

(19)  
(12)

(KR)  
(A)

(51) 。 Int. Cl.<sup>7</sup>  
C09K 11/06

(11)  
(43)

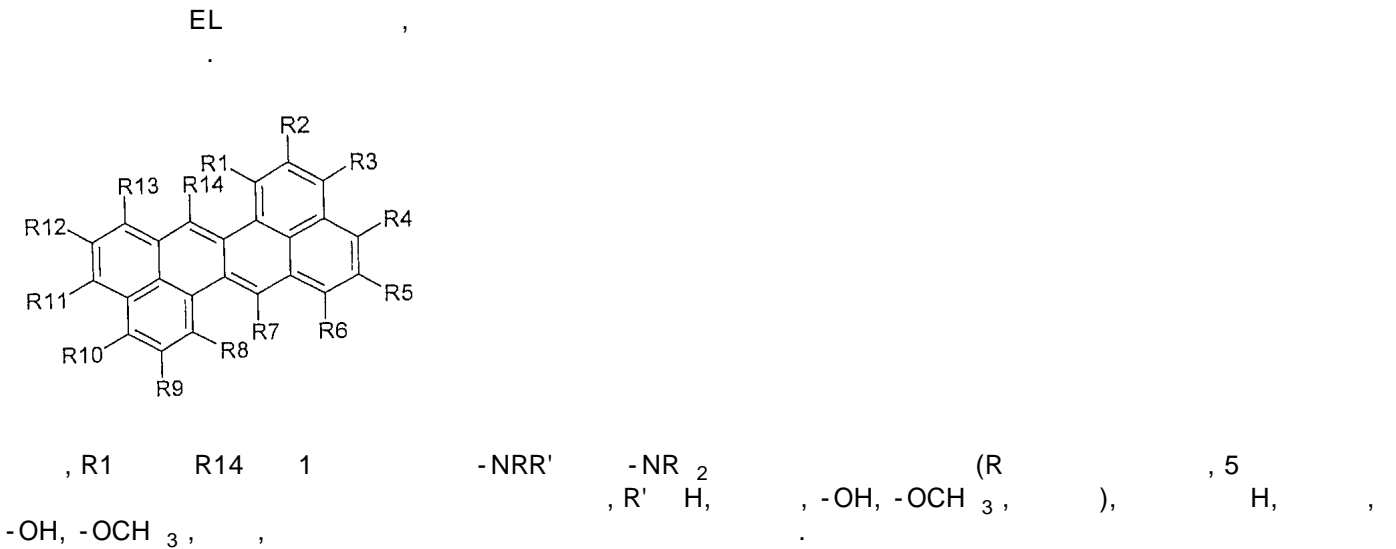
10-2004-0015296  
2004 02 18

(21)	10-2003-7016942		
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(86)	PCT/JP2002/006517	(87)	WO 2003/002687
(86)	2002 06 27	(87)	2003 01 09

(30)	JP-P-2001-00195322	2001 06 27	(JP)
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	211-8588가 가 가	가	4 1-1 가 가
	211-8588가 가 가	가	4 1-1 가 가
(74)			

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(54)



1

, EL ,

(EL ) EL .

EL ( ), ,

EL , 3 ( , , ) EL  
가 . EL [C. W. Tang, S. A. VanSlyke, and  
C. H. Chen, Journal of Applied Physics, vol. 65, 3610 (1989)] DCM 가

, EL  
가 ( 9- 13024 , 9-296166 , 11  
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, 11-144868 EL 가  
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, 5-214334 EL 가  
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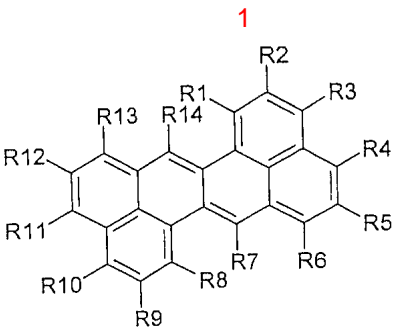
가 EL EL , 가 ,

EL EL EL , 가  
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EL ,

EL (EL) 가 , 1  
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, R1 R14 1

$\text{—N}^{\text{R}}_{\text{R}'}$  또는  $\text{—N}^{\text{R}}_{\text{R}}$

( , R 5 , , 25 , R' , , -OH, -OCH<sub>3</sub> , 1 10 ) , R1 R14 , , -OH, -

OCH<sub>3</sub> , 1 10 ,

EL EL .

EL , EL EL EL , , EL

1 EL .

2 EL .

3 2 .

4 EL .

5 4 .

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(EL) , , 1 가

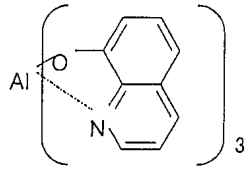
< 1>



1, 2 (1) 2  
(1) 2  
가

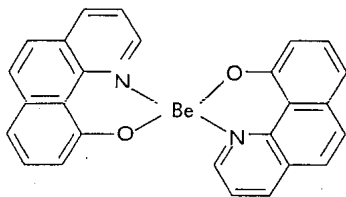
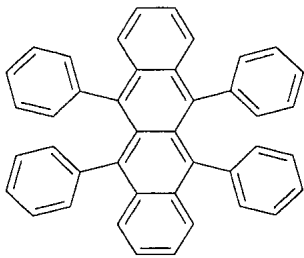
EL

가



(8- ) (Alq)

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EL ,

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EL

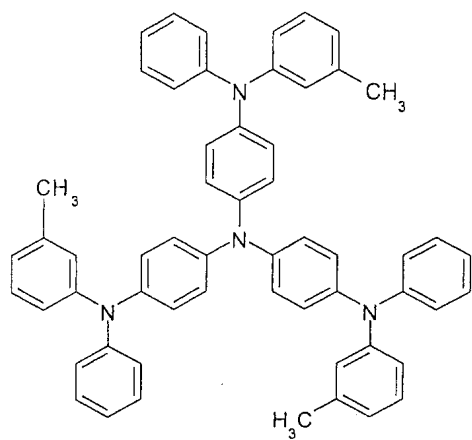
가

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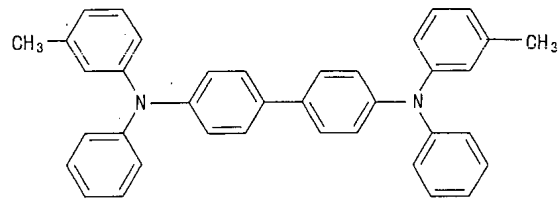
ITO ( ),  
가 , 1 5000 nm, 20 200 nm .

, ,

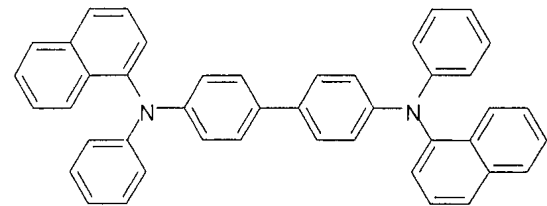


m , 1 100 nm, 5 50 n

,

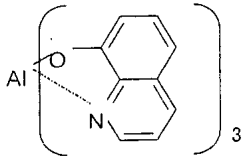


TPD (N,N' - -N,N' - (3- )-[1,1' - ]-4,4' - ),

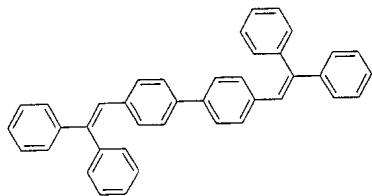


NPD (N,N' - -N,N' - -[1,1' - ]-4,4' - )

가 . nm, 10 100 nm .



(8- ) 8- , , , 가 . , 1 500 nm, 10 50 nm . 2 . 가 , 0.1 10 nm, 0.5 2 nm . 10000 nm, 20 200 nm . 가 , 1 가 . EL 가 . 가 . 가 . EL 1 (1) , (10) (2), (3), (4), (5), EL (6) ) 가 , (2) (6) (12) . (3) (5) EL (2), (4), (6) 가 가 (3) (5) , 1 가 EL 가 EL no. 765, 2000 3 13 , 55 62 ( BP ) ] [ r . EL , (1) , , 3 EL 3 , (2) EL 3 , (3) EL , ( , r , 2000 9 , 33 37 ). 3 3 EL 가 ITO ( )/NPD/Alq/Al-Li ( ) , ITO ( )/NPD/DPVBi/Alq/Al-Li ( ) 가 . DPVBi



EL  
3

EL

, 2, (21), EL  
(23 r), (23 g), (23 b) (ITO (22), (22) EL, (23r) EL (23) (24) 3  
, 31, 32 EL, 33, 34, 35  
, 4, (41), ITO  
(42), 5 (42) EL (43r), (43g), (43b) (43), EL (43)  
(44) (46) EL (42) TFT (45)가 (41)  
, 54, 55, 56 TFT, 57, 52 EL, 53 EL  
(52) 가 (TFT, 58)

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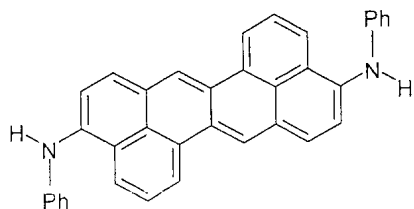
가

< 1>

4,11- ( )

[Journal of the American Chemical Society, 90, 530 (1968)]

1 가 4  
4,11-  
4,11- , 가 가 200 30  
4,11- ( ) ( ph )



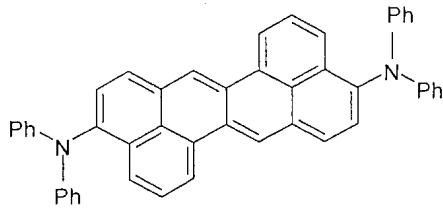
< 2>

4,11- ( )

1 가 200 4,11- 30  
4,11- ( )



( ph ) .



, 1 5 1 4,11- ( )  
EL .

< 1>

4,11- ( ) EL .

ITO , , (1×10<sup>-6</sup> torr, 4,11- ( ) ) 20 nm, TPD 50 nm, Alq 30 nm, Al-Li (Li: 0.5 %) EL 1 50 nm , ITO , Al-Li 가 , 6 V 300 cd/m<sup>2</sup> 10 V .

< 2>

4,11- ( ) EL .

ITO , , (1×10<sup>-6</sup> torr, 4,11- ( ) ) Alq ( : 4,11- ( ) 1 Alq 99 ) 20 nm, TPD 50 nm, Alq 30 nm, Al-Li (Li: 0.5 %) 50 nm EL , ITO , Al-Li 가 , 5 V 10 V 1030 cd/m<sup>2</sup> .

< 3>

4,11- ( ) EL .

ITO , , (1×10<sup>-6</sup> torr, 4,11- ( ) ) Alq ( : 4,11- ( ) 1 Alq 99 ) 5 nm ) 20 nm, TPD 50 nm, Alq 30 nm, Al-Li (Li: 0.5 %) EL , ITO , Al-Li 가 , 5 V 10 V 1700 cd/m<sup>2</sup> .

< 4>

4,11- ( ) EL .

ITO , , (1×10<sup>-6</sup> torr, 4,11- ( ) ) Alq 50 nm, Al-Li (Li: 0.5 %) 50 nm EL , ITO , Al-Li 가 , 5 V 10 V 230 cd/m<sup>2</sup> .

< 5>

- 4,11- ( ) EL .
- ITO , , (1×10<sup>-6</sup> torr, 4,11- )  
 ( ) TPD 50 nm, 50 nm EL  
 30 nm, Al-Li (Li: 0.5 %) 가 6 V  
 , ITO 10 V , Al-Li 180 cd/m<sup>2</sup> .  
 , 6 10 EL 2 4,11- ( )
- < 6>
- 4,11- ( ) EL .
- ITO , , (1×10<sup>-6</sup> torr, 4,11- ( )  
 ) TPD 50 nm, Alq 30 nm, Al-Li (Li: 0.5 %) EL  
 20 nm, , ITO , Al-Li 420 cd/m<sup>2</sup>  
 50 nm 가 , 6 V , 가 10 V
- < 7>
- 4,11- ( ) EL .
- ITO , , (1×10<sup>-6</sup> torr, 4,11- ( )  
 ) TPD 50 nm, 1 Alq 99 )  
 20 nm, Alq ( : 4,11- ( ) Al-Li (Li: 0.5 %) 50 nm  
 , ITO , Al-Li 가 , 5 V  
 , 가 10 V 1640 cd/m<sup>2</sup> .
- < 8>
- 4,11- ( ) EL .
- ITO , , (1×10<sup>-6</sup> torr, 4,11- ( )  
 ) TPD 50 nm, 1 Alq  
 94 % , 5 Alq ( : 4,11- ( ) ) Al-Li (Li: 0.5 )  
 50 nm 20 nm, EL , ITO , Al-Li 2000 cd/m<sup>2</sup>  
 가 , 5 V , 가 10 V
- < 9>
- 4,11- ( ) EL .
- ITO , , (1×10<sup>-6</sup> torr, 4,11- ( )  
 ) TPD 50 nm, 50 nm  
 Alq 50 nm, Al-Li (Li: 0.5 %) 50 nm  
 , ITO , Al-Li 가 , 5 V  
 가 10 V 410 cd/m<sup>2</sup> .
- < 10>
- 4,11- ( ) EL .

ITO , , (1×10<sup>-6</sup> torr, 4,11-EL  
( ) , 30 nm, TPD 50 nm, (Li: 0.5 %)  
 , Al-Li , ITO , Al-Li 가 50 nm 6 V  
 , 가 10 V 220 cd/m<sup>2</sup> .

가

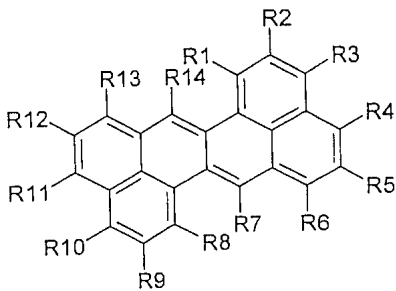
EL , 가 가 ,  
 , 가 .

(57)

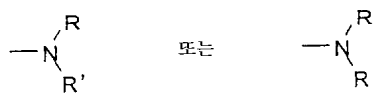
1.

, EL , EL .  
1

< 1>



, R1 R14 1



( , R 5 , , 25 , R' , -OH, -OCH<sub>3</sub> , 1 10  
) , R1 R14 , -OH, -  
OCH<sub>3</sub> , 1 10 , .

2.

1 , 가 EL .

3.

1 , 가 EL .

4.

1 , EL .

5.

2 4 , 가 EL .

6.

1 , , EL 가 4,11- ( ) , 4,11- ( ) ,

7.

1 6 , , EL .

8.

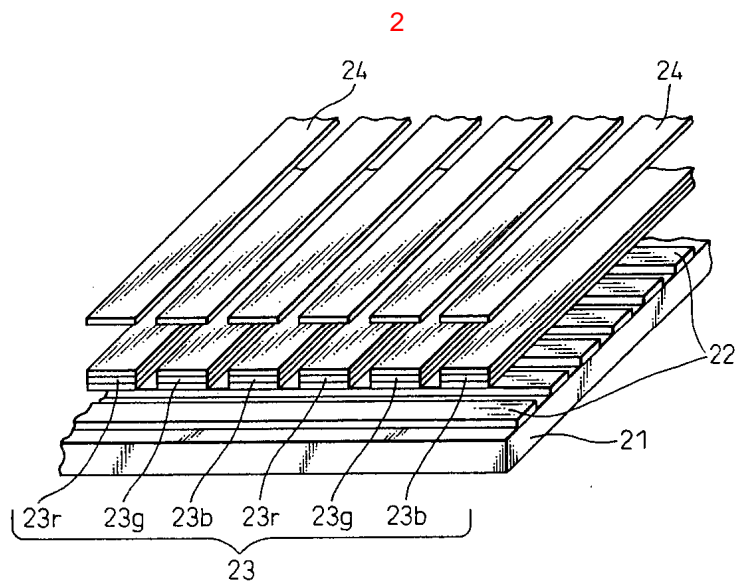
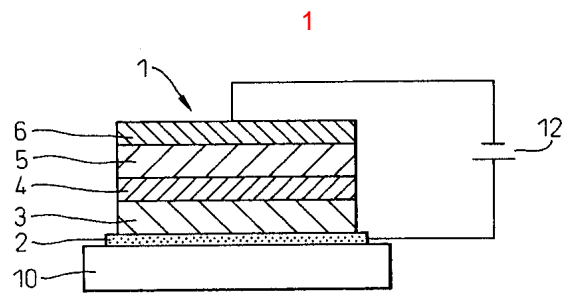
1 6 , , EL .

9.

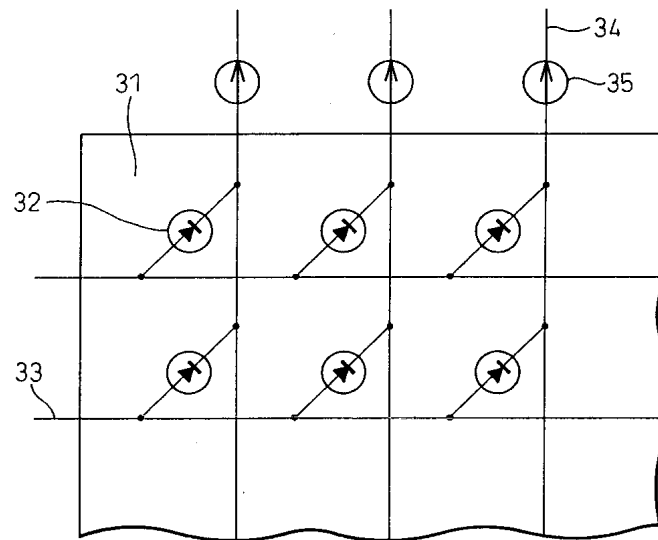
1 6 , , EL .

10.

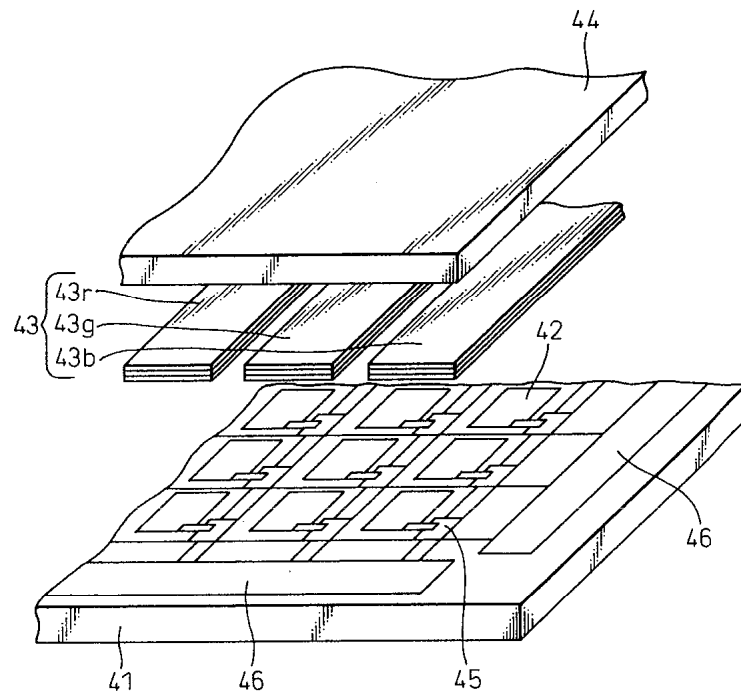
1 9 , 1 , EL 가

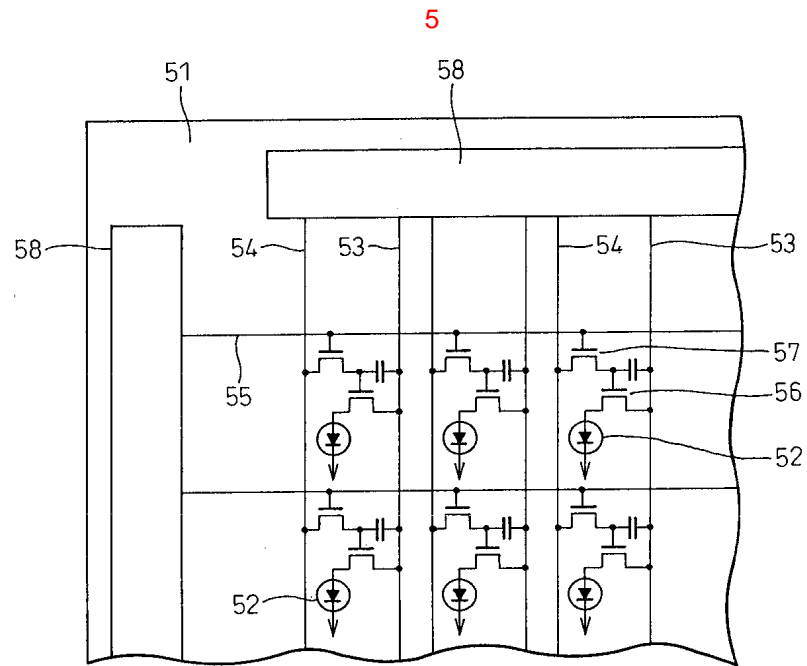


3



4





专利名称(译)	有机电致发光器件和使用它的有机电致发光显示器		
公开(公告)号	<a href="#">KR1020040015296A</a>	公开(公告)日	2004-02-18
申请号	KR1020037016942	申请日	2002-06-27
[标]申请(专利权)人(译)	富士胶片株式会社		
申请(专利权)人(译)	富士胶片有限公司		
当前申请(专利权)人(译)	富士胶片有限公司		
[标]发明人	SOTOYAMA WATARU 소토야마와타루 SATO HIROYUKI 사토히로유키 MATSUURA AZUMA 마쯔우라아즈마		
发明人	소토야마,와타루 사토,히로유키 마쯔우라,아즈마		
IPC分类号	H01L51/00 H01L51/30 H05B33/14 H01L51/50 C09K11/06 H01L27/32		
CPC分类号	C09K2211/1011 H01L51/5012 H01L27/32 C09K11/06 H01L51/006 Y10S428/917 H01L51/0077 H05B33/14 H01L51/0056 H01L51/0081		
代理人(译)	CHANG, SOO KIL CHU, 晟敏		
优先权	2001195322 2001-06-27 JP		
外部链接	<a href="#">Espacenet</a>		

#### 摘要(译)

在本发明的有机EL器件中，作为发光层的材料，使用含有由下式表示的芳基氨基氮杂环庚烷化合物的那些。其中R<sub>1</sub>-R<sub>14</sub>中的至少一个是式-NRR<sub>2</sub>或-NR<sub>2</sub>的芳基氨基（其中R是单环芳环，具有5个或更少稠合芳环的取代或未取代的芳族基团，和R<sub>2</sub>是H，卤素，-OH，-OCH<sub>3</sub>，烷基），另一种是H，卤素，-OH，-OCH<sub>3</sub>，烷基，或取代或未取代的芳族基团。1 指数方面 有机电致发光器件，有机电致发光显示器，EL显示器，平板显示器

