

1 1 , 가
 2 (A),(B) 1 가
 3 1
 4 1 (1)
 5 1 (2)
 6 1 (3)
 7 2
 8 2
 9 3
 10 4
 11 5 (IC)
 12 5
 13 5
 14 (A),(B)
 15 6
 16 7
 17 8
 18 8
 19 (A),(B) 9
 20 10
 21 11
 22 12
 23
 24 23 A-A
 25
 26 (A),(B)

, , , , , ,
 D () (,) CV
 23 , 24 23 A-A
 (1) , 23 (3)가 (5)
 (7) (9) (3) (1) (4) IC(7) , IC
 (1) (3) 25 (5)
 (3) (11) ()
 (3) (3) 가 가
 (1) (3) 26 (A) 26 (A), (B) (3)

(10)		(9)	가	
(11)		(9)		가
(12)		(9)	(11)	
(13)		(12)	가	
(14)		(9)	(13)	
(15)	가	(9)	(14)	가 가
(16)		(15)		(10)
0	(100)	(100)	(SiO ₂ 54.74)	
V	, V			
(17)		(15)		(11)
0	(110)			
(18)			1	2
1	가	1	2	2
2		3	2	3
가		2	3	
(19)			1	2
1	가	1	2	2
2		3	2	3
가		2	2	3
(20)			1	2
1	가	1	2	2
2		3	2	3
3	가	2	2	3

(21)
 1 가 , 2 2 가 , 2 1 3
 , 2 2 3 3 가 ,
 2

(22)
 1 가 , 2 2 가 , 2 1 3
 , 2 2 3 3 가 ,
 2

(23)
 1 2 가 , 2 1 3 , 2 2
 3 3 가 , 2
 3

(24)
 1 2 가 , 2 1 3 , 2 2
 3 3 가 , 2
 3

(18) (24) , 2 , 2 가 ,
 가 , 2 , 가 ,

(25)
 1 2 1 2 , 1 1
 3 , 2 2 3 가 , 3 1
 , 3 2 3 3 가

(26)
 1 1 2 가 , 1 2 , 1
 3 , 2 2 3 가 , 3 1
 , 3 2 3 3 가

(25) (26) , 3 , 3 가 ,
 가 , 1 2 ,

1 1 (21) (20) 1
 , , (25) (27) (25) (27)
 IC(23) (25), (27) (25a, 27a)
 (25a, 27a) (50) (50)

(21) (29)가 , (29)
 2 (A) 1 A-A , 2 (B) 1 B-B
 (20) (29) (29) (29) (A) (29) (A)
 31) (25) (32) (29) (33) 2 (A)

IC(23) (25) 가 2 (B)
 (29)
 (20) 가
 가
 3 (20) 3 (20)
 (20) (30a) (30a) (30a)
 (20) (20) (29)가 (30) (30a) 3 C-C
 4 6 (30a)
 4 (a) (33) 4 (b)
 (37)
 (37) 4 (c)
 (30a) (37) KOH
 (37)
 (33)
 (110) (110)
 (33) (33)
 (30a) (30a) (30a)
 (30a) 4 (d) (20) () IC(2
 3) (30a) 5 (e) (33)
 (37) 5 (f) (33) (30a) SiO₂ (3
 1) SiO₂ (31) 5000 20000 , CVD BPSG(Boro
 n-Phospho-Silicate Glass)
 (33) (30a) SiO₂ (31) (33)
 2 5mTorr, 150 300 , Al-Cu, Al-Si-Cu, Al-Si, Ni, Cr, A
 u , DC 9 12kW (41) 200 20000 (41) 5
 (25, 27) (41) 200 20000 (41)
 (g) , Cr Au 1000 (41)
 SiO₂ (31) (41) 6 (h) (41)
 (37) (41)
 (25, 27) (41) 6 (i) (37)
 (41) 6 (j) (33) (25, 27)
) (30a) (25, 27) (39) 6 (k)
 (30a) (39)
 (29)가 (20) (4)
 가
 1 (30a) (20) 7 (a)
 (20) 2. (30a) (41) (30a) (41)
 7 (b) (30a) (41) (29) (41) (41) (20) (25, 27)
 (41) (41) (25, 27) 가
 (25, 27)
 (30a) (41) 6 (h) (37) (30a)
 (37)

, (30a) (41) 8 (a) , (30a)
 , (30a) (41)
 가
 3. , (30a) (41) (33) , (33)
 , (30a) (21) (41) , (33)
 가 (30a) (41) (20) (25, 27) ,
 , (30a) (41) (33) ,
 1 5 (f) 9 (a) (30) (30a) (31)
 , (30a) (31)
 9 (b) , (41) (41) (33)
 4.
 , (30a) , 10 (a) , (30a)
 V 가 (20) , (30) , 10
 (b) , V (100)
 , V (100)
 1 4 IC(23) (20)
 5.
 11) , IC (51) (52) (53) , IC (51) (52) (53)
 , IC (51) , IC (51) (54)
 , 12 (54) (55) (56)가
 (56) , (55) (56)가
 가 (55) IC (57) (56) h h' , IC
 (57) 가 (55) (56) h h' , IC
 , (TAB) , IC (51)
 , (55) Au Al Au · Au , Au · Sn , IC
 , (55) (55)
 6.
 14 6 (59)
 14 가 (59)
 6 ,
 (60) , (20)
 , (60) 1 4 (70)
 (72) 가 (70) 14 (74) , 3
 (78) , (78) 5 (76) , 5 (76) 1
 , (72) (76) (80) (76) (80)
 , (70) , (76) 5 가 , 가
 (74) , 22 q (71) 가 (71) 가 , 가
 (70) (76) (71) 가 (71) 가 (66)

(72) (76) (62) (76)

가 (70) (72) (62)

(66) (74) (90) (84) (86) (87)

(70) (74) (90) (86)

(86) (20)가 가

(78) (60) (82)

(78) (80) 가 (76) (66) (74) (61)

가 (66) (76) (62) (20)

(60) (20) ()

(60) (20) 가 ()

7.

15 (91) (93a, 93b) (93) (93) (97)

(95) (95) (95) (97)가 (93) (93a, 93b)(93) (97)

(A) (93) 1 (93c) (95a, 95b) 가 (97) (97) (A)

(95) (93) (93) (93a, 93b) (95) (97) (95a, 95b)

(95) (95a, 95b) 1 (20)가 (91) (20) (95)

(20) 6 (20) () (20) ()

(95a, 95b) () (20)

(95) ()

8.

16 15 (91) (98) (10)

3) (105) (99) (101) (108)가 (91) (108)가 (93d)

(95) (99) (99) (93) (93)

0) (93a, 93b) (95a, 95b) (95) (95a, 95b) (2)

가 (91) (91)

(99) () (101) () (91)

(93d) (91) 16 (91)

(99) (95) () (93d) (101)

(20) 7

(98)

9.

(111) 7 (98) 17 (111) (117)

가 가 (113) 17 18 (115) (119) (111)

(98) (91) () () () () (98)

7

(60)

10. 19 (A) , 19 (B) 가 가 (121) 2 (122 123) (124) (125)

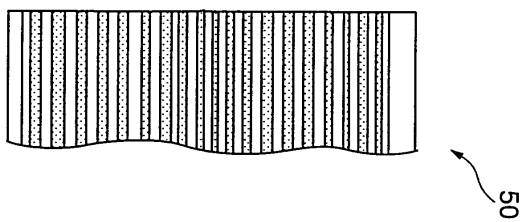
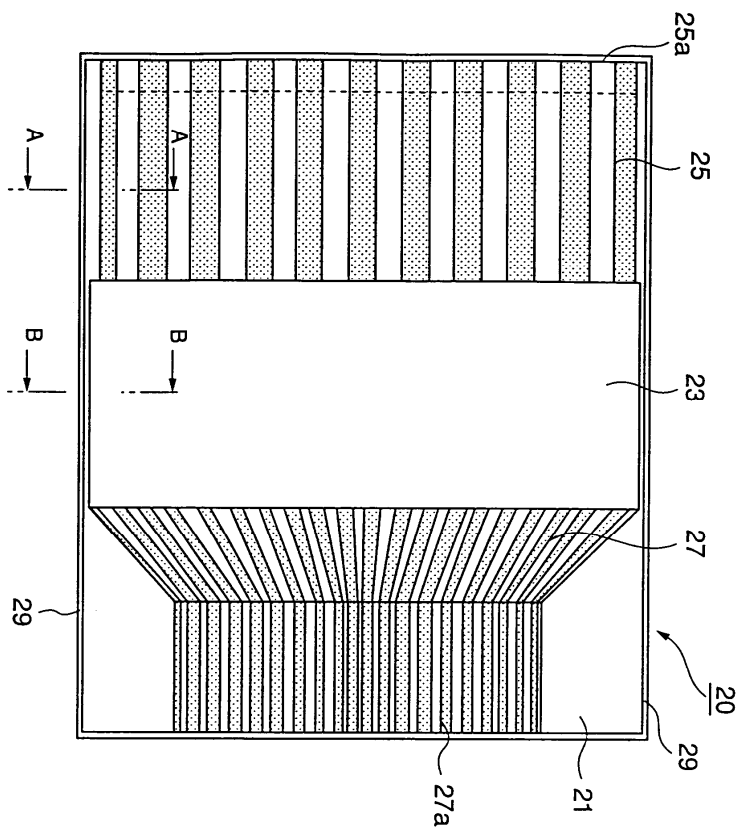
(121) (126) (127) 가 , (128) (128) (128) (131) (132) (133) (131) 19 (B) (128) (129) (125) (131) 6 7 (20)

11. 20 (140), (150) (170) (140) (141) (141) , (141)가 20 X (141) (143) (145) , (141) (143) (143) (141) (143) (145) 가 (141) (141a) (141)가 (141) (150) (151) 가 (150) (153) (153) (155)가 (150) (151) , X 2 (141) (157)가 (159) (151) (150) (151) (153) (161)가 (161) (143) (141) (157) (161)가 1, 2 (163, 165) 가 , Y 2 1 (163) 1 (167) (165) 2 (169)

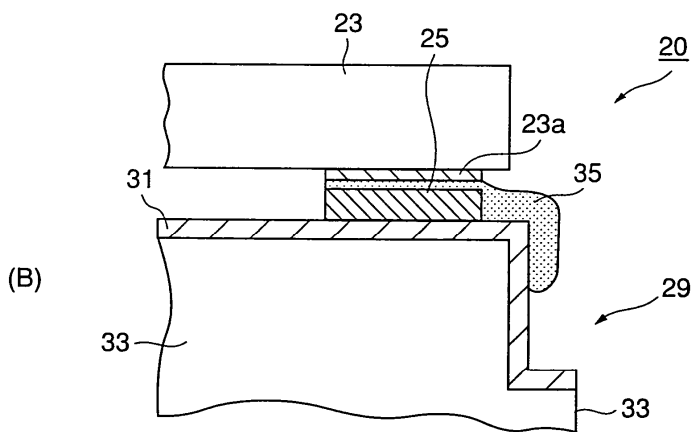
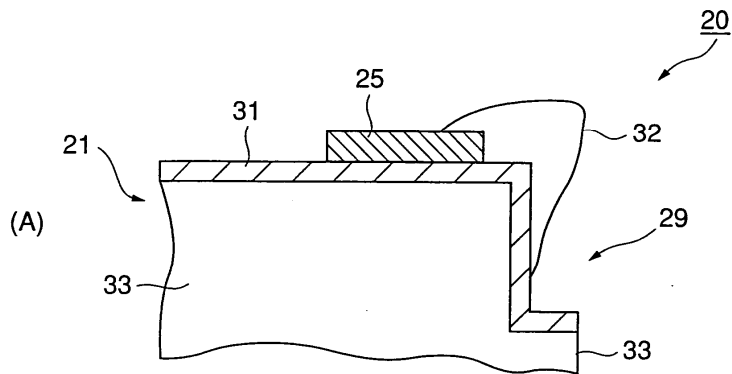
(150) (140) (140) (143) (145) , (150) (153)가 (140) (140) (1) (150) (159)가 (140) (140) (14) (170) (145) (150) (153) (143) 가 (155) 가 1 가 (167) 2 (169) , 가 6 10 가 , IC 가

12. 21 11 (180) (181) , (182) , IC(183) (184) (182) 1 (20) (20) IC (189)가 (181) 2 (181a, 181b) , (181a)(21) , (181b)(21

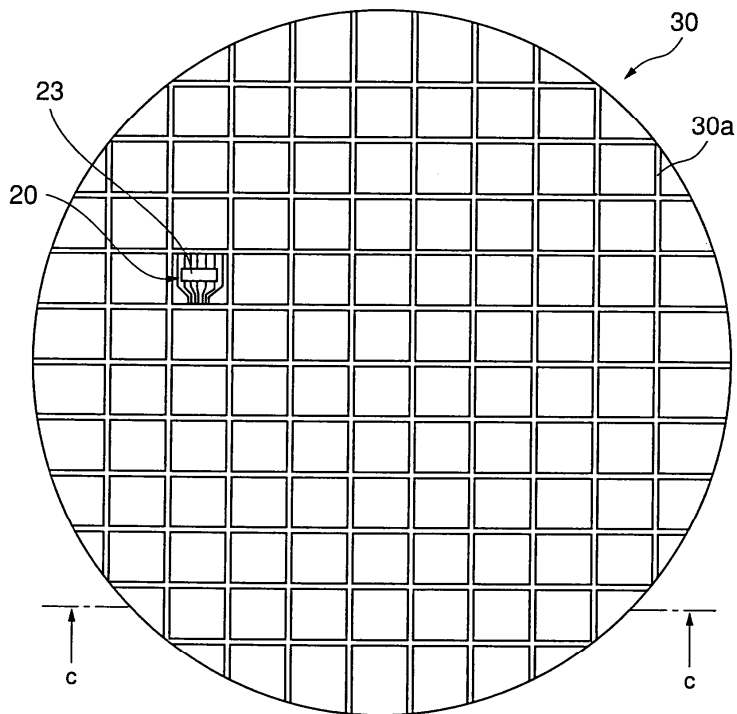
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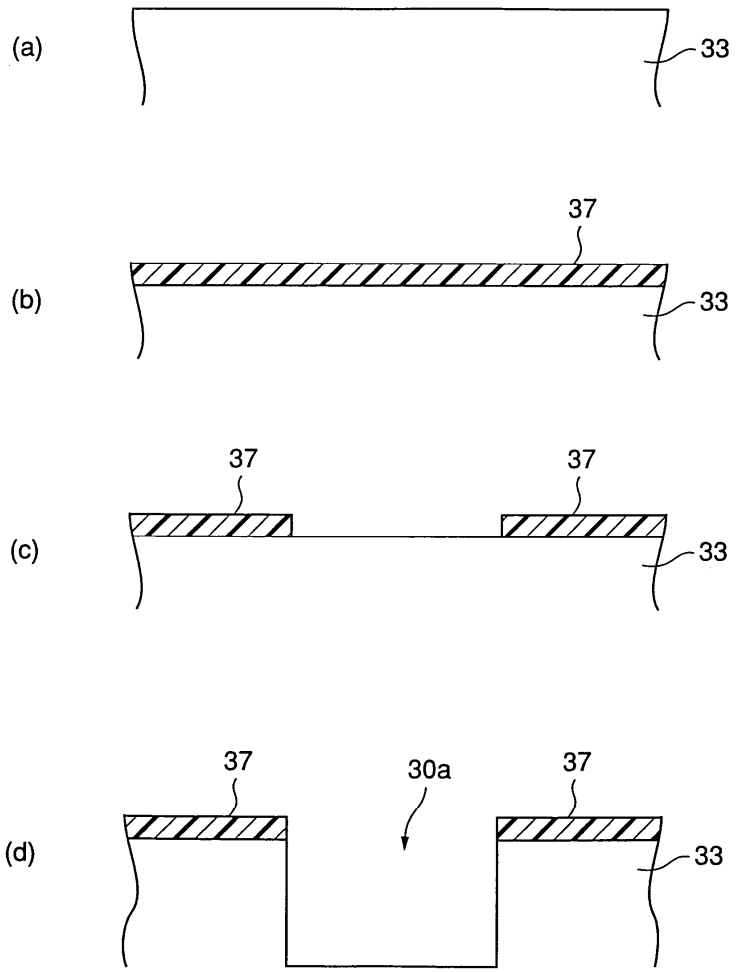
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3

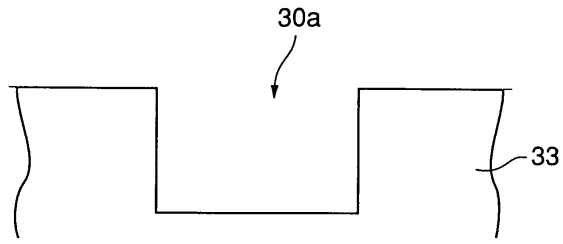


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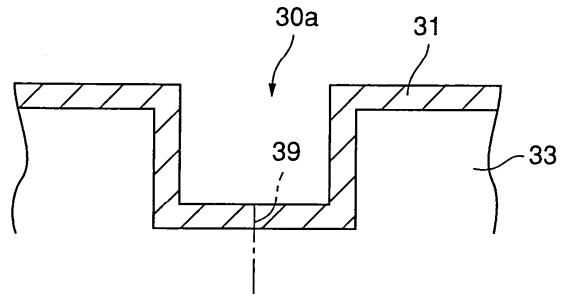


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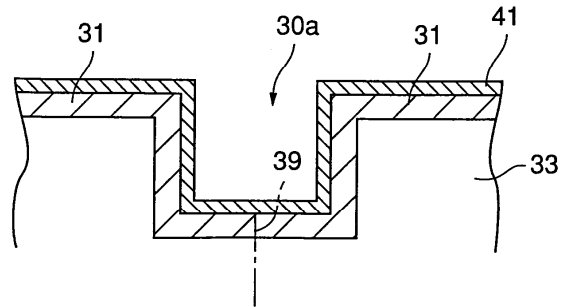
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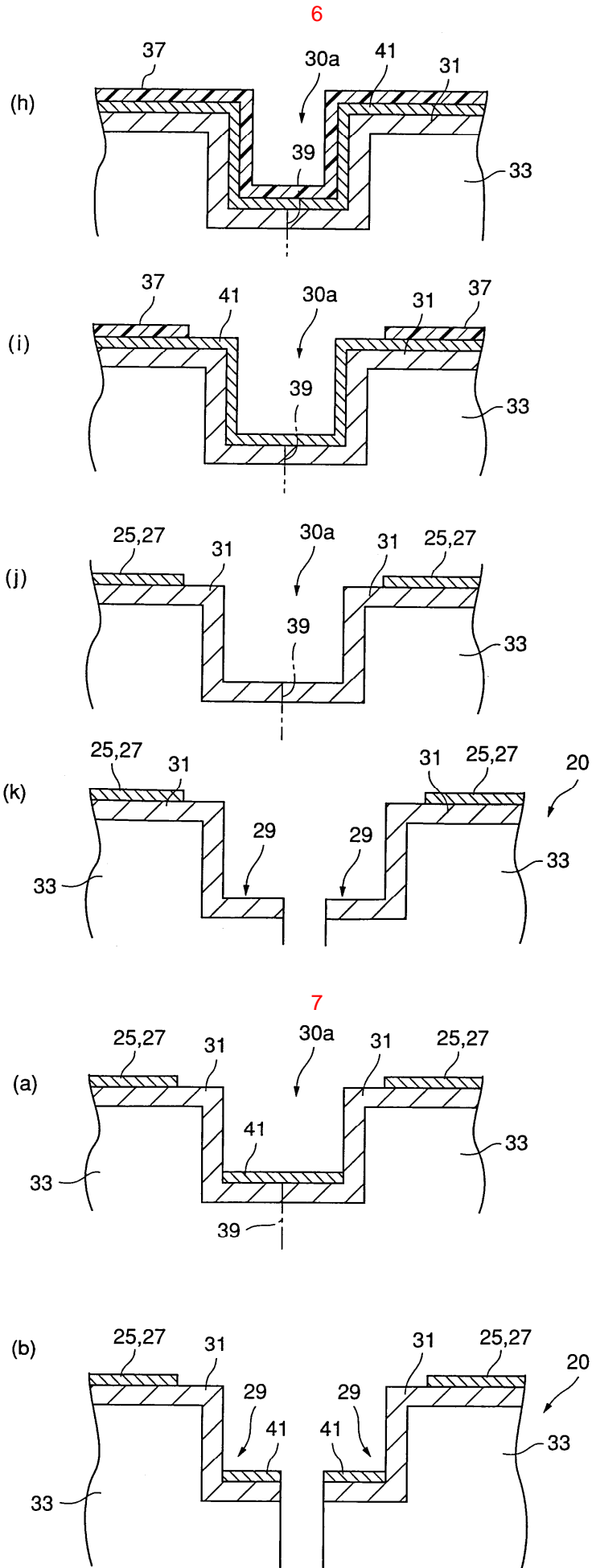


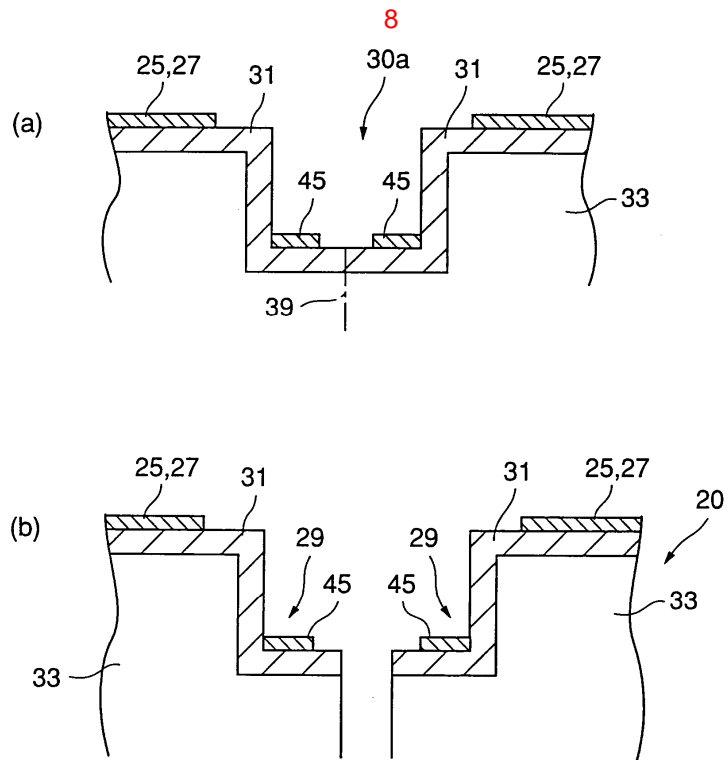
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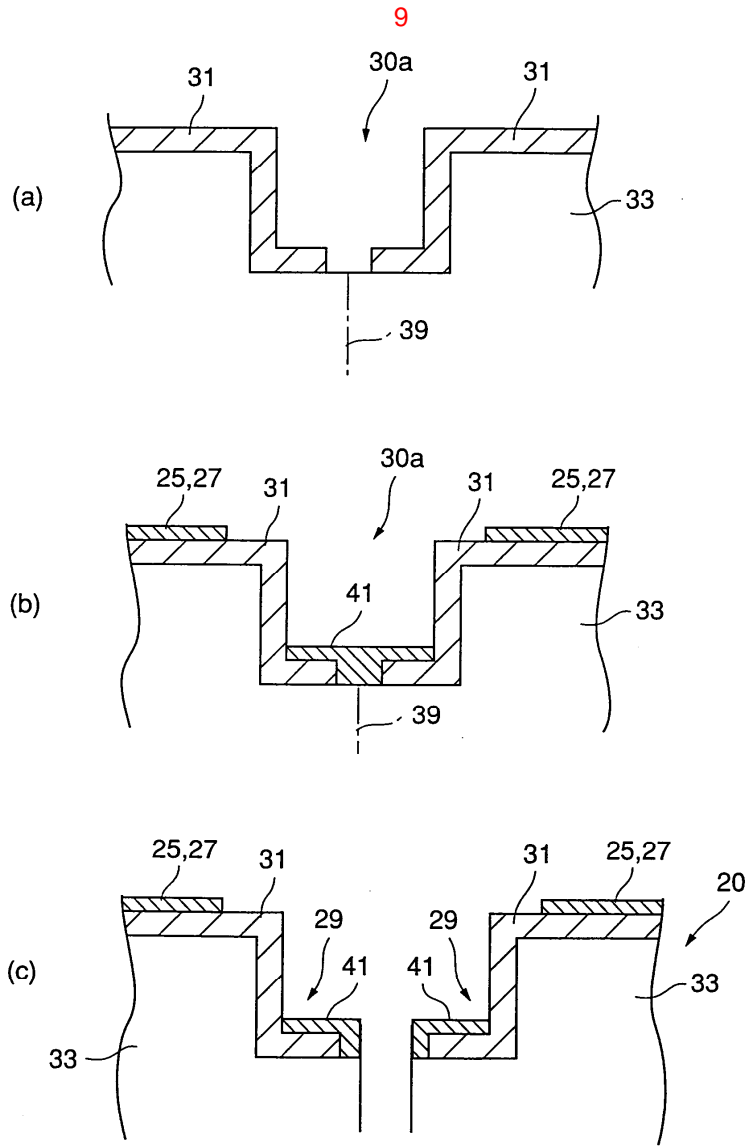


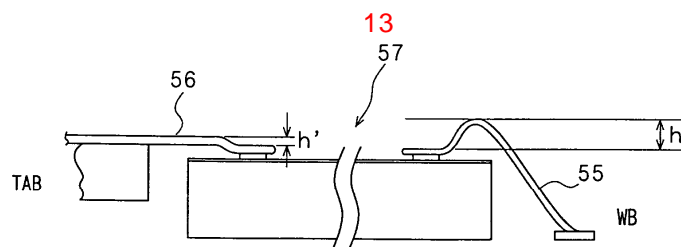
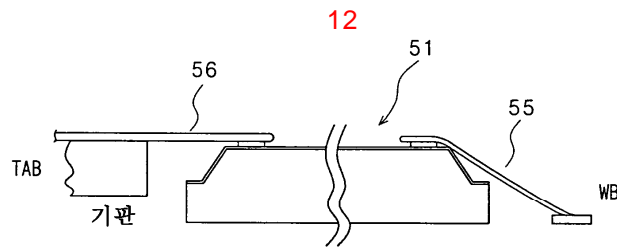
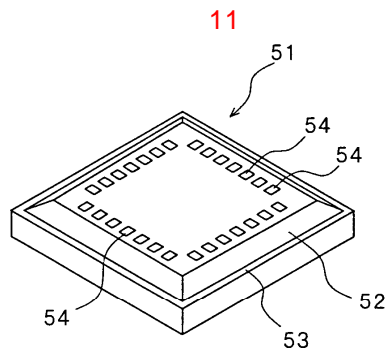
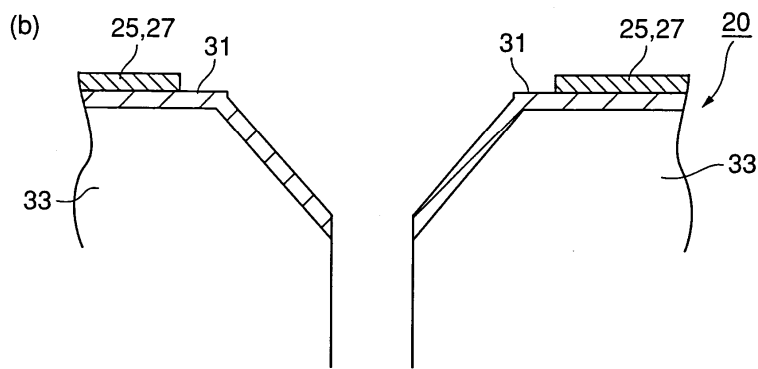
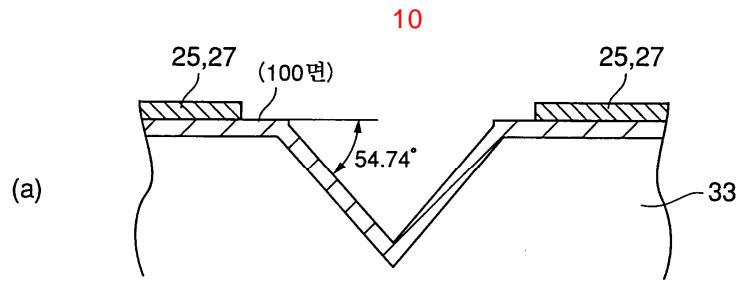
(g)



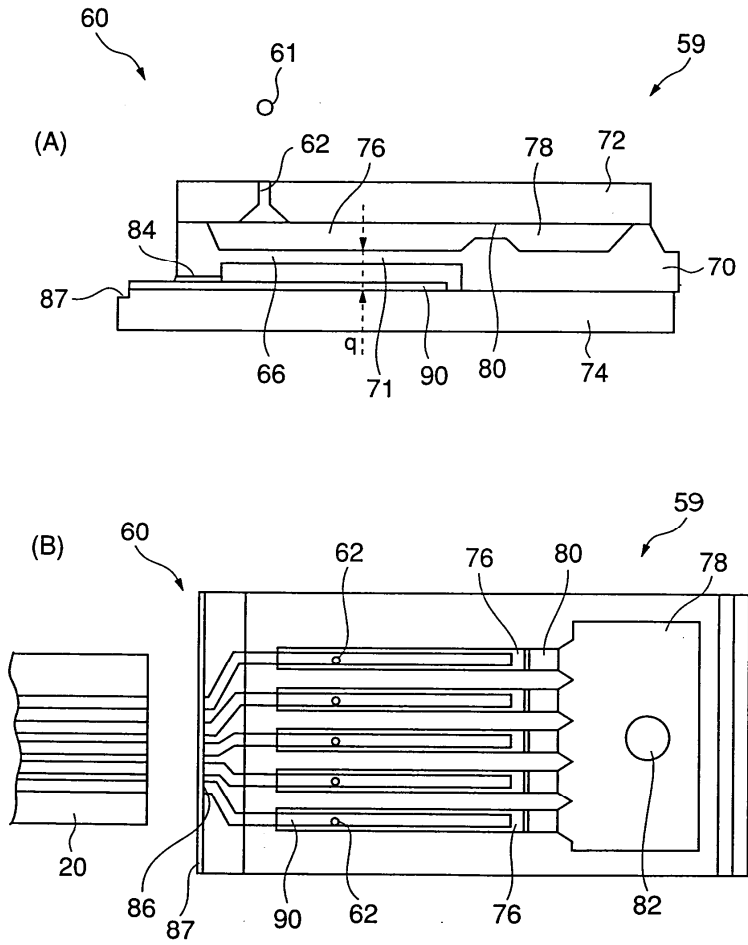




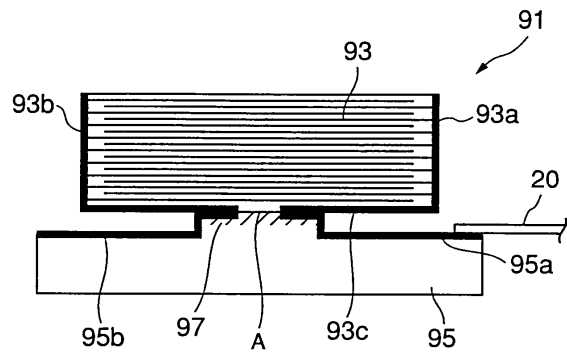




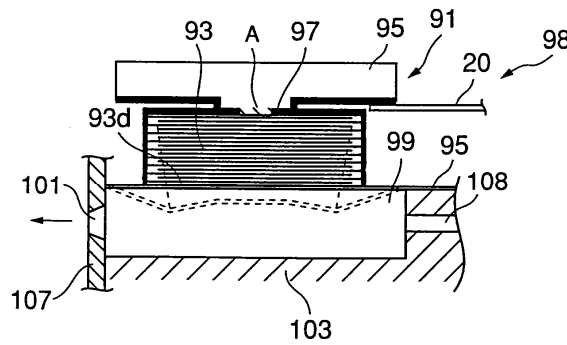
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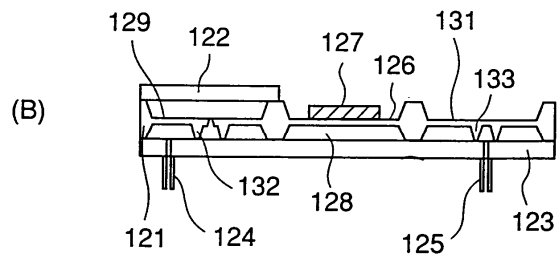
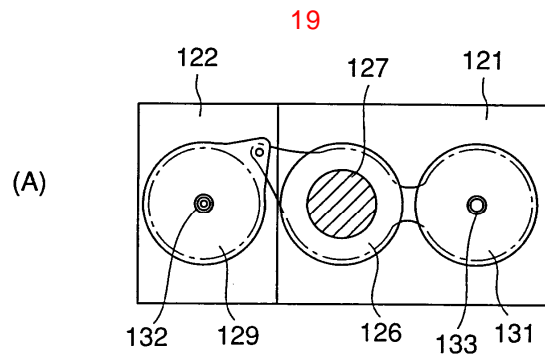
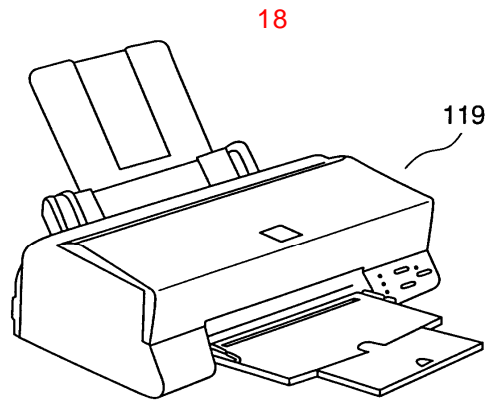
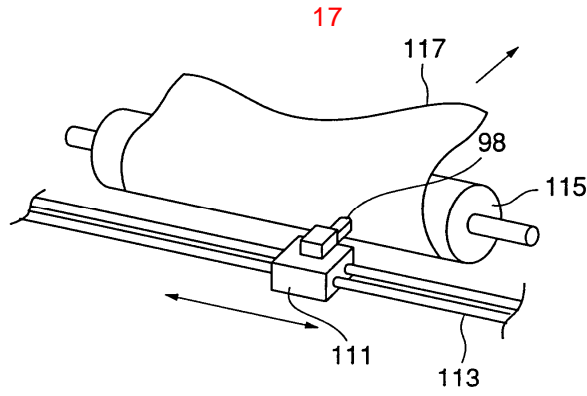


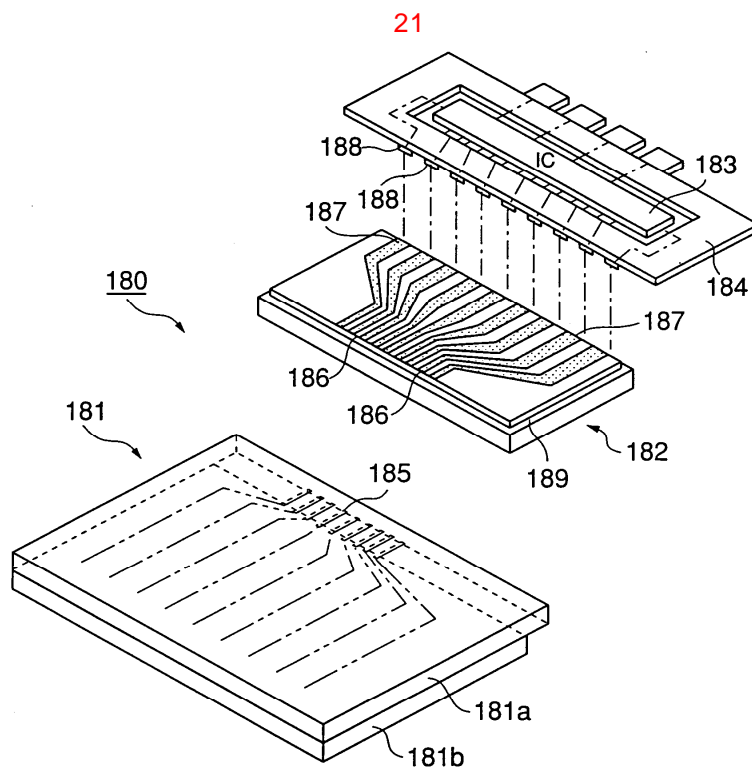
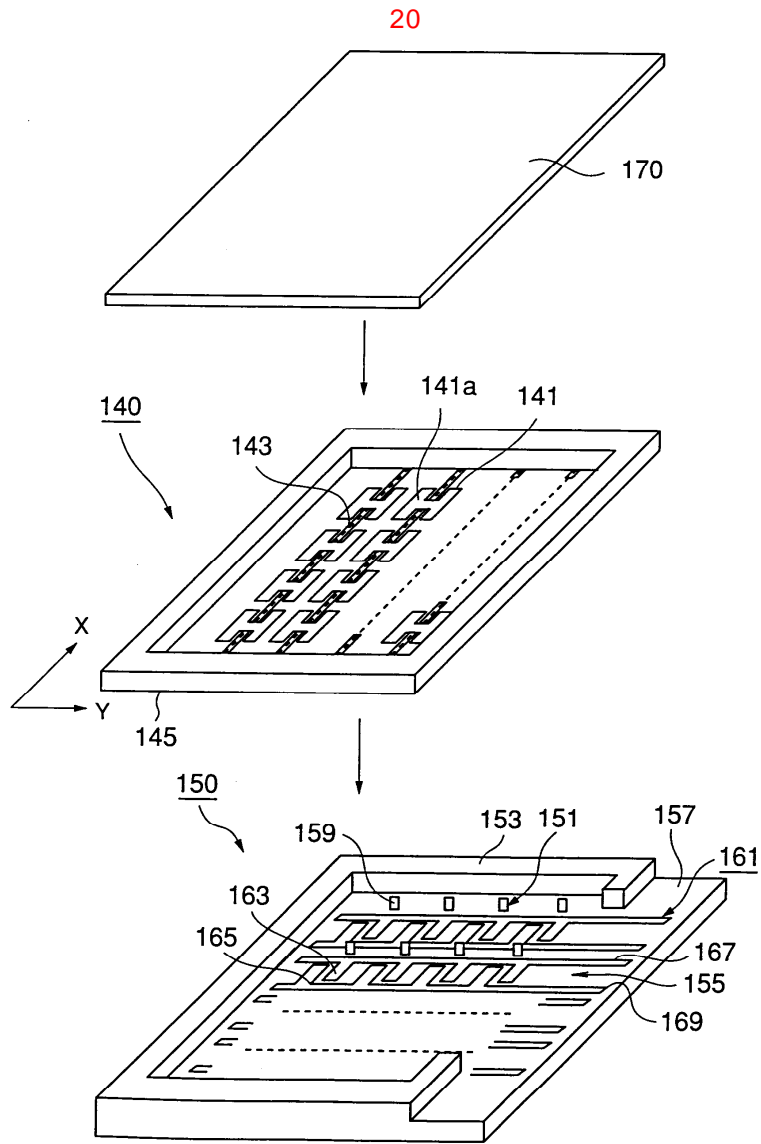
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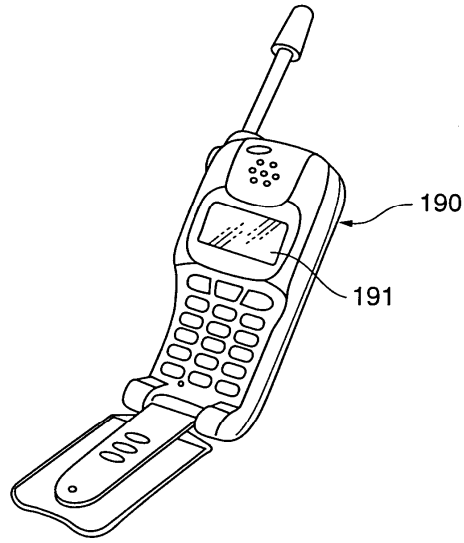
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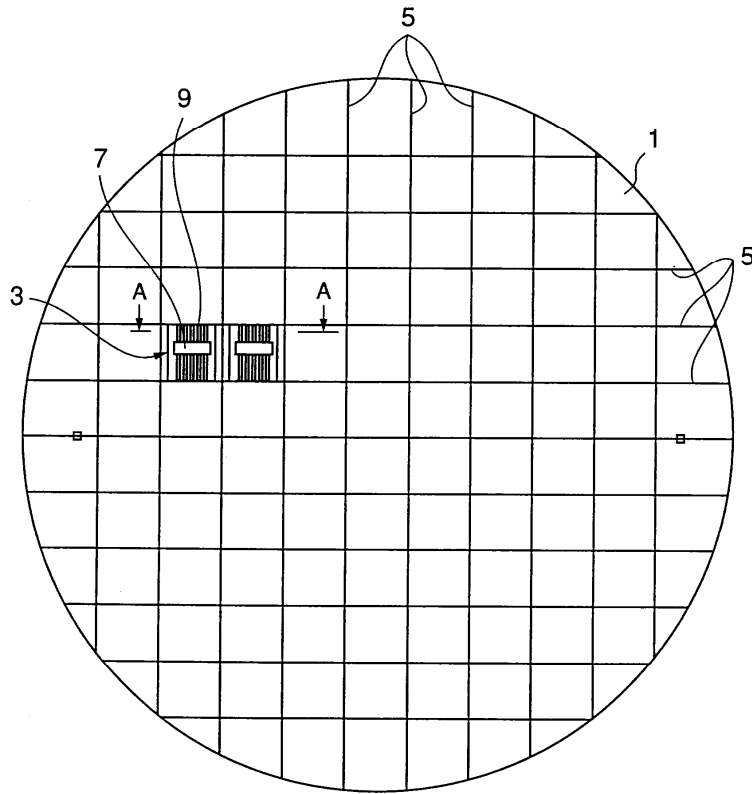




22



23



24

