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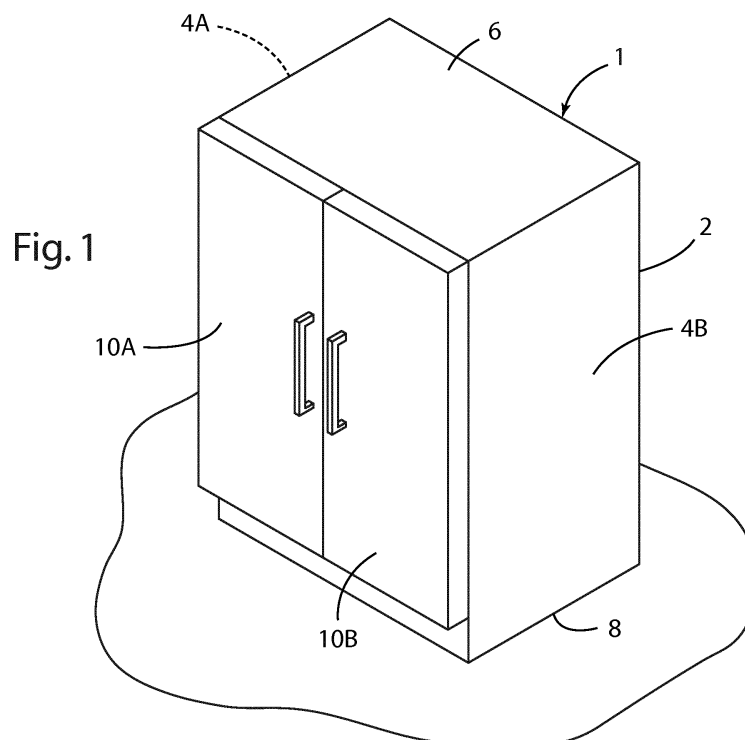
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(54) **Folded vacuum insulated structure**

(57) A vacuum insulated cabinet structure for refrigerators and the like includes a plurality of vacuum insulated panels. The cabinet structure may include an "O" or "U" structure that is formed by folding a large panel

assembly. The panels may comprise side walls that are heat-sealed together around the perimeters of the panels to form airtight spaces having a vacuum.





## EUROPEAN SEARCH REPORT

 Application Number  
EP 14 15 8615

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	US 6 109 712 A (HAWORTH GEORGE JEFFREY [US] ET AL) 29 August 2000 (2000-08-29) * the whole document *	1-11	INV. F25D23/06
Y	US 2011/030894 A1 (TENRA TOMOHISA [JP] ET AL) 10 February 2011 (2011-02-10) * paragraphs [0071], [0193] - [0197] *	1-11	
A	EP 0 260 699 A2 (ZANUSSI ZELTRON INST [IT]) 23 March 1988 (1988-03-23) * the whole document *	1-11	
A	US 6 305 768 B1 (NISHIMOTO YOSHIO [JP]) 23 October 2001 (2001-10-23) * columns 10-15; figures 1-4 *	1-11	
A	US 5 066 437 A (BARITO ROBERT W [US] ET AL) 19 November 1991 (1991-11-19) * the whole document *	1-11	
A	US 2012/285971 A1 (JUNGE BRENT ALDEN [US] ET AL) 15 November 2012 (2012-11-15) * the whole document *	1-11	TECHNICAL FIELDS SEARCHED (IPC) F25D
<del>The present search report has been drawn up for all claims</del>			
Place of search The Hague		Date of completion of the search 9 June 2015	Examiner Canköy, Necdet
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			

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**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due 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 those claims for which no payment was due.

**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:

1-11

☐ The present supplementary 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 (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number

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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: 1-11

Forming a vacuum insulated cabinet by folding sheets of material where a thermoplastic layer is present

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2. claims: 12-15

Forming a vacuum insulated cabinet whose opening is closed with a cap member

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

EP 14 15 8615

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  
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09-06-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6109712 A	29-08-2000	CA 2275104 A1 US 6109712 A	16-01-2000 29-08-2000
US 2011030894 A1	10-02-2011	AU 2003283844 A1 EP 1558869 A2 JP 3559035 B2 JP 2004197935 A KR 20050088109 A US 2006024469 A1 US 2011030894 A1 WO 2004051134 A2	23-06-2004 03-08-2005 25-08-2004 15-07-2004 01-09-2005 02-02-2006 10-02-2011 17-06-2004
EP 0260699 A2	23-03-1988	EP 0260699 A2 IT 1201782 B JP S6387578 A	23-03-1988 02-02-1989 18-04-1988
US 6305768 B1	23-10-2001	DE 69813173 D1 EP 0931996 A1 JP 3968612 B2 JP H11281246 A TW 415885 B US 6305768 B1 US 2001033126 A1 US 2002014818 A1 US 2002017841 A1	15-05-2003 28-07-1999 29-08-2007 15-10-1999 21-12-2000 23-10-2001 25-10-2001 07-02-2002 14-02-2002
US 5066437 A	19-11-1991	NONE	
US 2012285971 A1	15-11-2012	NONE	