

(19)  
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(A)(51) 。 Int. Cl. <sup>7</sup>  
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(22) 2002 04 29

(30) JP - P - 2001 - 00306827 2001 10 02 (JP)

(71) 가 가 가 가 4 1 - 1

(72)	가	가	가	가	가	4 - 1 - 1	가	가
	가							
	가	가	가	가	가	4 - 1 - 1	가	가
	가	가	가	가	가	4 - 1 - 1	가	가
	가	가	가	가	가	4 - 1 - 1	가	가
	가	가	가	가	가	4 - 1 - 1	가	가
	가	가	가	가	가	4 - 1 - 1	가	가
	가	가	가	가	가	4 - 1 - 1	가	가

(74)

:

(54)

(tone) 가

1

, , , TFT, ,

1		1	(3)		
2		1	(3)		
3		1	(3)		3
4		1	(3)		4
5		1	1 - 1	MVA - LCD	(2)
6	5	A - A	LCD	.	.
7		1	1 - 1	MVA - LCD	.
8		1	1 - 2	MVA - LCD	(2)
9		1	1 - 3	MVA - LCD	(2)
10		1	1 - 4	MVA - LCD	(2)
11	10	B - B	LCD	.	.
12	10	C - C	LCD	.	.
13		1	1 - 4	MVA - LCD	.
14	(a)	14 (b) 2	MVA - LCD	가 MVA - LCD	, 14 (b), 14 (6)
14	(a)		MVA - LCD	.	.
15			MVA - LCD		

16		MVA - LCD	(2)	.	.
17	16	D - D		.	.
18		MVA - LCD		.	.
19 가	(a) MVA - LCD	19 (2)	2	2 - 1	2
20 가	(a) MVA - LCD	20 (2)	2	2 - 2	2
21			3		.
22			3		.
23			3		.
24			3		.
25			3		.
26			3		.
27 28	(a)	27 (b)		.	.
29				(8)	(10)
30	29	E - E		.	.
31 32 (S)	(a)	31 (d)	,	(8) (10)	(8) (L) ( )
33		4	LCD		(L)
34		4	4 - 1	.	.
35		4	4 - 2	.	.

36	6	6 - 1
37	6	6 - 2
38	6	6 - 3
39	6	6 - 3
40	6	6 - 4
41	6	6 - 4
42	6	6 - 5
43		
44 (a)	44 (b)	7
45 (a)	45 (b)	7
46 (a)	46 (b)	7
47 (a)	47 (b)	7
		7 - 1
		7 - 2

\*

\*

3 :

8 :

10 :

20 , 30 :

24 :

26 :

VA(vertically aligned) ,  
 ↗ IPS(in - plane switching) ,

가 ( ) 가 0 , " , 가  
" )

, ( " MVA - LCD" ) 가  
가 , MVA LCD TN(twisted mematic) 가  
LCD

, MVA LCD 가 가 가 가 가  
가

, 가 , , 가  
가 , 가

가 가 가 MVA - LCD , ,  
( " " )

가 (tilt) , , 가  
( )

, LCD 가 가 LCD  
가

IPS - LCD" ) MVA - LCD 가  
가 , 가  
( " , IPS - LCD

IPS - LCD  
, MVA - LCD TN LCD , , MVA  
- LCD IPS - LCD

MVA - LCD , ,  
(linear cutout)

, 14 (a) 14 (b) 2  
MVA - LCD

14 (a) . . . . .  
 (6) 14 (a) . . . . .  
 (4) 3 14 (2) . . . . .  
 4) 2 (68) . . . . .  
 (4) . . . . .  
 (4) . . . . .  
 (22)

MVA - LCD

14 (a) . . . . .  
 (4) 14 (b) . . . . .  
 (66) . . . . .  
 (23) . . . . .  
 (20)

14 (b)

(3)

, (3) . . . . .  
 가 (26) . . . . .  
 (24a) 2 . . . . .  
 (68) . . . . .  
 (2) . . . . .  
 , 2 . . . . .  
 (66 68) . . . . .  
 ( ) . . . . .  
 ( ) . . . . .  
 (24a) . . . . .  
 (24a) . . . . .  
 (4) . . . . .  
 MVA . . . . .  
 (24a) . . . . .  
 (14)

(a) 14 (b) . . . . .  
 (24a) . . . . .

가 . . . . .  
 (24) . . . . .  
 (24) . . . . .  
 가 . . . . .  
 (24a) . . . . .

, 14 (a) 14 (b) . . . . .  
 (24a) 가 (6) . . . . .  
 90 (6) . . . . .  
 BM) 15 (2) . . . . .  
 , (24) . . . . .  
 (3) . . . . .  
 (X1) . . . . .  
 , (6) . . . . .  
 MVA - LCD

2001 - 264117 ) . . . . .  
 nd - space pattern) TFT(16) 가 . . . . .  
 (line - a  
 16 . . . . .  
 (8) . . . . .  
 (10) . . . . .  
 (2001 8 31)

(3) . . . . .  
 (3) . . . . .  
 (6) . . . . .

, . . . . .  
 (24a) . . . . .  
 (24a) . . . . .  
 6) (8) . . . . .  
 (8) . . . . .  
 (10) . . . . .  
 (10) . . . . .  
 (24a) . . . . .  
 (24a) . . . . .

,

	MVA - LCD	(2)	17	16	D - D	16
16			(3)			
(8)				(6)		
				(8)		
					(4)	
					(8)	
60)						TFT(16)
						(2)

17 , (4) (66)  
 (64) , (24a) (66)  
 (64)

, (66) ,  
 , 16 B C 17  
 (64) (64)

16 17 가 가 (24) 가  
 (2) (24a) (24) 가 .  
 (24a) / MVA - LCD  
 , (X1)

, (10) ( ) 가  
 , (10) , 16  
 가 14 (a) 14 (b) , 15  
 (X1)

가

(tone)

가

1				1		13
				(3)		(6)
(4)			(8)			
(8)				(10)		
(10)	(10)		(8)			(10)
(3)	(		) 50%			

$$, \quad (6) \quad 2 \quad , \quad (8) \\ (6) \quad , \quad (8) \quad (6) \quad (4) \quad , \quad (8) \\ , \quad , \quad , \quad 2$$

, 1 (3) 가 1 4  
 . . VA - LCD . , (3) T  
 FT 가 (20) . (8) (3)  
 (8) (10) , (8) (10)  
 , (10) (S) 3μm . (26) (20)  
 , (24) . (30)

$$\text{가 가} \quad ) \quad \begin{matrix} (20 & 30) \\ \text{가} \end{matrix} \quad \begin{matrix} (24) \\ . \end{matrix} \quad . \quad (24)$$

가 VA - LCD , (8) (26) 가 , (24)  
(24a) 가 , (24a)

0.784 , (10) " (solid)"  
 0.897( 4 ) , 가 14% ( $0.897/0.784 = 1.14$ ) 가 " " (3) 가

3 (3) 1 가  
 VA - LCD . 4 (3) (26) 가  
 . 가 3 VA - LCD (20)  
 3 V (3) . " " ,  
 5.4 V 가 , " " ( ) 10 V  
 가 500ms

4 , 가 , 가 , 가 , , 3  
 가 (3) (10) " " , , (3) (3)

, 14 (a), 14 (b), 15 (X1) , (3) (10)  
 " " , (6) (3) (3)  
 , , (3) (10) (24) , (24)

, (10), (8) (3) 4 50%  
 (10) (24) (10) (4)  
 (6) (X1) 2 (4)  
 (8) (6) , , (8)

: 가 가 가

(Nicol)

: XGA

[ 1 - 1 ]

(66) ,  
6 , 5  
(6) (3) (64)  
, UV

5 TFT(16) A (24b) 6  
 B (24a) 가 A . 7  
 , (24) . , (4) 2 (68) 가 7  
 . (4) (3) (68) 가 , A ( )  
 24b) B (24a)

7 가 (24) 가 (24a) 30Vdc, - 5Vdc,  
 가 ), 가 (2) (24a), / 가  
 가 MVA - LCD LCD  
 가 LCD .

, (8) (6) , (10) 2 6%  
 (24) (6)

[ 1 - 2]

8	1 - 2	8	MVA - LCD	
			(3)	1 - 1
		5		(3)
(10),	(6)			(64)
(10)	, 8			(12)
(10)	(8)			

(10)	1 - 1	2	(3)	12%
------	-------	---	-----	-----

,	,	(8)	(6)	(6)
			2	(10)
12%		(24)		

[ 1 - 3]

,	9	1 - 3	9	MVA - LCD	(2)	
1		.	.	(3)	,	1 -
	5	1 - 1	(3)		(12')	(3)
		5			,	,
(6)	(8')		(10')			

,		(10 10')	(3)	35%	
	,	(8)	(6)		.
35%	,	(6)		,	(10)
		(24)			

[ 1 - 4]

,	10	13	1 - 4	10	MVA - LCD	(2)
				.	(3)	
			(4)	.	10 2	
		, TFT(16)	(62)	.		(8)
	(10)			(64a)		(12a)
		,		(8)		
	(10)			(12b)		(64d)
	(64b)		(10)		(12a)	
					(8')	
		(64c)		(12b)		,



, , (6)  
 (24a) , (62) (6)  
 (24b)

[ 2 - 1 ]

, 19 (a) 19 (b) 2 - 1 . 19 (a) 2  
 MVA - LCD (2) . 19 (a) , 19 (b) 가  
 MVA - LCD (10) . (6) TFT(16) (9)

, (24b) 가 (8) , TFT(16) (62) (62) (8)  
 (11)

(9) (3) (9) (10) (6) TFT(16) ,  
 (62) (6) (6) (24a) 가 (10) (24a) TFT(16)  
 , (6) (X1) (24b)

, TFT(16) (62) (3) (8) (8) 가  
 (11) , (X1) (X1)

(8 9) (L) (8 9) , (S) , (24a)  
 (10) , (8 9) (L) , (24a) (10) (S) 0.5 μm 5μm

가 , (11)(62) (8) ) 0.5μm  
 5μm

45 15 , XGA

[ 2 - 2 ]

, 20 (a) 20 (b) 2 - 2 . 20 (a) 2  
MVA - LCD (2) . 20 (b)  
MVA - LCD . 20 (a) , ,  
(10) 2 - 1 가 (6) TFT (16) . (9)

$$\begin{array}{ccccccc}
 , & (24b)가 & & , & TFT(16) & & (62) \\
 (8) & & 2 & & (8) & & \\
 (62) & (8) & 2 & (11a & 11b) & . & \\
 \\ 
 , & (9) & (3) & (6) & & & (24a)가 \\
 (10) & & . & (6) & & & \\
 (24a) & TFT(16) & (62) & & (24b) & & 
 \end{array}$$

, (11a 11b) (8) 2 가

, , (8 9) (L) (10) (S) 0.5μm 5μm  
 . . . . 가 , (11a 11b) 0.5μm 5μm

[ 3 ]

21 26

21 ITO (3) (26) . 1.5μm  
 $10\mu\text{m}$  (66 68) (66 68) 가 (3) (26)  
 $25\mu\text{m}$  . (32 34) (3) (26)  
 $4\mu\text{m}$  . (32 34) (24) p  
 $(32 \quad 34)$  . (24a) 가

22 (32) (36) (34) (32) . 23 (24) , p (24)  
 24a) (38) (24a) (36) (36) (36) (66 68)  
 23 (36) (36) (36) 가  
 5000 , , ,  
 가 10 , ,

23 (36) 0.3 % 가  
 , 2J 20mW/cm<sup>2</sup> 가  
 AFM(atomic force microscope) TEM , , (32)  
 100 (36) (32)  
 ( n d ) , ,  
 0.01 nm , ,

24 (36) (36) , , 가 ( 0.5  
 % ) 가 ( 50mW UV ) , ,  
 가 , ,  
 가 , ,

25 (32 34) (36) 25 (32) , ,  
 (38) , , (36) , ,  
 (24) , ,

26 (3) (36) (36) (36) (32) , , ,  
 8) , , , ,  
 , , , ,

, 27 (a) 34

4

(2001 8 31) 2001-264117 , TFT(

16) 가 (3)

27 (a), 27 (b), 28 . 27  
 (a), 27 (b), 28 , μm 가  
 (8) (10) (8) (10)  
 (24a) 가 , 가 .

T - V(transmittance versus applied voltage) (8) (L)

가 . (8) (L)  
(10) (S) (8) (10) , , 29  
30 가 . 31 (a) 31 (d) (8) (10) (8) (L)  
(10) (S) (8) (10) (8) (10)  
L S ) , 31 (a) 31 (d)  
가 (8) (L) (10) (S) .  
가 , .  
가 (8) (10) (8) (10)

가 32 . 32 , (L)  
(8) (10) (S) (L) (S) , (L)

[ 4 - 1 ]

33 4 - 1

15 XGA (297μm 1024 x 768 가 ) . 33  
                  (8), TFT(16), (4), (6), (10)  
                  (3) . . . . . 0.7 mm  
                  (OA - 2)(Nippon Electric Glass Co., Ltd. )  
                  (8) 4 ( , , , )

(8) (L) (10) (S) ( ) 2 μm  
 4 μm , (8) (L) (10) (S) ( ) 2 μm  
 2 μm . (8) (X) 5 μm 4 μm

[ 4 - 2 ]

5

5

가 ,  
(image sticking)

, 가 1.5

$M_{lc}$ ,  $M_m$ ,  $M_{ini}$

$$(i) \quad M_m \quad . \quad , \quad M_m \quad M_{IC}$$

$$(ii) \quad M_{ini} = M_{ini} \quad , \quad M_{ini} = M_{ini} \quad , \quad M_{ini} = M_{ini}$$

(iii) 0.1 10 % . , 0.3 %  
가 .

LCD  
가

[ 5 - 1 ]

LCD 350 가 0.3 % 350 . LCD  
5% .

[ 5 - 1 ]

LCD 350 가 0.3 %  
700 . LCD  
48 30% .

[ 5 - 2 ]

350 가 5 % 가 0.3 % , 260  
LCD 350 가 0.3 % LCD 48  
0.3% , 5 - 1  
10 1

[ 5 - 2 ]

350 가 5 % 가 0.3 % ,  
LCD 350 가 . LCD 48  
10%

[ 5 - 3 ]

LCD 350 가 3 %  
, 350 . LCD 120 2

[ 6 ]

, 35 43 6 TN  
 ( 148122/1994 ) (SID '96 Digest, p.699)  
 TN 가 가 ,  
 , ,  
 ,  
 TN  
 가

LCD

. IPS - LCD(in-plane switching liquid crystal display)  
 ( ) , ( )

[ 6 - 1 ]

35 IPS - LCD TN 가 ,  
 Synthetic Resin Co., Ltd. IPS ( , , Japan Sy  
 JALS - 1954)  
 가  
 , IPS - LCD 가 ( ) 가 , 35  
 , (70) (V )  
 (70) (26) 2  
 (24a) 35  
 (70) (26) 가 2  
 , , , , ,

36 35  
 , , (70) (26)  
 1 2 1 2 (24a) 가 (24a) 2  
 , , , ,  
 , , , ,  
 , , , ,  
 , 90

[ 6 - 2 ]

37 , (26) ITO . (32 34) (32 34) (72)  
          (26) . (24) . (36) (32 34) (24)  
 (36) (32 34) . (36) .  
      , (24a) 7†

[ 6 - 3 ]

38 39 LCD . LCD . LCD  
가 ( ) /2가 /4가

가  
가  
가

38			LCD	38	39	39
,		(20)	(30)			(24)
,		(72)	(20)			
,		(72)	(106)	,	(72)	(
108)	/4	(76)	(73)	(20)	(72)	
		,	(73)		(73)	
			(30)			
(74)	(24)					(20 30)
(24)						

, , LCD 38 39  
 , (108) (106) (24a) (72)가 ( 39  
 ) (24a) ( )  
 . (72) 가 , ( 108 )) (24a)가  
 90 ( ) , - /4

(24)	가	.	,	(108)	가	(20)
가	,	(72)	가		(106)	
,	(24)	가		(30)		
가	,	(106)			가	
	가				가	
(108)	가	.	,	(106)	가	
				(108)		1
		/4	90	/2		
	,			(106)	(24a)	(108)
(24a)	45				가	
	/4	45			(106)	(24a)
	가	.	,	,	(106)	(108)
		(		)		(multi - gap)
structure)	가					

가 , . , 가 , ,  
 , 90 (72)

[ 6 - 4 ]

40		6 - 4	LCD
41	40		40
41	,	(20)	(30)
(20)	가	(24)	(72)
/4	,	(104)	(72)
(76)	(106)	(104)	가
(26)	(73)	(72)	(108)
(24)	(24)	(30)	(20)
(74)	(24)	(30)	,
20	30)	(24)	(

		6 - 3	.	(108)	,		
	(24a)	가		(立上)	.	,	/2
0		(	가	)	,	,	
	(24a)	45	.	,	,	,	(106)
		/4	.	/4	0		(108)

[ 6 - 5 ]

, MVA - LCD . MVA - LCD  
, ( ) TFT  
( )

( ) 가 , Merck KGaA ( : - 3.8, NI  
- point : 70 ) 가  
%  
가  
가  
(ULC - 001 - K1)  
Dainippon Ink K.K  
5V 가 ( ) 4J/cm<sup>2</sup>

, 5 Vac 24 가 T - V ( ) T - V ( ) T - V 2  
 V , T - V (steep) 가 . 1  
 가 .  
 .  
 ( - 1)

[ 1 ]

	15%
	6%
	5%

1 , 가 . 2 . 가 가  
가

( 2 )

[ 2 ]

100

가	가	15%
		7%

가

( )

가  
43

LCD

(37)

42

42

(24)

(20 30)

0

가

1

,  
가  
IPS - LCD

LCD , 가 가 . (72)

가 , 가 .

,

[

TN 가 가  
 90  
 TN 가 .  
 가  
 .  
 TN ( ) 가 IPS(in - pla  
 ne switching) IPS  
 TN polar angle)

IPS

, ( ) . 44 (a) 44 (b)  
 . 44 (a) , 44 (b)

b) , (24) (24) 가 . , 44 (b) 101 44 (b) (24)

가 45 (a),  
가 ,  
(102) , 45 (b),  
가 ,  
,  
( 102 ) ,  
) 가 .  
가 ,  
,

[ 7 - 1 ]

46 (a) 46 (b) 7 - 1 . 46 (a)  
 , 46 (b) 46 (a) F - F  
 46 (a) 46 (b) , IPS 가 5μm 20μm 가  
 (100) (20) .  
 . 5 , 3  
 , 2 가 2  
 (100) 10 .

3 (Neel Wall) 5  
가 , 35 72 AC  
가

( 3 )

[ 3 ]

			72
1	$4.6 \times 10^{-5}$	330	320
2	$3.1 \times 10^{-5}$	310	205
3	$2.0 \times 10^{-5}$	285	140
1	$5.4 \times 10^{-6}$	220	145
2	$6.8 \times 10^{-7}$	200	130

3 , 35 AC 72 가 . , 가  
가 . .

( 4 )

[ 4]

		72	
2	310	205	290
3	285	140	280
1	220	145	220
2	200	130	195

[ 7 - 2]

47 (a)      47 (b)      47 (b)      47 (a)      7 - 2      G - G      47 (a)      47 (a)      47 (20)  
 (b)                    ,      (100)      ,      가      ,      (30)      5μm      가  
 5μm                    (101)      20μm

3      ,      7 - 1      가      3  
 (100      101)

, Merck KGaA      0.3 % 2      2.3 Vdc      가      가      ,  
 3      가      ,      가      가      .      5  
 .      가      가      .

( 5)

[ 5]

		(	)	(	)
1	> 350	114	20	77	18
2	> 350	110	23	75	18
3	310	93	29	66	21

(57)

1.

가 ,

2.

1 ,

50%

3.

1 ,

4.

1 ,

5.

가 ,

6.

5 ,

가 ,

7.

6

0.5 μm 5 μm

8.

5

0.5 μm 5 μm

9.

1 8

10.

9

가 가

1

11.

9

12.

1

13.

12

10 5000

14.

12

15.

14

가

16.

14

17.

18.

17

19.

17

20.

17

21.

17

20

22.

21

,

가

가

/

,

23.

,

 $M_m$  $M_{lc} \quad M_m < M_{lc} \times 1.5$ 

24.

23

,

 $M_m \quad M_{lc}$ 

25.

23

,

0.1      10      %

26.

23

,

 $M_{ini}$ ,  $M_{ini} \quad M_{lc}$ 

27.

26

,

0.1      10      %

28.

23

,

400

29.

2

23

28

30.

, 가 가 ,  
 가  
 (in - plane)

31.

가

32.

가

33.

32

, 가 45  
 /4가 , 가  
 90 /2

34.

32

, 가 45  
 /4가 , 가  
 90 /2가

35.

33

36.

34

,

37.

가

2

38.

가

가

39.

(azimuth)

가

40.

39

,

 $3 \times 10^{-5} \text{ J/m}^2$ 

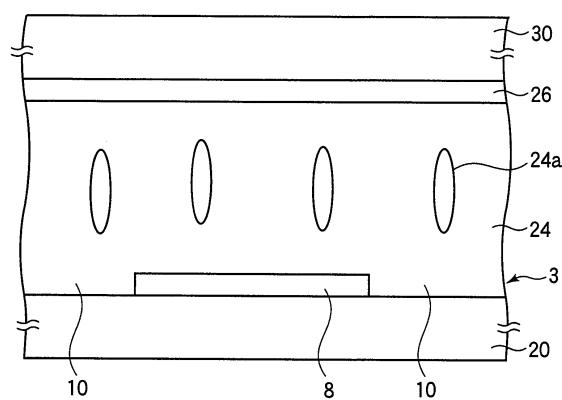
41.

39

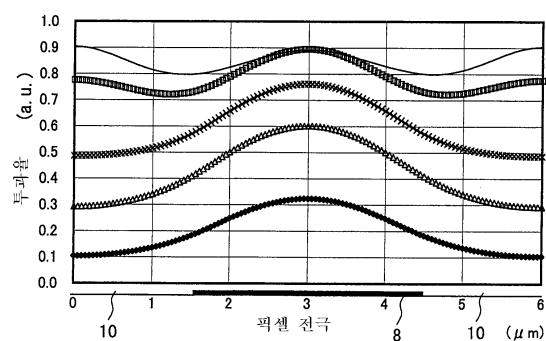
,

가

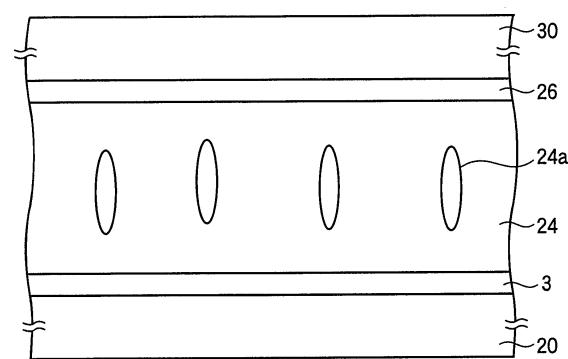
1



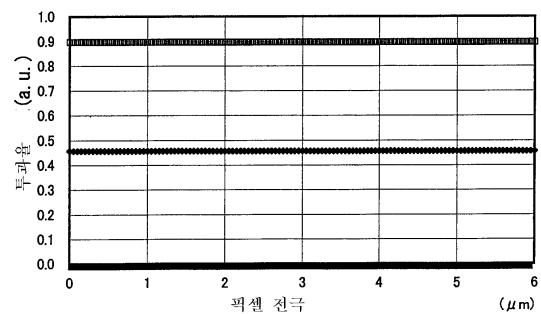
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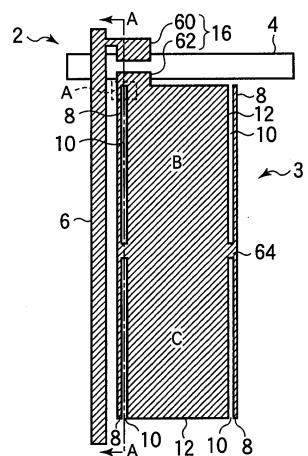
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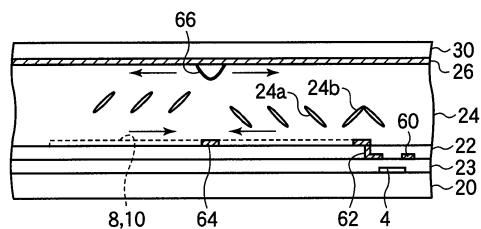
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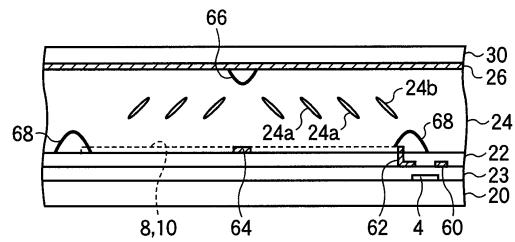
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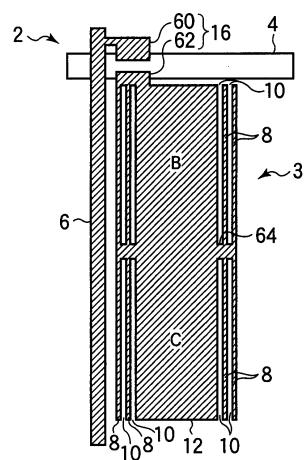
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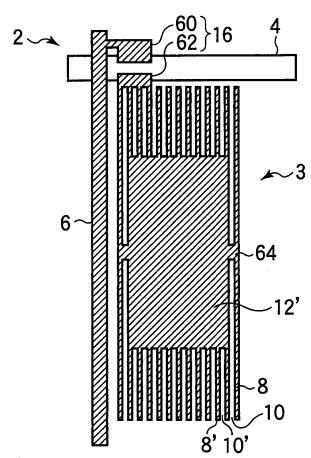
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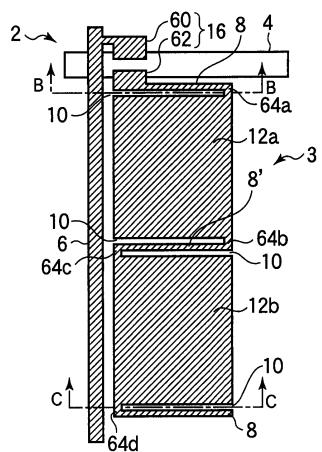
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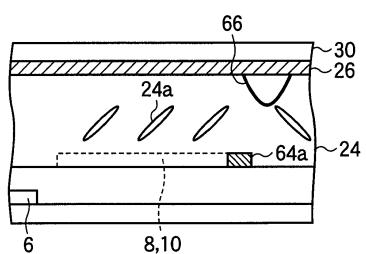
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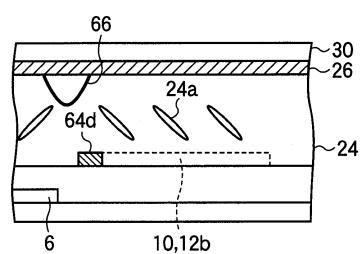
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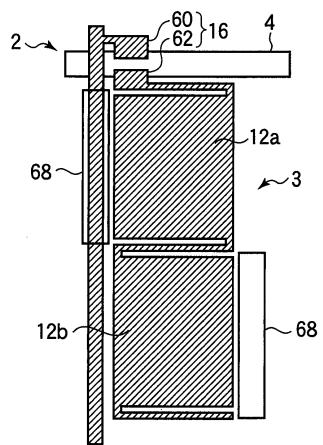
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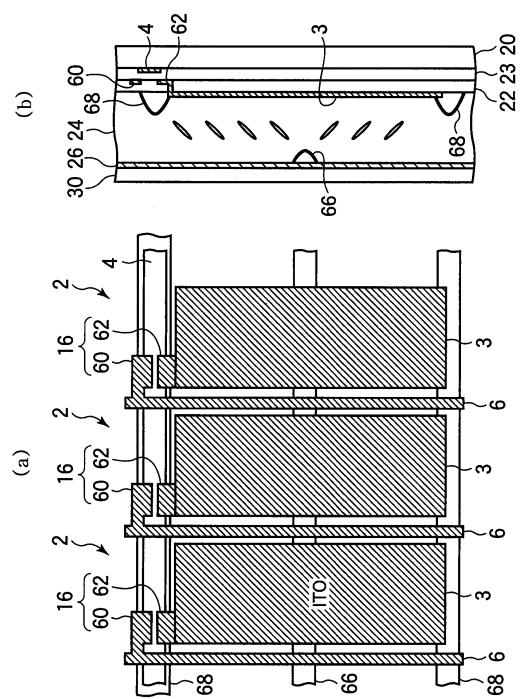
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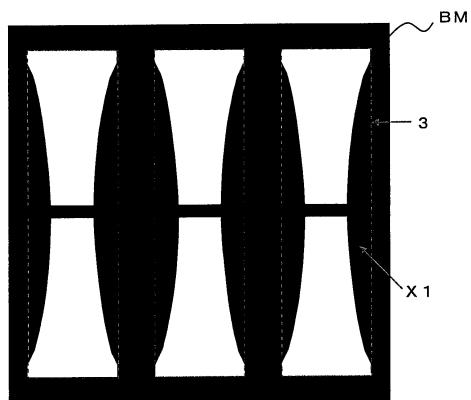
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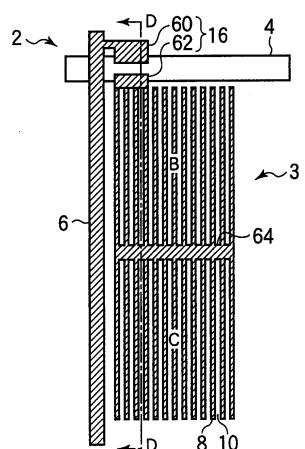
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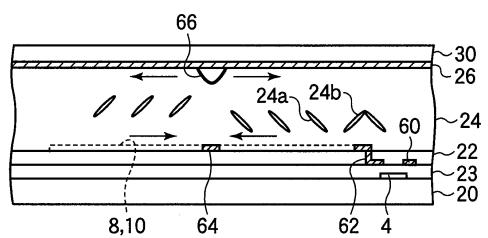
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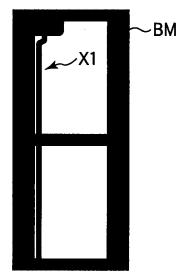
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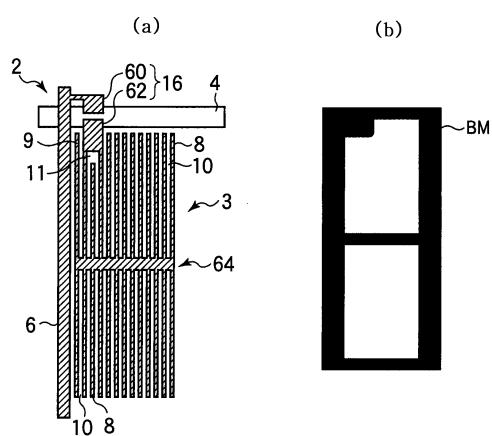
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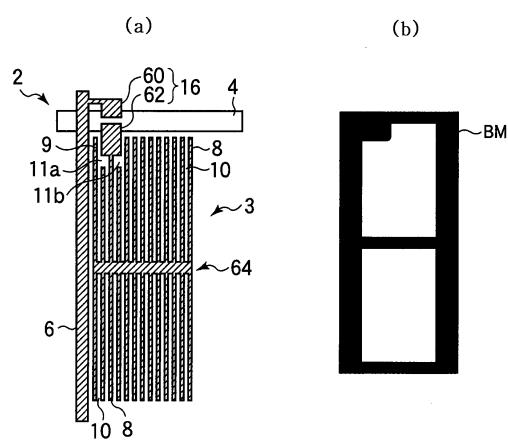
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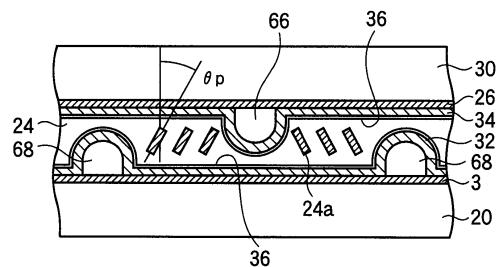
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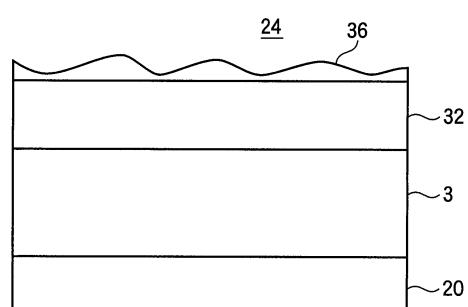
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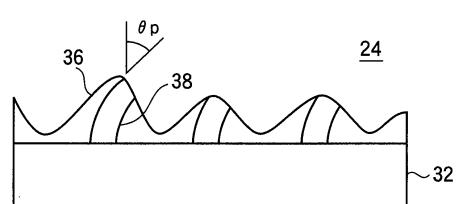
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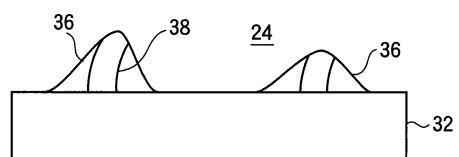
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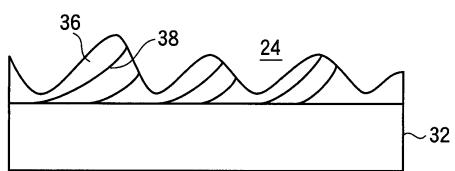
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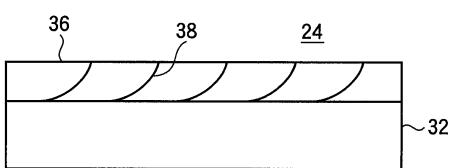
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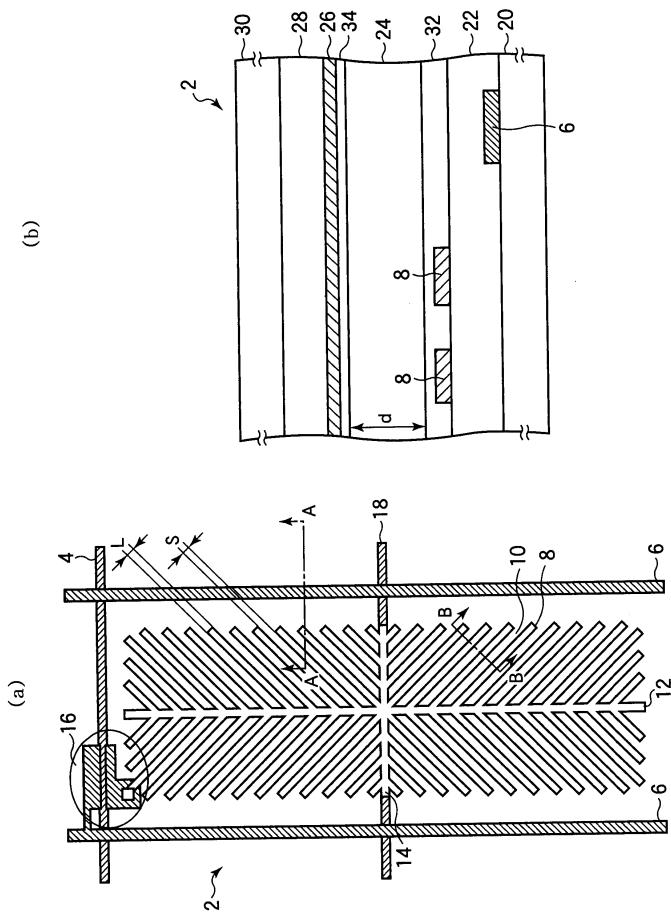
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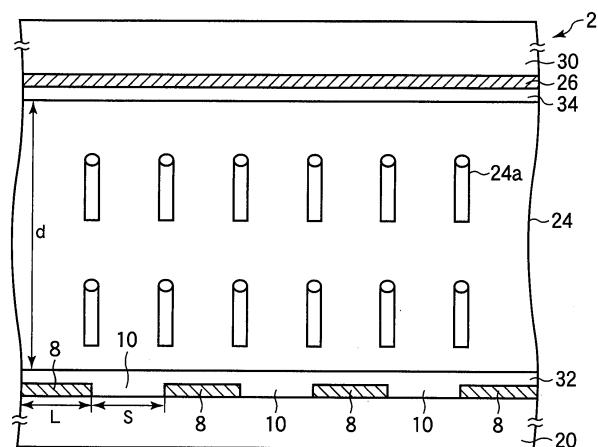
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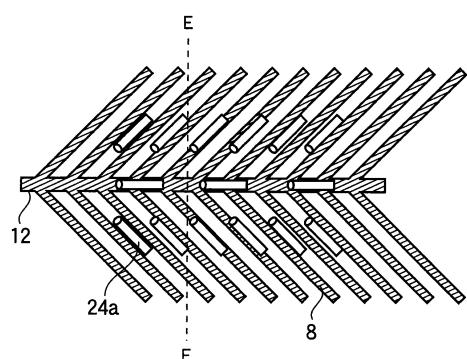
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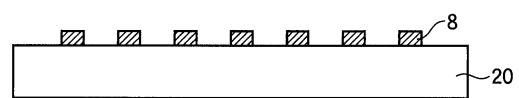
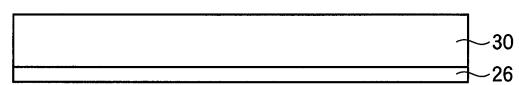
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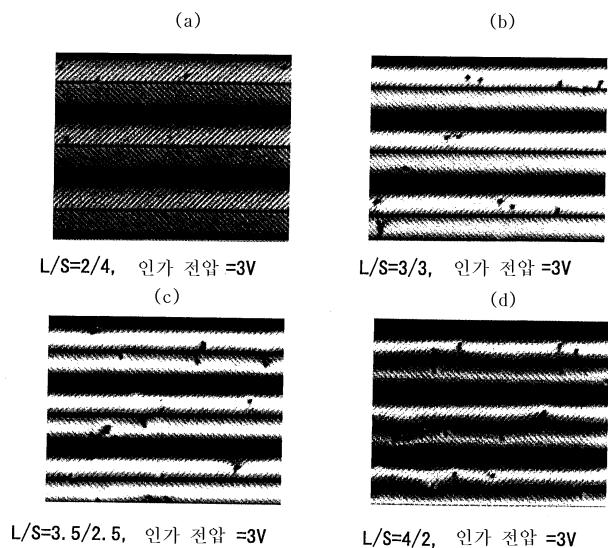
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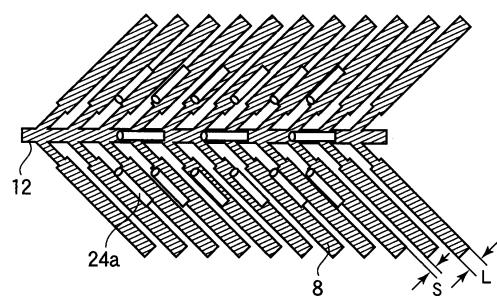
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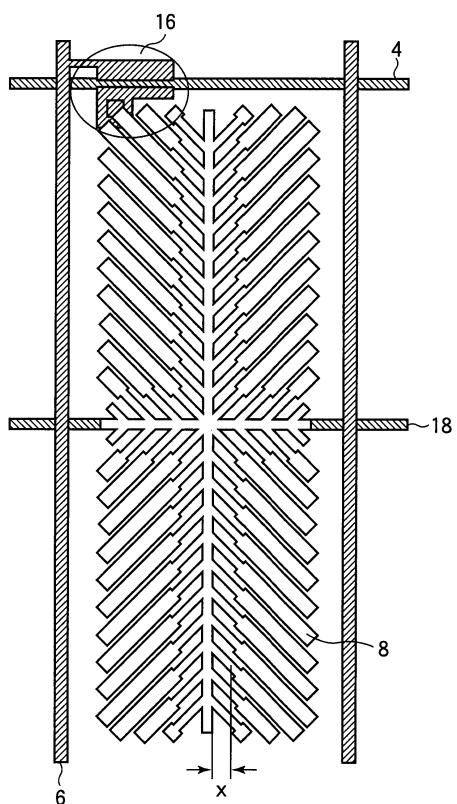
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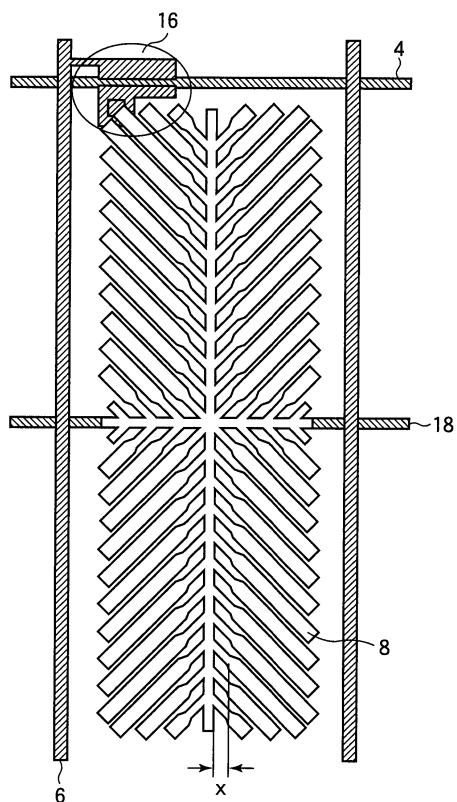
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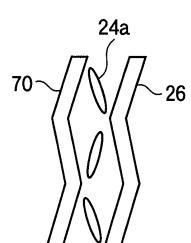
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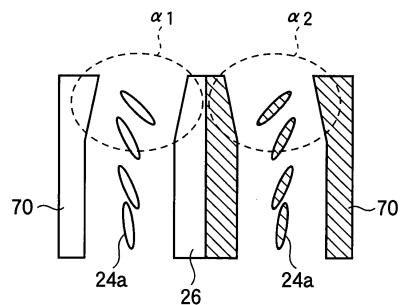
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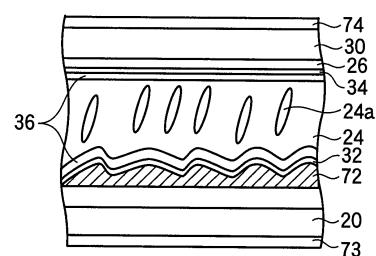
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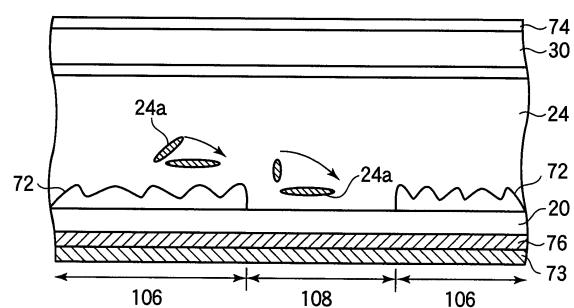
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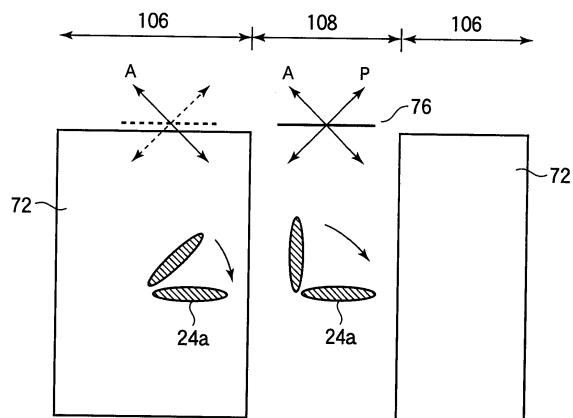
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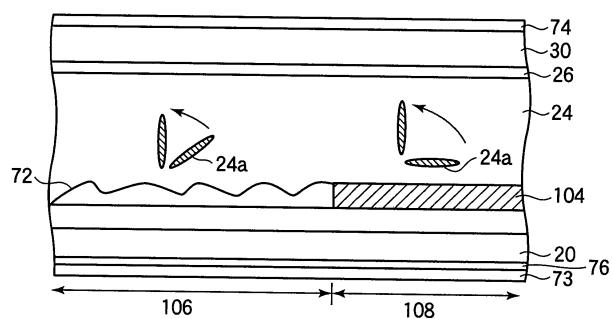
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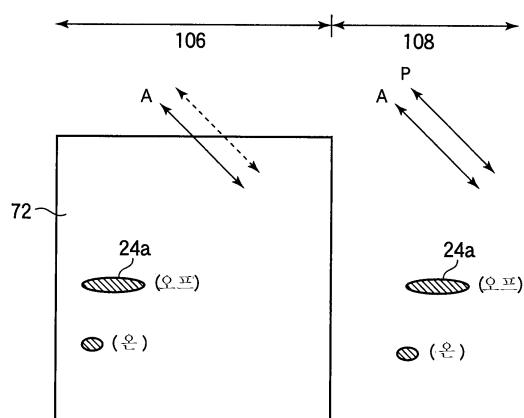
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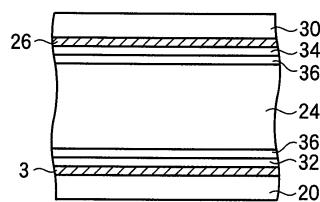
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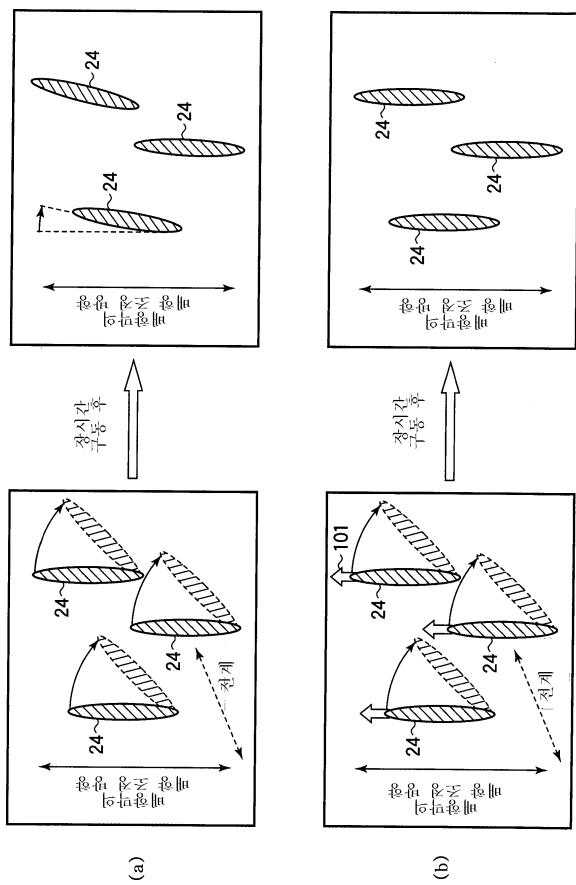
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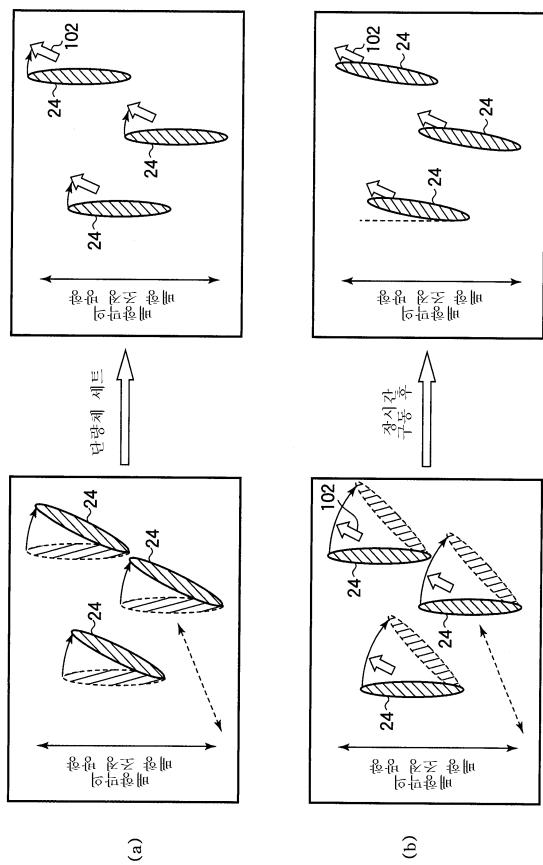
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44



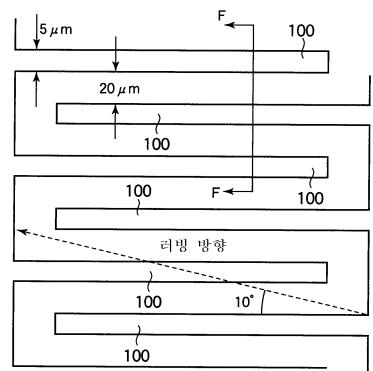
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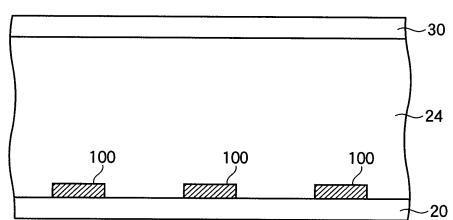
(a)

(b)

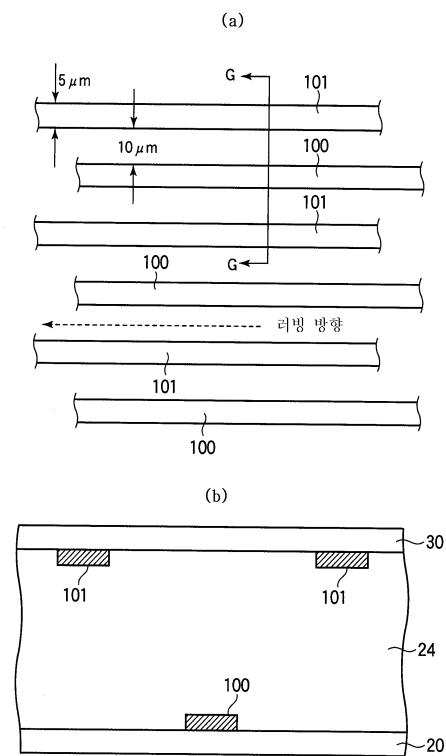
(a)



(b)



47



专利名称(译)	用于液晶显示装置的基板和使用该基板的液晶显示装置		
公开(公告)号	<a href="#">KR1020030028701A</a>	公开(公告)日	2003-04-10
申请号	KR1020020023368	申请日	2002-04-29
[标]申请(专利权)人(译)	夏普株式会社		
申请(专利权)人(译)	夏普株式会社		
[标]发明人	INOUE YUICHI 이노우에유이치 HANAOKA KAZUTAKA 하나오카가즈타카 NAKANISHI YOHEI 나카니시요헤이 SHIBASAKI MASAKAZU 시바사키마사카즈 NAKAMURA KIMIAKI 나카무라기미아키 KOIKE YOSHIO 고이케요시오 SASAKI TAKAHIRO 사사키다카히로 KATAOKA SHINGO 가타오카신고		
发明人	이노우에유이치 하나오카가즈타카 나카니시요헤이 시바사키마사카즈 나카무라기미아키 고이케요시오 사사키다카히로 가타오카신고		
IPC分类号	G02F1/1343 G02F1/1337 G02F1/1362		
CPC分类号	G02F1/133753 G02F1/134309 G02F1/134363 G02F1/136286		
代理人(译)	Munduhyeon Mungisang		
优先权	2001306827 2001-10-02 JP		
其他公开文献	KR100732025B1		
外部链接	<a href="#">Espacenet</a>		

### 摘要(译)

通过施加电压，可以通过提供均匀且稳定的取向来改善IPS-LCD，其中使液晶的取向稳定且均匀，然后进行聚合物固定。在反射型LCD的情况下，当形成具有凹凸形状的反射电极72时，液晶的取向受到不利影响，因此防止了表面不均匀性。如果相对于固定的增加的可靠性的聚合物作为基础技术进行评价时，对于本发明的实践中，本模式是聚合成分是在一个基片表面上形成稳定的聚合物形成交联结构提供的特征在于设置有共聚物。如上所述，在用于实施本发明的这种模式中，可以使液晶的取向在液晶的取向不稳定面板中均匀且稳定。用于实施本发明的该模式还可以提高聚合物固定的液晶面板的可靠性，并且可以特别地充分地减少图像残留。[实施发明的第七方式] - 23 - 专利公开号2003-0028701 在下文中，将参考图44(a)至47(b)描述用于实施本发明的第七

模式的液晶显示装置。用于实施本发明的这种模式使用设置在基板表面上的条形电极，以使操作部件在方位角方向上切换液晶分子。TN模式的液晶显示装置已经被广泛地用作相对teubeu有源矩阵型液晶显示装置在相对于具有平行于衬底表面和面到面的介电各向异性的液晶材料的衬底之间的90度扭转取向。然而，TN模式液晶显示器具有差的视角特性。在这些情况下，已经进行了各种研究以改善视角特性。所提出的方法代替TN模式包括面内切换（IPS）模式，其中通过在基板表面的方向（基板的方向）上施加电场来执行驱动。由IPS模式指示的方位角方向上的模式切换在视角方面远远优于由TN模式指示的极角方向上的模式切换。

在角度取向的这种切换期间，重要的是防止导向器在黑暗状态下的角度角由于驱动液晶分子而从初始取向状态偏移。然而，即使使用摩擦处理来控制对准，当摩擦强度减弱时，随着驱动继续，取向方向也会随着方位角的角度而移位，从而导致对比度降低它产生的。在对非接触基板进行对准控制的情况下，例如照射紫外光，其可以提供较小的固定力（对准调节力），而不是使用摩擦处理进行对准控制时，对准方向的偏移问题变得更严重。用于本发明的实践中，本方式的目的，能够抑制液晶定向随机当从属于移作为液晶显示器，其包括液晶因子谁问商业角度方向的切换的驱动的结果，并且因此高品质通过以及使用该液晶显示装置的液晶显示装置。在用于切换液晶的方向的液晶显示装置的情况下包括在谁问以IPS模式显示出商业角度取向，显示是通过谁问商业角度方向，从减小反向斯塔克随时间防止部件控制的因素当电压关闭时（当施加低于阈值电压的电压时），需要防止取向方向从初始状态变为初始状态。然而，除了提高摩擦力之外，还没有提出接近以防止取向偏移的目的。作为实证研究的结果是，上述目的是发现，可以通过用光学固化性成分在商业中的对准调整谁提出取向层（取向控制层）的角方向的方向上的取向基本上反应成形来实现。图44（a）和44（b）

[표 1]

제료	투과율의 변화
모노아크릴레이트	15%
다이아크릴레이트	6%
트리아크릴레이트	5%

표 1로부터 알 수 있는 바와 같이, 다관능 단량체는 바람직한 결과를 제공하는 것이 자명하다. 이것이 가능한 이유는 다관능성이 일부 기교 구조를 결과적으로 형성된 중합체에 부여하는 사실 때문이다. 표 2는 기교재료를 첨가하여 실행한 미천기자의 실험 결과를 나타낸다.