

(12)

Europäisches Patentamt European Patent Office

EP 0 962 736 A3

Office européen des brevets (11)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 16.08.2000 Bulletin 2000/33

(51) Int. Cl.⁷: **F28F 1/12**, F28F 13/04, F28D 1/03

(43) Date of publication A2: 08.12.1999 Bulletin 1999/49

(21) Application number: 99201397.9

(22) Date of filing: **04.05.1999**

(84) Designated Contracting States:

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 01.06.1998 US 88544

(71) Applicant:

Delphi Technologies, Inc. Troy, MI 48007 (US)

(72) Inventors:

· Falta, Steven R. Batavia, New York 14020 (US)

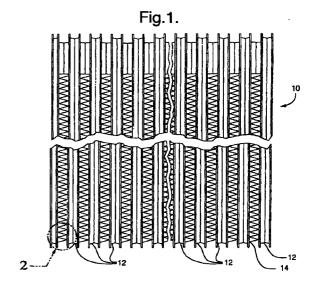
- · Bhatti, Mohinder Singh Amherst, New York 14221 (US)
- Joshi, Shrikant Mukund Williamsville, New York 14221 (US)

(74) Representative:

Denton, Michael John **Delphi Automotive Systems Centre Technique Paris** 117 avenue des Nations **B.P.** 60059 95972 Roissy Charles de Gaulle Cedex (FR)

(54)Corrugated fin for evaporator with improved condensate removal

An improved corrugated heat conduction fin (20) for an evaporator (10) includes an integral feature for reducing the critical width of condensed water films retained in the internal channels formed between diverging pairs of fin walls (22). Aligned pairs of notches (26) are cut through the diverging fin walls (22), localized within the channels and between adjacent pairs of louver banks (24). What would otherwise be a long, continuos water film (F) formed in the fin channel is thereby broken up into a series of discontinuous individual films (F1, F2 and F3), each located over a respective louver bank (24). The individual, shorter films drain more efficiently through the louver banks (24), thereby growing to a significantly smaller critical width within the channels and blocking less air flow over and through the fin walls (22).





EUROPEAN SEARCH REPORT

Application Number EP 99 20 1397

Category	Citation of document with in of relevant passa		Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	PATENT ABSTRACTS OF vol. 006, no. 153 (Fig. 13 August 1982 (1982 - A JP 57 070395 A (Fig. 1982 (1982 + abstract; figures	JAPAN M-149), 2-08-13) HITACHI LTD), -04-30)	1,2	F28F1/12 F28F13/04 F28D1/03
X	PATENT ABSTRACTS OF vol. 010, no. 126 (1 10 May 1986 (1986-0) -& JP 60 253792 A (1 14 December 1985 (1 * abstract; figures	M-477), 5-10) HITACHI SEISAKUSHO KK), 985-12-14)	1,2	
A	PATENT ABSTRACTS OF vol. 007, no. 271 (1 3 December 1983 (199 -& JP 58 150798 A (199 7 September 1983 (199 * abstract; figure	M-260), B3-12-03) HITACHI SEISAKUSHO KK), 983-09-07)	1-3	
A	PATENT ABSTRACTS OF vol. 1998, no. 10, 31 August 1998 (1996) -& JP 10 141805 A (&DEV LAB INC; Di 29 May 1998 (1998-0) * abstract; figures	B-08-31) TOYOTA CENTRAL RES ENSO CORP), 5-29)	1,2	TECHNICAL FIELDS SEARCHED (Int.CI.6) F28D F28F
A	PATENT ABSTRACTS OF vol. 008, no. 069 (1 31 March 1984 (1984 -& JP 58 217195 A (1 17 December 1983 (1 * abstract; figures	M-286), -03-31) MITSUBISHI DENKI KK), 983-12-17)	1,2	
	The present search report has t	peen drawn up for all claims		
	Place of search THE HAGUE	Date of completion of the search 26 June 2000	Mod	Examiner Otz, F
X:par Y:par doc A:tec O:nor	CATEGORY OF CITED DOCUMENTS ticularly relevant if taken alone ticularly relevant if combined with anoticularly relevant if combined with anoticularly relevant if combined with anoticularly relevant in combined with anoticularly relevant in combined with a combined remediate document	T: theory or principle: earlier patient de after the filing de ther D: document cited L: document cited	pie underlying the ocument, but pub ate In the application for other reasons	Invention Ilshed on, or



EUROPEAN SEARCH REPORT

Application Number EP 99 20 1397

Calegory	Citation of document with in of relevant passa	dication, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.5)
А	US 2 018 922 A (OSC) 29 October 1935 (193 * figures 1-3 *	AR C. PALMER)	3	
				TECHNICAL FIELDS SEARCHED (Int.Cl.5)
	The present search report has I			
	Place of search THE HAGUE	Date of completion of the search 26 June 2000	Mod	examiner otz, F
X : par Y : par dod A : tec O : noi	CATEGORY OF CITED DOCUMENTS ticularly relevant if taken alone ticularly relevant if combined with anot sument of the same category hnological background newtiter disclosure emediate document	T : theory or princi E : earlier patent d after the filing d	ole underlying the ocument, but publicate in the application for other reasons	invention lished on, or

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

EP 99 20 1397

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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Patent document cited in search repo	ort	Publication date	Patent lamily member(s)	Publicatio date
JP 57070395	A	30-04-1982	NONE	······································
JP 60253792	A	14-12-1985	NONE	
JP 58150798	A	07- 09 -1983	NONE	
JP 10141805	Α	29-05-1998	NONE	
JP 58217195	Α	17-12-1983	NONE	
US 2018922	A	29-10-1935	NONE	

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