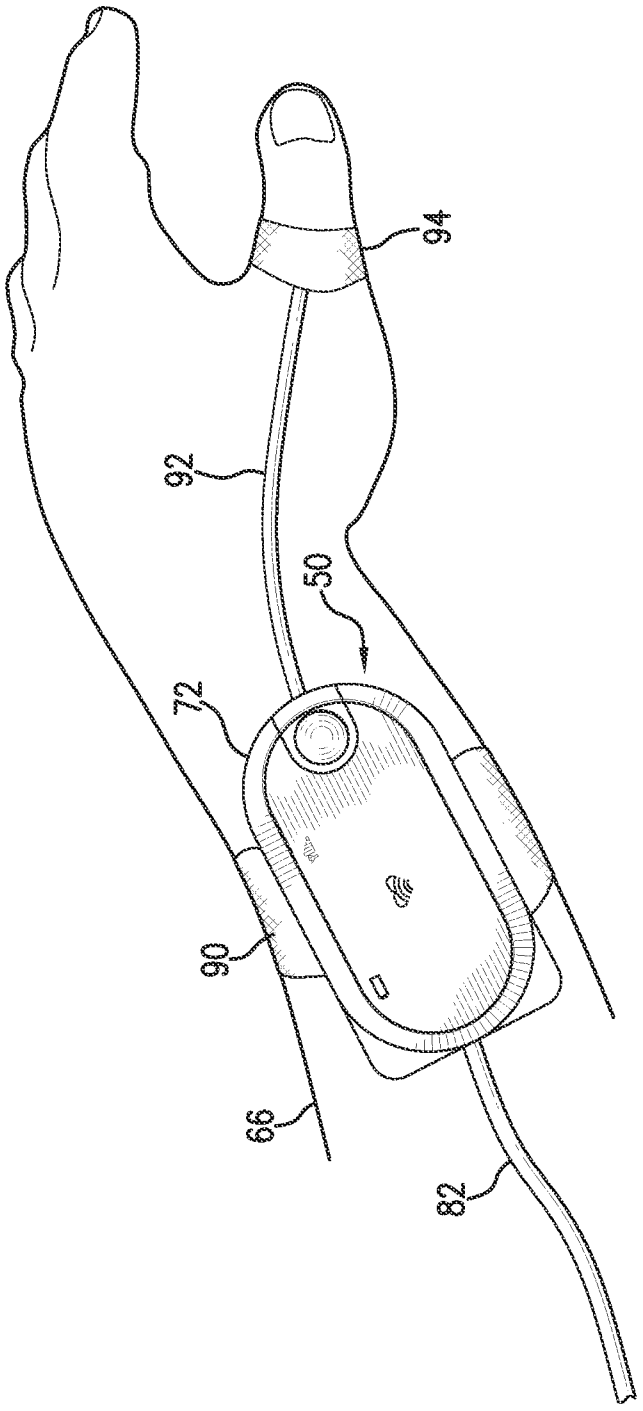


FIG. 1

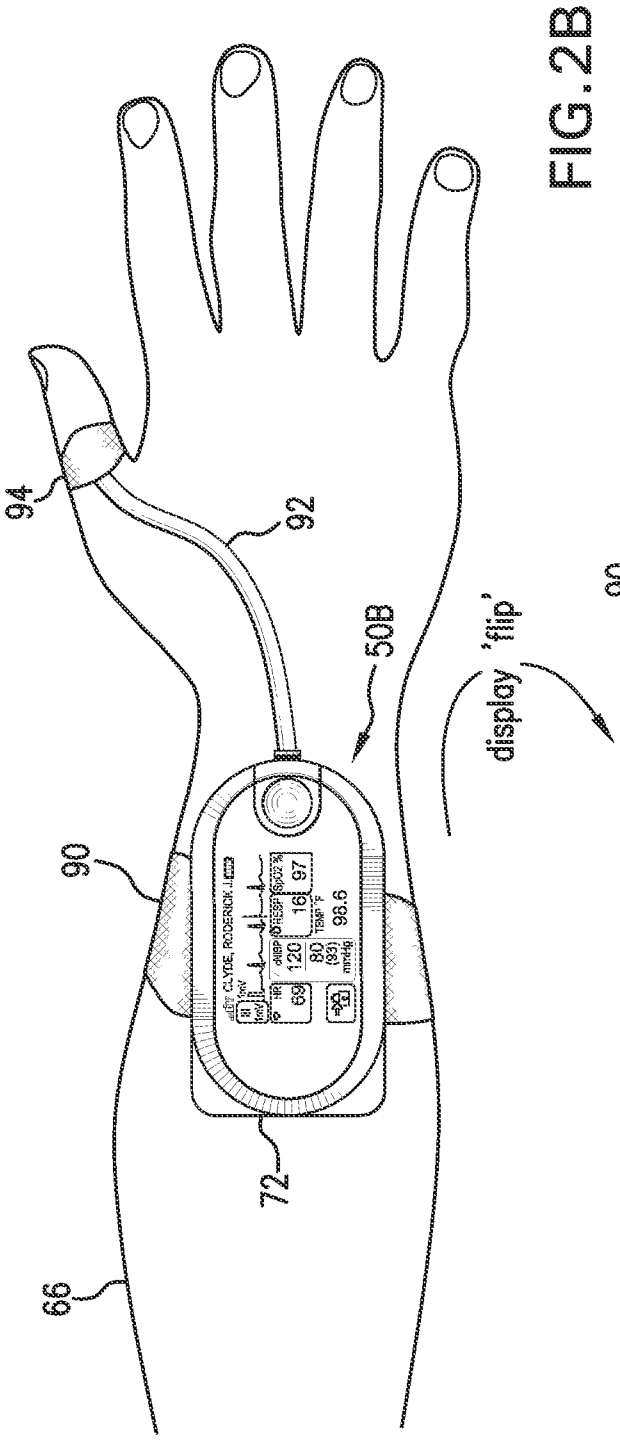


FIG.2B

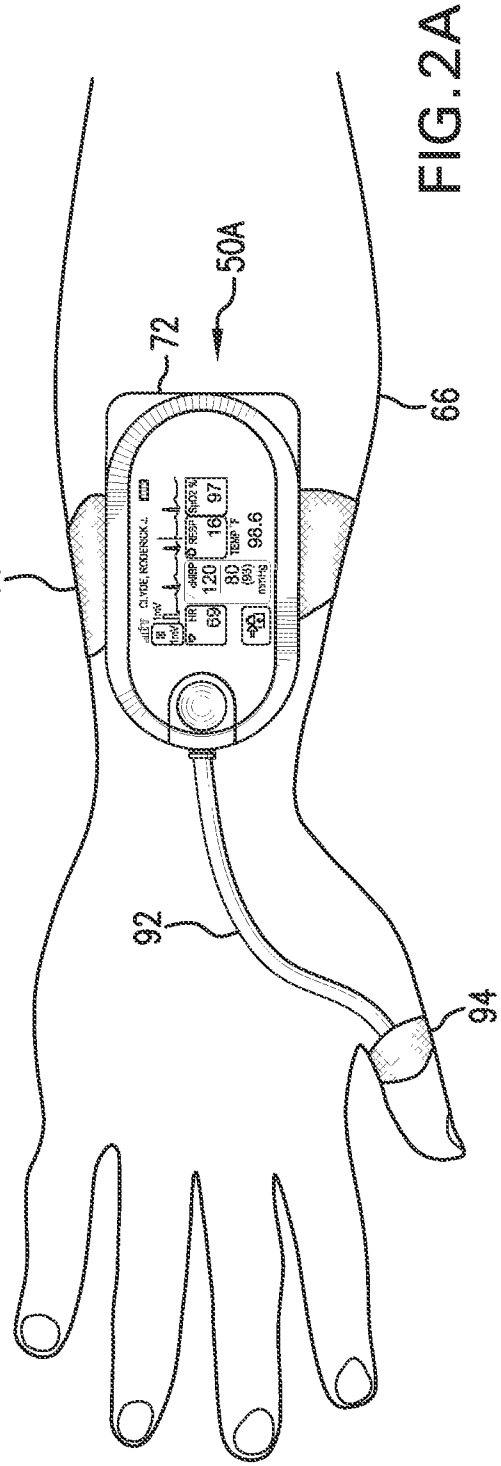


FIG.2A

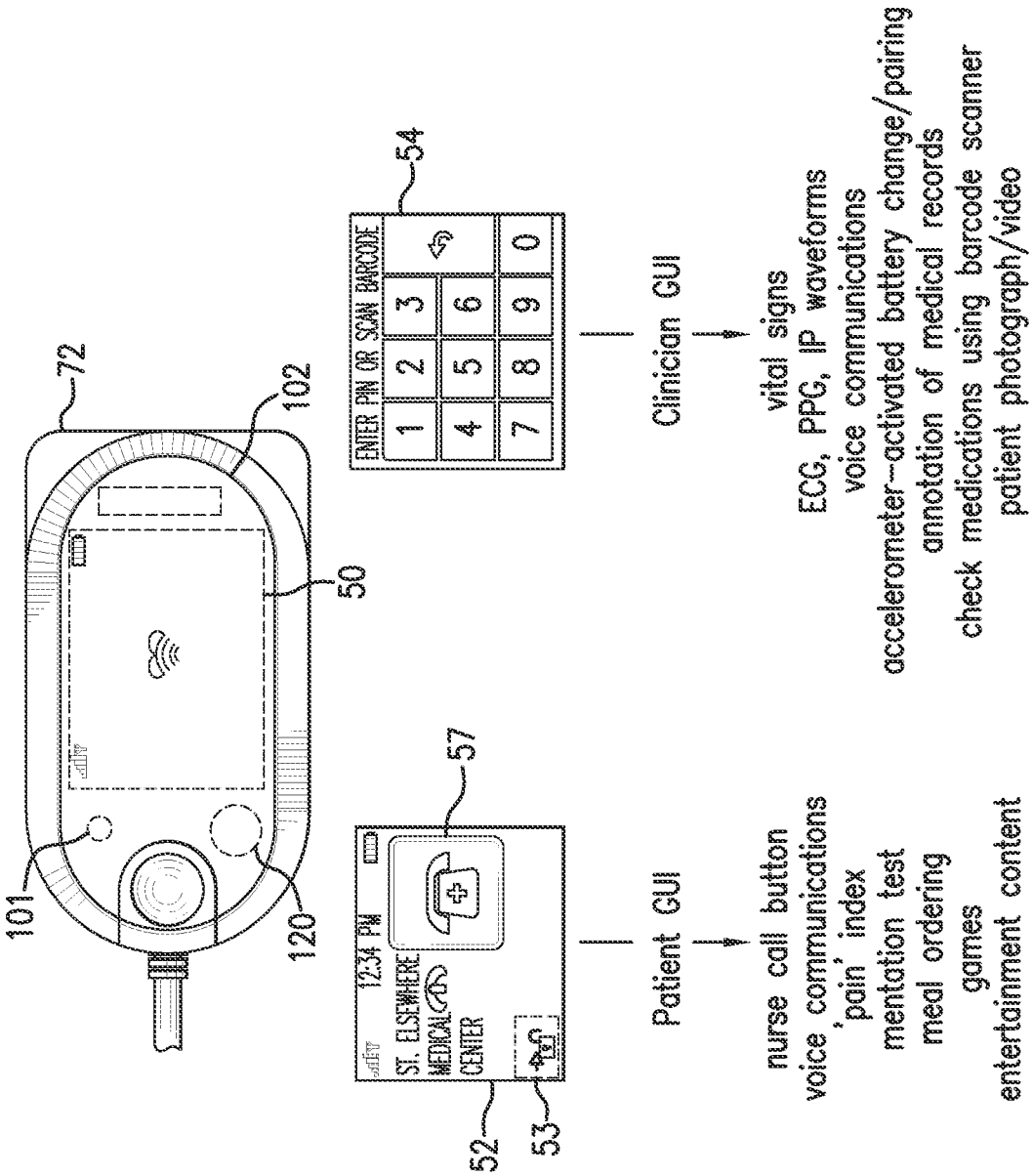

72
102
50
101
120
ENTER PIN OR SCAN BARCODE
1 2 3
4 5 6
7 8 9 0
54
12:34 PM
ST. ELSEWHERE MEDICAL CENTER
57
52
53
Patient GUI
nurse call button
voice communications
'pain' index
mentation test
meal ordering
games
entertainment content
Clinician GUI
vital signs
ECG, PPG, IP waveforms
voice communications
accelerometer-activated battery change/pairing
annotation of medical records
check medications using barcode scanner
patient photograph/video

FIG.3

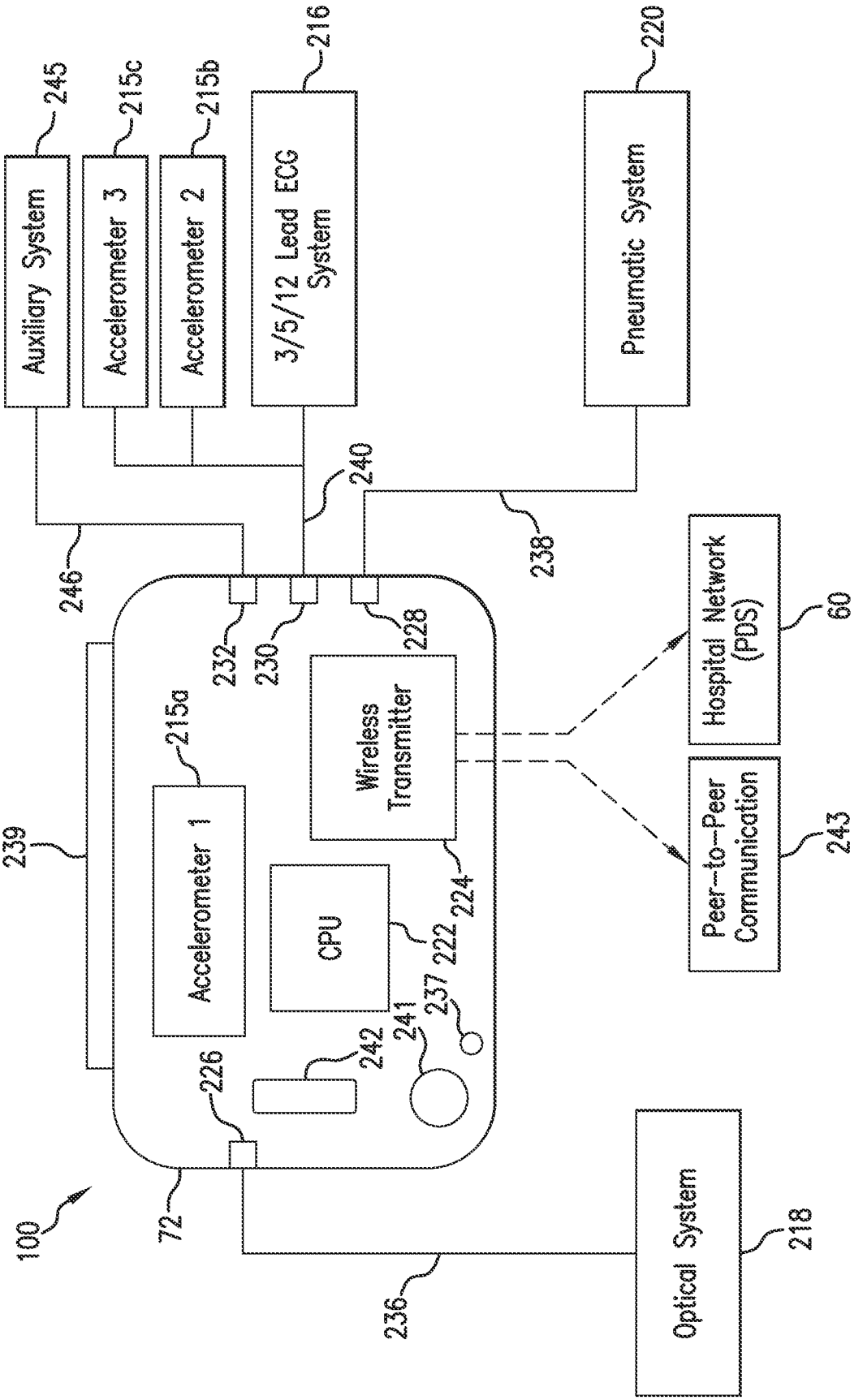

Auxiliary System
245
Accelerometer 3
215c
Accelerometer 2
215b
3/5/12 Lead ECG System
216
Pneumatic System
220
240
246
238
232
230
228
Wireless Transmitter
Hospital Network (PDS)
60
215a
Accelerometer 1
239
CPU
222
224
Peer-to-Peer Communication
243
237
241
242
226
100
72
Optical System
218
236

FIG. 4

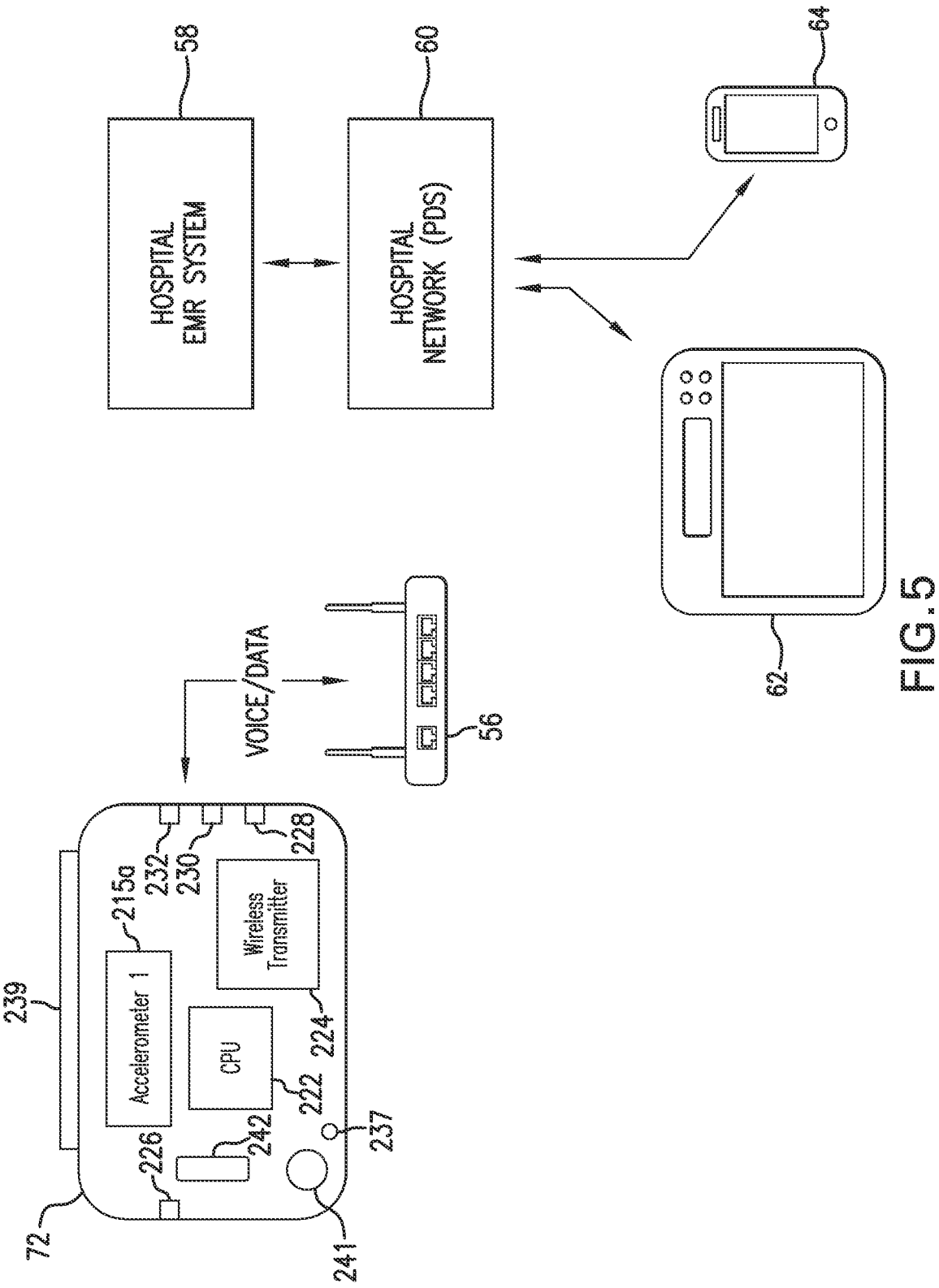

58
HOSPITAL EMR SYSTEM
60
HOSPITAL NETWORK (PDS)
64
62
VOICE/DATA
56
239
215a
232
230
228
Accelerometer 1
CPU
Wireless Transmitter
224
222
242
237
226
72
241

FIG.5

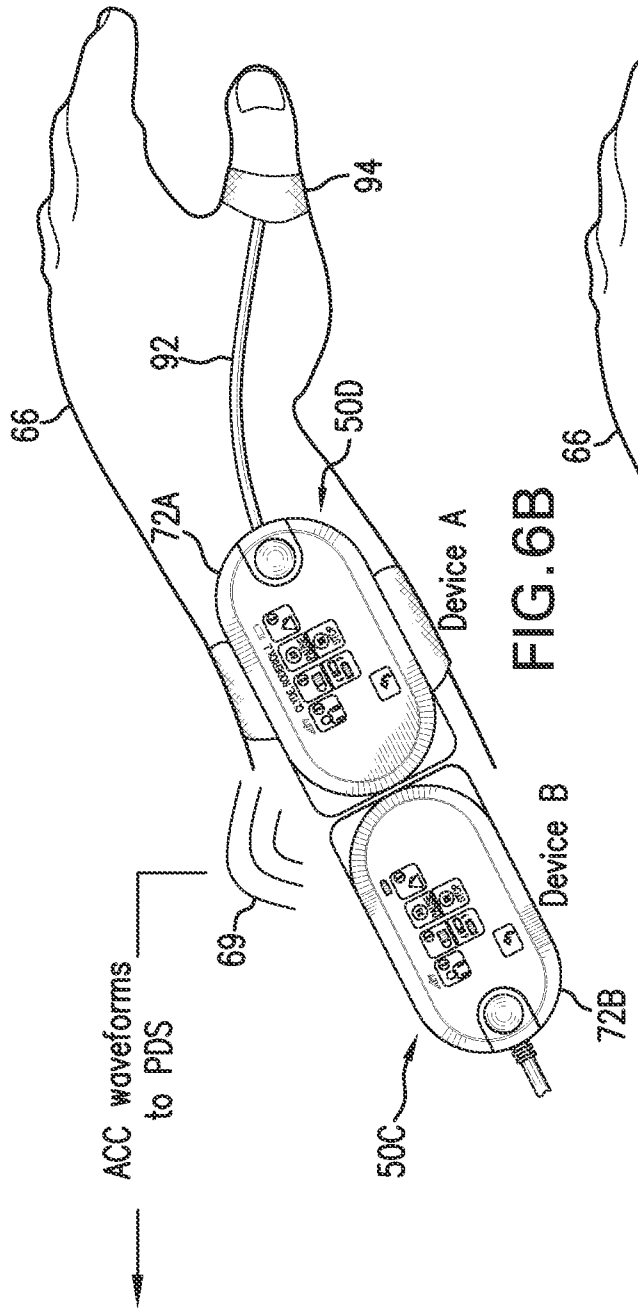

66
92
94
50D
72A
Device A
Device B
72B
50C
69
ACC waveforms
to PDS

FIG.6B

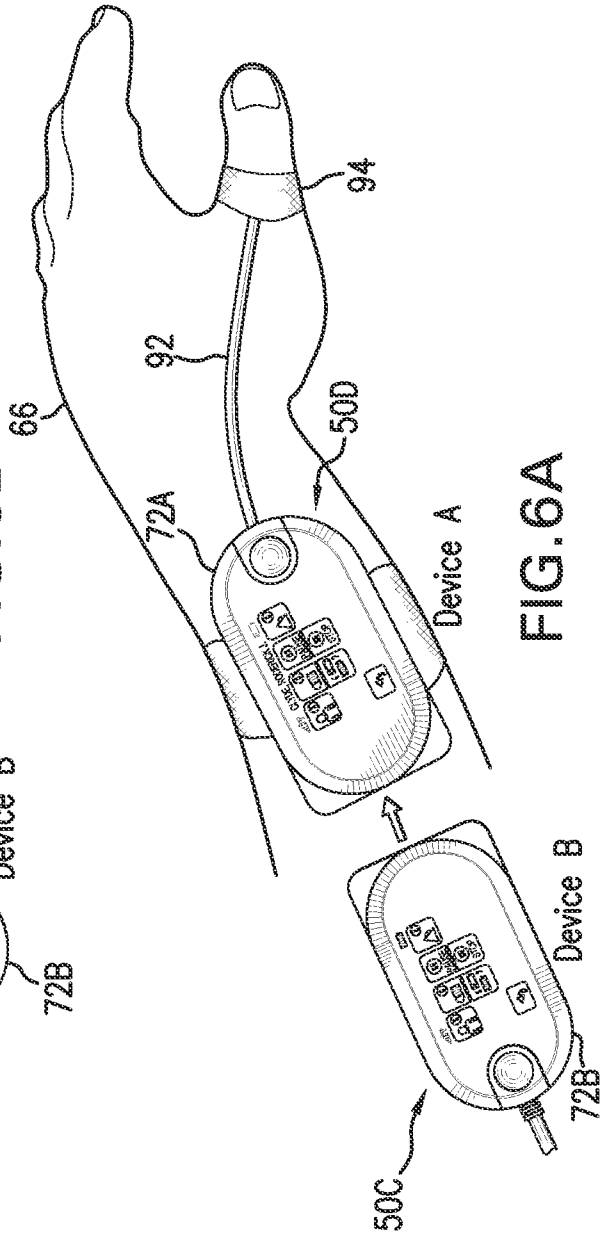

66
92
94
50D
72A
Device A
Device B
72B
50C

FIG.6A

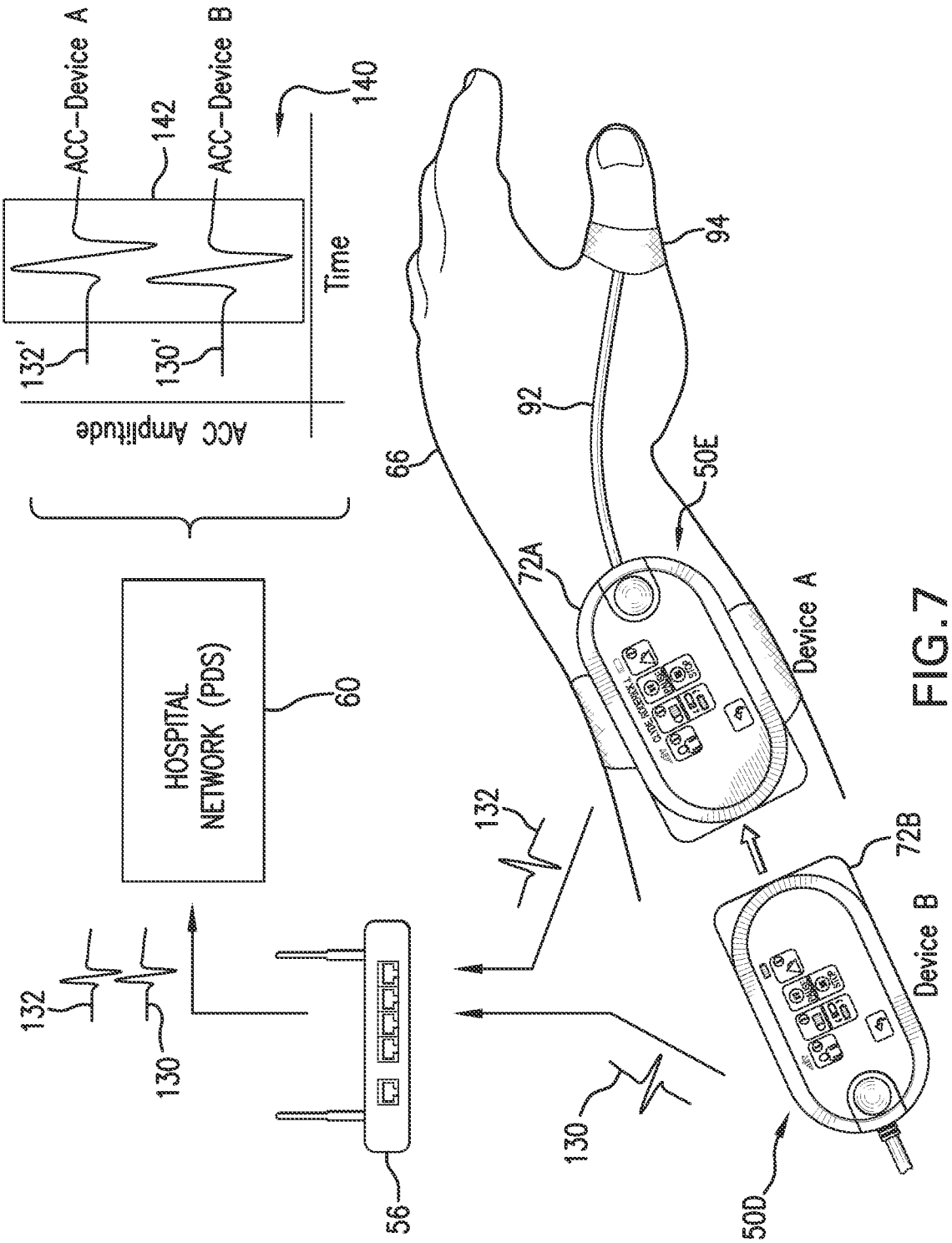

ACC–Device A
142
ACC–Device B
140
Time
ACC Amplitude
132'
130'
HOSPITAL NETWORK (PDS)
60
132
130
56
66
92
94
50E
72A
Device A
132
130
72B
Device B
50D

FIG. 7

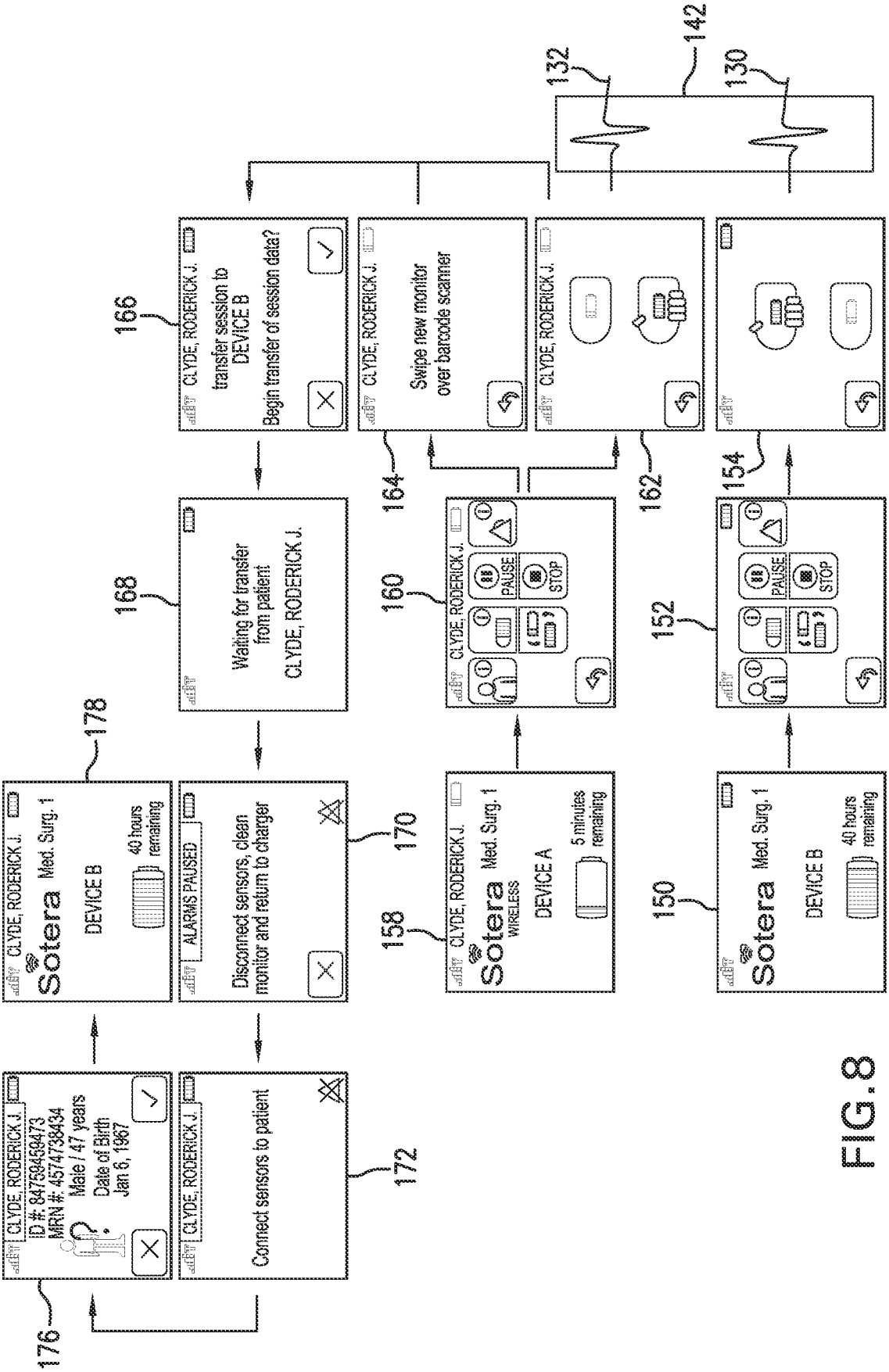

CLYDE, RODERICK J.
ID #: 847594569473
MRN #: 4574738434
Male / 47 years
Date of Birth
Jan 6, 1967
Connect sensors to patient
ALARMS PAUSED
Disconnect sensors, clean monitor and return to charger
Sotera Med. Surg. 1
DEVICE B
40 hours remaining
Waiting for transfer from patient
CLYDE, RODERICK J.
transfer session to DEVICE B
Begin transfer of session data?
Swipe new monitor over barcode scanner
Sotera WIRELESS
DEVICE A
5 minutes remaining
PAUSE
STOP
176
172
170
178
168
166
158
160
164
150
152
162
154
132
142
130

FIG. 8

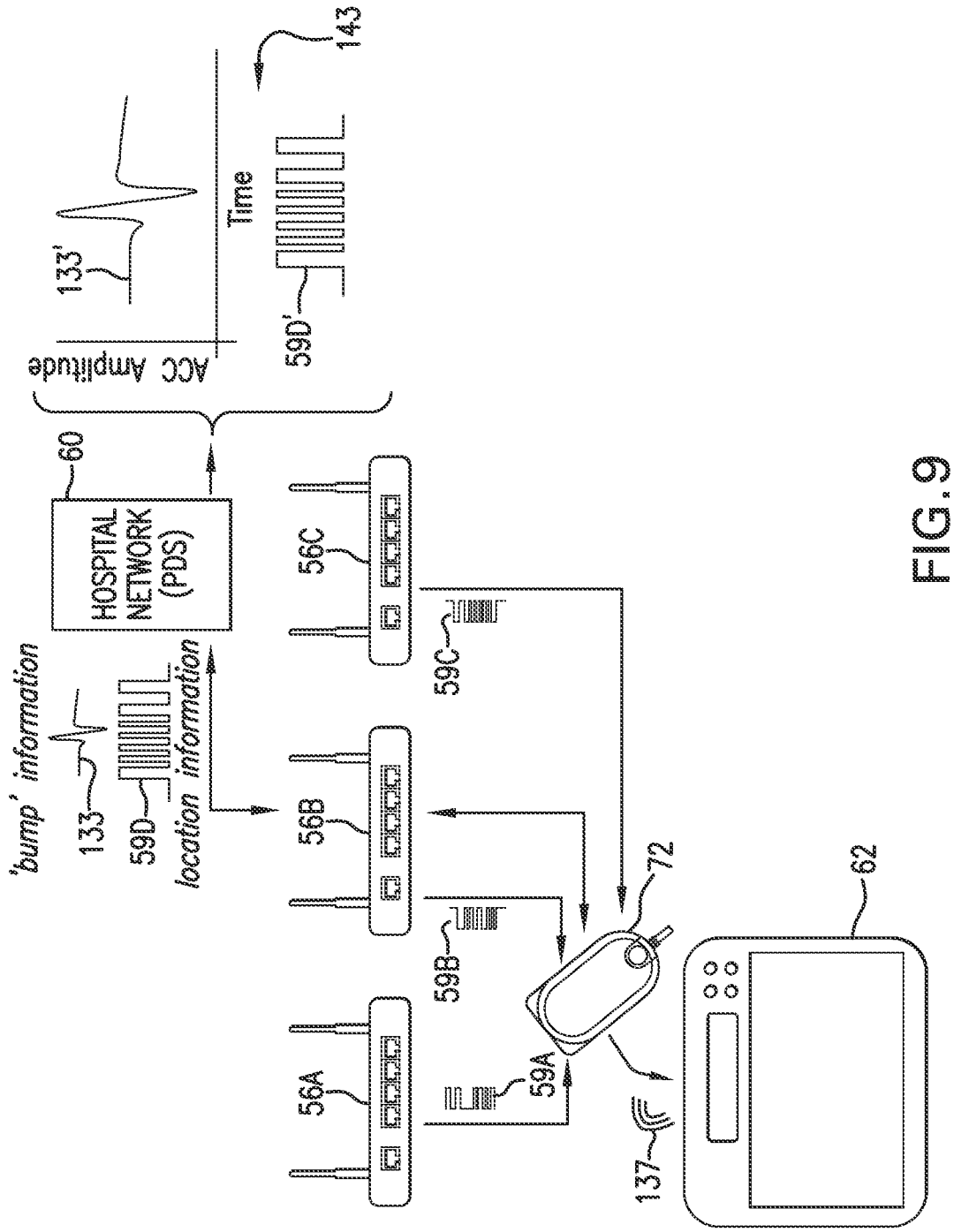

143
133'
Time
59D'
ACC Amplitude
60
HOSPITAL NETWORK (PDS)
'bump' information
133
59D
location information
56C
59C
56B
59B
72
62
56A
59A
137

FIG. 9

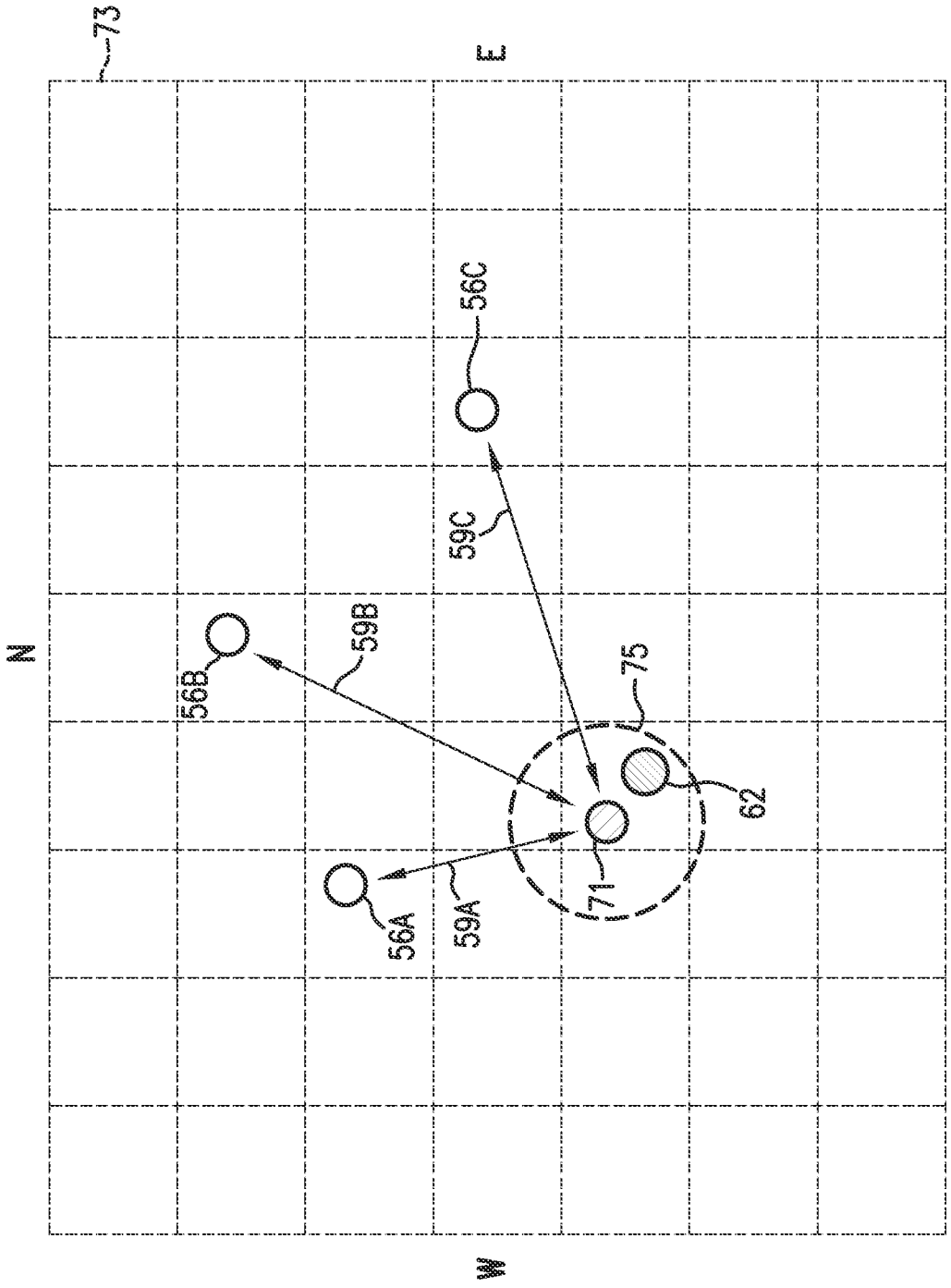


FIG. 10

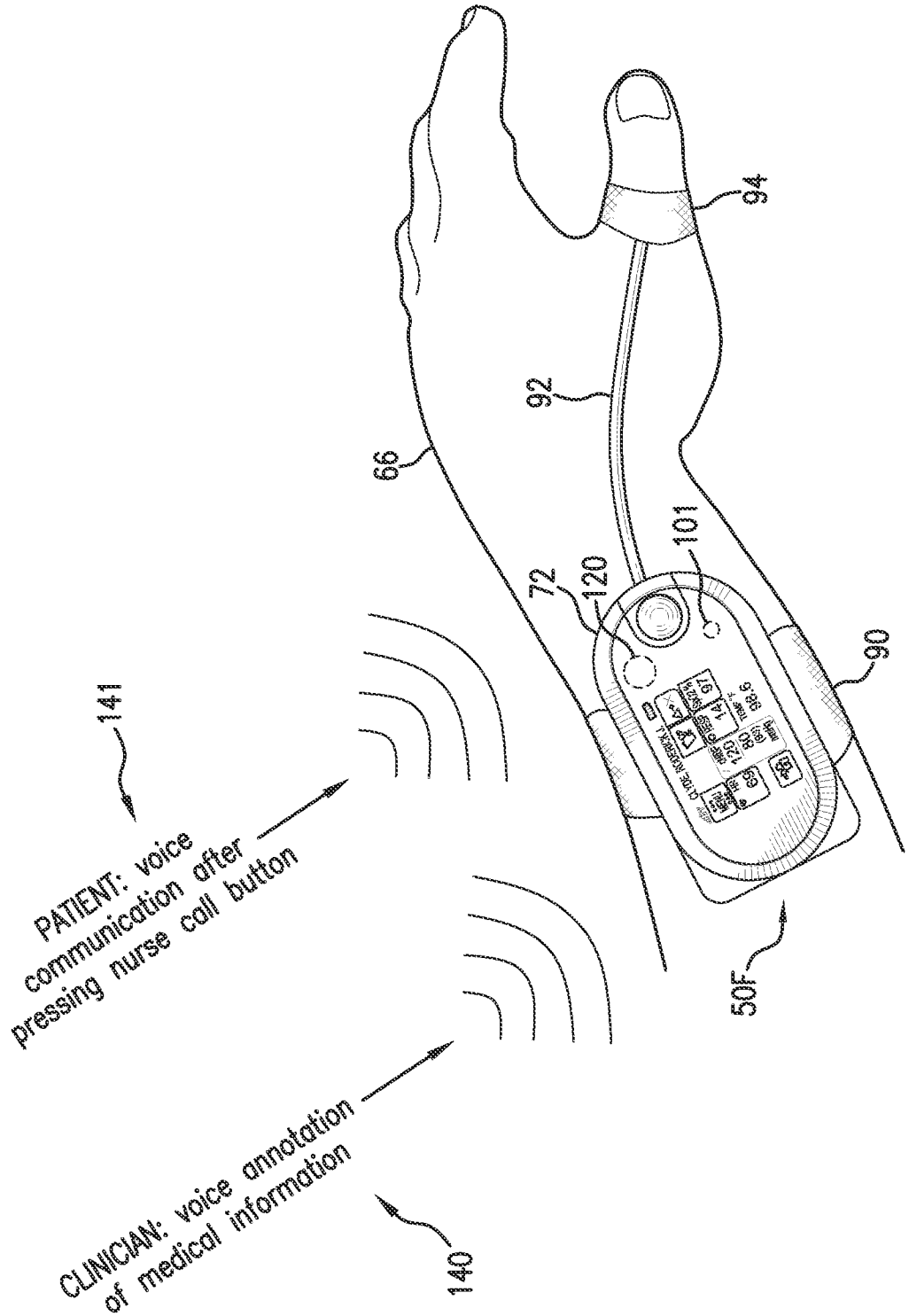

94
92
66
72
120
101
90
50F
141
PATIENT: voice communication after pressing nurse call button
140
CLINICIAN: voice annotation of medical information

FIG.11

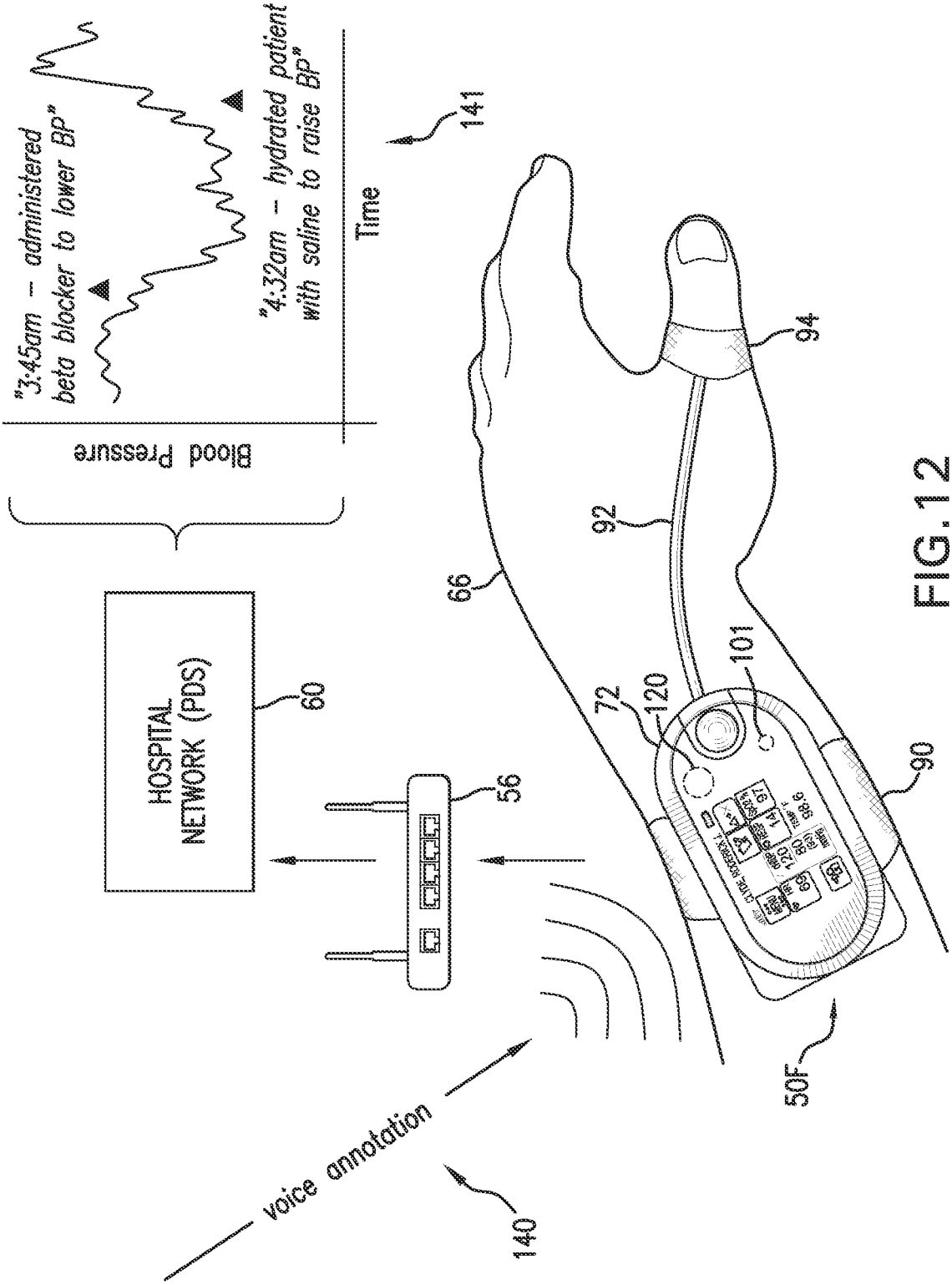

"3:45am – administered beta blocker to lower BP"
"4:32am – hydrated patient with saline to raise BP"
Blood Pressure
Time
141
HOSPITAL NETWORK (PDS)
60
56
voice annotation
140
66
92
94
72
120
101
90
50F

FIG. 12

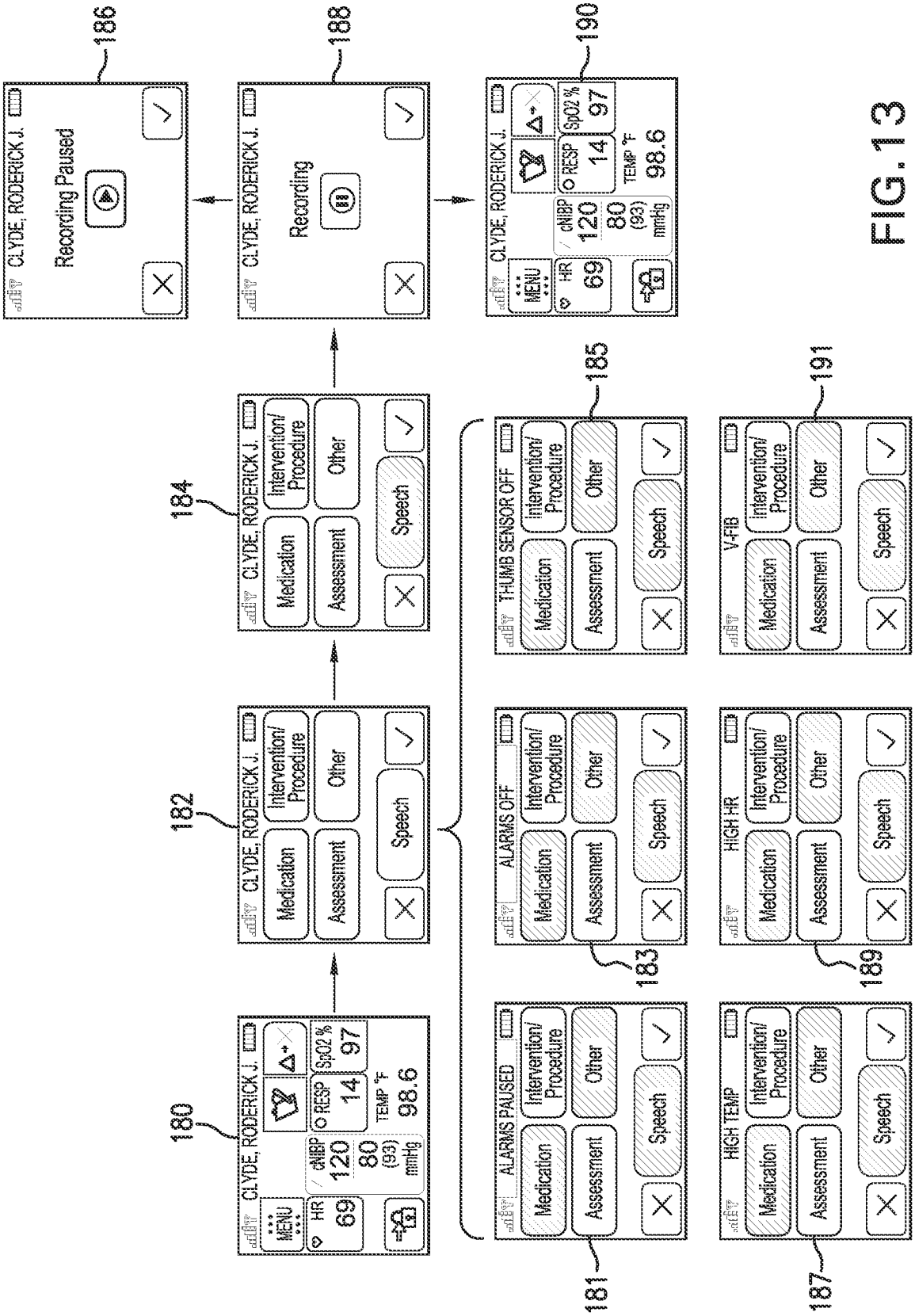

180
CLYDE, RODERICK J.
MENU
HR 69
dNIBP 120 80 (93) mmHg
RESP 14
SpO2 % 97
TEMP °F 98.6
181
ALARMS PAUSED
182
183
ALARMS OFF
184
185
THUMB SENSOR OFF
186
Recording Paused
187
HIGH TEMP
188
Recording
189
HIGH HR
190
191
V-FIB
Medication
Assessment
Intervention/ Procedure
Other
Speech

FIG. 13

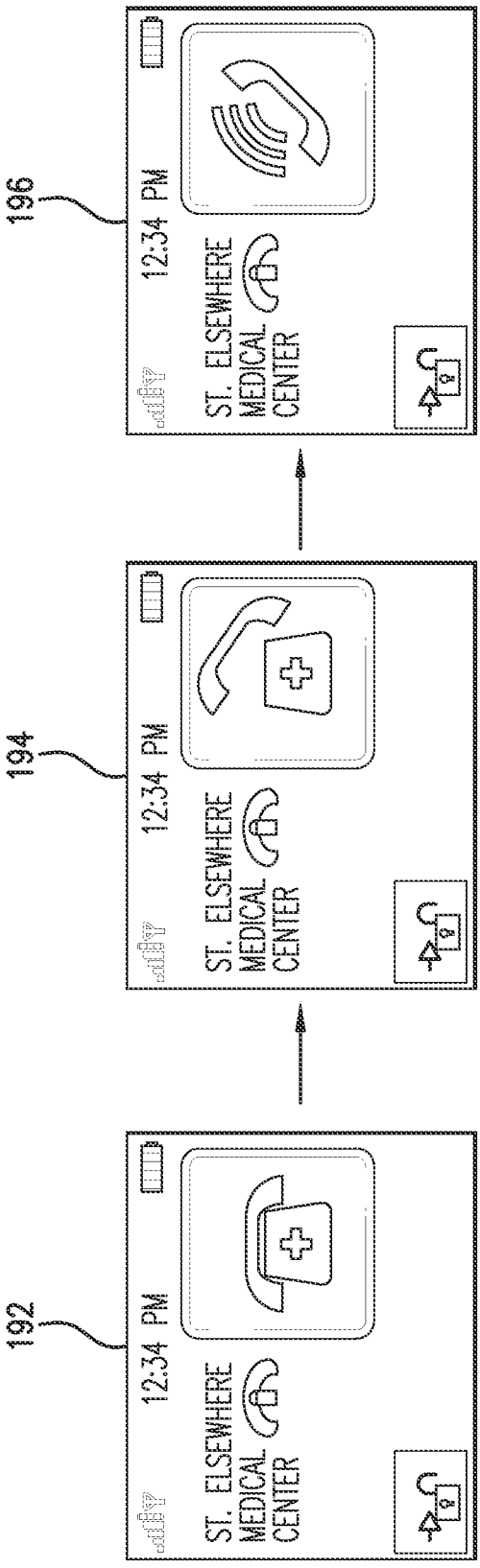

192
12:34 PM
ST. ELSEWHERE MEDICAL CENTER
194
12:34 PM
ST. ELSEWHERE MEDICAL CENTER
196
12:34 PM
ST. ELSEWHERE MEDICAL CENTER

FIG. 14

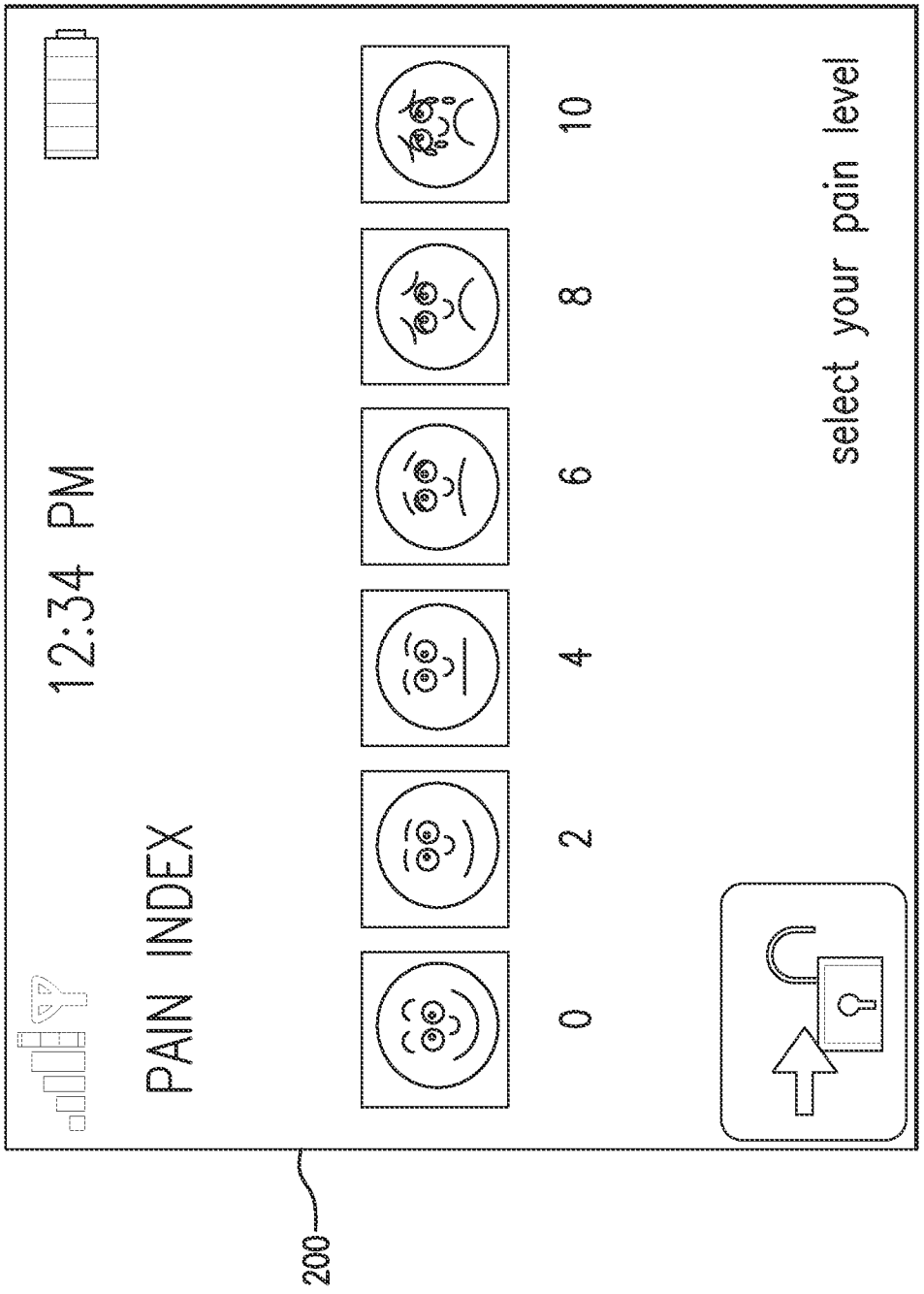


FIG. 15

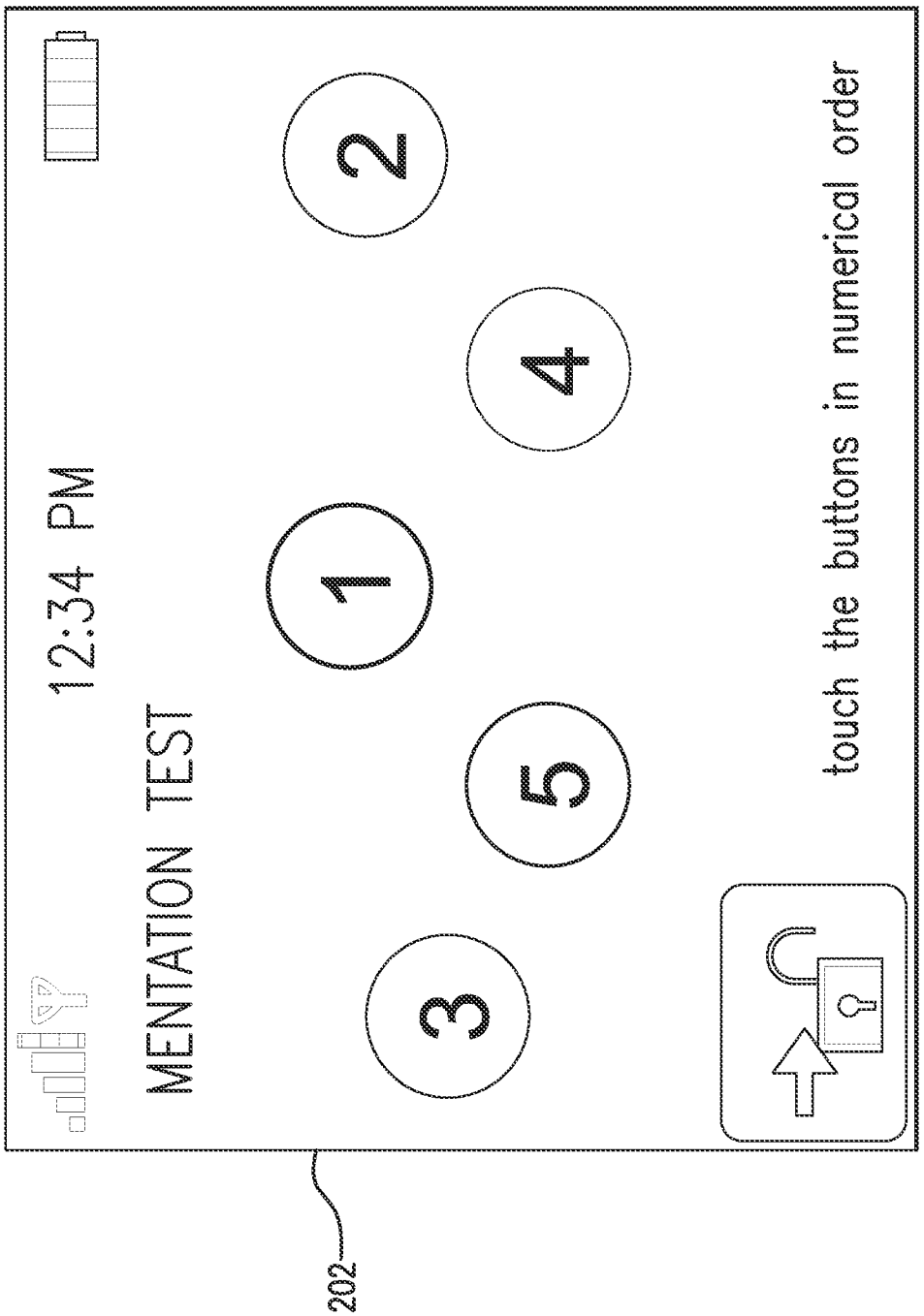

12:34 PM
MENTATION TEST
1
2
3
4
5
touch the buttons in numerical order
202

FIG. 16

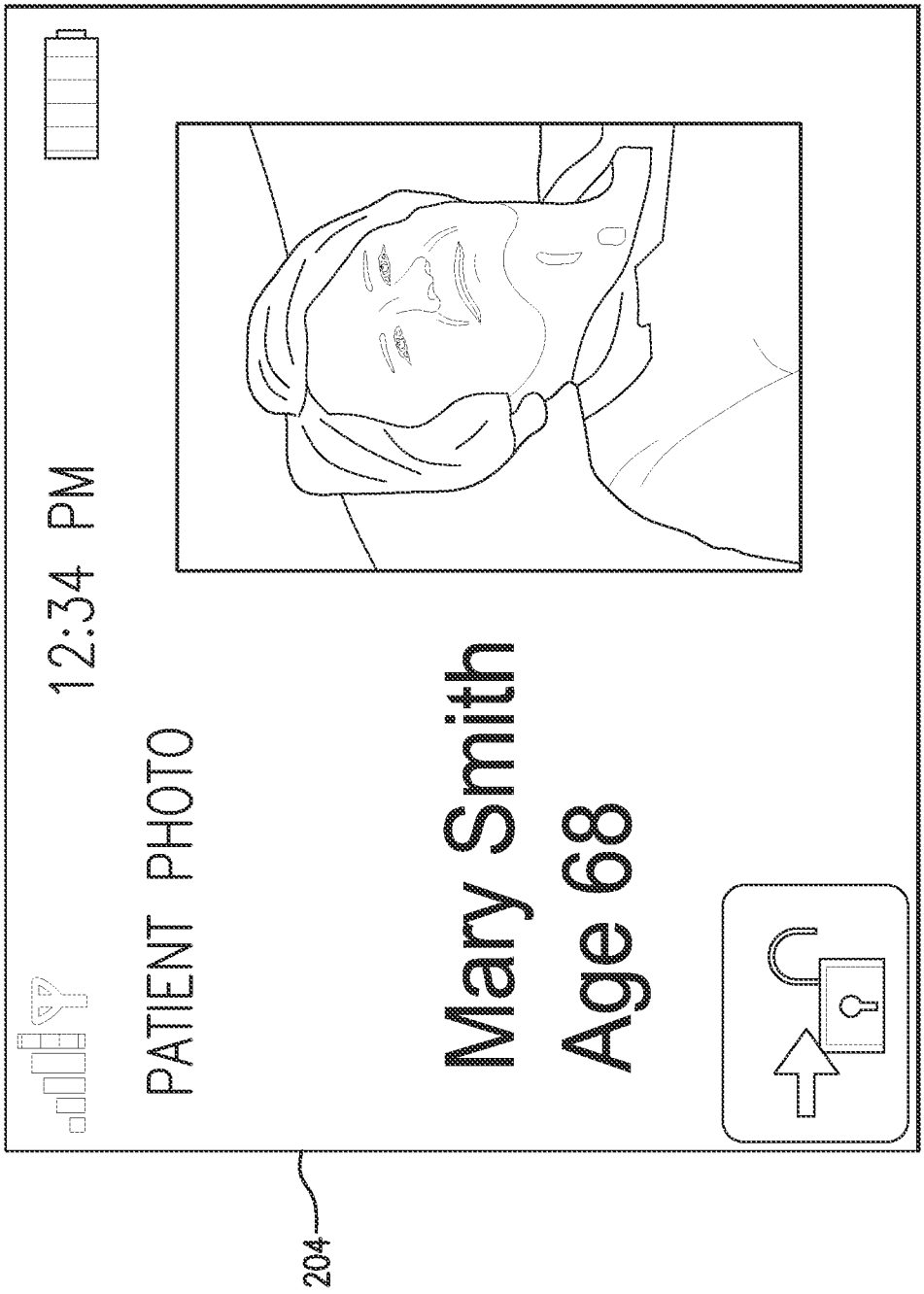


FIG. 17

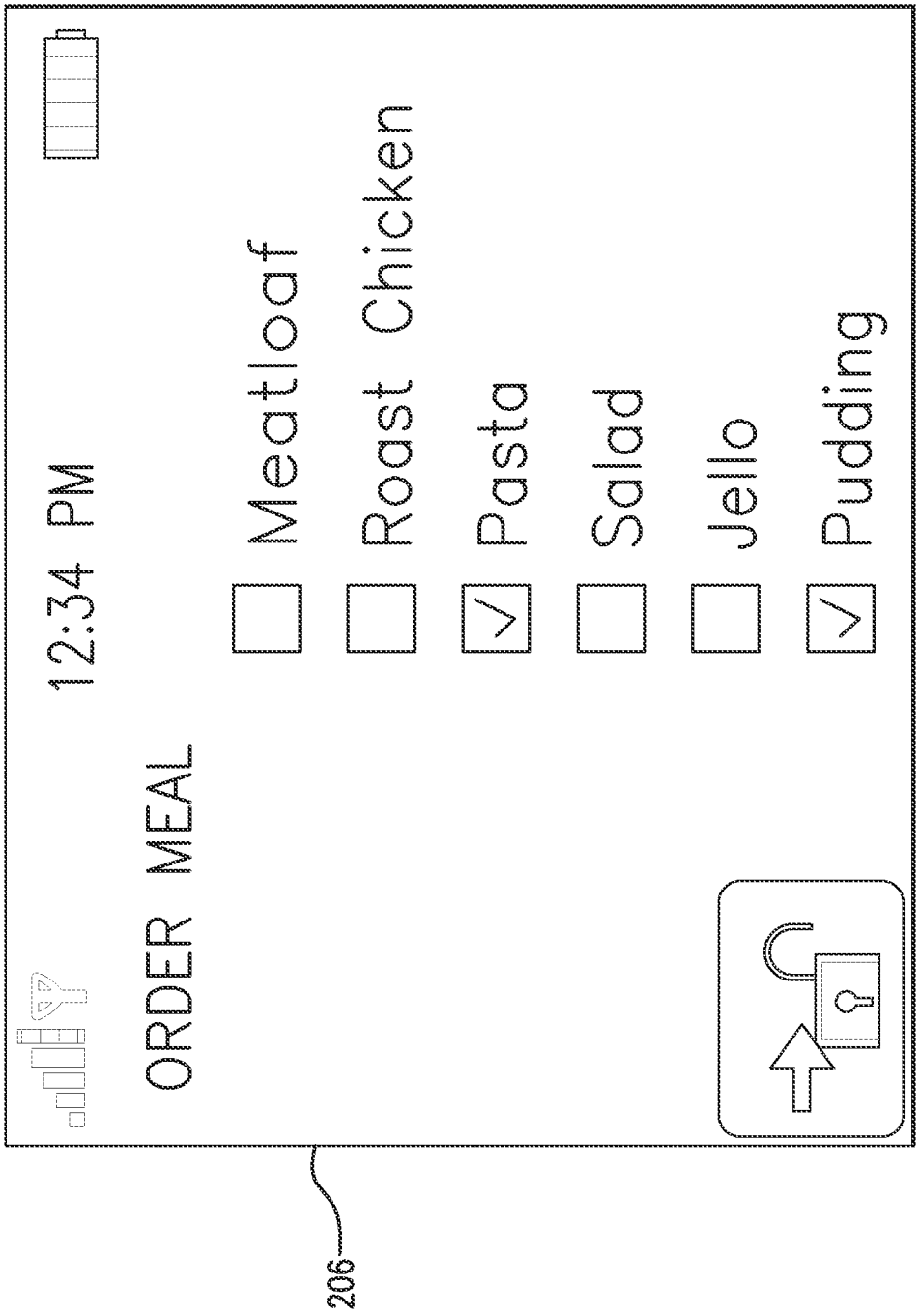

12:34 PM
ORDER MEAL
Meatloaf
Roast Chicken
Pasta
Salad
Jello
Pudding
206

FIG. 18

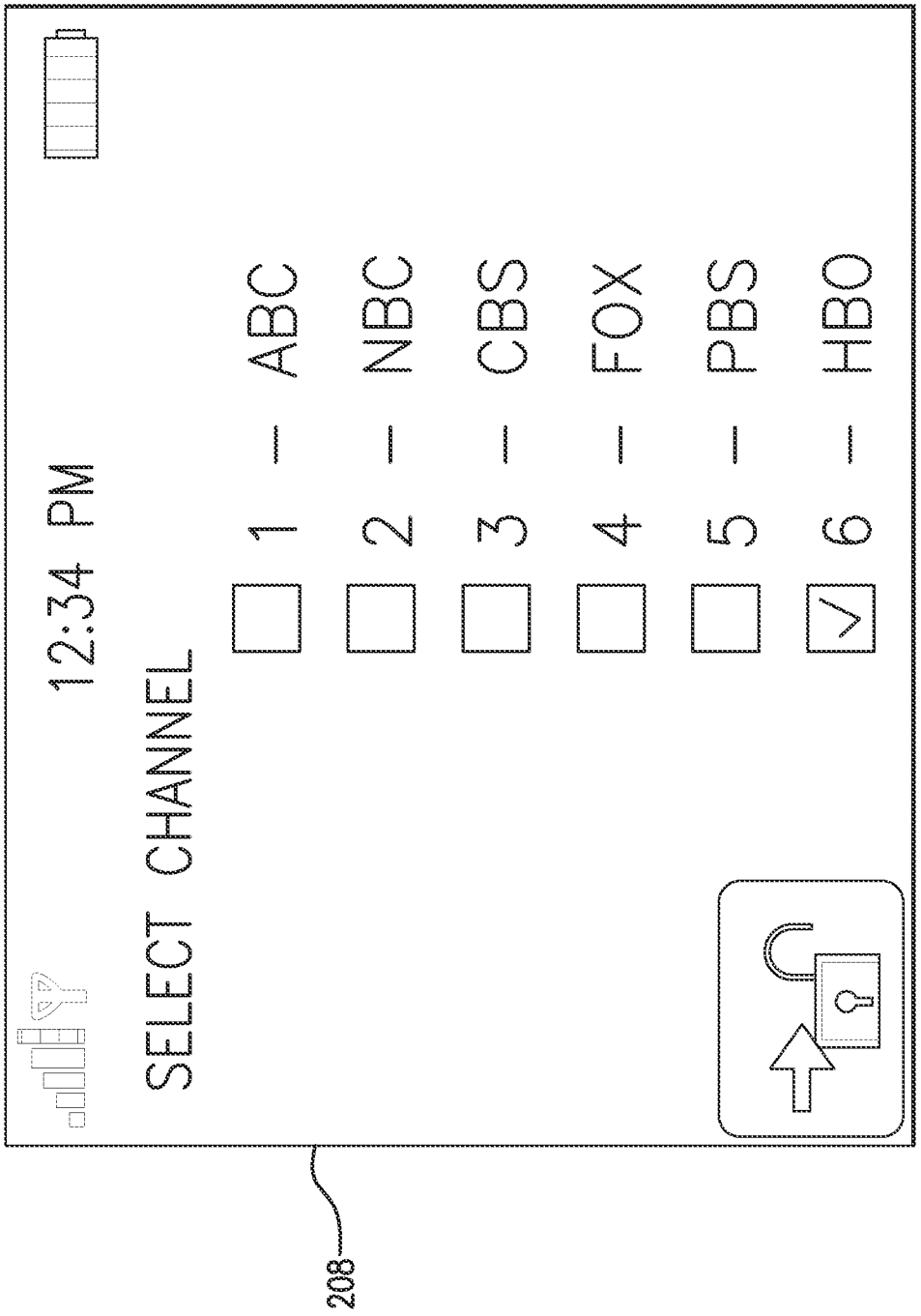


FIG. 19

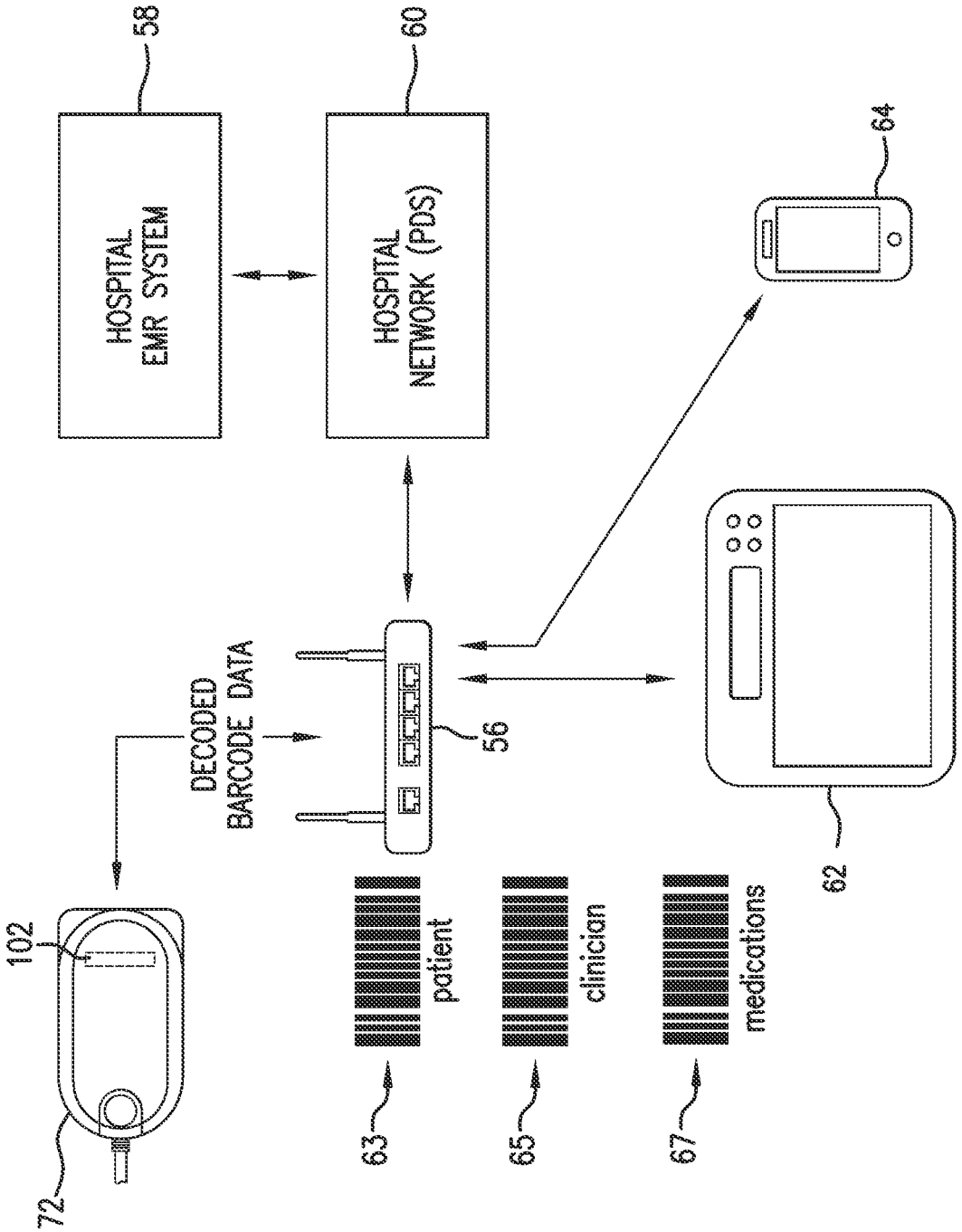

58
HOSPITAL EMR SYSTEM
60
HOSPITAL NETWORK (PDS)
64
62
56
DECODED BARCODE DATA
102
72
63
patient
65
clinician
67
medications

FIG. 20

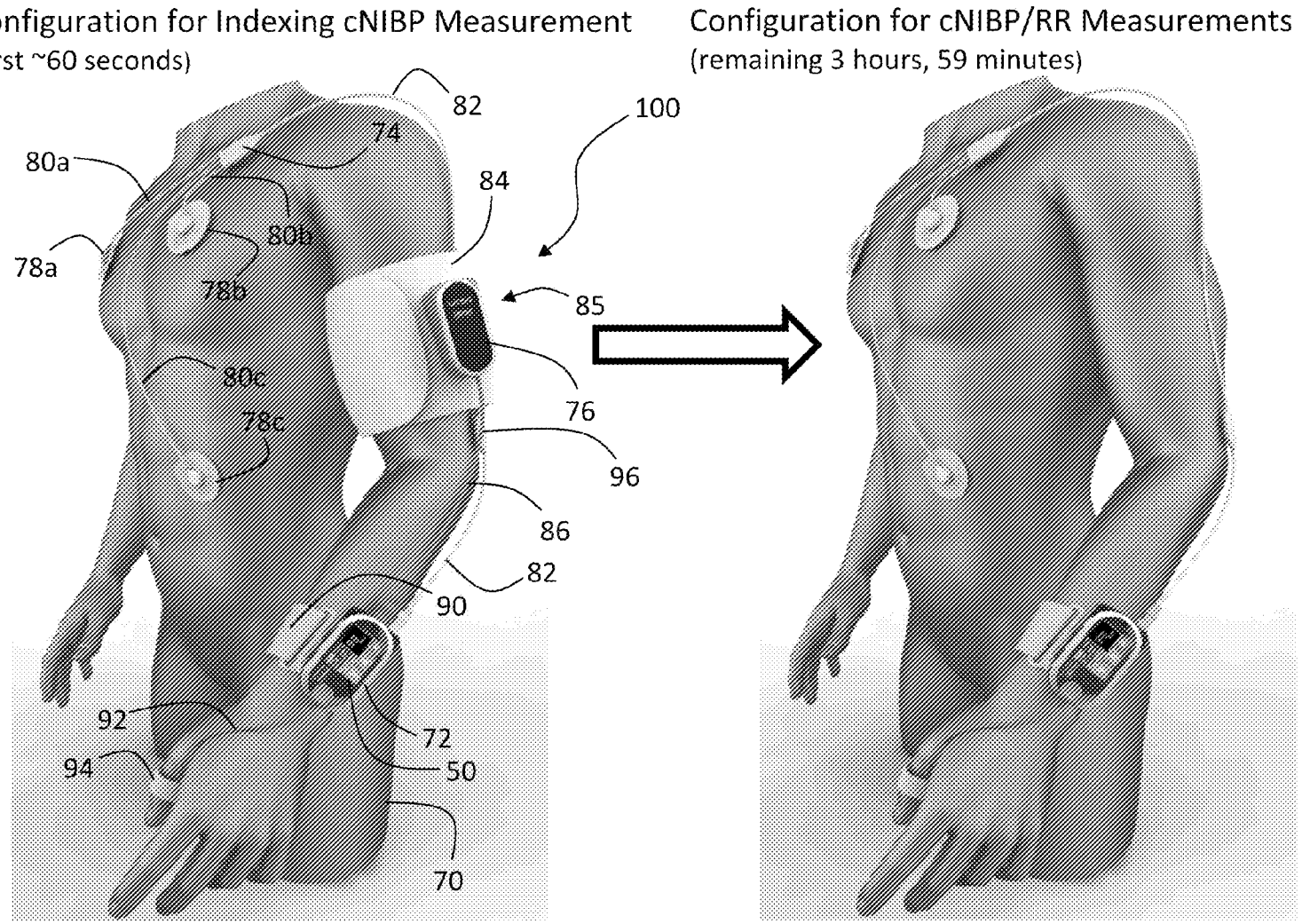


FIG.21A

FIG.21B

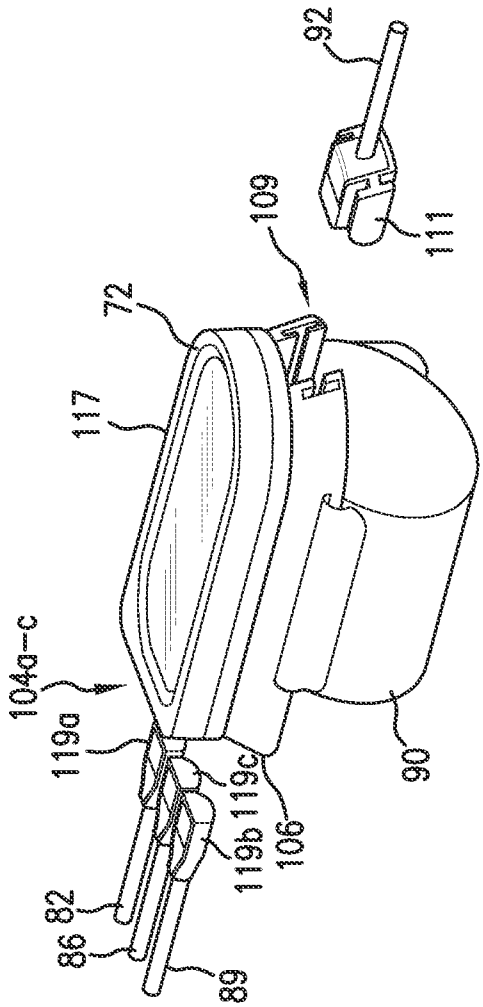


FIG. 22A

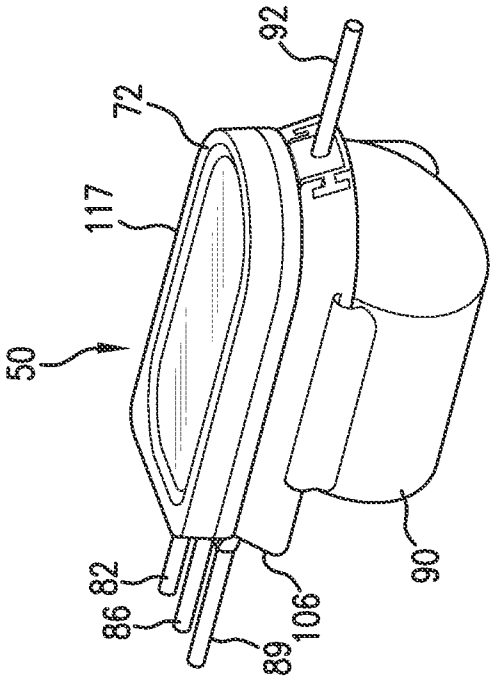


FIG. 22B

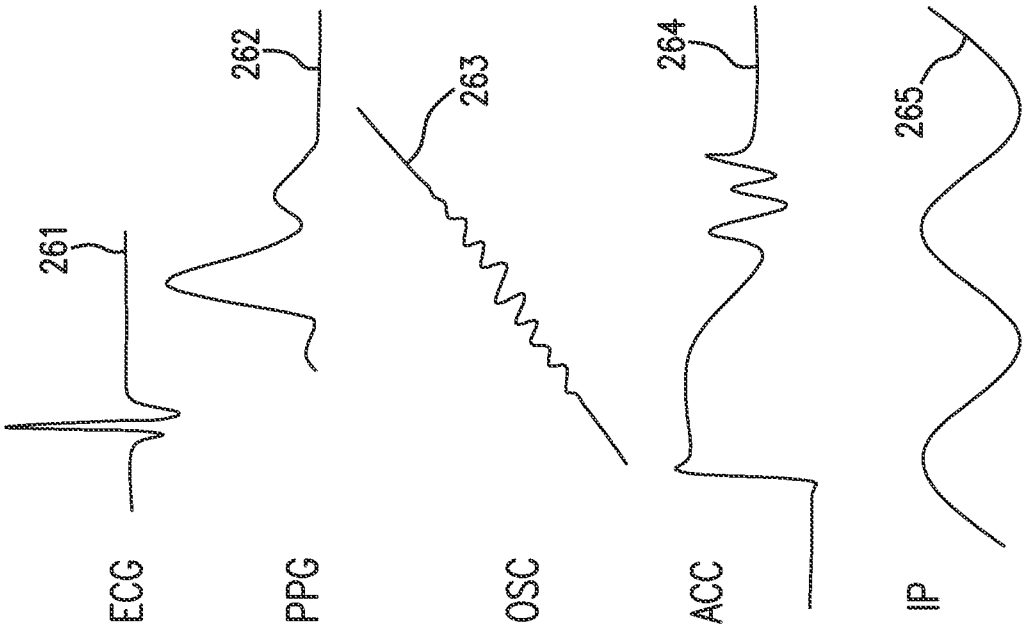


FIG.23B

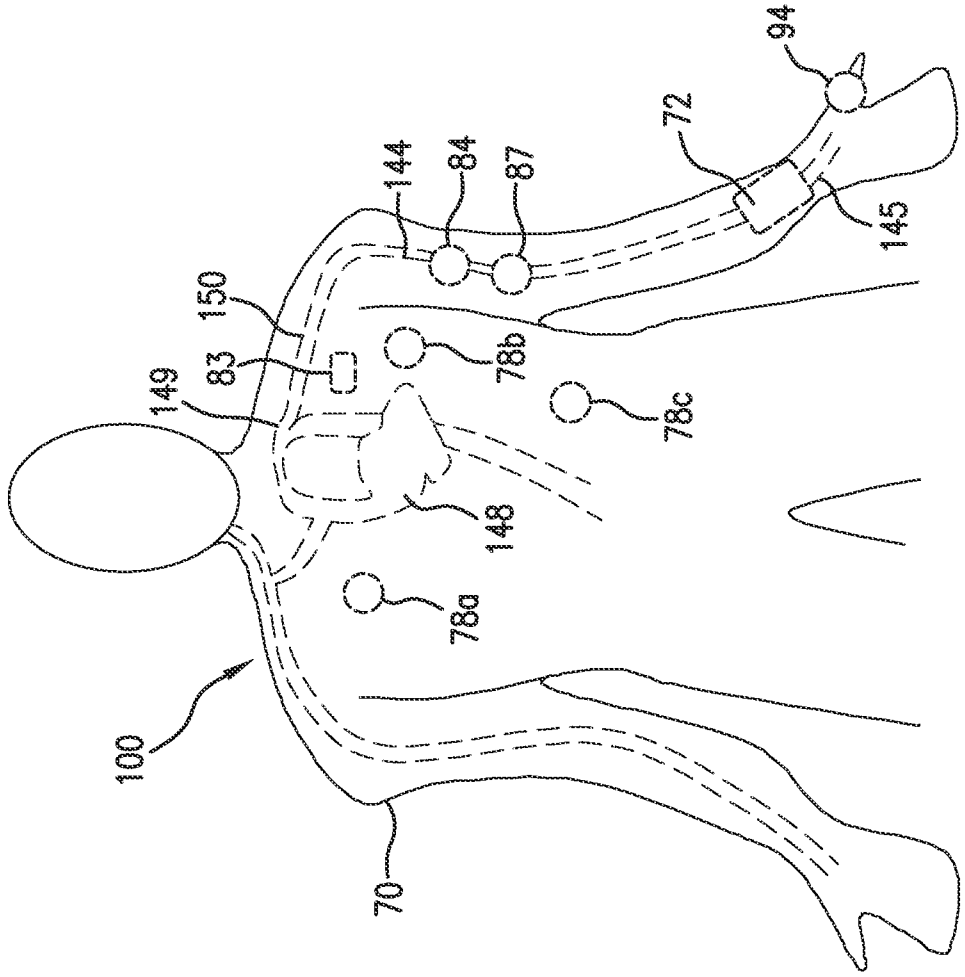


FIG.23A

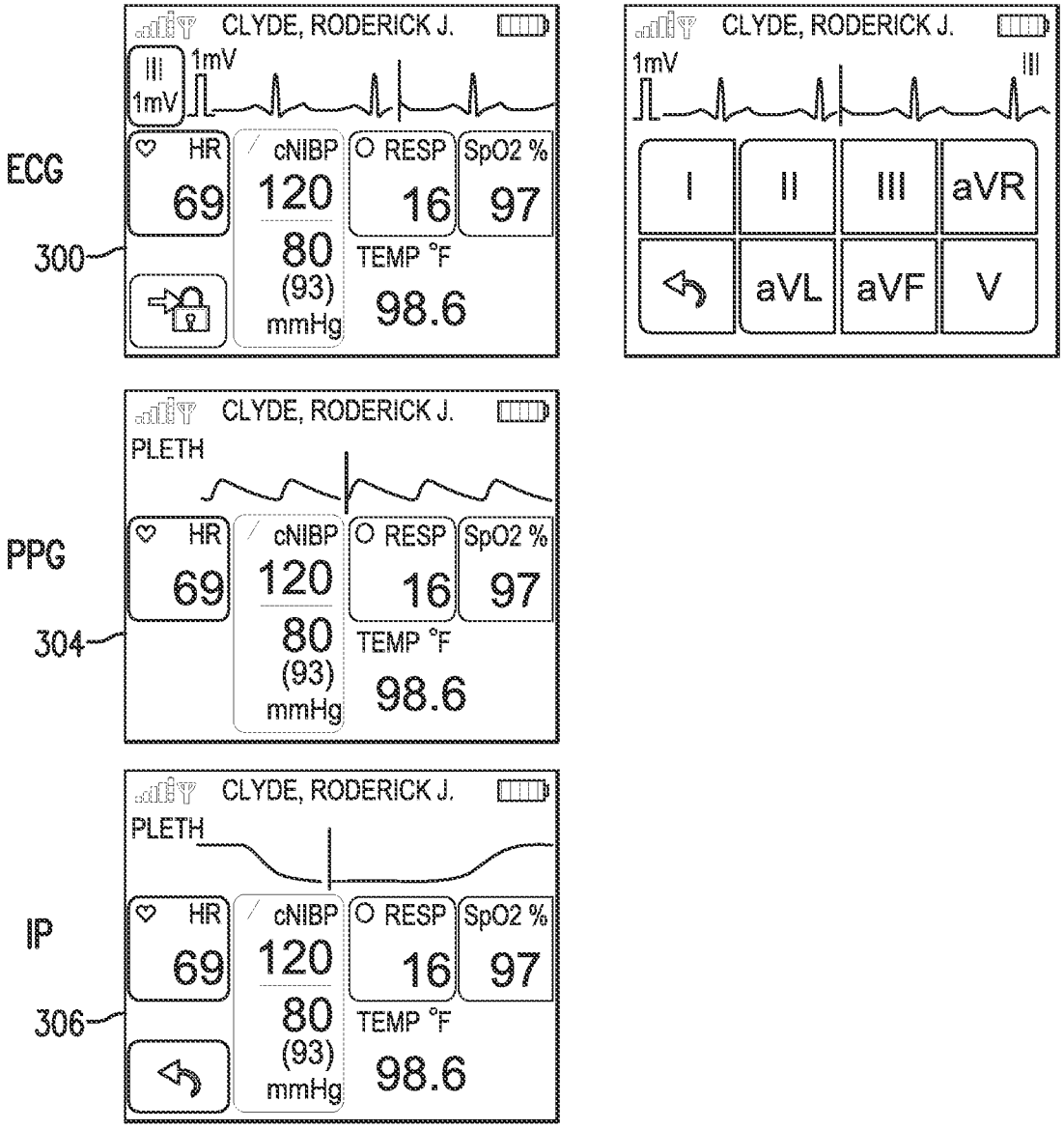

ECG
300
PPG
304
IP
306
CLYDE, RODERICK J.
III
1mV
1mV
HR
69
cNIBP
120
80
(93)
mmHg
RESP
16
SpO2 %
97
TEMP °F
98.6
PLETH
I
II
III
aVR
aVL
aVF
V

FIG.24

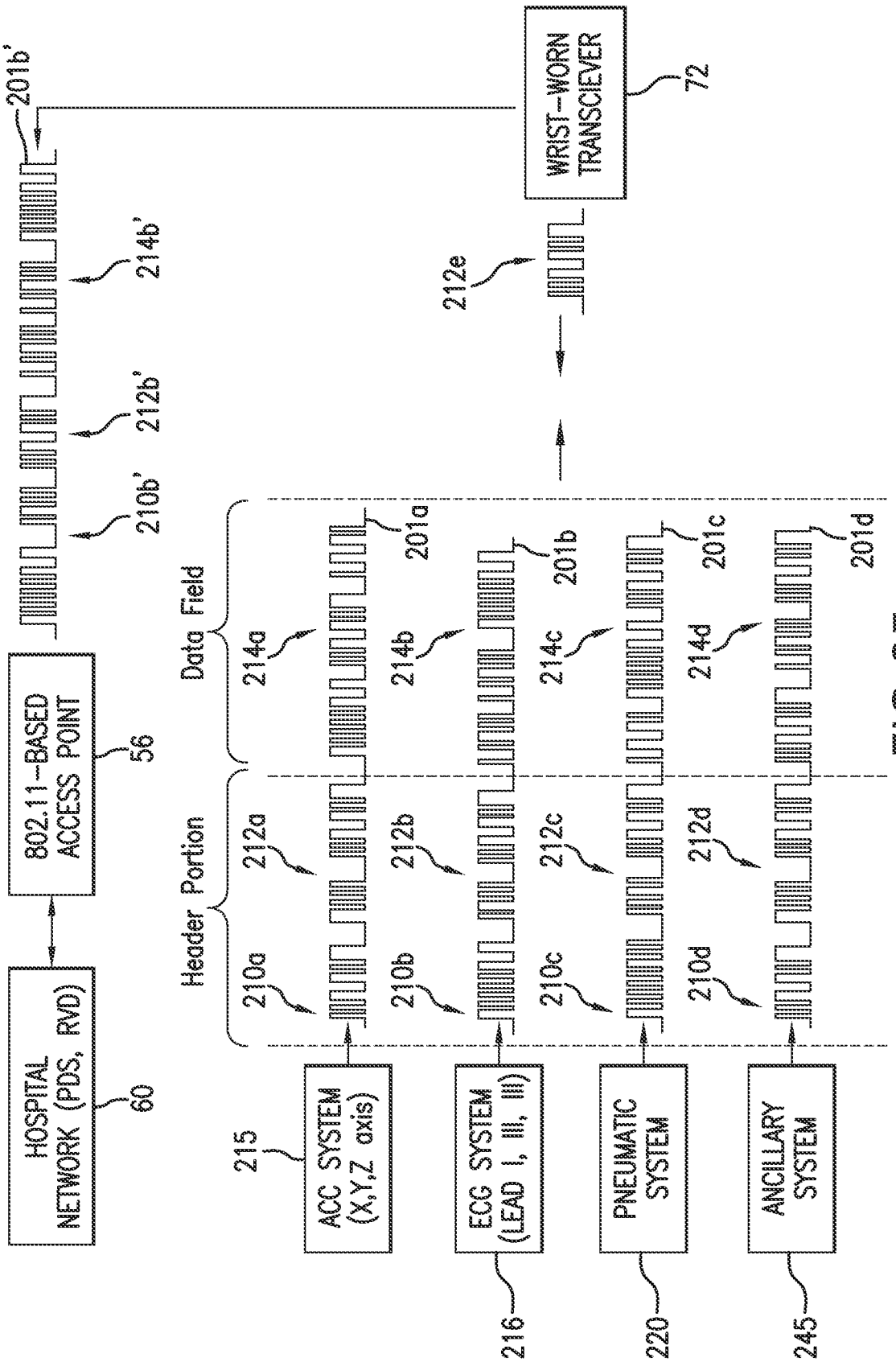

HOSPITAL NETWORK (PDS, RVD)
60
802.11-BASED ACCESS POINT
56
201b'
214b'
212b'
210b'
212e
WRIST-WORN TRANSCIEVER
72
Header Portion
Data Field
210a
212a
214a
201a
210b
212b
214b
201b
210c
212c
214c
201c
210d
212d
214d
201d
215
ACC SYSTEM (X,Y,Z axis)
216
ECG SYSTEM (LEAD I, III, III)
220
PNEUMATIC SYSTEM
245
ANCILLARY SYSTEM

FIG.25

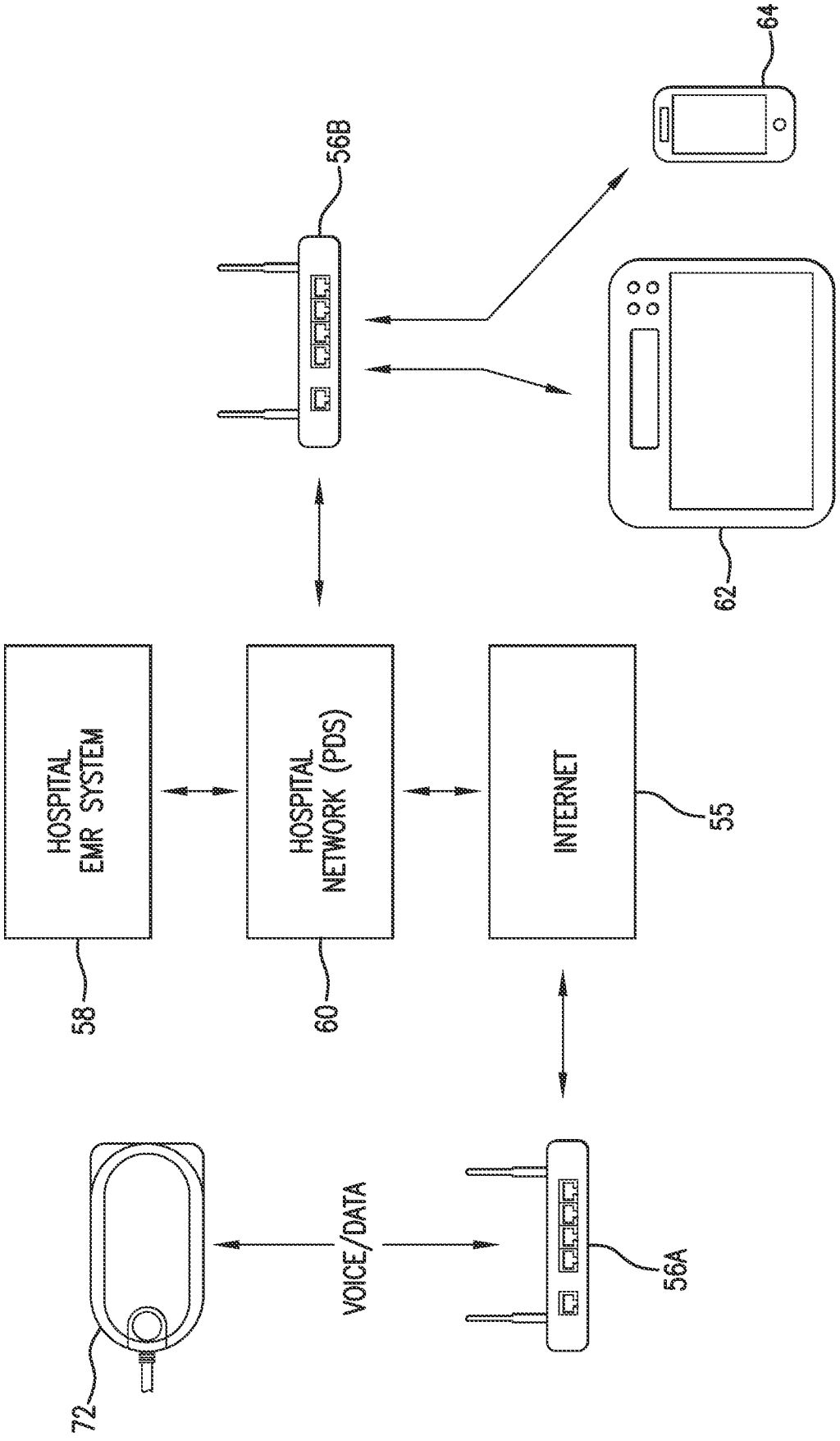

64
56B
62
HOSPITAL EMR SYSTEM
HOSPITAL NETWORK (PDS)
INTERNET
55
58
60
VOICE/DATA
56A
72

FIG. 26

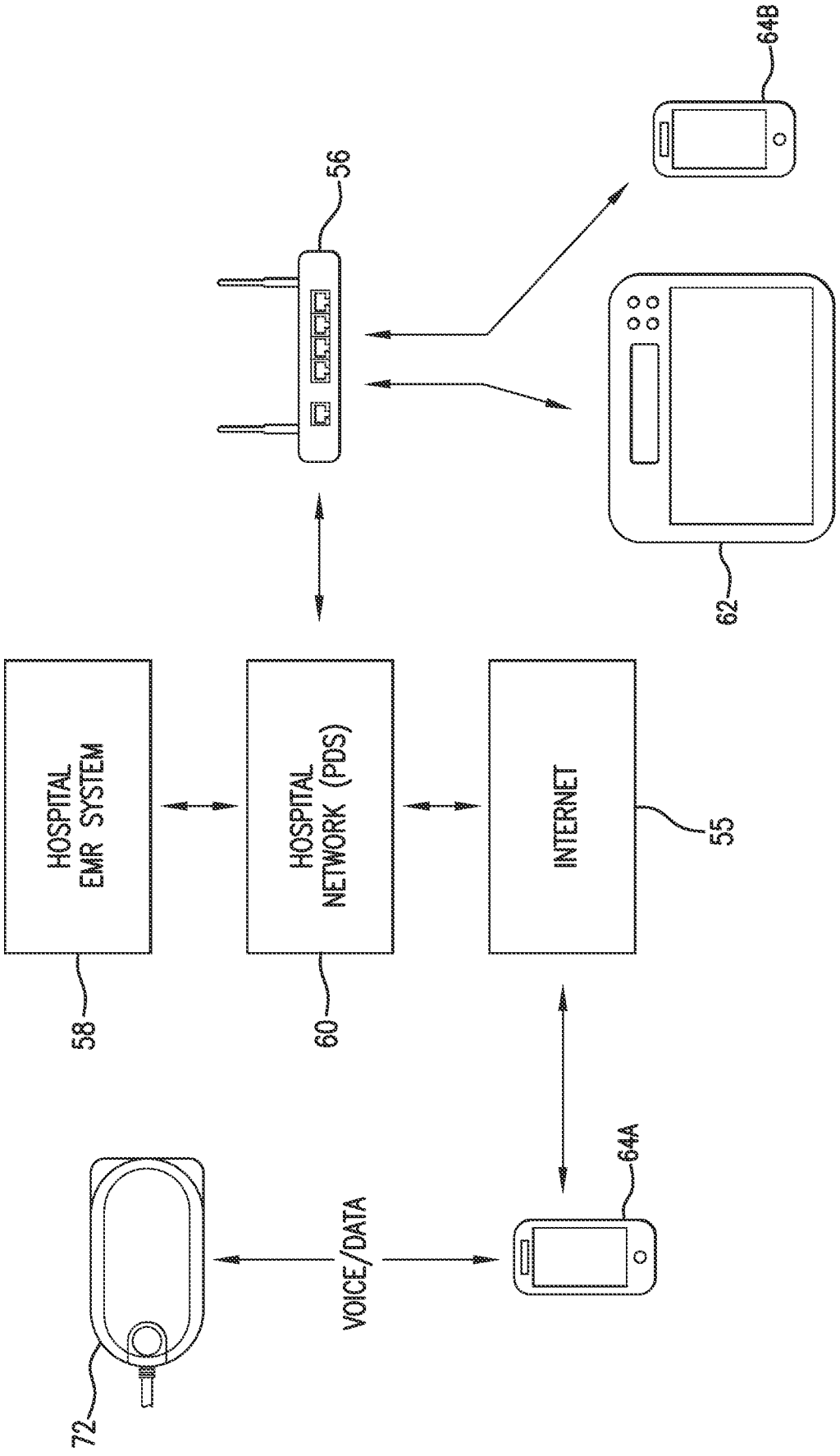

64B
56
62
HOSPITAL EMR SYSTEM
HOSPITAL NETWORK (PDS)
INTERNET
55
58
60
64A
VOICE/DATA
72

FIG. 27

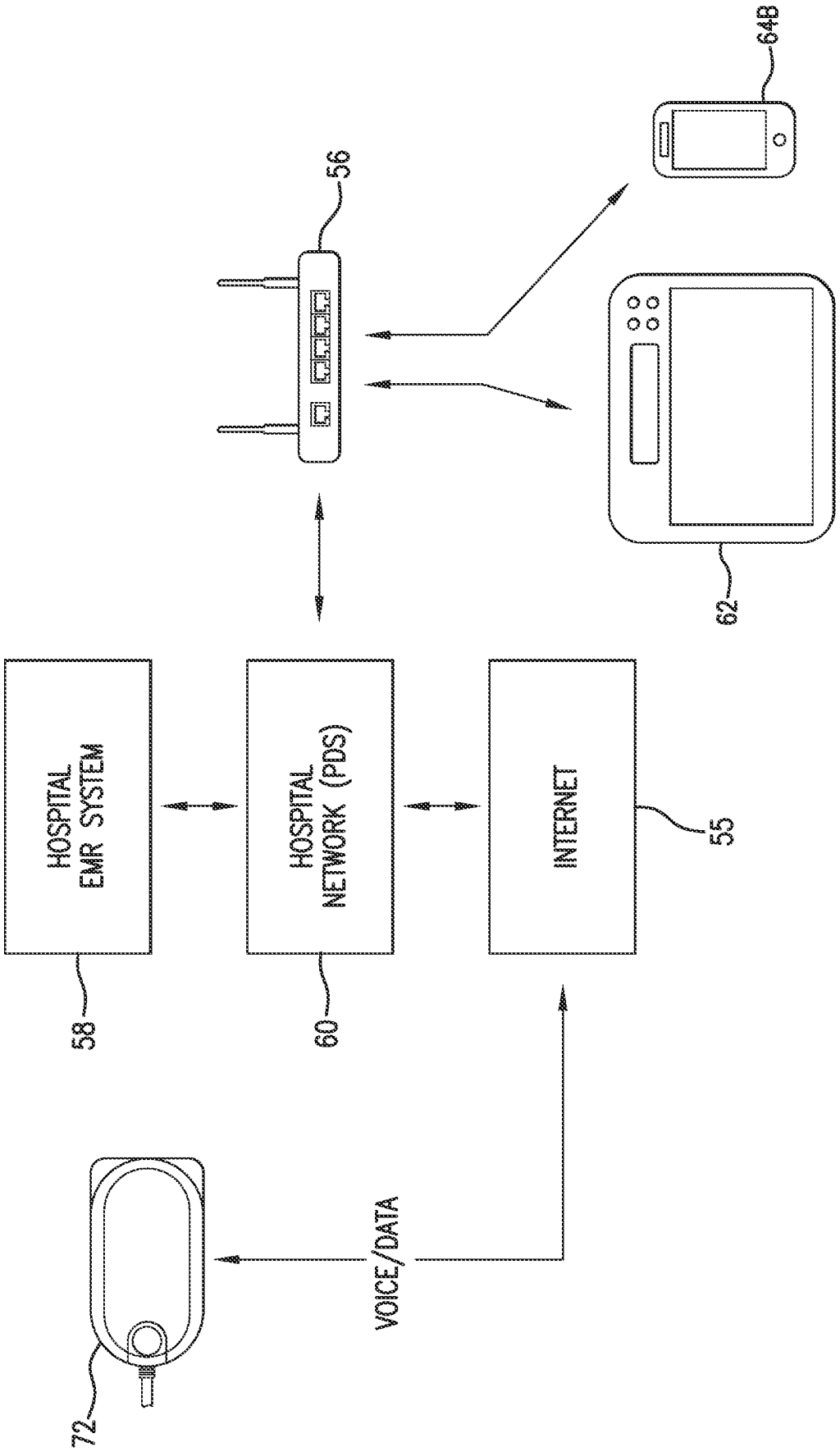

64B
56
62
HOSPITAL EMR SYSTEM
HOSPITAL NETWORK (PDS)
INTERNET
55
58
60
VOICE/DATA
72

FIG. 28