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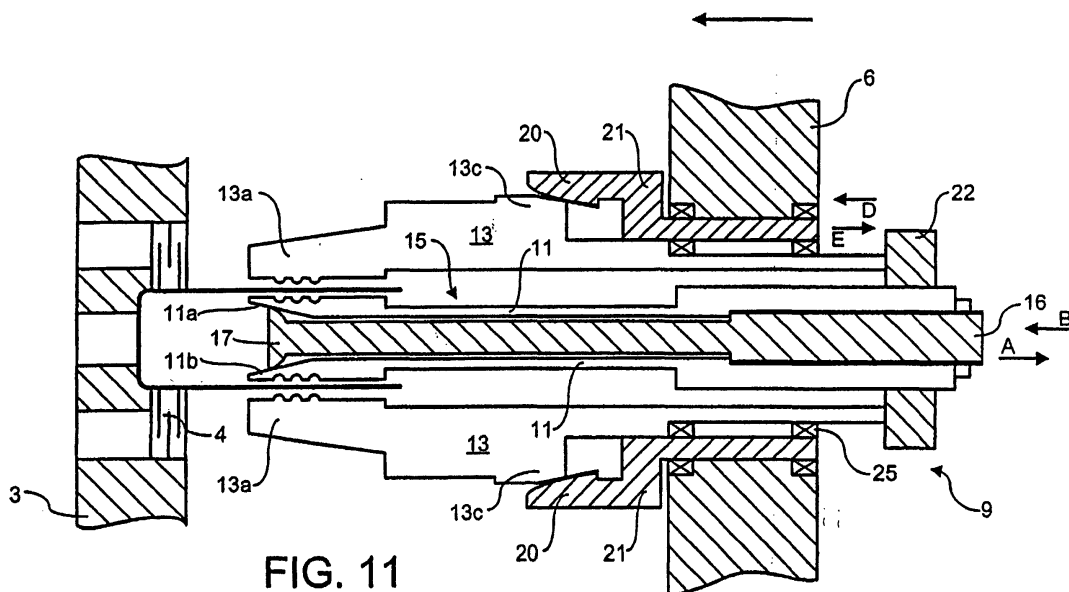
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(54) **Deformation of thin walled bodies**

(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			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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 INDUSTRIEBETEILIGUNGSGESE) 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	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B21D
Place of search		Date of completion of the search	Examiner
MUNICH		29 March 2004	Vinci, V
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

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

EP 03 02 6418

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The members are as contained in the European Patent Office EDP file on  
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29-03-2004

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