

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

EP 1 400 291 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
26.05.2004 Bulletin 2004/22

(51) Int Cl. 7: B21D 51/26

(43) Date of publication A2:  
24.03.2004 Bulletin 2004/13

(21) Application number: 03026418.8

(22) Date of filing: 09.02.2001

(84) Designated Contracting States:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR

(30) Priority: 10.02.2000 GB 0003033  
27.10.2000 GB 0026325

(62) Document number(s) of the earlier application(s) in  
accordance with Art. 76 EPC:  
01904127.6 / 1 216 112

(71) Applicant: Envases (UK) Limited  
Port Talbot SA12 7BZ (GB)

(72) Inventors:

- Garcia Campo, Santiago  
01400 Llodio (Alava) (ES)
- Saiz Goiria, Juan  
01400 Llodio (Alava) (ES)

(74) Representative: Davies, Gregory Mark  
Urquhart-Dykes & Lord,  
Three Trinity Court,  
21-27 Newport Road  
Cardiff CF24 0AA (GB)

### (54) Deformation of thin walled bodies

(57) A thin walled body (1) is gripped securely in a holding station, and a tooling station (7) is advanced relative to the holding station such that an internal tooling part (15) is inserted into the interior of the body (1) and an external tooling part (13) is positioned externally of the body whilst the body is gripped securely at the holding station. Tooling (10) is operated to engage with and

deform the circumferential wall of the body (1) at a pre-determined wall zone whilst the body is gripped in a fixed orientation in the holding station. The predetermined wall zone is co-aligned with the tooling (10) by rotation of the body (1) about an axis prior to securing at the holding station in the fixed orientation for deforming of the wall of the body (1).

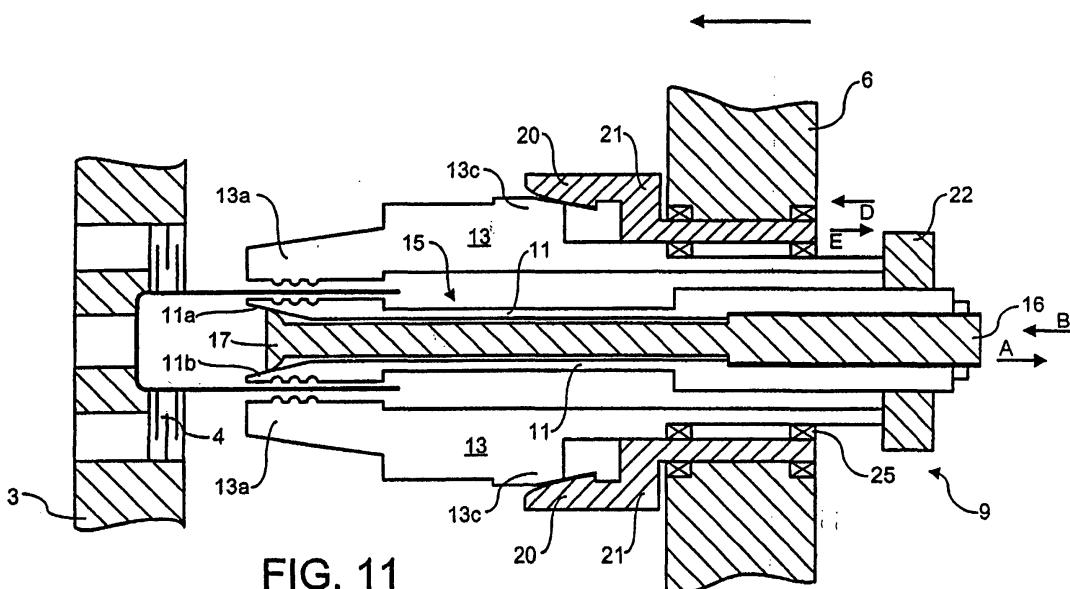


FIG. 11



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 03 02 6418

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)						
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim							
A	US 4 487 048 A (CANTEC INC) 11 December 1984 (1984-12-11) * figures 1,2 *	1-6	B21D51/26						
A	US 5 916 317 A (BALL CORPORATION) 29 June 1999 (1999-06-29) * figures 1A-1D,2 *	1-6							
A	US 3 698 337 A (BRAWNER WILLIAM H ET AL) 17 October 1972 (1972-10-17) * figures 1-4 *	1-6							
A	EP 0 893 175 A (JOST INDUSTRIEBEITLIGUNGSGESE) 27 January 1999 (1999-01-27) * figures 1-5 *	1-6							
D,A	WO 97 21505 A (METAL BOX PLC ;CARNAUDMETALBOX SA (FR); CARNAUDMETALBOX NV (NL); C) 19 June 1997 (1997-06-19) * the whole document *	1-6							
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)						
			B21D						
<p>The present search report has been drawn up for all claims</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Place of search</td> <td style="width: 33%;">Date of completion of the search</td> <td style="width: 34%;">Examiner</td> </tr> <tr> <td>MUNICH</td> <td>29 March 2004</td> <td>Vinci, V</td> </tr> </table>				Place of search	Date of completion of the search	Examiner	MUNICH	29 March 2004	Vinci, V
Place of search	Date of completion of the search	Examiner							
MUNICH	29 March 2004	Vinci, V							
<p>CATEGORY OF CITED DOCUMENTS</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;">           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         </td> <td style="width: 50%; vertical-align: top;">           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            &amp; : member of the same patent family, corresponding document         </td> </tr> </table>				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				
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								

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

EP 03 02 6418

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  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-03-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 4487048	A	11-12-1984	DE AT AT CH ES FR GB IT JP	3118783 A1 381656 B 157082 A 656079 A5 8304458 A1 2505688 A1 2101020 A ,B 1151159 B 57193240 A	02-12-1982 10-11-1986 15-04-1986 13-06-1986 01-06-1983 19-11-1982 12-01-1983 17-12-1986 27-11-1982
US 5916317	A	29-06-1999	AU AU BR EP JP WO US US US	725180 B2 1571797 A 9706958 A 0874701 A1 2000502955 T 9725165 A1 6079244 A 6343496 B1 6151939 A	05-10-2000 01-08-1997 11-05-1999 04-11-1998 14-03-2000 17-07-1997 27-06-2000 05-02-2002 28-11-2000
US 3698337	A	17-10-1972	CA CH DE FR GB NL US	976039 A1 542669 A 2061109 A1 2070806 A1 1337994 A 7018152 A 3953994 A	14-10-1975 15-10-1973 16-06-1971 17-09-1971 21-11-1973 15-06-1971 04-05-1976
EP 0893175	A	27-01-1999	DE EP	19730900 A1 0893175 A2	21-01-1999 27-01-1999
WO 9721505	A	19-06-1997	AU WO GB US ZA	7700896 A 9721505 A1 2320005 A ,B 6009733 A 9610111 A	03-07-1997 19-06-1997 10-06-1998 04-01-2000 18-06-1997