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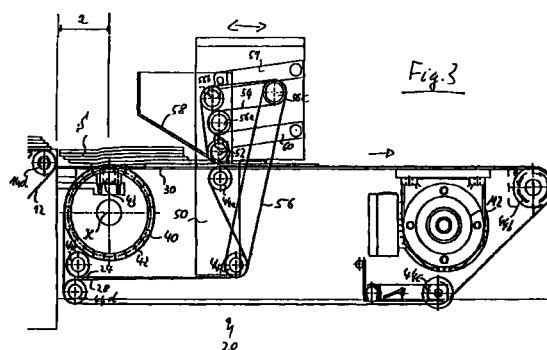
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(54) **Apparatus for forming a stream of uniformly overlapped printed products**

(57) A conveying apparatus has a receiving surface (30) for a stack (S) of printed products lying above one another, with a conveying device (22-28) adjoining the receiving surface (30). A vacuum roll (40) rotatable in the conveying direction can act by means of a reduced pressure on the lower side of the printed product in order to produce the desired overlap. The upper tangential plane of the vacuum roll (40) thereby forms a part of the receiving surface (30). The apparatus herein generates a stream of overlapping signatures with the overlap between adjacent signatures in the stream being uniform. Such uniform overlap generally corresponds to the distance from the upstream end of the receiving surface (30) or signature support portion of the apparatus to the vacuum roll (40), and more specifically to the upstream edge of a transverse manifold slot provided in the roll (40). Overlapped signatures are fed by the roll (40) to a downstream nip and blower assembly for being pulled through the nip thereof. The nip is shiftably mounted so as to adjust the size of nip space during running of the apparatus to accommodate for changing thickness of the signature material drawn through the self-adjusting nip at any one time, such as due to varying numbers of signatures being in the nip space or when thicker folded over spines are therein. The precise location at which air from the blowers is directed back upstream against the signatures can be fine tuned and preset as determined by the thickness of the signatures to be run.



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EUROPEAN SEARCH REPORT

Application Number
EP 98 10 2100

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.6)
X	WO 90 11953 A (STENZ REINHARD) 18 October 1990 * page 2 - page 4; figures * ---	1,2	B65H5/24 B65H3/10
X	FR 2 721 297 A (BERTIN & CIE) 22 December 1995 * page 8, line 32 - page 9, line 34; figure 8 * ---	1,15-17, 19	
X	PATENT ABSTRACTS OF JAPAN vol. 007, no. 207 (M-242), 13 September 1983 & JP 58 104850 A (TAKASHI MORI), 22 June 1983 * abstract; figures * ---	16,17, 19,20	
A	US 5 326 088 A (NEWSOME JOHN R) 5 July 1994 * column 4, line 10 - column 5, line 60; figures 2-5 * ---	1,15,16	
A	US 4 771 896 A (NEWSOME JOHN R) 20 September 1988 * column 6 - column 15, line 3; figures 9-17 * * column 16, line 64 - column 17, line 48; figure 23 * ---	1,15,16	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65H
A	PATENT ABSTRACTS OF JAPAN vol. 004, no. 128 (M-031), 9 September 1980 & JP 55 084738 A (SHINKO KIKAI SEISAKUSHO:KK), 26 June 1980 * abstract * -----	1,15,16	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 June 1999	Examiner THIBAUT, E
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	

EPO FORM 1503 03 82 (P04C01)



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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 requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet -B-

- ☐ 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 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 invention first mentioned in the claims,
namely claims: mentioned in item 1.



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 98 10 2100

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

1. Claims: 1-20

Suction roller and belt arrangement in an apparatus for forming a stream of uniformly overlapped printed products

2. Claims: 21-34

Apparatus for forming a stream of uniformly overlapped printed products with nip assembly accomodating varying thicknesses of product

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

EP 98 10 2100

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
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01-06-1999

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FR 2721297	A	22-12-1995	NONE	
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82