

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 291 585 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
07.06.2006 Bulletin 2006/23

(51) Int Cl.:
F24F 3/14 (2006.01)

F24F 6/04 (2006.01)

(43) Date of publication A2:
12.03.2003 Bulletin 2003/11

(21) Application number: 02255016.4

(22) Date of filing: 17.07.2002

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

(30) Priority: 17.07.2001 JP 2001217290
02.11.2001 JP 2001338501

(71) Applicant: JAPAN GORE-TEX, INC.
Setagaya-ku
Tokyo-To 156 (JP)

(72) Inventors:
• Kusunose, Ryo
Setagaya-Ku,
Tokyo-To 156 (JP)
• Yokota, Takushi
Setagaya-Ku,
Tokyo-To 156 (JP)
• Nishi, Kojiro
Setagaya-Ku,
Tokyo-To 156 (JP)

(74) Representative: Shanks, Andrew et al
Marks & Clerk Scotland
19 Royal Exchange Square
Glasgow G1 3AE (GB)

(54) Gas/liquid separation devices

(57) A gas/liquid separation element is provided comprising: a frame having an opening therein; waterproof/moisture permeable sheets affixed to both sides thereof so as to cover the opening, whereby the frame and waterproof/moisture permeable sheets define a liquid flow channel; a plurality of ribs arranged over at least

the front face of waterproof/moisture permeable sheets and extending between two opposite sides of the frame; and a liquid inlet/outlet portion for liquid feed or liquid outlet, provided at one or more locations in a portion of the frame. Also provided are gas/liquid separators and separation units for use in gas/liquid separation applications such as humidifiers and dehumidifiers,

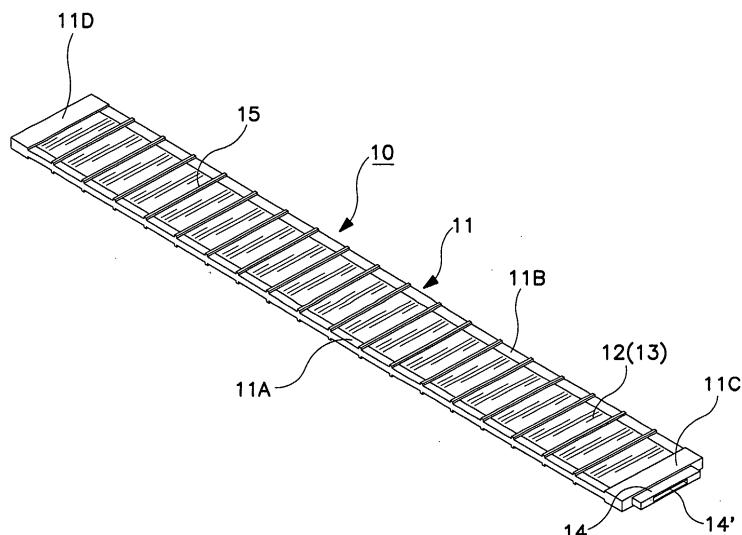


FIG. 1



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X, D	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 09, 30 September 1996 (1996-09-30) & JP 08 128682 A (JAPAN GORE TEX INC), 21 May 1996 (1996-05-21) * the whole document * -----	1-17	INV. F24F3/14 F24F6/04
X	US 5 624 610 A (YOKOYA ET AL) 29 April 1997 (1997-04-29) * the whole document * -----	1-17	
A	WO 01/27552 A (CARRIER CORPORATION) 19 April 2001 (2001-04-19) * abstract; figures * -----	1	
A	US 5 946 931 A (LOMAX ET AL) 7 September 1999 (1999-09-07) * abstract; figures * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			F24F B01D
The present search report has been drawn up for all claims			
3	Place of search The Hague	Date of completion of the search 13 April 2006	Examiner González-Granda, C
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			

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

EP 02 25 5016

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.

13-04-2006

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
JP 08128682	A	21-05-1996	JP	3675529 B2		27-07-2005
US 5624610	A	29-04-1997		NONE		
WO 0127552	A	19-04-2001	US	2002185266 A1		12-12-2002
US 5946931	A	07-09-1999		NONE		

EPO FORM P0459

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