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(12)(KR)
(A)(51) 。 Int. Cl. ⁷
G02F 1/1343(11)
(43)2001 - 0094942
2001 11 03(21) 10 - 2001 - 0008192
(22) 2001 02 19

(30) 2000 - 097820 2000 03 30 (JP)

(71) 가 가
가

가 4 6

(72) 3 - 17 - 1 - 304

6 - 20 - 3

3 - 17 - 1 - 504

1 - 19 - 2 - 103

가

1 - 6 - 13 - 101

(74)

:

(54)

IPS , , , .

,

, 60% , ,

.

1

, ISP , , ,

1 1 .

2 1 .

3 2 .

4 2 .

5 2 .

6 3 .

7 3 .

8 1 .

9 1 .

10 IPS .

11 .

12 (a) .

12 (b) 12 (a) .

< >

1, 15, 101, 115, 201, 215 :

2, 102, 202 : ()

3 : ()

4, 104, 204 :

5, 105, 205 : ()

6, 106, 206 : ()

7, 8, 107, 108, 207, 208 :

9, 11, 109, 111, 209, 211 :

10, 110, 210 : ()

12, 112, 212 :

13, 113, 213 :

14, 114, 214 :

16, 116, 216 :

17, 117, 217 :

18, 118, 218 : ()

19, 119, 219 :

20, 120, 226 :

21 :

22 :

23 :

24 :

26, 126, 225 :

30 :

50, 150, 250 :

51, 151, 251 : TFT

52, 152, 252 :

TN

IPS

(1) 가 ,

(2) IPS

,

.

,

,

,

가

,

.

, IPS

,

TN

IPS

IPS

,

,

.

,

IPS

,

가

,

.

IPS

,

,

.

.

,

,

,

60%

,

.

70%

가

.

,

가

,

,

.

,

가

,

,

,

가

1

.

,

T가

L 1/4

.

,

T가

L 1/2

.

,

PAS

가

LC

.

,

LC

,

$$LC = (\quad + 2 \quad) / 3$$

,

,

,

.

L < 2D 가 . L D가
 , / 가 50nm .

가
 ,
 , 가 ,
 , 2 .

1 , 가
 ,
 ,
 , 2 .

60% ,
 70% 가 ,
 ,

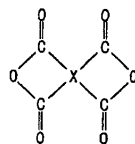
1GPa

Tg가 - T(N - I)

Tg가 220

H₂N - R - NH₂ ,

2



R X , 가 , -O-, -S-, -CH₂-, -C(CH₃)₂-, -C(CF₃)₂-,
 -SO₂-, 3 .

,
 , 5 .
 ,
 (ZnO) .

, 가 IPS 10 .
 10 (a), (b) IPS 1 , 10 (c), (d)

가 10 (a) , 10 (c) .
 (2, 5) , (9, 11) ,
 (10) .
 IPS 가 가 .

(10) (9, 11) (2, 5) (1
 0 (c)) (30) , 가
 , (5) (2)
 , (26) 가 ,
 10 (b), (d)
 (16) ,

(視感度)가 가

가 .

ITO TN 가
 , 가
 , 가
 , TN
 .

가 , IPS 가

()

, 가 가 가

() D 가

L ,

가 .

2가

(1) /

(2)

[illegible]

$$1 \quad (\%) = (R/R_0) \times 100 = \{I(C=C)/I(C-N)\}$$

$$/ \{ I_0 (C=C) / I_0 (C-N) \} \times 100$$

FT - IR - ATR

IR

300, 11

60%

가

70%

60%

가 , , / .

, IPS , 가
(10)
, . 가 ()
가 가 , .

W ,

$$W = K_2 \cdot \frac{2}{dm}$$

, K_2 , dm 가
, 가
, 가 , 가
dm W가 가
, 가 . , 가 .

, (1)
W , (2)
W

가
, 가
, 5,000 , 가
, 가 300,000 , 가
, 가 .

가 , -O-, -S-, -CH₂-, -C(CH₃)₂-, -SO₂-, ,
3
가 가
(Tg(b)) , TN , IPS
가 , 가
() 5 IPS
, 가 .

,
 Tg가
 Tg가 220
 Tg가 220
 Tg
 100 가 , / Tg -30 70
 Tg , W 2 T(N-I)
 K₂ T(N-I) K₂ T(N-I)
 T(N-I) W가 Tg가
 (Tg> T(N-I)) W 가
 가
 p- , m- , 2, 4- , 2, 5-
 , 2, 6- , 2, 7- , 4, 4'- , 4, 4'- , 4, 4'-
 1, 5- , 3, 3'- , 4, 4'- , 2, 5- , 4, 4'- (p-)
 , 2, 2- {4- (p-) } , 2, 2- {4- (p-) }
 4, 4'- (m-)
 가
 , 3, 3', 4, 4'- , 3, 3', 4, 4'- , 3, 3', 4, 4'-
 , 2, 3, 6, 7- , 3, 3', 4, 4'- , 3, 3', 4, 4'-
 1, 2, 3, 4- , 1, 2, 3, 4-
 , 1, 2, 3, 4-
 N- -2- , ,
 , , , , , , , ,
 , , , , , , , ,
 , d- , N- (
) - , ,
 , , , , , , , ,
 4- -4'- , 4- -4'- , 4-
 -4'- , 4- -4'- , 4- -4"- , 4-

[illegible]

1, 2 (1, 15) (10) 가 1 (50) (1, 15) (26) (2) (5) (6) (9, 11) (TFT : 17) (1, 15) (10) (16) TFT .

(5) 1 (26) (50) (10) (26) (17) (1) (2) .

7), 1 (8) (5) (9) (7, 8) 가 (가

가 W dm 가 .

12 (a) w, L 2 E 12 (b) 12 (a) ,

W가 12 (a) E 가 (d=0) (d=D) 12 (a) (2d/L 0) 가 , 가 (L 2D, L < 2D) , L > 2D 가 1 , L < 2D dm 2 / W .

(7), 1 (8) T 가 (5) (d T) E(d T) , (d D) E(D) dm 가 , W , .

11 (b) 가 , 2d/L 1/2 T L 1/4 dm 가 , T L 1/2 .

PAS
LC

, 2 가
 , 가 , 가
 IPS .
 3 2 . 4 2
 .
 3 4 2 (150) (101,
 115) , (101, 115) (110) , 가 3 (126)
 (101) (102) (105)
 (106) (TFT : 117) , (101, 115) (110)
 (109, 111) , (116)
 .
 , 2 (150) (105) (102)
 , 가 (104) , 가
 (126) , (110) (117) (102) (105)
 (126) (101)
 .
 , 2 가
 , 가
 가 IPS 가 .
 (102) 3 .
 6 3 . 7 3
 .
 6 7 3 (250) (201,
 215) (201, 215) (210) 가 6 (226)
 (201) (202) (205)
 (206) (TFT : 217) , (201, 215) (210)
 (209, 211) (209) (202 205) (208)
 (216) .
 , 3 (250) (205) (202)
 , , (217) (204, 207) , 가
 (202) (205) (226)

, (210) (226) (201)

$2D$ 3 가 L
 $(2D/L > 1)$ 11 $(2D/L > 1)$, $2, 3$ L D 2
 가
 () 가

T 2 (105) (109) (107, 108)
 가 , (107, 108) T가 T가 (105) (102)
 L 가 가 , (105) (109)
 T
 가 50nm 가

, (105) (102) (104)
 L 가 , 11 $2D/L$ T
 dm 가 , $2D/L$

, 3 (205) (209) (208)
 가 2 (208) 가 (205) (202)
 $(207, 204)$, 2 가

, , 가
 , - - (ITO) ,

, , 가 , ,
 , , 가 , , ,

$$[\quad]$$

(1)

1, 8, 9, 1, 1, 2, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837,

TN

, IPS
, IPS

2
가 (26) 75 ° 10.2(1kHz,
20) , n 0.075(590nm, 20), K2가 7.0pN, -
T(N-I)가 76 A
() 4.2 μ m (nd) 0.31 μ m
2 2 (16)

9 1
(50) 9 LSI가 , TFT (51) (21),
(22), (23) , (24) ,
(CLC) (CS)가 9 (17)

1 가 , 가

1 가 , 30 ,
가 , 가 10%가 , B
B/B(10%) 가 , 3% .

B/B(10%) 1% ,

TFT (9, 11) KBr
FT - IR 300 , 1
, 1500cm⁻¹ C=C I(C=C) 1380cm⁻¹
C - N I(C - N) R=I (C=C)/I(C - N)
300 , 1 R0=I0(C=C)/I0(C - N) 100
(%) = (R/R0) × 100 = { I(C=C)/I(C - N) } / { I0(C=C)/I0(C - N) } × 10
TFT (9, 11) 70% .

Tg 가
B/B(10%)()
T(N - I) 73 B/B(10%) 3%
A , T(N - I) 115
B ,
Tg , 100 B/
B(10%)가 가 , 110 10%
Tg 100 A T(N - I) 76 .

(2)

1 , m - 1.0 % N - - 2 -
3, 3', 4, 4' - 1.0 % 가 40 6
20,000 . 6%
0.3 % 가 , 225 /30 ,
60nm .

(Scanning Vis
coelasticity Microscopy, SVM) 가 .
. SVM (Atomic Force Microscopy, AFM
) , AFM 가
() ,
() 가
(田中 敬二 , , 53 (No.10), 1996, p582.).

10Hz 3GPa .
1 가 ,
가 . 가 , 30 ,
가 , 10%가 ,
가 , B
B/B(10%) 가 . 3% .

B/B(10%) 2% , ,

, 1 Tg 가 ,
TFT , 72%, Tg 95 , A
T(N - I) = 76
(3)

1 , 4, 4' - 1.0 % N - -2 - 1.0
, 1, 2, 3, 4 -
% 가 30 12
12,000 150,000
80,000, / (MW/MN) 1.51
6% - 0.3
% 가 , 220 /30 , 60nm
40nm
3

1 , TFT , 75%
, 1 가 ,
30 , 가 , 10%가
3% B B/B (10%) 가 ,

B/B(10%) 2% , ,

, 1 가 TFT ,
65% Tg 가
AFM Tg 가 , 225
(4)

, 2 , 4 3 4
4 (150) (101) 가 0.7mm
(101) (102, 105, 106, 118) (104),
(117) (105, 106) (107) TFT (151)

4 (117) (102, 105, 106) .

(117) (105), (106), (118) (119) .
 (118) , (106) , (102)
 (105) ITO .

(104) (107) , 0.5 μ m 0.3 μ m .
 (108) 4 , 0.2 μ m ,
 (102), (105) (120) 2
 (105) (105) (102) (104)
 (105) 4 3 (102) ,
 3 ,
 768 가 가 1024 × 3(R, G, B) (106)
 (108) 1024 × 3 × 768 .

, TFT (51) 1 (109) 80nm ,
 48nm가 , 150nm .

(115) 1 (50) (114)가
 (113) , (152) . (112) TFT (151)
 (111) 80nm , .

TFT (151) (152) (109, 111) ,
 가 (126) 75 4 μ m
 , TFT (151) (152) (110) .

(110) 1 A . A LC 10 .

TFT (151) (152) 2 (116) . , 4
 (150) , .

, 4 1 가
 .

, 4 가 , 가
 .

,
 가 가 , 30 ,
 , 10%가 , B
 B/B (10%) 가 , 3% .

, B/B(10%) 2% , ,
 , .

, 1 TFT, 76%, Tg / 90, Tg 가 A, T (N - I) = 76, 3, 230, Tg

(5)

(108) 5 5 (105) (107)
4
(105) 0.3 μ m (108) 4 (102), (105)
(108) 1 (109) 80nm
30nm가 150nm
5 가 가

가 30 가
가 10%가 B
B/B(10%) 가 3%

B/B(10%) 2.5% ,

(6)

0.4 μ m 6 (108) 4 4 4
5 n 0.1 B B LC - 2.2 4.5 60nm
3 230 /30 20nm 가 (126)
15
5 가 5

1 가 , , TFT , ,
78% , , , ,
30 , 가 , 가
10%가 , B B/B(10%) 가 ,
3% .
B/B(10%) 1.6% , , ,
. .
(7)
, 3 , 7 6 7
. 7 (250) , (201) 가 0.7mm
(201) (202, 205, 206, 218) (204),
(217), (217) (205, 206) (207) TFT (251)
. 7 (217) (202, 205, 206) .
(217) (205), (206), (218) (219)
(218) , (206) , (202)
(205) ITO .
(204) (207) 0.2 μ m 0.3 μ m .
(205) (202) (204, 207) (205)
4 (208) 0.3 μ m .
(205) (202) 1024 \times 3(R, G, B
) (206) 768 (218) 1024 \times 3 \times 768 .
, TFT (251) 1 (209) 80nm ,
20nm , 140nm (205)
(215) 1 (50) (214)가
(213) , (252) . (212) TFT (251)
(211) 80nm , .
TFT (251) (252) (209, 211) ,
가 (226) 75 . 3 μ m
, TFT (251) (252) (210) .
(210) , 1 A . A LC 10

TFT (251) (252) 2 (216) . , 6
 (250) ,
 , 7 1 가
 , 7 가 , 가
 . , 1 가 ,
 , 가 . ,
 0%가 30 , 가 , 가 1
 , B B/B(10%) 가 ,
 3% .
 B/B(10%) 2% ,
 ,
 , 1 A T(N-I)=76 / Tg 가 , Tg 105 ,
 , 50Hz 1 , 4GPa (SVM)
 (8)
 1 4, 4' - ,
 1, 2, 3, 4 - , 230 ,
 30 50nm, 20nm ,
 313nm .
 , 1 A , 100 , 10 ,
 ,
 , d가 4.0 μ m . ,
 1 ,
 1 A T(N-I)=76 / Tg 가 , Tg 85 ,
 , 1 , B/B(10%) 3% ,
 ,
 , 가 , 80% .
 (9)
 8 , 220 , 30 , Xe
 C12 가 308nm .

, 4 A , 100 , 10 ,
 , d가 $4.0\mu\text{m}$,
 1 .
 3 Tg 가 , Tg 225 , A T(N-I)
 =76 . , 1 ,
 가 , B/B(10%) 2% ,
 , 가 76% .

(1)

1 2, 2 - {4 - (p -) }
 , 3, 3', 4, 4' -
 , 200 /30 , 70nm ,
 7 .
 , 1 가 , 가
 , 30 , 가
 B , B/B(10%) 가 , 3%
 , B/B(10%) 5% , 30 ,
 ,
 , 1 가 , TFT , 5
 6% . 2 (SVM) , 1
 0Hz , 0.3GPa .

(2)

(104) $0.6\mu\text{m}$, (105) ITO ,
 (107) $0.2\mu\text{m}$, (108)
 (109) 60nm , (205) 15
 Onm ,

4 ,
 가 , 30 , 가
 ,

3% B B/B (10%) 가 . ,

, B/B(10%) 5% , 30 ,

, IPS
가 , ,
가 .

(57)

1.

, , , 가

, 60%

2.

1 ,

70%

3.

1 2 , .

4.

1 3 ,

5.

4 ,

(ZnO)

6.

1 5 ,
2 .

7.

1 6 ,
가 , 1 .

8.

1 7 ,
 , .

9.

8 ,
 , .

10.

1 9 ,
5 .

11.

, ,
 , 가
 ,
 ,

가 , 1 .

12.

, ,
 , 가
 ,

2 .

13.

11 12 ,
 ,
 T가, L 1/4 가
 .

14.

11 12 ,
 ,
 T가, L 1/2 가
 .

15.

11 ,
 PAS 가 LC .

16.

11 15 ,
 가 L
 D가, $L < 2D$ 가 .

17.

11 16 ,
 가 .

18.

17 ,
 , 가 50nm
 .

19.

11 18 ,
 가 ,
 .

20.

11 19 ,

.

21.

11 19 ,

.

22.

11 19 ,

2

.

23.

20 22 ,

, ,

.

24.

21 22 ,

, ,

.

25.

11 24 ,

.

26.

11 25 ,

.

27.

26 ,

, (ZnO)

.

28.

11 27 ,

.

29.

11 28 ,

60%

.

30.

11 28 ,

70%

.

31.

29 30 ,

가 , , 1

.

32.

11 28 ,

1GPa

.

33.

11 28 ,

T_g가 T(N - I)

.

34.

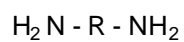
11 28 ,

T_g가 22

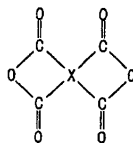
0 .

35.

11 28 ,



,



R X , 가
-SO₂ -, , 3
-O-, -S-, -CH₂ -, -C(CH₃)₂ -, -C(CF₃)₂ -, .

36.

11 35 ,

,

.

37.

36 ,

.

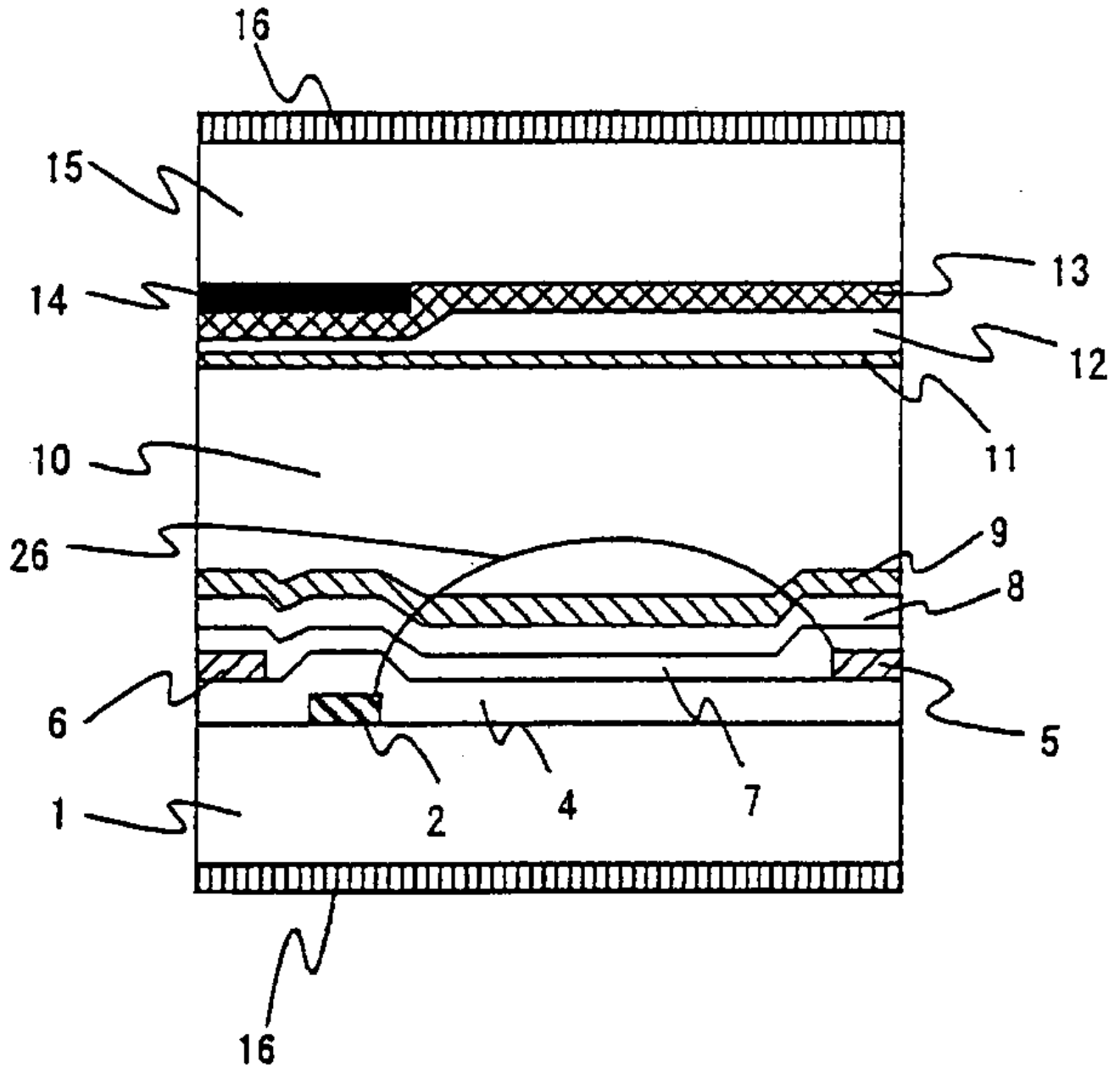
38.

11 37 ,

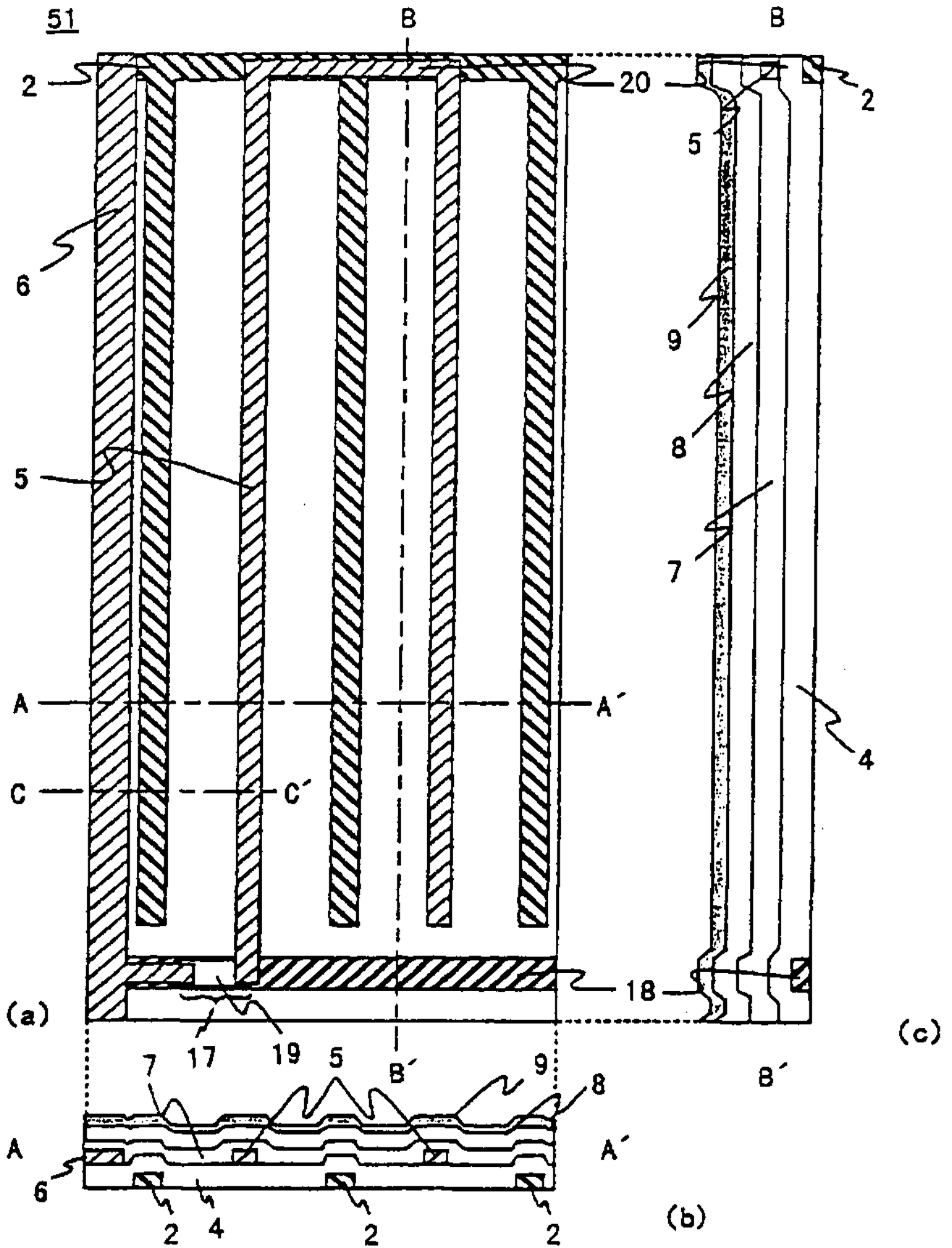
5

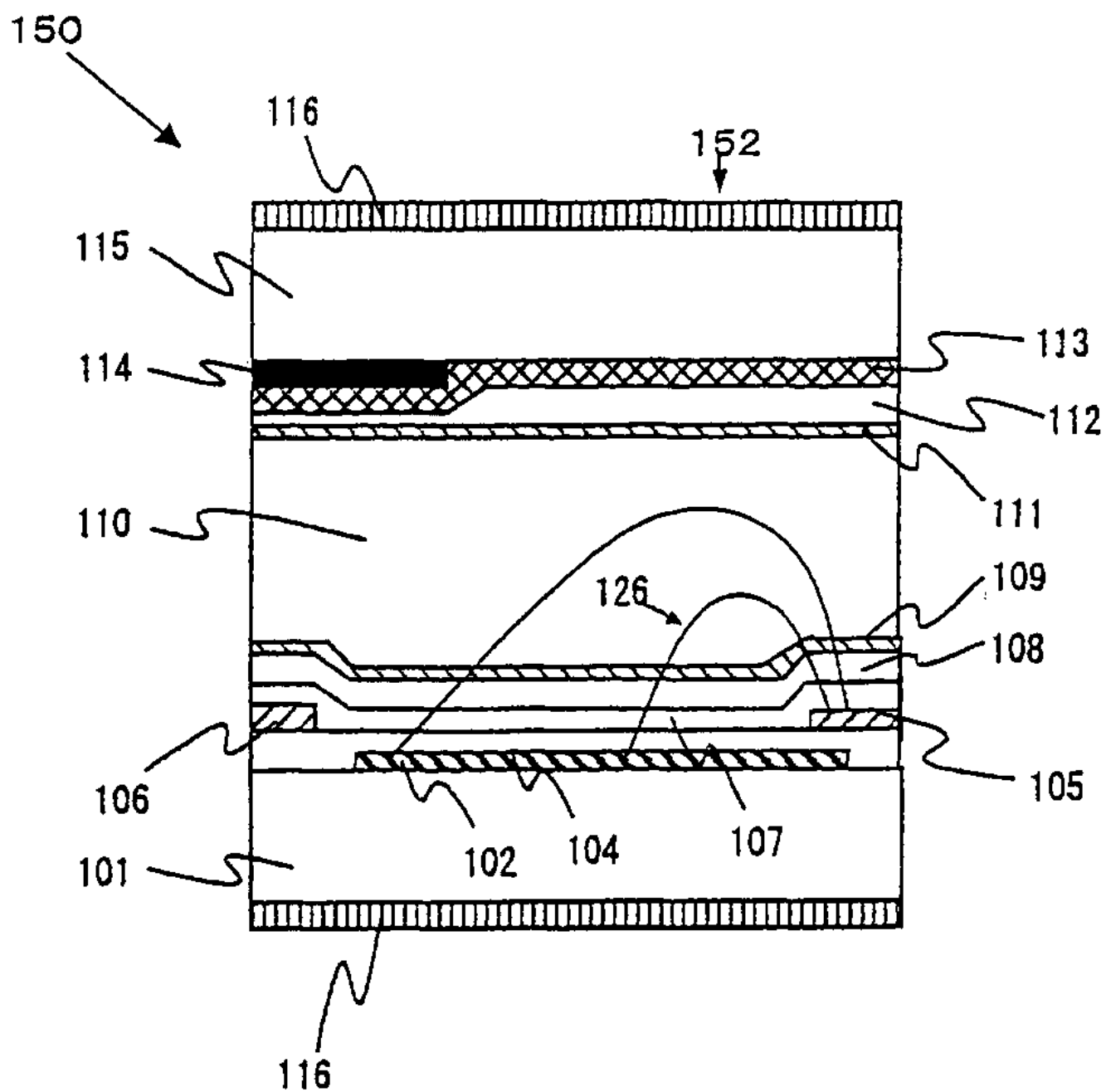
.

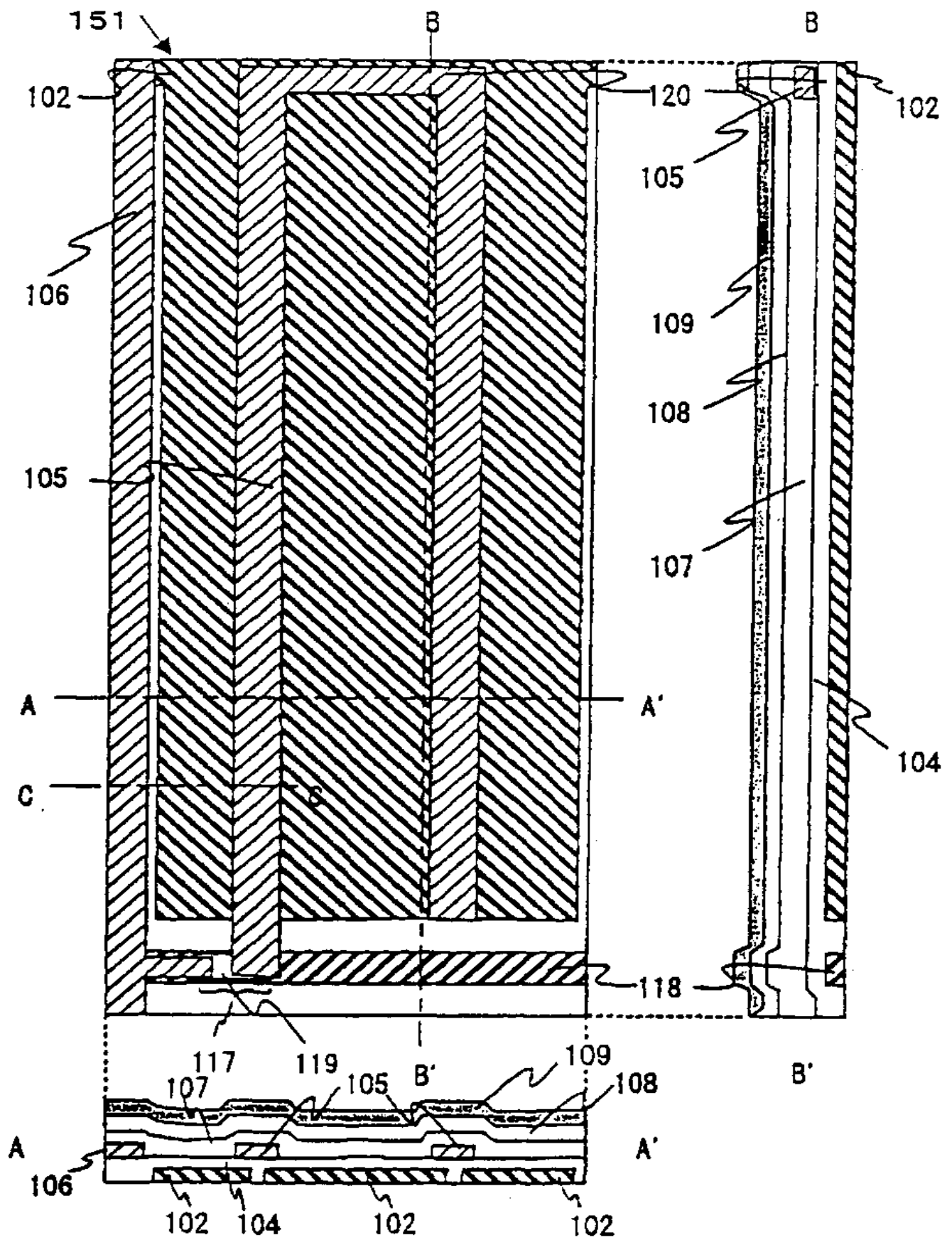
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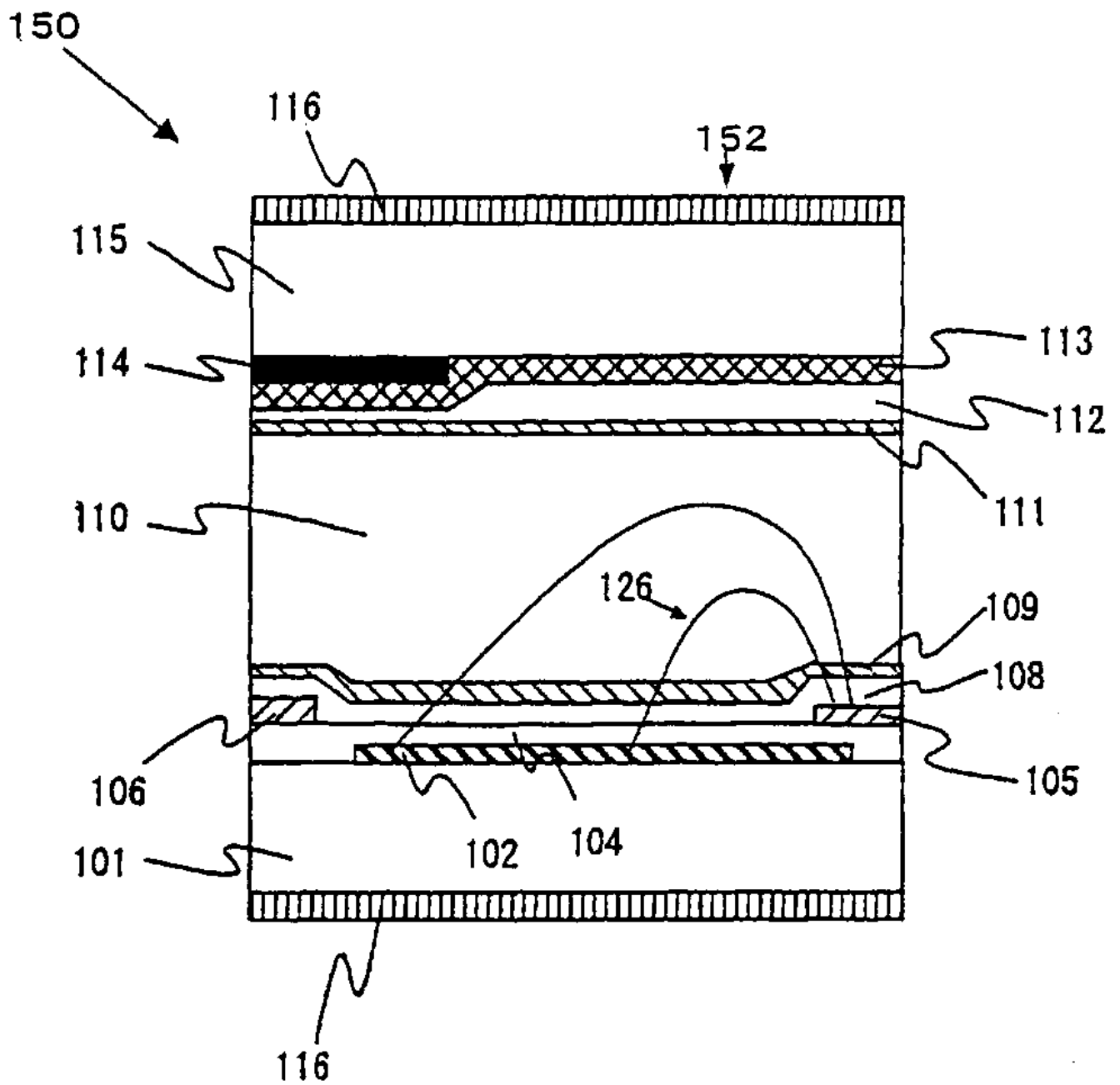
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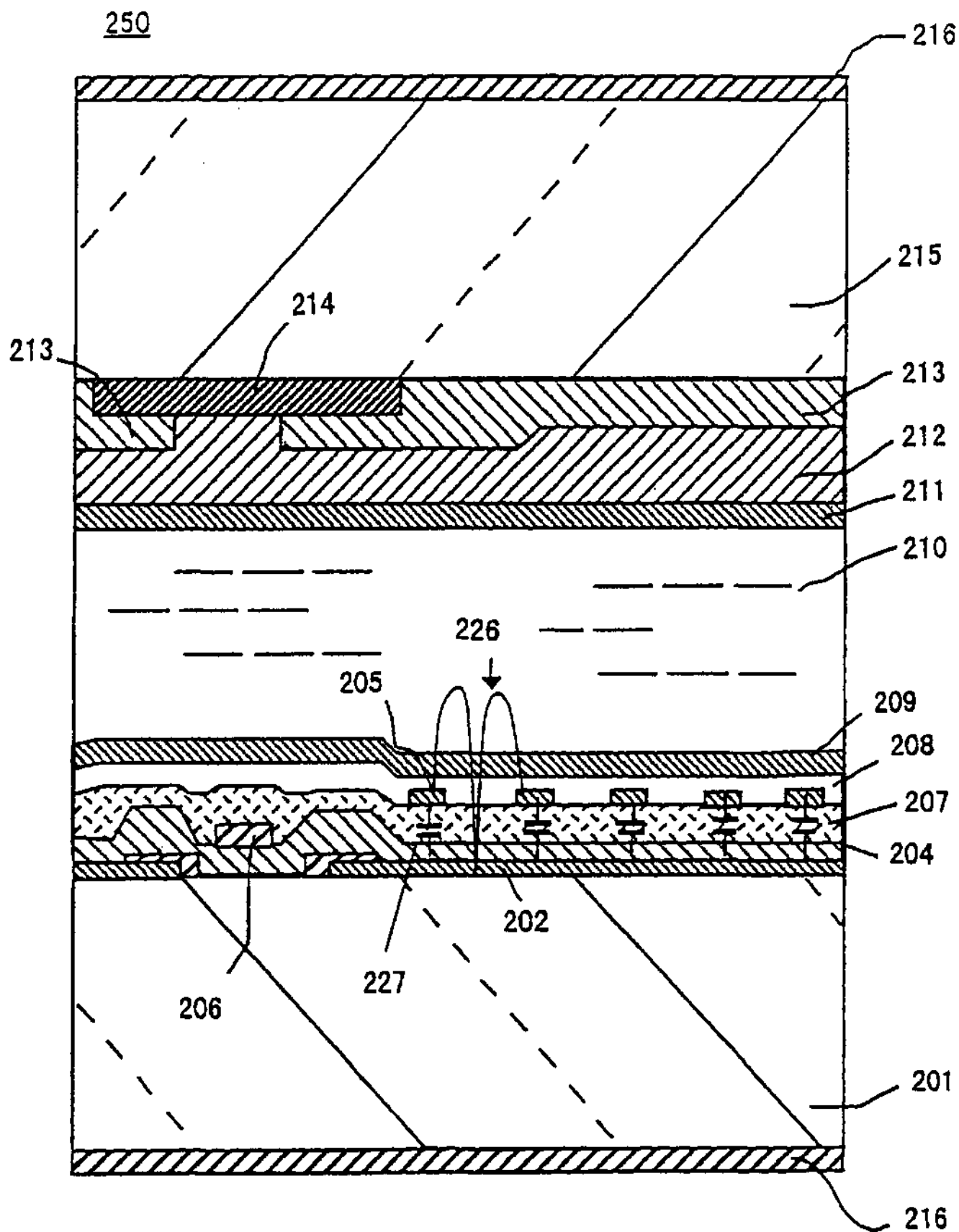




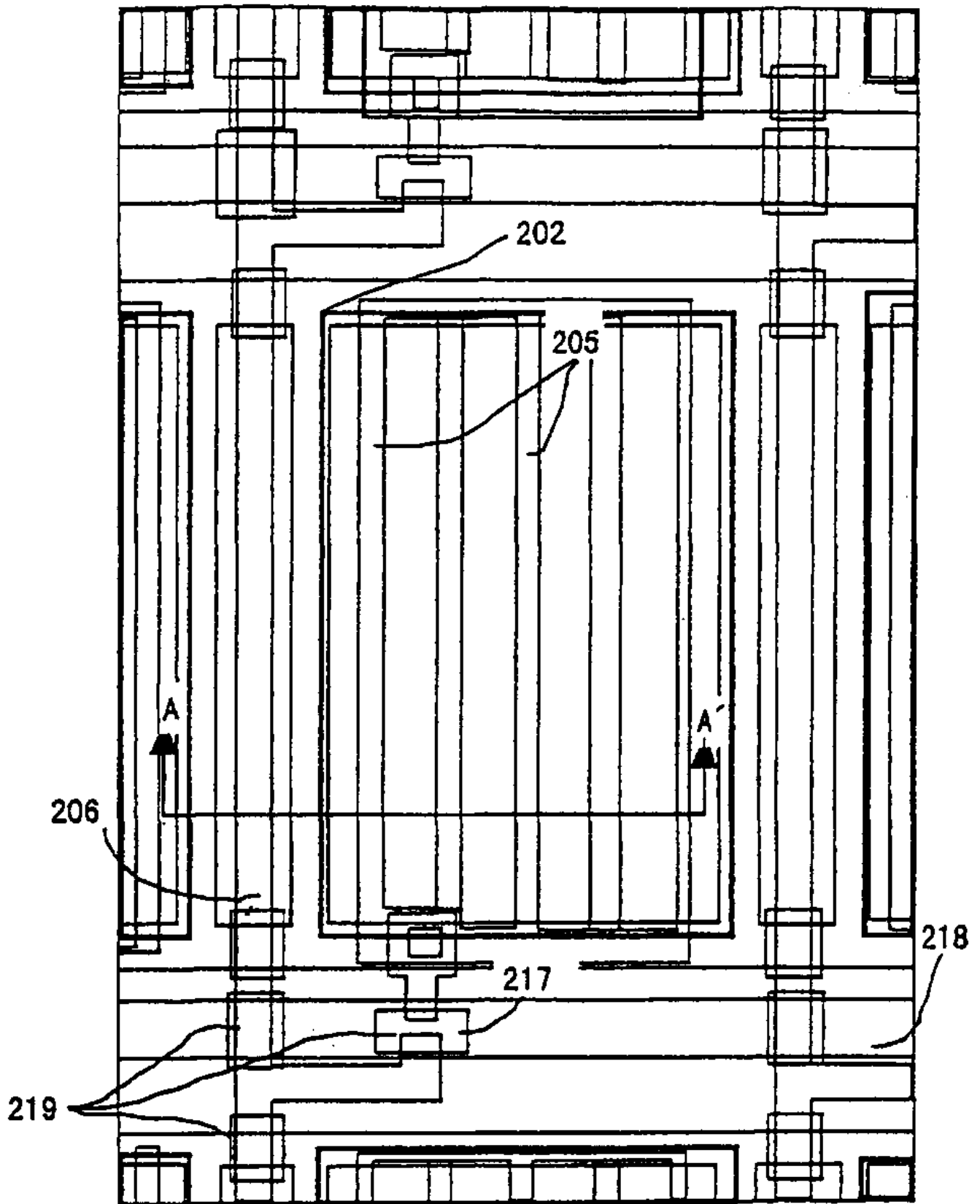
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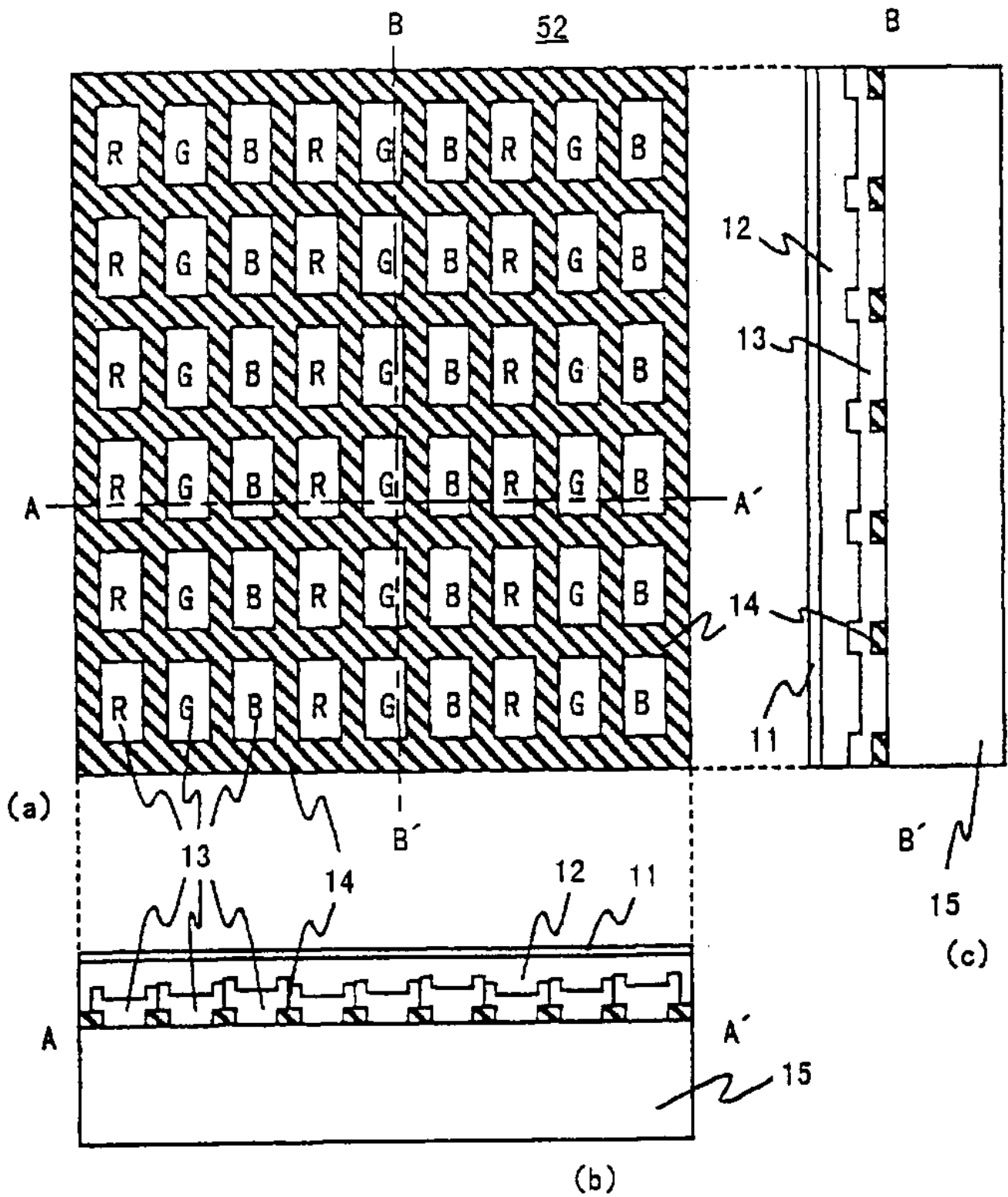
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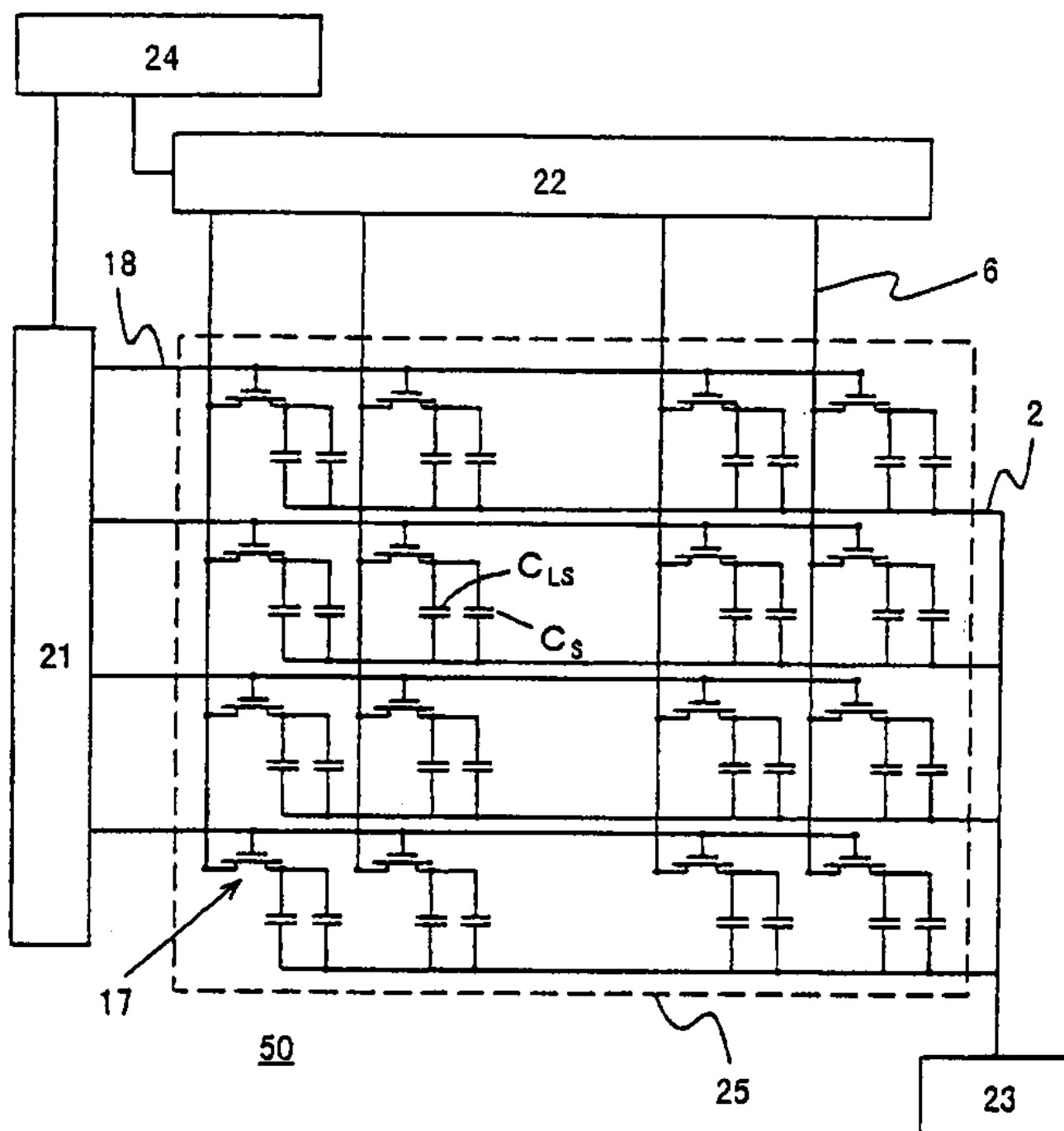


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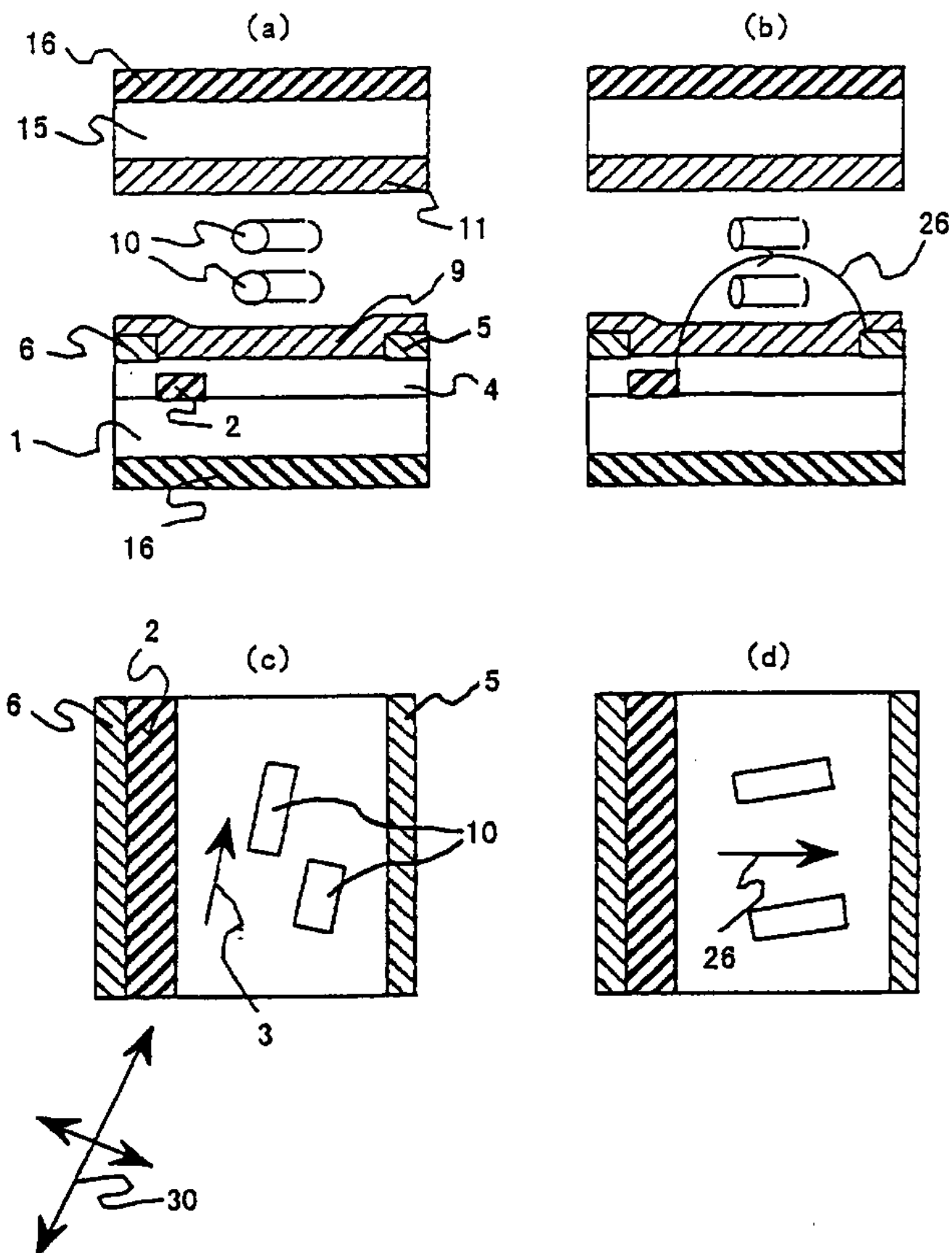


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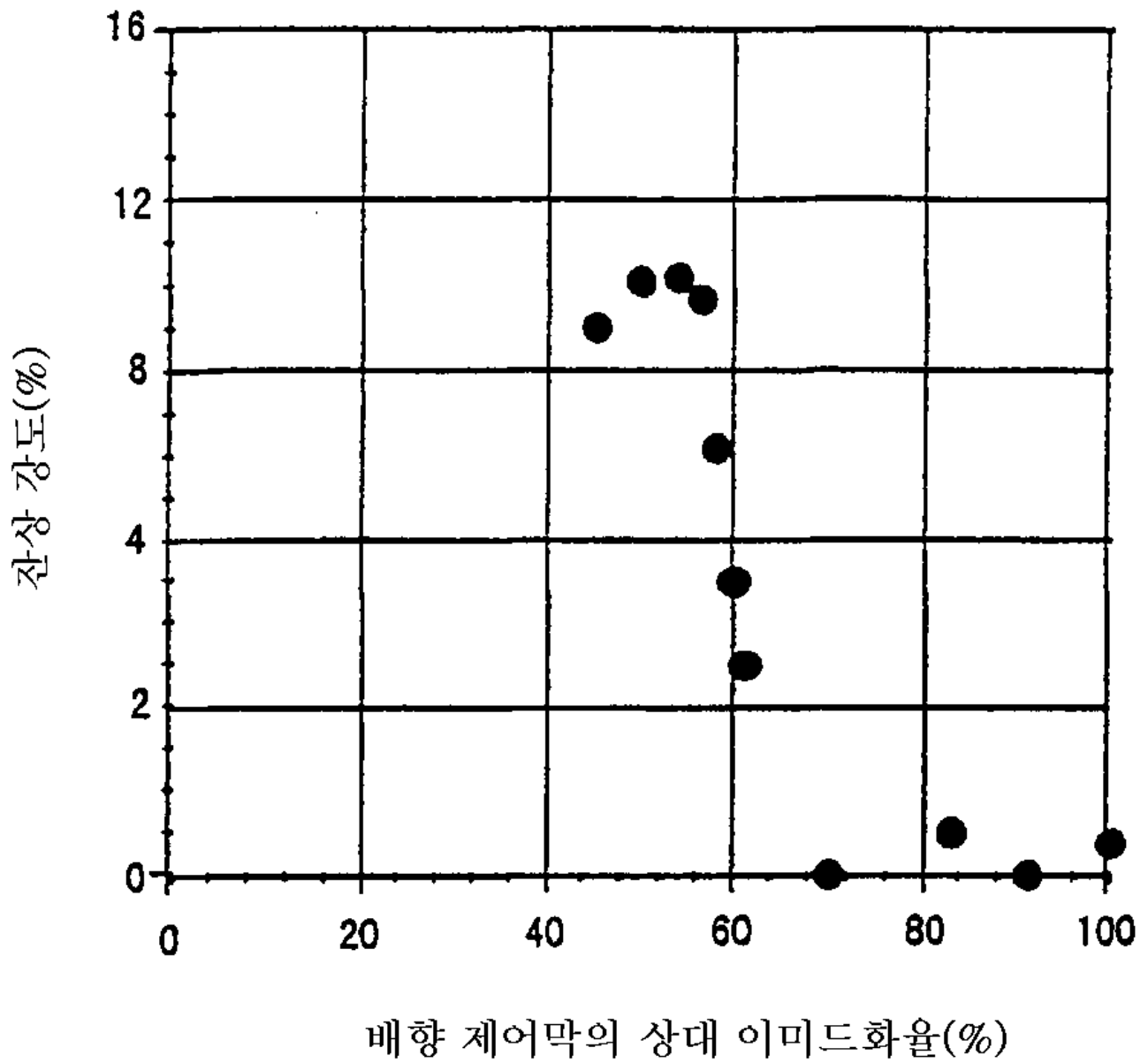




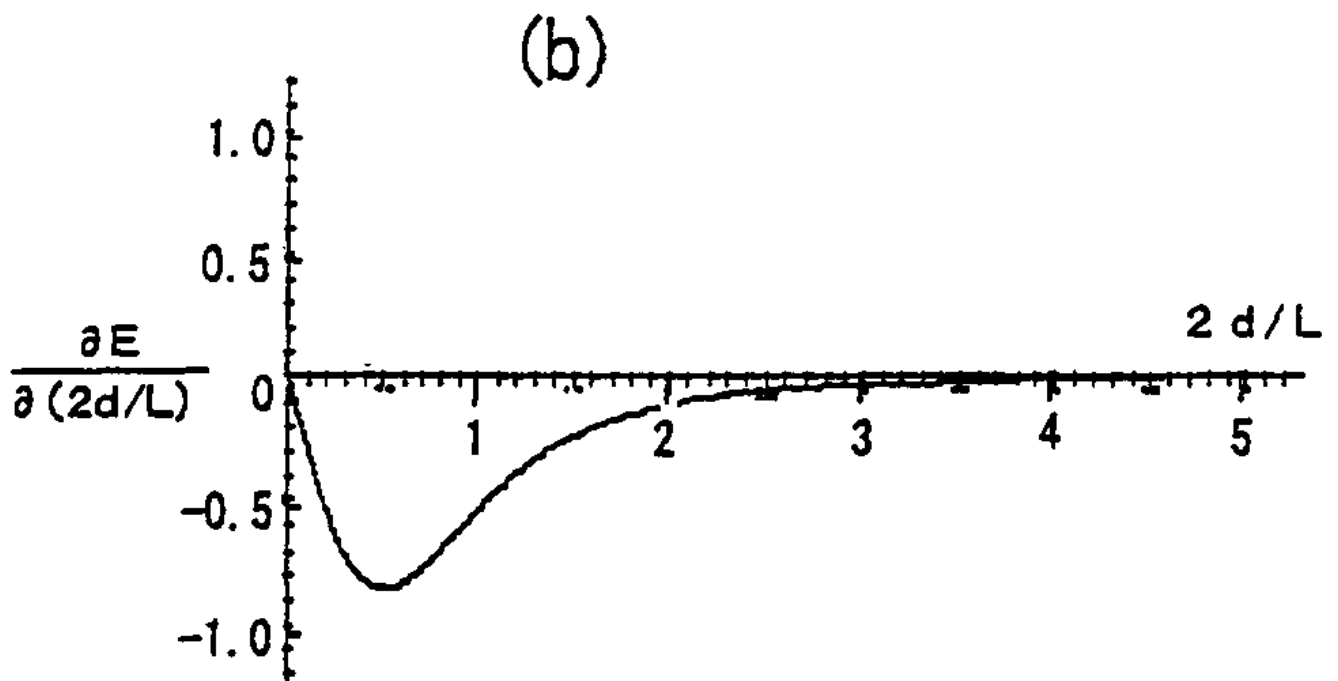
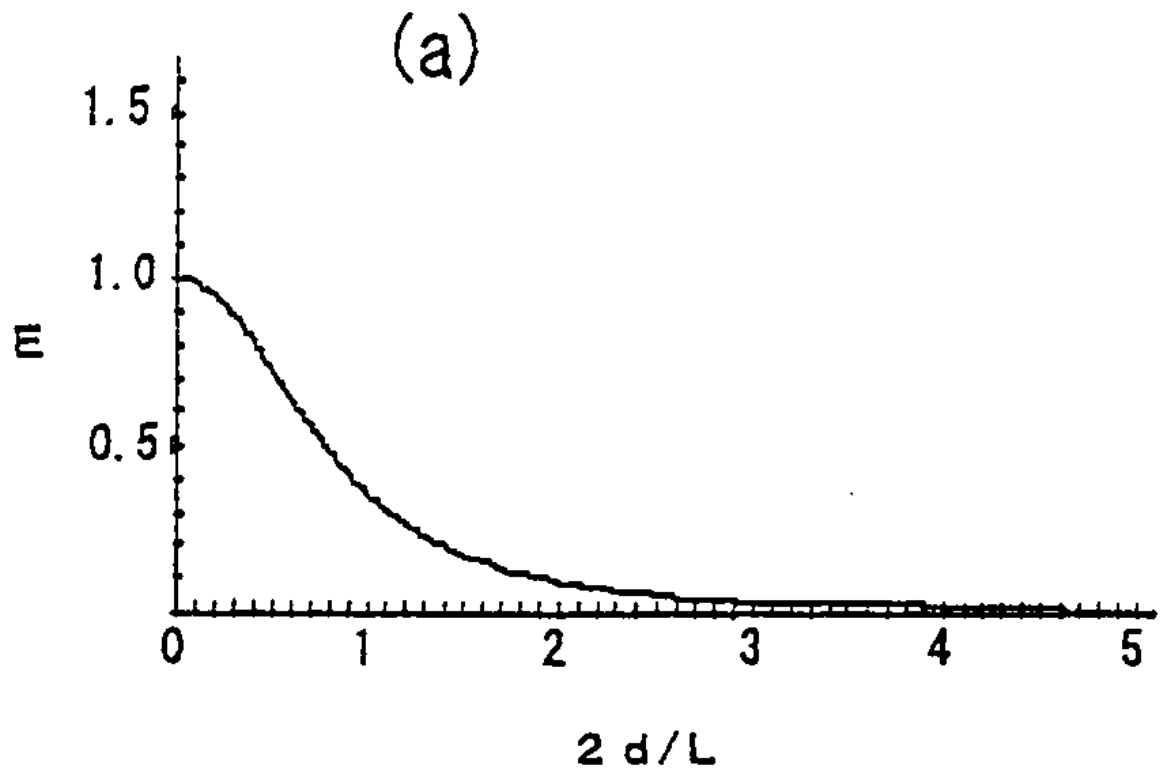
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11



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专利名称(译)	液晶显示器		
公开(公告)号	KR1020010094942A	公开(公告)日	2001-11-03
申请号	KR1020010008192	申请日	2001-02-19
[标]申请(专利权)人(译)	日立HITACHI SEISAKUSHODBA		
申请(专利权)人(译)	株式会社日立制作所		
当前申请(专利权)人(译)	株式会社日立制作所		
[标]发明人	TOMIOKA YASUSHI 도미오까야스시 OKISHIRO KENJI 오끼시로겐지 UMEDA YOSHIYUKI 우메다요시유키 OOAKU HITOSHI 오아꾸히토시 KONDOU KATSUMI 곤도우가쯔미		
发明人	도미오까야스시 오끼시로겐지 우메다요시유키 오아꾸히토시 곤도우가쯔미		
IPC分类号	G02F1/1343 G02F1/1368 G02F1/1337 G02F1/136 C08G73/10 G02F1/1333		
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代理人(译)	CHANG, SOO KIL		
优先权	2000097820 2000-03-30 JP		
外部链接	Espacenet		

摘要(译)

对于面内切换模式的液晶显示器，图像的扫描和重影减少。可以防止显示不均匀产生。相反侧酰亚胺化率是指一对基板和由公共电极和有源电路元件组成的液晶显示器和形成在每个基板上的取向控制膜和偏振板，其中至少一侧对有机聚合物是公平的聚酰亚胺超过60%或聚酰亚胺酯基。上面描述的绝缘层越来越多地插入在像素电极和位于取向控制膜中的公共电极和基板侧的底部之间，其中形成电极组和电极端部平坦化并且减轻了电场的浓度，并且防止了图像的扫描和残像产生。液晶显示器，ISP模式，余像，取向控制膜，酰亚胺化率。

