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(21) International Application Number: PCT/SE83/00392 (22) International Filing Date: 10 November 1983 (10.11.83) (31) Priority Application Number: 8206528-5 (32) Priority Date: 16 November 1982 (16.11.82) (33) Priority Country: SE (71) Applicant: WAMAC AB [SE/SE]; Box 189, S-575 00 Eksjö (SE). (72) Inventor: BACKMAN, Ralf ; Fågelsångsvägen 16, S-575 00 Eksjö (SE). (74) Agents: BJELKSTAM, Peter et al.; AB Bonnierföretagen, Patentavdelningen, S-105 44 Stockholm (SE). (81) Designated States: AT (European patent), BE (European patent), CH, CH (European patent), DE, DE (European patent), DK, FI, FR (European patent), GB, GB (European patent), LU (European patent), NL, NL (European patent), SE (European patent).		Published <i>With international search report.</i> <i>In English translation (filed in Swedish).</i>
(54) Title: STACKING PLANT FOR NEWSPAPERS (57) Abstract Plant for stacking newspapers, which includes a collection station (9) and conveyor means (1, 2) for advancing a stream of mutually overlapping newspapers (8) towards the collection station (9), a finished stack (10) having a predetermined number of mutually, laterally displaced individual newspaper sheaves (11) each containing a predetermined number of newspapers. In accordance with the invention the conveying means comprises two separate conveyors (1, 2) in tandem, at least one of which is laterally turnable in relation to the other, between said conveyors (1, 2) there being a newspaper counter or sensor (5) connected to control electronics (7), which may be set for counting an optional number of newspapers and which, after the passage of a predetermined number of newspapers, is adapted for actuating means (4, 12) for laterally turning the approach conveyor (1) and the stream of newspapers conveyed by it a predetermined angle.		

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Stacking plant for newspapers

The present invention relates to a plant for stacking newspapers including a collection station and conveying means for advancing a stream of mutually overlapping newspapers towards the collection station, a finished stack having individual sheaves containing a predetermined number of newspapers where the sheaves are mutually, laterally displaced.

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In the lateral displacement of sheaves of newspapers in stacking, for separating the different sheaves in relation to each other, the type of plant has so far been used where either special gripping means from above lift the respective sheaf of newspapers and put them down one above the other in a laterally displaced pattern, or with the help of a nip adapted for laterally displacing ready-counted sheaves and feeding these one upon the other to a collection station, the nip being formed with the aid of two pairs of laterally displaceable rolls at one end of a conveyor.

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The object of the present invention is to provide a plant of the kind mentioned in the introduction, which in relation to the above-mentioned already known plants is very cheap and can also be used as a supplementary item to large expensive bundling plants. What is essentially distinguishing for the invention is that the conveyor means comprises two separate conveyors arranged in tandem, of which at least one is turnable laterally in relation to the other, between the conveyors there being arranged a newspaper counter or sensor, coupled to control electronics which are settable for counting an optional number of newspapers and which is adapted, after a predetermined number of newspapers has passed, to actuate means for laterally turning the conveyor in question together with the stream of newspapers on it a predetermined angle. The invention is

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described in detail below with reference to the appended drawings, on which

Fig. 1 is a schematic illustration of a preferred embodiment of the invention, and

- 5 Fig. 2 illustrates how a stack of newspapers appears seen directly from the front in a plant in accordance with the invention.

10 As schematically illustrated in Fig. 1, the inventive stacking plant comprises two belt conveyors, namely an approach conveyor 1 and a receiving conveyor 2. The approach conveyor 1 is turnable about a shaft 3 arranged at its free end, and can swivel backwards and forwards between two end positions with the aid of a compressed air
15 cylinder 4. At the juncture between conveyors 1 and 2 there is a conventional type of newspaper counter 5. The speed of the conveyors 1 and 2 is sensed with the aid of a transducer 6 and the entire plant is controlled with the aid of electronics 7, obtaining control signals from the
20 newspaper counter 5 and the speed transducer 6. A stream of mutually overlapping newspapers 8 is conveyed on the conveyors 1 and 2 towards a collection station 9 arranged on the receiving conveyor 2, where a stack 10 of newspapers is arranged to be formed. The stack 10 comprises
25 a plurality of individual sheaves which are laterally displaced in relation to each other. The respective sheaf 11 comprises the number of newspapers 8 set on the control electronics 7.

30 When a predetermined number of newspapers 8 has passed the counter 5, an electrically operated valve 16 obtains an output signal which activates the cylinder 4 for laterally turning the approach conveyor 1 about 25 mm. The newspaper 8' is simultaneously retained by a roller 12 which is
35 spring biased towards the end pulley means 13 of the receiving conveyor 2, thereby forming a nip 14. The news-



paper 8' thus does not accompany the lateral movement of the approach conveyor 1. The newspaper 8'' and subsequent newspapers are retained by a roller 15, situated above the approach conveyor 1 and spring biased towards it. The pressure roller 15 and the newspapers on the conveyor 1 retained by it consequently accompany the lateral movement of conveyor 1. The result of this is that the different sheaves 11 of newspapers will be alternately displaced in relation to each other (see Fig. 2) with the predetermined number of newspapers in each individual sheaf, and consequently no manual counting is necessary.



CLAIMS

1. A stacking plant including a collection station (9) and conveying means (1, 2) for conveying a stream of
5 mutually overlapping newspapers (8) towards the collection station (9), a ready-formed stack (10) having individual sheaves (11) comprising a predetermined number of newspapers (8) with the sheaves being mutually laterally displaced in relation to the direction of travel, said
10 conveying means comprising two separate conveyors (1, 2) in tandem, c h a r a c t e r i z e d i n that at least one conveyor (1) is turnable about a shaft (3) arranged at one end thereof, to a predetermined lateral angle in relation to the other conveyor (2) and that the respective
15 conveyors (1, 2) each includes two end pulley means (13), whereby a spring biassed roller (12) is arranged above the means (13) of the receiving conveyor (2) adjacent the approach conveyor (1) and provided for bearing against the stream of newspapers and the pulley means (13) of the
20 receiving conveyor (2) such as to keep at least the last arriving newspaper (8') in a first sheaf of newspapers in a nip (14) during the turning movement of the approach conveyor (1), said nip (14) being formed between the roller (12) and the means (13) simultaneously as at least the
25 first newspaper (8'') in the next sheaf of newspapers is provided to be kept by a pressure roller (15), known per se, situated above the approach conveyor (1), said roller (15) being spring biassed against the stream of newspapers on the conveyor and accompanying the lateral turning of
30 the conveyor (1).

2. Plant as claimed in claim 1, c h a r a c t e r i z e d i n that the approach conveyor (1) is laterally turnable and that the receiving conveyor (2) adjacent
35 thereto is disposed stationarily and includes the collection station (9).



3. Plant as claimed in claim 1 or 2, characterized in that a piston rod pertaining to a compressed air cylinder (4) is provided at the end of the approach conveyor (1) facing towards the receiving conveyor (2)
- 5 for lateral turning of the approach conveyor (1).



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Fig. 1

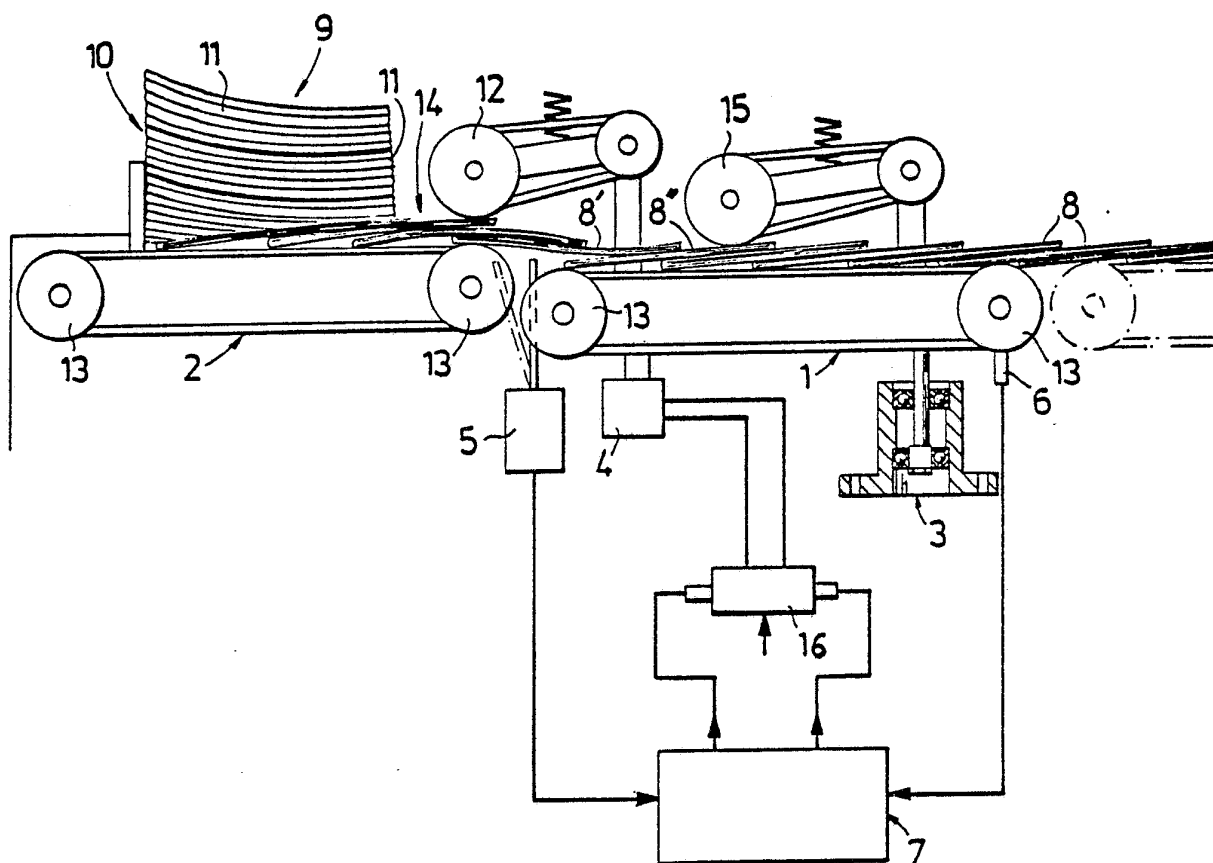
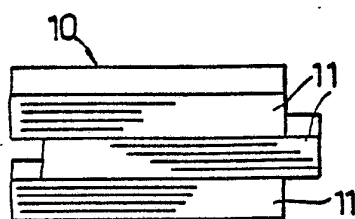


Fig. 2



SUBSTITUTE SHEET



INTERNATIONAL SEARCH REPORT

International Application No PCT/SE83/00392

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³

According to International Patent Classification (IPC) or to both National Classification and IPC 3

B 65 H 33/08

II. FIELDS SEARCHED

Minimum Documentation Searched ⁴

Classification System

Classification Symbols

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B 65 H 29/18, 58, 33/00, 06-10, 16, 18

National C1

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271: 200

Documentation Searched other than Minimum Documentation
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SE, NO, DK, FI classes as above

III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴

Category ⁶	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁵
X	SE, B, 424 435 (Å E KARLSSON) 19 July 1982	1-3

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IV. CERTIFICATION

Date of the Actual Completion of the International Search ¹

Date of Mailing of this International Search Report ²

1983-12-21

1984-01-19

International Searching Authority ¹

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