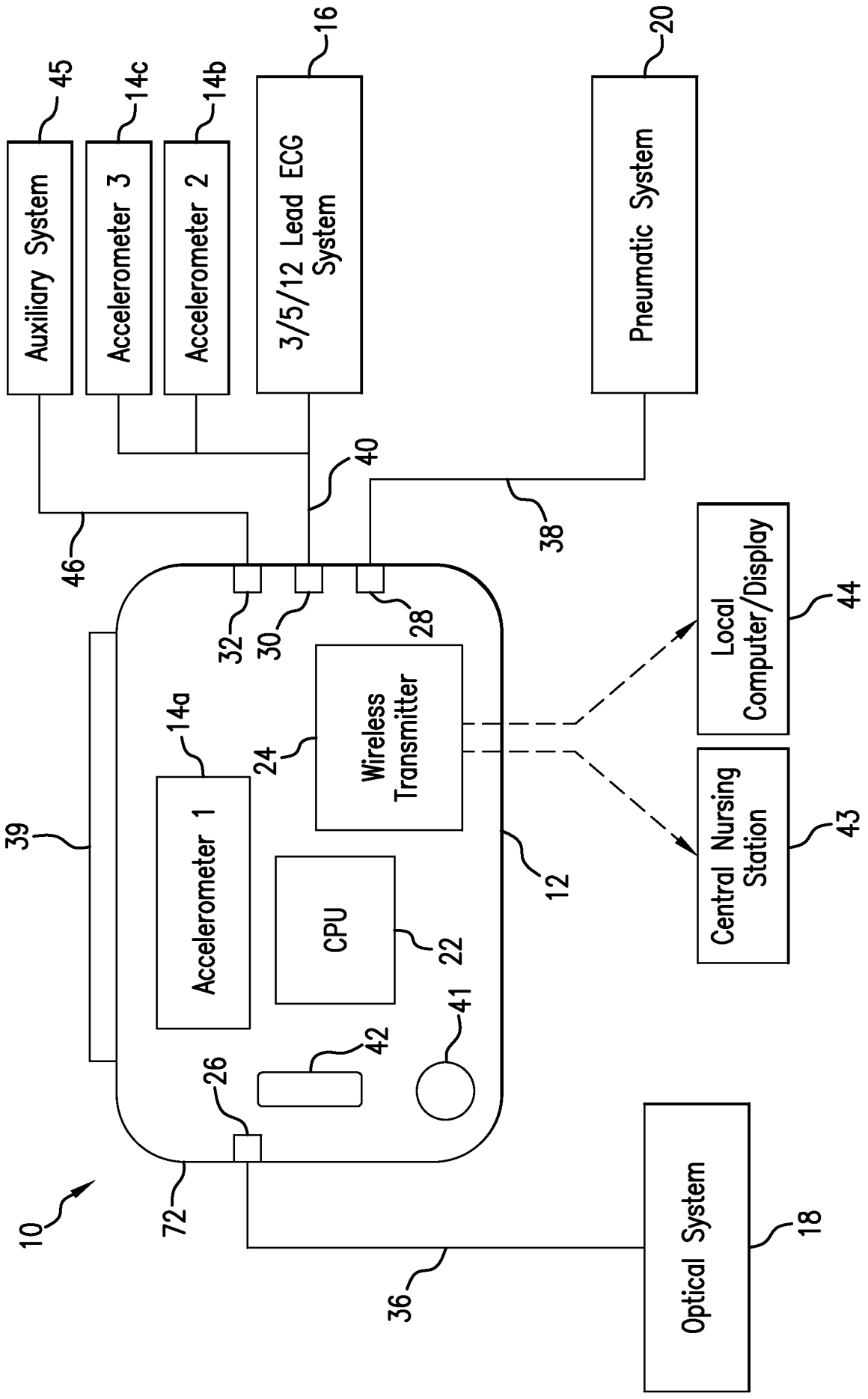

Auxiliary System
45
Accelerometer 3
14c
Accelerometer 2
14b
3/5/12 Lead ECG System
16
Pneumatic System
20
40
46
38
32
30
28
Wireless Transmitter
24
14a
Accelerometer 1
CPU
22
41
42
26
72
10
39
12
Local Computer/Display
44
Central Nursing Station
43
Optical System
18
36

FIG. 1

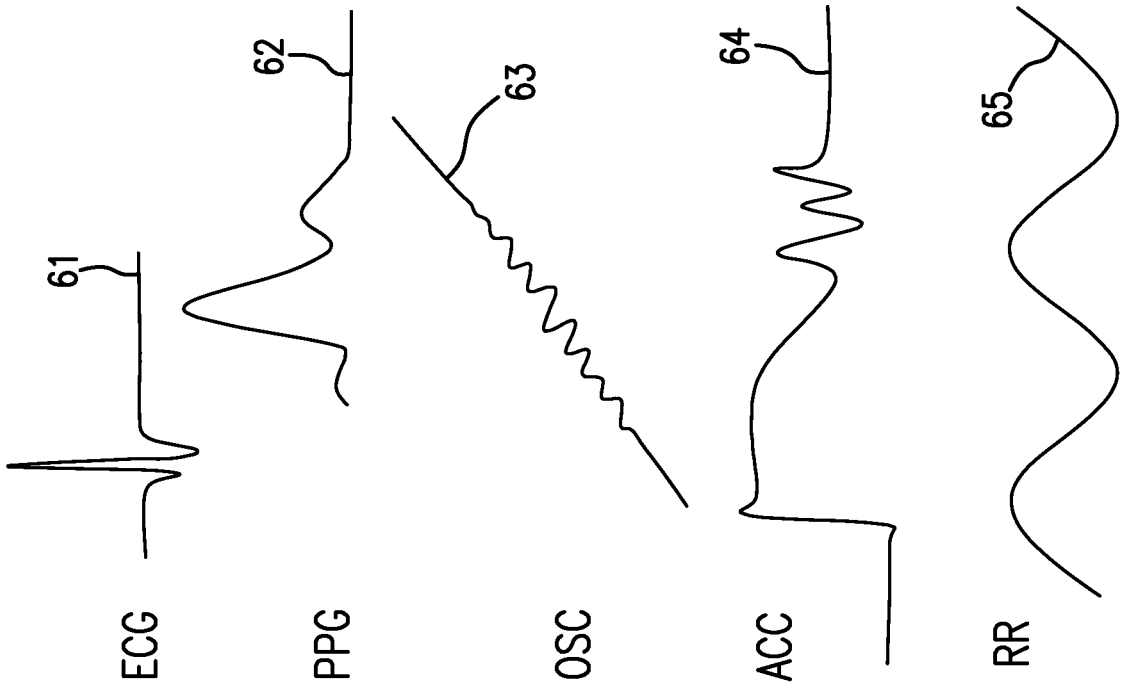

61
62
63
64
65
ECG
PPG
OSC
ACC
RR

FIG.3

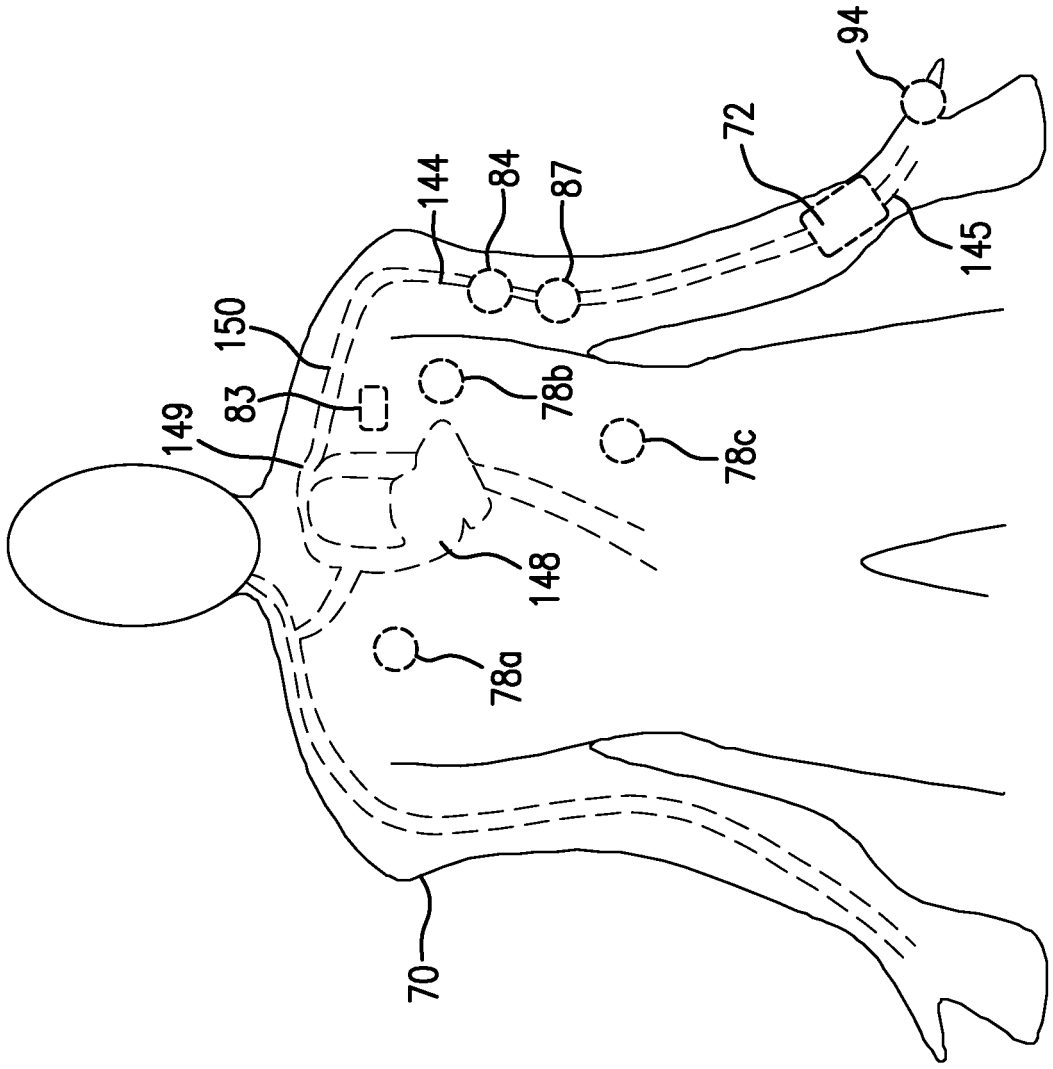

94
72
144
84
87
145
150
83
149
78b
78c
148
78a
70

FIG.2

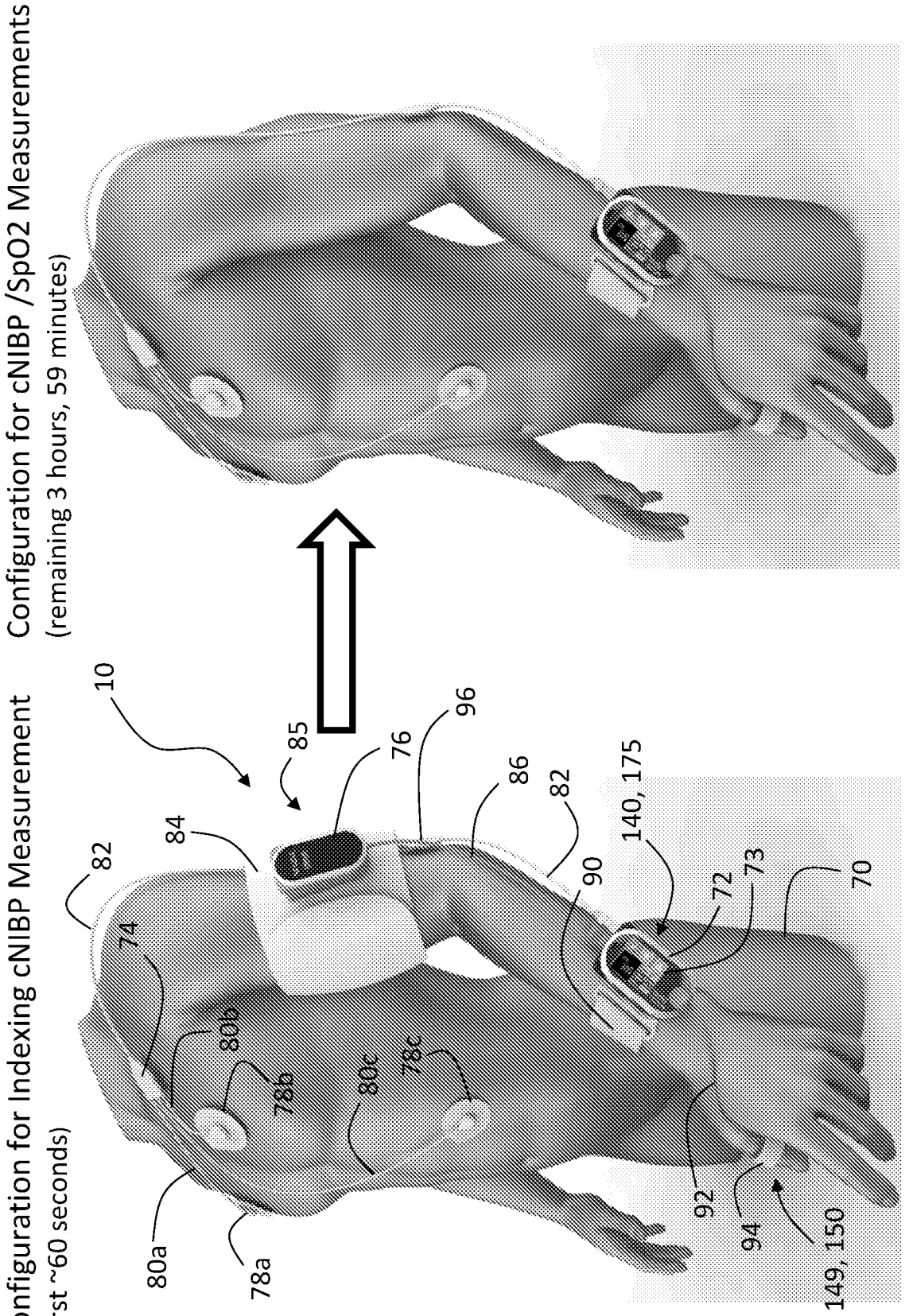

Configuration for Indexing cNIBP Measurement
(first ~60 seconds)
Configuration for cNIBP /SpO2 Measurements
(remaining 3 hours, 59 minutes)
10
85
82
84
74
80a
78a
80b
78b
80c
78c
76
96
86
82
90
140, 175
72
73
70
92
94
149, 150

FIG.4A

FIG.4B

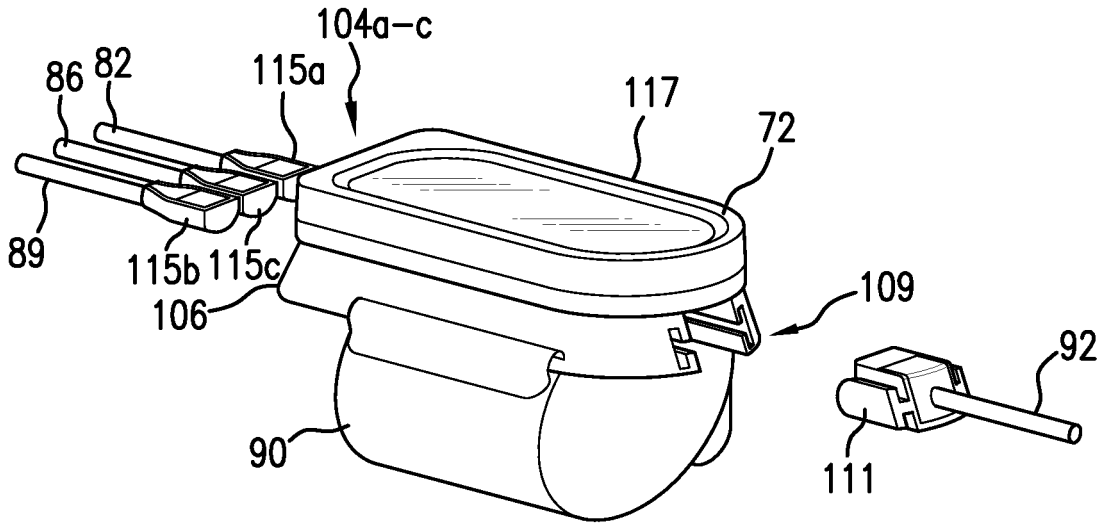


FIG.5A

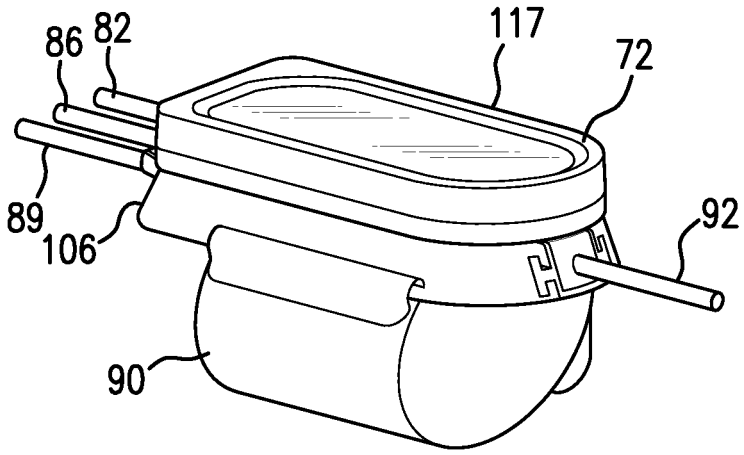


FIG.5B

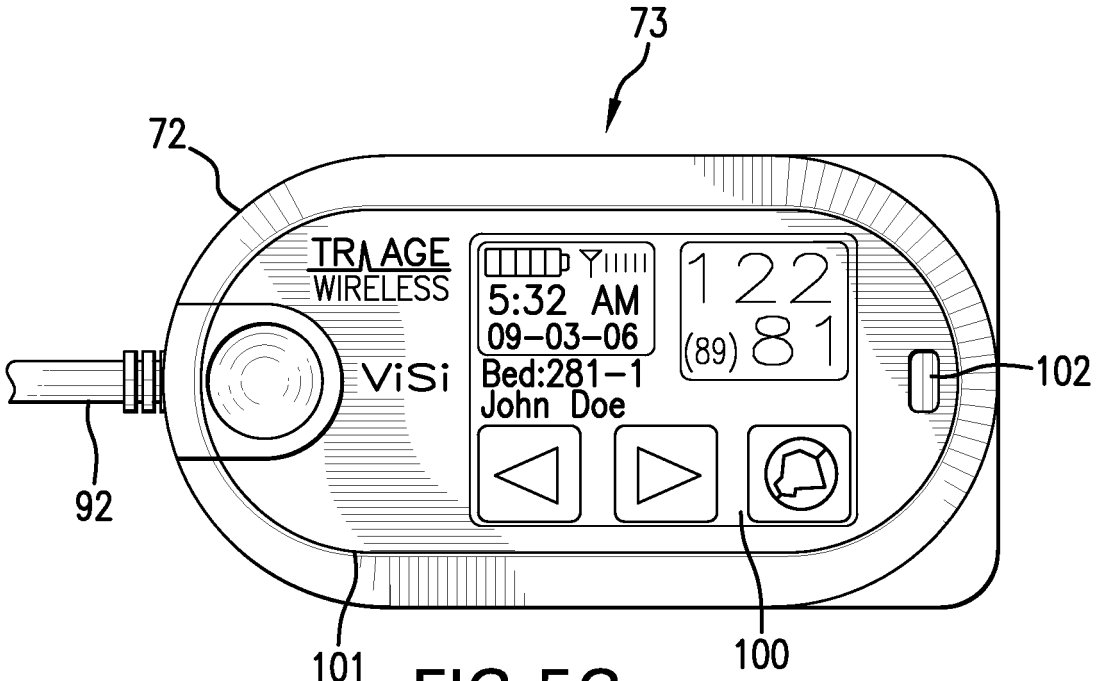


FIG.5C

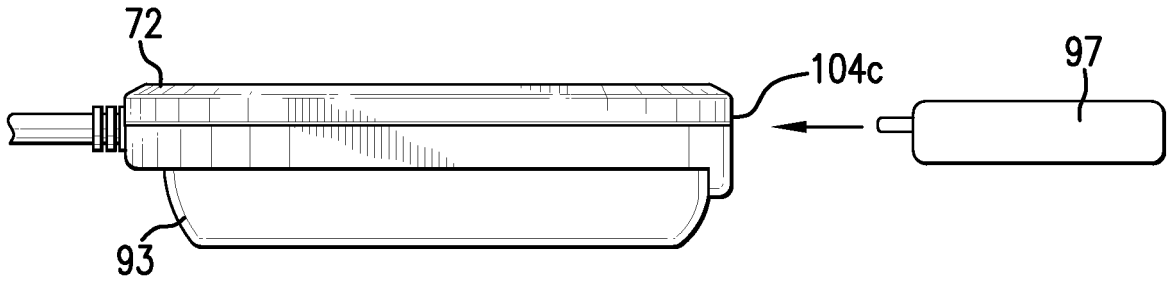


FIG.6A

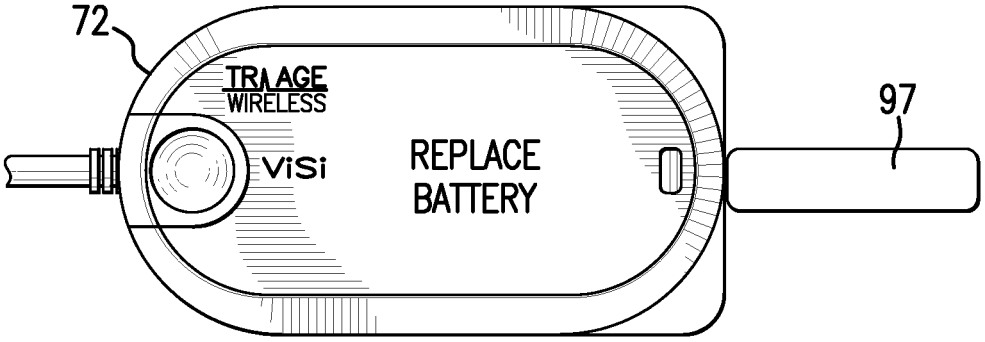


FIG.6B

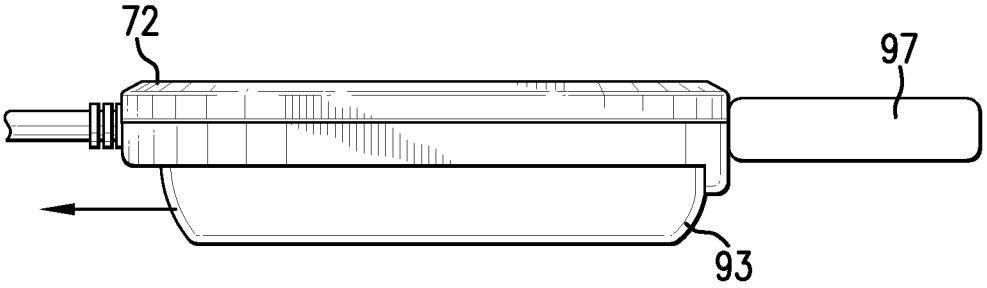


FIG.6C

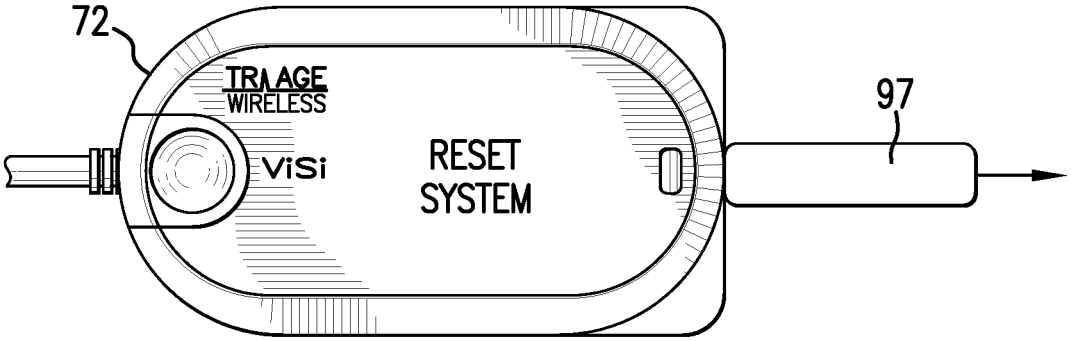


FIG.6D

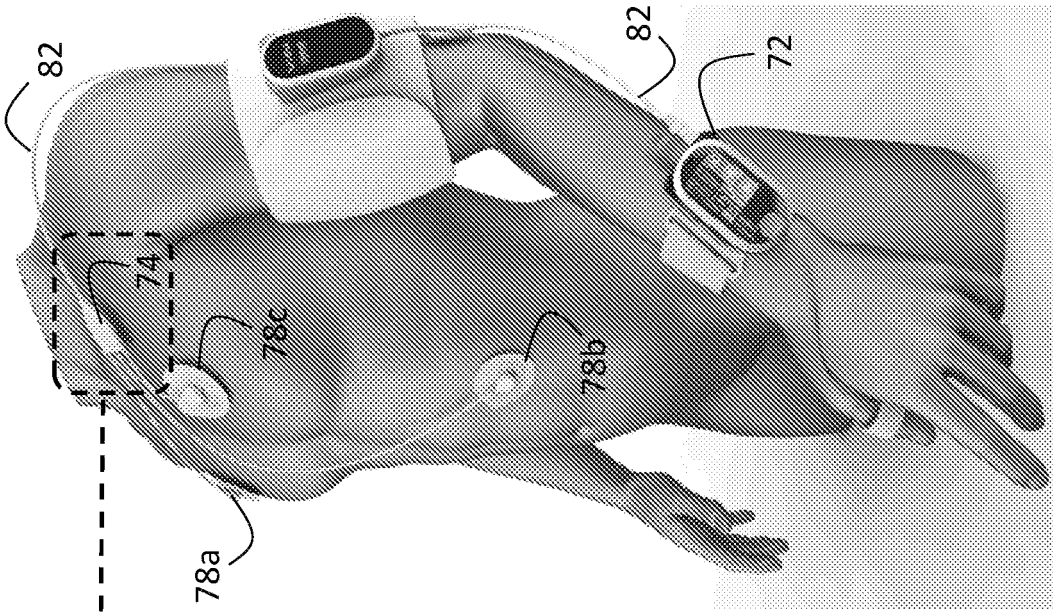

82
82
72
74
78c
78b
78a

FIG.7A

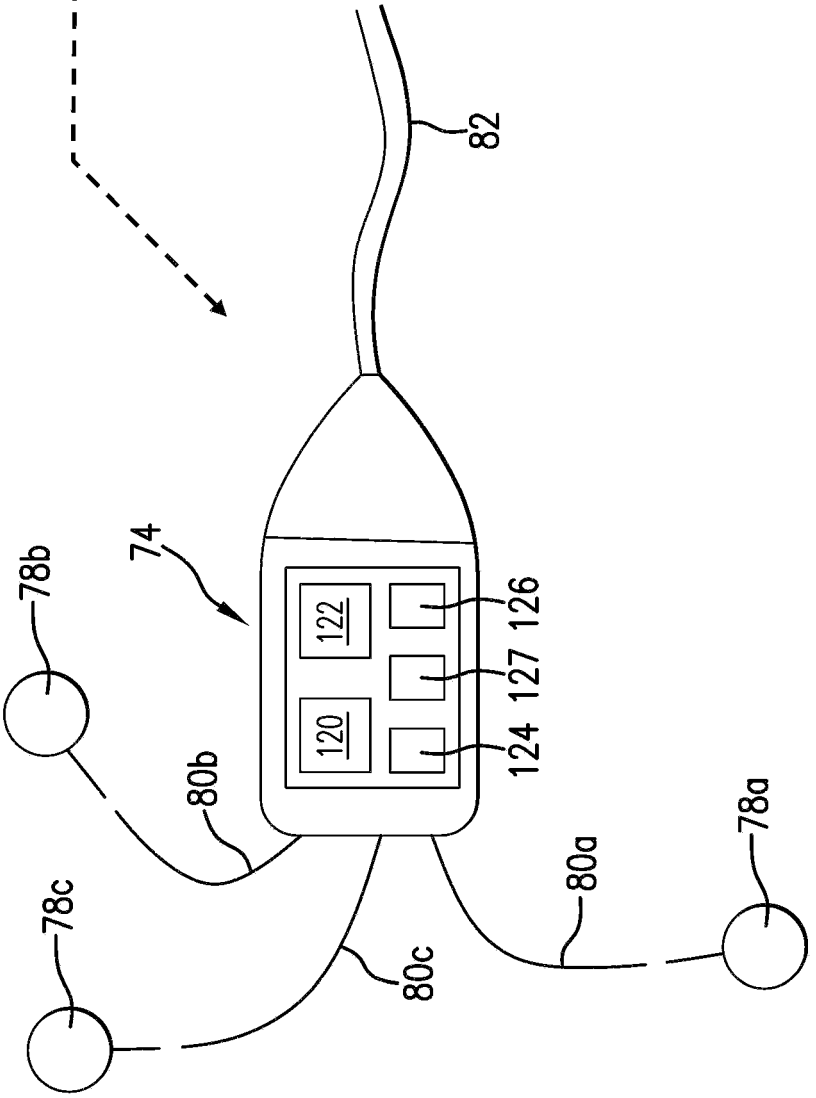

82
74
78b
78c
78a
80b
80c
80a
120
122
124
126
127

FIG.7B

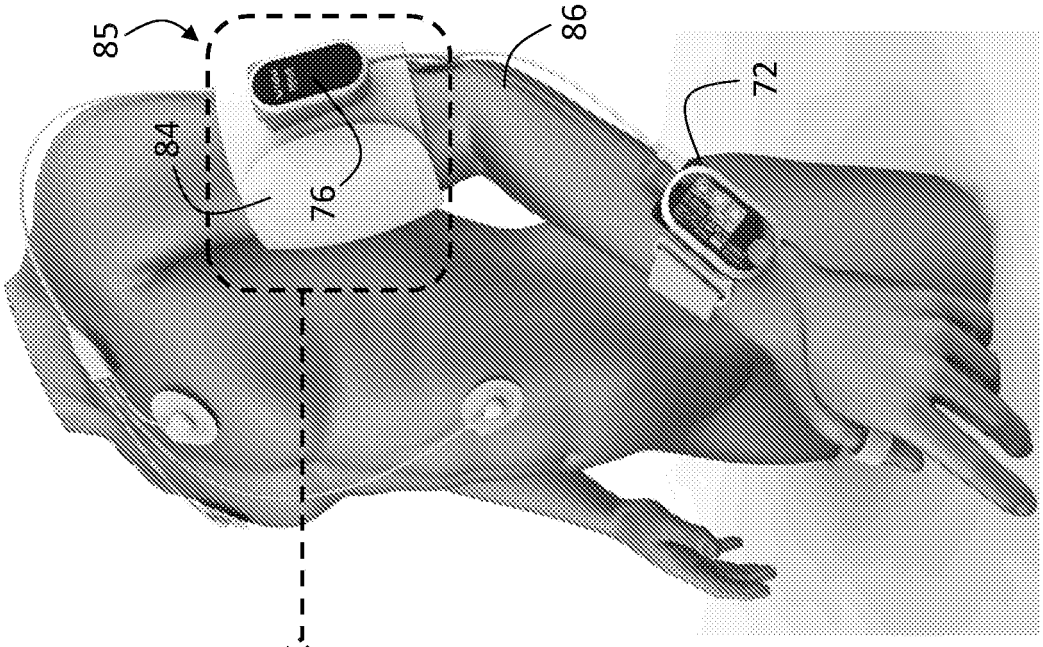


FIG.8A

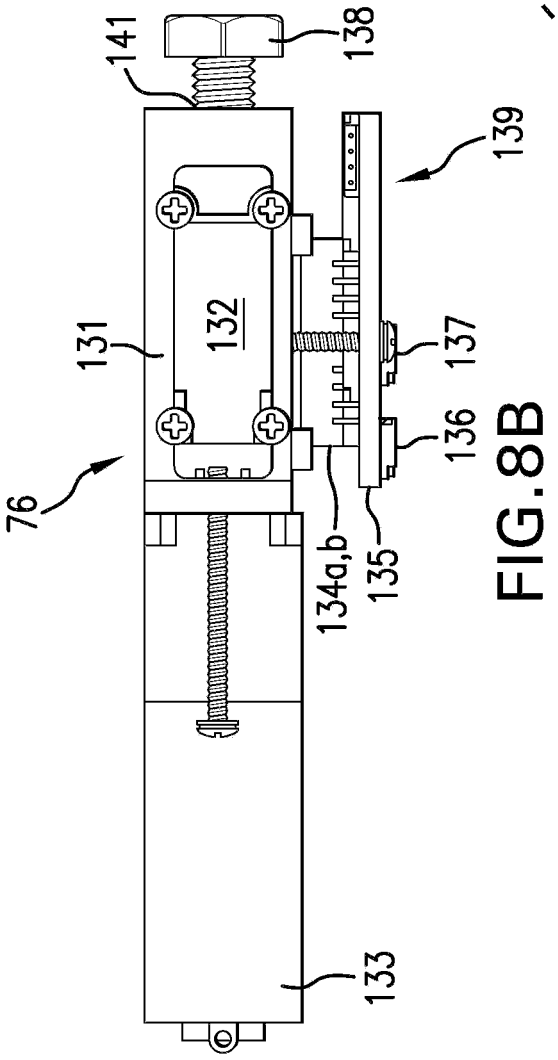


FIG.8B

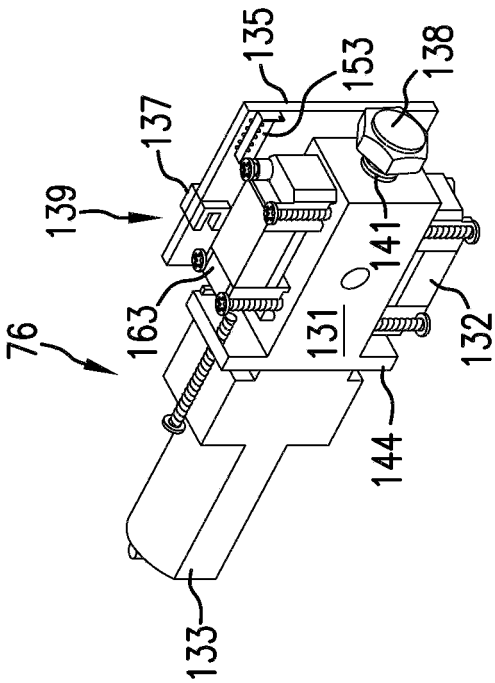


FIG.8C

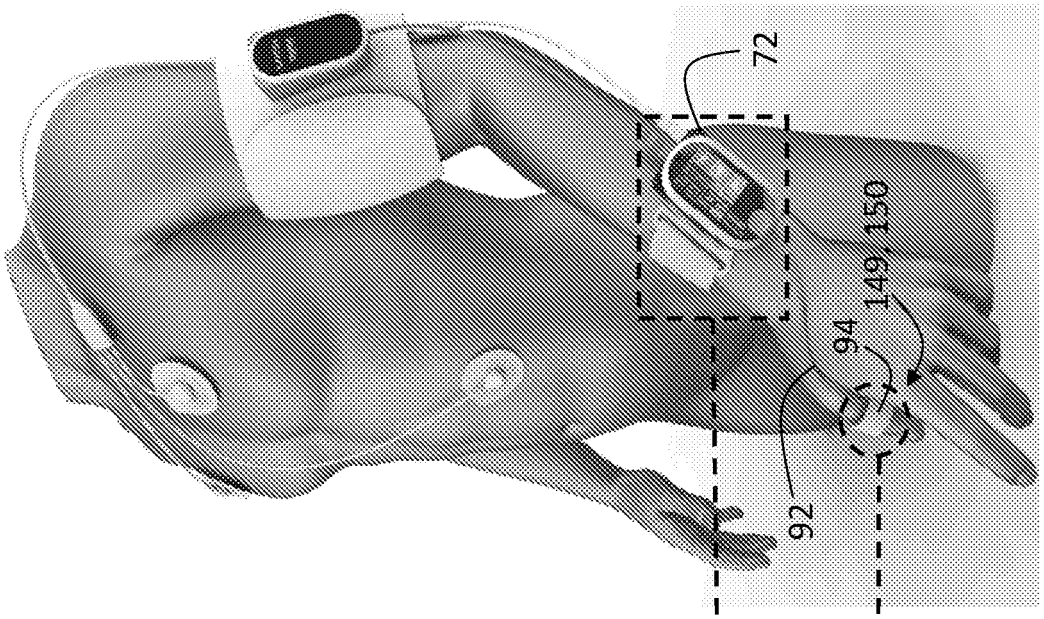

72
92
94
149, 150

FIG.9A

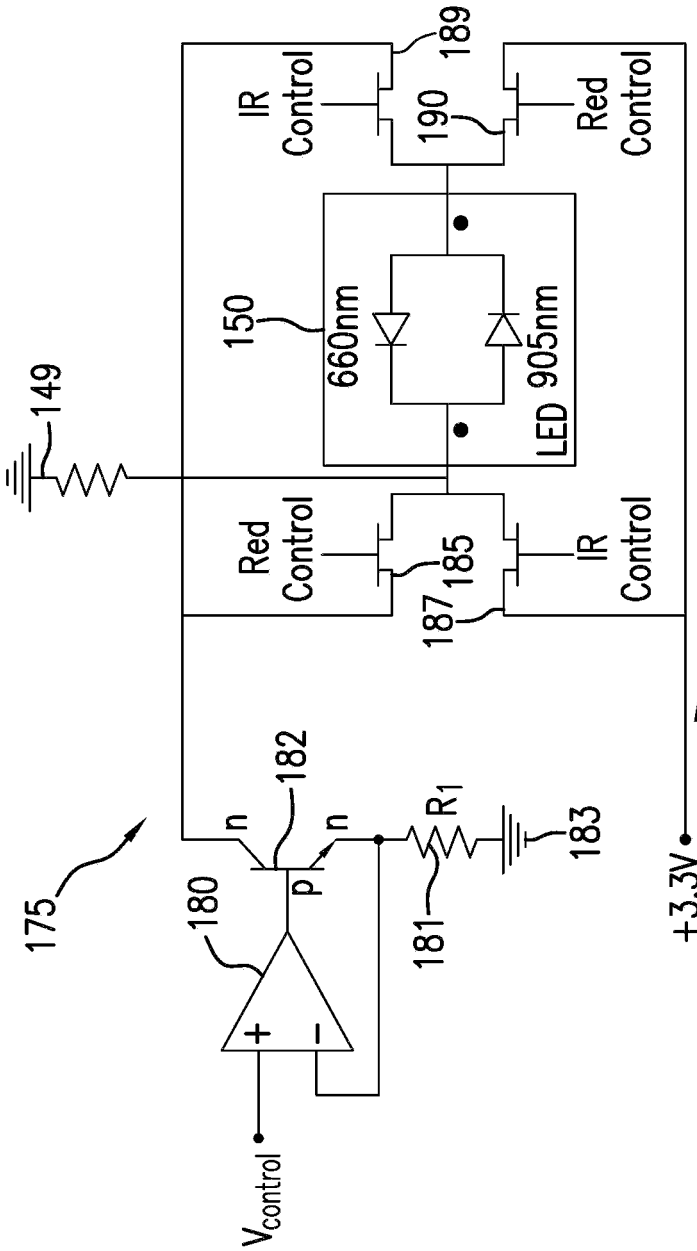

IR Control
189
190
Red Control
150
660nm
LED 905nm
149
Red Control
185
187
IR Control
175
n
182
p
n
R1
183
180
181
+3.3V
i_{LED}
Cathode
155
Anode
$V_{control}$

FIG.9B

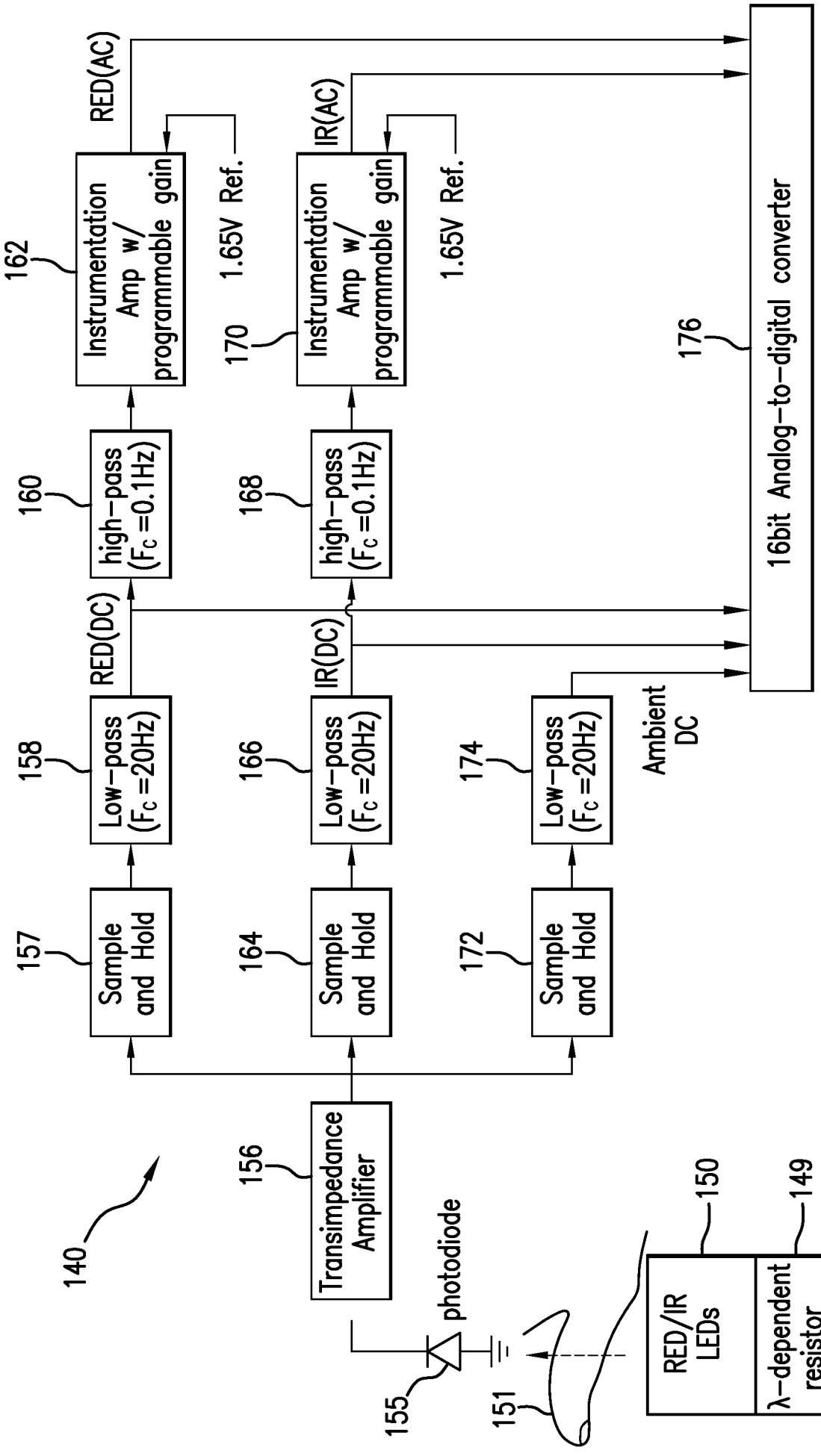

140
156
Transimpedance Amplifier
157
Sample and Hold
158
Low-pass (Fc=20Hz)
160
high-pass (Fc=0.1Hz)
162
Instrumentation Amp w/ programmable gain
164
Sample and Hold
166
Low-pass (Fc=20Hz)
168
high-pass (Fc=0.1Hz)
170
Instrumentation Amp w/ programmable gain
172
Sample and Hold
174
Low-pass (Fc=20Hz)
176
16bit Analog-to-digital converter
RED(AC)
IR(AC)
1.65V Ref.
1.65V Ref.
RED(DC)
IR(DC)
Ambient DC
photodiode
155
151
RED/IR LEDs
λ-dependent resistor
150
149
294

FIG.10

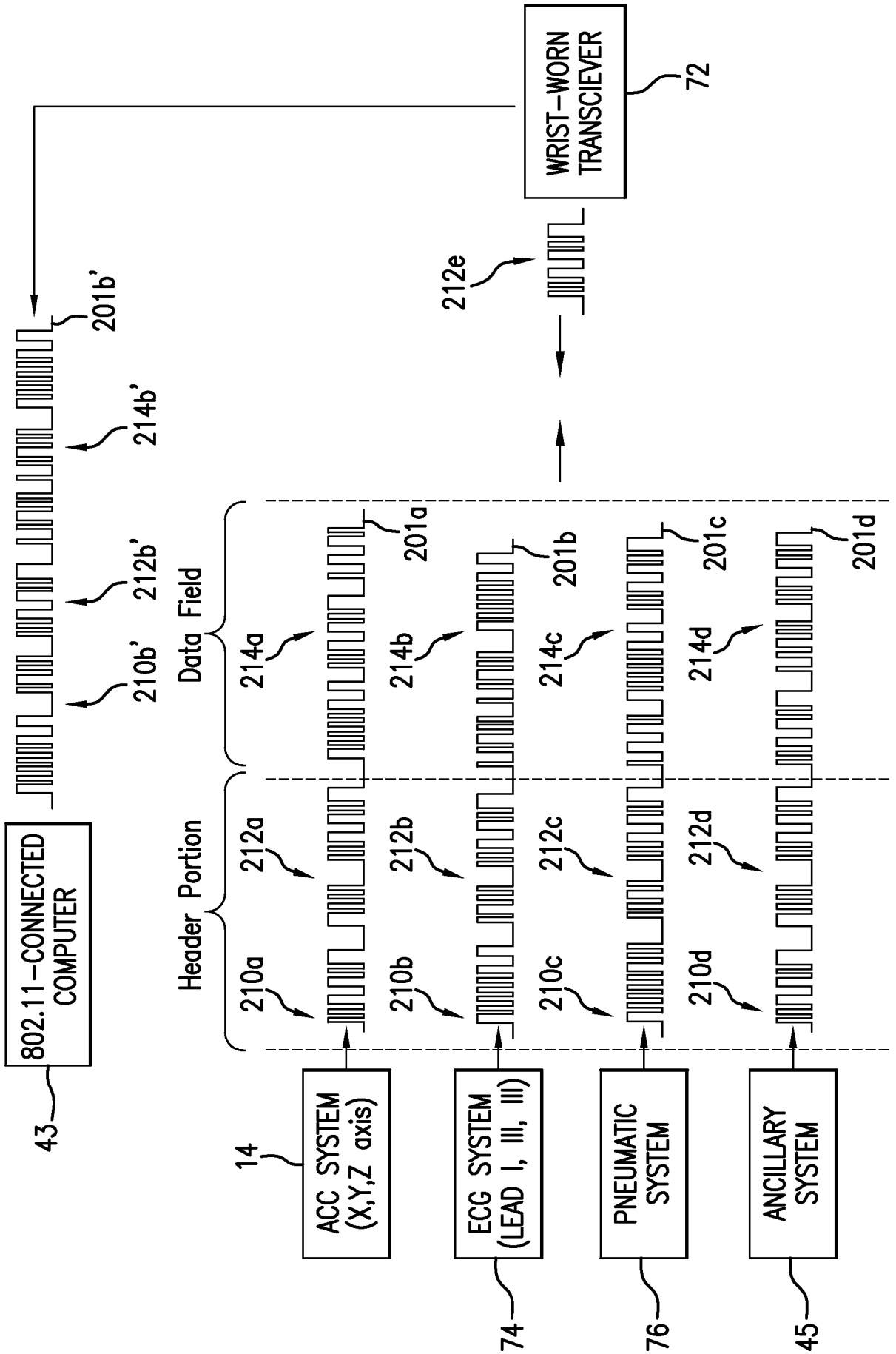

802.11-CONNECTED COMPUTER
43
WRIST-WORN TRANSCIEVER
72
201b'
214b'
212b'
210b'
212e
Header Portion
Data Field
210a
212a
214a
201a
210b
212b
214b
201b
210c
212c
214c
201c
210d
212d
214d
201d
14
ACC SYSTEM (X,Y,Z axis)
ECG SYSTEM (LEAD I, III, III)
PNEUMATIC SYSTEM
ANCILLARY SYSTEM
74
76
45

FIG. 11

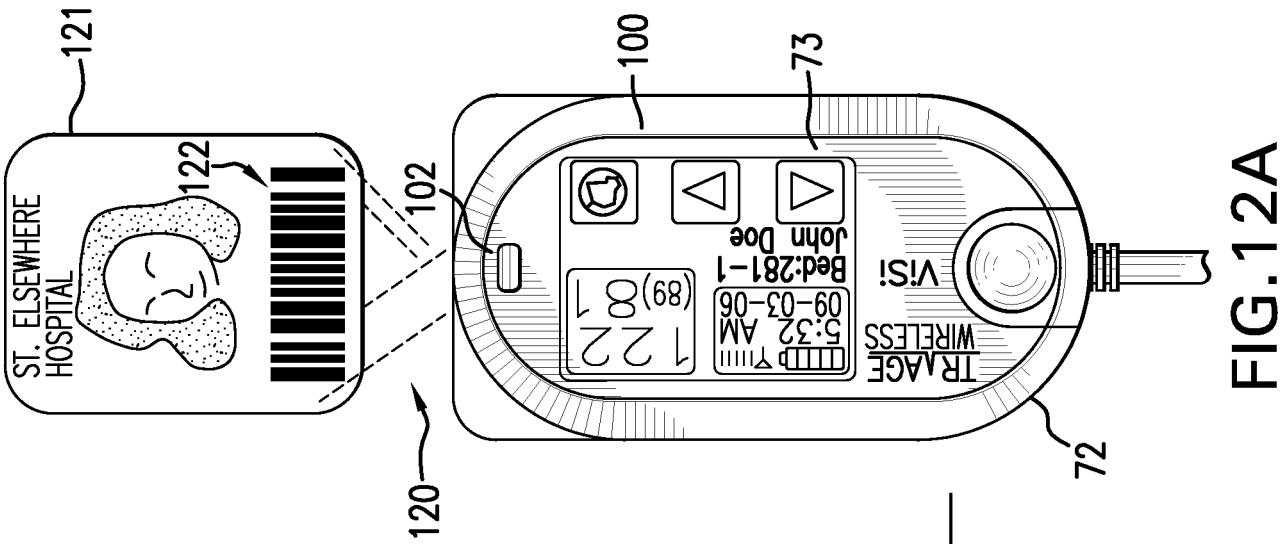


FIG.12A

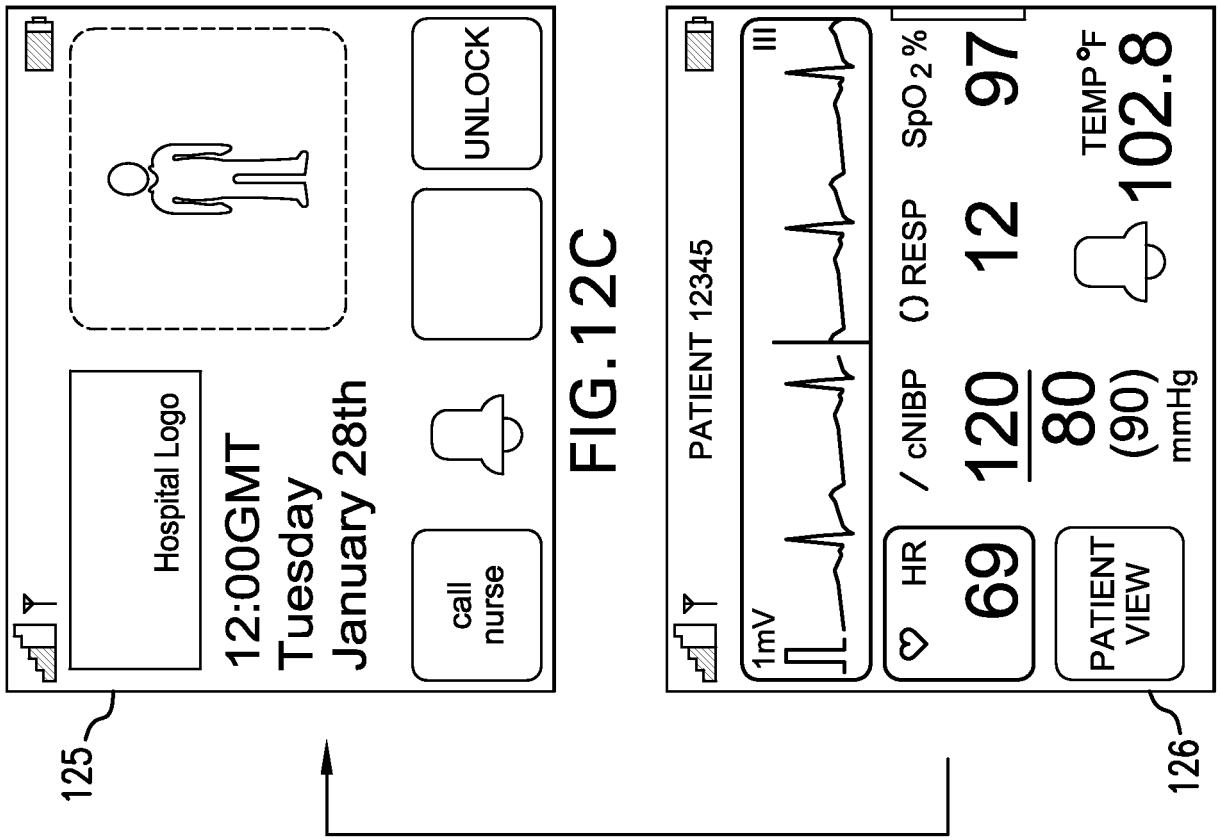


FIG.12B

FIG.12C

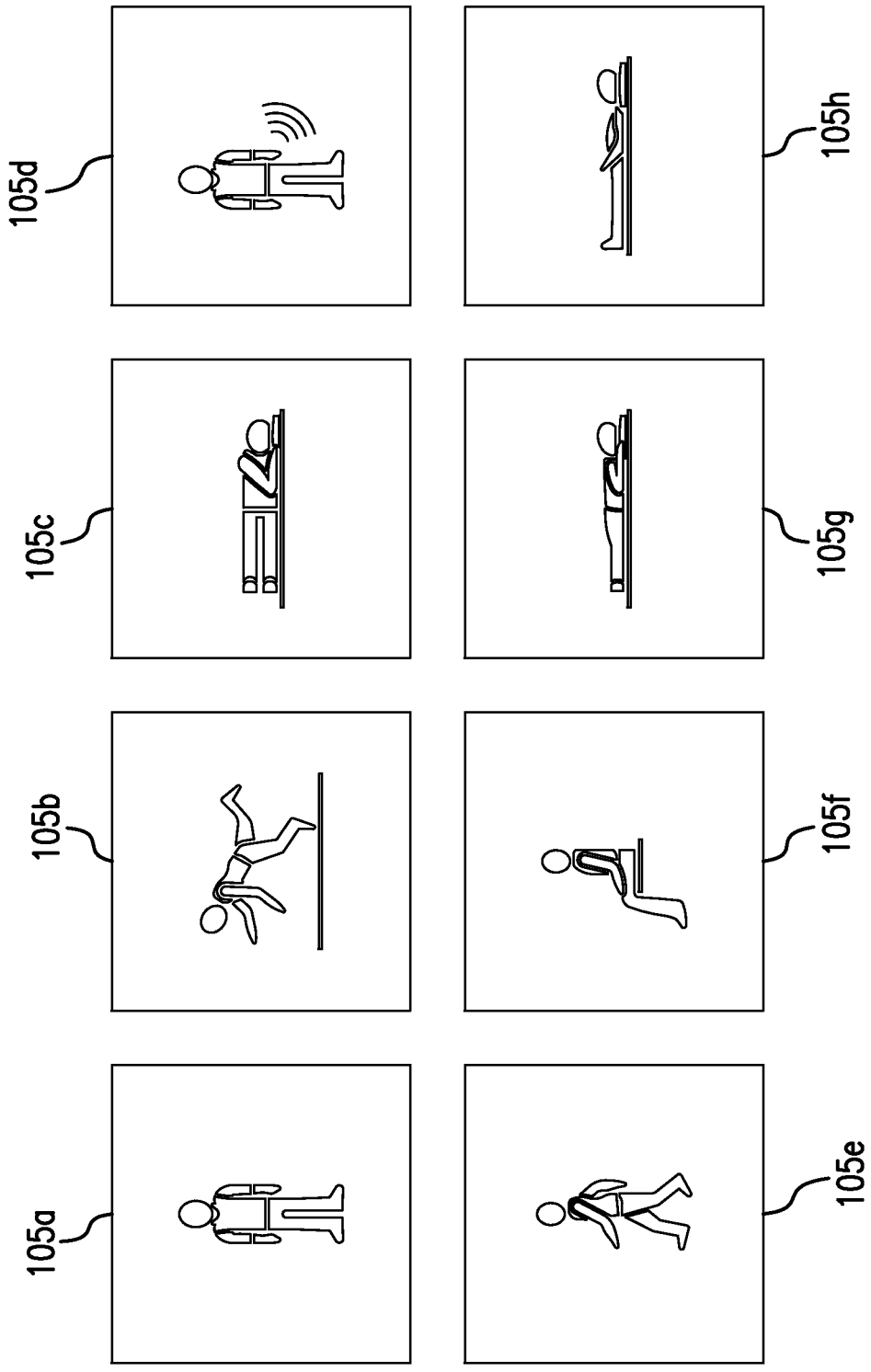


FIG.13

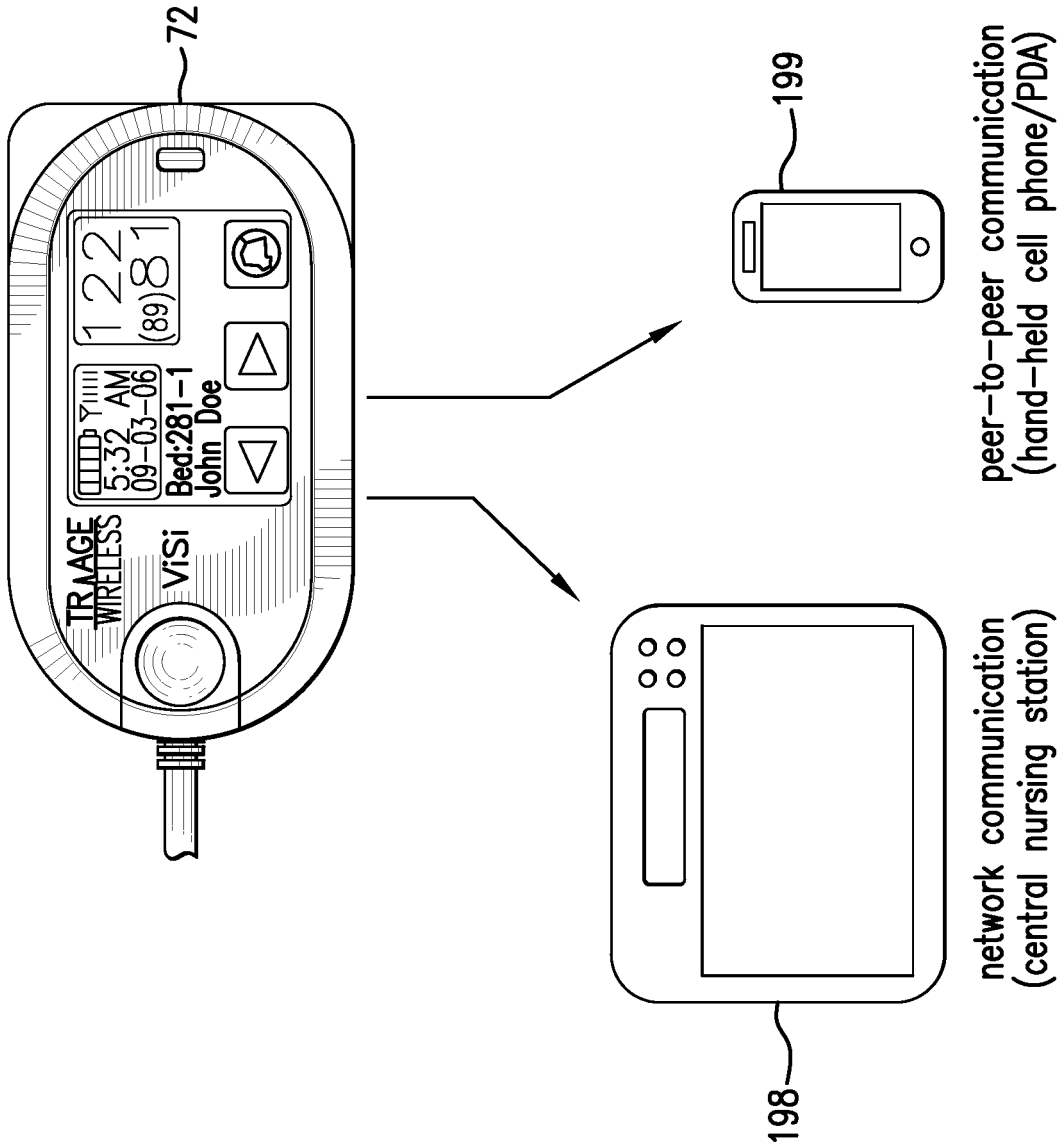

72
TRIAGE WIRELESS
ViSi
5:32 AM
09-03-06
Bed:281-1
John Doe
122
(89)81
199
peer-to-peer communication
(hand-held cell phone/PDA)
network communication
(central nursing station)
198

FIG.14

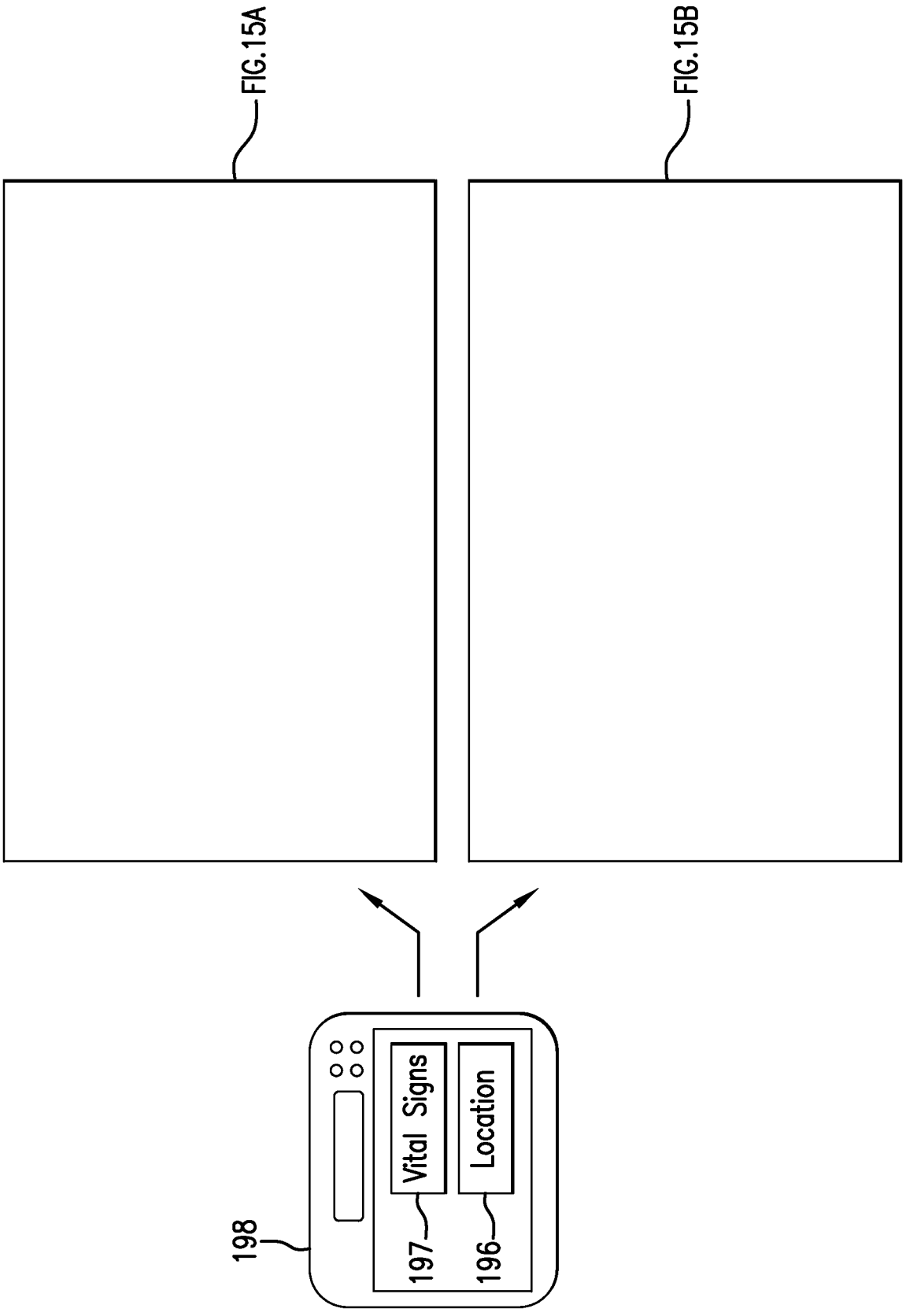


FIG.15

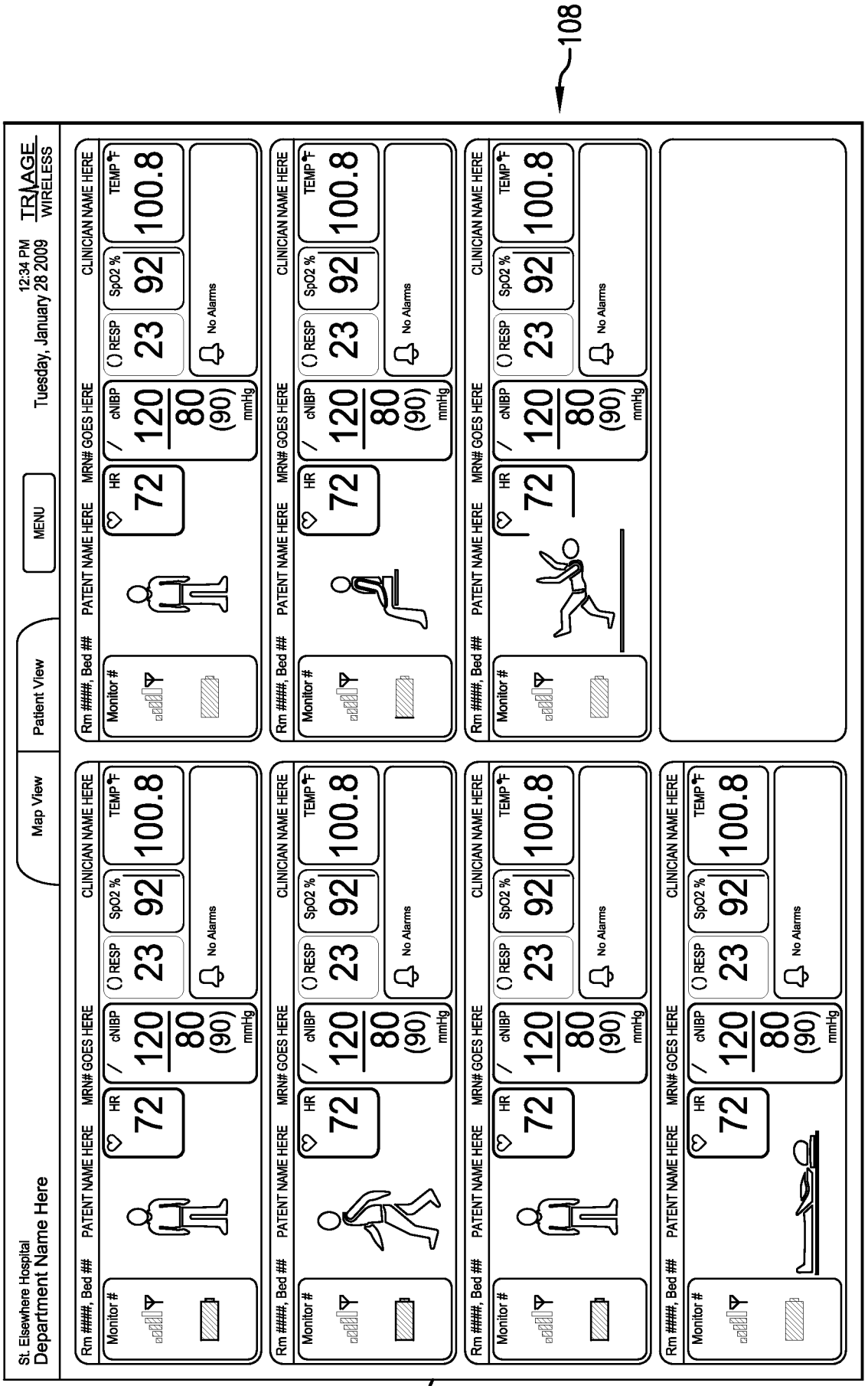

108
St. Elsewhere Hospital
Department Name Here
Map View
Patient View
MENU
12:34 PM
Tuesday, January 28 2009
TRIAGE
WIRELESS
Rm ####, Bed ##
PATENT NAME HERE
MRN# GOES HERE
CLINICIAN NAME HERE
Monitor #
HR
72
cNIBP
120
80
(90)
mmHg
RESP
23
SpO2 %
92
TEMP
100.8
No Alarms
106

FIG. 15A

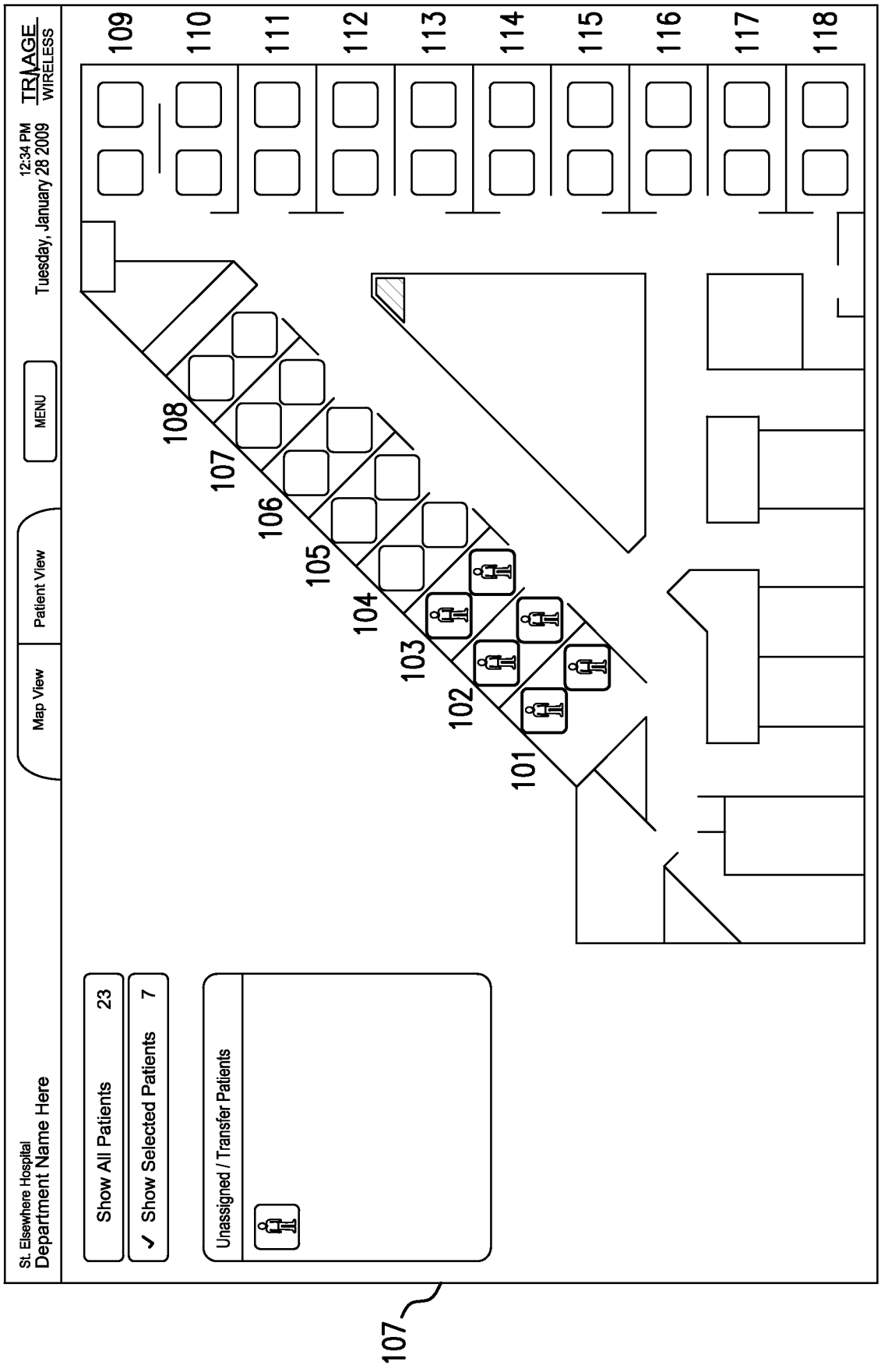

St. Elsewhere Hospital
Department Name Here
Map View
Patient View
MENU
12:34 PM
Tuesday, January 28 2009
TRIAGE WIRELESS
Show All Patients 23
✓ Show Selected Patients 7
Unassigned / Transfer Patients
101
102
103
104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
107

FIG. 15B

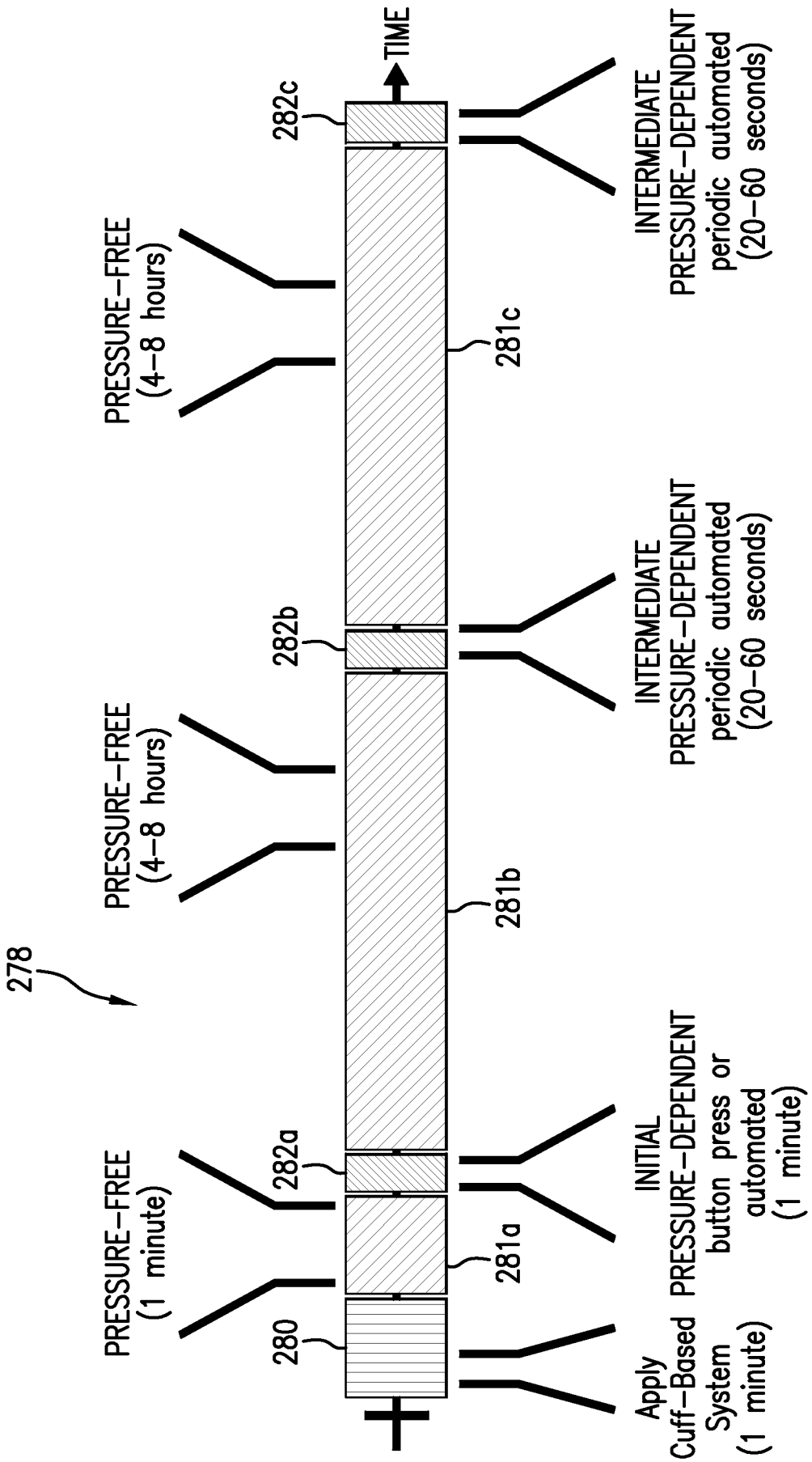

278
280
282a
282b
282c
281a
281b
281c
TIME
Apply Cuff-Based System (1 minute)
PRESSURE-FREE (1 minute)
INITIAL PRESSURE-DEPENDENT button press or automated (1 minute)
PRESSURE-FREE (4-8 hours)
INTERMEDIATE PRESSURE-DEPENDENT periodic automated (20-60 seconds)
PRESSURE-FREE (4-8 hours)
INTERMEDIATE PRESSURE-DEPENDENT periodic automated (20-60 seconds)

FIG.16