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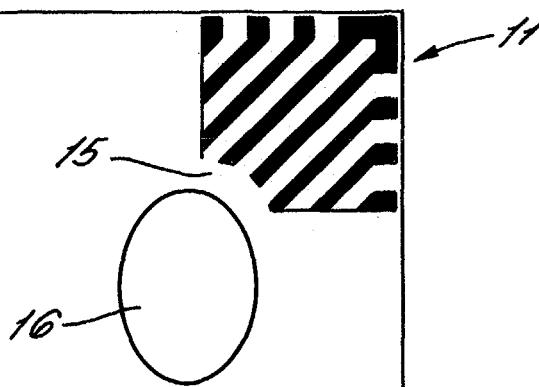
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(54) Corner reinforcing watermarks on sheets

(57) The invention relates to improvements in paper, and in particular to the use of watermarks alone or with embossings for strengthening paper sheets and documents made therefrom. The invention therefore provides a sheet having corners and sides joined at said corners, wherein corner reinforcing watermarks are provided at

at least two of said corners, and at least one of which reinforcing watermark has a border, at least a section of which has a complementary shape with respect to and is located close to at least a section of a border of a further watermark. The watermarks may additionally or alternatively be provided with embossings in a pattern dissimilar to that of the reinforcing watermarks.

FIG. 9.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P, X	WO 03/046282 A (RUE DE INT LTD [GB]; PEARSON NICHOLAS GEORGE [GB]) 5 June 2003 (2003-06-05) * page 2, lines 1-12 * * page 3, line 14 - page 9, line 5; figures 1-8 * -----	1-29	INV. B31F1/07 B42D15/00
Y	GB 2 309 039 A (PORTALS LTD [GB]) 16 July 1997 (1997-07-16) * page 1, lines 3-5 * * page 3, line 16 - page 4, line 18 * * page 5, line 24 - page 6, line 4 * -----	1-29	
Y	EP 0 101 203 A2 (WIGGINS TEAPE GROUP LTD [GB]) 22 February 1984 (1984-02-22) * page 1, paragraph 1 * * page 4, paragraphs 2,3 * * page 5, paragraph 2 * * page 8, paragraphs 4,5; claims 1,9; figures 3,4 *	1-29	
A	US 4 462 867 A (FULLER JAMES S [GB]) 31 July 1984 (1984-07-31) * the whole document *	1-29	TECHNICAL FIELDS SEARCHED (IPC)
A	WO 94/01291 A (ROTHFJELL ERIC [SE]) 20 January 1994 (1994-01-20) * the whole document *	1-29	B31F B42D B41M B44C D21F
3 The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		14 December 2006	Pulver, Michael
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 04 25 1937

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14-12-2006

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 03046282	A	05-06-2003	AU	2002356269 A1	10-06-2003
			BR	0214420 A	14-09-2004
			CA	2468421 A1	05-06-2003
			CN	1592808 A	09-03-2005
			EP	1468142 A1	20-10-2004
			GB	2382325 A	28-05-2003
			RU	2286414 C2	27-10-2006
			US	2005163970 A1	28-07-2005
<hr/>					
GB 2309039	A	16-07-1997	AT	186344 T	15-11-1999
			AU	715428 B2	03-02-2000
			AU	1185597 A	01-08-1997
			BG	62979 B1	29-12-2000
			BG	102604 A	29-01-1999
			BR	9612585 A	29-06-1999
			CA	2242551 A1	17-07-1997
			CN	1207784 A	10-02-1999
			CZ	9802170 A3	11-11-1998
			DE	69605059 D1	09-12-1999
			DE	69605059 T2	16-03-2000
			EG	21483 A	28-11-2001
			EP	0873448 A1	28-10-1998
			ES	2140916 T3	01-03-2000
			WO	9725476 A1	17-07-1997
			HU	9903866 A2	28-03-2000
			ID	15823 A	14-08-1997
			IN	189655 A1	05-04-2003
			JP	2000503077 T	14-03-2000
			PL	327661 A1	21-12-1998
			RU	2159826 C2	27-11-2000
			TR	9801264 T2	21-10-1998
			US	6063239 A	16-05-2000
			ZA	9700212 A	31-07-1997
<hr/>					
EP 0101203	A2	22-02-1984	AU	1697283 A	26-01-1984
			BR	8303858 A	28-02-1984
			DK	331783 A	23-01-1984
			ES	8405865 A1	01-10-1984
			FI	832631 A	23-01-1984
			GR	78884 A1	02-10-1984
			JP	59030999 A	18-02-1984
			NO	832645 A	23-01-1984
			PT	77050 A	01-08-1983
			ZA	8305233 A	25-04-1984
<hr/>					
US 4462867	A	31-07-1984	AU	548793 B2	02-01-1986

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

EP 04 25 1937

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.

14-12-2006

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
US 4462867	A		AU 8591982 A BR 8204037 A CA 1176893 A1 DE 3265421 D1 DK 312482 A EP 0070172 A1 ES 8307958 A1 FI 822474 A IN 158262 A1	20-01-1983 05-07-1983 30-10-1984 19-09-1985 14-01-1983 19-01-1983 01-11-1983 14-01-1983 04-10-1986
WO 9401291	A	20-01-1994	SE 470400 B SE 9202110 A	14-02-1994 08-01-1994