FIG. 1

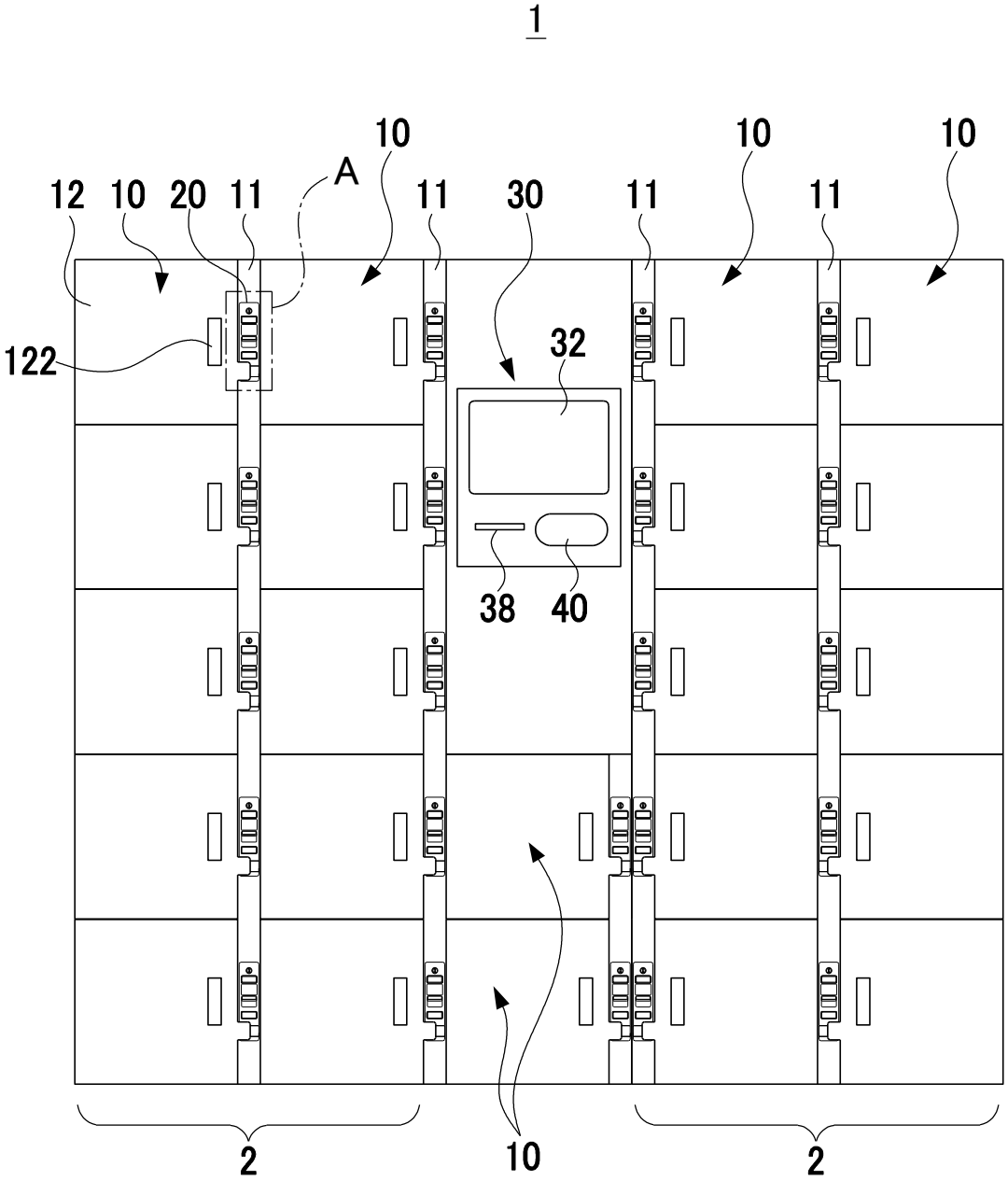


FIG. 2

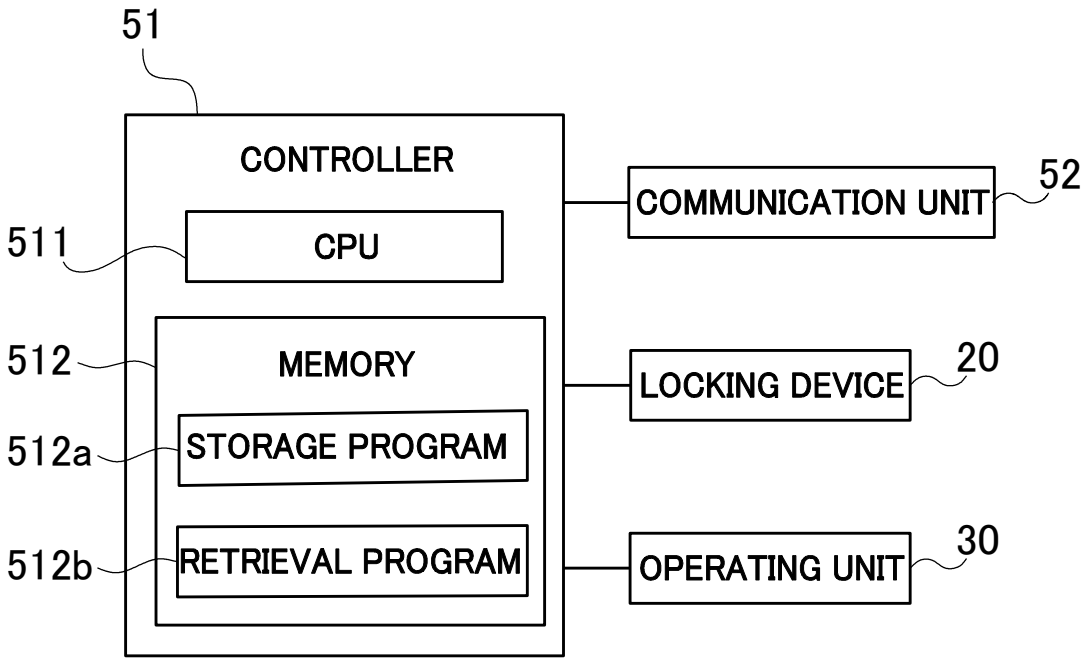

51
CONTROLLER
511
CPU
512
MEMORY
512a
STORAGE PROGRAM
512b
RETRIEVAL PROGRAM
COMMUNICATION UNIT
52
LOCKING DEVICE
20
OPERATING UNIT
30

FIG. 3

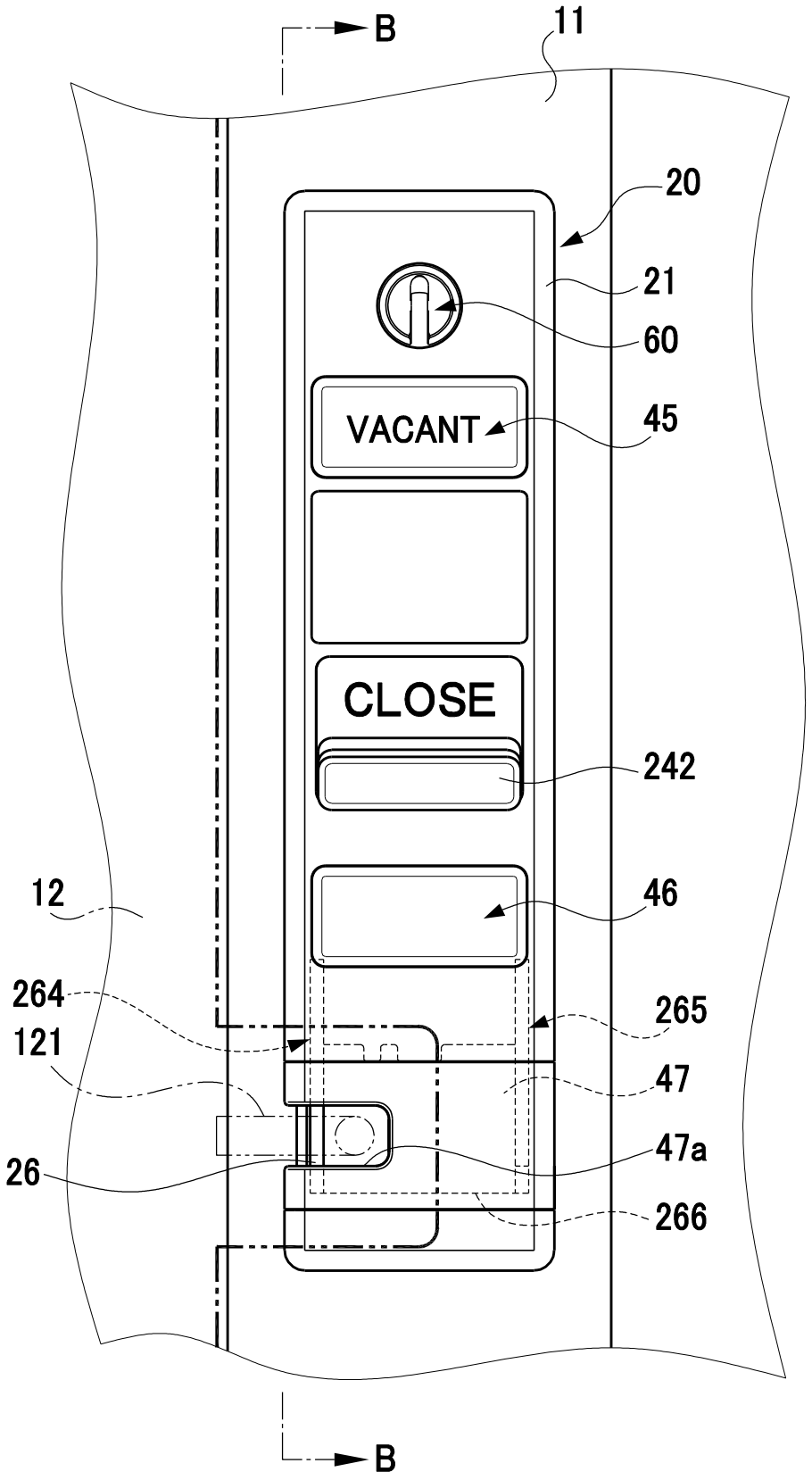


FIG. 4

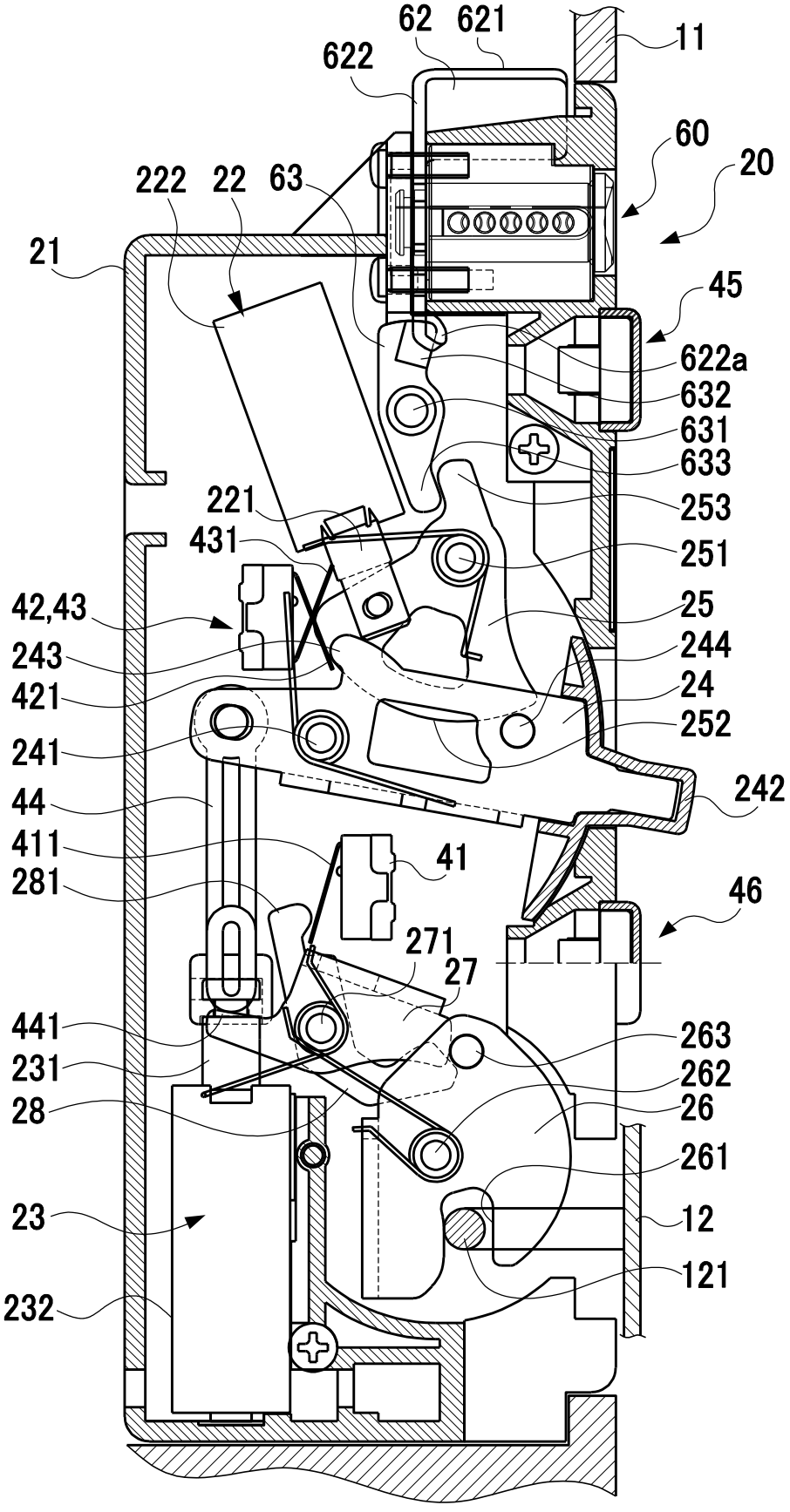

62
621
11
622
60
20
222
22
63
21
45
622a
632
631
633
221
253
431
251
42,43
25
243
244
421
24
252
241
242
44
411
41
281
46
271
27
441
263
231
262
28
26
261
23
12
121
232

FIG. 5

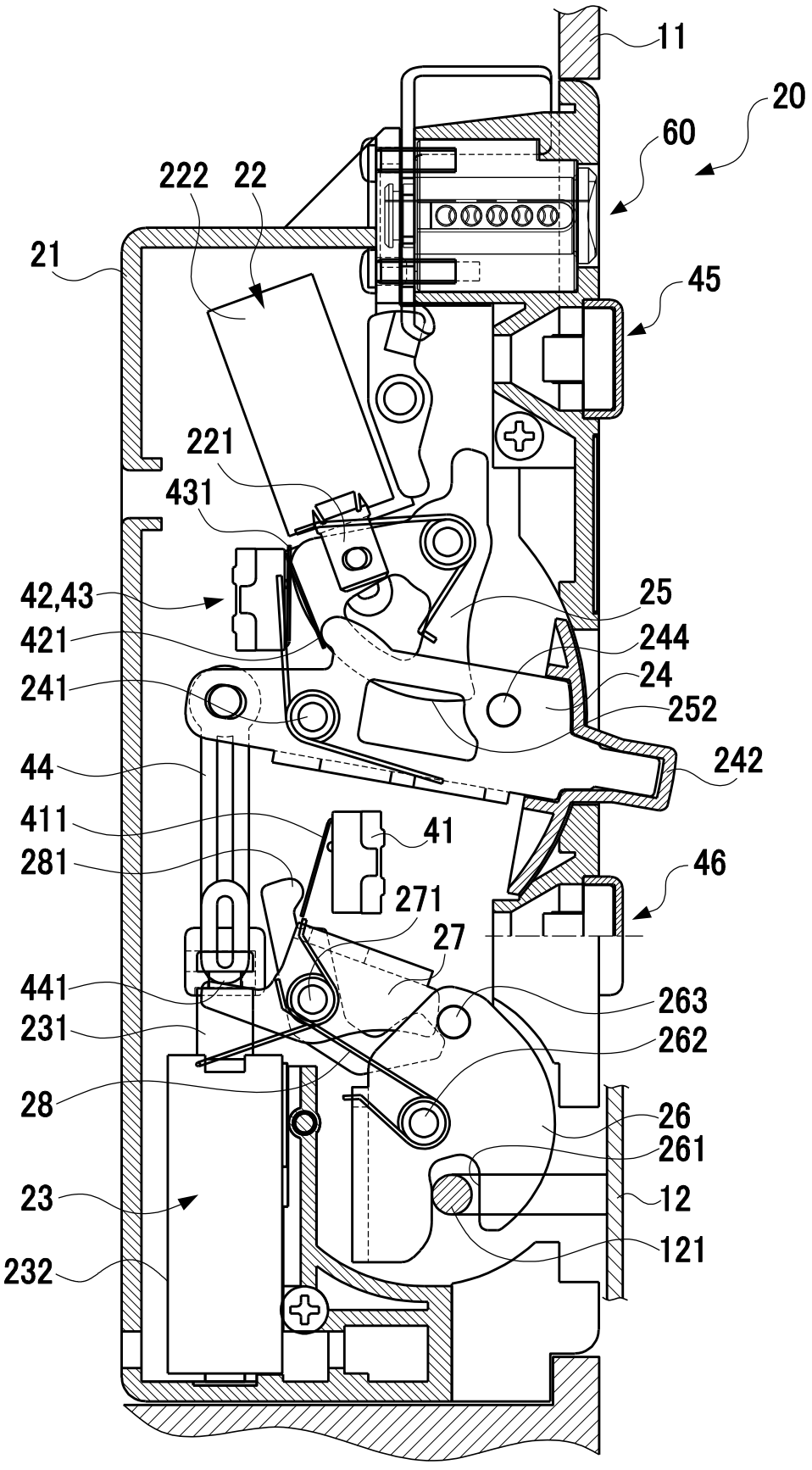

11
20
60
222
22
21
45
221
431
42,43
25
421
244
241
24
252
242
44
411
41
281
46
271
27
441
263
231
262
28
26
261
23
12
121
232

FIG. 6

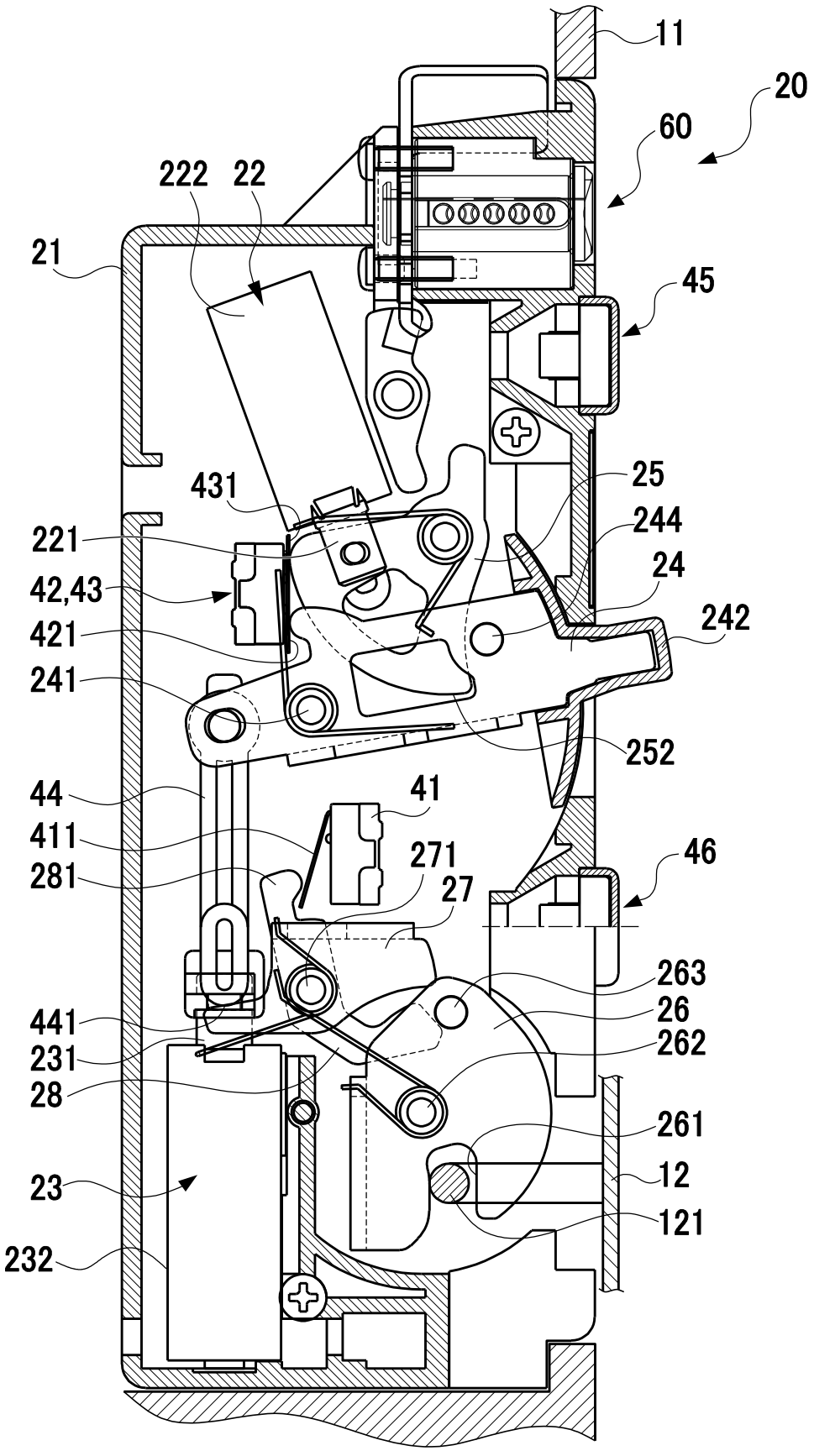

11
20
60
222
22
21
45
431
25
244
221
24
42,43
242
421
241
252
44
41
411
271
46
281
27
263
441
26
231
262
28
261
23
12
121
232

FIG. 7

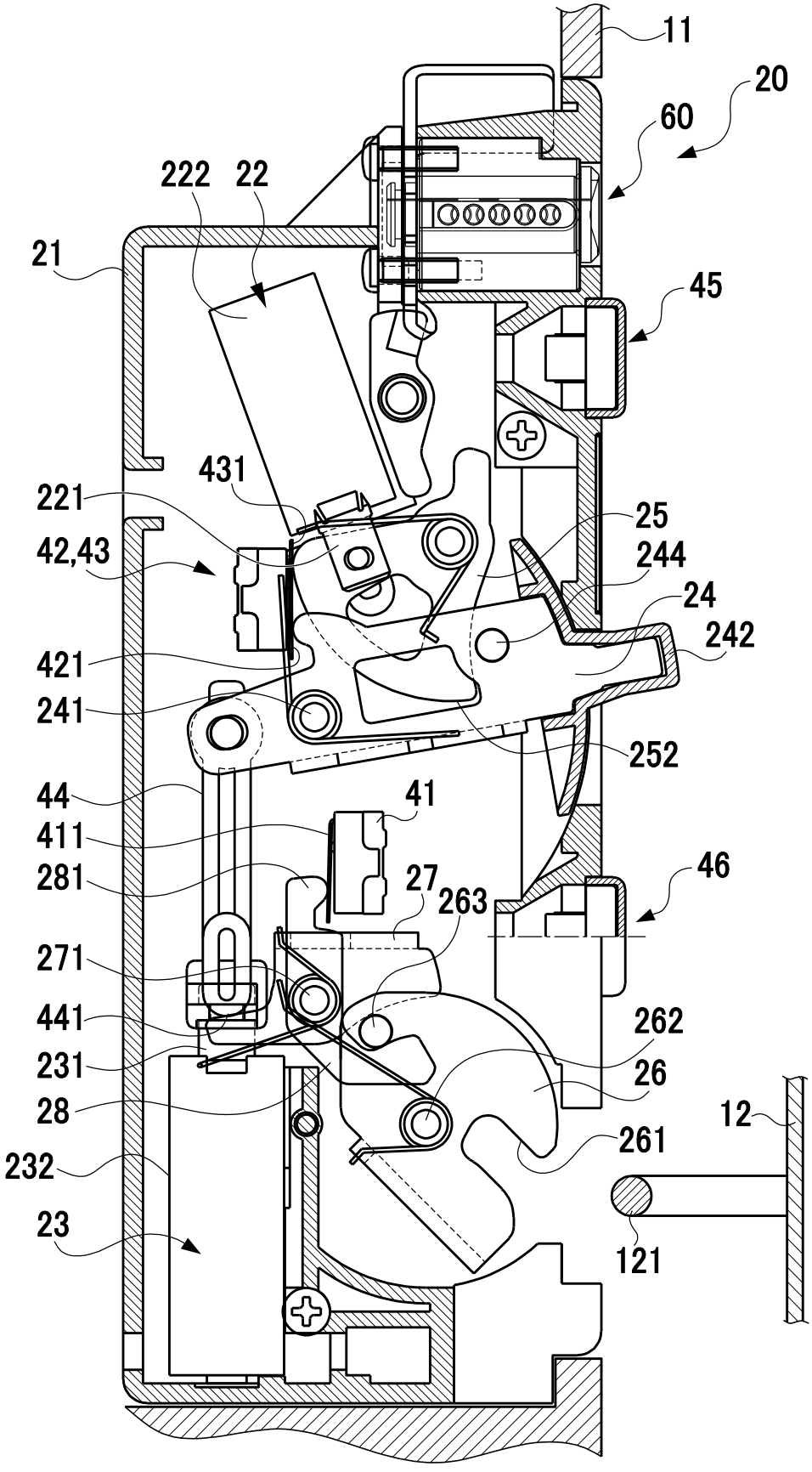

11
20
60
222
22
21
45
431
221
25
42,43
244
24
242
421
241
252
44
41
411
281
27
263
46
271
441
262
231
26
28
12
261
232
23
121

FIG. 8A

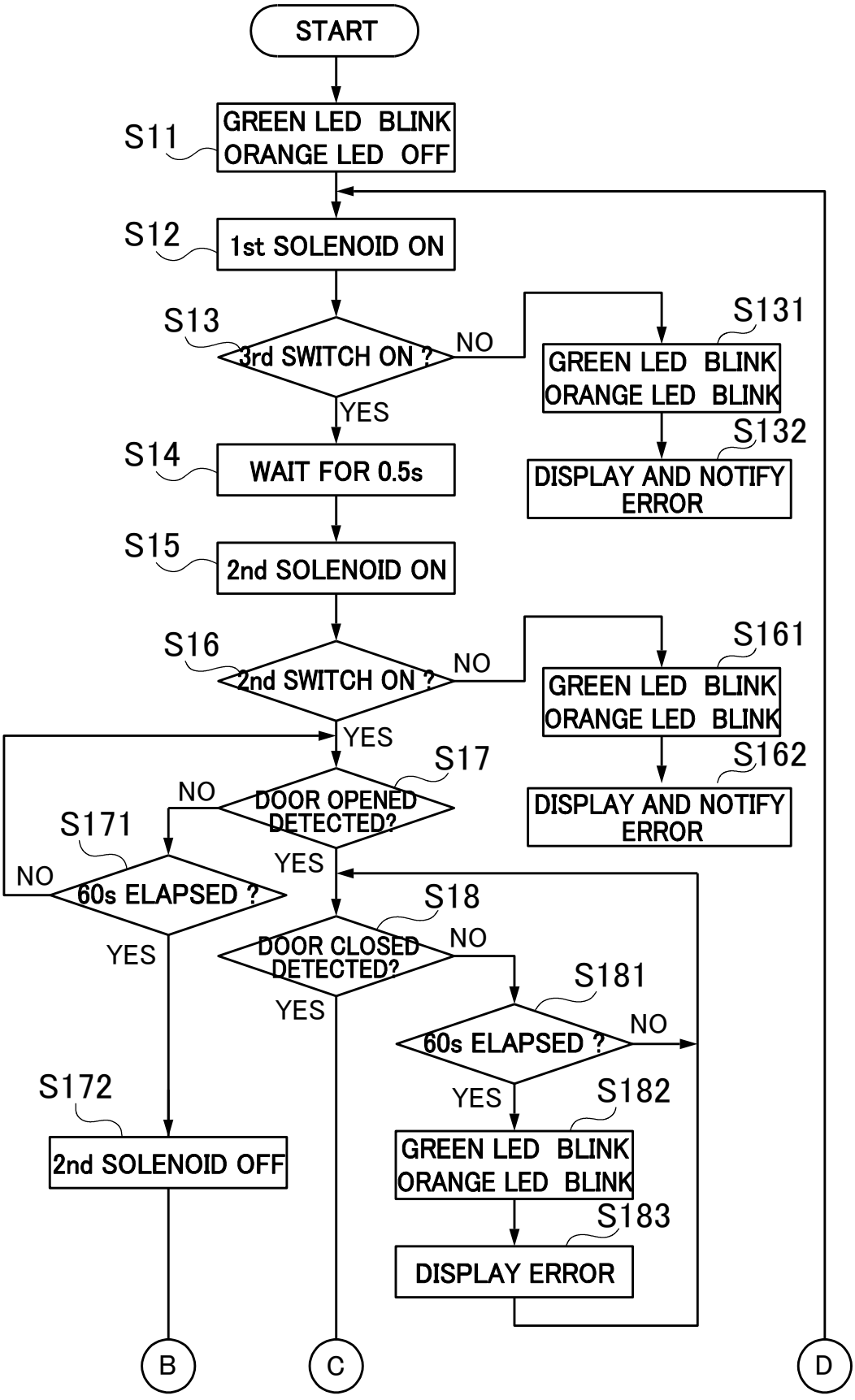

START
S11
GREEN LED BLINK
ORANGE LED OFF
S12
1st SOLENOID ON
S13
3rd SWITCH ON ?
NO
YES
S131
GREEN LED BLINK
ORANGE LED BLINK
S132
DISPLAY AND NOTIFY ERROR
S14
WAIT FOR 0.5s
S15
2nd SOLENOID ON
S16
2nd SWITCH ON ?
NO
YES
S161
GREEN LED BLINK
ORANGE LED BLINK
S162
DISPLAY AND NOTIFY ERROR
S17
DOOR OPENED DETECTED?
NO
YES
S171
60s ELAPSED ?
NO
YES
S172
2nd SOLENOID OFF
S18
DOOR CLOSED DETECTED?
NO
YES
S181
60s ELAPSED ?
NO
YES
S182
GREEN LED BLINK
ORANGE LED BLINK
S183
DISPLAY ERROR
B
C
D

FIG. 8B

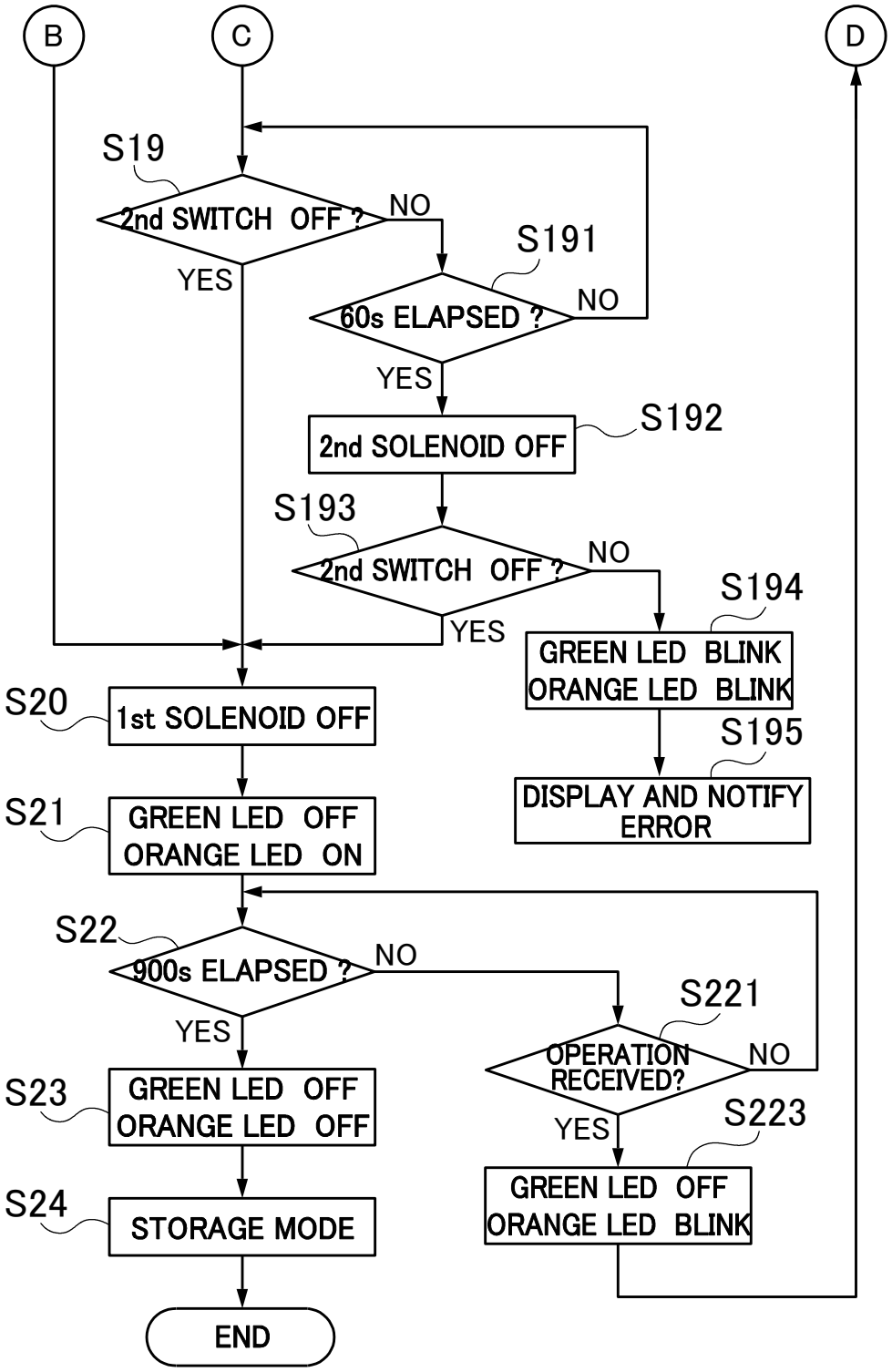

B
C
D
S19
2nd SWITCH OFF ?
NO
YES
S191
60s ELAPSED ?
NO
YES
S192
2nd SOLENOID OFF
S193
2nd SWITCH OFF ?
NO
YES
S194
GREEN LED BLINK
ORANGE LED BLINK
S195
DISPLAY AND NOTIFY ERROR
S20
1st SOLENOID OFF
S21
GREEN LED OFF
ORANGE LED ON
S22
900s ELAPSED ?
NO
YES
S221
OPERATION RECEIVED?
NO
YES
S223
GREEN LED OFF
ORANGE LED BLINK
S23
GREEN LED OFF
ORANGE LED OFF
S24
STORAGE MODE
END

FIG. 9A

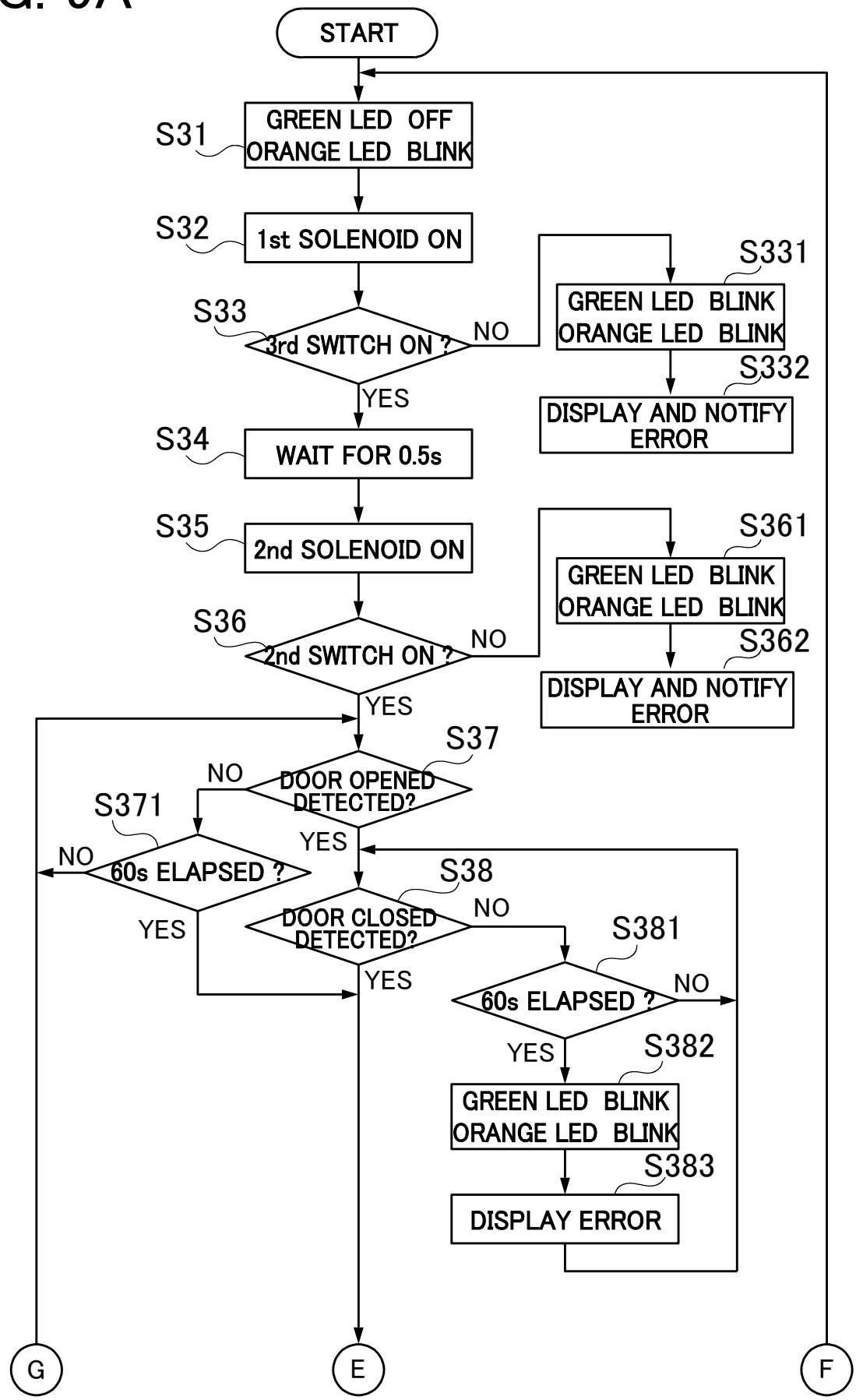

START
S31
GREEN LED OFF
ORANGE LED BLINK
S32
1st SOLENOID ON
S33
3rd SWITCH ON ?
NO
S331
GREEN LED BLINK
ORANGE LED BLINK
S332
DISPLAY AND NOTIFY ERROR
YES
S34
WAIT FOR 0.5s
S35
2nd SOLENOID ON
S36
2nd SWITCH ON ?
NO
S361
GREEN LED BLINK
ORANGE LED BLINK
S362
DISPLAY AND NOTIFY ERROR
YES
S37
DOOR OPENED DETECTED?
NO
S371
60s ELAPSED ?
NO
YES
YES
S38
DOOR CLOSED DETECTED?
NO
S381
60s ELAPSED ?
NO
YES
S382
GREEN LED BLINK
ORANGE LED BLINK
S383
DISPLAY ERROR
YES
G
E
F

FIG. 9B

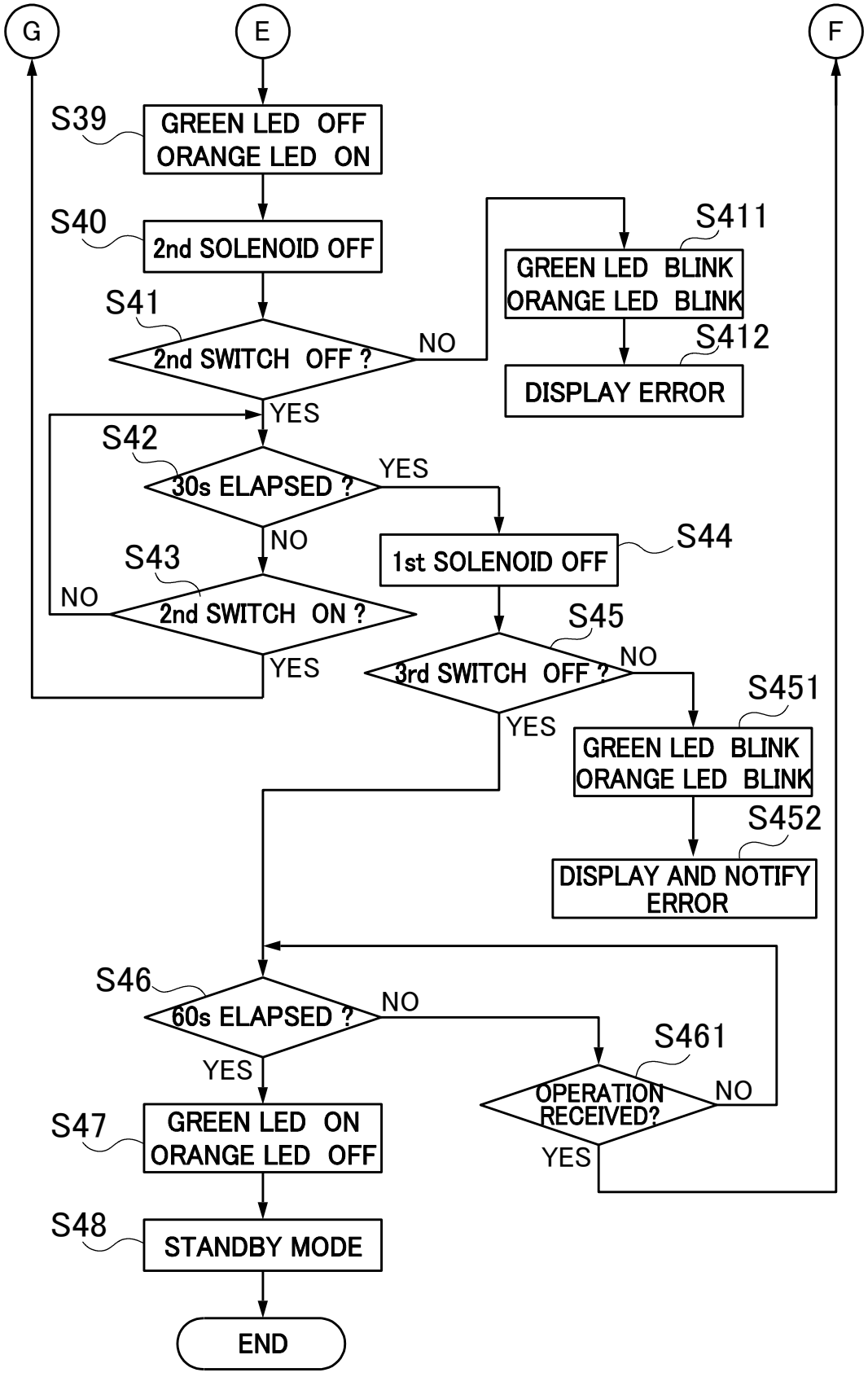

G
E
F
S39
GREEN LED OFF
ORANGE LED ON
S40
2nd SOLENOID OFF
S41
2nd SWITCH OFF ?
NO
S411
GREEN LED BLINK
ORANGE LED BLINK
S412
DISPLAY ERROR
YES
S42
30s ELAPSED ?
YES
NO
S43
2nd SWITCH ON ?
NO
YES
S44
1st SOLENOID OFF
S45
3rd SWITCH OFF ?
NO
YES
S451
GREEN LED BLINK
ORANGE LED BLINK
S452
DISPLAY AND NOTIFY
ERROR
S46
60s ELAPSED ?
NO
YES
S461
OPERATION
RECEIVED?
NO
YES
S47
GREEN LED ON
ORANGE LED OFF
S48
STANDBY MODE
END

FIG. 10

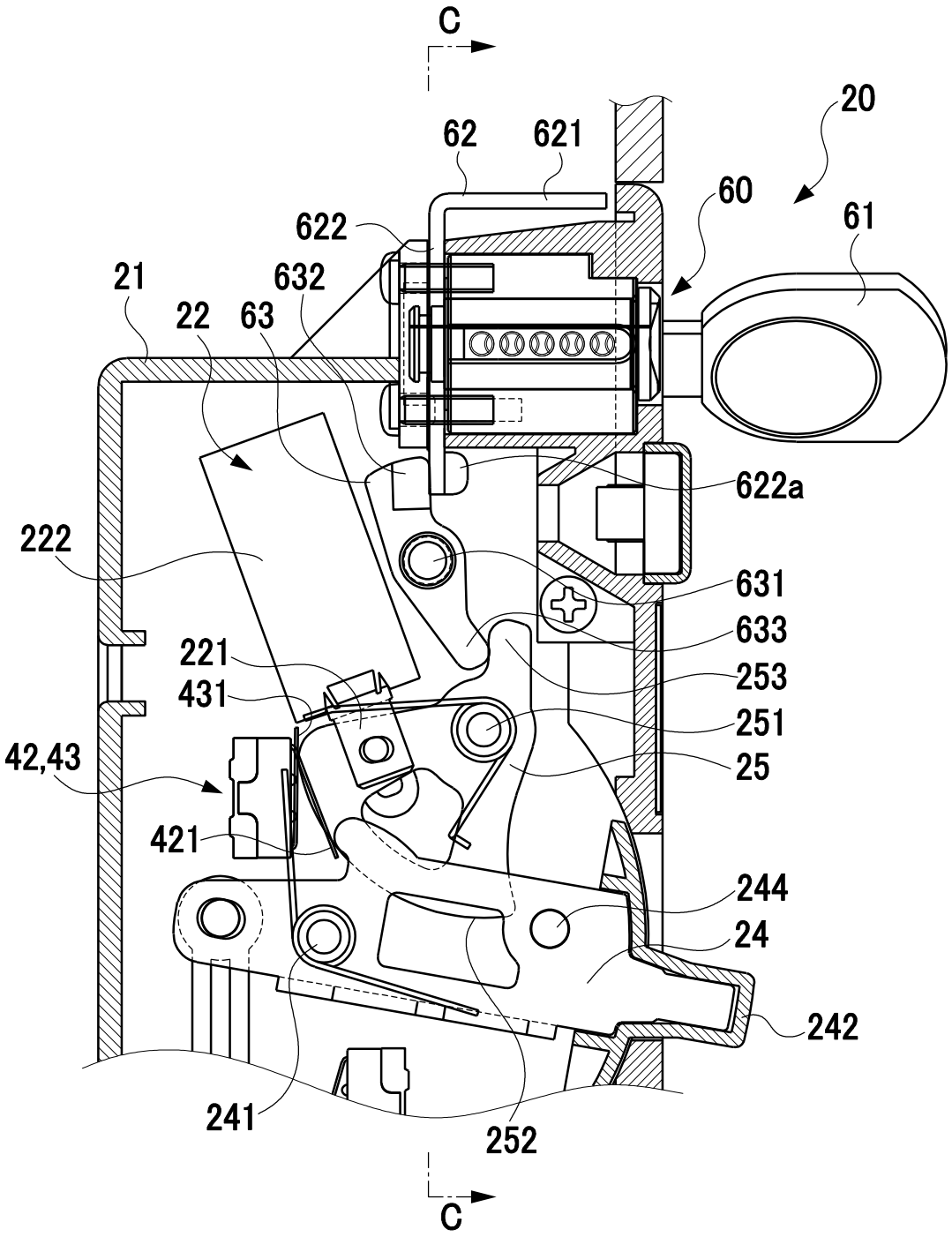

C
20
62
621
60
61
622
21
632
22
63
622a
222
631
633
221
253
431
251
42,43
25
421
244
24
242
241
252
C

FIG. 11A

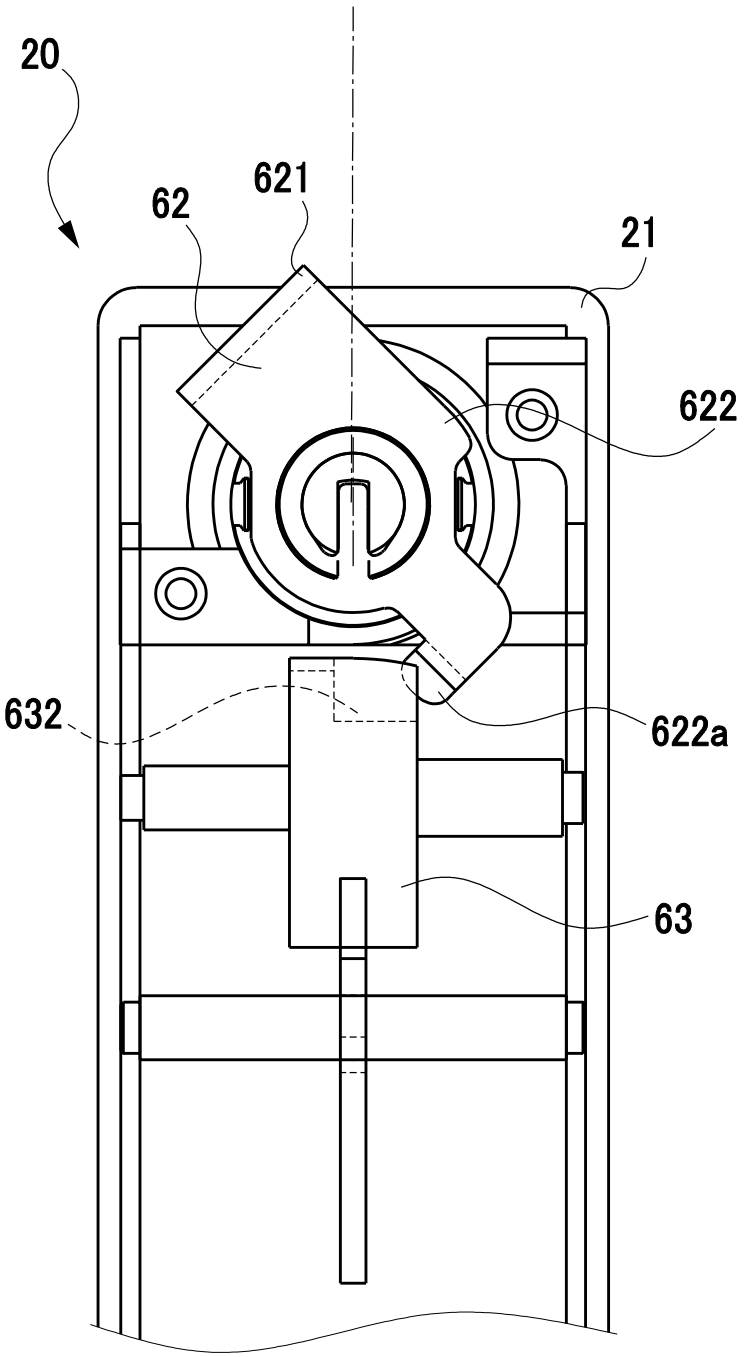


FIG. 11B

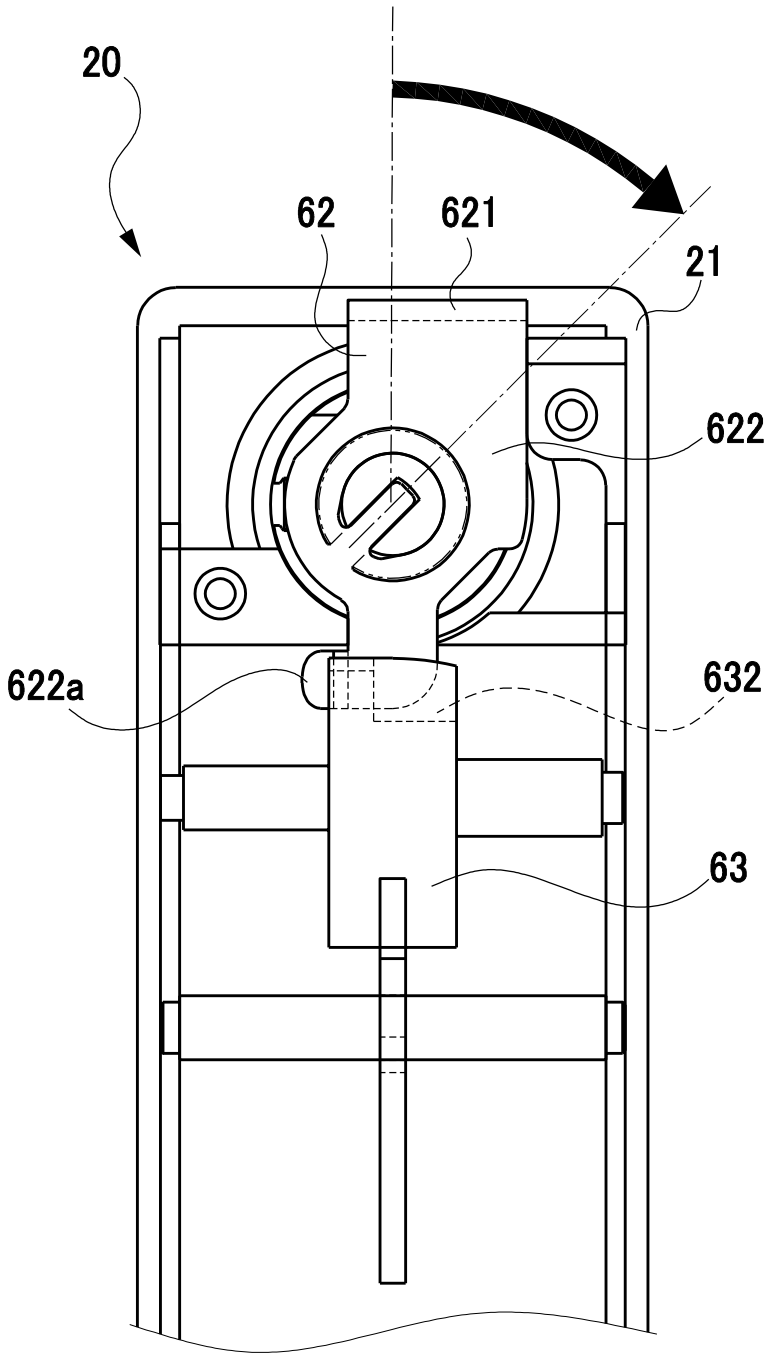


FIG. 11C

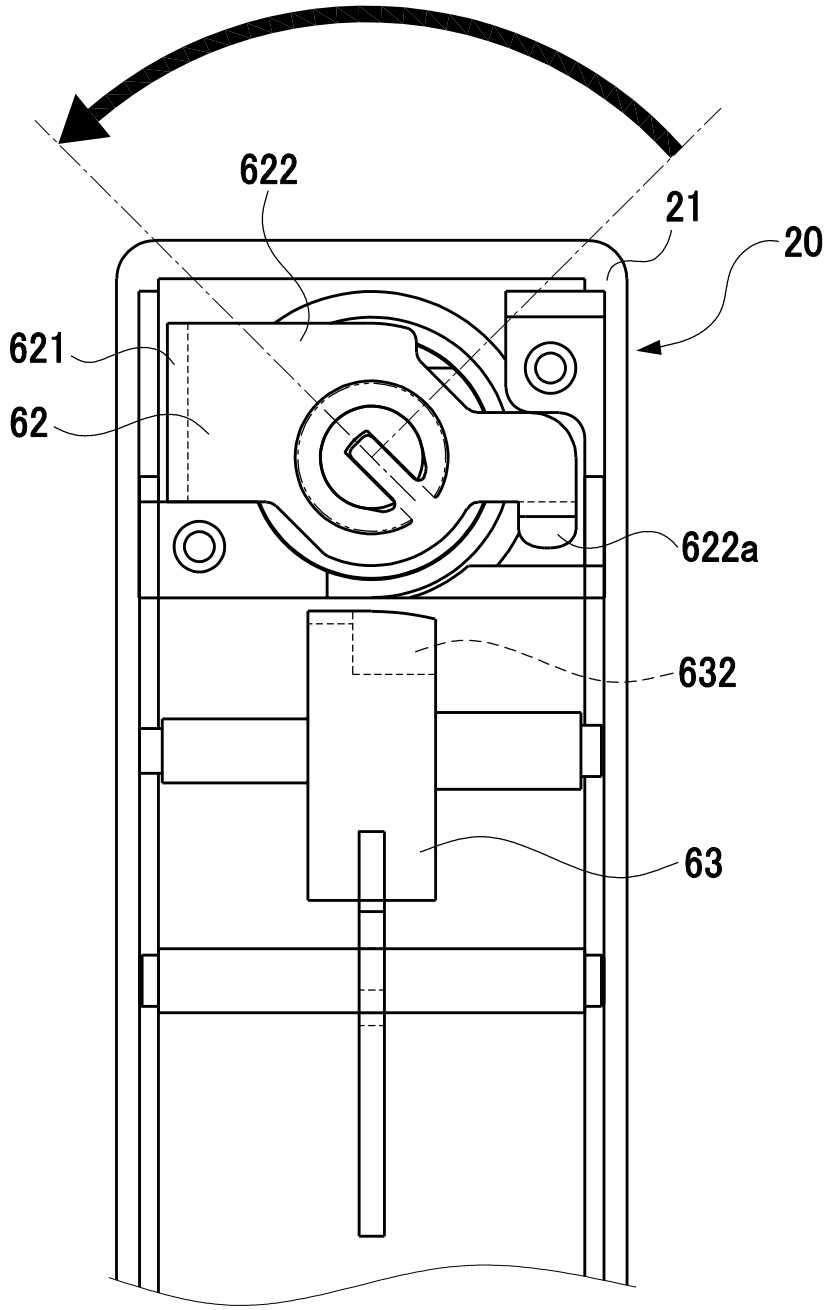


FIG. 12

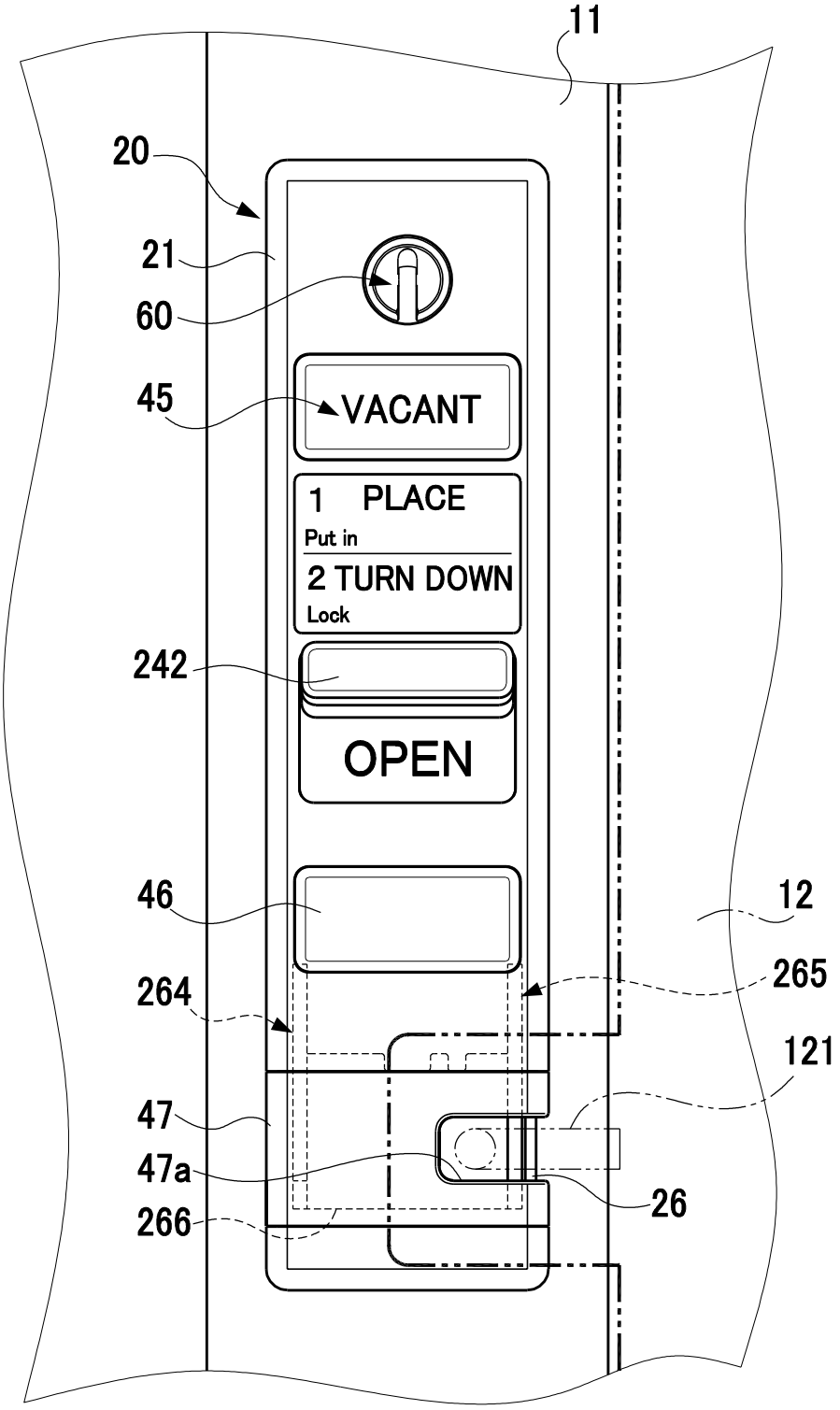

11
20
21
60
45
VACANT
1 PLACE
Put in
2 TURN DOWN
Lock
242
OPEN
46
12
265
264
121
47
47a
26
266

FIG. 13A

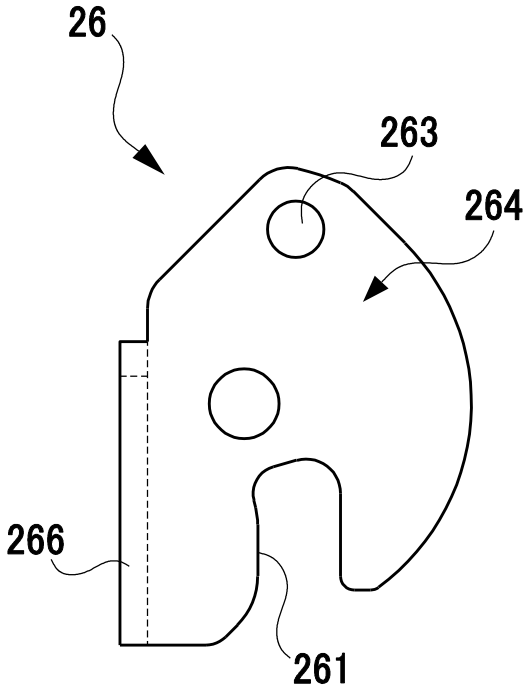


FIG. 13B

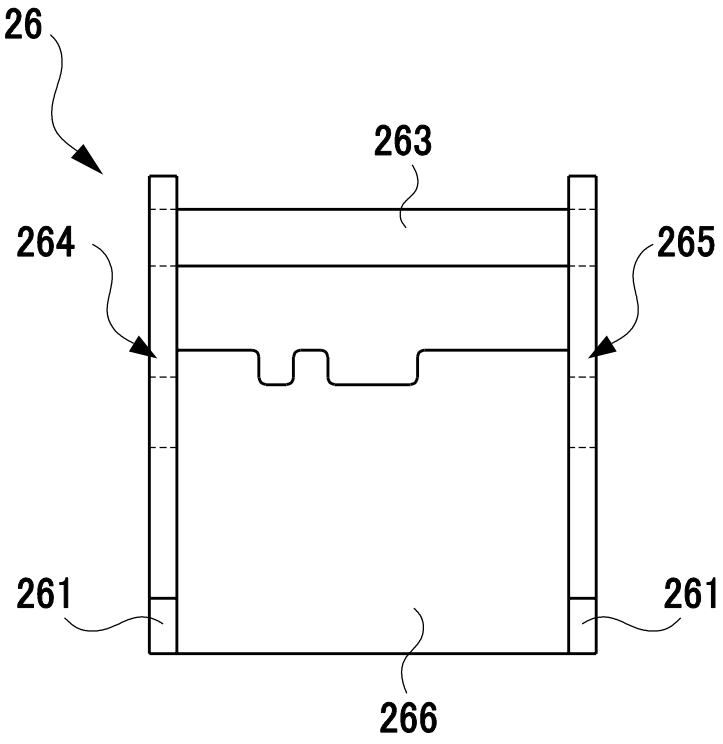


FIG. 13C

