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(54) **Apparatus and method for accumulating sheets**

(57) An accumulator device with a downward angled input transport (42). Downstream, an accumulating receptacle (44,47) receives sheets. The accumulating receptacle has an upper guide (47) and a lower guide (44) forming a horizontal accumulating channel. Dump rollers (43) act as a stop during sheet accumulation, and as a transport for removing completed accumulations from the sheet accumulating device. A rear portion of sheets (1) buckle downward into a trap arrangement

(45) below the input rollers (41). Preferably, the upper guide of the accumulating channel comprises a continuously rotating belt (47) to urge accumulating sheets against the dump rollers (43). Also, a positive air device (49) may be used to assist in the buckling of the rear portion of the sheets. To assist in handling large collations, when a sheet arrives at the dump rollers (43) they advance by a small predetermined incremental displacement slightly shingling the sheets (1) to maintain positive control for later reliable discharge.

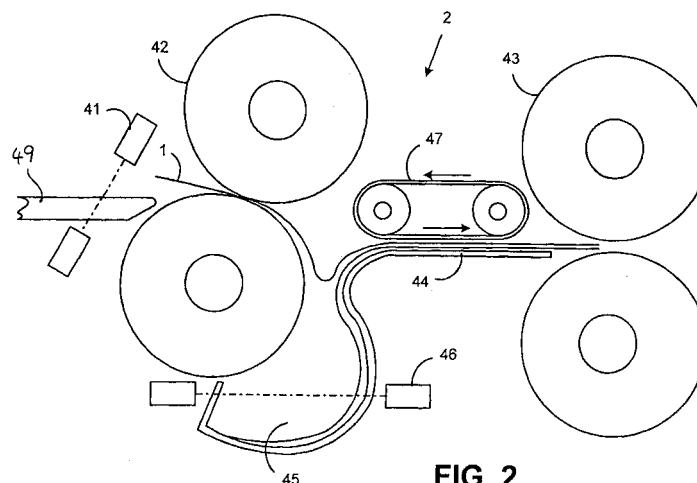


FIG. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 04 01 4778

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)
D,A	US 5 356 263 A (MILLER CARL A) 18 October 1994 (1994-10-18) * the whole document *	1-3	B65H29/12 B65H29/16 B65H31/00 B65H31/30
A	US 6 120 019 A (KAYSER DAVID E ET AL) 19 September 2000 (2000-09-19) * the whole document *	1-3	
A	WO 02/16243 A (MOORE NORTH AMERICA INC) 28 February 2002 (2002-02-28) * the whole document *	1-3	
A	US 5 289 251 A (MANDEL BARRY P ET AL) 22 February 1994 (1994-02-22) * the whole document *	1-3	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65H
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		19 October 2004	Stroppa, G
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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CLAIMS INCURRING FEES

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

- ☐ Only part of the claims 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 claim(s):
- ☐ 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.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ 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:

1-3



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 04 01 4778

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: 1-3

A sheet accumulating device comprising an upper guide and a lower guide, wherein at least one of the lower or the upper guide comprises a continuously rotating belt.

2. claims: 4-10, 14-19

A sheet accumulating device comprising a sensor sensing the arrival of sheets in the accumulation receptacle and method thereof

3. claims: 11-13

A sheet accumulating device including a trap arrangement and an air pressure source for assisting tail portions of sheets into the trap arrangement.

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

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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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19-10-2004

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