

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
30 May 2002 (30.05.2002)

PCT

(10) International Publication Number
WO 02/042157 A3

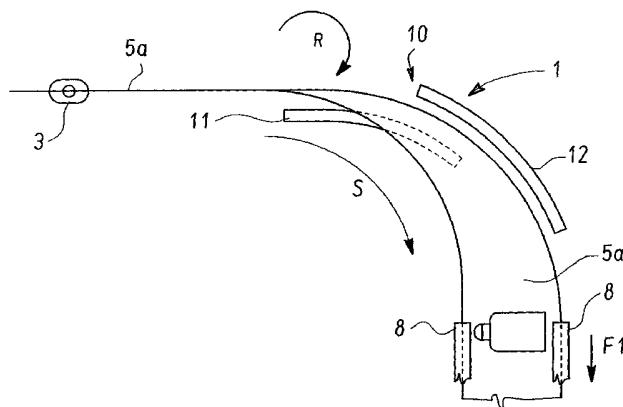
- (51) International Patent Classification⁷: **B65B 3/02**, 61/06
- (21) International Application Number: PCT/EP01/13801
- (22) International Filing Date:
27 November 2001 (27.11.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
MO2000A000254
27 November 2000 (27.11.2000) IT
MO2000A000255
27 November 2000 (27.11.2000) IT
- (71) Applicant (for all designated States except US): **ELOPAK SYSTEMS A/G** [CH/CH]; Cherstrasse, 4, CH-8152 Glatbrugg (CH).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **FRAMMARTINO, Renata** [IT/IT]; Via Ruffini, 144, I-41100 Modena (IT).
- (74) Agent: **LUPPI, Luigi**; Luppi & Crugnola S.R.L., Viale Corassori, 54, I-41100 Modena (IT).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,

[Continued on next page]

(54) Title: APPARATUSES AND METHODS FOR FORMING CONTAINERS



(57) Abstract: An apparatus for forming containers (3) from sheet material comprises in sequence a forming station in which precursors of said containers (3) are formed from a continuous strip (5) of said sheet material, said strip (5) being indexed along an advance direction (F, F2) in a substantially vertical position, a filling station in which said precursors are filled with product introduced through respective openings, a sealing station (2) in which said openings are sealed for closing said containers (3), a rotation station (1) in which said strip (5) is transferred from said vertical position to a horizontal position for being introduced into a severing station in which said containers (3) are severed from said strip (5), in said rotation station a lower edge (15) of said strip (5) being associated with support means (9) which substantially bears the weight of said containers (3); a method for obtaining containers (3) from sheet material comprises indexing along an advance direction (F, F2) a continuous strip (5) of said sheet material in substantially vertical position, forming precursors of said containers (3) in said strip (5), filling said precursors by inserting therein a product through respective openings, sealing said openings for closing said containers, rotation said strip (5) from said vertical position to a horizontal position, severing said containers (3) from said strip (5), during said rotating, supporting said strip (5) through support means (9) being provided.



- CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designation US
- of inventorship (Rule 4.17(iv)) for US only
- Published:**
- with international search report
- (88) Date of publication of the international search report:**
5 December 2002
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Internati Application No

PCT/EP 01/13801

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65B3/02 B65B61/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65B B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 31 41 069 A (MILDNER) 5 May 1983 (1983-05-05) abstract; figures 1,2 ---	1-5, 11-14, 19,21, 22,26, 28, 31-34,38
Y	US 2 721 017 A (HISCOCK) 18 October 1955 (1955-10-18) column 4, paragraph 4 - line 52; figures 1,4-8 --- -/-	1-5, 11-14, 19,21, 22,26, 28, 31-34,38

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

11 March 2002

Date of mailing of the international search report

19. 07. 2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

CLAEYS, H

INTERNATIONAL SEARCH REPORT

Internat Application No

~~PCT/EP~~ 01/13801

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3 735 654 A (JURASEK) 29 May 1973 (1973-05-29) the whole document ---	11-14, 21,22, 31-34,38
A	EP 0 487 788 A (CRESCENT) 3 June 1992 (1992-06-03) the whole document -----	1,11

INTERNATIONAL SEARCH REPORT

ion on patent family members

Inter

Application No

PCT/EP 01/13801

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
DE 3141069	A	05-05-1983	NONE		
US 2721017	A	18-10-1955	NONE		
US 3735654	A	29-05-1973	NONE		
EP 487788	A	03-06-1992	AT	134567 T	15-03-1996
			AU	8808591 A	04-06-1992
			BR	9105186 A	21-07-1992
			CA	2056187 A,C	29-05-1992
			DE	69025614 D	04-04-1996
			DE	69025614 T	02-10-1996
			DK	487788 T	08-07-1996
			ES	2084651 T	16-05-1996
			GR	3020037 T	31-08-1996
			MX	9102271 A	01-10-1992
			US	5210993 A	18-05-1993

INTERNATIONAL SEARCH REPORT

tional application No.
PCT/EP 01/13801

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-41

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-41

Apparatus and method for guiding a strip during forming, filling and closing of containers.

2. Claims: 42-62

Apparatus and method for discharging scrap from a sheet material after severing