FIG. 1

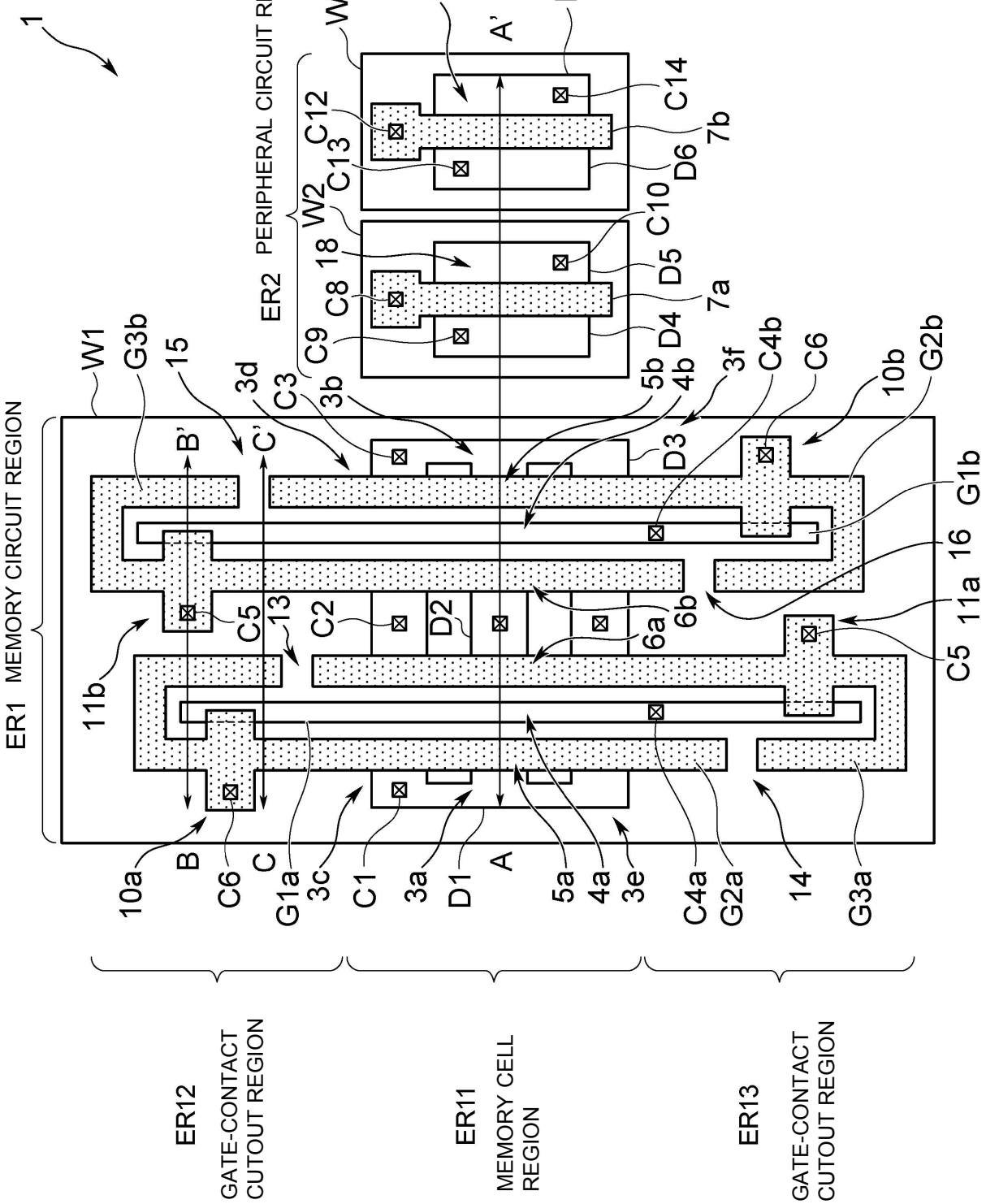

1
ER1 MEMORY CIRCUIT REGION
ER2 PERIPHERAL CIRCUIT REGION
ER12 GATE-CONTACT CUTOUT REGION
ER11 MEMORY CELL REGION
ER13 GATE-CONTACT CUTOUT REGION
W1
W2
W3
A
A'
B
B'
C
C'
G1a
G1b
G2a
G2b
G3a
G3b
10a
10b
11a
11b
13
14
15
16
18
19
3a
3b
3c
3d
3e
3f
4a
4b
5a
5b
6a
6b
7a
7b
C1
C2
C3
C4a
C4b
C5
C6
C8
C9
C10
C12
C13
C14
D1
D2
D3
D4
D5
D6
D7

FIG. 2

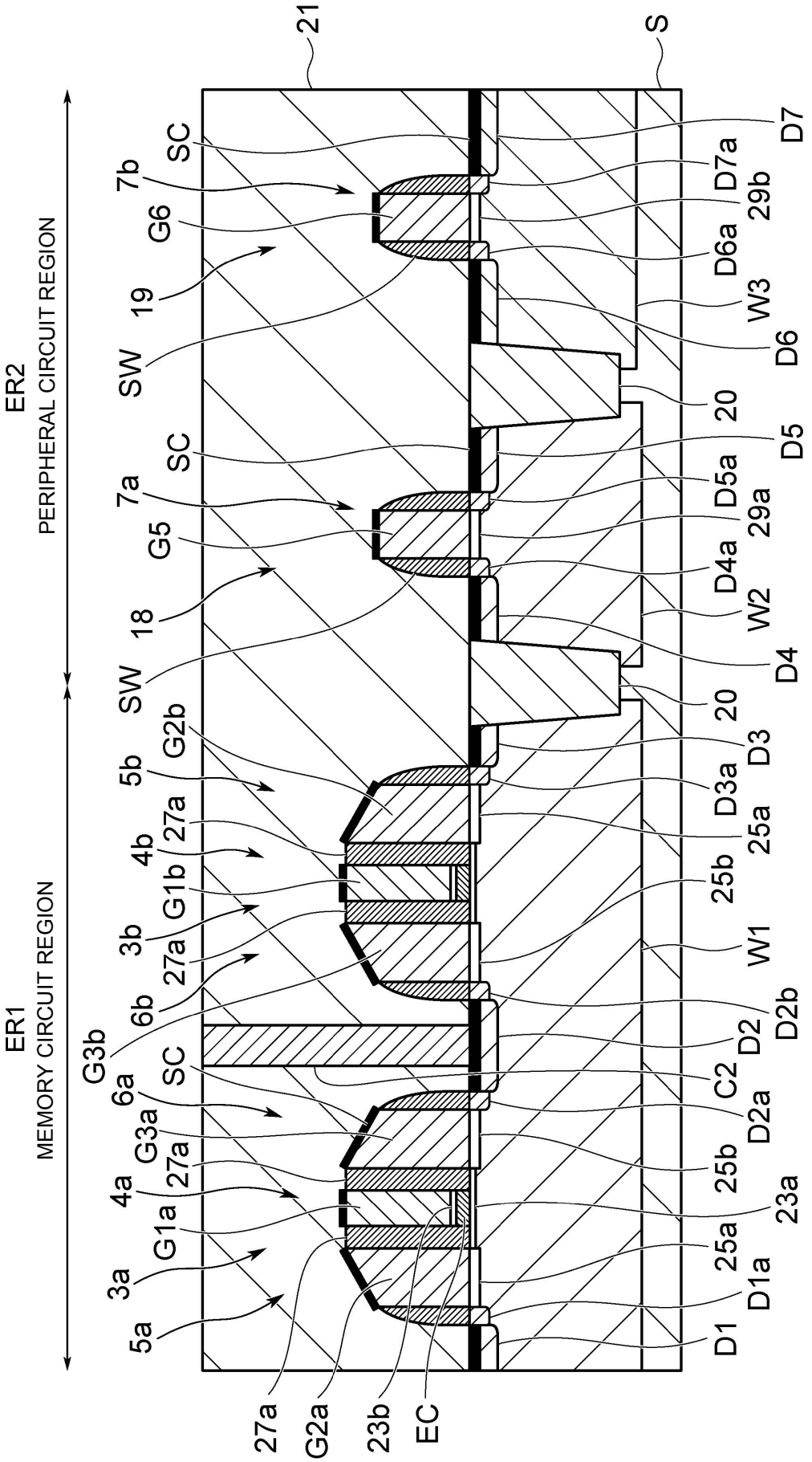

ER1
MEMORY CIRCUIT REGION
ER2
PERIPHERAL CIRCUIT REGION
21
S
SC
7b
G6
19
SW
7a
G5
18
5b
G2b
4b
27a
G1b
3b
6b
G3b
6a
G3a
4a
G1a
3a
5a
27a
G2a
23b
EC
D7
D7a
29b
D6a
W3
D6
20
D5
D5a
29a
D4a
W2
D4
20
D3
D3a
25a
25b
W1
D2
D2b
C2
D2a
25b
23a
25a
D1a
D1

FIG. 3

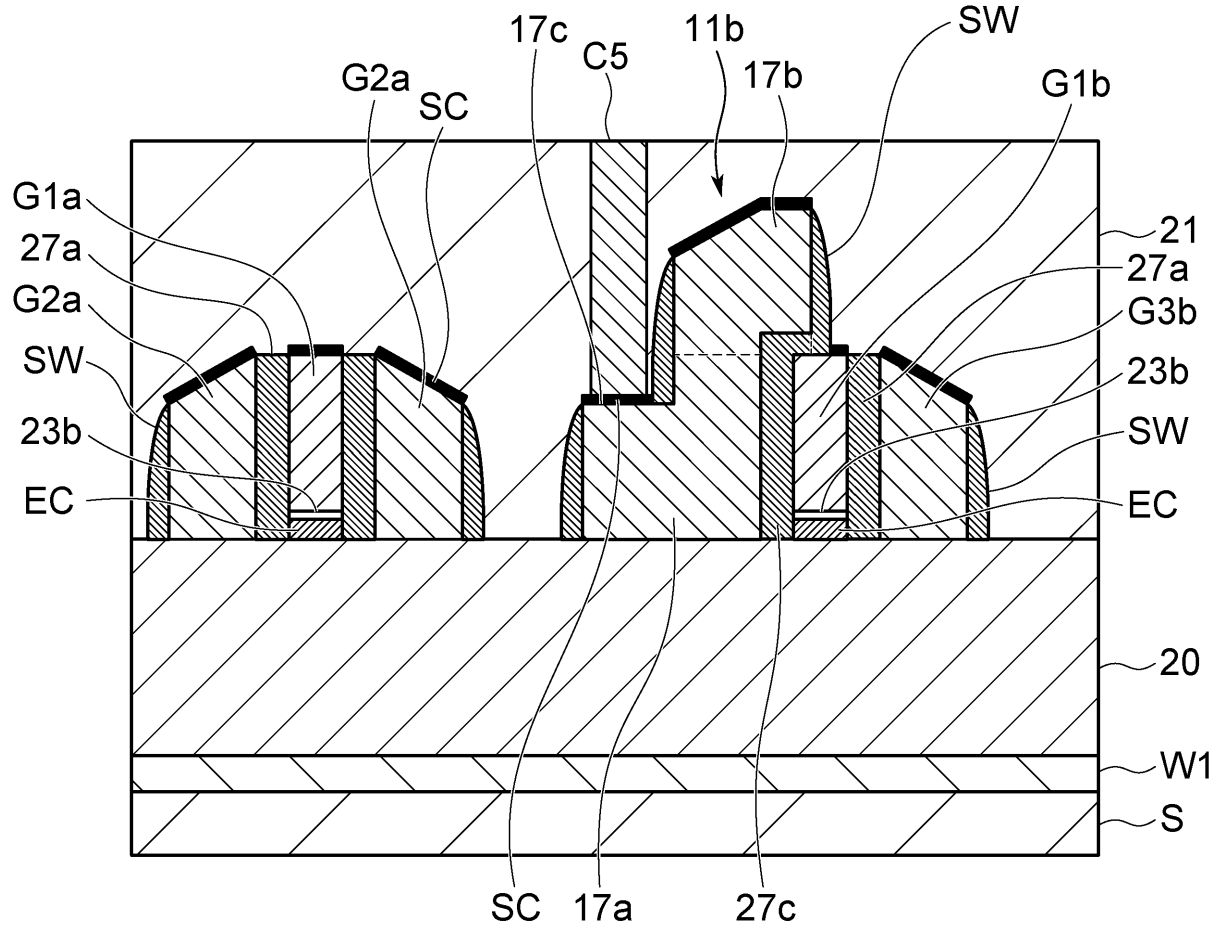
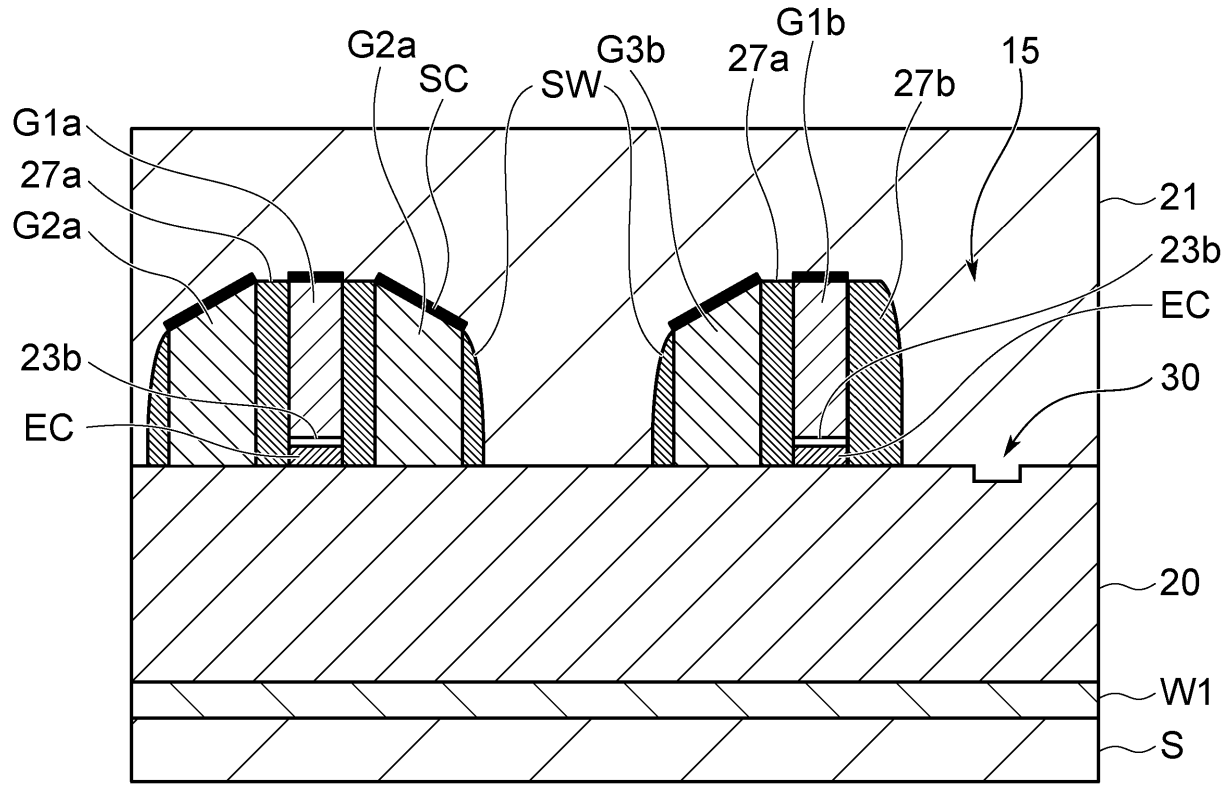

17c
C5
11b
SW
G2a
SC
17b
G1b
G1a
27a
G2a
SW
23b
EC
21
27a
G3b
23b
SW
EC
20
W1
S
SC
17a
27c

FIG. 4


G2a
SC
SW
G3b
27a
G1b
27b
15
G1a
27a
G2a
23b
EC
30
21
23b
EC
20
W1
S

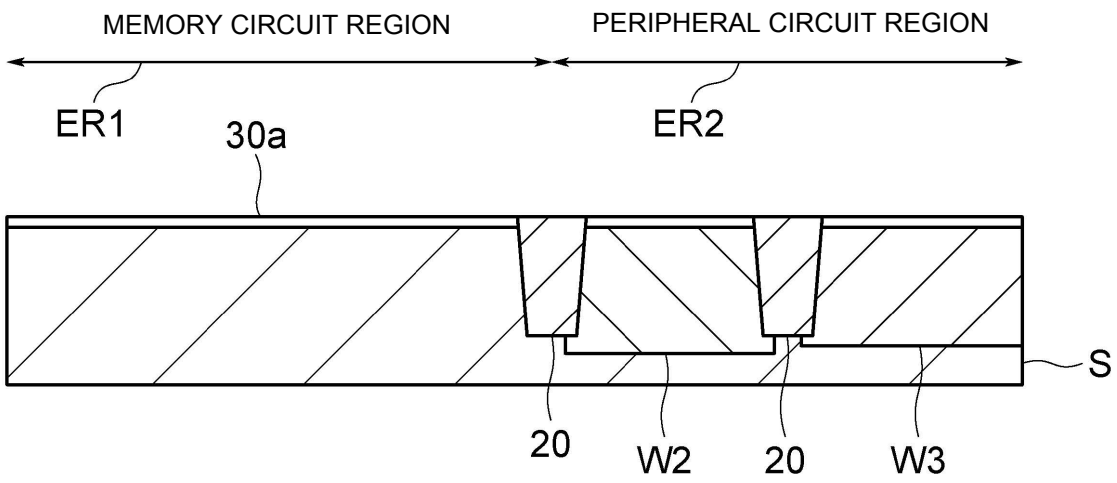


FIG. 5A

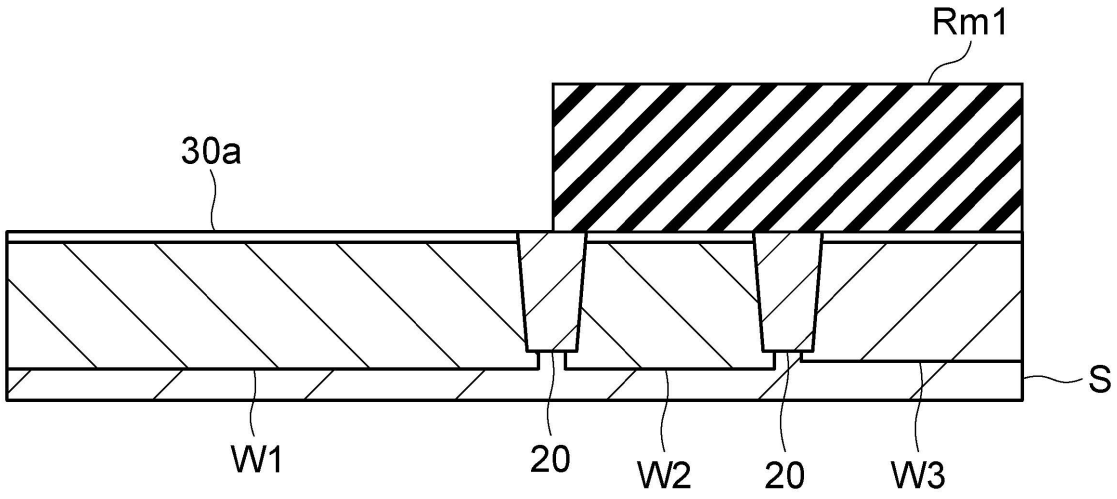


FIG. 5B

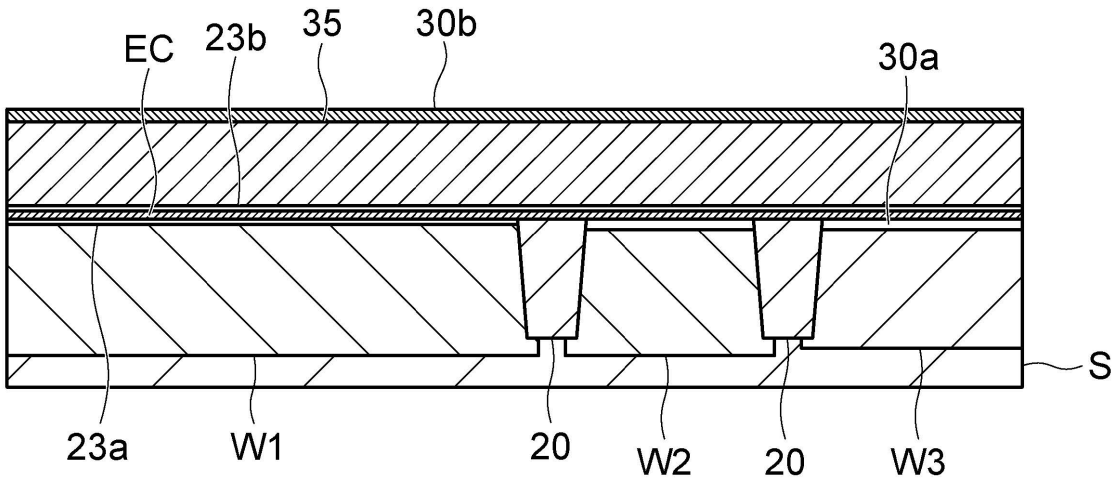


FIG. 5C

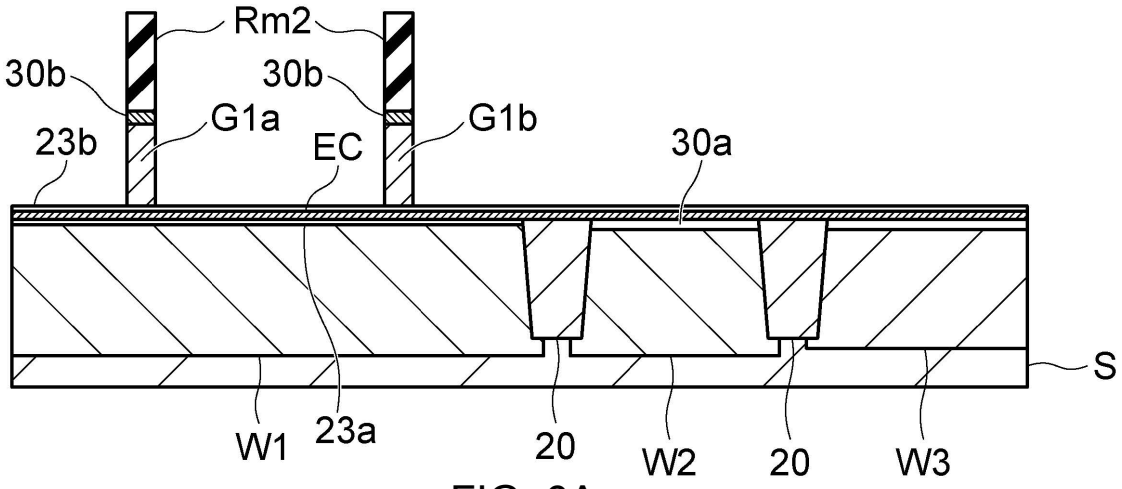


FIG. 6A

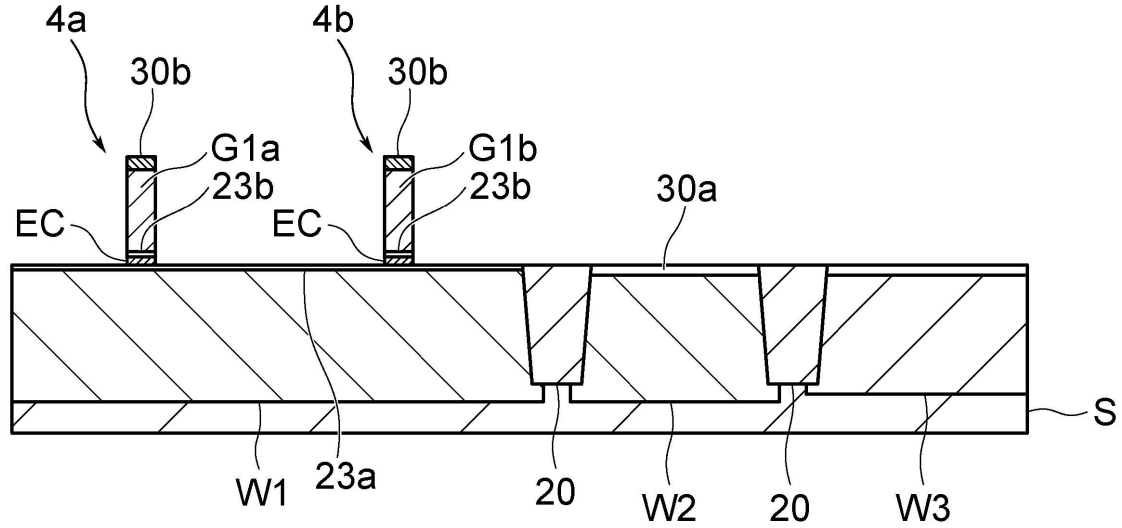


FIG. 6B

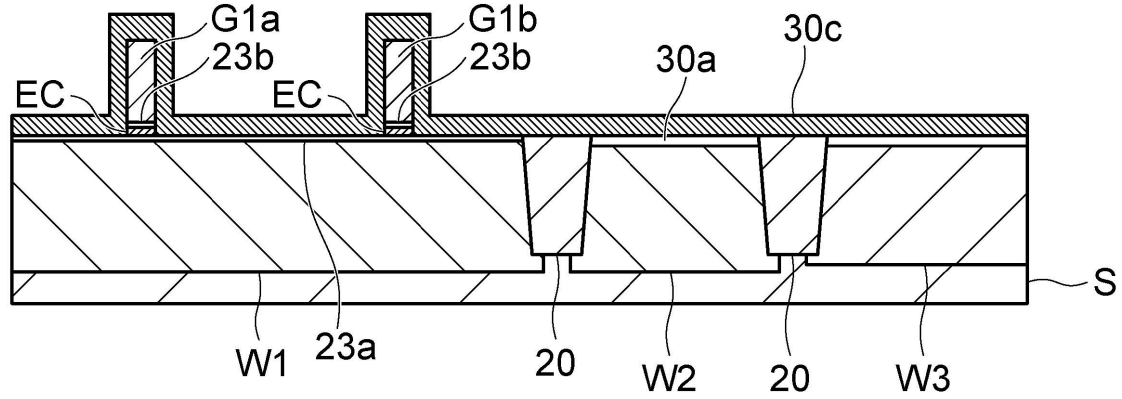


FIG. 6C

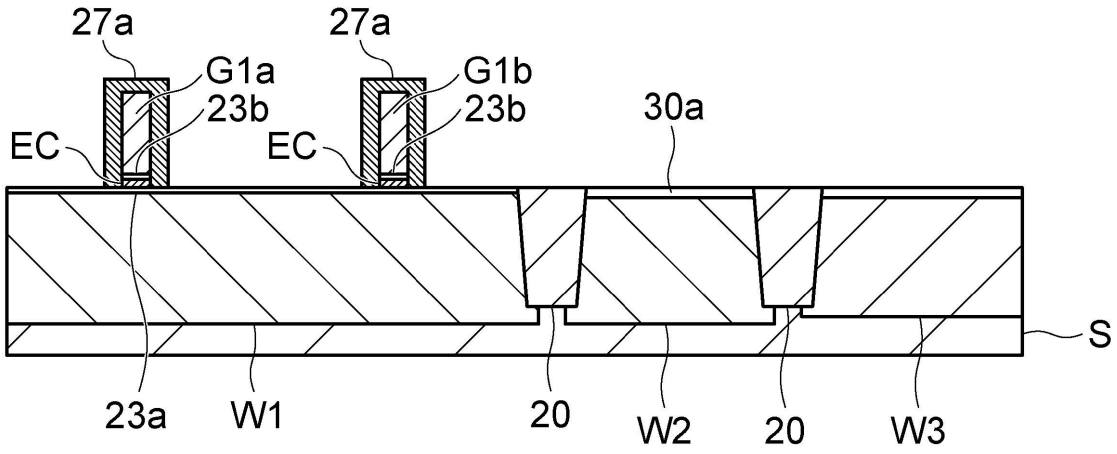


FIG. 7A

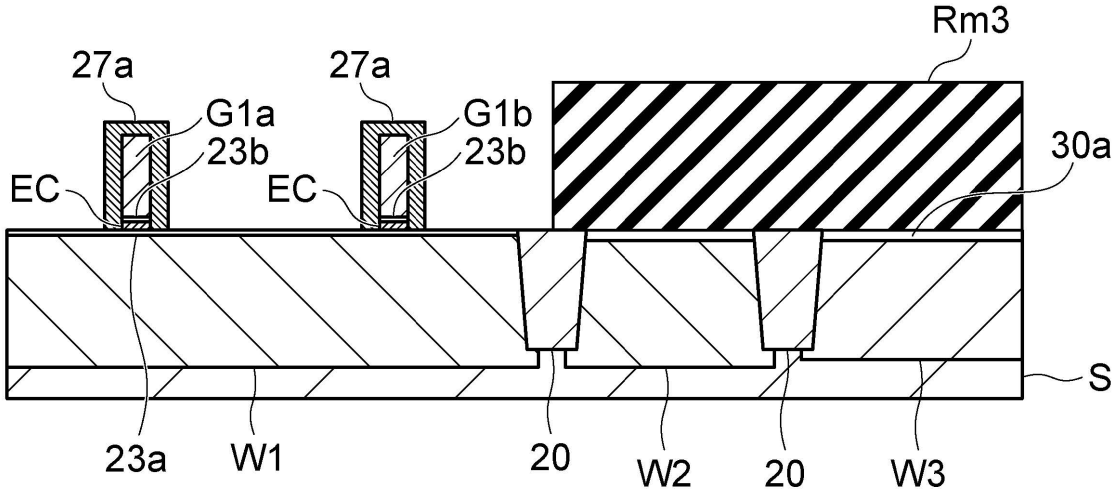


FIG. 7B

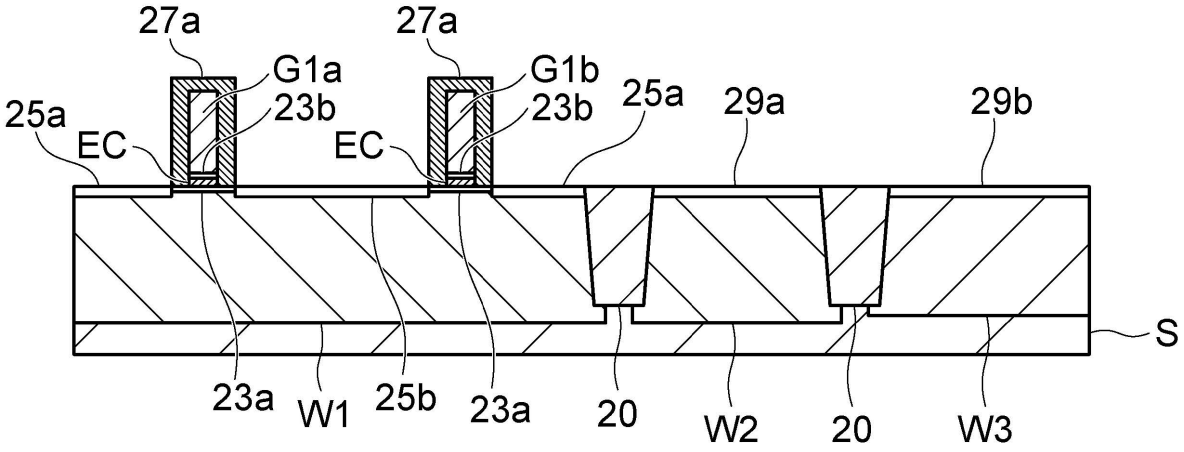


FIG. 7C

FIG. 8

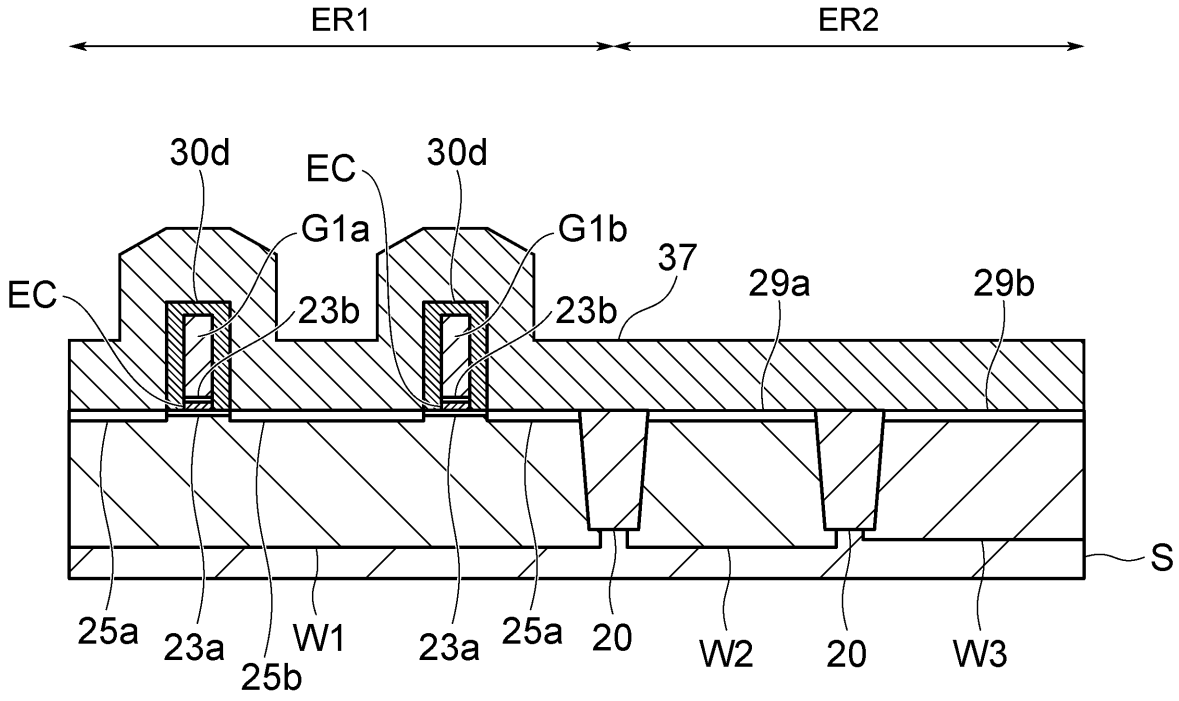
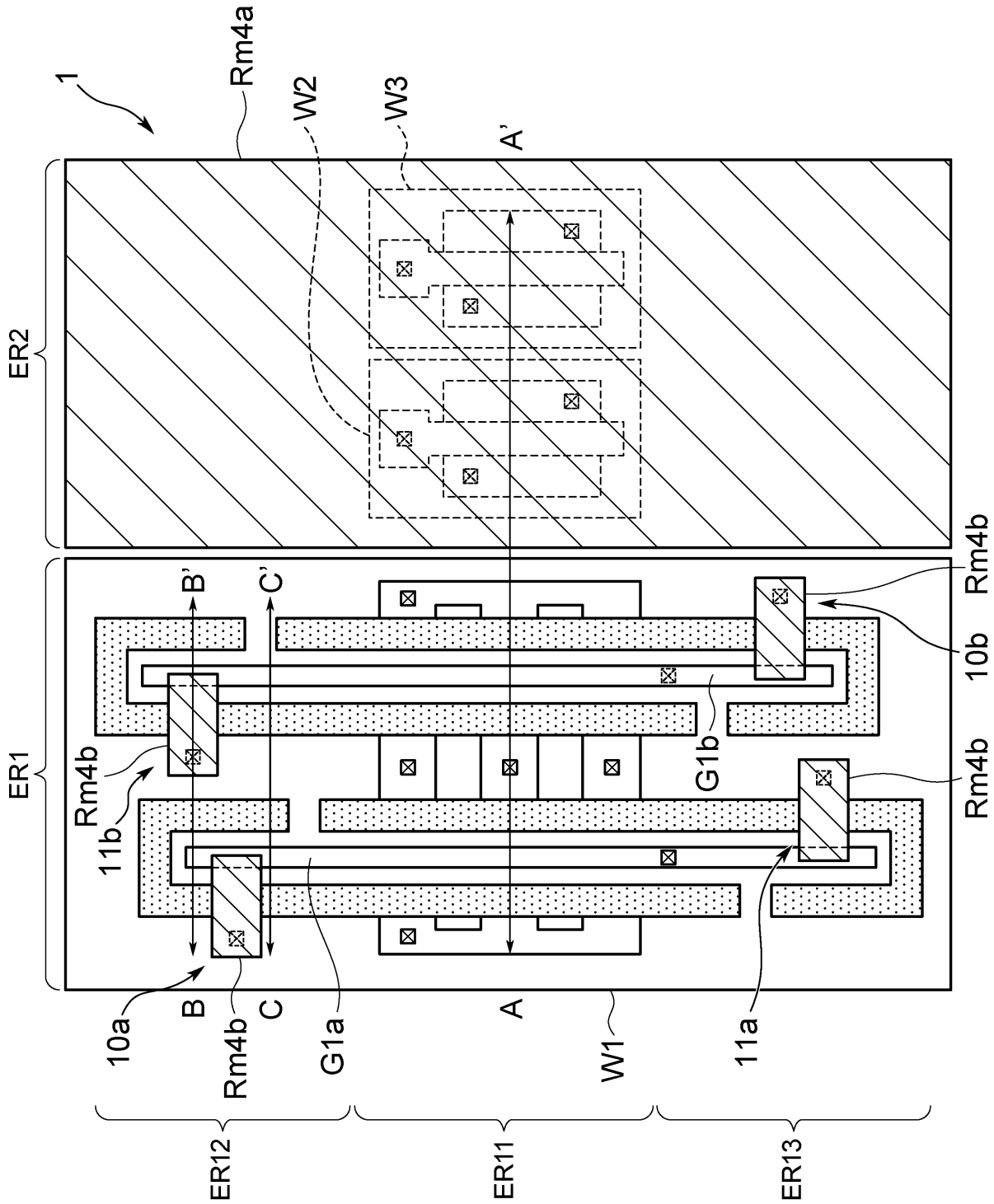

ER1
ER2
30d
EC
30d
G1a
G1b
37
29a
29b
EC
23b
23b
S
25a
23a
25b
W1
23a
25a
20
W2
20
W3

FIG. 9


1
Rm4a
W2
W3
A'
ER2
ER1
B'
C'
Rm4b
11b
10b
Rm4b
G1b
Rm4b
10a
B
Rm4b
C
G1a
A
W1
11a
ER12
ER11
ER13

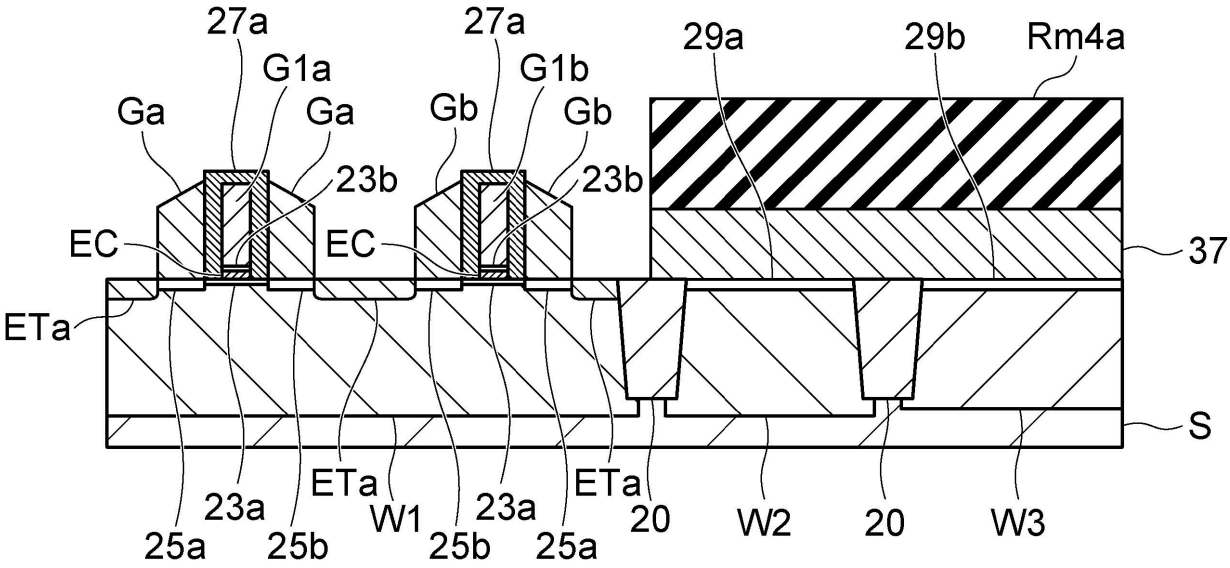


FIG. 10A

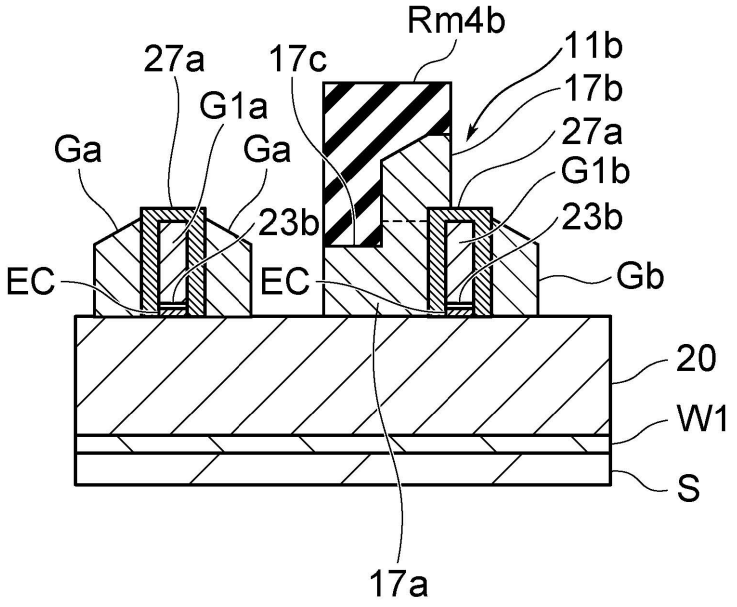


FIG. 10B

FIG. 11

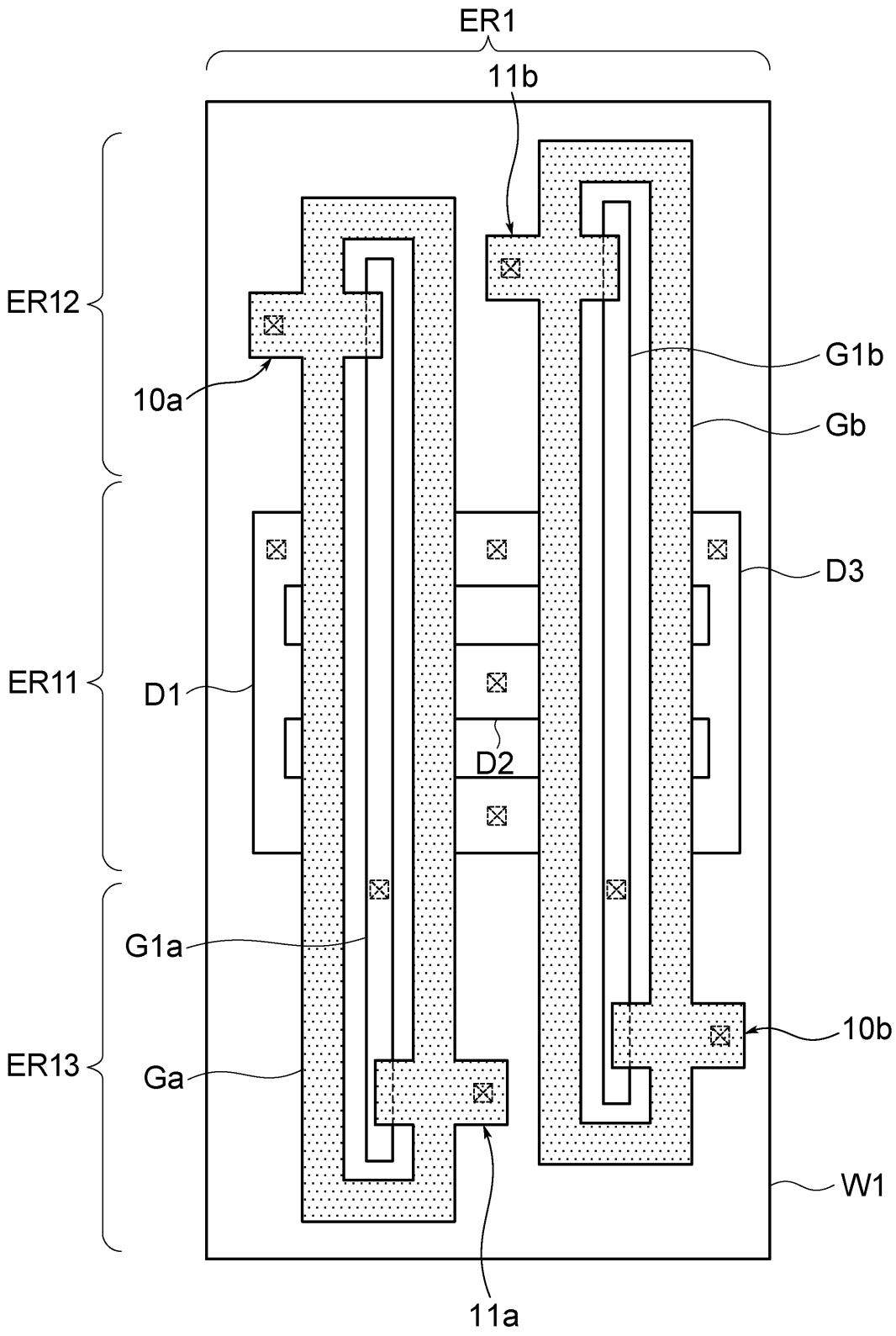
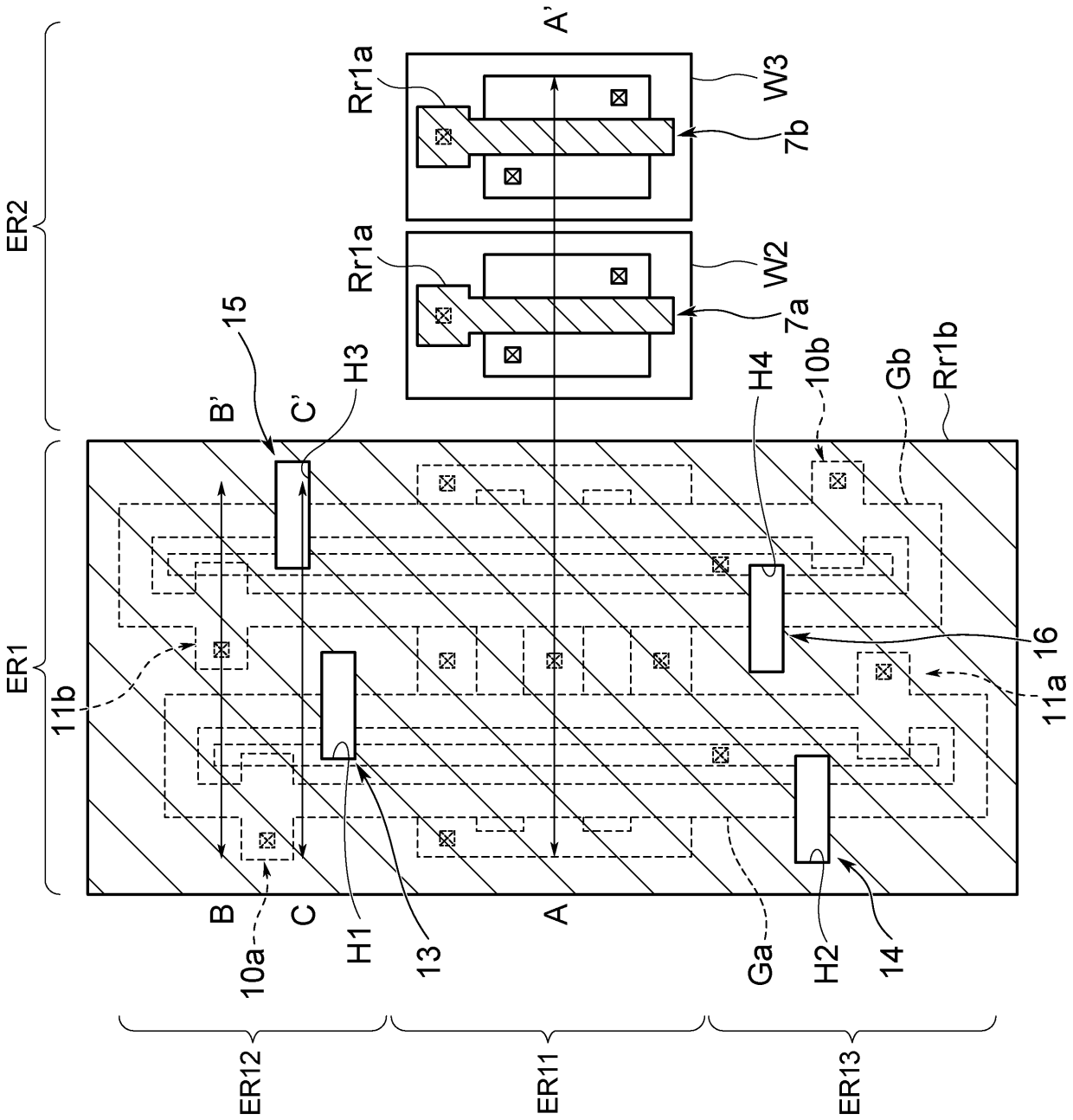


FIG. 12


ER2
ER1
ER12
ER11
ER13
A
A'
B
B'
C
C'
Rr1a
W3
7b
W2
7a
15
H3
H4
10b
Gb
Rr1b
11b
10a
H1
13
Ga
H2
14
16
11a

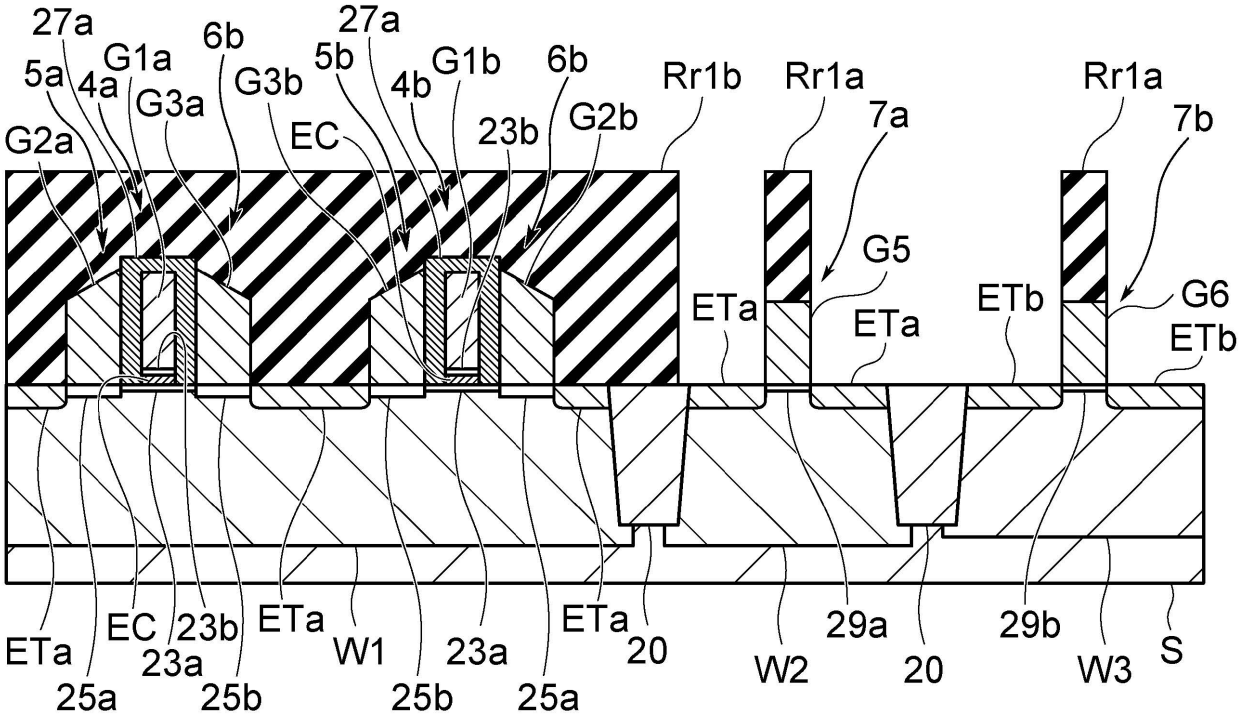


FIG. 13A

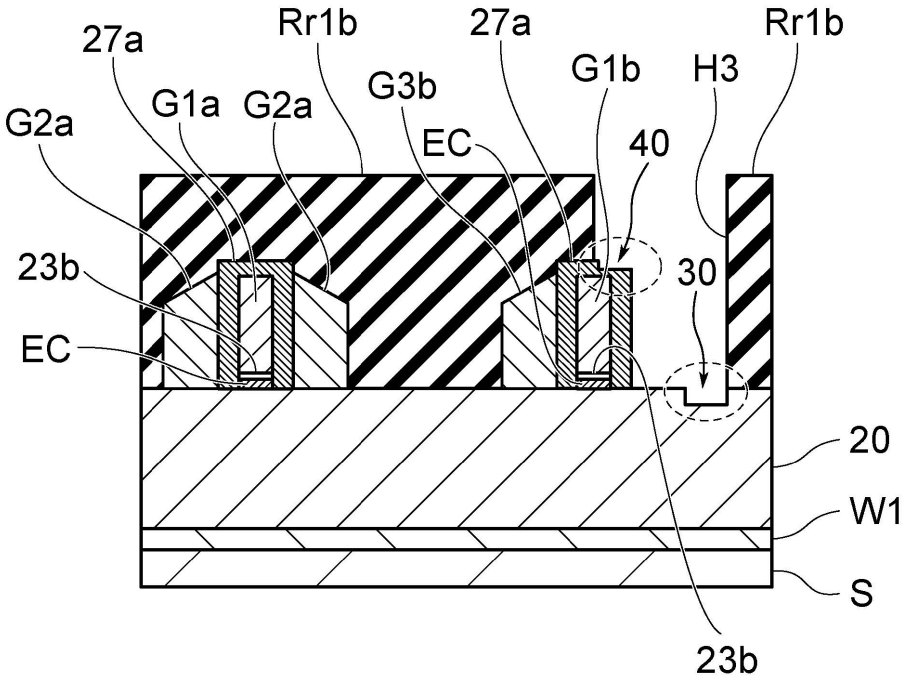


FIG. 13B