FIG. 1

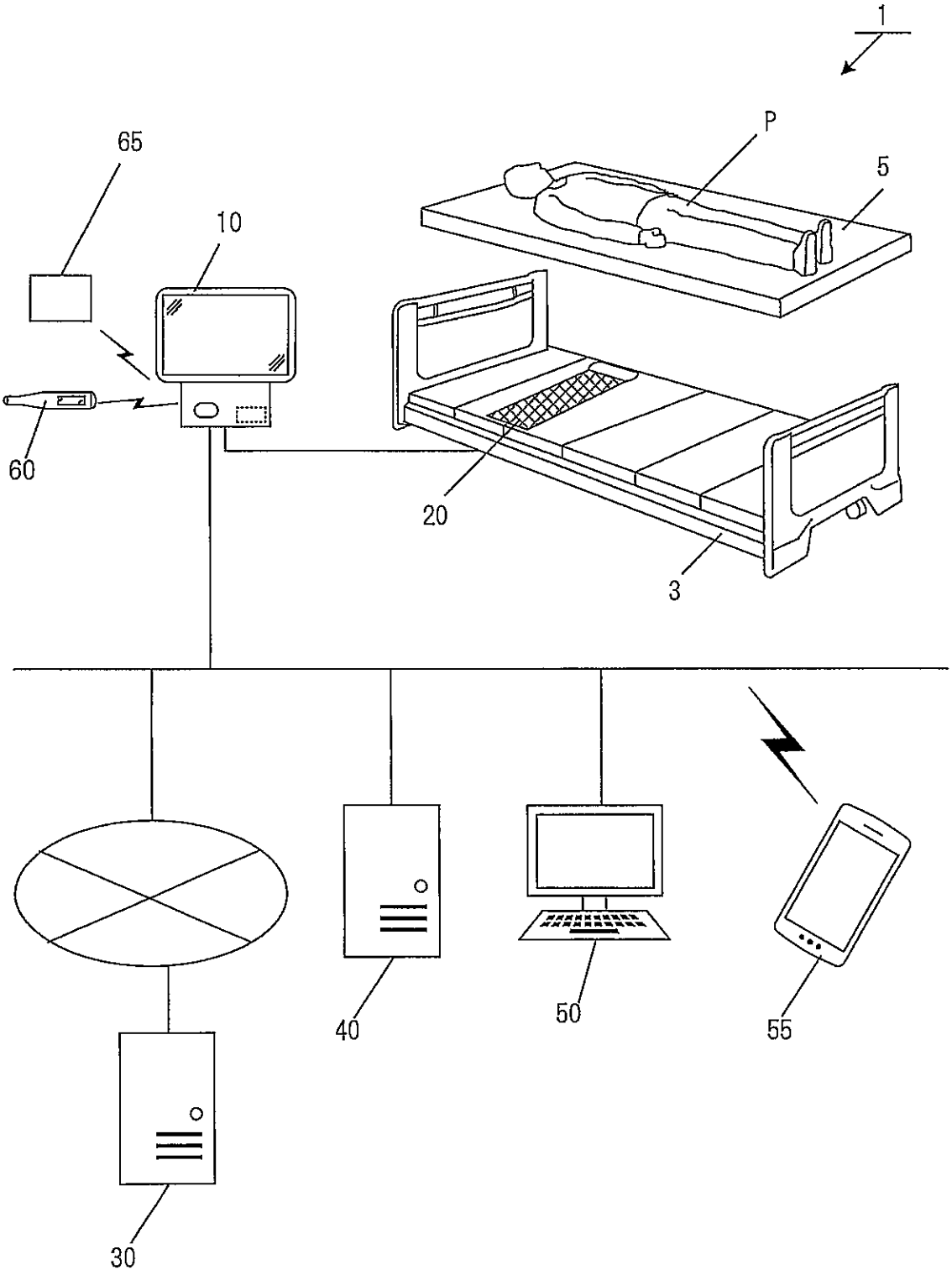
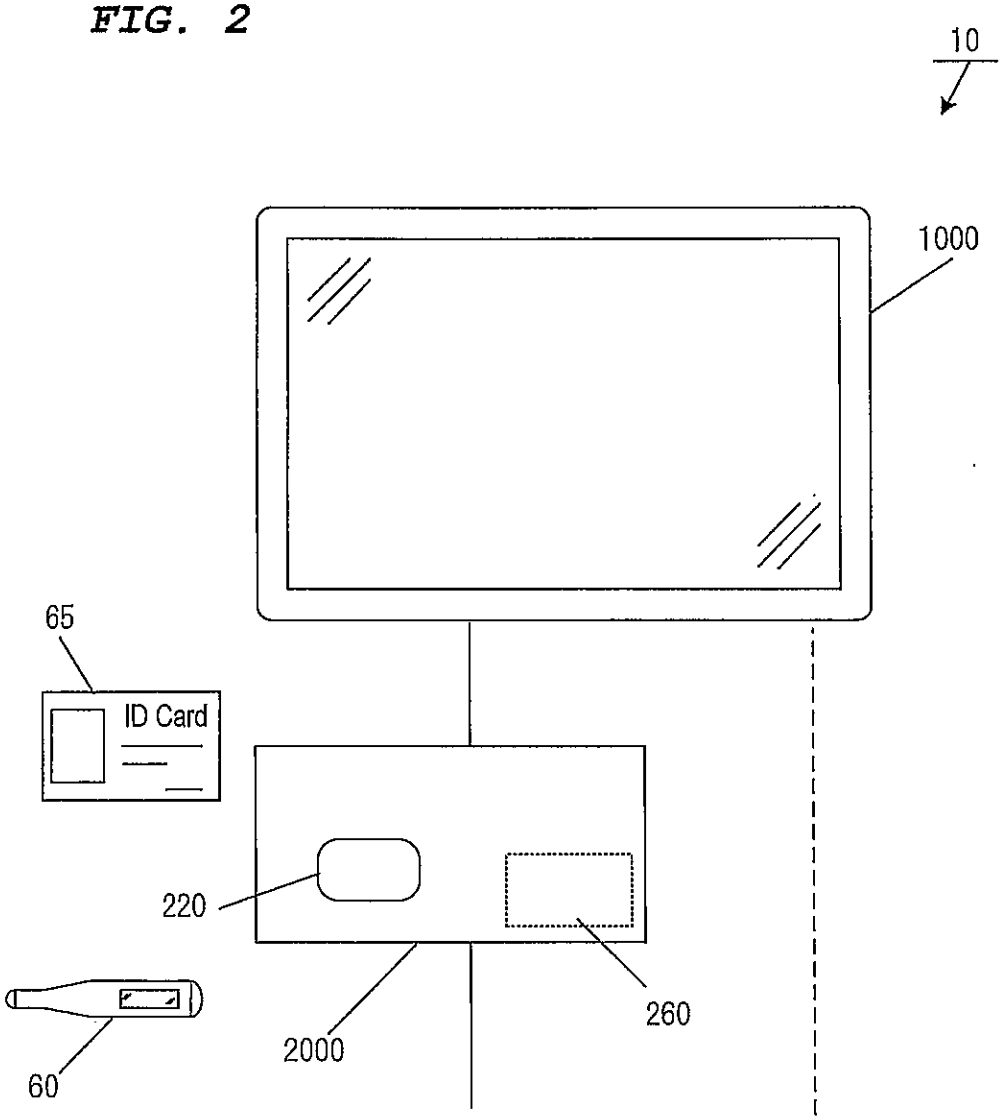


FIG. 2



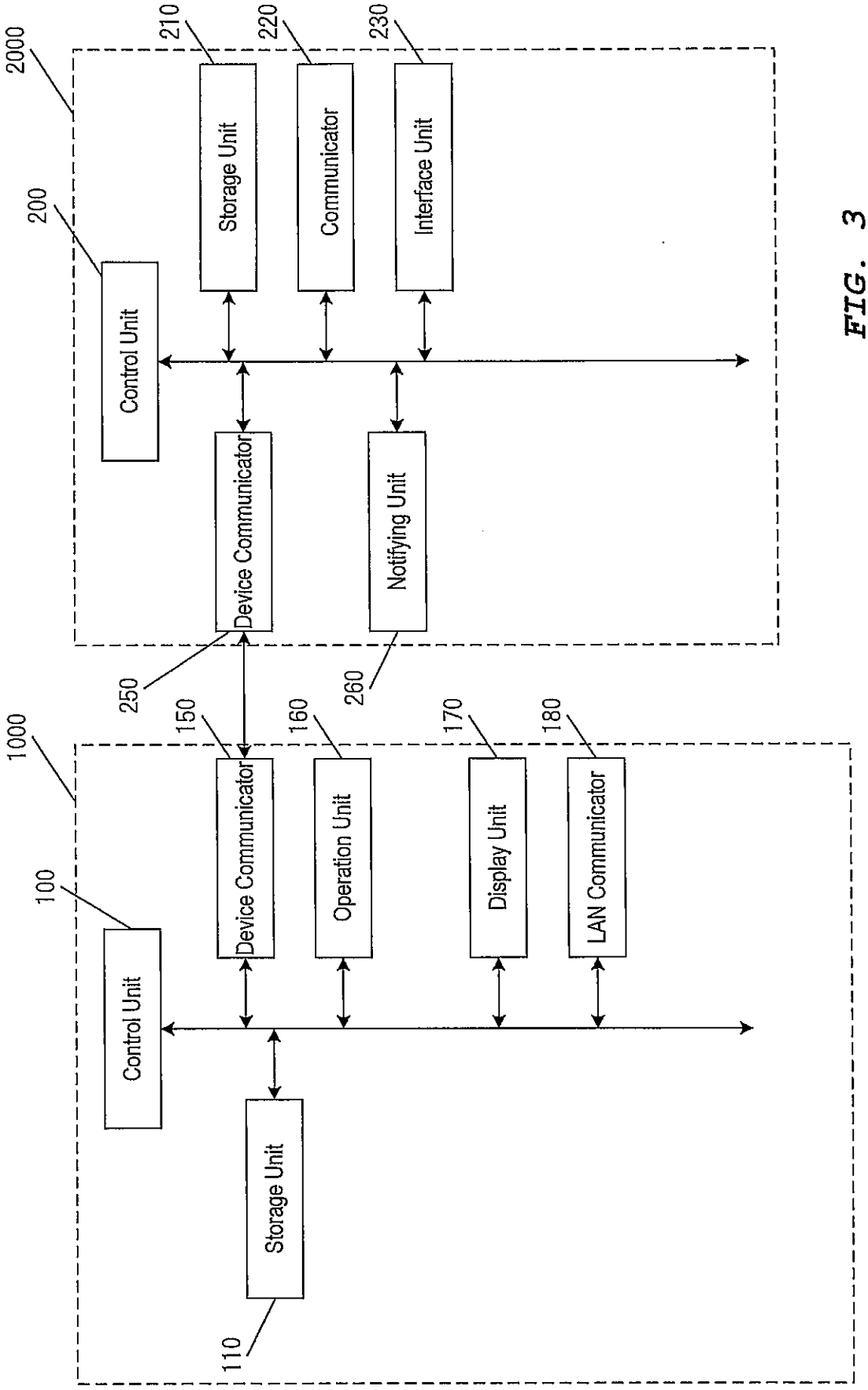

2000
210
220
230
Storage Unit
Communicator
Interface Unit
200
Control Unit
Device Communicator
Notifying Unit
250
260
1000
150
160
170
180
Device Communicator
Operation Unit
Display Unit
LAN Communicator
100
Control Unit
Storage Unit
110

FIG. 3

FIG. 4

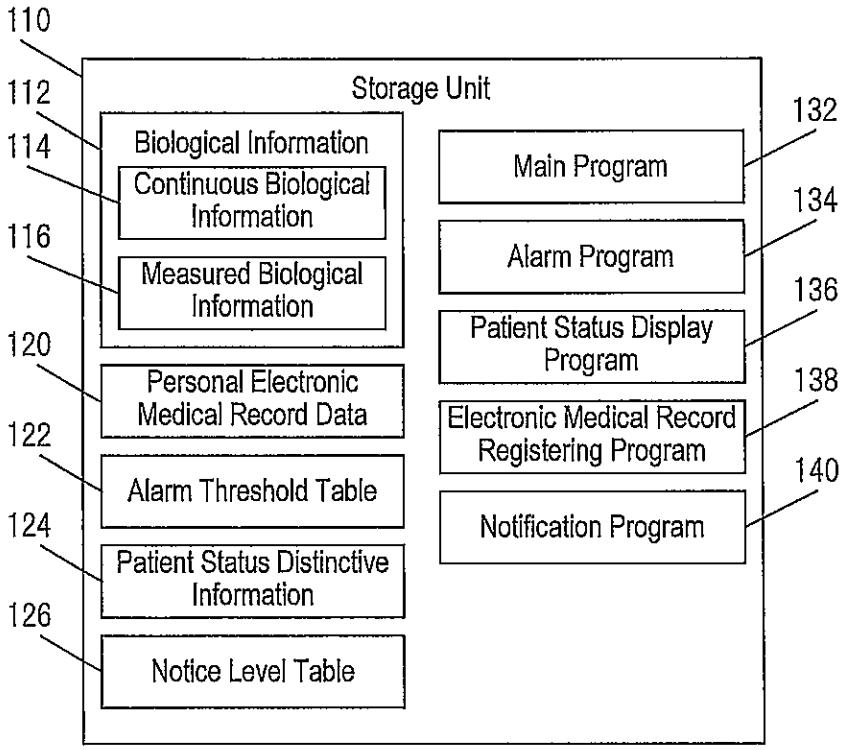

110
Storage Unit
112
Biological Information
114
Continuous Biological Information
116
Measured Biological Information
120
Personal Electronic Medical Record Data
122
Alarm Threshold Table
124
Patient Status Distinctive Information
126
Notice Level Table
132
Main Program
134
Alarm Program
136
Patient Status Display Program
138
Electronic Medical Record Registering Program
140
Notification Program

FIG. 5

Measurement Date	Pulse Rate	Body Temperature	Respiratory Rate	Sp02
2015/05/16 20:00	126	37. 2	15	99
2015/05/16 20:05	128	37. 2	13	97
2015/05/16 20:10	128	37. 8	16	98
⋮	⋮	⋮	⋮	⋮

FIG. 6

Reception Date	Body Temperature	Highest Blood Pressure	Lowest Blood Pressure
2015/05/16 20:00	37. 2	159	98
2015/05/16 22:00	38. 0	162	102
⋮	⋮	⋮	⋮

FIG. 7

	Upper Limit Threshold		Lower Limit Threshold	
Biological Information	Caution	Warning	Caution	Warning
Pulse Rate	110	130	60	30
Respiration	30	34	10	8
Sp02	–	–	92	89
⋮	⋮	⋮	⋮	⋮

FIG. 8

Patient No.	Type	Notice Setting
100012	Leaving Bed	OFF
	Respiration	Caution
	Pulse	Warning
	⋮	⋮
⋮	⋮	⋮

FIG. 9

1st Notice Destination	Nurse in Charge, PC
2nd Notice Destination	Nurse in Charge, PC, Doctor in Charge

FIG. 10

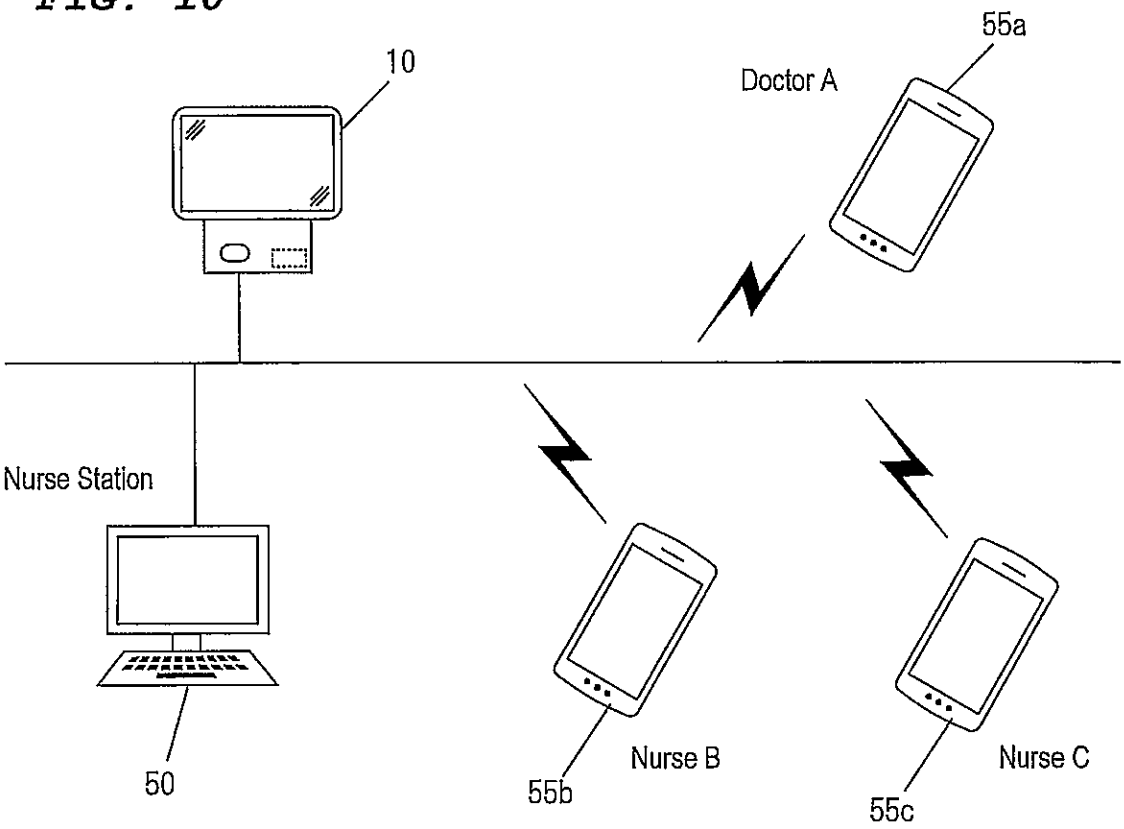


FIG. 11

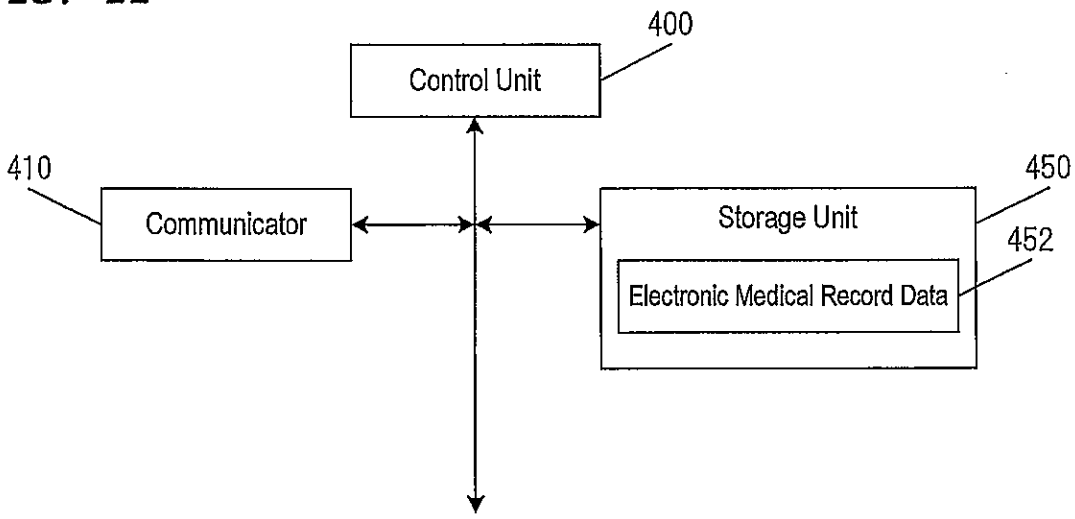


FIG. 12

Patient No. 100012 Name: Hanako Tanaka

Main Doctor: Ichiro Sato: Doctor in Charge: Jiro Kato

Nurse in Charge: Saburo Suzuki Medical Department: Medical Care 15

Ward No. 1025-5

R100

Alcohol Prohibited | Nose-Blowing Prohibited | Periodical Blood Sampling

R Pr So

R102

Measurement Date	Pulse Rate	Highest Blood Pressure	Lowest Blood Pressure	Body Temperature	Blood Glucose Level
2015/05/16 20:00	126	159	98	37.2	110
2015/05/17 6:00	105	132	84	37.6	110
2015/05/17 7:00	-	-	-	37.8	125
⋮	⋮	⋮	⋮	⋮	⋮

R104

FIG. 13

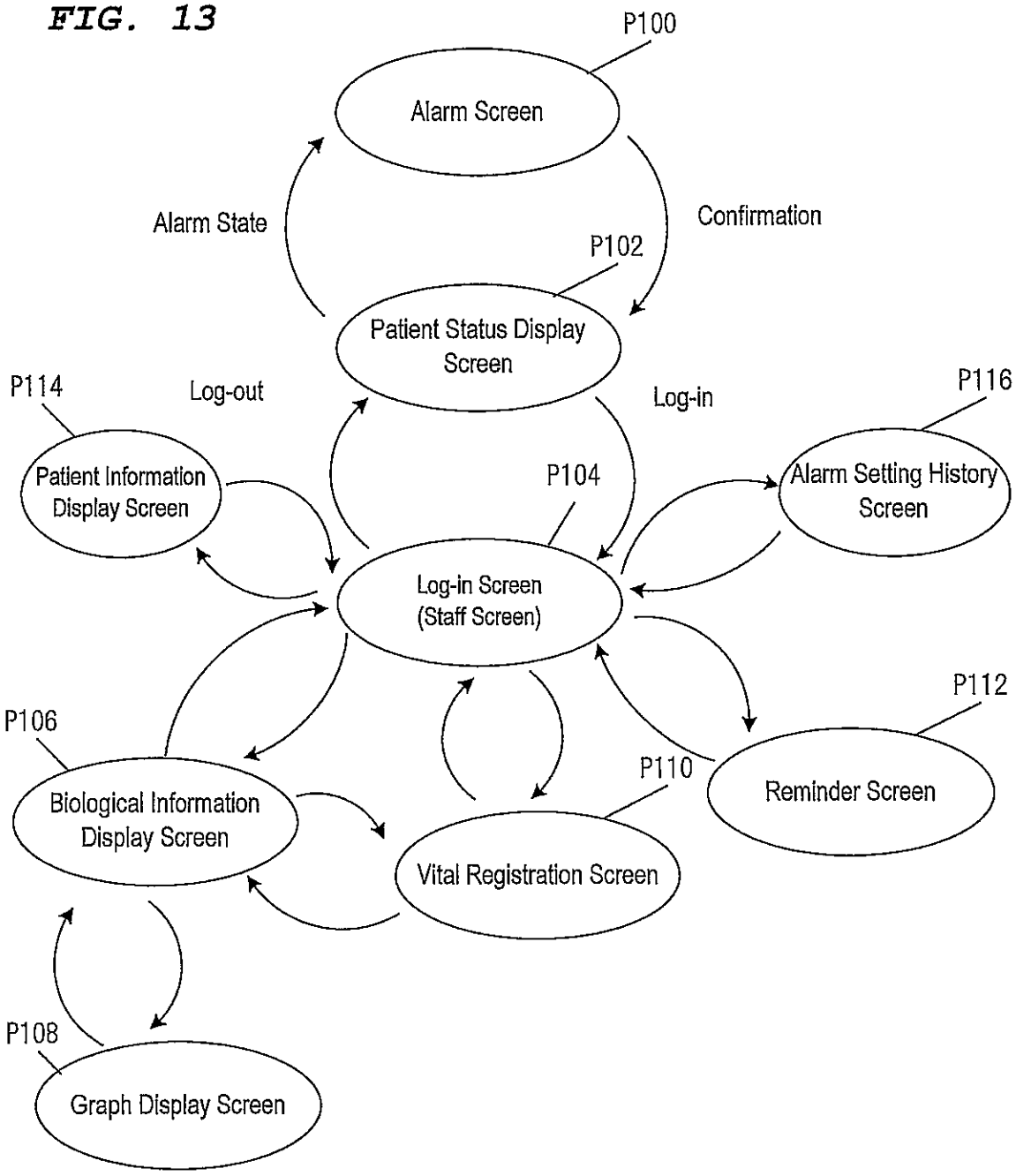

P100
Alarm Screen
Alarm State
Confirmation
P102
Patient Status Display Screen
P114
Log-out
Log-in
P116
Patient Information Display Screen
P104
Alarm Setting History Screen
Log-in Screen (Staff Screen)
P112
P106
P110
Biological Information Display Screen
Reminder Screen
Vital Registration Screen
P108
Graph Display Screen

FIG. 14

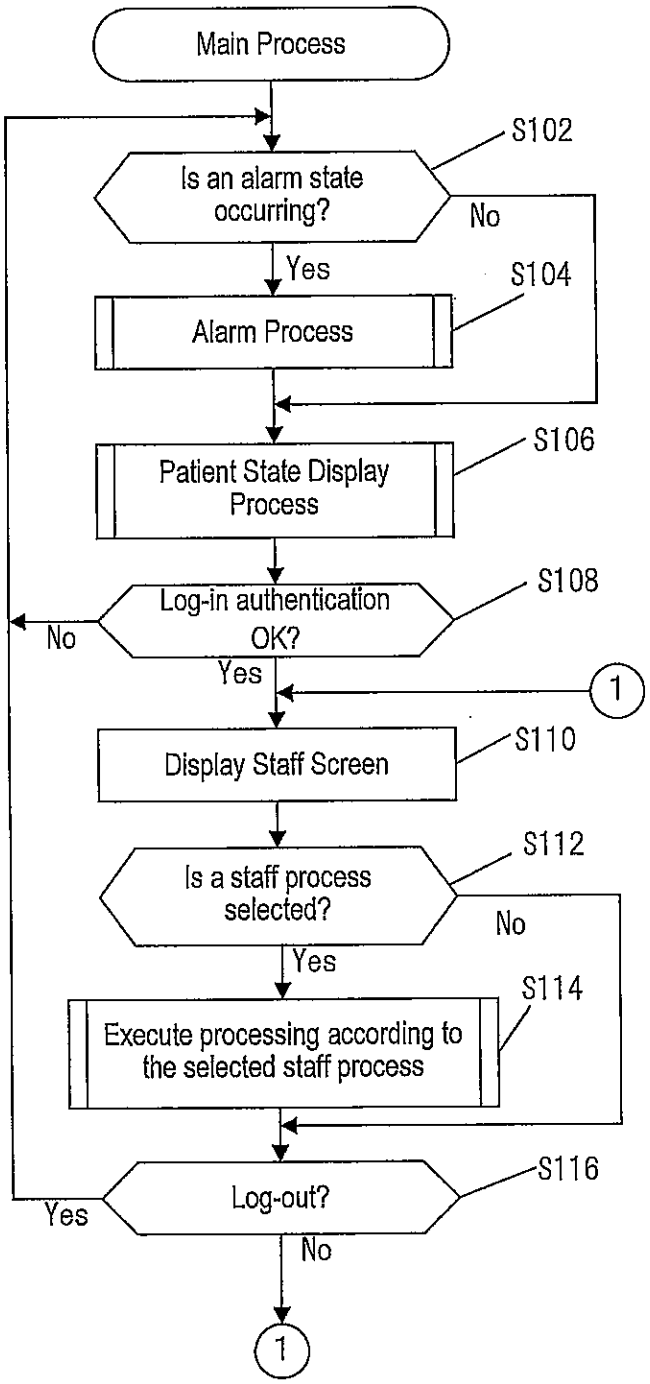

Main Process
S102
Is an alarm state occurring?
No
Yes
S104
Alarm Process
S106
Patient State Display Process
S108
Log-in authentication OK?
No
Yes
1
S110
Display Staff Screen
S112
Is a staff process selected?
No
Yes
S114
Execute processing according to the selected staff process
S116
Log-out?
Yes
No
1

FIG. 15

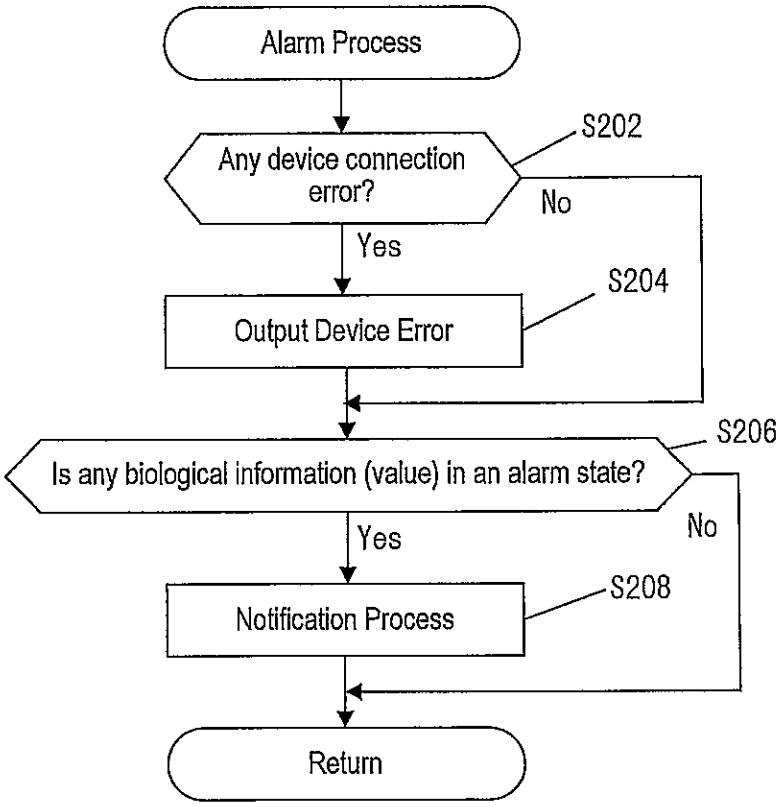

Alarm Process
S202
Any device connection error?
No
Yes
S204
Output Device Error
S206
Is any biological information (value) in an alarm state?
No
Yes
S208
Notification Process
Return

FIG. 16

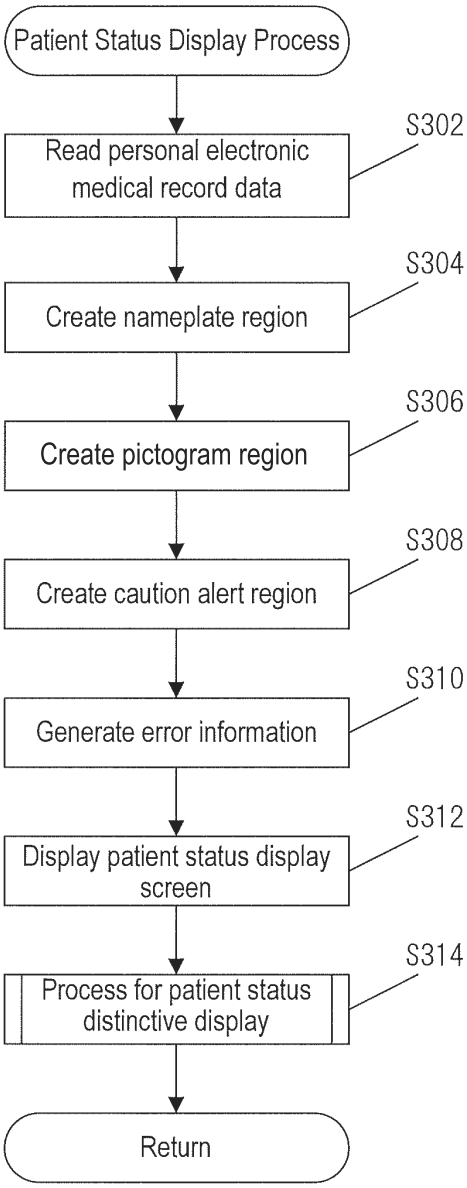

Patient Status Display Process
Read personal electronic medical record data
S302
Create nameplate region
S304
Create pictogram region
S306
Create caution alert region
S308
Generate error information
S310
Display patient status display screen
S312
Process for patient status distinctive display
S314
Return

FIG. 17

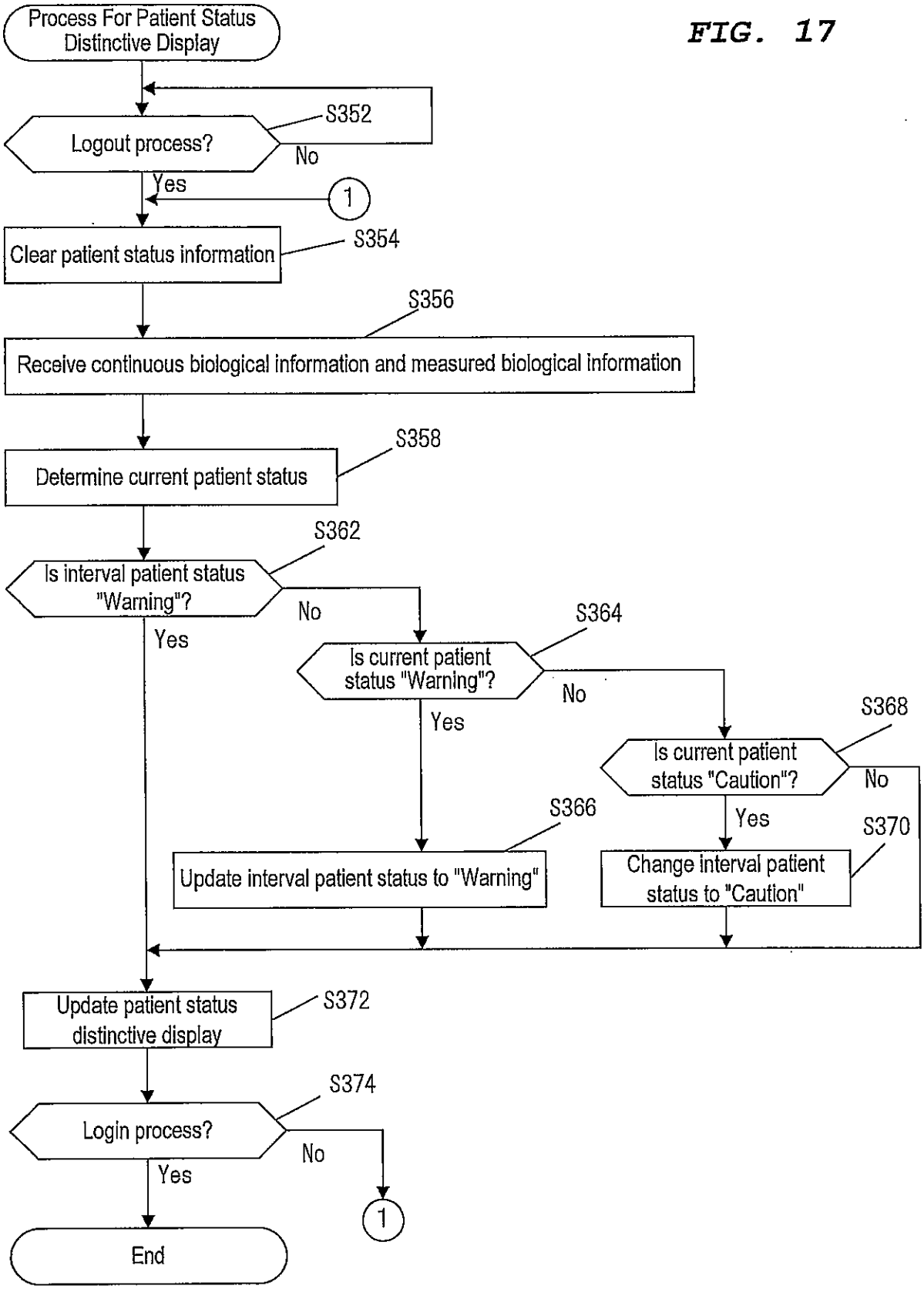
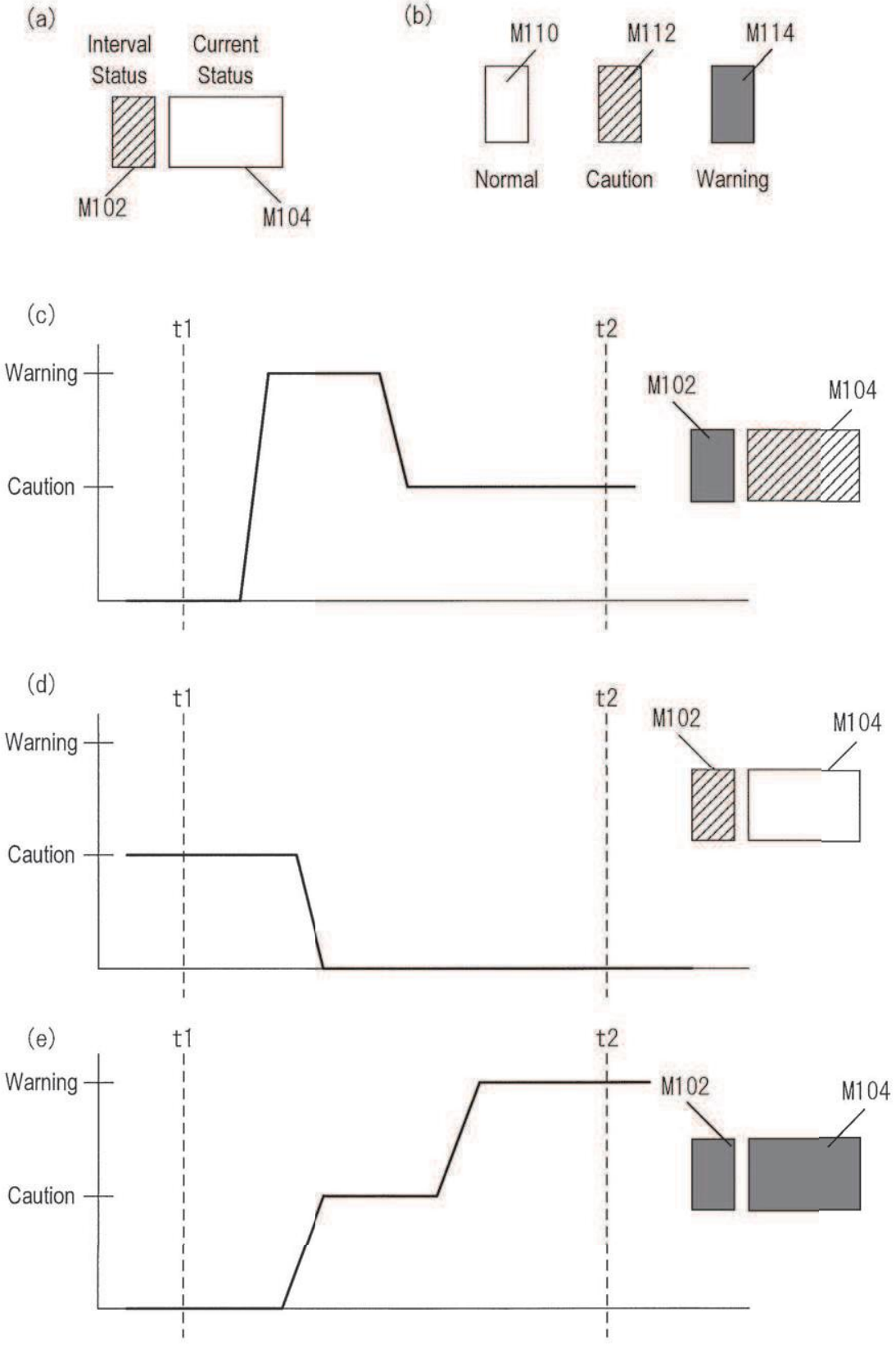

Process For Patient Status Distinctive Display
S352
Logout process?
No
Yes
1
S354
Clear patient status information
S356
Receive continuous biological information and measured biological information
S358
Determine current patient status
S362
Is interval patient status "Warning"?
No
Yes
S364
Is current patient status "Warning"?
No
Yes
S368
Is current patient status "Caution"?
No
Yes
S366
Update interval patient status to "Warning"
S370
Change interval patient status to "Caution"
S372
Update patient status distinctive display
S374
Login process?
No
Yes
1
End

FIG. 18


(a)
Interval Status
Current Status
M102
M104
(b)
M110
M112
M114
Normal
Caution
Warning
(c)
t1
t2
Warning
Caution
M102
M104
(d)
t1
t2
Warning
Caution
M102
M104
(e)
t1
t2
Warning
Caution
M102
M104

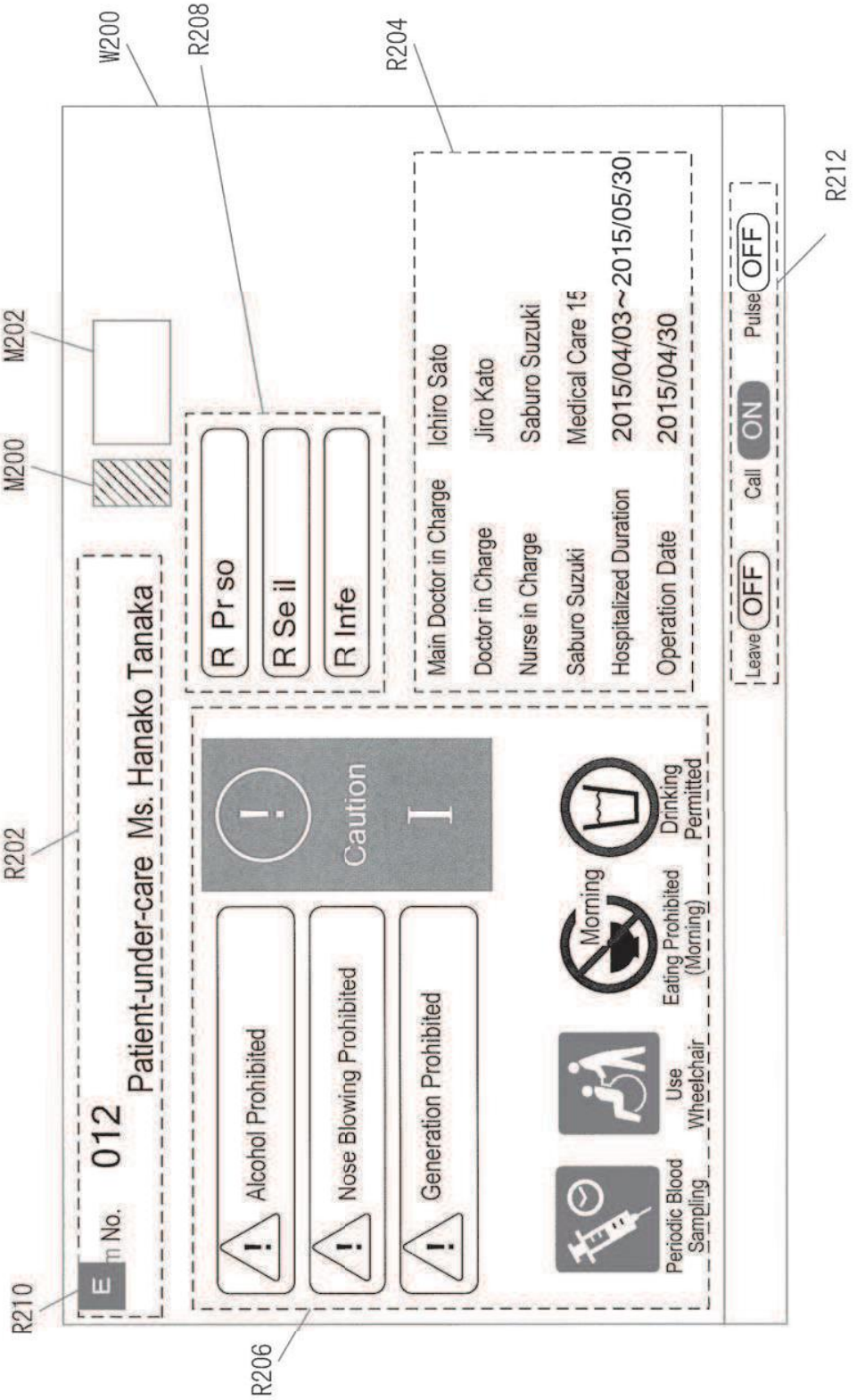

W200
R208
R204
M202
M200
R202
R210
R206
R212
E
m No. 012
Patient-under-care Ms. Hanako Tanaka
R Pr so
R Se il
R Infe
Main Doctor in Charge Ichiro Sato
Doctor in Charge Jiro Kato
Nurse in Charge Saburo Suzuki
Saburo Suzuki Medical Care 15
Hospitalized Duration 2015/04/03~2015/05/30
Operation Date 2015/04/30
Caution
Alcohol Prohibited
Nose Blowing Prohibited
Generation Prohibited
Periodic Blood Sampling
Use Wheelchair
Eating Prohibited (Morning)
Morning
Drinking Permitted
Leave OFF
Call ON
Pulse OFF

FIG. 19

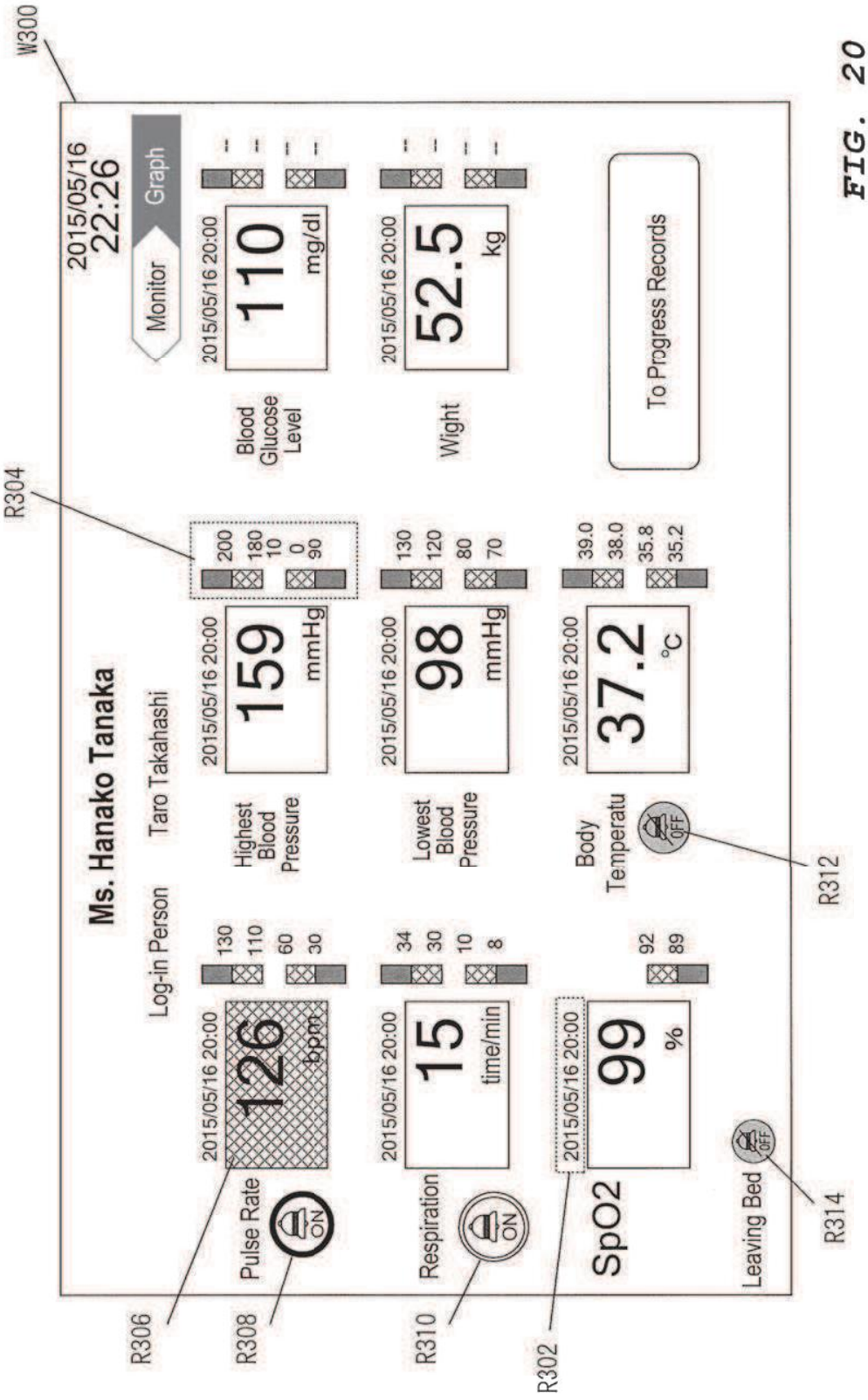

W300
R304
R306
R308
R310
R302
R312
R314
Ms. Hanako Tanaka
Log-in Person
Taro Takahashi
2015/05/16
22:26
Monitor
Graph
Pulse Rate
Respiration
SpO2
Leaving Bed
Highest Blood Pressure
Lowest Blood Pressure
Body Temperatu
Blood Glucose Level
Wight
To Progress Records
2015/05/16 20:00
126
bpm
15
time/min
99
%
159
mmHg
98
mmHg
37.2
°C
110
mg/dl
52.5
kg
ON
OFF

FIG. 20

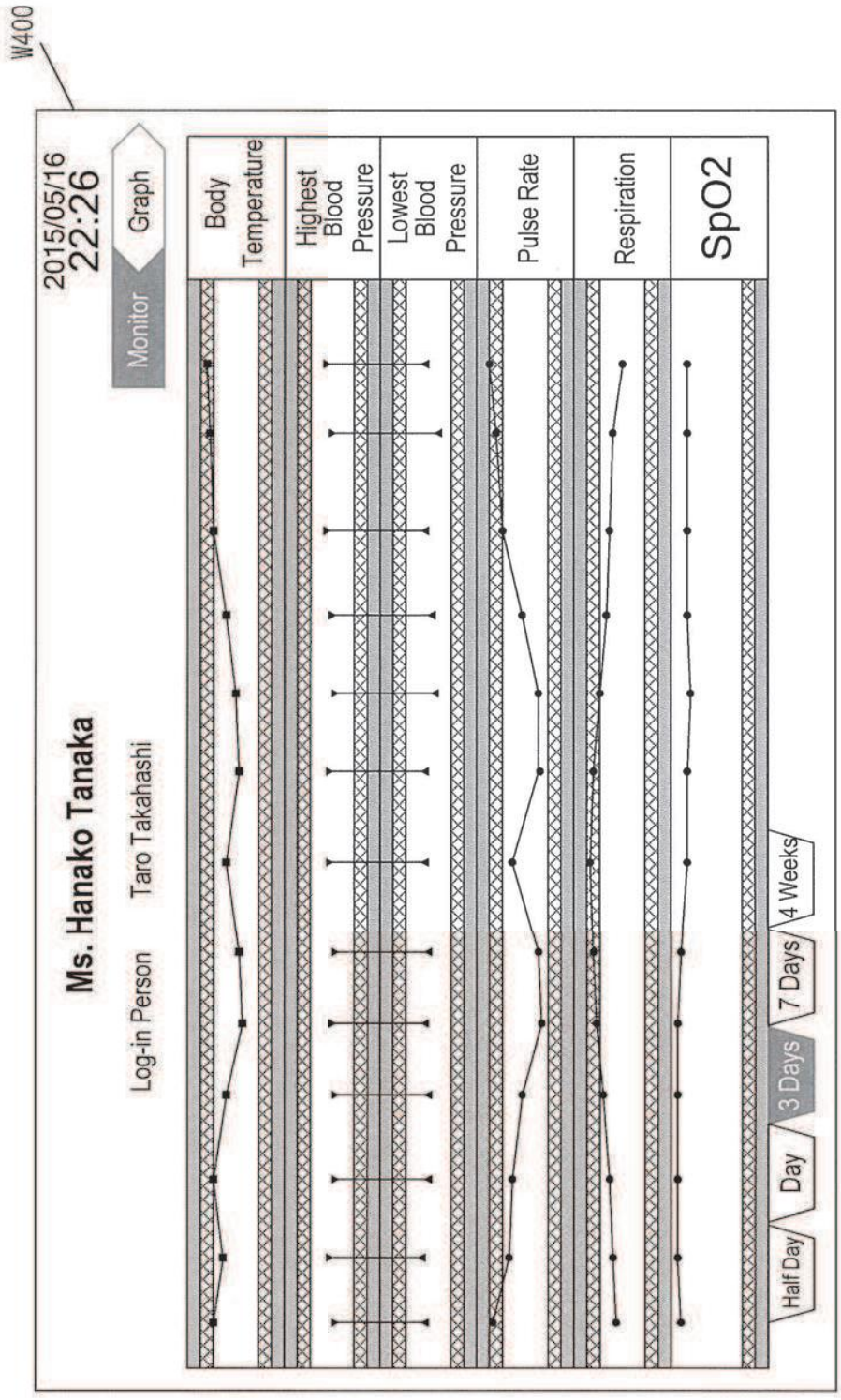
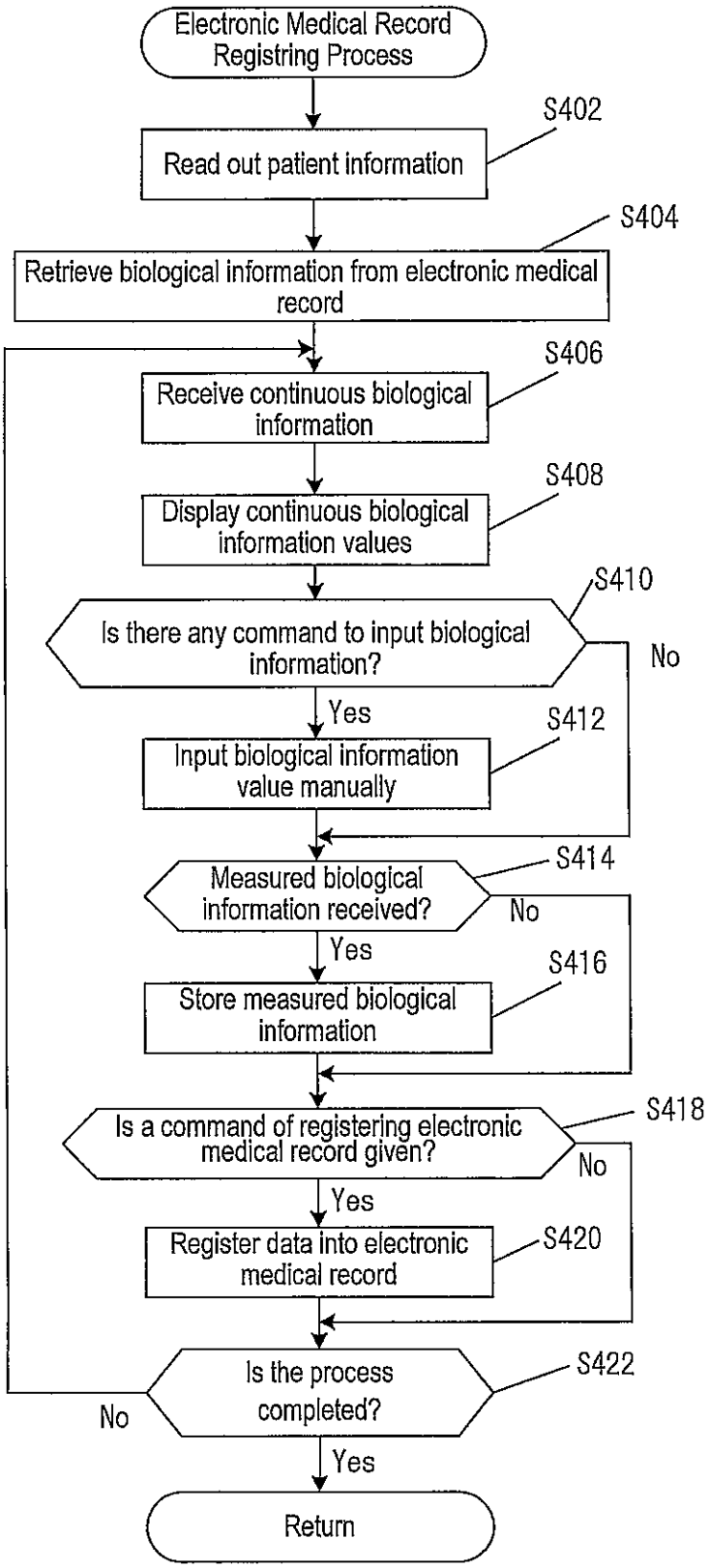

W400
2015/05/16
22:26
Monitor
Graph
Ms. Hanako Tanaka
Log-in Person
Taro Takahashi
Body Temperature
Highest Blood Pressure
Lowest Blood Pressure
Pulse Rate
Respiration
SpO2
Half Day
Day
3 Days
7 Days
4 Weeks

FIG. 21

FIG. 22


Electronic Medical Record Registring Process
S402
Read out patient information
S404
Retrieve biological information from electronic medical record
S406
Receive continuous biological information
S408
Display continuous biological information values
S410
Is there any command to input biological information?
No
Yes
S412
Input biological information value manually
S414
Measured biological information received?
No
Yes
S416
Store measured biological information
S418
Is a command of registering electronic medical record given?
No
Yes
S420
Register data into electronic medical record
S422
Is the process completed?
No
Yes
Return

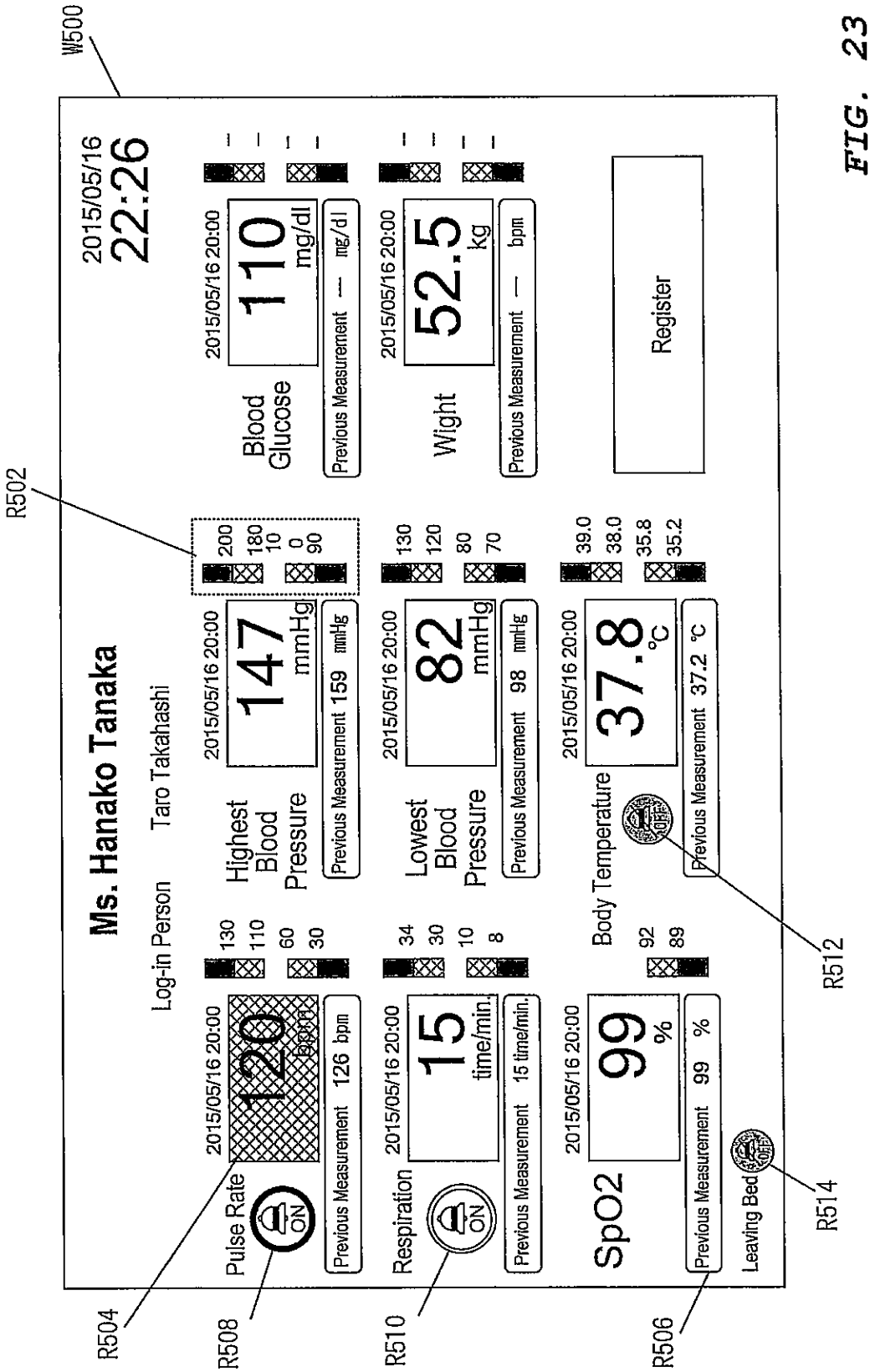

W500
R502
R504
R506
R508
R510
R512
R514
Ms. Hanako Tanaka
Log-in Person
Taro Takahashi
2015/05/16
22:26
Pulse Rate
2015/05/16 20:00
120
bpm
Previous Measurement 126 bpm
Respiration
2015/05/16 20:00
15
time/min.
Previous Measurement 15 time/min.
SpO2
2015/05/16 20:00
99
%
Previous Measurement 99 %
Highest Blood Pressure
2015/05/16 20:00
147
mmHg
Previous Measurement 159 mmHg
Lowest Blood Pressure
2015/05/16 20:00
82
mmHg
Previous Measurement 98 mmHg
Body Temperature
2015/05/16 20:00
37.8
℃
Previous Measurement 37.2 ℃
Blood Glucose
2015/05/16 20:00
110
mg/dl
Previous Measurement — mg/dl
Wight
2015/05/16 20:00
52.5
kg
Previous Measurement — bpm
Register
Leaving Bed
ON
OFF

FIG. 23

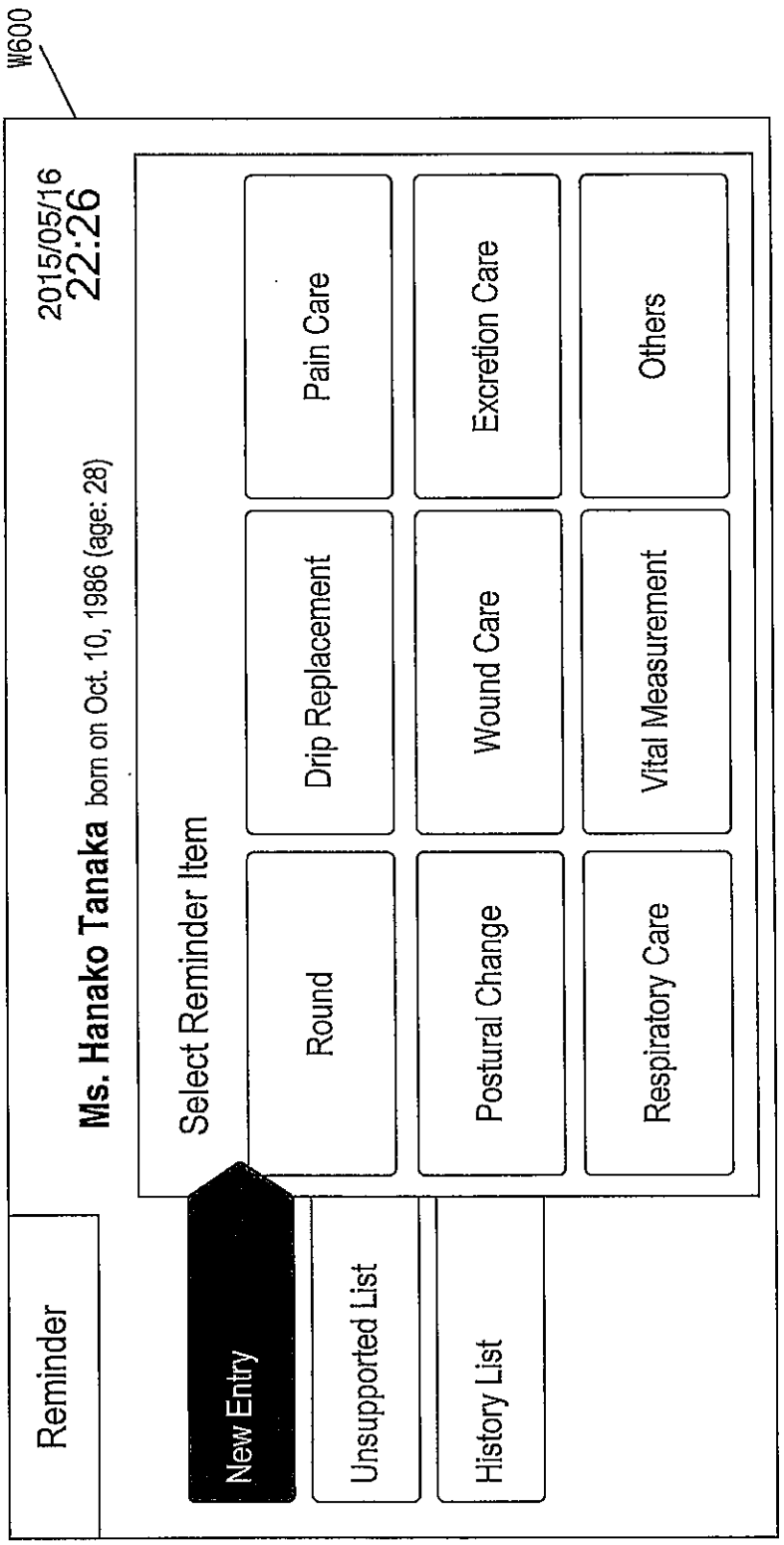

W600
Reminder
2015/05/16
22:26
Ms. Hanako Tanaka born on Oct. 10, 1986 (age: 28)
Select Reminder Item
New Entry
Unsupported List
History List
Round
Drip Replacement
Pain Care
Postural Change
Wound Care
Excretion Care
Respiratory Care
Vital Measurement
Others

FIG. 24

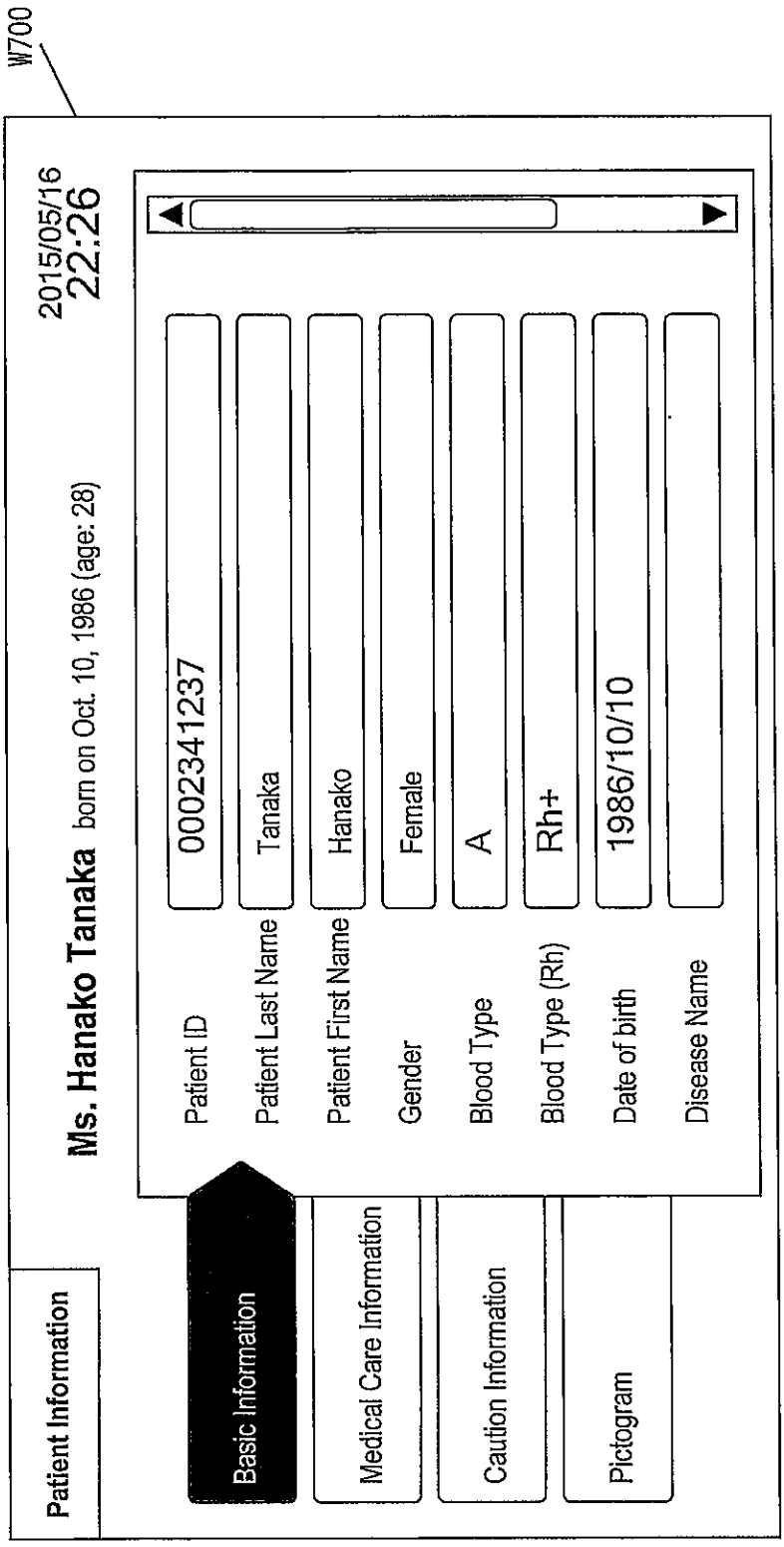

W700
Patient Information
Ms. Hanako Tanaka born on Oct. 10, 1986 (age: 28)
2015/05/16
22:26
Basic Information
Medical Care Information
Caution Information
Pictogram
Patient ID
0002341237
Patient Last Name
Tanaka
Patient First Name
Hanako
Gender
Female
Blood Type
A
Blood Type (Rh)
Rh+
Date of birth
1986/10/10
Disease Name

FIG. 25

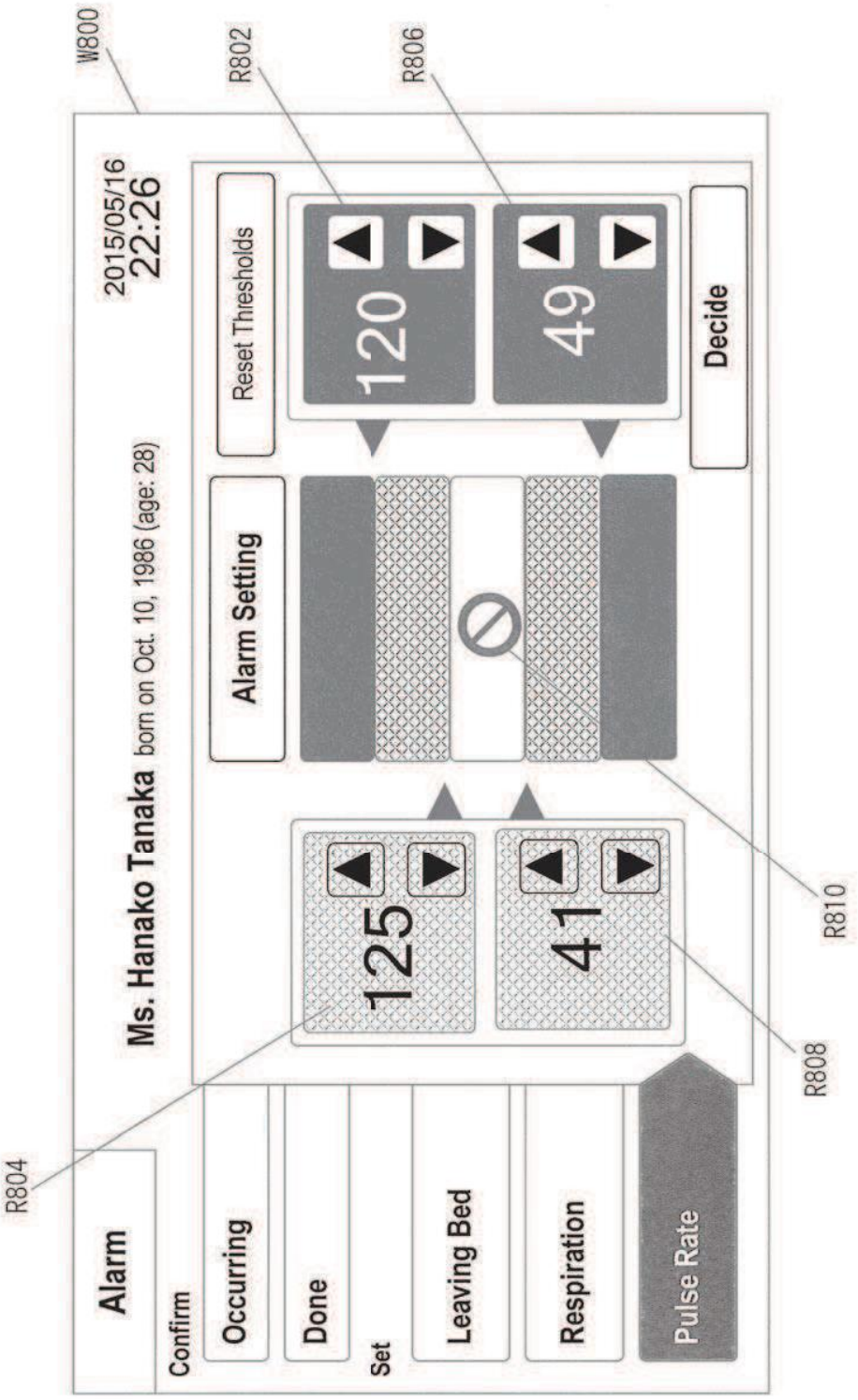

W800
R802
R806
R804
R808
R810
2015/05/16
22:26
Ms. Hanako Tanaka born on Oct. 10, 1986 (age: 28)
Alarm
Confirm
Occurring
Done
Set
Leaving Bed
Respiration
Pulse Rate
Alarm Setting
Reset Thresholds
Decide
125
41
120
49

FIG. 26

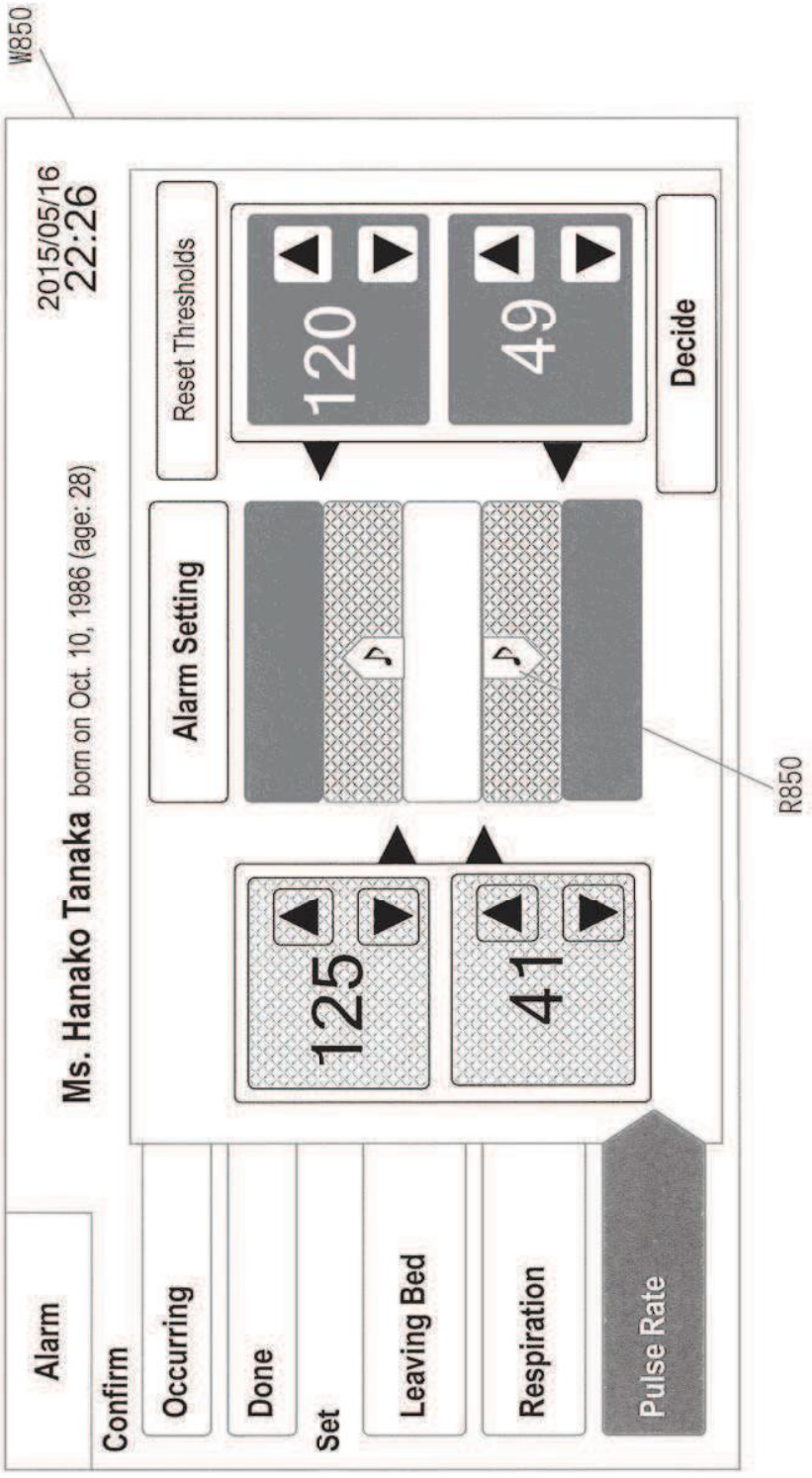

W850
Alarm
2015/05/16
22:26
Ms. Hanako Tanaka born on Oct. 10, 1986 (age: 28)
Confirm
Occurring
Done
Set
Leaving Bed
Respiration
Pulse Rate
Alarm Setting
Reset Thresholds
125
41
120
49
Decide
R850

FIG. 27

FIG. 28

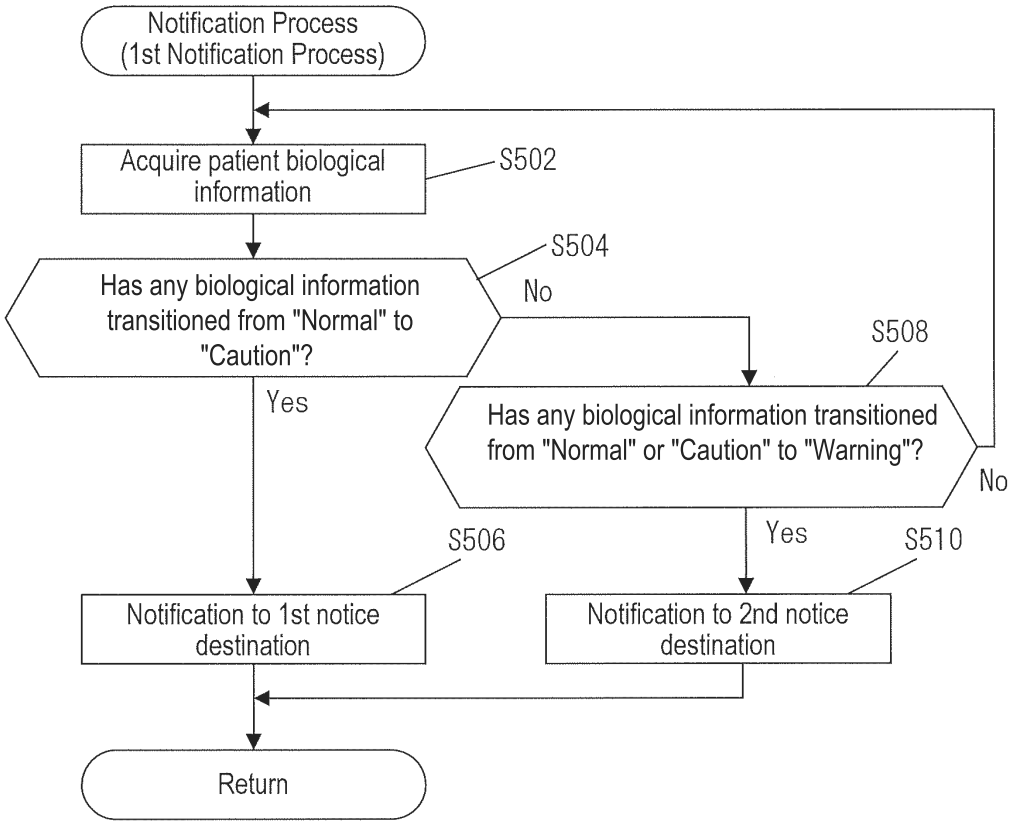

Notification Process
(1st Notification Process)
Acquire patient biological information
S502
S504
Has any biological information transitioned from "Normal" to "Caution"?
No
Yes
S508
Has any biological information transitioned from "Normal" or "Caution" to "Warning"?
No
Yes
S506
S510
Notification to 1st notice destination
Notification to 2nd notice destination
Return

FIG. 29

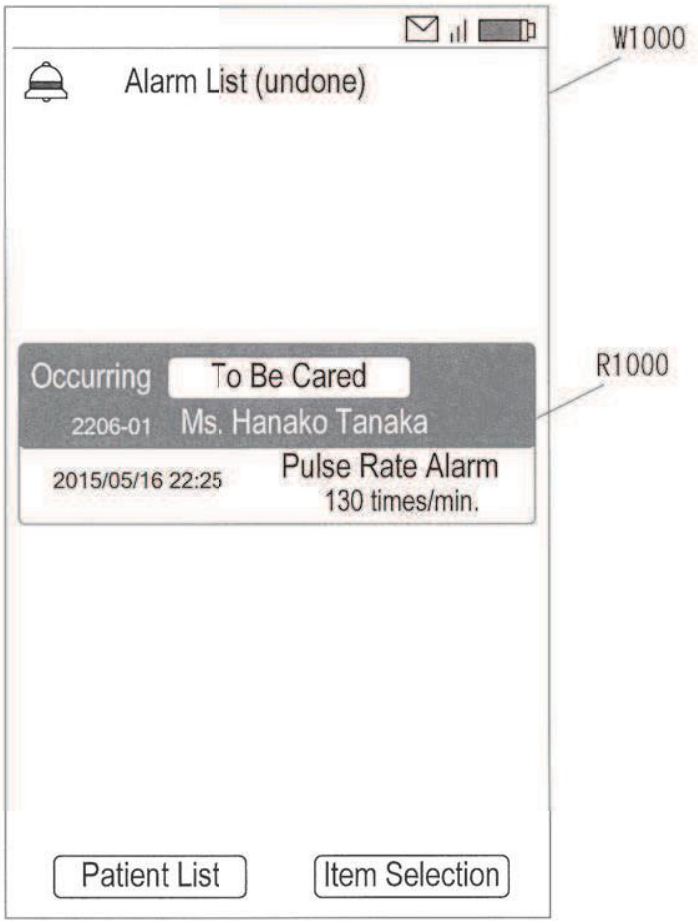

W1000
Alarm List (undone)
R1000
Occurring
To Be Cared
2206-01
Ms. Hanako Tanaka
2015/05/16 22:25
Pulse Rate Alarm
130 times/min.
Patient List
Item Selection

FIG. 30

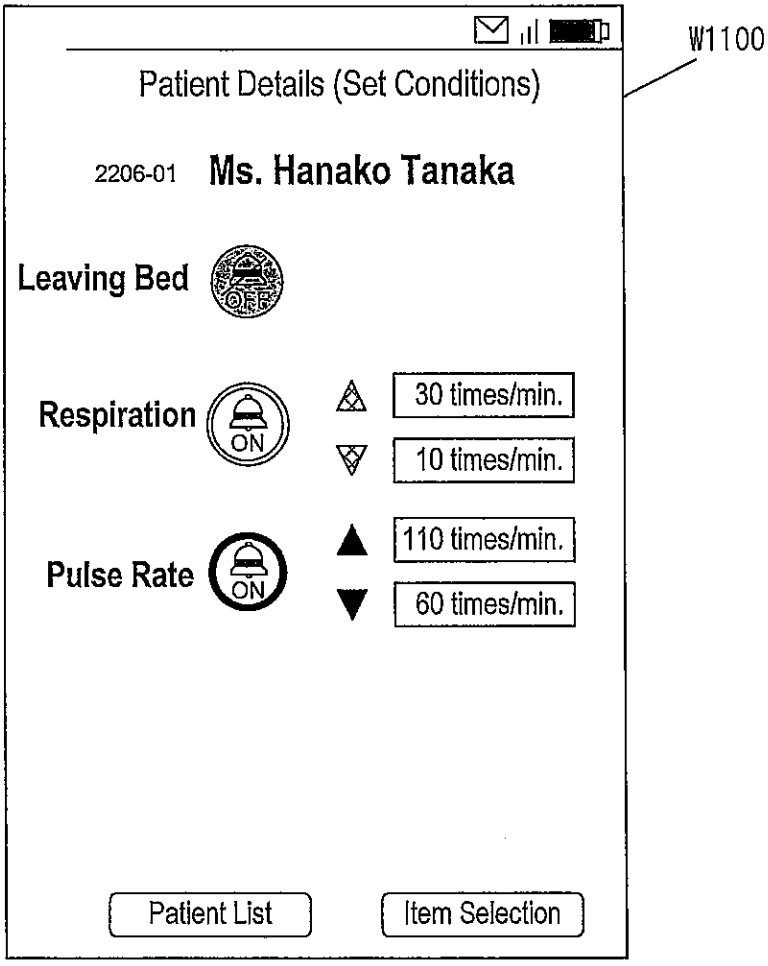
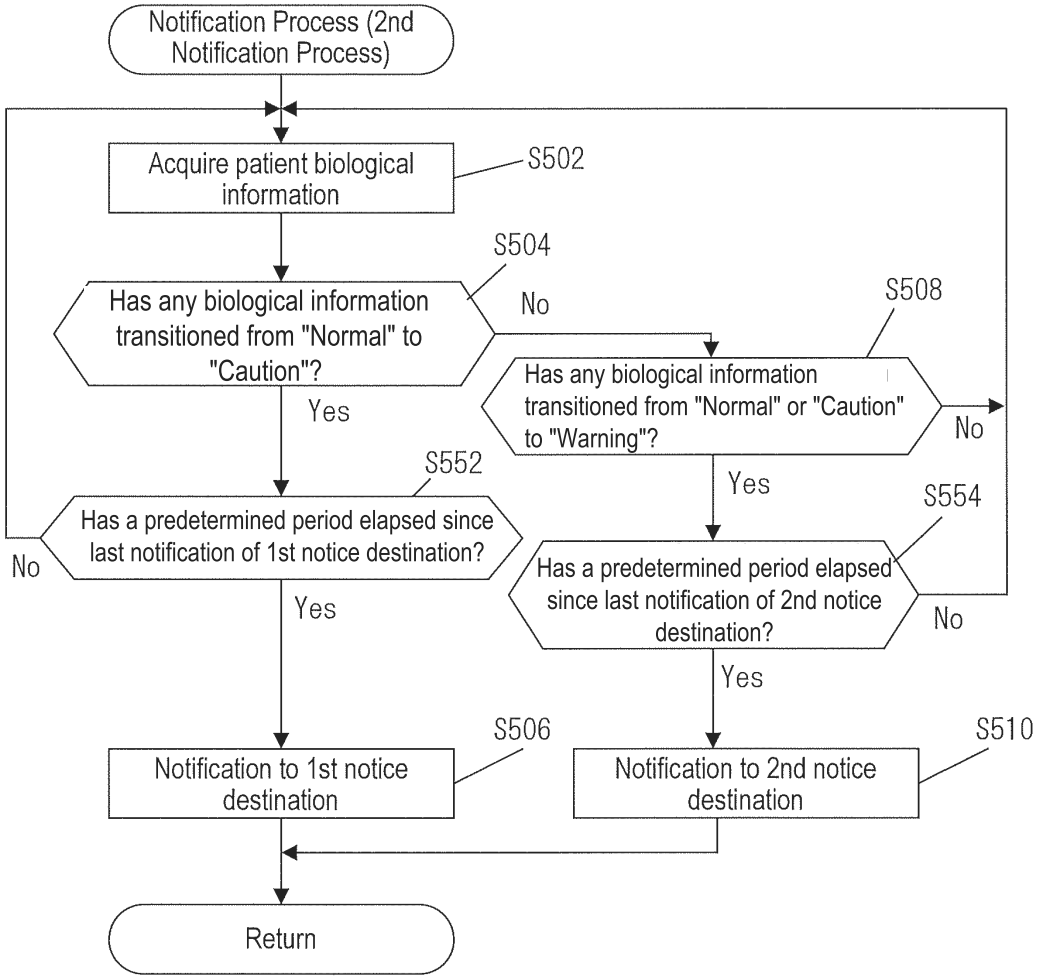

W1100
Patient Details (Set Conditions)
2206-01
Ms. Hanako Tanaka
Leaving Bed
OFF
Respiration
ON
30 times/min.
10 times/min.
Pulse Rate
ON
110 times/min.
60 times/min.
Patient List
Item Selection

FIG. 31


Notification Process (2nd Notification Process)
Acquire patient biological information
S502
S504
Has any biological information transitioned from "Normal" to "Caution"?
No
Yes
S508
Has any biological information transitioned from "Normal" or "Caution" to "Warning"?
No
Yes
S552
Has a predetermined period elapsed since last notification of 1st notice destination?
No
Yes
S554
Has a predetermined period elapsed since last notification of 2nd notice destination?
No
Yes
S506
Notification to 1st notice destination
S510
Notification to 2nd notice destination
Return

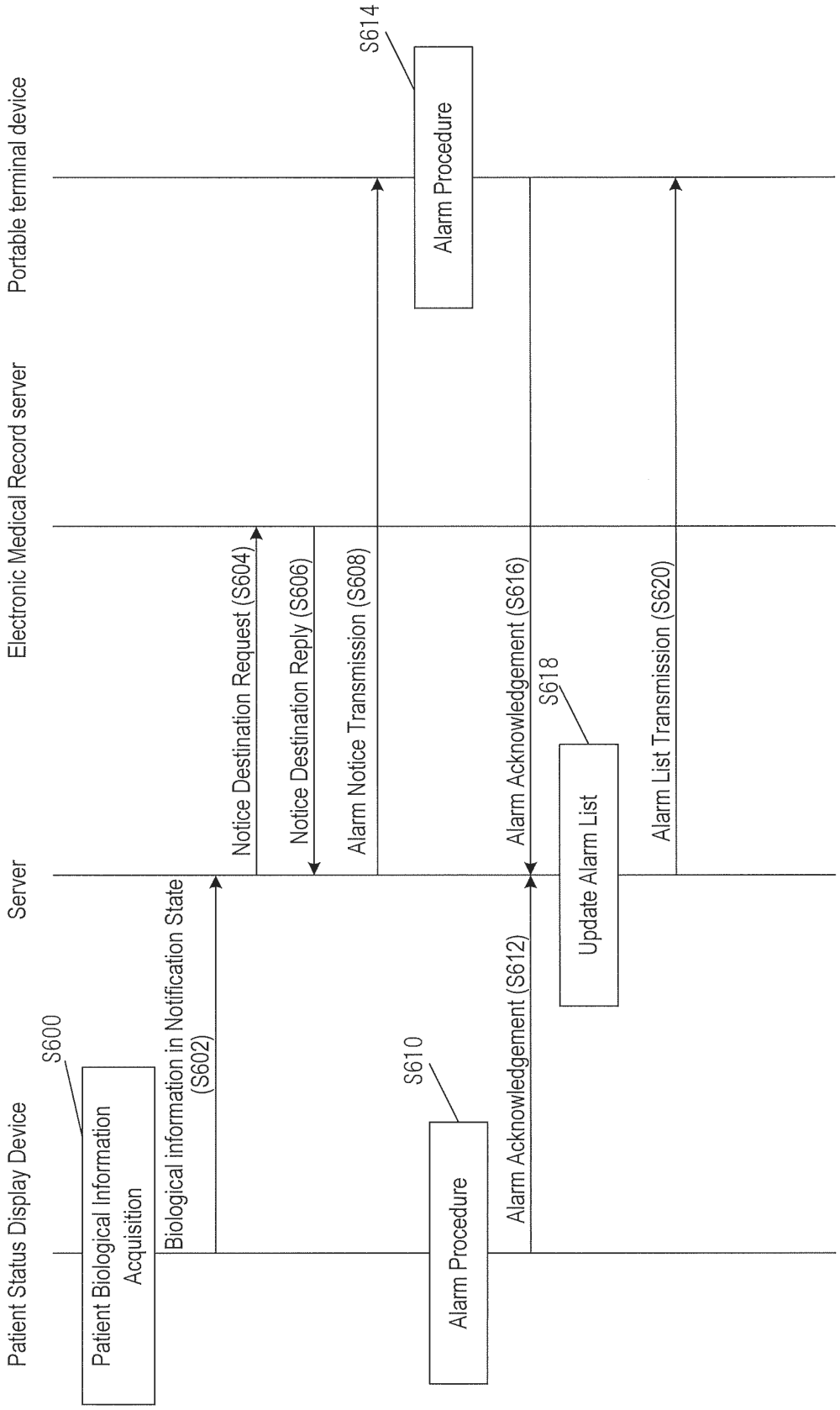
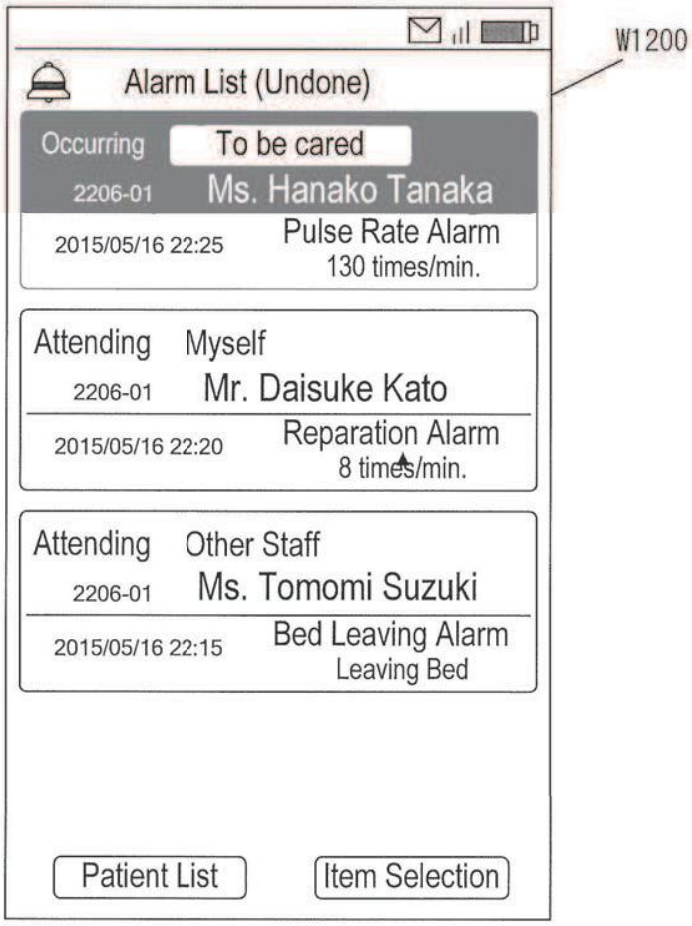

Patient Status Display Device
Server
Electronic Medical Record server
Portable terminal device
S600
Patient Biological Information Acquisition
Biological information in Notification State (S602)
Notice Destination Request (S604)
Notice Destination Reply (S606)
Alarm Notice Transmission (S608)
S610
Alarm Procedure
Alarm Acknowledgement (S612)
S614
Alarm Procedure
Alarm Acknowledgement (S616)
S618
Update Alarm List
Alarm List Transmission (S620)

FIG. 32

FIG. 33


W1200
Alarm List (Undone)
Occurring
To be cared
2206-01
Ms. Hanako Tanaka
2015/05/16 22:25
Pulse Rate Alarm
130 times/min.
Attending
Myself
2206-01
Mr. Daisuke Kato
2015/05/16 22:20
Reparation Alarm
8 times/min.
Attending
Other Staff
2206-01
Ms. Tomomi Suzuki
2015/05/16 22:15
Bed Leaving Alarm
Leaving Bed
Patient List
Item Selection