Fig. 1

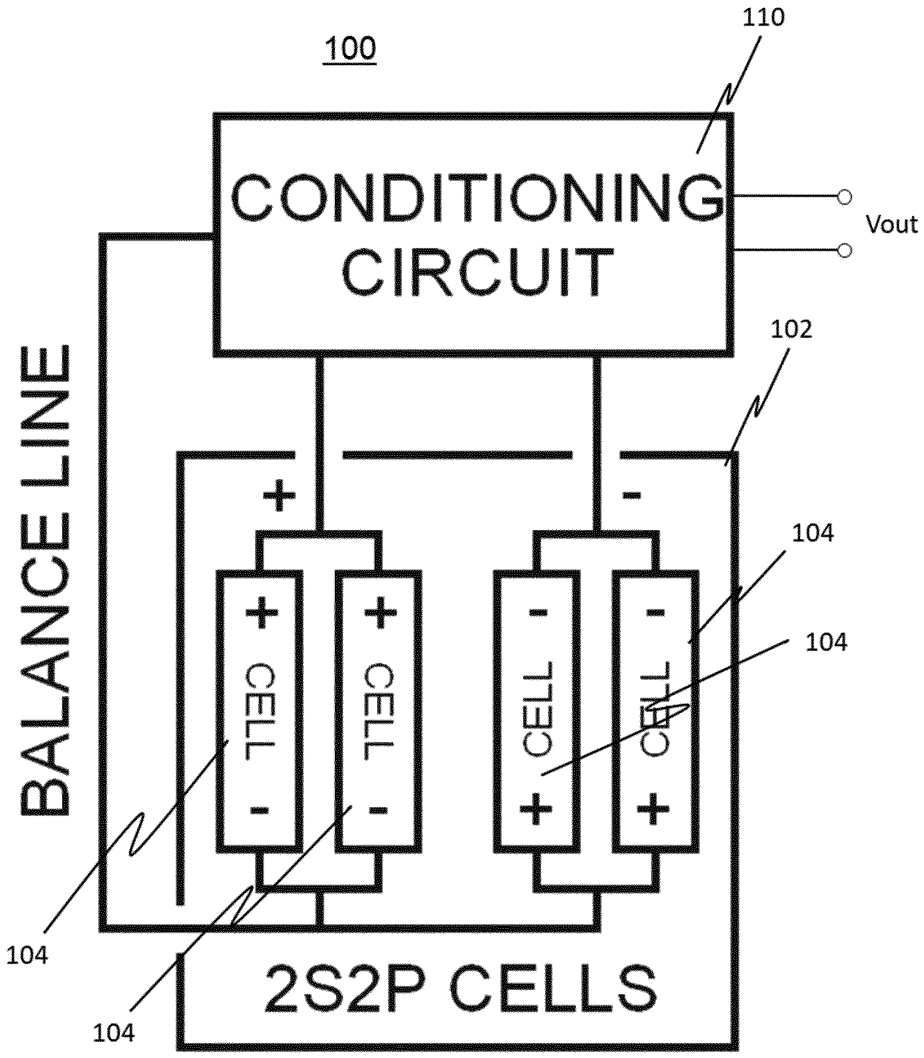

100
110
CONDITIONING CIRCUIT
Vout
102
BALANCE LINE
+
-
CELL
CELL
CELL
CELL
104
104
104
2S2P CELLS

Fig. 2

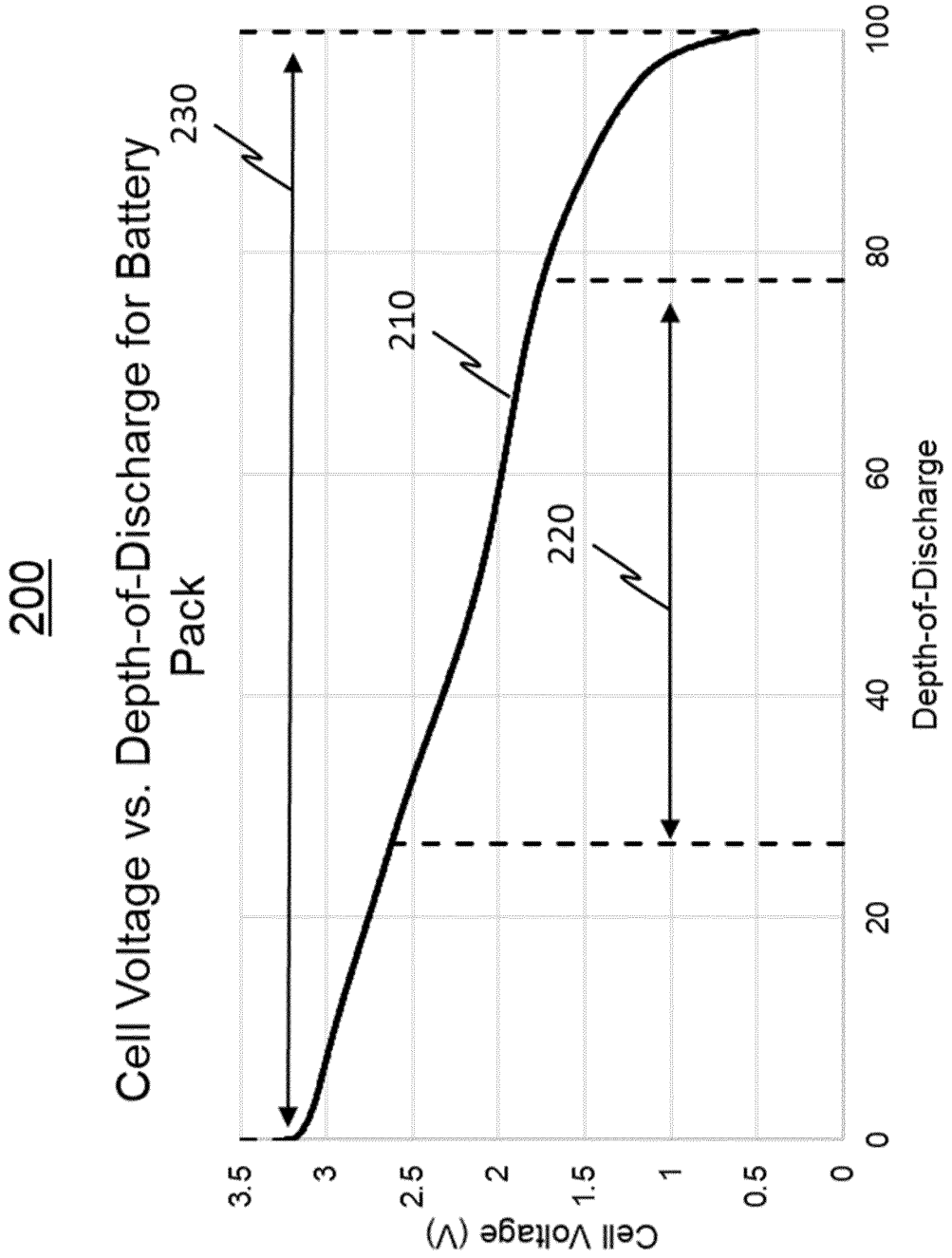

200
Cell Voltage vs. Depth-of-Discharge for Battery Pack
230
210
220
Cell Voltage (V)
3.5
3
2.5
2
1.5
1
0.5
0
Depth-of-Discharge
0
20
40
60
80
100

Fig. 3

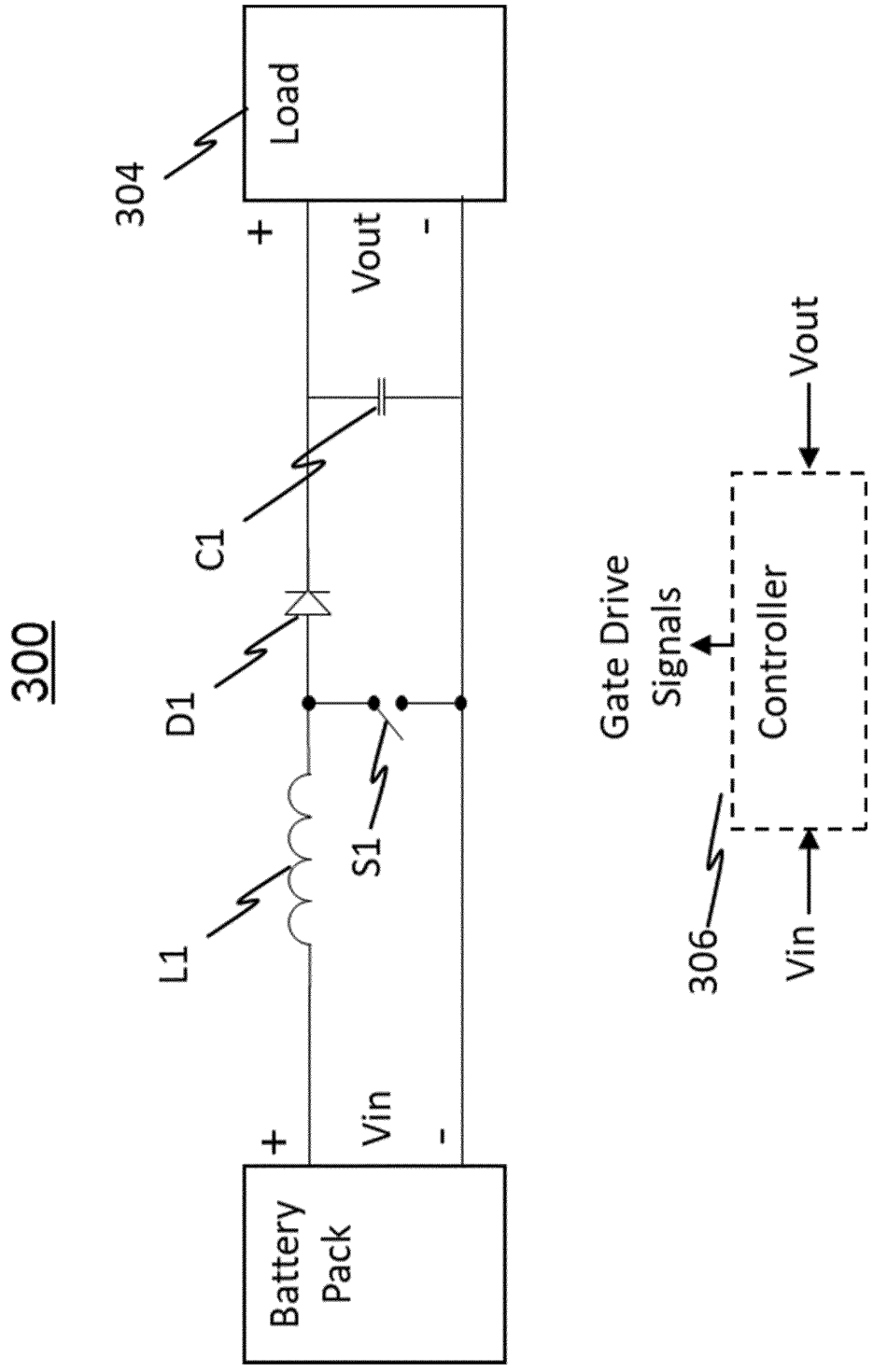

300
304
Load
+
Vout
-
C1
D1
L1
S1
+
Vin
-
Battery Pack
Gate Drive Signals
Controller
306
Vout
Vin

Fig. 4

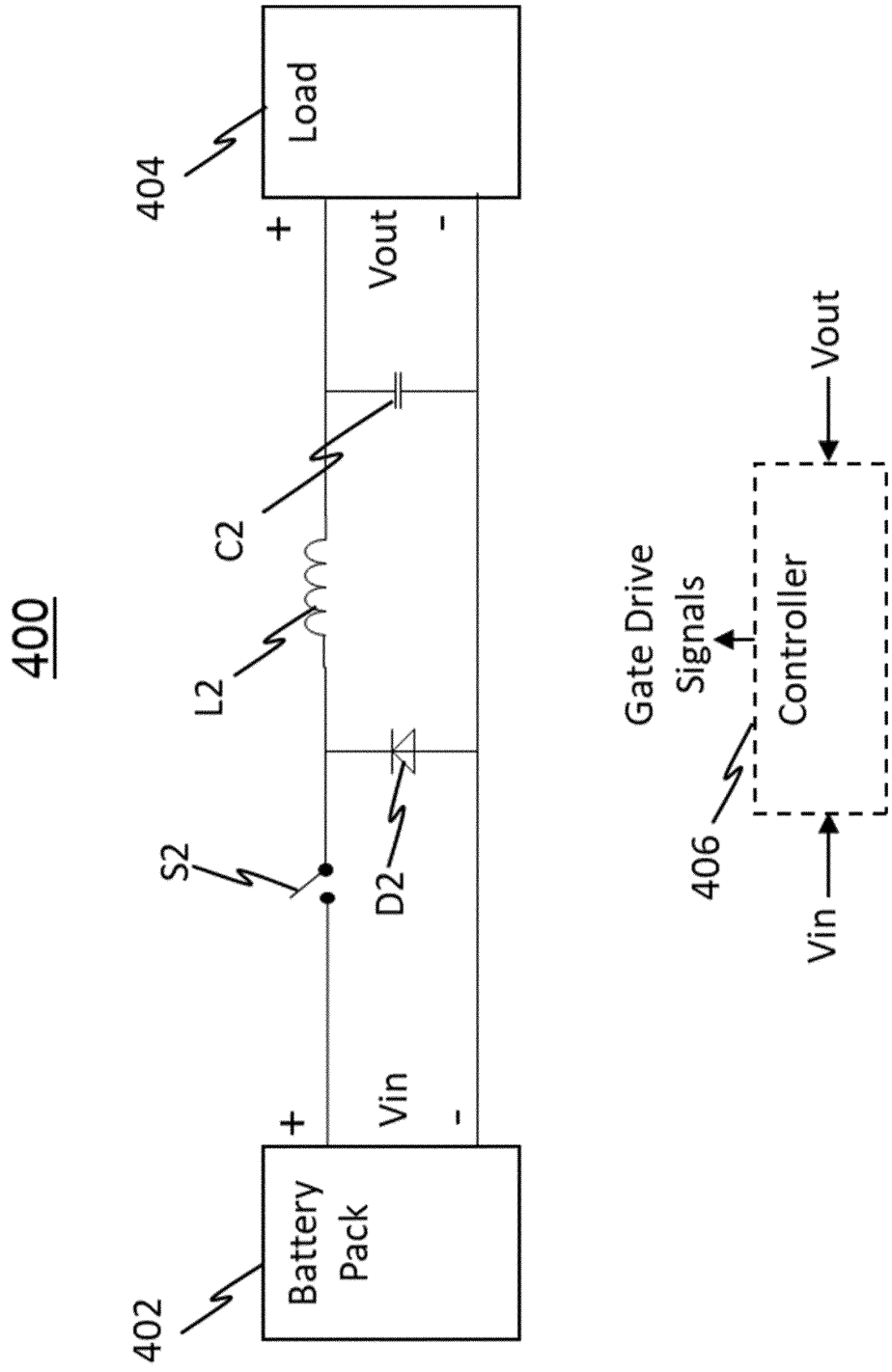

400
Load
404
+
Vout
-
C2
L2
S2
D2
+
Vin
-
Battery Pack
402
Gate Drive Signals
Controller
406
Vout
Vin

Fig. 5

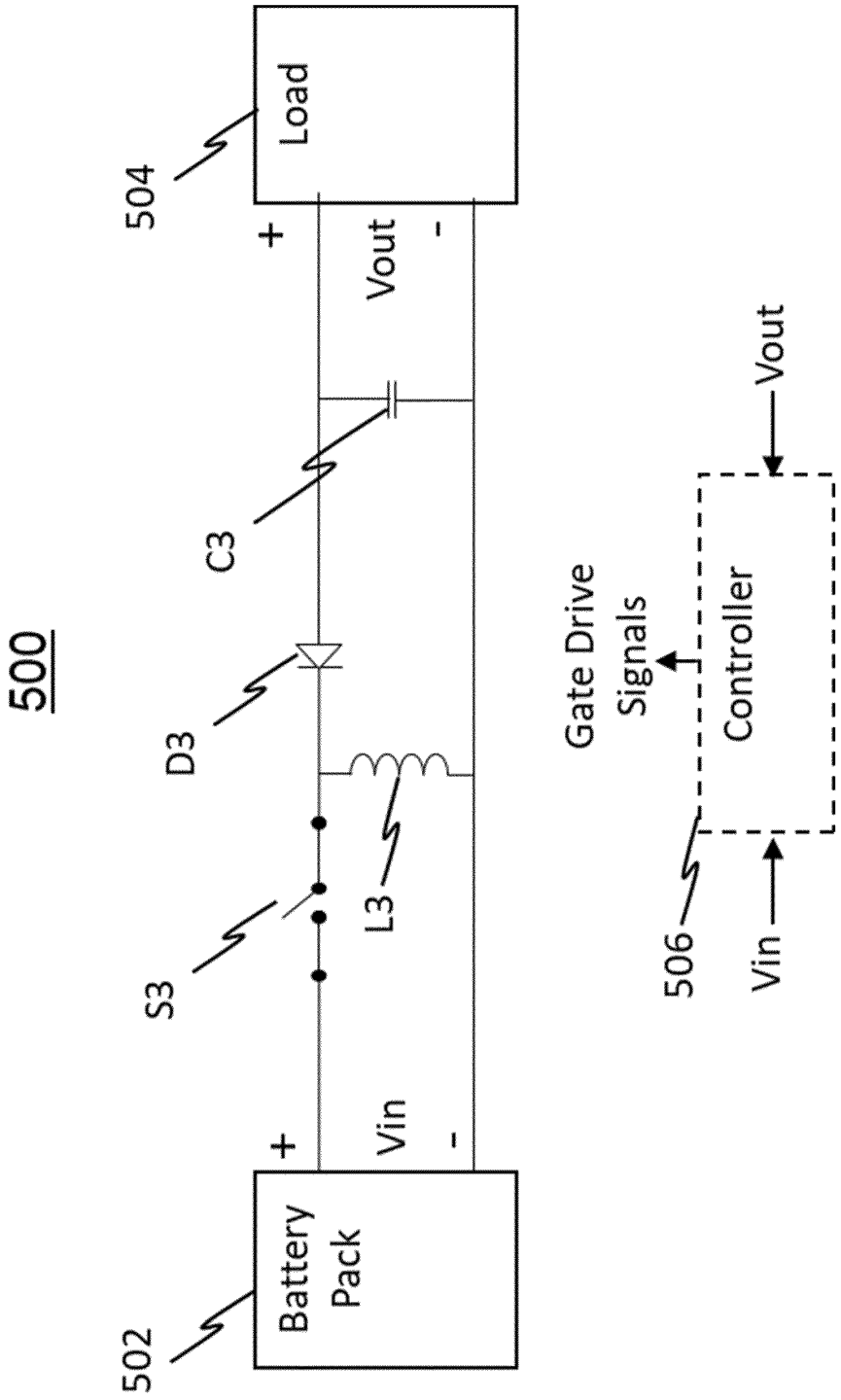

500
Load
504
+
Vout
-
C3
D3
L3
S3
Gate Drive
Signals
Controller
Vout
506
Vin
+
Vin
-
Battery
Pack
502

Fig. 6

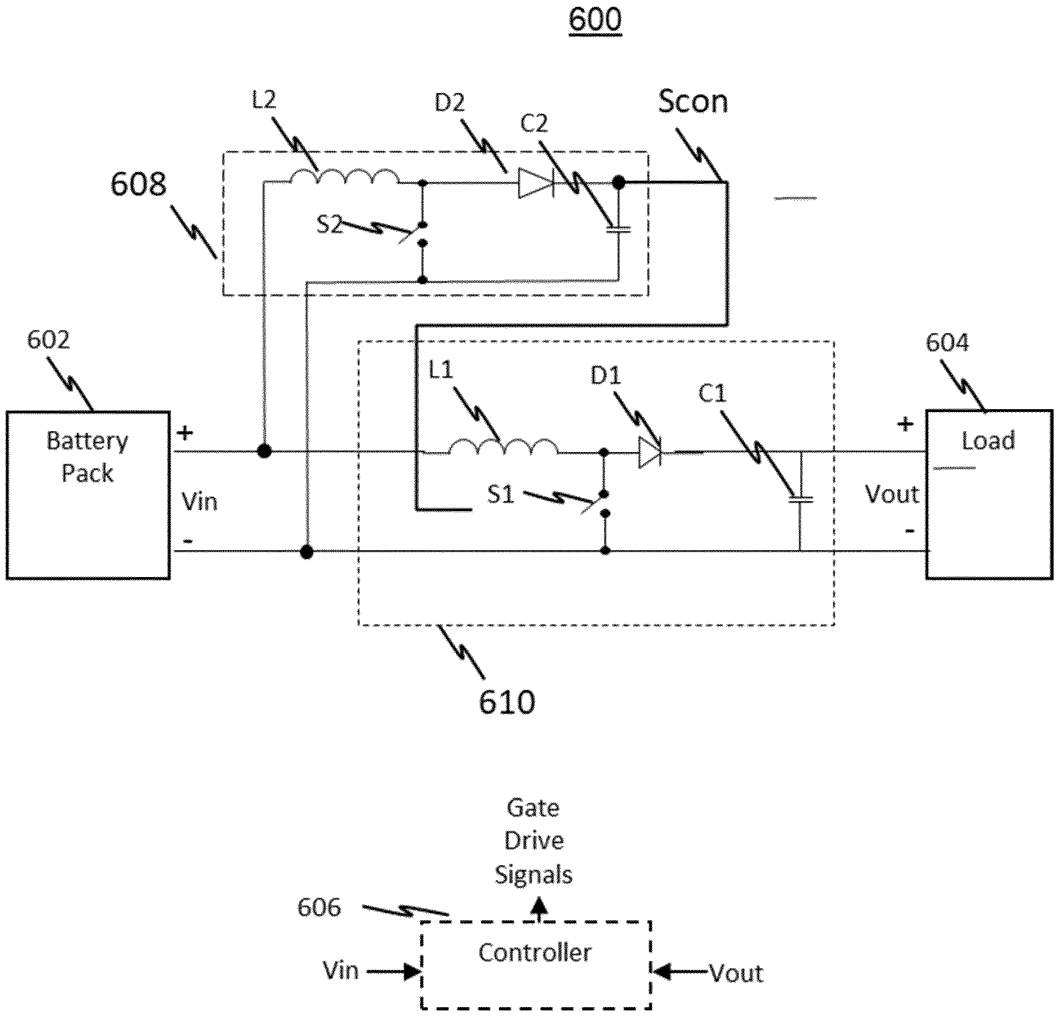

600
L2
D2
C2
Scon
608
S2
602
604
L1
D1
C1
Battery Pack
+
Vin
-
S1
+
Load
Vout
-
610
Gate Drive Signals
606
Controller
Vin
Vout

Fig. 7

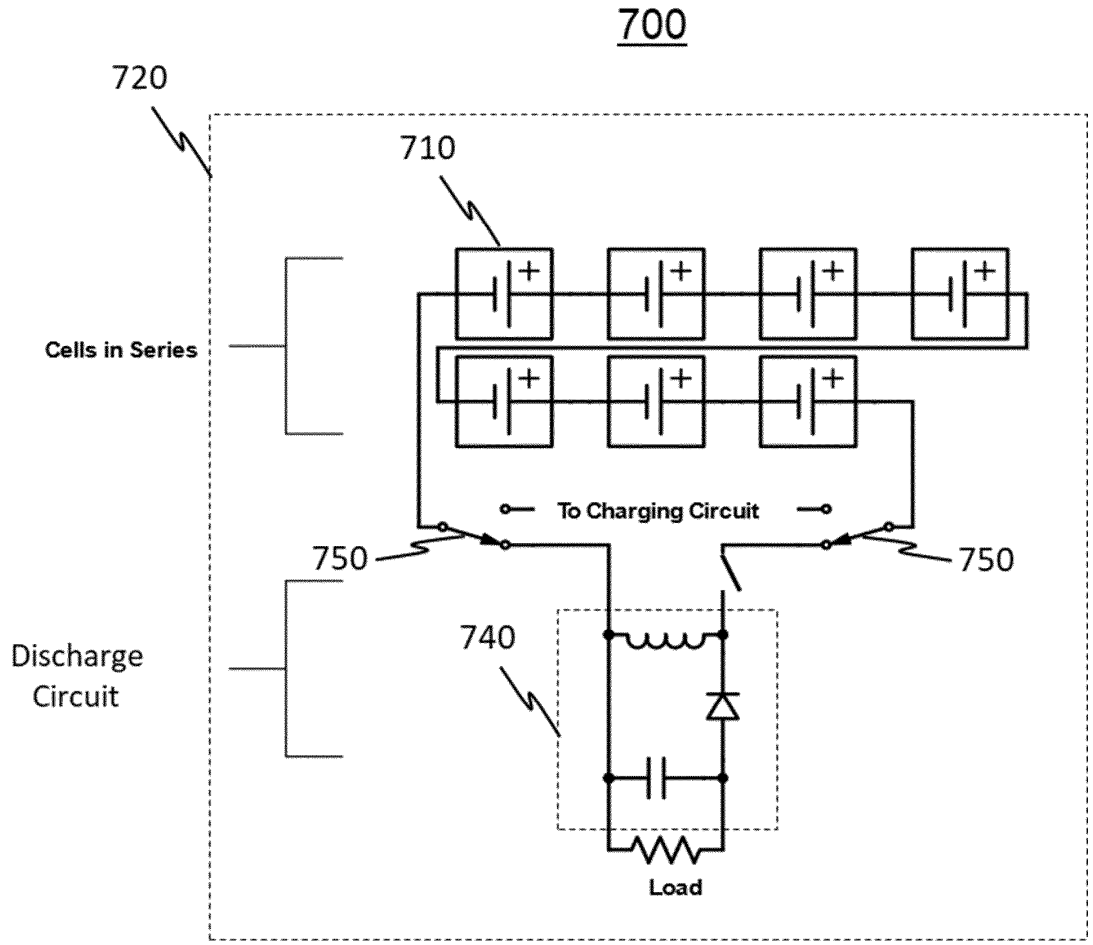
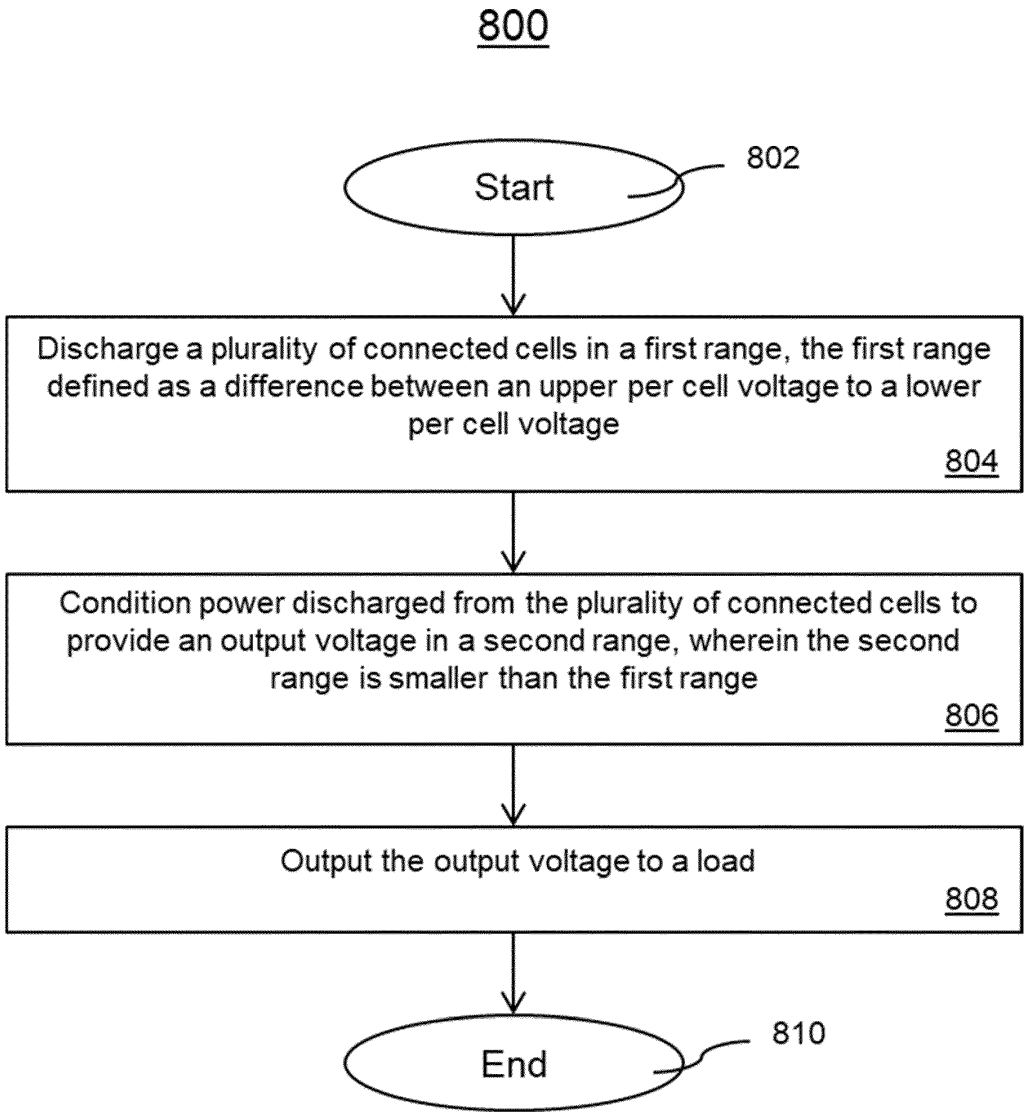

700
720
710
Cells in Series
To Charging Circuit
750
750
740
Discharge Circuit
Load

Fig. 8


800
Start
802
Discharge a plurality of connected cells in a first range, the first range defined as a difference between an upper per cell voltage to a lower per cell voltage
804
Condition power discharged from the plurality of connected cells to provide an output voltage in a second range, wherein the second range is smaller than the first range
806
Output the output voltage to a load
808
End
810