

(19)
(12)(KR)
(A)(51) 。 Int. Cl. ⁷
H05B 33/10(11)
(43)2002 - 0023653
2002 03 29(21) 10 - 2001 - 0058546
(22) 2001 09 21

(30) 09/667,293 2000 09 22 (US)

(71) .
343

(72) 14534 16

(74)

:

(54)

EL
(EL) 가 . EL, 가 , EL
가 EL , EL
EL EL

1 7 (EL) ,

1 , ,

2 1 2 - 2 ,

3 1 3 - 3 ,

3a ,

4 EL 1 1

5 4 5 - 5 , EL 1 ,

6 EL 2 EL 2

7 6 7 - 7 , 2 ,

8 15 , 가 (EL)

8 , 2 , 가

9 8 9 - 9 ,

10 8 10 - 10 ,

10a ,

11 8 11 - 11 ,

12 8 .

13 EL /

가 EL ,

14 13 14 - 14 , 1 (EL) 2 () EL ,

15 13 15 - 15 , 1 (EL) 2 () EL ,

16 18 (widened portion)

16 , , 2 ,

17 16 17 - 17 , ,

18 16 18 - 18 , ,

19 21 가 ,

19 가 , 16 ,

20 19 20 - 20 , ,

21 19 .

212, 512 612 : 514 614 :

530 630 : 638 :

690 : 220 :

239 249 : 538 :

540 :

(EL) (organic electroluminescent device) ,
 가 (supplemental cathode bus conductor) -
 EL .
 (passive matrix) EL EL EL EL EL (Indium - Ti
 n - Oxide : ITO) - - - EL
 , EL .
 EL , () () ()
) 가 . 가 , .
 ,
 (human visual system) , 가 ,
 () (1/#) . ,
 , (relatively high instantaneous luminance)가 ,
 (I)
 (0.15 0.3 μ m)가 . ,
 .
 가 , EL 가 , (I)
 가 (R) 가 가 ,
 ($V = I \times R$)가 가 ,
 EL 4 4 (precursor)
 가 , EL
 (R) 가 (I) 가 ,
 $V = I \times R$ 1 μ m
 .
 ,
 가 , EL
 (permanent short)
 (pronounce)
 / (self - healing) .
 ,
 EL ,
 .

EL

가
EL

가
EL

EL

(EL)

a)

가 , ;

b)

, ;

c)

, ;

d)

;

e)

EL ; EL

f)

EL EL EL 1 , d)
EL EL ;

g)

EL 2
, d) , EL
가

가 가 4 4 - - ,
 , , , , ,

, , (R, G, B)
(EL) . ,
EL

" " () EL " " "
() EL . " " ,
,
" - " EL
50 , ,

, (EL) 1 7

1 (20)
- (14) - (12) (10 - 1)
(30) (30) ,
(30) 가 (20)
. x (Px), y (Py) 1

- (12) , , (14) -
(ITO) , (20) , , ,

, (14) , (12) 1

2 1 2 - 2 (10 - 1) , (30)

3 1 3 - 3 , 2 (30)
(20)

3a (31) (32) (32) (34)
(30) (32) (WB)
(34) , , ,

, , 5,276,380 5,701,055
()

EL

4 1 (52) 1 (50) (12) 가 (10 - 2)
EL (54) (52) () , (50)

EL (12) (54) (50) (52) , ,
 EL (54) () ,
 (12) .

5 , 4 5 - 5 (12) 가 EL (54) ,
 () (30) (31))
 (52) (12) EL (53)
 .

6 EL (54) (66) 2 (62) ()
 (30)) (20) (24)
 2 (60) (12) EL (10) .

(66) , 1 (50; 4) (12) ,
 2 (60) EL (54) 가
 .

7 6 7 - 7 (20) (66) (24)
 () (31))
 (62) (63) (66)가 (66)
 (30) .

5 7 , EL (54) (66) , (53, 63) 5 7
 (52, 62) (34)
 (32) .

6 (10) (60) , EL (10) ,
 가 가
 , (Px, Py) - (14) - (12) .

8 EL (200 - 1) (212)
 (214) , (212) -
 , 4.0eV , , ,
 - , 가 , EL
 (220)
 (212) .

(214) , (240) (238) (214)
 .

(240) (238) , , ,
 (oxinitride) (inorganic layer)
 ,
 , (240) (238)

가

(240) (238) , (8) (240) (249)가 , (238) (239)가 (220) .

(290) (240) (238) (239, 249) (220) , (238) (240) (239, 249) (29) (220) .

(230) (290) (238) (236) (290) 9 8 9 - 9 , (240) (214) .

10 8 10 - 10 , (238) (23) 4) (238) (234) (235) , (238) (230) (290) (238) (239) (220) 280 .

10a (290) (220) (238) (239C) (239) (290) (220) .

11 8 11 - 11 , (214), (238), (234), (237) (236) (290) .

12 8 (200 - 1) (236)가 (16) , 가 .

13 (212) (270) (272) EL (274) (276) EL (274) , EL (200) (270) (220) (214) . (27) 13 .

EL (274) (276) 14 15 , 13 14 - 14, 15 - 15 .

14 15 , 1 , EL (273) (212) ((234, 236) (235, 237)) (270) (272)(13) EL (274) . 1 , EL (274) (234, 236) (273) . EL (274) 14 ((234) (238)) (230) , 15 (230) (236) .

14 , (236) , 10 (290) (220) (280) . EL (274) (290) .

15 , (236) (237) (290) .

14 15 , 2 , (275) EL (274) (270) (13) . , (272) EL (273) , (275) , (230) 가 (276) (234, 236) (235, 237) () (subtend).

((238) (230)) (234) , (276) (238) , EL (200) .

(276) (236) (286) ((290) 가 , - (276) , 가 .

((290)) EL 가 , EL 가 , EL 가 , () .

15 EL (274) , EL (274) (236) (286) (290) (B) . (A) (15 EL) (13) . , (subtended angle) 2 EL (274) , , (238) (286) 가 .

16 8 (200 - 1) (500 - 1) .

, (i) (220) (239, 249) , (538W) (538) (512)
(590W) (590) (538W)
((590)) (590W)
,

(ii) (536)가 .

16 (512), (514), (530), (540) 13 (212, 2
14, 230, 240) .

(16) (590) (590W)
13 (270) , 1 2 14 15
.

17 18 16 (500 - 1) 17 - 17, 18 - 18
(538) (538W), (590) (590W) 17
18 .

19 EL (600 - 1) , (638W, 690W)
(612), (614), (630), (638), (690) 1
6 (500 - 1) (512, 514, 530, 538, 590, 538W, 590W) .

(600 - 1) , (639)가 ()
16 536, 18 236) ((690))
(639) , 13, 14, 15 ()
1(EL) 2 () ()
(690) .

, (236)(13
) 가 가 (286) 가 (15).
, (639)
가 .

20 19 20 - 20 , (639)가 (639C) 19
17 .

21 19 (600 - 1) , (612) , (638)
((690)) (690W) (638W) . ()
(634) (639) .

8 15 EL
, , ,
, , ,
16 19 EL
. EL 1
2 EL 1 2 , 14 15
.

- EL, EL - (ITO), (cermet) .
 , () EL .

EL 가
 가 .

(57)

1.

(a thin cathode) (EL) (a passive matrix pixelated o
 rganic electroluminescent device) ,

a) (a plurality of spaced anodes)

가

b)

- (an opening or a cut - out)

c) (a conductive cathode bus metal layer) -

d) (an electrically insulative organic cathode separation shadowing
 structure)

e) EL EL

f) EL EL 1 EL d)
 EL

g) EL
 2 , d)
 EL

2.

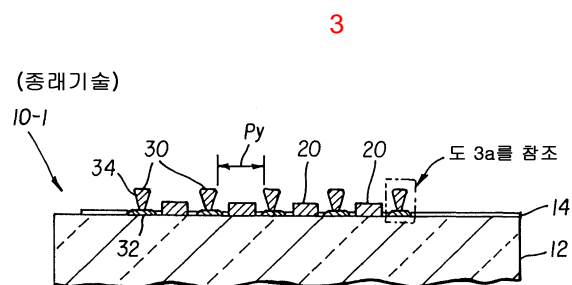
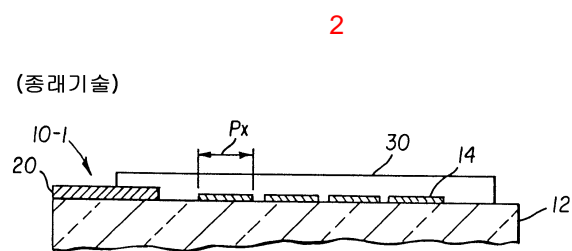
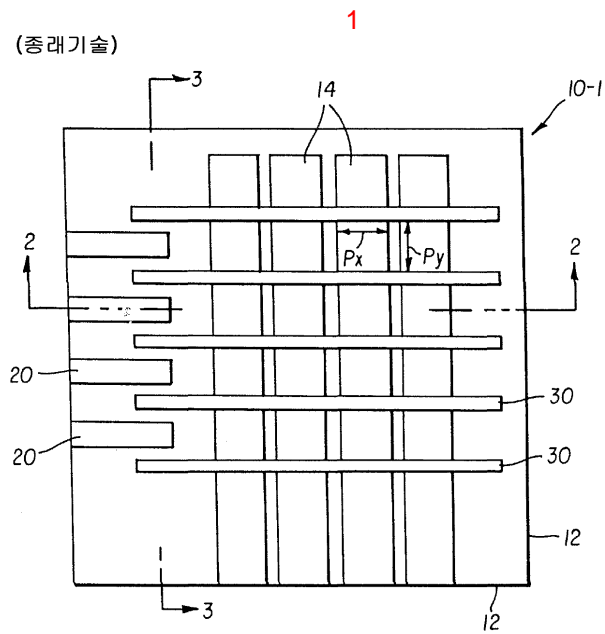
(EL)

- a) , ,
- b) - 가 ,
- c) ,
- d) EL EL
- e) EL EL 1 , EL
- f) EL c) EL 2 , EL

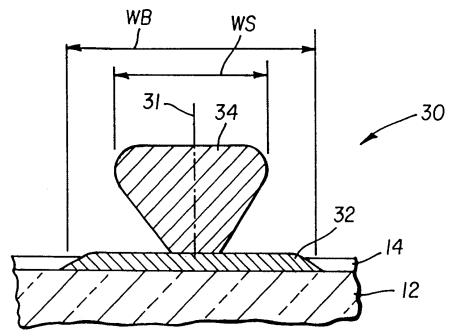
3.

- (inverted) (EL) ,
- a) , ,
- b) - 가 ,
- c) ,
- d) EL - E
- e) EL EL 1 , EL
- f) EL c) EL 2 ,

EL

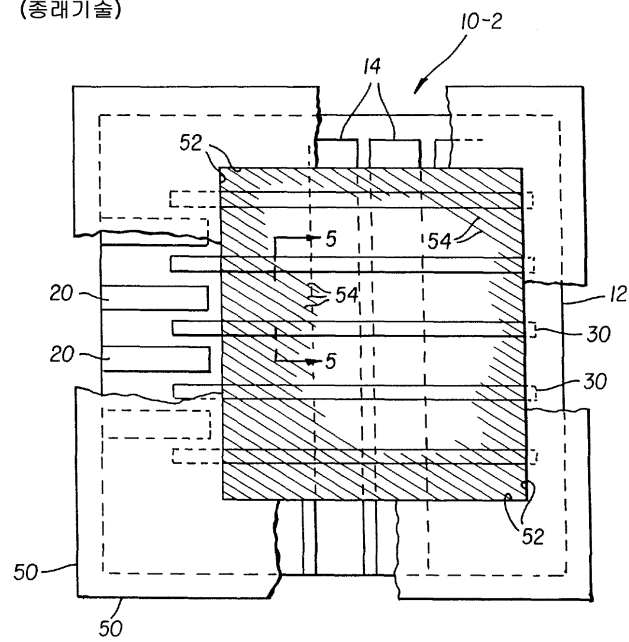


3a

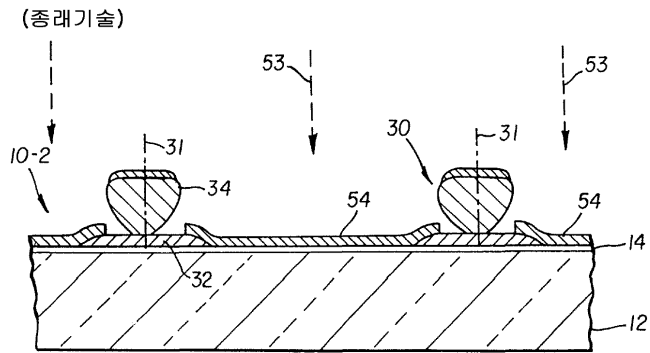


4

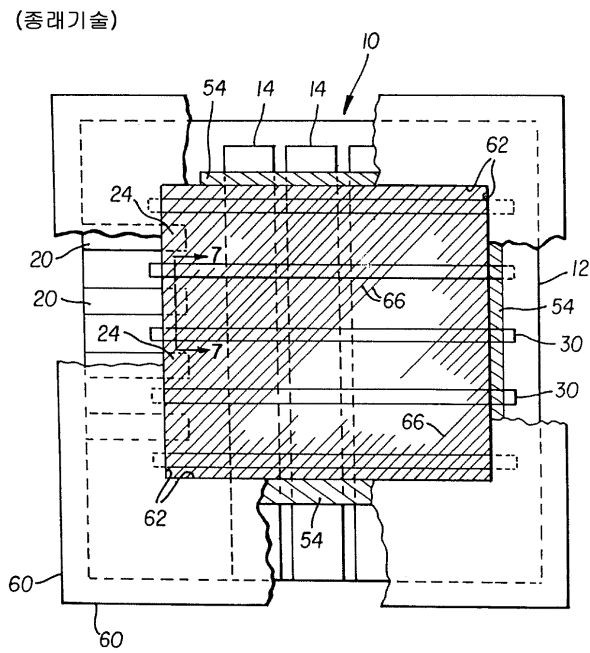
(종래기술)



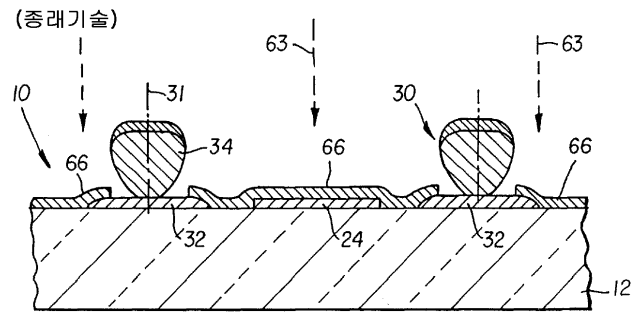
5



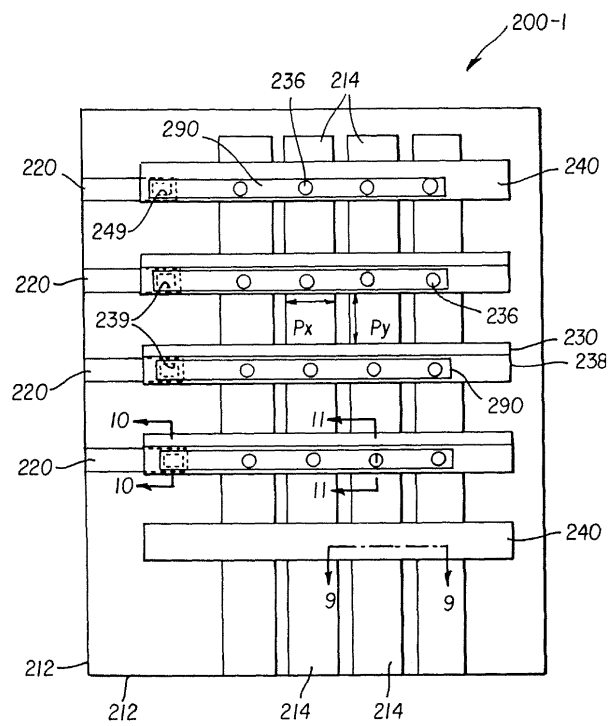
6



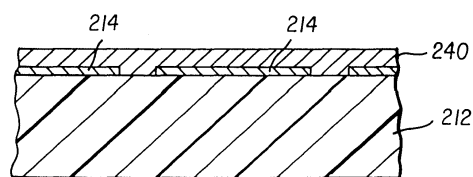
7



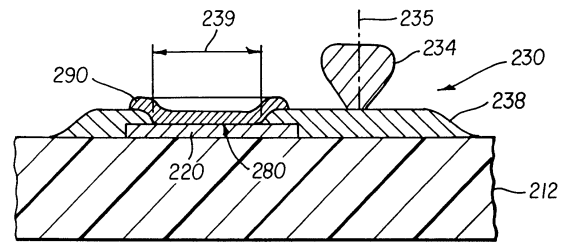
8



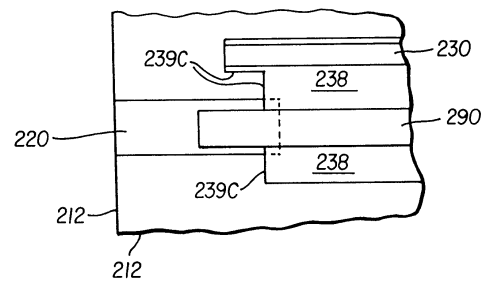
9



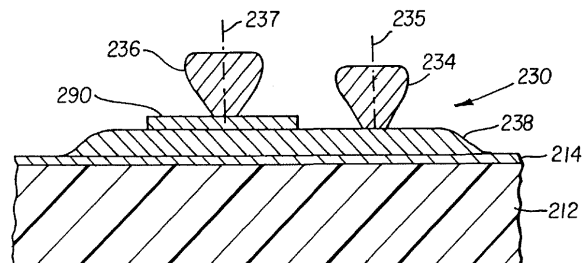
10



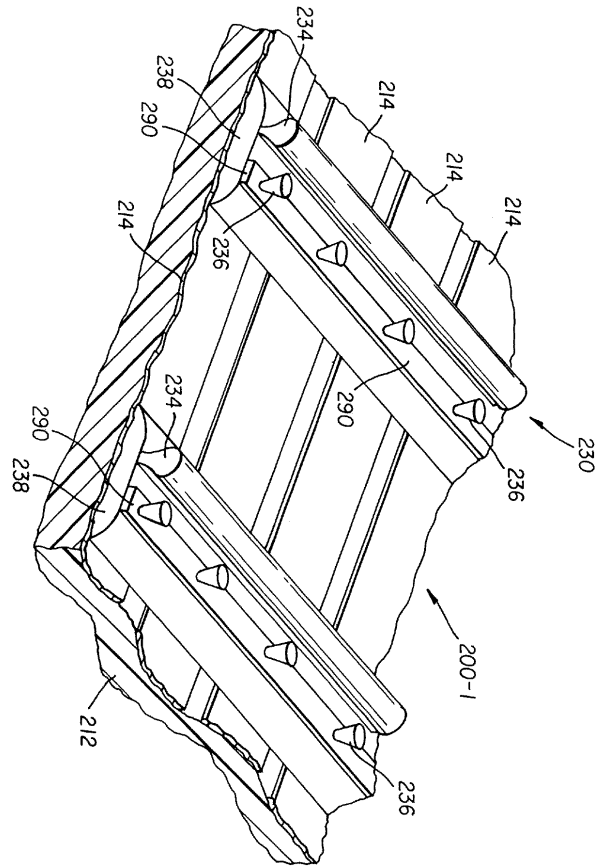
10a



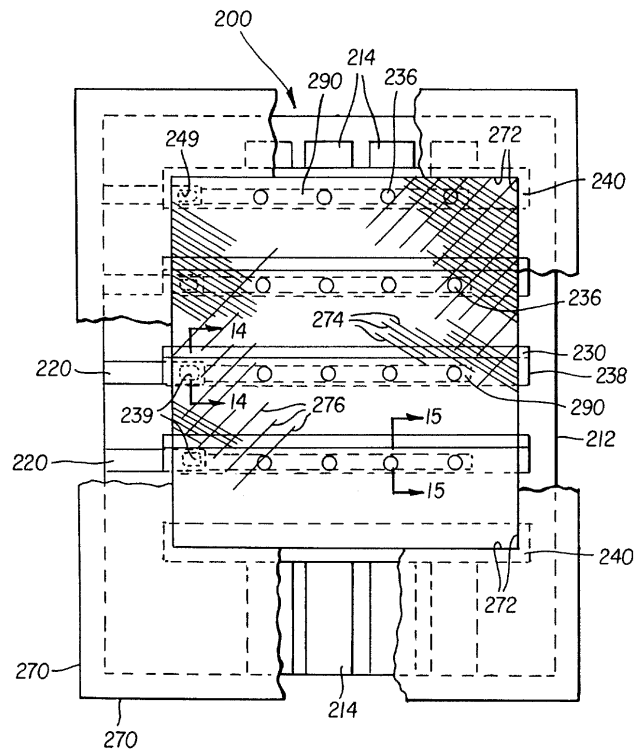
11



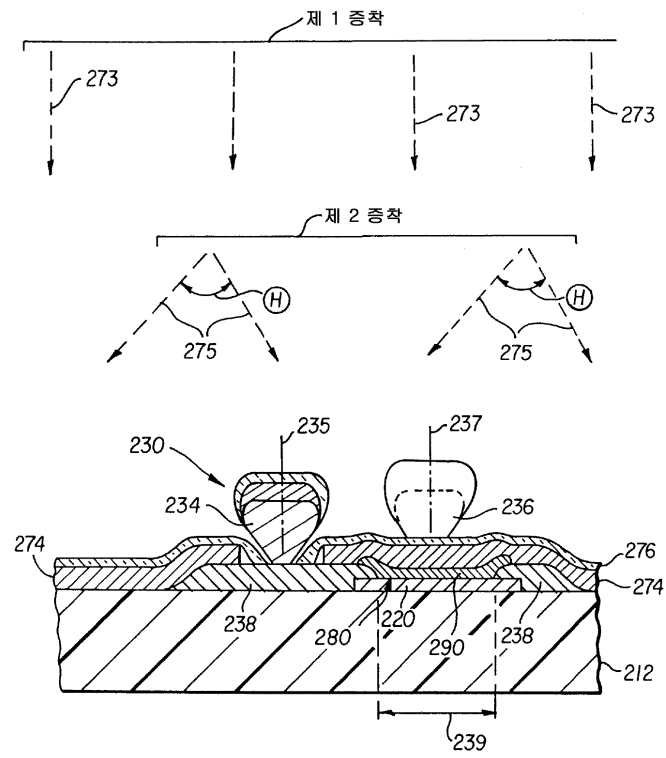
12



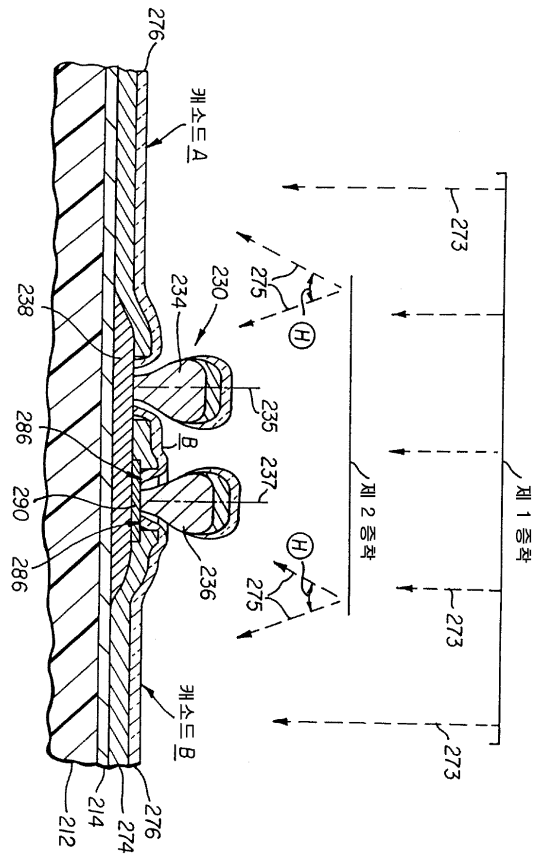
13



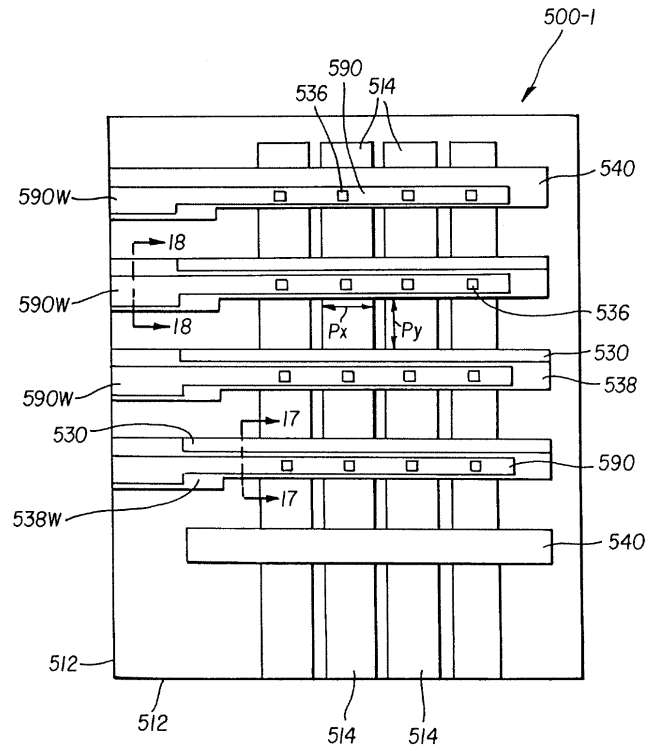
14



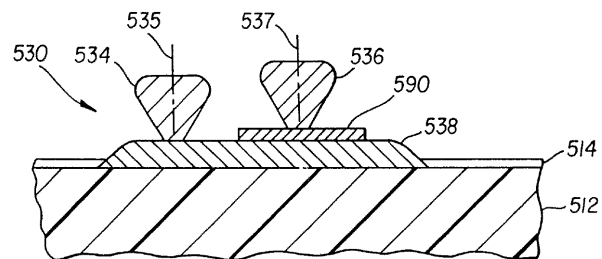
15



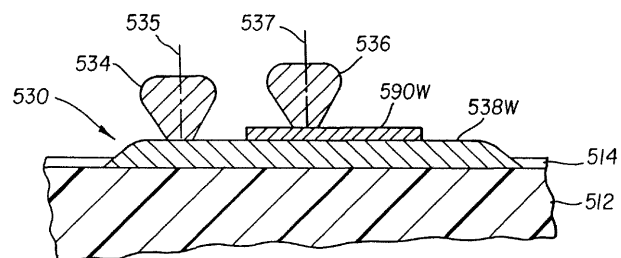
16



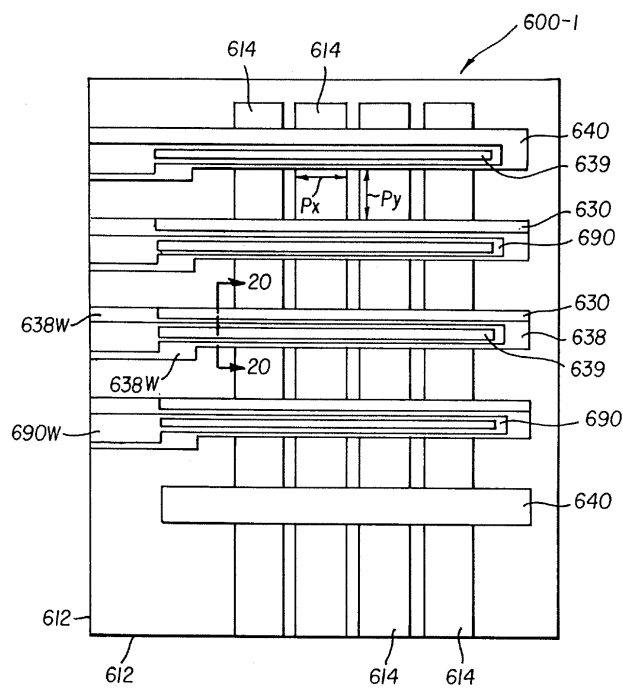
17



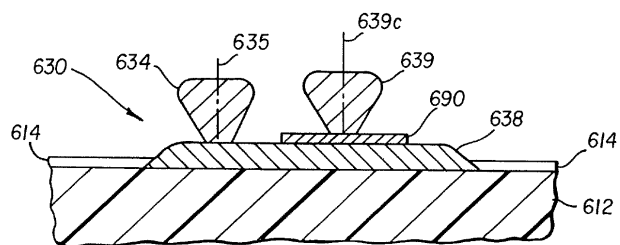
18



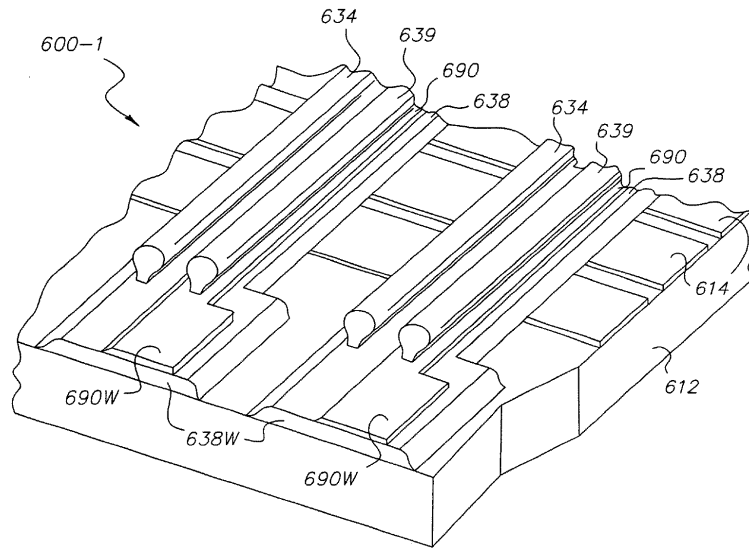
19



20



21



无源矩阵像素化有机电致发光 (EL) 装置使用单一掩模制造, 该掩模规定沉积区用于通过在沉积区内朝向基板面对每个气相流来沉积有机EL中间层和膜型阴极。在EL中间层与阴极总线阴影结构的基部分离的有机位置, 为了提供阴极总线导体和薄膜型阴极之间的电接触, 阴极总线导体形成电绝缘基层。在阴极总线导体上形成至少一个电绝缘有机阴极总线阴影结构。在所谓的电接触方向上, 基板是有机EL材料的气相流, 几乎垂直, 它面向基板。这是通过将阴极材料气相流面向基板的对角线来实现的。反转有机EL器件在衬底上提供阴极。通过在阴极上形成有机EL中间层并在阳极总线导体上形成光学传输阳极, 并且制造其中每个阳极与基板电接触的有机EL中间层。

