



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
24.08.2011 Bulletin 2011/34

(51) Int Cl.:
G02F 1/133 (2006.01) H05K 7/20 (2006.01)

(43) Date of publication A2:
16.12.2009 Bulletin 2009/51

(21) Application number: **09162240.7**

(22) Date of filing: **09.06.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA RS

- **Cho, Jin Hyun**
Seoul (KR)
- **Kim, Sung Ki**
Seoul (KR)
- **Kang, Joon**
Seoul (KR)

(30) Priority: **13.06.2008 KR 20080055687**

(71) Applicant: **Samsung Electronics Co., Ltd.**
Suwon-si, Gyeonggi-do 442-742 (KR)

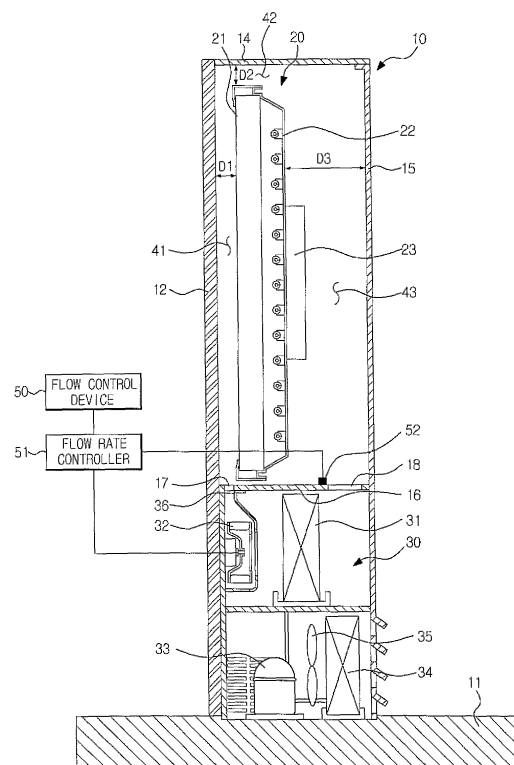
(72) Inventors:
• **Kim, Jin Sub**
Gyeonggi-do (KR)

(74) Representative: **Grootcholten, Johannes A.M. et al**
Arnold & Siedsma
Sweelinckplein 1
2517 GK Den Haag (NL)

(54) **Liquid crystal display device with means for cooling the display panel**

(57) A liquid crystal display device (10) includes a liquid crystal panel (20,21), a protection panel (12) arranged a predetermined distance from the liquid crystal panel, and a flow control device (50) to impart turbulence to an air flow in a channel (41), which is defined between the liquid crystal panel (20,21) and the protection panel (12).

FIG. 2





EUROPEAN SEARCH REPORT

Application Number
EP 09 16 2240

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	WO 2005/079129 A1 (INSSIMAINOS OY [FI]; VIITANEN JUHANI [FI]) 25 August 2005 (2005-08-25) * page 5, line 27 - page 8, line 34 * * figures 1,2 *	1-6, 8-10, 13-16,18	INV. G02F1/133 H05K7/20
A	WO 03/075081 A1 (ILJIN DIAMOND CO LTD [KR]; BAE JIN-WOO [KR]) 12 September 2003 (2003-09-12) * page 5, line 8 - page 6, line 20 * * figures 2,4 *	1-18	
A	US 5 682 216 A (LIN FALCON [TW] ET AL) 28 October 1997 (1997-10-28) * column 1, line 62 - column 2, line 13 * * figure 2 *	1-18	
A	EP 1 253 459 A2 (GILBARCO INC [US]) 30 October 2002 (2002-10-30) * paragraph [0016] - paragraph [0025] * * figure 1 *	1-18	
A	US 2007/058339 A1 (HOFFMAN CHRISTOPHER J [US] ET AL) 15 March 2007 (2007-03-15) * abstract * * paragraph [0038] *	1-18	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			G02F H05K
Place of search		Date of completion of the search	Examiner
Munich		11 July 2011	Hauser, Markus
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			

 1
EPO FORM 1503 03.82 (P04C01)

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

EP 09 16 2240

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.

11-07-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2005079129 A1	25-08-2005	AT 486490 T	15-11-2010
		DK 1719398 T3	14-02-2011
		EP 1719398 A1	08-11-2006
		ES 2355190 T3	23-03-2011
		FI 20040239 A	17-08-2005
WO 03075081 A1	12-09-2003	AU 2003217505 A1	16-09-2003
		KR 20030072114 A	13-09-2003
US 5682216 A	28-10-1997	NONE	
EP 1253459 A2	30-10-2002	US 2002154255 A1	24-10-2002
US 2007058339 A1	15-03-2007	NONE	

专利名称(译)	具有用于冷却显示面板的装置的液晶显示装置		
公开(公告)号	EP2133735A3	公开(公告)日	2011-08-24
申请号	EP2009162240	申请日	2009-06-09
[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	SAMSUNG ELECTRONICS CO. , LTD.		
当前申请(专利权)人(译)	SAMSUNG ELECTRONICS CO. , LTD.		
[标]发明人	KIM JIN SUB CHO JIN HYUN KIM SUNG KI KANG JOON		
发明人	KIM, JIN SUB CHO, JIN HYUN KIM, SUNG KI KANG, JOON		
IPC分类号	G02F1/133 H05K7/20		
CPC分类号	G02F1/133385 G02F2201/36 H05K7/20972		
优先权	1020080055687 2008-06-13 KR		
其他公开文献	EP2133735A2 EP2133735B1		
外部链接	Espacenet		

摘要(译)

液晶显示装置 (10) 包括液晶面板 (20,21) , 与液晶面板隔开预定的保护面板 (12) , 以及对气流赋予湍流的流量控制装置 (50) 在通道 (41) 中, 其限定在液晶面板 (20,21) 和保护面板 (12) 之间。

