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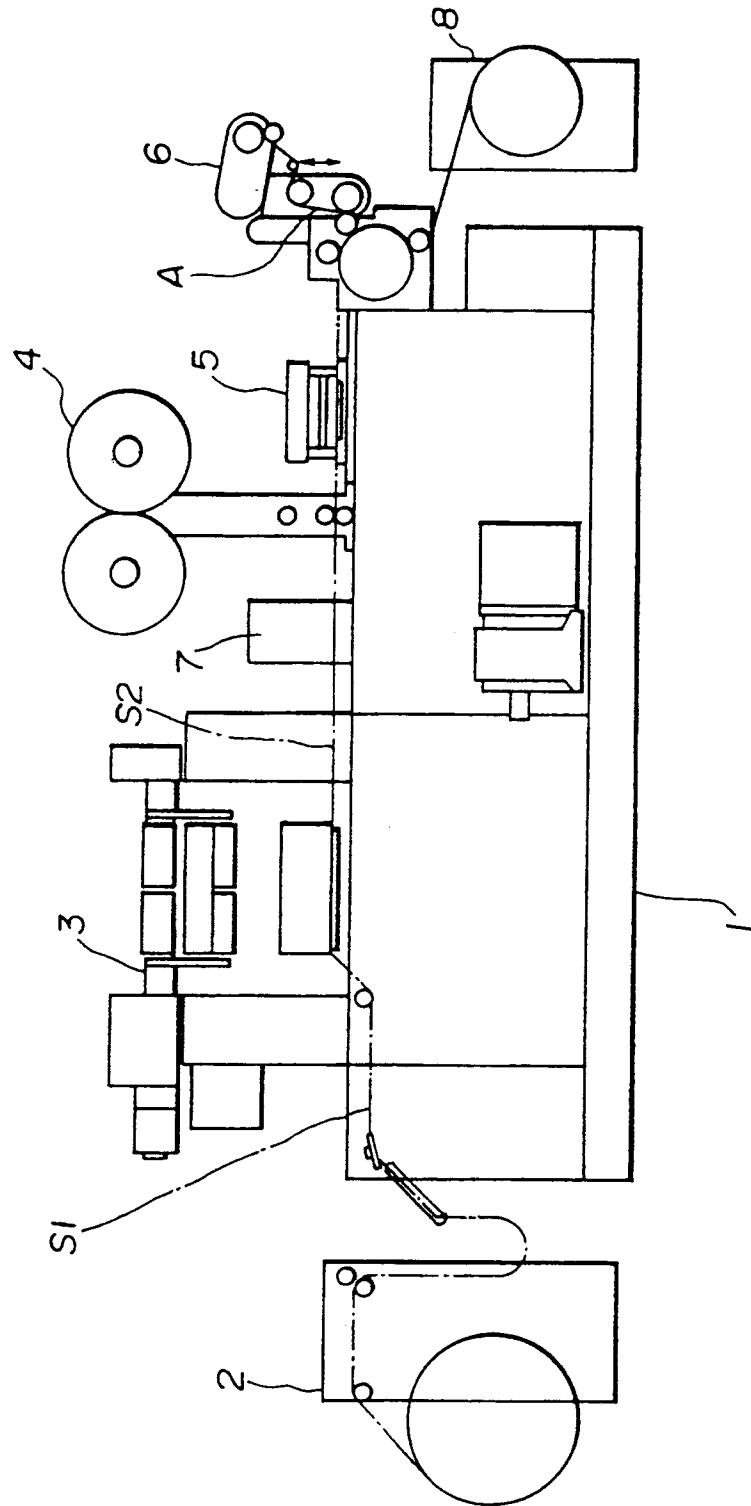
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Printing device, and printing state and printing position detection and correction methods for printing device.

A printing device (1) is disclosed comprising a duplicator (3) for performing intermittent printing onto a strip-shaped article subjected to printing (S1) supplied from a paper supply device (2) using a printing impression-roll which performs positive or reversed rotation while performing forward or backward movement in a direction perpendicular to a sending direction of the strip-shaped article subjected to printing (S1); a die cutting device (5) for punching a strip-shaped printed article (S2) printed by the duplicator (3) into a suitable shape; and a punched residue winding device (6) for winding a punched residue (A) after punching by the die cutting device (5); wherein the duplicator (3) is provided with an ink applying device (11) which allows a forward-step application roller for applying ink during the forward step onto a printing impression face of the printing impression roll which performs positive or reversed rotation while performing forward or backward movement, and a backward-step application roller for applying ink during the backward step to contact with each of the individual ink rolls

which rotate in the reversed direction with respect to the rotation direction of each of the application rollers so as to adhere ink onto each of the application rollers, the ink applying device comprising a bottling roll (13) for sending ink from an ink tank (12); an access roll (15) which performs rotational movement with a support arm (14) so as to suitably abut against the bottling roll (13), and a fixed metal roll (18) and a kneading roll (19) for adhering ink supplied by the bottling roll (13) and the access roll (15) onto the ink rolls (16,17), the kneading roll (19) being rotated at a high speed so as to adhere ink onto the kneading roll (19), the ink rolls (16,17) and the fixed metal roll (18) for circulating the ink; whereby the formation is made so as to equalize adhesion of ink onto the application rollers.

FIG.1





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EUROPEAN SEARCH REPORT

Application Number

EP 92 42 0320

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.5)
Y	US-A-4 691 630 (ASANO) * column 2, line 41 - column 4, line 30; figure 2 *	1,2,4-6, 9,10	B41F17/00 B41F31/00 B41F33/00 B65H23/032 B26D7/26 B23D35/00 B26D7/18
Y	EP-A-0 431 493 (KONICA) * page 4, line 35 - line 40; figure 3 *	1,2,4-6, 9,10 7	
A	US-A-4 057 013 (ASANO) * the whole document *	1,4	
Y	EP-A-0 321 402 (GRETAG) * page 3, line 20 - line 52; figure 1 *	5	
A	EP-A-0 228 347 (HEIDELBERGER DRUCKMASCHINEN) * page 3, line 6 - line 23; figure 1 *	5	
Y	US-A-4 135 664 (RESH) * column 2, line 32 - column 3, line 39; figures 1,2 *	6	
Y	US-A-4 346 855 (BIGGAR) * column 5, line 4 - line 37; figure 1 *	9,10	
A	US-A-4 681 004 (WALDNER) * the whole document *	7	
A	US-A-5 042 352 (LUX) * the whole document *	7	
A	DE-U-8 434 604 (PUTSCH) * the whole document *	7	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27 MAY 1993	Examiner EVANS A.J.
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	
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			

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

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- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees has been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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EP 92 42 0320 -B-

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims 1-4 : Printing device for performing intermittent printing.
2. Claim 5 : Print quality control and regulation of ink supply.
3. Claim 6 : Scanning of register marks and correction of position.
4. Claims 7-11 : Die cutting device.