



(11) **EP 1 146 307 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
21.01.2004 Bulletin 2004/04

(51) Int Cl.7: **F28F 7/02**

(43) Date of publication A2:
17.10.2001 Bulletin 2001/42

(21) Application number: **01303404.6**

(22) Date of filing: **11.04.2001**

(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: **Bratley, Roy**
Hessle, Hull HU13 0HP (GB)

(74) Representative: **Gill, Ian Stephen**
A.A. Thornton & Co.
235 High Holborn
London WC1V 7LE (GB)

(30) Priority: **14.04.2000 GB 0009380**

(71) Applicant: **CARADON IDEAL LIMITED**
Hull, North Humberside HU5 4JN (GB)

(54) **Heat exchanger**

(57) A cast monoblock heat exchanger (1) has heat exchange fins (5) that span the gap between opposed walls of primary heat exchange passageways (4). The fin (5) arrangement maximises the fin (5) surface area

to improve heat exchange efficiency and increases structural rigidity and the transfer of stresses caused by the expansion and contraction of the heat exchanger (1) during use.

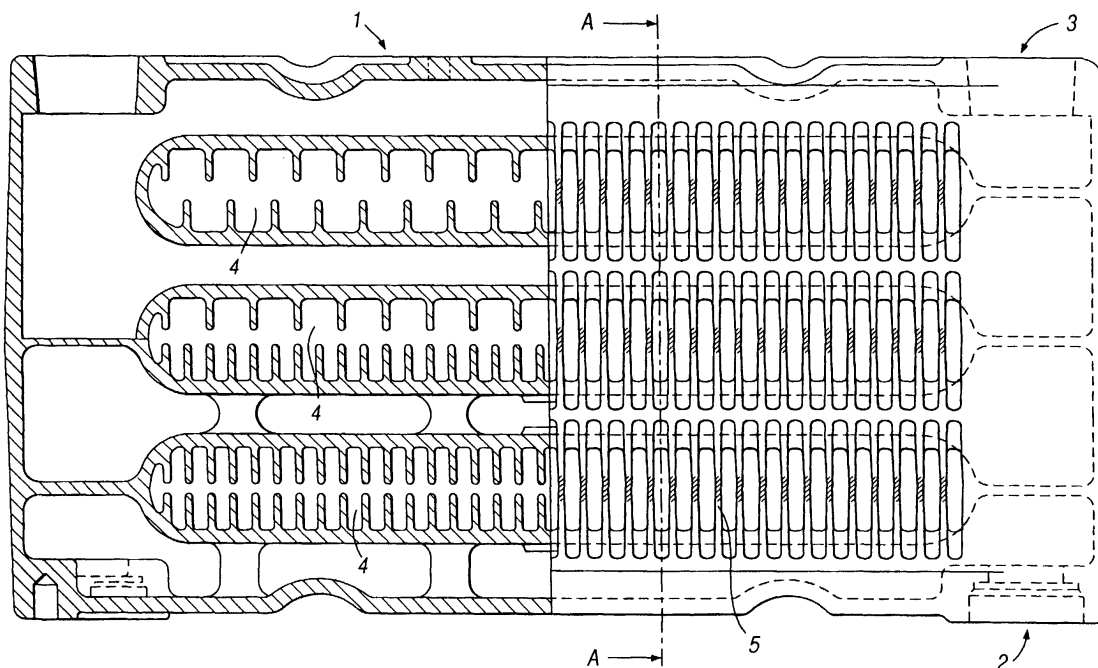


Fig.1

EP 1 146 307 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 01 30 3404

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 0 971 179 A (HOLDING J H DECKERS N V) 12 January 2000 (2000-01-12) * column 3, line 49 - column 4, line 46; figures * * column 5, line 48 - line 54 *	1-3,5	F28F7/02
X	NL 1 009 225 C (BRABANT ALUCAST PRODUCTS B V) 24 November 1999 (1999-11-24) * page 2, line 16 - line 22 * * page 4, line 11 - page 5, line 12 * * figures *	1,2	
X	DE 198 09 859 A (MANN & HUMMEL FILTER) 9 September 1999 (1999-09-09) * column 2, line 13 - line 43; figures *	1,2	
X	GB 2 000 268 A (ASS ENG LTD) 4 January 1979 (1979-01-04) * page 2, line 59 - line 88; figures 1-3 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F28F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 November 2003	Examiner Van Dooren, M
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 (P04/201)

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

EP 01 30 3404

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.

17-11-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date	
EP 0971179	A	12-01-2000	NL	1009570 C2		10-01-2000	
			EP	0971179 A1		12-01-2000	
NL 1009225	C	24-11-1999	NL	1009225 C1		24-11-1999	
DE 19809859	A	09-09-1999	DE	19809859 A1		09-09-1999	
			DE	19936241 A1		01-02-2001	
			DE	59901300 D1		29-05-2002	
			WO	9945264 A1		10-09-1999	
			EP	1062418 A1		27-12-2000	
			US	6374598 B1		23-04-2002	
GB 2000268	A	04-01-1979	CH	641893 A5		15-03-1984	

EPO FORM P0459

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