

(12)

**EUROPEAN PATENT APPLICATION**

(21) Application number: **83304610.5**

(51) Int. Cl.<sup>4</sup>: **B 65 B 3/02**  
**B 65 B 43/24, B 65 B 61/28**  
**B 65 D 5/06**

(22) Date of filing: **09.08.83**

(30) Priority: **09.08.82 GB 8222936**

(43) Date of publication of application:  
**04.07.84 Bulletin 84/27**

(88) Date of deferred publication of search report: **13.11.85**

(84) Designated Contracting States:  
**AT BE CH DE FR GB IT LI NL SE**

(71) Applicant: **LIQUIPAK INTERNATIONAL B.V.**  
**1 Bittern Place Coburg Road**  
**London, N22 6TP(GB)**

(72) Inventor: **Vatne, Kaare Birger**  
**3 Scots Close**  
**Ware Hertfordshire(GB)**

(72) Inventor: **Mosse, Richard Wolfgang Emil**  
**28 Clifton Hill**  
**London, N.W.8(GB)**

(74) Representative: **Burrows, Anthony Gregory et al,**  
**Haseltine Lake & Co. Hazlitt House 28 Southampton**  
**Buildings Chancery Lane**  
**London, WC2 1AT(GB)**

(54) **Packaging.**

(57) Flat, carton sleeves 2 are fed to a multi-headed sleeve-opening turret 3, and thence to a multi-headed top closure pre-breaking turret 6 and a continuously advancing chain conveyor 5 around the turret 6. The conveyor 5 carries the sleeves 2 over a bottom closure pre-breaker 8, past a bottom closure heater 10 and through bottom closure sealing nip rollers 12 to a third multi-headed turret 13 on which bottom closure sealing and carton filling are performed. Thence, the cartons are fed by the conveyor 5 below a top closure tucking-in wheel 14, a top closure heater 16 and a top sealer 17 to a transverse transfer conveyor 20 which transfers the cartons 2 to a second transverse conveyor 24 which feeds the cartons over a bottom closure flaps heater 28 and a bottom closure flaps tucking-in device 29.

FIG. 1A.

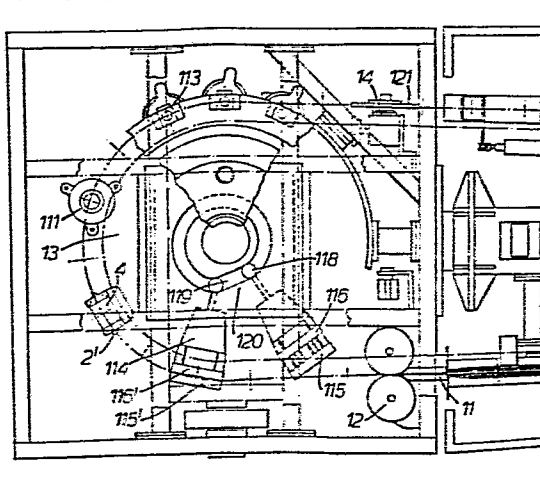


FIG. 1B.

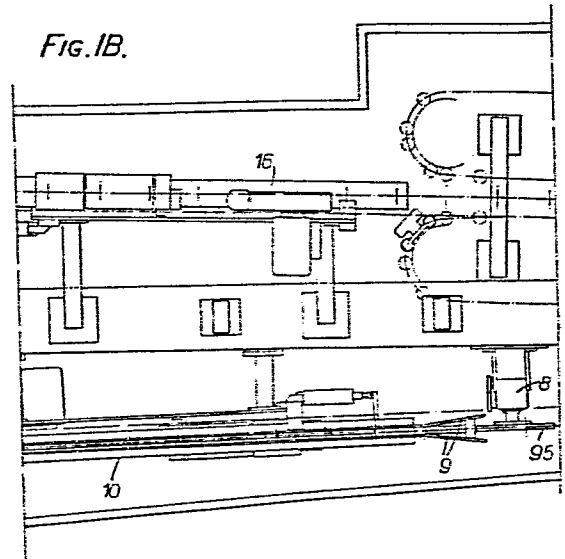


FIG. 1C.

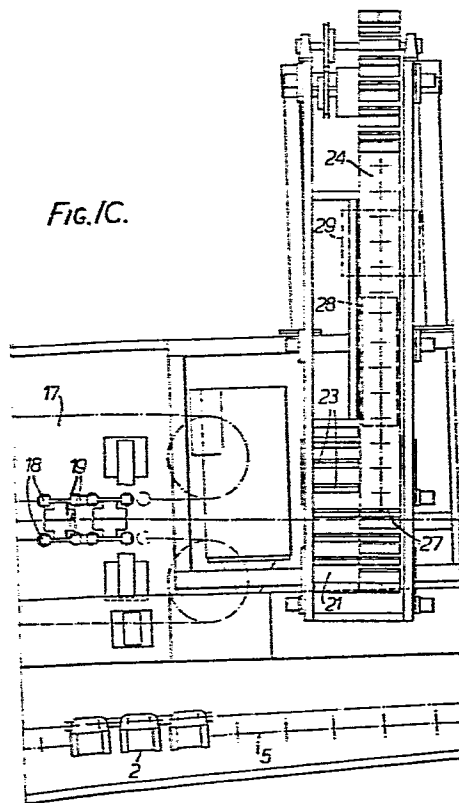
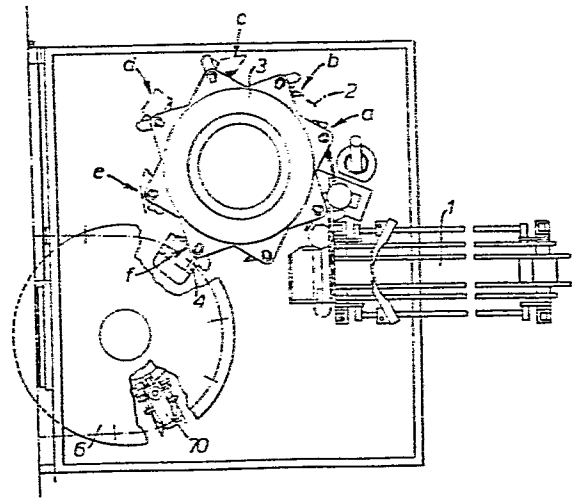


FIG. 1D.





European Patent  
Office

# EUROPEAN SEARCH REPORT

0112605

Application number

EP 83 30 4610

| 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.4)                                 |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>US - A - 4 018 143 (CROWN)</p> <p>* Column 5, lines 11-50; figures 2-2A *</p> <p style="text-align: center;">--</p>   | 1-4                              | <p>B 65 B 3/02</p> <p>B 65 B 43/24</p> <p>B 65 B 61/28</p> <p>B 65 D 5/06</p> |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>US - A - 3 280 531 (JAGENBERG)</p> <p>* Column 3, lines 8-32; figures 1-9 *</p> <p style="text-align: center;">--</p> | 21                               |                                                                               |
| A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>NL - A - 72 12324 (FMC)</p> <p>* Page 4, lines 10-30; figures 2,7 *</p> <p style="text-align: center;">-----</p>      | 11                               |                                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                          |                                  | <p>TECHNICAL FIELDS SEARCHED (Int. Cl.4)</p> <p>B 65 B</p> <p>B 31 B</p>      |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                          |                                  |                                                                               |
| Place of search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                          | Date of completion of the search | Examiner                                                                      |
| The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                          | 20-06-1984                       | CLAEYS                                                                        |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p> <p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                          |                                  |                                                                               |



### 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.

### X 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, 21: Sleeve opening + carton construction
- 2) Claims 5-10: Method and apparatus for producing a container
- 3) Claims 11-17: Conveying method and apparatus
- 4) Claims 18-20: Breaking means

- ☐ 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: 1-4, 11-17, 21
- ☐ 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: