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(71) 416

(72) 473 15 13/6
2 203-101

(74) :

(54)

2 ; 1 가 2 . 1 ; 1 1 1 ; 2 1
2 ; 1 2 ; 1

4

1 .
2a 2b 1 .
3a 3b 1 .
4 1 .
5 4 .

6a	6b	4	.
7a	7b	4	.
8a	8b	4	.
9a	9b	4	.
10a	10b	4	.
11	2	.	.
12	3	.	.
13	4	.	.
14	13	1	.

<

110, 200, 300, 412a : 1

130, 250, 350, 412b : 2

115 : 1 135 : 2

150, 260, 360 : 210, 310 : 1

252, 352 : 2 254, 354 :

225, 325 : 258, 358 :

155, 262, 362, 480 : 1

160, 264, 364, 495 :

165, 266, 366 : 2 256, 356 :

180, 280, 380 : 185, 285, 385 :

170, 270, 370, 490 : 168 :

(electronic display device)

가

가

가

display)
display)
; CRT),

(emissive
(non-emissive
(cathode ray tube
(light emitting diode; LED)
(electrochemical display; ECD)

(plasma display panel; PDP),
(electroluminescent display; ELD)
(liquid crystal display; LCD),
(electrophoretic image display; EPID)

(CRT)

가

가

(flat panel)

가

가

가

가

(line addressing)

(root-mean-square; rms)
MIM(metal-insulator-metal)
(active matrix)

(passive matrix)

1

1

1 (10), 1 (10), 2 (40)

(50) 1 (10)

1 (10) 1 (11), 1 (11) (25),

(25) (25) (12), (32) (30), (34) (36)

(22) (34) (14), (16), (18), (20)

1 (10) 1 (25)

(34) (36) 2 (40) 2 (40)

(R) (T)

2 (40) 2 (42), RGB (44),

(46) (110)

(50) 90° (twisted nematic), Δn d Δn 가
0.24 μm 가 .

, (50) 1 (54) 2 1 (10) 2 (40) 1 2 (54, 58)
1 (10) 1 (54) 2 (40) 2 (58) 1 1/4
(52) 2 1/4 (56) 1/4 (52, 56)

, 1 .

2a 2b .

, 가 (OFF), 2a 2 1/4 (56) 2 (58)
(50) 2 (58) (36) 2
1/4 (36) (56) 2 (58) (50) 2 (58)
(white)

(ON), 2b 2 1/4 (56) 2 (58)
(50) (36) (36) (50)
(36) 2 1/4 (56) 2 (58)
2 (58) (black)

3a 3b .

, 가 (OFF), 3a 1 (54) 1 (54) 1 (54)
1 (54) 2 (58) 1 1/4 (54) 2
(58) (34) (50) 2 1/4 (56) (52) (50)
2 (58) 2 (58) 2 (58) 50% 2 (58) 50% 가
(36)

, 1 1/4 (52) 1 (54)
1 1/4 (52) 1 (54)
1 (54)

, 가 (ON), 3b 1 (54) 1 (54)
(54) 1 1/4 (52) 1 (34)
) 2 1/4 (50) 2 (58) (50) 2 (58)
2 (58)

) 가 1/4 1 (10) 2 (40) (54, 58)
(52, 56)

가가 50% (C/R)가 50% 가 .

(50) Δn 가 $0.24\mu m$ $3\mu m$ 가 (Δn 가 $0.48\mu m$) Δn 가 .

2 ; 1 2 ; 1 ; 1 1 ; 2 1 (tra

nsflective film)

1 2

1 ; 1 2 ; 1 1 ; 2 1

2 ; 1 1 2 ; 1 1

1/4 (2) (1)

(recycle)

) 1/4 가

4 1

4 (110) 1 2 (130) 1 (110) 2 1 (110), (130) 1 (150)

1 (110) 2 (130)

1 (110) ITO(indium-tin-oxide) 1 (115) 1 1 (115) 2

1 (110) 1 (155) 2 (130)
 2 (165) 1 2 (155, 165)
 .
 1 (155) (170)가 .
 2 (130) 1 (110) ITO 2 1 1 2
 (135) . , (135) 2 1 (110) 1 (1
 15) 2 (130) 2 (135)
 .
 (150) 180 ° 270 ° STN , 90 ° (t
 wisted nematic) (150)
 STN , Δn d Δnd 가 0.2 0.6 μm , 0.48 μm
 , (150) , TN .

1 (155) 2 (170) 5 ,
 , 1 (161) 2 (162) (160) .
 (160) 2 (130) 1 (110) (160)
 2 (130) (180) , (170) 1 (110)
 (160) 2 (130) (185) .
 , (160) .
 5 , z x-y
 (aspect) (160) 1 (161) , x-y 2 (162)
 .
 (160) 가
 , (elongation) x y
 , 1 (161) ,
 2 (162) 3 n_x, n_y, n_z (1) .

$$n1_x = n1_z \neq n1_y$$

$$n2_x = n2_y = n2_z$$

$$n1_x \neq n2_x$$

$$n1_y \neq n2_y$$

$$|n1_x - n2_x| < |n1_y - n2_y|$$

1 (161) 2 (162) x 가 y
 (, z) (Fresnel's equation) y
 , x

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WO 97/01788

가 , 가 1 2

$$n1_x = n1_z = 1.57, n1_y = 1.86$$

$$n2_x = n2_y = n2_z = 1.57$$

1 2 x z y x y
(, z)
al brightness enhancement film) DBEF (birefringence) 3M DBEF(du
thylene naphtalate) (polymethyl methacrylate; PMMA)
DBEF , PMMA

3M DBEF x y
(160) (, y)
, x)
가
가

(160)
y 가 3 1 (161) x 2 (162) x-y
n x , n y , n z (2)

$$n1_x = n1_y = n1_z$$

$$n2_x = n2_y = n2_z \neq n1_z$$

1 (161) 2 (162) z x y (, z)
(161) 2 (162)
(160) 가

4% (160)

(160) 1 (155) (160) 1 (155) 1 (155)
가

1 (155) (160) (

anti-reflection) (multi-reflection)

6a 6b (specular reflectio

n) (168) 1 (110) 2 (130) (168)

) 2 (165) 1 (155) 2 (165) (160) (155) 2 (130)

(168) 1 (168) 1 (110) 1 (155)

1 (110) 1 (155)

1 (110) 2 (130)

2 (130) 2 (165) 1 (110) 1 (155)

7a 8b (160) 1 (155) 2 (165)

가 (OFF), 7a 2 (115)

(165) 2 (165) 1 (155) 2 (155) (150) 1 (115)

(160) 1 (155) 1 (155) (160)

1 (155) (160) (160)

x (160) (1) 가 (160)

x y (160) (2) 가 y (160)

2 (165) (160) 1 (115) (150) (white)

(160) (160) (160) (170)

(ON), 7b 2 (165)

(155) 1 (160) 1 (155) 1 (160) (150) 1

lack) 1 (155) (160) (160) (170) (1) 가

가 (OFF), 8a (160) (160) (160)

1 (155) 1 (155) (160) 1 (155)

(2) 155) 가 x y (160) 1 (

2 (165) (160) 1 (155) 1 (155) 1 (115)

(150) 2 (165) 2 (165) , 2 (165)
 (160) (160) (170) (160)
 , x x y (160)
 .
 1 (155) 가 (ON), 8b (170)
 (160) 1 (155) 1 (155)
 , 2 (160) 1 (155)
 , 1 2 (165) (150) , 2 (165)
 2 (115) (165)
 2 (165)
 9a 10b (160) 1 (155)
 (165) , 2
 , 가 (OFF), 9a , 2
 (165) (150) 1 (115)
 (155) 2 (165) 1 (155) , 1
 (160) , 2 (165) (160)
 (1) 가 (155) x
 , (160) (2) 가 y (160)
 x y (160)
 (160) 1 (155) 1 (15)
 (155) 2 (165) (150) , 2 (165) (170)
 (white) (160)
 (160)
 (ON), 9b , 2 (165)
 (155) , 1 (155) (150) 1 (1
 55) (160) (black)
 가 (OFF), 10a (170)
 (160) (160) (1)
 가 , (160) x y (160)
) (2) 가 y (160) x y
 (160) 1 (155) , 1
 (115) (150) 2 (165) , 2
 (165) 2 (165)
 , (160) (170) (160)
 , x x y (160)
 가 (ON), 10b (170)
 (160) (160) 1 (155)
 , 2 (165)
 1 (115) (150) , 2 (165)
 2 (165)

11 2 (bottom-gate)

11 , (260) 1 (200), 1 (200) 2 (250),
 (200) 1 (200) (270)

1 (200) 1 (210) ()
) (234) (225)가 (

2 (250) 2 (252), RGB (25) 4), (256) (258)

(225) 1 (210) (212), (212) 1
 (210) (216) (218), (214), (212) (218) (214) (220)
 (222) , (216)

(225)가 1 (210) (230)
 (230) (222) (232)

ITO (234)

(260) , 90° (twisted nematic) , Δn d
 Δn 가 0.2 0.6 μm , 0.48 μm 가

(260) 1 (200) 2 (250)
 1 (262) 2 (266) , 1 2 (262, 266)

(225) (212) (220)
 , (222) (232) (234) , (220)
 (212) 가 , (222) (222) (23 (23
 4) 2 (250) (258) 가 , (234) (258)
 (260) , (260)

(225)

1 (262) (270) 1 2
 (264) (264) 1 (264)
 가 , (264)
 4%

(264) 1 (262)

1 (200) 2 (250) ()
 1 (200) 1 (262) 2 (250) 2 (266) , 1
 (262) (264) 1 (262) 2 (266)

1 (200) 2 (250)
 () 1 (200) 1 (262) 2 (266)
 2 (250) 2 (266)

(264)

2 (250) 1 (200)

1 (264) 2 (250) (280) (270)
 1 (200) (264) 2 (250) (285)

11 7a 10b
 1

(270) (264) (270) 가
 1 (200) 1/4

12 3 (top-gate)

12 1 (300), 1 (300) 2 (350),
 (360) 1 (300) (370)

1 (300) 1 (310) ()
) (334) (325)가 ()
 2 (350) 2 (352), RGB (35)
 4), (356) (358)

(325) 1 (310) (312), (312) 1
 (310) (314), (312) (314) (318) (318)
 (316), (316) / (320, 322) / (320, 322)
 (S) (318) (D) (314) (319) (312)

(325)가 1 (310) (330)
 (330) (322) (332)

ITO (334)

(360) , 90 ° (twisted nematic) , Δn d
 Δnd 가 0.2 0.6 μm , 0.48 μm 가

(360) 1 (300) 2 (350)
 1 (362) 2 (366) , 1 2 (362, 366)

1 (362) (370) 1 2
 64) (364) 1 (300) (2
 2 (350) (364) 1 (300) (3
 70) 1 (364) (380) 2 (350)
 (385)

13 4 14 13 1

13 14
 (412b), (LC) 1 (412a), 1 (412a) 2
 1 (412a) (490)

1 (412a) (450), (460), (470),
 (462, 463), (472)가 (CE)
 2 (412b) 1 (412a) (LC) (LC) 1 (48
 0) 2 1 (412a) 2 (412b) 1 (412a) 2 ()
 (416) (416) (418) 1 (412a)
 (416) (416) (460) (470)
 1 (412a)
 (450) m (DL1~DLm)
 n (GL1~GLn) (STi) (DLi) (G
 Li) (ST)가 (STi) (PE)
 (470) 가
 (GL1~GLn)
 (460) (464) 528 (SWT) 528
 (SWT) 66 8 (BL1~BL8) (BLi) 6
 6 (463) 66 , 66
 66 가 528 (464) 8
 가 , 66 (SWT)
 , , 528 66 8
 (464) 8
 1 (412a) (470) (460) (450)
 , 1 (480) (490)
 1 1 2 (495) (485)
 (480)
 (495) (364)
 가 ,
 (364) 4%
 4
 ,
 ,
 ,
 1 , (, 1)
 , (2) (1) 1/4
 ,
 ,
 ,

(57)

1. 1 ;
- 1 2 ;
- 1 2 ;
- 1 1 ;
- 2 2 ;
- 1 ;
- 1 .
2. 1 2 , 1 2 .
3. 1 1 .
4. 1 1 .
5. 1 1 2 .
6. 1 가 .
7. 6 , n_x, n_y, n_z z x-y , 1 2 3

$$n1_x = n1_z \neq n1_y$$

$$n2_x = n2_y = n2_z$$

$$n1_x \neq n2_x$$

$$n1_y \neq n2_y$$

$|n1_x-n2_x| < |n1_y-n2_y|$

8.

1 ,

9.

8 , z x-y , 1 2 3
n_x , n_y , n_z

$n1_x=n1_y=n1_z$

$n2_x=n2_y=n2_z \neq n1_z$

10.

1 , 가

11.

1 , 가 1
2

12.

1 , 4%

13.

1 , 1 2

14.

13 1 1 , 2 2
1

15.

1 , 1 2

16.

15 , 1 1 2 2

17.

1 , Δn d Δnd가 0.2 0.6μm

18.

1 , 1 2 1 2
;

1 1 ;

2 2 ;

1 ;

1 1 2 ,

,

19.

18 , 1 2 .

20.

18 , 가 .

21.

20 , z x-y , 1 2
3 n_x, n_y, n_z

$n1_x = n1_z \neq n1_y$

$n2_x = n2_y = n2_z$

$n1_x \neq n2_x$

$n1_y \neq n2_y$

$|n1_x - n2_x| < |n1_y - n2_y|$

.

22.

18 ,

.

23.

22 , z x-y , 1 2
3 n_x, n_y, n_z

$n1_x = n1_y = n1_z$

$n2_x = n2_y = n2_z \neq n1_z$

.

24.

18 , 가 .

25.

18 , 가 1
2

26.

18 , 4%

27.

18 , 1 2
.

28.

1 1 ;
1 2 2 ;
1 2 ;
1 1 ;
2 2 ;
1 ;
1 , 1 2
.

29.

28 , 1 2
.

30.

1 ;
1 2 ;
1 1 ;
2 2 ;
1 ;
1 , 1 2
.

31.

30 , .

32.

, 1 ;

1

2 ;

1 2 ;

1 1 ;

2 2 ;

1 ;

1 , 1 2

33.

32 , 가

34.

32 ,

35.

32 , 가

36.

32 , 가 1
2

37.

32 , 4%

38.

, , /
, 1 ;

1

2 ;

1 2 ;

1 1 ;

2 2 ;

1 ;

1 , 1 2

39.

38 ,

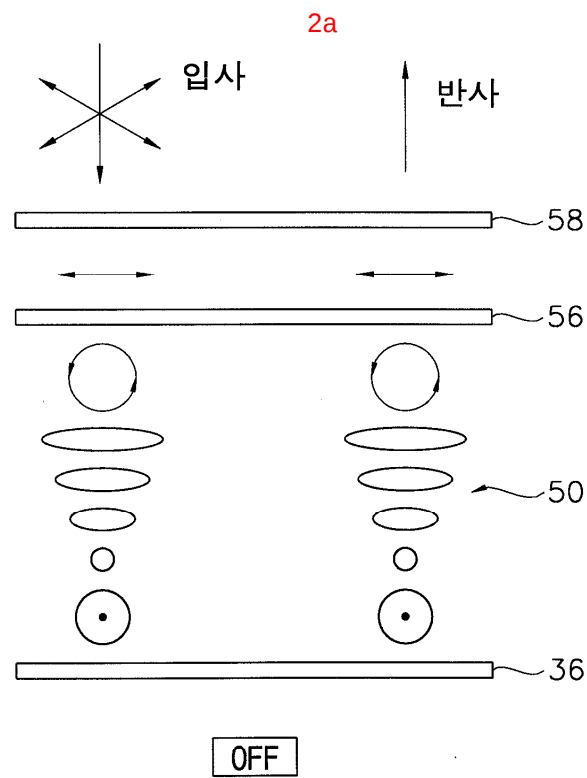
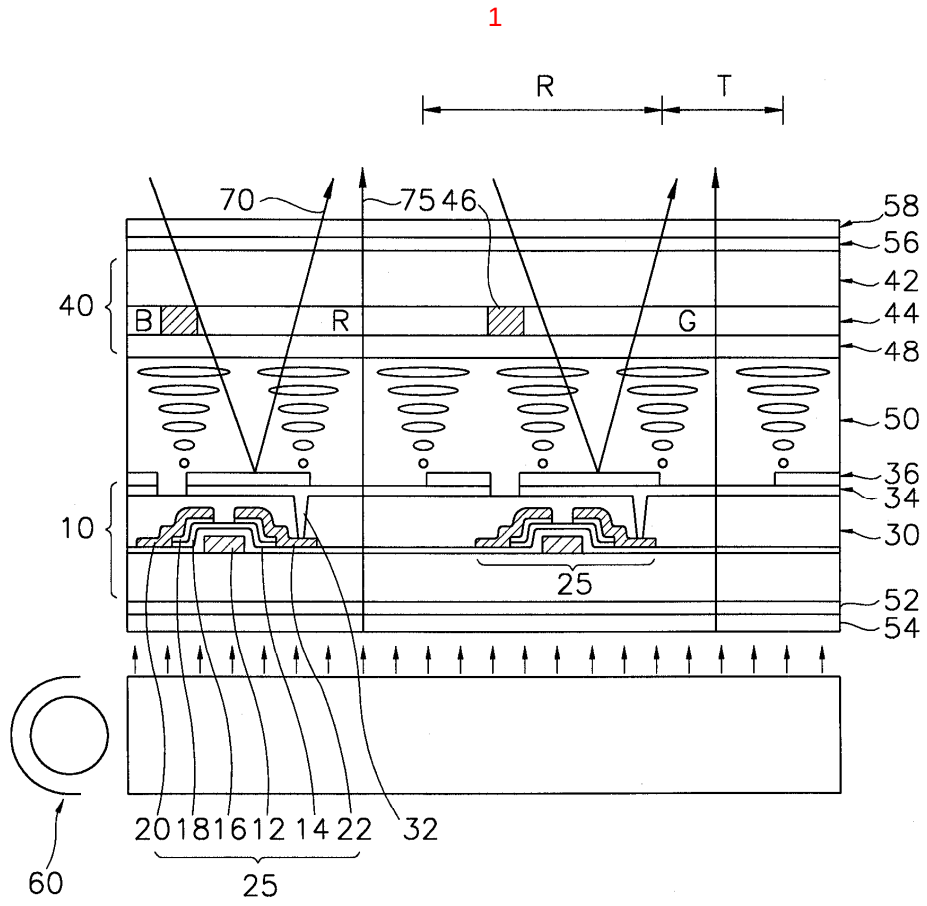
38 40. , .
41. , , ,
/ , 1 ;
1 2 ;
1 2 ;
1 1 ;
2 2 ;
1 ;
1 , 1 2
.

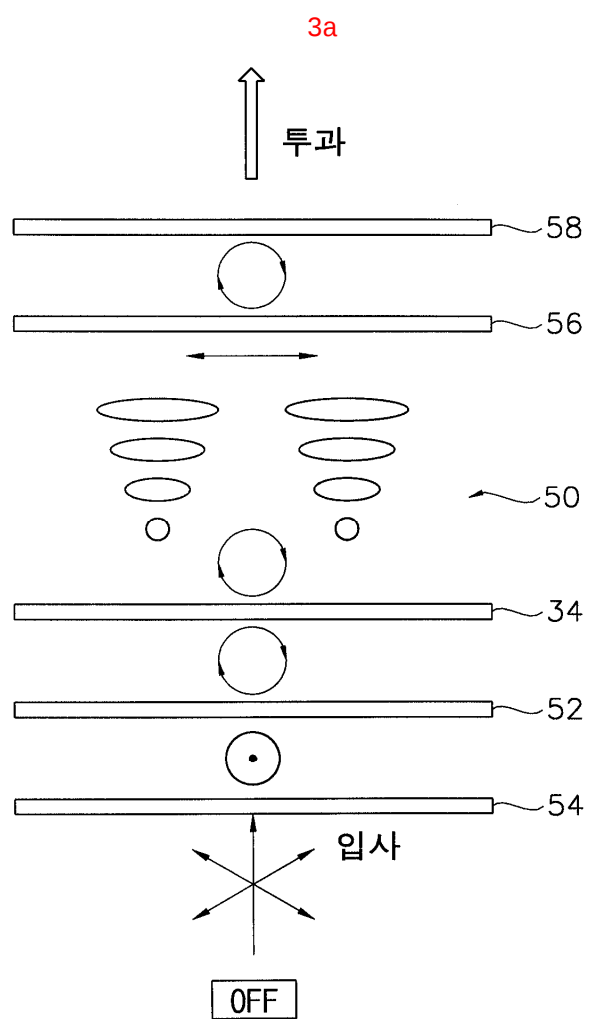
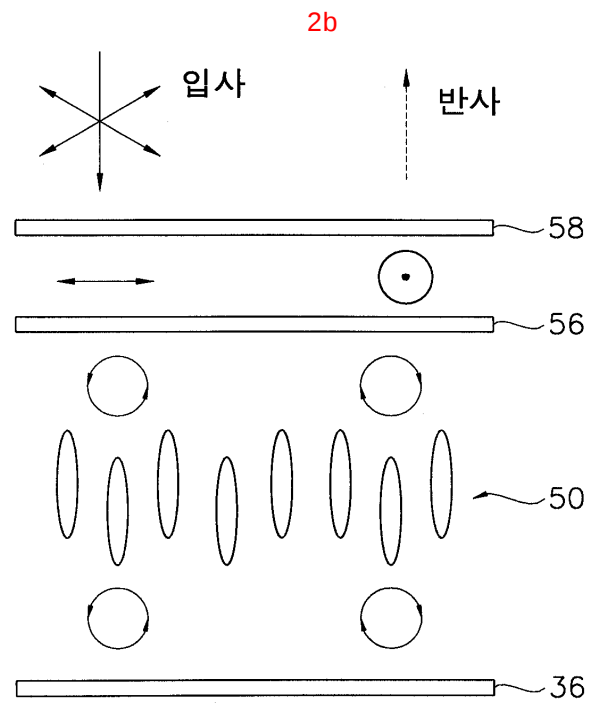
41 42. , .

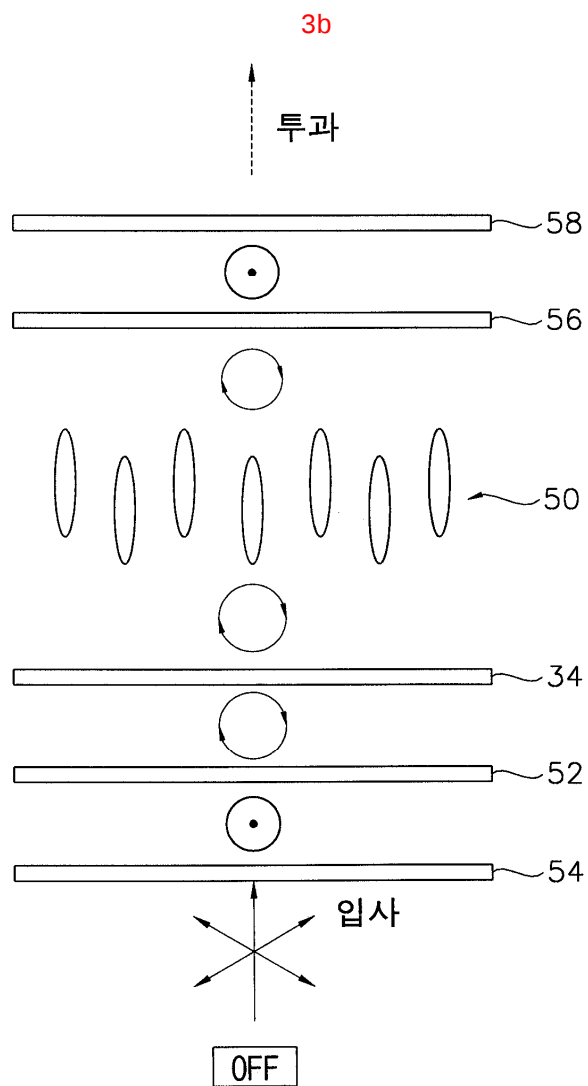
41 43. , .

44. , 1 ;
1 2 ;
1 2 ;
1 1 ;
2 2 ;
1 ;
1 , 1 2
.

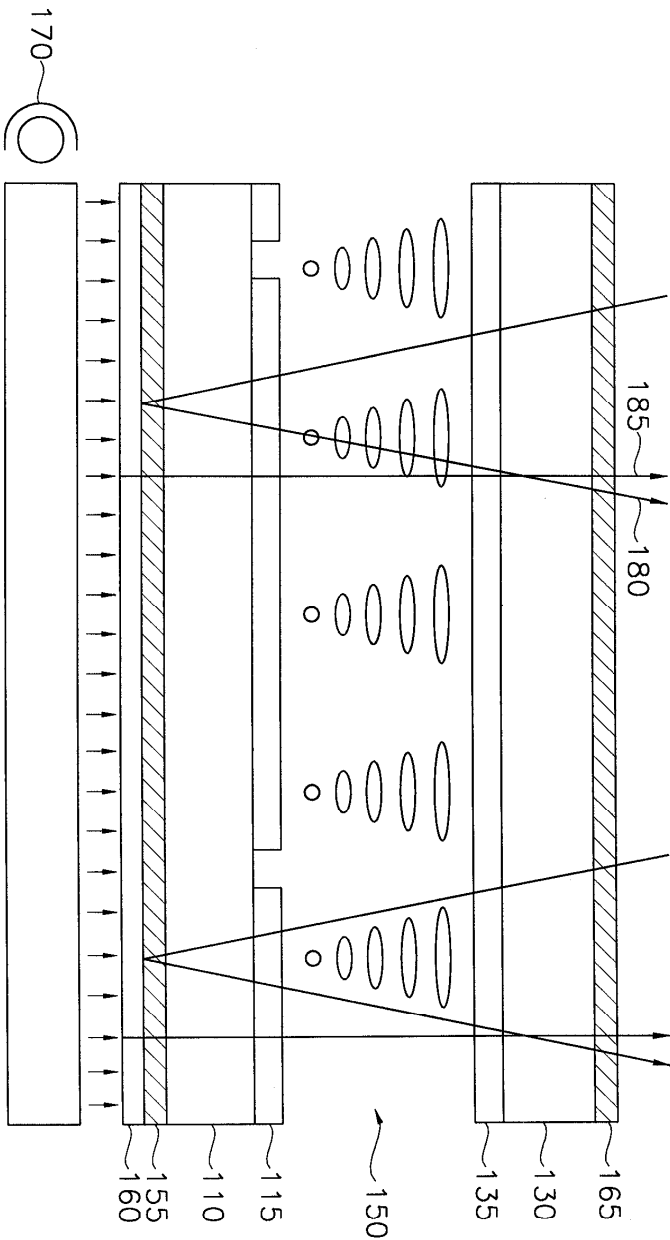
44 45. , .

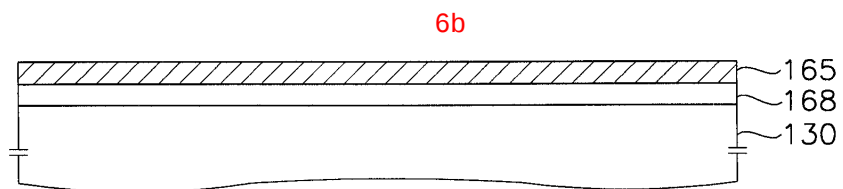
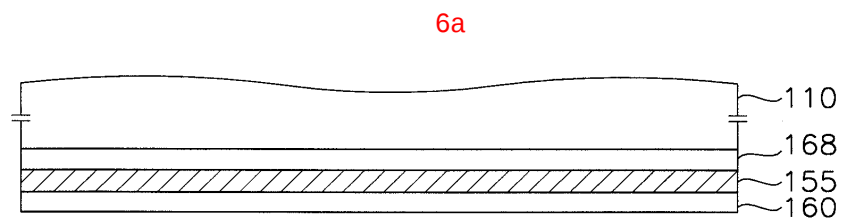
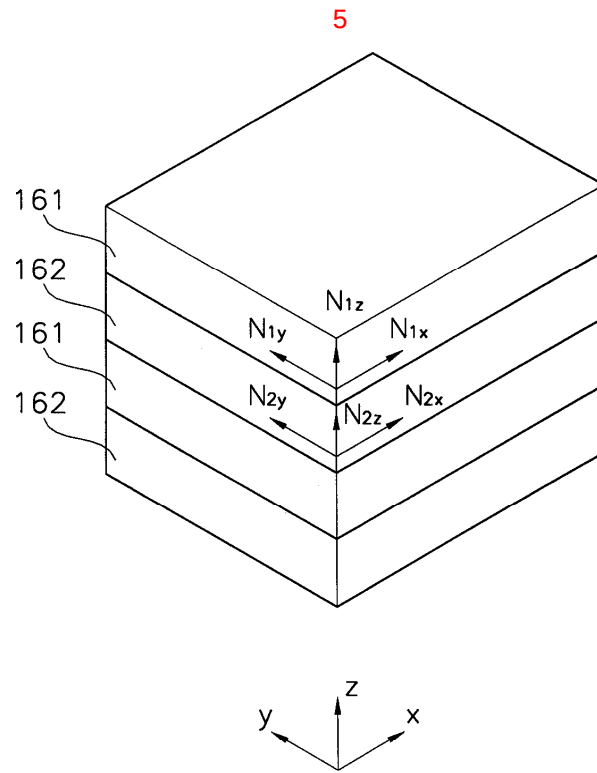


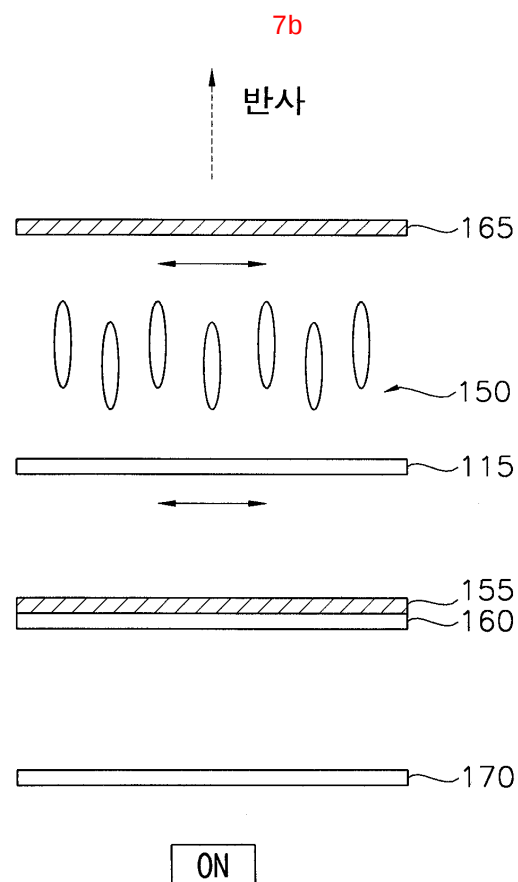
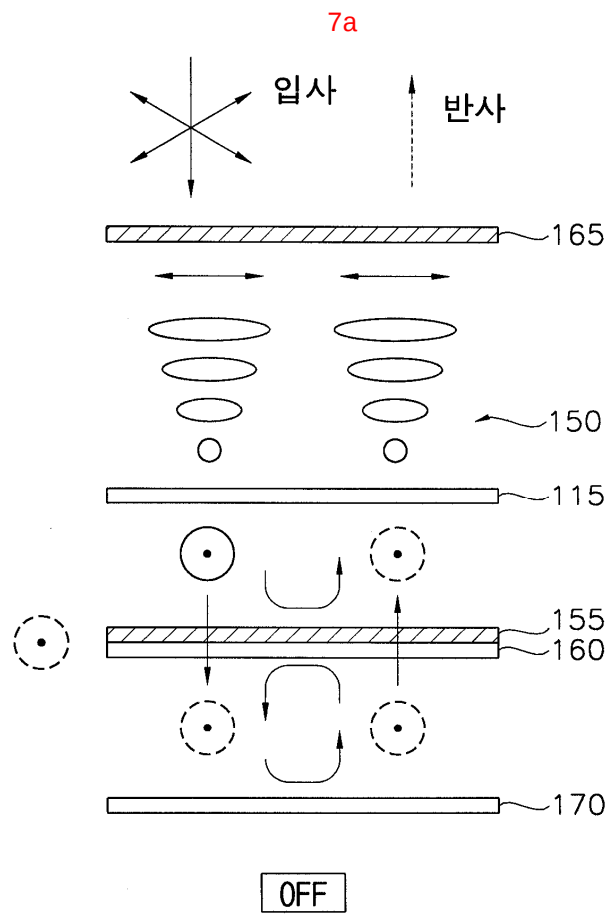


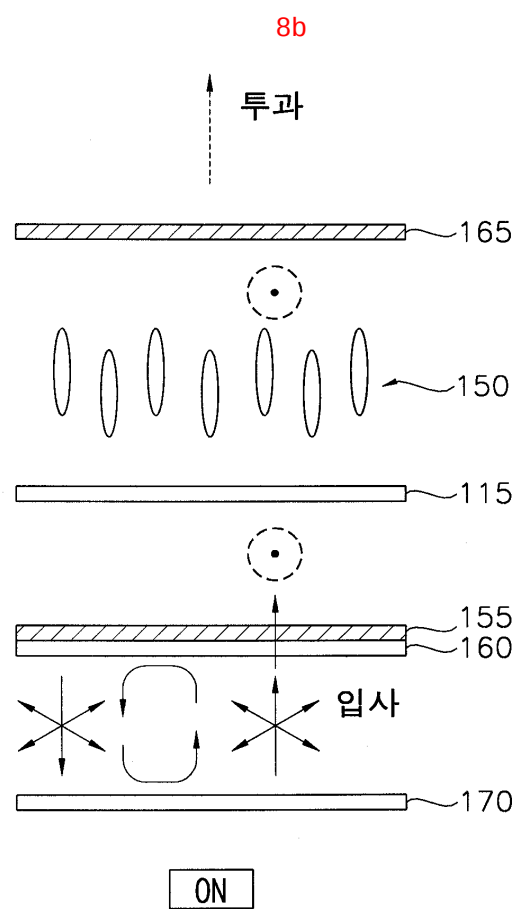
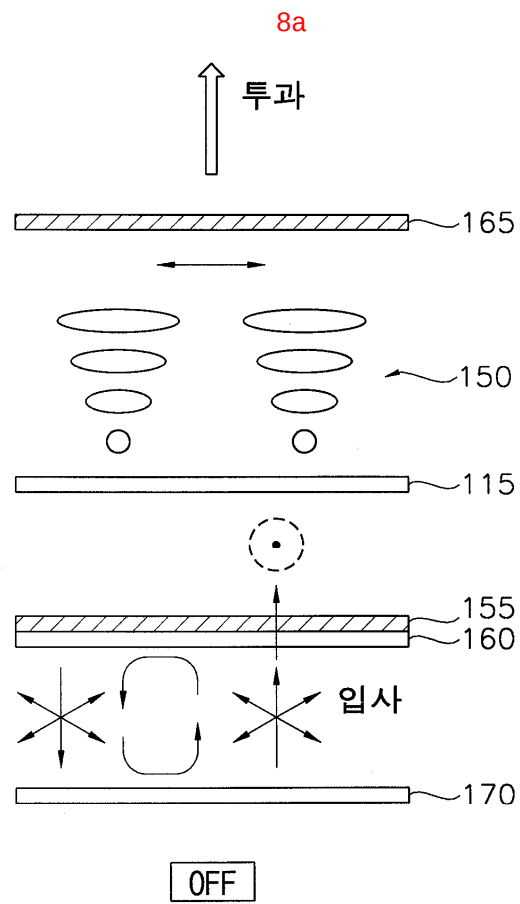


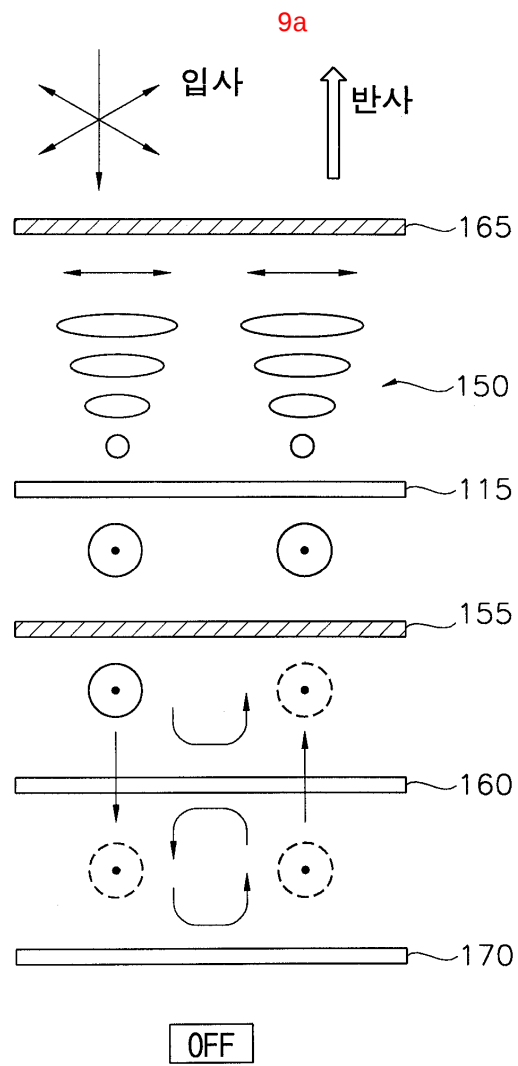
4

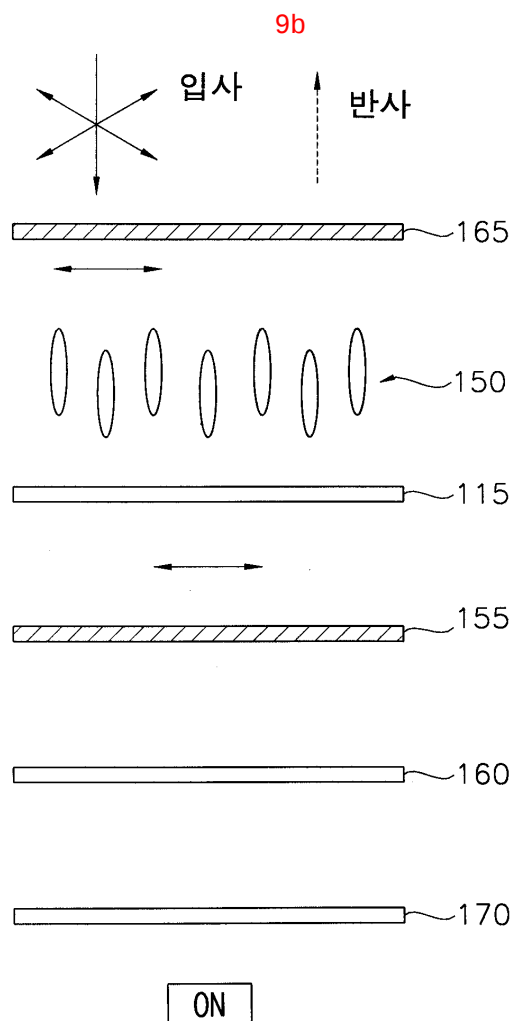


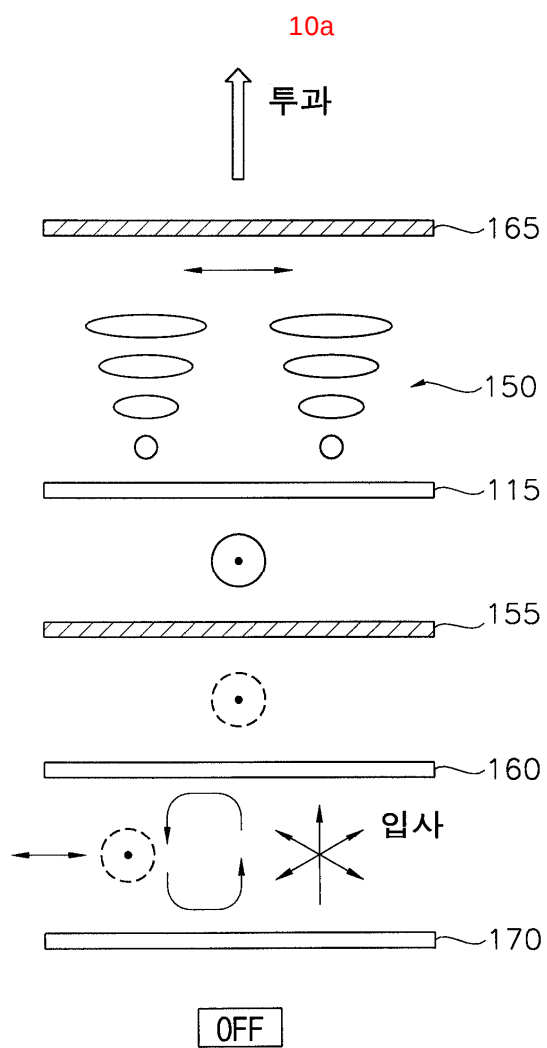


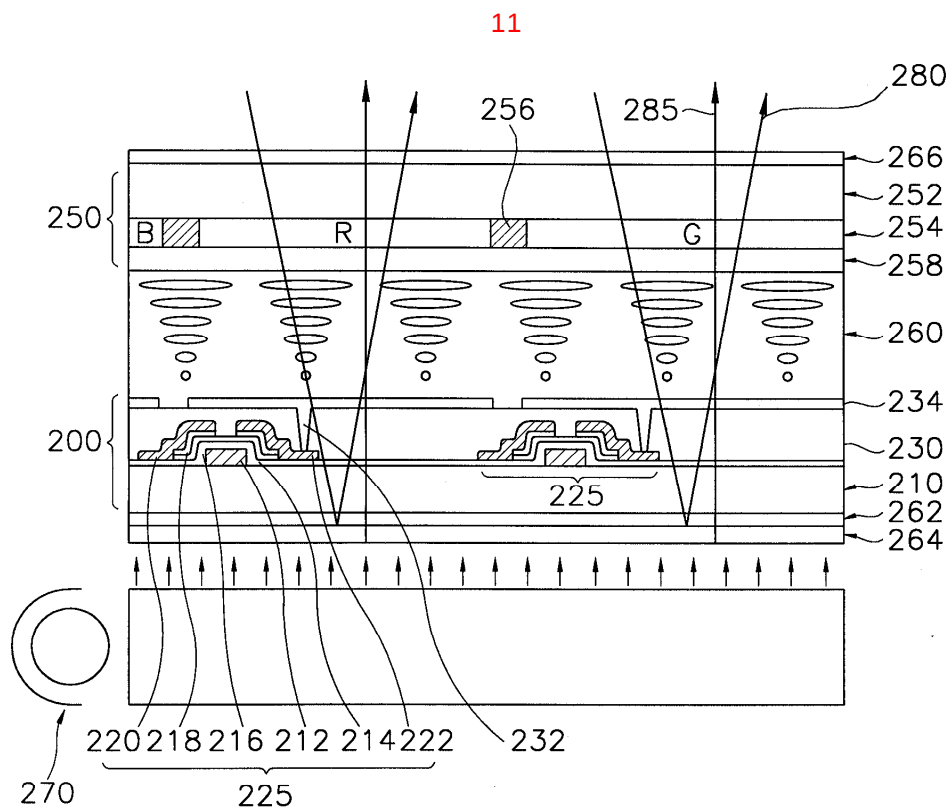
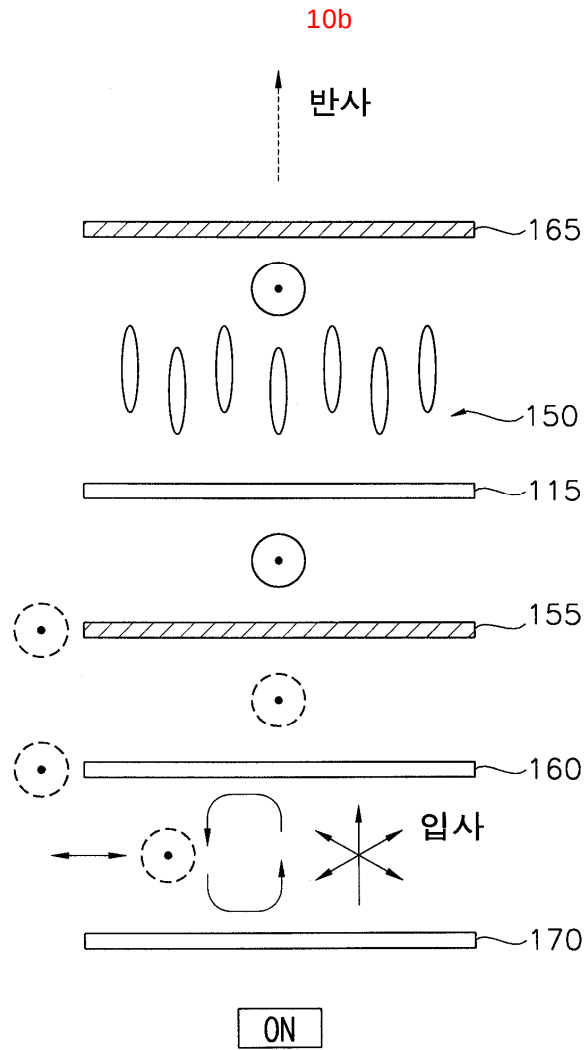


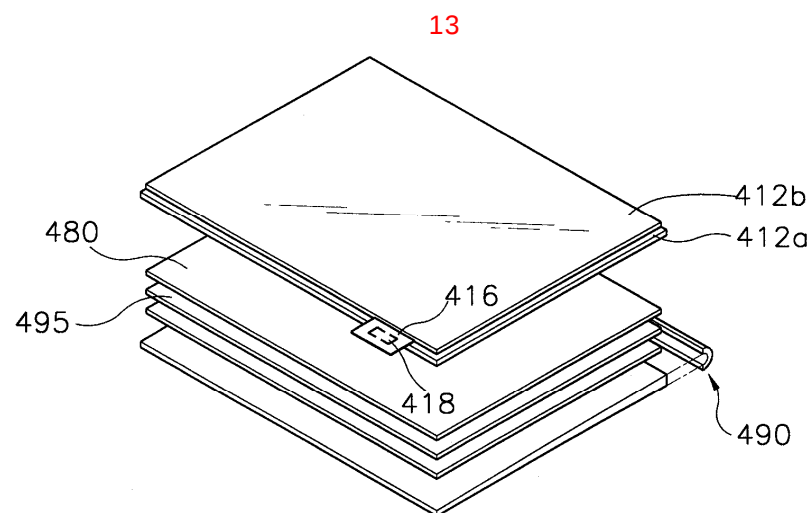
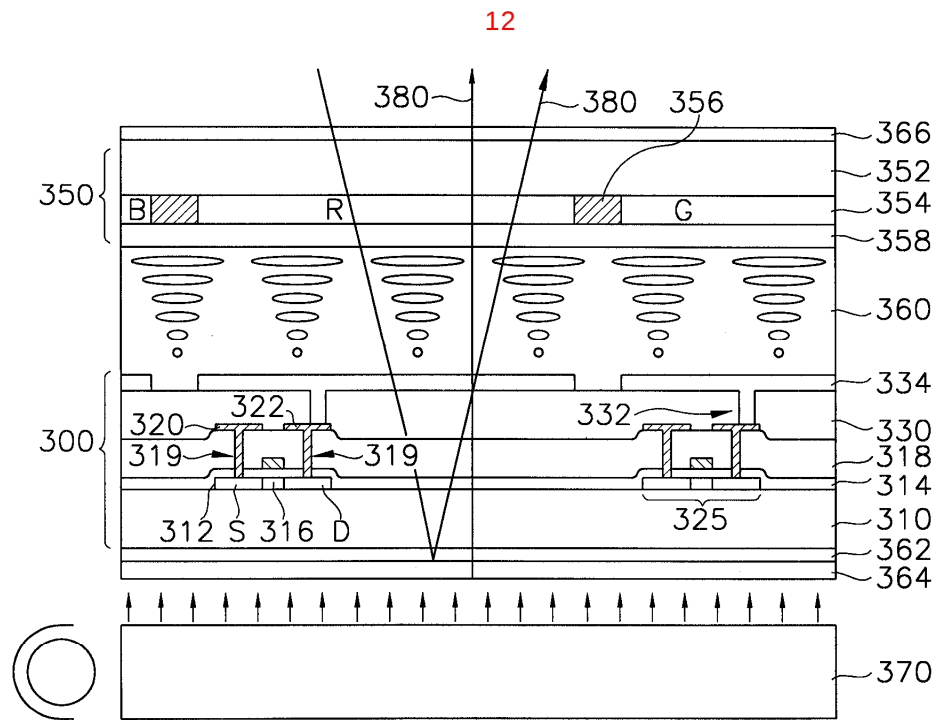




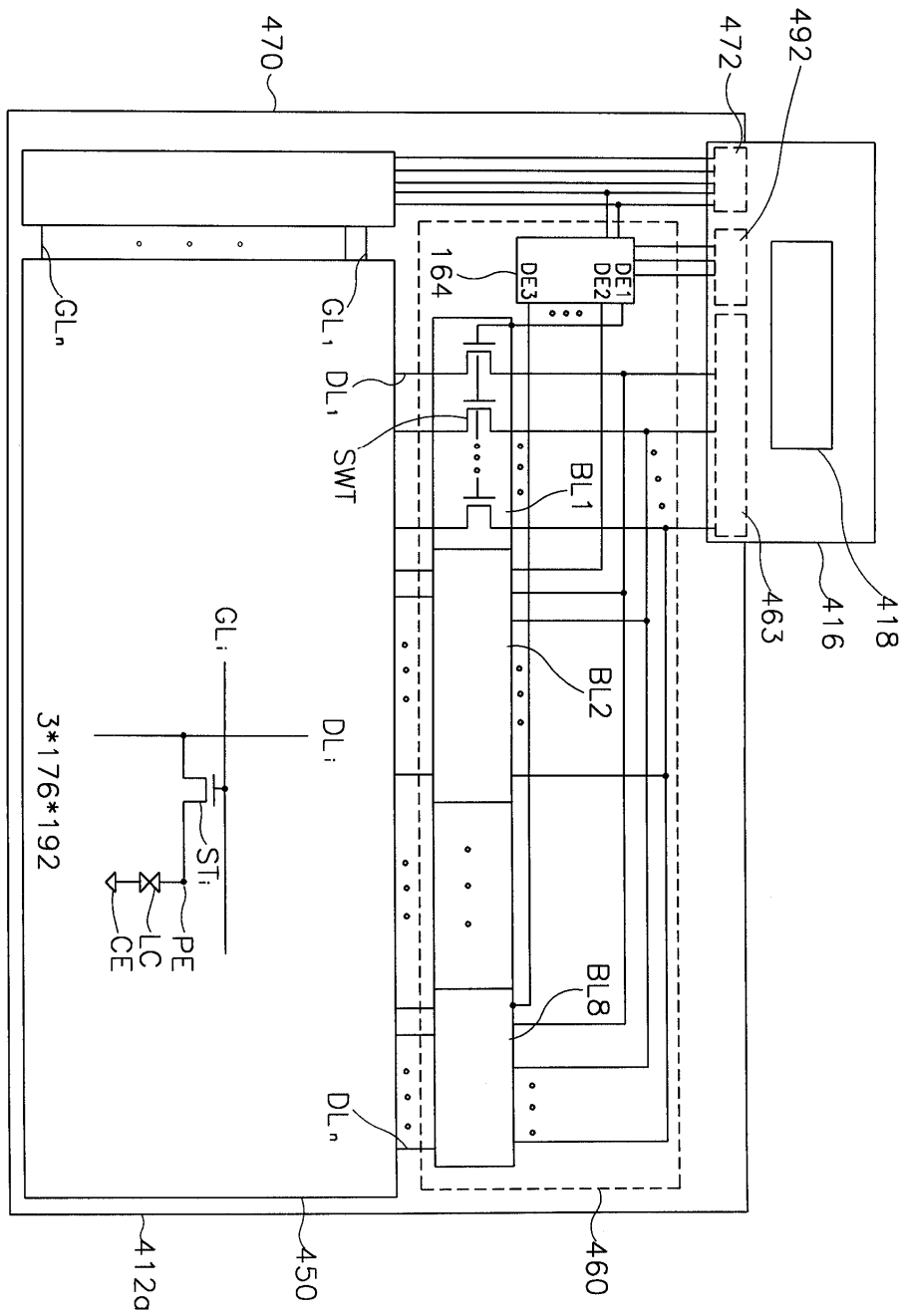








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专利名称(译)	透反液晶显示器		
公开(公告)号	KR1020040005187A	公开(公告)日	2004-01-16
申请号	KR1020020039499	申请日	2002-07-08
[标]申请(专利权)人(译)	三星电子株式会社		
申请(专利权)人(译)	三星电子有限公司		
[标]发明人	YOON JONGSOO 윤종수 LEE DONGHO 이동호		
发明人	윤종수 이동호		
IPC分类号	G02F1/1335		
CPC分类号	G02F1/133555 G02F1/13362 G02F2203/09 G02F2203/03		
代理人(译)	英西湖公园		
其他公开文献	KR100917015B1		
外部链接	Espacenet		

摘要(译)

公开了一种半透射型液晶显示装置。该装置包括第一基板;第二基板定位成使得其一侧面向第一基板;在第一基板和第二基板之间形成液晶层;形成在第一基板的后表面上的第一偏振器;第二偏振器形成在与第二基板的一侧相对的另一侧上;背光设置在第一偏振器后面;并且透明的半透射膜形成在第一偏振器和背光之间,以反射入射光的一部分并透射一部分入射光。由于入射光的一定部分通过半透膜和背光之间的再生过程连续透射半透膜,因此可以提高透射率并且可以提高光效率。 4

