



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 092 517 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
18.12.2002 Bulletin 2002/51

(51) Int Cl.7: **B26F 1/44**

(43) Date of publication A2:
18.04.2001 Bulletin 2001/16

(21) Application number: **00309044.6**

(22) Date of filing: **13.10.2000**

(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

(72) Inventor: **Kapolnik, Paul G.**
Chicago, Illinois 60646 (US)

(74) Representative: **Draper, Martyn John et al**
Boult Wade Tennant
Verulam Gardens
70 Gray's Inn Road
London WC1X 8BT (GB)

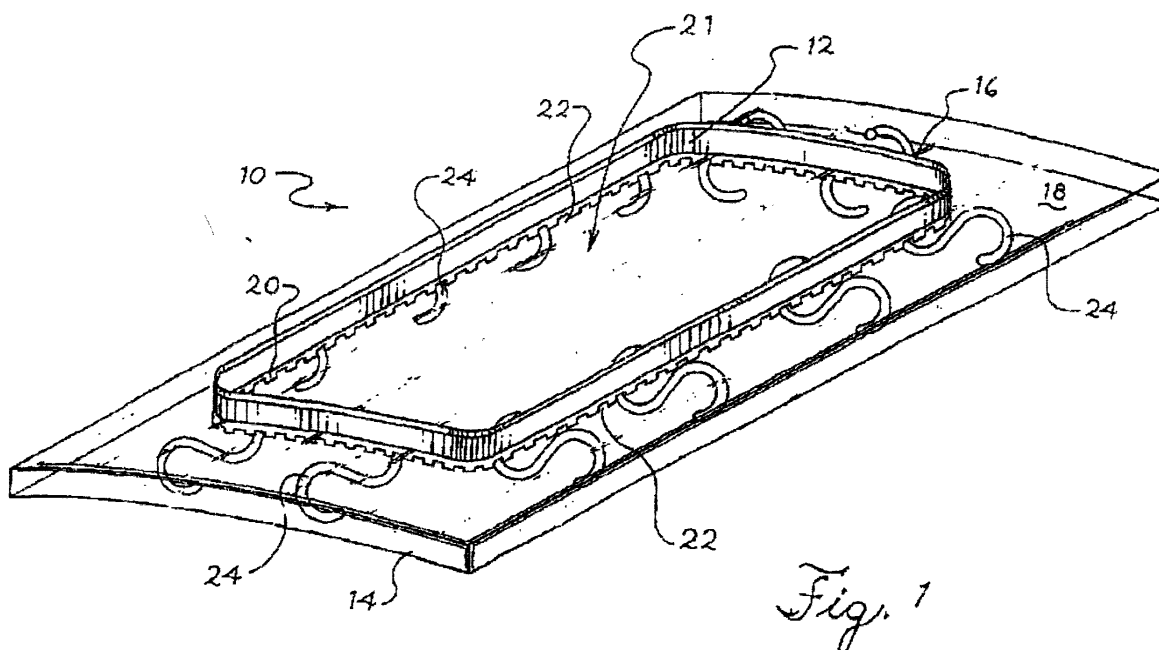
(30) Priority: **13.10.1999 US 159270 P**

(71) Applicant: **Western Printing Machinery Company**
Schiller Park, Illinois 60176-2348 (US)

(54) **Flexible rotary cutting die**

(57) A rotary cutting die includes a durable, flexible rotary die plate (14) having an inner surface and an outer surface (18). A cutting rule (12) that defines a cutting design is supported by the die plate. The cutting rule includes a cutting edge (16), which extends above the outer surface of the die plate, and a support edge (20) disposed within the die plate. The support edge includes

a plurality of keyhole shaped notches (22). Preferably, a plurality of S-shaped hooks (24) are connected to the keyhole notches, and serve to reinforce the rotary die plate and to support the cutting rule in the rotary die plate. The rotary die plate (14) is preferably formed from a durable and flexible urethane-based material that exhibits a low shrink factor during curing or hardening.



EP 1 092 517 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 30 9044

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	US 3 805 657 A (SIMPSON J) 23 April 1974 (1974-04-23) * the whole document *	1-11	B26F1/44
Y	DE 11 34 880 B (FLOSEAL CORP) 16 August 1962 (1962-08-16) * the whole document *	1-11	
A	GB 1 333 037 A (NOTTING LTD W) 10 October 1973 (1973-10-10) * page 1, line 15 - page 2, line 47 *	2-11	
A	US 5 595 093 A (KAPOLNEK PAUL G) 21 January 1997 (1997-01-21) * column 2, line 35 - line 45 * * column 3, line 56 - line 60 * * column 4, line 5 *	2-11	
A	US 2 993 421 A (FAIN LYTTON S ET AL) 25 July 1961 (1961-07-25) * column 4, line 25 - line 45; figures *	7-9	
A	DE 17 86 316 A (MACHINES SPECIALES S A SOC ET) 24 February 1972 (1972-02-24) * figures *	7-9	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	US 5 143 768 A (PARK DAVID W ET AL) 1 September 1992 (1992-09-01)		B26F
A	US 5 943 935 A (BRAYTON RUSSELL S ET AL) 31 August 1999 (1999-08-31)		
A	US 3 789 715 A (SCHUCHARDT H ET AL) 5 February 1974 (1974-02-05)		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 22 October 2002	Examiner Vaglianti, G
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03/82 (P04C01)

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

EP 00 30 9044

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.

22-10-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3805657	A	23-04-1974	NONE	
DE 1134880	B	16-08-1962	NONE	
GB 1333037	A	10-10-1973	DE 2100510 A1	15-07-1971
			FR 2075246 A5	08-10-1971
			US 3745857 A	17-07-1973
US 5595093	A	21-01-1997	AT 406944 B	25-10-2000
			AT 900395 A	15-03-2000
			AU 2394595 A	05-12-1995
			CA 2166607 A1	23-11-1995
			DE 19580683 T0	27-06-1996
			EP 0708701 A1	01-05-1996
			ES 2141009 A1	01-03-2000
			FI 960134 A	11-01-1996
			GB 2295117 A ,B	22-05-1996
			JP 9503966 T	22-04-1997
			SE 509906 C2	22-03-1999
			SE 9600095 A	11-01-1996
			WO 9531317 A1	23-11-1995
			US 6067887 A	30-05-2000
			ZA 9503652 A	06-02-1996
US 2993421	A	25-07-1961	NONE	
DE 1786316	A	24-02-1972	DE 1786316 A1	24-02-1972
US 5143768	A	01-09-1992	NONE	
US 5943935	A	31-08-1999	NONE	
US 3789715	A	05-02-1974	NONE	

EPO FORM P0459

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