43) Date of publication A2:
19.05.2004 Bulletin 2004/21

(21) Application number: **03025862.8**

(22) Date of filing: **11.11.2003**

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

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(30) Priority: **13.11.2002 IT TO20020982**

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(54) **Heat-save cooler**

(57) A single- or reversible-cycle heat-save cooler (1) having a first heat exchanger (2) where a cooling fluid exchanges heat with the outside environment; a second heat exchanger (3) where the cooling fluid exchanges heat with a first liquid; a cooling fluid compressor unit (5) where the cooling fluid is compressed to increase its pressure; and a third heat exchanger (4) where the cool-

ing fluid exchanges heat with a second liquid; the third heat exchanger (4) being located immediately downstream from the compressor unit (5); and the cooler (1) also having a liquid-gas separating unit (17) located immediately downstream from the third heat exchanger (4) to retain all or part of the liquid cooling fluid issuing from the third heat exchanger (4).

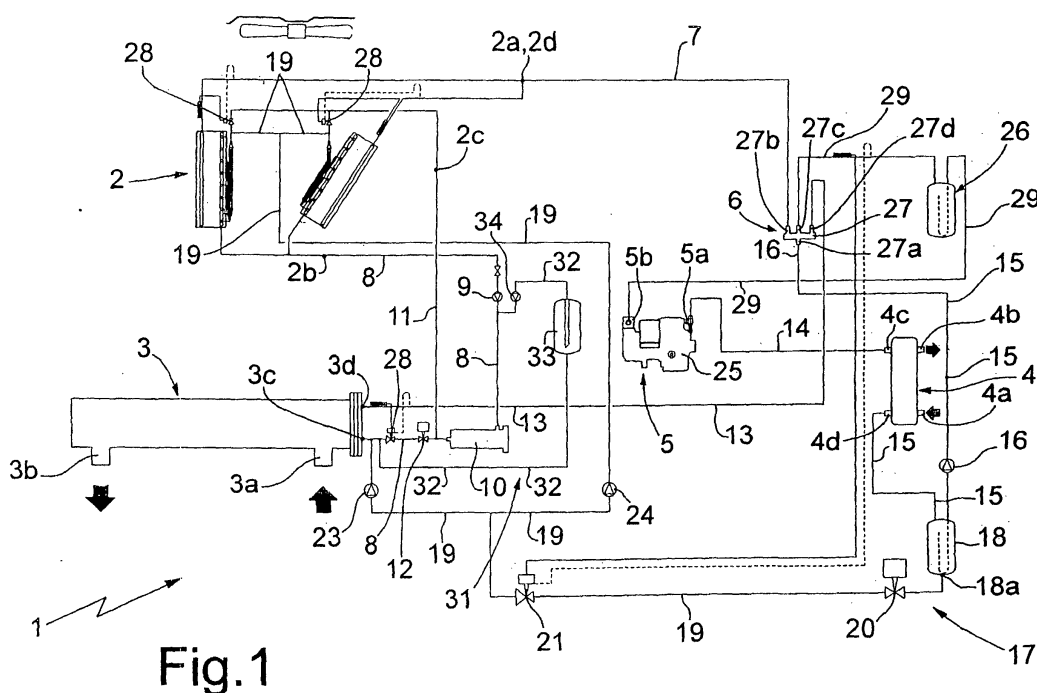


Fig.1



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 02 5862

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	US 6 427 480 B1 (INABA ATSUSHI ET AL) 6 August 2002 (2002-08-06)	1,3,4	F25B13/00 F25B29/00 F25B43/00
Y		2,8	
A	* column 7, line 30 - column 15, line 6; figures 1-11 *	5	

Y	US 5 651 265 A (GRENIER MICHEL A) 29 July 1997 (1997-07-29)	2,8	
A	* column 4, line 63 - column 6, line 51; figures 1,2 *	1	

X	US 6 449 964 B1 (BAI CHEOLHO ET AL) 17 September 2002 (2002-09-17)	1,3,4	
	* column 7, line 51 - column 8, line 46; figures 7,8 *		

A	US 5 758 514 A (CARPENTER FRANK K ET AL) 2 June 1998 (1998-06-02)	1,2,8	
	* column 3, line 37 - column 15, line 23; figures 1-5 *		
	* column 18, line 21 - column 20, line 11; figures 9,10 *		

A	US 3 461 907 A (WOOD CHARLES P JR) 19 August 1969 (1969-08-19)	6	F25B
	* column 4, line 56 - column 5, line 63; figure 1 *		

A	US 3 324 671 A (HARNISH JAMES R) 13 June 1967 (1967-06-13)	7	
	* column 2, line 15 - column 5, line 27; figures 1,4 *		

The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		2 November 2004	Boets, A
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)

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

EP 03 02 5862

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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02-11-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6427480	B1	28-02-2002	AU 757032 B2 30-01-2003
		AU 3874201 A	01-11-2001
		BR 0101602 A	20-11-2001
		CN 1320794 A	07-11-2001
		EP 1150076 A2	31-10-2001
		EP 1403597 A1	31-03-2004
		JP 2002323274 A	08-11-2002
		US 2002023448 A1	28-02-2002
US 5651265	A	29-07-1997	CA 2128178 A1 16-01-1996
US 6449964	B1	06-06-2002	US 6293108 B1 25-09-2001
		US 2002066278 A1	06-06-2002
		AU 7684501 A	14-01-2002
		CN 1449481 T	15-10-2003
		EP 1295071 A1	26-03-2003
		JP 2004502126 T	22-01-2004
		WO 0202996 A1	10-01-2002
US 5758514	A	02-06-1998	WO 9961849 A1 02-12-1999
		AU 7720398 A	13-12-1999
US 3461907	A	19-08-1969	NONE
US 3324671	A	13-06-1967	NONE