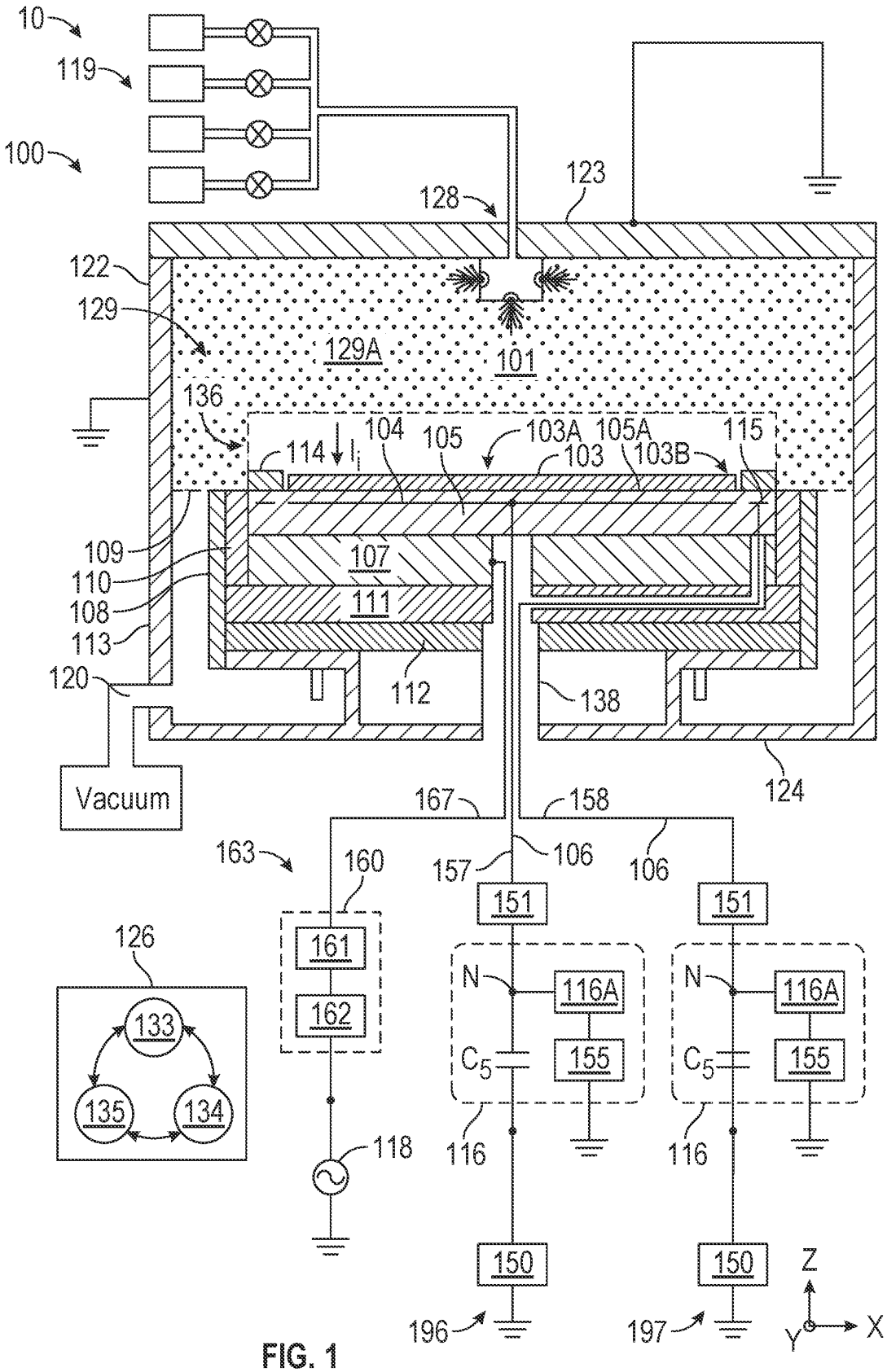

10
119
100
123
128
122
129
129A
101
136
114
I_i
104
105
103A
105A
103
103B
115
109
110
108
113
107
111
112
138
120
Vacuum
124
167
158
163
160
157
106
106
151
151
126
161
162
N
116A
C_5
155
N
116A
C_5
155
133
135
134
118
116
116
150
150
196
197
Z
Y
X

FIG. 1

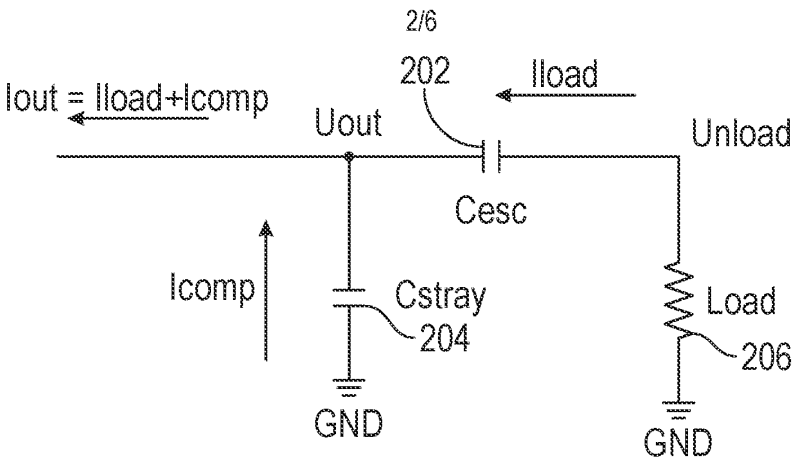


FIG. 2

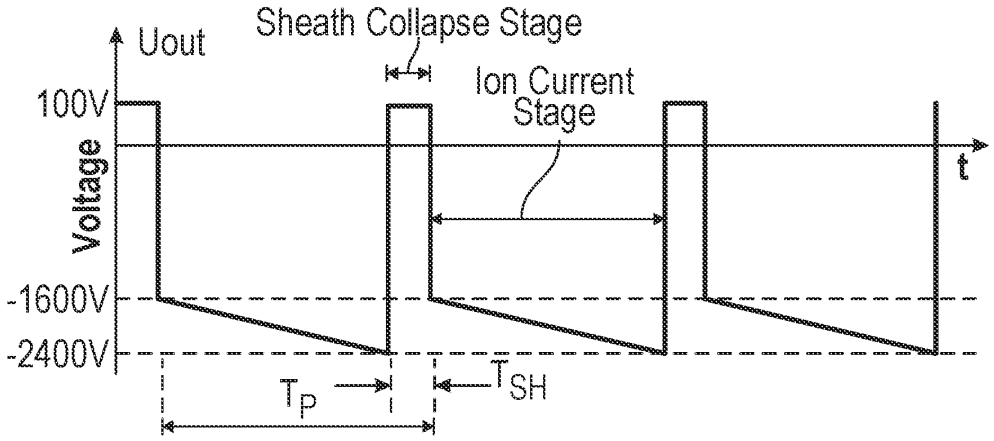


FIG. 3A

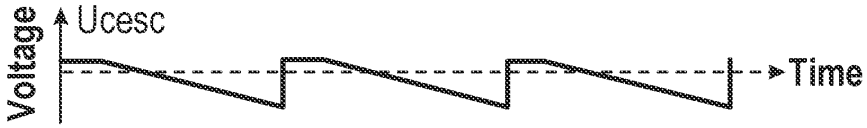


FIG. 3B



FIG. 3C

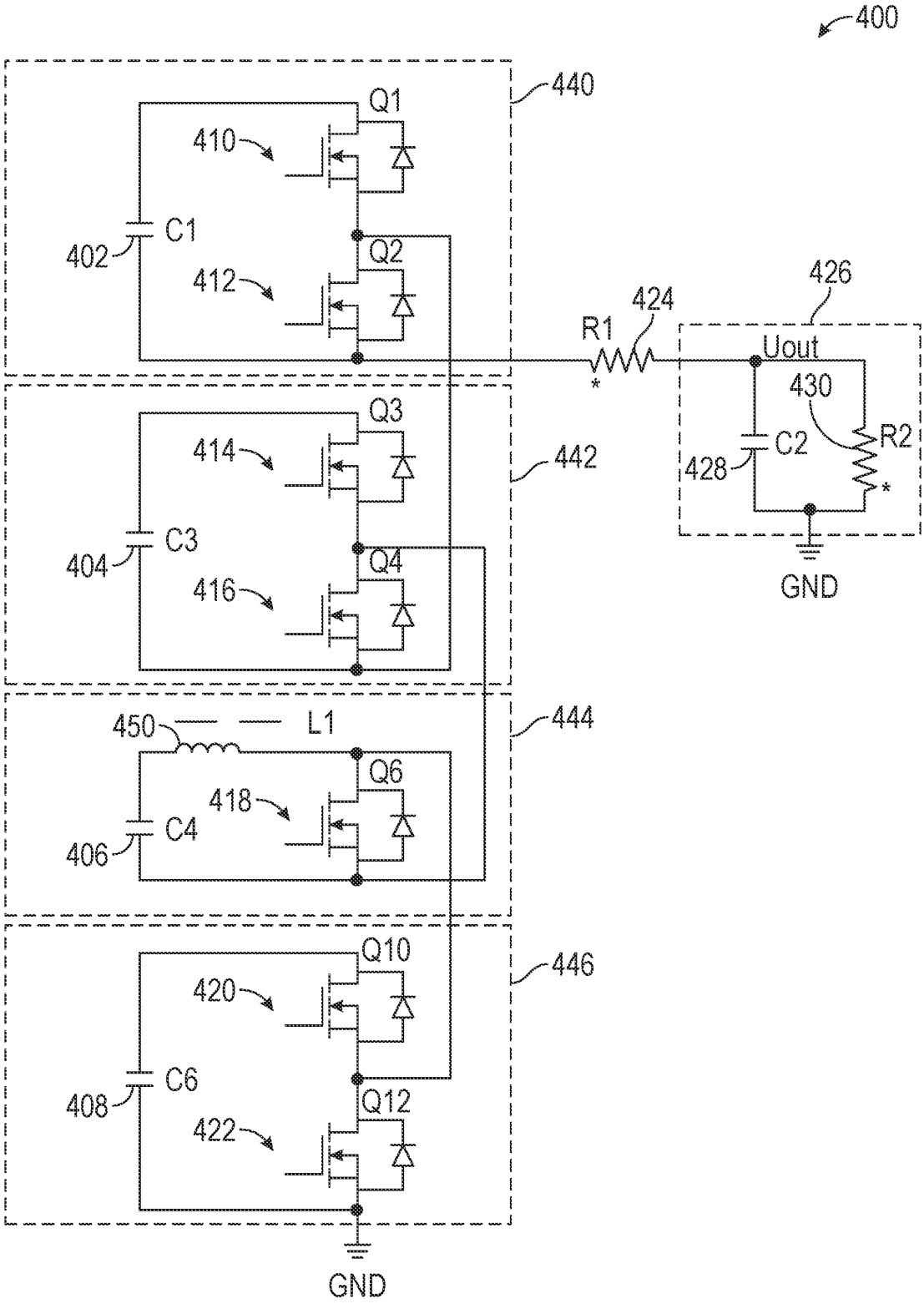

400
440
Q1
410
C1
402
Q2
412
426
424
R1
*
Uout
430
R2
C2
428
*
GND
442
Q3
414
C3
404
Q4
416
444
450
L1
Q6
418
C4
406
446
Q10
420
C6
408
Q12
422
GND

FIG. 4

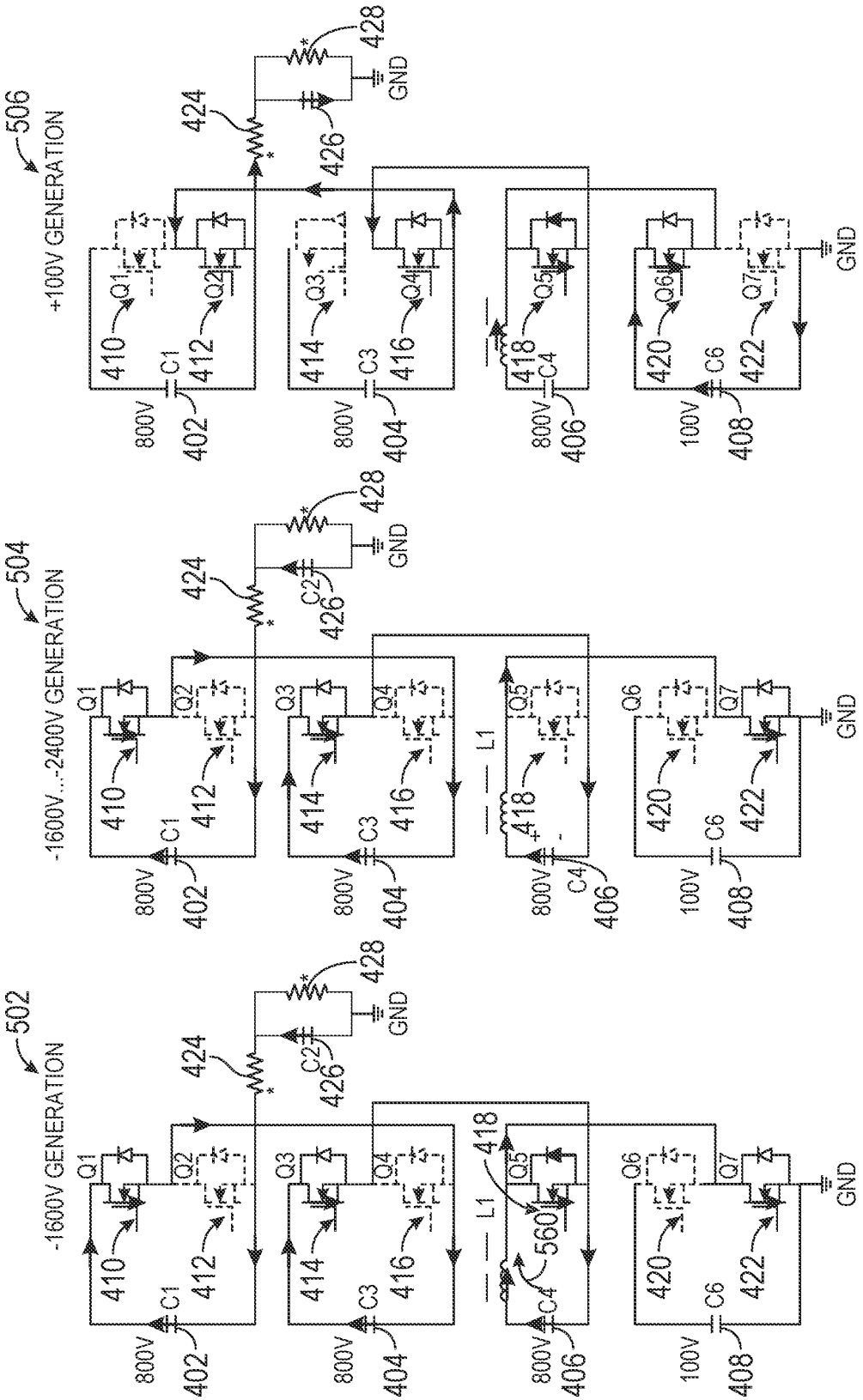

502
-1600V GENERATION
504
-1600V...-2400V GENERATION
506
+100V GENERATION
Q1
Q2
Q3
Q4
Q5
Q6
Q7
410
412
414
416
418
420
422
C1
C2
C3
C4
C6
800V
100V
402
404
406
408
424
426
428
GND
L1
560

FIG. 5A

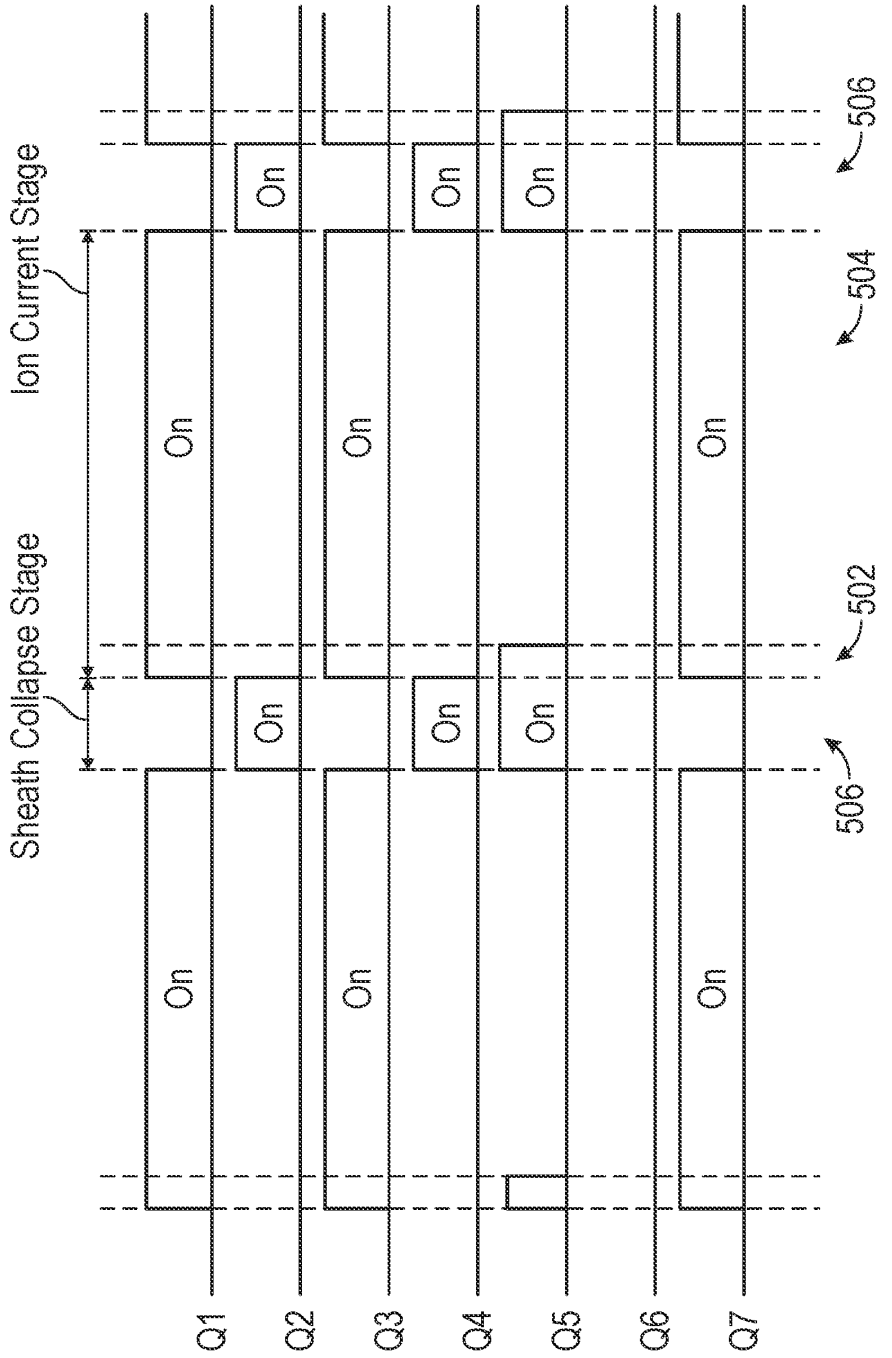

Ion Current Stage
Sheath Collapse Stage
On
Q1
Q2
Q3
Q4
Q5
Q6
Q7
502
504
506
506
Time

FIG. 5B

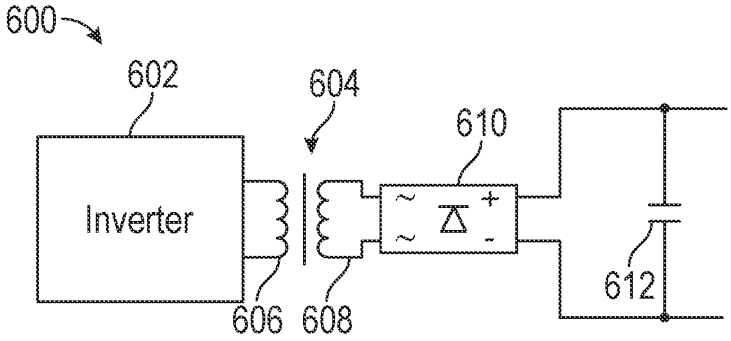

600
602
604
610
Inverter
612
606
608

FIG. 6

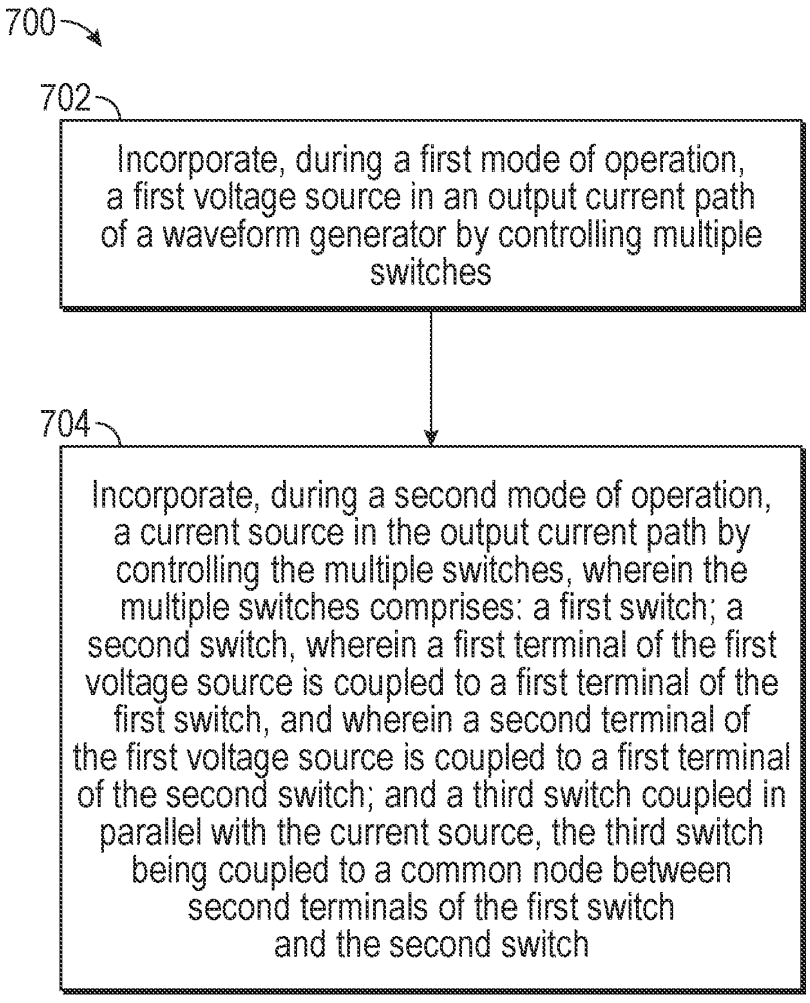

700
702
Incorporate, during a first mode of operation, a first voltage source in an output current path of a waveform generator by controlling multiple switches
704
Incorporate, during a second mode of operation, a current source in the output current path by controlling the multiple switches, wherein the multiple switches comprises: a first switch; a second switch, wherein a first terminal of the first voltage source is coupled to a first terminal of the first switch, and wherein a second terminal of the first voltage source is coupled to a first terminal of the second switch; and a third switch coupled in parallel with the current source, the third switch being coupled to a common node between second terminals of the first switch and the second switch

FIG. 7