



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 471 587 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
06.12.2006 Bulletin 2006/49

(51) Int Cl.:
H01L 51/20^(0000.00)

(43) Date of publication A2:
27.10.2004 Bulletin 2004/44

(21) Application number: **04251300.2**

(22) Date of filing: **05.03.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL LT LV MK

(30) Priority: **06.03.2003 KR 2003014000**

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

(72) Inventors:
• **Cho, Sang-Hwan,**
c/o 245-1804 Ssangyong Apt.
Suwon-si,
Gyeonggi-do (KR)
• **Do, Young-Rag,**
c/o 108-501 Muak Hyundai Apt.
Seoul (KR)

• **Kim, Yoon-Chang,**
c/o 234-1103 Poongrim Apt.
Suwon-si,
Gyeonggi-do (KR)
• **Ahn, Ji-Hoon**
Seoul (KR)
• **Lee, Joon-Gu,**
c/o 608-704 Eunbit Maul
Goyang-si,
Gyeonggi-do (KR)

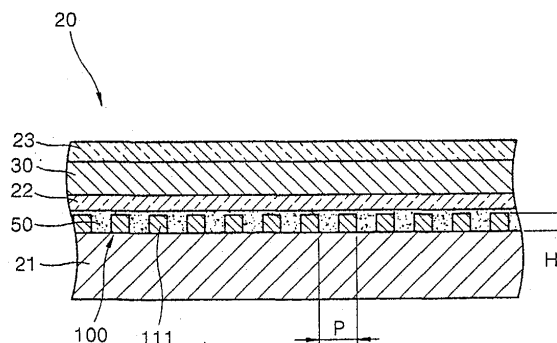
(74) Representative: **Greene, Simon Kenneth**
Elkington and Fife LLP,
Prospect House,
8 Pembroke Road
Sevenoaks,
Kent TN13 1XR (GB)

(54) **Assembly of organic electroluminescence display device**

(57) An organic electroluminescence (EL) display device assembly includes a substrate, an organic EL portion, an optical loss prevention layer, and a fine space layer. The organic EL portion has a first electrode layer, an organic luminescent layer, and a second electrode

layer which are each patterned and stacked on the upper surface of the substrate. The optical loss prevention layer is used to increase light bleeding efficiency. The fine space layer is formed between the optical loss prevention layer and a layer facing the optical loss prevention layer and is filled with a gas or evacuated.

FIG. 2



EP 1 471 587 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 1300

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
P,X	LEE YONG-JAE ET AL: "A high-extraction-efficiency nanopatterned organic light-emitting diode" APPLIED PHYSICS LETTERS, AIP, AMERICAN INSTITUTE OF PHYSICS, MELVILLE, NY, US, vol. 82, no. 21, 26 May 2003 (2003-05-26), pages 3779-3781, XP012034228 ISSN: 0003-6951 * the whole document *	1-5, 9-13,15, 29-31	INV. H01L51/20
X	LUPTON, J. M. ET AL: "Bragg Scattering from periodically microstructured light emitting diodes" APPLIED PHYSICS LETTERS, vol. 77, no. 21, 20 November 2000 (2000-11-20), pages 3340-3342, XP002403149 * the whole document *	1-5, 9-11,31	
Y	* figure 1 *	6,14,19, 32	
X	US 6 476 550 B1 (ODA ATSUSHI [JP] ET AL) 5 November 2002 (2002-11-05) * abstract *	1-5,9,31	TECHNICAL FIELDS SEARCHED (IPC) H01L
Y	* column 1, line 45 - line 53 * * column 3, line 65 - column 4, line 41 * * column 5, line 8 - column 6, line 6 * * figure 2 *	6,14,19, 32	
X	EP 1 116 987 A2 (NITTO DENKO CORP [JP]) 18 July 2001 (2001-07-18) * abstract *	1-5,9, 12,15,31	
Y	* paragraphs [0005], [0009] - [0052]; figure 1 *	6,14,19, 32	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 October 2006	Examiner BERNABE PRIETO, A
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)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 25 1300

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	JP 10 111522 A (SONY CORP) 28 April 1998 (1998-04-28) * the whole document * * figure 1 *	6,19	
Y	----- EP 1 096 579 A2 (SEMICONDUCTOR ENERGY LAB [JP]) 2 May 2001 (2001-05-02) * the whole document * * figure 1 *	6,19	
Y	----- HOLGADO, M ET AL: "Electrophoretic deposition to control artificial opal growth" LANGMUIR, vol. 15, no. 14, 6 July 1999 (1999-07-06), pages 4701-4704, XP002403150 * abstract * * page 4701 *	14,32	
			TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 October 2006	Examiner BERNABE PRIETO, A
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 04 25 1300

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.

16-10-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6476550	B1	05-11-2002	JP 2991183 B2 20-12-1999
			JP 11283751 A 15-10-1999
			JP 11283751 T1 15-10-1999
			US 2002180348 A1 05-12-2002

EP 1116987	A2	18-07-2001	JP 2001203074 A 27-07-2001
			TW 483288 B 11-04-2002
			US 2002008807 A1 24-01-2002

JP 10111522	A	28-04-1998	NONE

EP 1096579	A2	02-05-2001	CN 1295425 A 16-05-2001
			TW 478019 B 01-03-2002
			US 6847163 B1 25-01-2005

专利名称(译)	有机电致发光显示装置的组装		
公开(公告)号	EP1471587A3	公开(公告)日	2006-12-06
申请号	EP2004251300	申请日	2004-03-05
[标]申请(专利权)人(译)	三星斯笛爱股份有限公司		
申请(专利权)人(译)	三星SDI CO. , LTD.		
当前申请(专利权)人(译)	三星DISPLAY CO. , LTD.		
[标]发明人	CHO SANG HWAN C O 245 1804 SSANGYONG APT DO YOUNG RAG C O 108 501 MUAH HYUNDAI APT KIM YOON CHANG C O 234 1103 POONGRIM APT AHN JI HOON LEE JOON GU C O 608 704 EUNBIT MAUL		
发明人	CHO, SANG-HWAN, C/O 245-1804 SSANGYONG APT. DO, YOUNG-RAG, C/O 108-501 MUAH HYUNDAI APT. KIM, YOON-CHANG, C/O 234-1103 POONGRIM APT. AHN, JI-HOON LEE, JOON-GU, C/O 608-704 EUNBIT MAUL		
IPC分类号	H01L51/20 H05B33/02 G09F9/30 H01L27/32 H01L51/50 H01L51/52 H05B33/00 H05B33/14 H05B33/22		
CPC分类号	H01L51/5262 H01L27/3244 H01L2251/5315		
优先权	1020030014000 2003-03-06 KR		
其他公开文献	EP1471587A2 EP1471587B1		
外部链接	Espacenet		

摘要(译)

有机电致发光 (EL) 显示装置组件包括基板, 有机EL部分, 光学损失防止层和精细空间层。有机EL部分具有第一电极层, 有机发光层和第二电极层, 它们各自图案化并堆叠在基板的上表面上。光学损失防止层用于增加光出射效率。微小空间层形成在光学防损层和面向光学防损层的层之间, 并填充有气体或抽空。

FIG. 2

