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(71) 가 가
가 가 가 가 4 1 - 1

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

(74)

:

(54)

(誘電異方性)

MVA

4) , 2 가 (6) (+1 - 1) (6) (2, (10a 10d, 8) , (6) , .

2

1	1				
	, 2			(誘電異方性)	,
2	1				
3	1				
4	1	4	1	(s= +1)	
5	1	4	1	(s= +1)	
6	1	4	1	(s= +1)	
7	1	4	1	(s= +1)	
8	1	4	1	(s= +1)	
9	1	4	1	(s= +1)	
10	1	4	1	(s= +1)	
11	1	4	1	(s= +1)	
12	1	4	1	(s= +1)	
13	1	4	2	(s= - 1)	
14	1	4	2	(s= - 1)	

15	1	4	2	(s= - 1)
16	1	4	2	(s= - 1)
17	1	4	2	(s= - 1)
18	1	4	2	(s= - 1)
19	1	4	2	(s= - 1)
20	1	(s= +1)		
21	1	1		
22	1	1	(50, 52)	
23	1	1	T - V	
24	1	1		
25	1	2		
26	1	2		
27	1	3		
28	2		MVA - LCD	(殘像)
29	2		11 - 229249	(150)
30	29	MVA	TFT - LCD	(116) 1
31	30		1 2	(6) , 2 (暗線)
(140, 142)				
32	(122)			
33	(152, 154)			

34	(122)	(152, 154)	(6)
35	2		
36	2	1	
37	2	2	
38	2	3	
39	2	4	
40	2	5	
41	2	6	
42	MVA - LCD	(中間調)	TN LCD
43	MVA - LCD		TN LCD
44	42 MVA - LCD	(118)	가

2, 4, 200 : 6, 202 :

8, 10a, 10b, 10c, 10d, 30, 31, 34, 36, 37, 40, 74 :

12a, 12b, 12c, 12d, 12e, 12f, 140, 142 : (暗線)

14, 102, 124 : 16, 18, 108, 110, 120, 122 :

20, 106, 118 : 22, 104, 116 :

32, 33a 33d, 35, 41, 42a, 42b, 45, 46, 47, 72 : (無)

38, 39, 43, 44, 48, 126, 128, 130 :

50, 52 : (十字) 54, 56 :

58 : 60 : (幅狹)

62 : (幅廣) 64, 66 :

68, 70 : (blank) 100 : TN LCD

112, 132 : (斜線部) 114 : MVA - LCD

150 : 152 :

154 : 156 :

158 : TFT 160, 162 :

164 :

204 : (disclination)

(Liquid Crystal Display; LCD)

MVA(Multi - domain Vertical Alignment)

LCD (가) CRT OA 가 TV LCD PC TV

가 (多用) LCD 2 TN(Twisted Nematic; rubbing) (偏光軸) 가

, 2 (方位)

90°

TN LCD

가 90°

(無) 가 (明) 가 (

).

가 (長軸)

(複屈折)

()

가 (暗) 가 가
, 가
(階調) 가가 .

가 TFT (Thin Film Transistor;)
TN TFT - LCD , (薄型),
PC , TV , TN TFT - LCD
TFT - LCD (再現性) CRT 가 , TN
(輝度)가 가
(反轉) TN LCD .

TN LCD가 LCD , 2947350 MVA - LCD가
MVA - LCD , , 2
.2 (半) 가
.2

2 가 2 가
가 45°
(斜面)

MVA - LCD 가 , ,
() . 가 가

가 ,
가 가
가 가 90°
가 가
가 가

TFT가 , TN TFT - LCD , MVA TFT - LCD , 가 , MVA TFT - LCD , TN TFT - LCD , (廣) LCD 2 , MVA TFT - LCD (橫) TN TFT - LCD IPS(In - plane Switching) , MVA TFT - LCD , TN LCD 가 LCD , MVA - LCD TN LCD 42 43 가 42a 42c 가 43 TN LCD 43a 43b 가 43c , 43 TN LCD(100) (102) 90° (104, 106) (104, 106) 43c (斜線部)(112) (108, 110) (108) (106) (110)(가 , 43b 가) (界面) 가 (102) 가 (chiral) 가 , 42a 가 , MVA - LCD(114) (124) (126, 128, 130) (116) (120) (118) (12 가 , 42b (126 130) (120, 122) 가 가 (傳播) 가 가 가 가 가

(126 130) , MVA - LCD (126 130) , 42c (132) 가 , (126 130)

MVA () MVA - LCD 가

44 42 MVA - LCD (118) 가 (126 130) 2 (126, 128) (118) 1 (130) (116)

가 (116, 118) 가 44 (116) (130) (118) (128) () A (130) (118) (126) () B

가 (130) A B 가 (130) +90° (126 130) 0° 180° () -90°

130) 가 (126 130) () (126 130) 90° (126 130) 44 (126 130) 45° 가 () (126 130) (P, A) (116, 118) A B 45°

(126 130) 45° (P, A) 가 () (140, 142) (126 130) 2 (140, 142) (126 130) 1 () (+1) 2 () (-1) (-1) 가 (+1) 가 2

MVA - LCD (140, 142) 가 (專有) 가 2 VA - LCD 가 (trade - off) M

2 3 , , (20) (22) ,
 (2, 4) , (20, 22) (16, 18) , (16, 18)
 (16, 18) 가 , (14) (14) . ,
 , (8, 10a, 10b, 10c, 10d) .

(8) (20) (16) , (2) .
 (8) 가 4 (角柱)가 , .
 22) (8) () , (10a, 10b, 10c, 10d) (.
 (18) (10a 10d) 2 (4) .
 (10a 10d) (十字)
 (10a 10d) (8) .

, (16, 18) 가 , (8, 10a 10d)
 , 3a, 3b, 3c (14) 가 .
 (8, 10a 10d) (6) , (8,
 10a 10d) 1 (+1)) , (10a 10d)
 2 (-1)) .

, 2 , 1 2
 , 1
 , 2 (8, 10a 10d) 1
 2 가 , 가 가
 가 45° (8) , 2 (10a 10d)
 4
 A, B, C, D .

(20, 22) 2 () , 가
 A, B, C, D (6) 가 (20, 22)
 45° , ((8, 10a 10d))

, 2 , 가
 1 (2 , 12a 12f) . (12a 12f)
 1 , 가 가
 1 MVA
 - LCD (半分) 가 . ,
 , 가 ,
 가 .

가 , 가

(6) 가

가

(8, 10a 10d) , 1 (s=+1)

30) (20, 22) (30) (6) (30) 1

5 (20, 22) (31) (31) (31) 1 (6)

6 (同種) (ITO()가 (20, 22) (16, 18) (32) (31) (32)

7 4 4 (20, 22) (16, 18) (33a 33d) (33a 33d) (33a 33d) 1

8 (20, 22) (34) 2 (10a 10d) (10a 10d) (34) 가 (34) (34) (34) (6)가

9 (35) 1 (35) (20, 22) (16, 18)

10 4 (36) (30) 4 (20, 22) (36) (30) 1 (6)

11 5 (37) , (31) (6) (31) 4 (20, 22)

12 (20, 22) , (20) (38)가 (39)가 (22) (38, 39) 1 (20) 가

13 19 4 2 (S= - 1) (40) (40) 가 13 2 (20, 22) (40) (40) (40) (40) (40) 가 (6)가

14 가 (20, 22) (16, 18) (41) 2 2 (41)

15 (20, 22) (16, 18) (42a, 42b) (42a, 42b) 2 (42a, 42b) 2

16 (20, 22) , (20) (43)가 (44)가 (22) (43) (43, 44) 2 (43, 44) 가 (43, 44)가 (43, 44) (6)가 (43, 44) ()

17 (20, 22) , (20) (16) (45) (22) (18) (45) (46) (45) (45, 46) 2 ()

18 4 2 (30) , (20) (30L) , (22) (30U) (30L, 30U) (6)가 (30U)

(30L) (30L, 30U) (6)가 (30U)

(31) (6)가 2 (30) (30L, 30U)

19 (47) (20, 22) (22) (20) (16) (47) (47)
 (48)가 (48) 2

4 19 가

20a (a) $s = +1$, (가) $(s = +1) = 0$, 20a (b) $s = +1$,
 $= /4$, 20a (c) $s = +1$, $= /2$

20b 2 (s = -1) 2b (a) $s = -1$, $= 0$,
 20b (b) $s = -1$, $= /4$, 20b (c) $s = -1$, $= /2$

(c) $s = +1$, $= 0$ $s = -1$, $= 0$ 가 , 20a 20b (b)
 $4\mu\text{m}$ 가 , 1 2 μm 100 μm

가 (Ton+Toff) 41ms 가 가

[1]

21 , 1 8 (34) , 2
 16 (43, 44) (20) (50) (22) (50)
 (半) (50) 가 (20, 22) (52) (6)
 가 21 가 2 3

LCD 가 (50, 52) 1 MVA -
 가

1 2

22 (50, 52) (50, 52) (50, 52) (20, 22) (50, 52) 0.6 μ m 1.6 μ m 가 25 μ m 1.1 μ m 2.3 μ m

C MVA - LCD 가 1.9 μ m MVA - L CD 가 180°

가 1.0 μ m A B 가 (50, 52)

MVA - LCD

23 T - V 23 가 (V) JALS - 684(JSR) MJ961213(Merck) LC200(Shiplely FarEast (社)) MVA - LCD 1.6 μ m

23 A, B, C 30 μ m 10 μ m B 20 μ m A (50, 52) C D E MVA - LCD D 가 가 25 μ m E 가 가 5 μ m

23 B 20 μ m D E 가 25 μ m MV A - LCD 26% MVA - LCD A 1.3 40 μ m MVA - LCD

23 C , 가 10 μ m , 15% , 1
 0 μ m MVA , C
 (50, 52) 가 2
 () 1

24 off(ms) , , 가 0V , 0% , 5V 가 (Ton+T 100%)

A (50, 52) 10 μ m
 B MVA - LCD , , 가 , 가 25 μ m
 C LCD

A (50, 52) , , ,
 0% 25% 0% 60ms , B MVD - LCD
 33%

, 가 21 , 가 ,

[2]

25 25 , 1
 1 21 , 1
 8 (34) , 2 16
 (43, 44) (22) (50) (52) (50, 52) ,
 (50) ITO (50, 52) ,
 0)

(50) (54) , (52)
 (56) , (50, 52) (50, 52)
 , 가 (50, 52) (6)
 (50, 52) 가 (50, 52) 가

26 가 Y(%), (ms)
 가 4V 0% , 15V 가 100%
 (50, 52) 가 10 μ m 1.3 μ m (54, 56)
 1 μ m MJ98126, JALS - 684
 3.0 μ m

A Toff B Ton C Ton+Toff
 (Toff) 26 (Ton+Toff) 25ms 0% 25%(Ton) 25% 0%

[3]

27 27
 (20) 21 (22) 1 (50)
 45° (58)가 (50)
 가 (6)가 (58) (58)
 (6) 가 MVA - LCD 90°
 44 가

[2]

2 28 41
 , 1

28 MVA - LCD (殘像) (ms)
 , O 1000ms , 1000 2000ms , 2000ms
 28 MVA - LCD

가 44 44 (126 130)
 가 (126 130)

1 11 - 229249 29
 () (118) (122) 가)
 () (126) (6) , ,
 (150) 29a
 (150) (150) (126)
 2 (140, 142) 29b (150)

(6) (150) (118) 29c (126) (116)

MVA TFT - LCD 30 31

30 29 MVA TFT - LCD (116) 1
 (154) (118) 가 (154) ()
 (154) (154) (152) (152) (劃定)
 TFT(158) (122) TFT(158)
 (154) (154) (152) (156)
 (122)

(122) (152) 45° (126) (126) (154) ()
 126) (126)

(116) 가 30
 (116) (120) (118) (126)
 (154) (152) 45° (130)가
 (130) (126) (126)

(152) (154) TFT(158) 가 (122)
 (120) 가 (126) (130)
 (6)가 (122) A, B, C, D 4
 1 () , 2 ()
 44 (126), (130))
 2 (140, 142) , 2 (140, 142)
 () (6)

31 30 , 1 2 , (6) 2 (140,
 142)

30 31 , (122) (122)
 (122) (140, 142) (122)
 , 1(2) 2(1)

(152, 154) () 1
() 2
(122) 가 35 가

30 , 35 1 2 1 2
가

30 가 1 가 2
가

[1]

36 1 36 (152, 154)
(62) 15μm (152, 154) (幅狹) (60) (幅廣) (62)
10μm (60) 5μm, 10μm

(118) (2) (60) (62) (152, 154)
(2, 4) JALS - 684(JSR) (4) (116)
180 1 4μm MJ961213(Merck) (116, 118)

(62) 1 (s=+1) 가 (60) 2 (s= - 1)
(122) (152, 154)
(variation), (fluctuation)

[2]

37 2 37a (152, 154)
37b 37a A - A , 37c 3
7d 37a B - B , 37e

1 , (152, 154)
 (152, 154)
 10 μ m 37b (152, 154) (64) 2
 (64) 5 μ m , 1.5 μ m (64)
 PC - 335(JSR) , (152, 154)

37c (64) , (152, 154) (68) (152,
 154) 2 (68)
 5 μ m .

37d (152, 154) (116) (68) 1
 (68) 5 μ m , 1.5 μ m (68)
 PC - 335(JSR) , (120)

37e (68) , (120) 가 (70) (120)
 1 (70) 5 μ m

가 (64) (68) 2 ()
 s = - 1) , (66) (70) 1 (s = + 1) ,
 (122) (152, 154) ,

[3]

38 3 (152, 154)
 (60) , 30 (122) (160) (126)
 (152, 154) (60) 10 μ m (60) 5 μ m,
 10 μ m .
 (152, 154) 1 2 , (152, 154) (122)
 (160) 1 2 ,

[4]

39 4 (152, 154)
 (62) , 30 (116) (120) (130)
 2, 154) (60) 10 μ m 10 μ m (62) 15 μ m, (15

(152, 154) 1 1 , (152, 154) (122)
 (160) 2 . 1 3 ,

[5]

40 5 . 40 30 MVA TFT - LCD
 (126) (152, 154) 38 (122) (160)
 (160) (152, 154) 1 () ,
 (152, 154) 2 () .
 , (152, 154) (130) 39
 (152, 154) 1 (160) (152, 154) 2 ,
 , 1 2 (122)
 , (122) , 15
 , XGA(:1024 × 768) MVA TFT - LCD , 1 99μm × 297μm .

[6]

41 6 . 1 MVA TFT - LCD (11
 6) 1 (118)
 가 (154) () , (154)
 (152) .
 (154) (152)
 , TFT(158) (122) . TFT(158)
 (154) , (152)
 (122) (154) (154) (156) (12
 2) (156)
 (122) (164) .
 (122) 4 (72) . 4 (72)
 (154) 2 , 2 (72)
 2 (72) 3
 , 2 (72) 14 ,
 (72) 2 .

(116) 41 (116)
 (120) (74)
 (154) (152)
 (74) 8
 (74) 1 (74) (72) (122)
 12

(122) (120) 가 , (72) (74)
 (6)가 , (122) A, B, C, D 4
 1 () , 2
 ()

(122) (160) (72) (152, 154) 38
 (160) (152, 154)
 (152, 154) 2 1

(152, 154) (74) 39
 (160) (152, 154) 2
 (152, 154) 1
 , 1 2 (122)

(12) (74) (72) 1
 MVA - LCD 가 ,

가 가 , 가 ,

, MVA TFT - LCD
 , MVA TFT - LCD

MIM , TFT - LCD ,
 LCD, LCD, LCD ,
 가 ,

, MVA - LCD
 MVA - LCD

(57)

1.

2 , 2 (誘電異方性)

가

2.

1 ,

2 2 가 ,

가 45° 가

3.

2 ,

가 1 , 가

1 가 2 가 가 (假想) 45°

4.

3 ,

가 1 (暗線)

5.

4 ,

가 , 가

,

.

12.

11

,

,

가

1

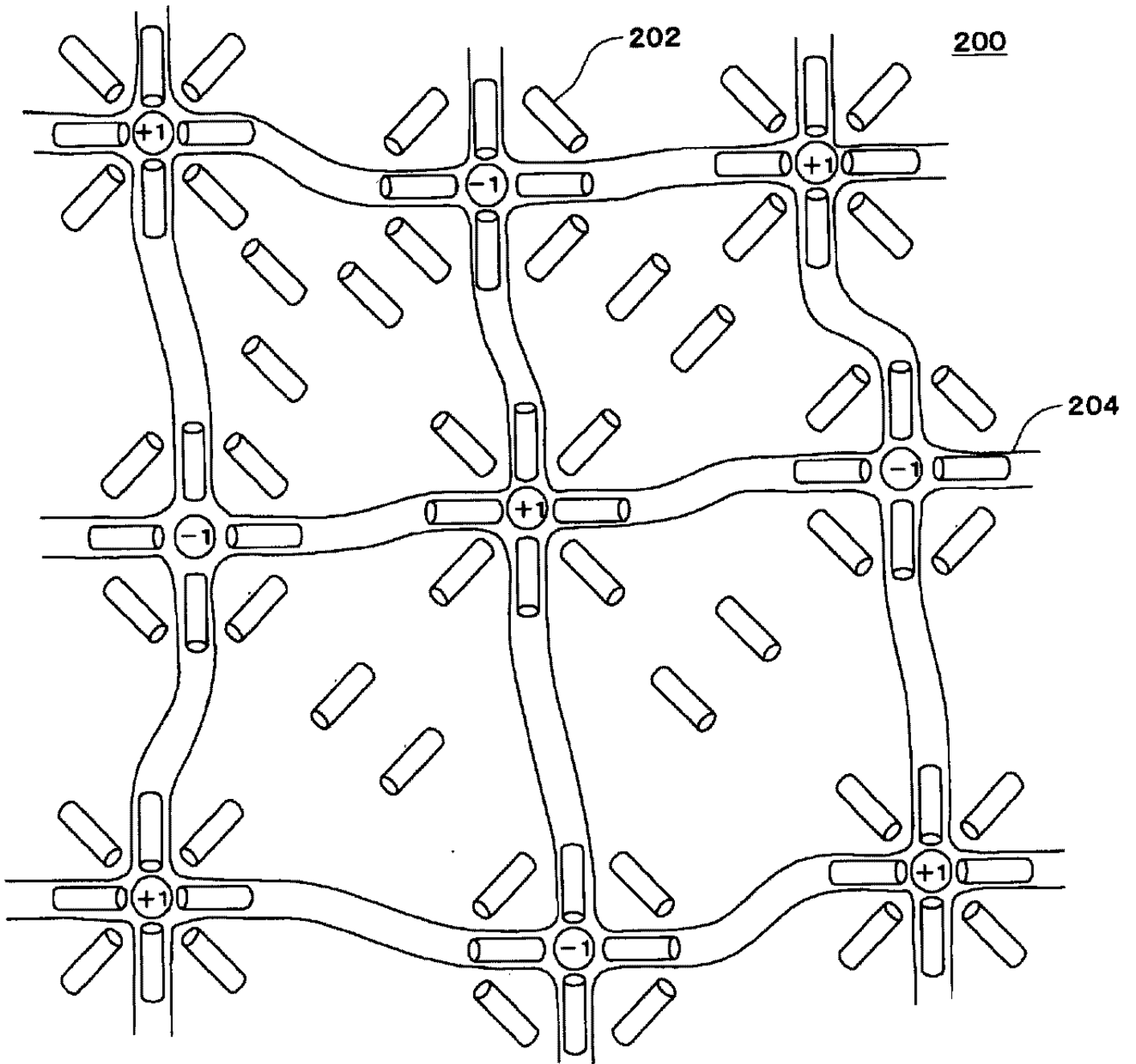
,

가

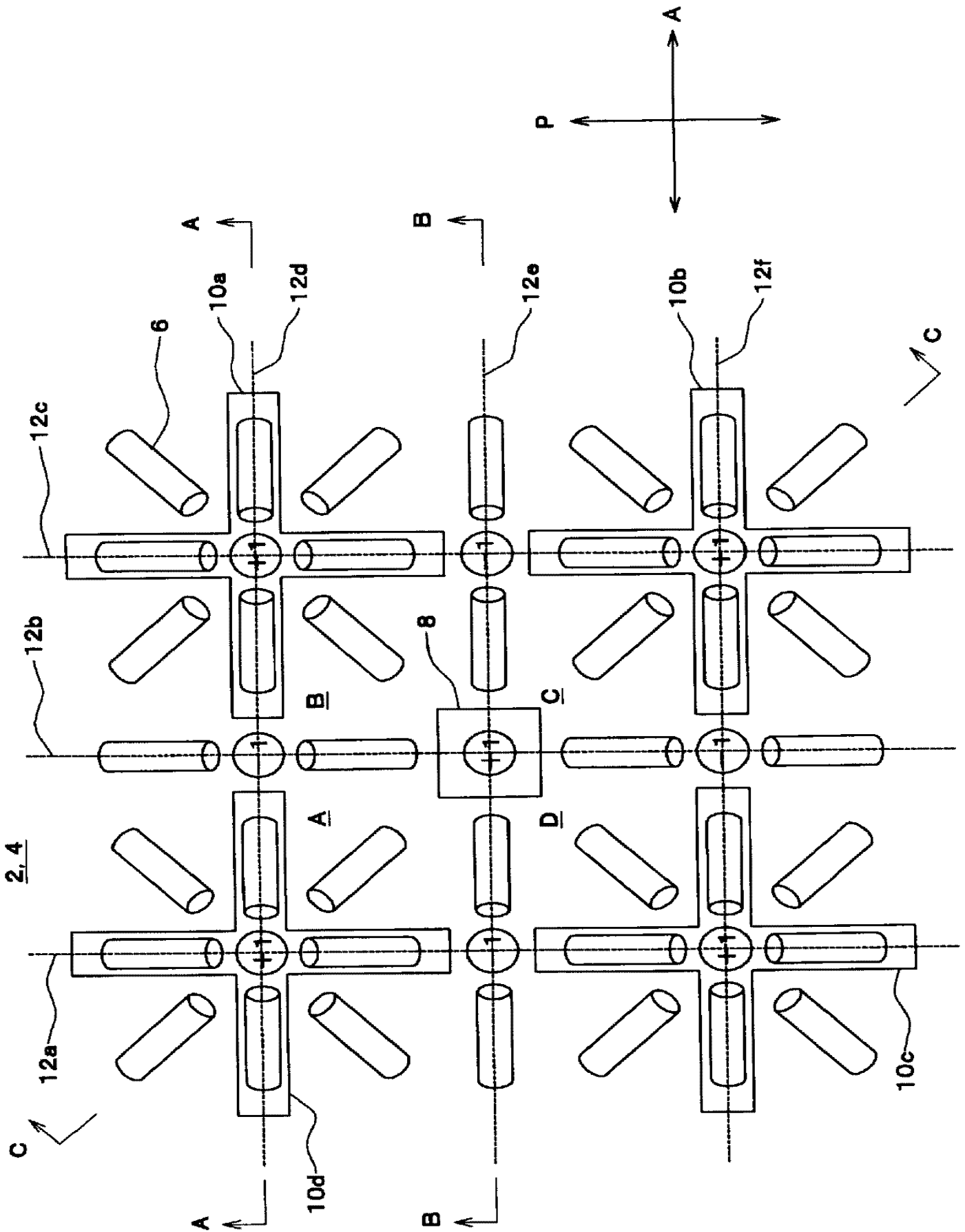
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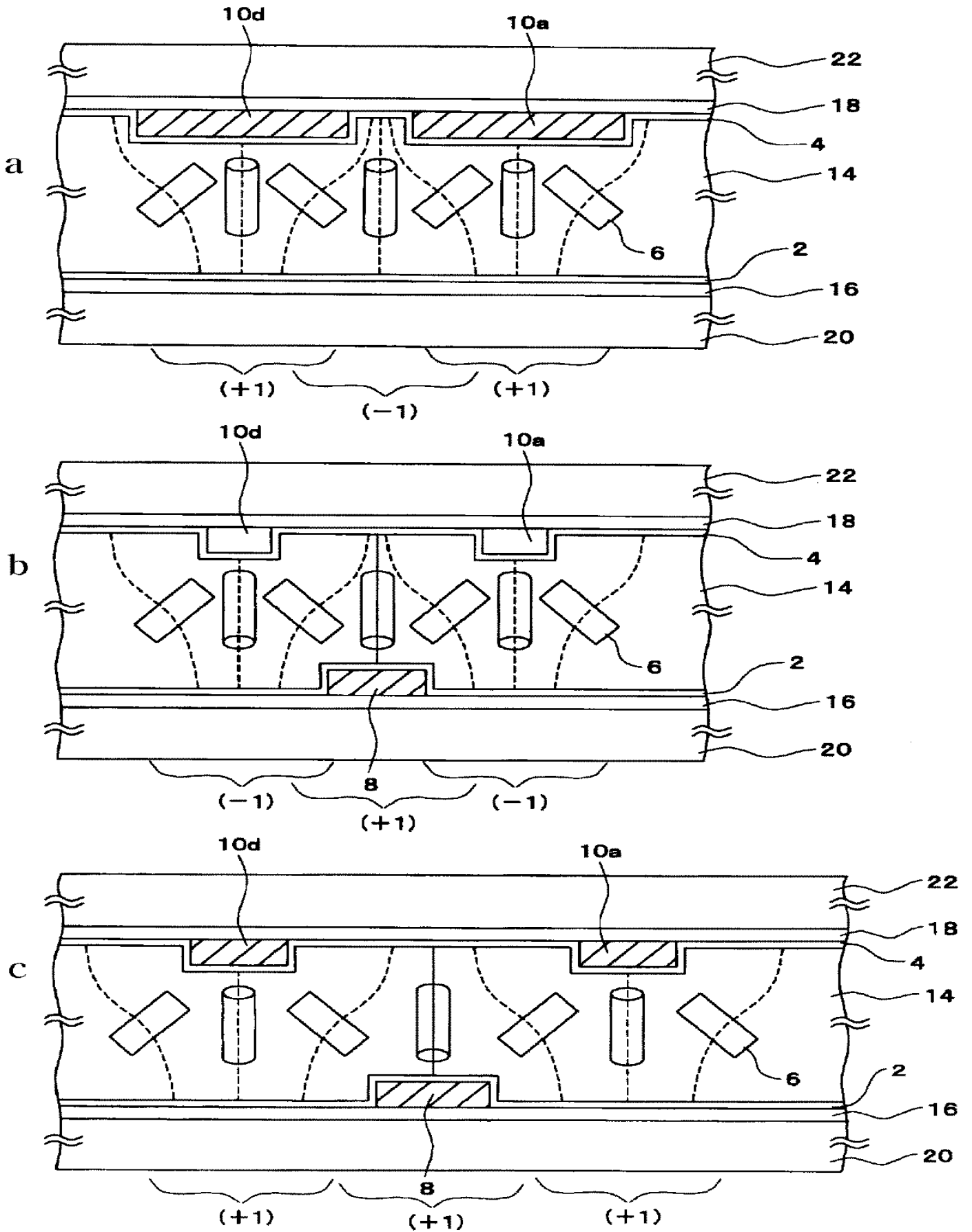
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2



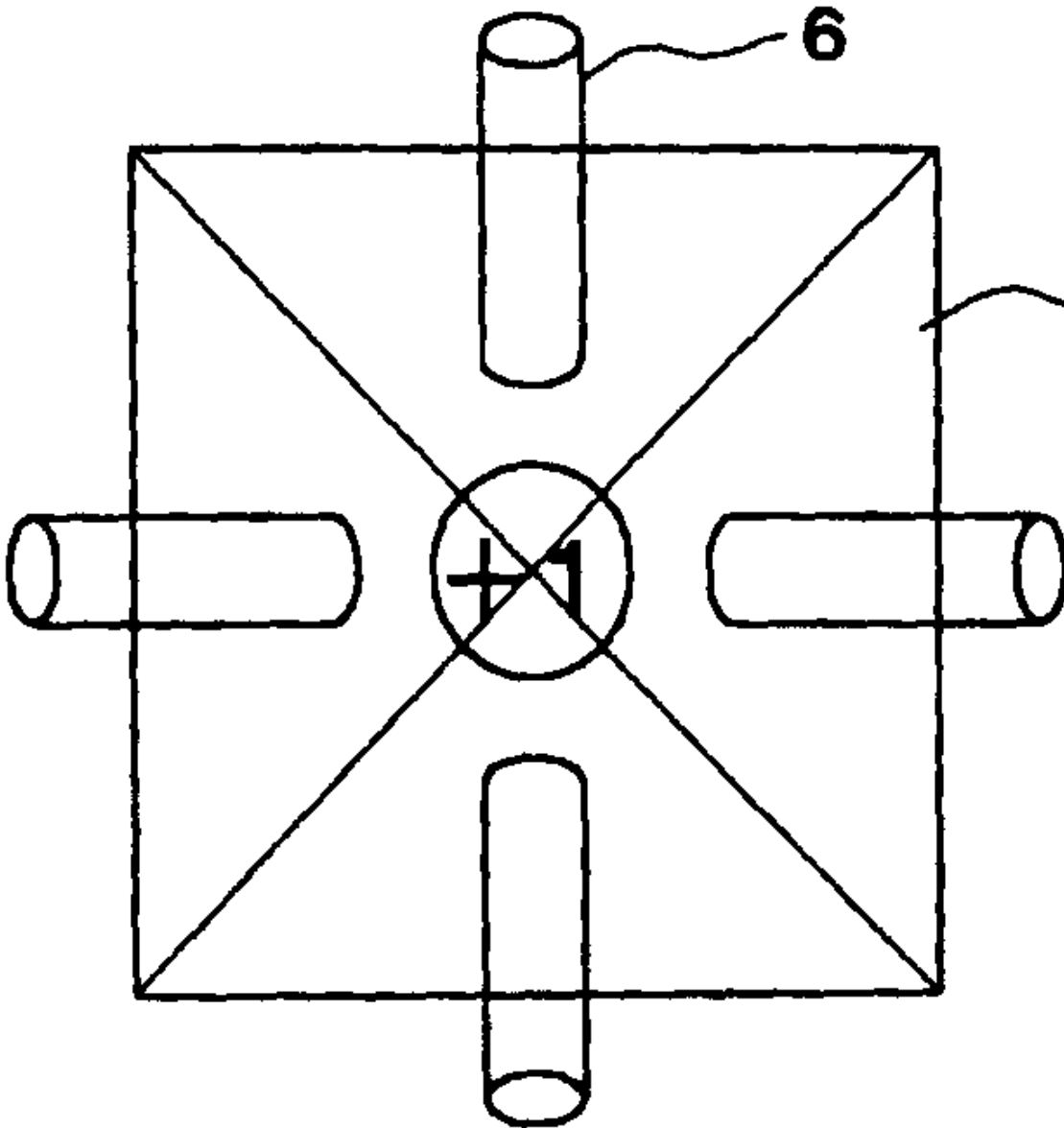
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4

6

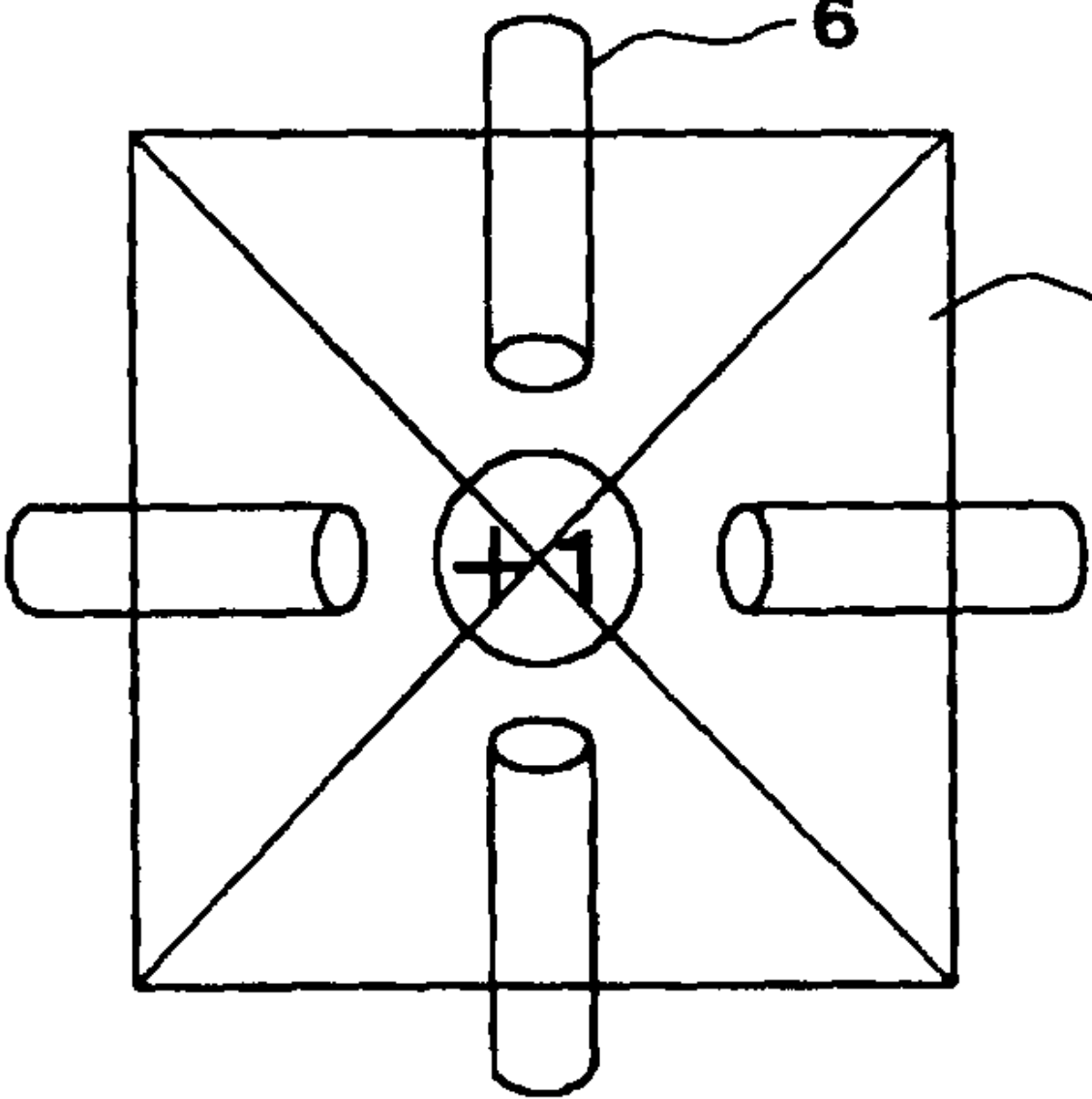
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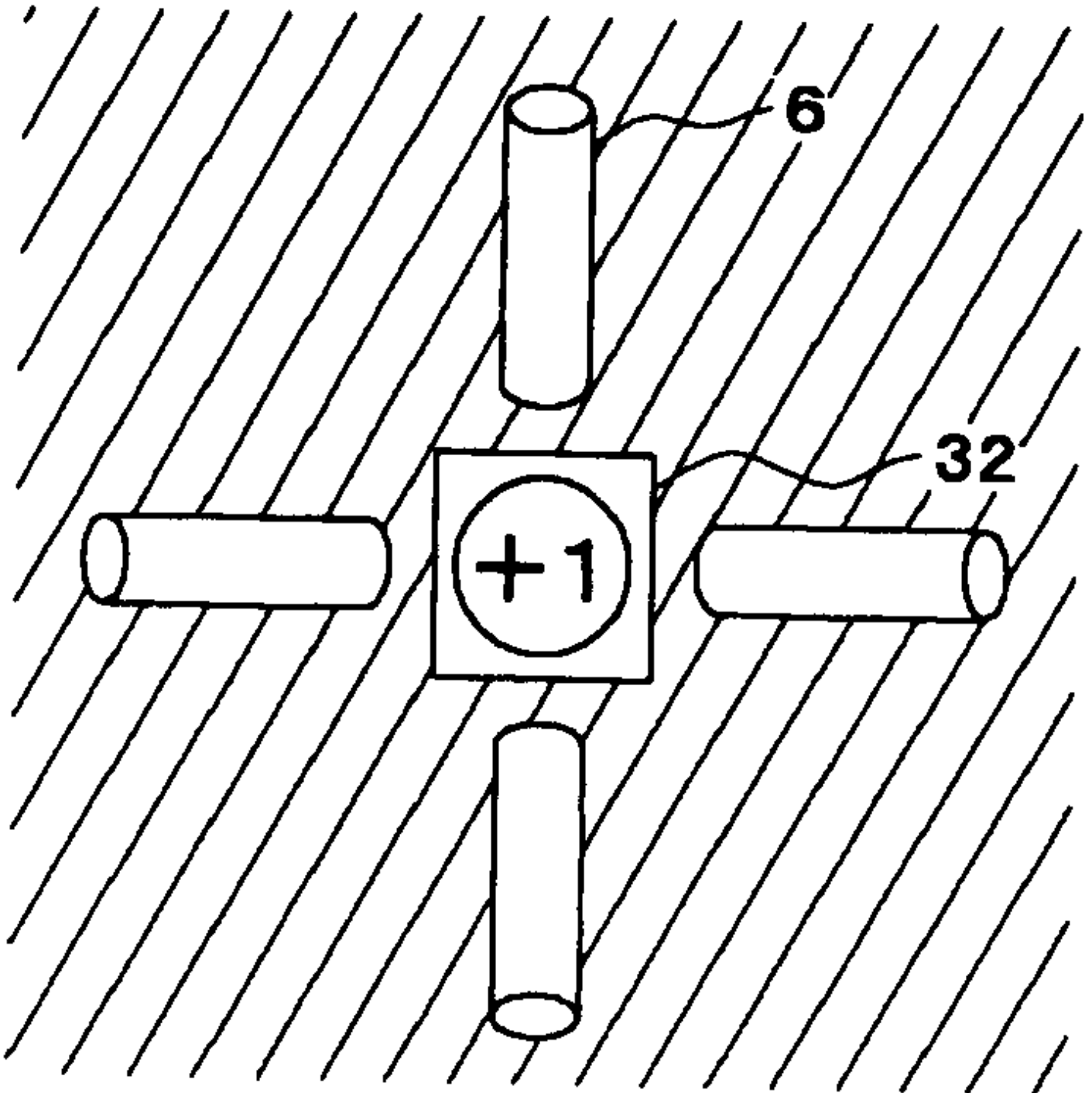
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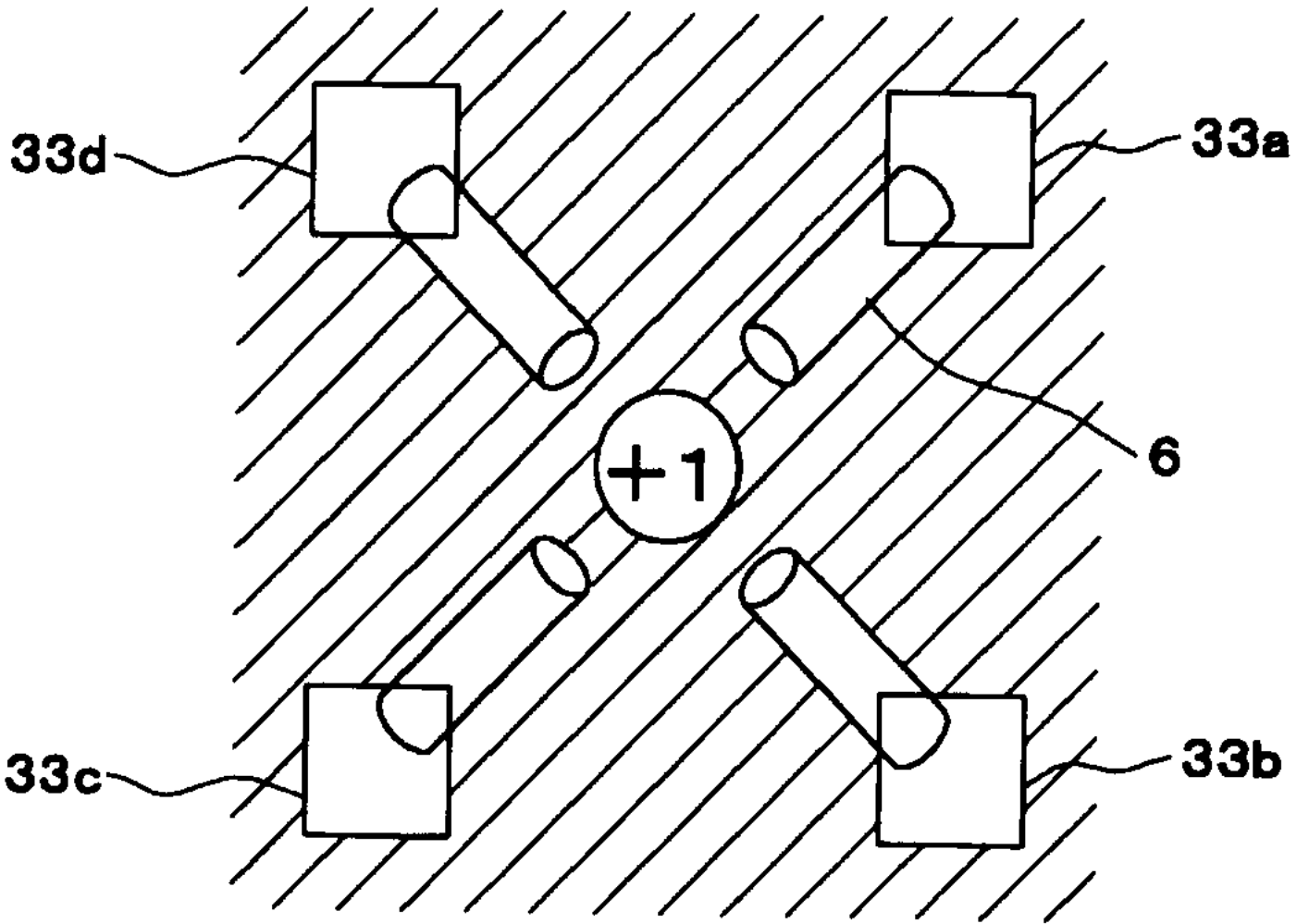
31



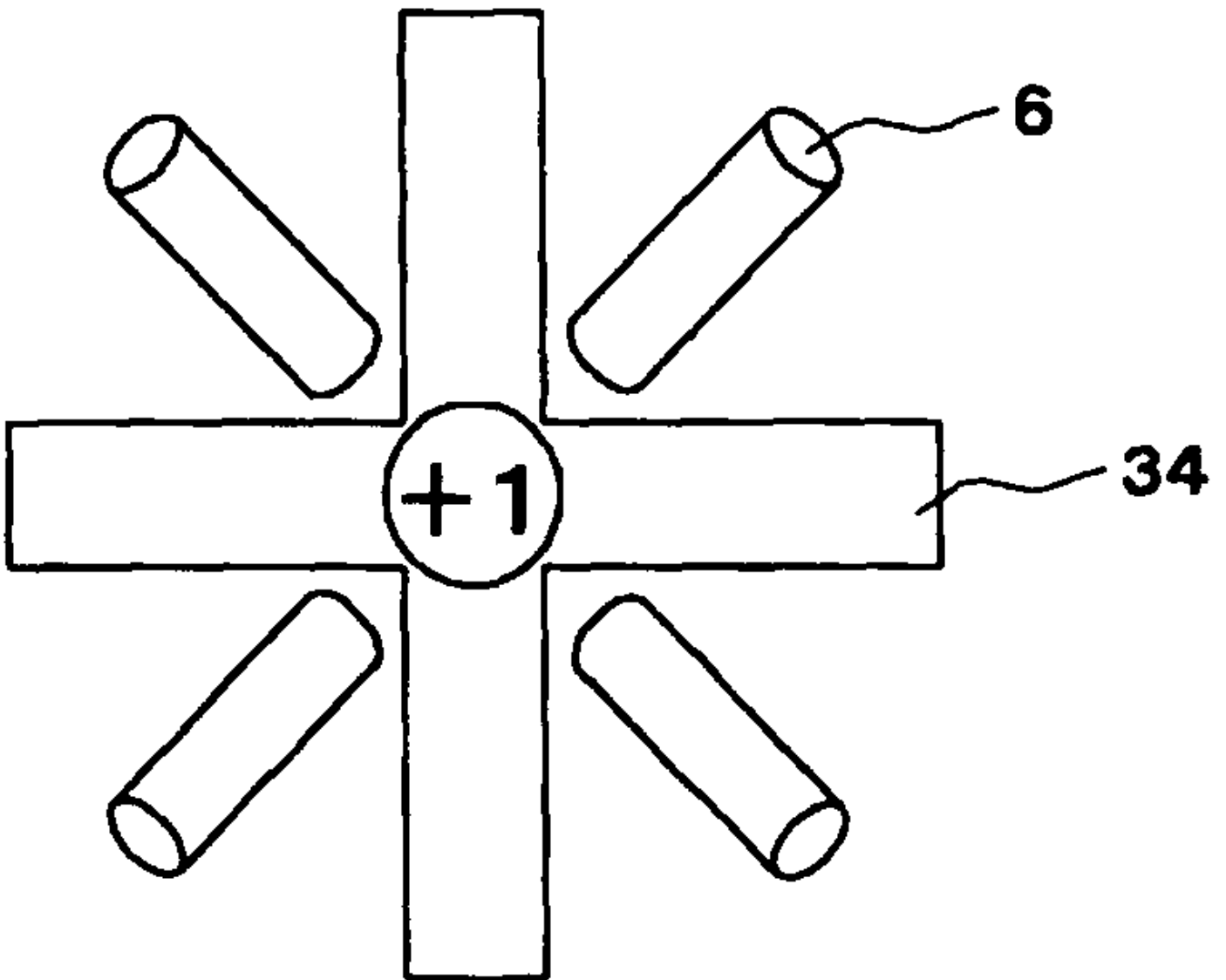
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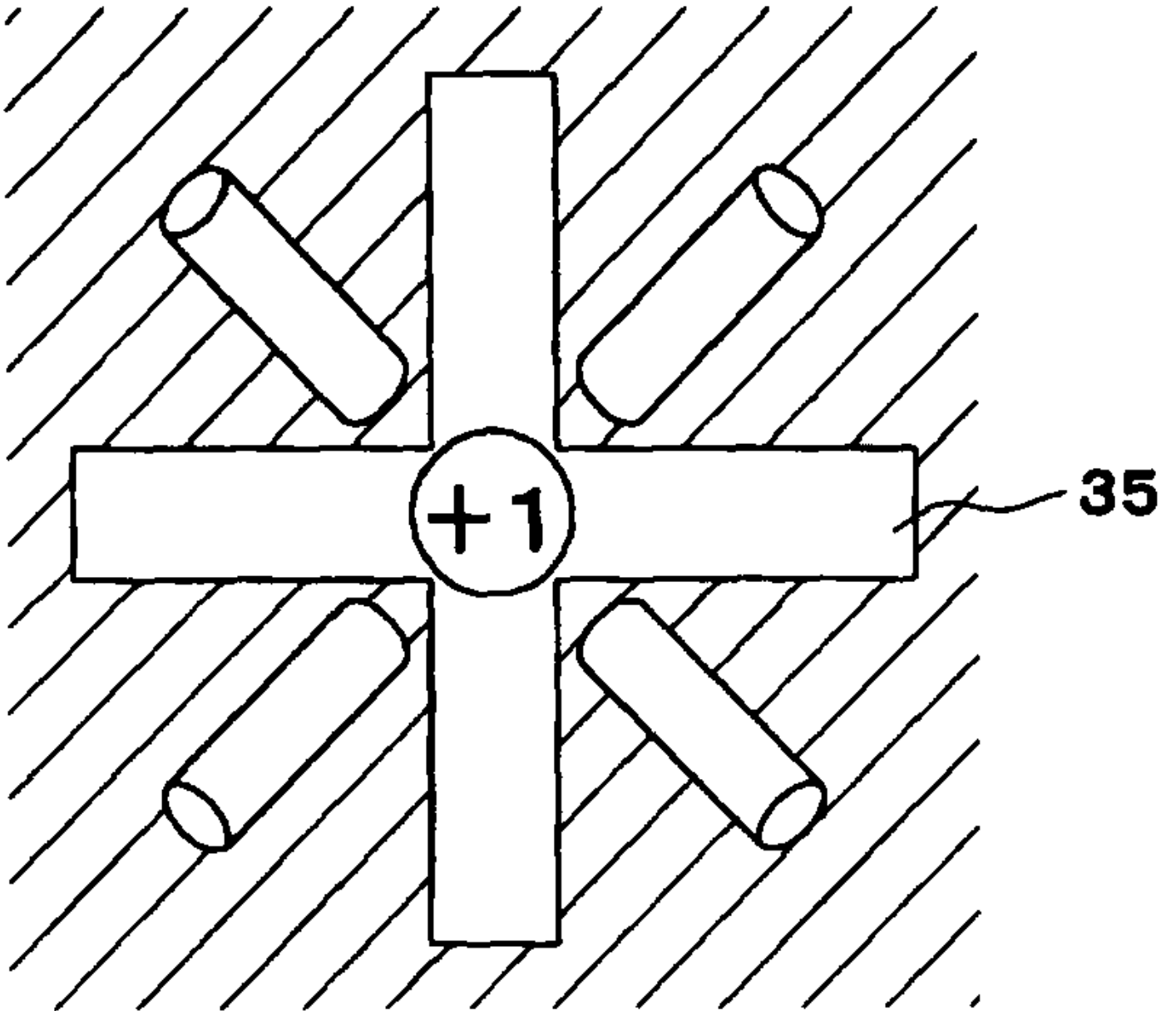
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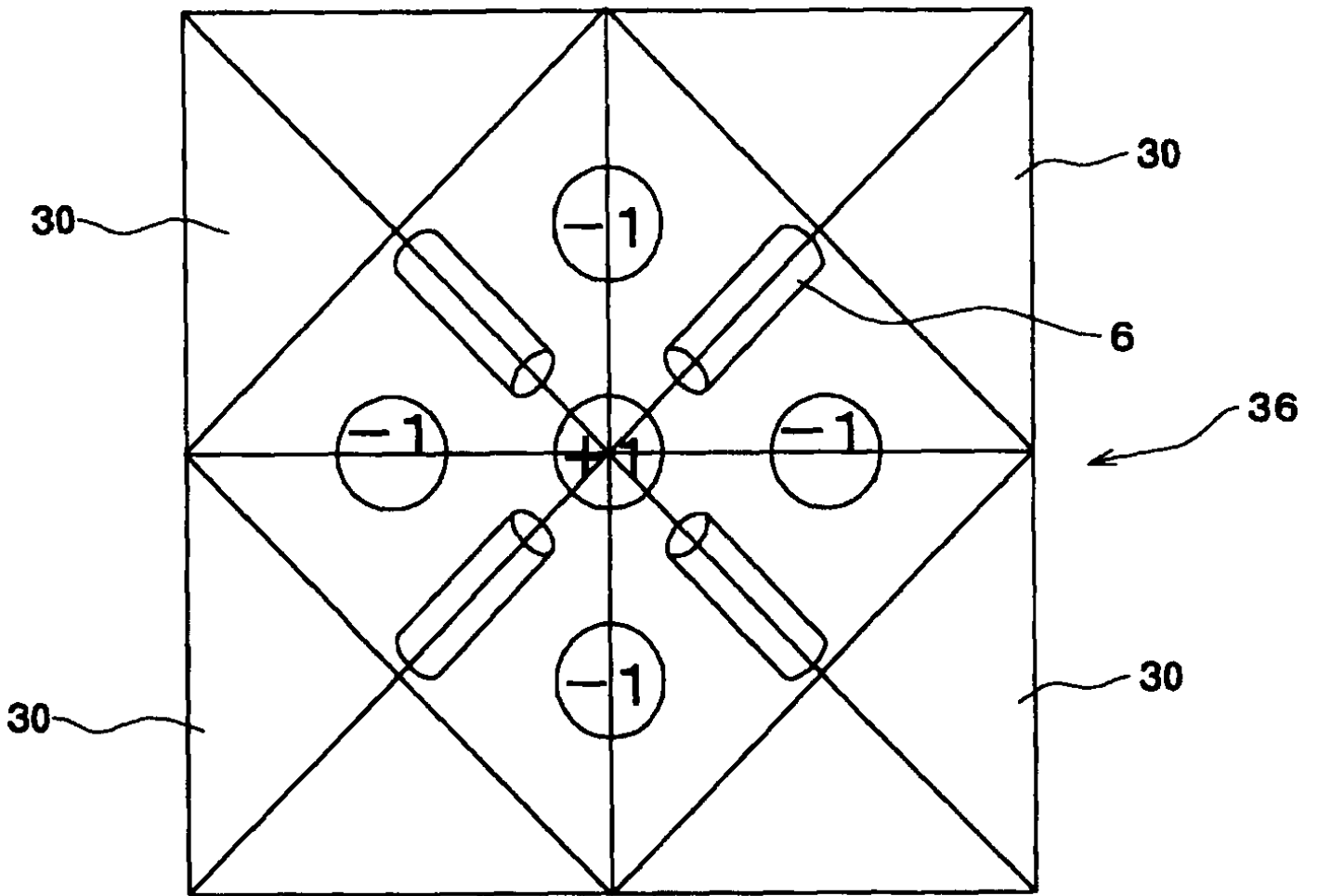
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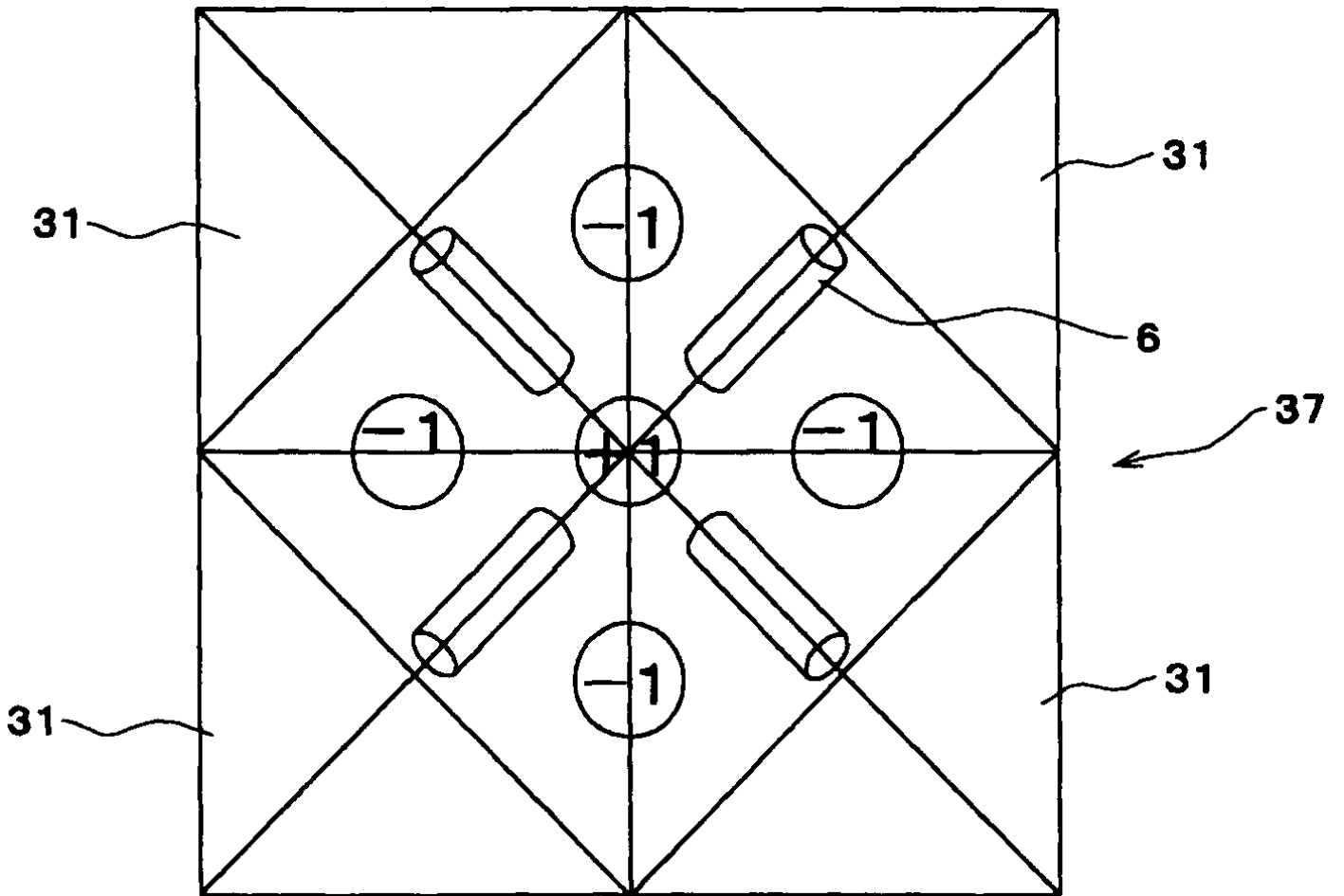
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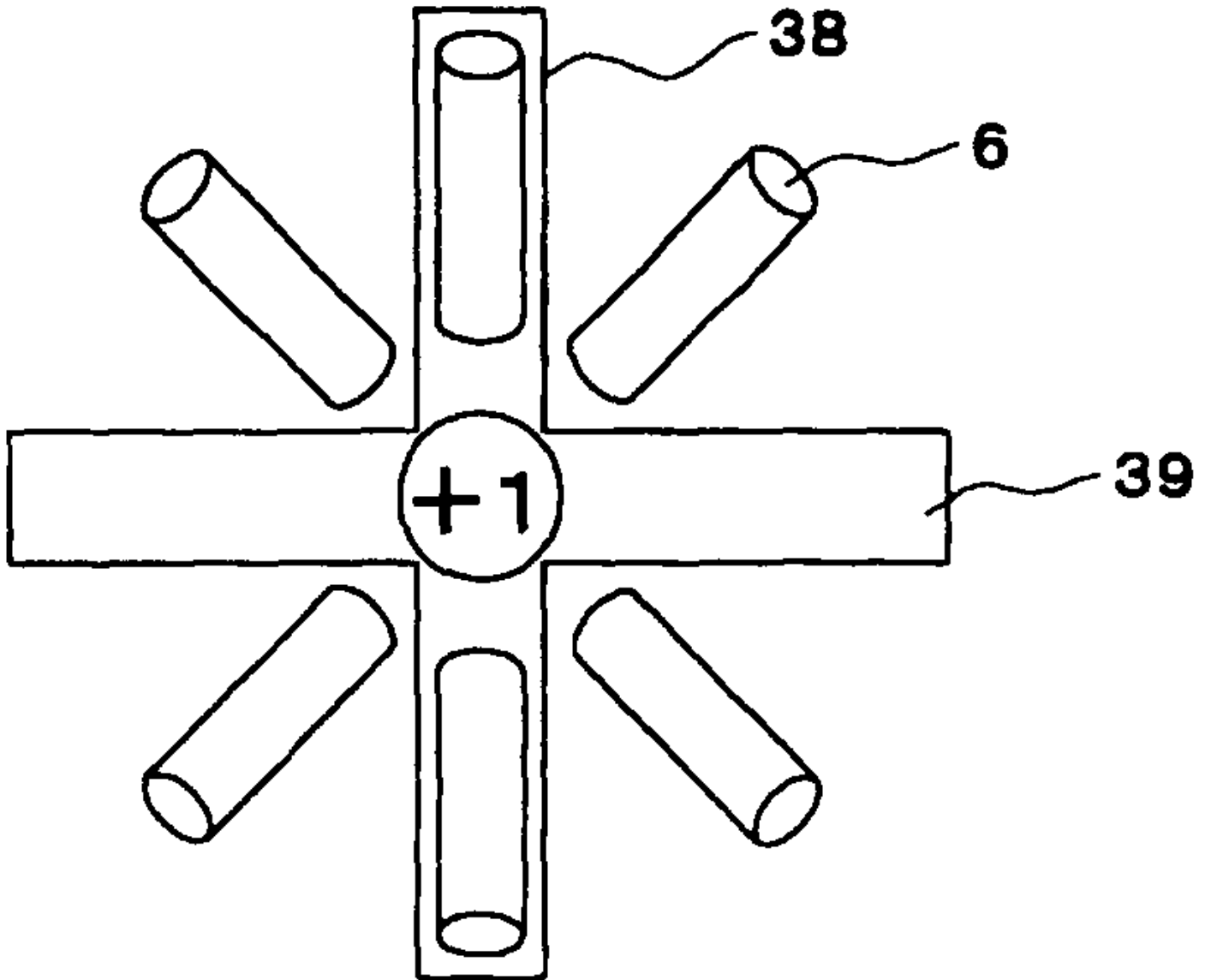
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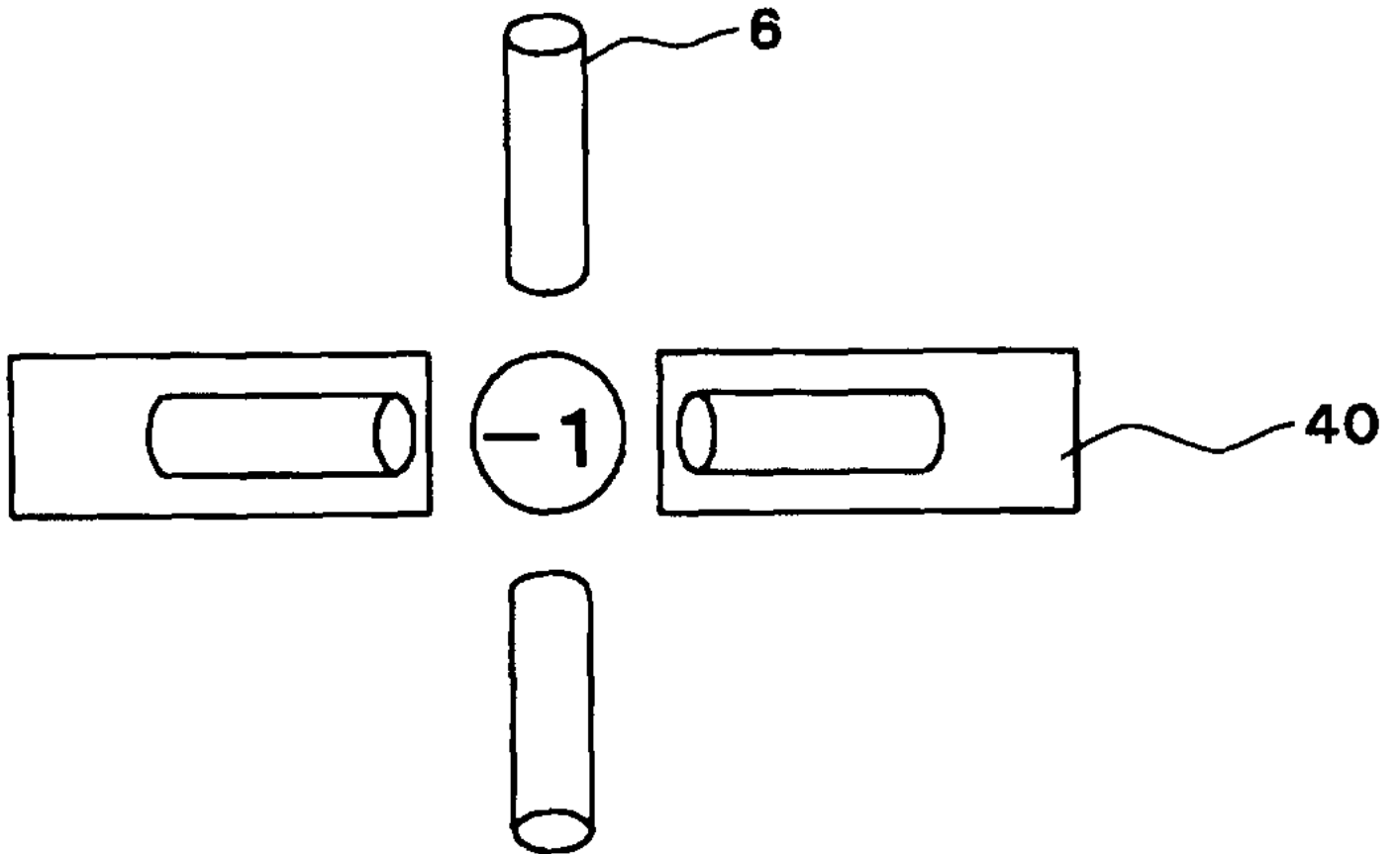
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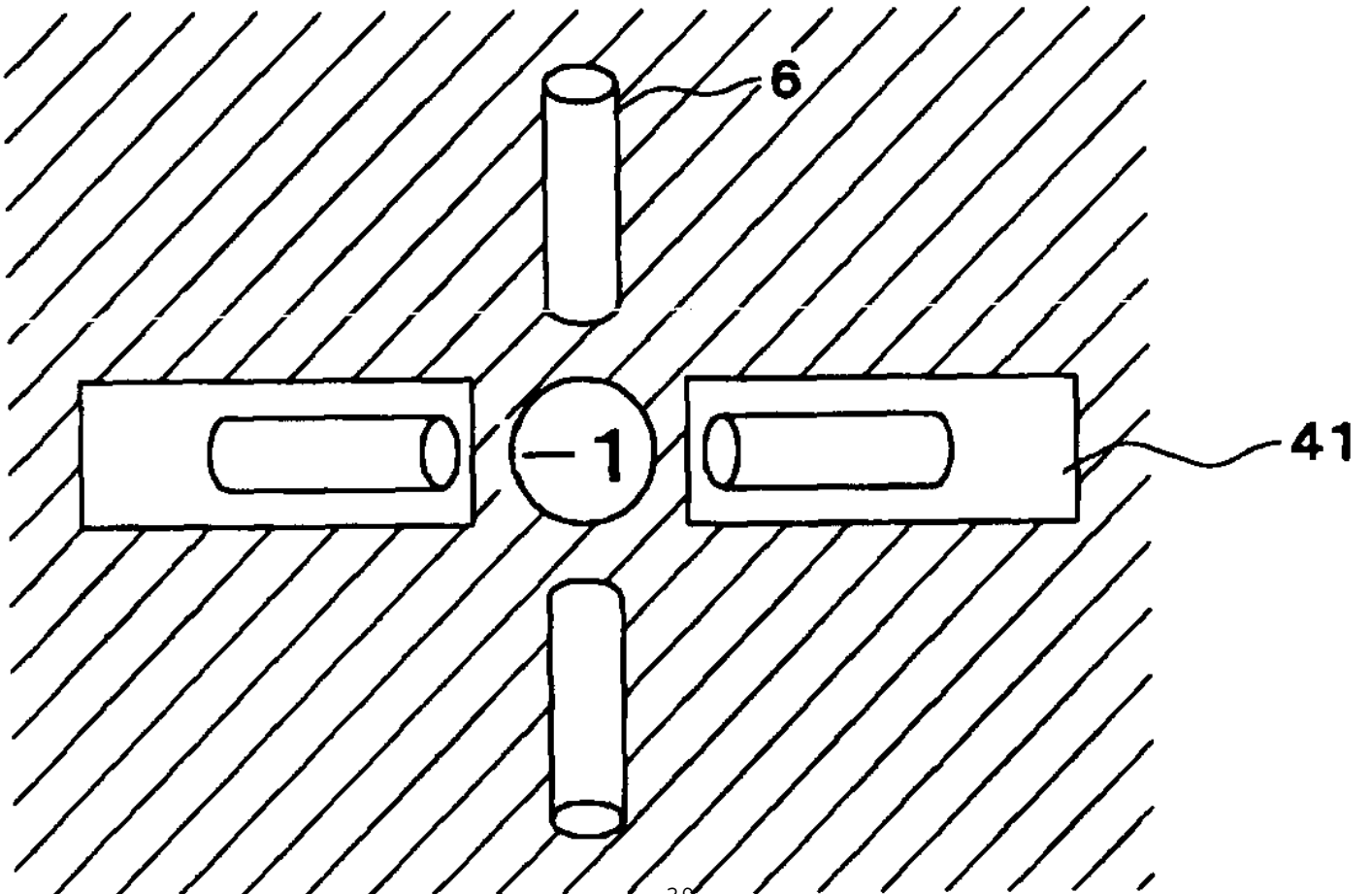
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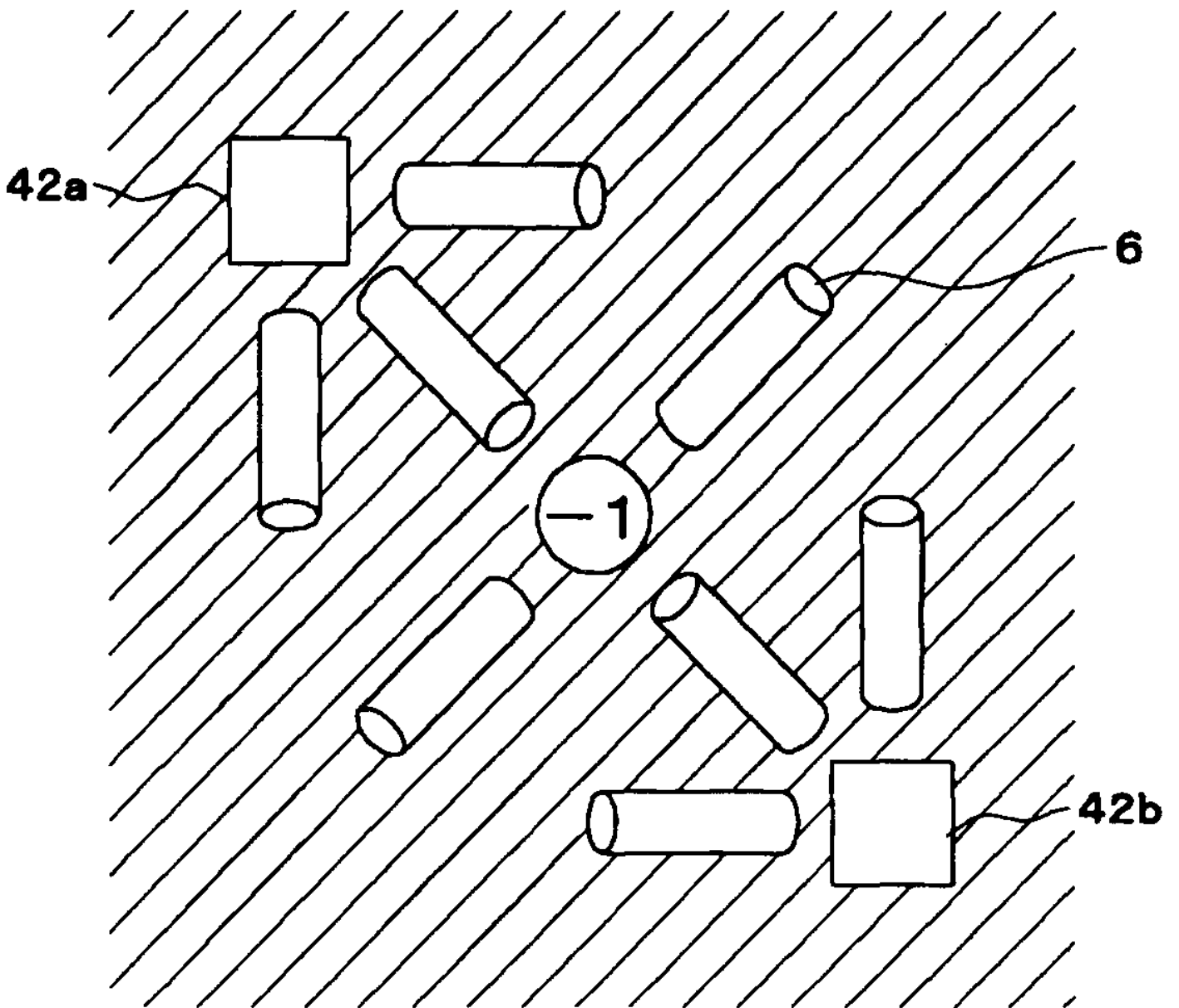
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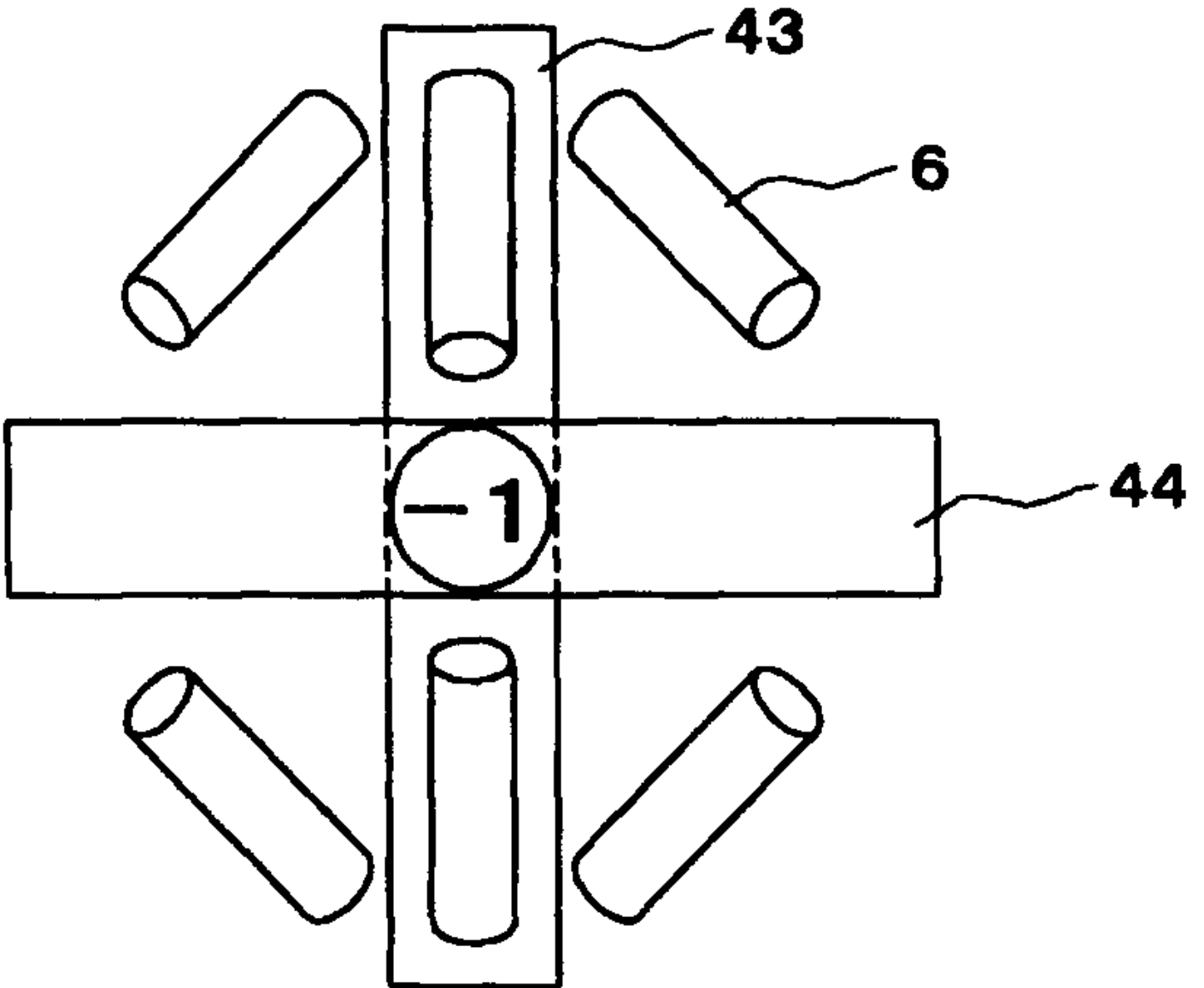
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15



16

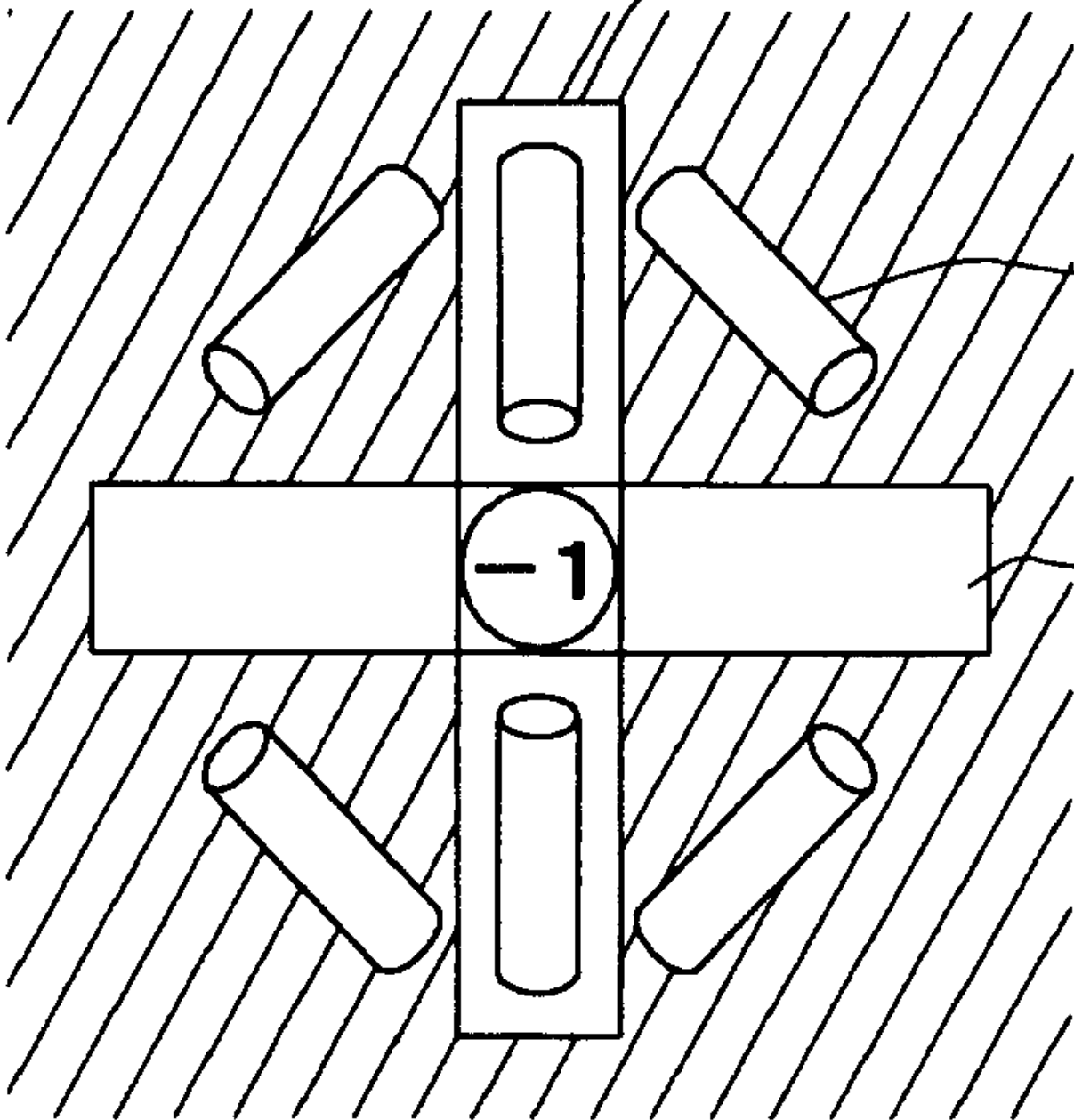


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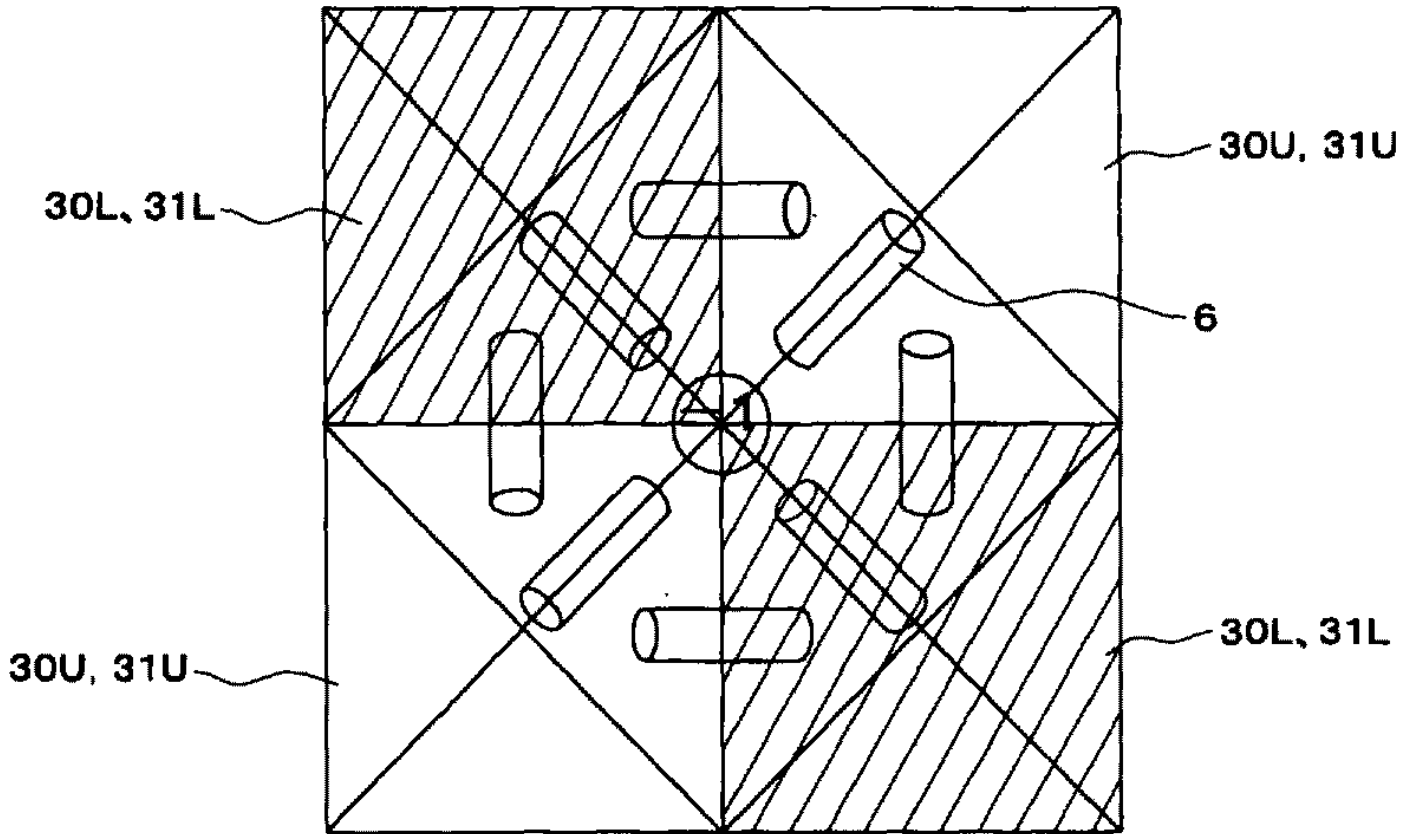
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6

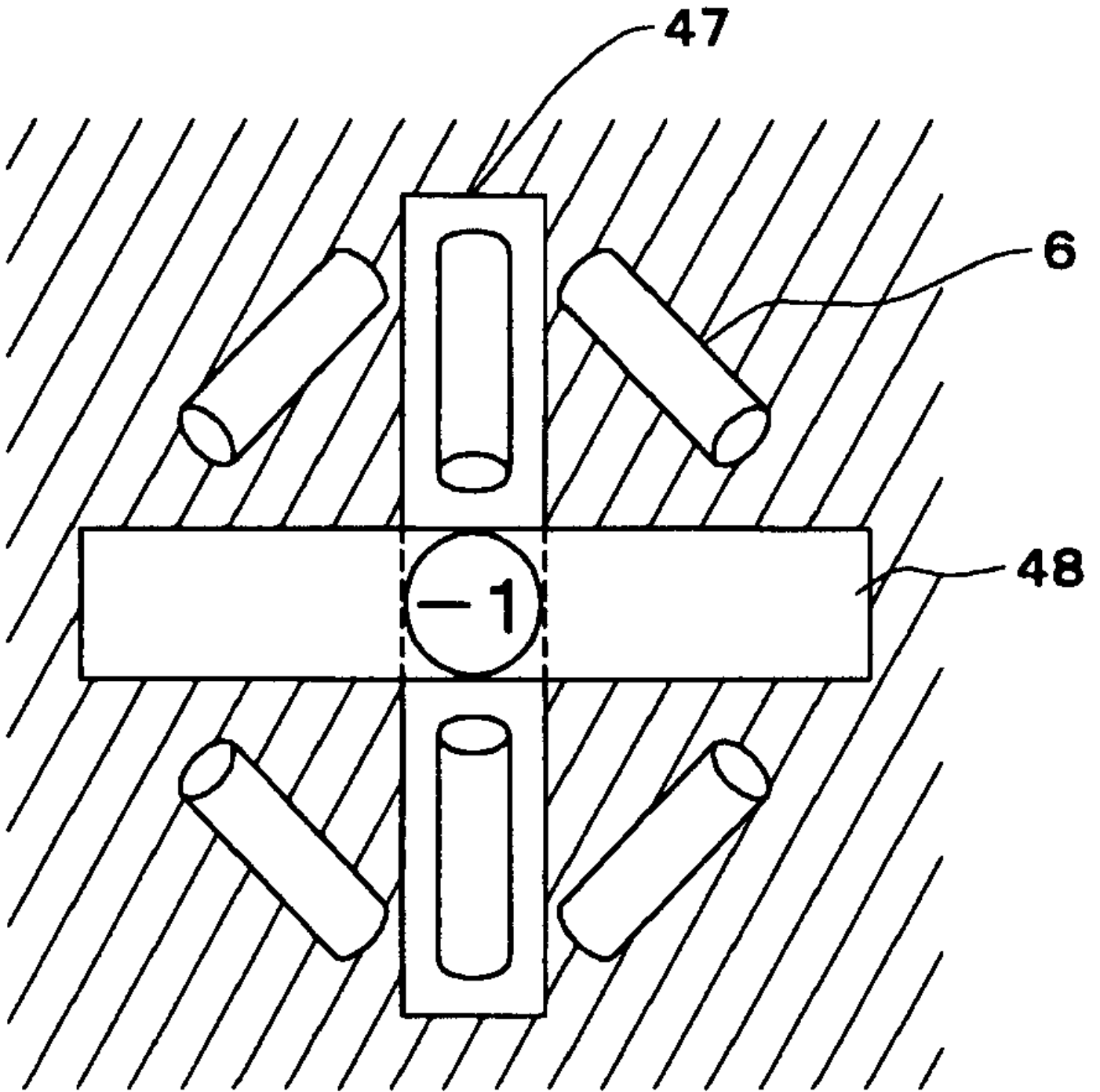
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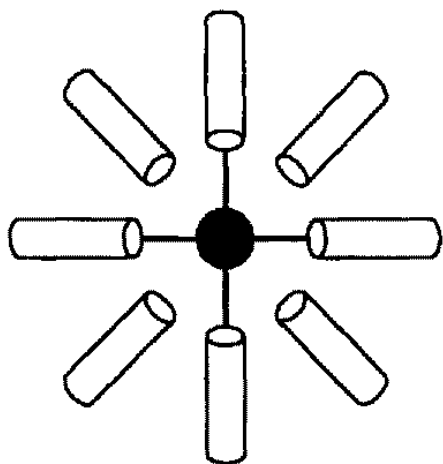


18



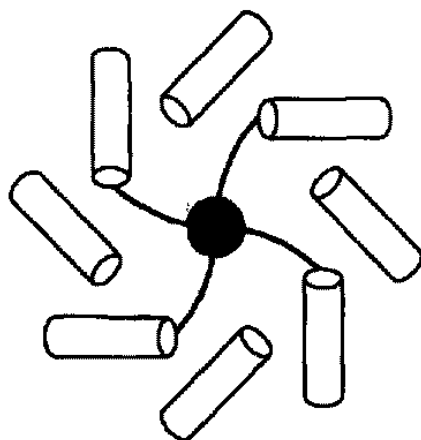
19



(A) $S=+1$ 

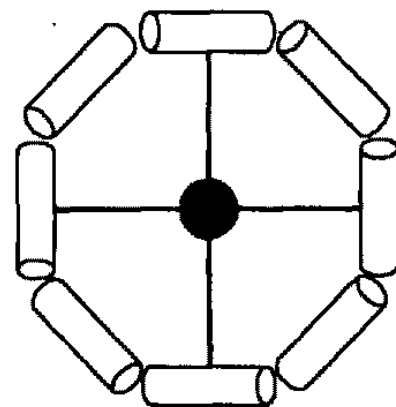
$$\Phi = 0$$

(a)



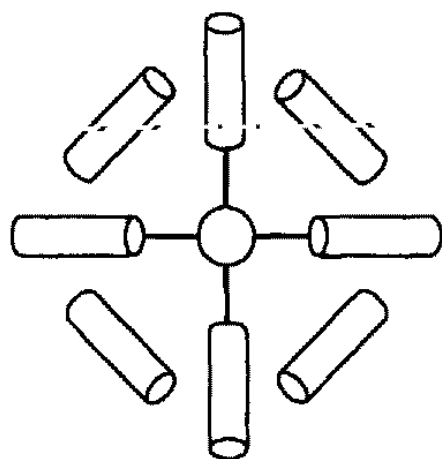
$$\Phi = \pi/4$$

(b)



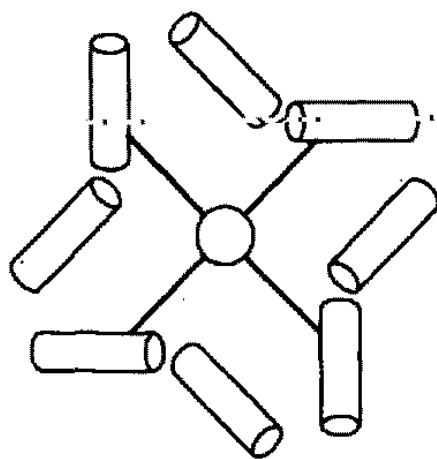
$$\Phi = \pi/2$$

(c)

(B) $S=-1$ 

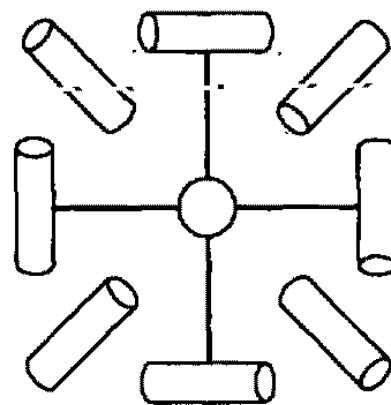
$$\Phi = 0$$

(a)



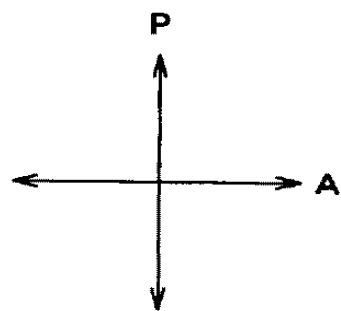
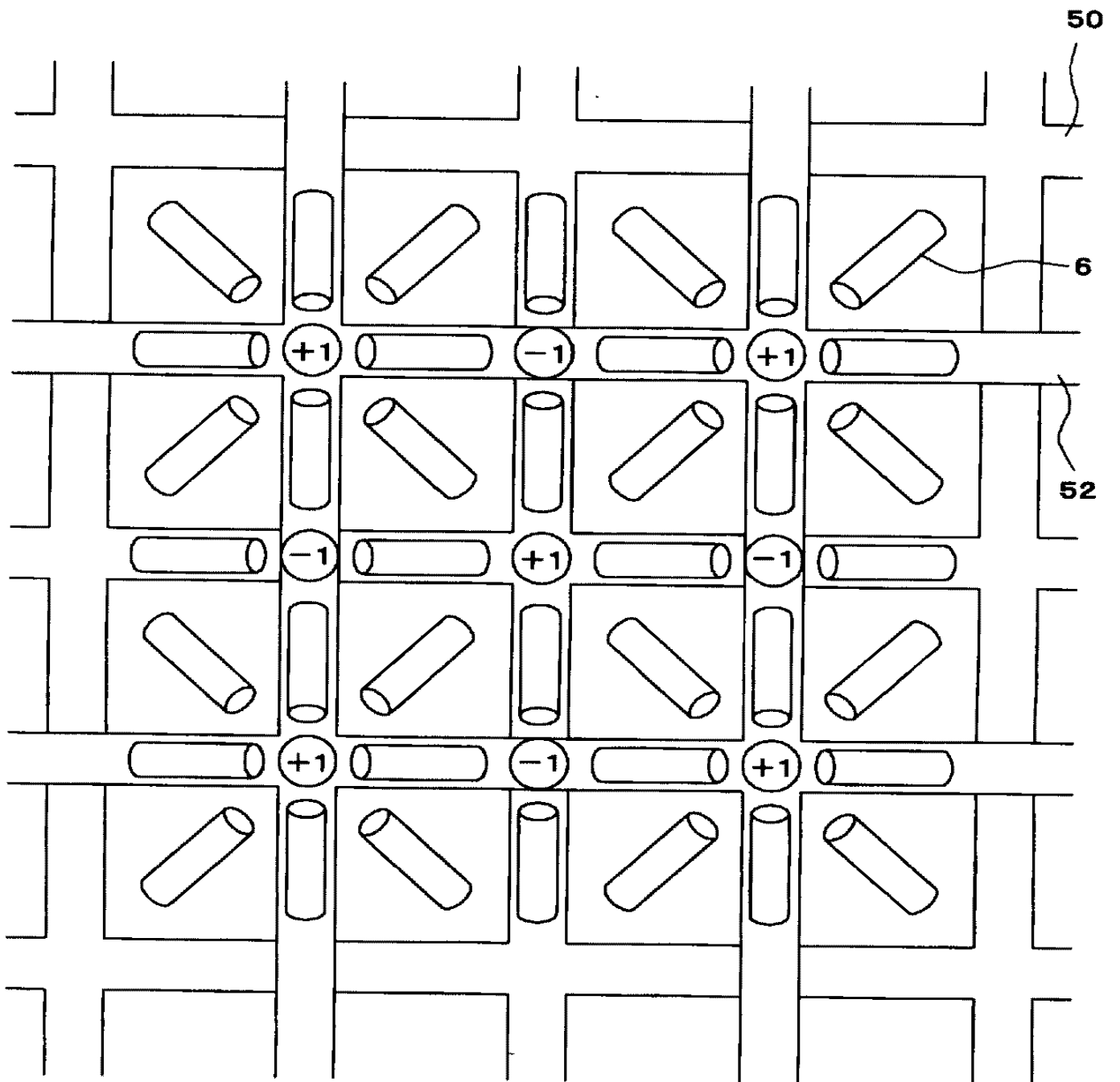
$$\Phi = \pi/4$$

(b)

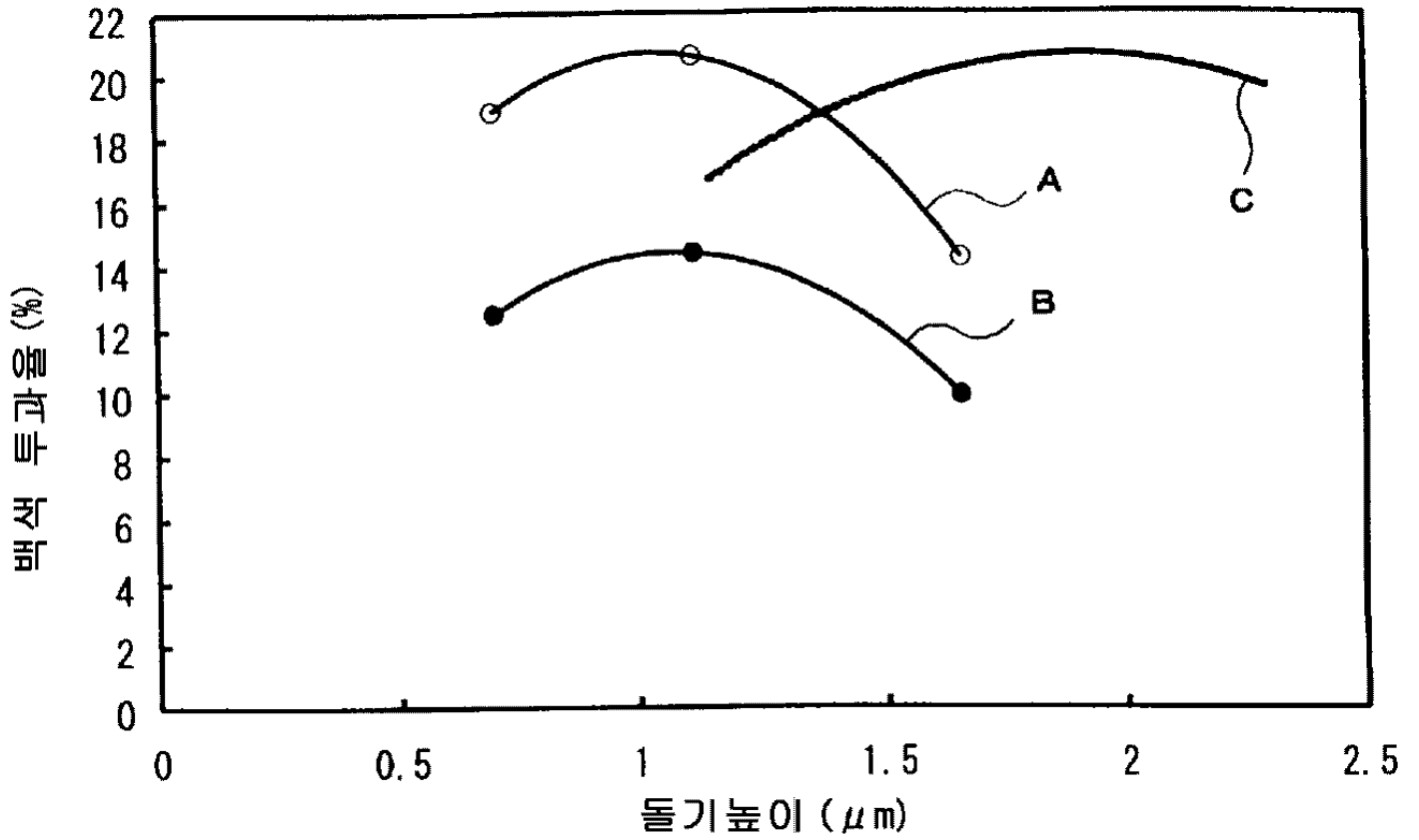


$$\Phi = \pi/2$$

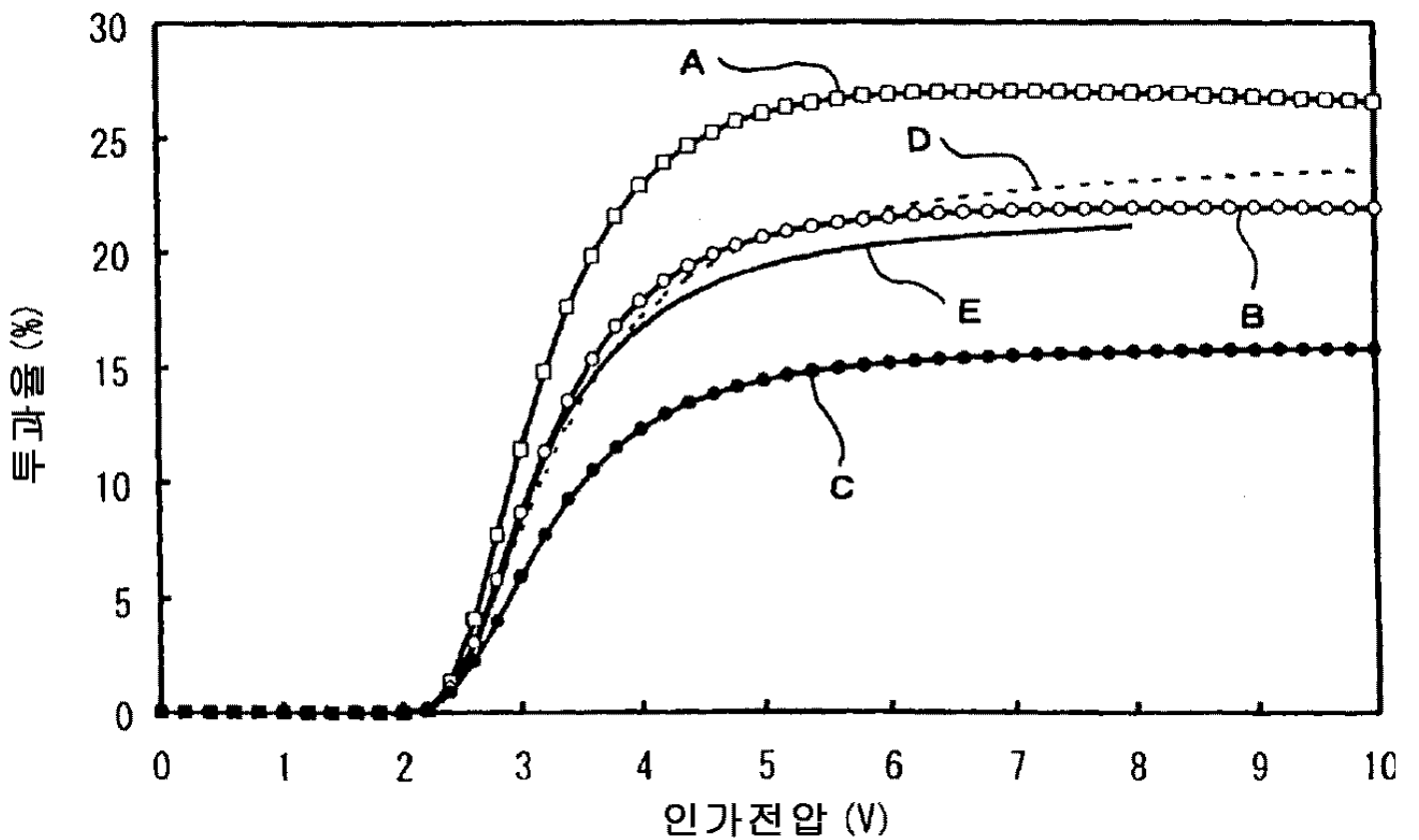
(c)



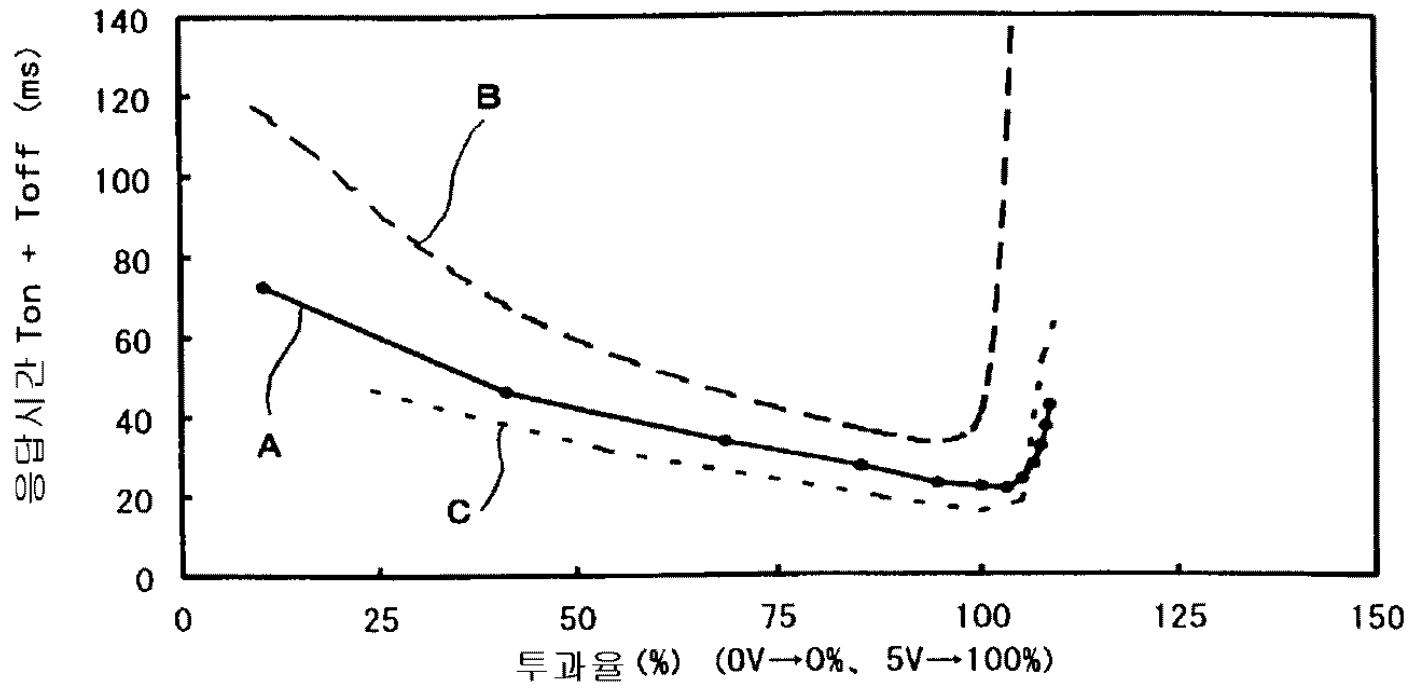
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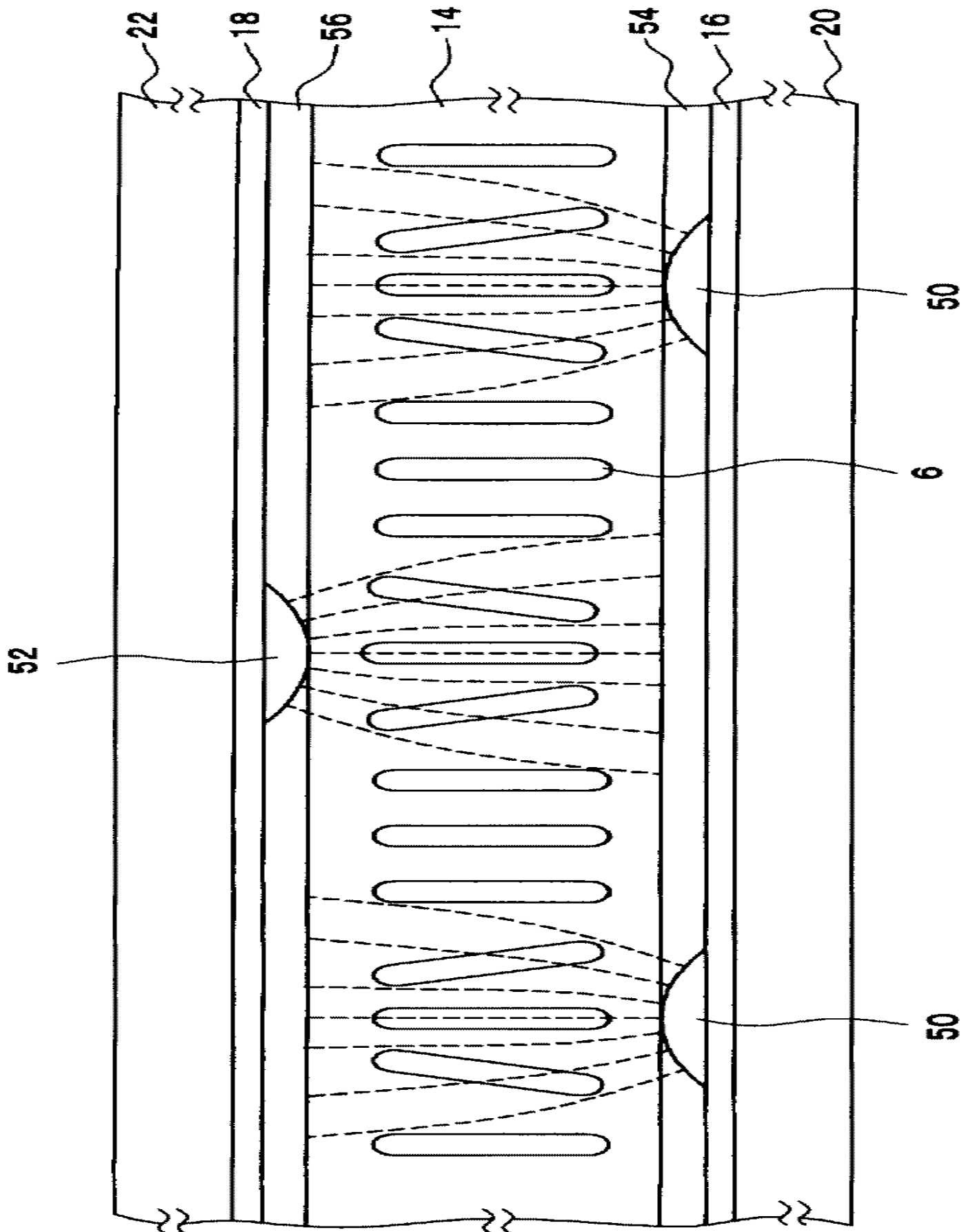
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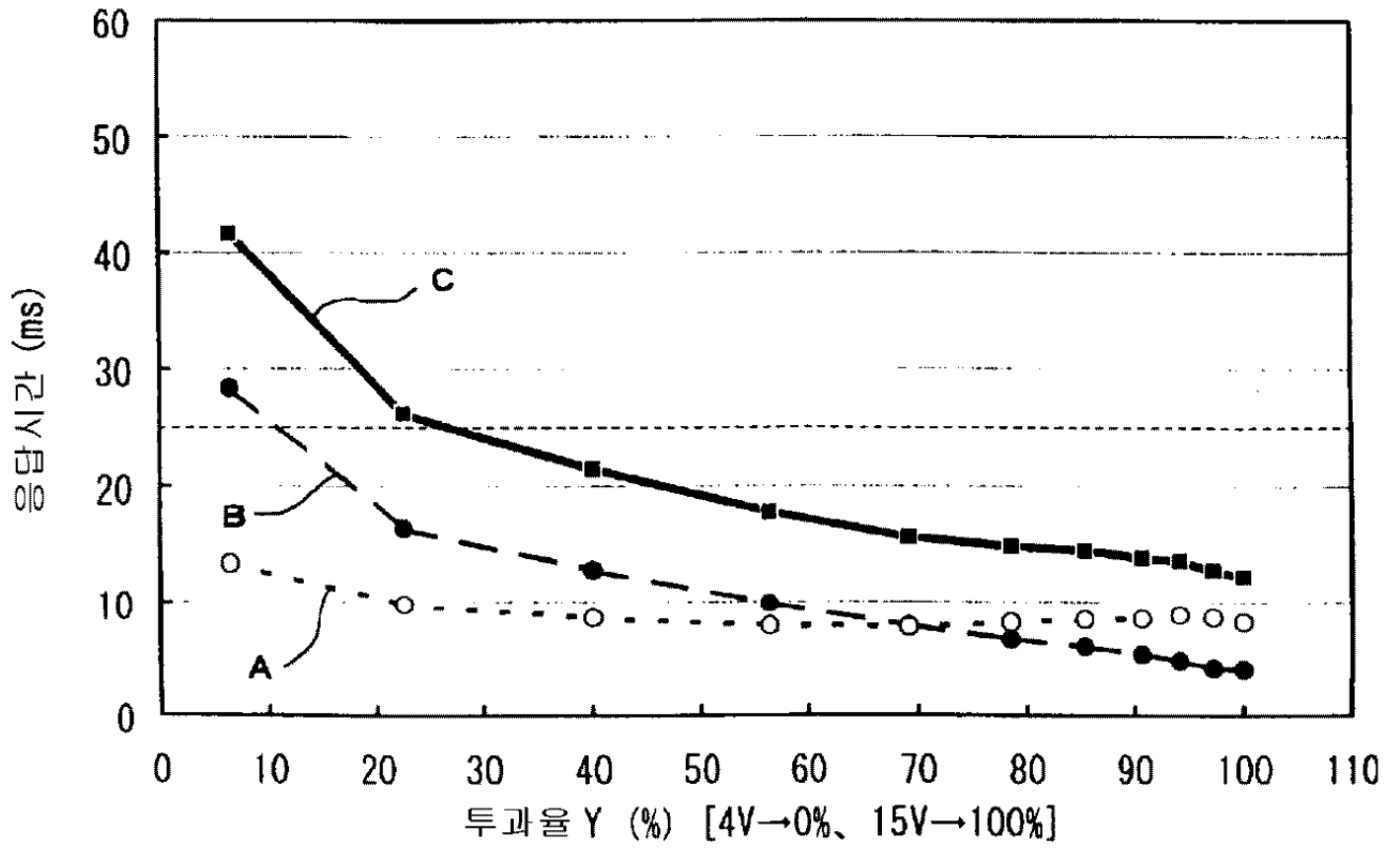


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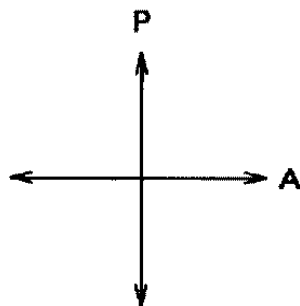
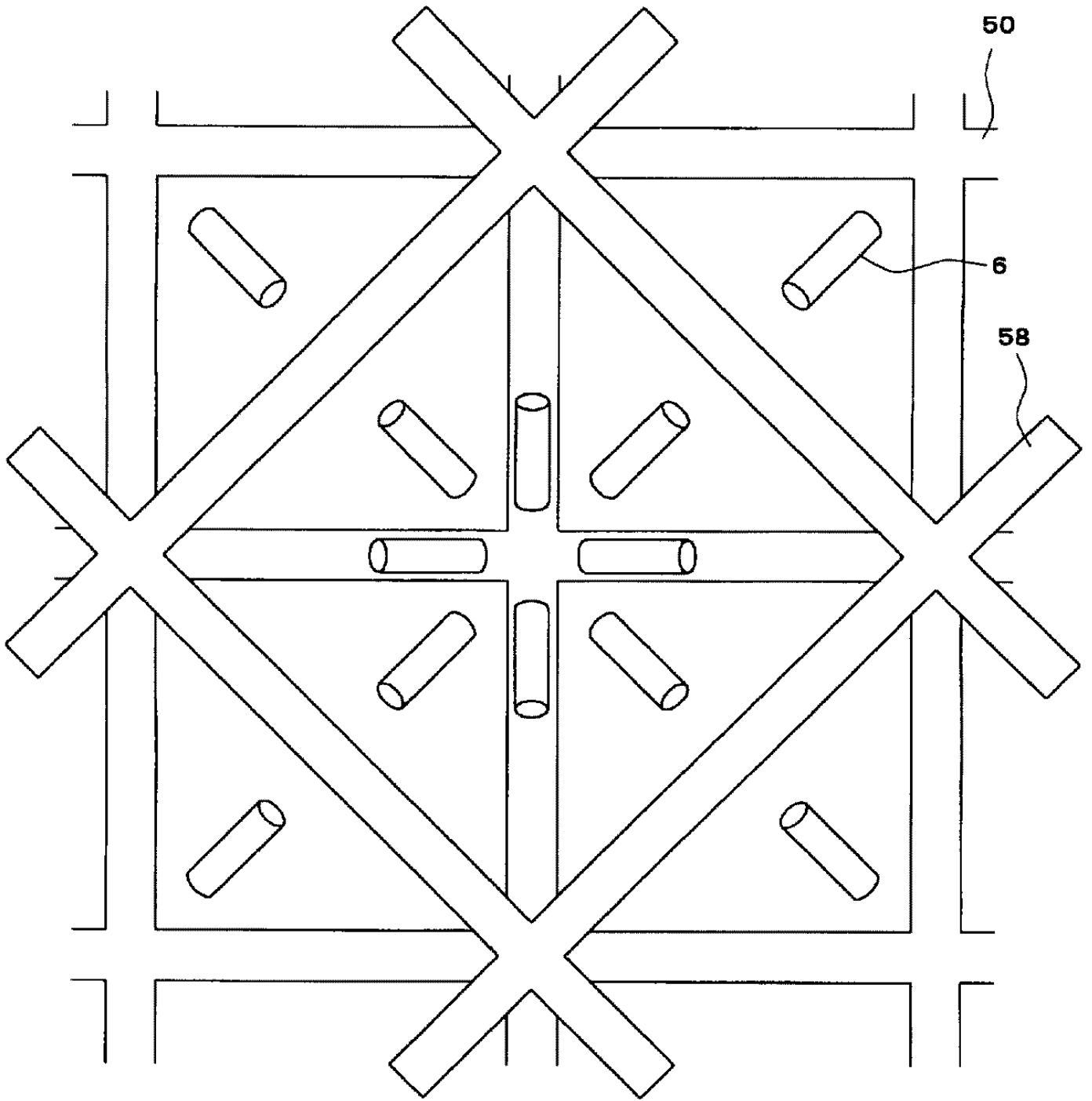


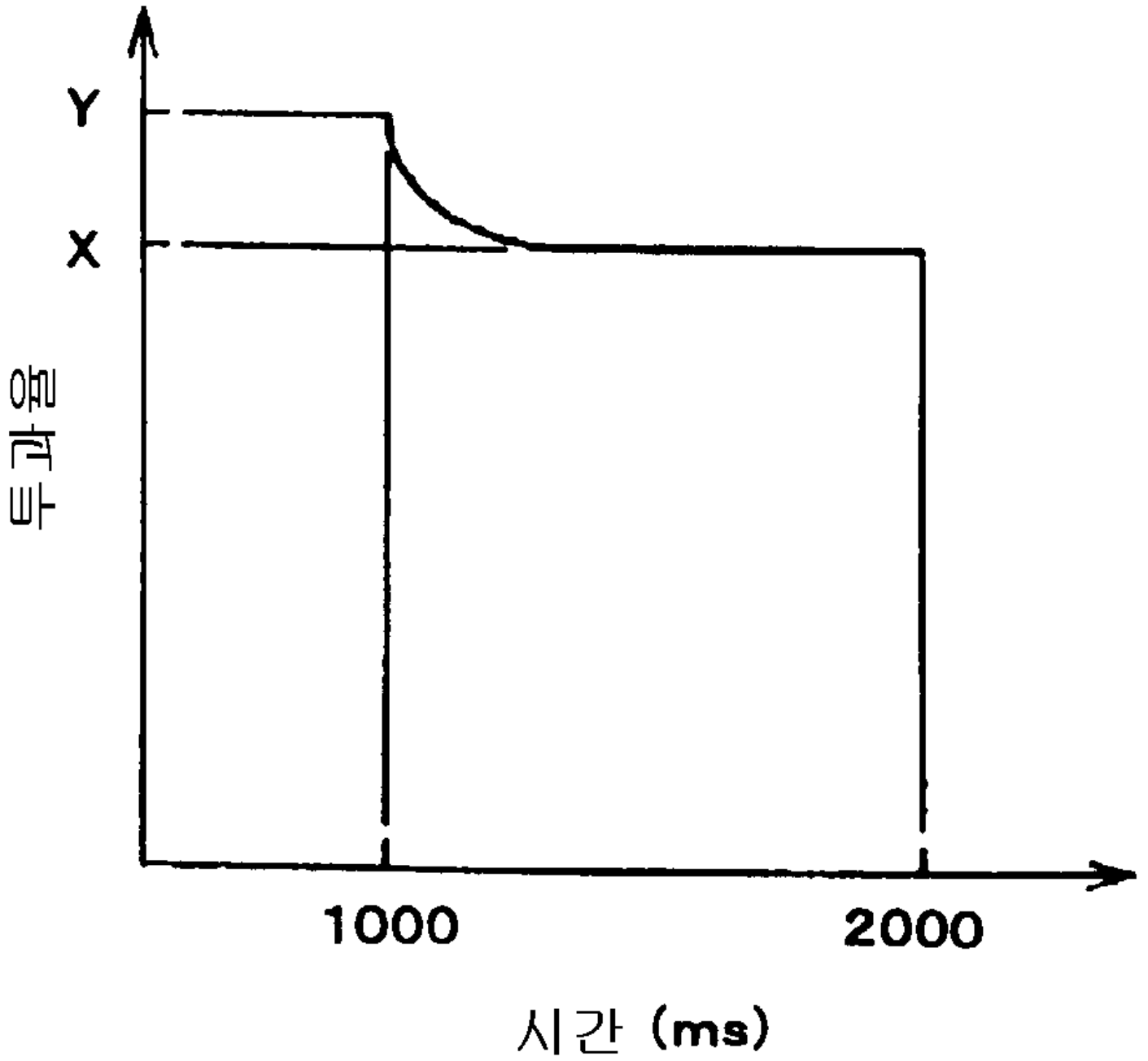
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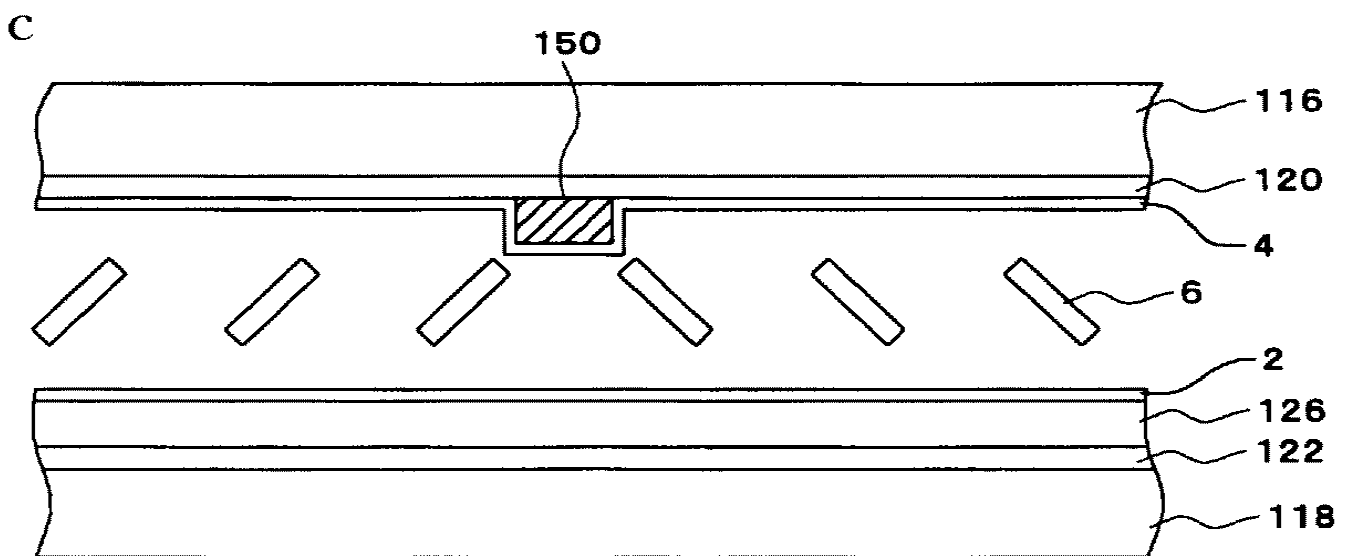
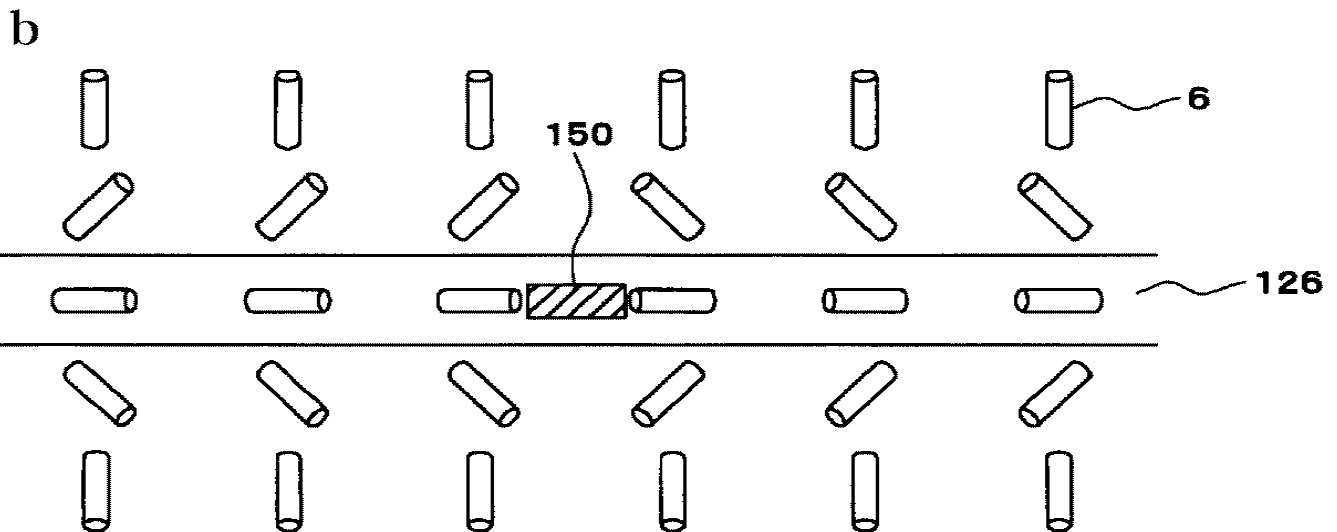
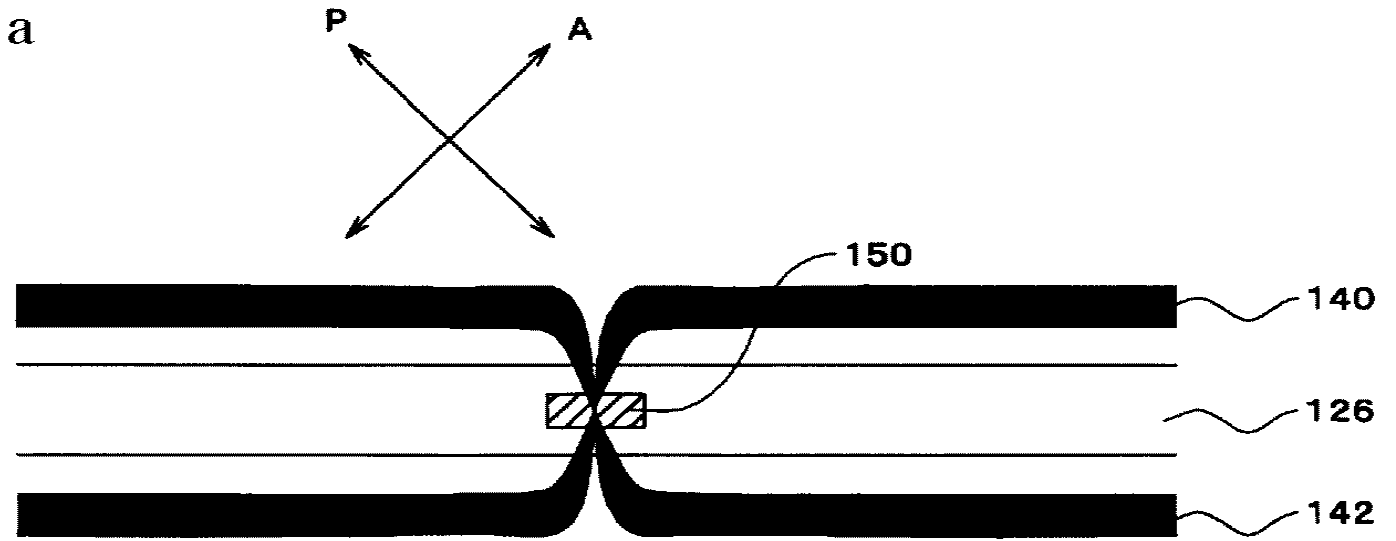


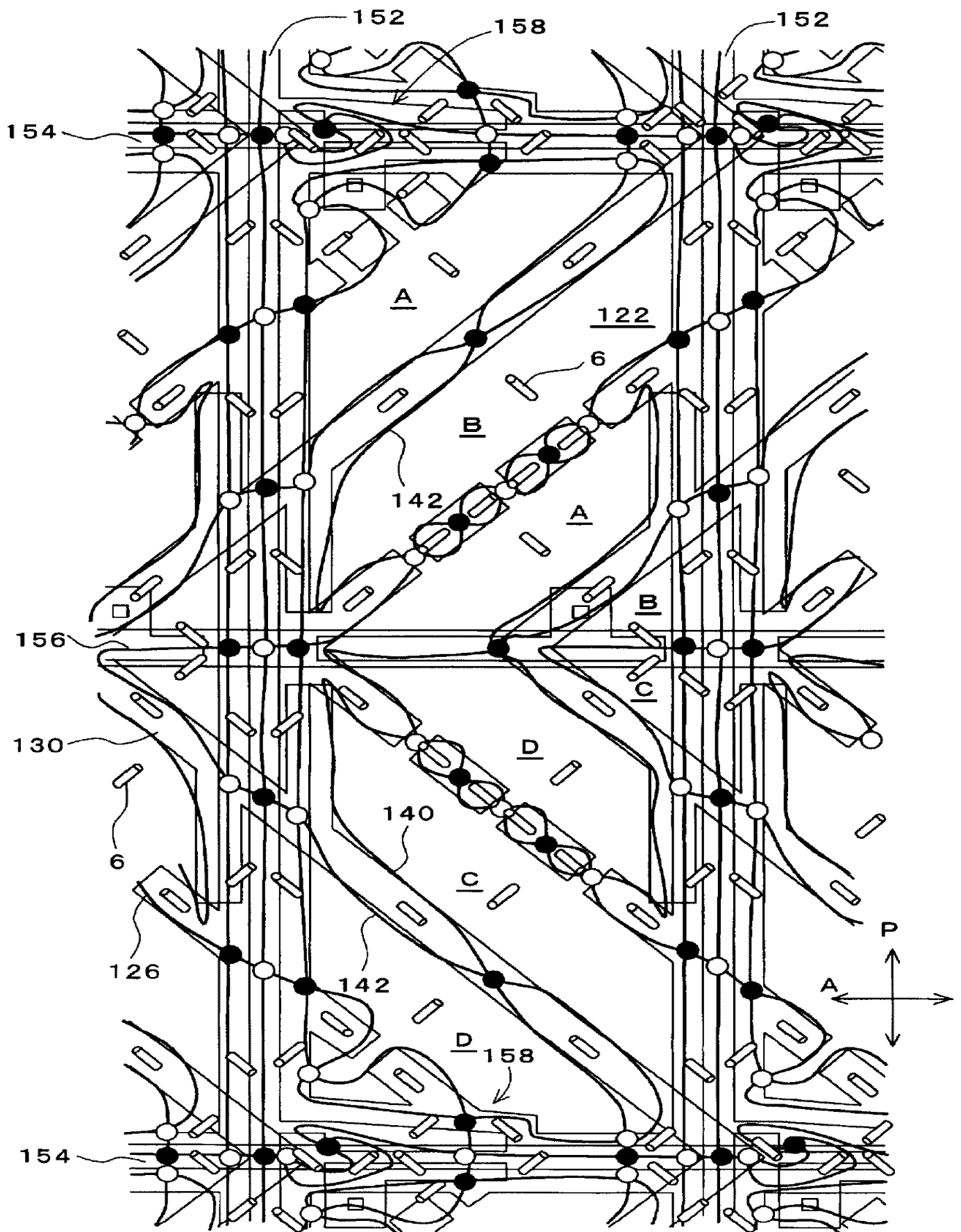
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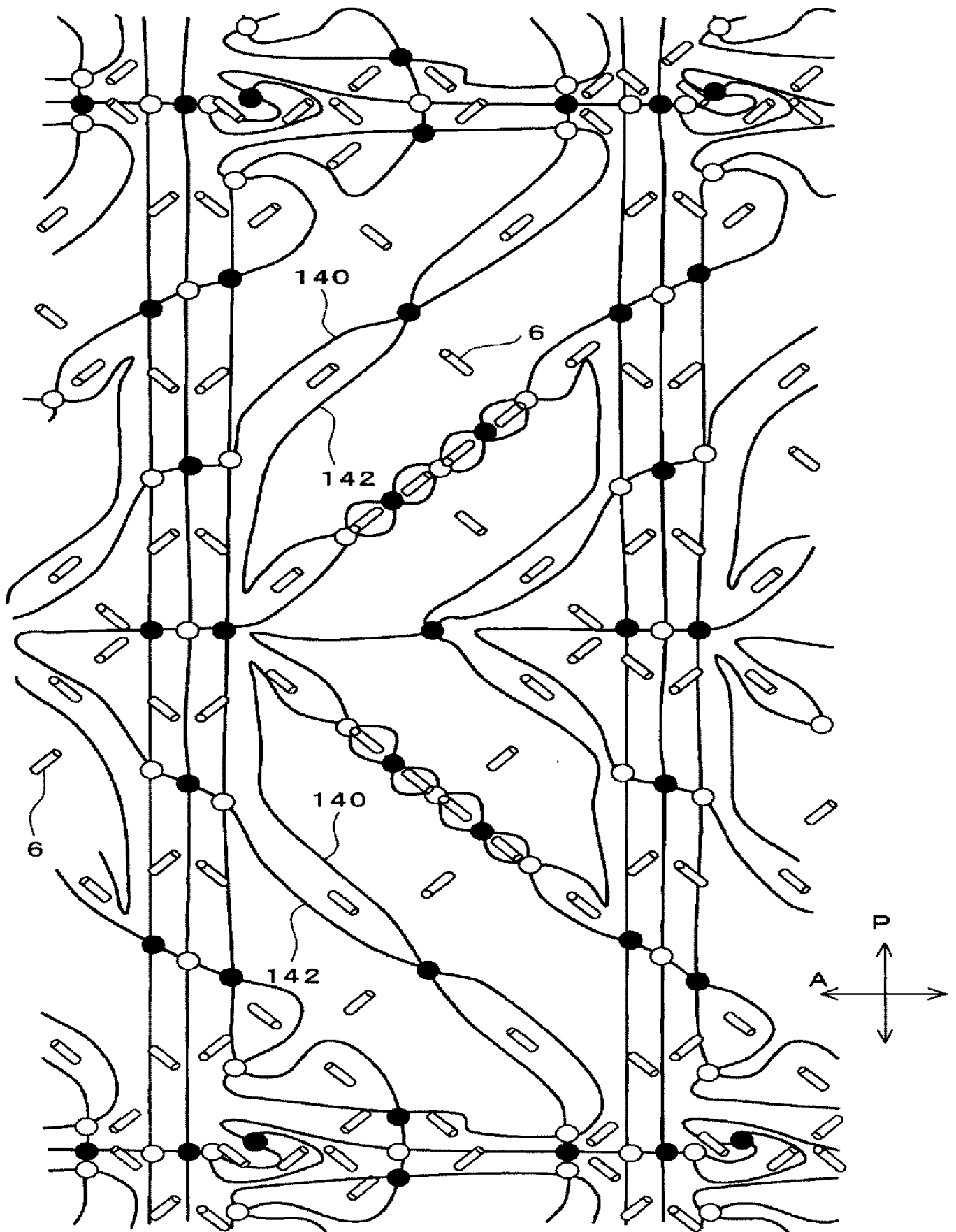




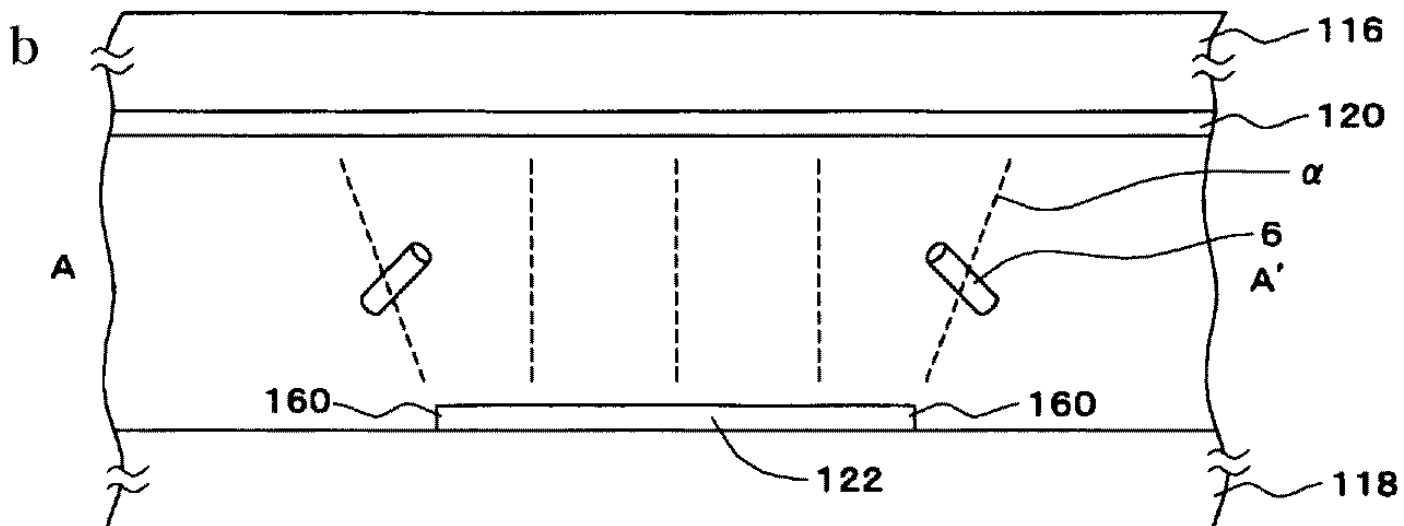
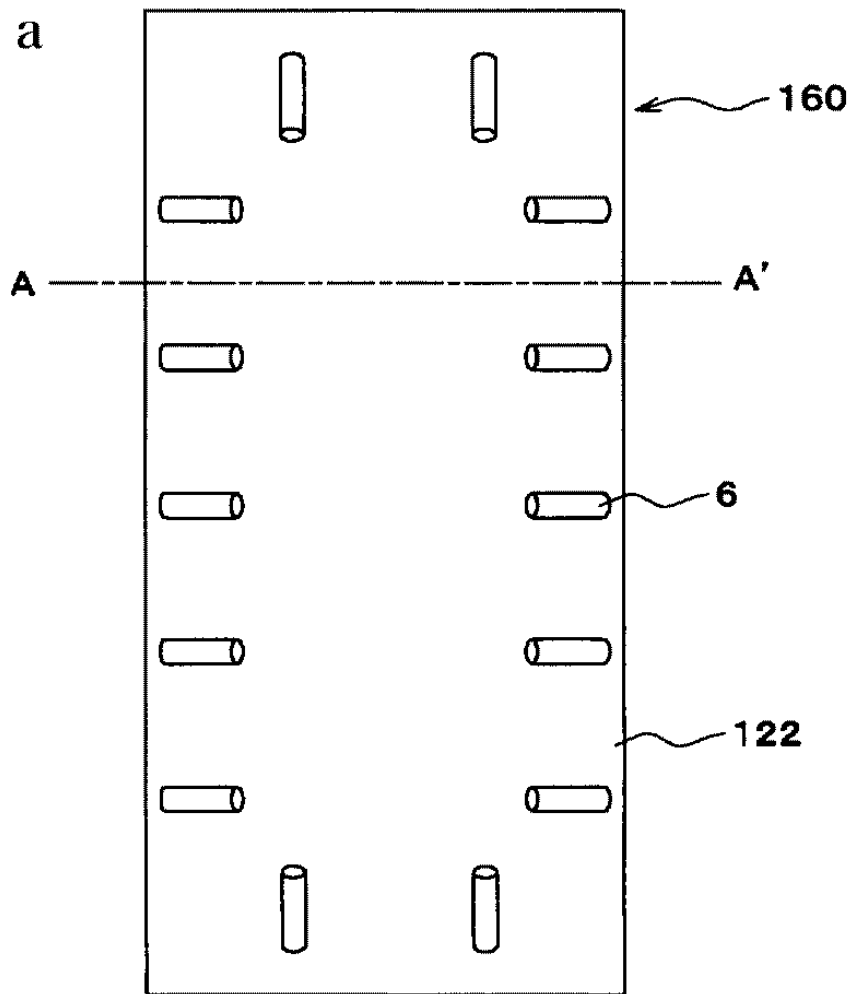
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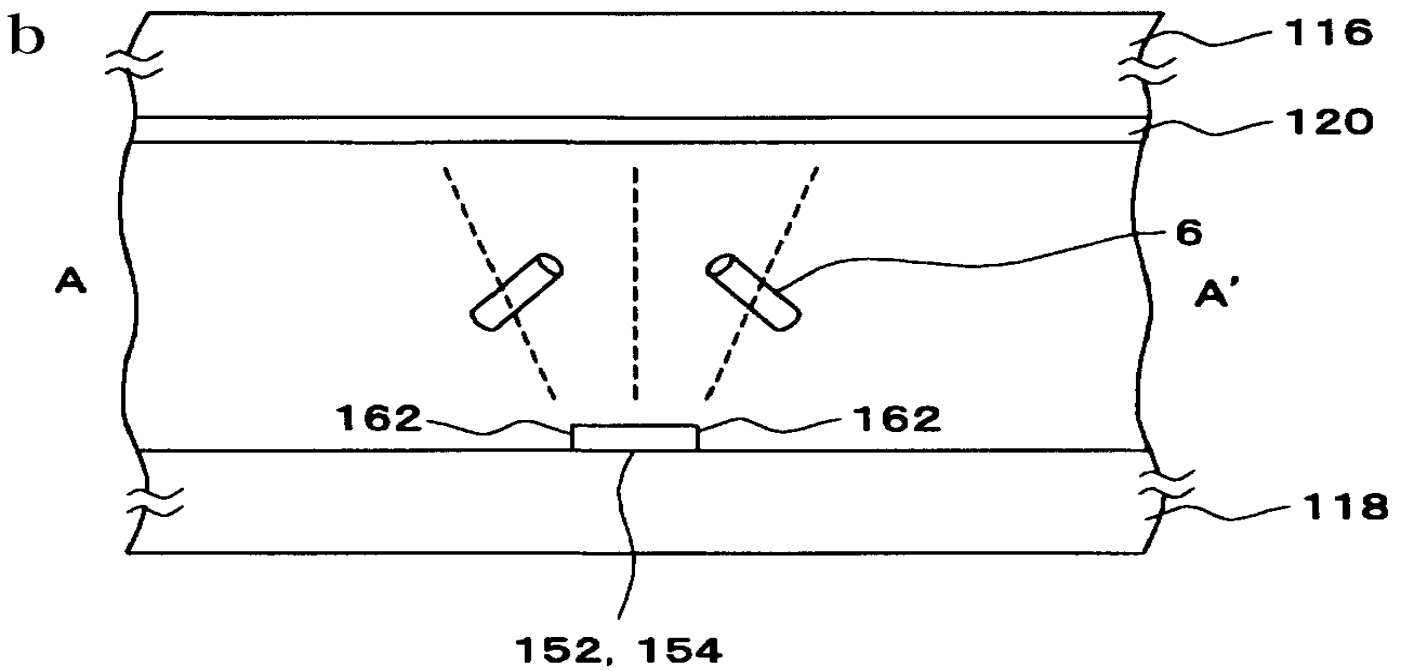
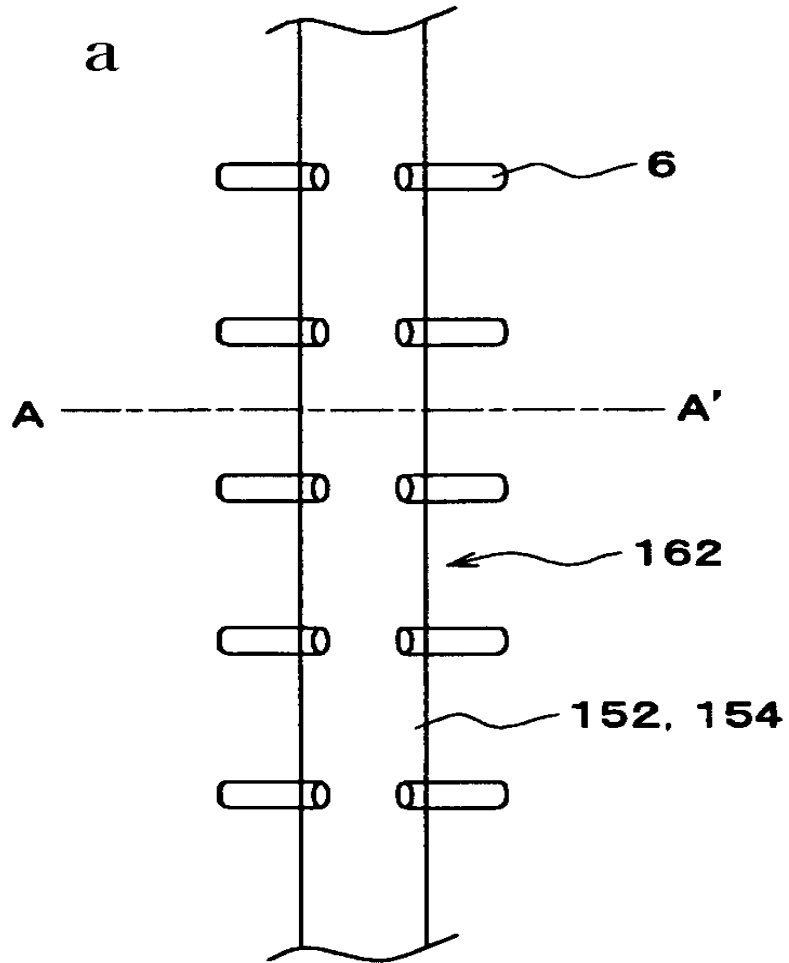




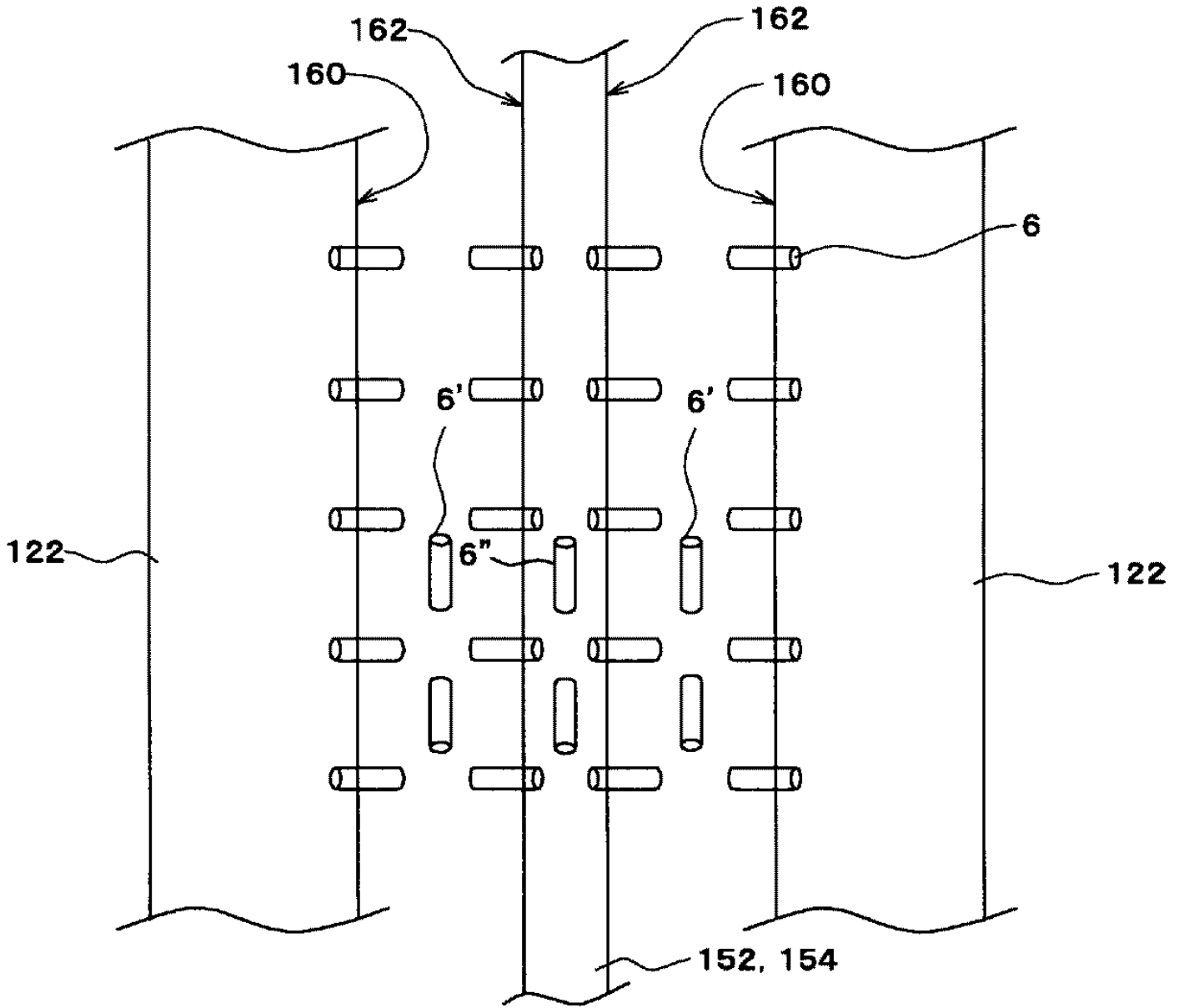
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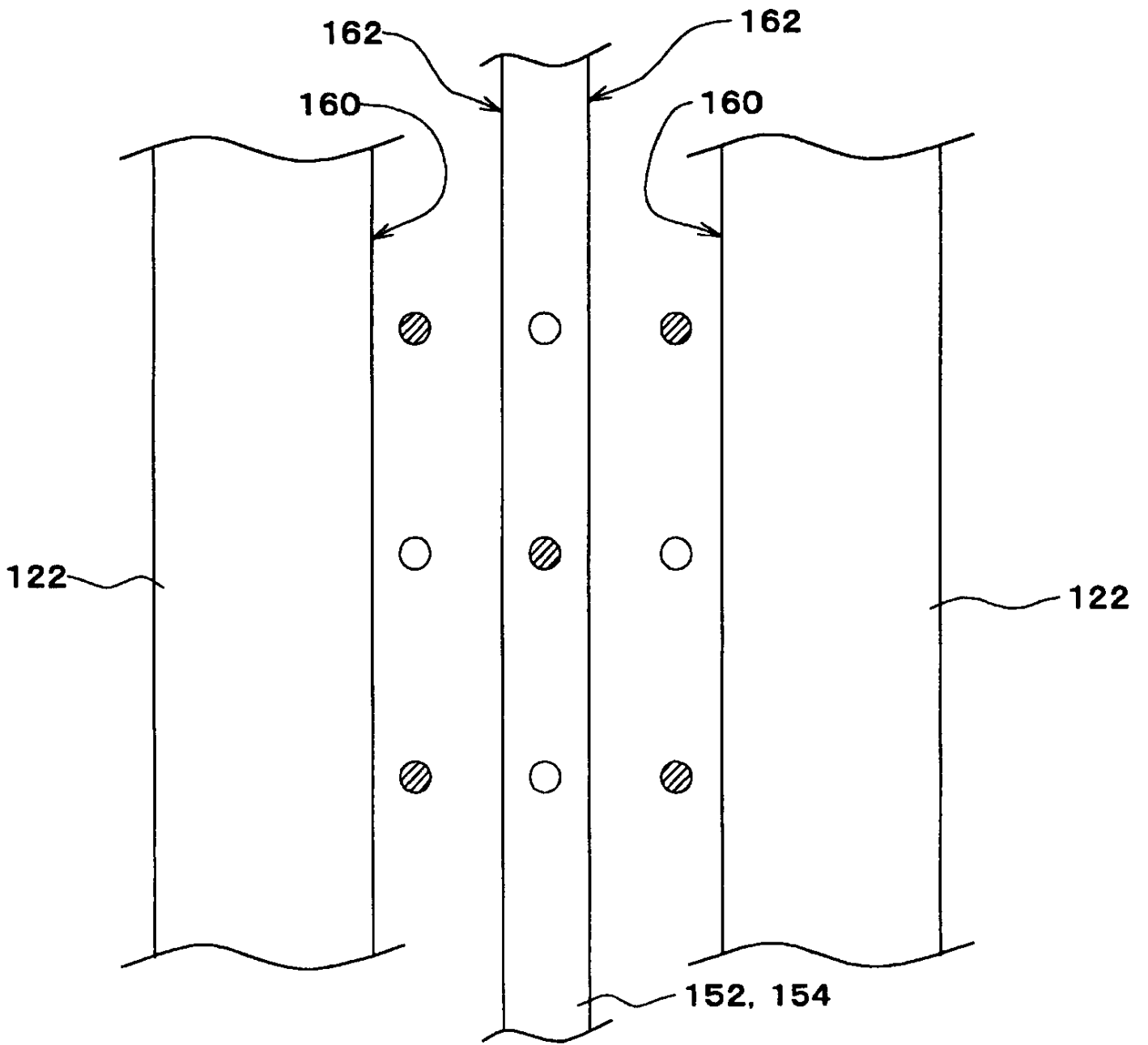
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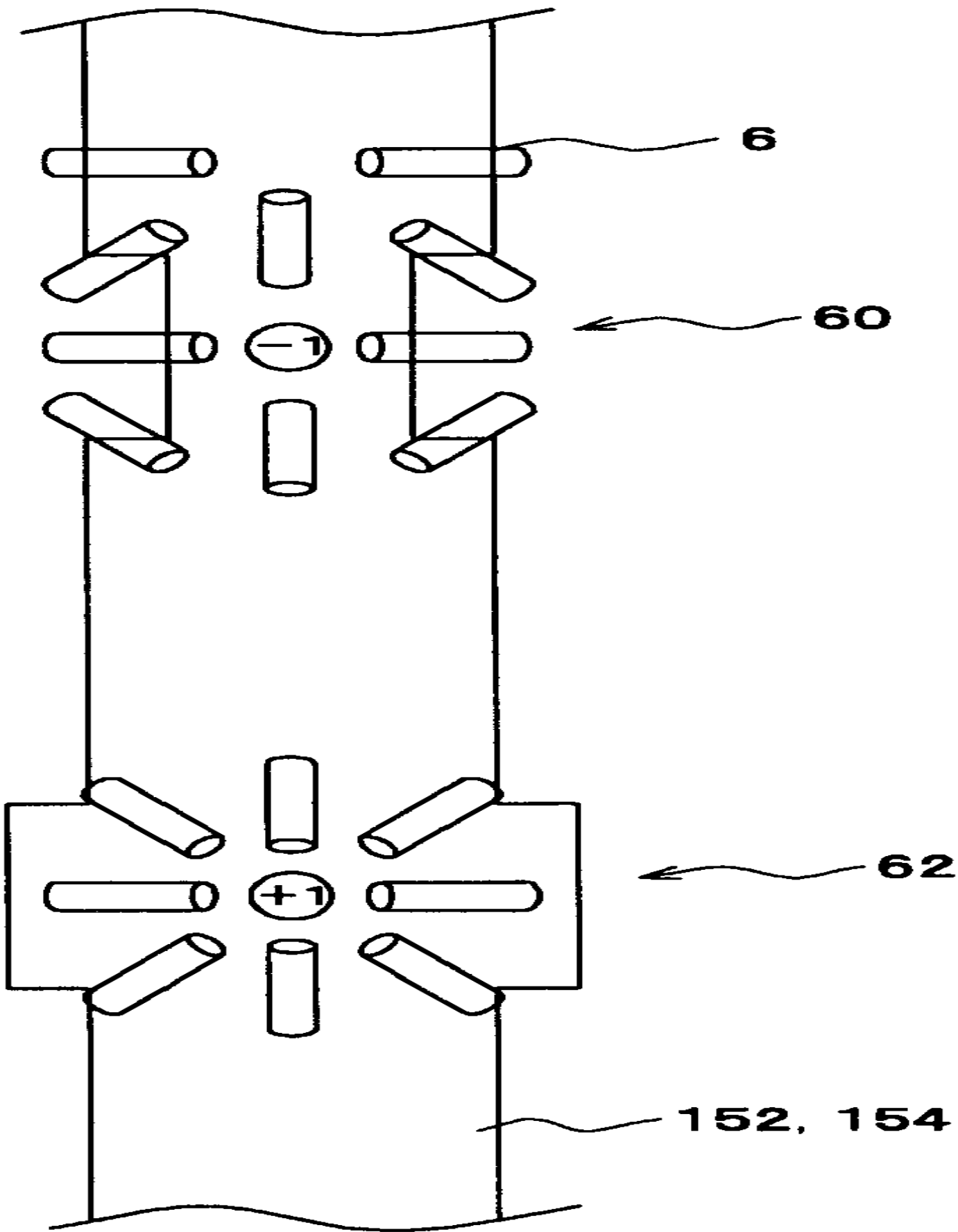
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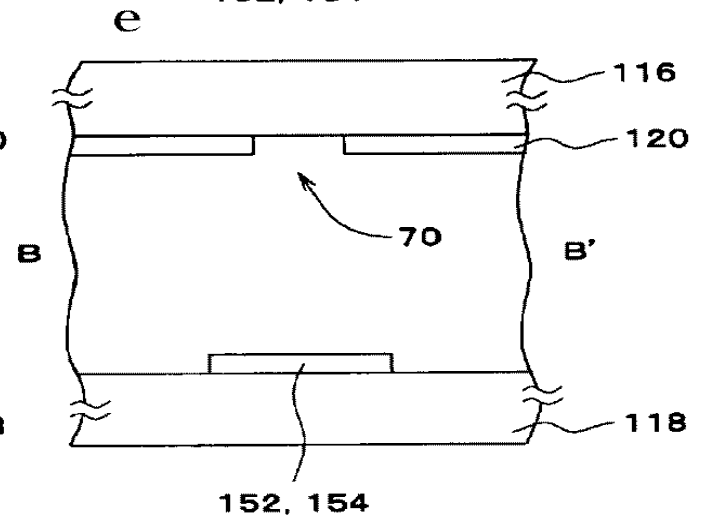
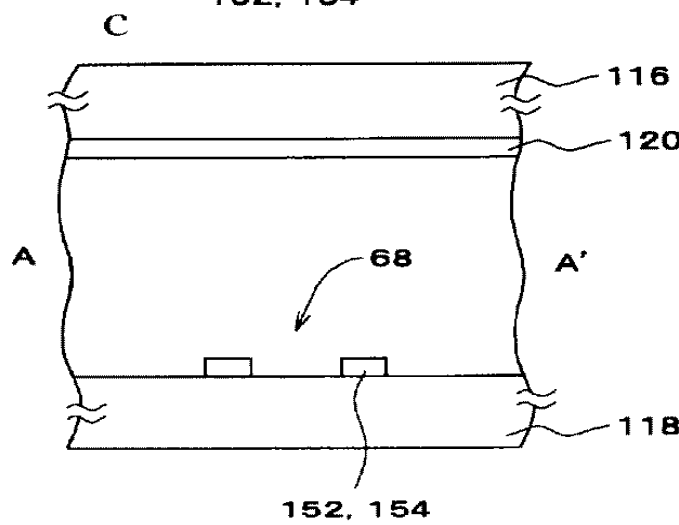
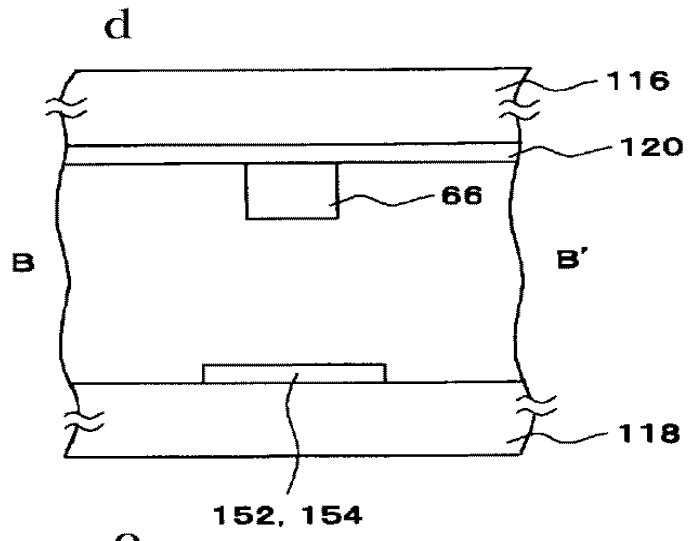
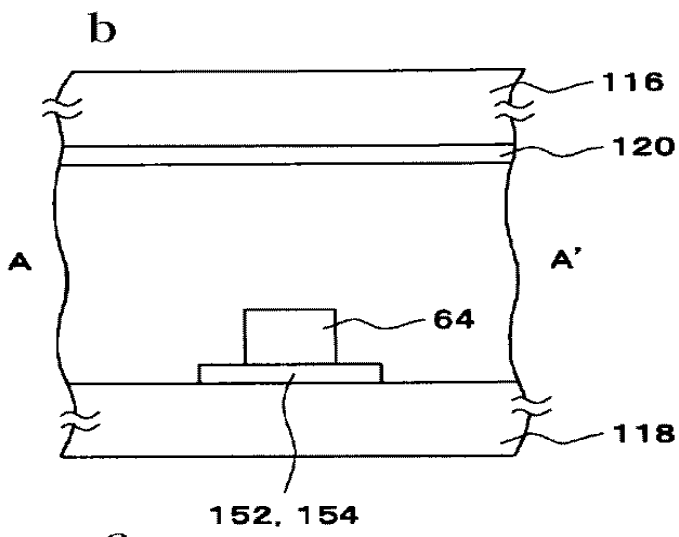
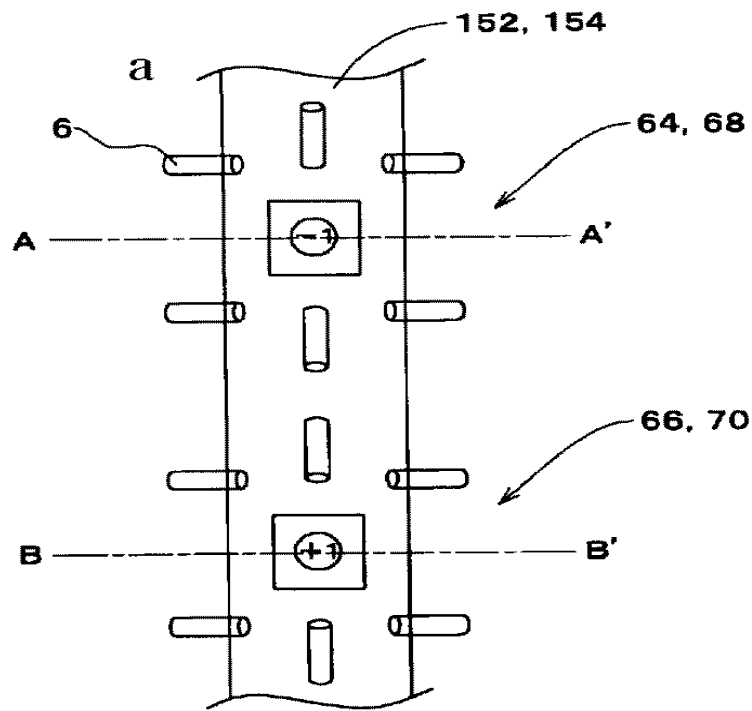
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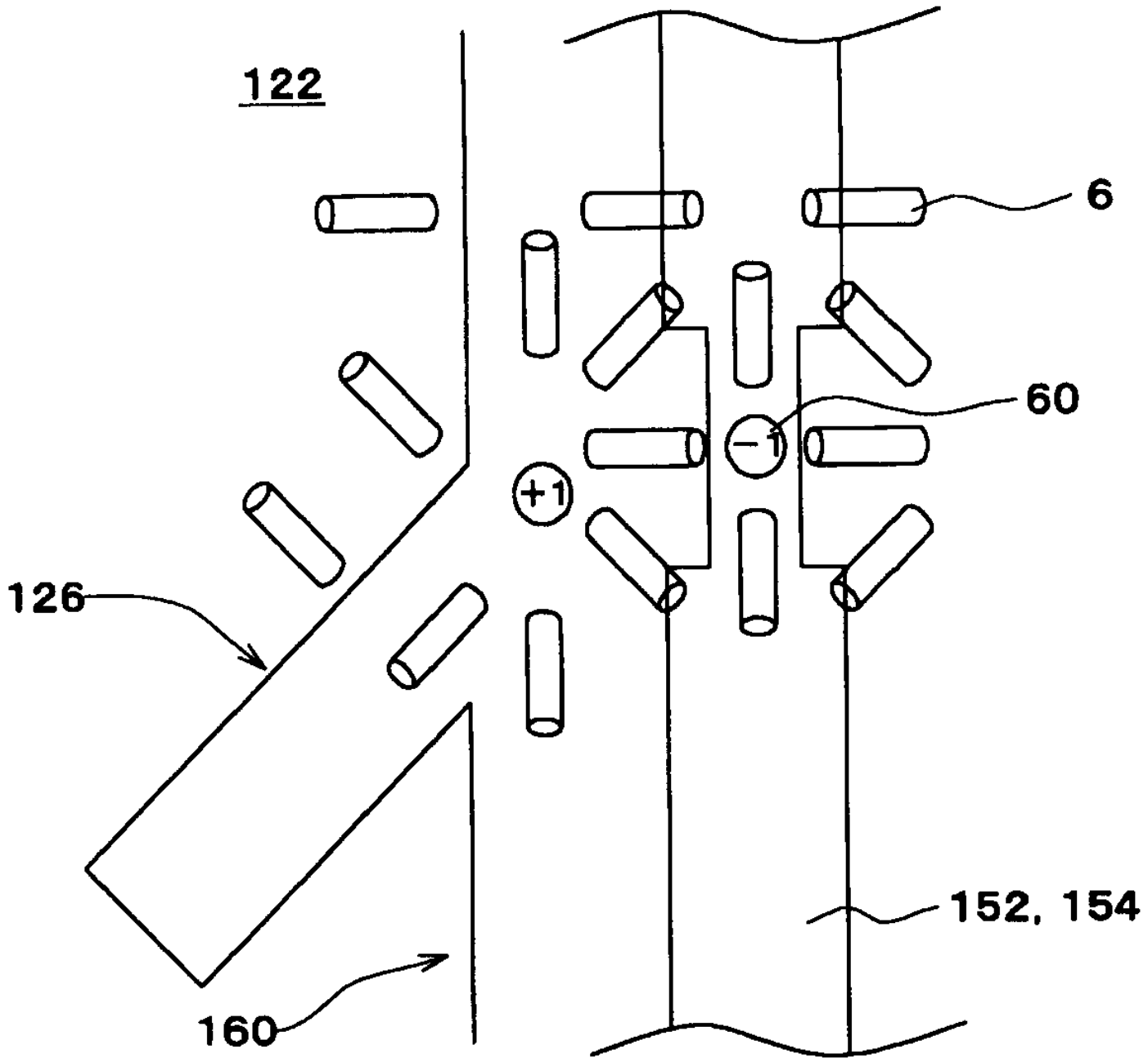
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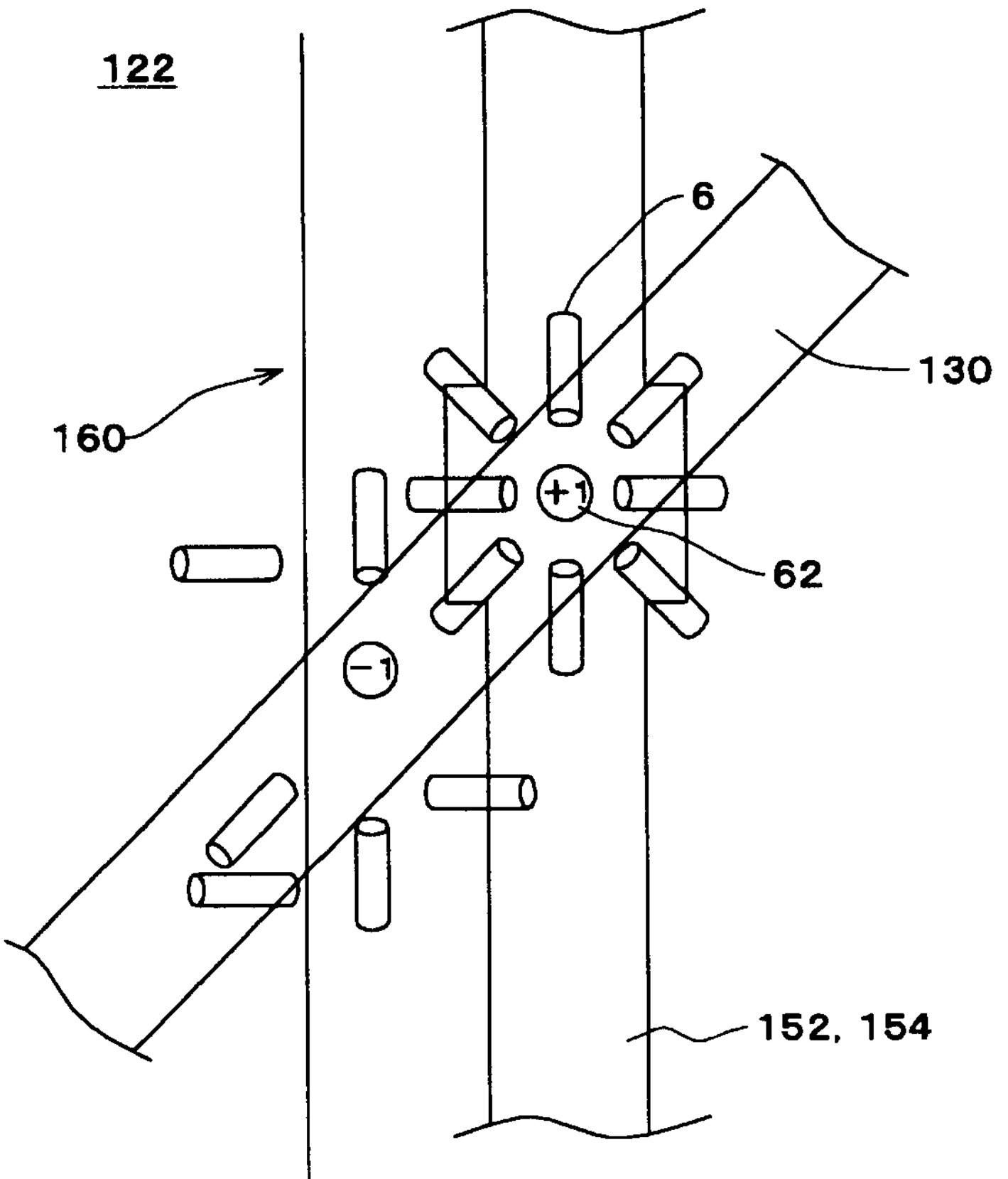
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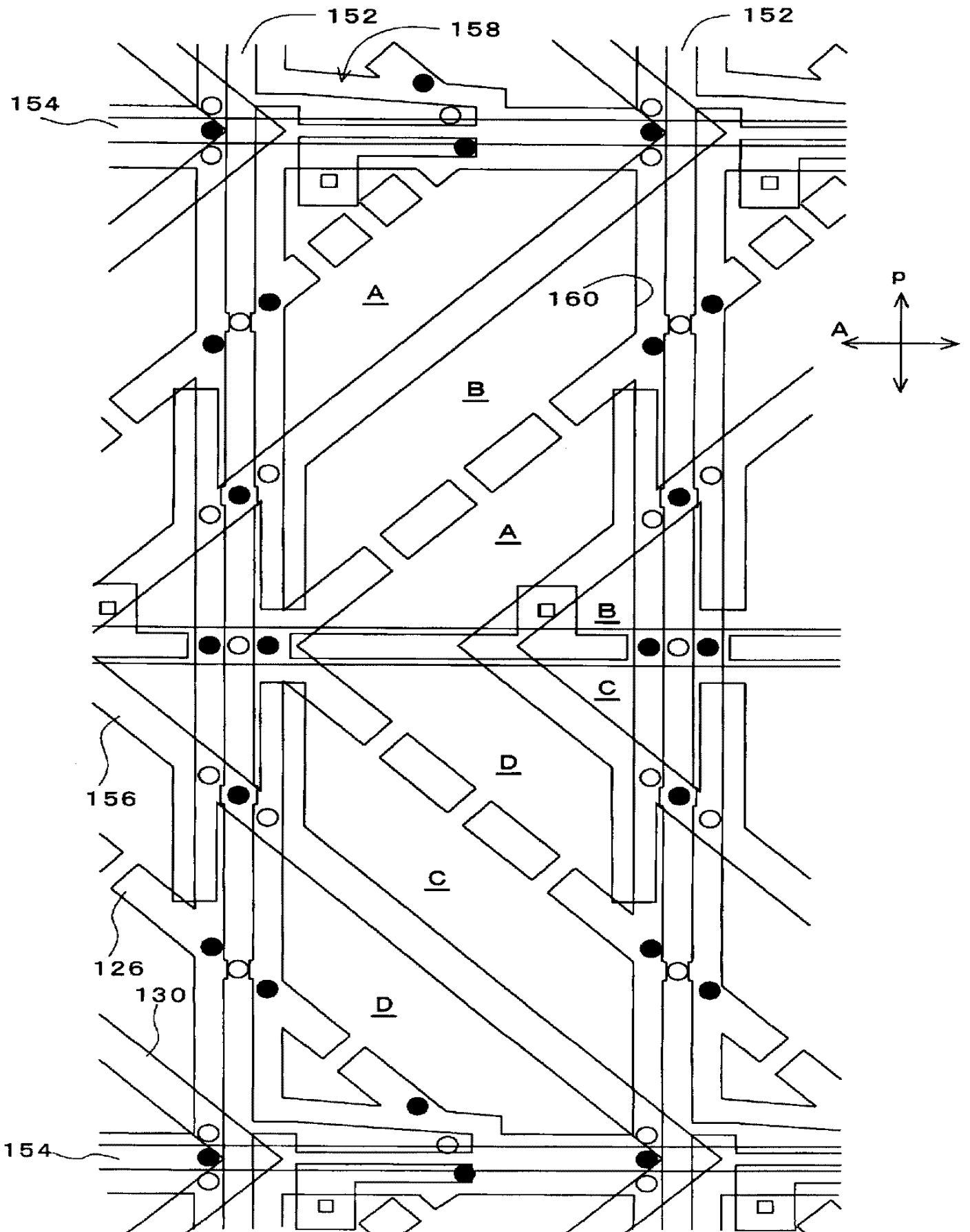
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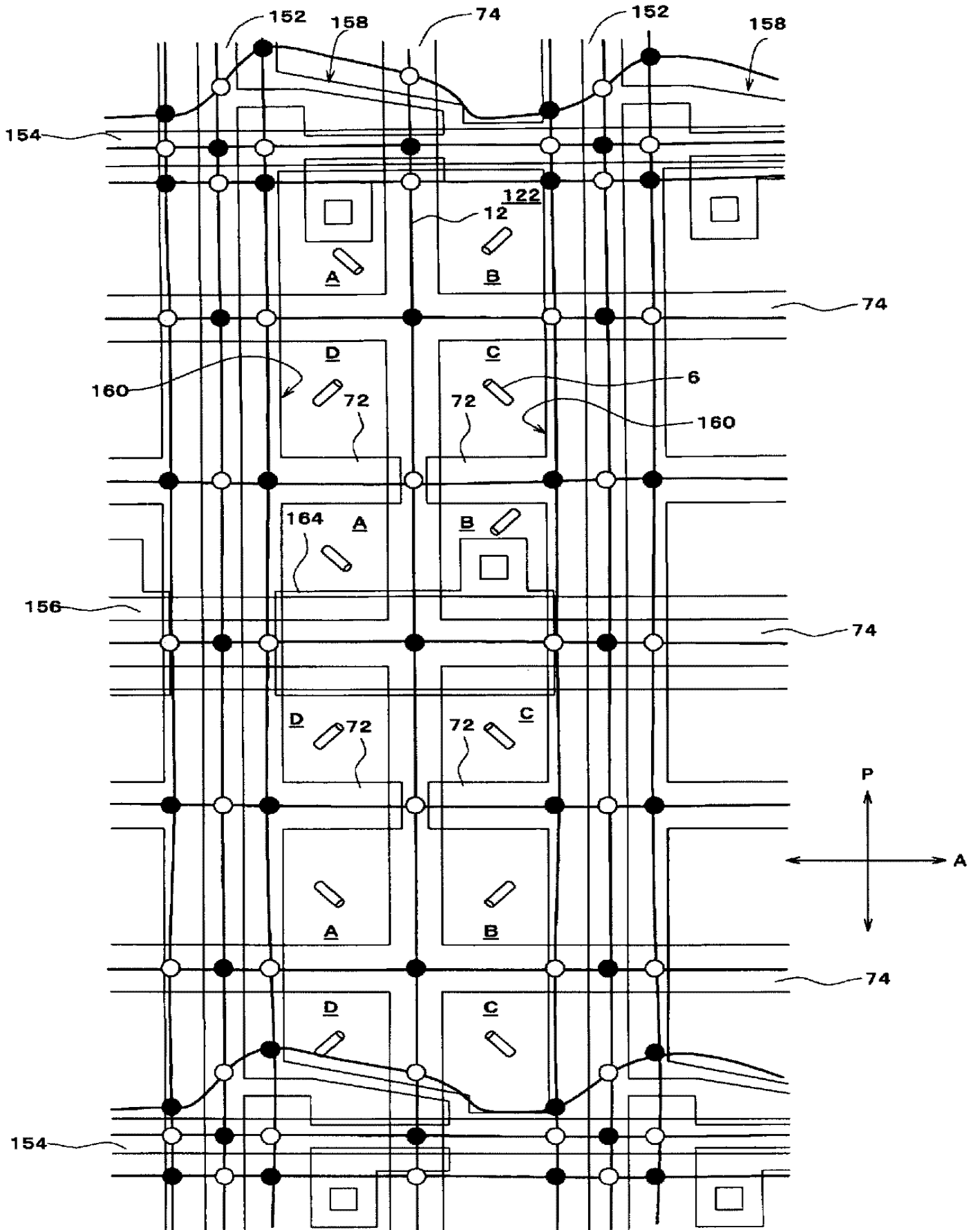
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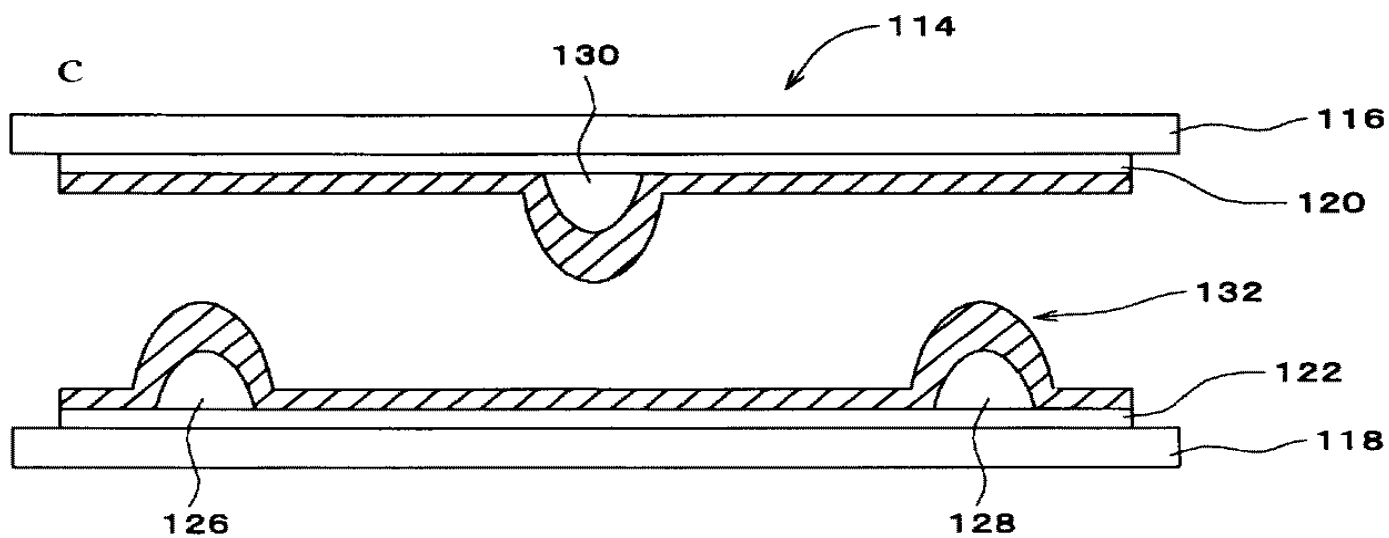
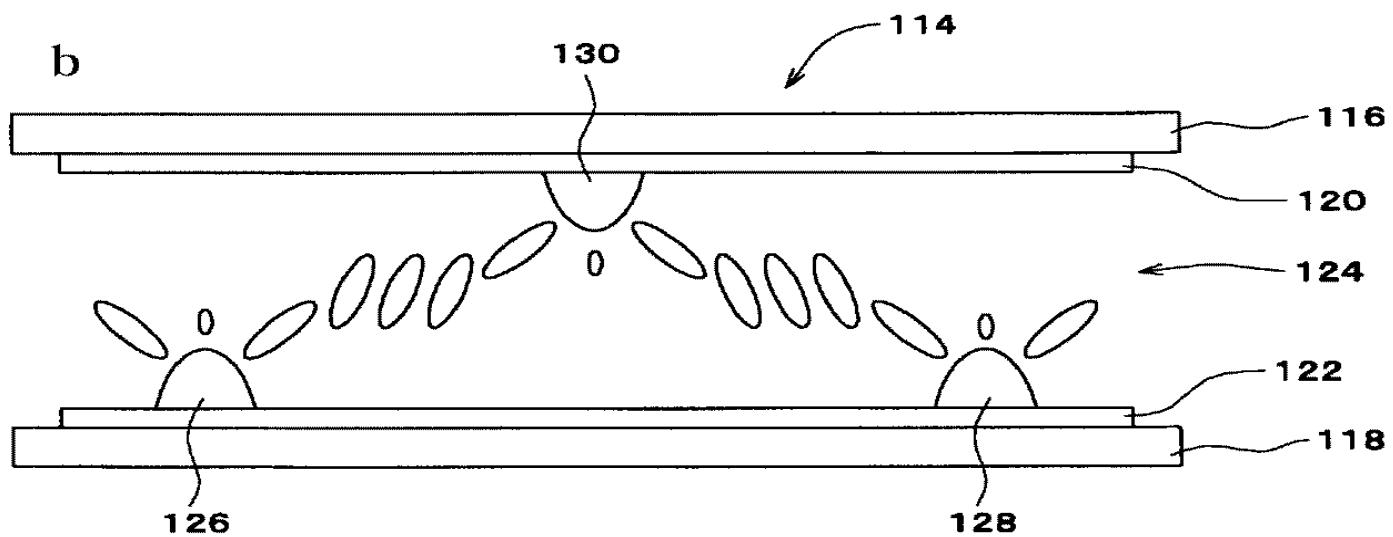
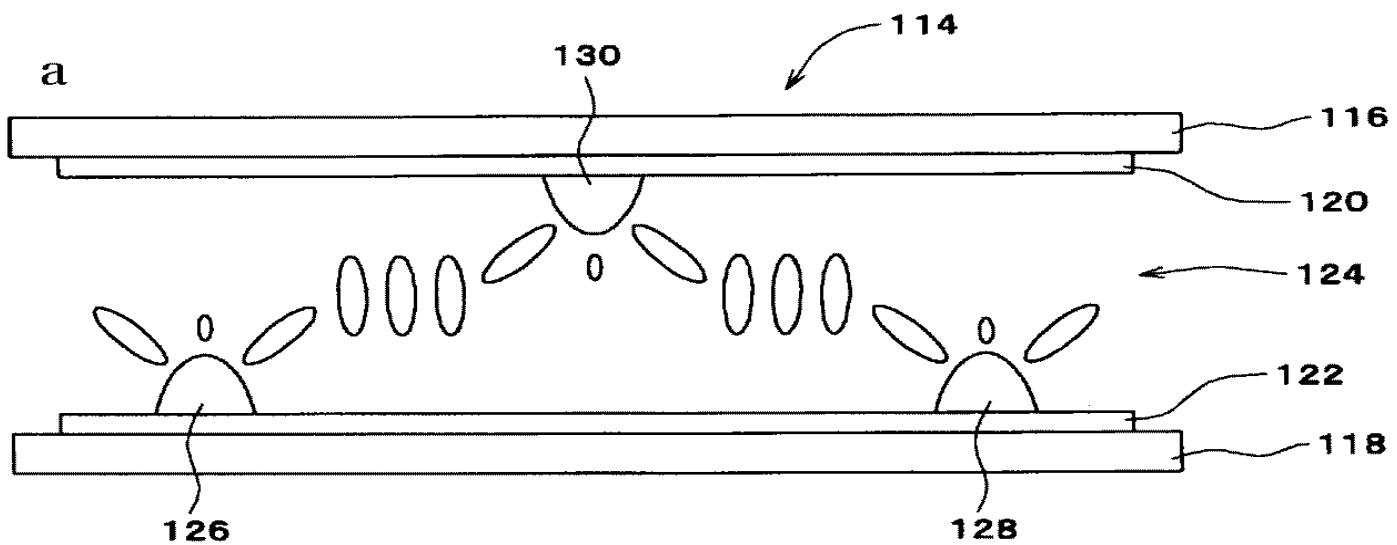
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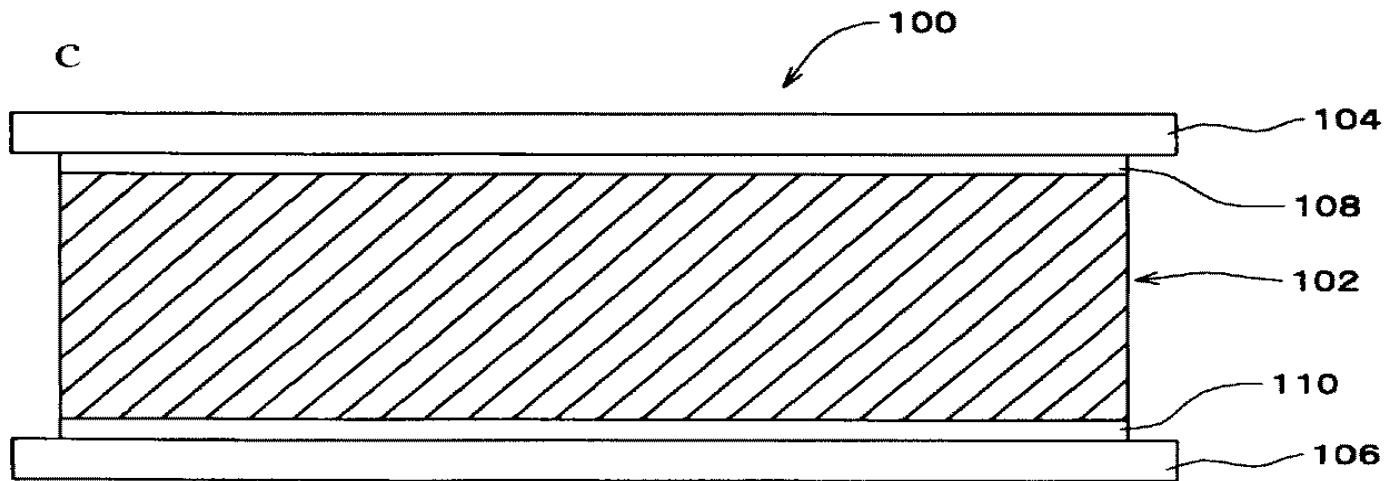
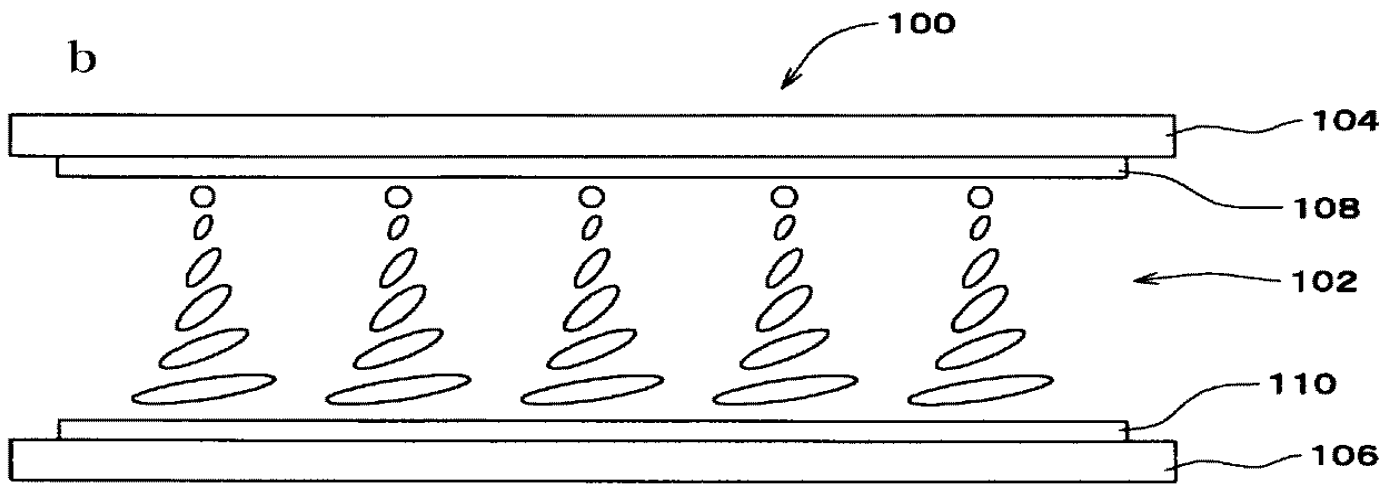
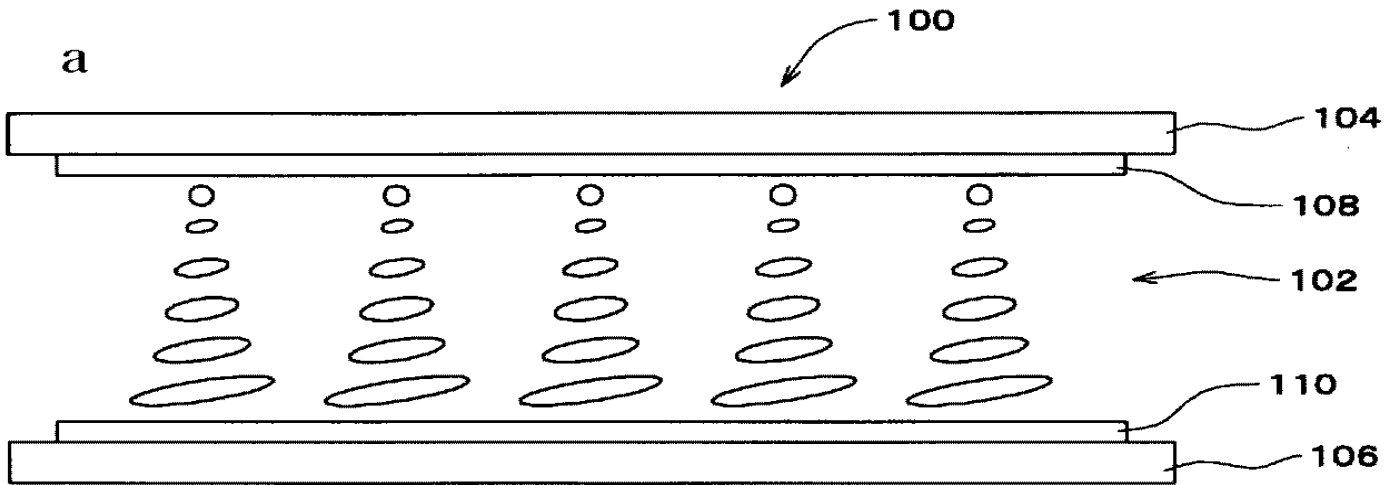
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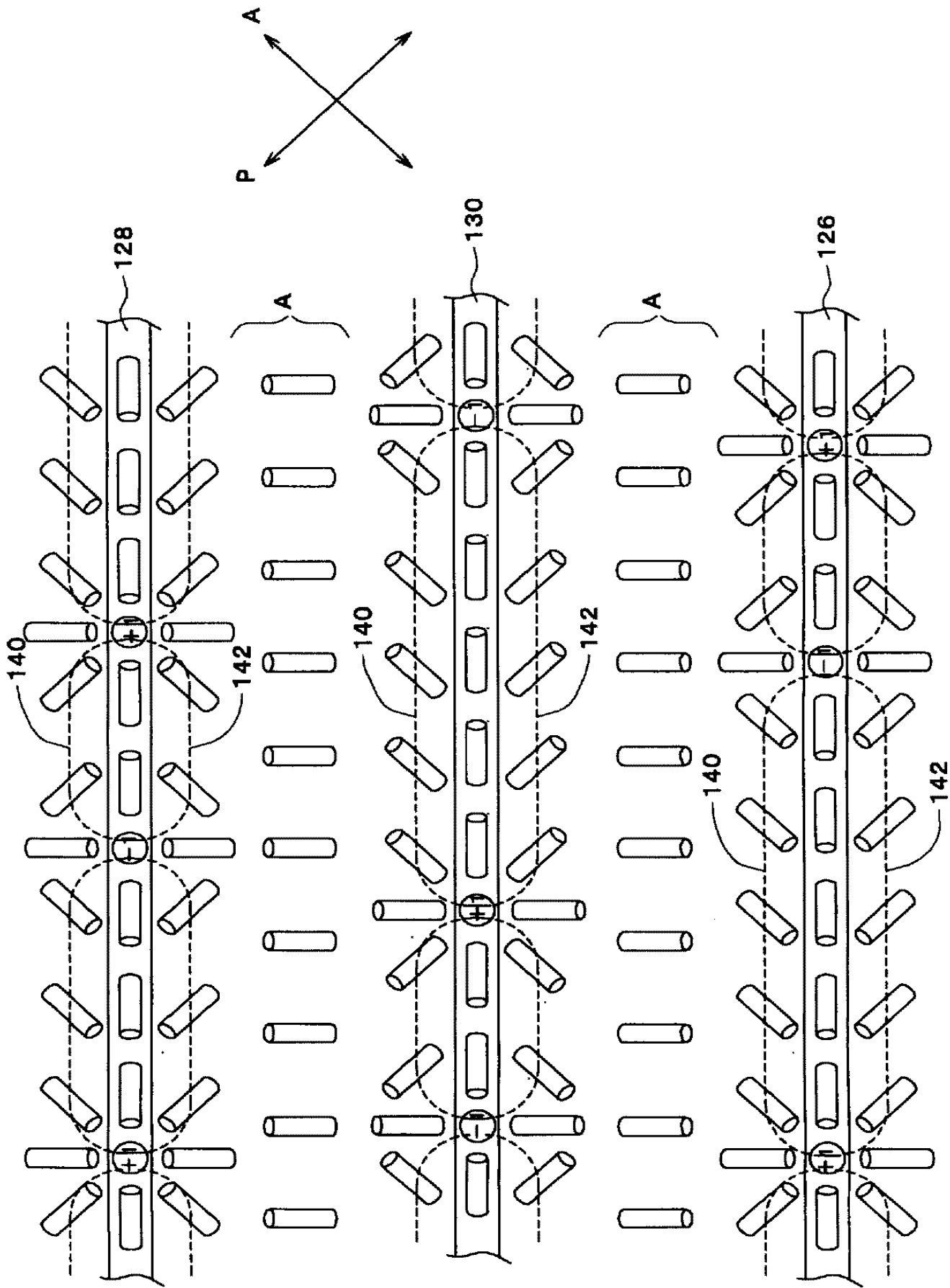
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专利名称(译)	液晶显示器		
公开(公告)号	KR1020010087337A	公开(公告)日	2001-09-15
申请号	KR1020010011246	申请日	2001-03-05
[标]申请(专利权)人(译)	夏普株式会社		
申请(专利权)人(译)	夏普株式会社		
当前申请(专利权)人(译)	夏普株式会社		
[标]发明人	TAKEDA ARIHIRO 다께다아리히로 CHIDA HIDEO 지다히데오 SASAKI TAKAHIRO 사사끼다까히로 NAKAMURA KIMIYAKI 나까무라기미야끼 KOIKE YOSHIO 고이께요시오		
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摘要(译)

液晶显示装置技术领域本发明涉及一种多分割取向的MVA模式的液晶显示装置，其中具有负介电各向异性的液晶分子的取向状态不同，和一个显示设备。液晶显示装置本发明涉及一种液晶显示装置，包括形成在两个基板的相对侧上的电极，所述基板以预定间隙彼此相对，在电极上形成垂直取向膜(2,4)，具有负介电各向异性的液晶分子(1)和(2)，其中当在电极之间施加电压时，液晶分子(6)的取向矢量场的奇点(+1或-1)形成在预定位置，在图10d和8中，基于产生的奇点控制液晶分子6的取向。 - 1 - 2

