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12.01.2011 KR 20110003123
12.01.2011 KR 20110003124
17.01.2011 KR 20110004541
17.01.2011 KR 20110004544
31.03.2011 KR 20110029966
19.08.2011 KR 20110082942
23.08.2011 US 526273 P
18.09.2011 KR 20110093778
21.09.2011 US 537520 P

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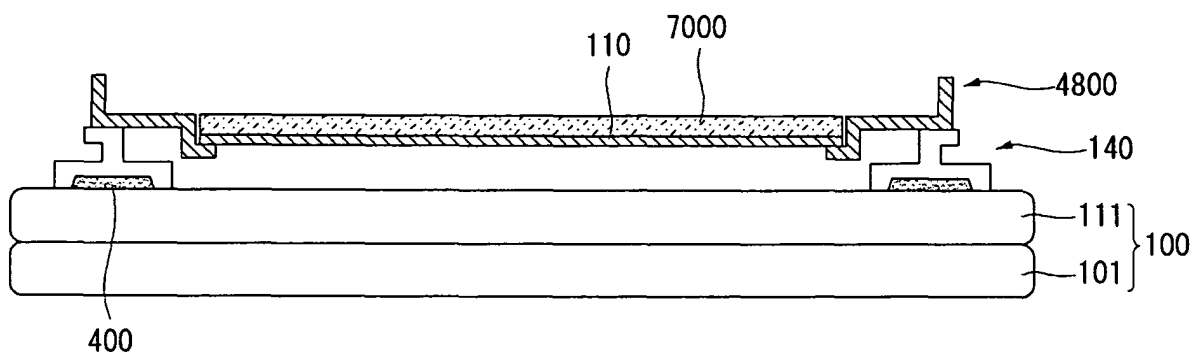
(54) **Display apparatus**

(57) A display apparatus includes a front panel and a rear panel attached to each other and having a plurality of liquid crystals provided in a gap between the first and rear panels, a plurality of first brackets adhered to the rear panel by an adhesive, each first bracket having a recess on a first surface where the adhesive is applied, and a first protrusion extending from a second surface and a second protrusion extending from the first protrusion, the first and second surfaces being opposite surface, the first protrusion having an opening, at least one connection bracket having a side wall extending in a first direction and a plurality of first tab portions extending in

a second direction, the first and second directions being perpendicular to each other, the tab portion being provided into the opening of the of the first protrusion, at least one second bracket provided adjacent to the plurality of the first brackets and attached to the at least one connection bracket, a frame mounted to the at least one second bracket, and a light source having at least an optical sheet, a light guide and a plurality of light emitting diodes (LEDs), the light source being provided between the frame and the at least one second bracket.

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FIG. 34





EUROPEAN SEARCH REPORT

Application Number
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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)
A	US 2003/043310 A1 (CHO CHUN-HYUN [KR]) 6 March 2003 (2003-03-06) * paragraph [0065] - paragraph [0075] * * figure 3 *	1-21	INV. G02F1/13 G02F1/1333
A	JP 10 312161 A (NIPPON AVIONICS CO LTD) 24 November 1998 (1998-11-24) * abstract *	1-21	
A	JP 2002 108238 A (NEC ACCESS TECHNICA LTD) 10 April 2002 (2002-04-10) * abstract *	1	
A	EP 1 909 159 A1 (LG ELECTRONICS INC [KR]) 9 April 2008 (2008-04-09) * paragraph [0037] - paragraph [0044] * * figure 3 *	1-21	
			TECHNICAL FIELDS SEARCHED (IPC)
			G02F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 5 June 2012	Examiner Boubal, François
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 11 00 8667

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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05-06-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2003043310 A1	06-03-2003	CN 1407379 A	02-04-2003
		JP 4275888 B2	10-06-2009
		JP 2003075809 A	12-03-2003
		KR 20030020184 A	08-03-2003
		TW I232719 B	11-05-2005
		US 2003043310 A1	06-03-2003

JP 10312161 A	24-11-1998	NONE	

JP 2002108238 A	10-04-2002	JP 3607591 B2	05-01-2005
		JP 2002108238 A	10-04-2002

EP 1909159 A1	09-04-2008	CN 101150942 A	26-03-2008
		EP 1909159 A1	09-04-2008
		KR 20080026708 A	26-03-2008
		US 2008074349 A1	27-03-2008

专利名称(译)	显示装置		
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审查员(译)	BOUBAL , 弗朗索瓦		
优先权	1020100106193 2010-10-28 KR 1020100106194 2010-10-28 KR 1020100106196 2010-10-28 KR 61/407916 2010-10-29 US 1020110003123 2011-01-12 KR 1020110003124 2011-01-12 KR 1020110004541 2011-01-17 KR 1020110004544 2011-01-17 KR 1020110029966 2011-03-31 KR 1020110082942 2011-08-19 KR 61/526273 2011-08-23 US 1020110093778 2011-09-18 KR 61/537520 2011-09-21 US		
其他公开文献	EP2447762B1 EP2447762A2		
外部链接	Espacenet		
摘要(译)			

一种显示装置，包括前面板和后面板，所述前面板和后面板彼此连接并且具有设置在所述第一和后面板之间的间隙中的多个液晶，多个第一支架通过粘合剂粘附到所述后面板，每个第一支架在施加粘合剂的第一表面上具有凹槽，以及从第二表面延伸的第一突起和从第一突起延伸的第二突起，第一和第二表面是相对的表面，第一突起具有开口，至少一个连接支架，具有沿第一方向延伸的侧壁和多个沿第二方向延伸的第一突片部分，第一和第二方向彼此垂直，突片部分设置在第一突起的开口中至少一个第二支架设置在多个第一支架附近并且连接到至少一个连接支架上，框架安装在上述至少一个第二支架，以及至少具有光学片，光导和多个发光二极管（LED）的光源，所述光源设置在所述框架和所述至少一个第二支架之间。

FIG. 34

