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(54) **Punch ring**

(57) An improved punch ring (40) for a hole punching system used to punch lines of holes in a passing paper web. The ring (40) has a punch receiving portion (42). The punch receiving portion (42) includes a number of radially extending grooves (54) spaced about the circumference of the punch receiving portion (42) to receive hardened punches (56). The punch receiving portion (42) also includes a number of cylindrical bores (50) extending through the punch receiving portion (42) between adjacent pairs of the grooves (54) that each receive a clamp screw (52). A clamp ring (44) includes a number of threaded apertures (62) alignable with the bores (50) in the punch receiving portion (42). The clamp ring (44) is placed against the punches (56) in the grooves (54). Clamp screws (42) are inserted through the bores (50) to engage the threaded apertures (62) in the clamp ring (44) to hold the clamp ring (44) in engagement with the punch receiving portion (42) and retain the punches (56) in the grooves (54). The use of the clamp ring (44) avoids the problems heretofore encountered when screws are used to hold punches in a punch ring. Furthermore, the separate clamp ring (44) eliminates the need for the removal of the entire punch ring (40) and shaft from the system should the threads in the clamp ring (44) become damaged by the clamp screws (52).

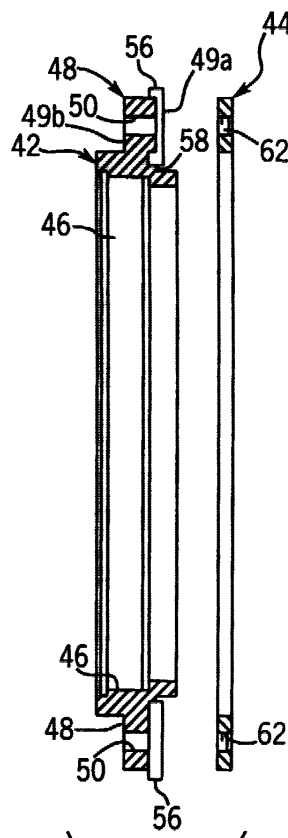


FIG. 5



European Patent
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EUROPEAN SEARCH REPORT

Application Number
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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)
X	DE 35 26 248 A (GOEBEL GMBH MASCHF) 5 February 1987 (1987-02-05)	1-6,8-26	B26F1/10
Y	* column 3, line 2 - line 13 * * column 7, line 15 - line 39 * * column 5, line 51 - column 6, line 18 *	7,27	
Y	US 3 255 651 A (HUCK WILLIAM F) 14 June 1966 (1966-06-14)	7,27	
A	* column 16, line 19 - line 43; figures 9,10 *		
X	US 3 106 859 A (HUFFMAN HAROLD W) 15 October 1963 (1963-10-15) * figure 1 *	1-3,5, 20-22	
A	US 4 273 015 A (JOHNSON DONALD R) 16 June 1981 (1981-06-16)		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) B26F B26D
Place of search THE HAGUE		Date of completion of the search 6 March 2002	Examiner Rabolini, M
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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The members are as contained in the European Patent Office EDP file on
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06-03-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 3526248	A	05-02-1987	DE 3526248 A1	05-02-1987
US 3255651	A	14-06-1966	US 3283636 A	08-11-1966
US 3106859	A	15-10-1963	NONE	
US 4273015	A	16-06-1981	NONE	

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