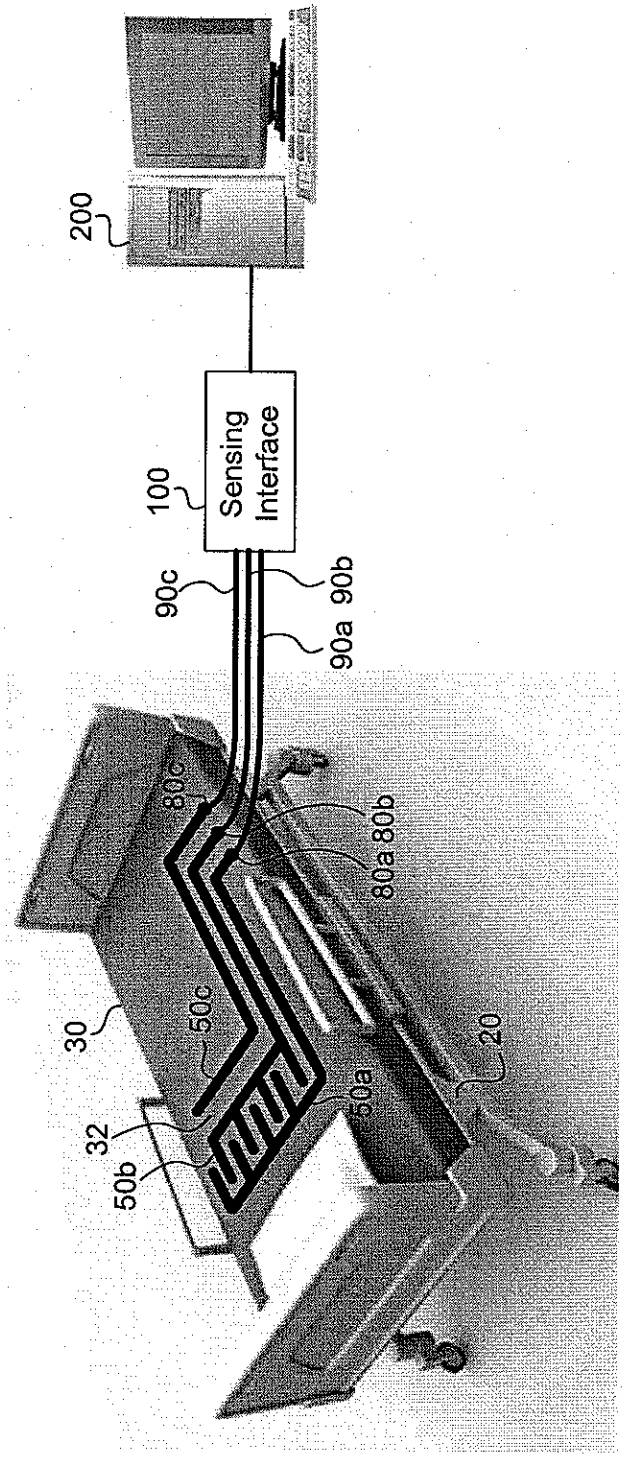

200
100
Sensing Interface
90c
90a
90b
80c
80a
80b
30
50c
50a
20
32
50b
10

FIG. 1

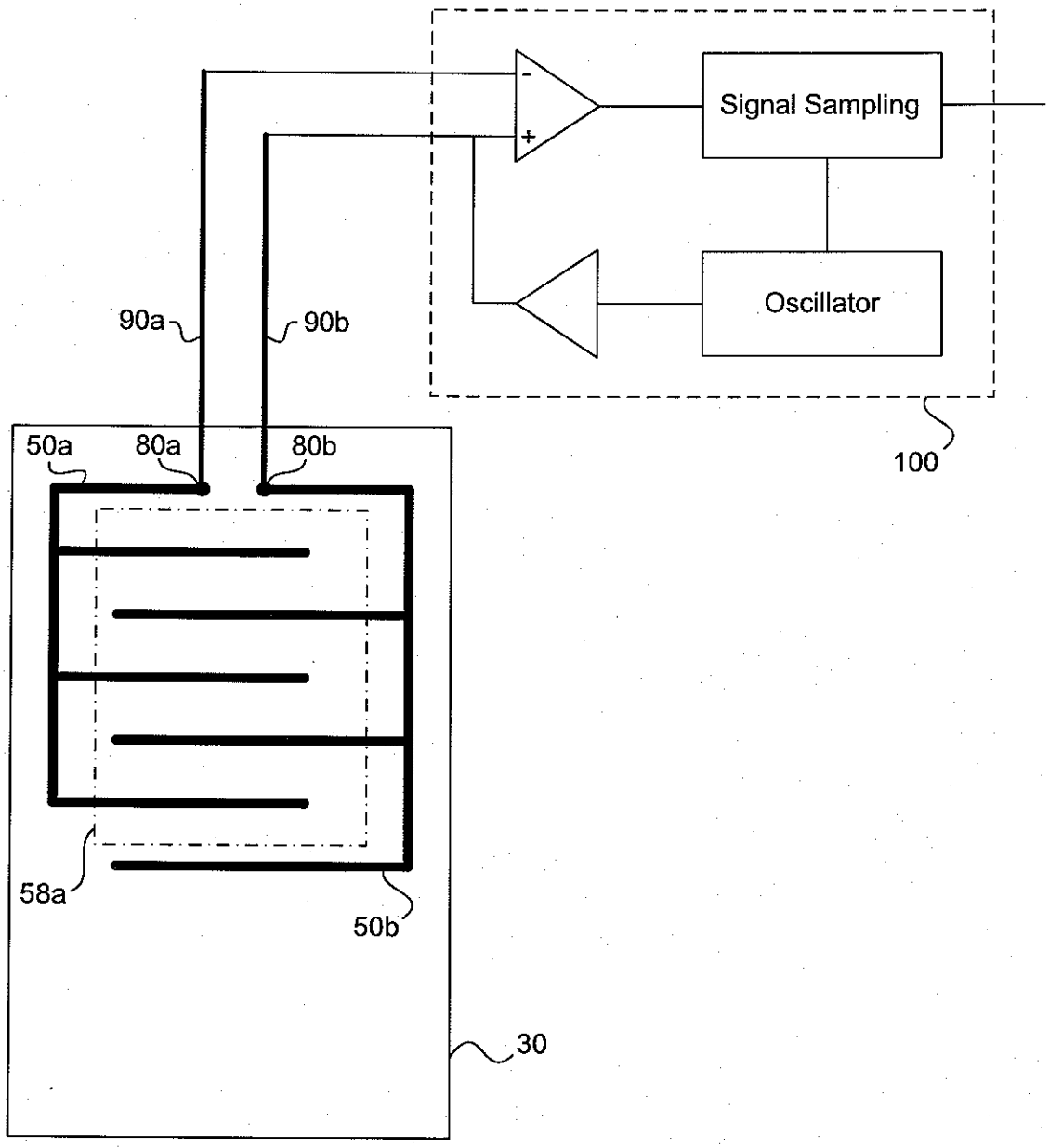

Signal Sampling
Oscillator
100
90a
90b
50a
80a
80b
58a
50b
30

FIG. 2A

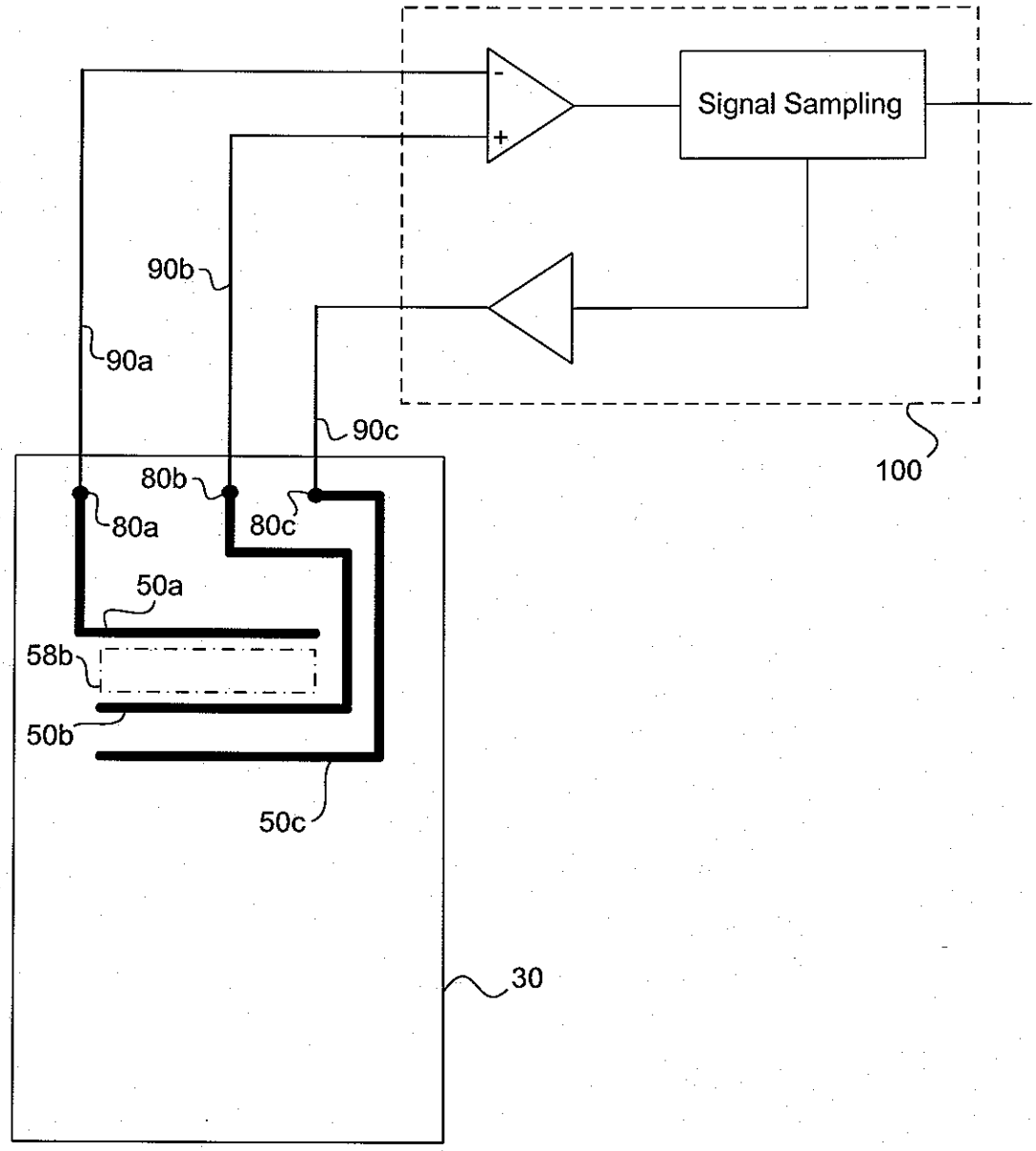


FIG. 2B

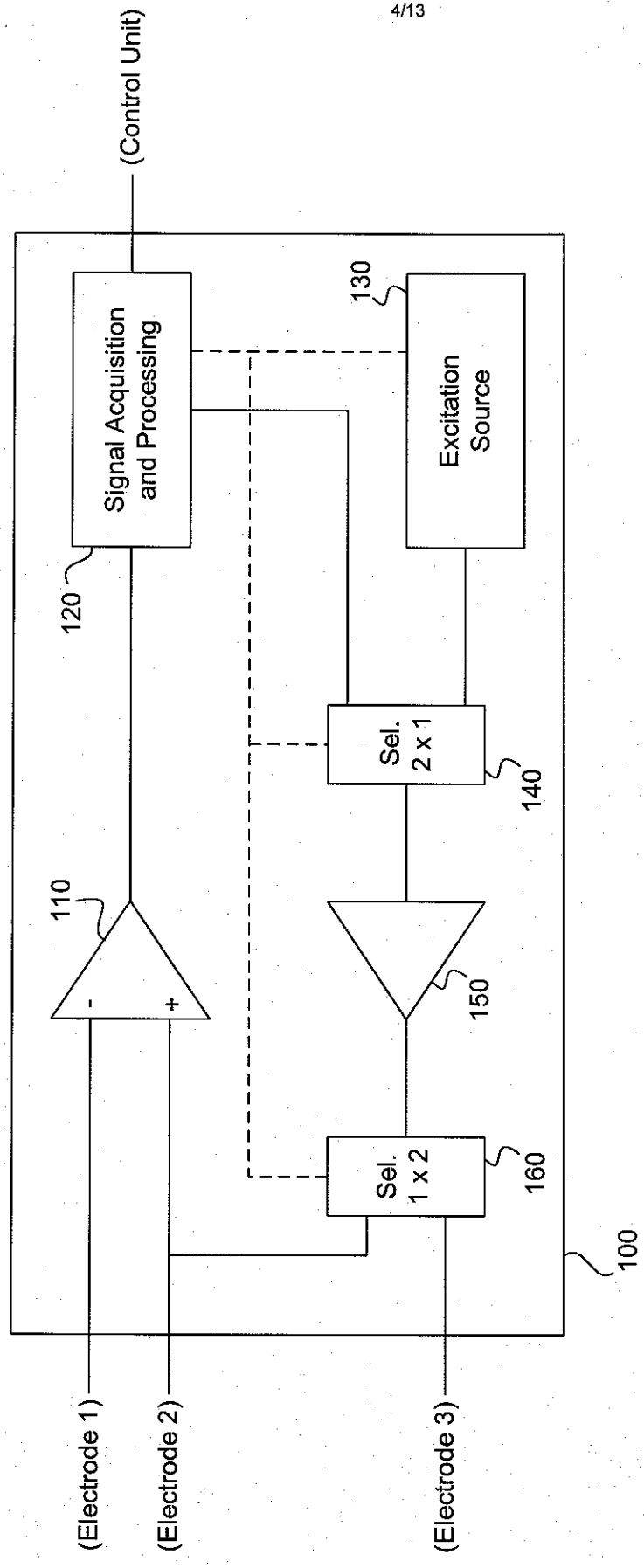

(Control Unit)
Signal Acquisition and Processing
120
130
Excitation Source
Sel. 2 x 1
140
110
-
+
150
Sel. 1 x 2
160
100
(Electrode 1)
(Electrode 2)
(Electrode 3)

FIG. 3A

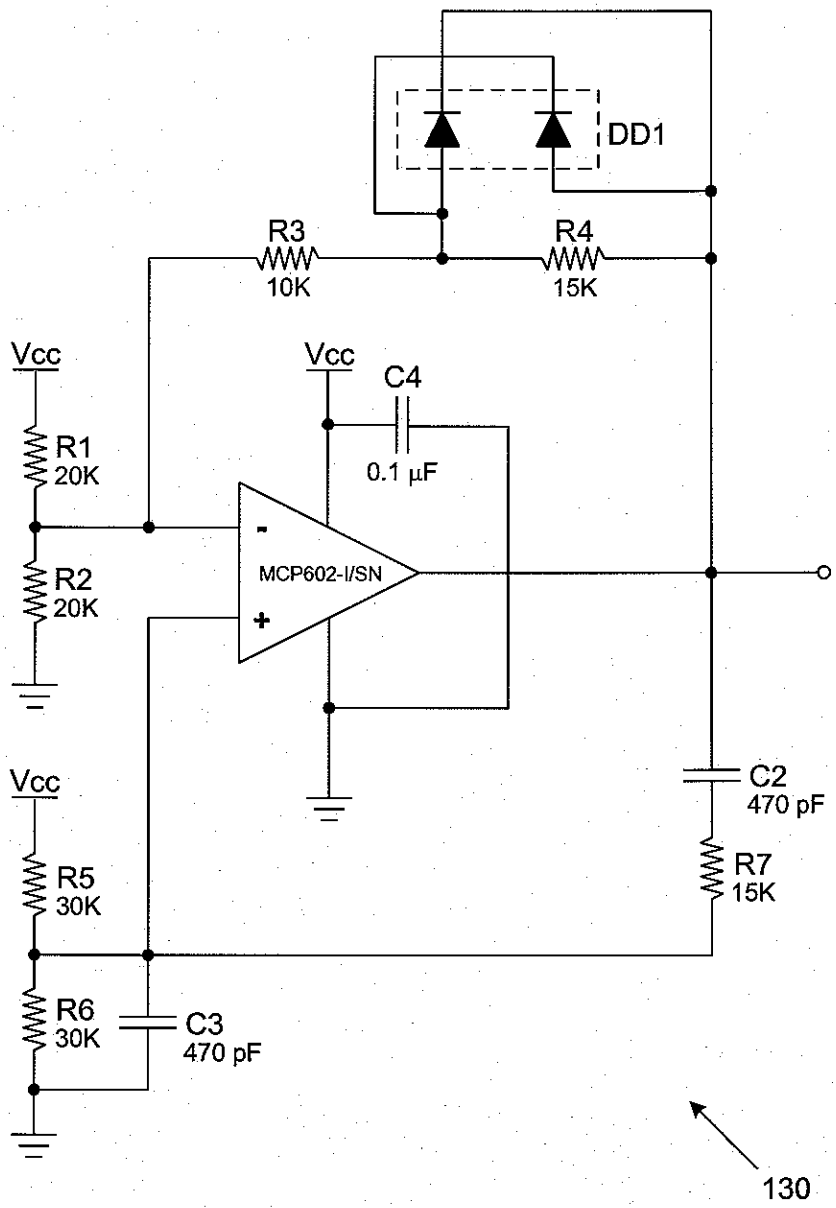

DD1
R3
10K
R4
15K
Vcc
Vcc
C4
0.1 µF
R1
20K
R2
20K
MCP602-I/SN
Vcc
C2
470 pF
R7
15K
R5
30K
R6
30K
C3
470 pF
130

FIG. 3B

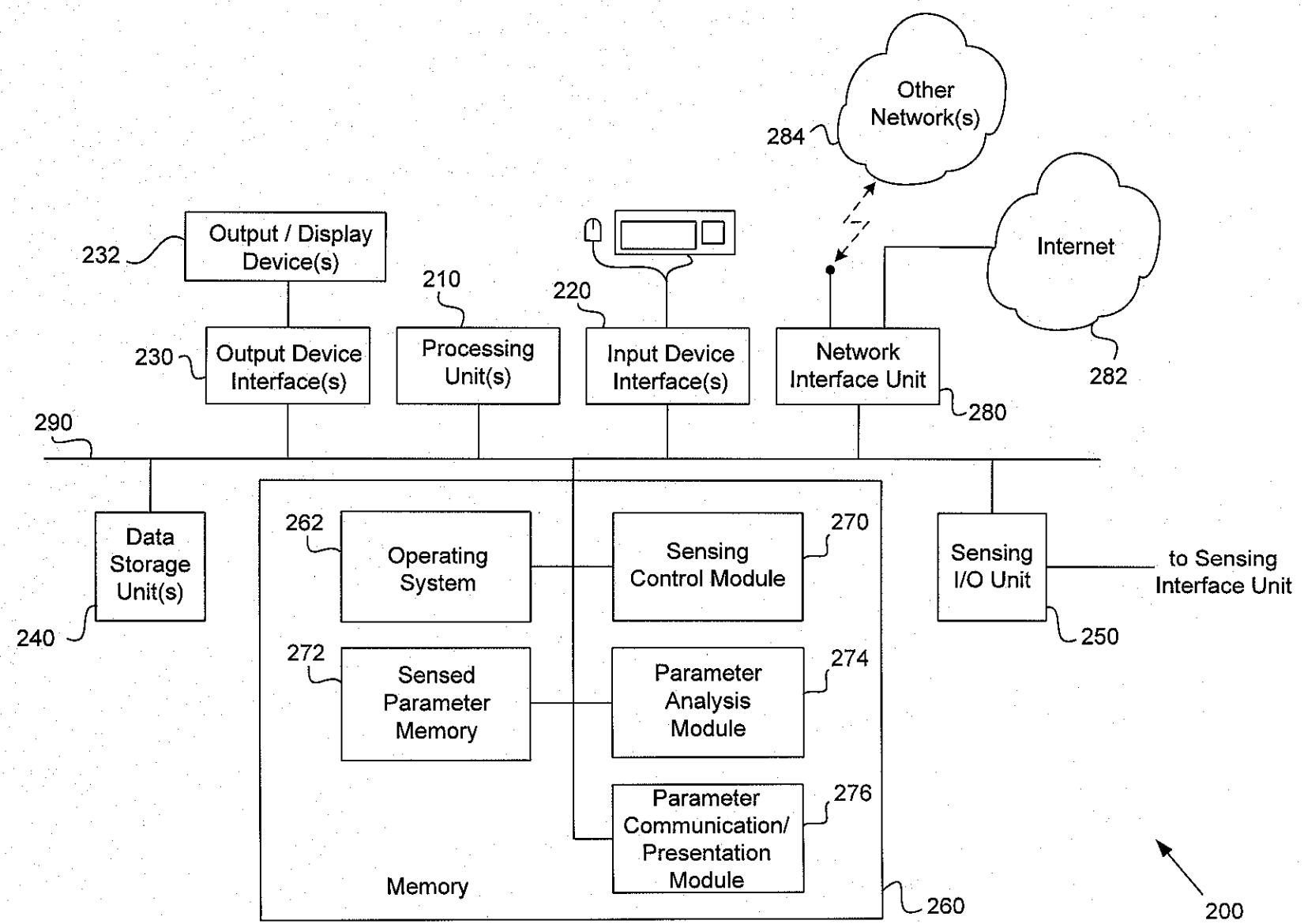

Other Network(s)
284
Internet
282
232
Output / Display Device(s)
210
220
230
Output Device Interface(s)
Processing Unit(s)
Input Device Interface(s)
Network Interface Unit
280
290
Data Storage Unit(s)
240
262
Operating System
270
Sensing Control Module
272
Sensed Parameter Memory
274
Parameter Analysis Module
276
Parameter Communication/ Presentation Module
Memory
260
Sensing I/O Unit
250
to Sensing Interface Unit
200

FIG. 4

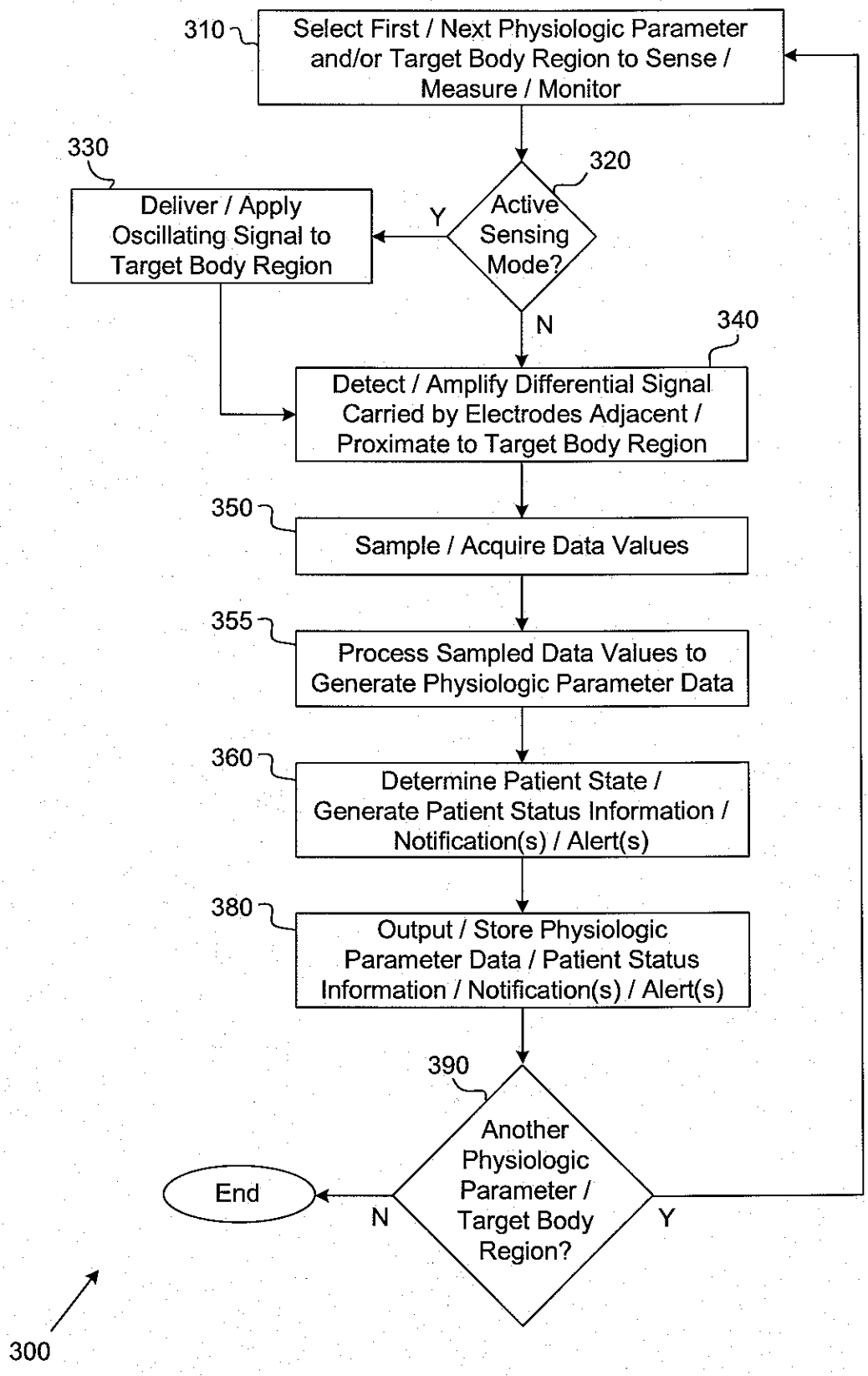

310
Select First / Next Physiologic Parameter and/or Target Body Region to Sense / Measure / Monitor
320
Active Sensing Mode?
Y
330
Deliver / Apply Oscillating Signal to Target Body Region
N
340
Detect / Amplify Differential Signal Carried by Electrodes Adjacent / Proximate to Target Body Region
350
Sample / Acquire Data Values
355
Process Sampled Data Values to Generate Physiologic Parameter Data
360
Determine Patient State / Generate Patient Status Information / Notification(s) / Alert(s)
380
Output / Store Physiologic Parameter Data / Patient Status Information / Notification(s) / Alert(s)
390
Another Physiologic Parameter / Target Body Region?
N
Y
End
300

FIG. 5A

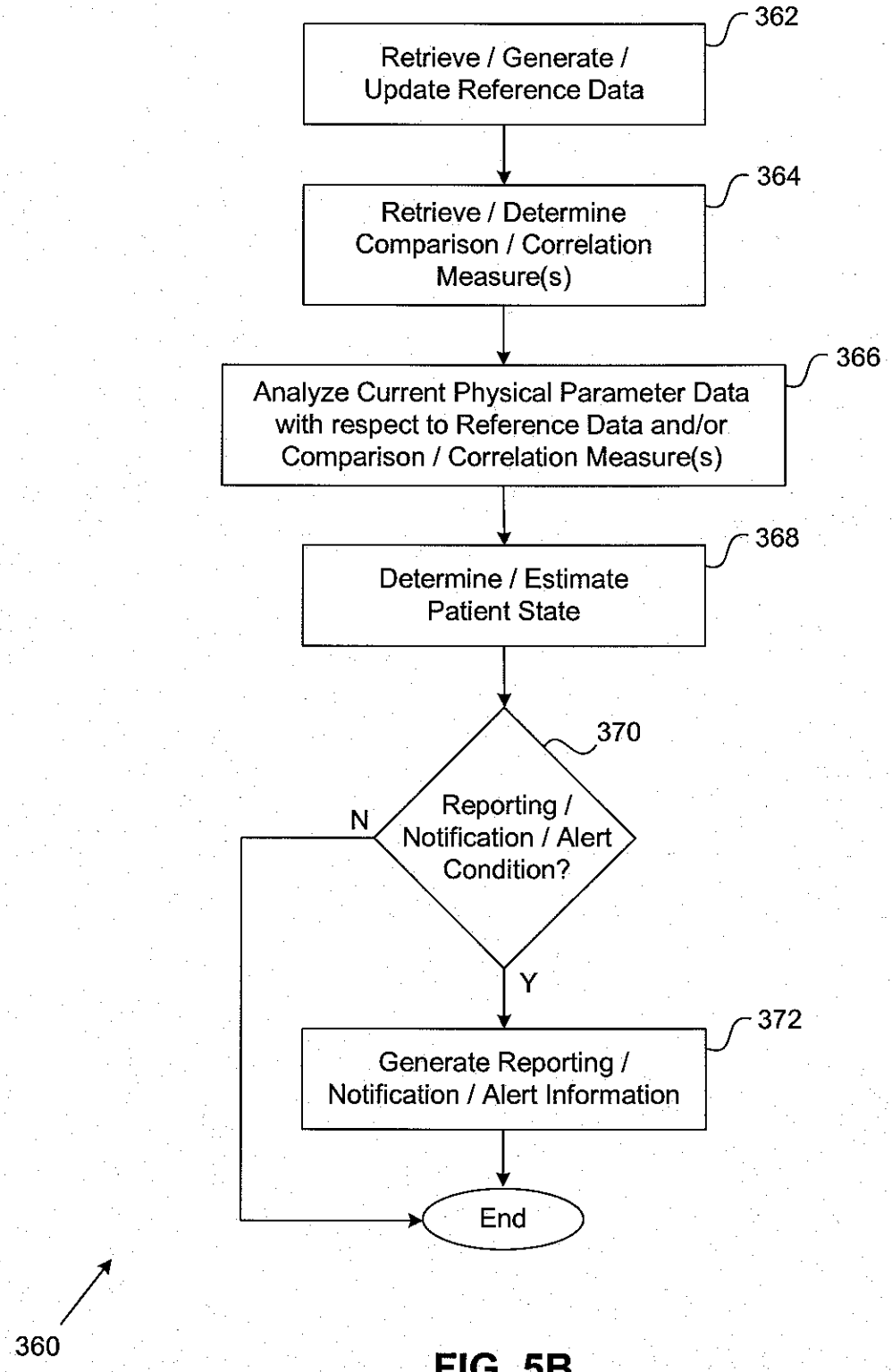

362
Retrieve / Generate / Update Reference Data
364
Retrieve / Determine Comparison / Correlation Measure(s)
366
Analyze Current Physical Parameter Data with respect to Reference Data and/or Comparison / Correlation Measure(s)
368
Determine / Estimate Patient State
370
Reporting / Notification / Alert Condition?
N
Y
372
Generate Reporting / Notification / Alert Information
End
360

FIG. 5B

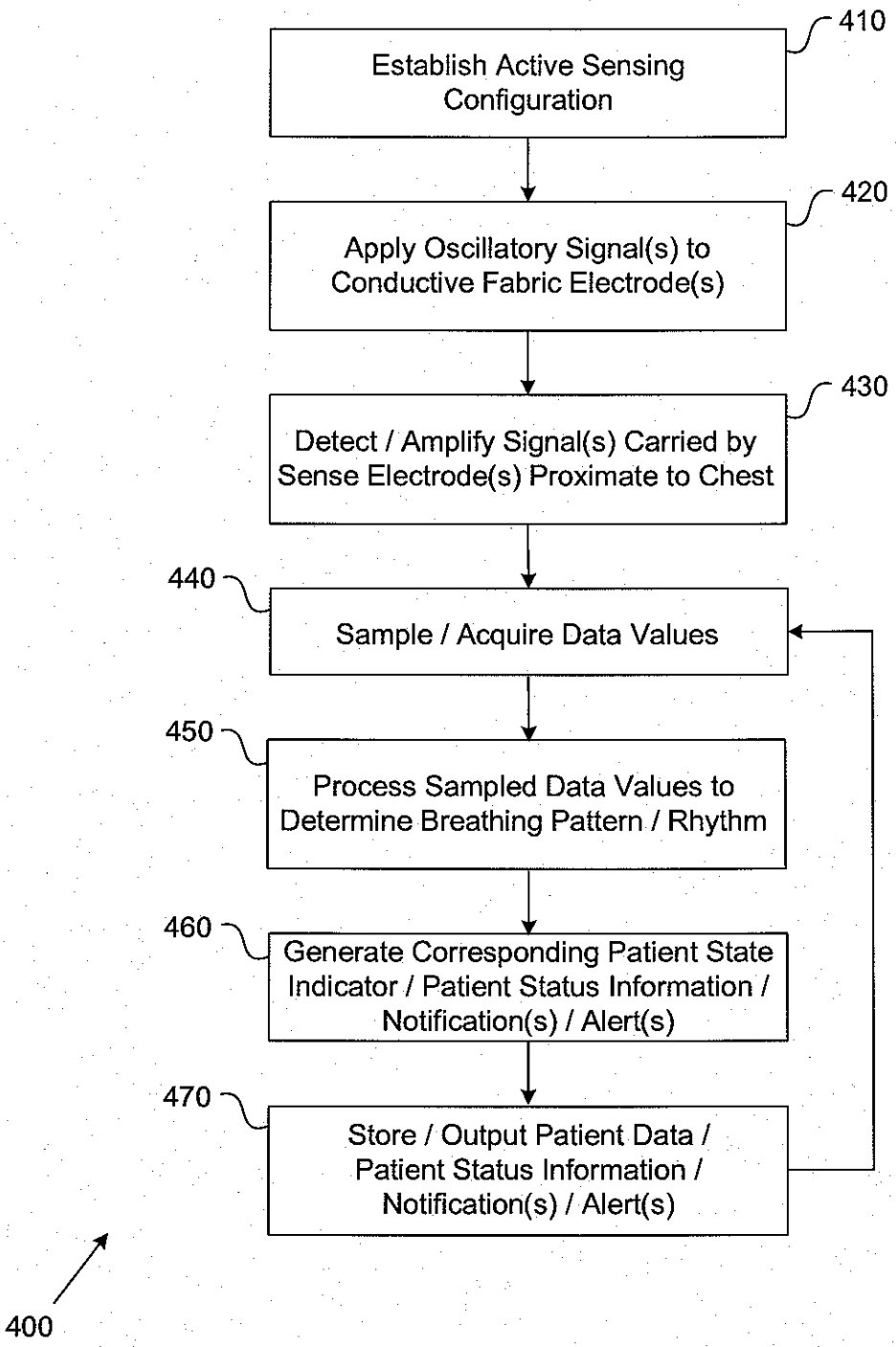

410
Establish Active Sensing Configuration
420
Apply Oscillatory Signal(s) to Conductive Fabric Electrode(s)
430
Detect / Amplify Signal(s) Carried by Sense Electrode(s) Proximate to Chest
440
Sample / Acquire Data Values
450
Process Sampled Data Values to Determine Breathing Pattern / Rhythm
460
Generate Corresponding Patient State Indicator / Patient Status Information / Notification(s) / Alert(s)
470
Store / Output Patient Data / Patient Status Information / Notification(s) / Alert(s)
400

FIG. 6A

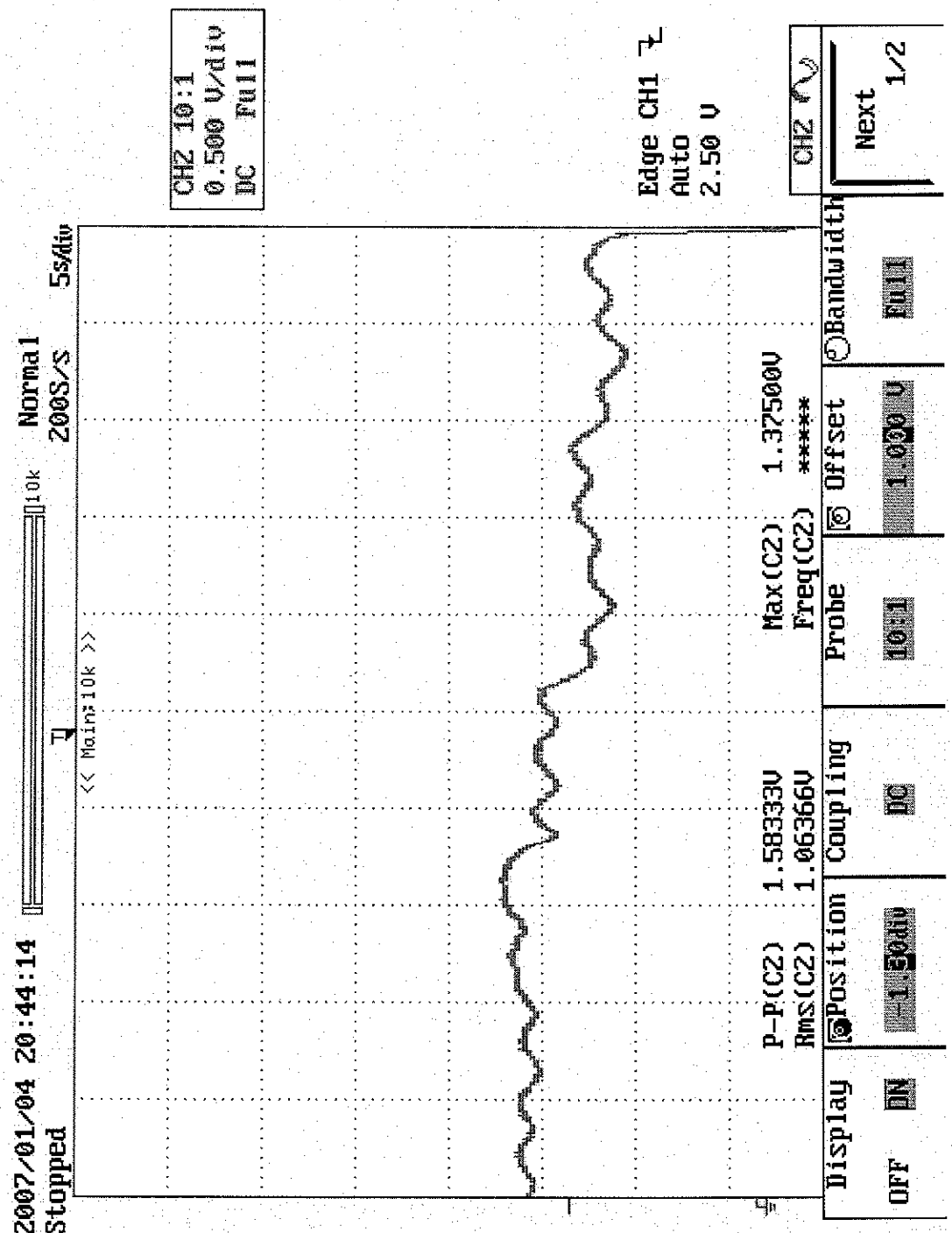

2007/01/04 20:44:14
Stopped
Normal
200S/S
5s/div
10k
<< Main: 10k >>
CH2 10:1
0.500 V/div
DC Full
Edge CH1
Auto
2.50 V
P-P(C2) 1.58333V
Rms(C2) 1.06366V
Max(C2) 1.37500V
Freq(C2) *****
CH2
Next
1/2
Display
OFF
ON
Position
-1.60div
Coupling
DC
Probe
10:1
Offset
1.000 V
Bandwidth
Full
490

FIG. 6B

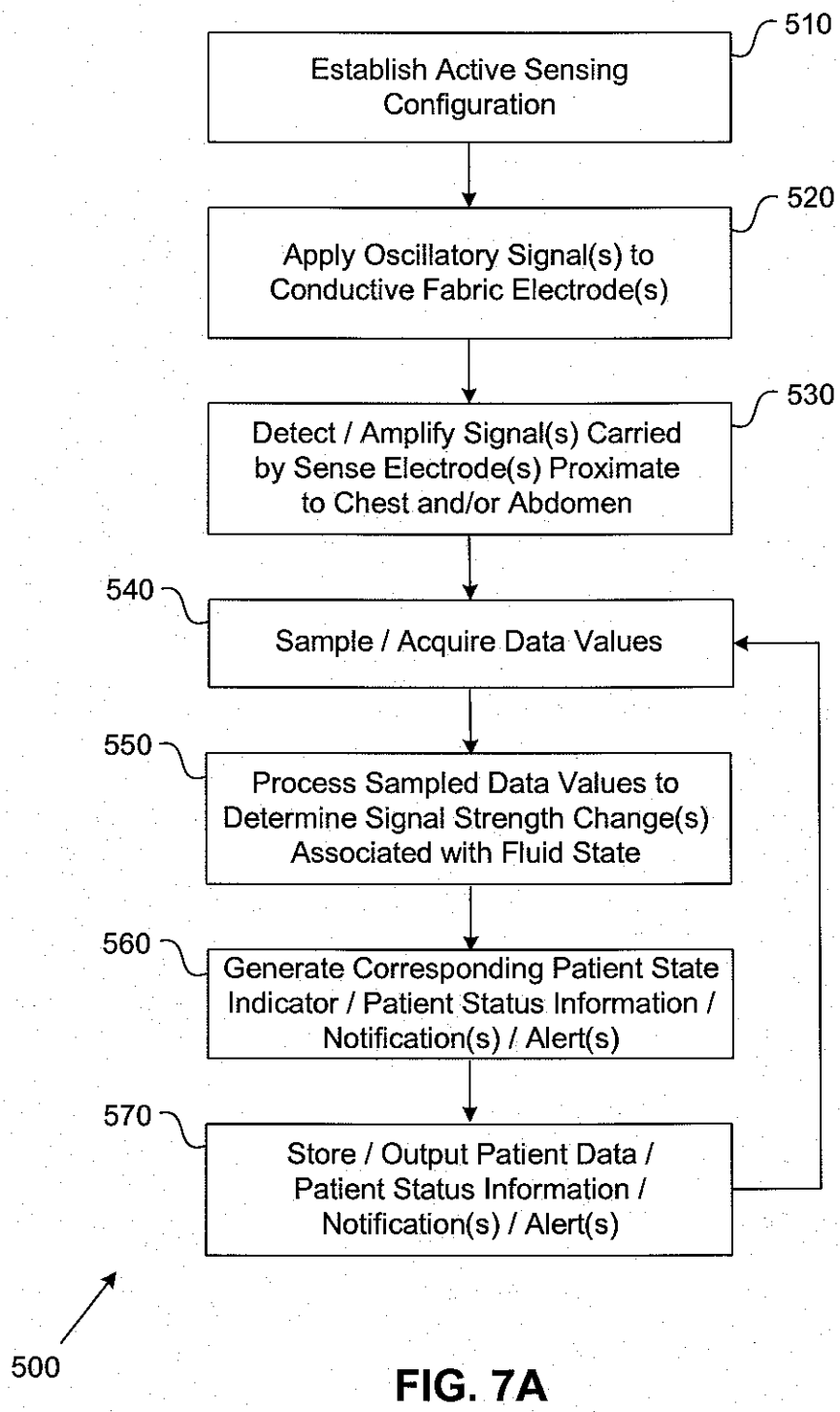

510
Establish Active Sensing Configuration
520
Apply Oscillatory Signal(s) to Conductive Fabric Electrode(s)
530
Detect / Amplify Signal(s) Carried by Sense Electrode(s) Proximate to Chest and/or Abdomen
540
Sample / Acquire Data Values
550
Process Sampled Data Values to Determine Signal Strength Change(s) Associated with Fluid State
560
Generate Corresponding Patient State Indicator / Patient Status Information / Notification(s) / Alert(s)
570
Store / Output Patient Data / Patient Status Information / Notification(s) / Alert(s)
500

FIG. 7A

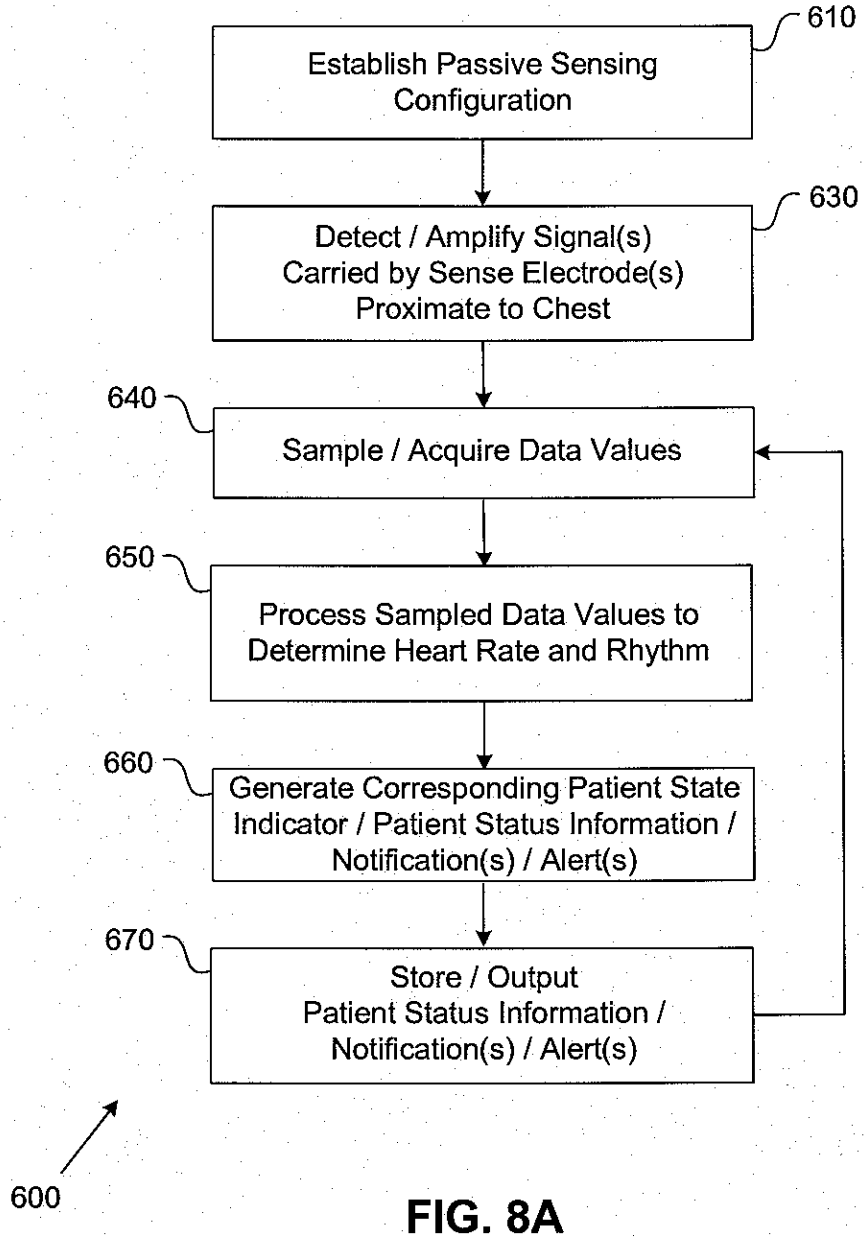

610
Establish Passive Sensing Configuration
630
Detect / Amplify Signal(s) Carried by Sense Electrode(s) Proximate to Chest
640
Sample / Acquire Data Values
650
Process Sampled Data Values to Determine Heart Rate and Rhythm
660
Generate Corresponding Patient State Indicator / Patient Status Information / Notification(s) / Alert(s)
670
Store / Output Patient Status Information / Notification(s) / Alert(s)
600

FIG. 8A

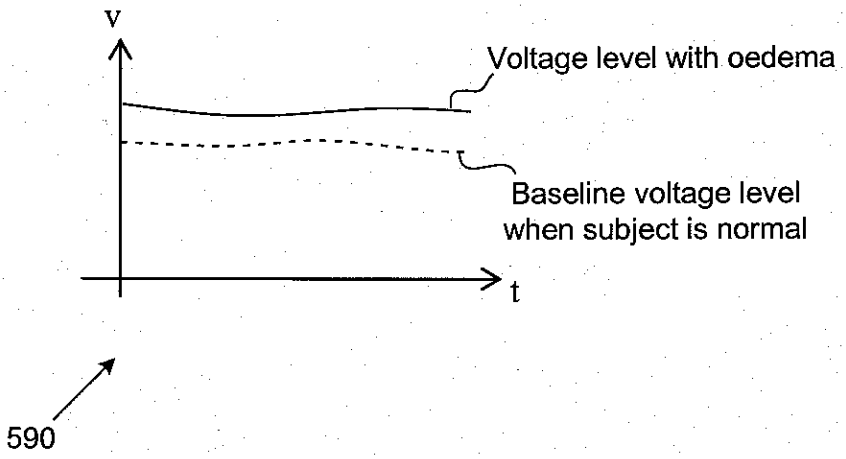

V
Voltage level with oedema
Baseline voltage level
when subject is normal
t
590

FIG. 7B

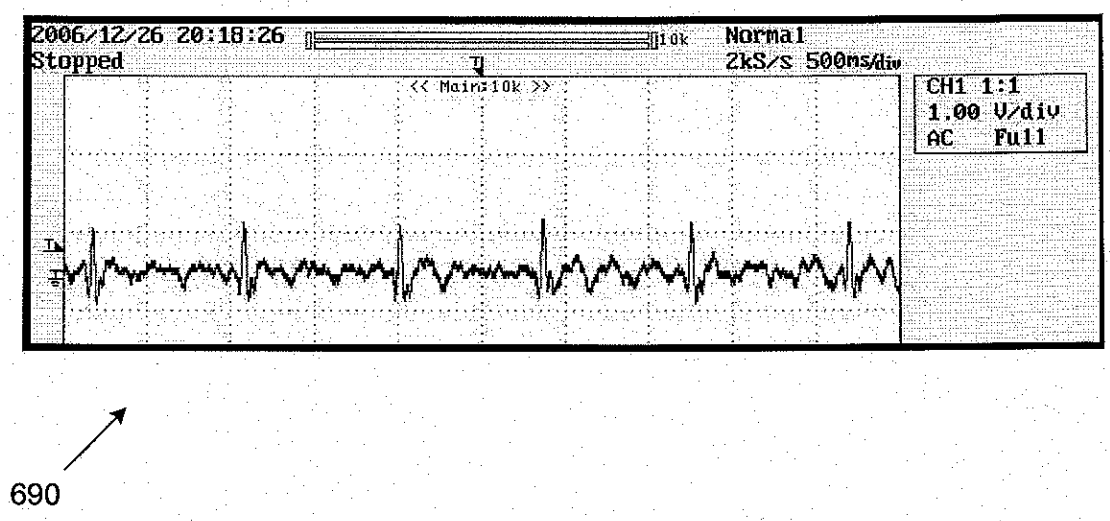

2006/12/26 20:18:26
Stopped
10k
Normal
2kS/s 500ms/div
<< Main:10k >>
CH1 1:1
1.00 V/div
AC Full
690

FIG. 8B