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(54) Pressure vessel

(57) A pressure vessel having a relief area onto which a flange of a side port can be attached. The relief area includes a planar mating surface raised from the cylindrical sidewall of the vessel. A method for forming the pressure vessel includes providing a cylindrical mandrel provided with a side port spacer. Fiberglass is wrapped onto the mandrel and space. The fiberglass is impregnated with resin and the resin is cured. A metallic insert ring is embedded in a full bore open end of the pressure vessel. The ring has a cross-section having a height to width ratio of less than 0.7.

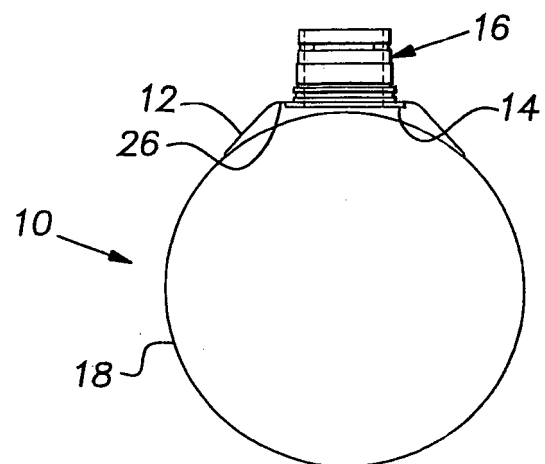


FIG. 1 A



DOCUMENTS CONSIDERED TO BE RELEVANT				
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)	
X	FR 2 001 634 A (OSMA REINFORCED PLASTICS) 26 September 1969 (1969-09-26)	1,2,5-10	F17C1/06	
Y	* page 1, line 2; claim 1; figure 3 * * page 8, lines 8-22,29-33; figure 4 * -----	3,4, 16-19		
Y	US 5 720 411 A (DARBY ET AL) 24 February 1998 (1998-02-24) * claim 1 *	3,4, 16-19		
A	DE 23 56 750 A1 (MEYER, RUDOLF, 8226 DORFREIT) 10 July 1975 (1975-07-10) * page 1, paragraph 1; claim 1 * * page 2, paragraph 1 * * page 7, paragraph 5 * * figure 18b *	1-10, 16-19		
A	US 4 739 659 A (SHARP ET AL) 26 April 1988 (1988-04-26) * column 4, lines 37-64; claim 1; figure 2 * * column 5, line 31 *	1-10, 16-19		TECHNICAL FIELDS SEARCHED (IPC)
A	FR 2 726 889 A (WENDLING CHRISTIANE KUHN) 15 May 1996 (1996-05-15) * claim 1; figure 1 *	1-10, 16-19		F17C B01D
A	FR 2 734 042 A (SOCIETE INDUSTRIELLE DE REALISATION ET DE COMMERCIALISATION SIRC) 15 November 1996 (1996-11-15) * claim 1; figure 2 *	1		
<del>The present search report has been drawn up for all claims</del>				
Place of search <b>Munich</b>		Date of completion of the search <b>18 November 2005</b>	Examiner <b>Ott, T</b>	
CATEGORY OF CITED DOCUMENTS 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				

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims 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 claim(s):
- 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.

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- 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:
- None 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 invention first mentioned in the claims, namely claims:

1-10, 16-19



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-10 16-19

Pressure vessel with relief area

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2. claims: 11-15

Metallic insert ring for pressure vessel

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

EP 03 00 1643

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.

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EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82