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(54) Filling for cooling towers

(57) A packing element (100) for evaporative cooling towers for cooling industrial water and for all the other applications in which contact between different fluids is necessary, comprises two parallelepipedal half-elements (1,2) that are provided with ribbings (4) in relief having the shape of half-lozenges with their vertex lines (4a) set inclined with respect to one of the sides of smaller extension of the parallelepipedal panel. The two half-

elements (1,2) are set, in the assembly phase, in mutual contact so that the bottom parts (4d) of the ribbings (4) of a first half element (1) are in contact with the bottom parts (4d) of the ribbings (4) of the second half element (2). The cooling tower filling is made with a plurality of said packing elements (100) set alongside each other. The sides (4b) of the ribbings can be made like a lattice (6).

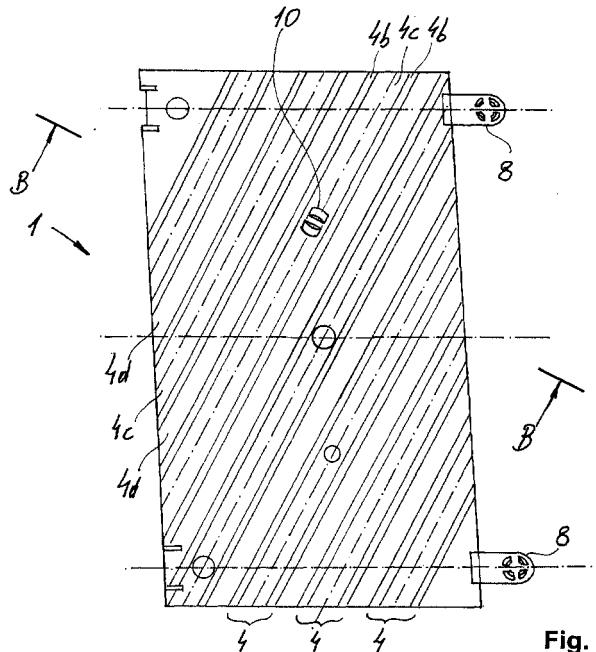


Fig. 1



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
X	DE 197 33 480 A (GEA ENERGIETECHNIK GMBH) 4 February 1999 (1999-02-04)	1-4,12, 13	F28F25/08						
Y	* column 3, line 58 - column 4, line 67; figures *	5,8-11, 14							
Y	WO 98 09128 A (MARLEY COOLING TOWER CO) 5 March 1998 (1998-03-05)	5,8-10, 14							
	* page 15, line 3 - line 25; figures 3-5 *	---							
D,Y	US 5 865 242 A (NERI BRUNO) 2 February 1999 (1999-02-02)	11							
	* column 1, line 57 - line 58 *								
	* column 2, line 63 - column 3, line 7; figures *								
X	US 5 124 087 A (BRADLEY RANDALL S ET AL) 23 June 1992 (1992-06-23)	1,2,12, 13							
Y	* abstract *	3							
	* column 4, line 32 - line 35; figures 1-3 *								
Y	US 4 296 050 A (MEIER WERNER) 20 October 1981 (1981-10-20)	3	F28F B01J						
	* abstract; figures *	---							
A	EP 0 761 301 A (LANTEC PRODUCTS INC) 12 March 1997 (1997-03-12)	5-10							
	* abstract; figures *	---							
A	GB 1 285 495 A (GOTTFRIED BISCHOFF BAU) 16 August 1972 (1972-08-16)	8-10							
	* page 2, line 40 - line 60; figures 1-3 *	-----							
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 33%;">Examiner</td> </tr> <tr> <td>THE HAGUE</td> <td>19 April 2002</td> <td>Mootz, F</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	THE HAGUE	19 April 2002	Mootz, F
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THE HAGUE	19 April 2002	Mootz, F							
CATEGORY OF CITED DOCUMENTS		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							
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ON EUROPEAN PATENT APPLICATION NO.**

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19-04-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
DE 19733480	A	04-02-1999	DE	19733480 A1	04-02-1999
			CN	1218175 A	02-06-1999
			WO	9906784 A1	11-02-1999
			EP	0931239 A1	28-07-1999
			TR	9900670 T1	21-09-1999
			TW	398992 B	21-07-2000
			US	6096407 A	01-08-2000
			ZA	9806779 A	21-05-1999
WO 9809128	A	05-03-1998	US	5944094 A	31-08-1999
			AU	729162 B2	25-01-2001
			AU	4094097 A	19-03-1998
			EP	0922191 A1	16-06-1999
			WO	9809128 A1	05-03-1998
US 5865242	A	02-02-1999	IT	1274171 B	15-07-1997
			DE	59501420 D1	12-03-1998
			EP	0759142 A1	26-02-1997
			JP	10505660 T	02-06-1998
			DK	759142 T3	02-03-1998
			WO	9530868 A1	16-11-1995
			ES	2112649 T3	01-04-1998
US 5124087	A	23-06-1992	AU	636827 B2	06-05-1993
			AU	8465591 A	09-04-1992
			CA	2052687 A1	05-04-1992
			IT	1251608 B	17-05-1995
US 4296050	A	20-10-1981	CH	617357 A5	30-05-1980
			AU	518076 B2	10-09-1981
			AU	3597578 A	15-11-1979
			BR	7802954 A	26-12-1978
			CA	1095892 A1	17-02-1981
			DE	2722424 A1	23-11-1978
			ES	243473 Y	16-06-1980
			FR	2390200 A1	08-12-1978
			GB	1604361 A	09-12-1981
			IT	1095901 B	17-08-1985
			JP	54016761 A	07-02-1979
			MX	5236 E	11-05-1983
			NL	7802893 A ,B,	14-11-1978
			SE	417279 B	09-03-1981
			SE	7804206 A	13-11-1978
EP 0761301	A	12-03-1997	EP	0761301 A1	12-03-1997
			AT	208655 T	15-11-2001

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

EP 01 11 0833

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.

19-04-2002

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
EP 0761301 A		DE 69523913 D1		20-12-2001
		EP 1070536 A1		24-01-2001
GB 1285495 A	16-08-1972	NONE		