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(71) 가 가 가 가 4 1-1

(72) 가 가 가 가 4 1-1
가 가 가 가 4 1-1

(74)

:

(54)

가

(36) (26) , (16) , (26) (14) , (12) , (12) (34) , (26) (10)

3

1	1	1-1	.
2	1	1-1	가 .
3	1	1-1	.
4	1	1-1	.
5	1	1-2	.
6	1	1-2	.
7	1	1-2	.
8	1	1-3	.
9	1	1-4	.
10	1	1-5	.
11	1	1-5	.
12	1	1-6	.
13	1	1-6	.
14	1	1-6	.
15	1	1-6	.
16			.
17			.
18			.
19	2	2-1	.
20	2	2-1	.
21	2	2-1	.

22	2	2-1	.
23	2	2-1	.
24	2	2-1	.
25	2	2-1	.
26	2	2-1	.
27	2	2-2	.
28	2	2-2	.
29	2	2-2	.
30	2	2-2	.
31	2	2-2	.
32	2	2-2	.
33	3		가
34	3		.
35	3		.
36	3	3-1	.
37	3	3-2	.
38	3	3-2	.
39	3	3-2	.
40	3	3-3	.
41	3	3-4	.
42	3	3-5	.
43	3	3-6	.
44	3	3-7	.
45	3	3-8	.
46	3	3-8	.
47	3	3-9	.

48	3	3-10	.
49	3	3-11	.
50	3	3-11	.
51	3	3-11	.
52	4		.
53	4	4-1	.
54	4	4-1	.
55	4	4-2	.
56	4	4-3	.
57	4	4-4	.
58	4	4-4	.
59	4	4-5	.
60	4	4-5	.
61	5	5-1	.
62	5	5-1	.
63	5	5-1	.
64	5	5-2	.
65	5	5-2	.
66	5	5-2	.
67	5	5-2	.
68	5	5-3	.
69	5	5-4	.
70		1	.
71			.
72	MVA-LCD		.
73	MVA-LCD	TFT	.

< >

2 : TFT

4 : CF

10 : TFT

12 :

14 :

16 :

18 :

20 :

22 :

24 :

26 :

28 : (幹部)

30 : 가 (支部)

32, 33 :

34, 35 :

36 :

38, 39 :

40 : BM

42, 43 :

44, 45 : 1/4

46 : TAC

48 :

50 :

52, 53 :

54 :

56 :

58 :

60 :

62 :

80 :

81 :

- 82 :
- 83, 84 :
- 85 :
- 90, 95 :
- 91, 92, 93, 94 :

(TFT ; Thin Film Transistor)
 가

70 TFT 1 70 (112) (112) (112) (114) (114) (116) (118) (112) (114) TFT(110)가 TFT(110) (122) (114) (112) (124) (122) (112) (124) TFT(110) (116)

71 70 TFT VA(Vertically Aligned) 가 (BM ; Black Matrix)(140) VA 3 가 71 가 가 (Rubbing) ;Disclination) 가 (142) (PC) 가 MVA(Multi-domain Vertical Alignment) (, MVA-LCD)가 (, 1).

72 MVA-LCD 72 (a) 가 72 (a), (b) , M VA-LCD 2 (302, 304) (302, 304) ()

(304) (302) (308)가 () (306)가 (306, 308)

(302, 304) (312)가 (302, 304) (160) (封止) 72 (a)
 (306, 308) (306, 308) ()
 (312) (312) (306, 308)
 (312)

72 (b) (302, 304) 가 (306, 308)
 (312) (306, 308) (306, 308)
 (312) (312)

(306, 308) (312) (306, 308)
 2 (312) 1 4
 MVA-LCD (白) (黑) 80° 10 MVA-LCD
 가

[1]

2947350

[2]

2000-305100

[3]

2001-249340

[4]

2001-249350

[5]

2002-40432

[6]

2002-40457

[7]

2000-47251

, 72 MVA-LCD (306, 308)
 , 가
 , (306, 308) () , CF
 CF 가 CF

(22) (12) (14) TFT(10)가 TFT(10)
 () (14) (12) , TFT(10) (24) ()
 22) (12) TFT(10)
 , ITO(Indium Tin Oxide) (16) (16) (26)
 (16) 가 , (26) (26)
 () (34) , (34) (26) 3 (6) ()
 (36) 3 (18) 3 (6) ()
 26)
 (26) (12) (14) ()
)(28) , (26) (28) (28) (28) () (32)
 (가) (30) , 가 (30) () (26) 4
 (26) (28) 4 CF (4) 가 가 ()
 30) (28) 가 가 ()
 (26) (12) (Wg) 77 μ m (14)
 (34) (d1) (Wd) 7 μ m , 35 μ m (32) (28) 가 (30)가 3 μ m (d1 < d2). 45 °
 (16) (32)가 (38) (24)
 , (16) (32)가 (39) (20)
 , (16) (38) () () (24)
 (38, 39) 가 (30)가 가 (30)
 4 (48)
 5) (48) (83, 84) (48) (83) 1/4 (4) (45,
 44) (84) TAC (46) (44) (48) 1/4 (45,
 1/4 (45) () (91) (83) (90) 45 ° , 1/4 (44) (94)
 (84) (95) 45 ° . 1/4 (44, 45) (94, 91)
 (83, 84), 1/4 (44, 45)
 . 1/4 (83) (90) (3) 155 °
 (45) (91) (48) TAC (46) (92)
 93) 1/4 (44) (94) (48) TAC (46) ()
 (84) (95) 65 ° 110 °
 (26) 가 가
 , CF (4) 가 가
 , (2, 4) 1/4 (44, 45) (83, 84)
 (83, 84) (白) 4% M
 VA-LCD(7% 5%) 70 1.5 가 , 가 가 가

(1-2)

5 TFT(10) 1-2 (24) 1 (16) 5 3 7 TFT (2) .
 가 (24) (30)가 A (28) 45 TFT (2) (16) 5 .
 B (14) (12) 가 (30)가 (20) C .
 6 (20) D (18) 가 (30)가 (20) , .
 7 (20) E (36) (28)가 (12) (14) 가 (30) (28) , .

(1-3)

F (14) 1-3 1 (34) 8 8 .
 G (12) (34) (12) (34) , .
 (26) (14) (28) .

(1-4)

(26) , (26) 1-4 1 (26) 1-1 1-3 (34) , (28) , 가 (26) (30) (32) (16) (36) .
 1-2 1-3 1

(1-5)

10 가 (30)가 1-5 1 (12) 10 11 , H .
 (14) (14) (36) (28) (3) .
 11 (36) (26) (28) 가 (28) 가 .
 6) (14) 가 가 () 가 .

(1-6)

12 9 8), 가 (30) 1-6 1-4 (14) (32) 1 (26) (26) (26) 12 12 (26) (33) 15 (12) (2) (33)가

13 (26) 14 (SiN) (14) 14 (54) , TFT (2) 13 A-A (52) (14) (56) (4) TFT (2) (53) (36) (53) (36) SiN (58) (56) (2) TFT (2) CF (4) (60) (36) (60) 가 (60) MVA-LCD (26) 4

15)가 15 가 (36) (36) 가 (62) SiN (14) (62) 14

6 1-1 1-5 (14) (26) (26) 16 1

17 (34) (12, 14) (26) 17 MVA-LCD

18 (26) (36) 6 (36) 18 (36) 가

[2]

(1) 가 (2) (3)TFT (2) (16) 가 3 (26) (26) 가 (26) (30) (28) (28) (26) (26)

, (42), (34), (43), (42, 43)

21 (2, 4) 1/4 (44, 45) (83, 84) 21 (50)

(2, 4) 1/4 (44, 45) (83, 84) (36) (42) 가

22 25 (26) 22 25 (26) (26)

22 (a) 19 (28) (G1 G4) (26) (26)

22 (a) (28) (S) (G1 G4) (G1 G4) (G1 G4)

3, G2 G4) X (S) 4 (42) (26) (G1 G4) (30) (28) 90° (30)가

(S) 2 (28) (G1 G2, G2 G3, G3 G4, G4) (G1) 180° 90° 가 (S)

22 (b) (26) 1 (G1 G4) 22 (b) (26) (S) 1

22 (c) (26) 2 (26) 22 (c) 1 G1, G4가 (S)

1 G3가 G2가

22 (d) (26) 3 (26) 22 (d) 1 G1, G4가 (S)

1 2 G2, G3가

22 (e) (26) 4 (26) 22 (e) 1 G1, G4가 (S)

1 G2, G3가

22 (f) (26) 5 (G1 G4) 22 (f) (26) (S)

22 (g) (26) 6 22 (g) (S) (G1 G4) (G1 G4) 2 (G1 G3, G2 G4) X

22 (h) (26) 7 22 (h) (S) (G1 G4) 2 (G1 G3, G2 G4) X

23 (a) (26) 8 23 (a) (S) (G1 G4) (G1 G4) 2 (26) 1 (G1 G3, G2 G4) X 45° 90° (1) 가 (30) (30)

(2, 4) 1/4 (44, 45) (83, 84)

23 (b) (26) 9 23 (b) (28)
 8 . 가 (30) (26) 1 45° (2)
 . , 가 (30) (28) . 가 (30)

23 (c) (26) 10 23 (c) (28)
) 8 9 . 가 (30) (26) 1 ((S)
 , 4 가 (30)가 3(3 90°), 4, 5, 6 45° 3 4 5 6 135°가 . ,
 가 (30) 가 (30) (28) 가 , 3 6 가
 가 (3 6) .

24 (a) (26) 11 24 (a) (28)
) () () 가 .

24 (b) (26) 12 24 (b) (2)
 8) . (28) . 가 ,

24 (c) (26) 13 24 (c) ()
 28) 「 < 」 . 24 (a) (c) 가 .

25 (a) (26) 14 25 (a) , 가 (30)
) (28) 가 , , 가 (30)
 가 ,

25 (b) (26) 15 25 (b) , (W2) (28) ()
 W1) (W2 W1). 가 . (W2) (28) (W1) (W2 < W1).
) 가 .

26 (36) 26 (34) (34)
 . 26 (a) 19 (36) (34) (36) (28)
) . 26 (a) , (36) (34)

26 (b) (36) 1 26 (b) , ()
 36) 가 (30)가 (34) 가 (30) . (3)

26 (c) (36) 2 26 (c) , ()
 36) (34) 가 (30) 가 (30) . (36)

26 (d) (36) 3 , (26)
 , (36) (14) 가 (30) , 26 (d)
 (36a) , (36a) 가 (14) , 가 (30)가
 (36b) . (14)

26 (26) (36) (28) 가 (30) (24) (26)
 2 . 2 , (24) (26)

(26) , 가 (26) .

(2-2)

27 μm (26) 2-2 (28) (26) 27 29 (26) $77\mu\text{m} \times 35$
 4 (12) (14) 45° 가 (26) (28) (28)

6 (26) (12) 1 (14) (36)
 (34) (18) (28) 3) (26)

28 가 28 BM(40) 3 가
 4 , 1 가 (26) (28)

1 (26) $77\mu\text{m} \times 35\mu\text{m}$ (16)
 (28) 가 (30) 가 (34) (43)
 , (42, 43) (42)

29 (2, 4) 1/4 (44, 45) (83, 84)
 (2, 4) 1/4 (44, 45) (83, 84) 29 (50)
 (42) 가

(2-3)

30 2-3 30 32
 (14) (12) $225\mu\text{m}$,
 (14) (12) $75\mu\text{m}$ (14) , $6\mu\text{m}$ 2-1 2-2 (12)
 (16) (14) $55\mu\text{m}$ 가 (16) $7\mu\text{m}$,

(26) $55\mu\text{m} \times 55\mu\text{m}$ (28) (26)
 가 (28) (26) (12) (14)
 (30) 가 (28) 가 (30) , $3\mu\text{m}$ (32) , $3\mu\text{m}$
 (28) 가 (30)가 90° , 가 45° , 가 (30) (26)

3 (26) (12) 1 (14)
 , (18) 가 (34)
 , (18) $150\mu\text{m}$, (12) $75\mu\text{m}$
 , (12) 20 μm (18)((20))
 (26) (18) 2 1

(26) 2-1 가 (26) 가 가 (38) 7 μ m
 15 μ m x 15 μ m (26) (22) 가 (16) 가

(36) (26) (36) (14) () (28)
 (34) , 7 μ m , (34)

30 , TFT (2) CF (4) BM(4)
 0) . BM(40) 20 μ m (12)
 R, G, B 75 μ m , (14) 225 μ m . BM(40)
 CF . CF , ITO

31 가 31 BM(40) 3 가
 31 (26) (28)
 4 (26)

1 (26) 55 μ m x 55 μ m (16)
 (28) 가 (30) 가 (34)
 , (42) , (43)
 , (42, 43)

32 (2, 4) 1/4 (44, 45) (83, 84)
 (2, 4) 1/4 (44, 45) (83, 84)
 (42) (36) (50)
 , 가
 (16)

) 1/4 (44, 45) (83, 84) (2, 4)

, 1 (26) (12)
 1 (26) (14) 2 6 (26) (12)
 (26) (12) 2 (26) (14) 4 (26) 12 (14)
 6 18 (26) (12) 3 (26) (14)

[3]

3

가 가 가

MVA-LCD TN LCD TN 가 MVA
 가 TN LCD 가 MVA
 가 MVA-LCD 가 가 가
 가 가 가 가

, MVA
 가

가
 45°

2 MVA

1 (Retardation)
 가
 45°

2 300μm 10μm (26) 100μm ×
 1 2 3μm
 가 (26)

가 (26)

가 33

가 33 (a) 33 (b) 33 (a)
 , 33 (b) (26)

(36) 2 26 (a) 33 (b) 33 (d)
 (16) lcm

가 33 (a) 33 (b)
 (26) 가 (26)

33 (b) s = +1 (a) s = -1 33 (a)
 , b 가) s = -1, +1, -1 (c)
 33 (b) 33 (d) s = +1 s = -1

가 가 33 (c) 33 (d) 33
 (c) , 33 (d) (26) 가 33

가 33 (c) 33 (d) 가 33 (a) 3
 3 (b) , 가

가 ()

가 (/ 4) 가

가

가 가

1 가 , 33 가

가

가

33

가

33

3

33

a, b, c

34

34 (a)
(a)

(26) X

(28)

s = +1

(34)

s = -1, +1, -1

(c)

(34)

s = -1

(b)

34 (b)

(26) X

(28)

s = +1

(a)

(34, 34)

s = -1

(b)

34 (c)

(26) X

(28)

s = +1

(a)

(34, 34)

s = -1, +1, -1

(c)

34 (a), (b), (c)

가

35

2

35 (a)

lcm가

(200)

35 (b)

(202)

(200, 202)

lcm가

가

1

2

(200, 202)

1

(200, 202)

가

1

가

3-1

3-11

(3-1)

36

36 (a), (b), (c)

1

(400a, 400f, 402, 404)

(16)

TFT

(2)

36

(a)

(400a, 400f)

(26)

(400a, 400f)

(36)

s = +1

(a)

(26) X

(28)

36 (b)

(402)

(26)

(34)

(34)

가

(402)

s = -1

(b)

(26)

(34)

36 (c)

(404)

(26)

(34)

(34)

2

(36, 36)

(404)

(404)

-1, +1, -1

(c)

(26)

(34)

s =

LCD

TFT (2) , 1 2
 가 0.7mm OA-2() 36 1 2
 (16) TFT(10) (12, 14) 가 (16) , TFT (2)
 (26) (26) 가 (30) db = 3 μ m, (32) (a) ds = 3 μ m
 , TFT, 30 , 36
 2 , TFT 1 3

TFT (2) 36
 (400a 400f, 402, 404)가 JSR
 (400a 400f) 가 10 μ m
 (402) 10 μ m · 가 30 μ m 2 (404)
 가 10 μ m , 가 10 μ m · 가 40 μ m 1.5 μ m
 , TFT
 JSR
 4 μ m 가
 가

가 ()
 가 s = +1, s = -1 ()
 가 ,

(3-2)

37 37 (a), (b), (c) TFT
 1 (406) (26) (406, 408, 410) 37 (a)
 (26) (28) s = +1 ()
 a) (26) X (28)

37 (b) , (408) (26) (34)
 (b) (26) (34) (408) s = -1

37 (c) , (410) (26) (34)
 (36, 36) s = -1, +1, -1 (c) (26) (34) (410)

(406, 408, 410) 10 μ m
 가
 가
 s = +1, s = -1 가 , 가
 가 ,

38 3-1 38 3 가
 (18) 3 2 (26) (16) 38
 (26) 13 19 (26) (36) (410')가 (1)

-1 (b) (26) (402) s =

39 (36) (26, 26') (28) (34) (36) (34) (26, 26')

(410'')가 (34) (36) s = -1 (b) (26, 26) 가 s = +1 가

(3-3)

40 (26) (28) 3-1 가 (412, 414, 416) 40 (a), (b), (c) 40 (a) TFT

(412)가 (28) (412) 가 , TFT TFT s = +1 (a)

40 (b) , TFT (26) (34) (34) 가 (30)가 (26) s = -1 (b)

(414)가 (34) (414)

40 (c) , TFT (26) (34) (36, 36) (416)가 (26) (34) (416) s = -1, +1, -1 (c)

(412, 414, 416) 10 μ m , 1.5 μ m 가 s = +1, s = -1 가 , 가

(3-4)

41 (418a 418f) (418a 418f) 41 (a), (b), (c) 41 (a) (36) (26) (10 μ m , 1.5 μ m) s = +1 (a) (26) X (28) (418a 418f)

41 (b) (420) (34) 2 (36, 36) (420) s = -1 (10 μ m , 1.5 μ m) (b) (26) (34)

41 (c) (34) (422) (26) (34) (422) 2 (10 μ m , 10 μ m x 40 μ m , 1.5 μ m) s = -1, +1, -1 (c)

c) (26) (34)

가 , 가 ,
 $s = +1, s = -1$ 가 , 가

(3-5)

42 (a), (b) TFT
 (424) (34) (424, 426) 42 (a)
 (10 μ m, 1 μ m)
 $s = -1$ (b) (26) (34)
 42 (b) (426) (36) (10 μ m,
 1 μ m) (c) (26) (34) $s = -1, +1, -1$
 TFT

가 , 가 ,
 $s = +1, s = -1$ 가 , 가

(3-6)

43 (a), (b), (c) TFT
 (428a 428f, 430, 432) 43 (a)
 (10 μ m, 1 μ m) (26) X (28) (36)
 428f) $s = +1$ (a) (26) (28) (428a)
 43 (b) (430) (26) (34) (34)
 (10 μ m, 10 μ m x 40 μ m, 1 μ m) (430)
 $s = -1$ (b) (26) (34)
 43 (c) (432) (26) (34) (34)
 (36, 36) (432) $s = -1, +1, -1$
 (c) (26) (34)
 TFT

가 , () , ()
 $s = +1, s = -1$ 가 , 가

(3-7)

44 (a), (b), (c) TFT
 1 (434, 436, 438) 44 (a)

(434) (26) (28) s = +1
 (a) (26) X (28) (434)
 44 (b) (436) (26) (34)
 (b) (26) (34) (436) s = -1
 44 (c) (438) (26) (34) (438)
 (36, 36) s = -1, +1, -1 (c) (26) (34)

10μm
 1μm
 s = +1, s = -1 가 가 가

(3-8)

45 46 45 LCD TFT (2) (53) (58) 45 (a)
 (52) (56) (48) CF (4)
 TFT (2) (56) (440)가 (2, 4)
 (48) (440) lcm 가 CF (4) (440)
 가
 , 45 (b) TFT (2) (56) (16) (16') (E)
 (442)가 lcm CF (4)
 (442)
 45 (c) 45 (a), (b) lcm가
 (16') (444) 가 45 (c) lcm

46 45 (c) (444) (26) 46 ((10
 a) 46 (a) X-X (b) (444) (10
 μm (1μm) (36) (36)
 s = -1 s = -1, +1, -1 (c) (26)
 (34)

46 (c) 46 (c) Y-Y 46 (d) (446)
 (10μm (1μm)) (36) (36)
 (34) s = -1 (446) (b) (36)

(3-9)

47 (b) 47 (a) A-A , 47 (a) (c) , 47 (c) 47 (a) B-B , 47 (448) (30)가 (X
)(28) X 가 가 (, 47 (b), (c) , 45 (a), (b)
 , s = +1 (a) 가 ,
 a
 ,
 (3-10)

48 (a) 48 , 35 , (26) 2 (34)
 lcm가 (202)가 , (34)
 , 가 (202)
 가 (a) ,
 (202) 2 4μm (202) (a) 12
 μm , (a) 4 6μm , 4μm
 (3-11)

49 , (26) (34) 2 (16) ,
 (204) 49 (a) (34) (36) 2 (2
 04) 49 (b) (34) 2 (36) 2 ()
 206)
 , (204, 206) 가 가 ,
 (204, 206) (204, 206) 가 가
 (204, 206) lcm , (36)
 s = -1

TFT (204, 20)
 6) 가 , (204, 206)
 가 (204, 206)

50 (18) (204, 206) (TFT)
) 50 (a) (36) (14) ()
 , 50 (b) (36) (26)
 , (34) (18) (14)
 (204, 206) , 50
 (210)

51 1 86μm × 260μm 51 (a) 51 (e) 1 가
 (18) 3 2 (26) (16)
 51 (a) 51 (e) (26) (28)가 X , 51 (b) 5
 1 (d) (26) (28)가 , 51 (a), (c), (e) (36)
 (14) , 51 (b), (d) (36) (26)

(18) (14)

H (206) . H (34)
 (210) , 51 (210) (26)
 51 , H
 (206) 가 H (36) s = -
 (206) lcm
 1 .
 , 가 가
 .
 [4]
 4 .
 MVA LCD 80° 10 가 가
 , 가 가 .
 52 52 (a) (526) (534)
 5 , 가 3 (526) (526)
 (526) 1 (536) . 52 (b) 52 (a)
 (526) (536)
 52 (a) 52 (b) (536)
 (526)
 가 s = +1 가 , (536)
 가 (536)
 , (1) , (2) , (3)TFT
 (, 가)
 , 가 TFT
 1 , 2 , 53
 (1) .
 , 1 가
 가 .
 1 (2)
 , 5μm 6μm 100μm ,

LCD

가

(1) 가

(2) TFT 가 「 (Beta) 」

(3)

(1) (3) 가

1 2 가

(4) 1 1 2 , s = +1
가

(5) 2 1 2
s = +1

(6) 6 μ m 가 가

(7) 가 가 가 가 가
가 , 1 가 100 μ m 가 , 40 μ m

(8) 5 μ m s = +1 s = +1 가

/4

가

4-1 4-5

(4-1)

53 54 (26) 53 5 4 (26)
, (26) (26) (36) 53 ,
(26) (26) (36) (34) (26) 2
(36) (36) (26) 2 , 53 s = +1 가 1

54 53 (26) (36)
(14) (2) 300 μ m , (12)
, 100 μ m 8 μ m . TFT (16) 7 μ m (16) ITO (14) (12)
, 77 μ m (16) (16) (14)

(12) TFT(10)가

(16) (26) (26) 1 (26) (26) 19 μm ×19 μm
 「 」 (26) (36) (26) 6 μm (34) .
 (26) (36) (36) (26) .
 (36) (36) (36) (36) (36) (36) (36) 4
 (36) (36) (36) 3.5 μm (26) (36) 6 μm (34) (26)
 (34) 가 , 1 (34) (34) (36) (34)
 1 (34) 가 , (34) (34) .
 , (16) 가 () TFT(10) .
 , 15 μm 「 」 .
 , TFT(10) ,
 7 μm (16) (16)
 , CF () (4) R, G, B (14) 23 μm 가 300 × 100 μm
 「 」 (CF) (4) ITO
 . TFT (2) , (4) 가 가 ()
 , 4 (16) 1 (26) () 가 19
)
 μm × 19 μm (16) (34) (36) 가 .
 (26)
 (4-2)
 55 (26) 3 , 1 (26) 53 ()
 36) (26) , (26) (36) s = +1
 (4-3)
 56 (26) (26) 53 ()
 36) (26) 2 가 (26) (36) 2 (26) 2
 (26) s = +1
 (4-4)
 57 58 . 57 (a) 1 (26) (26)
 , 57 (b) 3 2 (26) , (26)
 (36)
 μm 4 (26) (33) 35 μm ×35 μm . 1 (26) 가 가 6
 (33) (33) 가 가

57 (a) 4 14 μ m (33) (33)
 45° (33) (33)가 57 (a) (26)
) (26) (12) 2, (14)
 6 58 가 (26) 7 μ m (34)
 (16) (26) (36) (16) (34)
 (26)
 (4-5)
 59 60 (14)
 75 μ m (4-1 4-4 225 μ m 1 가 (12)
 TFT (2) 6 μ m (14) (12) 7 μ m (16) 55 μ m (12) TFT(
 16) (14) (14) (12) TFT(
 10)가
 (16) (26) (26) 6 μ m (34) (26) 24.5 μ m \times 24.5 μ m (26)
 (36) (26) (36) (36) (36) (36)
 3.5 μ m (36) 6 μ m (34) (36) (36) (36) (36)
 (26) (36) (34) (36) (34) (34) 가 1 (34)
 (34)
 (14) (26) 가 ((12)) 2, ((34) (18) (26)
 가
 (12) 150 μ m, (12) 75 μ m
 20 μ m (20) (18) 8(= 2 \times 4)
 4(= 2 \times 2) (26) 가 4-1 TFT
 (26)
 (16) () TFT(10)
 가 (16) 「 」
 15 μ m
 TFT(10)
 (16)
 7 μ m (16)
 , CF () (4) (14) 20 μ m 가 225 \times 75 μ m 「
 R, G, B CF (4) ITO
 가 가 ()
 TFT (2) (4) ,

$5\mu\text{m} \times 24.5\mu\text{m}$ (16) , (34) (26) (16) 1 (26) (26) (가 24
 , (16) (34) (26) (36) 가 . 1 (26) (가 24
 , (16) (34) (26) (36) 가 . 1 (26) (가 24

60 59 (26) 57 (16)
 60) 3 (16) 57 (18) (26) (26) ((14)
 TFT 2 , 가 (18) (26) (26) (34)
 (26) 1 (26) , 4-1 (18)
 (26) , (34)

LCD
LCD

[5]

4 5 , MVA-LCD ASV-LCD
 가 , s = +1
 가 .
 , 가 s = +1
 s = +1 s = +1
 s = +1

- (1) ,
- (2) ,
- (3) 가 (,).

, TFT s = +1
 가 .

, 가 가
 (1) 1 ,
 , s = +1

(2) 1 , TFT
 , TFT
 가 s = +1 s = +1
 s = +1 가

(3) TFT 가

s = +1

5-1 5-4

(5-1)

61 62 D-D 300 μ m (26) (14) 100 μ m (

TFT (2) (52) 7 μ m (14) (12) SiO₂ 가 1 (500) (12) 2

(502) (14) (62). 2 (502)

(1) TFT(10) (16) 가 5 μ m

(26) (26)

(2) (26) (26) 35 μ m x 35 μ m (26) 6 , 1 가 (26) , 1 (26) 37 μ m x 37 μ m

2 , 2 (502)

(16) ITO (26) , ITO 2 (50

2) 37 μ m x 37 μ m 4 μ m (504) (36) (26) (26)

TFT(10) (16)

7 μ m (16)

, CF () (4) (14) 23 μ m 가 300 x 100 μ m

R, G, B (CF) (4) ITO

TFT (2) (4) 가 가 ()

(16) 1 (26) (

63 lcm TFT (2) 63 (a) TFT (2) CF (4) (26)

(34) 가 63 (b) lcm가 s = +1 lcm

(F) (34)

s = +1 가 , 6

2 (26) (16) (34) 2 (502)

(5-2)

64 67 64 61 E-E
 5-1 65 67 64 (26)
 TO (510) (16) 65 (a) (52) ITO (510) (16) ITO (36)
 d) (516) 65 (b) (514) (65 (c) (26) 65 (36)
 , 66 (b) (516) 66 (a) (12)
 (26) () (12) () 66 (c)
 (520)
 67 (a) (22), (24) TFT(10) (522) 67 (b) 67 (c)
 (14) (518) (514) (16) TFT (2)
 (36) (524)
 (36) (524) (34) (16) (36) (26) s = +1
 (5-3)
 68 (14) 75μm
 5-1) 225μm (12)
 TFT (2) 6μm (14) (12) 7μm
 16) (16) ITO (16) (14) 55μm (12) TFT(
 10)가
 (16) (26) 가 1 3 3 1
 (26) 4μm 55μm×55μm (36) (26) 8μm (34) (26)
 TFT(10) (26) (26) (530) 5μm (16) (530) 5μm
 (24) (26) (28) 가 (30) 가 (26) 가
 (32) (26) (26) (24) (26) (26) 가
 (16) TFT(10) (24) (24) (24)
 (26) s = +1 (24) (24)
 (5-4)
 69 5-3 가
 (16) 1 (26) 2 (26') 1 (26) 55μm×55μm
 26') 가 2 (26') 24μm×24μm (16) 2 (26') 1
 (26) 가 1 , 2 2 (26') 1

(26') 가 (12) TFT(10) (24) 2
(26') (26) s = +1

가

, TFT

가 가

(26)

18) 2 (26) (26) (18) (

MVA-LCD

TN(Twisted Nematic)

(16)

TFT (2) CF (4) CF가
TFT TFT (2) CF가 CF-on-TFT

1

(1)

(2)

1

(3)

1 2

가 , 가

(4)

3

(5)

3 4

(6)

3 5 1

가

2

(7)

3 6 1

(8)

3 7 1

4

(9)

8

1

4

(10)

9

4

(11)

10

4

(12)

9

4

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(13)

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4

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1

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1

(14)

9

4

1

2

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2

(15)

9

14

1

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4

1

(16)

15

4

(17)

9

16

1

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4

2

X

2

(18)

9

17

1

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(19)

18

가

(20)

9 17 1

가

(21)

9 20 1

(22)

8 21 1

(23)

7 22 1

(24)

7 22 1

(25)

24

2

(26)

7 25 1

가

(27)

7 26 1

가

(28)

7 27 1

가

(29)

7 27 1 ,
가 가

(30)

7 29 1 ,
가

(31)

7 30 1 ,
가

(32)

8 31 1 ,
가 가 1 45 ° 90 °

(33)

32 ,
가 가 1 90 °

(34)

32 ,
가 가 1 45 °

(35)

7 34 1 ,
가 가 90 ° 135 °

(36)

7 34 1 ,
가 가 45 ° 90 °

(37)

7 34 1 ,
가 가 90°

(38)

7 37 1 ,

(39)

38 ,

(40)

7 39 1 ,
가 ,

(41)

7 40 1 ,
가 , 가

(42)

41 ,
가 , 가 가 ,
가 가

(43)

7 40 1 ,
가 , 가 가 가 , 가

(44)

7 40 1 ,
가 가 , 가 가 , 가

(45)

7 44 1 ,
가 ,

(46)

7 44 1 ,
 ,

(47)

7 46 1 ,
가 ,
2

(48)

1 47 1 ,
3

(49)

1 48 1 ,
가

(50)

1 49 1 ,
가

(51)

49 50 ,
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51

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52

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52

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가

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가

(56)

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54

1

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가

(57)

52

54

1

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가

(58)

57

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(59)

52

58

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(60)

49

50

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(61)

60

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2

(62)

60

가

(63)

62

(64)

62 63

(65)

62 64

1

가 ,

4

(66)

1 65

1

1

2

(67)

66

(68)

66

1

(69)

68

(70)

66 69 1

5 μ m

(71)

66 69 1

100 μ m

(72)

66 70 1

5 μ m

5

(73)

1 72 1

(74)

73

(75)

73

가

(76)

73 75 1

(77)

76

(78)

73 77 1

가

(79)

77

(80)

77

(81)

80

(82)

TFT

(83)

가

2

1

81

1

2

(84)

83 ,

(85)

83 84 ,

2 1/4

가

(57)

1.

2.

1 ,

3.

1 2 ,

가 , 가

4.

3 ,

5.

3 4 ,

3 6. 5

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6 7.

1

4

7 8.

4

1

1 9. 8

가

1 10. 9

가

9 11. 10

11 12.

1 13. 12

2

(角部)

1

14.

13

(全邊)

15.

13

1

16.

1

15

(周緣部)

17.

16

18.

TFT

19.

가

2

2

1

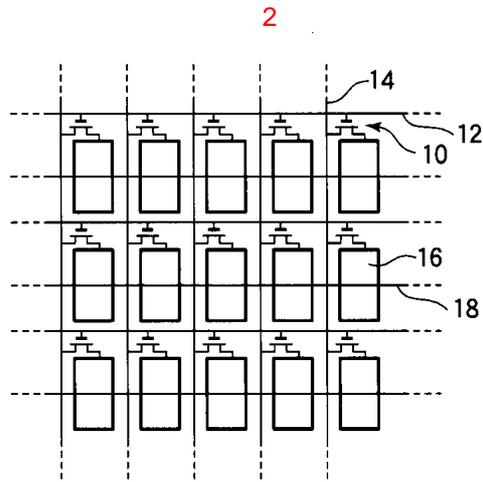
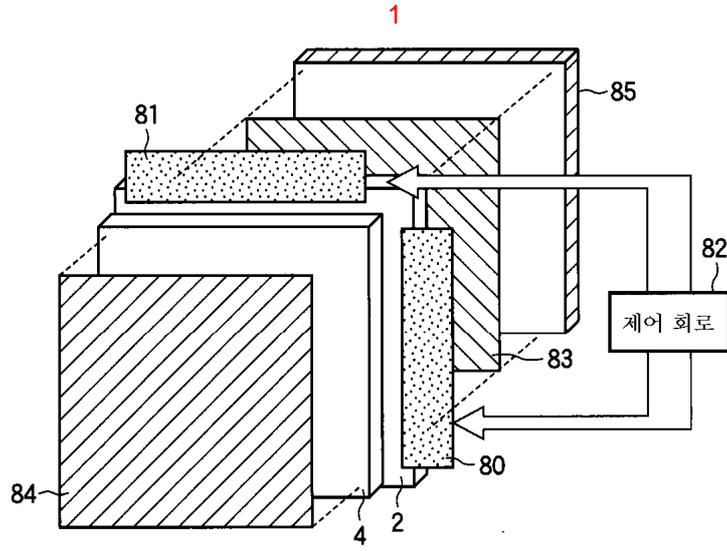
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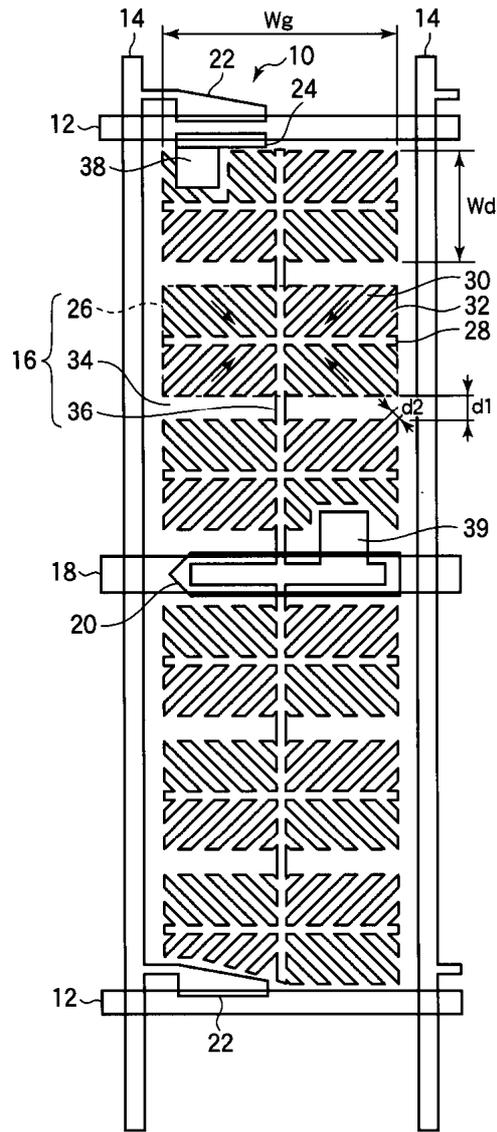
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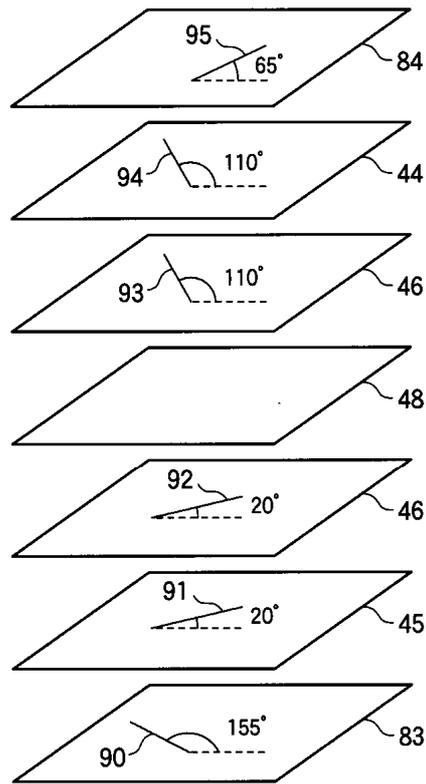
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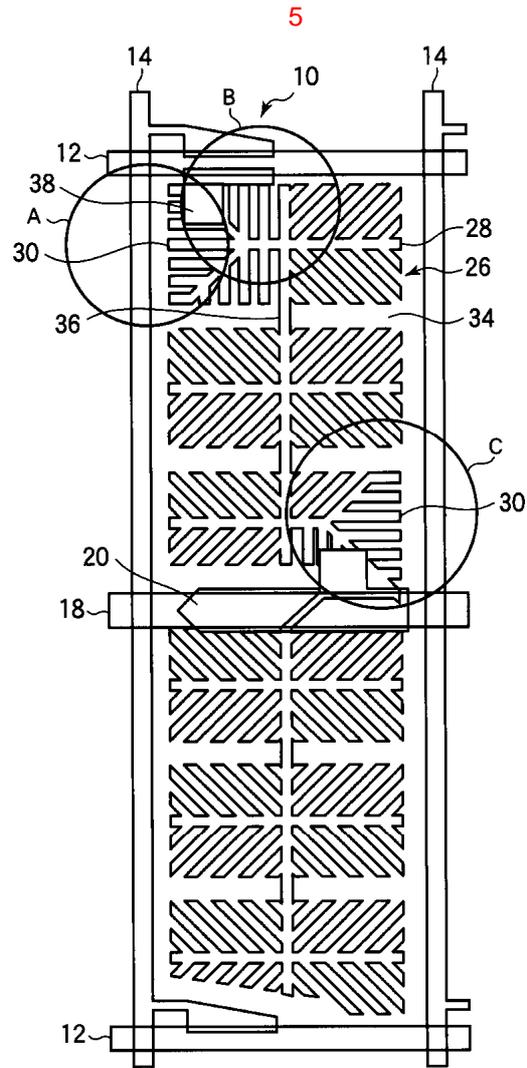


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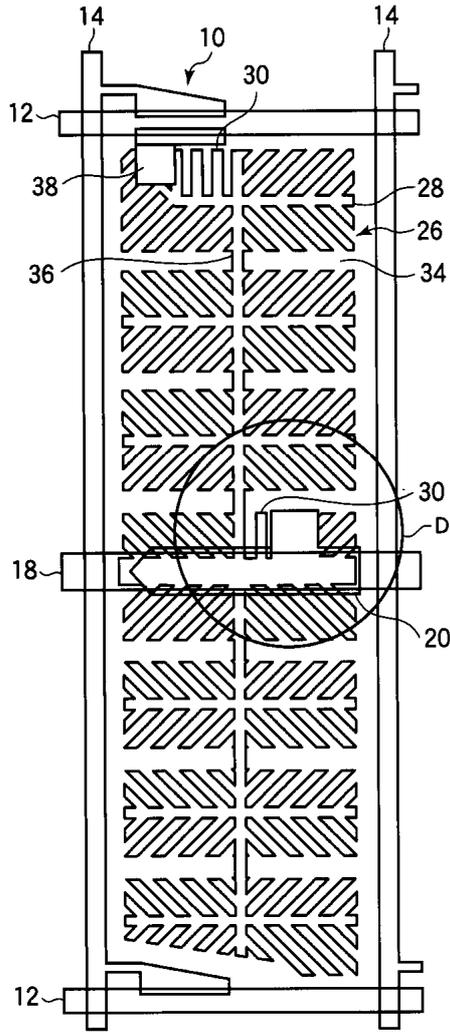


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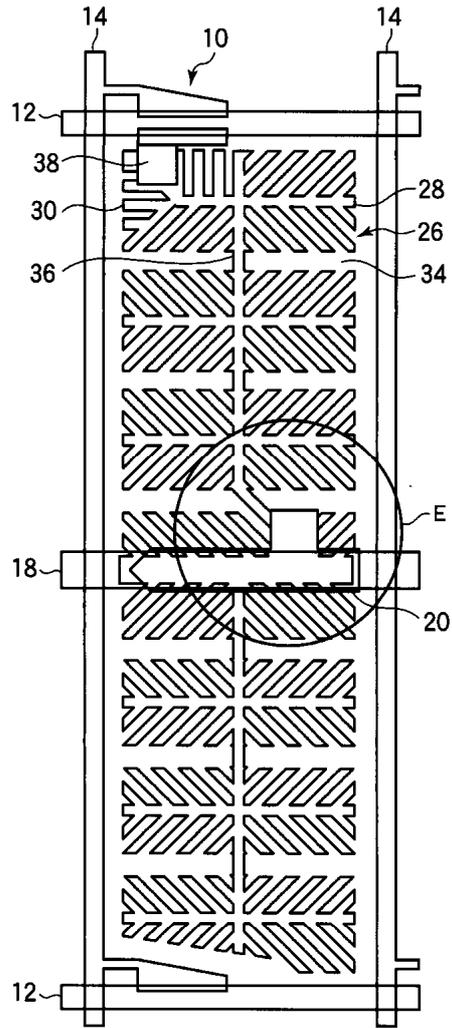




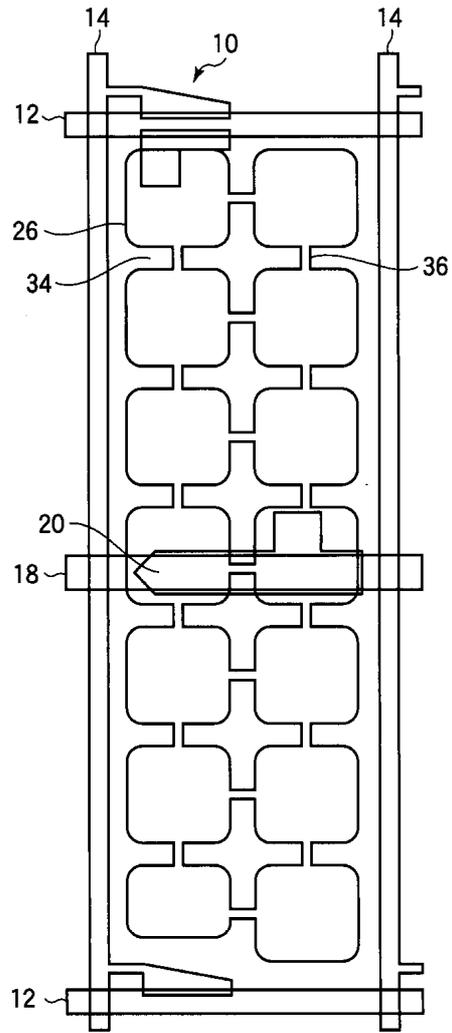
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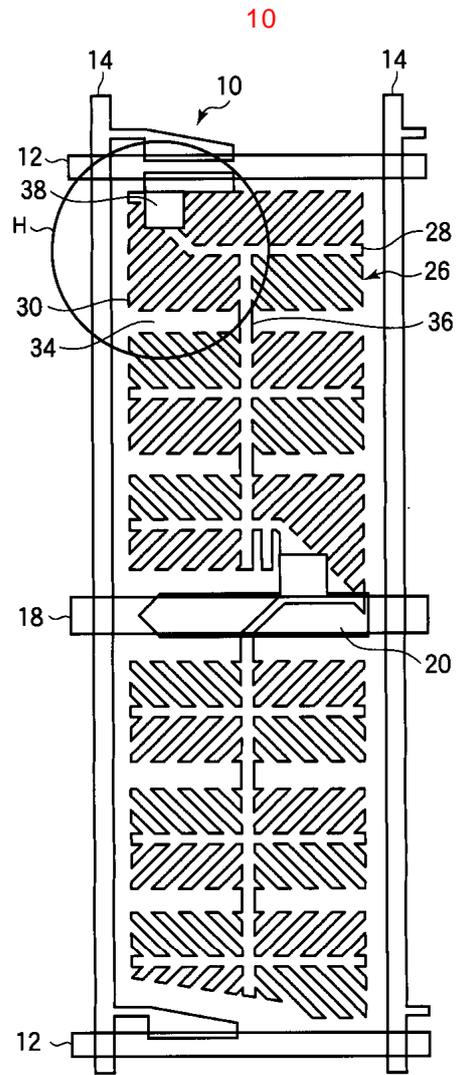


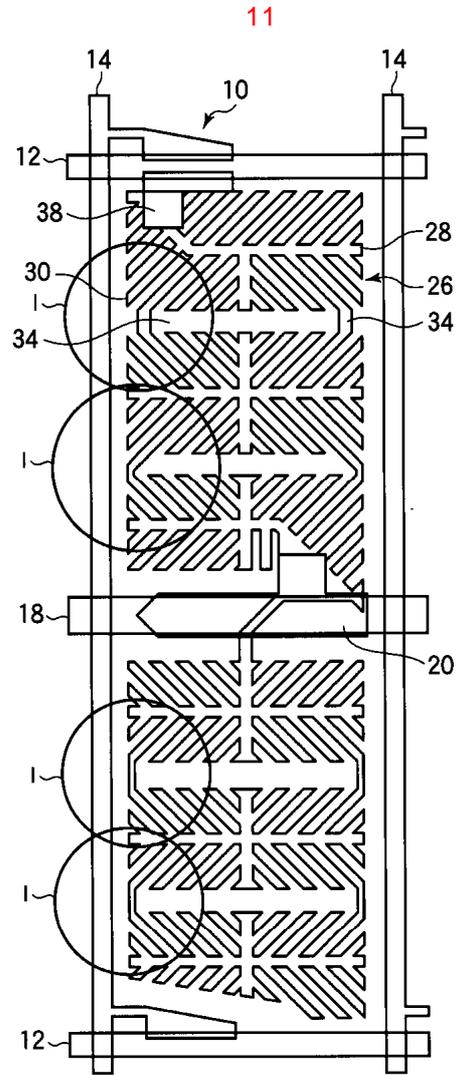
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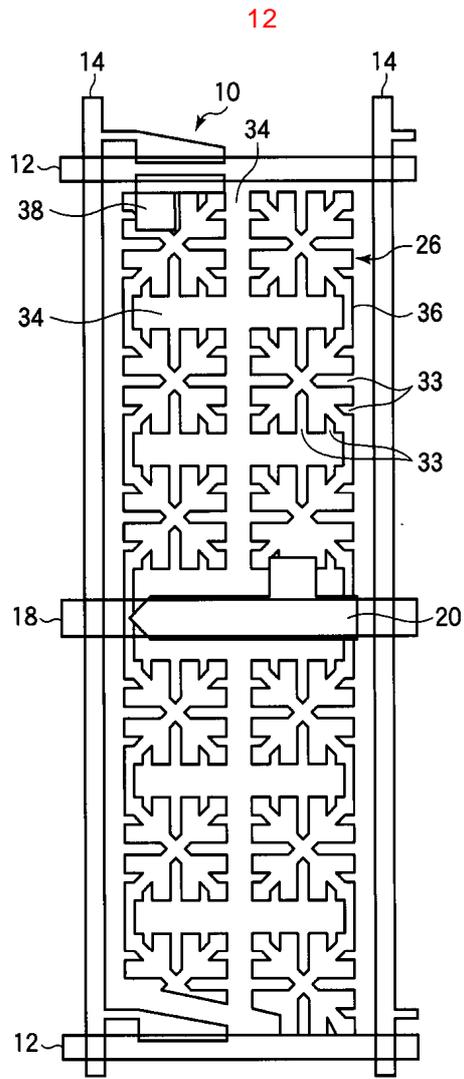


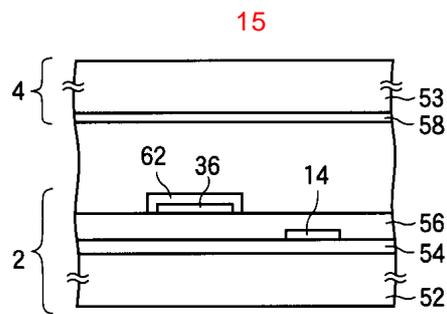
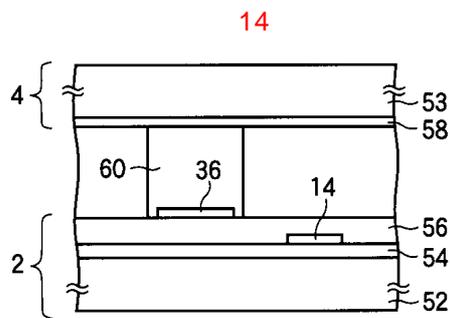
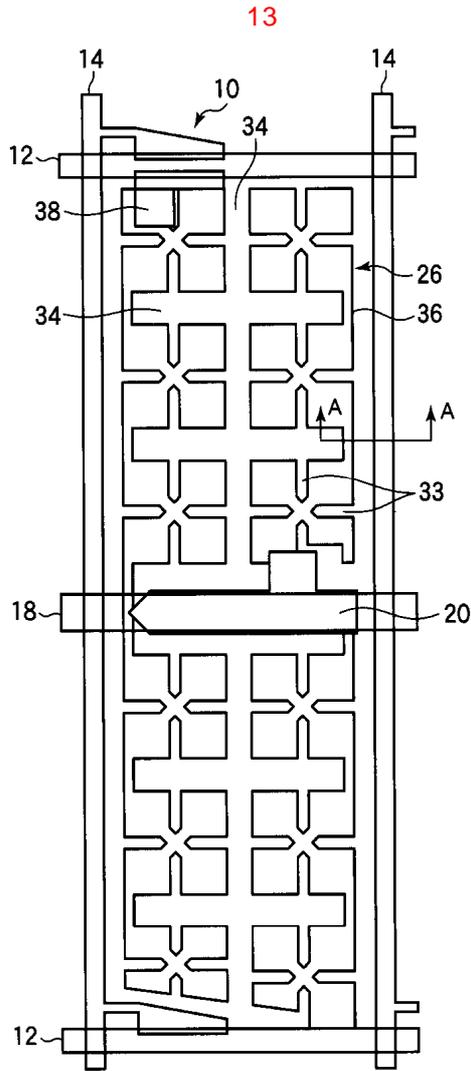
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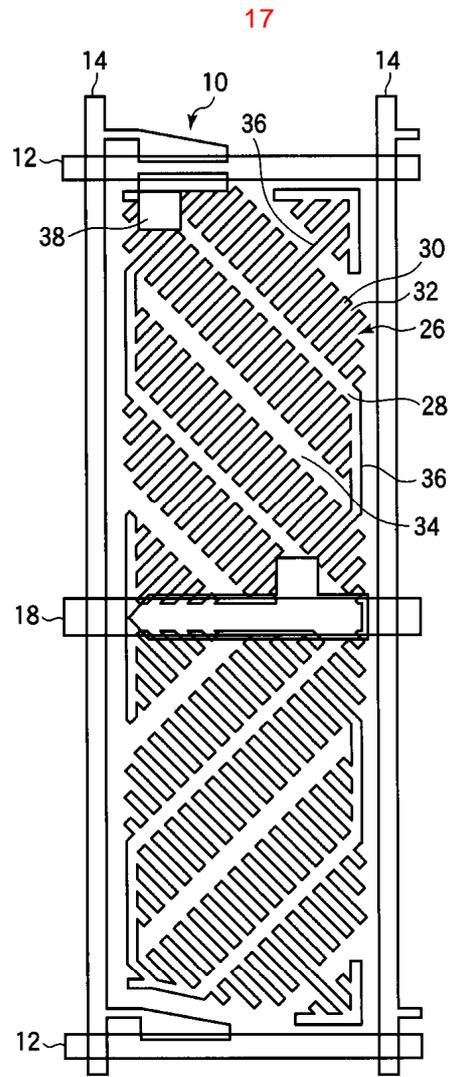


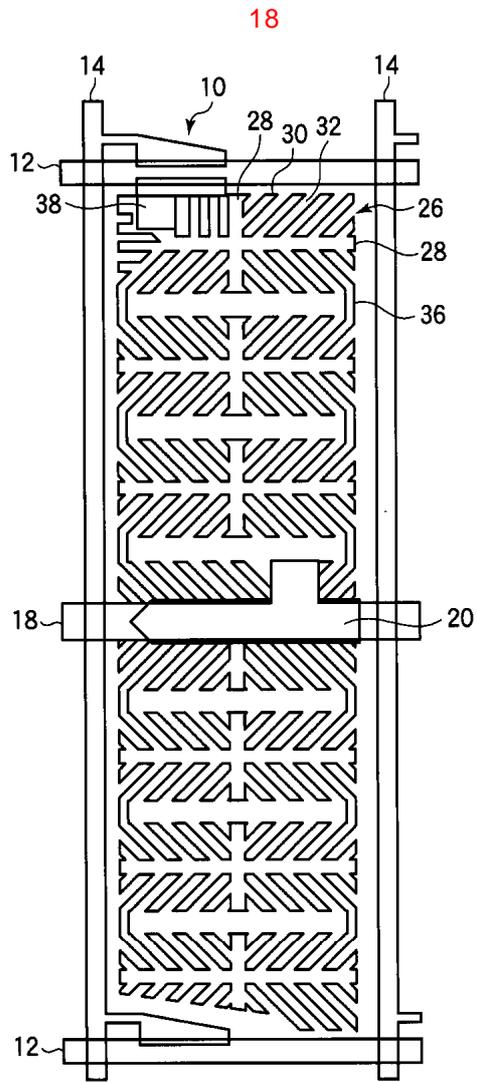


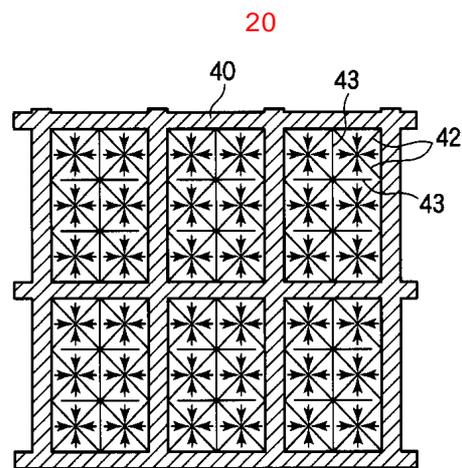
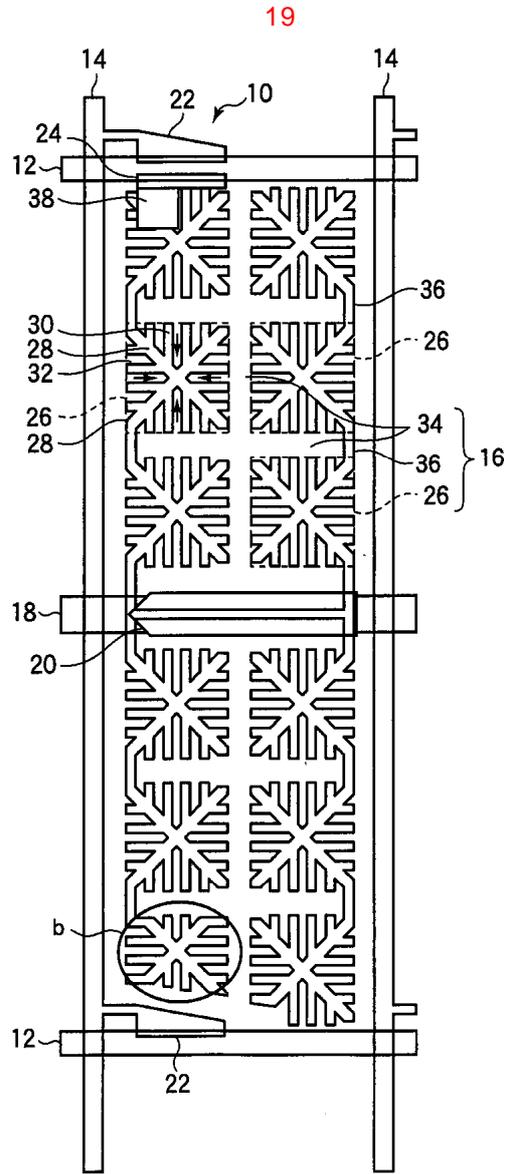




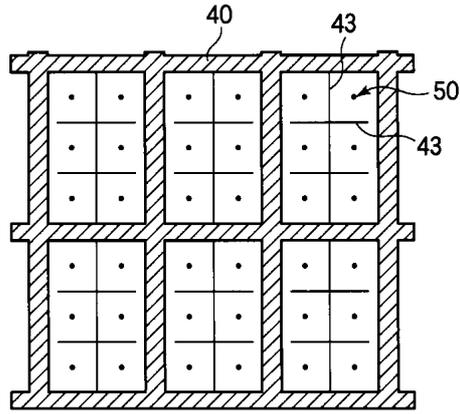




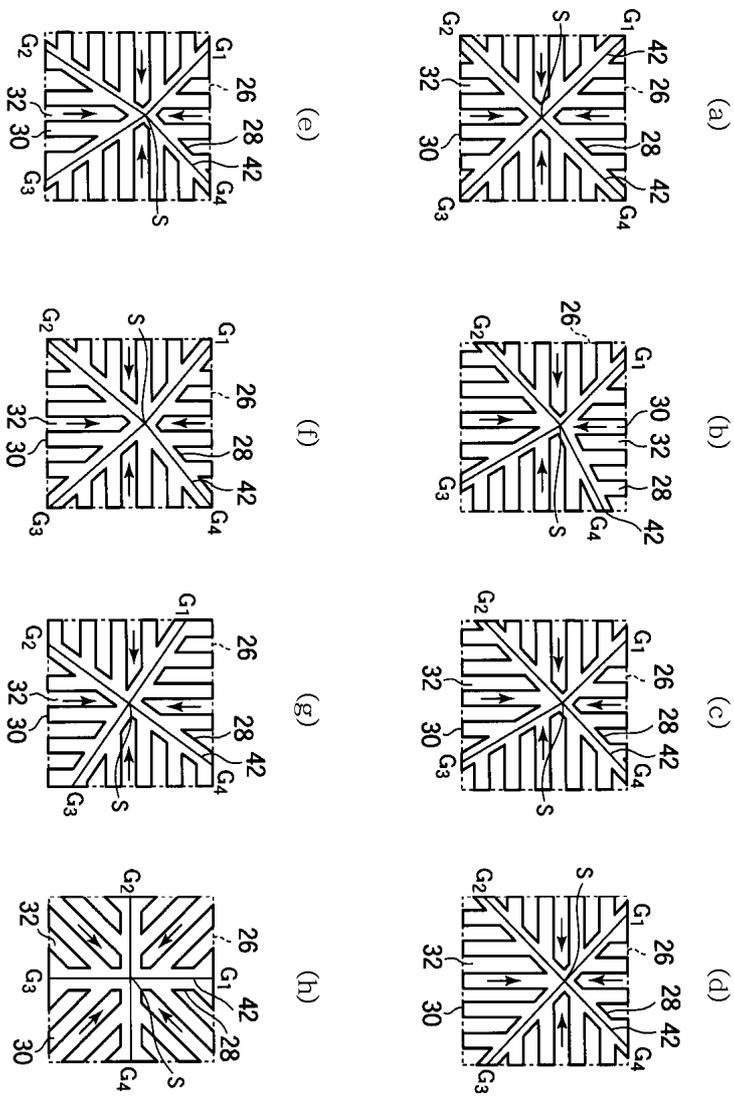




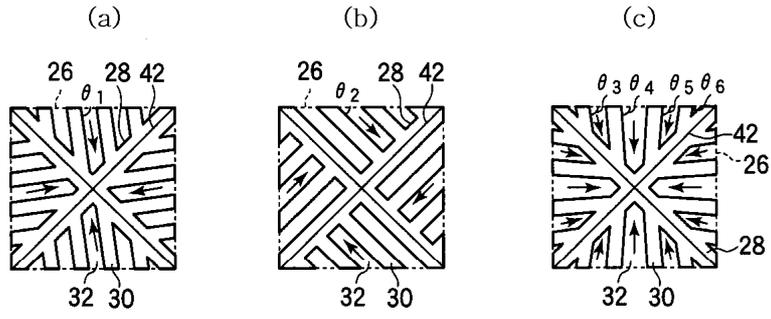
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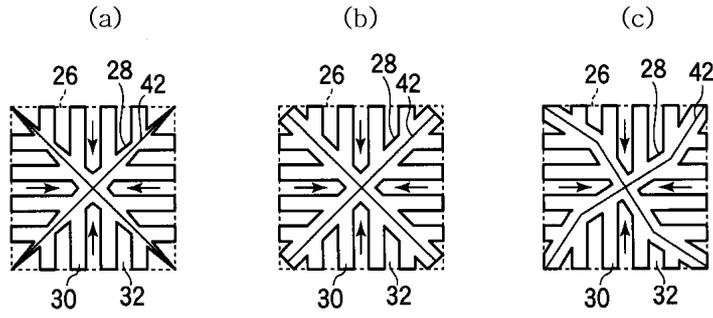
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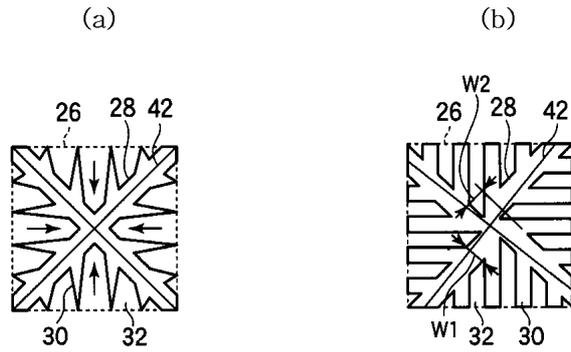
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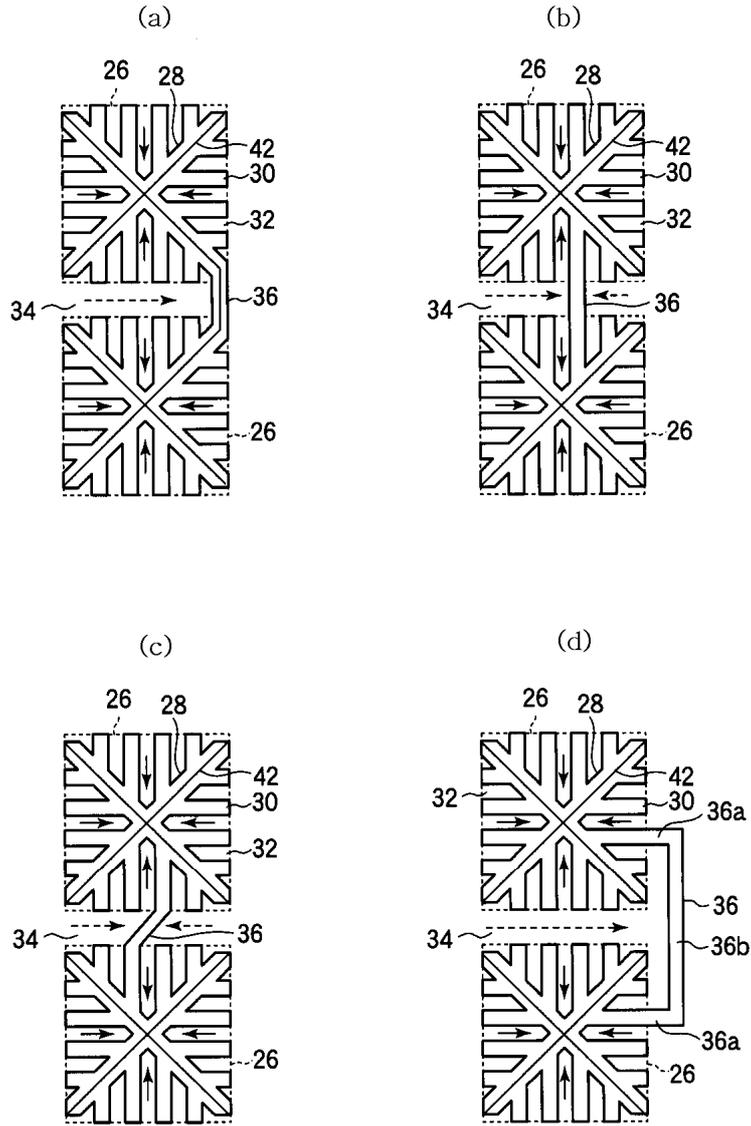
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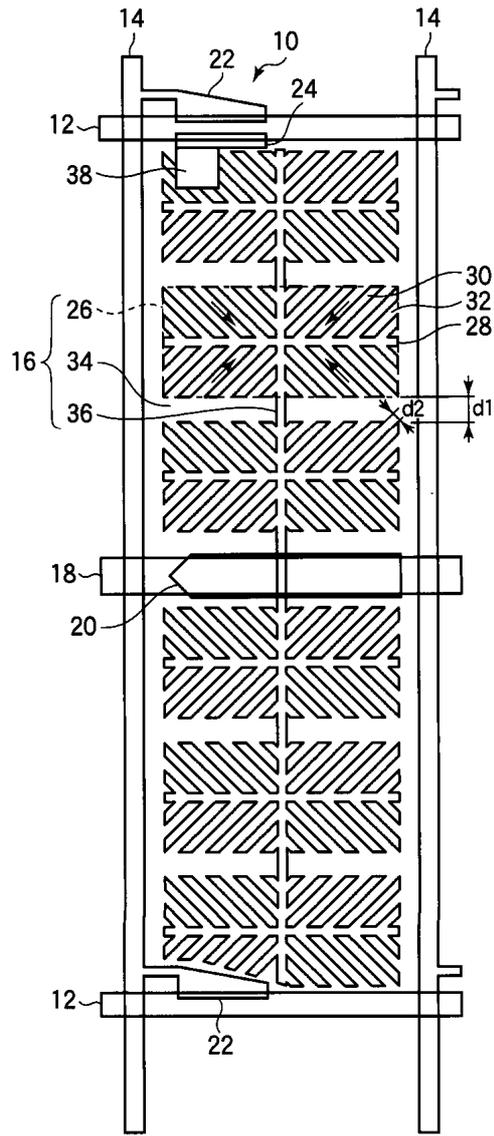
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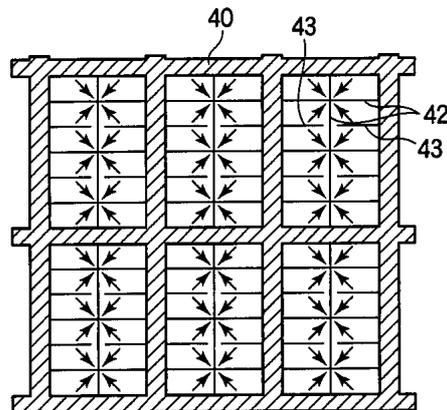
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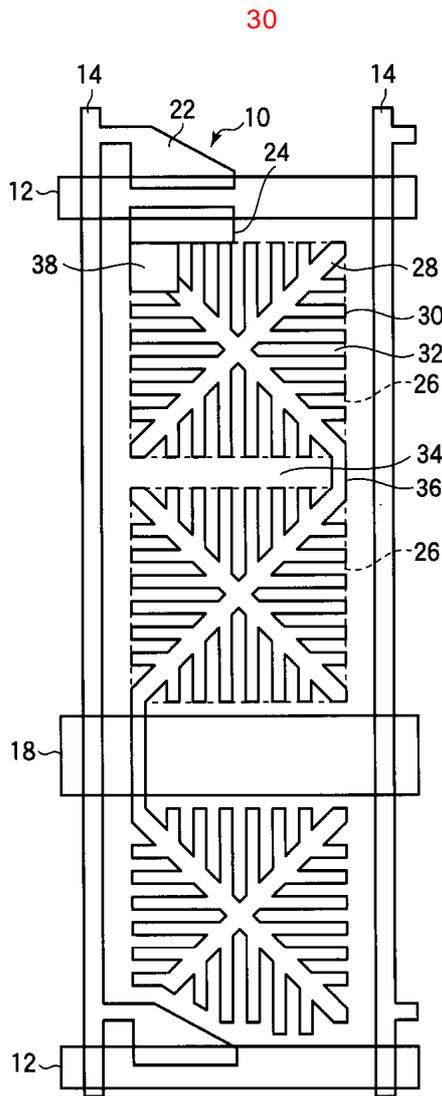
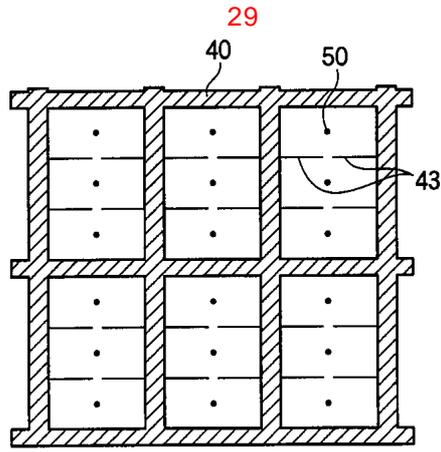


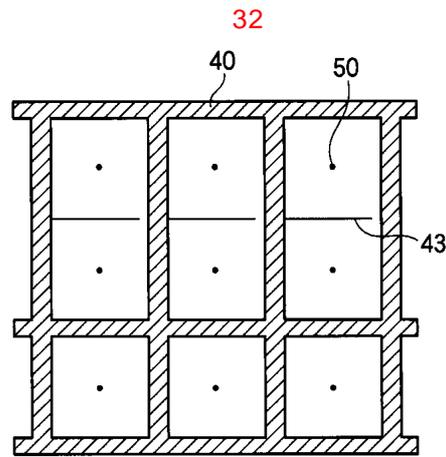
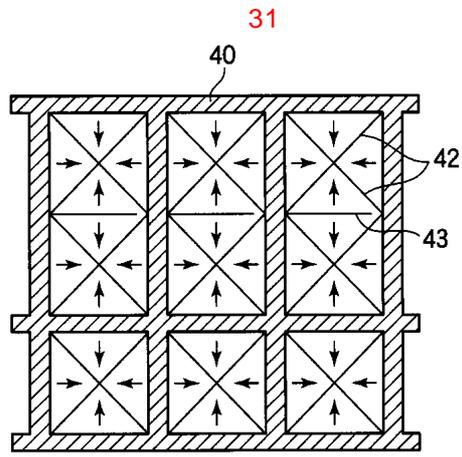
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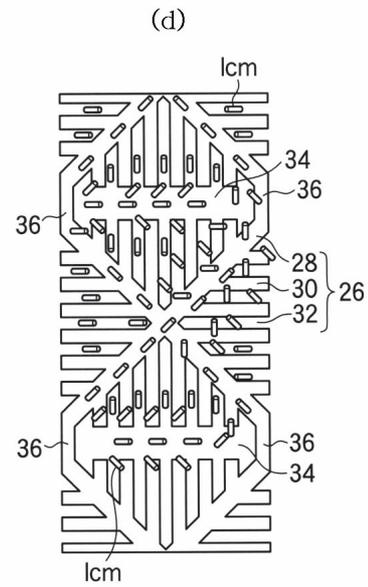
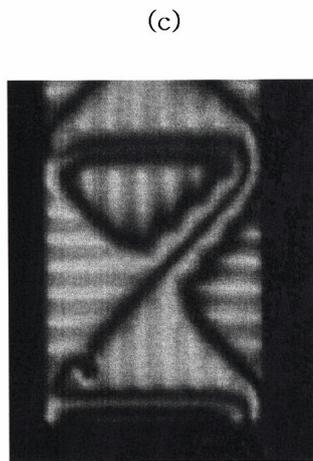
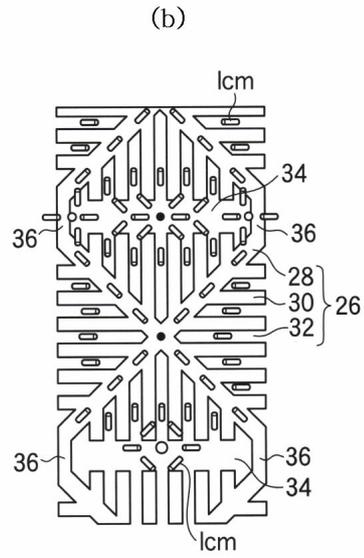
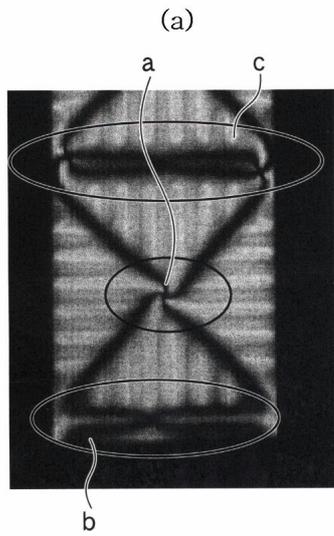
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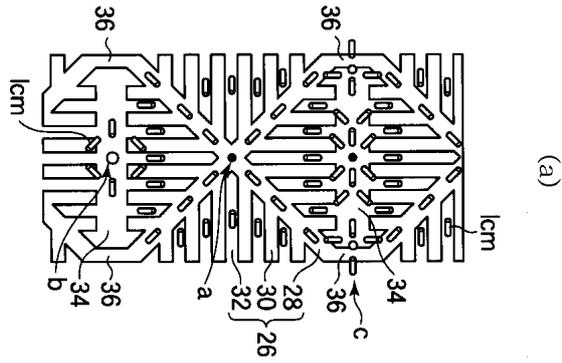




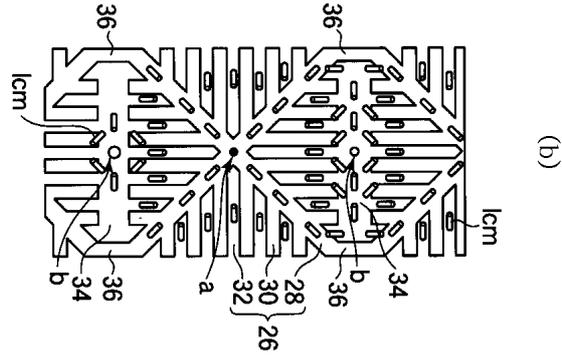
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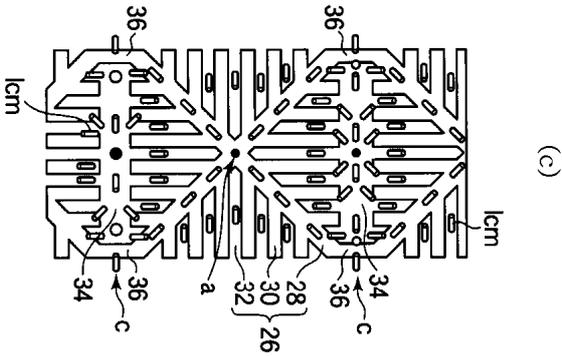
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(a)



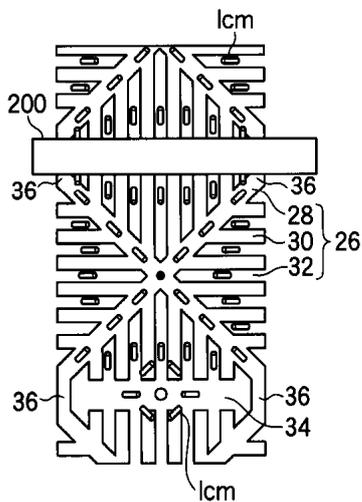
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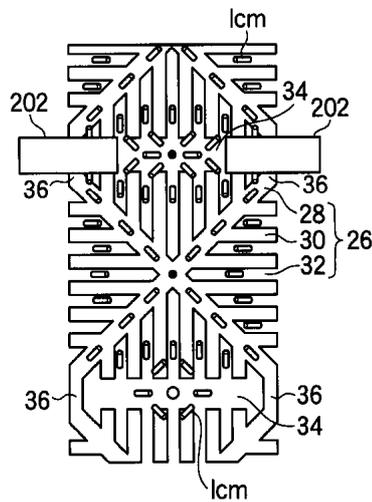
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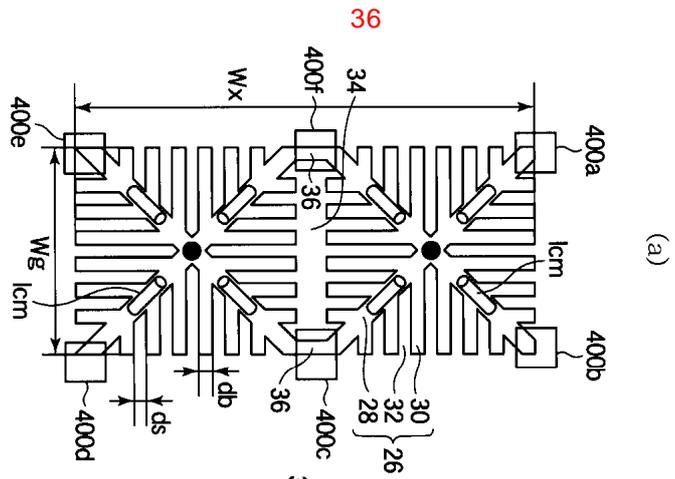
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(a)

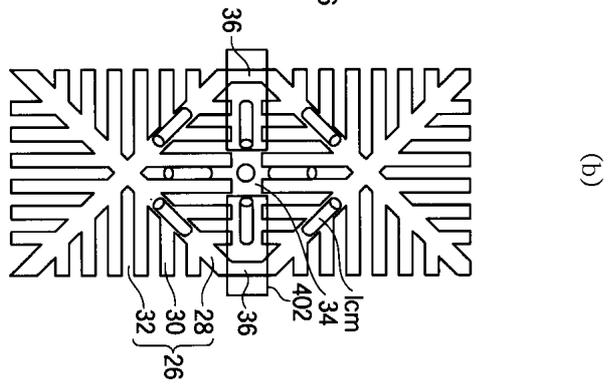


(b)

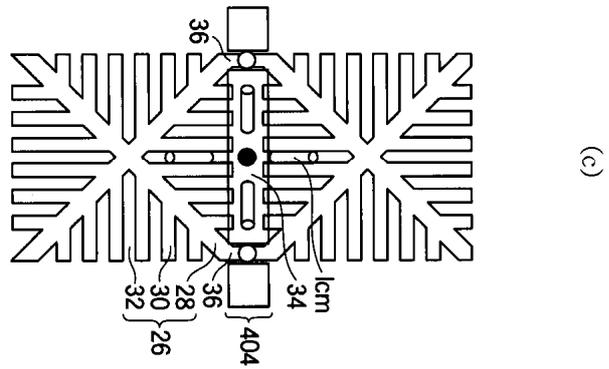




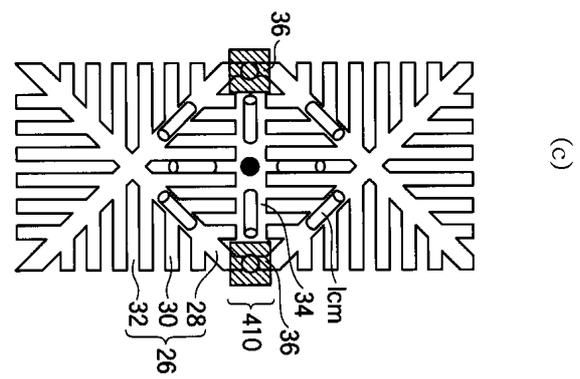
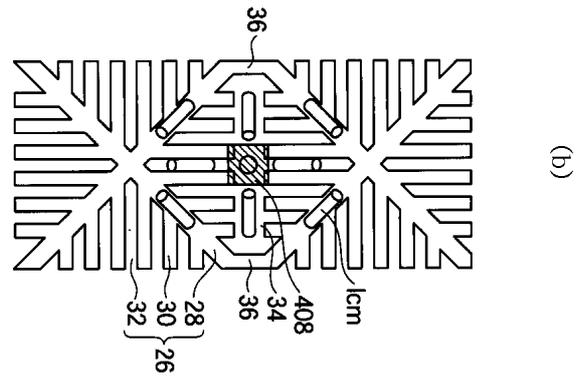
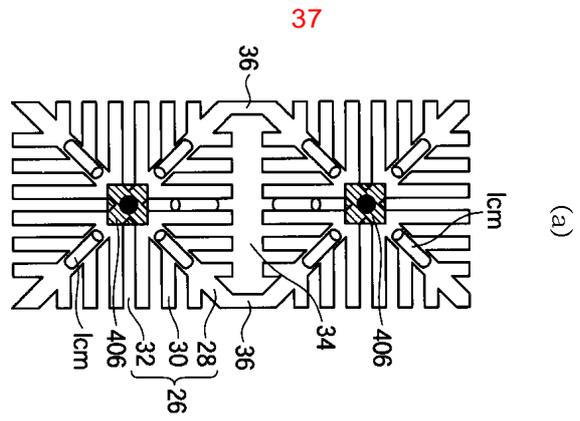
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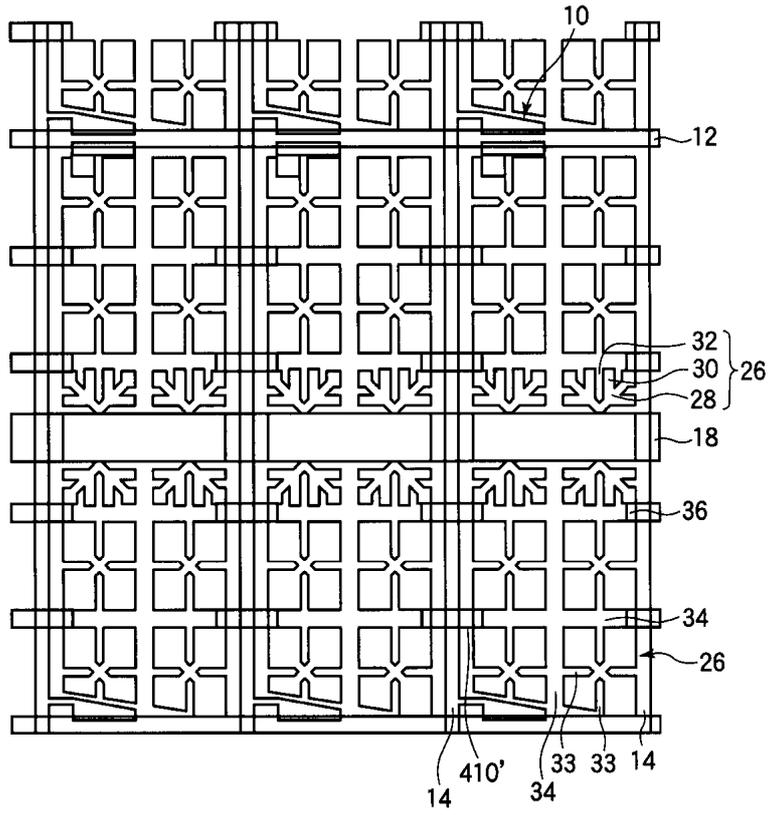
(b)



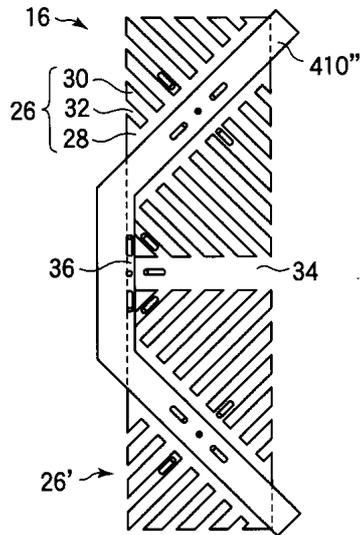
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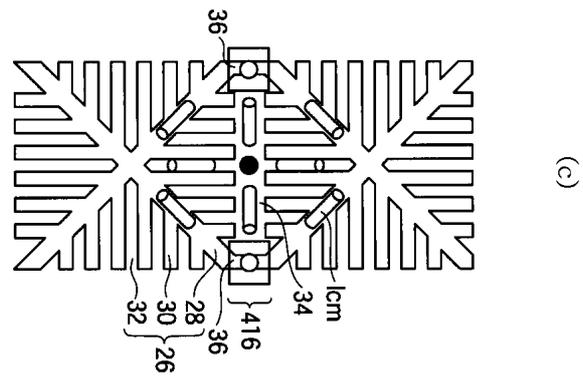
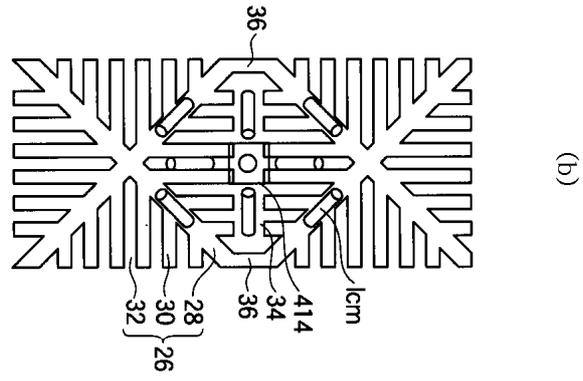
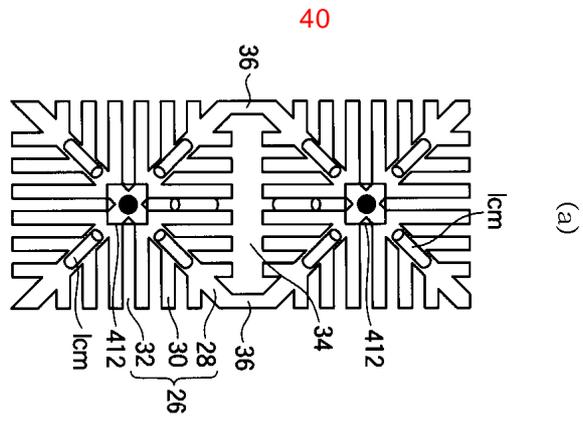


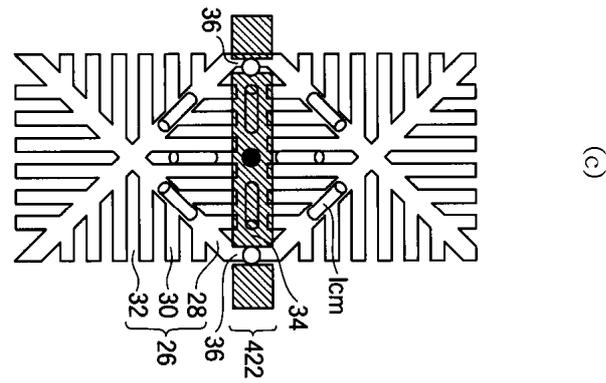
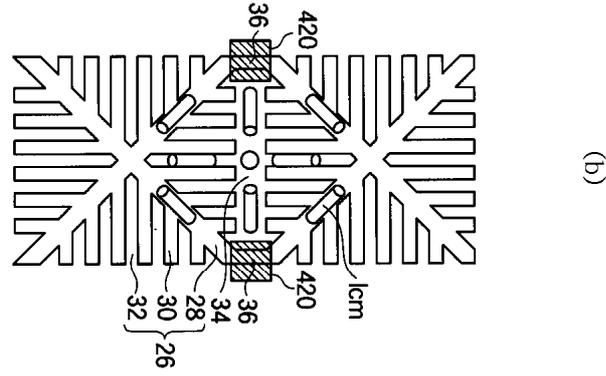
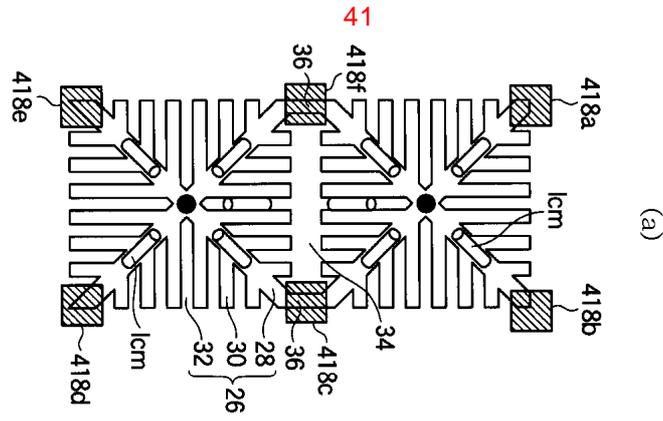
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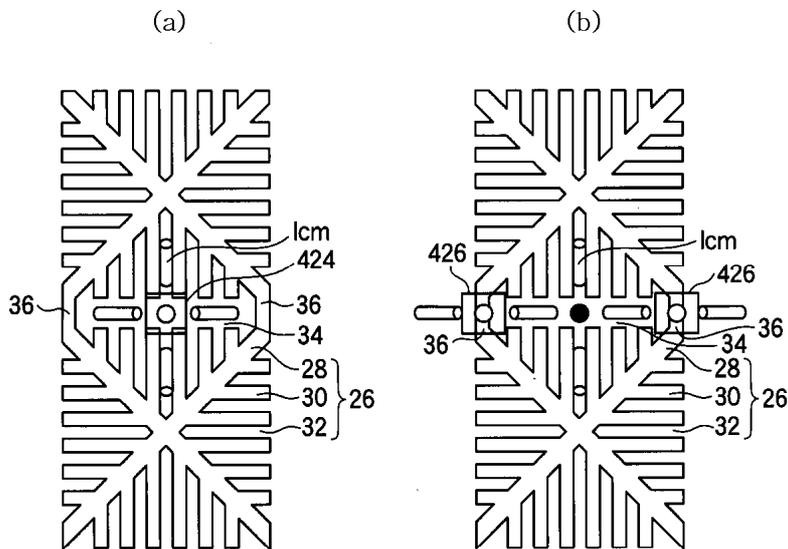
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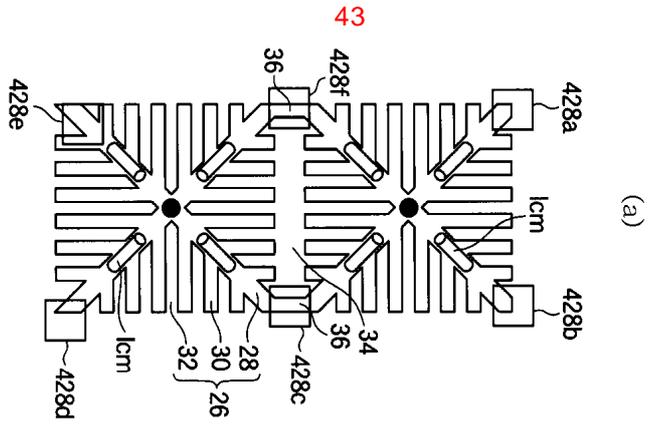




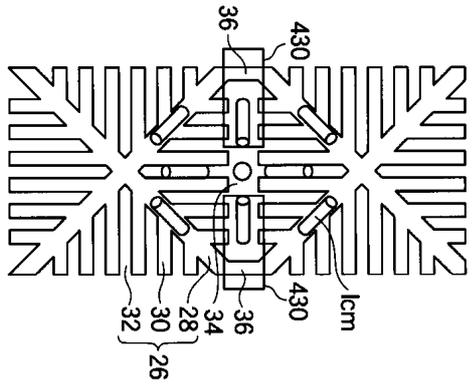


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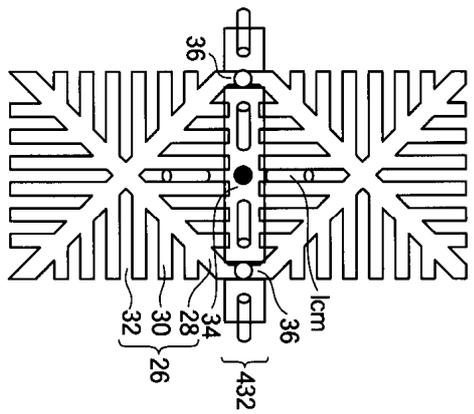




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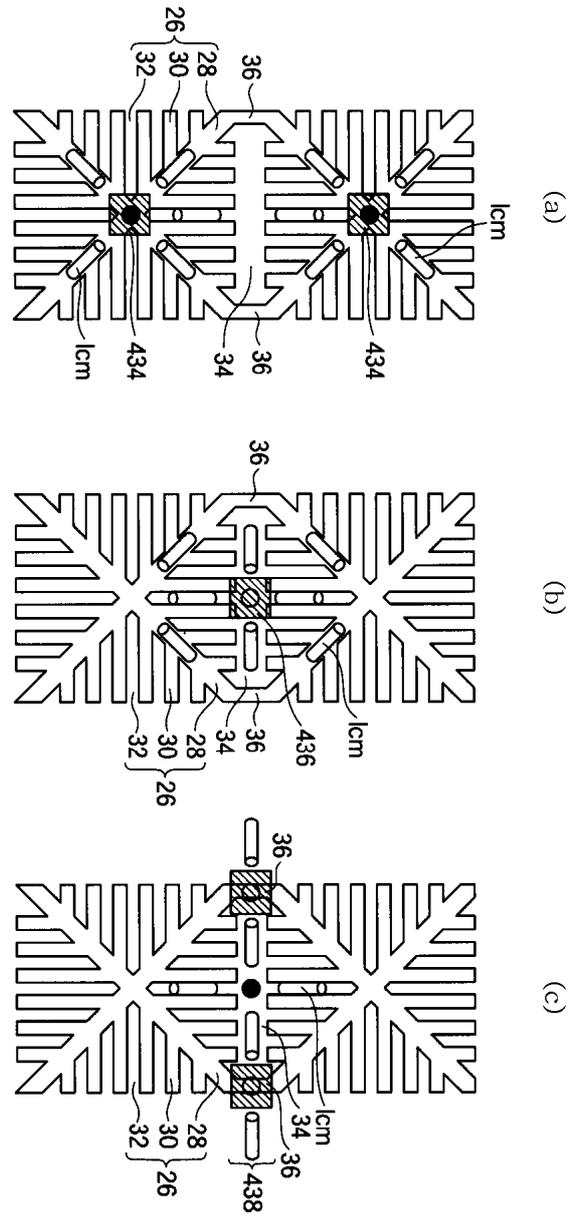


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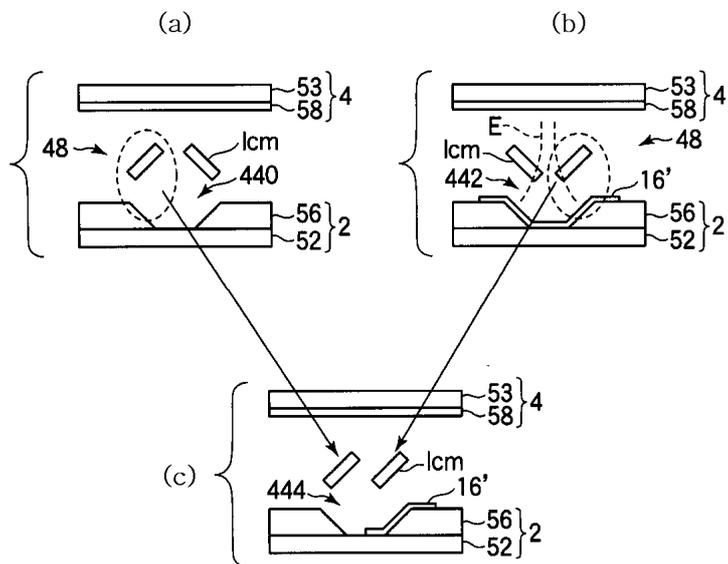


(c)

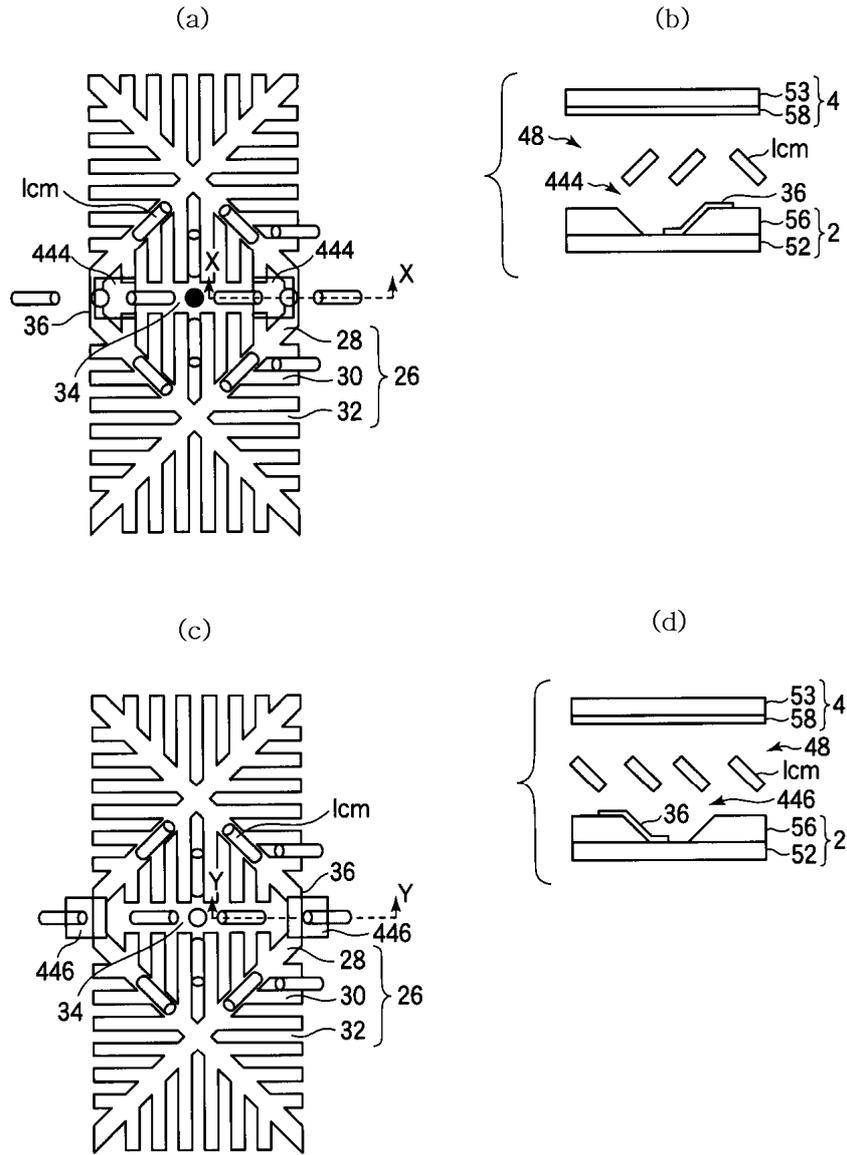
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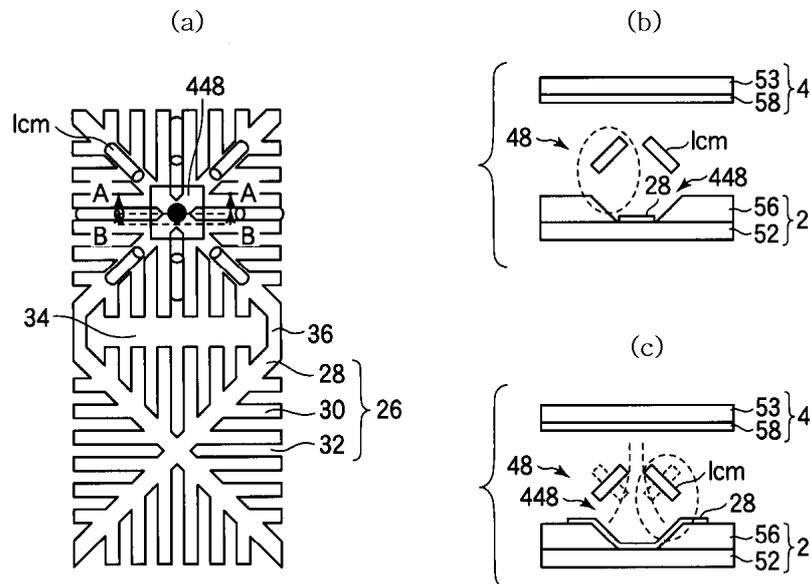
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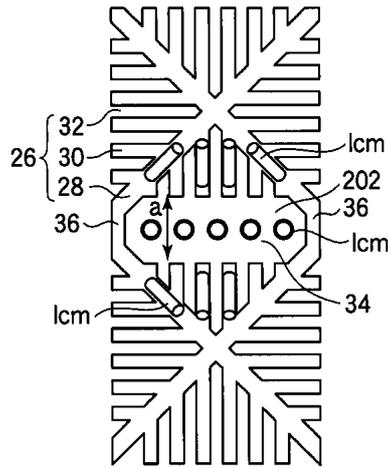
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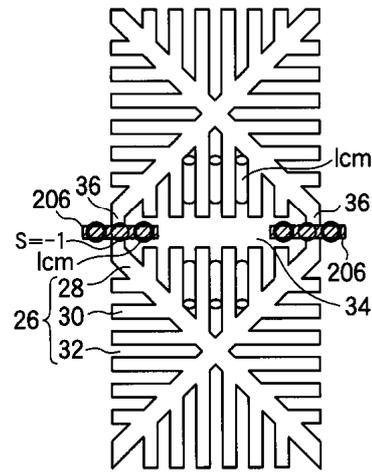
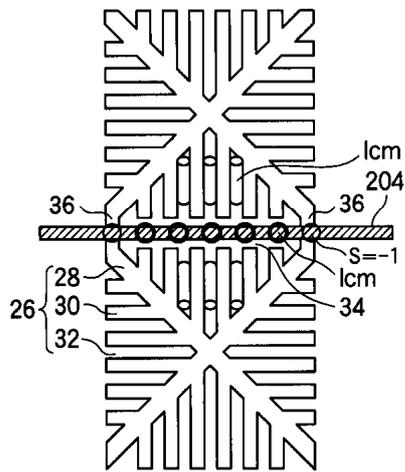
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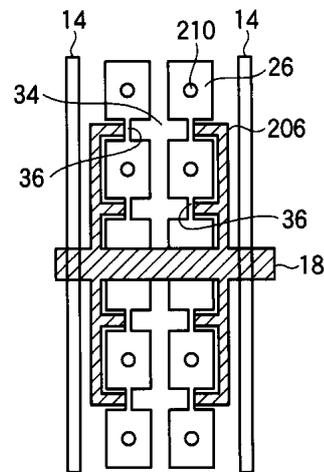
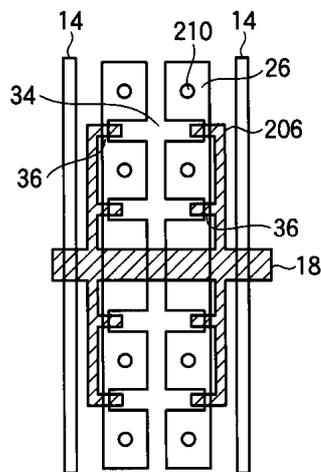
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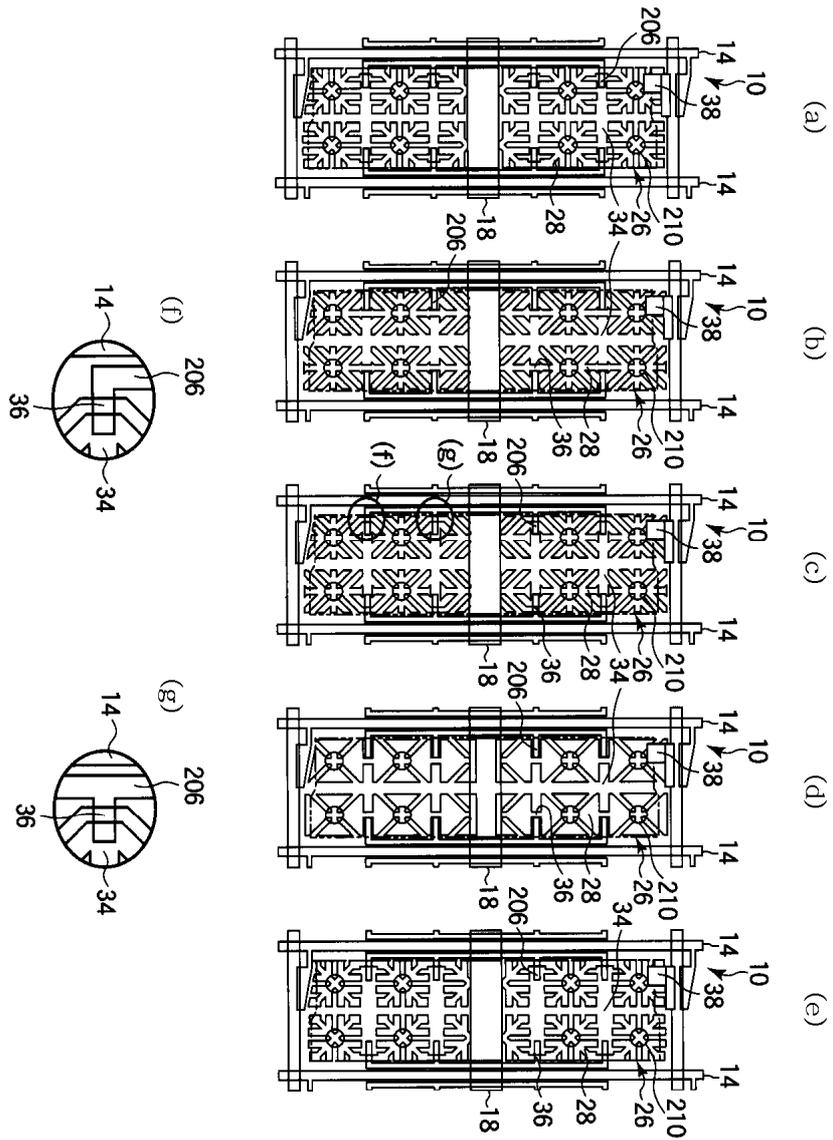
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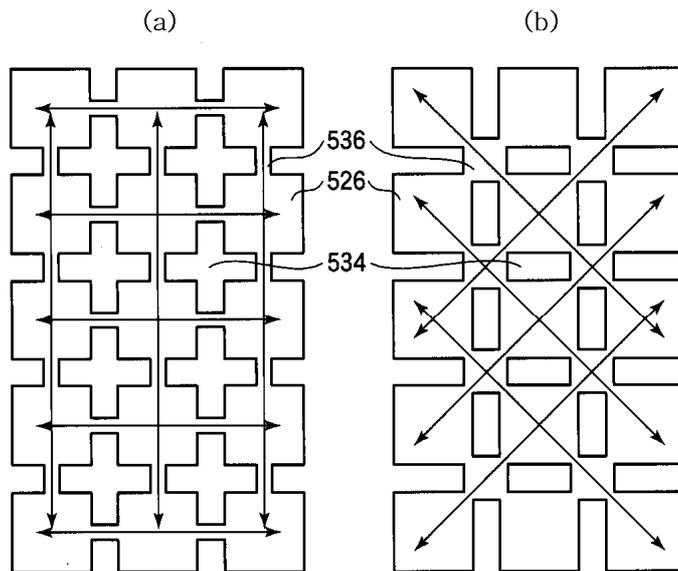
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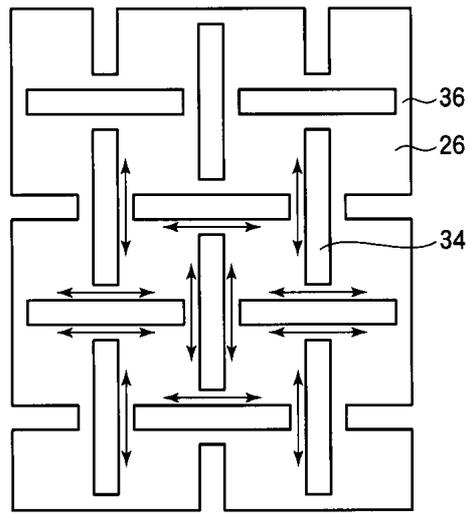
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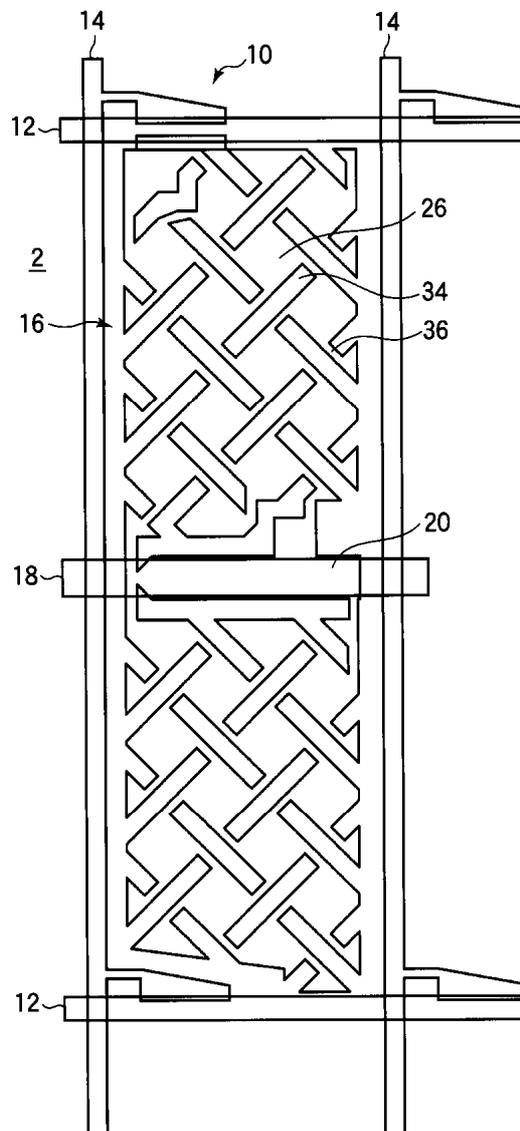
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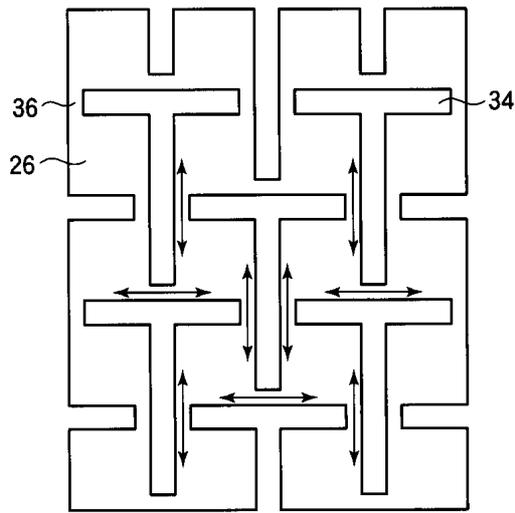
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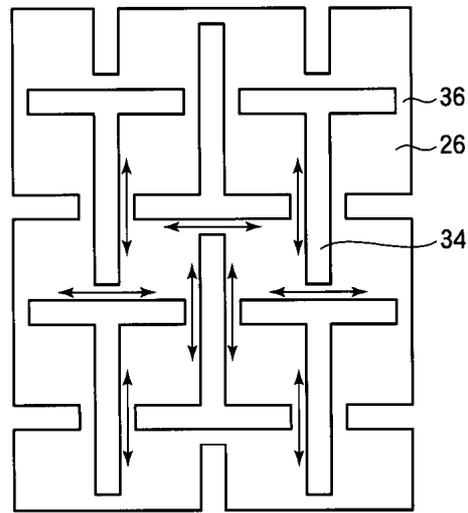
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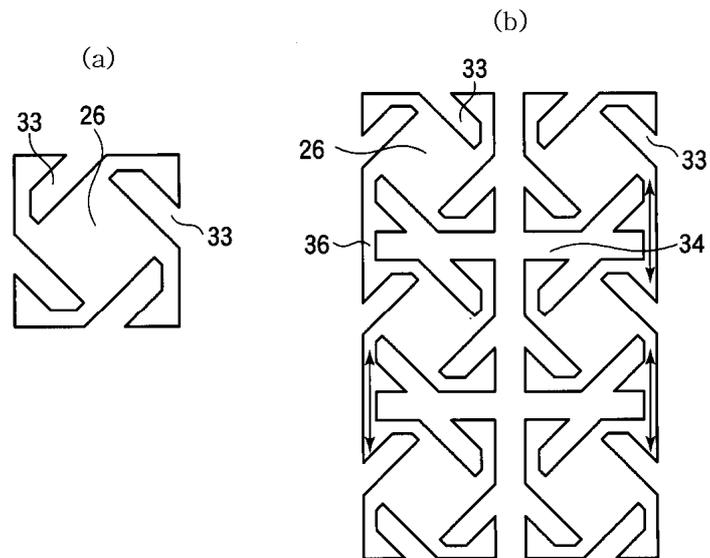
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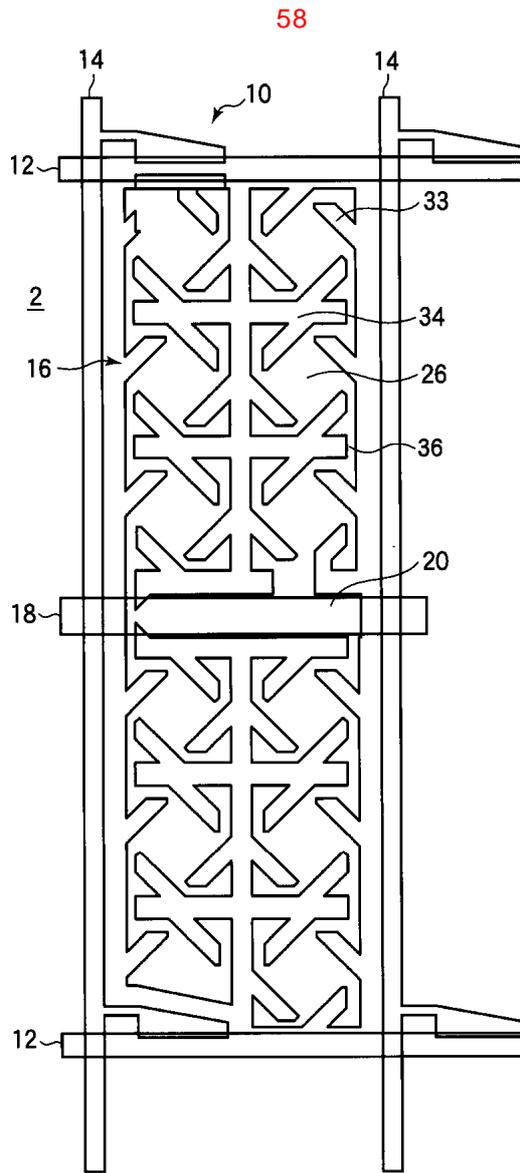


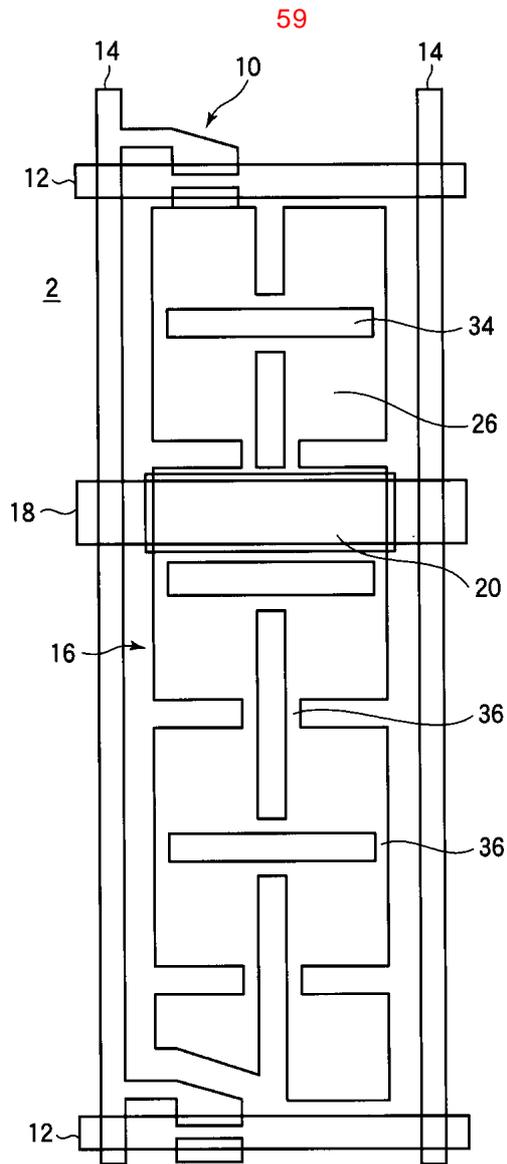
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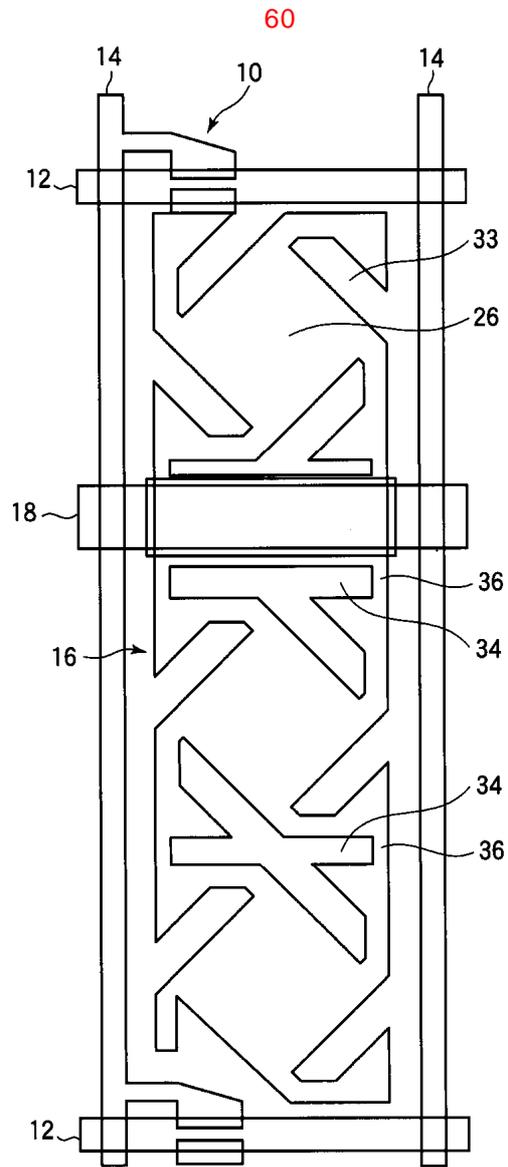


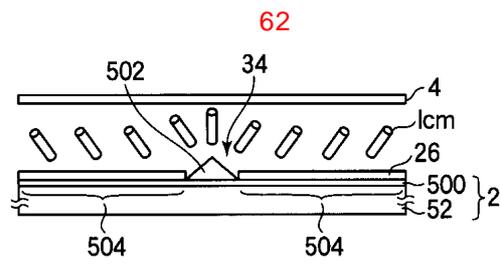
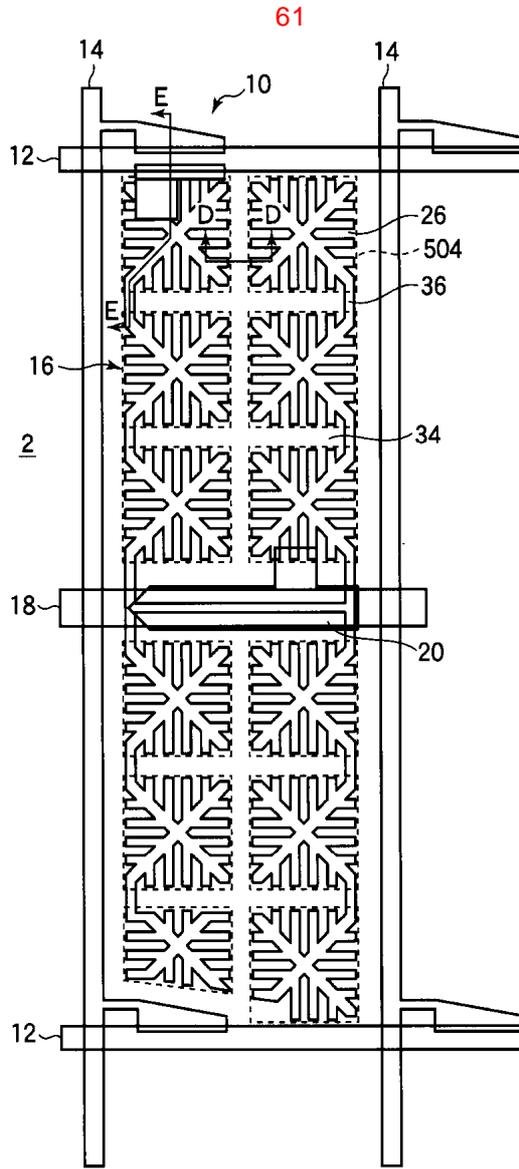
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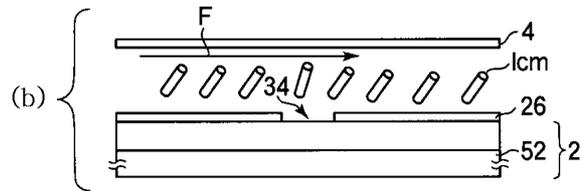
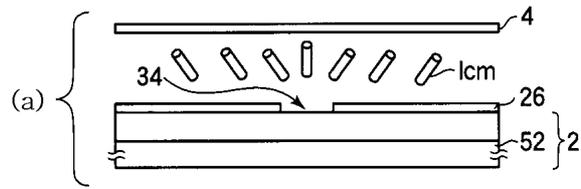




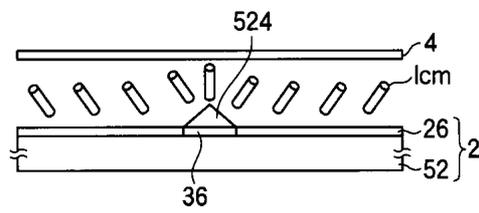




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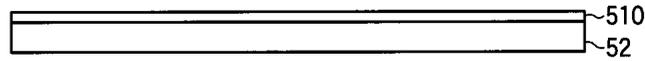


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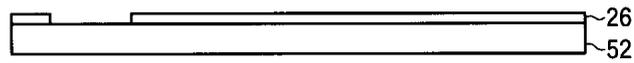


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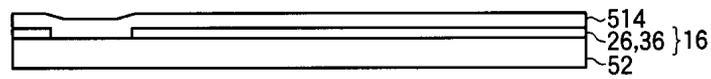
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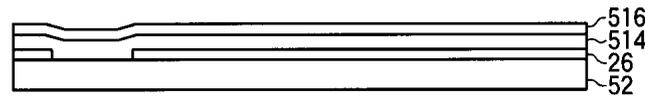
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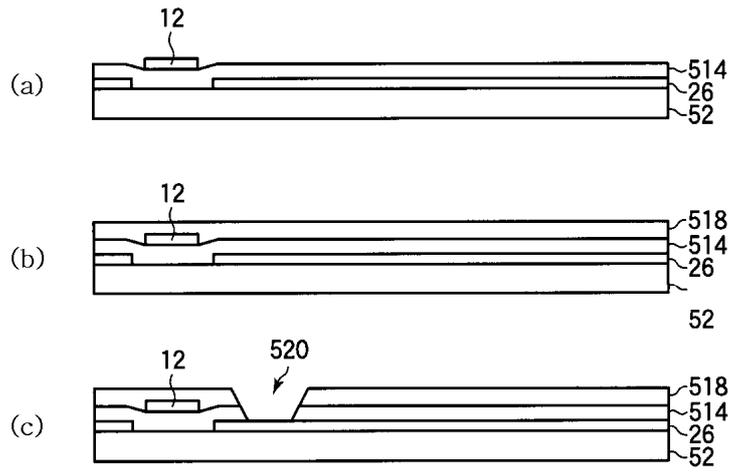
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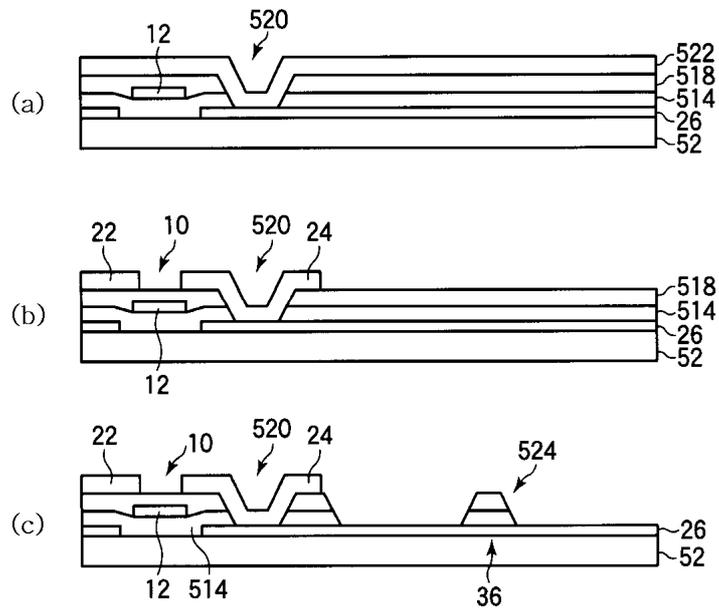
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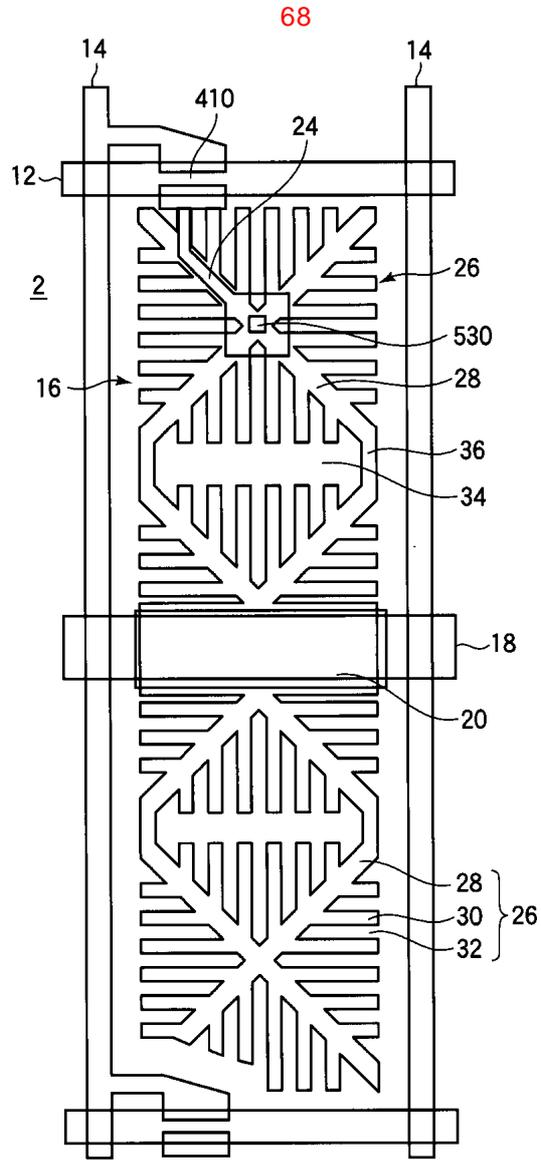


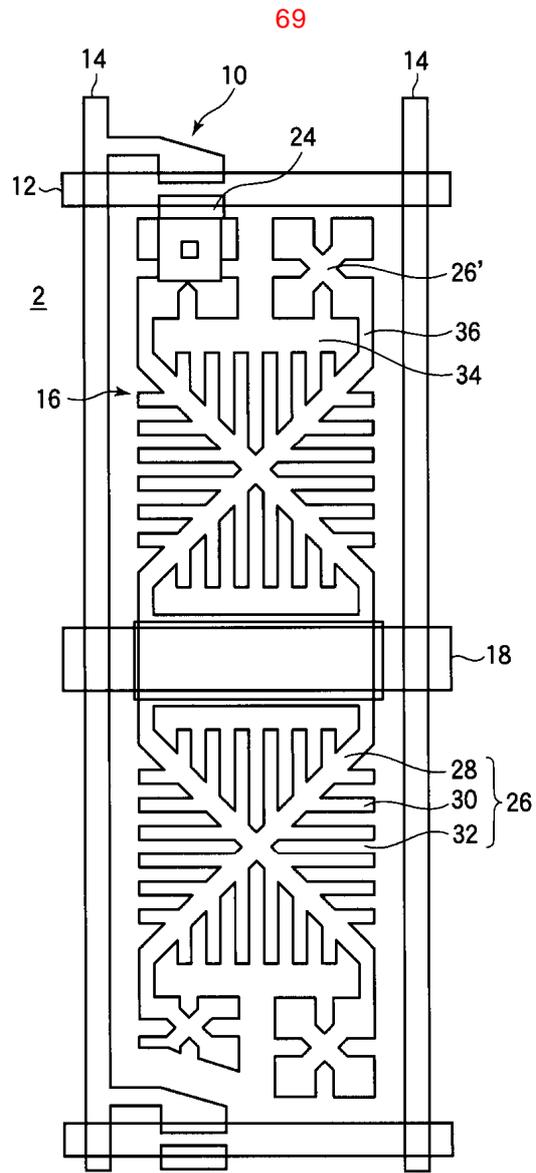
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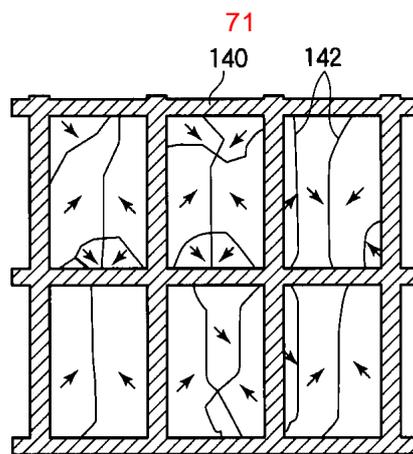
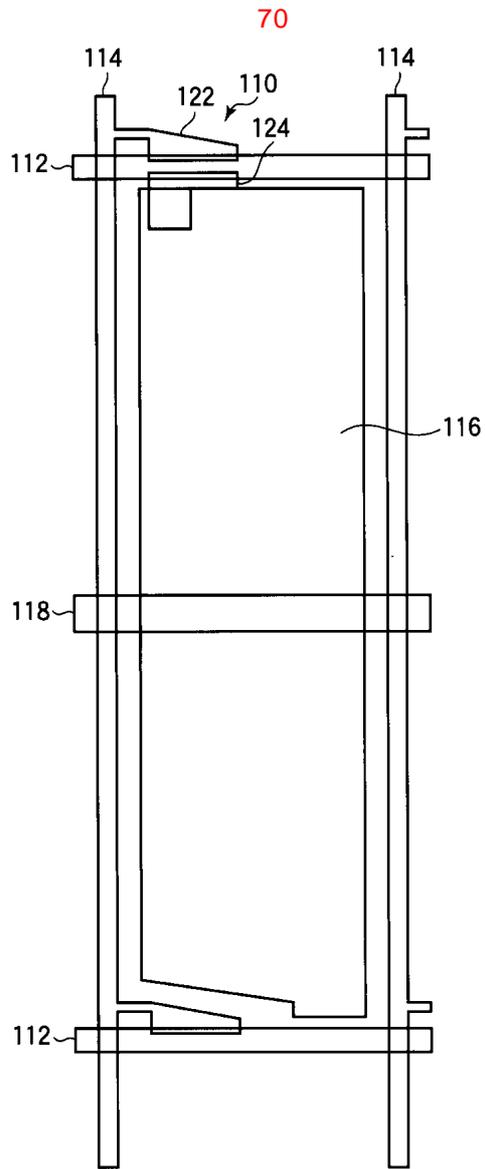


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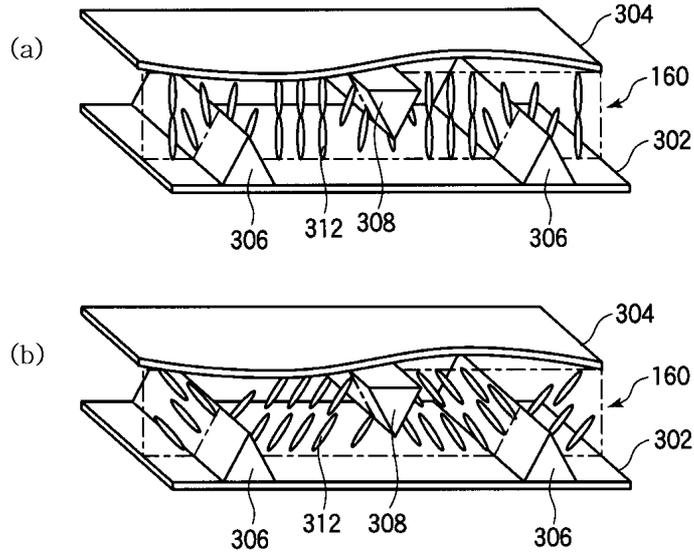




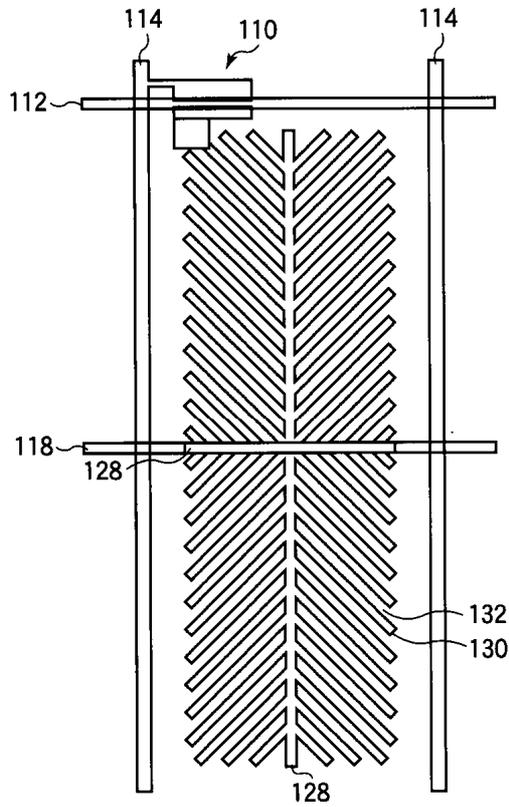




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专利名称(译)	液晶显示装置和液晶显示装置		
公开(公告)号	KR1020030082405A	公开(公告)日	2003-10-22
申请号	KR1020030023295	申请日	2003-04-14
[标]申请(专利权)人(译)	夏普株式会社		
申请(专利权)人(译)	夏普株式会社		
当前申请(专利权)人(译)	夏普株式会社		
[标]发明人	YOSHIDA HIDEFUMI 요시다히데후미 TASAKA YASUTOSHI 다사까야스또시 SASABAYASHI TAKASHI 사사바야시다까시 SASAKI TAKAHIRO 사사끼다까히로 TAKEDA ARIHIRO 다께다아리히로 UEDA KAZUYA 우에다가즈야		
发明人	요시다히데후미 다사까야스또시 사사바야시다까시 사사끼다까히로 다께다아리히로 우에다가즈야		
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优先权	2002112623 2002-04-15 JP 2002287809 2002-09-30 JP		
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外部链接	Espacenet		

摘要(译)

本发明的目的是提供一种用于包括信息设备等的显示单元的液晶显示器用基板和用于液晶显示器的基板，它可以获得良好的显示质量，同时不增加制造工艺，包括液晶显示器。它和包括它的液晶显示器相同。它被配置为具有像素电极（16），其配备有形成在多个栅极总线（12）处的多个电极单元（26），形成在电极单元（26）之间的狭缝（34）和连接电极（36）互连多个电极单元（26）和形成在像素区域的薄膜晶体管（10）。形成在多条栅极总线（12）上的多个电极单元（26）形成为在基板和多条漏极总线（14）上相互平行，在基板上形成多条漏极总线（14）。栅极总线（12）中的绝缘层和像素区域，在基板和像素区域上作为矩阵型排列。液晶显示器，栅极总线，漏极总线，像素电极，薄膜晶体管。

