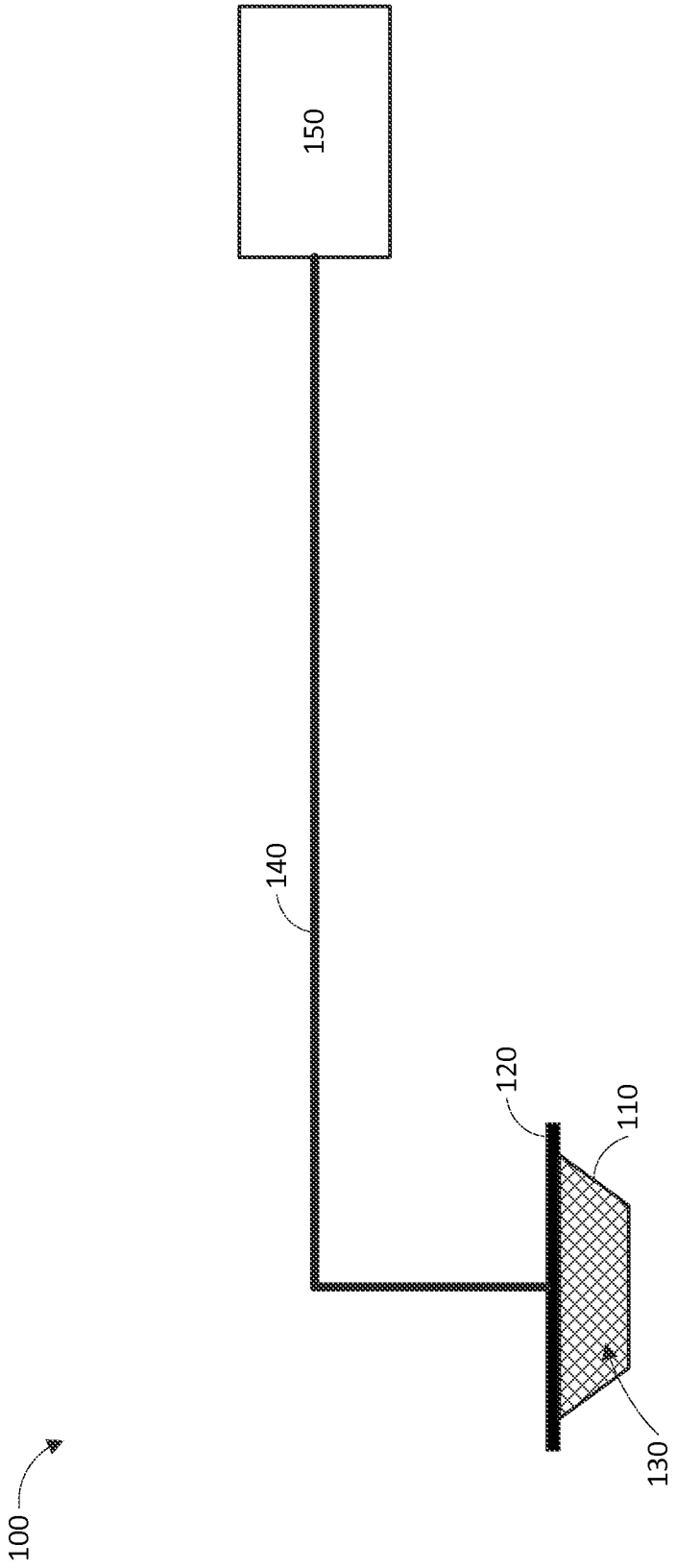


FIG. 1

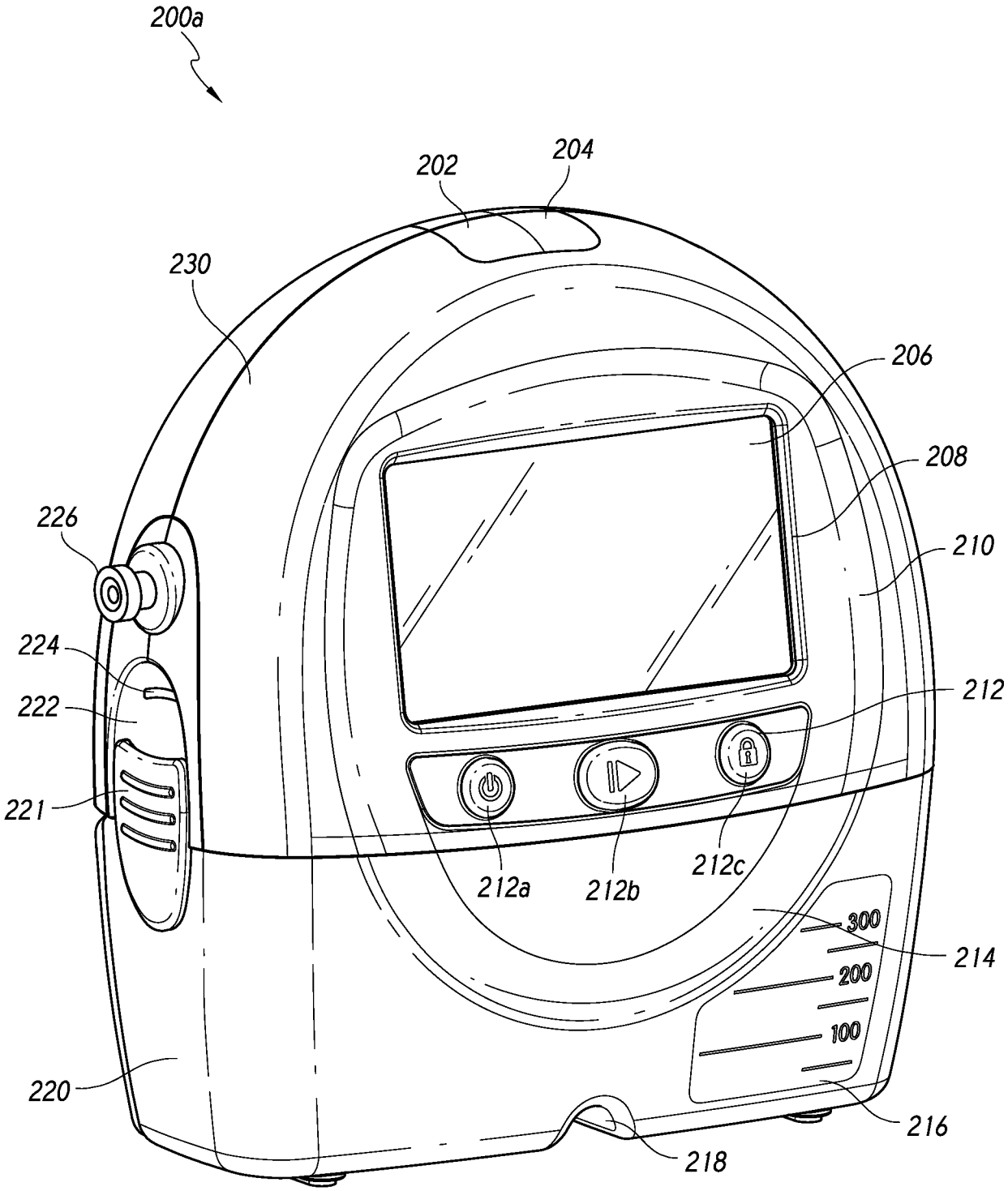

200a
202
204
230
206
208
210
226
212
224
222
221
212a
212b
212c
300
214
200
100
220
216
218

FIG. 2A

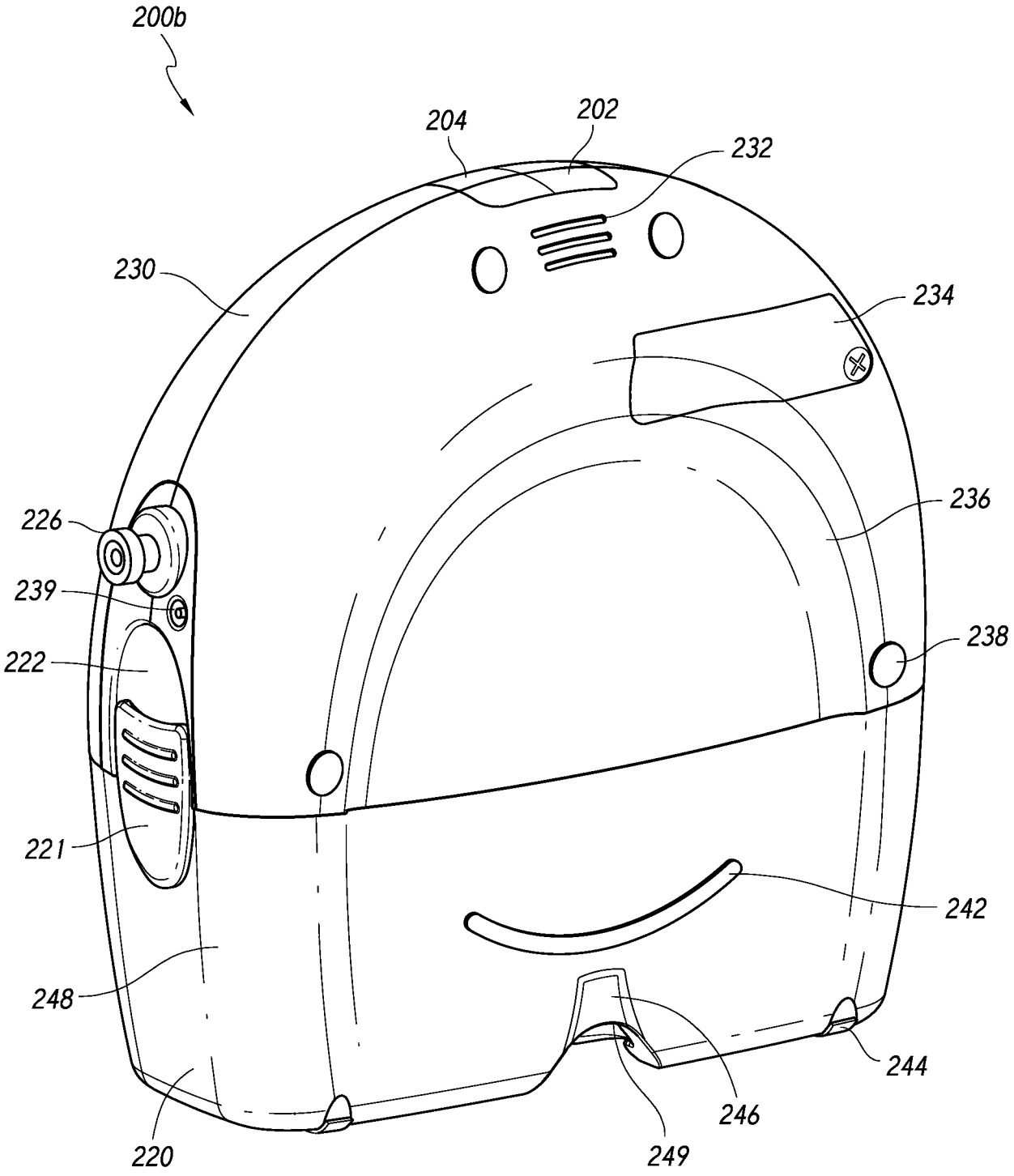

200b
204
202
232
230
234
226
236
239
238
222
221
242
248
244
246
220
249

FIG. 2B

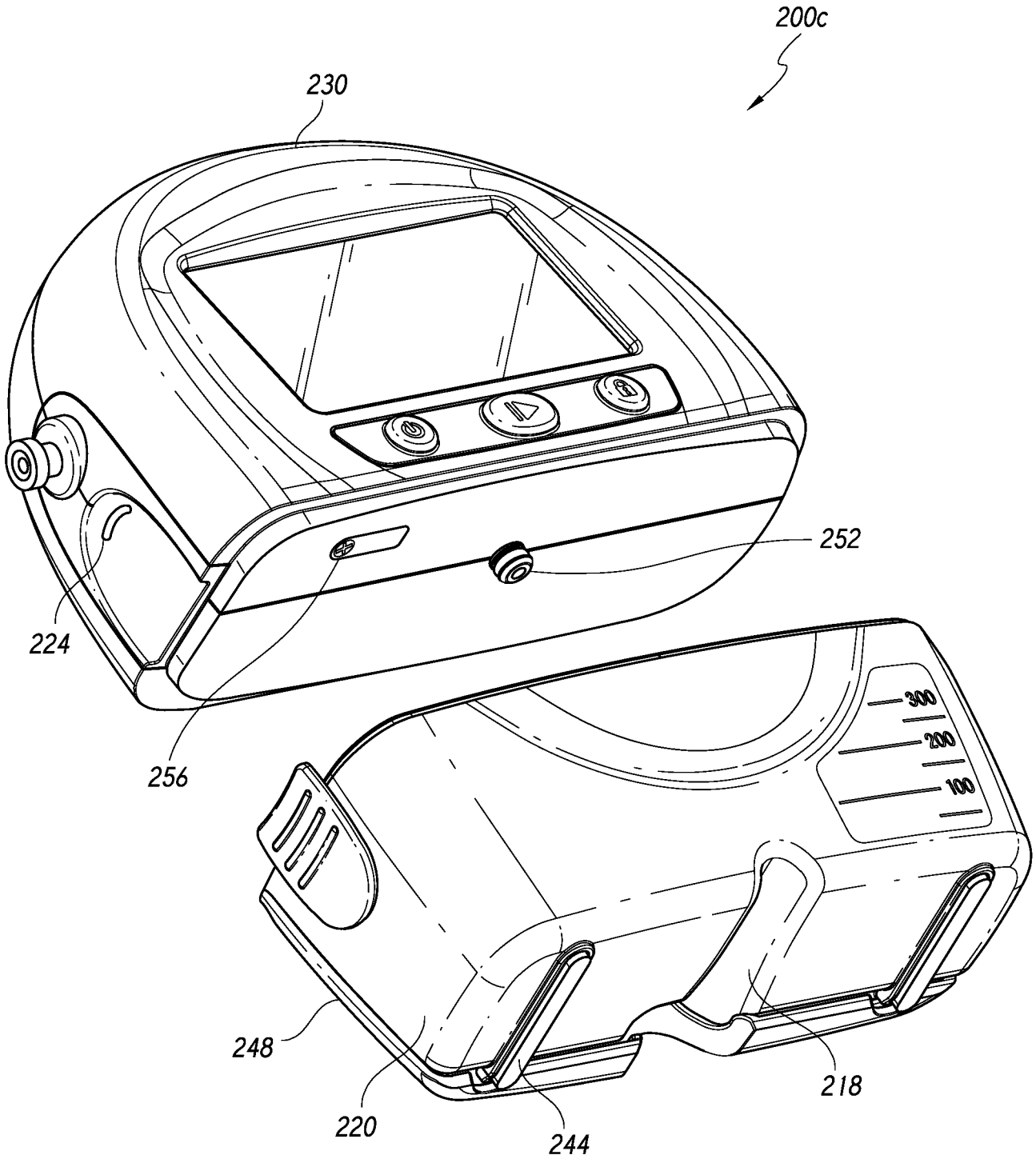


FIG. 2C

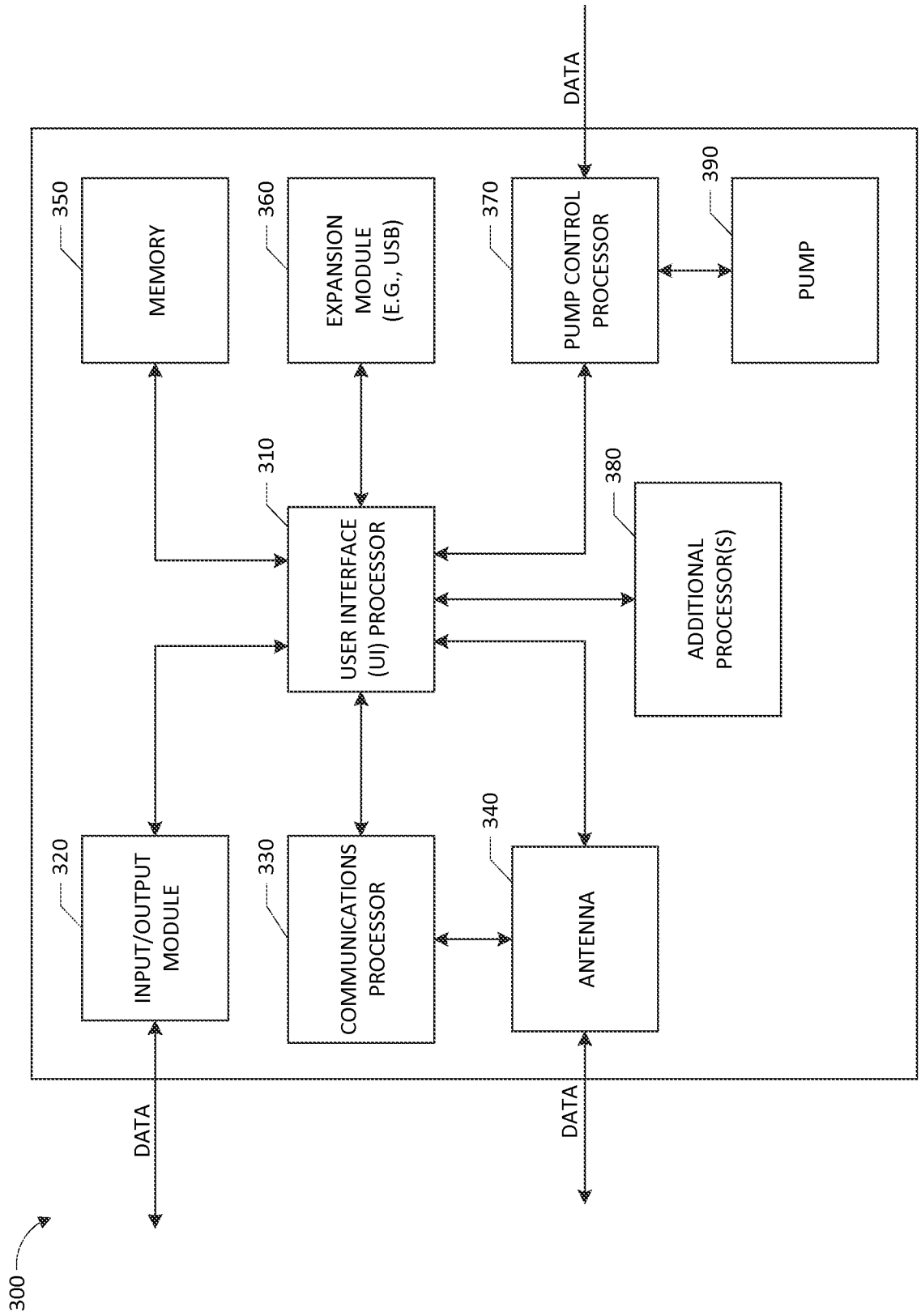

300
DATA
DATA
350
MEMORY
360
EXPANSION MODULE (E.G., USB)
370
PUMP CONTROL PROCESSOR
390
PUMP
310
USER INTERFACE (UI) PROCESSOR
380
ADDITIONAL PROCESSOR(S)
320
INPUT/OUTPUT MODULE
330
COMMUNICATIONS PROCESSOR
340
ANTENNA
DATA
DATA

FIG. 3

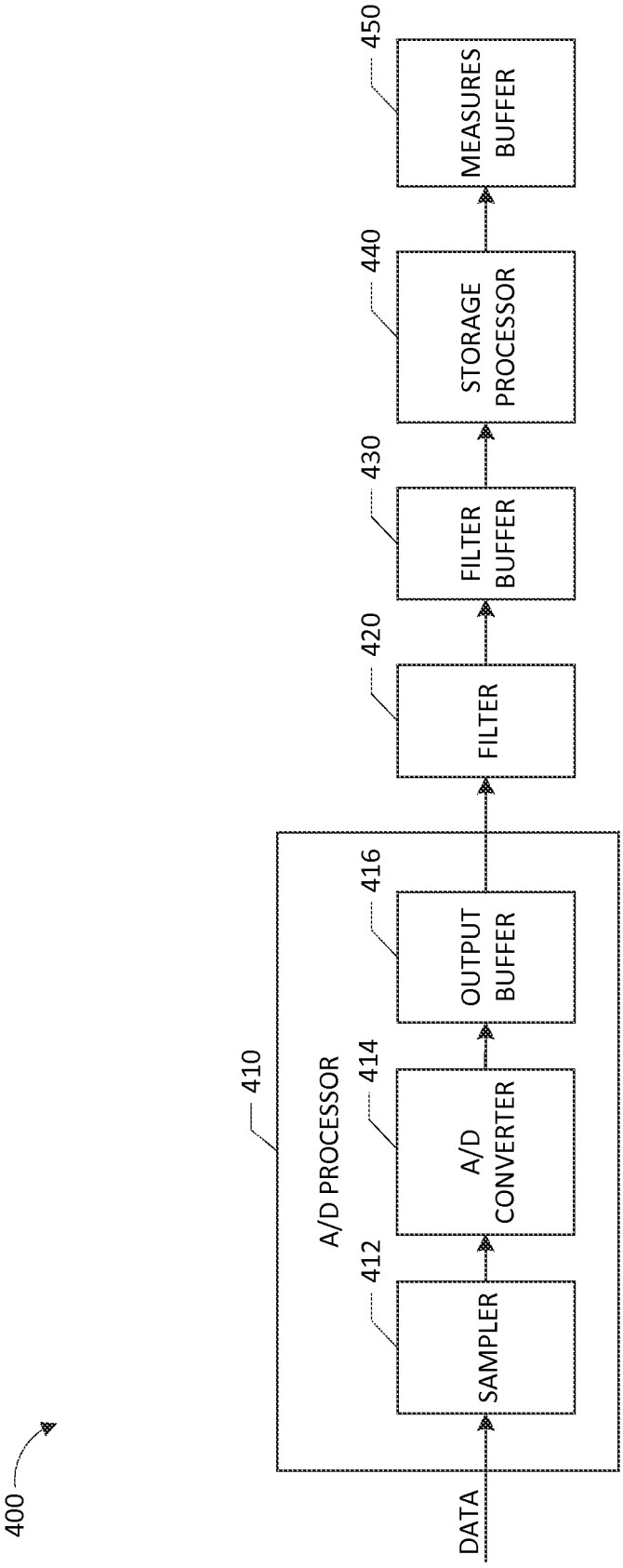

400
DATA
410
A/D PROCESSOR
412
SAMPLER
414
A/D CONVERTER
416
OUTPUT BUFFER
420
FILTER
430
FILTER BUFFER
440
STORAGE PROCESSOR
450
MEASURES BUFFER

FIG. 4

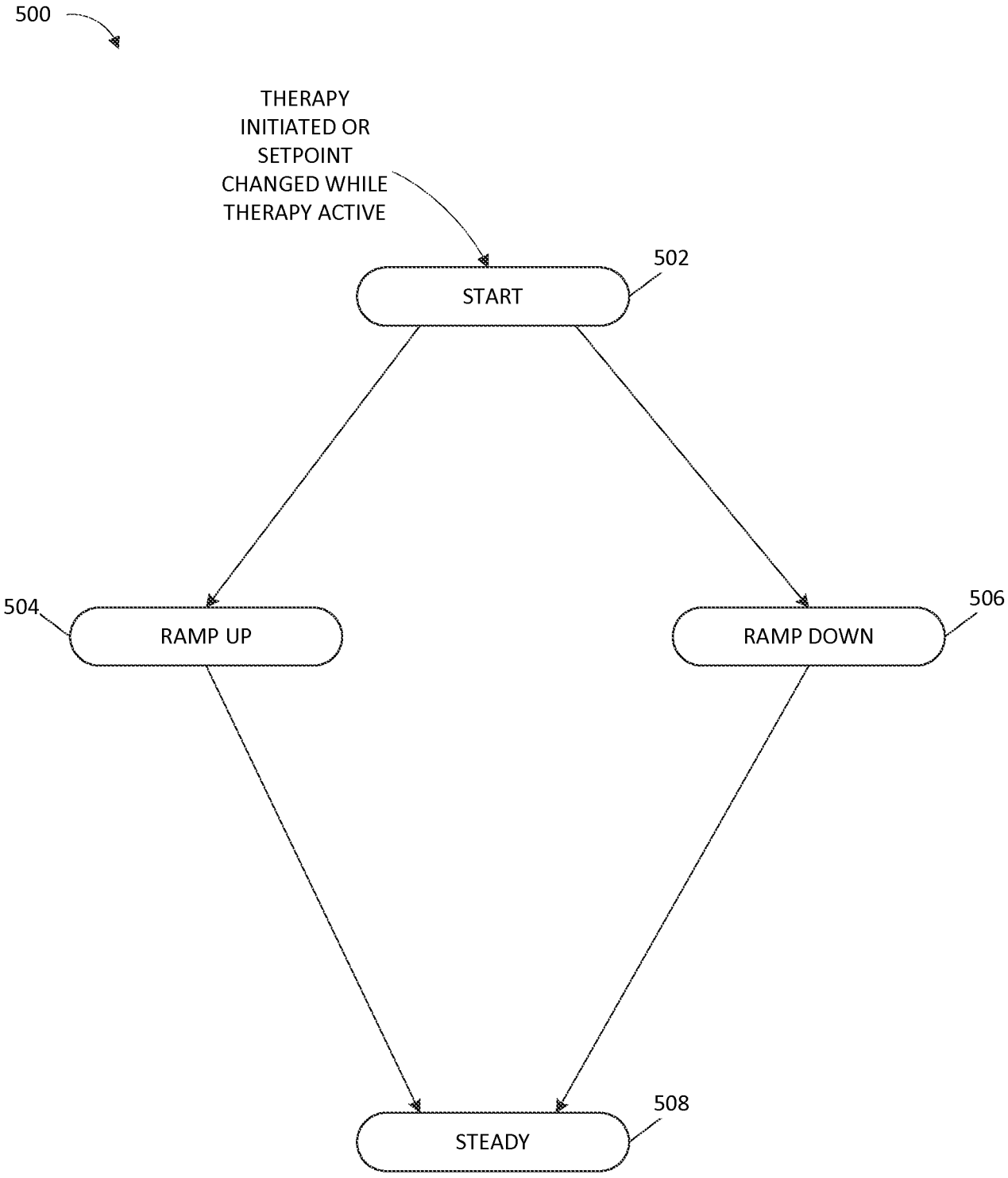

500
THERAPY INITIATED OR SETPOINT CHANGED WHILE THERAPY ACTIVE
502
START
504
RAMP UP
506
RAMP DOWN
508
STEADY

FIG. 5

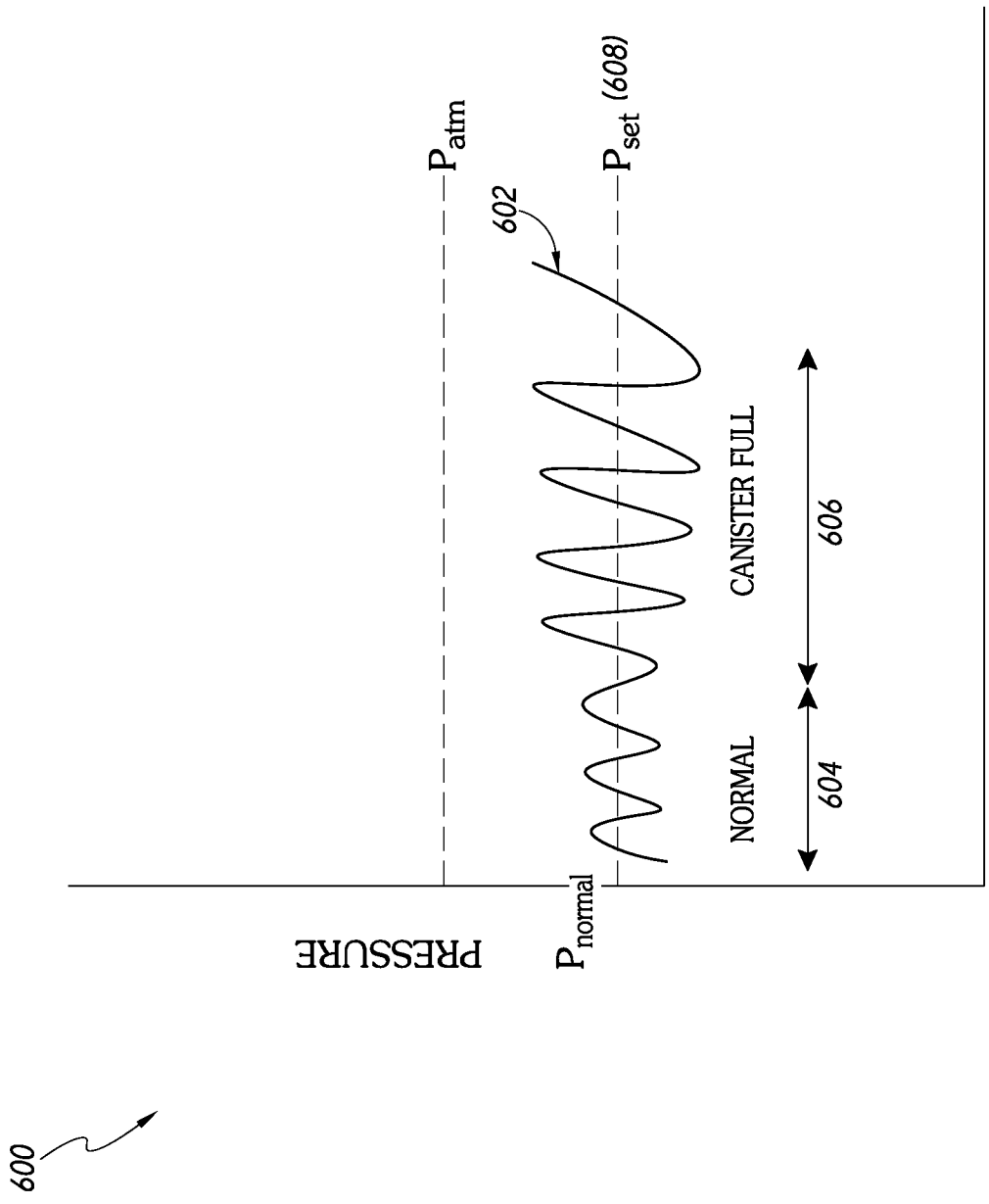

600
PRESSURE
TIME
P_{atm}
P_{set} (608)
P_{normal}
602
NORMAL
CANISTER FULL
604
606

FIG. 6

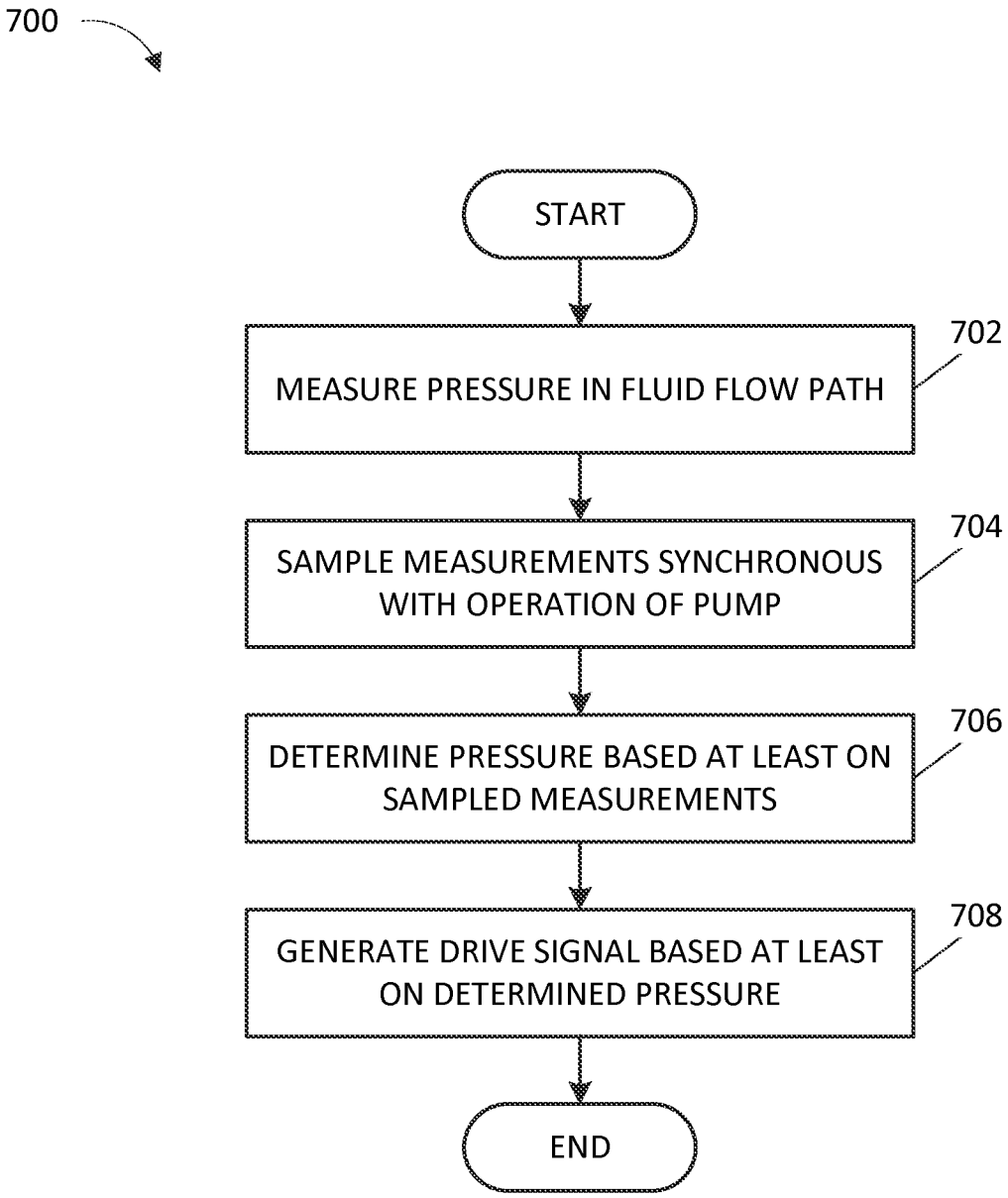

700
START
MEASURE PRESSURE IN FLUID FLOW PATH
702
SAMPLE MEASUREMENTS SYNCHRONOUS WITH OPERATION OF PUMP
704
DETERMINE PRESSURE BASED AT LEAST ON SAMPLED MEASUREMENTS
706
GENERATE DRIVE SIGNAL BASED AT LEAST ON DETERMINED PRESSURE
708
END

FIG. 7

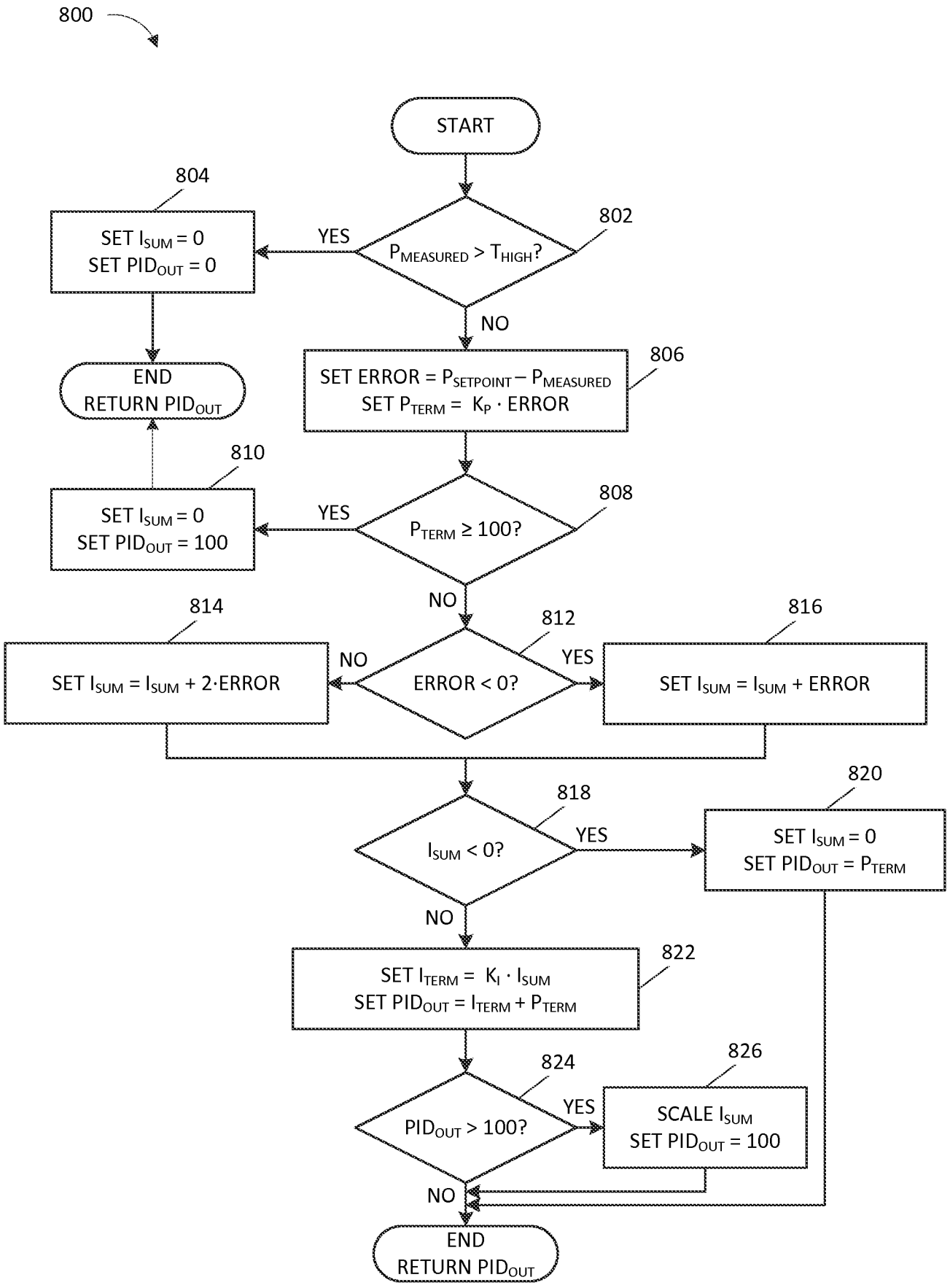

800
START
802
$P_{MEASURED} > T_{HIGH}$?
YES
804
SET I_{SUM} = 0
SET PID_{OUT} = 0
END
RETURN PID_{OUT}
NO
806
SET ERROR = $P_{SETPOINT} - P_{MEASURED}$
SET P_{TERM} = $K_P \cdot$ ERROR
808
$P_{TERM} \geq 100$?
YES
810
SET I_{SUM} = 0
SET PID_{OUT} = 100
NO
812
ERROR < 0?
NO
814
SET I_{SUM} = I_{SUM} + 2·ERROR
YES
816
SET I_{SUM} = I_{SUM} + ERROR
818
I_{SUM} < 0?
YES
820
SET I_{SUM} = 0
SET PID_{OUT} = P_{TERM}
NO
822
SET I_{TERM} = $K_I \cdot I_{SUM}$
SET PID_{OUT} = I_{TERM} + P_{TERM}
824
PID_{OUT} > 100?
YES
826
SCALE I_{SUM}
SET PID_{OUT} = 100
NO
END
RETURN PID_{OUT}

FIG. 8

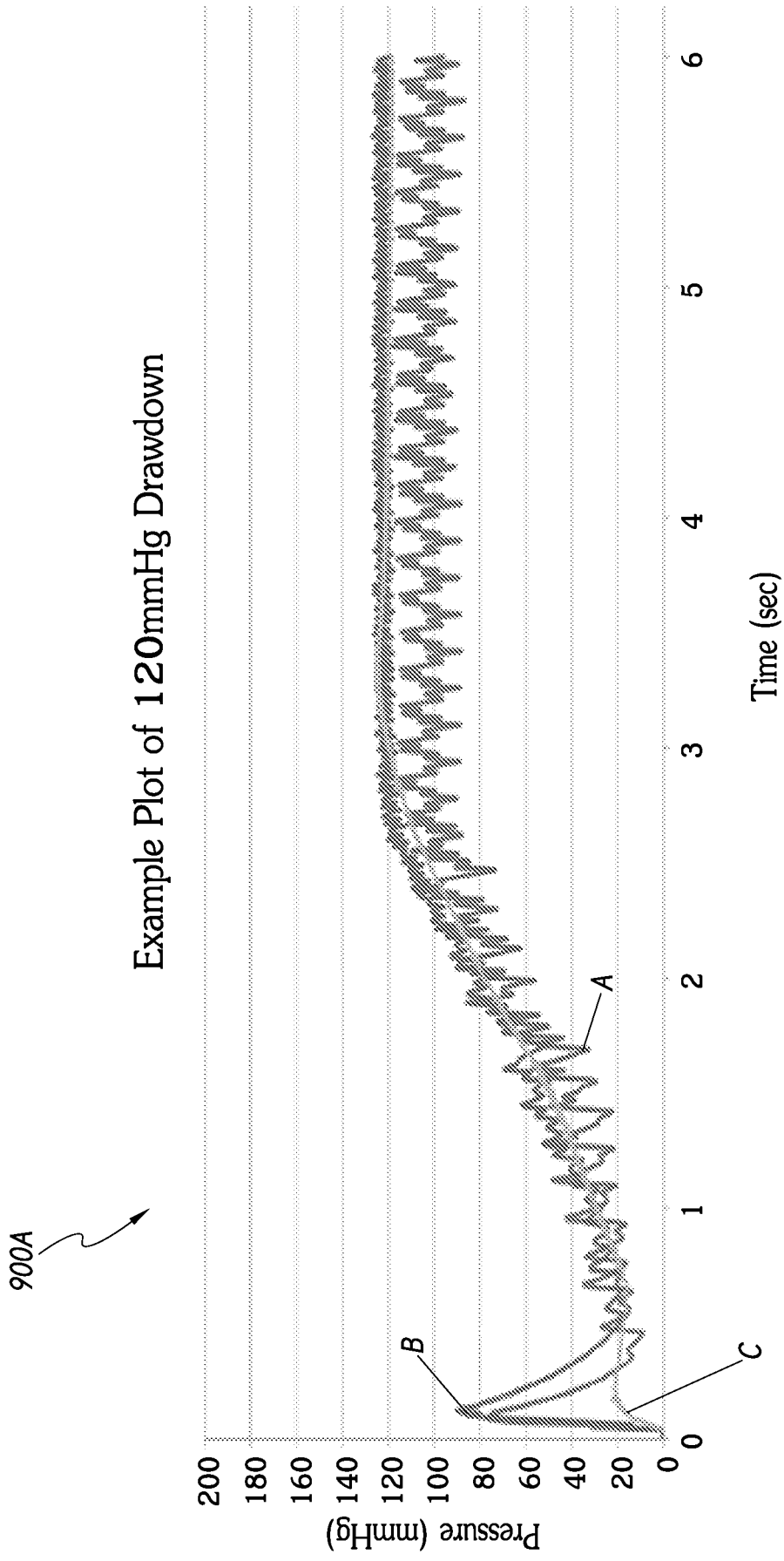

900A
Example Plot of 120mmHg Drawdown
Pressure (mmHg)
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
6
Time (sec)
A
B
C

FIG. 9A

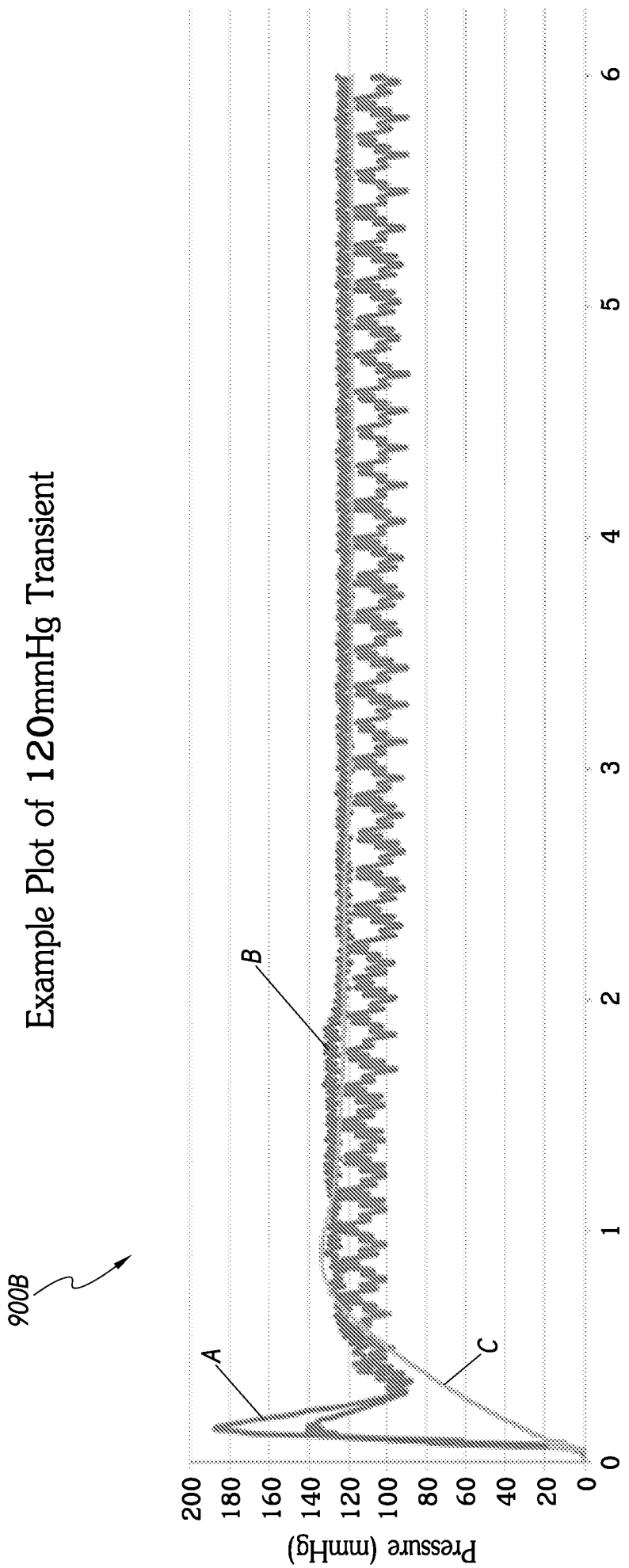

900B
Example Plot of 120mmHg Transient
A
B
C
Pressure (mmHg)
200
180
160
140
120
100
80
60
40
20
0
0
1
2
3
4
5
6
Time (sec)

FIG. 9B

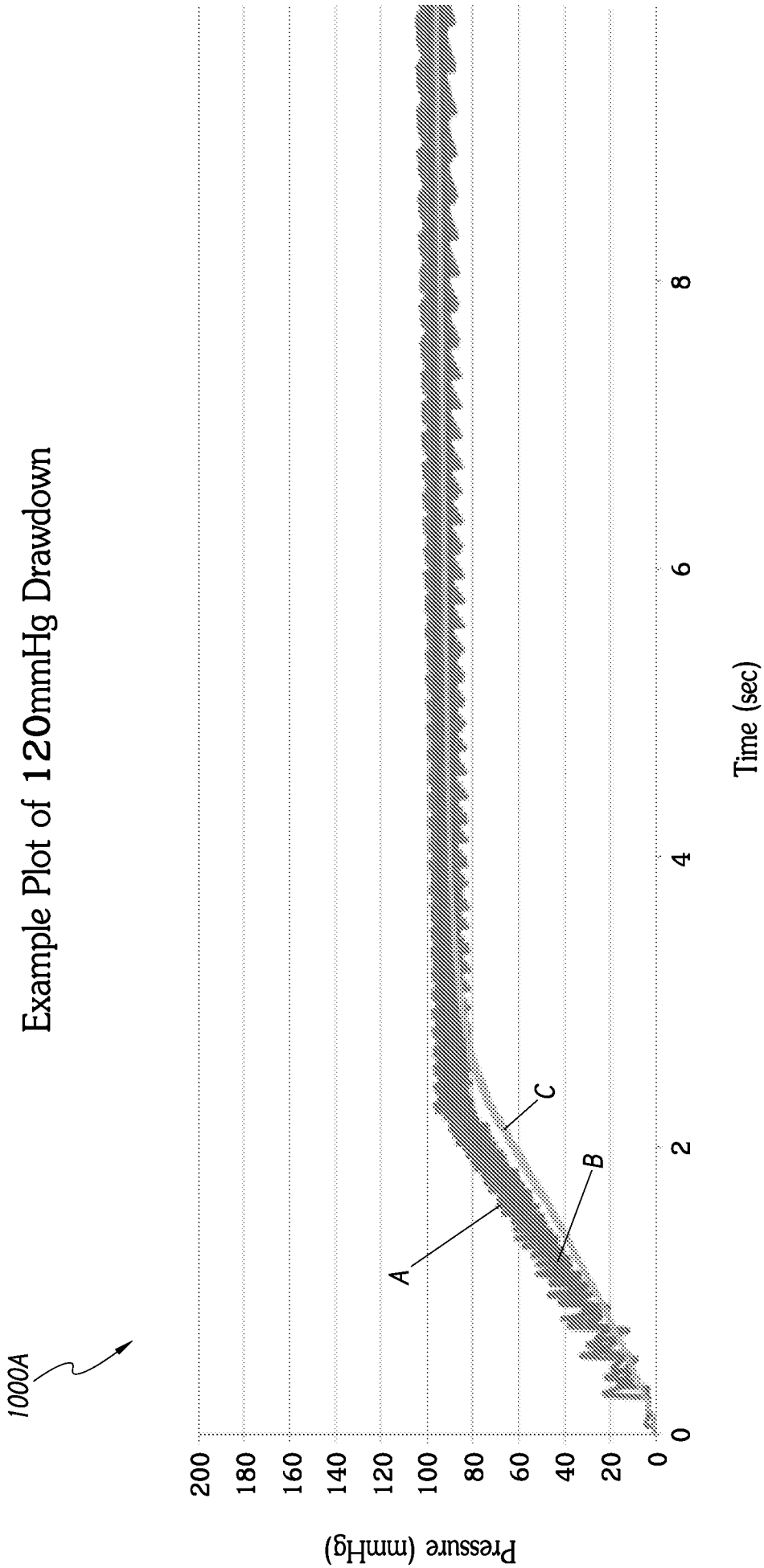

1000A
Example Plot of 120mmHg Drawdown
Pressure (mmHg)
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
Time (sec)
A
B
C

FIG. 10A

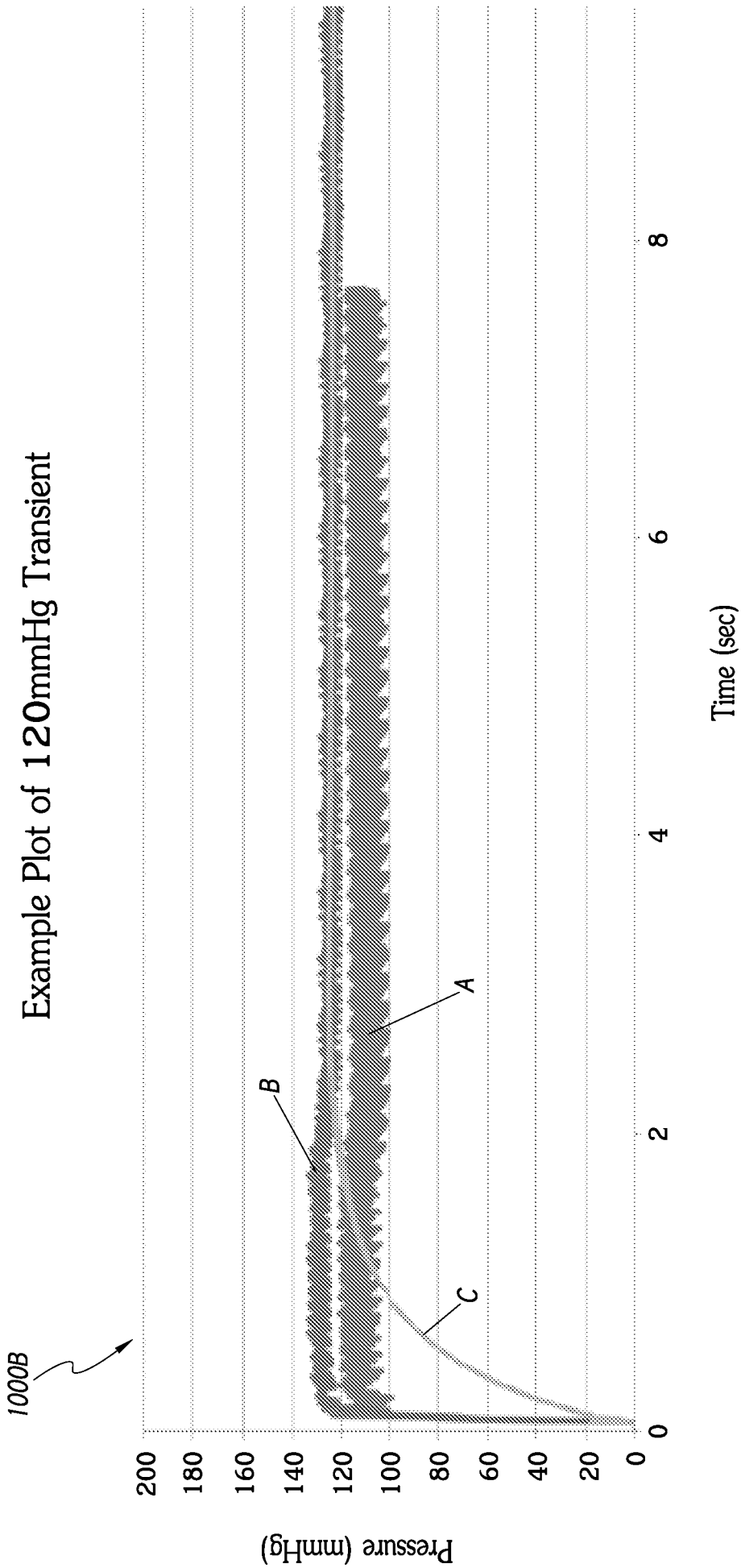

1000B
Example Plot of 120mmHg Transient
Pressure (mmHg)
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
Time (sec)
A
B
C

FIG. 10B