

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 September 2008 (04.09.2008)

PCT

(10) International Publication Number
WO 2008/105760 A3

- (51) **International Patent Classification:**
F28F 13/04 (2006.01) F28F 1/06 (2006.01)
- (21) **International Application Number:**
PCT/US2007/004993
- (22) **International Filing Date:**
27 February 2007 (27.02.2007)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) **Date of publication of the international search report:**
31 December 2008

(54) **Title:** MULTI-CHANNEL FLAT TUBE EVAPORATOR WITH IMPROVED CONDENSATE DRAINAGE

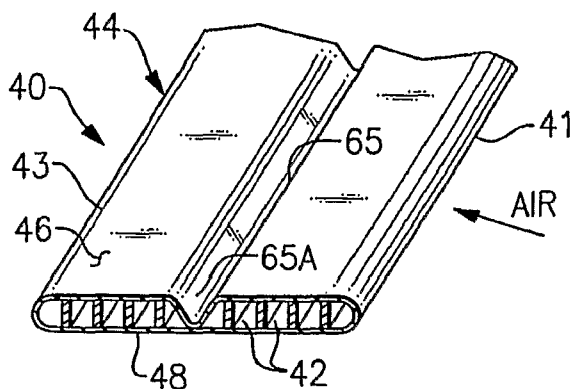


FIG. 3A

(57) **Abstract:** A heat exchange tube includes a tubular member having a flattened cross-section and extending along a longitudinal axis, and a longitudinally extending condensate drain channel formed in an upper wall of the flattened tubular member. A heat exchanger includes a first and a second spaced apart and generally vertical longitudinally extending headers, a plurality of heat exchange tubes disposed in parallel, spaced relationship in a generally vertical array and extending longitudinally between the first header and the second header, and a condensate drain extending longitudinally along the upper wall of at least one of the plurality of flattened heat exchange tubes. The condensate drain may comprise a longitudinally extending condensate drain channel formed in an upper wall of said flattened tubular member, and/or a series of condensate drain portals formed in the heat transfer fins in a base portion bounding to the upper external surface of at least one

heat exchange tube. The condensate drain portals of neighboring heat transfer fins are aligned longitudinally to provide a series of longitudinally aligned condensate drain portals along the upper external surfaces of the heat exchange tubes.



WO 2008/105760 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/04993

A. CLASSIFICATION OF SUBJECT MATTER IPC F28F 13/04(2006.01);F28F 1/06(2006.01) USPC: 165/1 77,62/285,290 According to International Patent Classification (IPC) or to both national classification and IPC		
B FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) U S 165/1 77, 62/285, 290 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST search for condensate drainage on tubes		
C DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0035559 A1 (KO et al.) 26 February 2004 (26.02.2004), Fig 5, paragraph 31, paragraph 4 (re claim 38)	1, 5, 6, 11, 12, 20, 21, 24, 38
X	JP 7-190661 A (ITO et al.) 28 July 1995 (28 07 1995), Fig 1, paragraph 21 of the detailed description.	1, 5, 6, 11, 12, 20, 21, 24, 38
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input type="checkbox"/> See patent family annex.
* Special categories of cited documents		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier application or patent published on or after the international filing date	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	
"P"	document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family
Date of the actual completion of the international search 28 August 2008 (28 08.2008)	Date of mailing of this international search report 09 NOV 2008	
Name and mailing address of the ISA/US Mail Stop PCT, AU _n ISA/US Commissioner for Patents P O Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-320 1	Authorized officer Allen J. Flanigan Telephone No (703) 308-086 1	

INTERNATIONAL SEARCH REPORT

International application No

PCT/US07/04993

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

- 1 Claims Nos
because they relate to subject matter not required to be searched by this Authority, namely

- 2 Claims Nos
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically

- 3 Claims Nos
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows
All claims other than generic claims 1, 5, 6, 11, 12, 20, 21, 24, and 38 for the reasons given in the Invitation to Pay Additional Fees, PCT form 206

- 1 As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims
 - 2 As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees
 - 3 As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos

 - 4 No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims, it is covered by claims Nos 1,5,6, 11, 12,20,21,24 and 38
- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee
 - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation
 - No protest accompanied the payment of additional search fees