

FIG. 1

In the case of 1bit per symbol

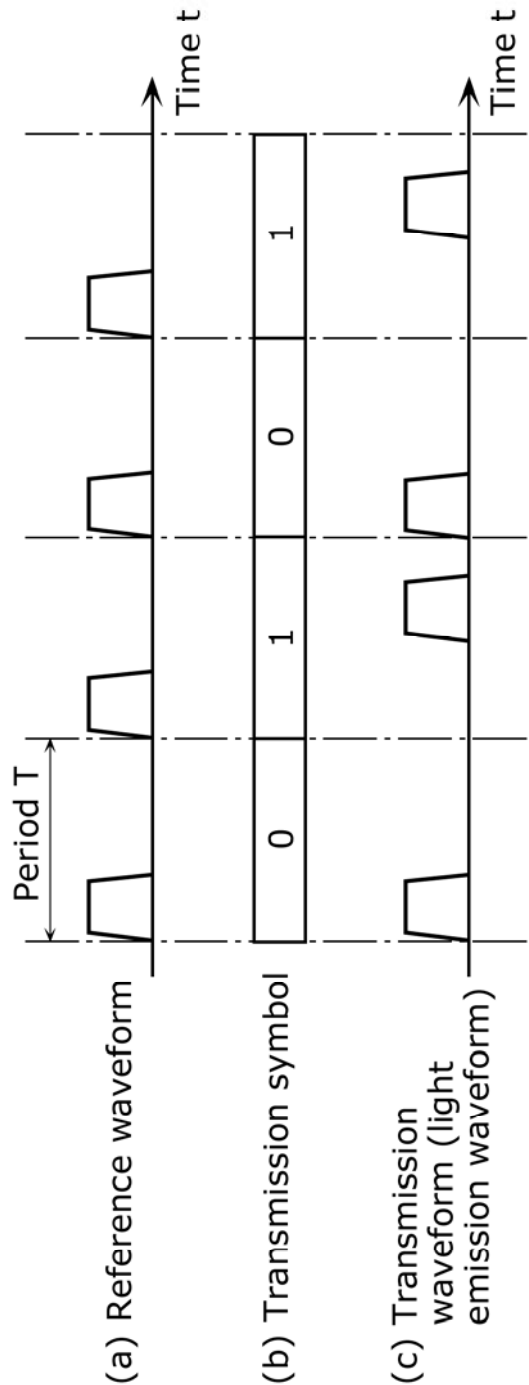


FIG. 2

In the case of symbol  $0 \rightarrow 0$

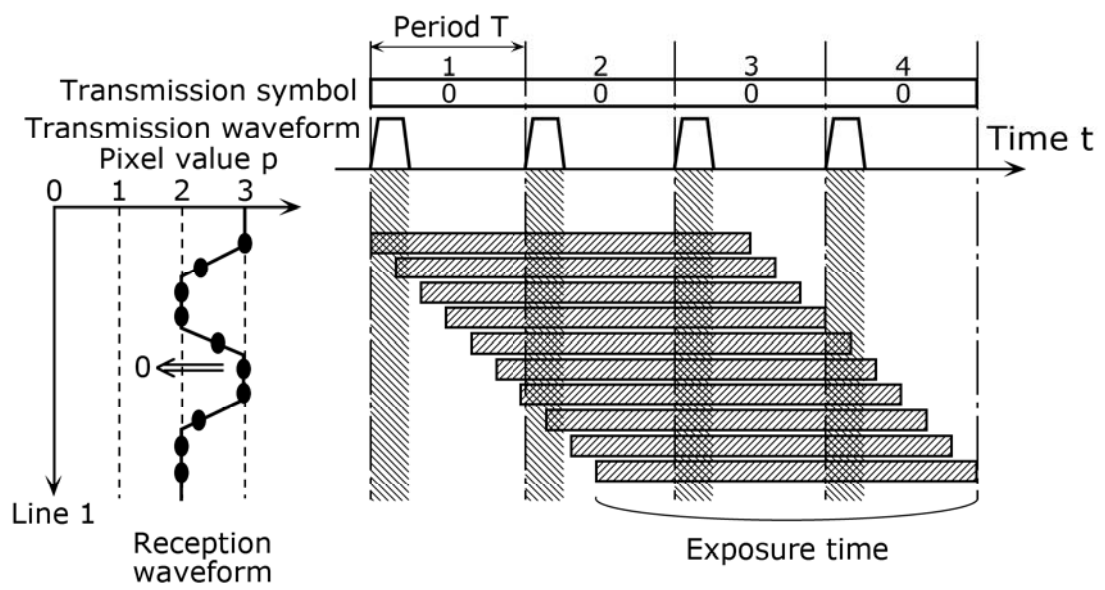




FIG. 3

In the case of symbol  $0 \rightarrow 1$

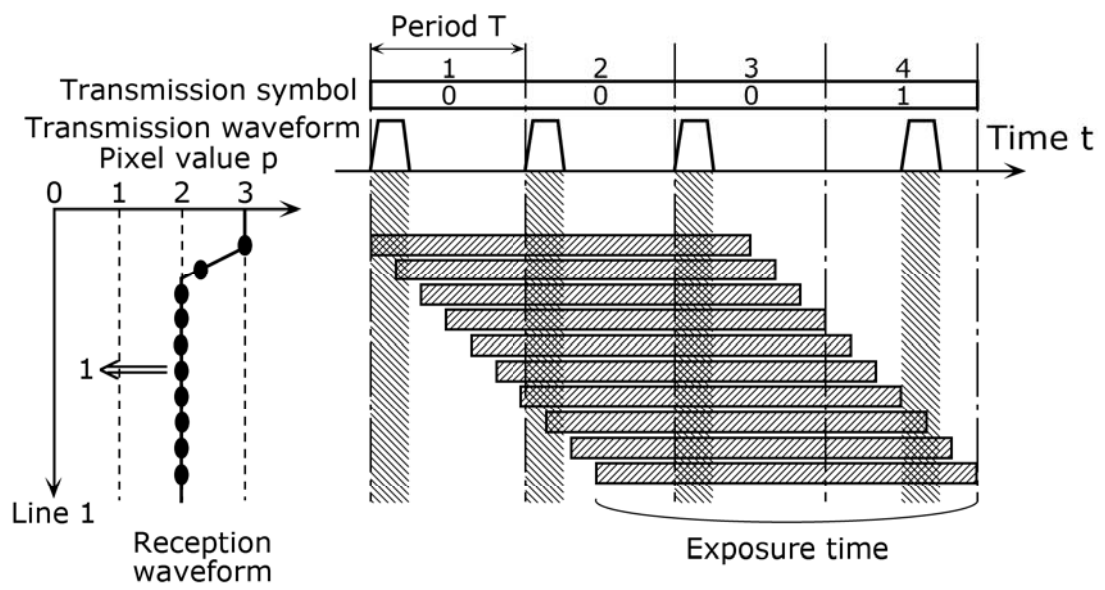


FIG. 4

In the case of symbol 1  $\rightarrow$  0

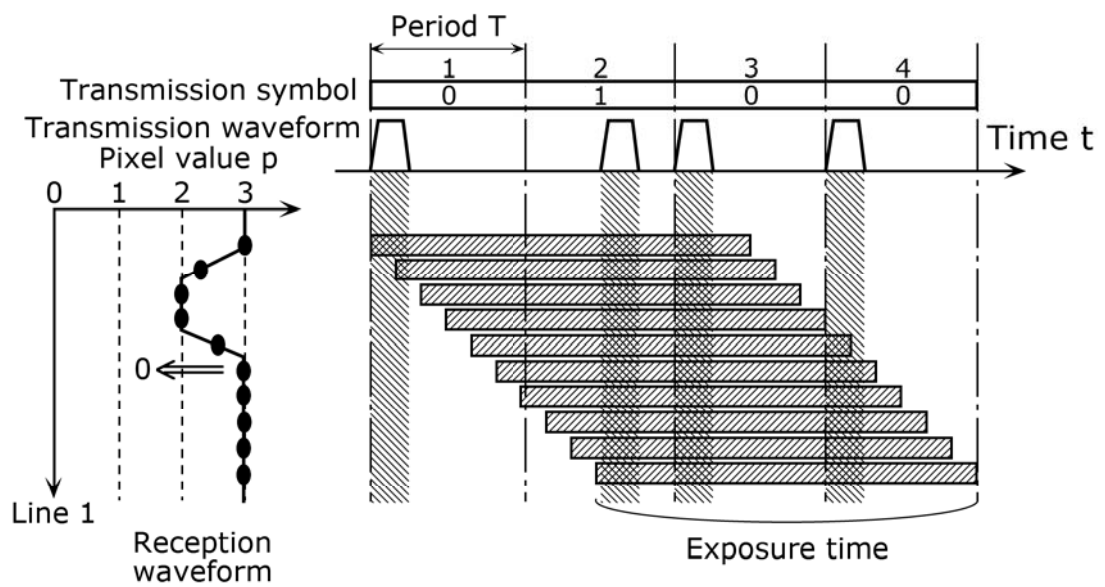


FIG. 5

In the case of symbol 1  $\rightarrow$  1

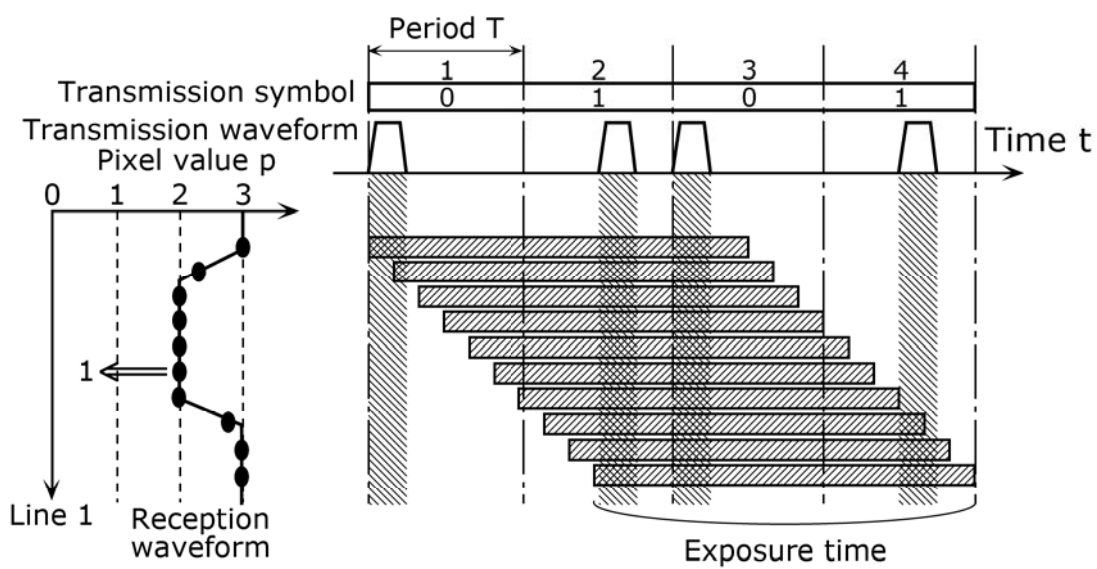


FIG. 6

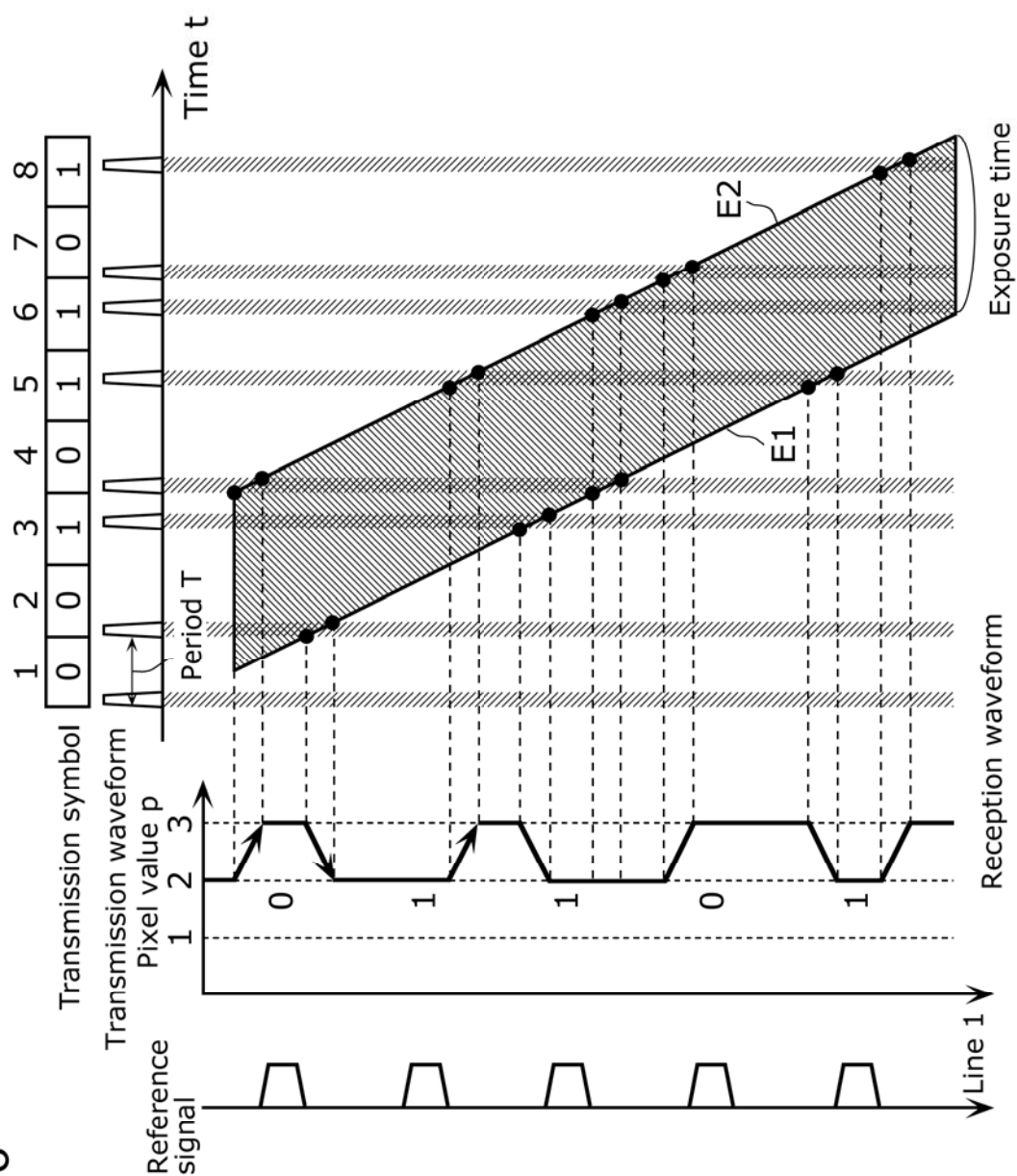


FIG. 7

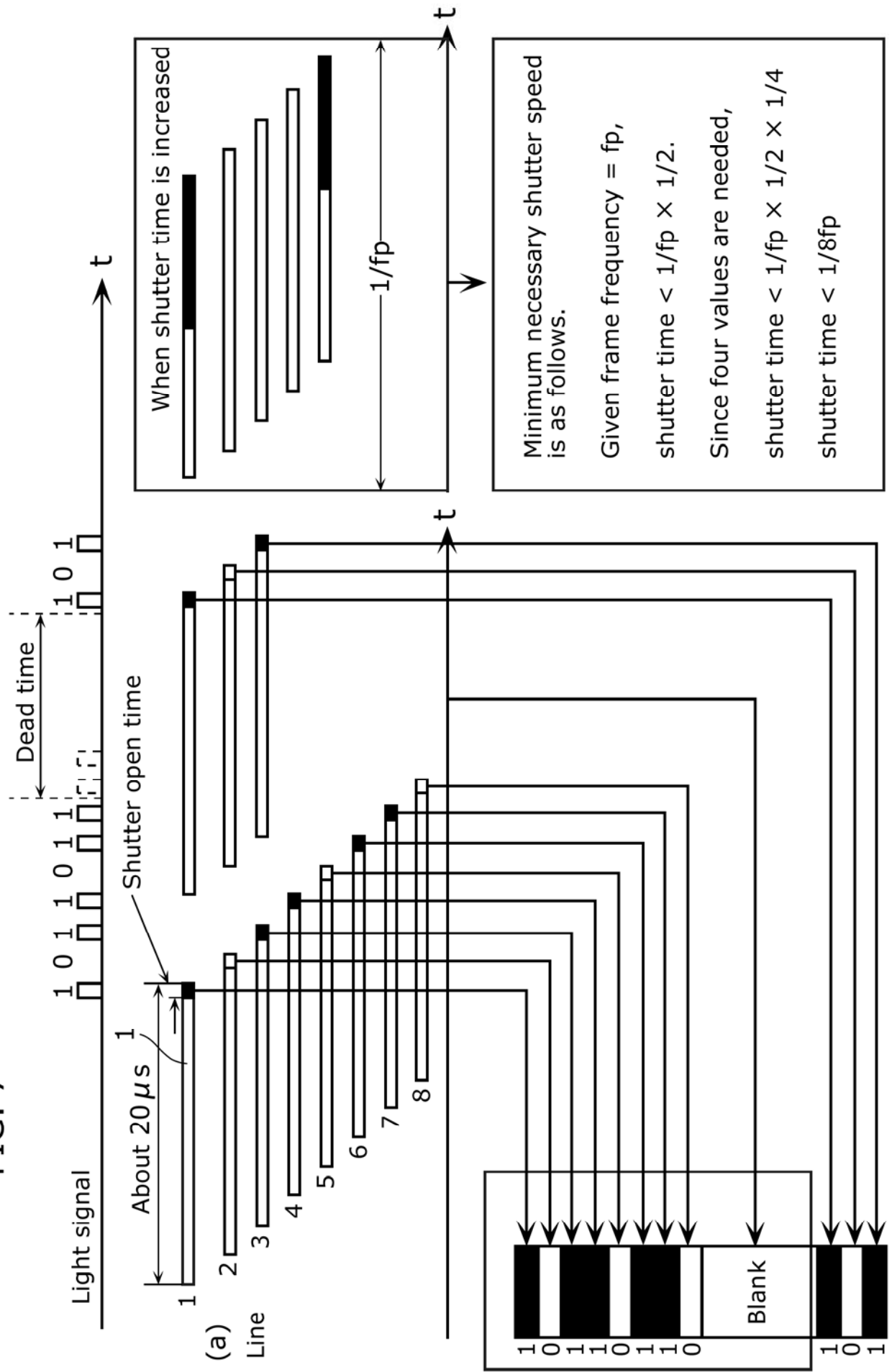


FIG. 8

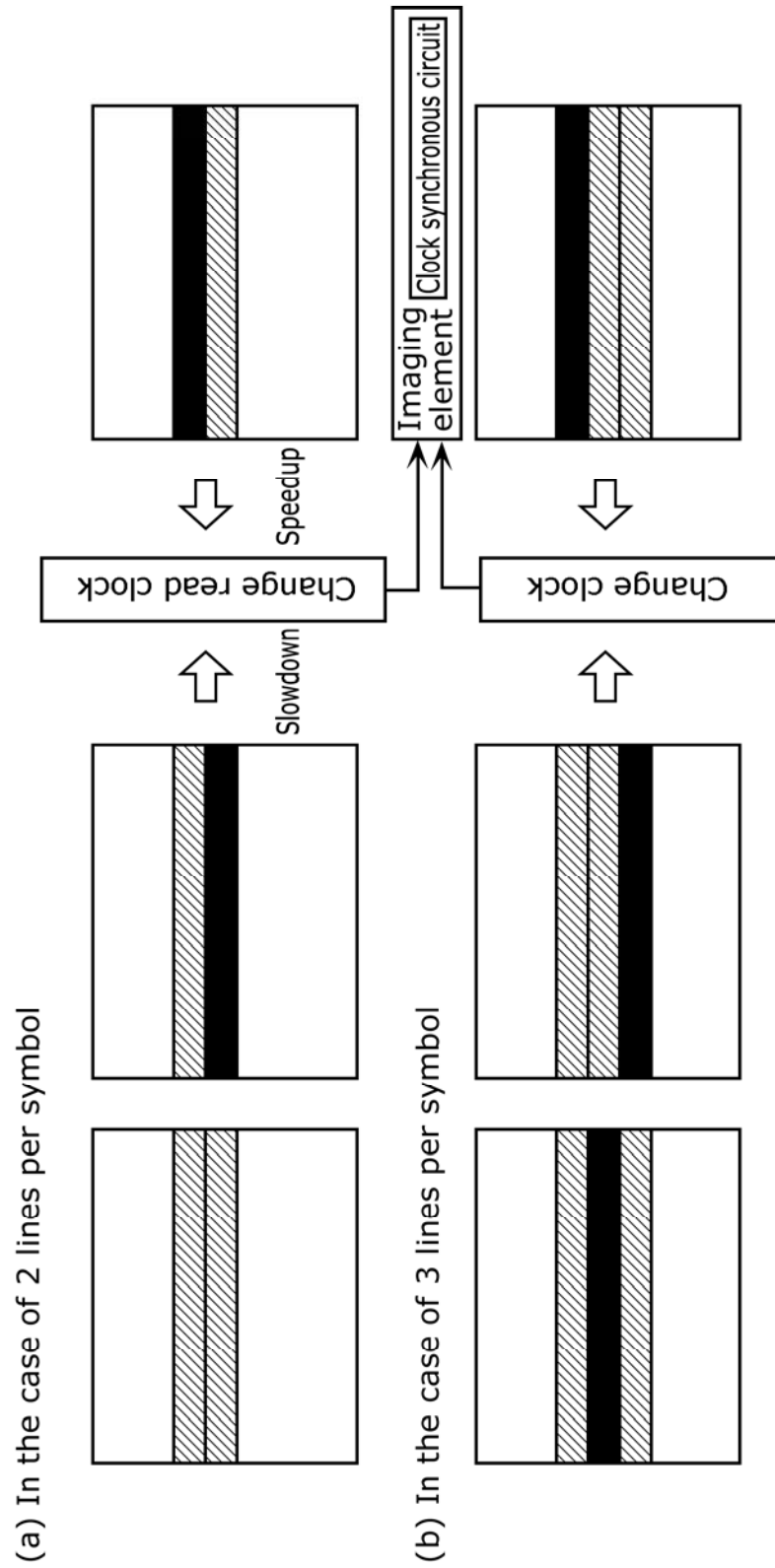


FIG. 9

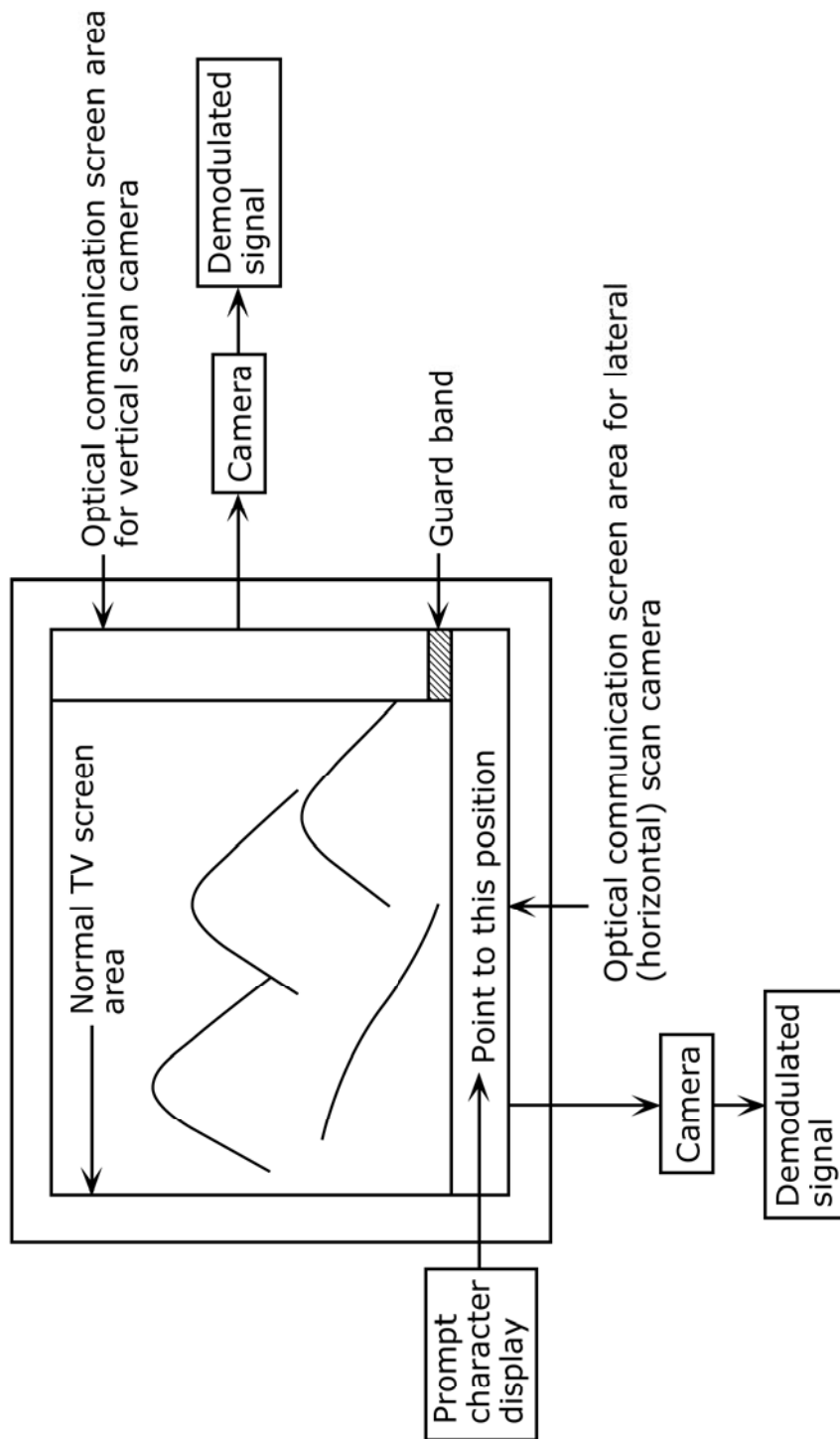


FIG. 10

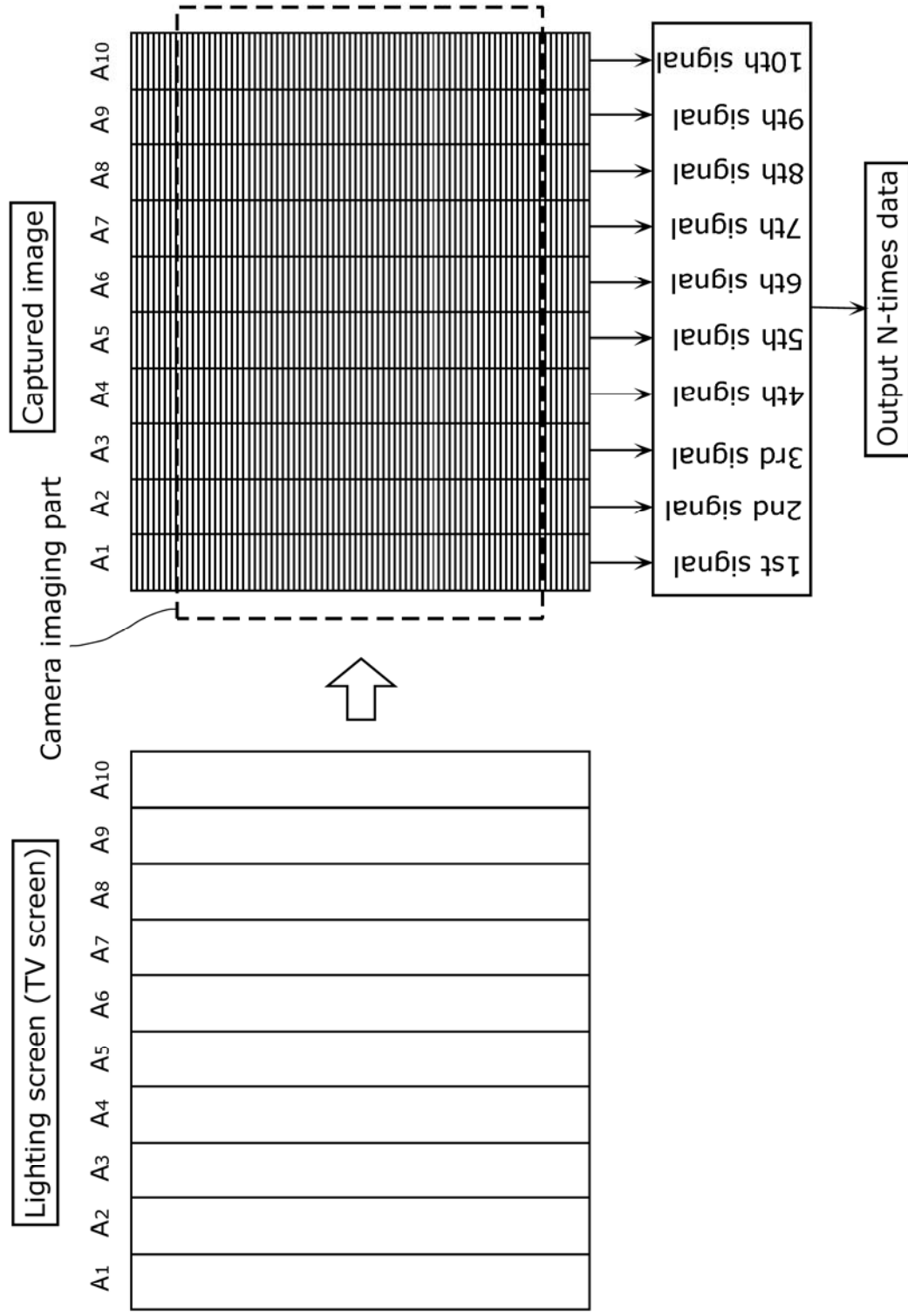




FIG. 11

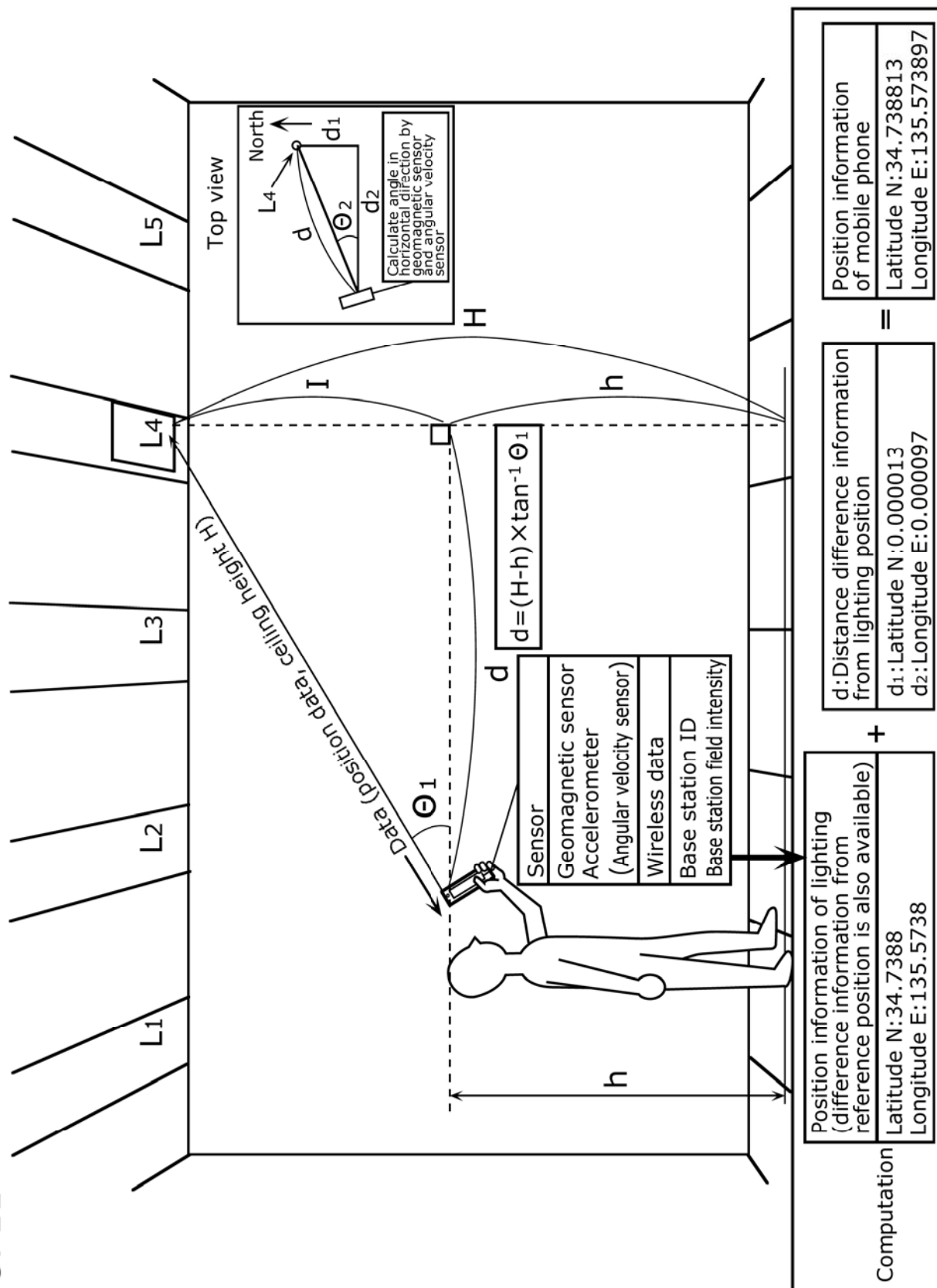


FIG. 12A

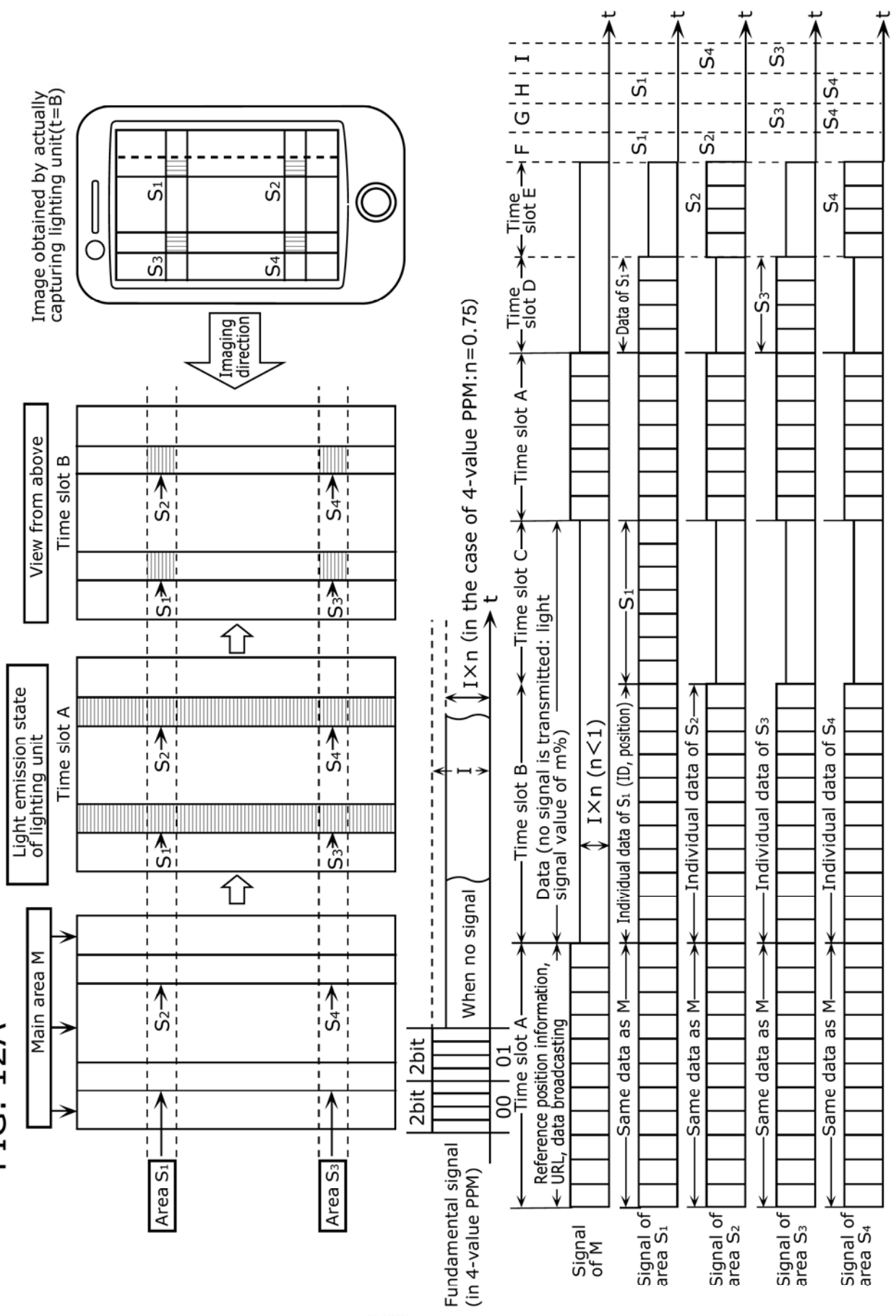


FIG. 12B

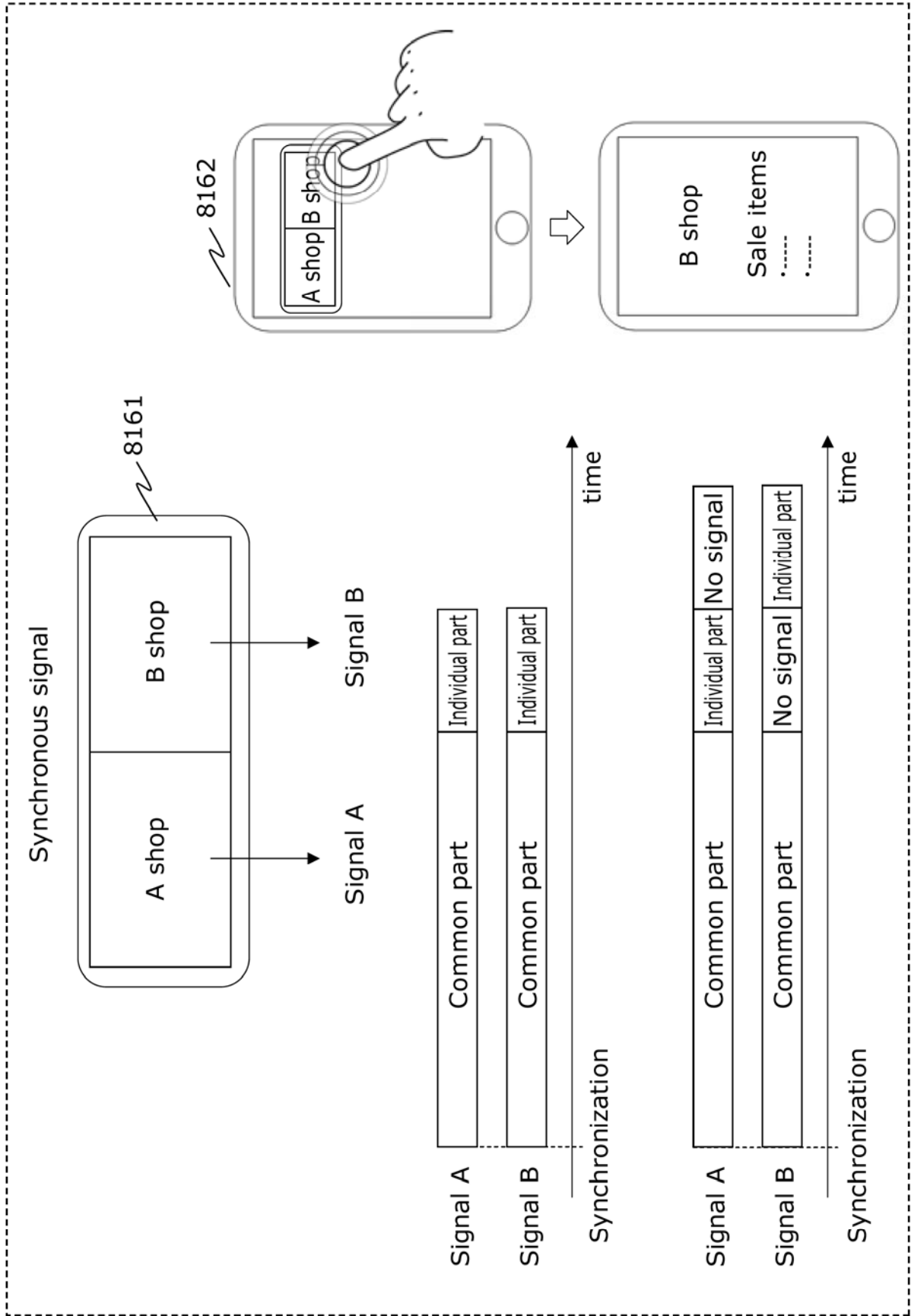


FIG. 12C

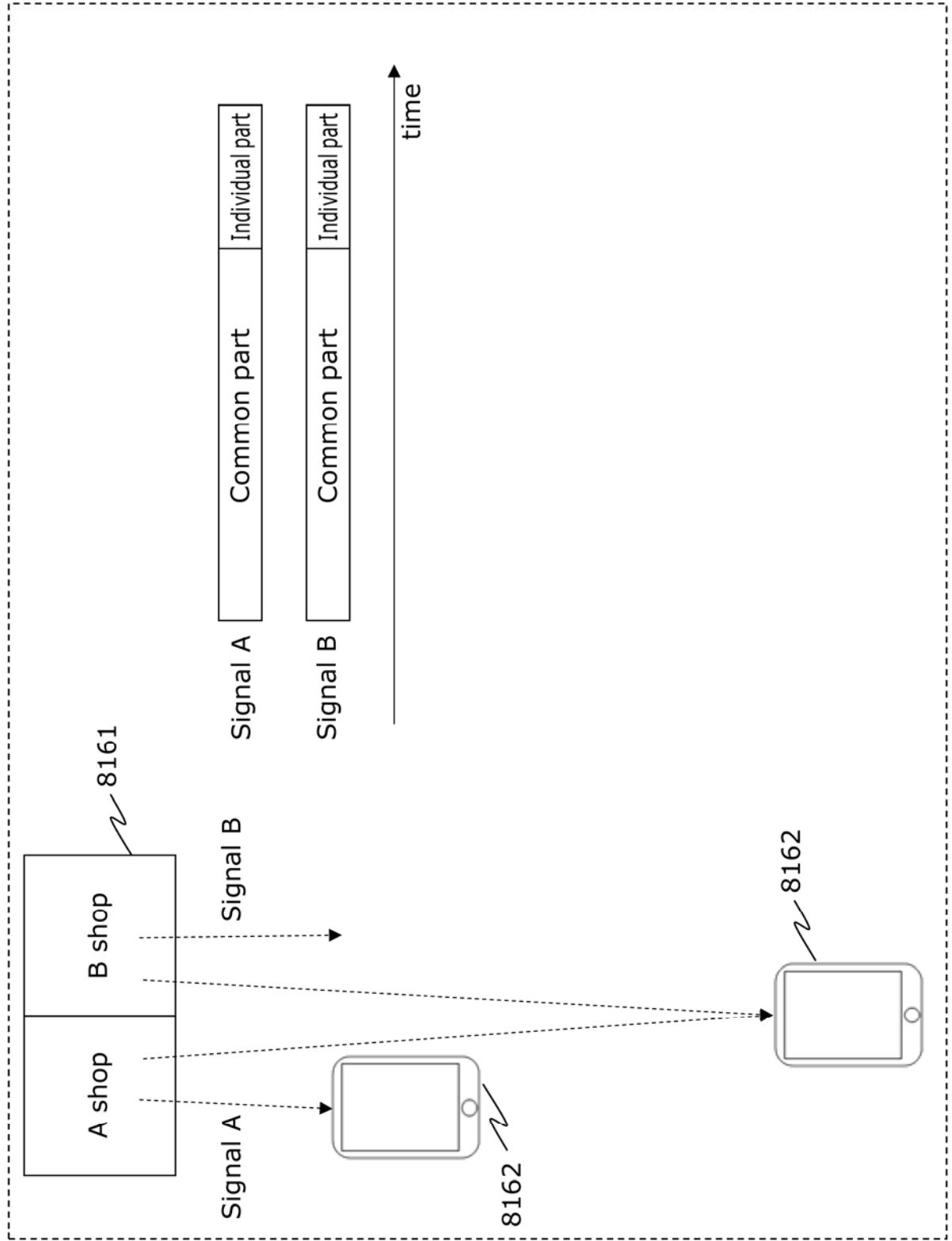


FIG. 13

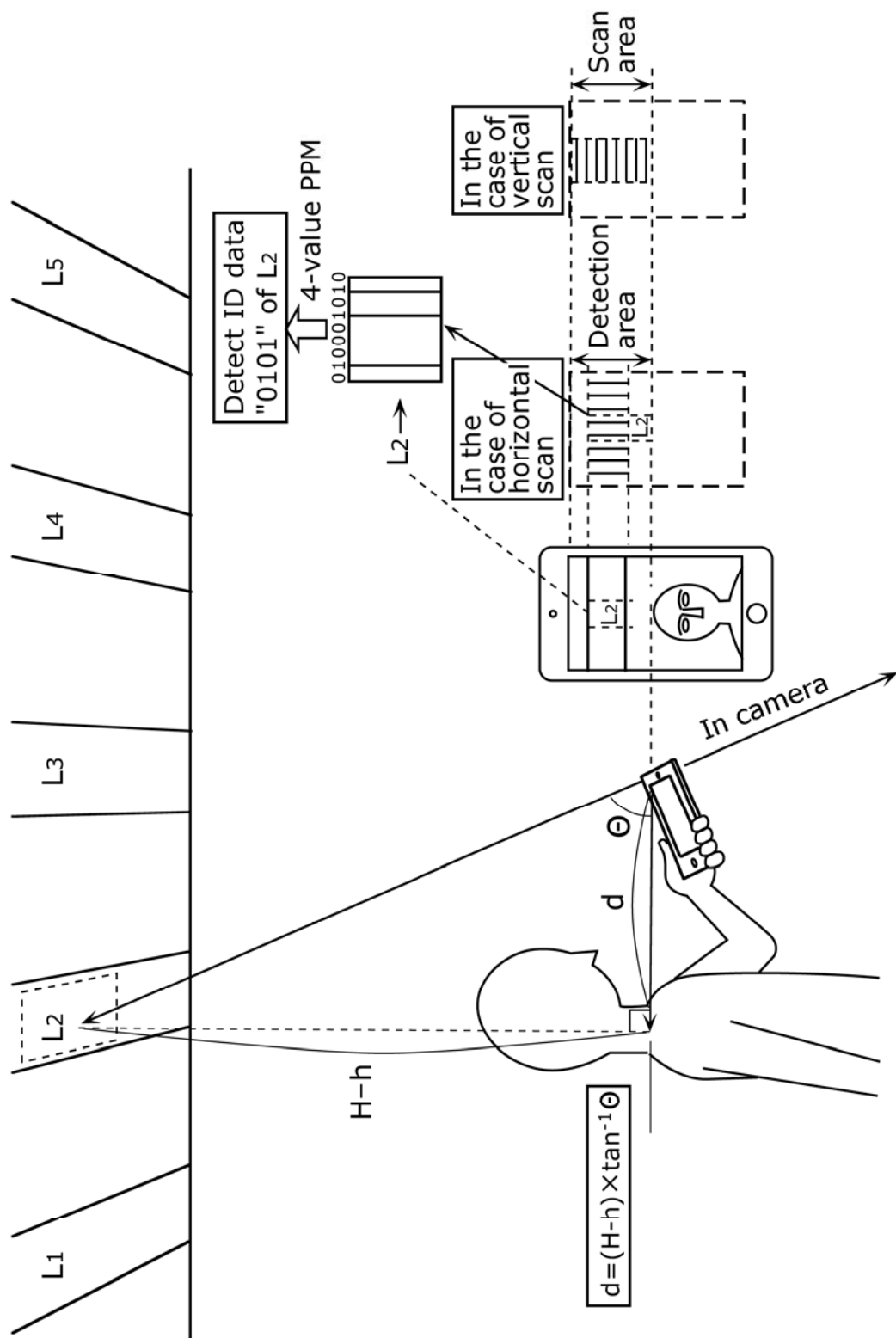


FIG. 14

L0: Transmission of common data: reference position information (latitude, longitude), ceiling height information, server URL, room shape information, difference information between ID number of each individual lighting and reference position information or relative position information or arrangement information of each ID, area-specific data broadcasting

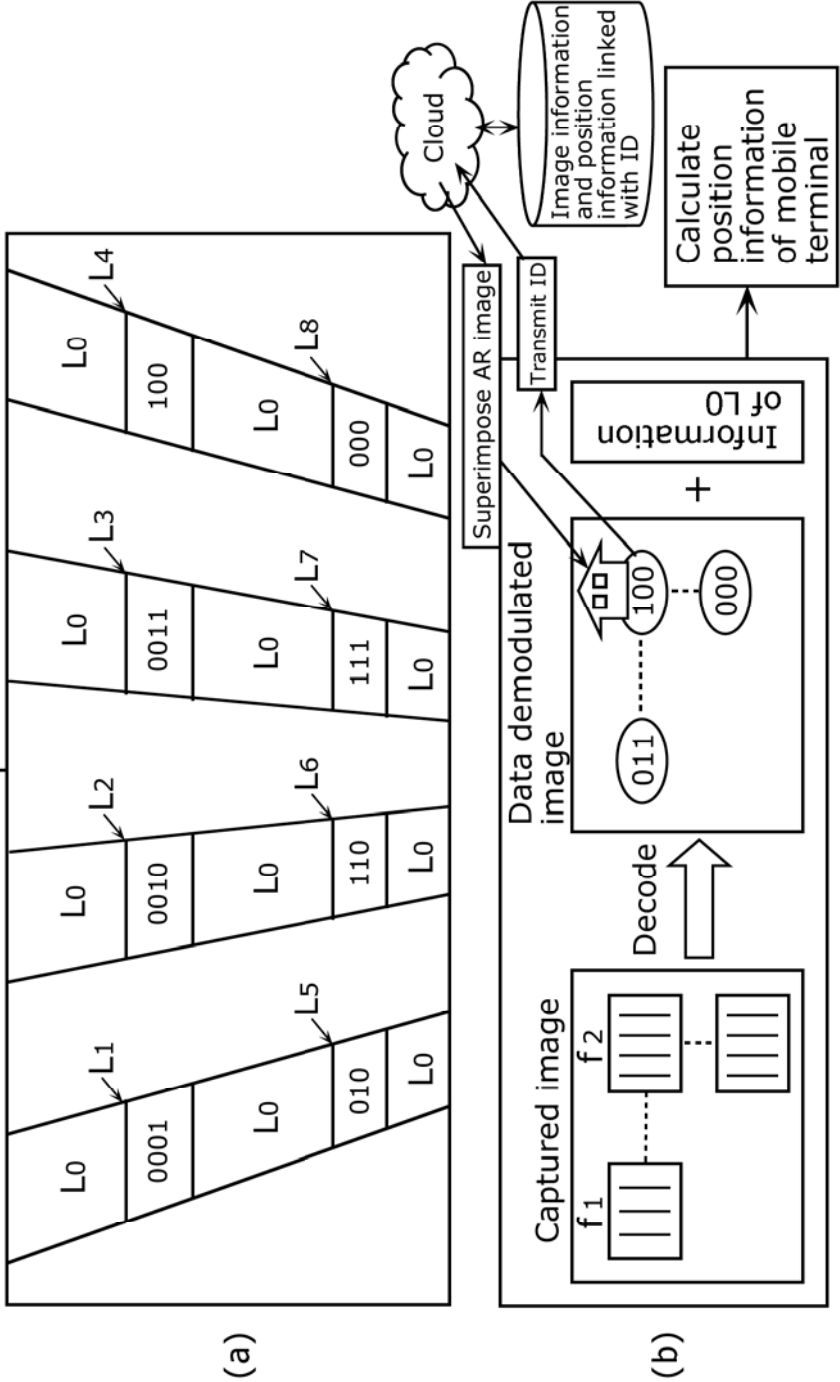


FIG. 15

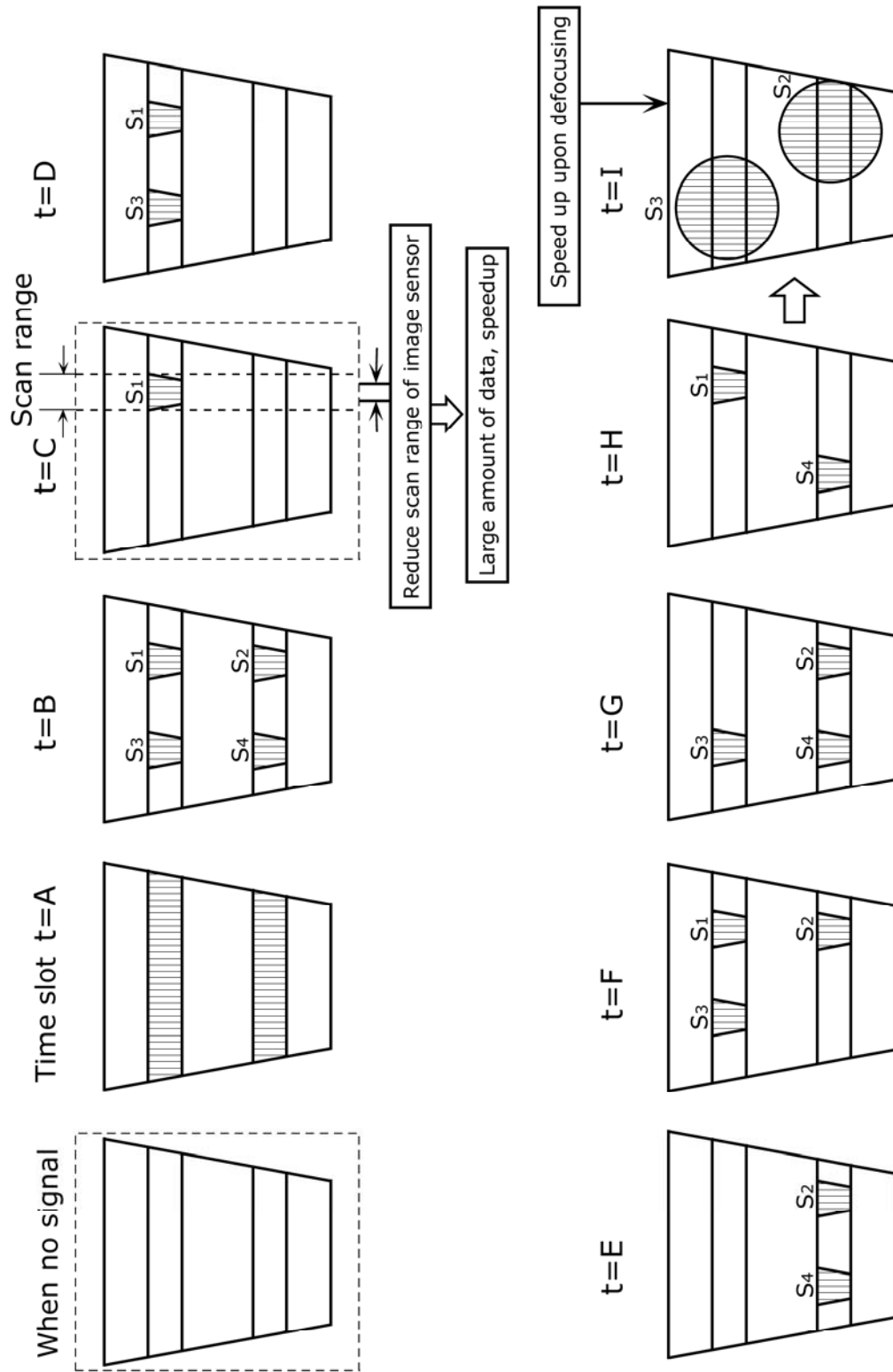


FIG. 16

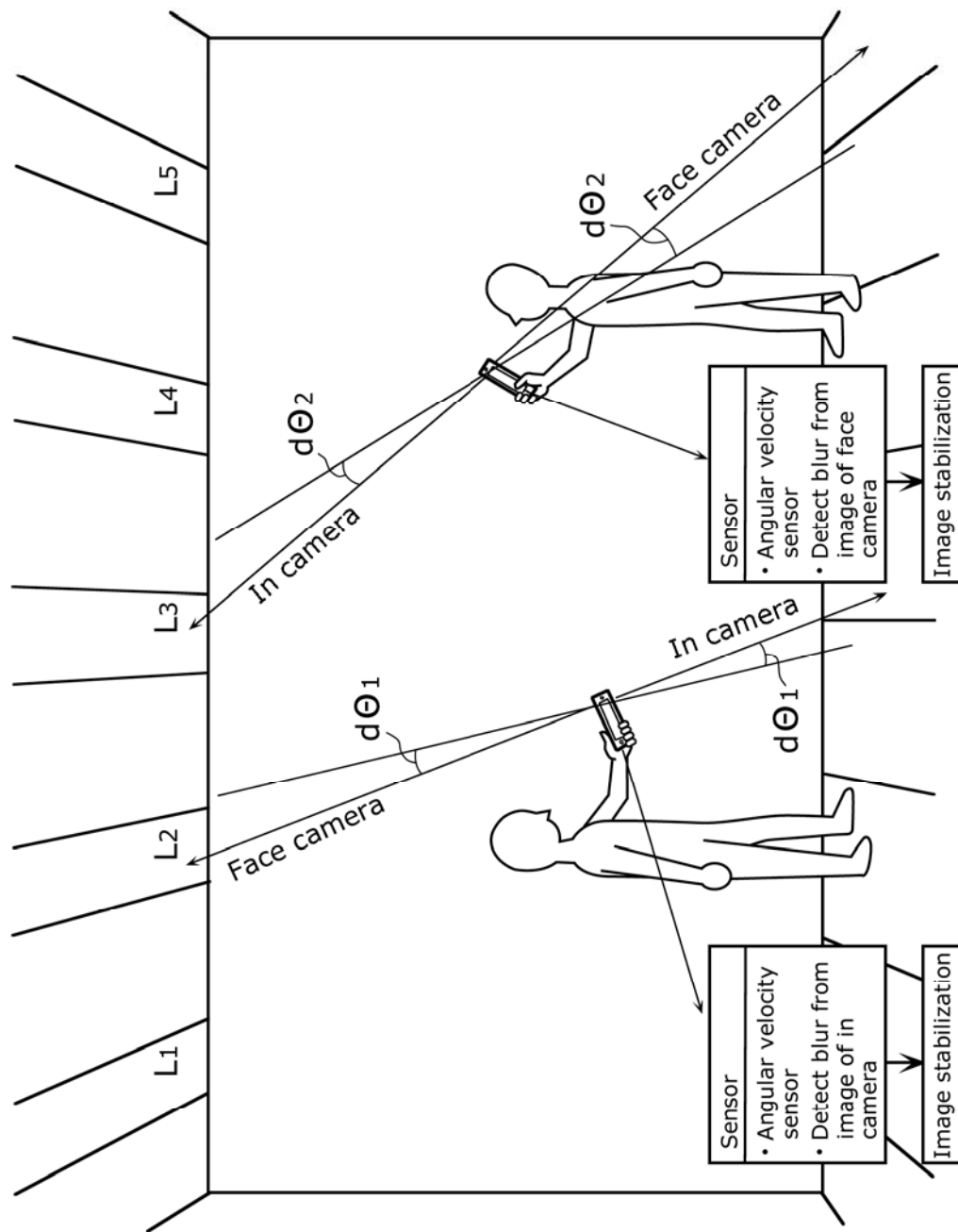




FIG. 17

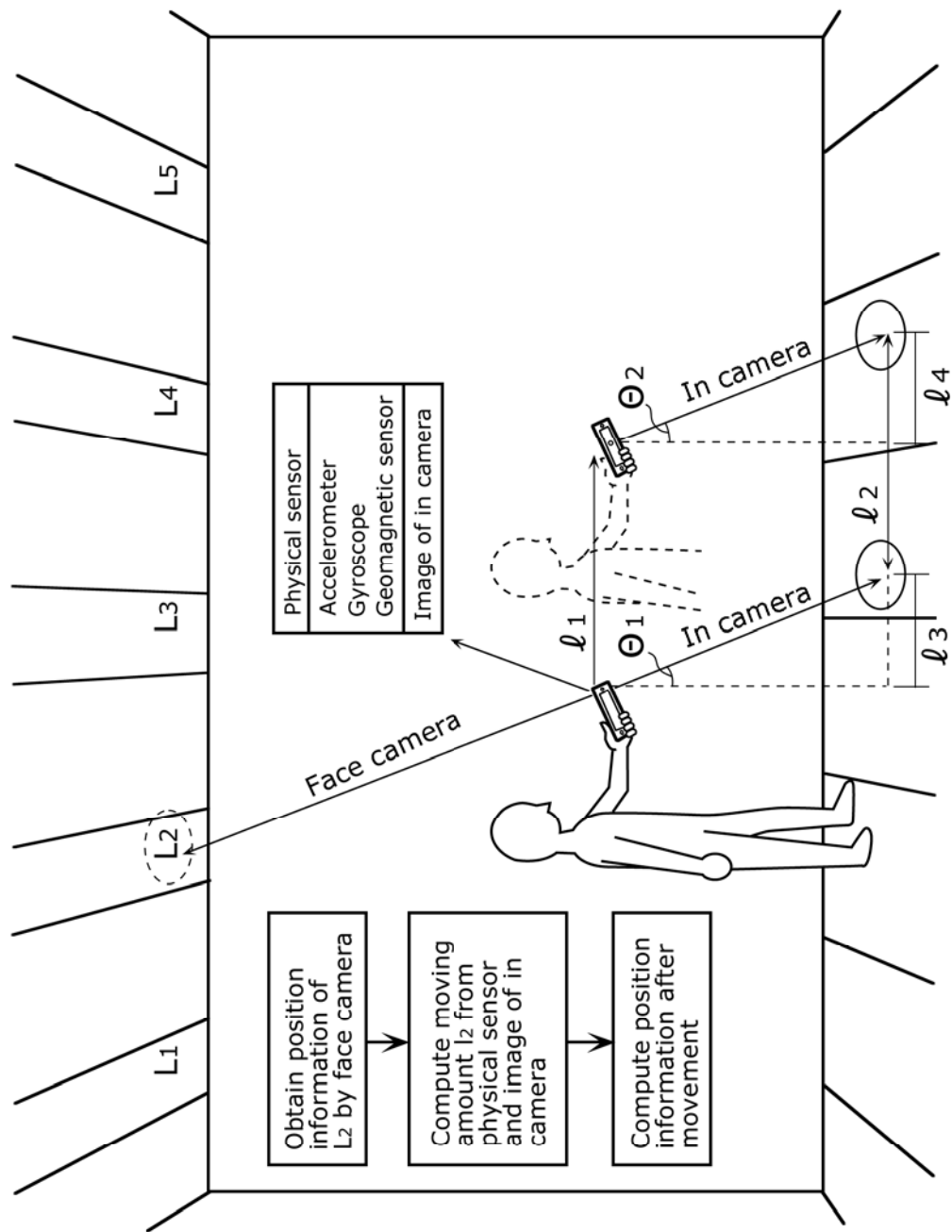


FIG. 18

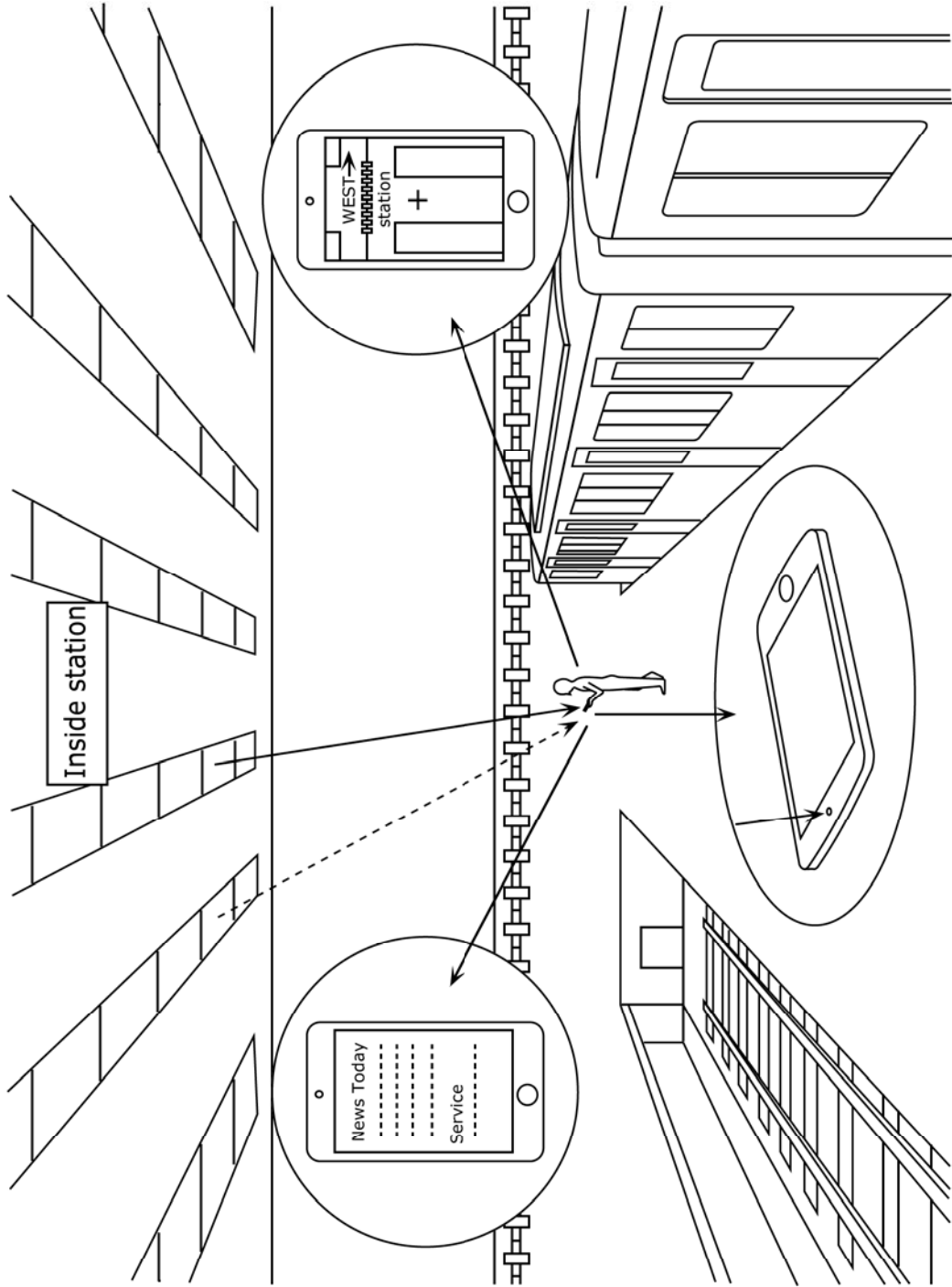


FIG. 19

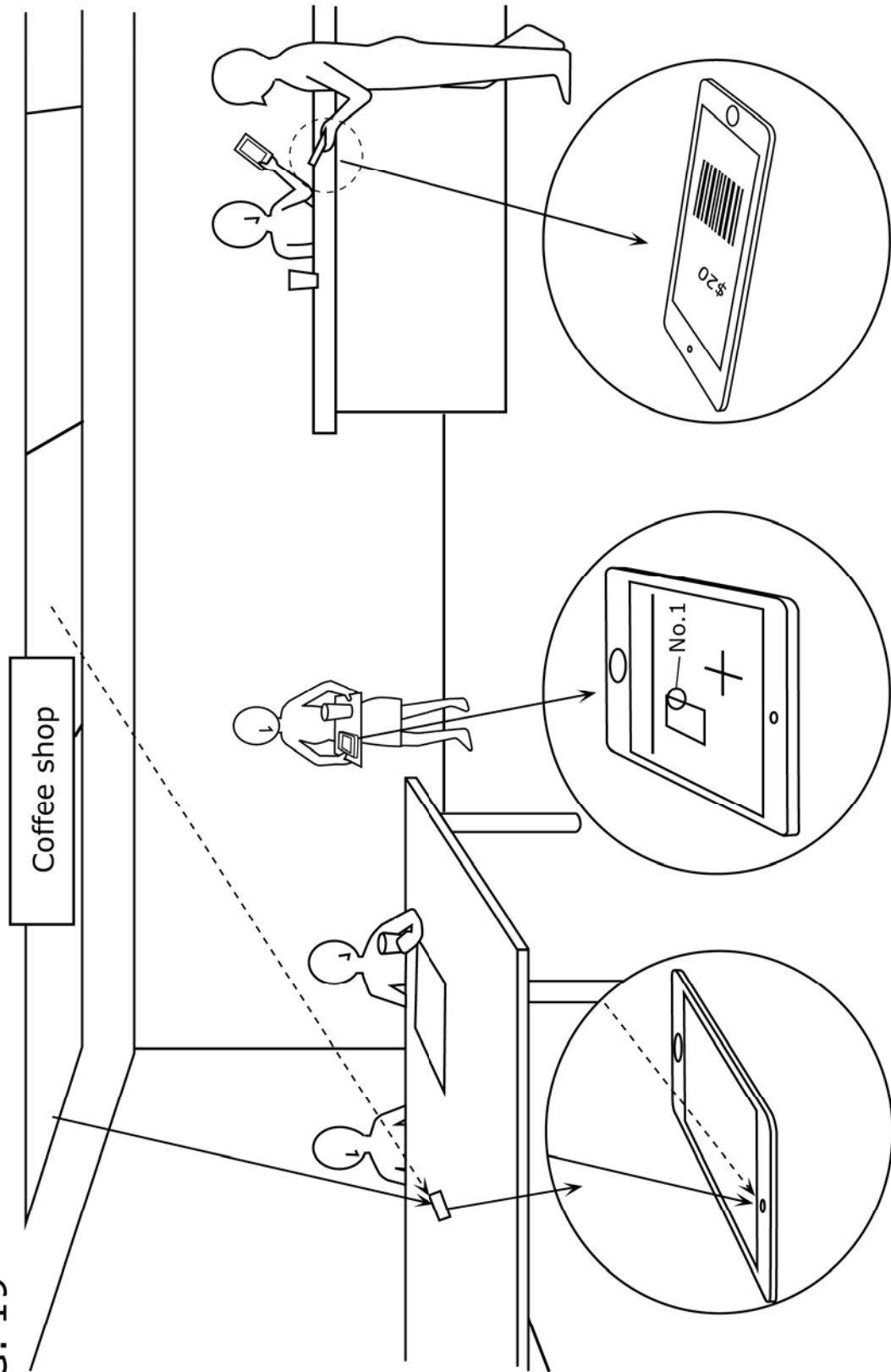


FIG. 20

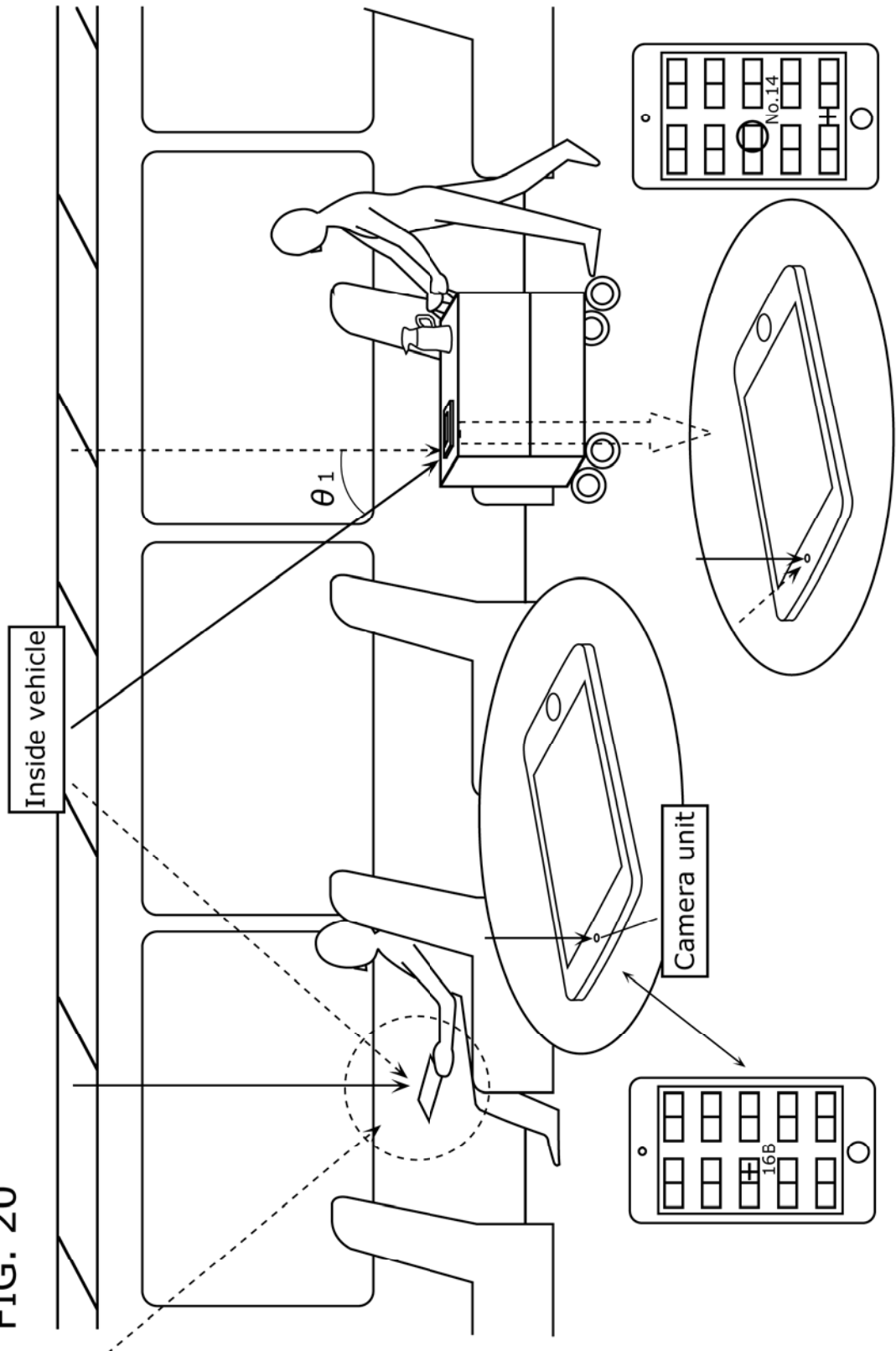
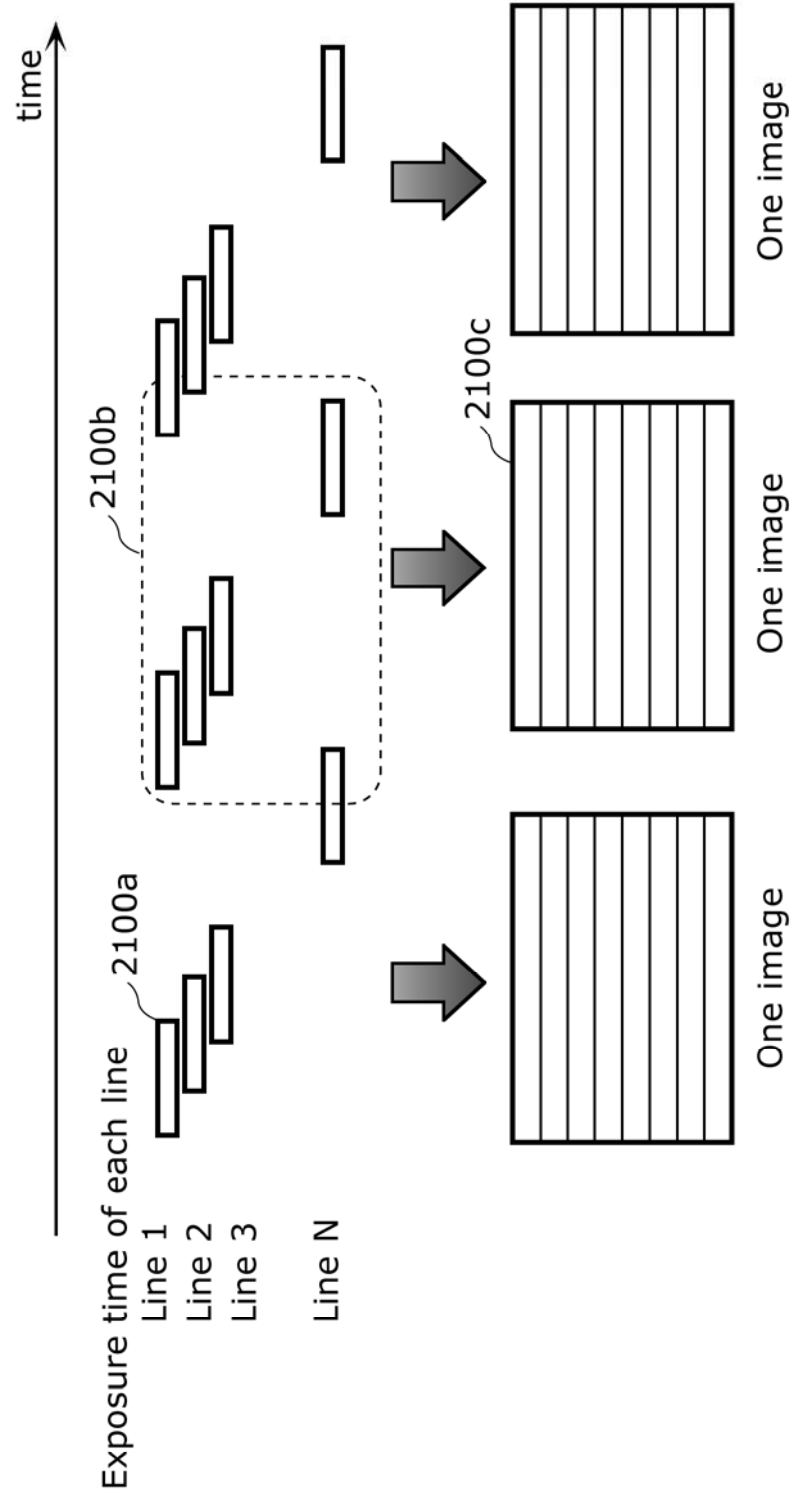


FIG. 21



A vertical arrow pointing upwards, labeled 'time'.

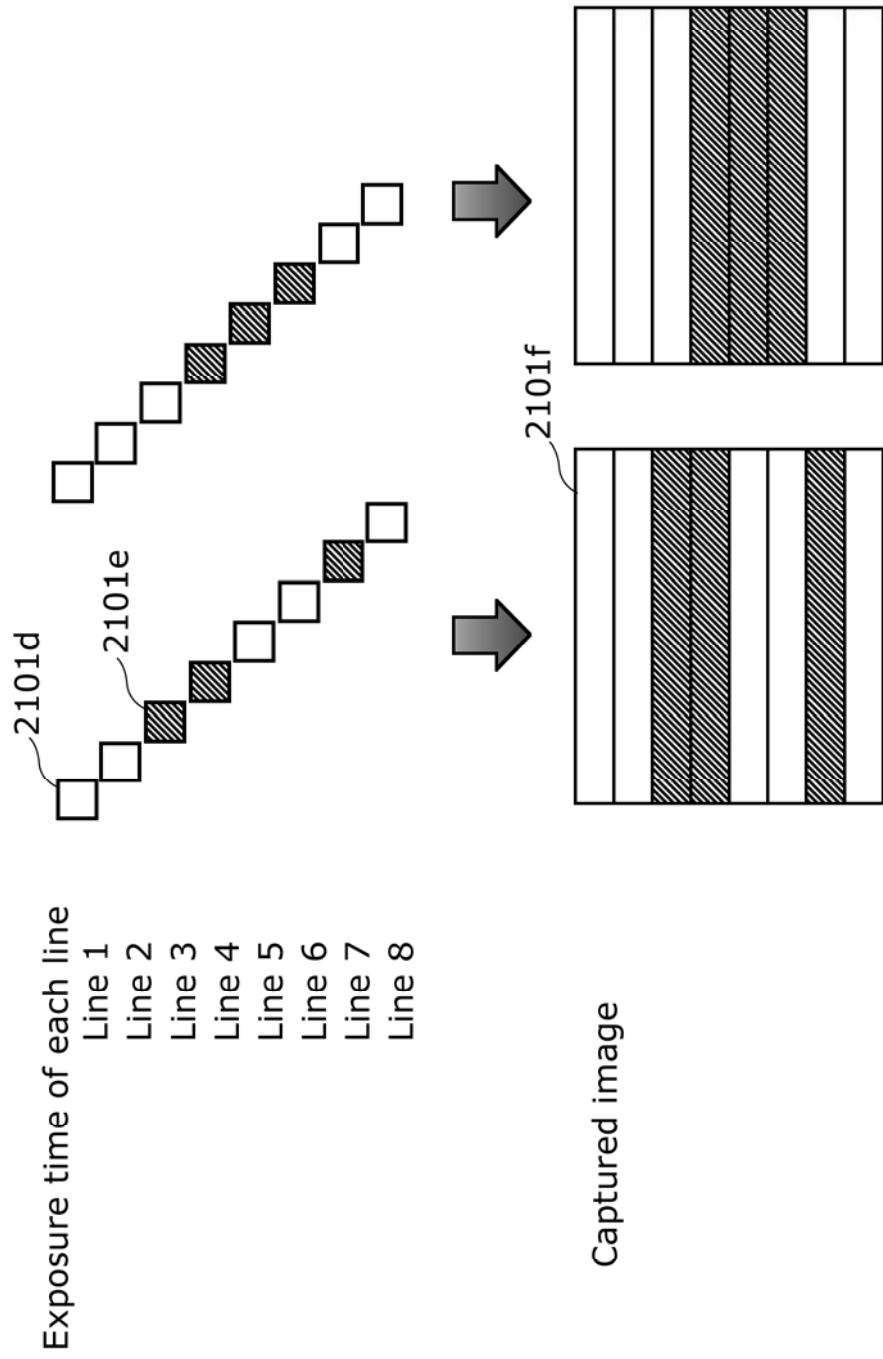


FIG. 23

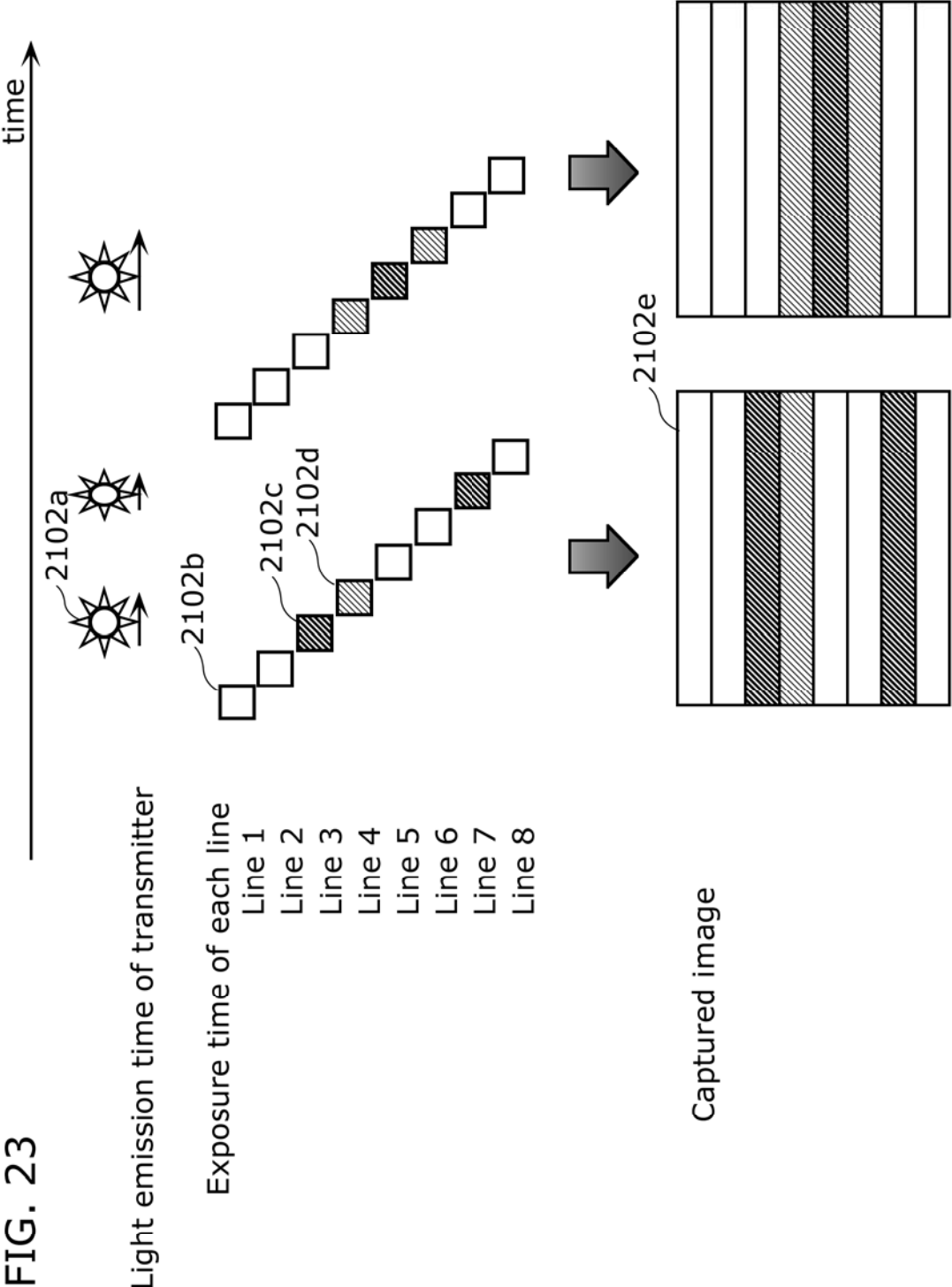


FIG. 24A

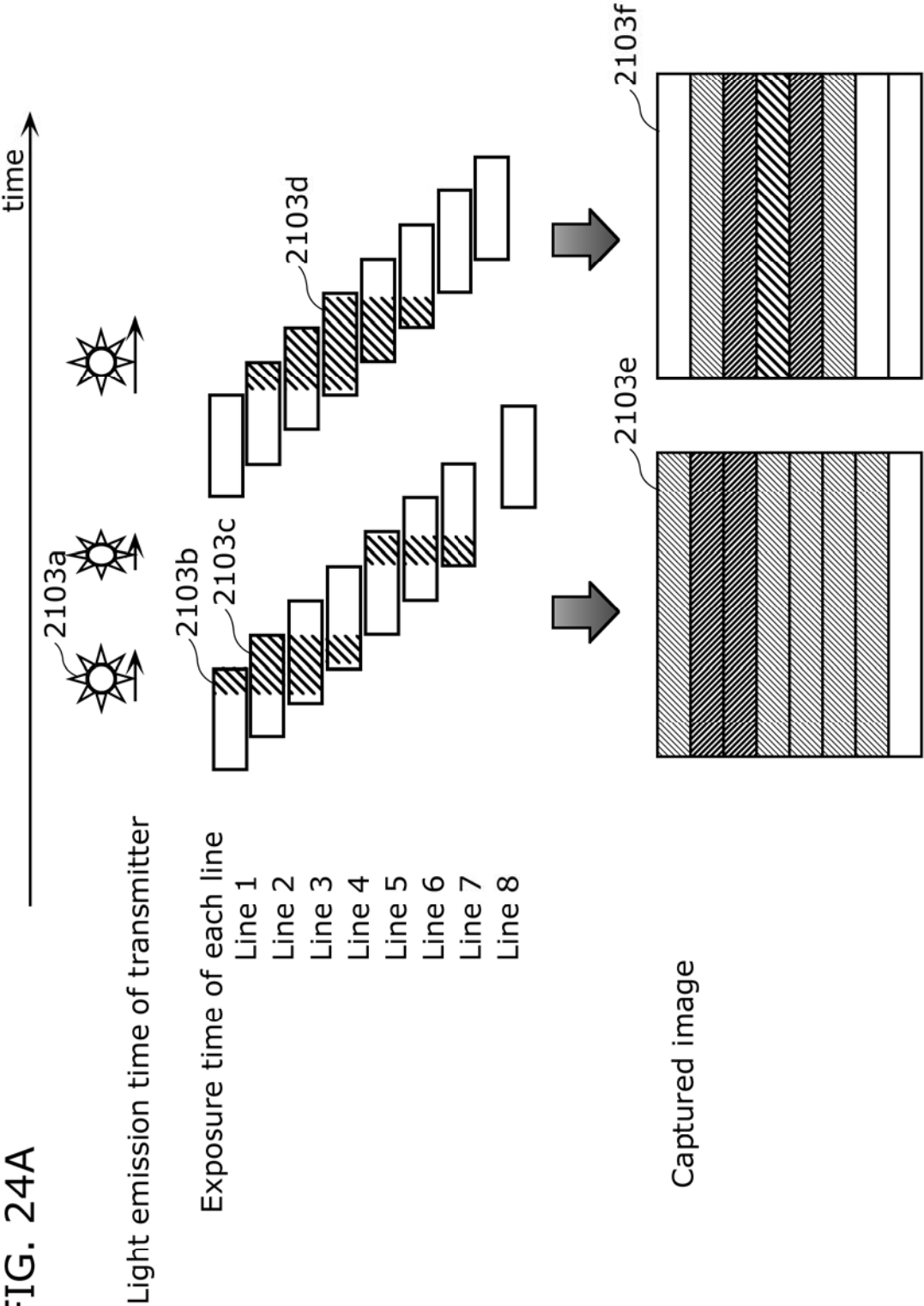




FIG. 24B

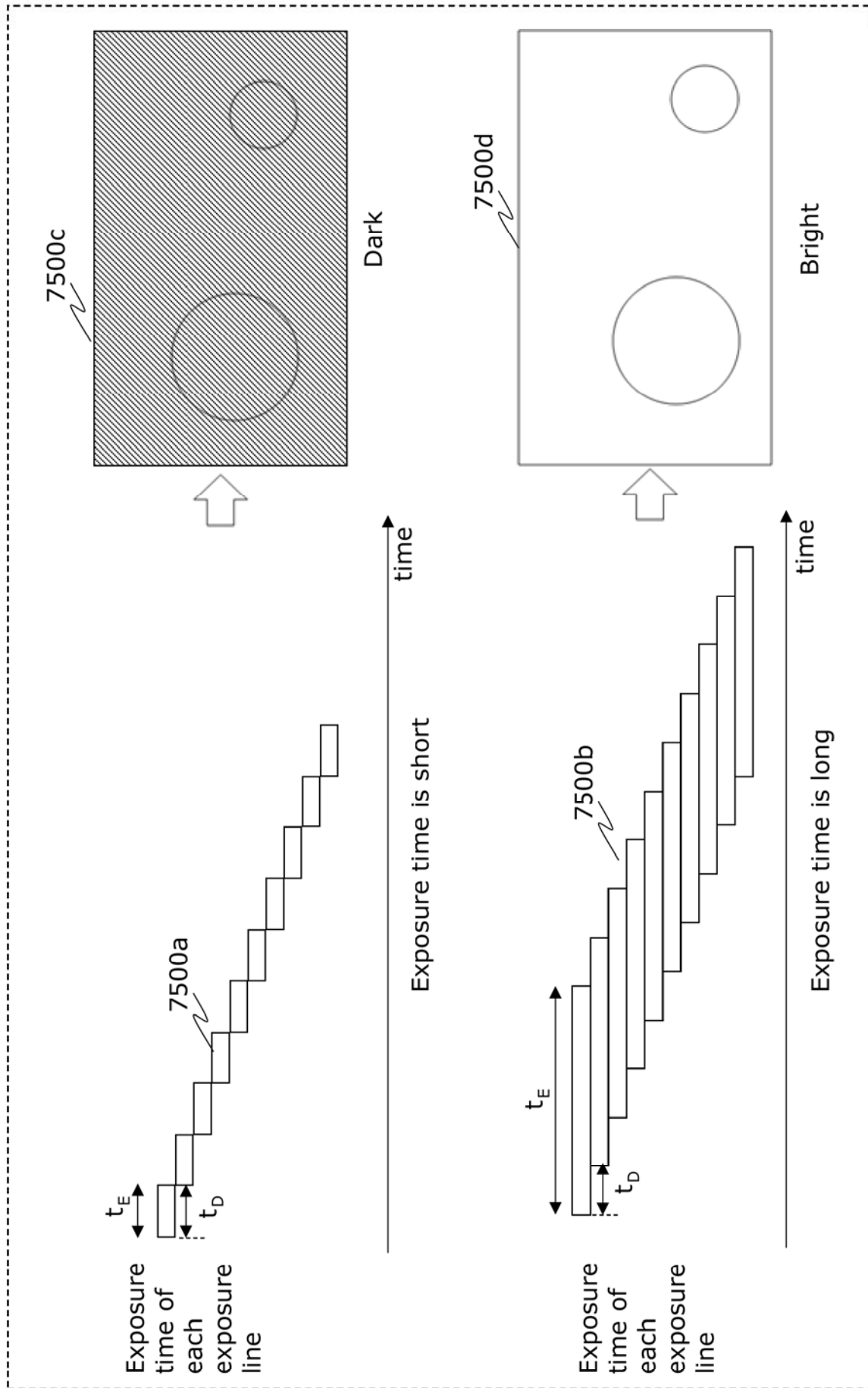


FIG. 24C

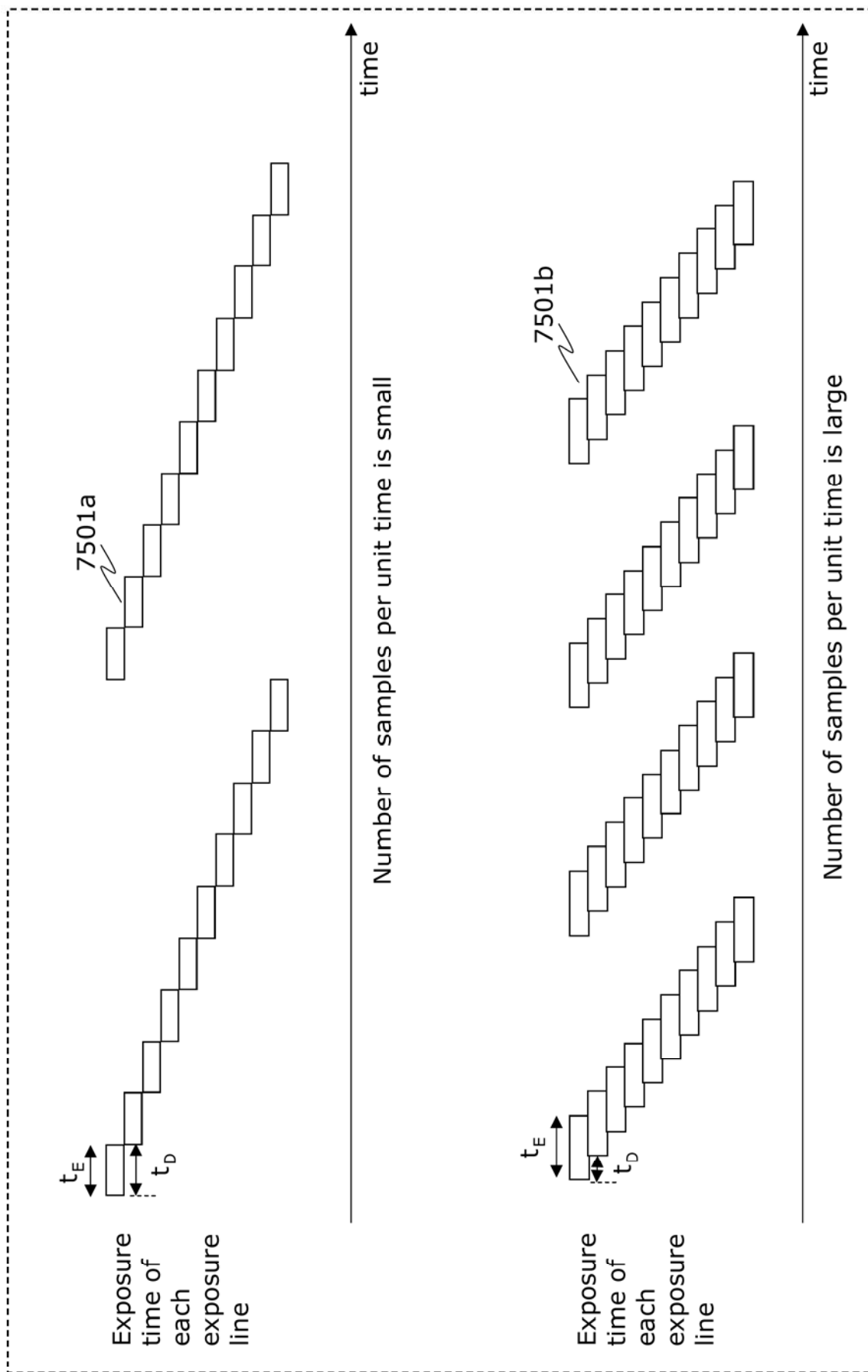


FIG. 24D

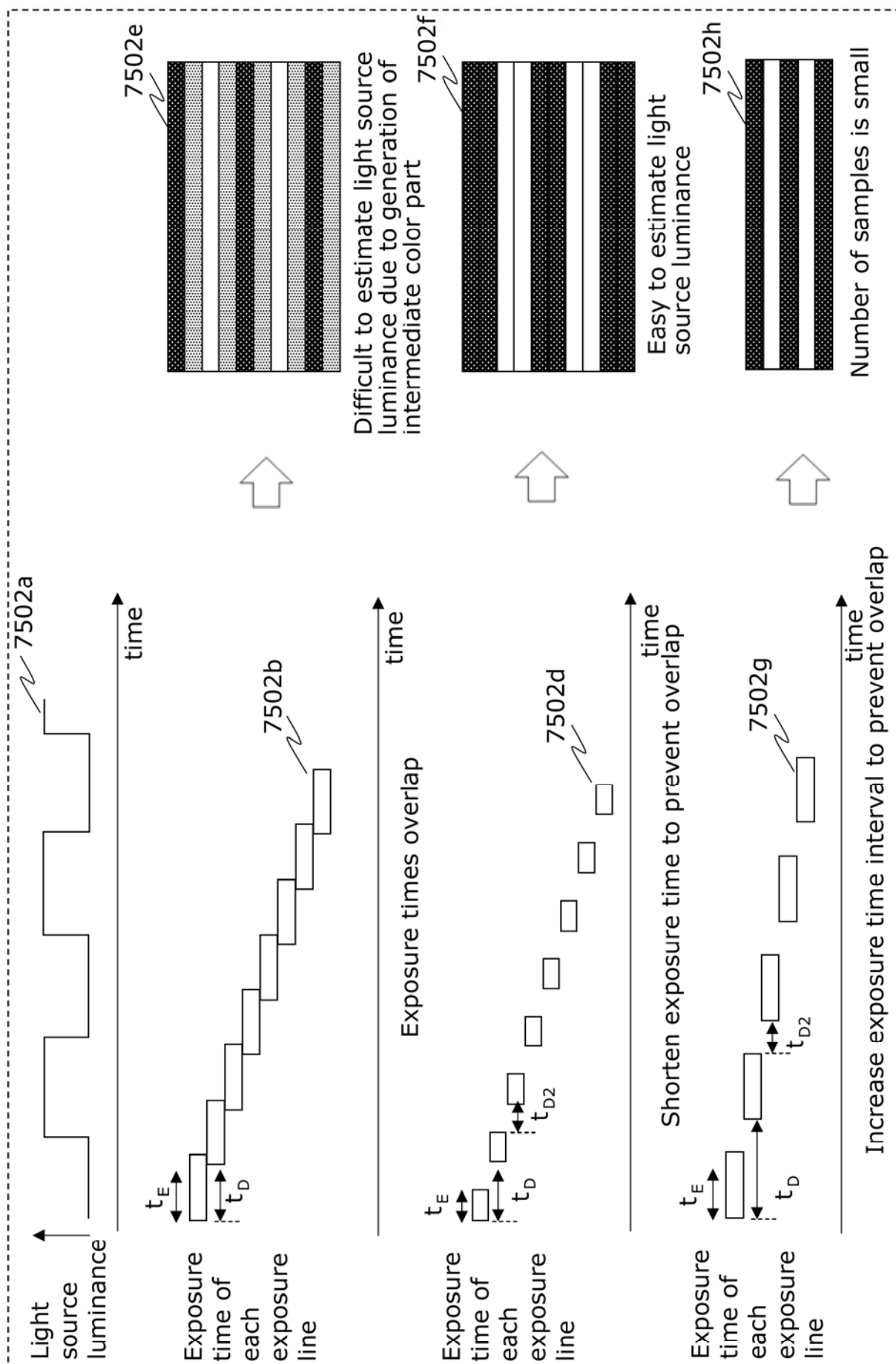


FIG. 24E

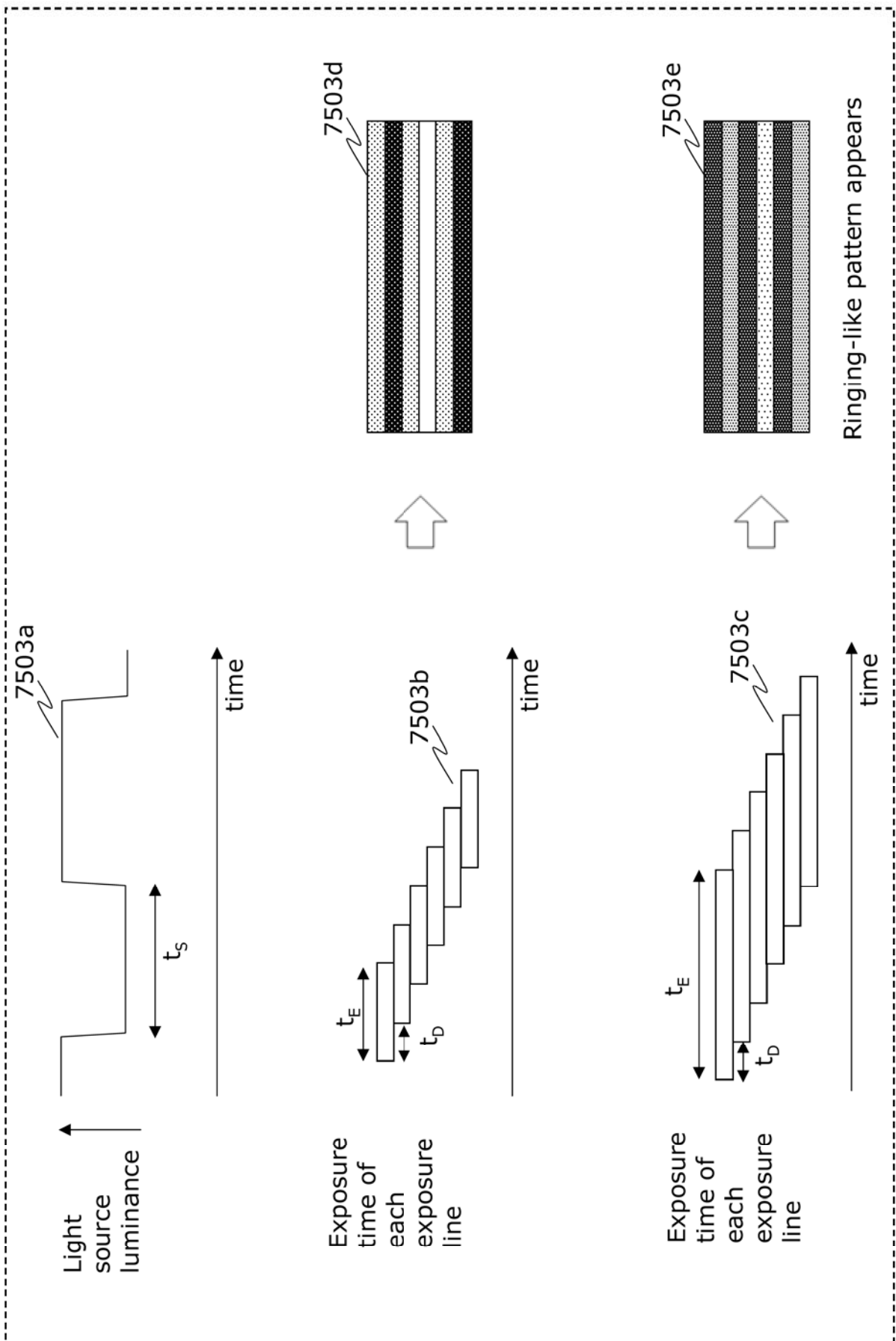


FIG. 24F

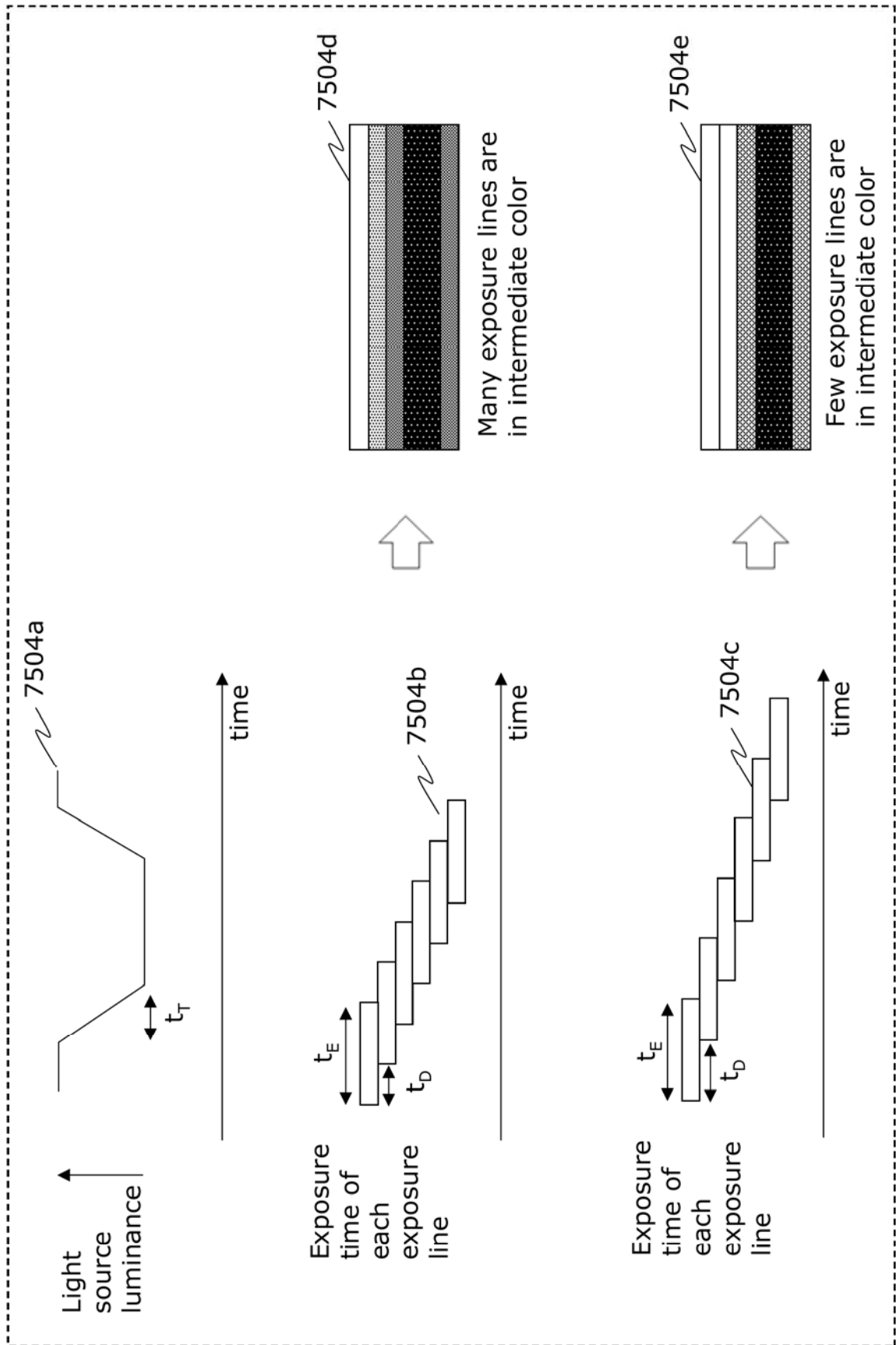


FIG. 24G

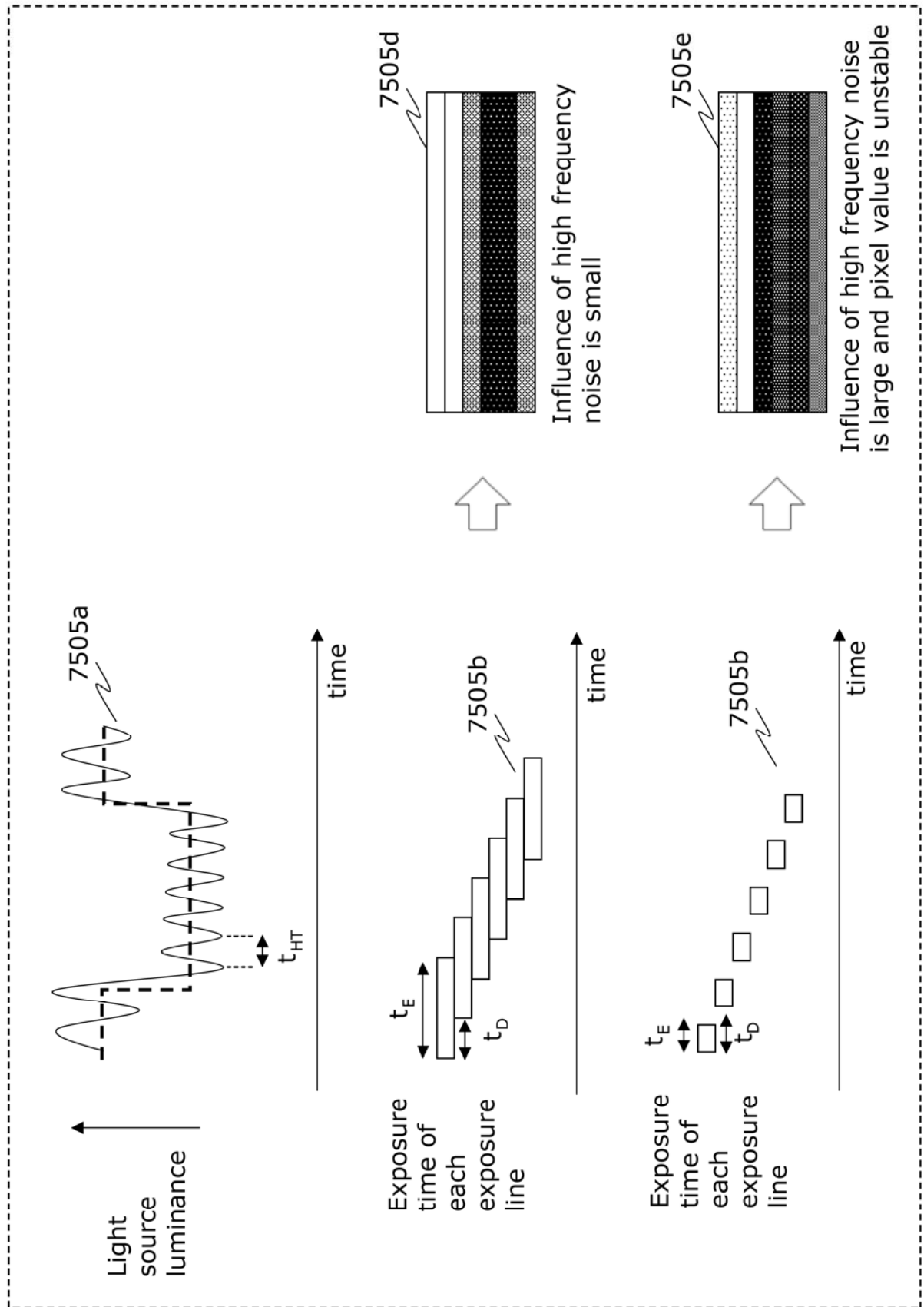


FIG. 24H

When  $t_{HT} = 20$  microseconds

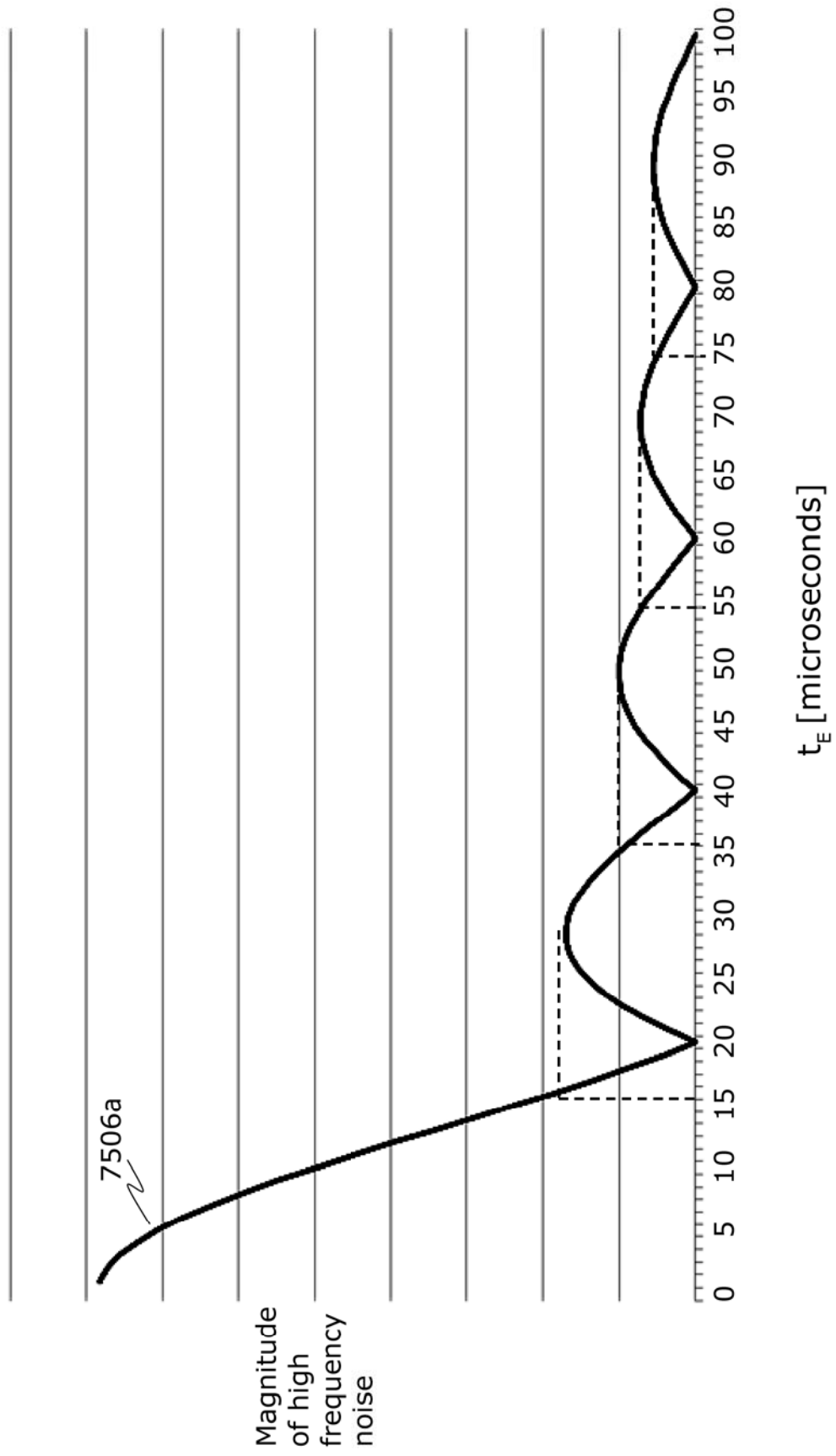


FIG. 24I

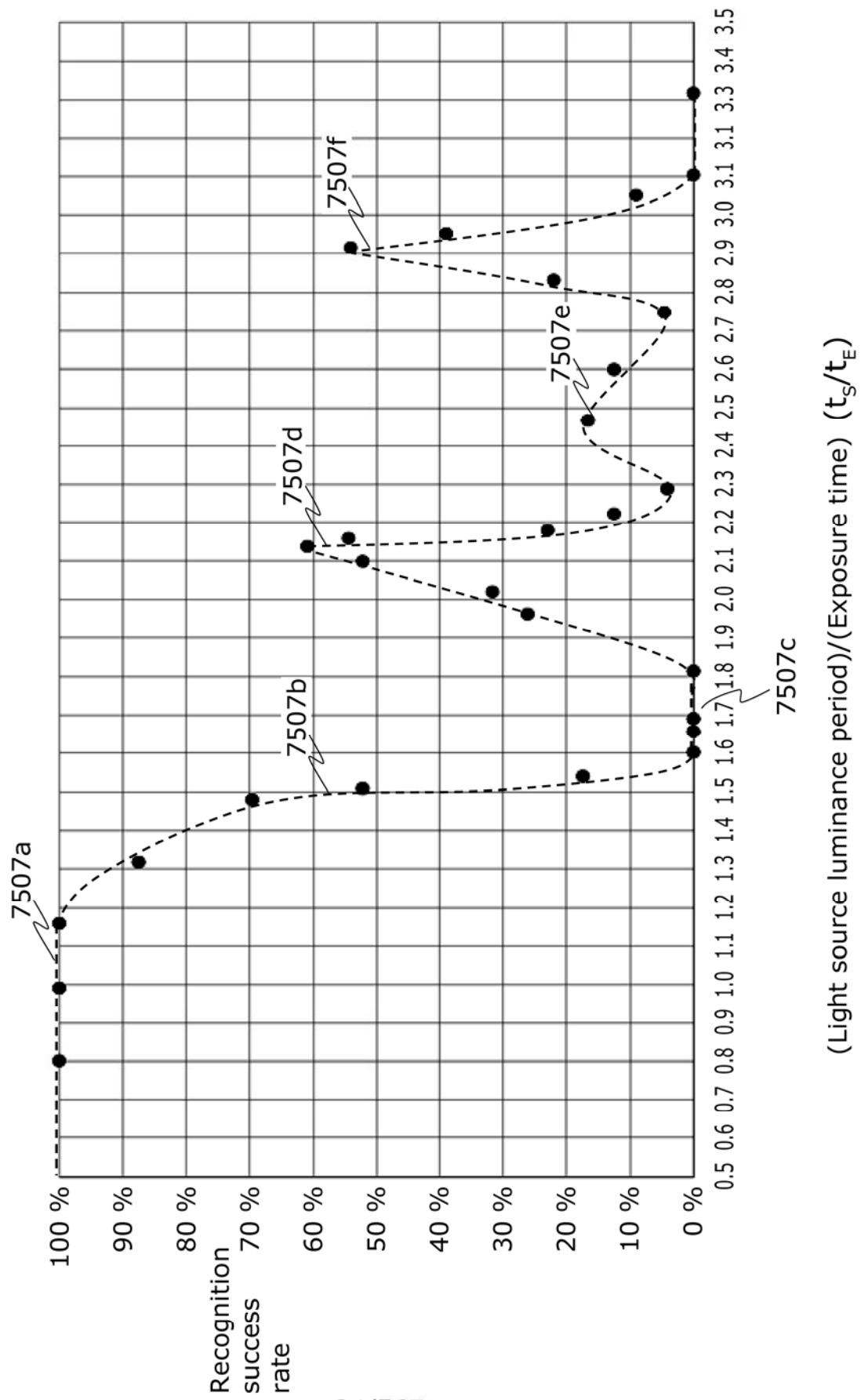




FIG. 25

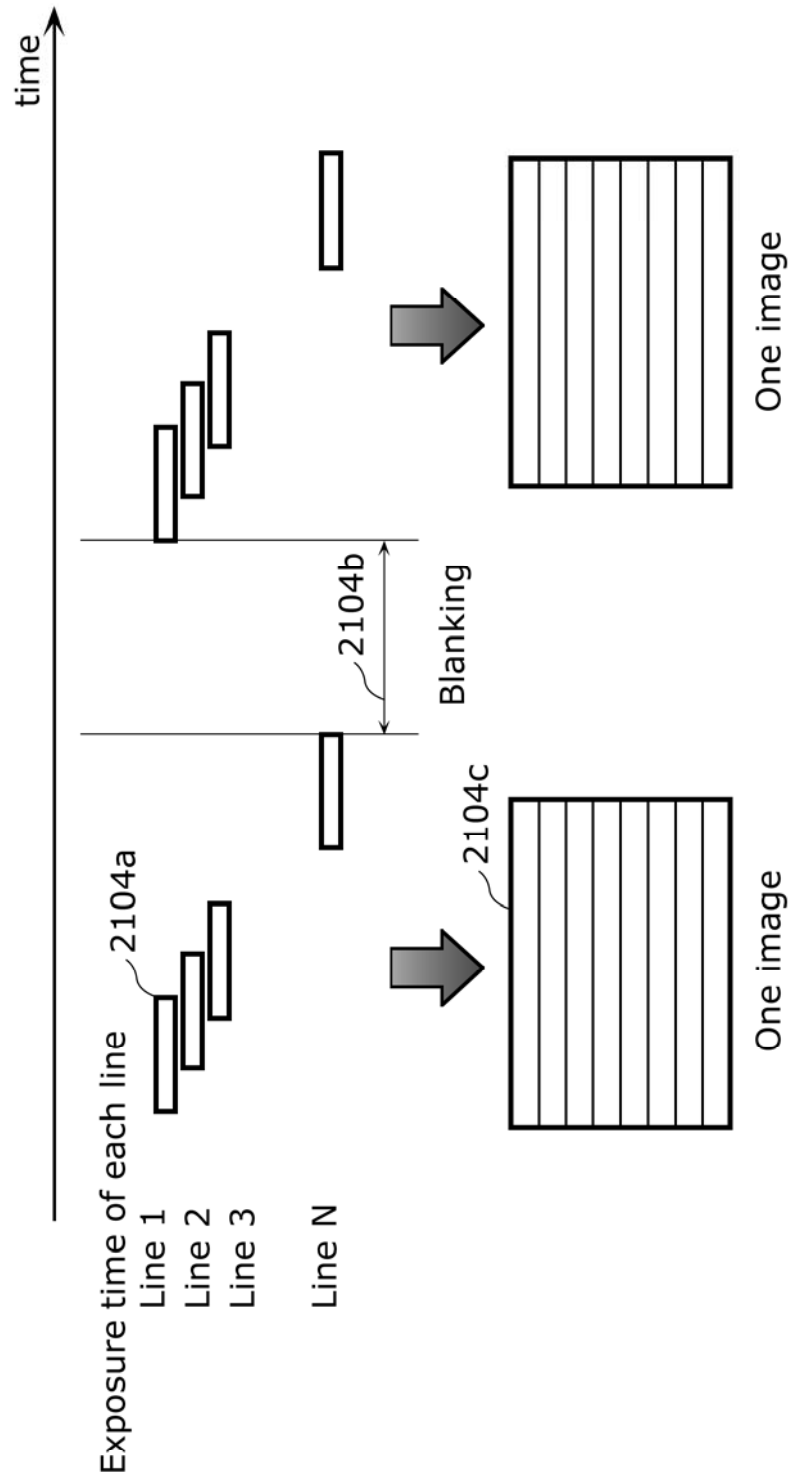


FIG. 26

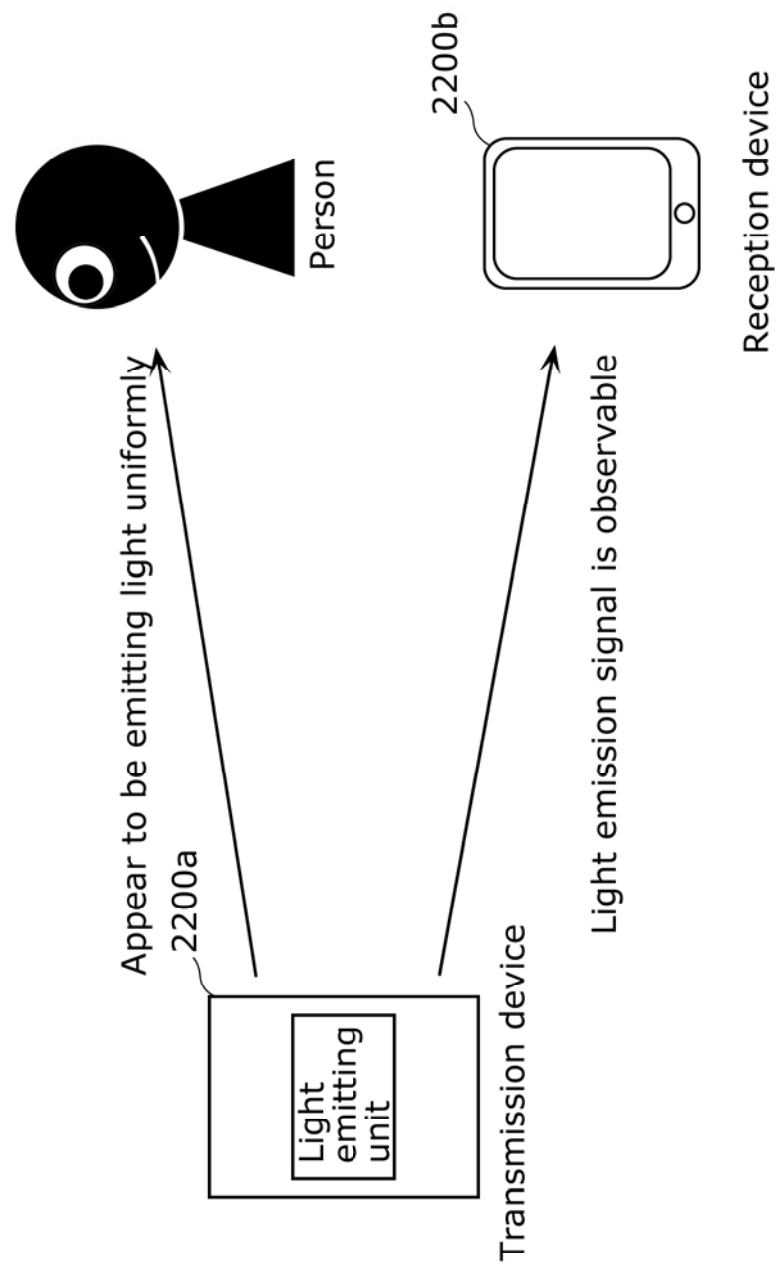


FIG. 27

2200.1a

| Transmission signal | Modulated signal |
|---------------------|------------------|
| 0                   | 01               |
| 1                   | 10               |

FIG. 28

2200.2a

| Transmission signal | Modulated signal |
|---------------------|------------------|
| 00 (0)              | 0111             |
| 01 (1)              | 1011             |
| 10 (2)              | 1101             |
| 11 (3)              | 1110             |

FIG. 29

2200.3a

| Transmission signal | Modulated signal |
|---------------------|------------------|
| 000 (0)             | 01111111         |
| 001 (1)             | 10111111         |
| 010 (2)             | 11011111         |
| 011 (3)             | 11101111         |
| 100 (4)             | 11110111         |
| 101 (5)             | 11111011         |
| 110 (6)             | 11111101         |
| 111 (7)             | 11111110         |

FIG. 30

2200.4a

| Transmission signal | Modulated signal |
|---------------------|------------------|
| 00 (0)              | 1000             |
| 01 (1)              | 0100             |
| 10 (2)              | 0010             |
| 11 (3)              | 0001             |

FIG. 31

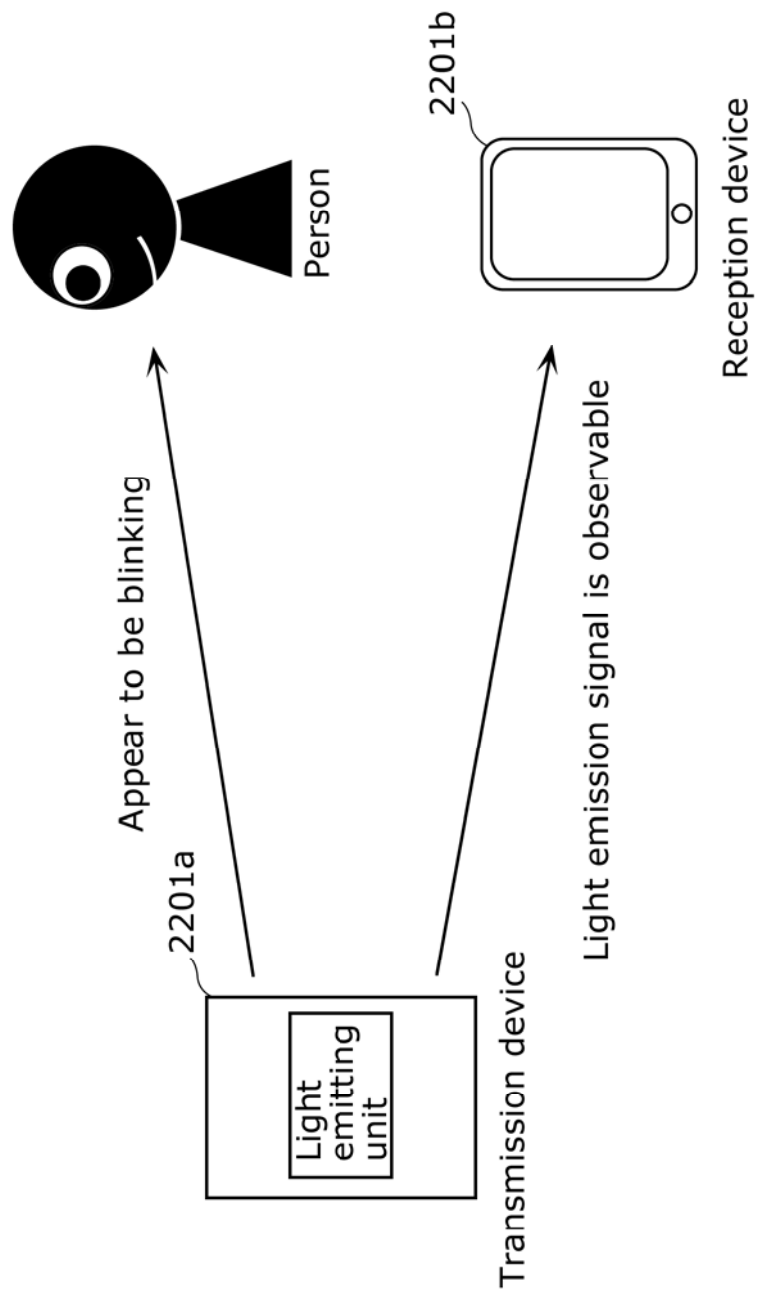


FIG. 32

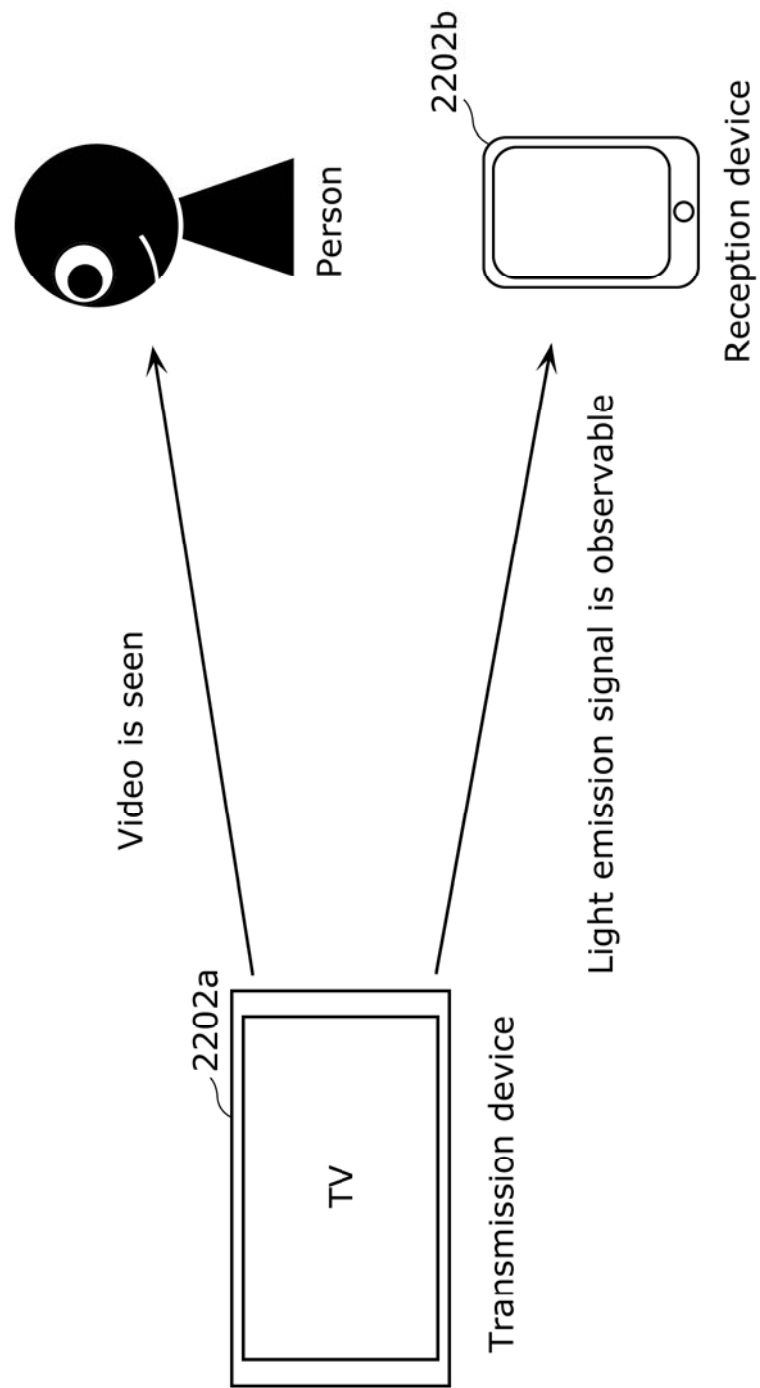




FIG. 33

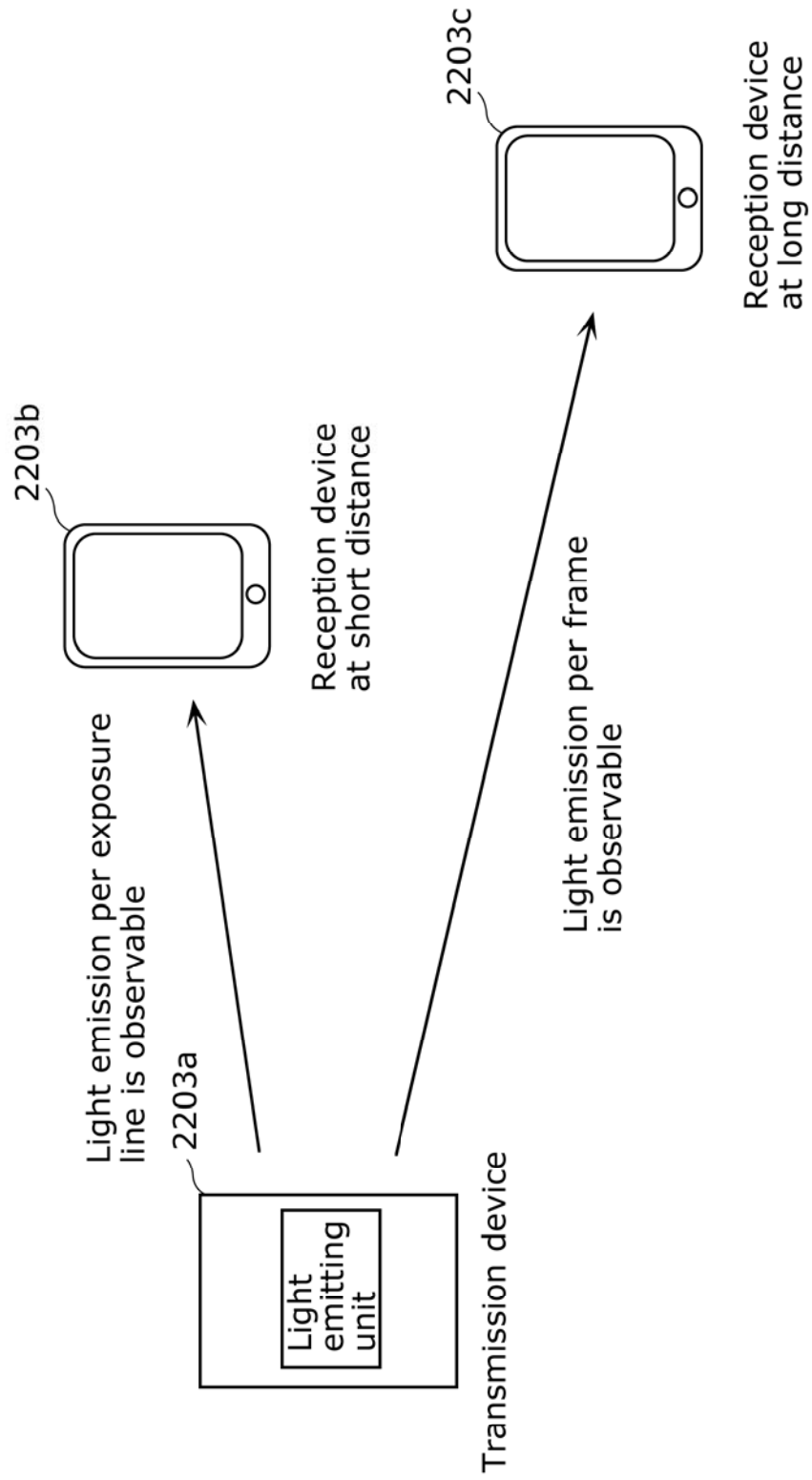


FIG. 34

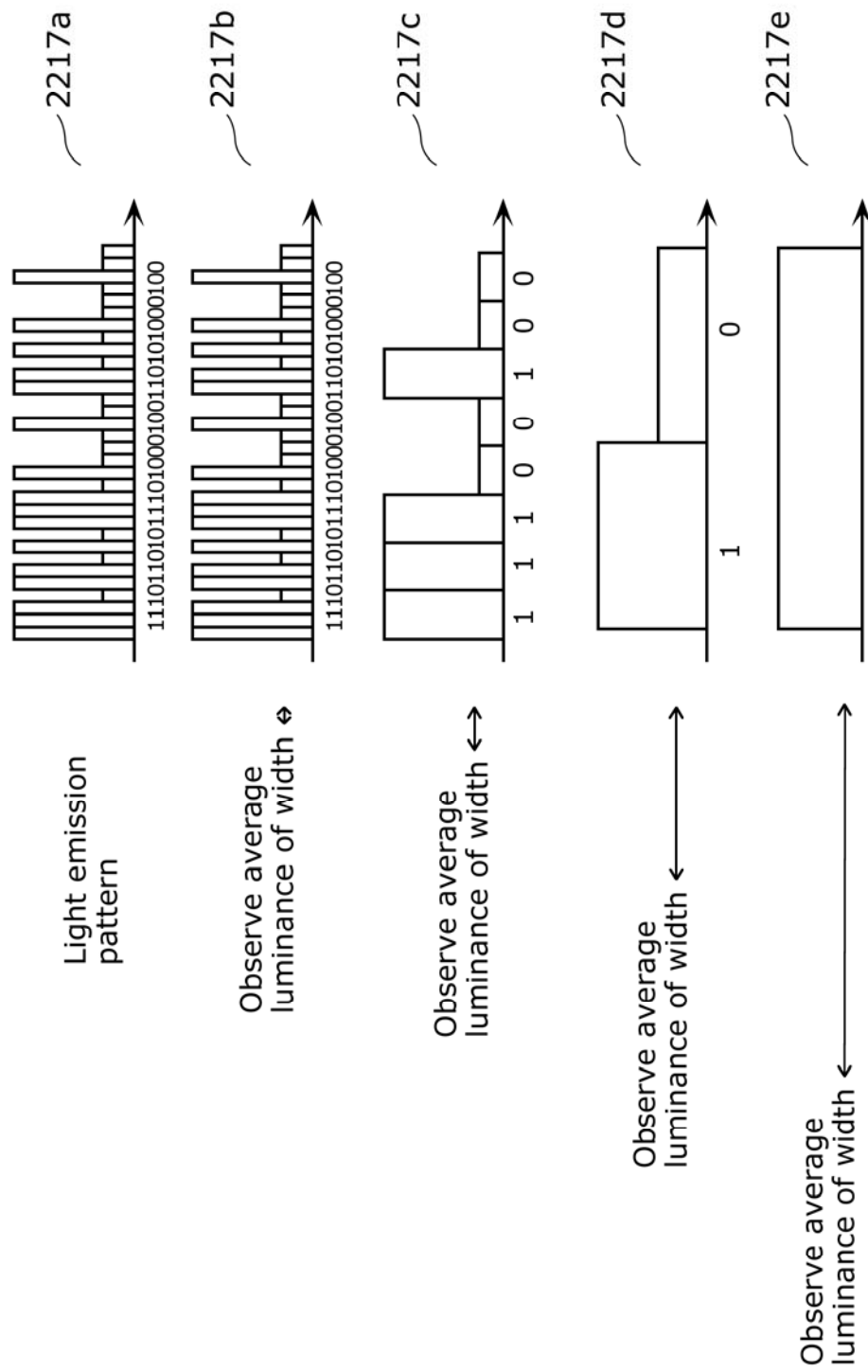


FIG. 35

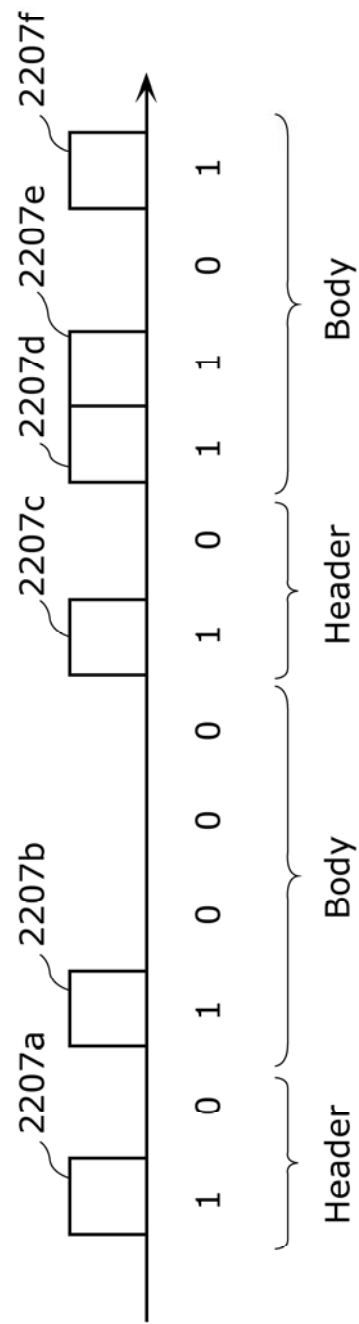


FIG. 36

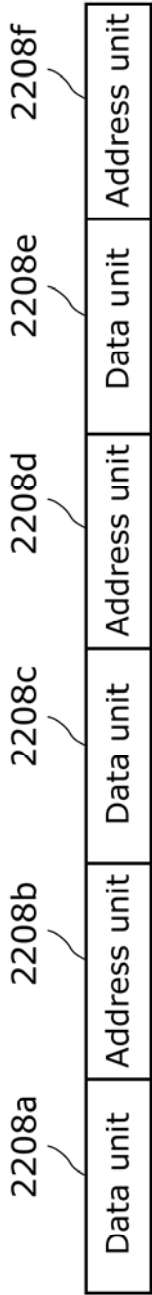


FIG. 37



FIG. 38

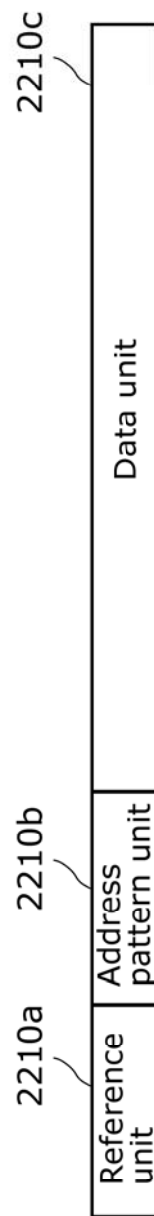


FIG. 39

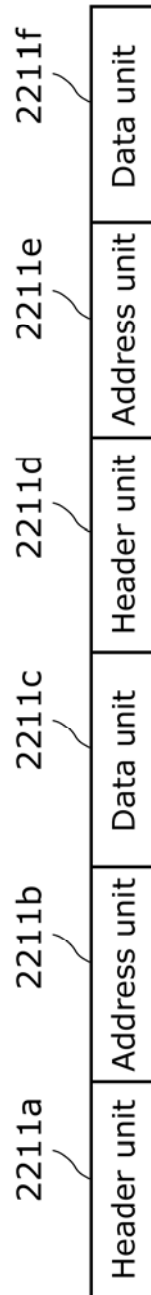


FIG. 40

| Transmission information | Priority   |
|--------------------------|------------|
| Information 1            | 3 (High)   |
| Information 2            | 2 (Normal) |
| Information 3            | 1 (Low)    |

Transmission order 1

| Information | Information | Information | Information | Information | Information | Information | Information | Information | Information |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1           | 1           | 1           | 1           | 1           | 1           | 2           | 2           | 2           | 3           |

## Transmission order 2

|             |             |             |             |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Information | Information | Information | Information | Information | Information | Information | Information | Information |
| 1           | 2           | 1           | 3           | 1           | 2           | 1           | 2           | 1           |
| 2           | 1           | 2           | 1           | 3           | 1           | 2           | 1           | 2           |

Time



FIG. 41

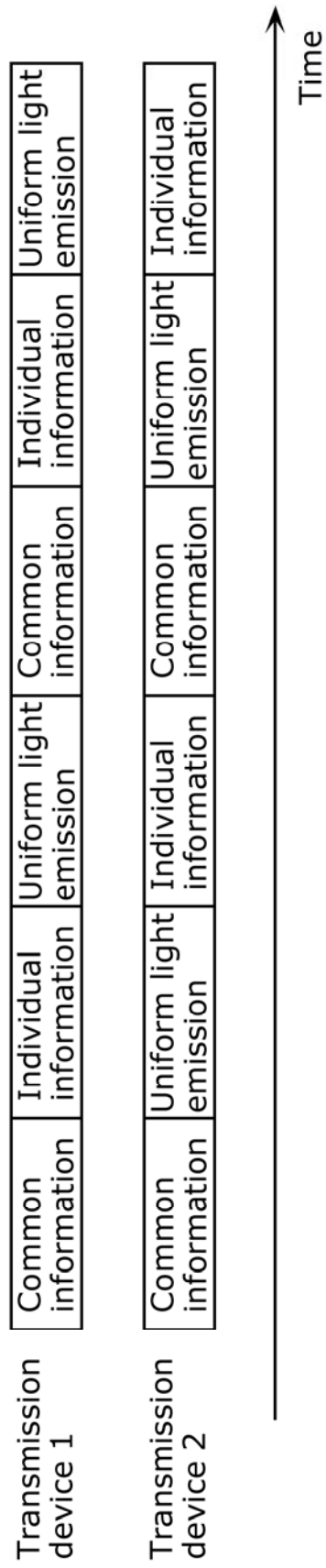


FIG. 42

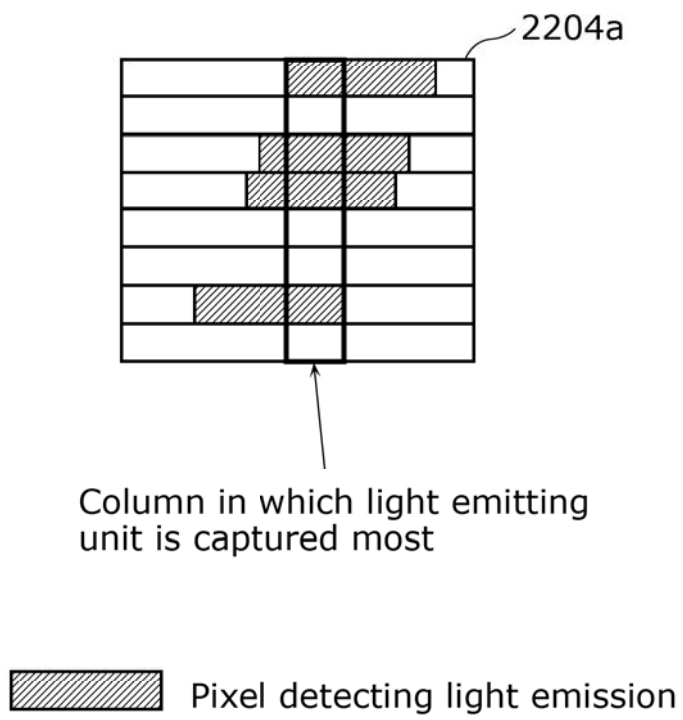
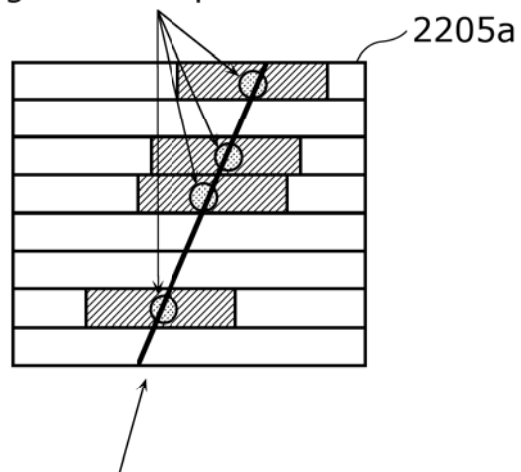


FIG. 43

Midpoint of captured part of light  
emitting unit in exposure line



Line approximating midpoints

 Pixel detecting light emission

FIG. 44

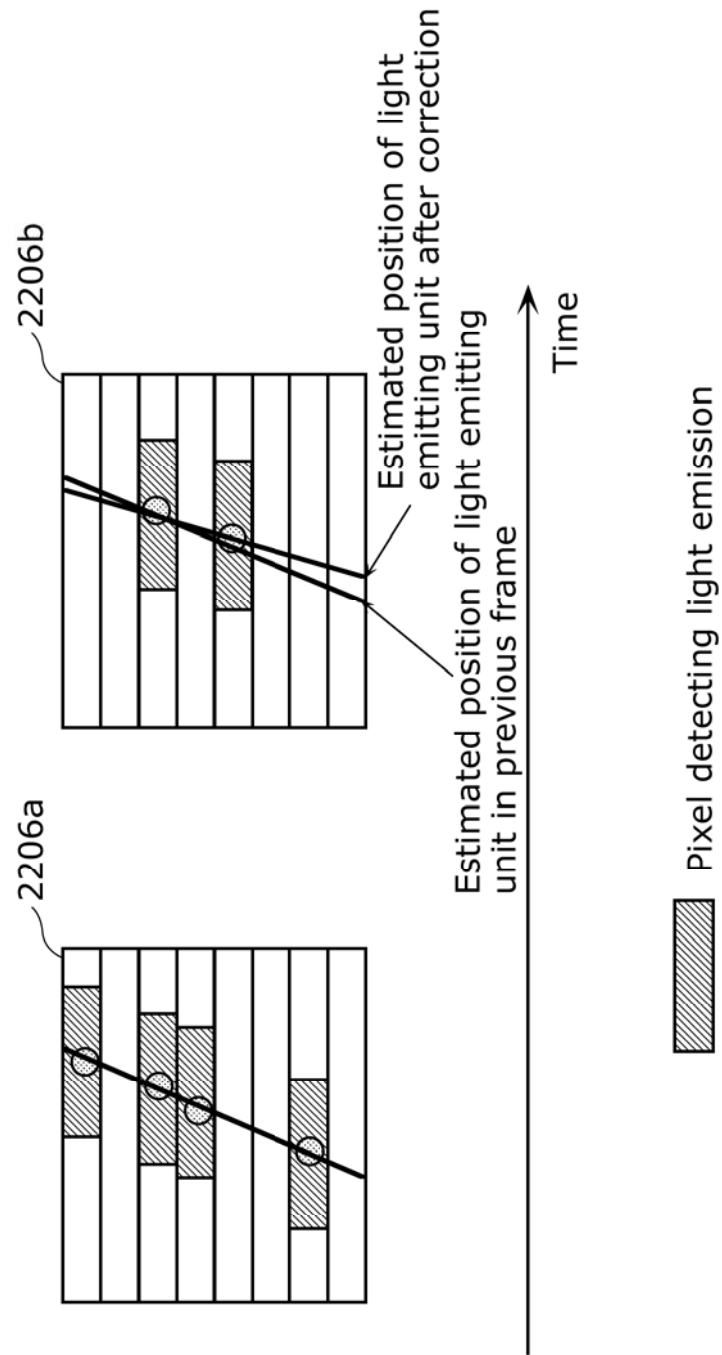


FIG. 45

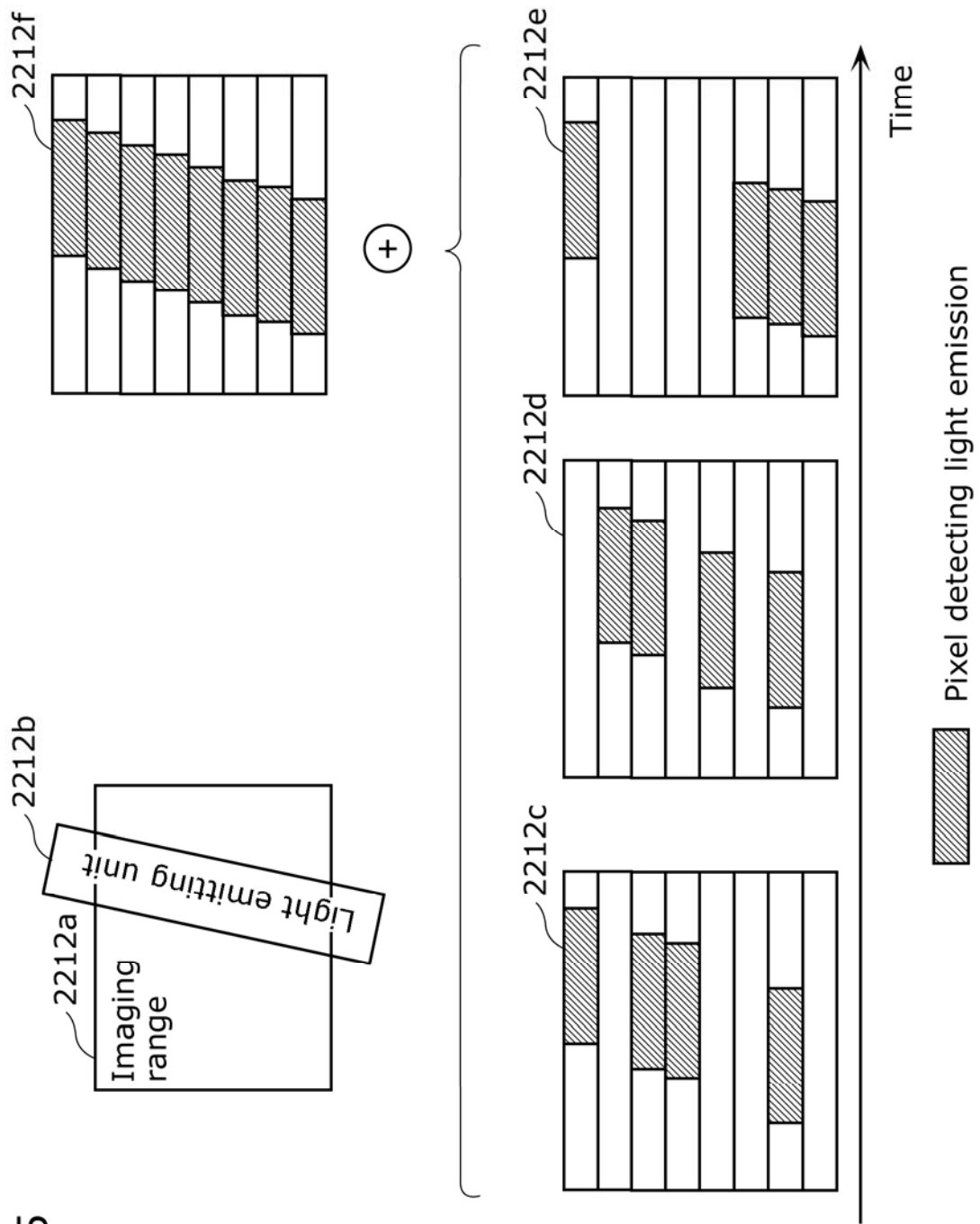


FIG. 46

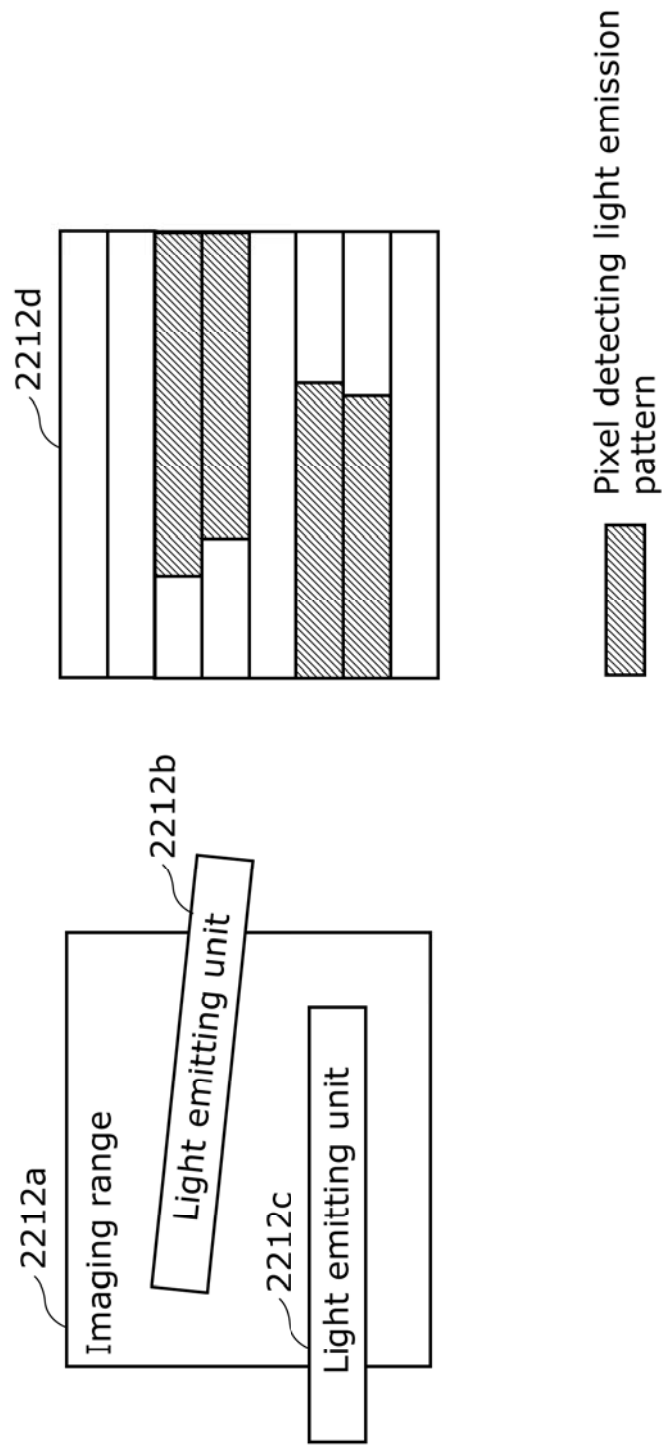


FIG. 47

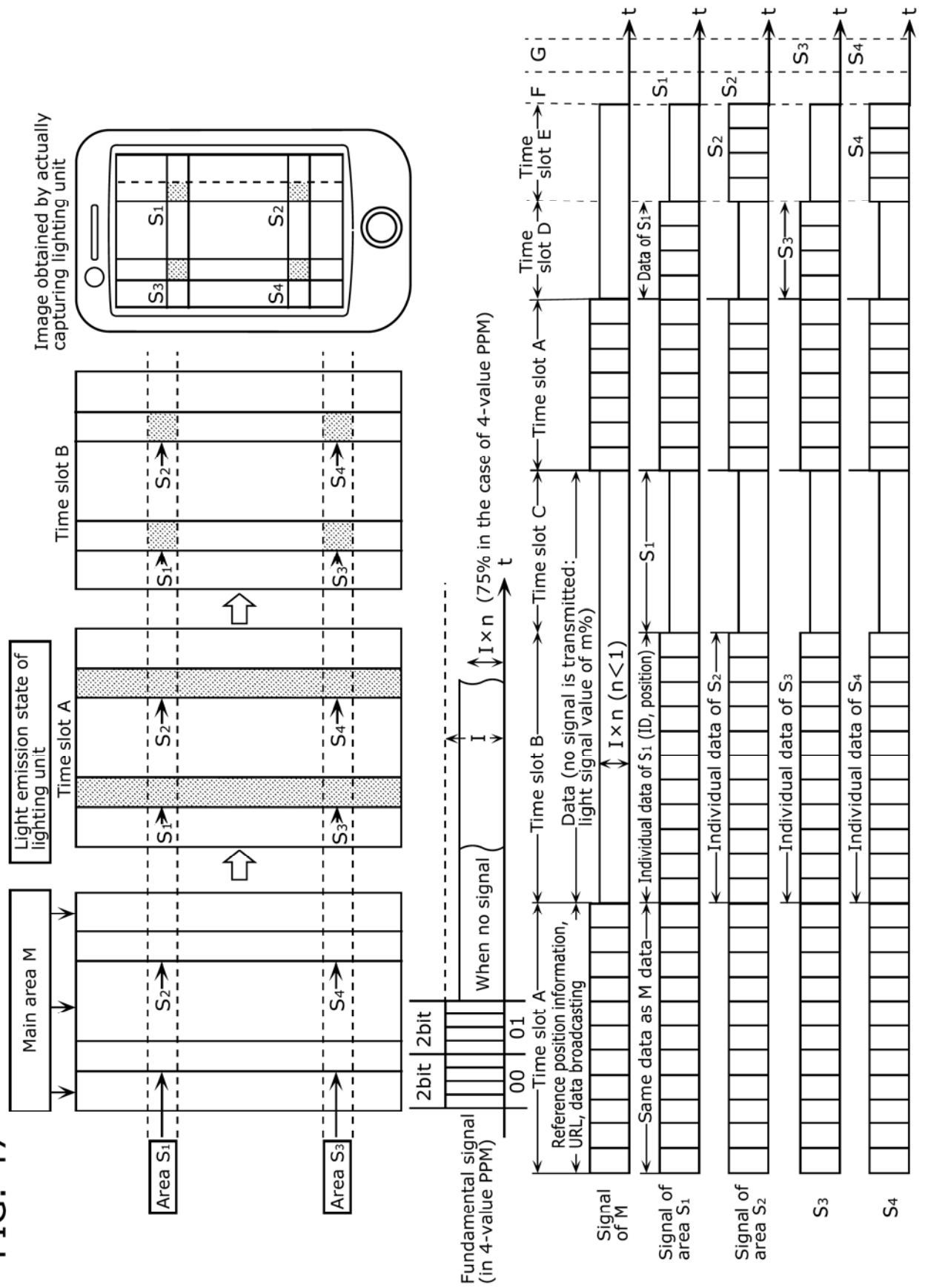


FIG. 48

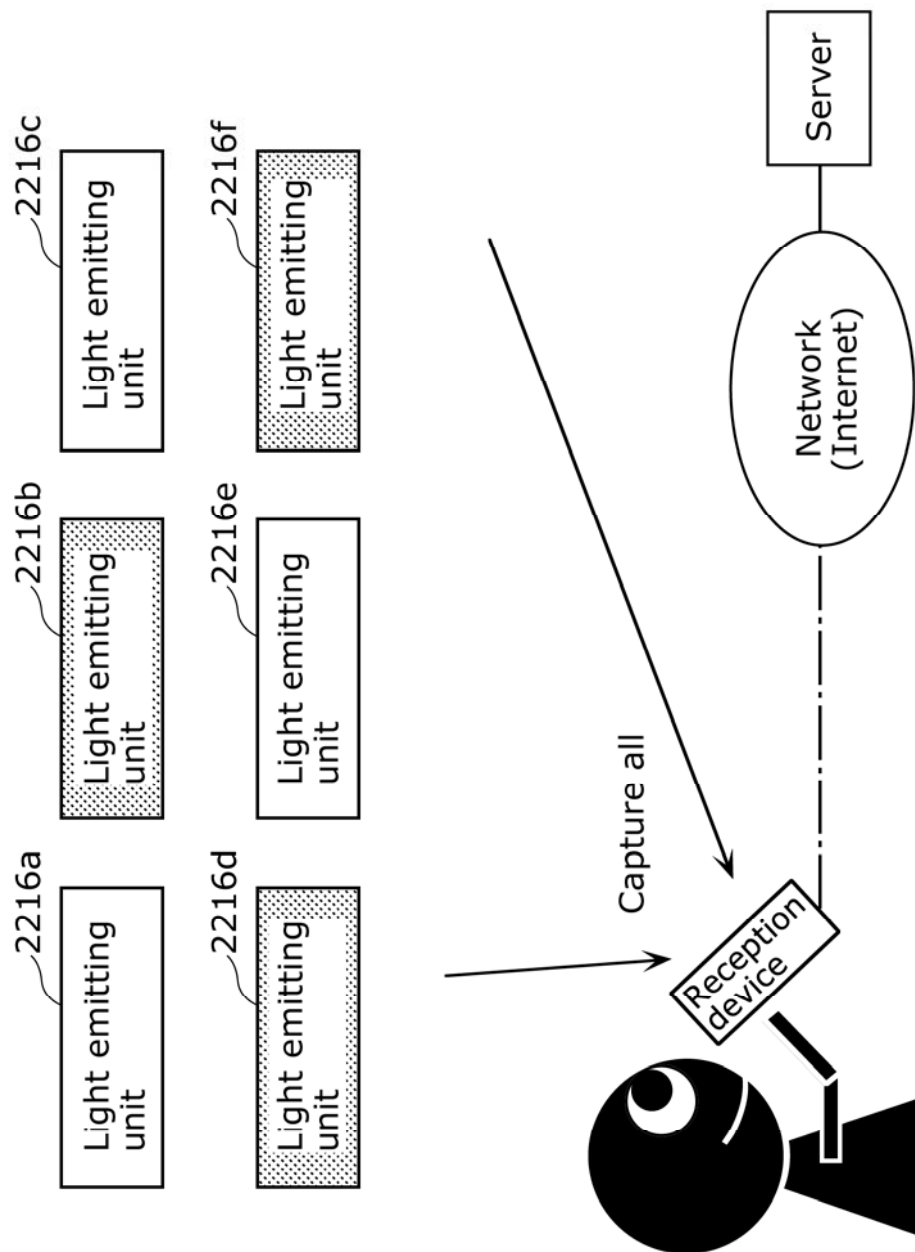
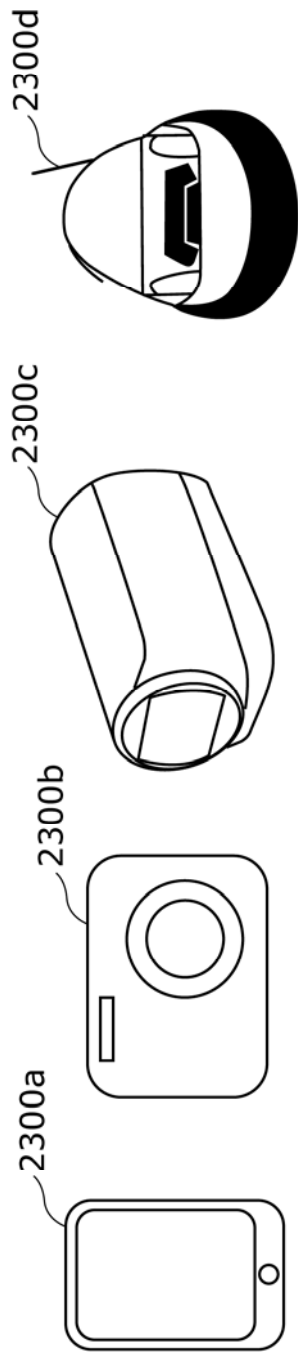
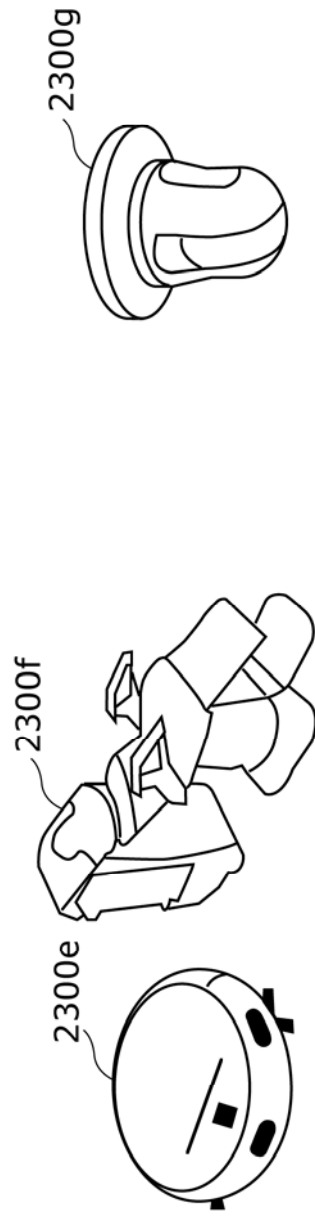




FIG. 49



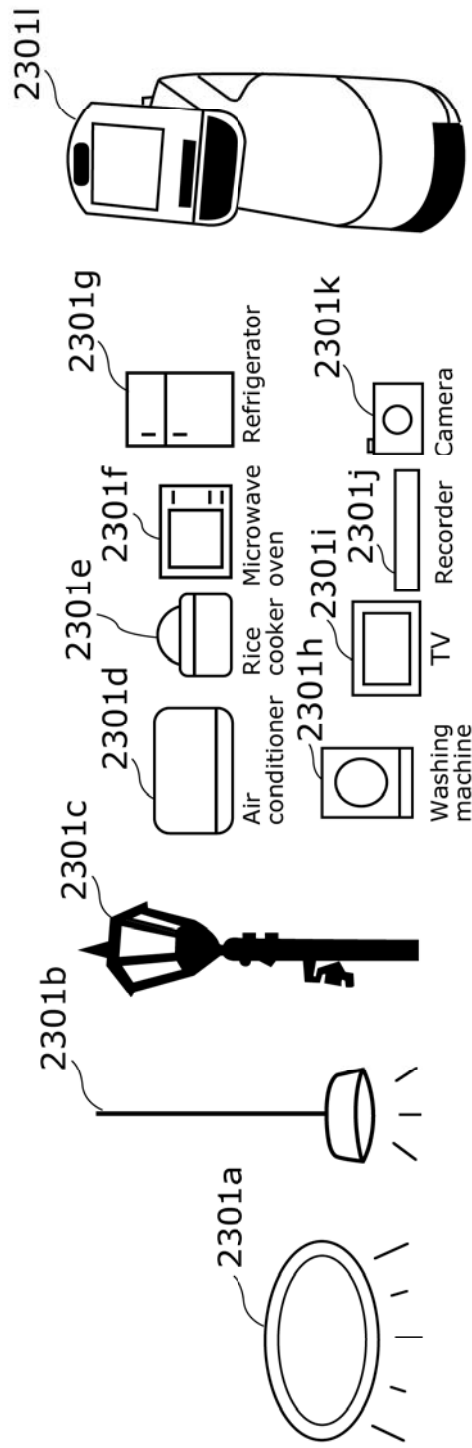
Mobile phone    Digital still camera    Digital video camera    Head-mounted display



Robot (cleaning, nursing care, industrial, etc.)    Surveillance camera    Surveillance camera

Example of reception device

FIG. 50



Example of transmission device

FIG. 51

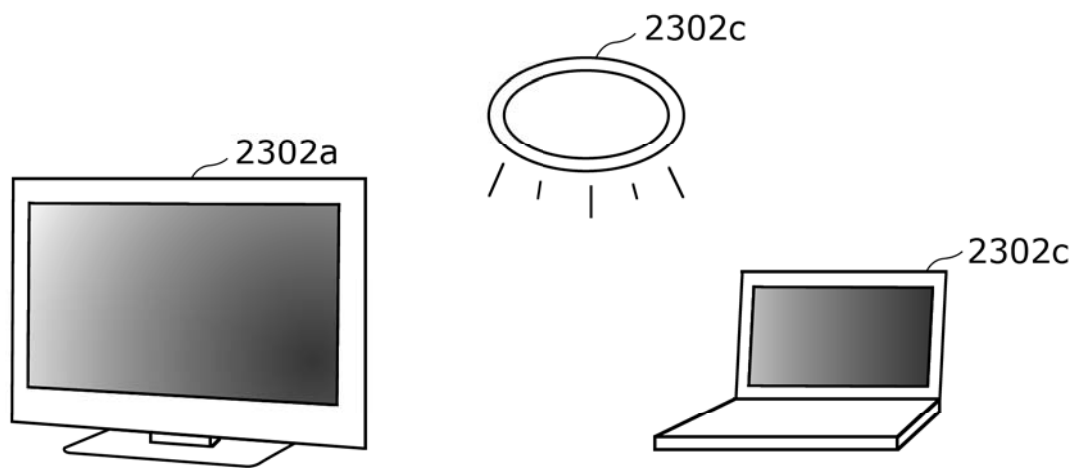


FIG. 52

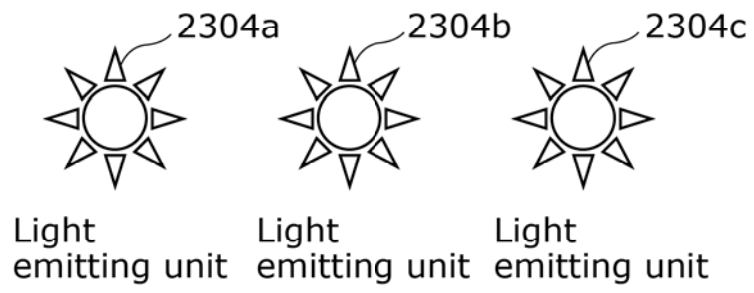


FIG. 53

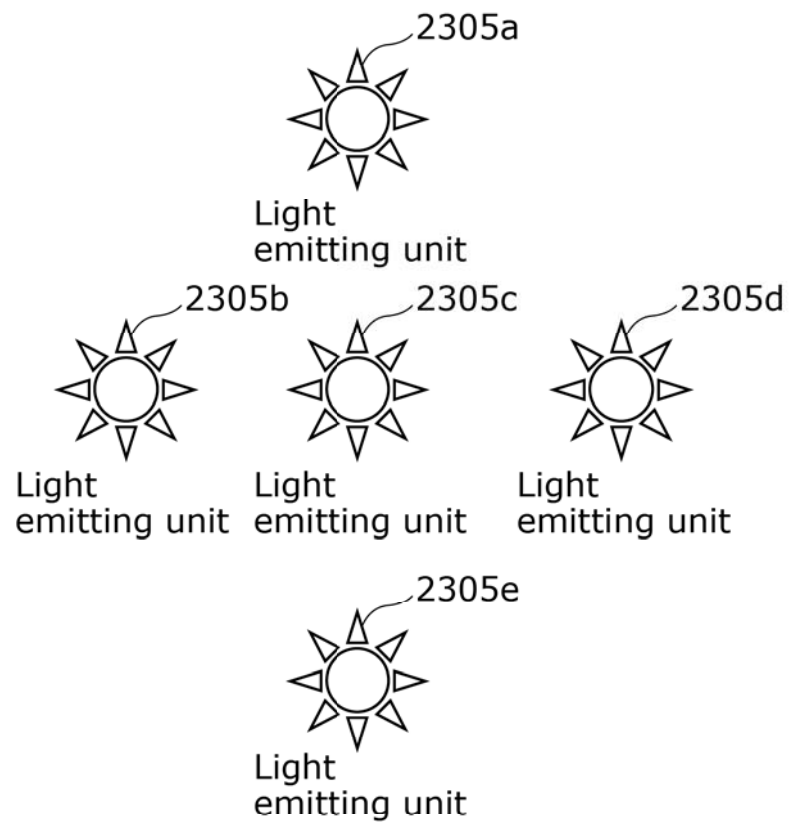


FIG. 54

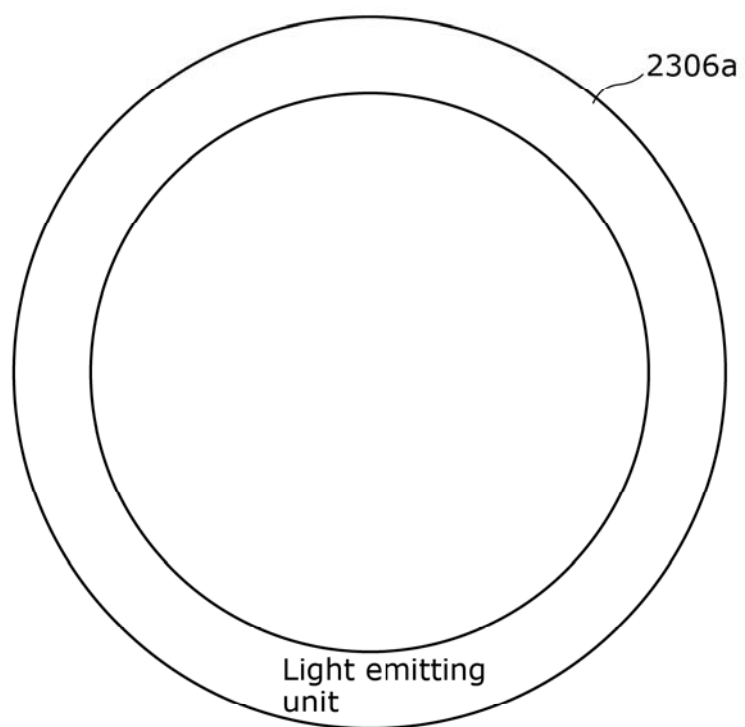


FIG. 55

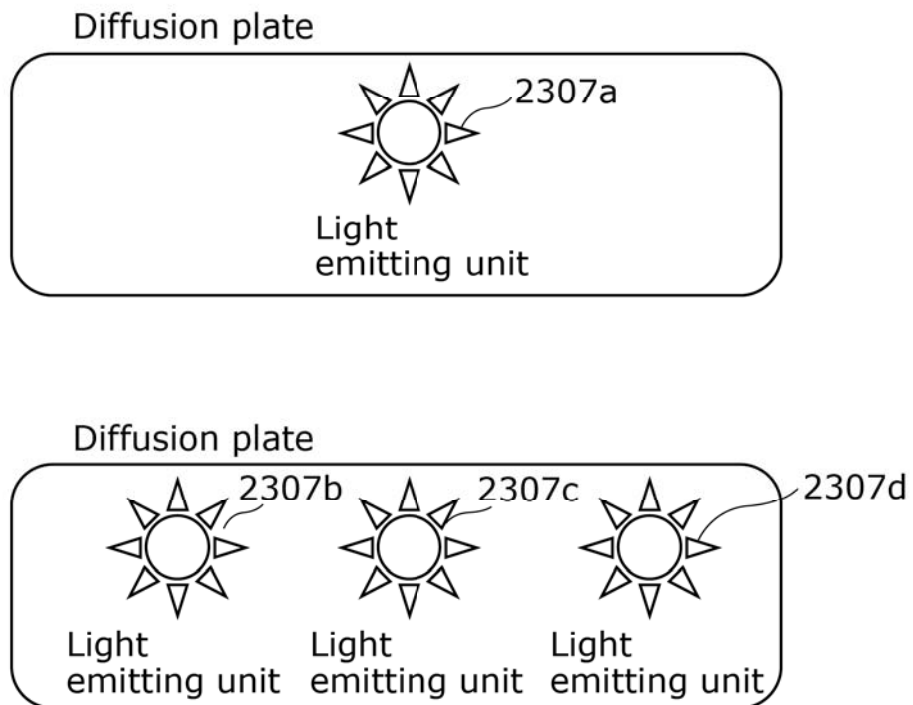




FIG. 56



FIG. 57

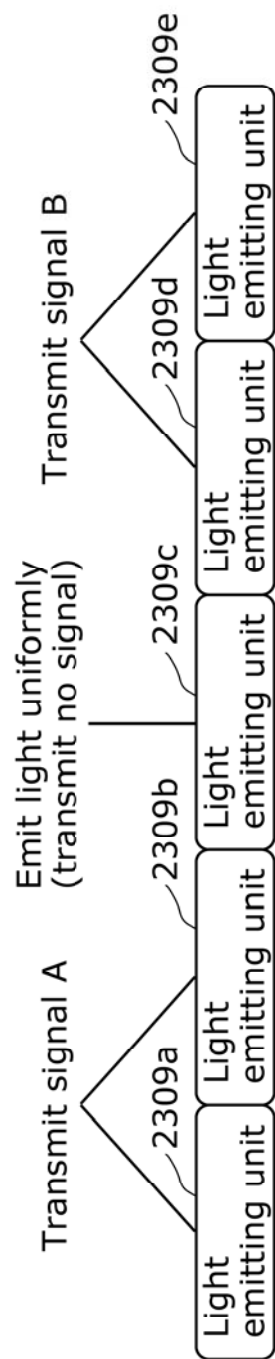


FIG. 58

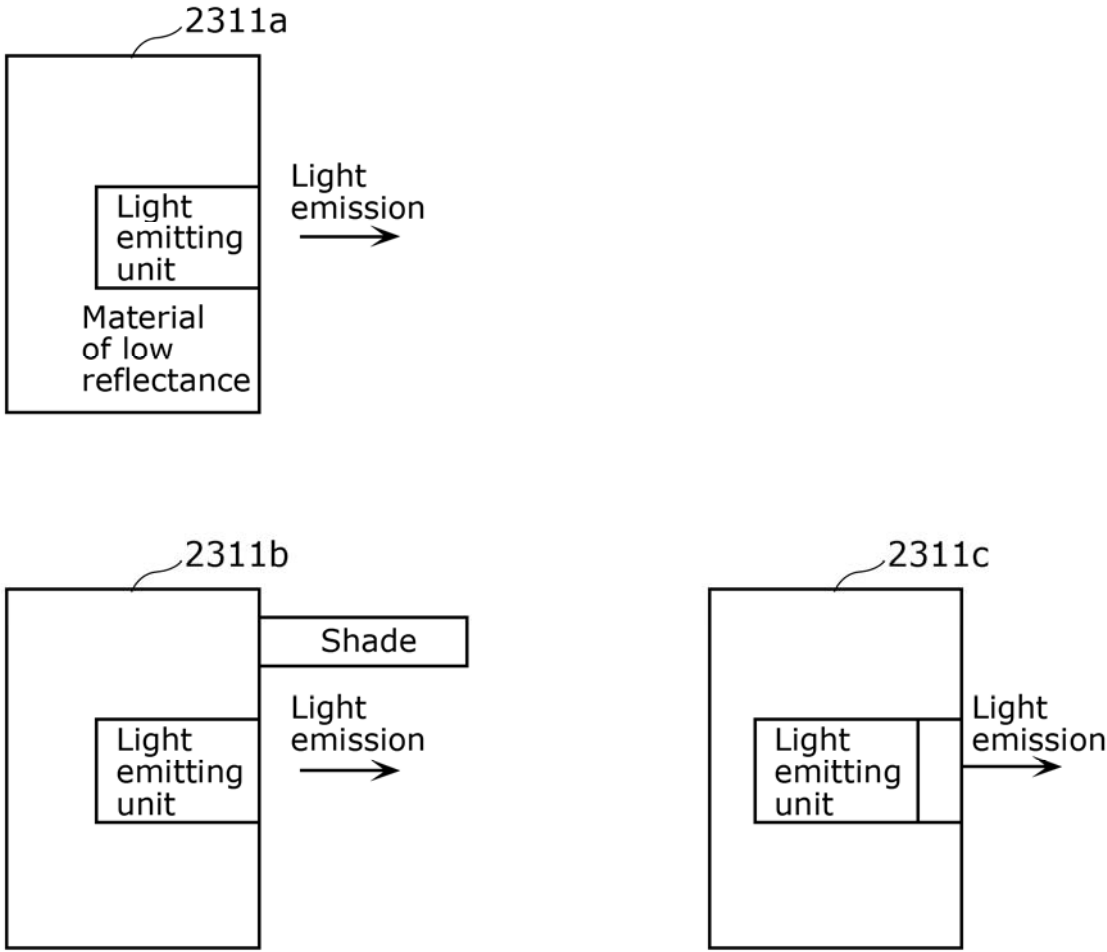


FIG. 59

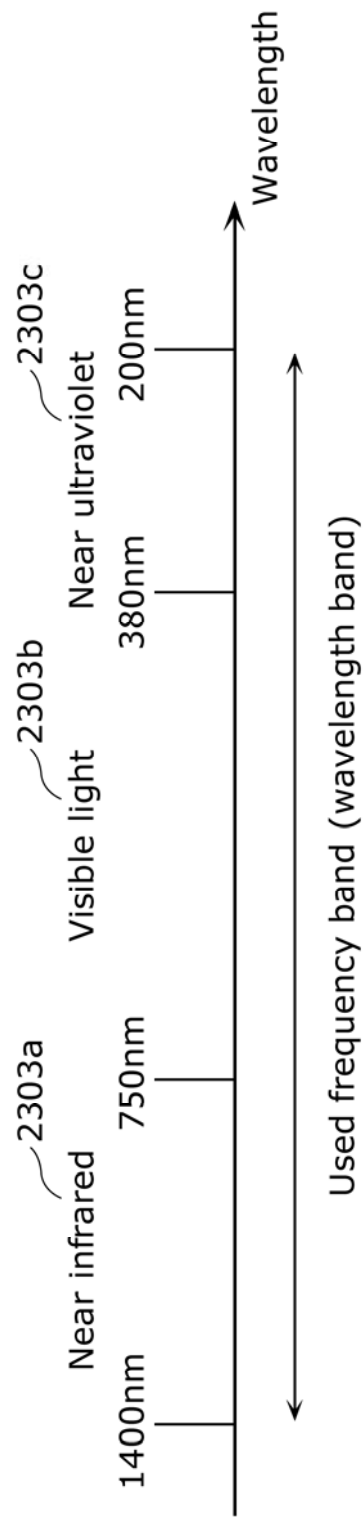


FIG. 60

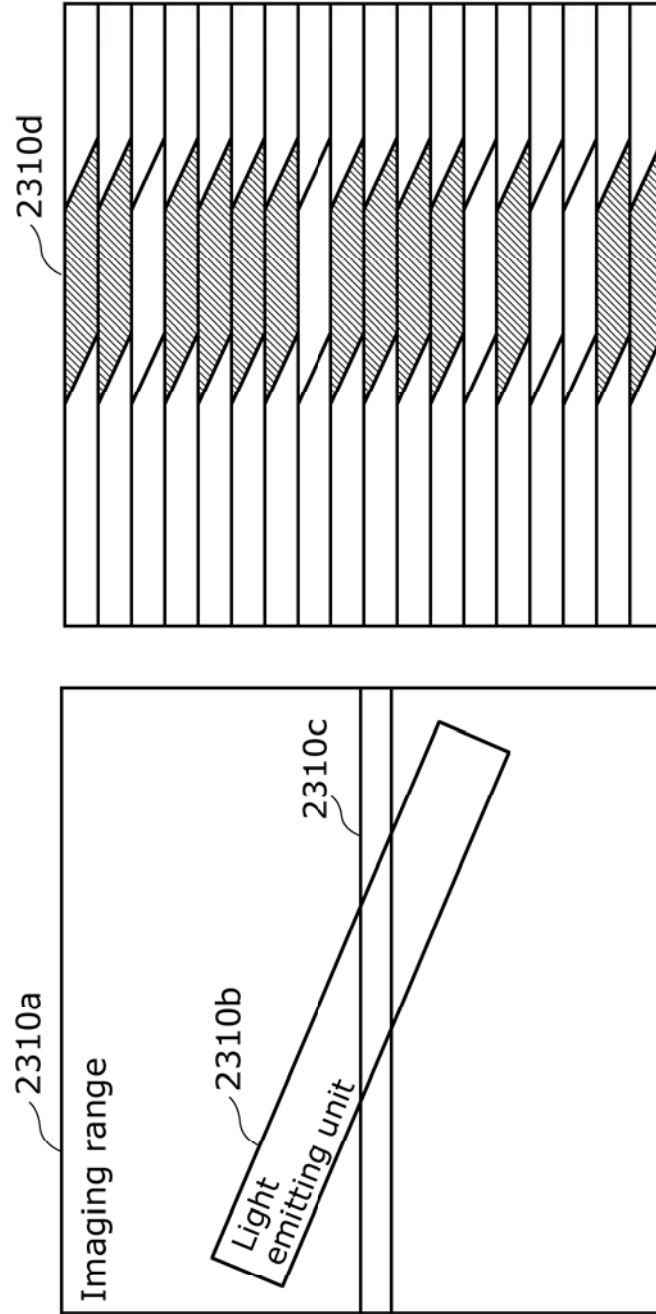


FIG. 61

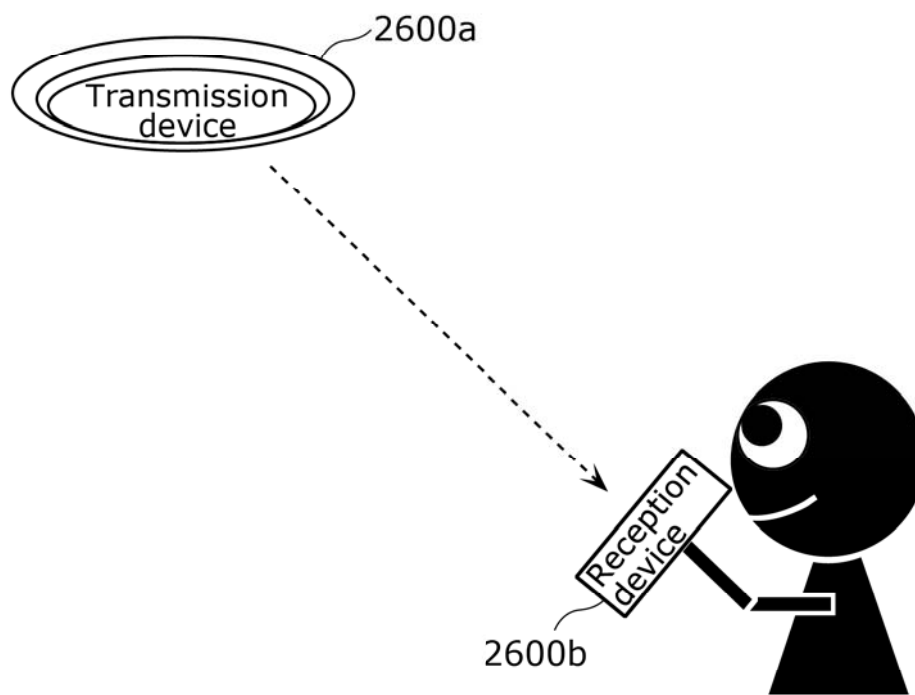


FIG. 62

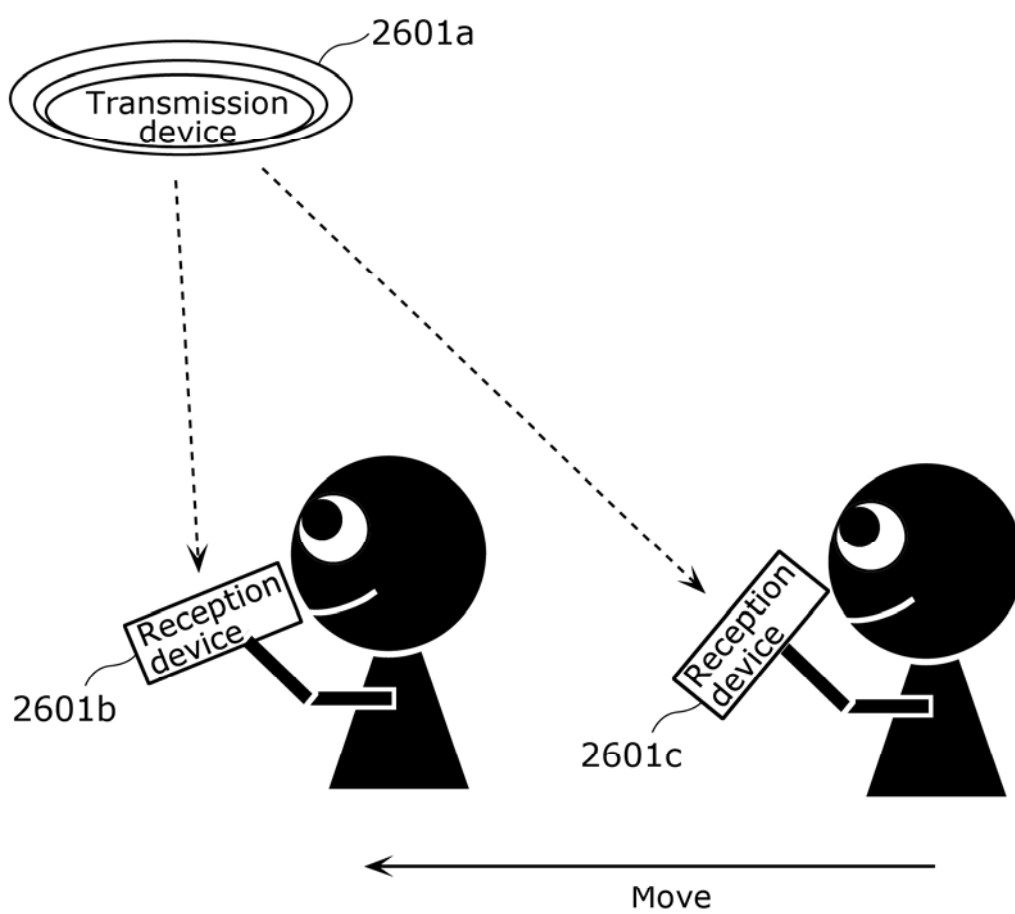


FIG. 63

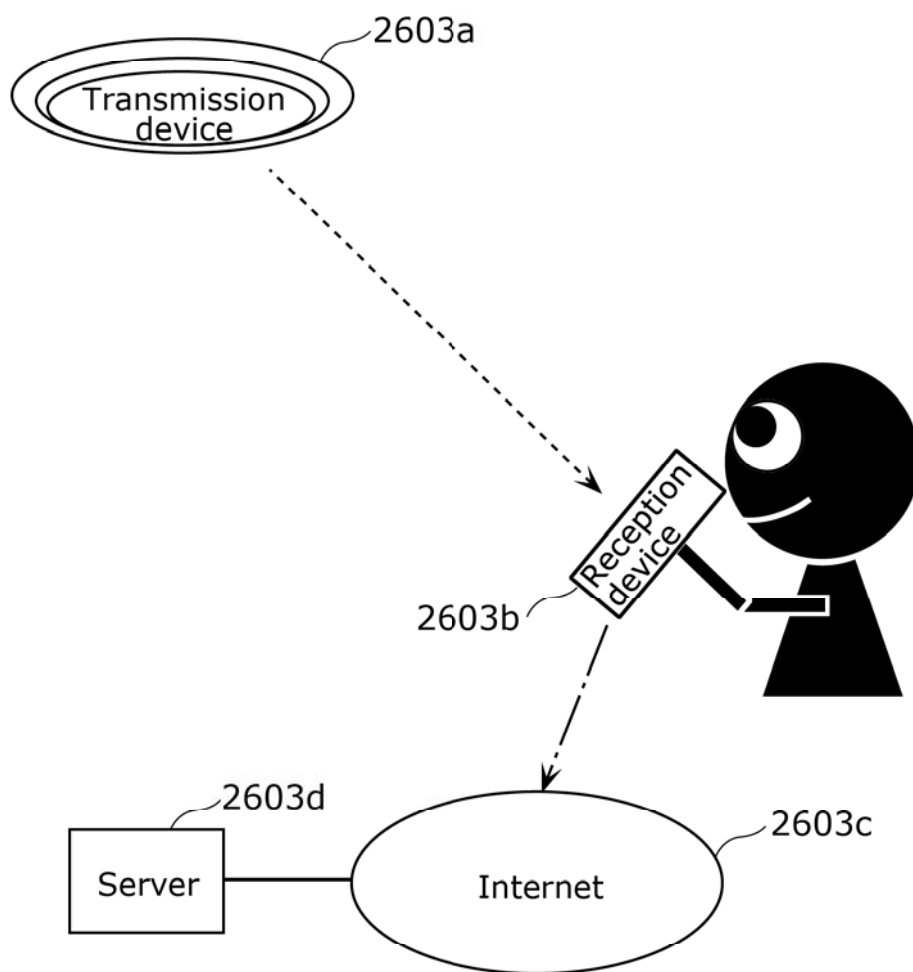


FIG. 64

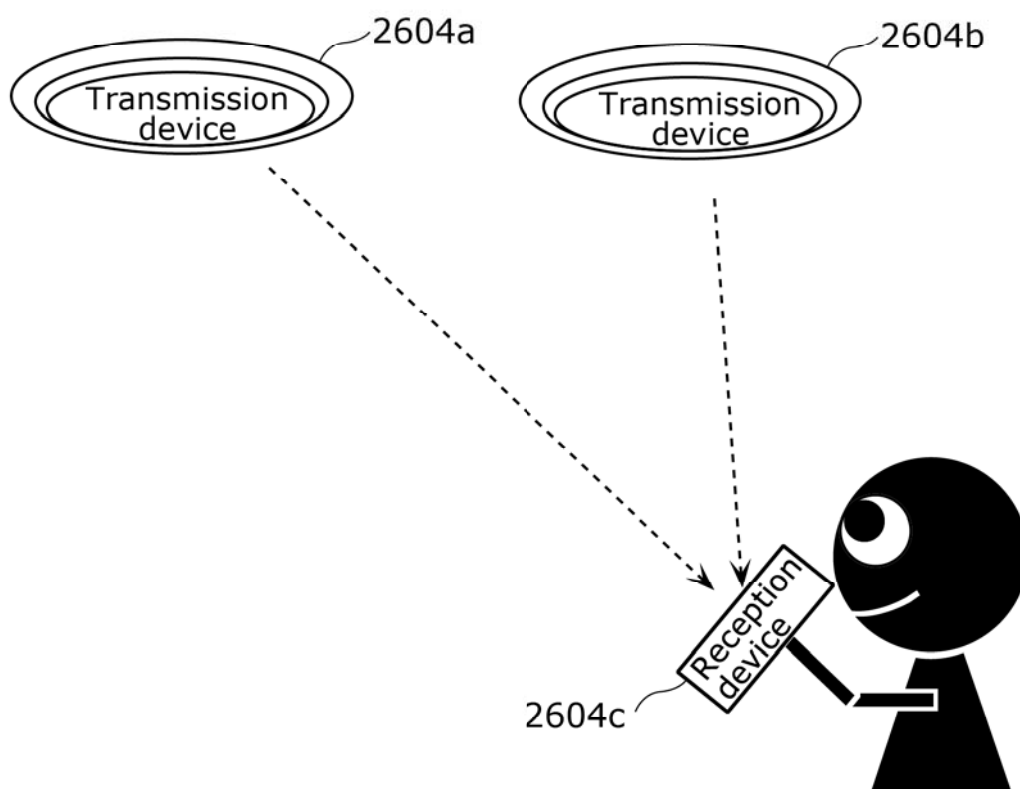




FIG. 65

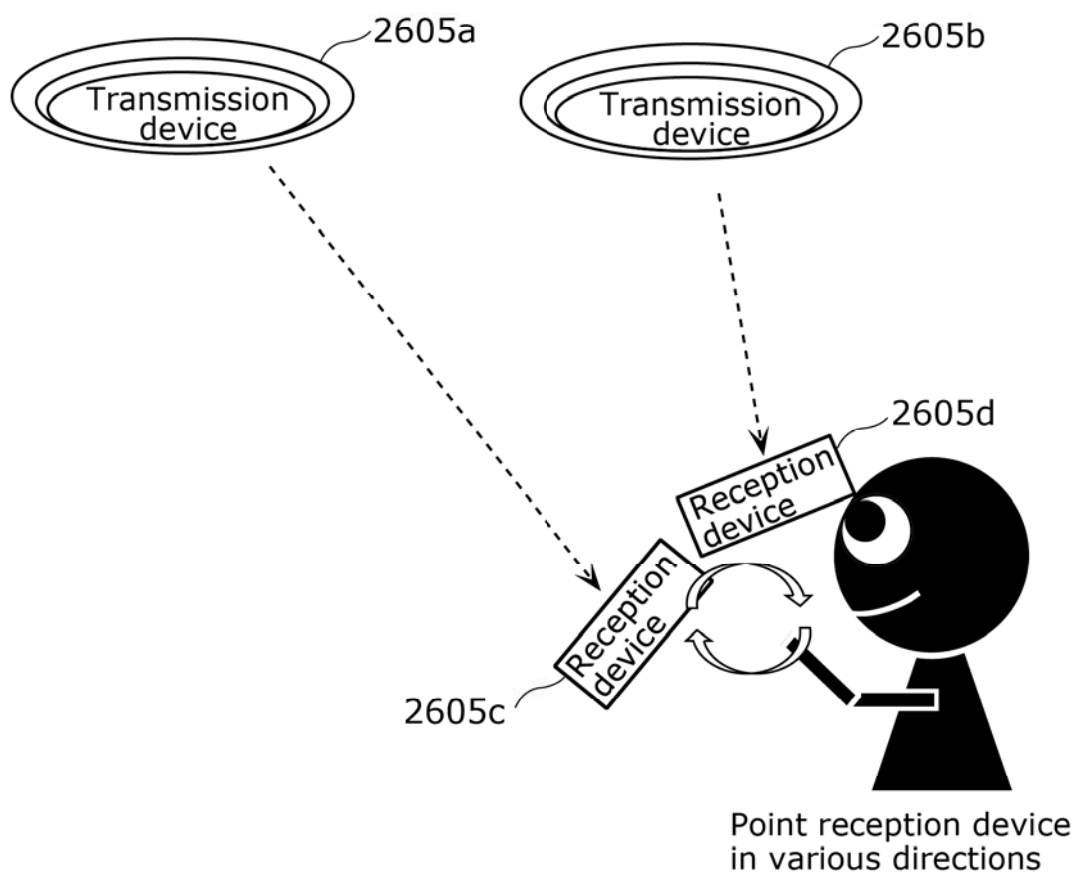


FIG. 66

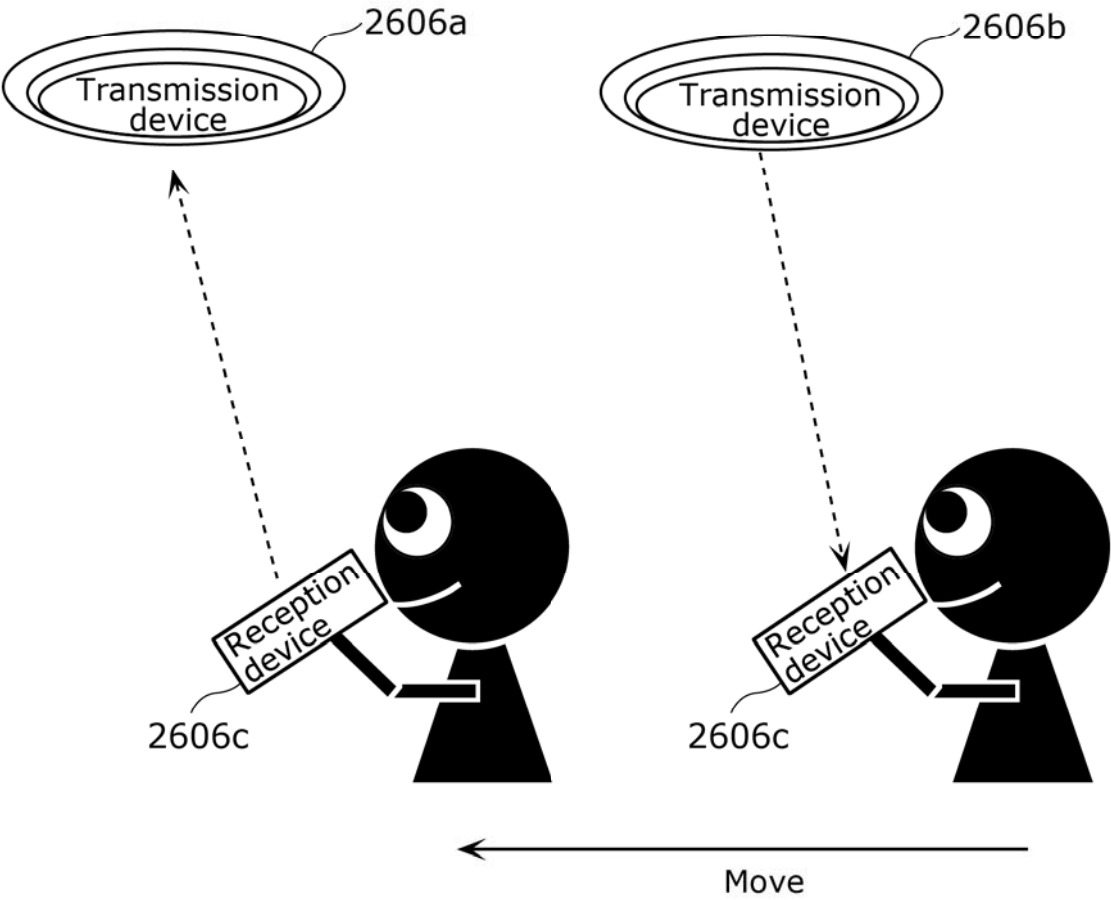


FIG. 67

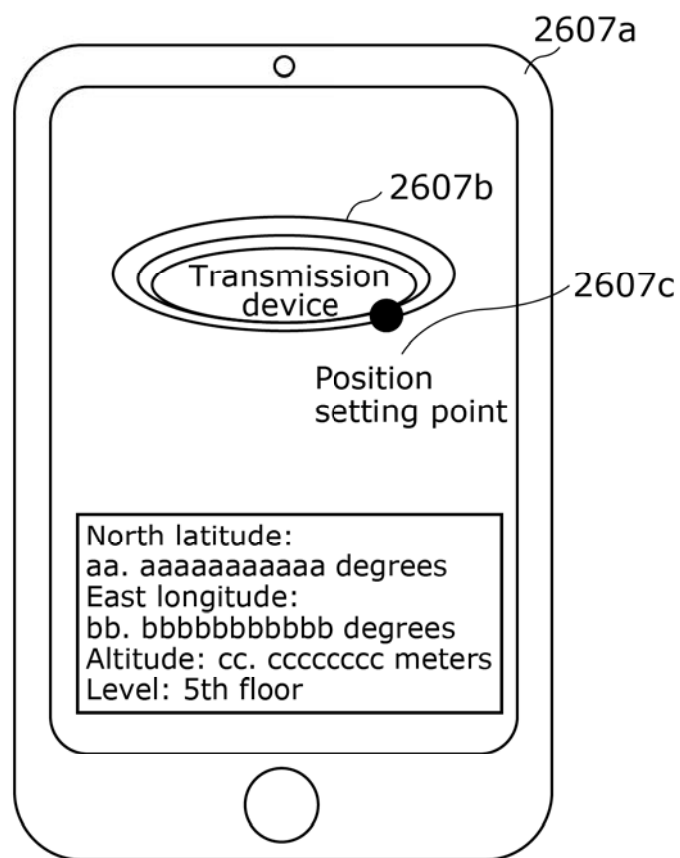


FIG. 68

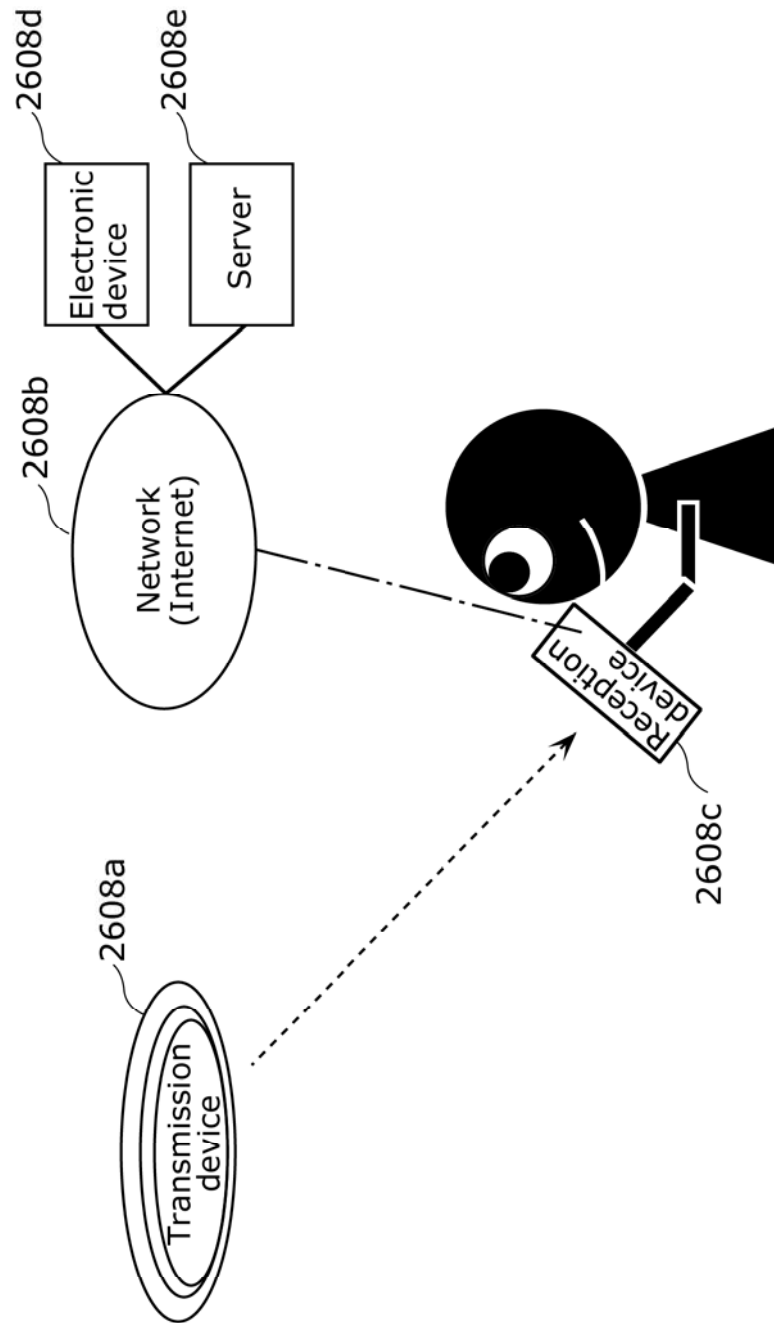


FIG. 69

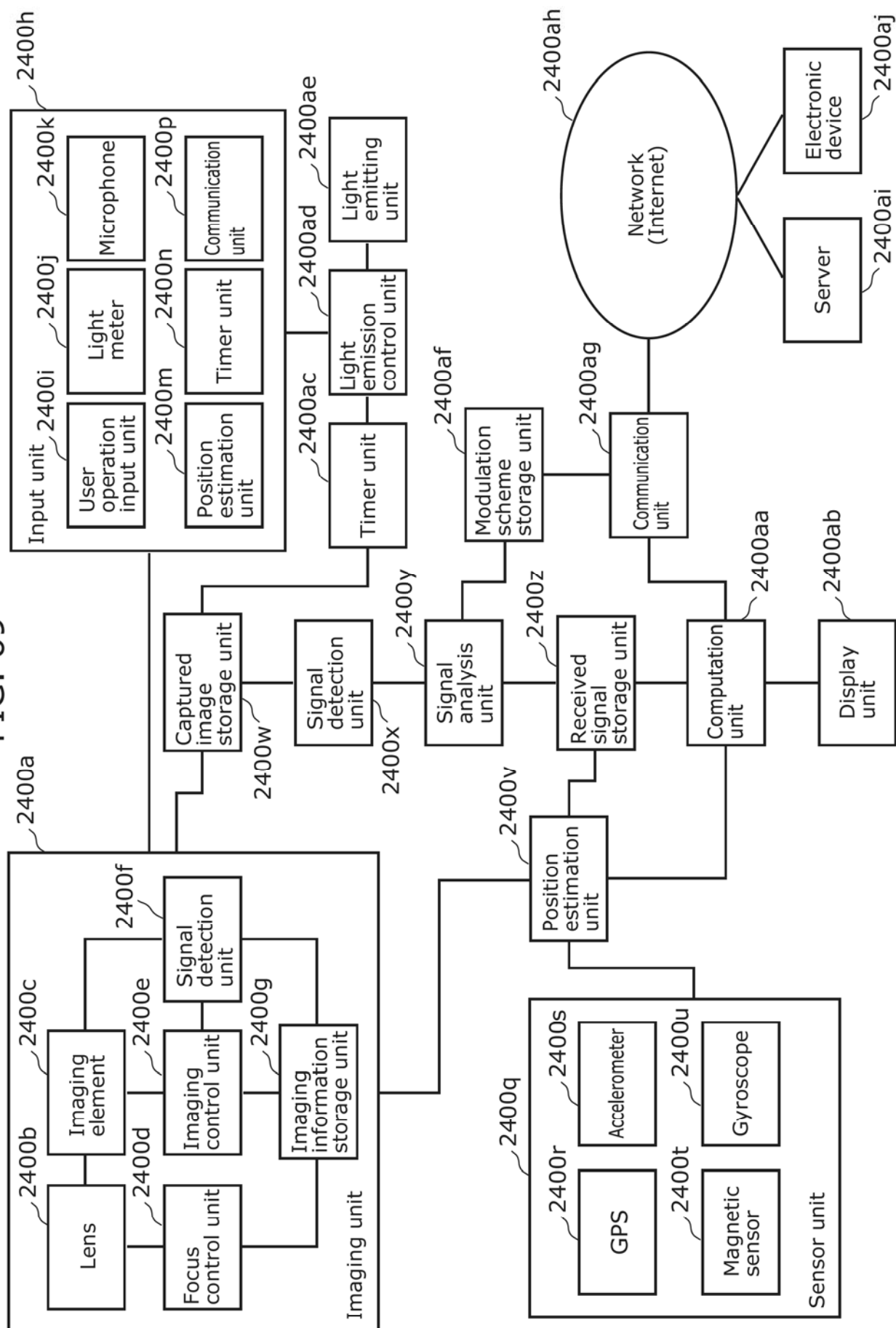


FIG. 70

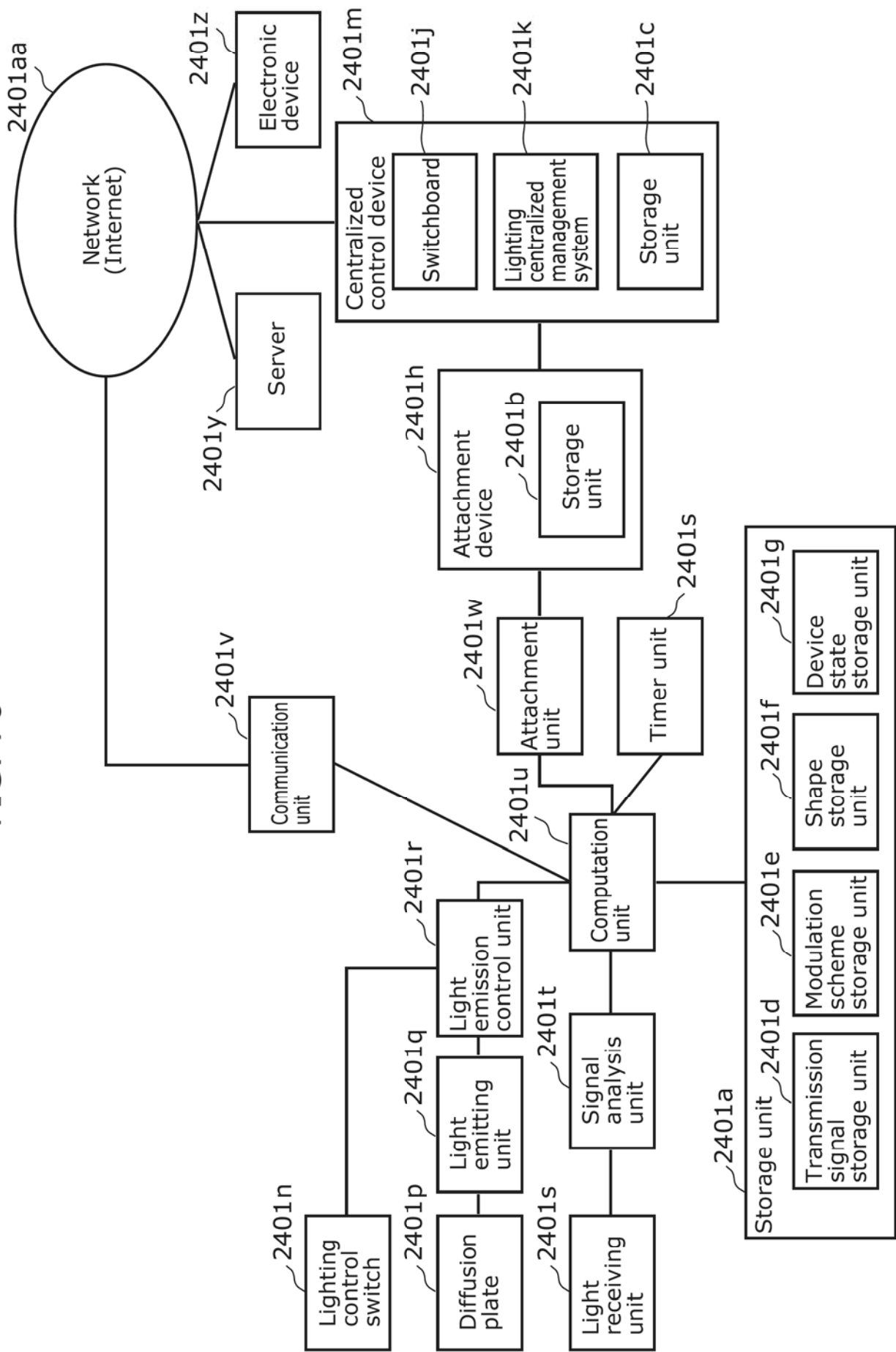


FIG. 71

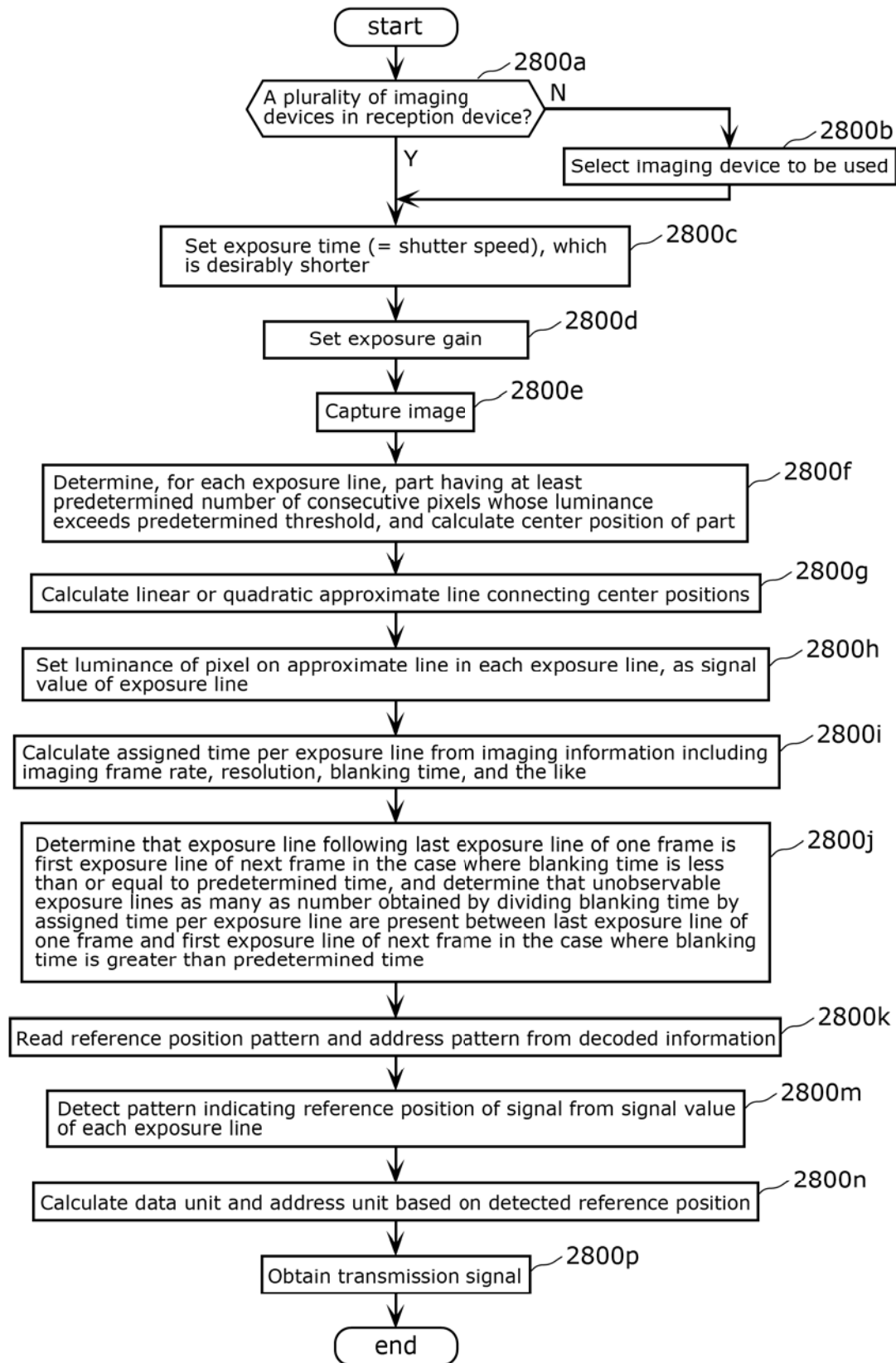


FIG. 72

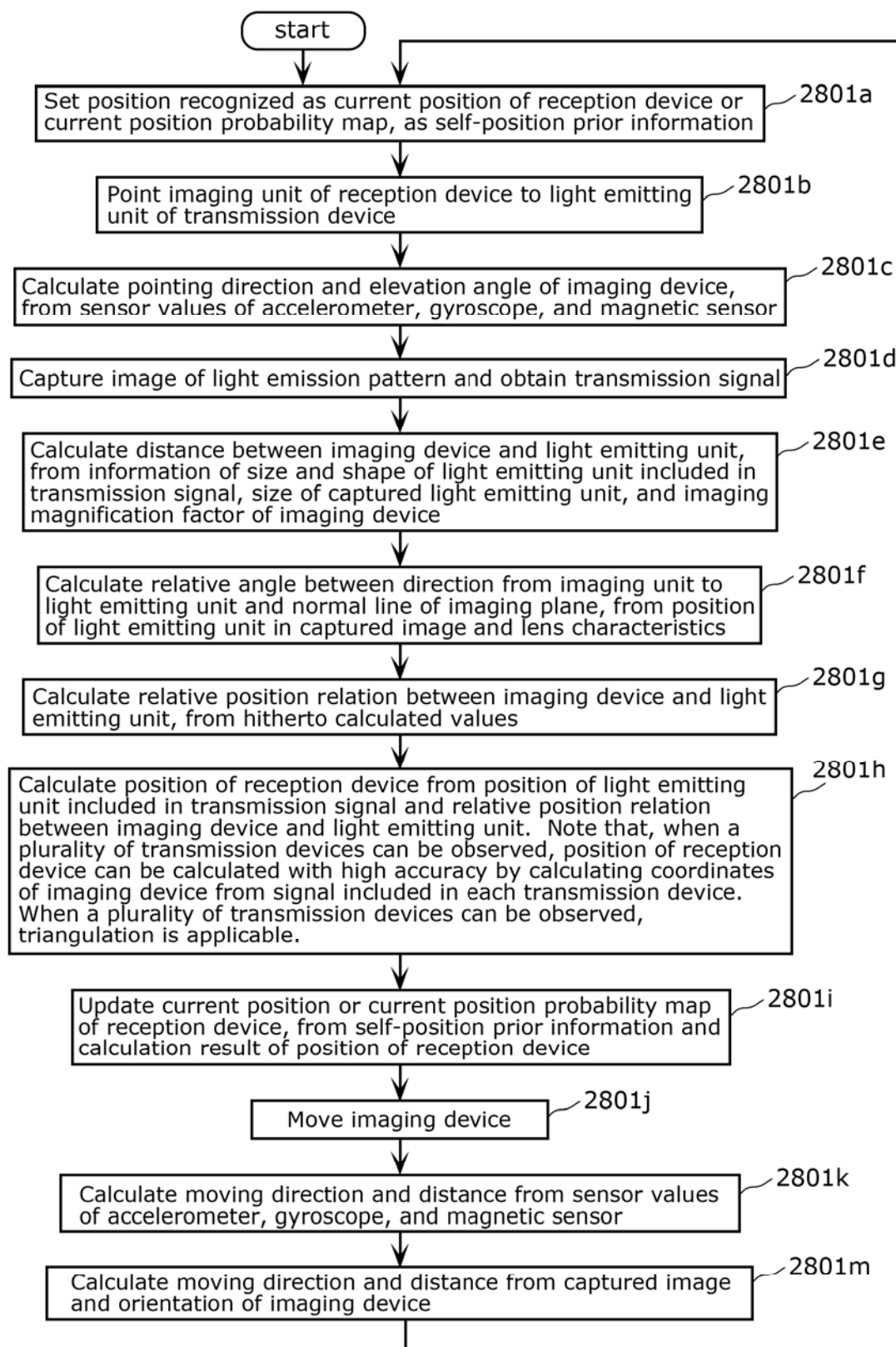




FIG. 73

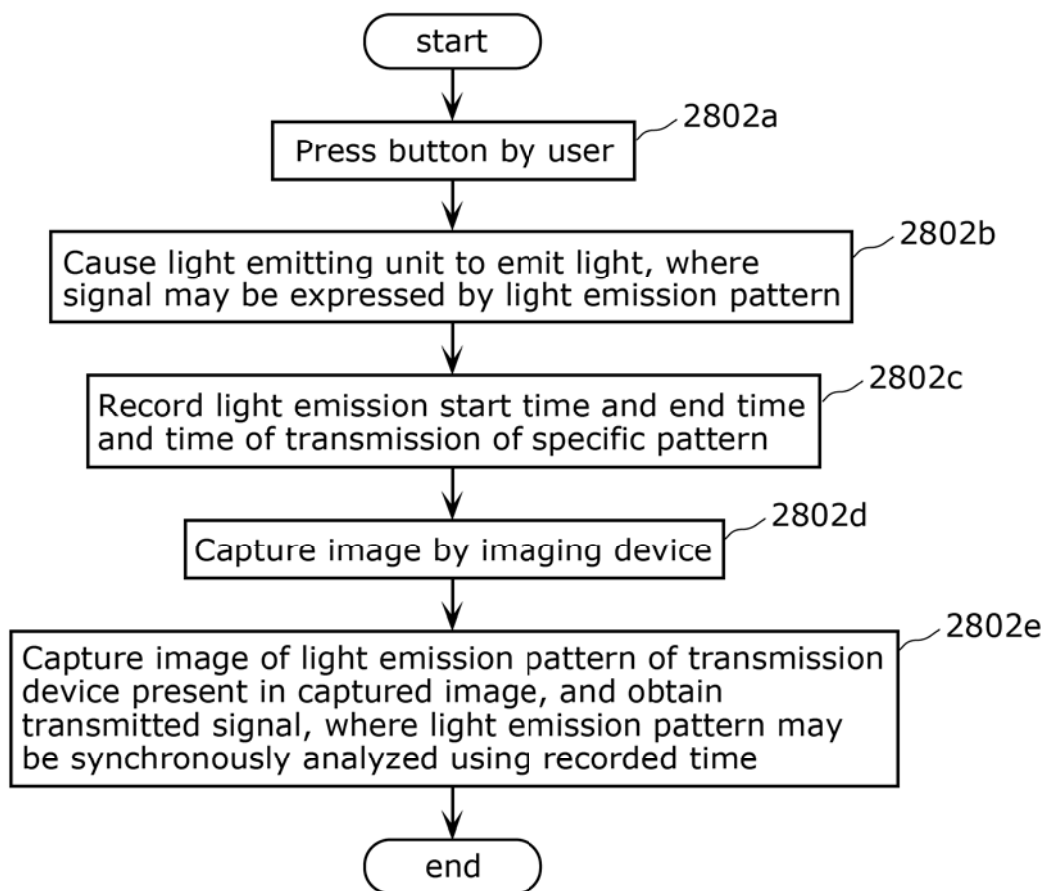


FIG. 74

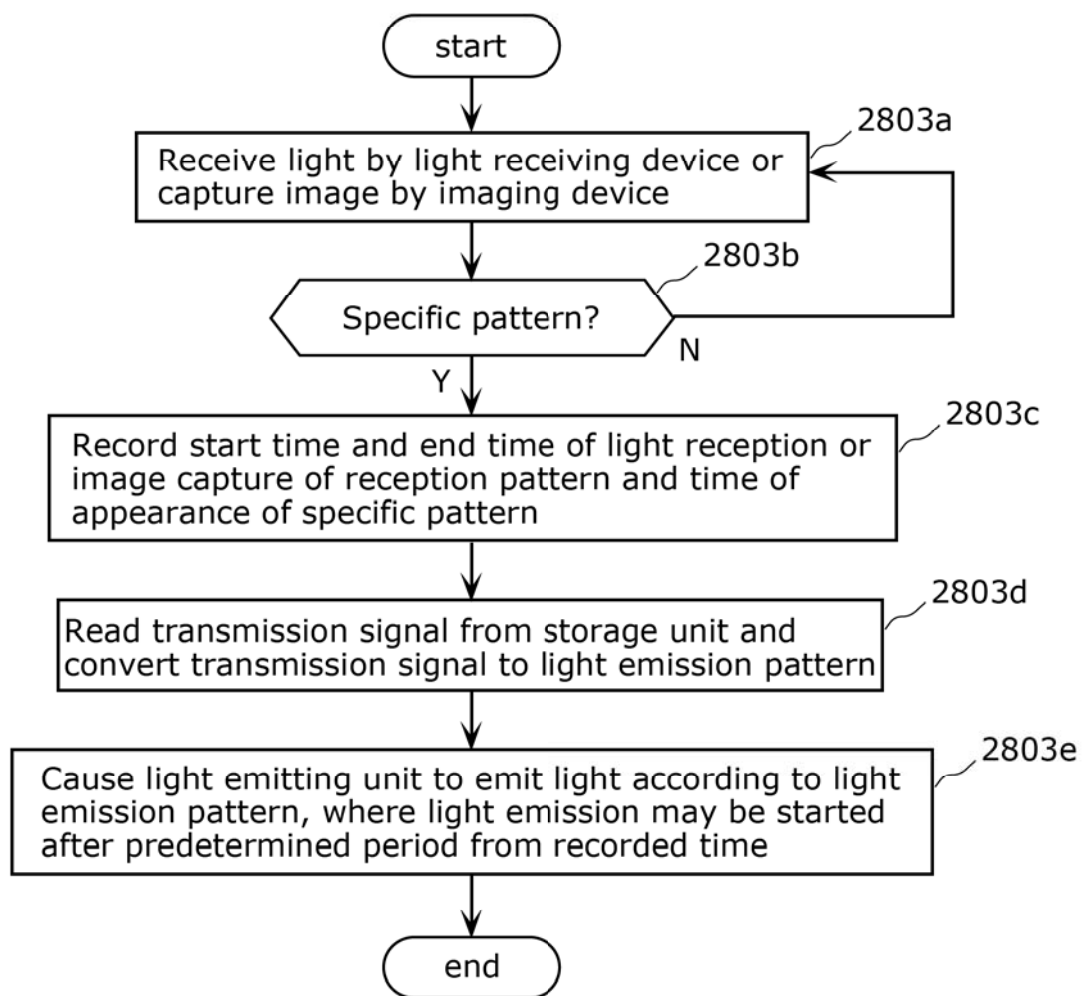


FIG. 75

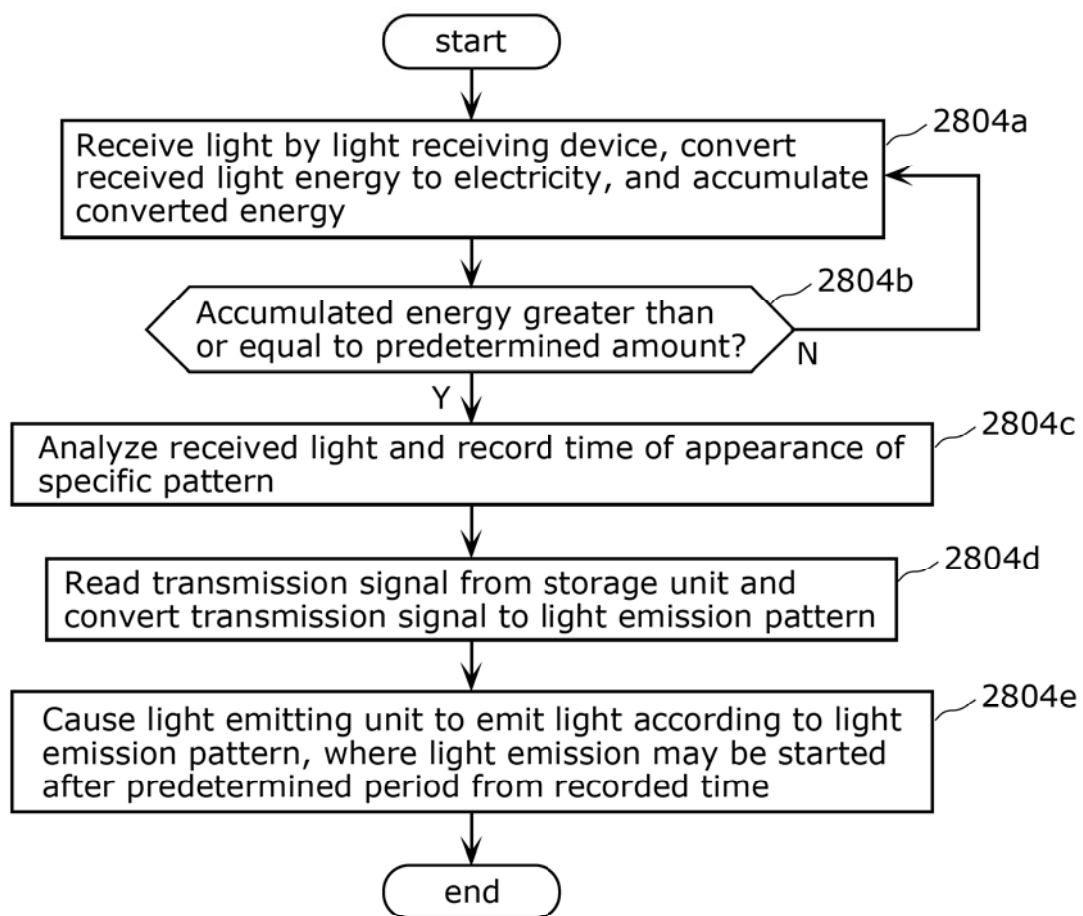


FIG. 76

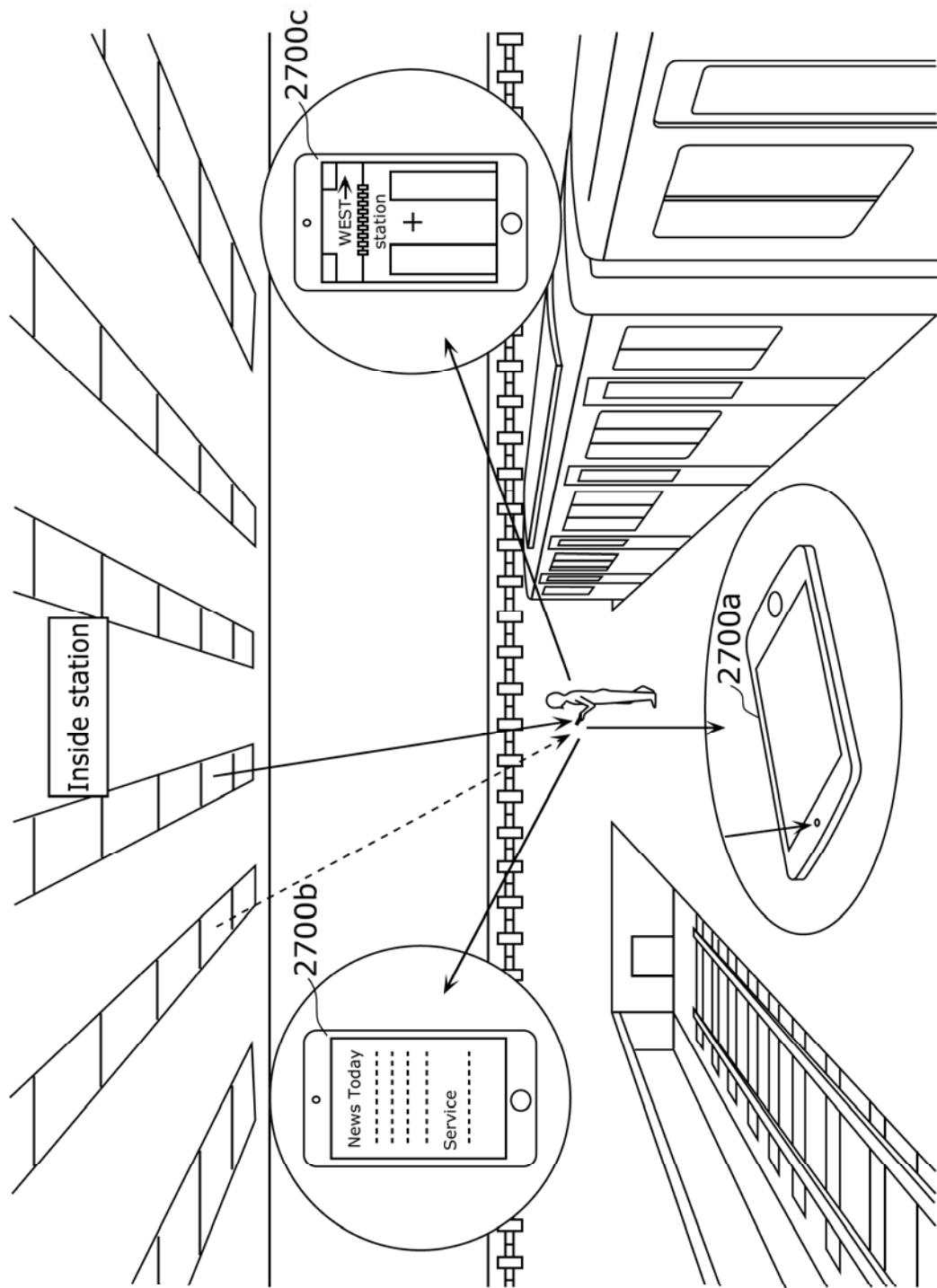


FIG. 77

Inside vehicle

2704e

$\theta_1$

2704a

Camera unit

2704c

2704b

2704d

No. 14

16B

FIG. 78

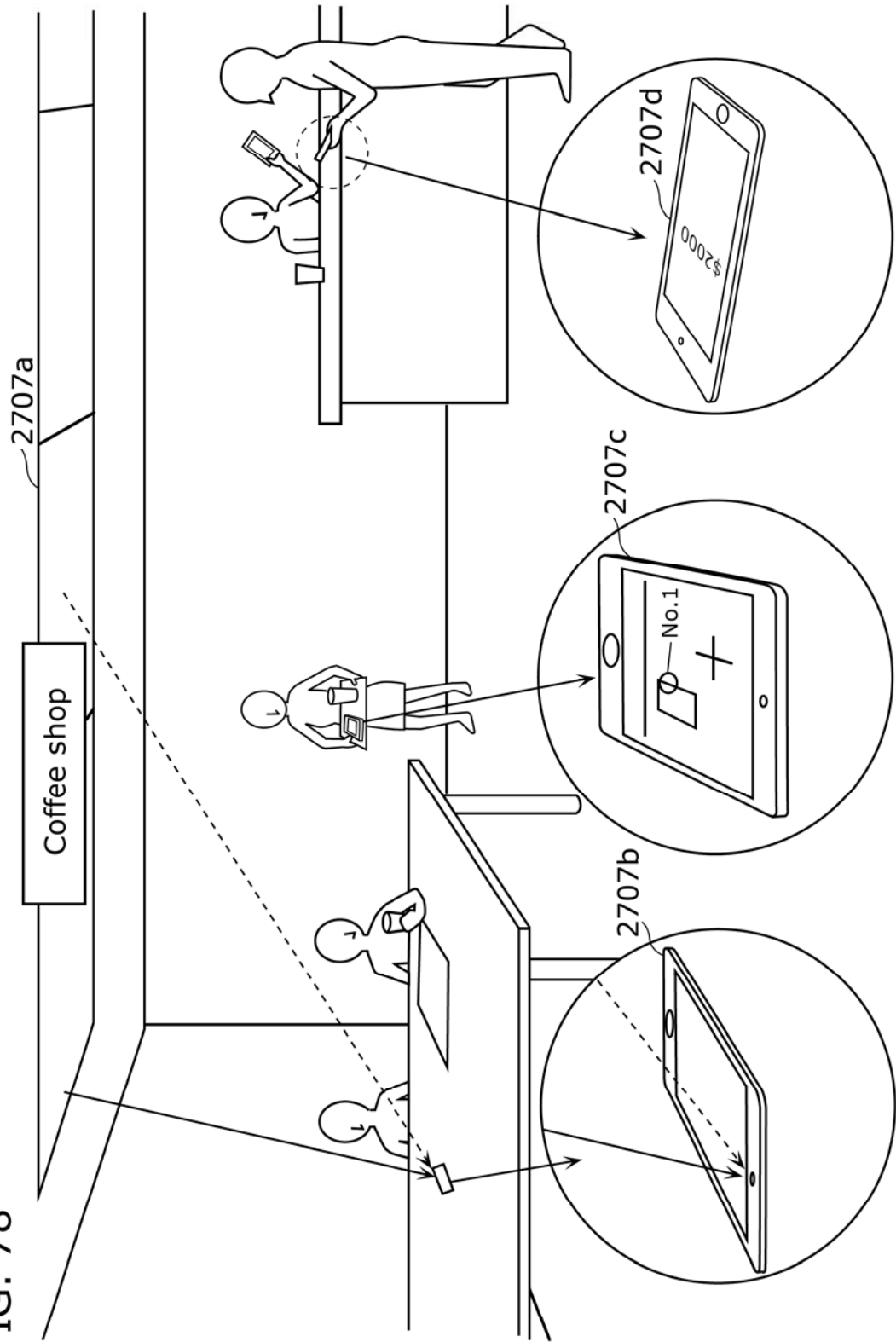


FIG. 79

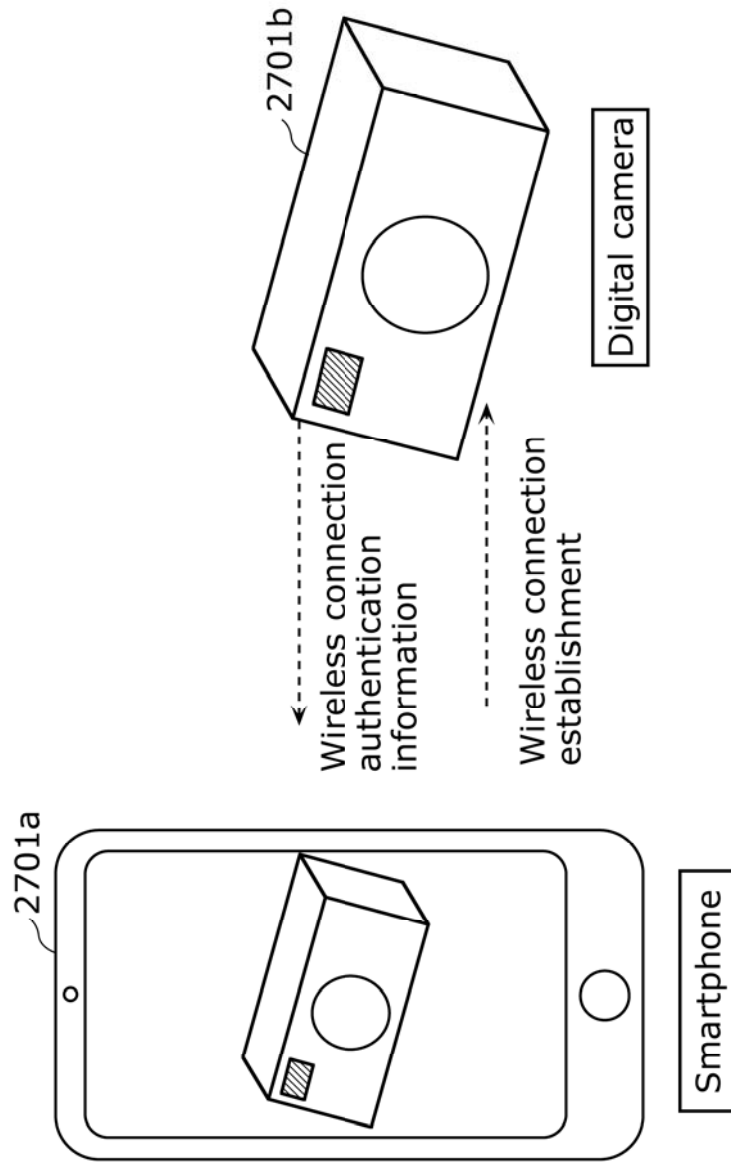


FIG. 80

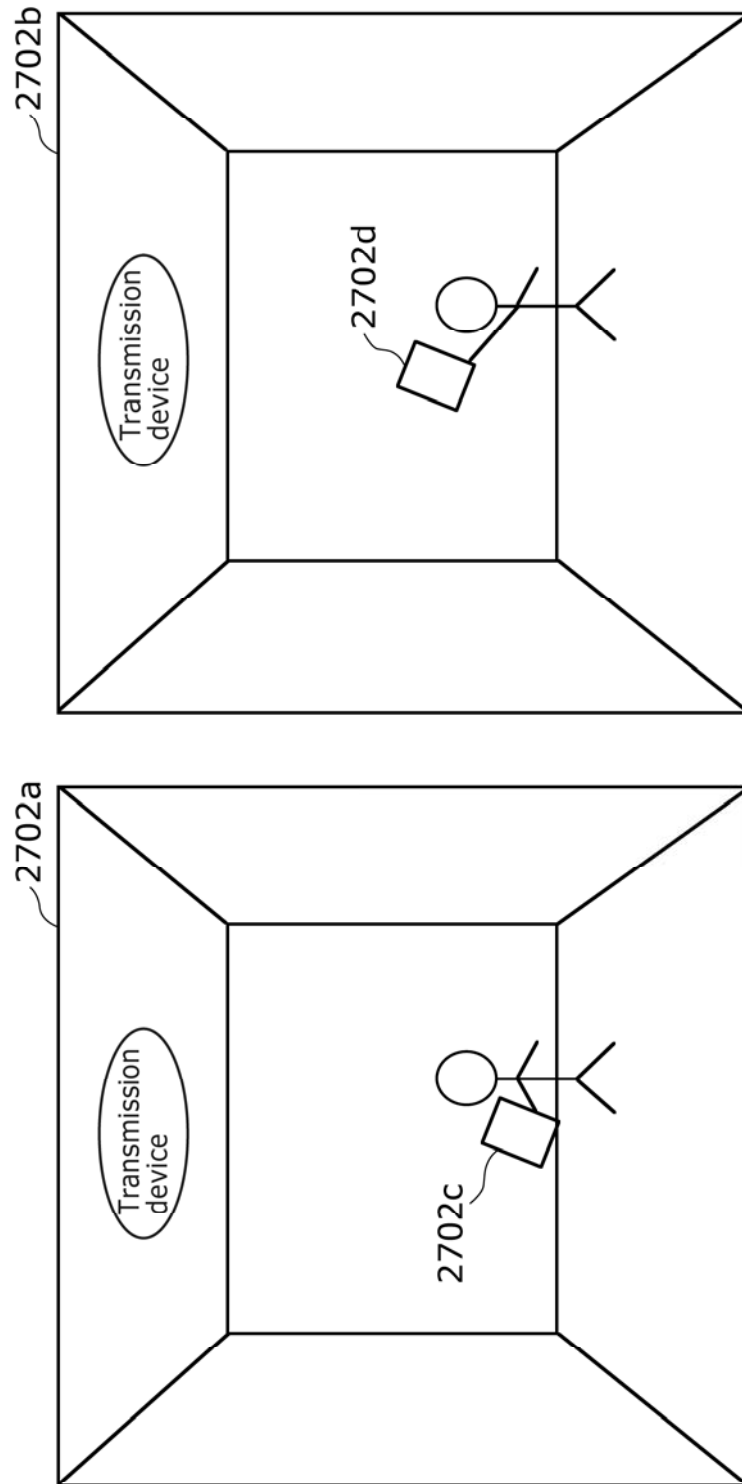
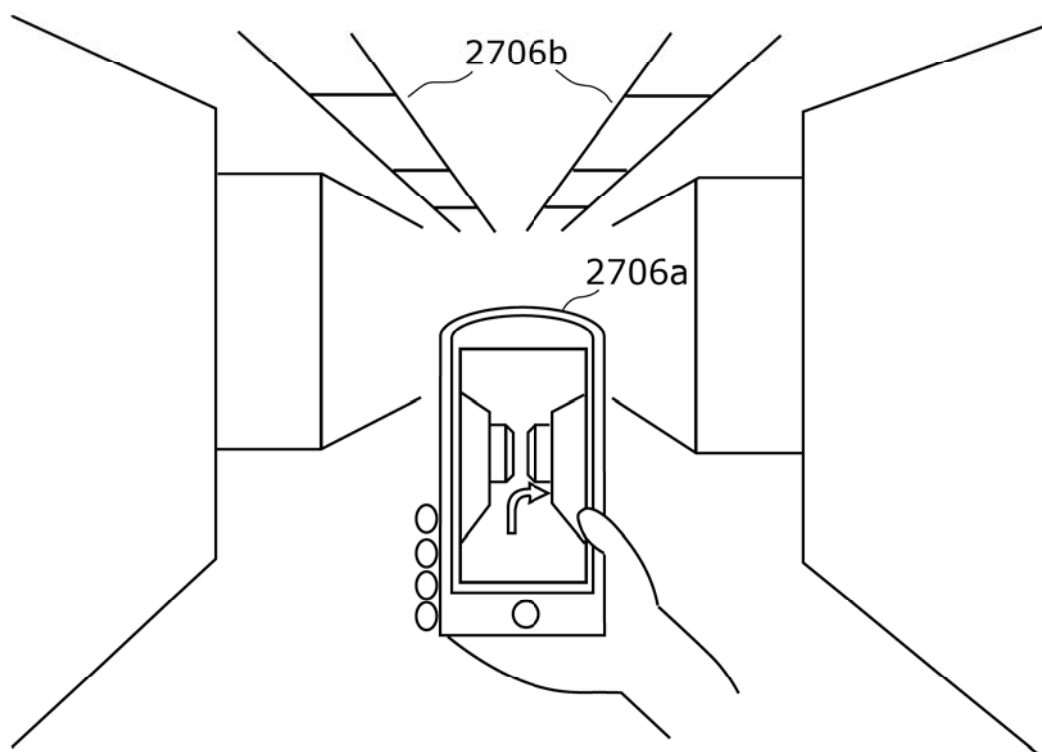




FIG. 81



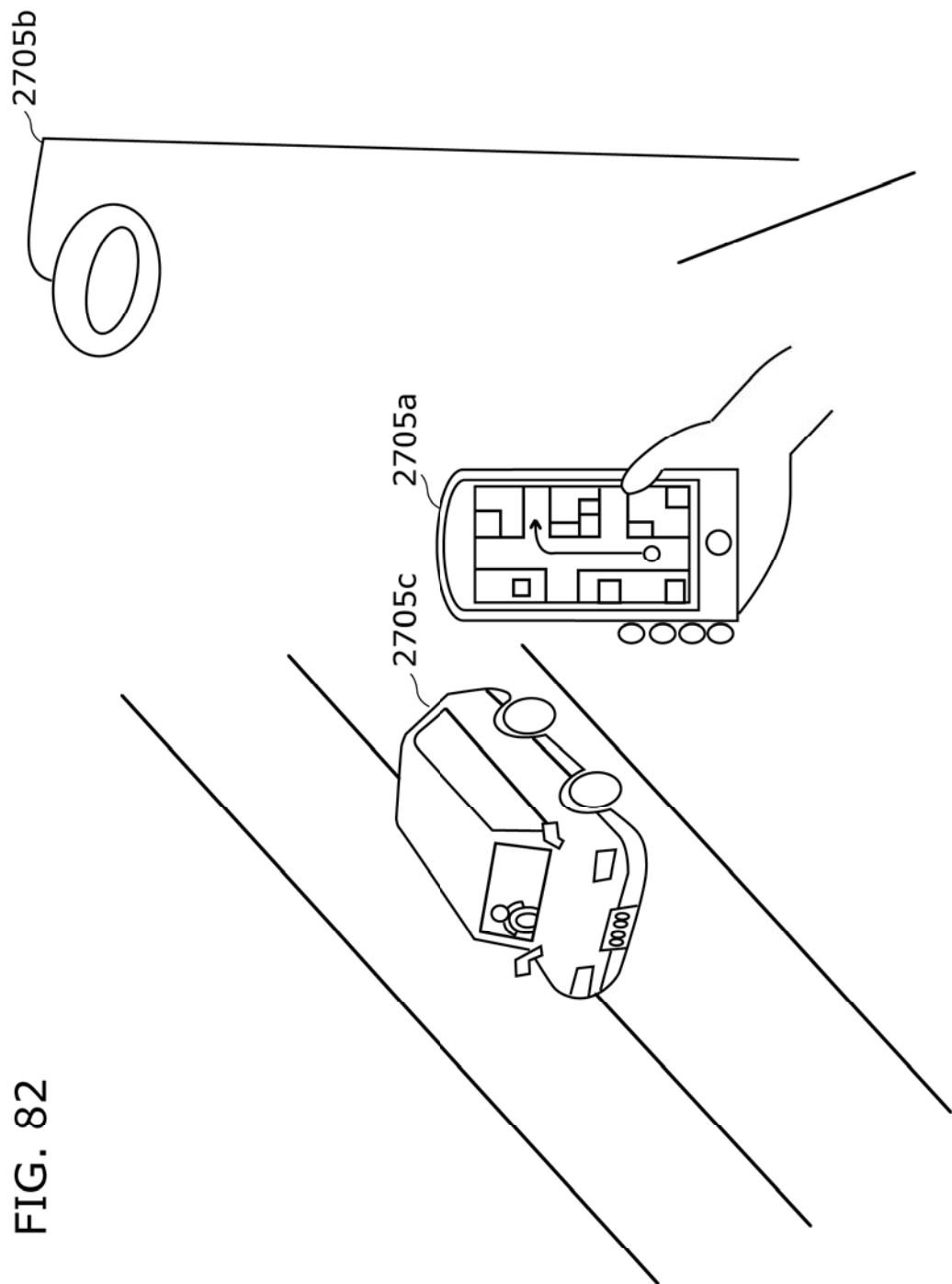


FIG. 83

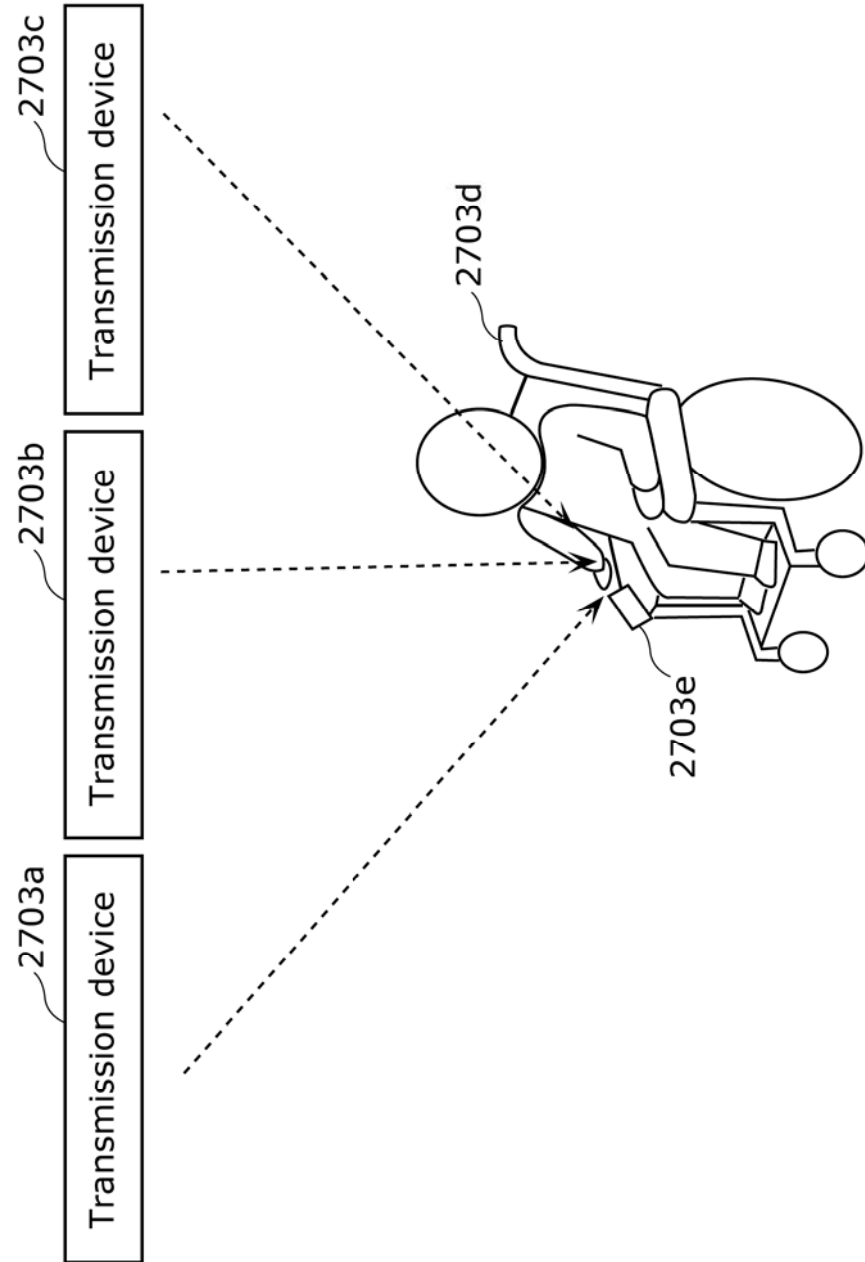


FIG. 84

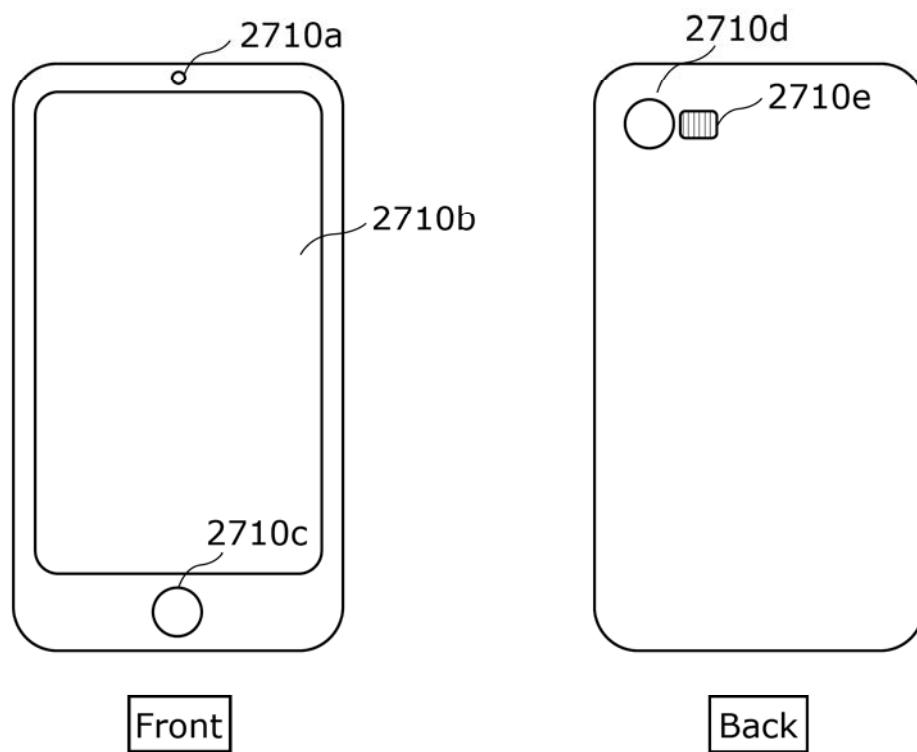


FIG. 85

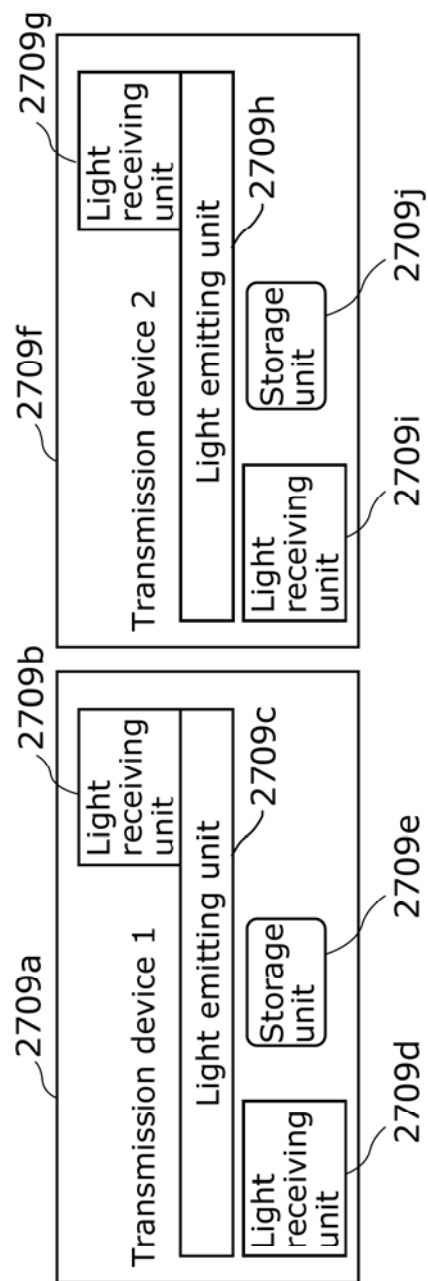


FIG. 86

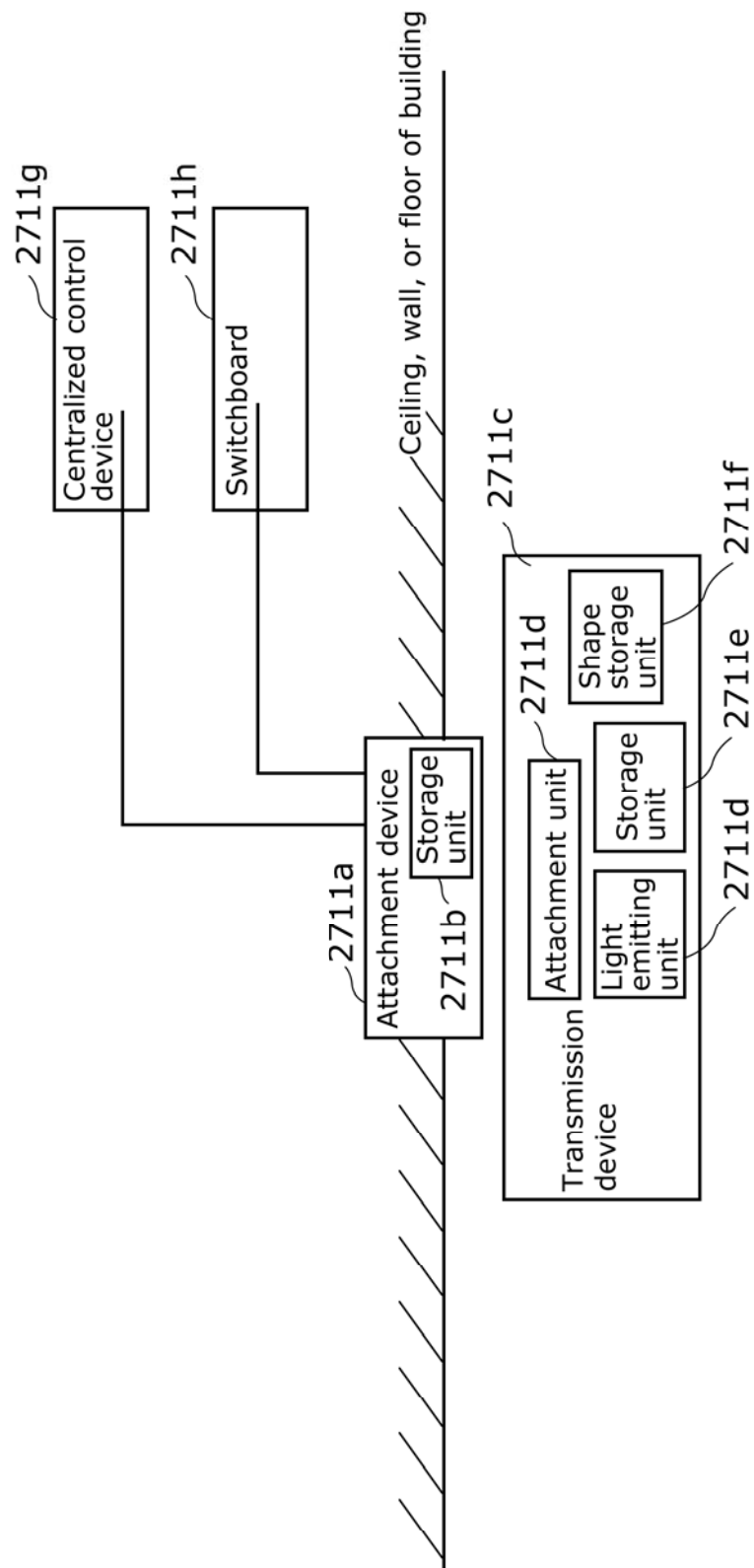


FIG. 87

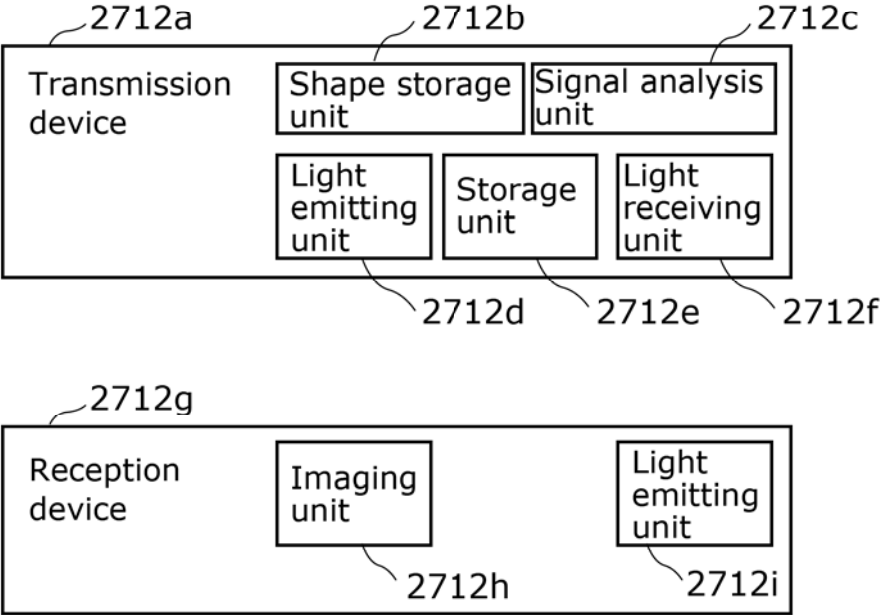


FIG. 88

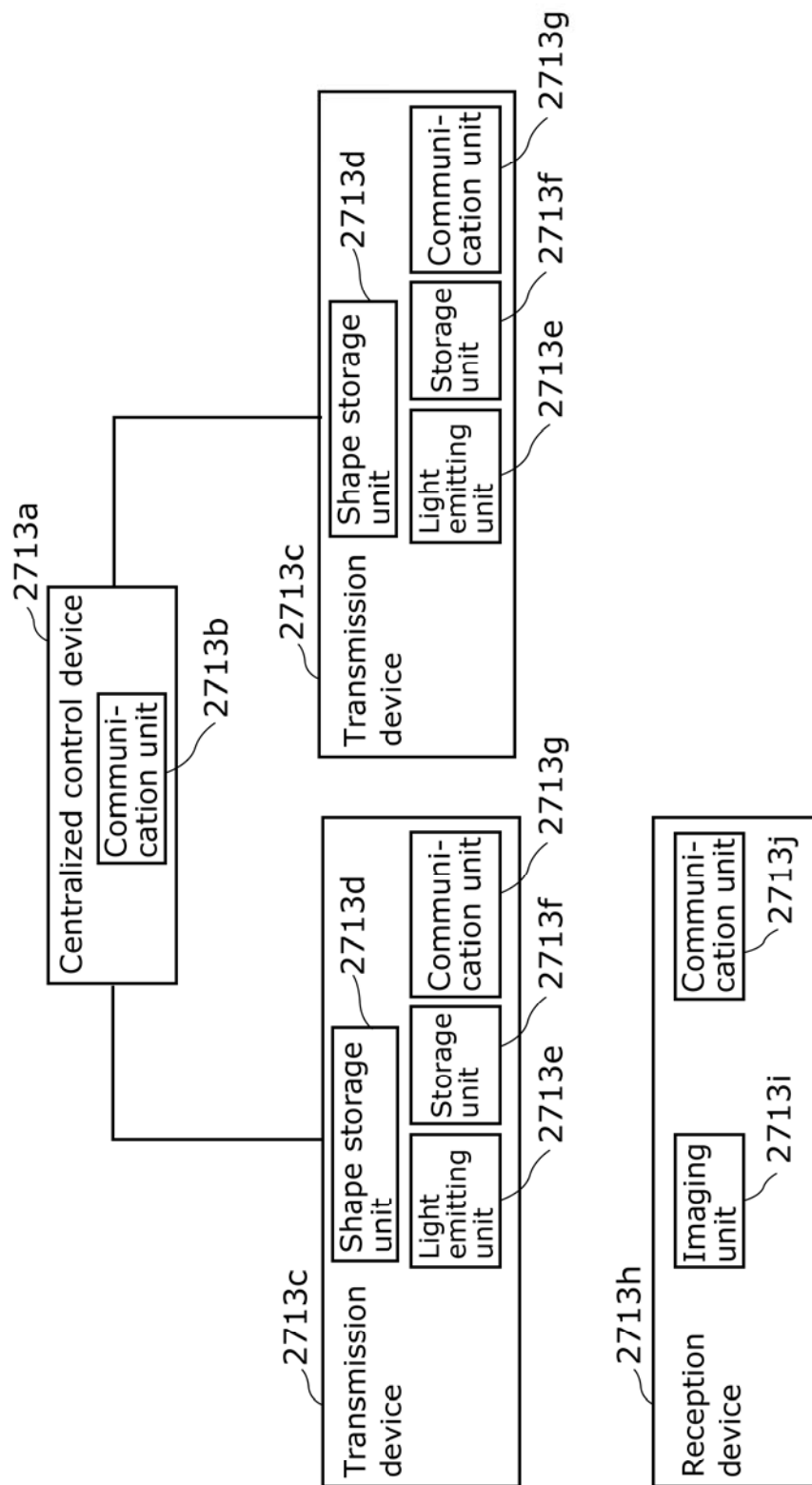




FIG. 89

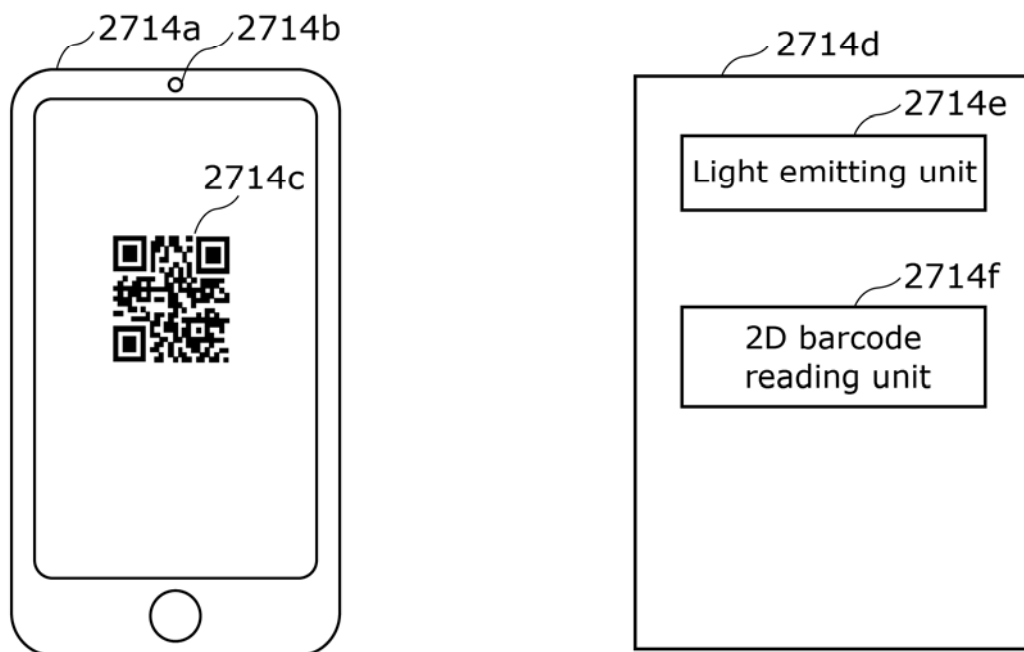


FIG. 90

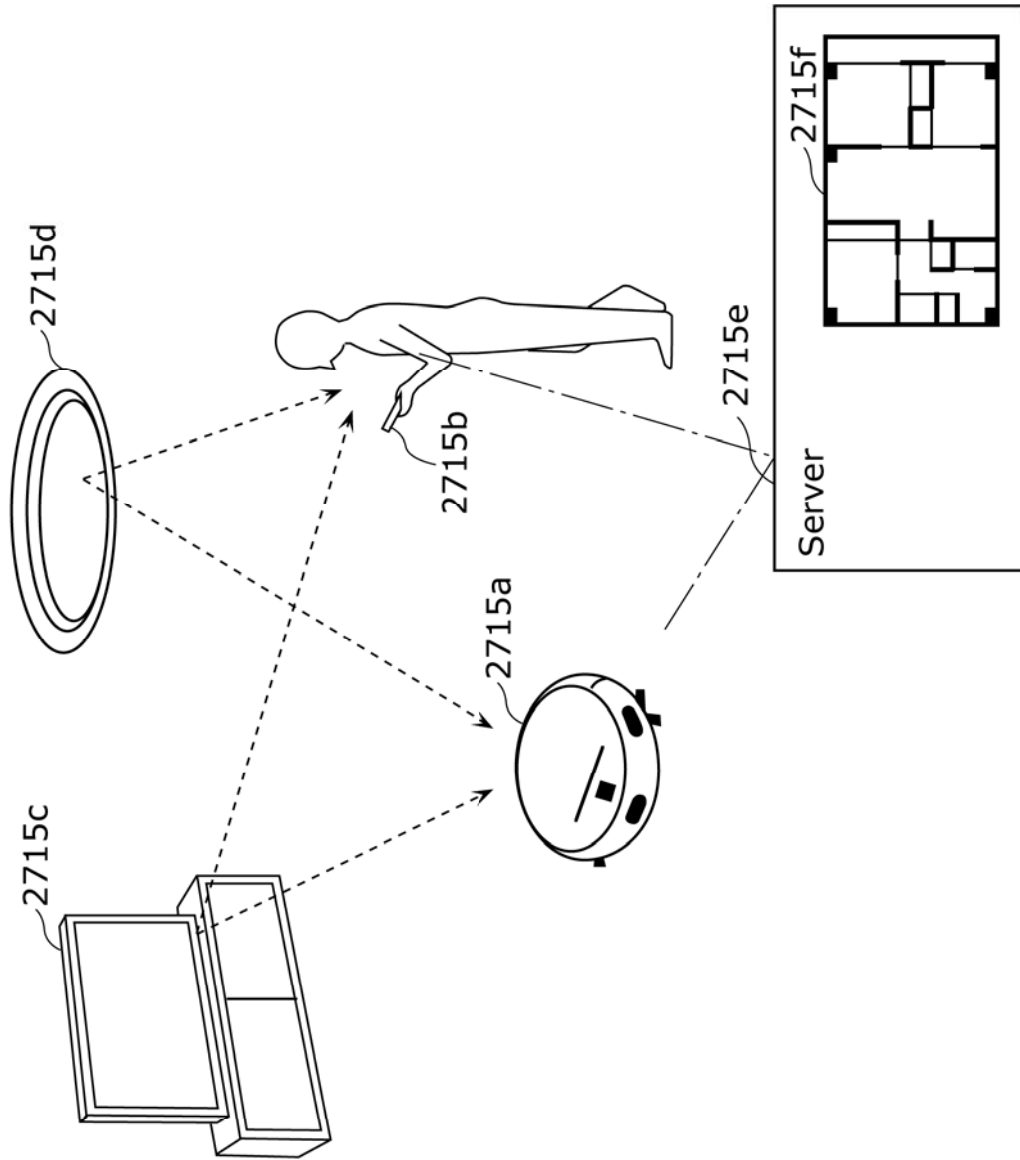


FIG. 91

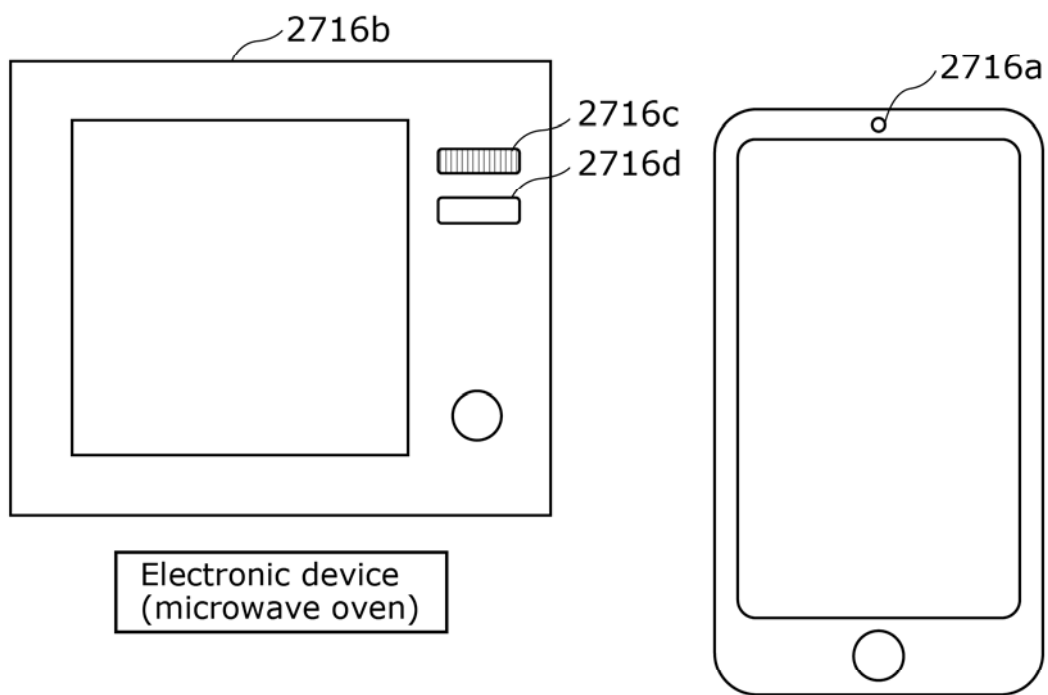


FIG. 92

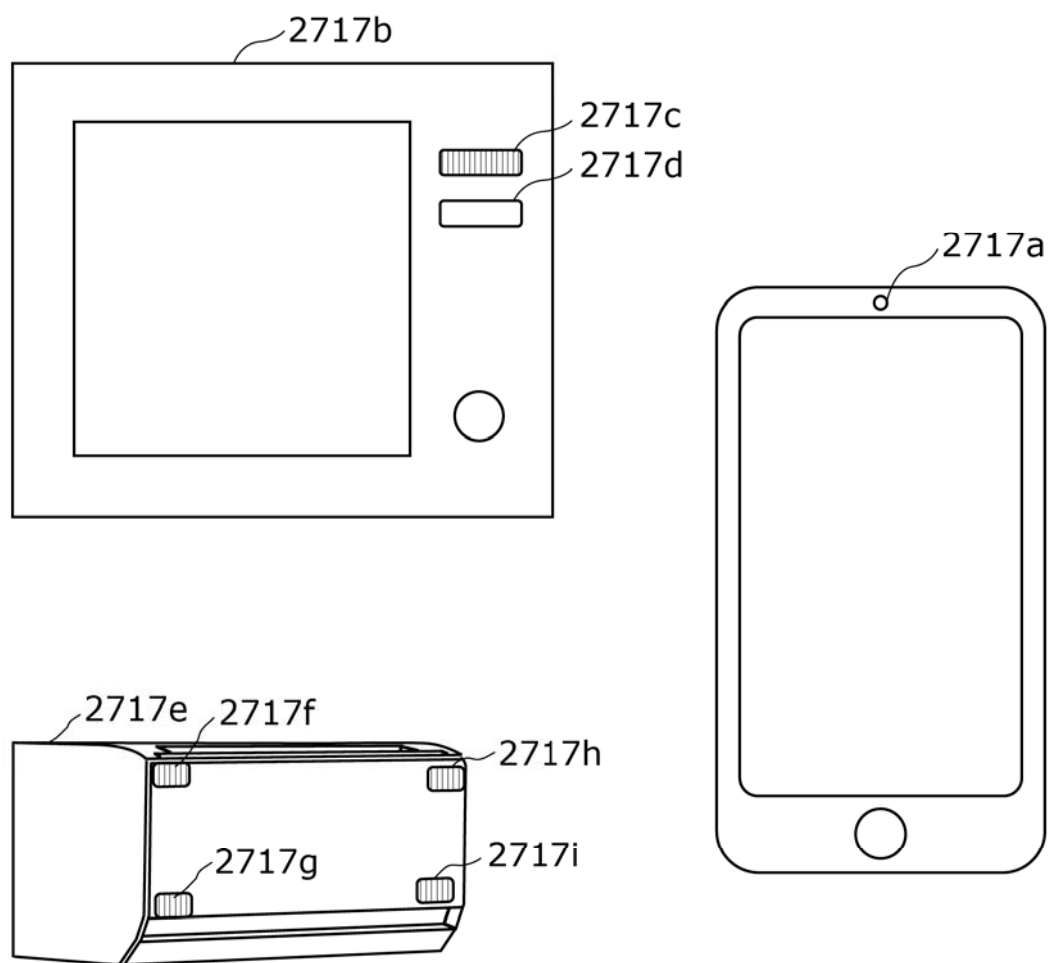


FIG. 93

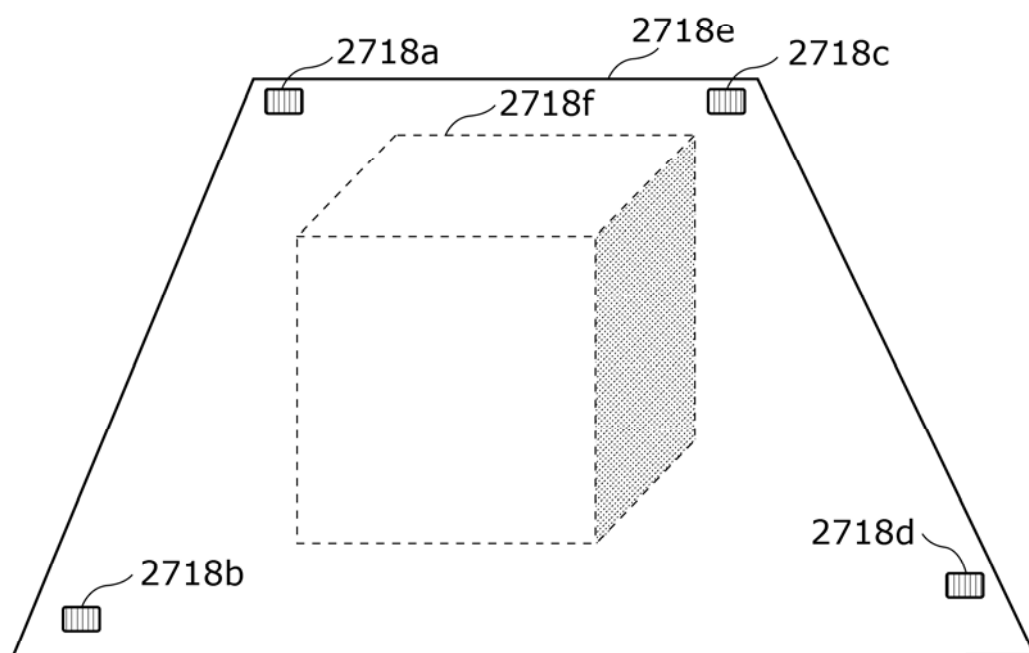


FIG. 94

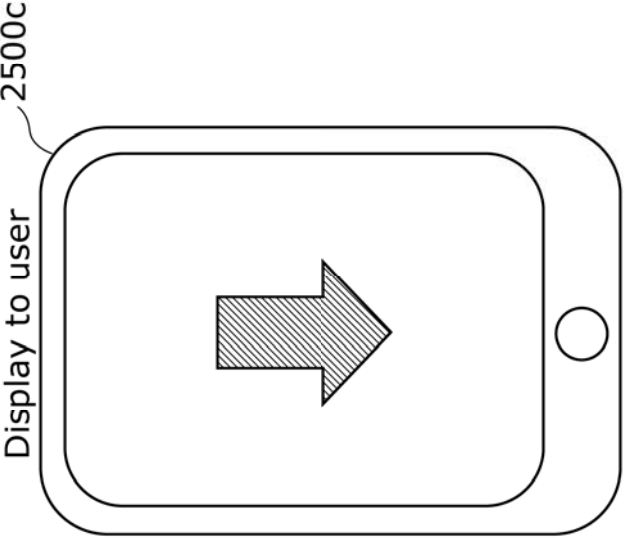
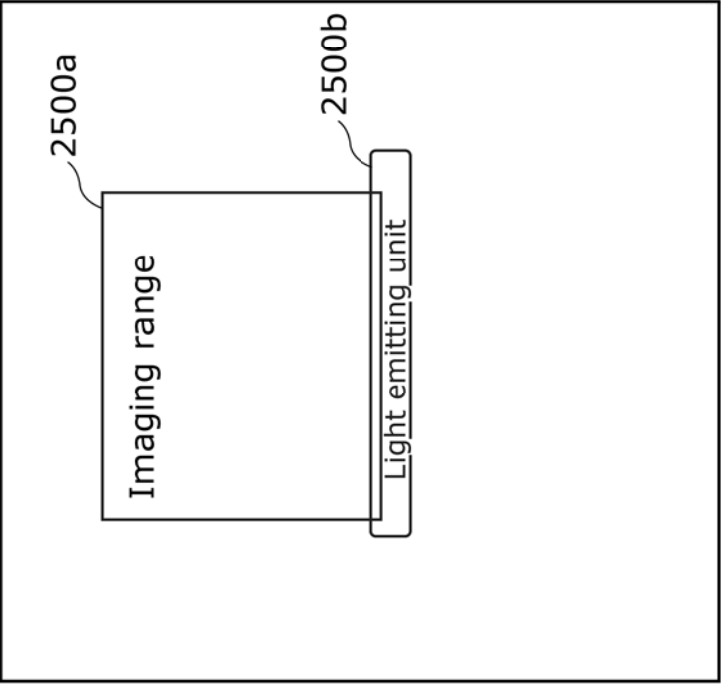


FIG. 95

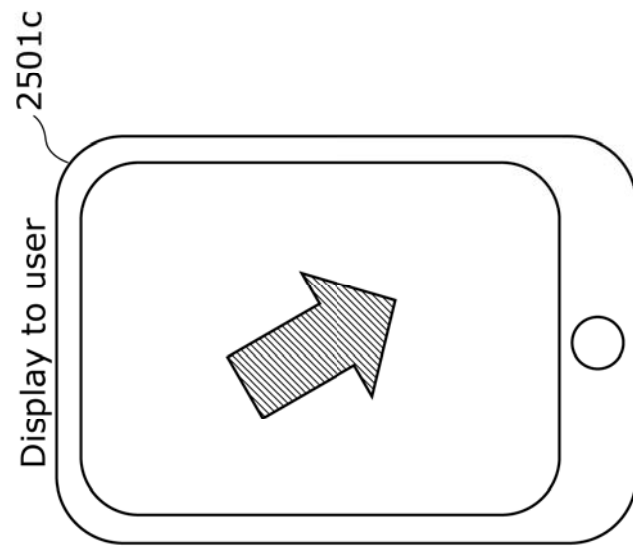
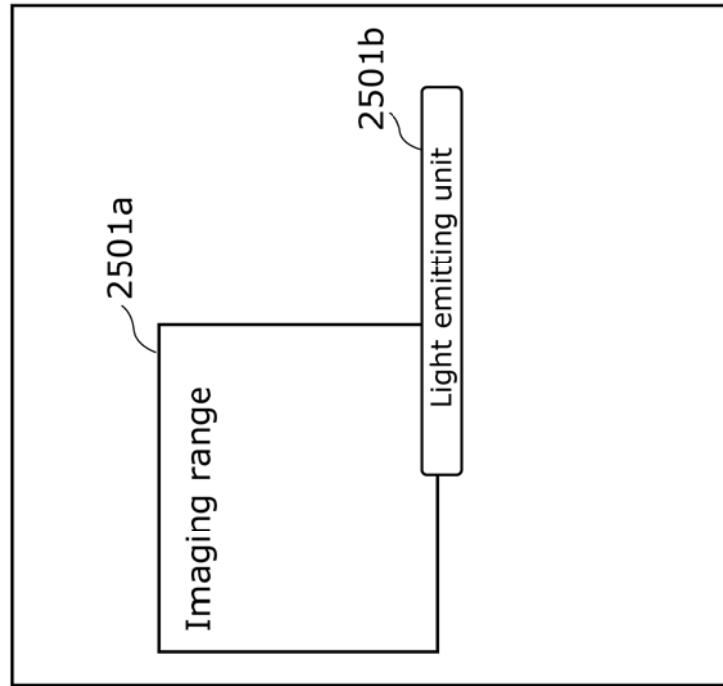


FIG. 96

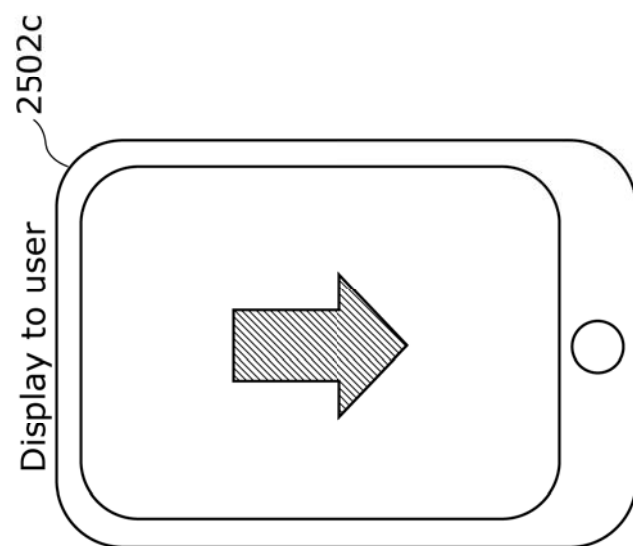
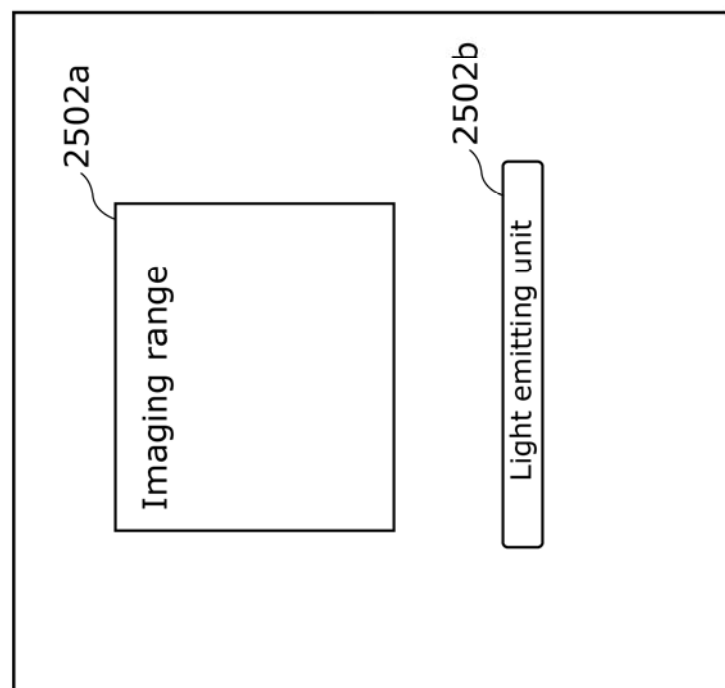




FIG. 97

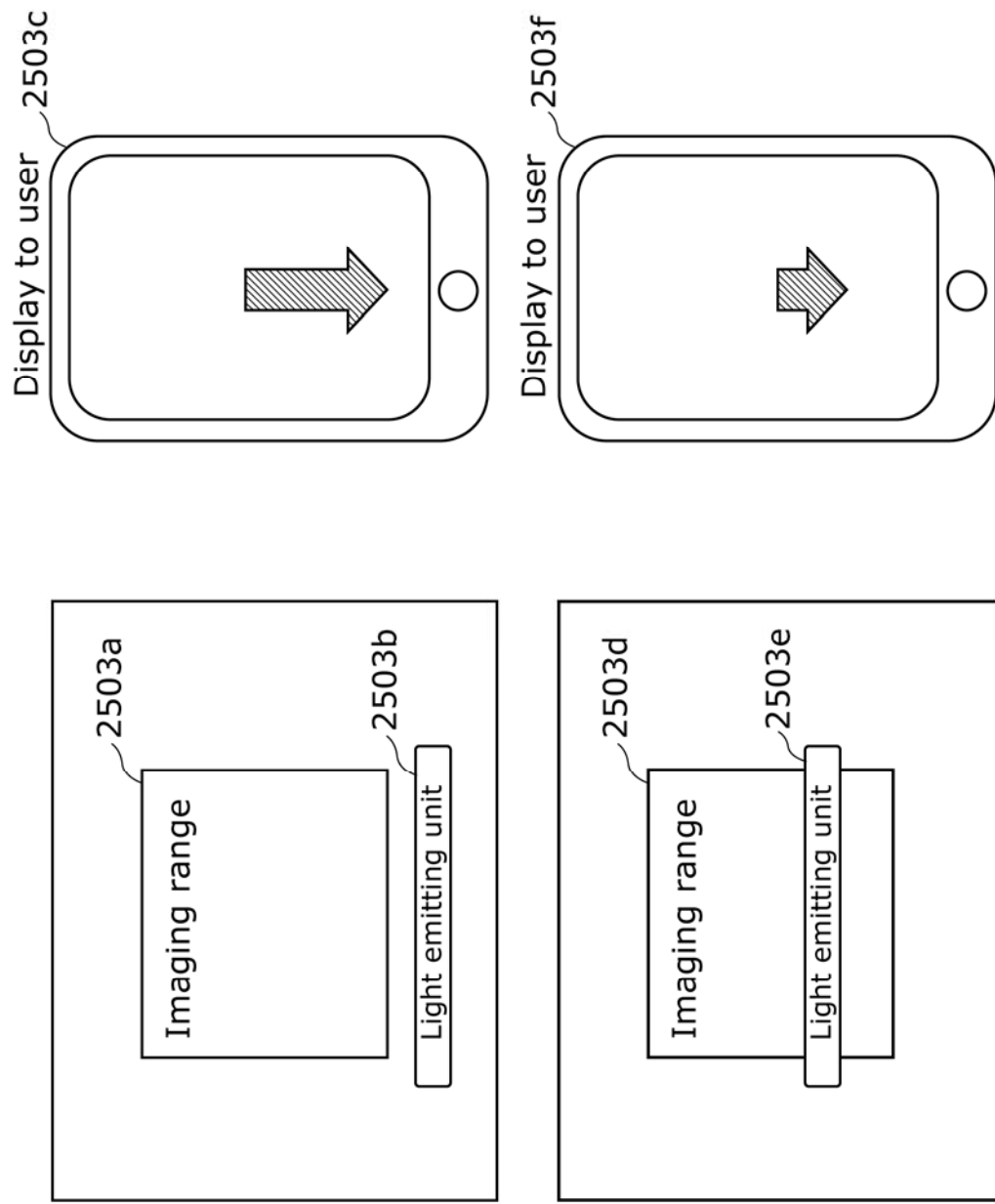


FIG. 98

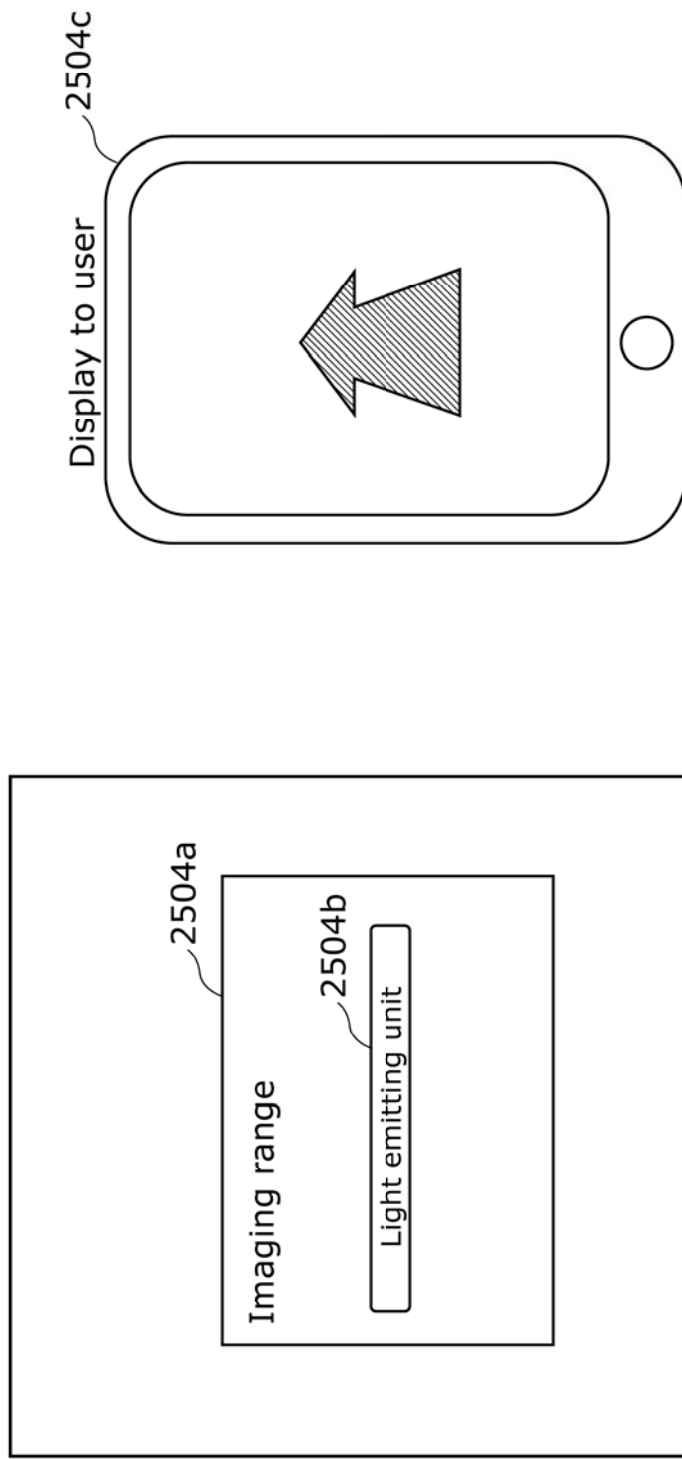


FIG. 99

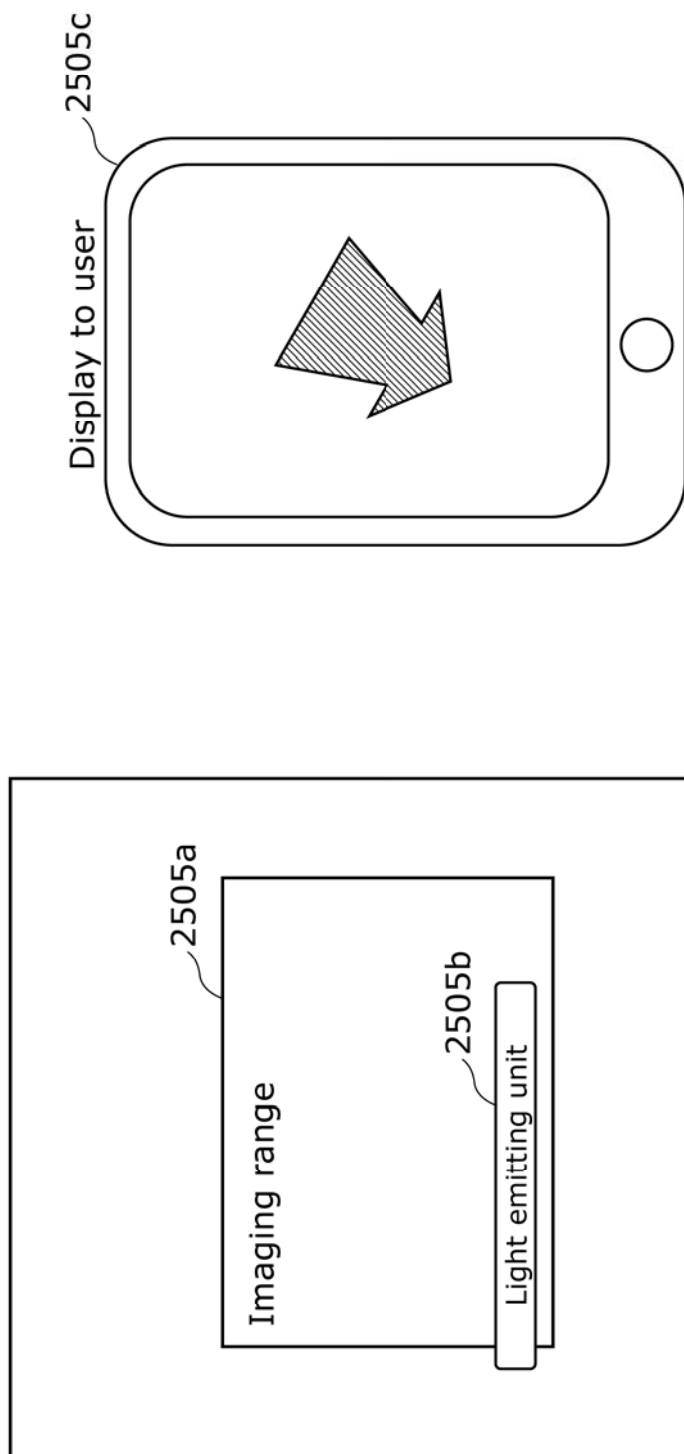


FIG. 100

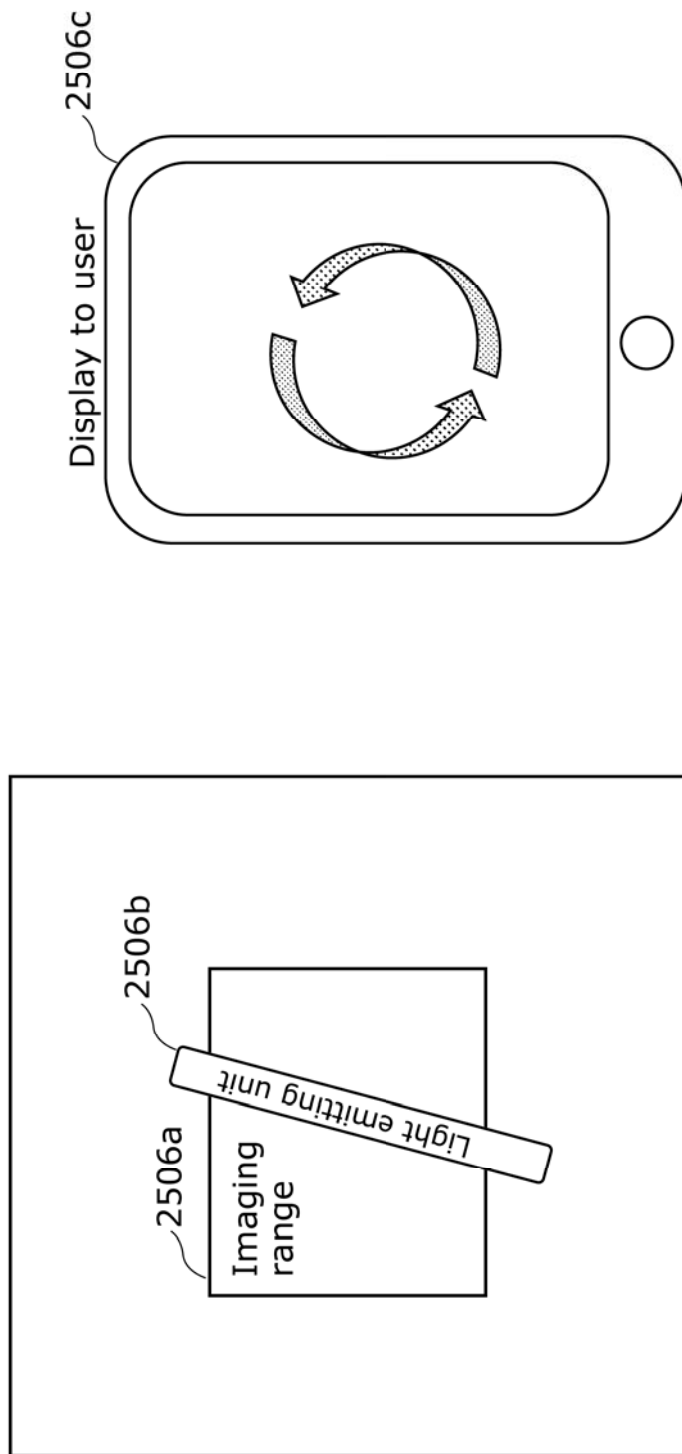


FIG. 101

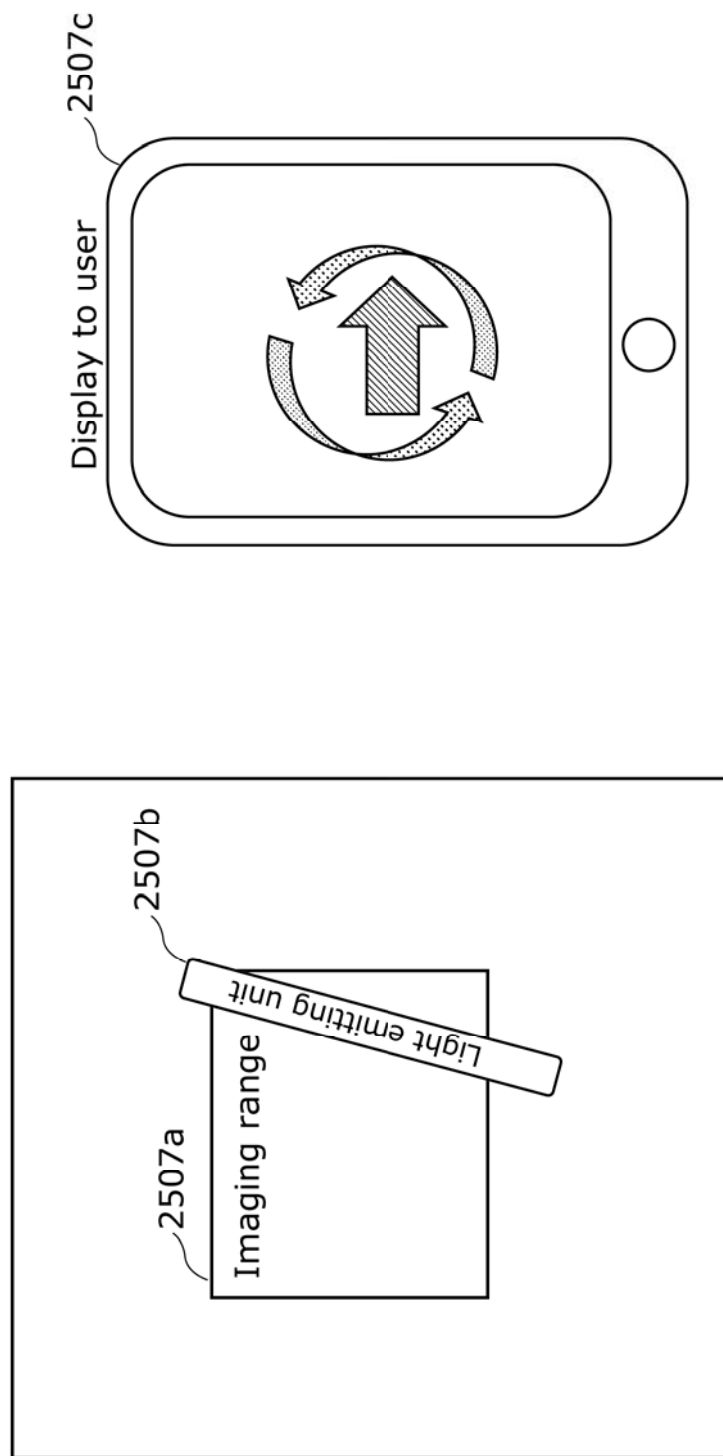


FIG. 102

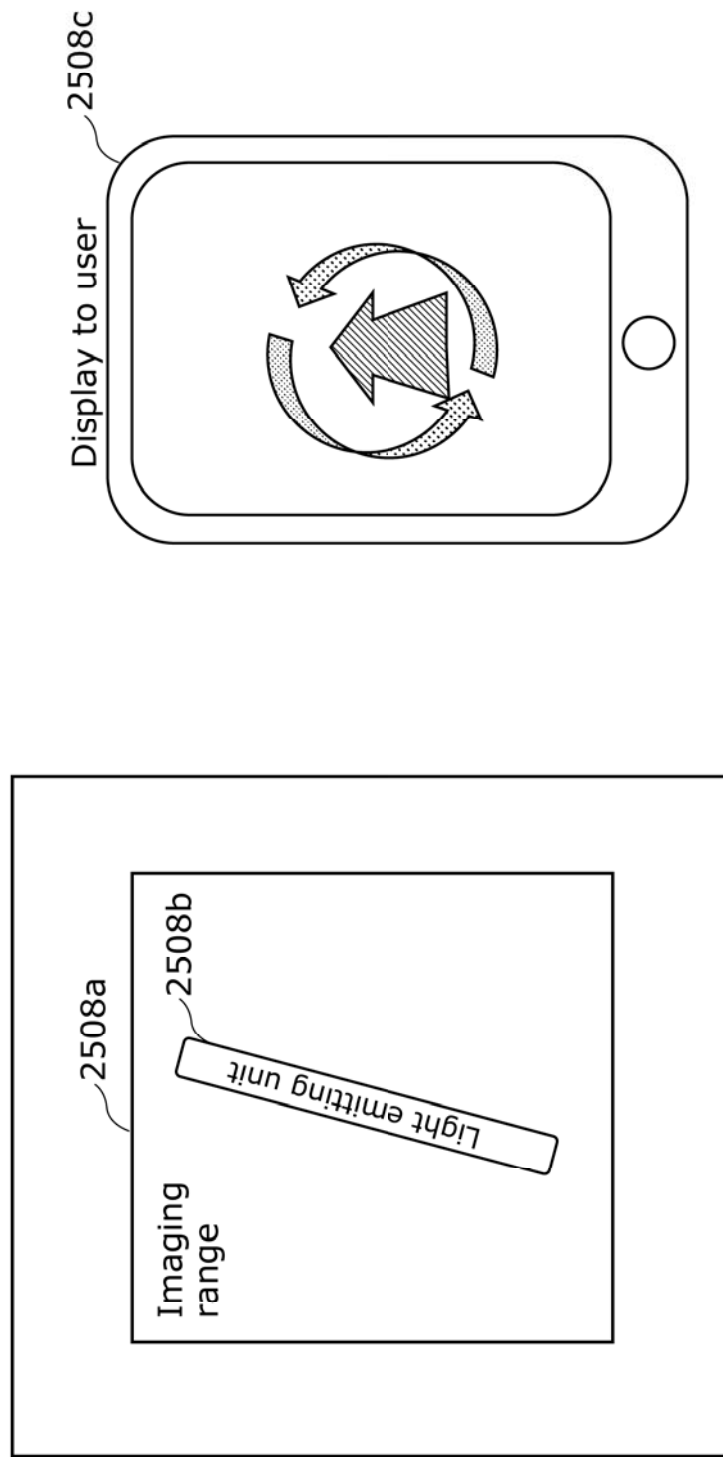


FIG. 103

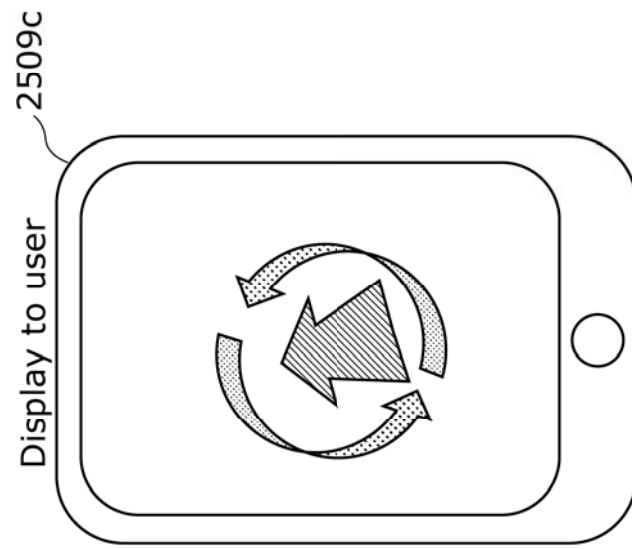
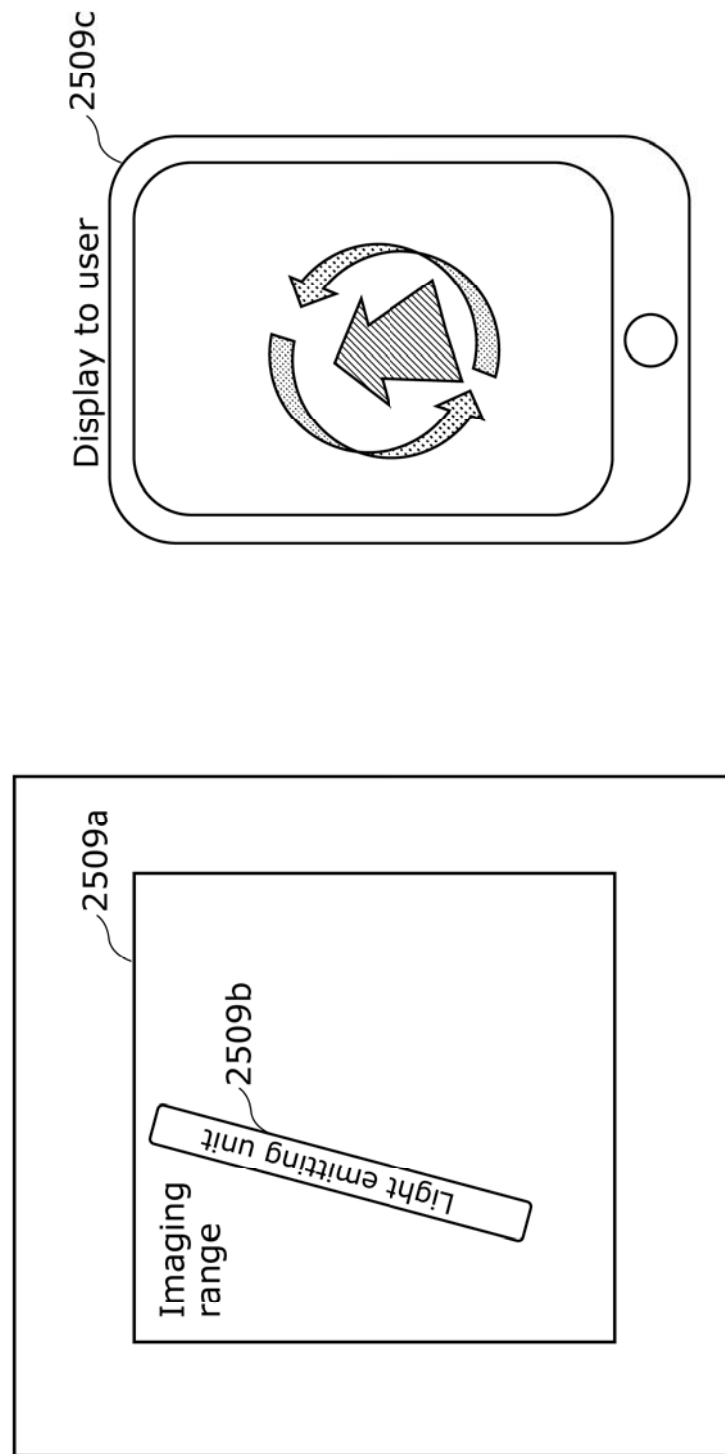


FIG. 104

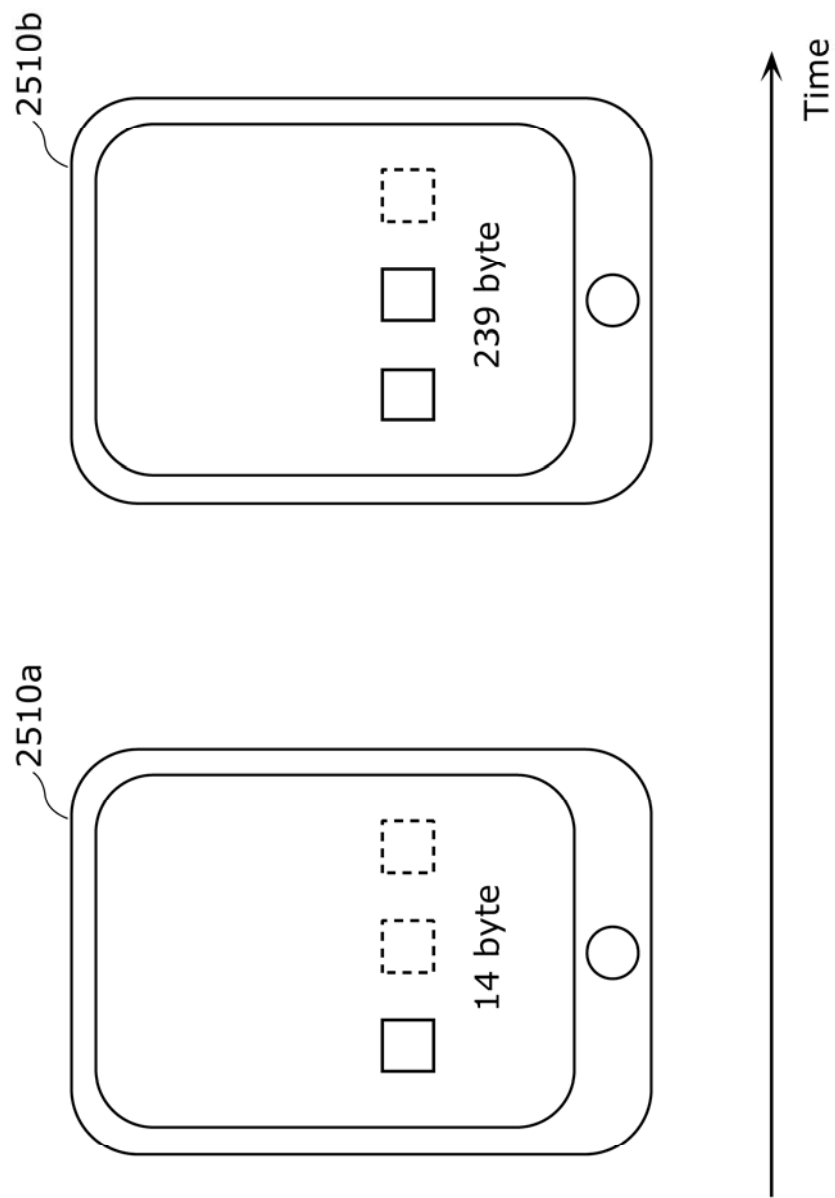




FIG. 105

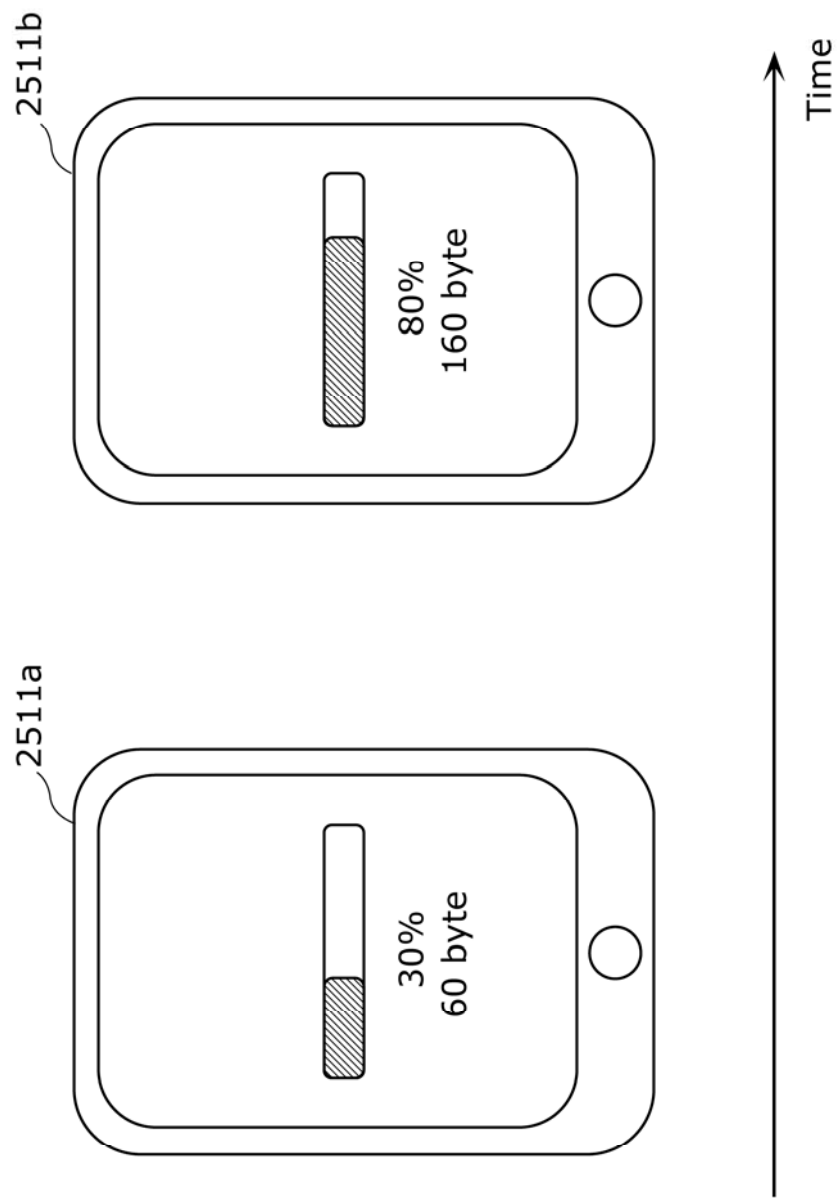


FIG. 106

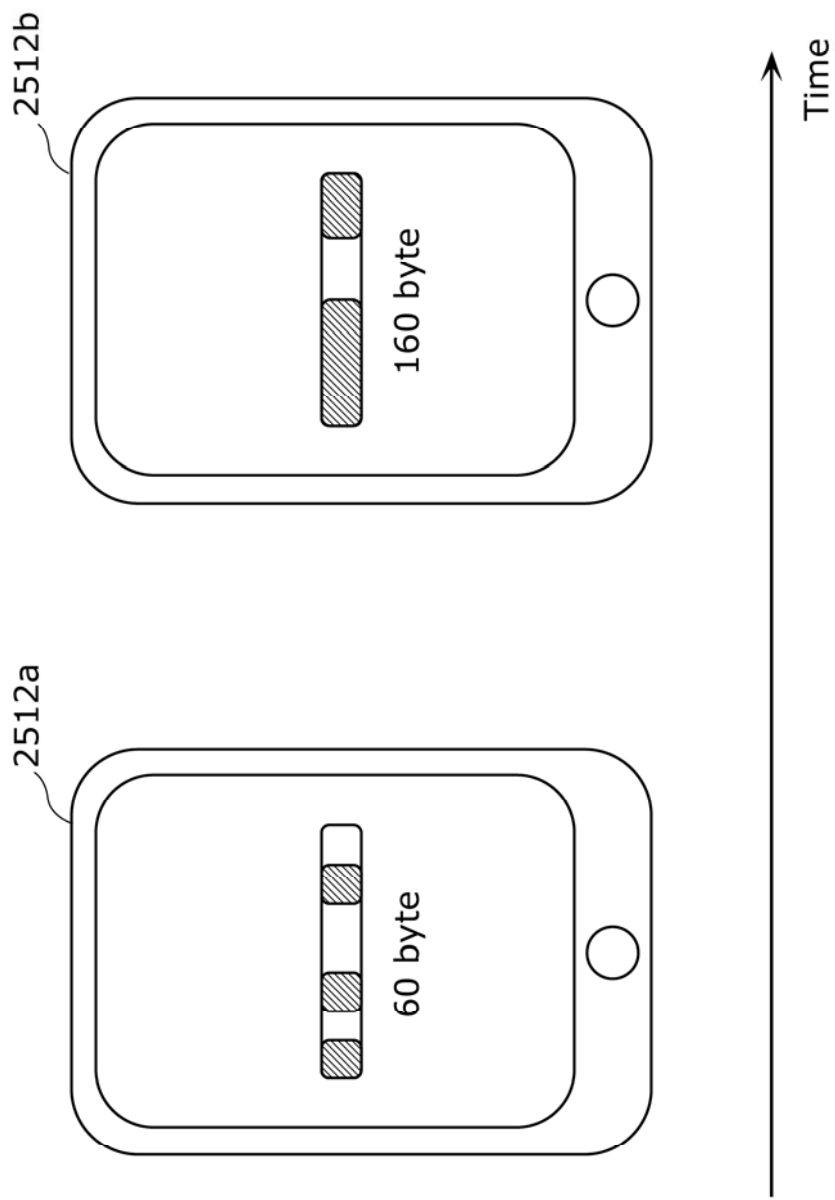


FIG. 107

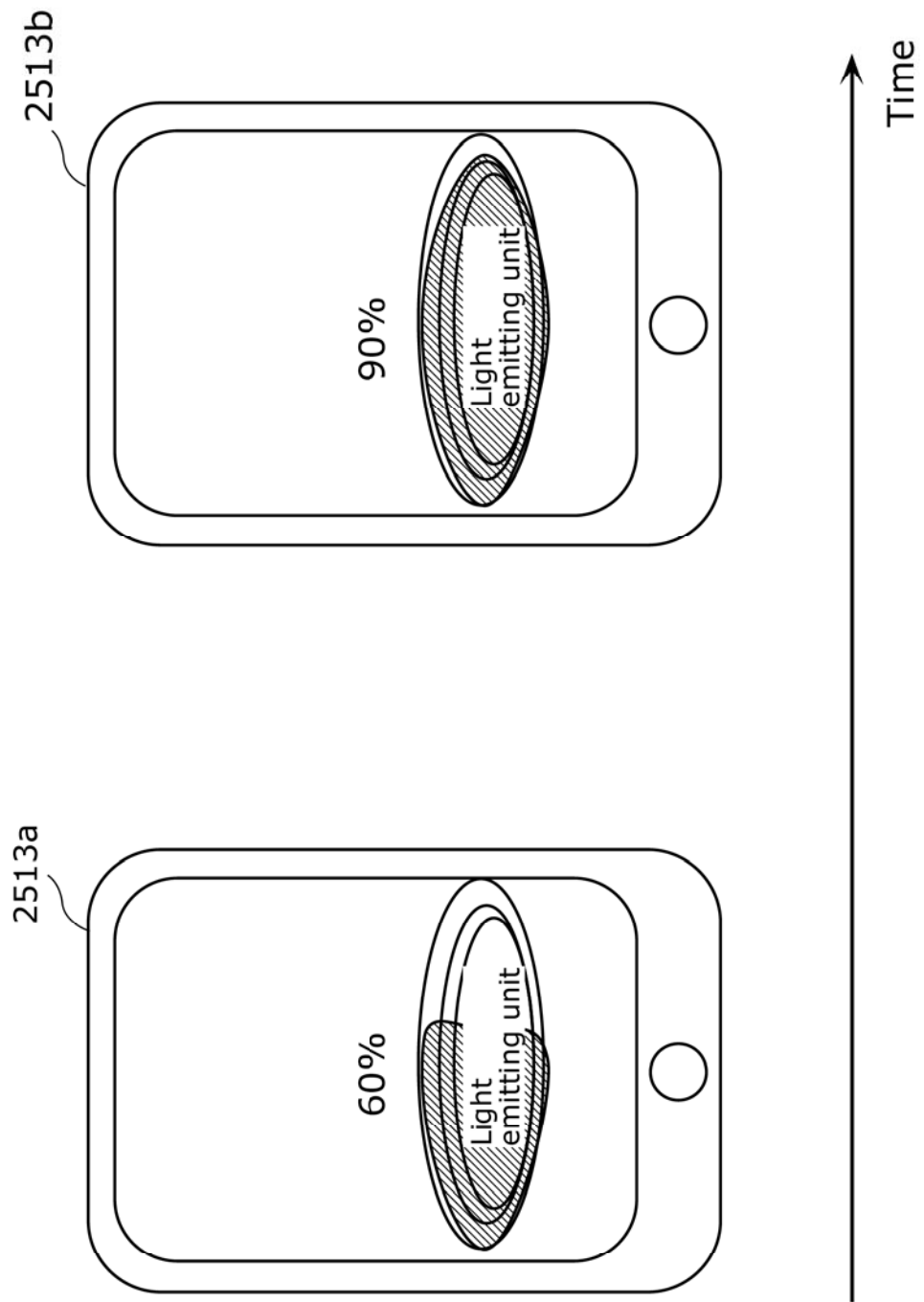


FIG. 108

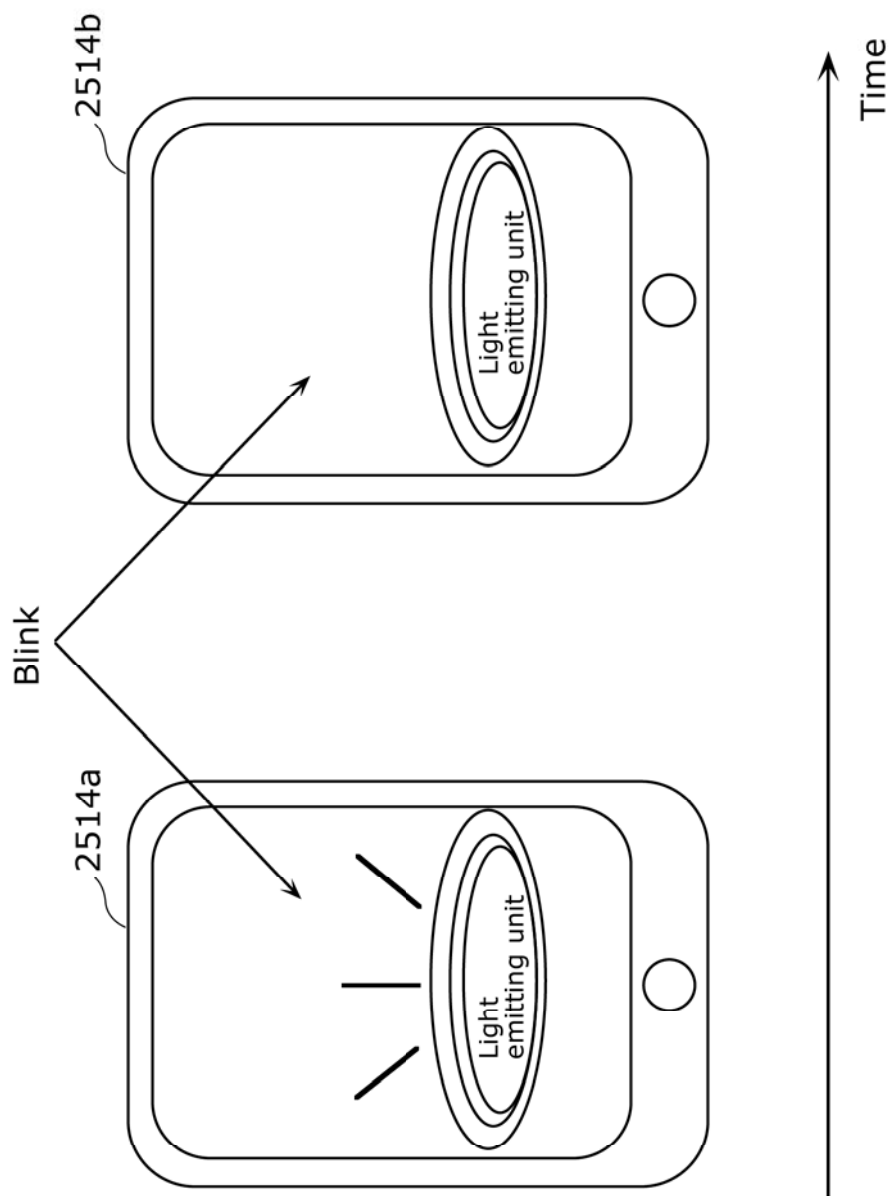


FIG. 109

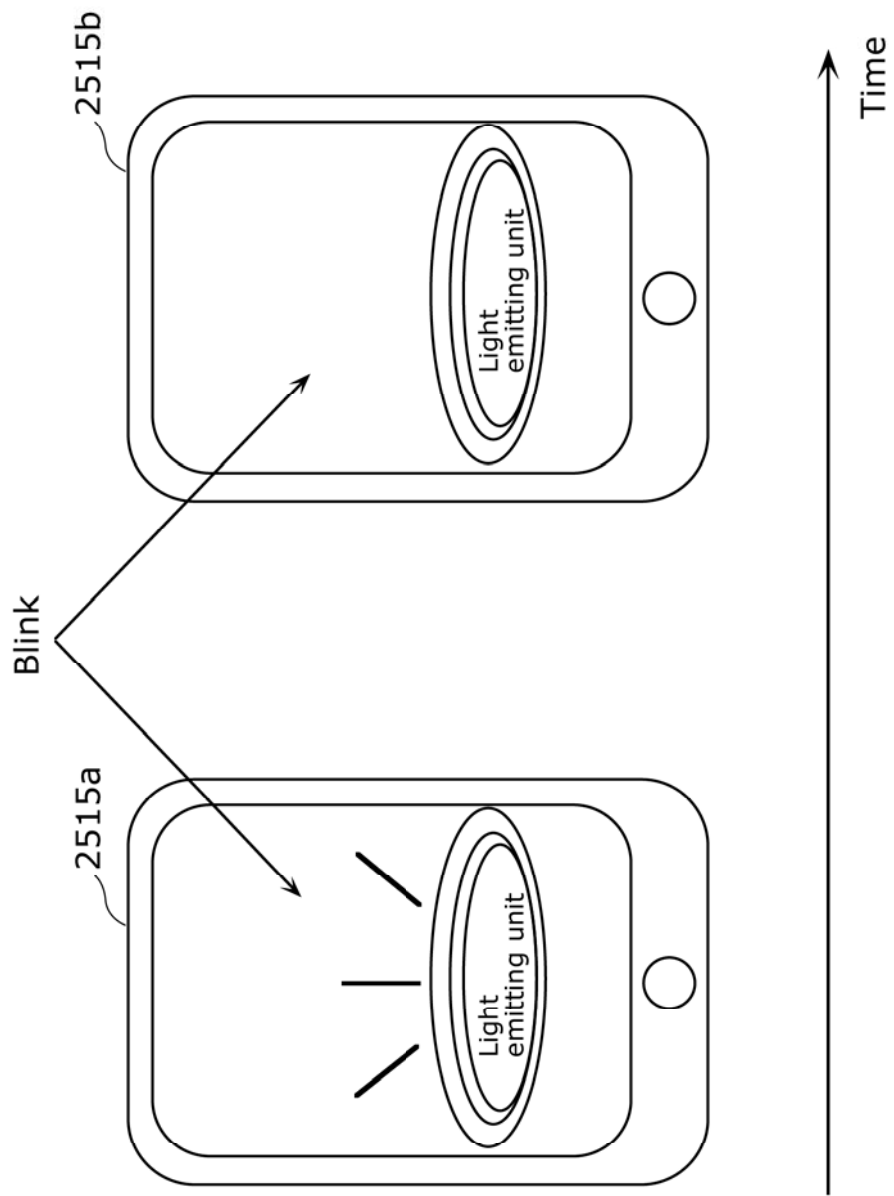


FIG. 110

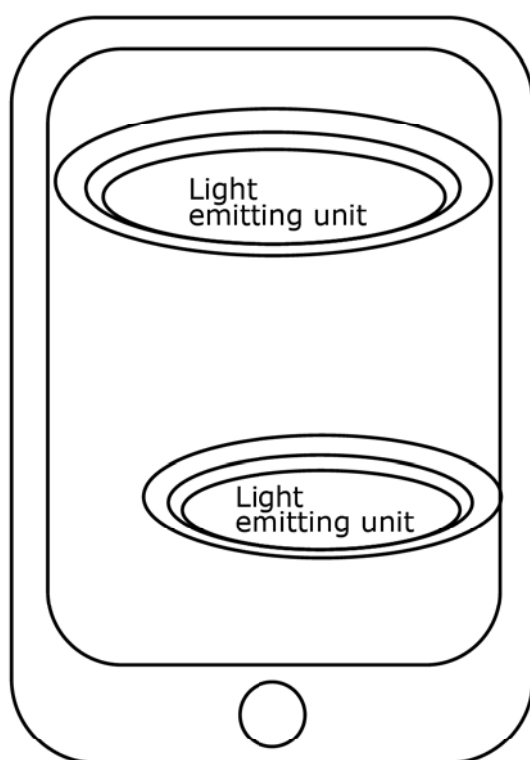


FIG. 111

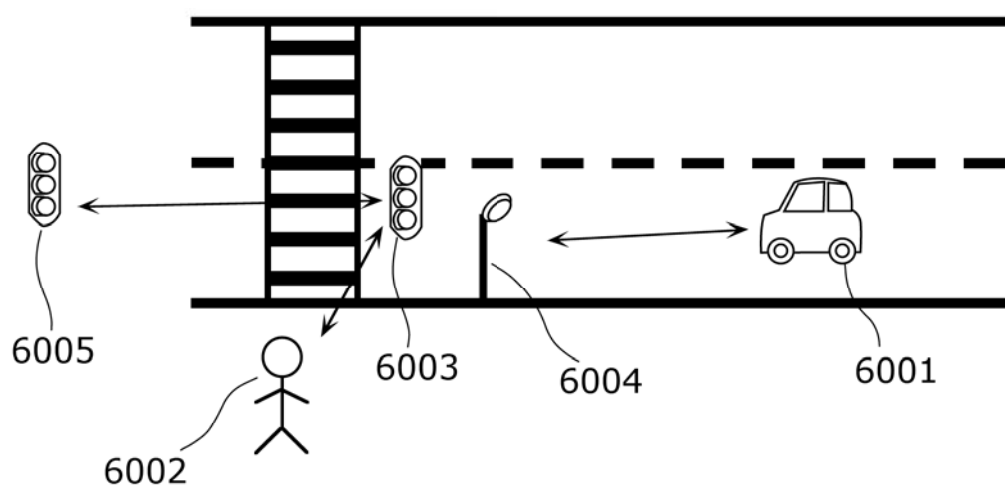


FIG. 112

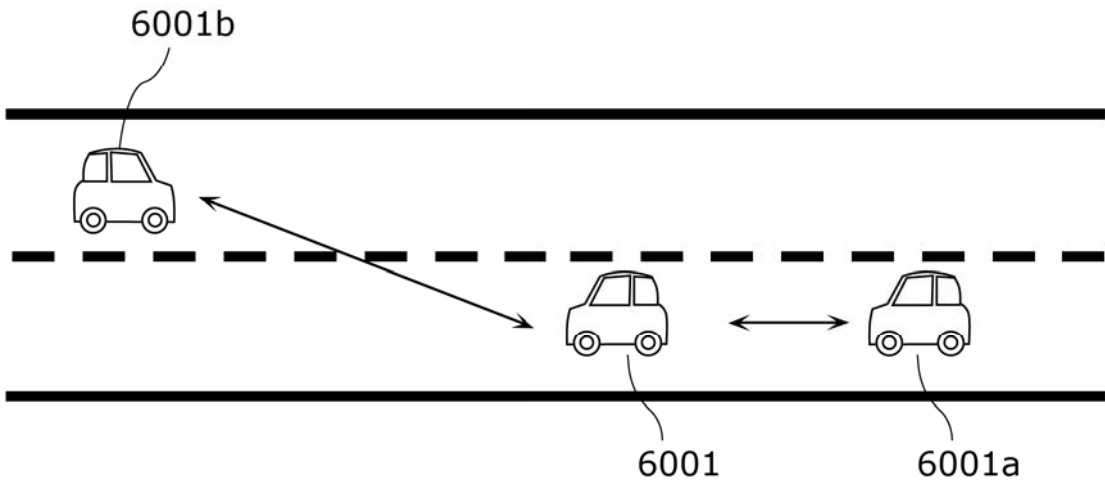




FIG. 113

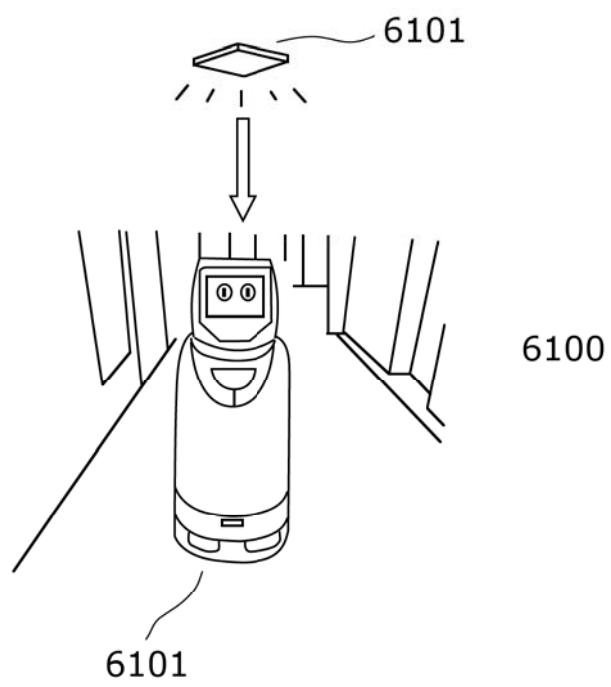


FIG. 114

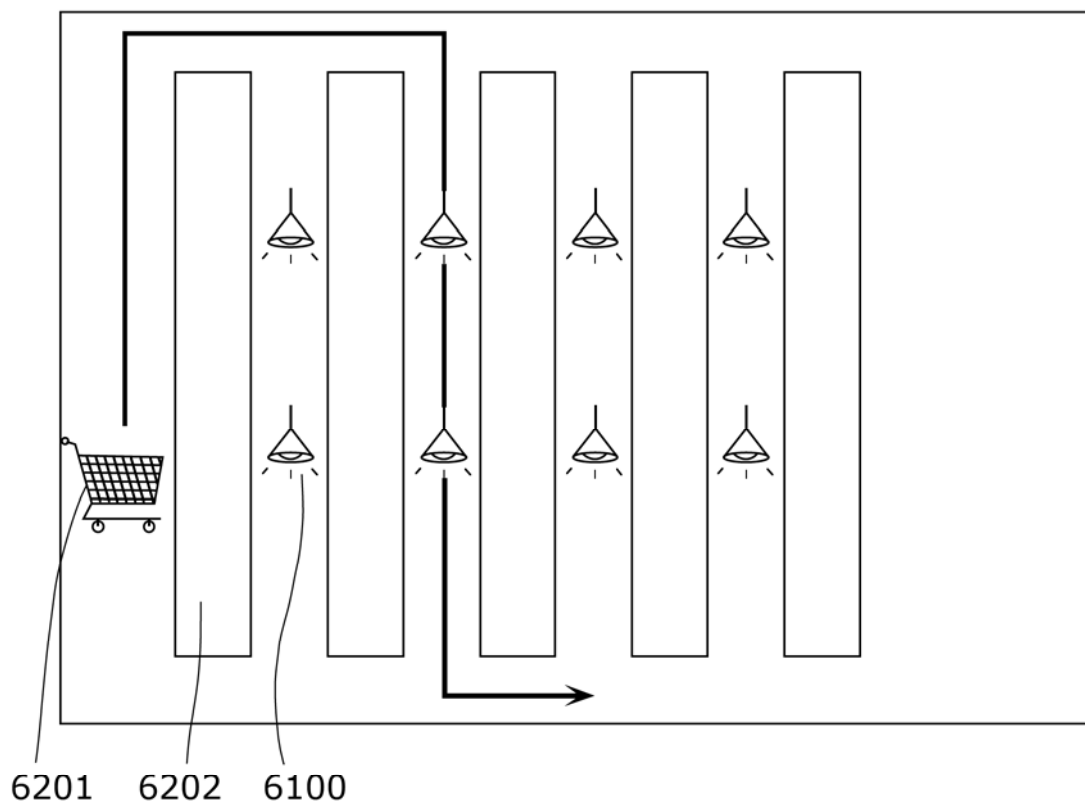


FIG. 115

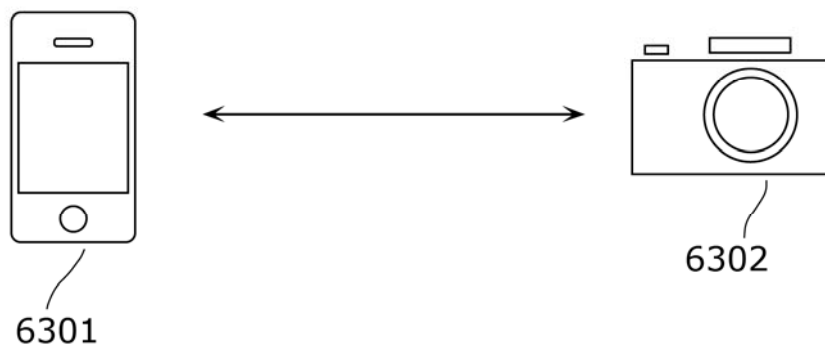


FIG. 116

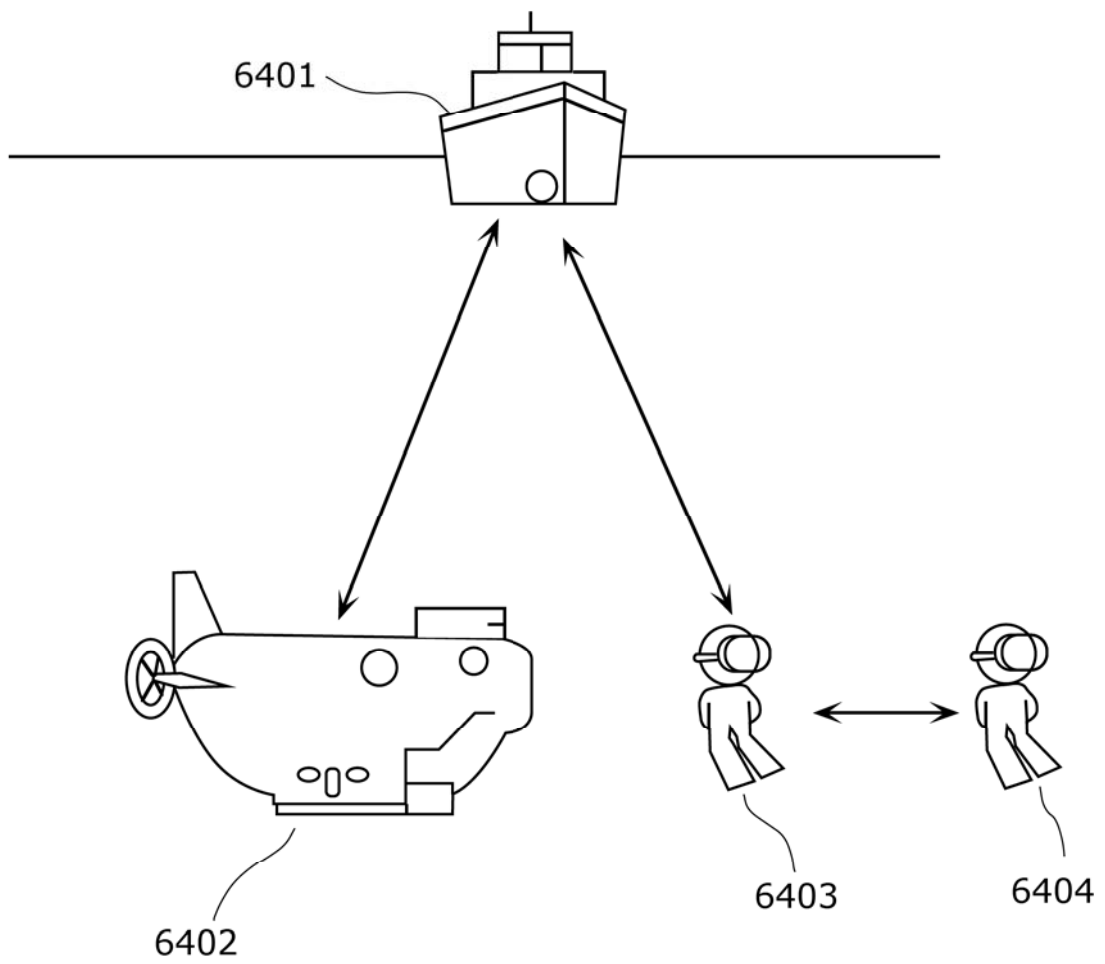


FIG. 117

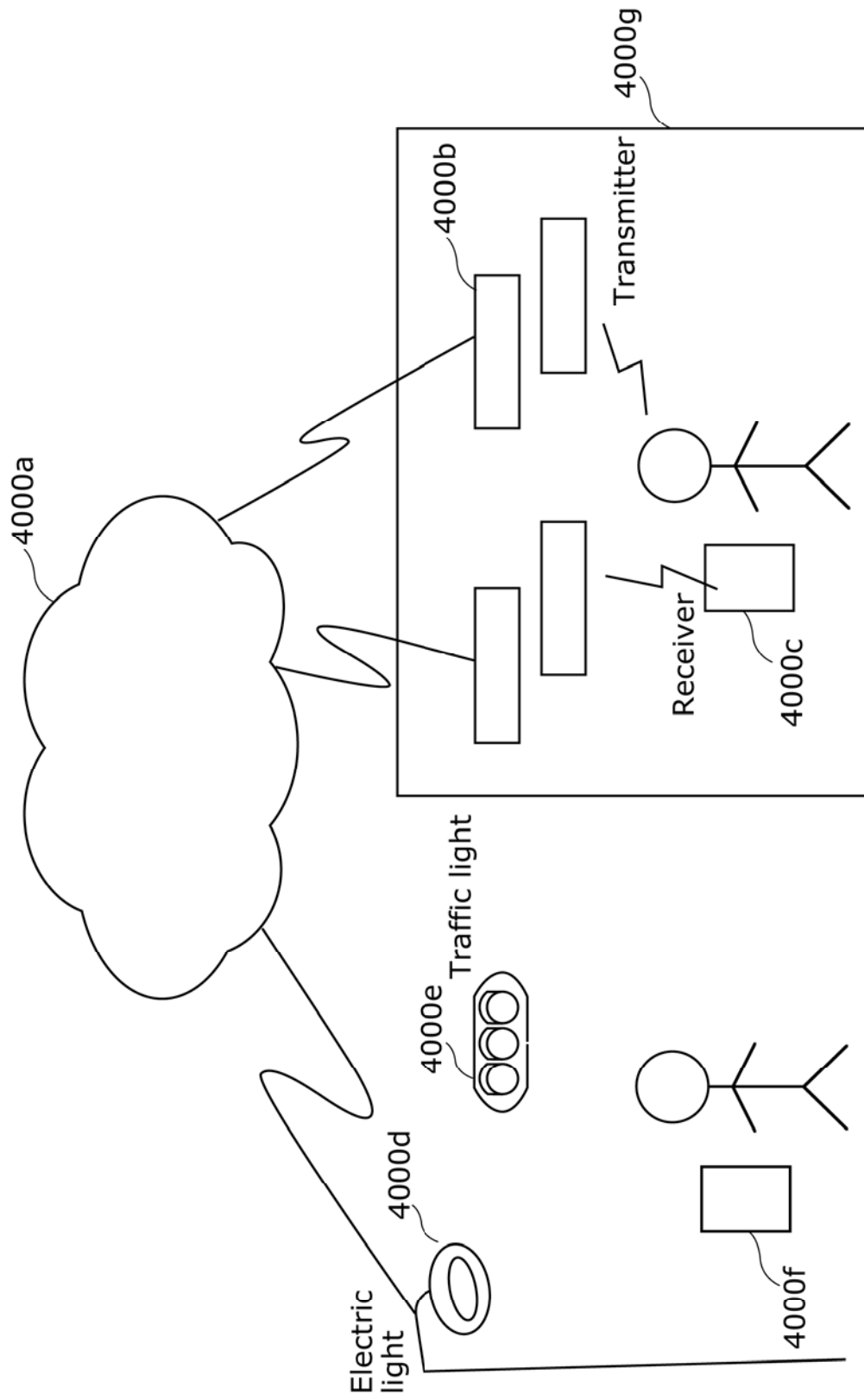


FIG. 118

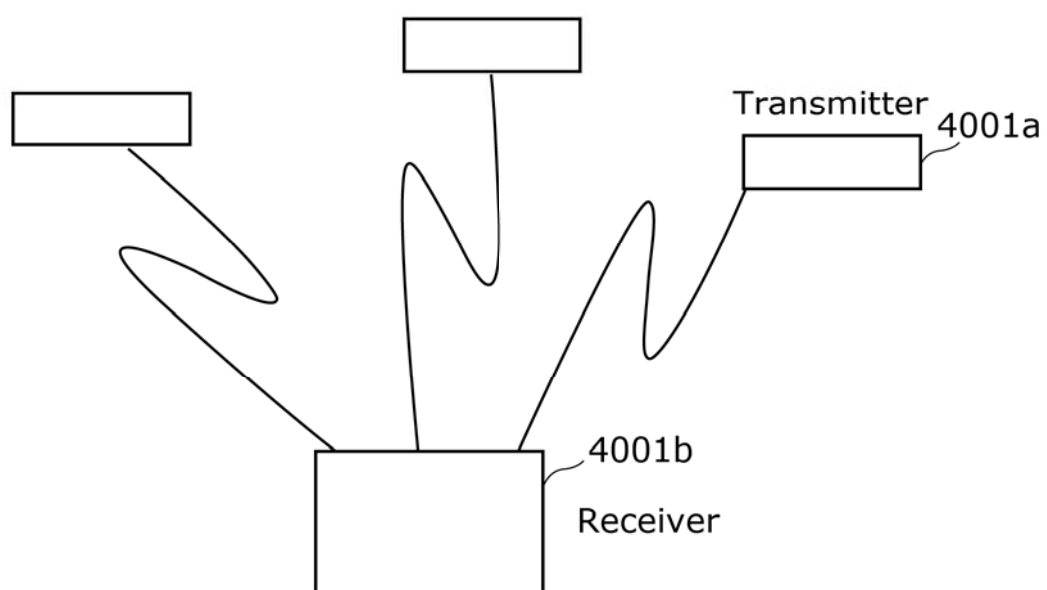


FIG. 119

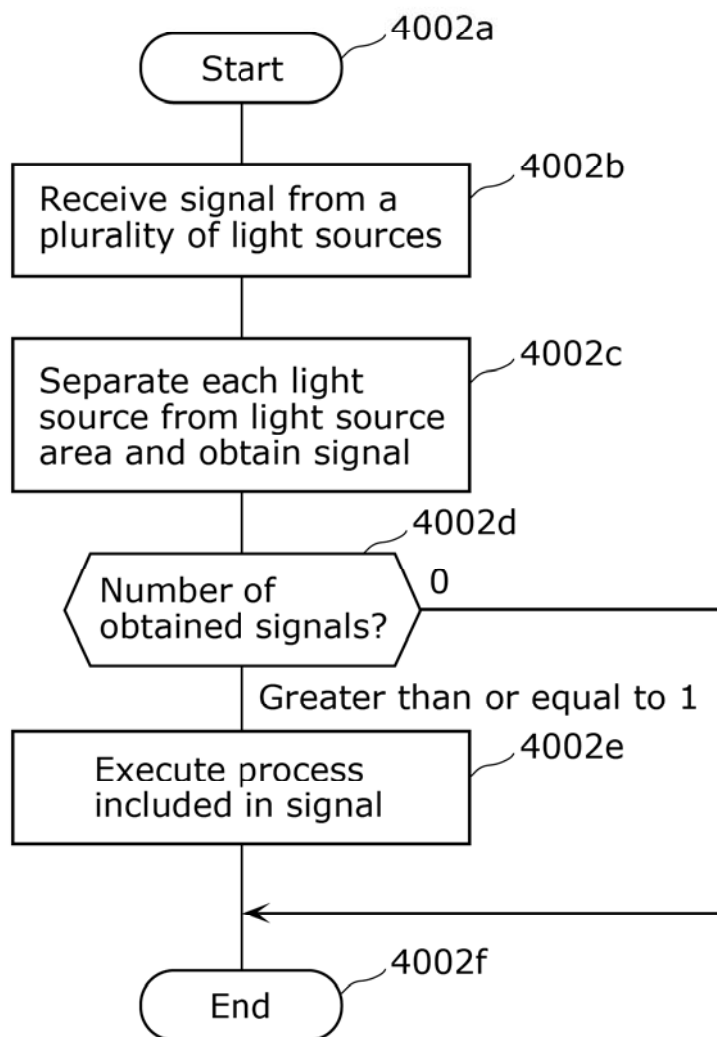


FIG. 120

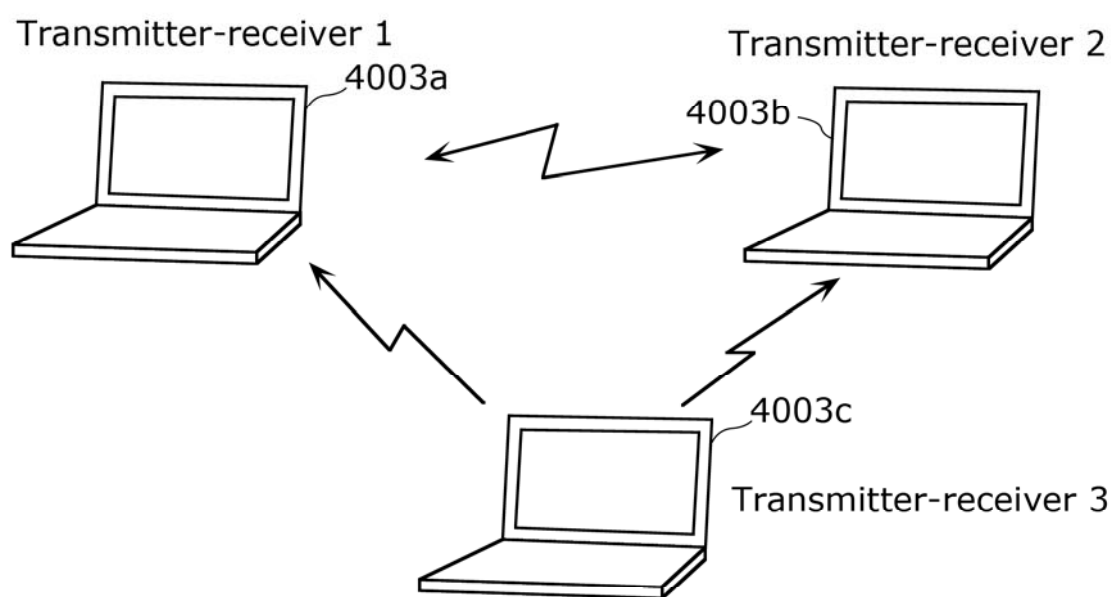




FIG. 121

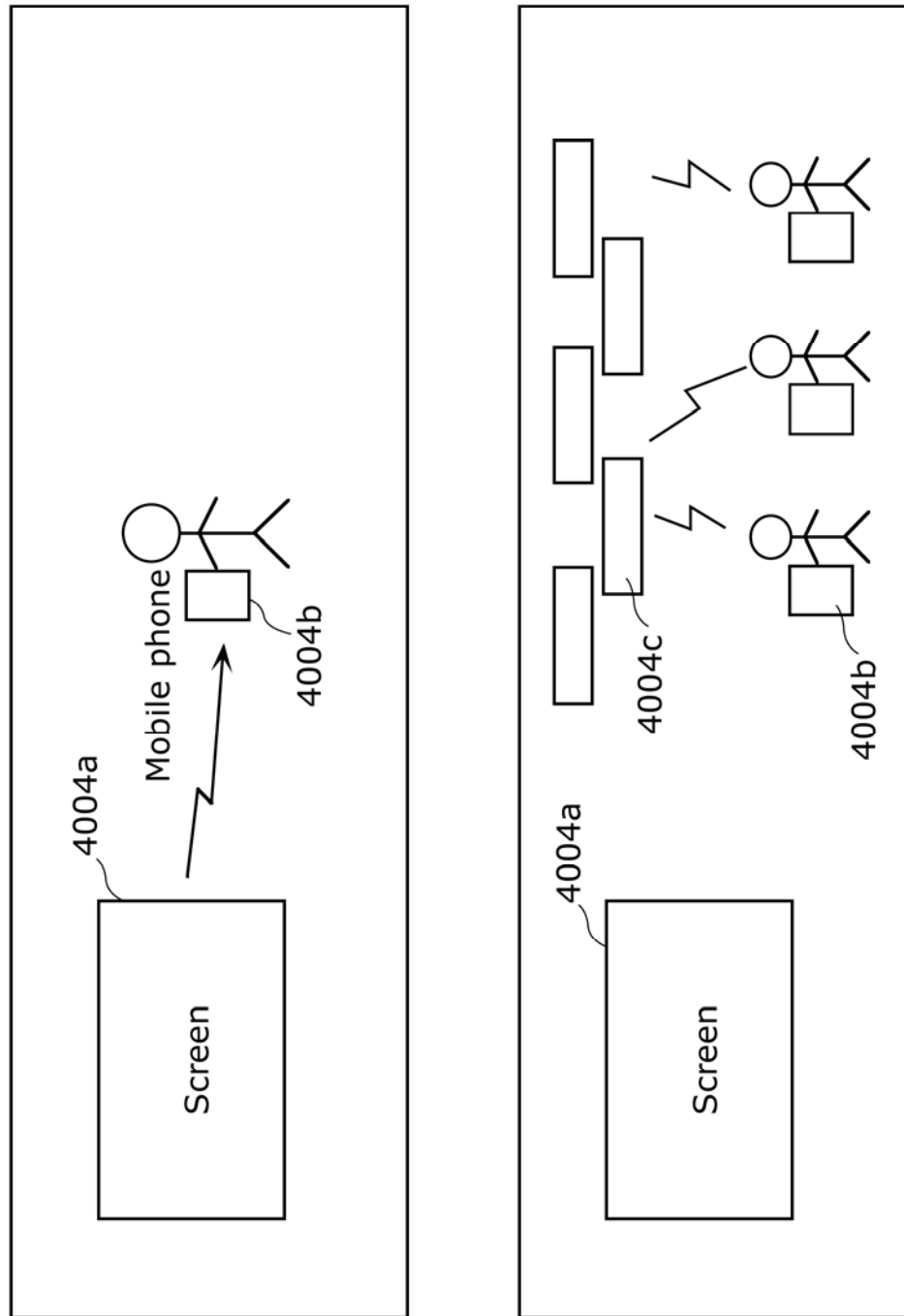


FIG. 122

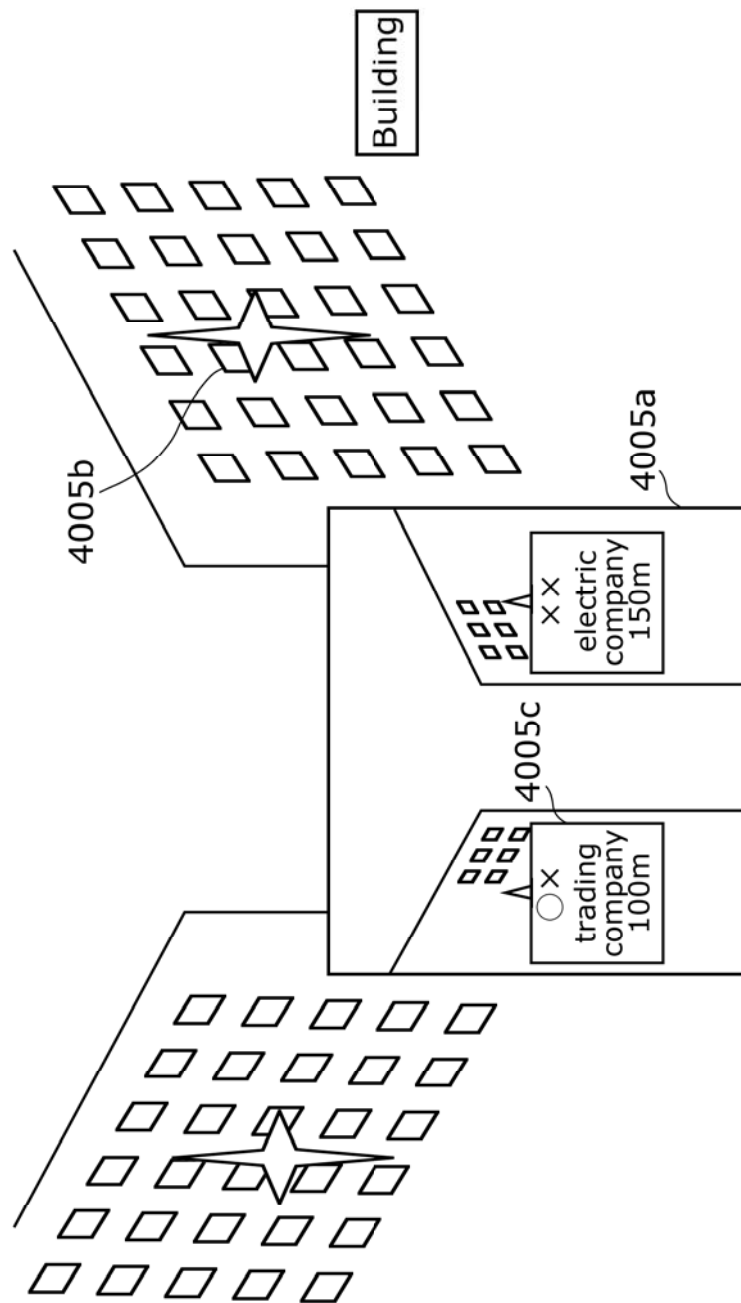


FIG. 123

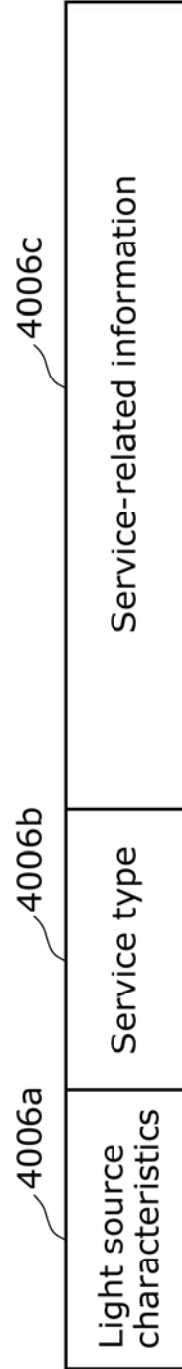


FIG. 124

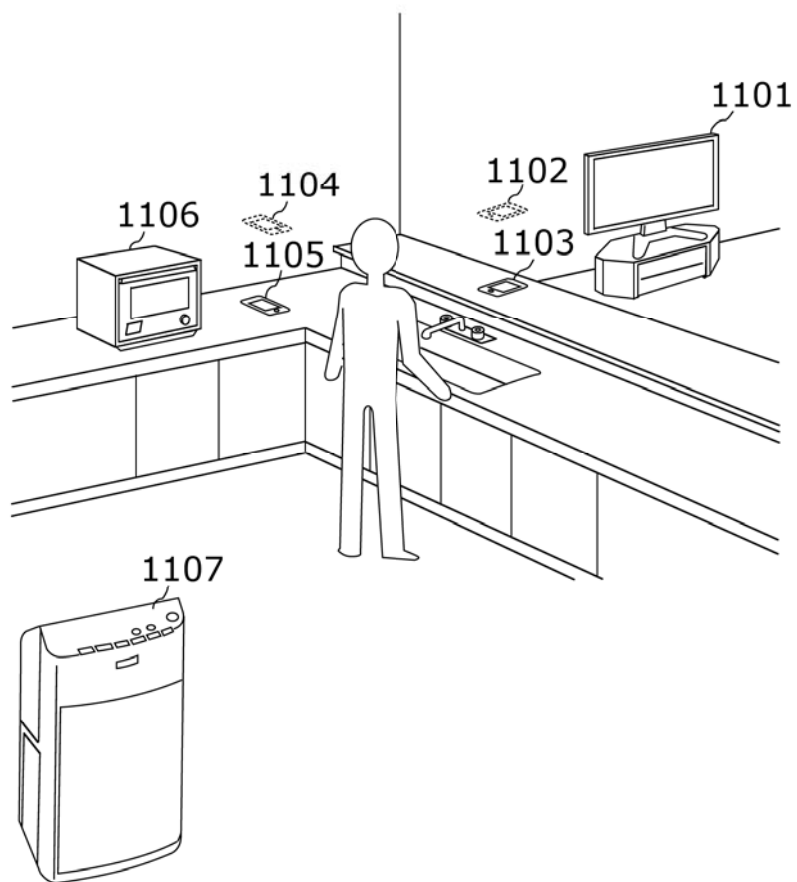


FIG. 125

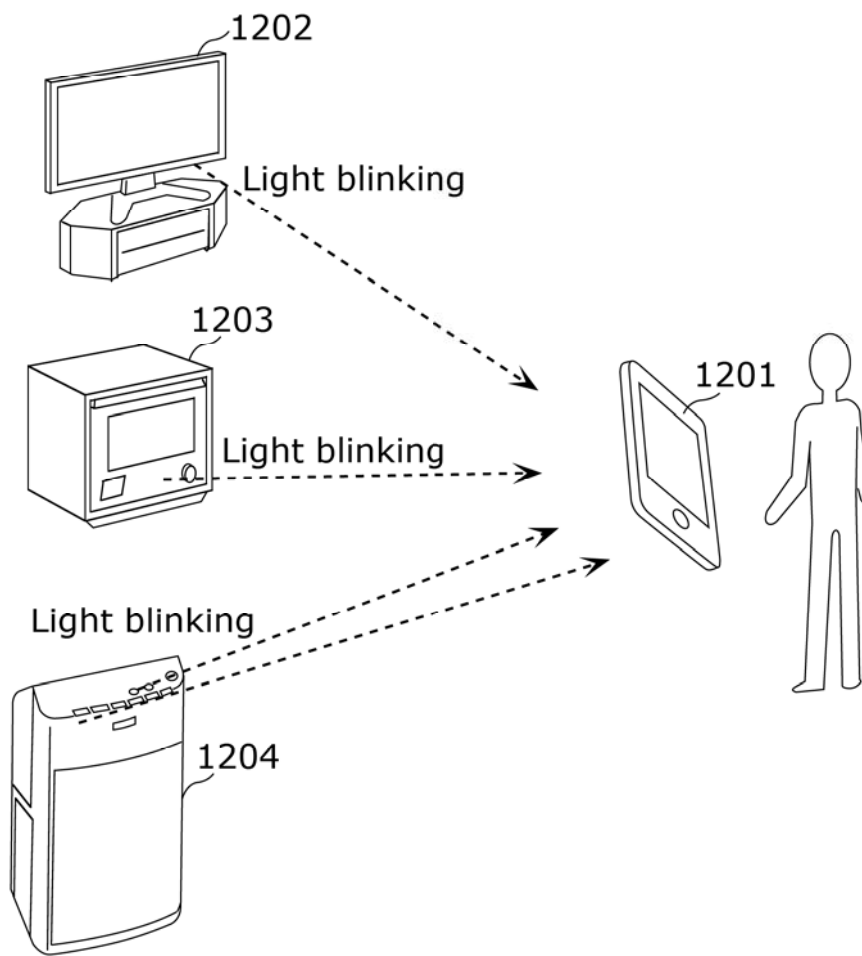


FIG. 126

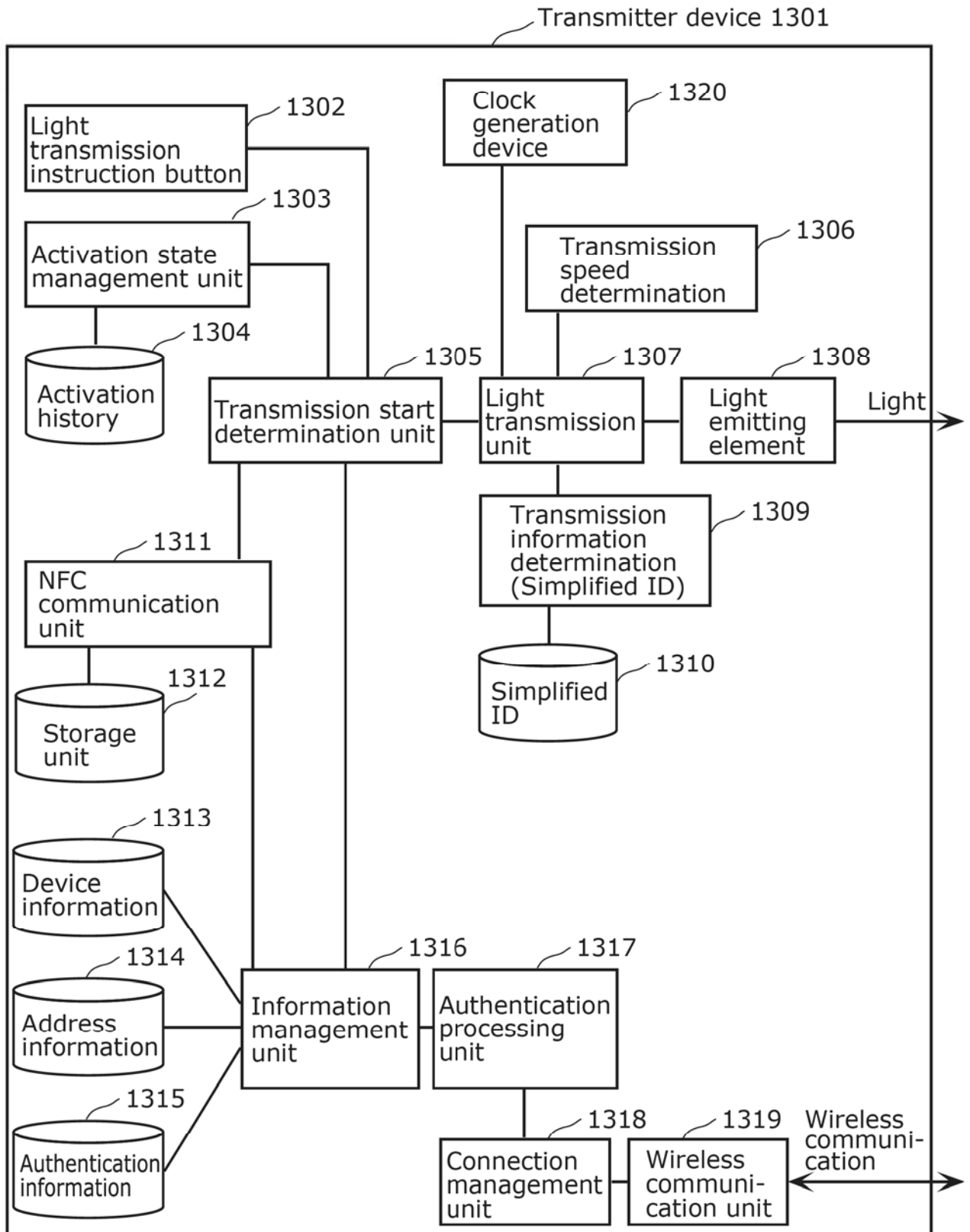


FIG. 127

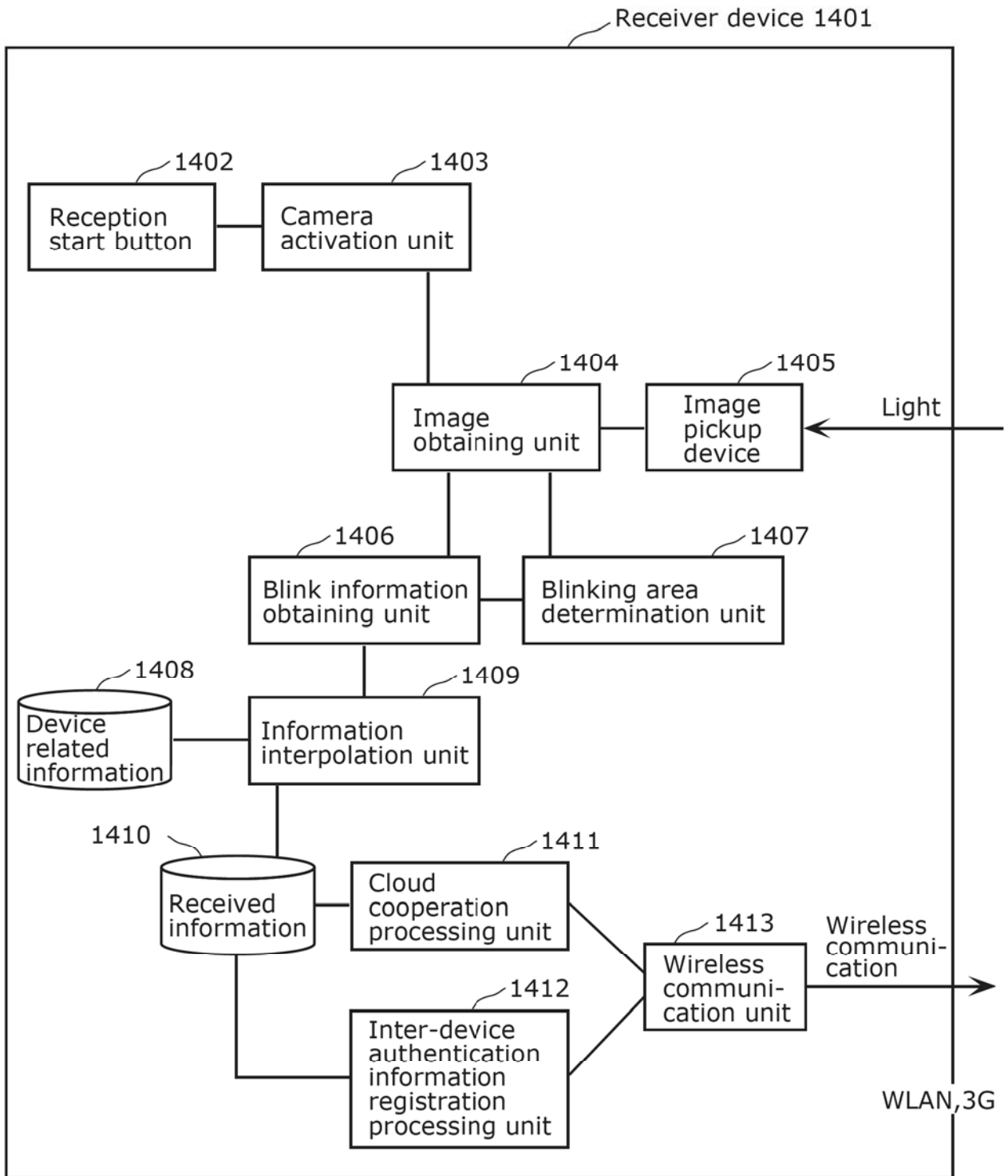


FIG. 128

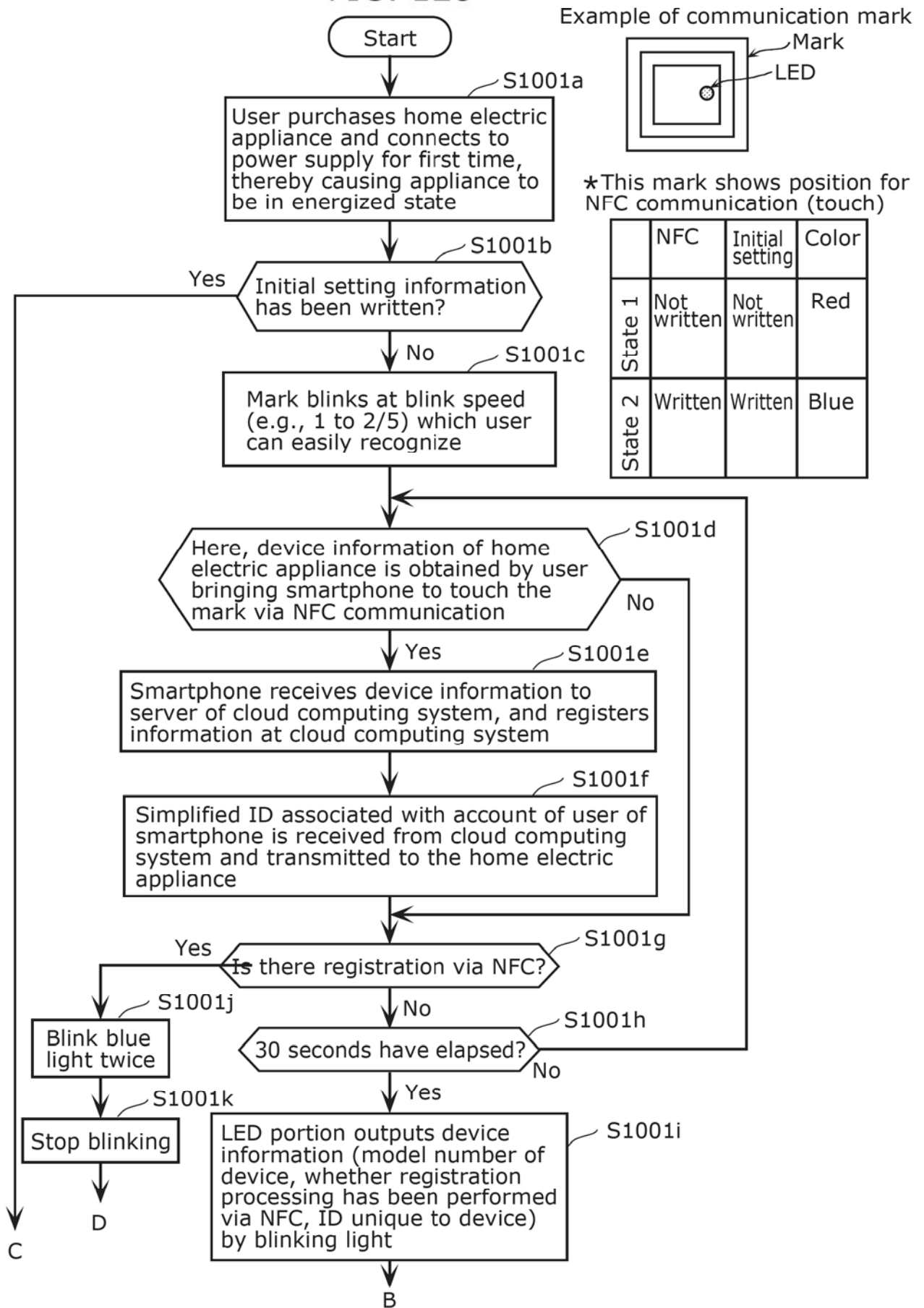




FIG. 129

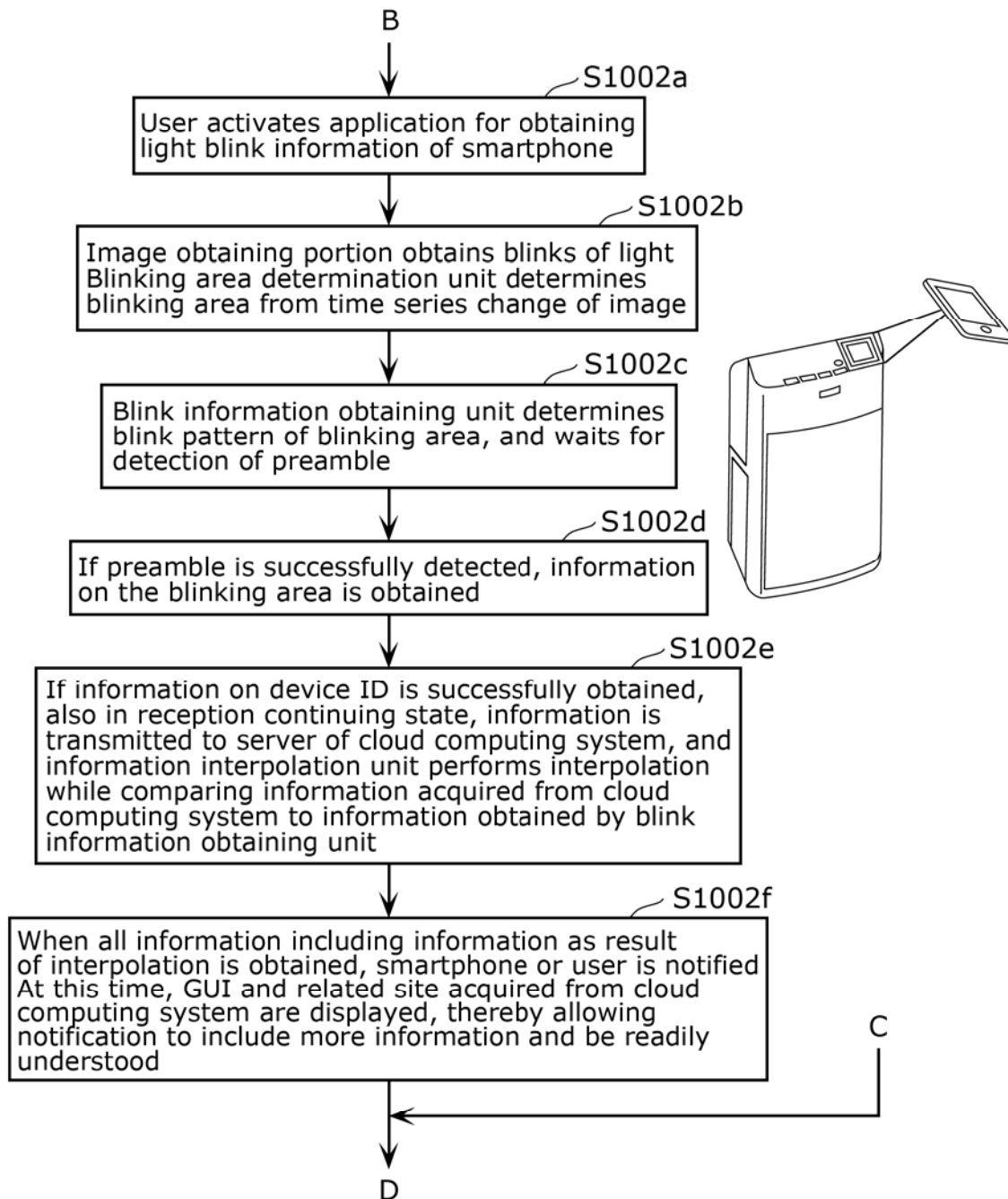
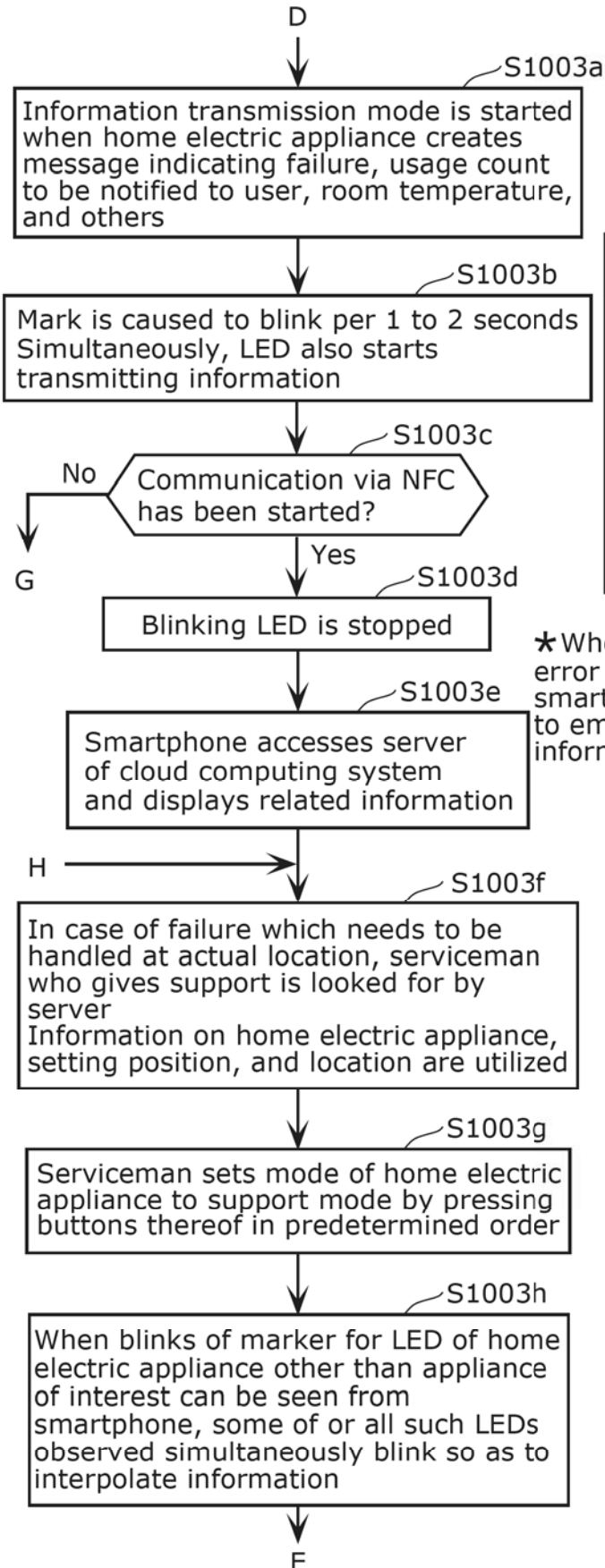


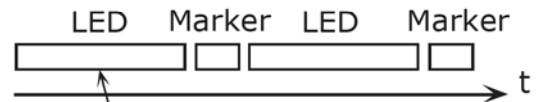
FIG. 130



Example of data to be transmitted

| Mode                |                       |     |       | Information                              |
|---------------------|-----------------------|-----|-------|------------------------------------------|
| Serviceman mode NFC | Serviceman mode Light | NFC | Light | Device information for notification code |
|                     |                       |     |       | User operation information               |
|                     |                       |     |       | Internal sensor information              |

★ When mark and LED blink simultaneously, error in obtaining information by camera of smartphone can be reduced by causing mark to emit light during intervals of successive information transmissions by LED



Information transmission for one time

FIG. 131

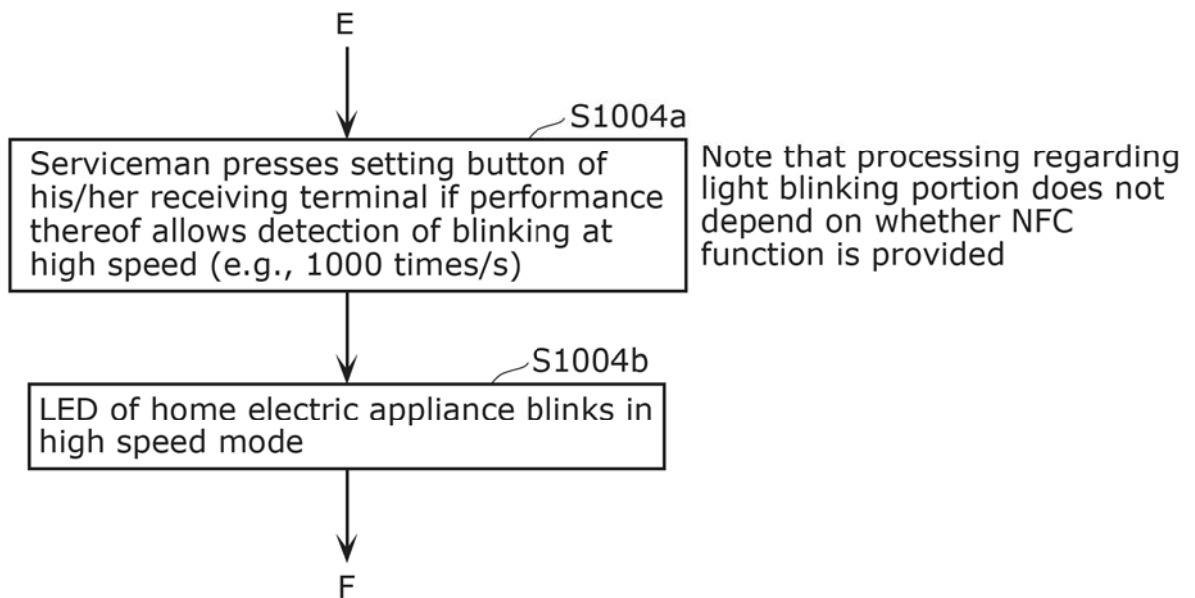


FIG. 132

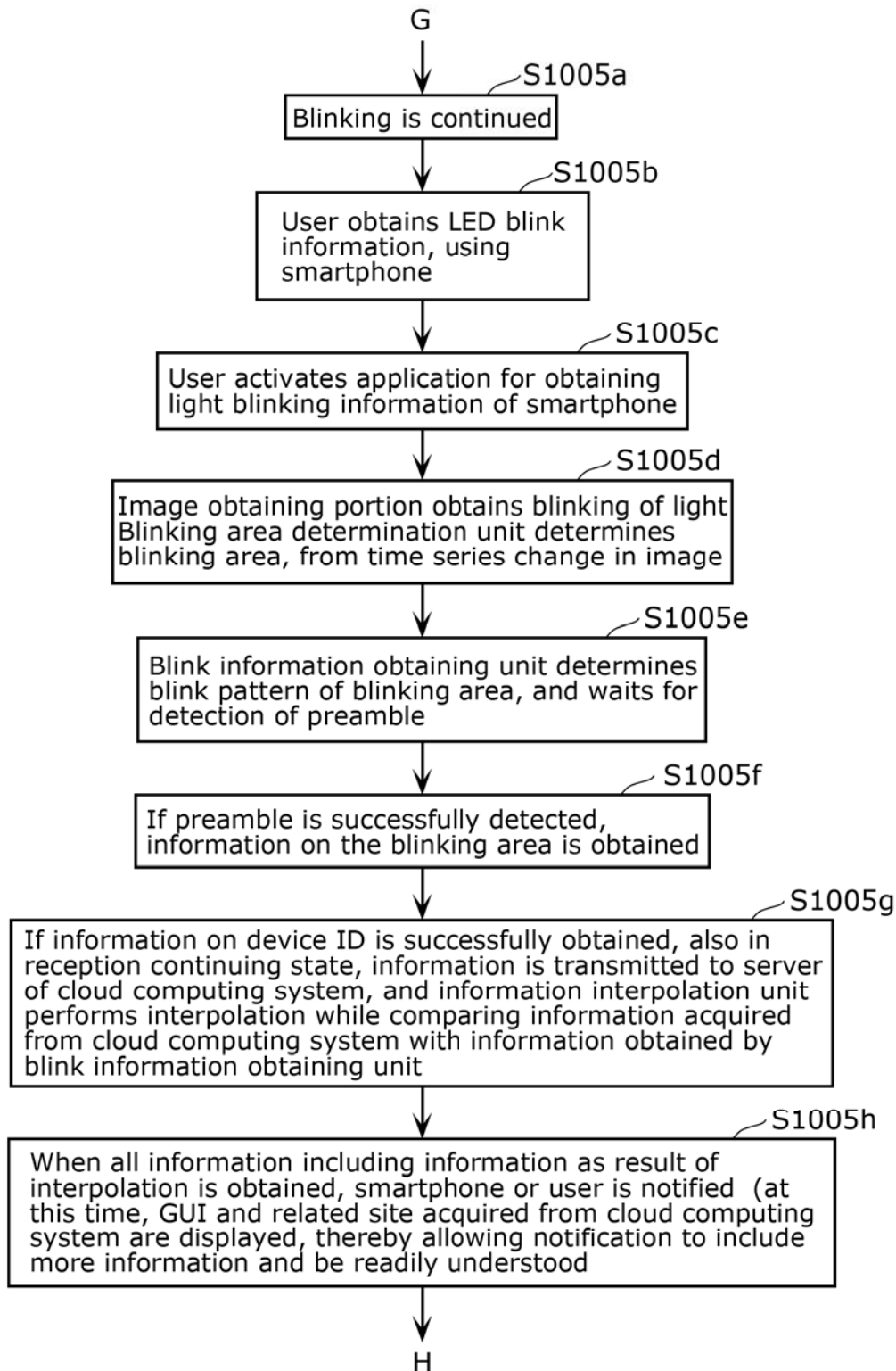


FIG. 133

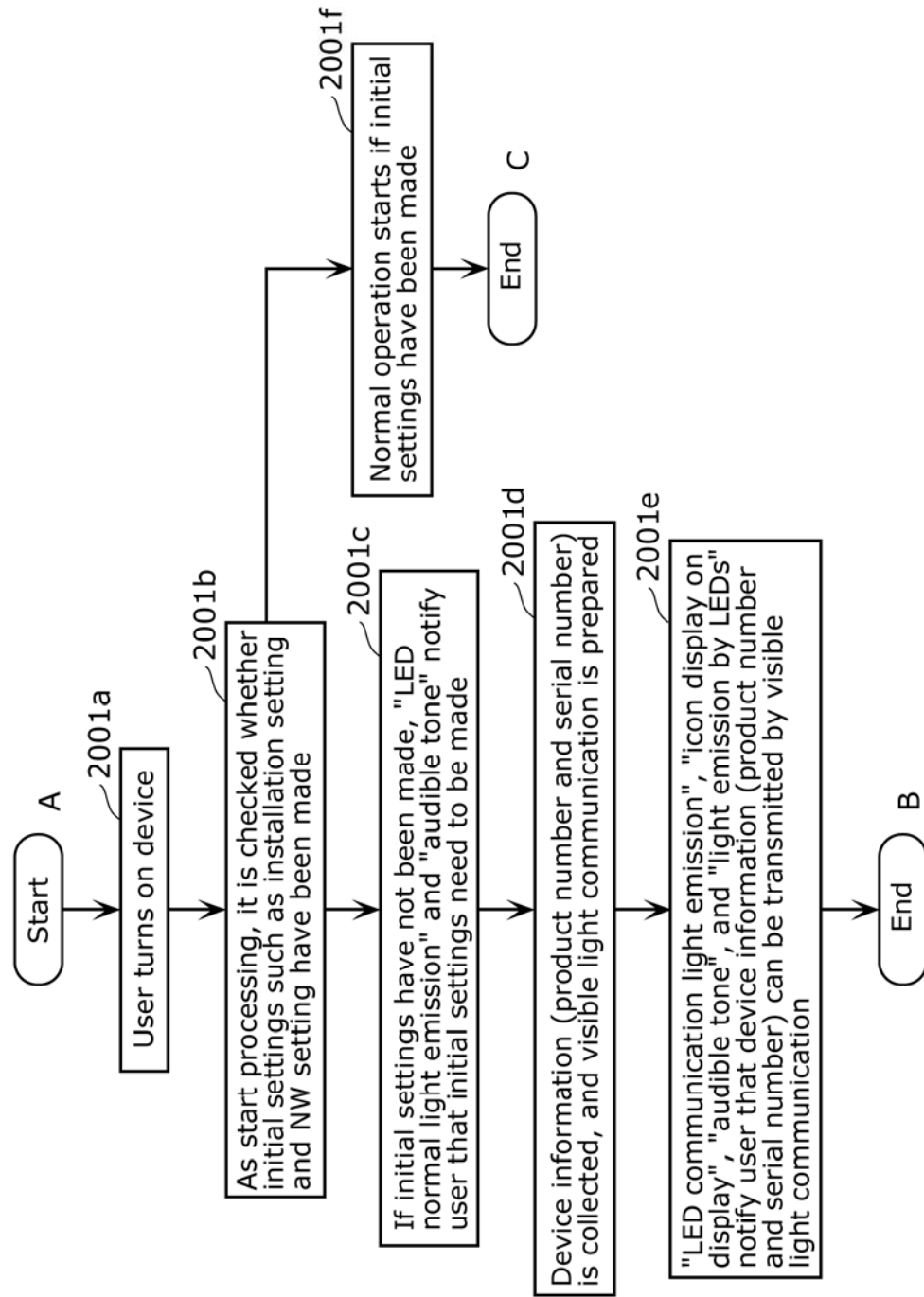


FIG. 134

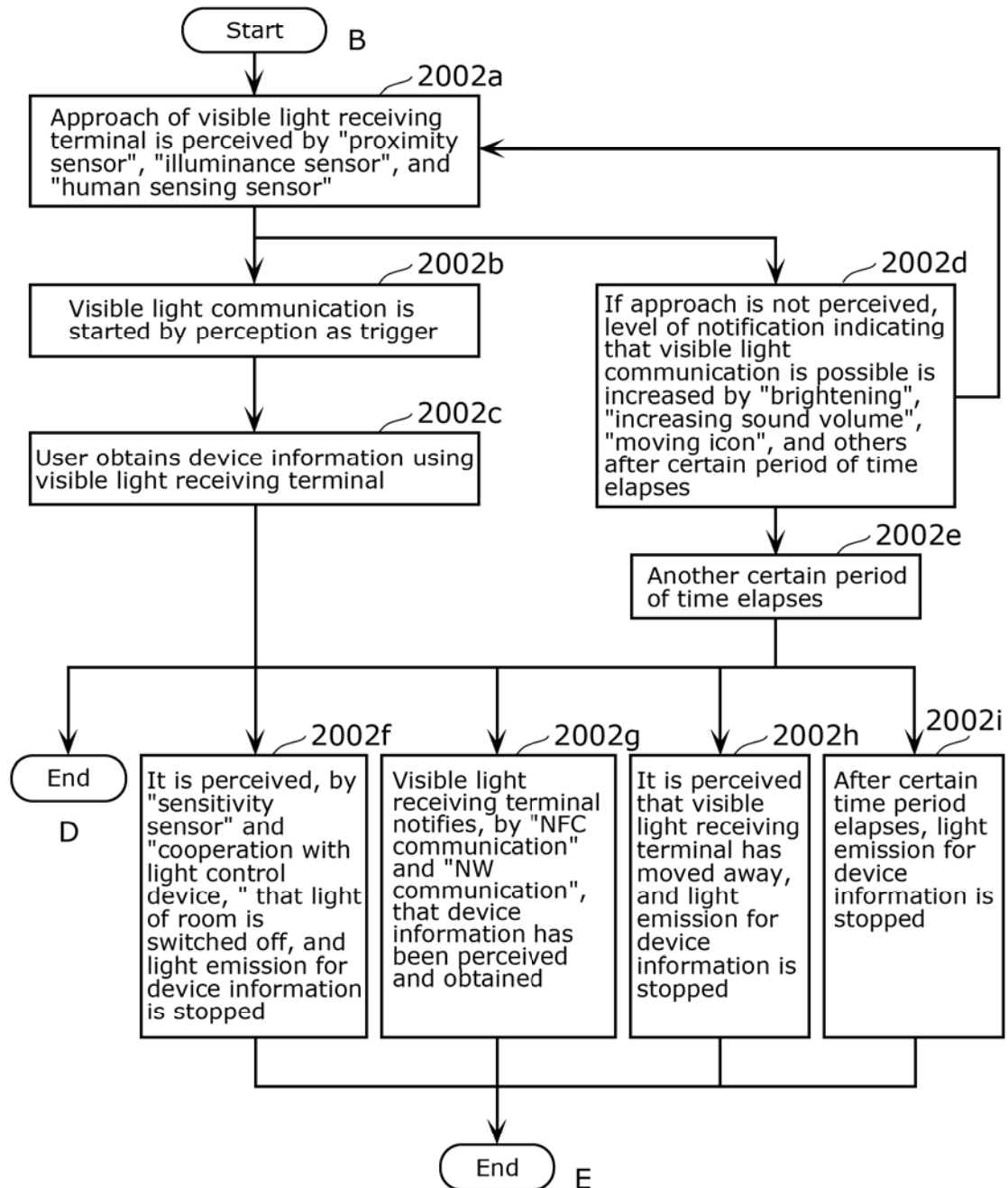


FIG. 135

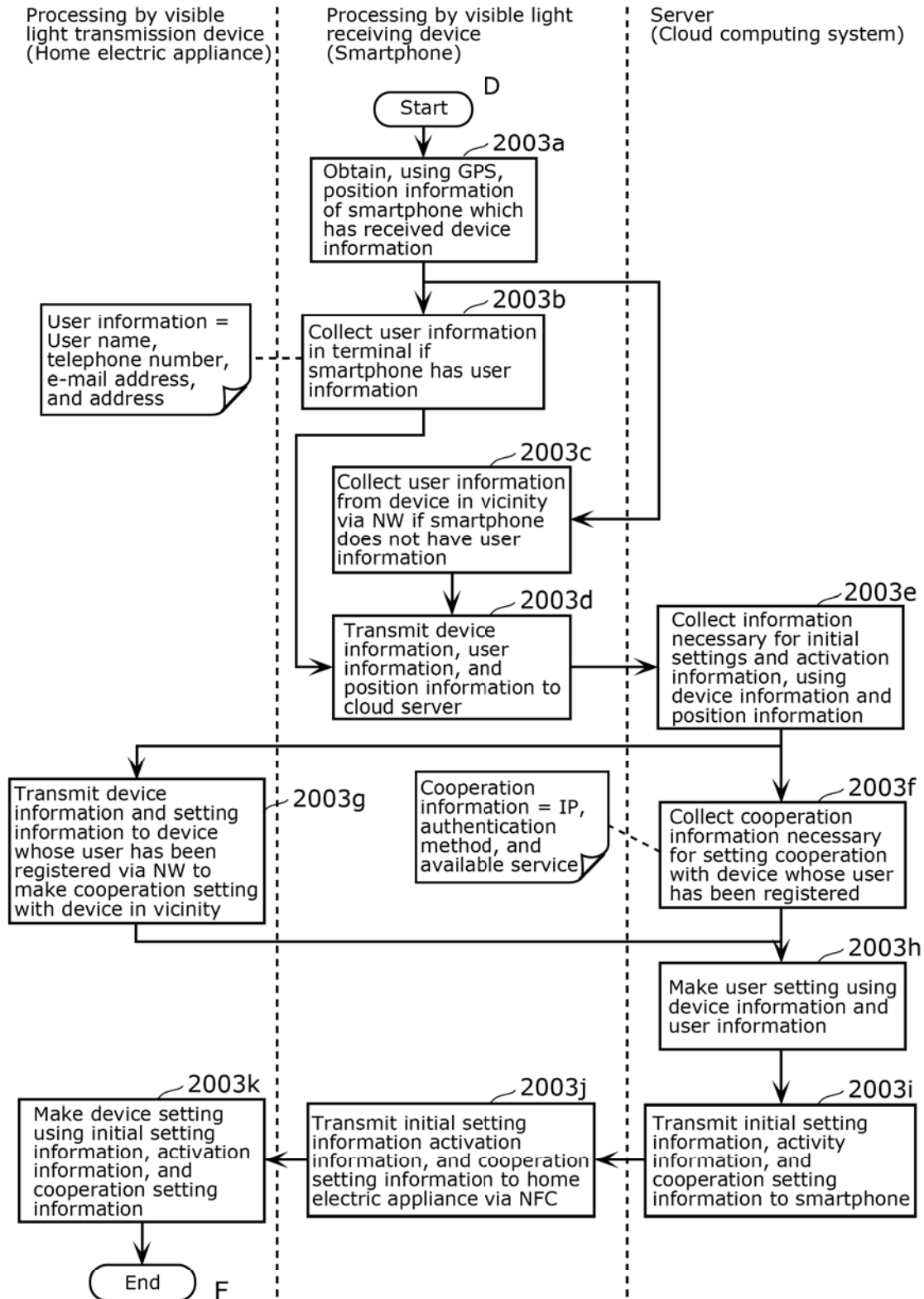


FIG. 136

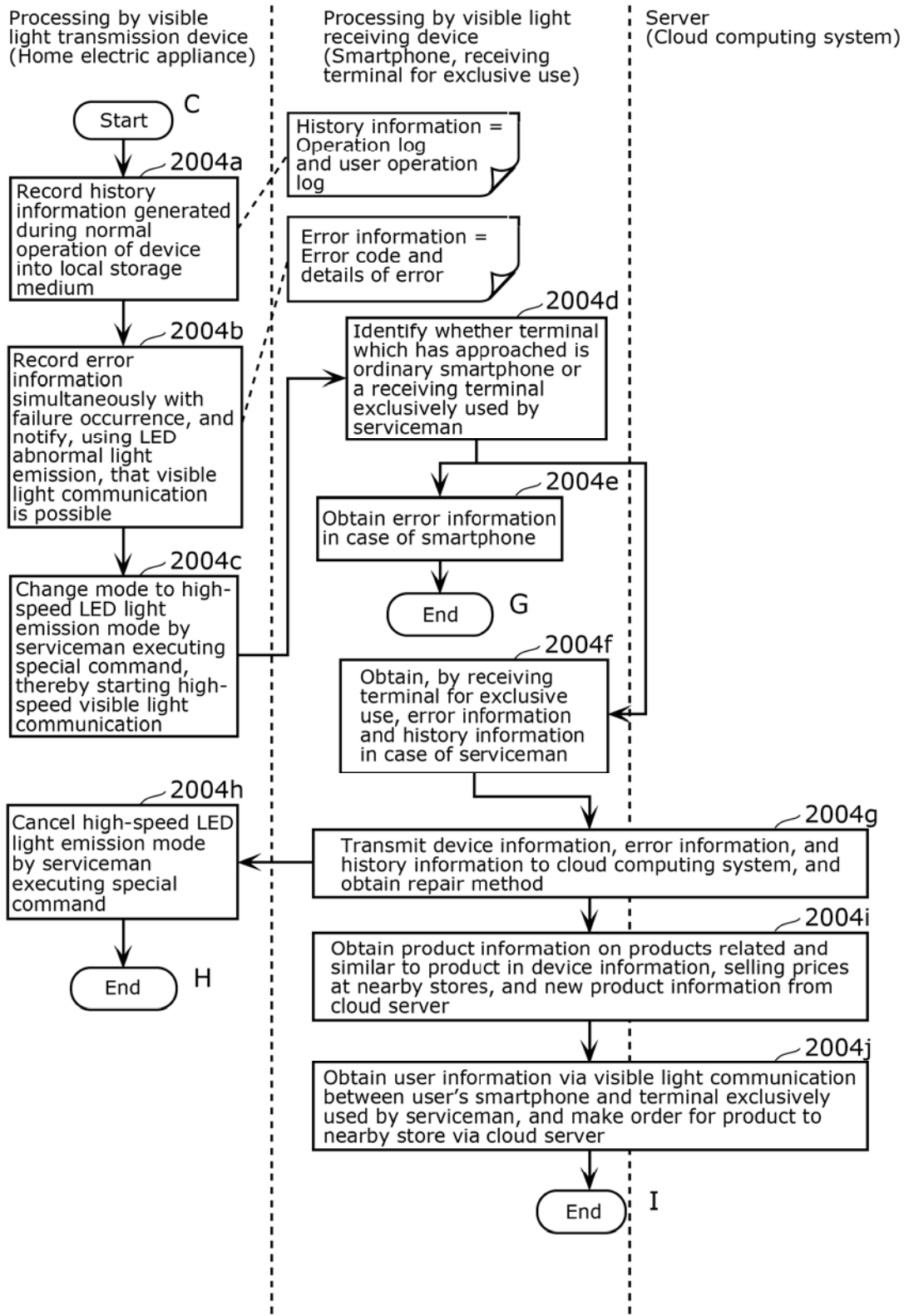




FIG. 137

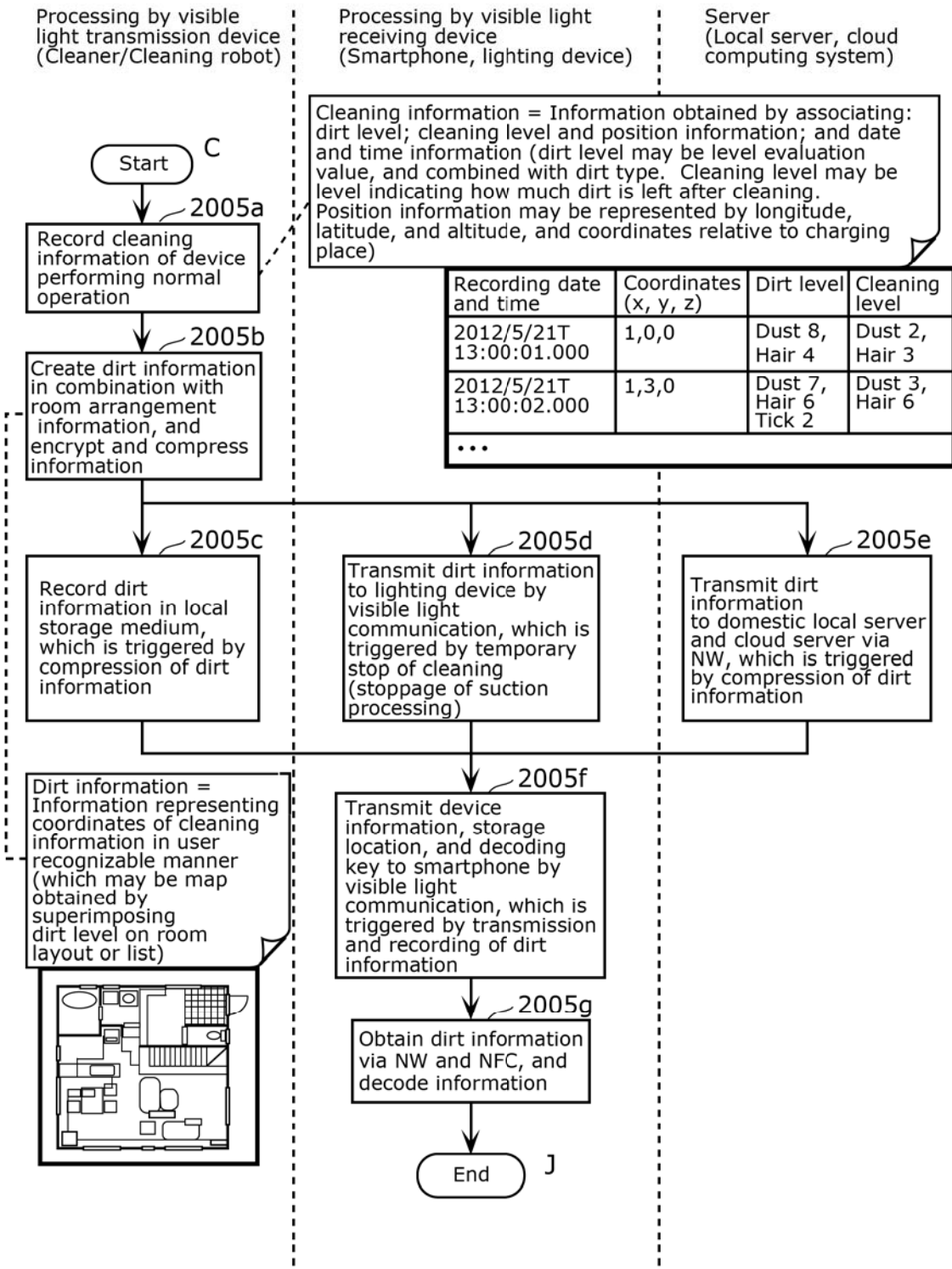


FIG. 138

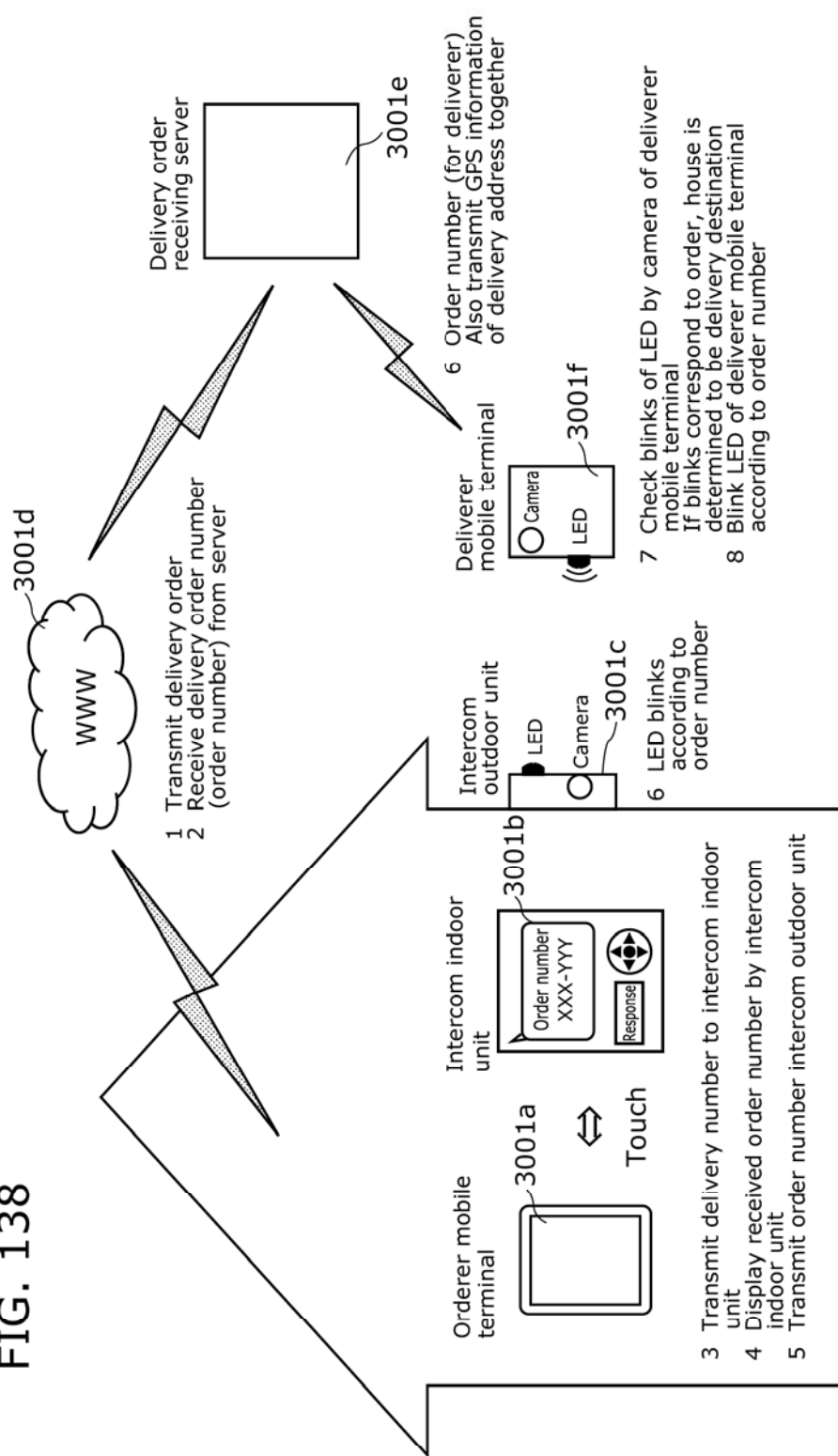


FIG. 139

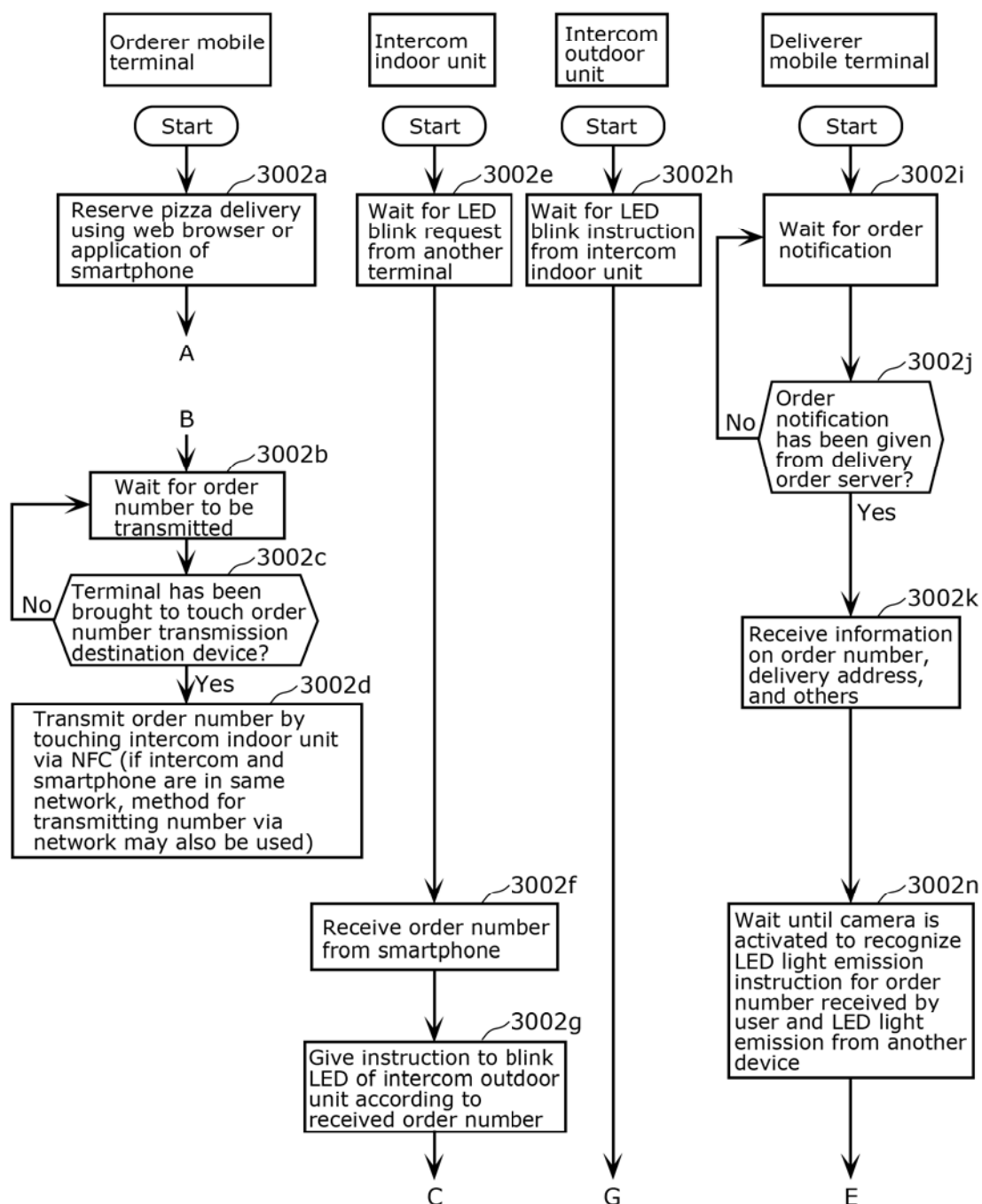


FIG. 140

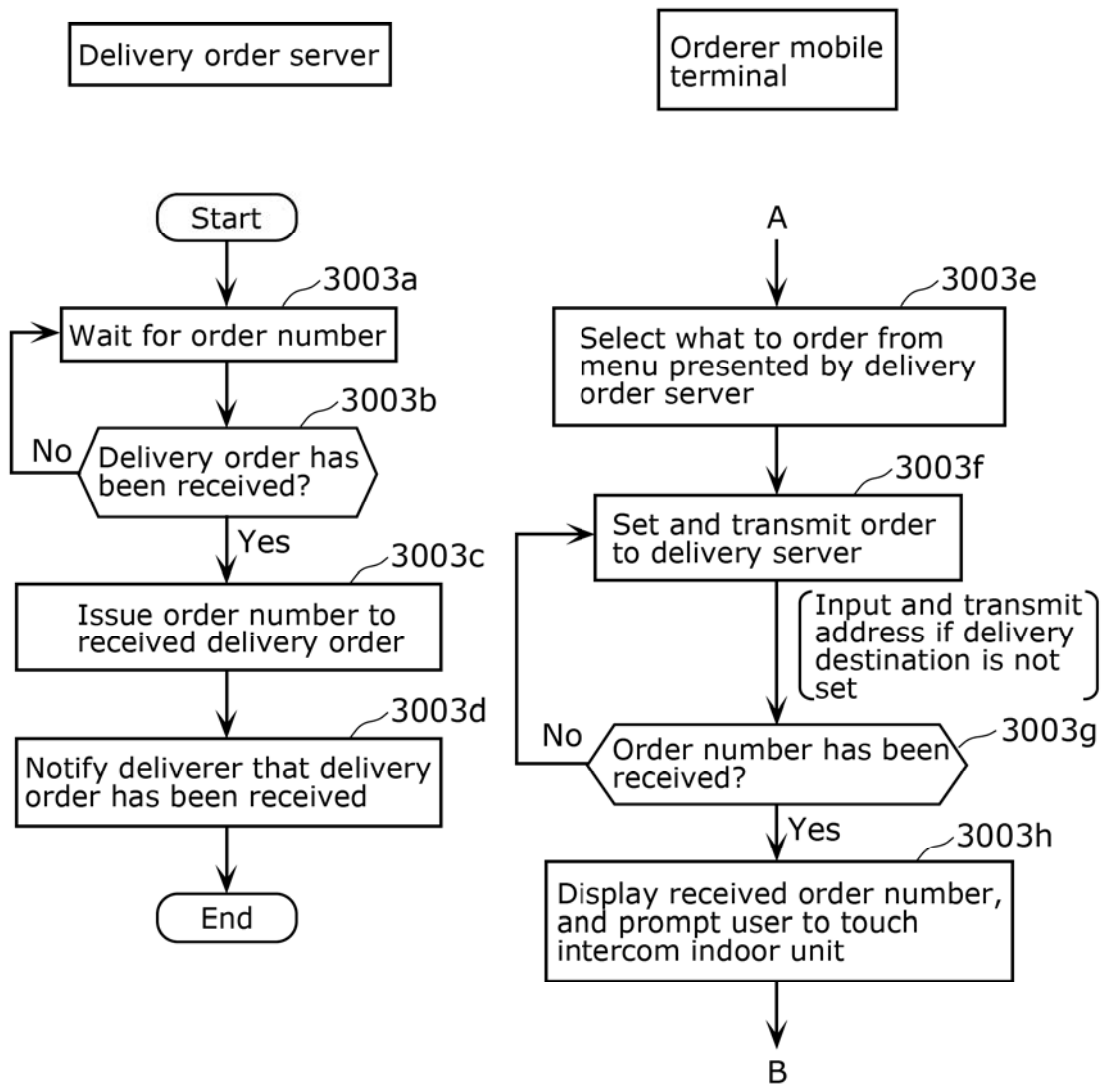


FIG. 141

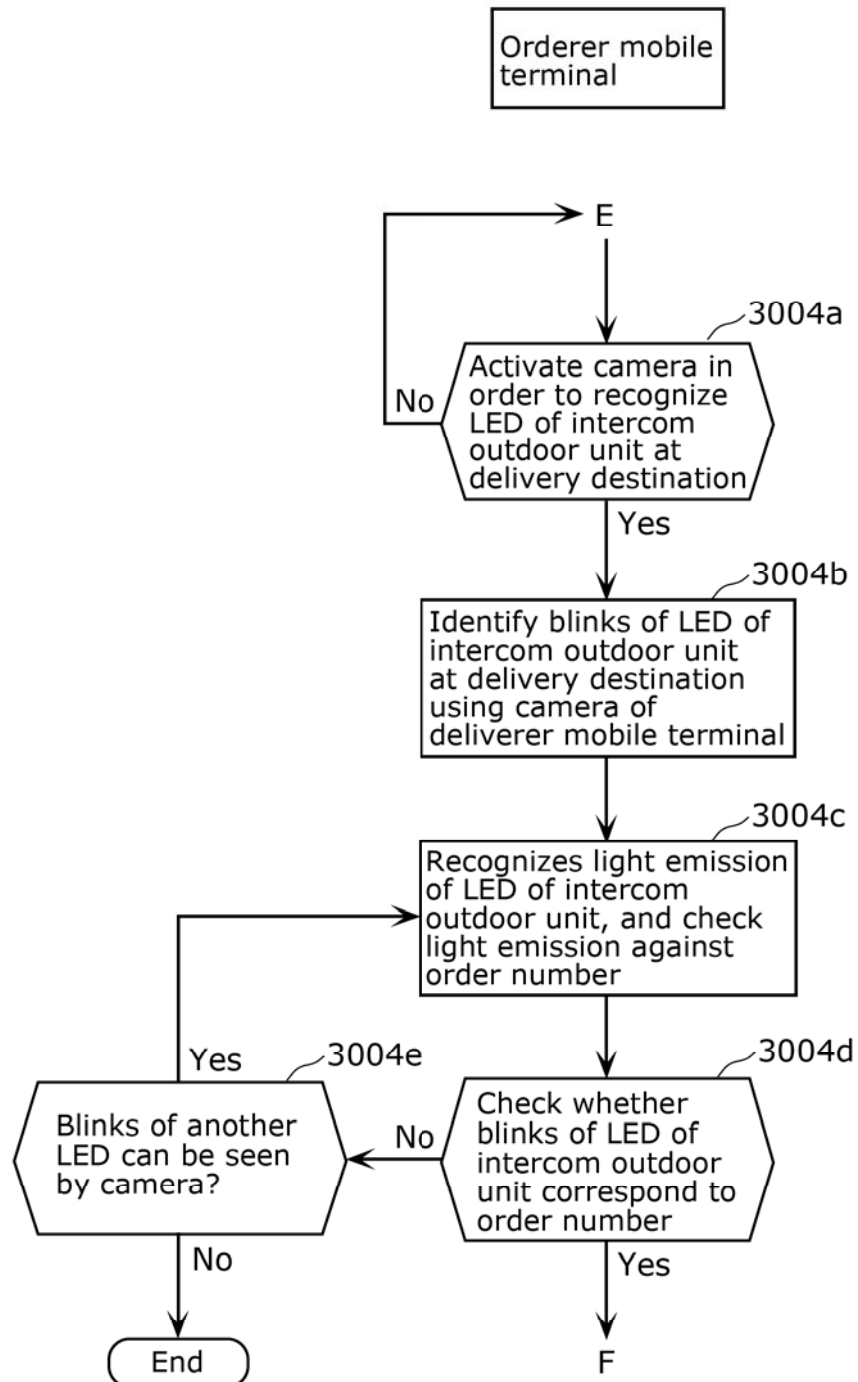


FIG. 142

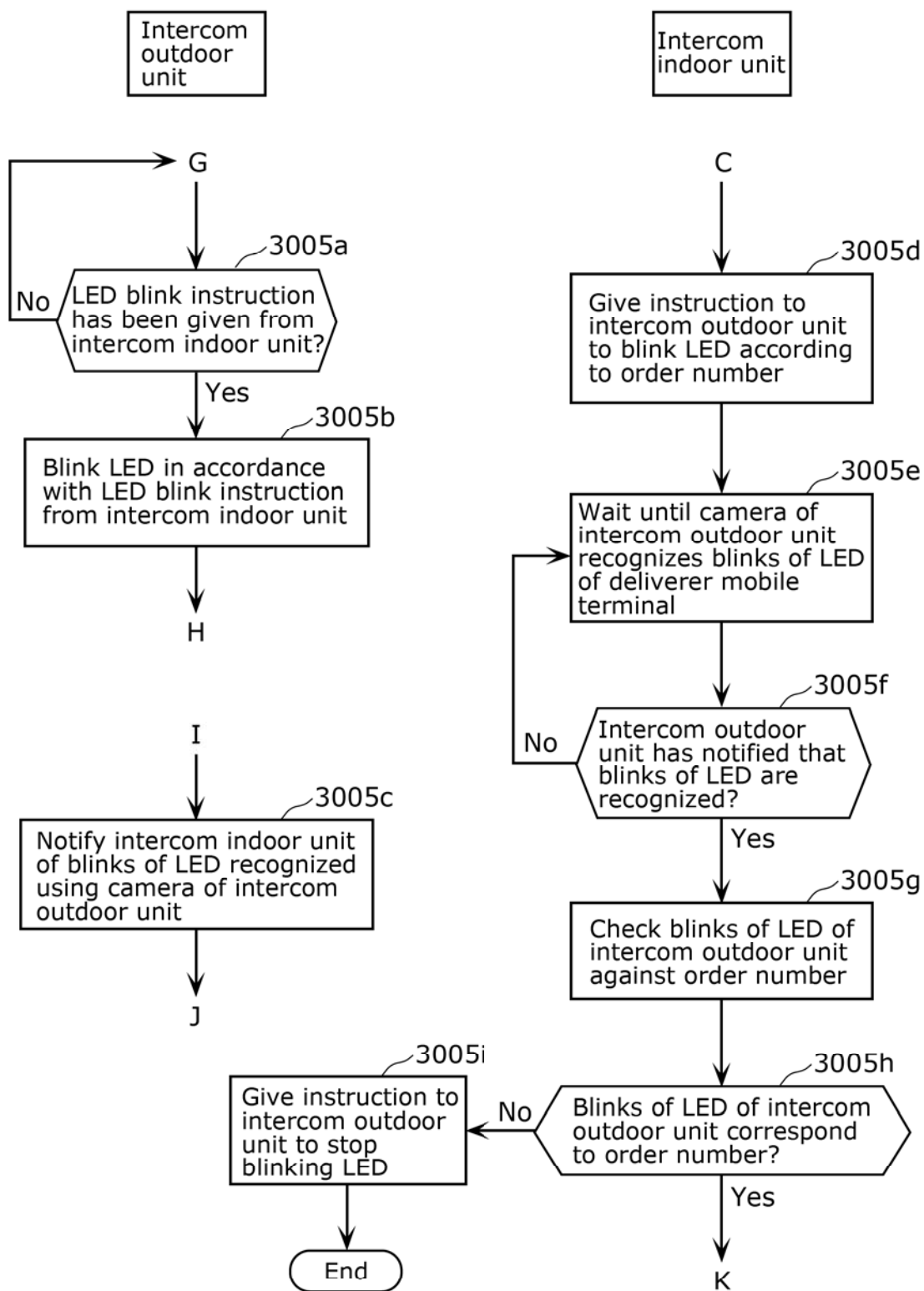


FIG. 143

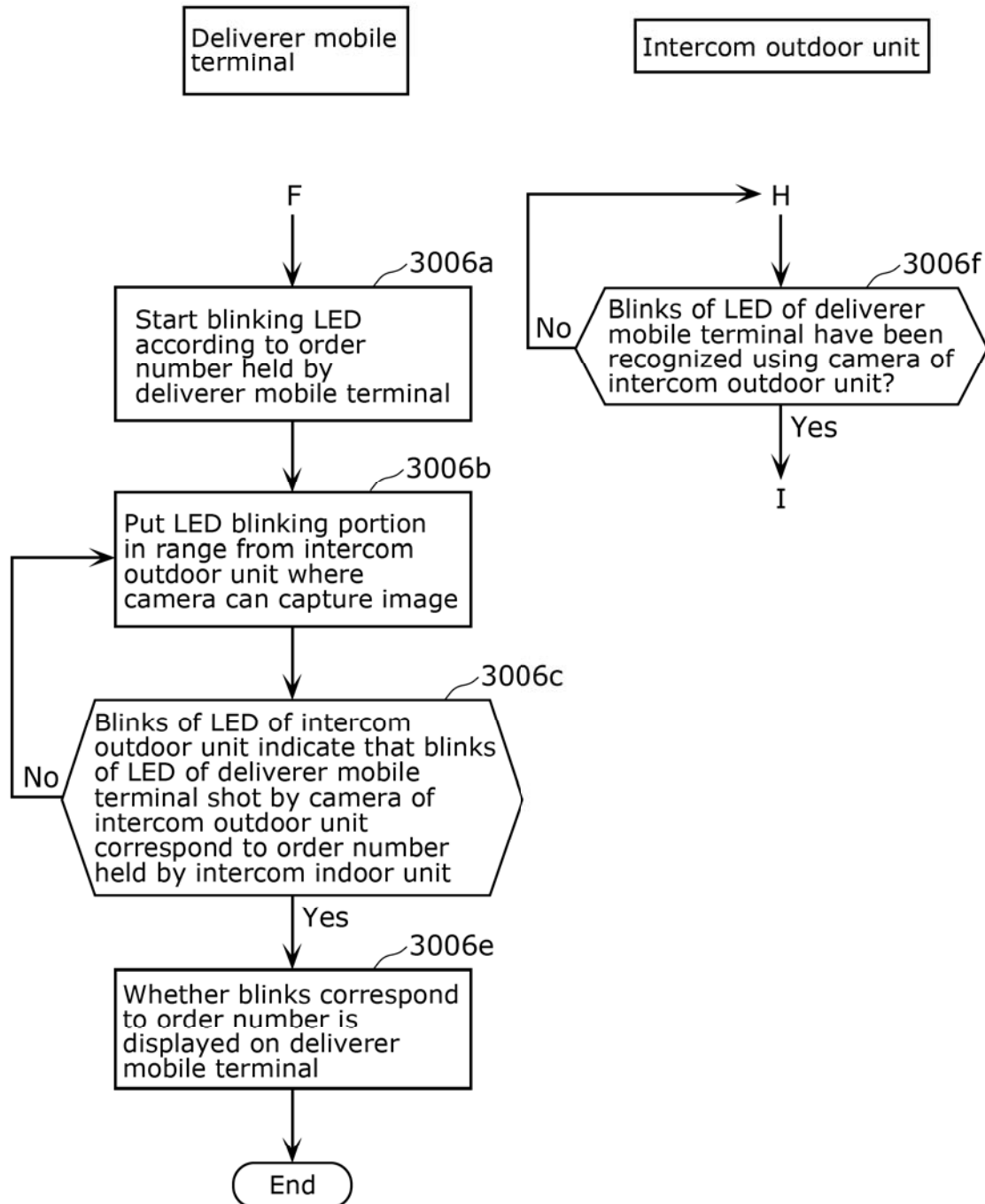


FIG. 144

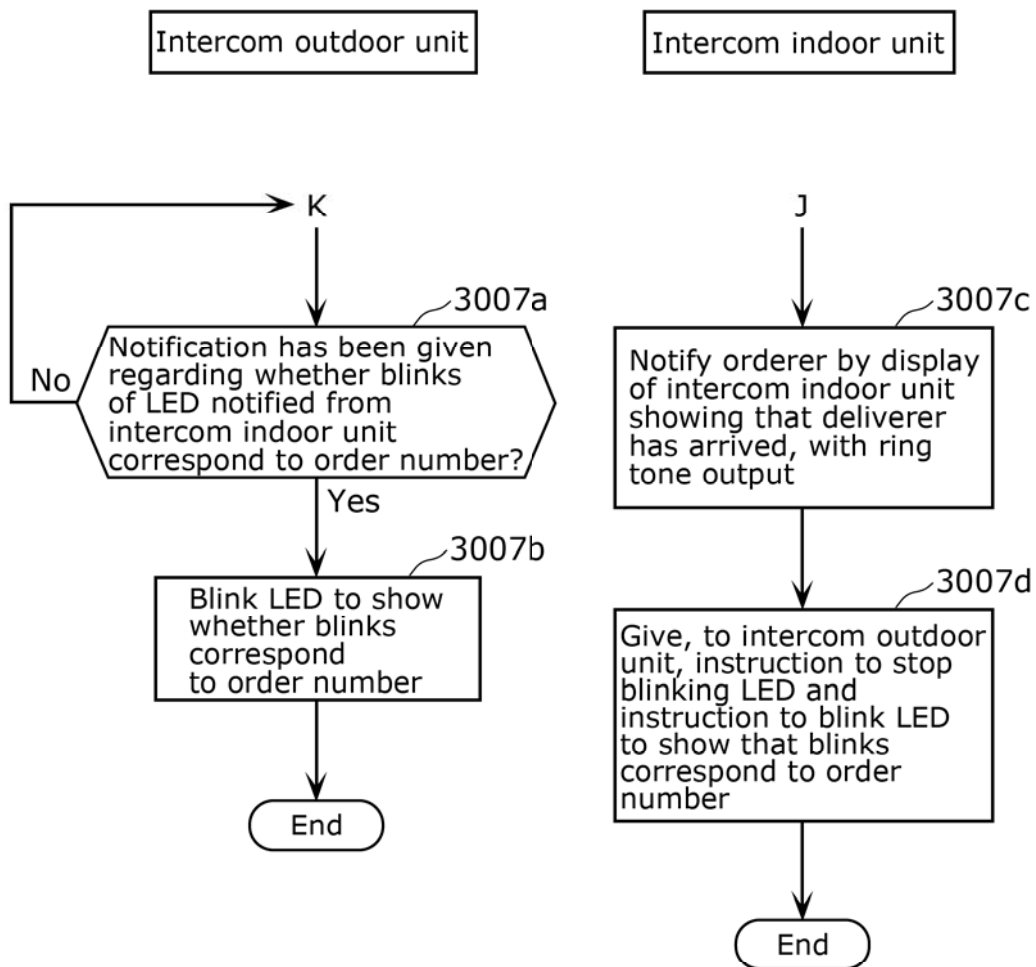




FIG. 145

Register user and mobile phone in use to server

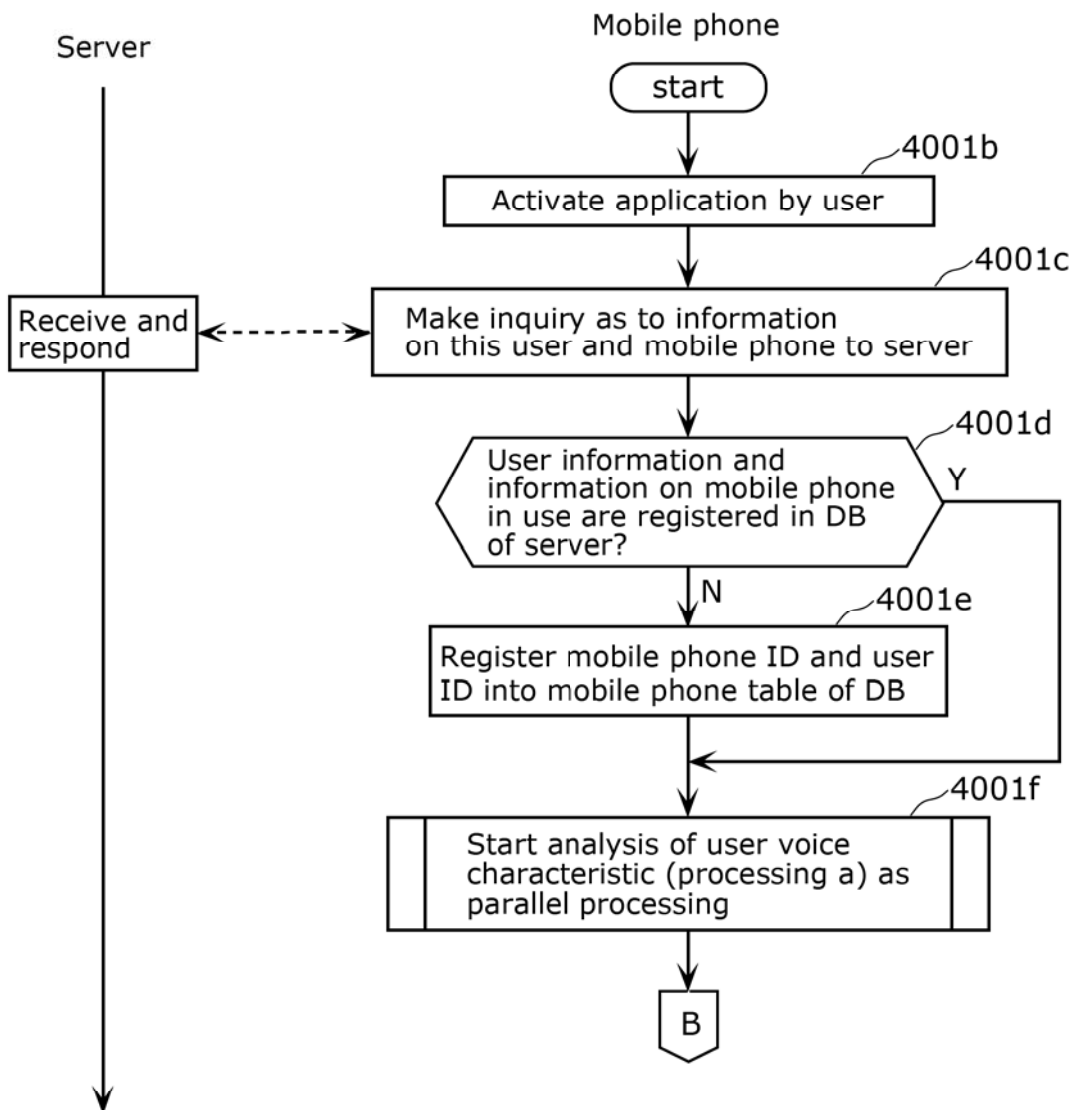
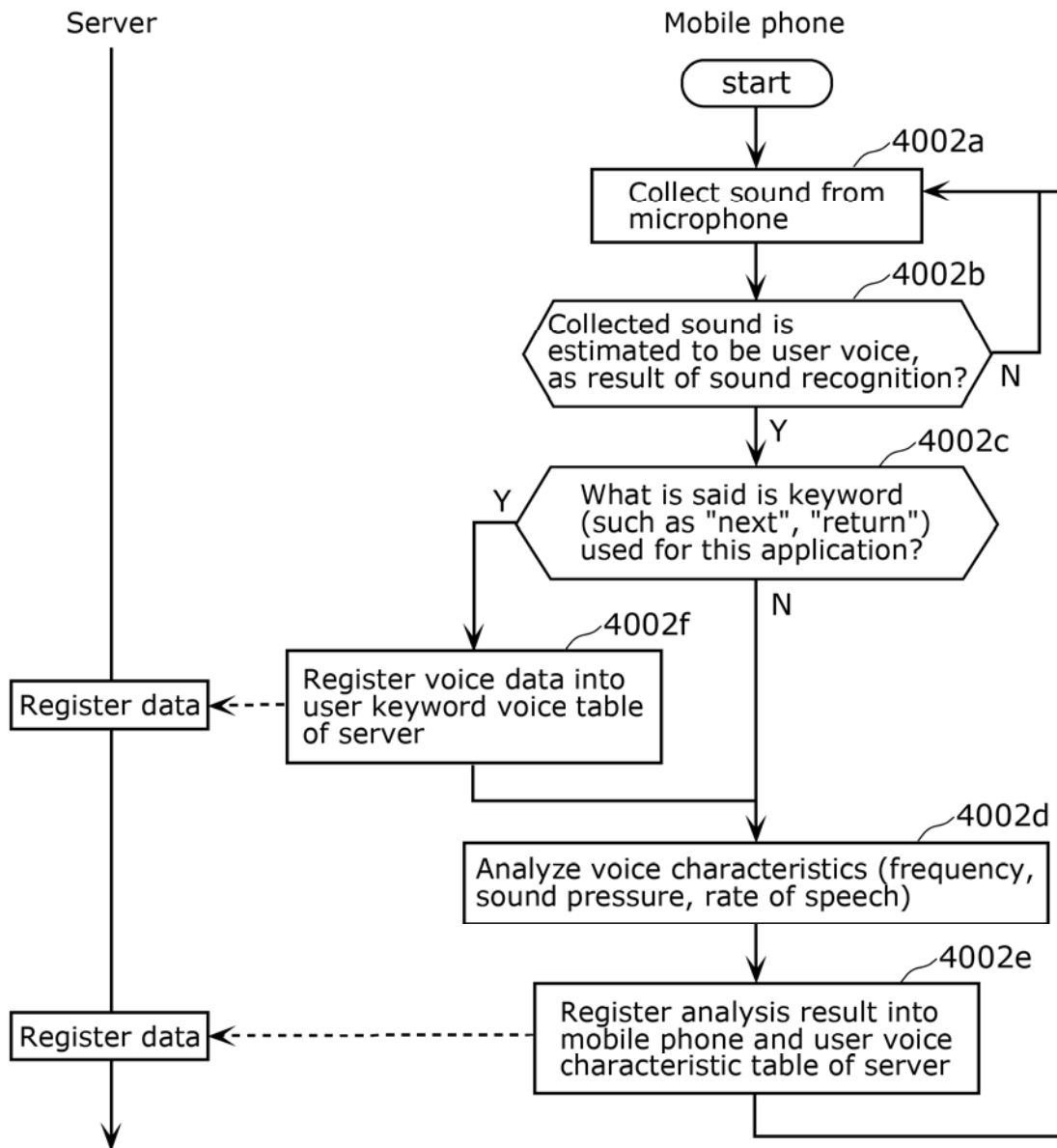


FIG. 146

(Processing a) Analyze user voice characteristics



# FIG. 147

## Prepare sound recognition processing

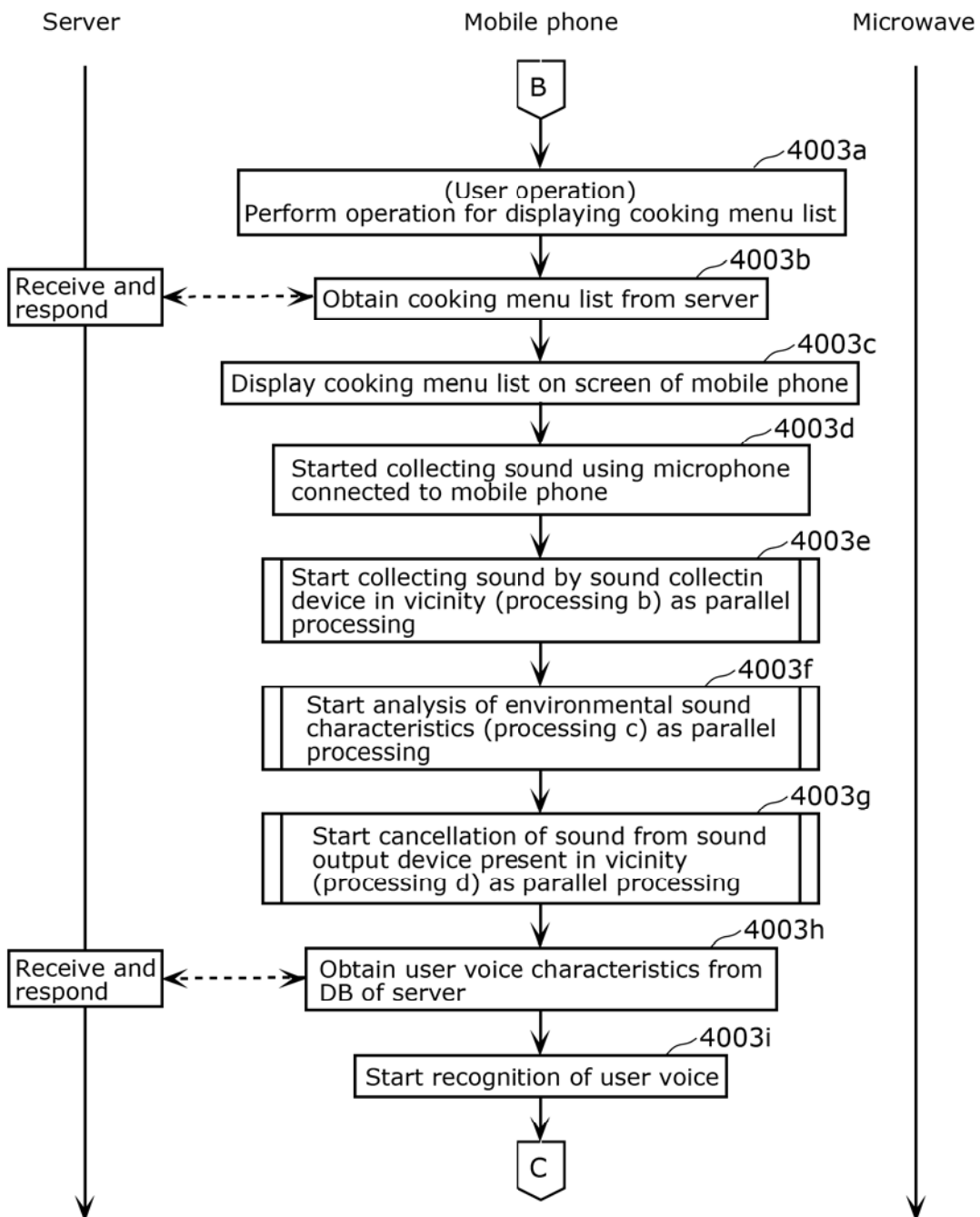


FIG. 148

(Processing b) Collect sound by sound collecting device in vicinity

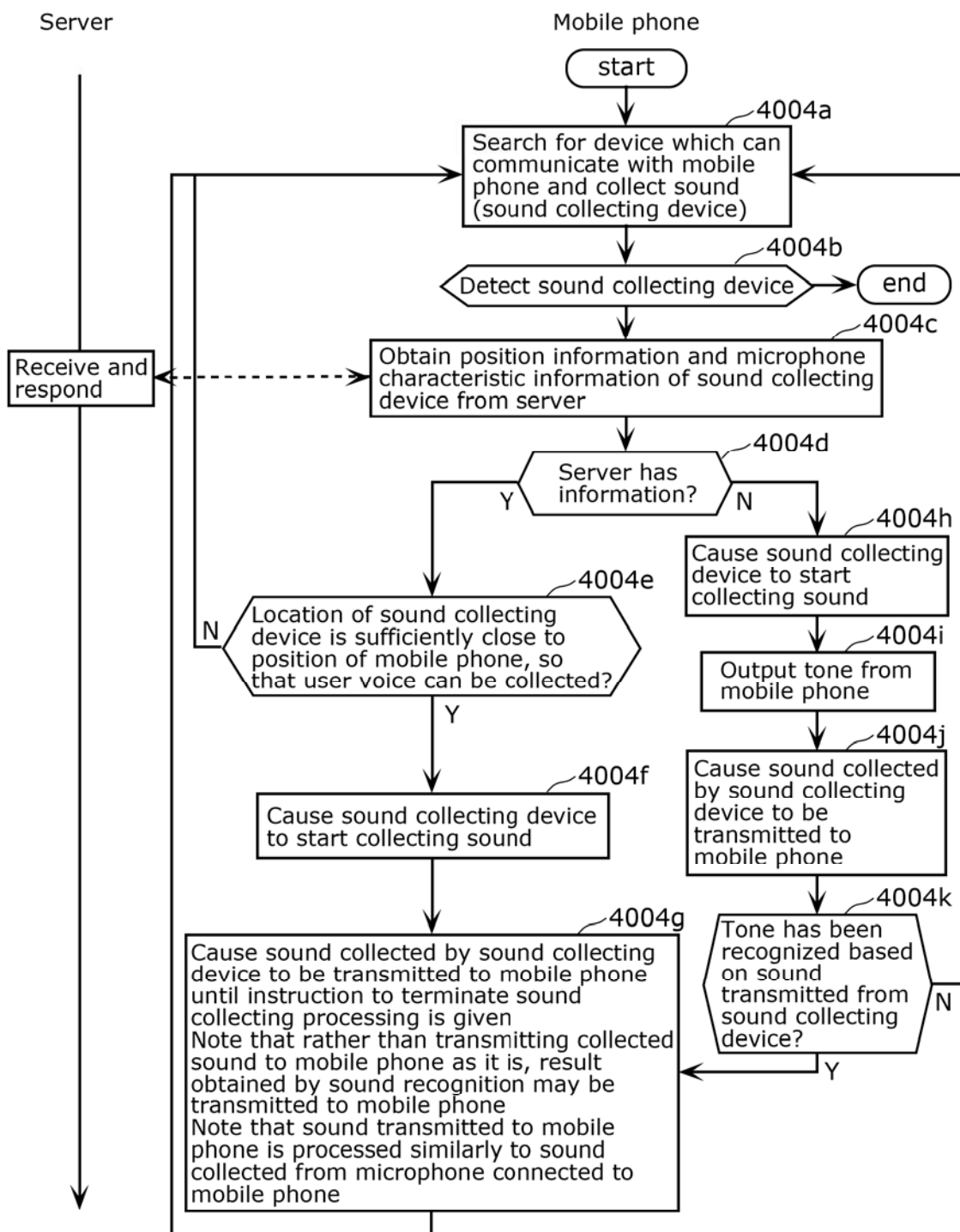


FIG. 149

(Processing c) Analyze environmental sound characteristics

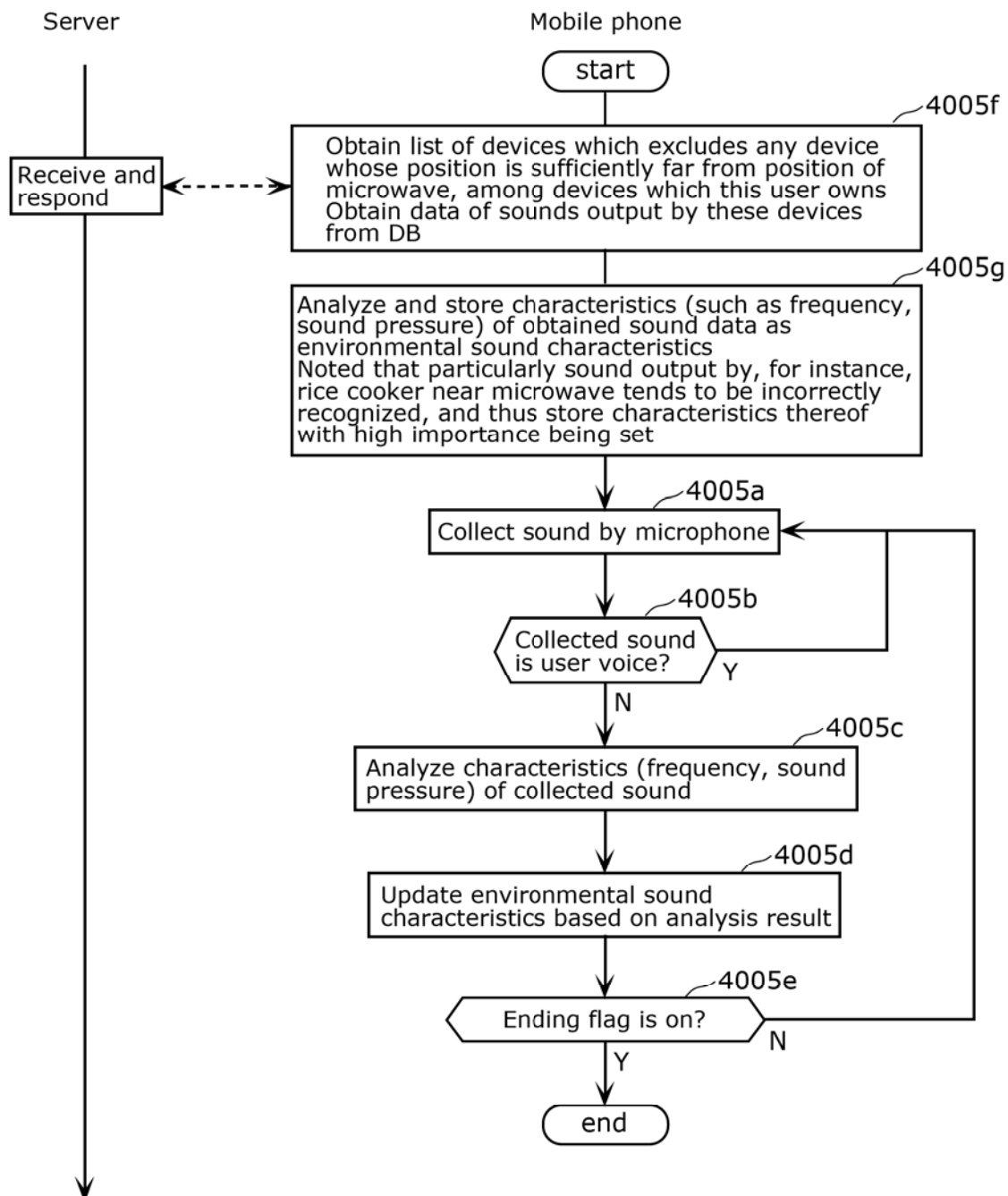


FIG. 150

(Processing d) Cancel sound from sound output device present in vicinity

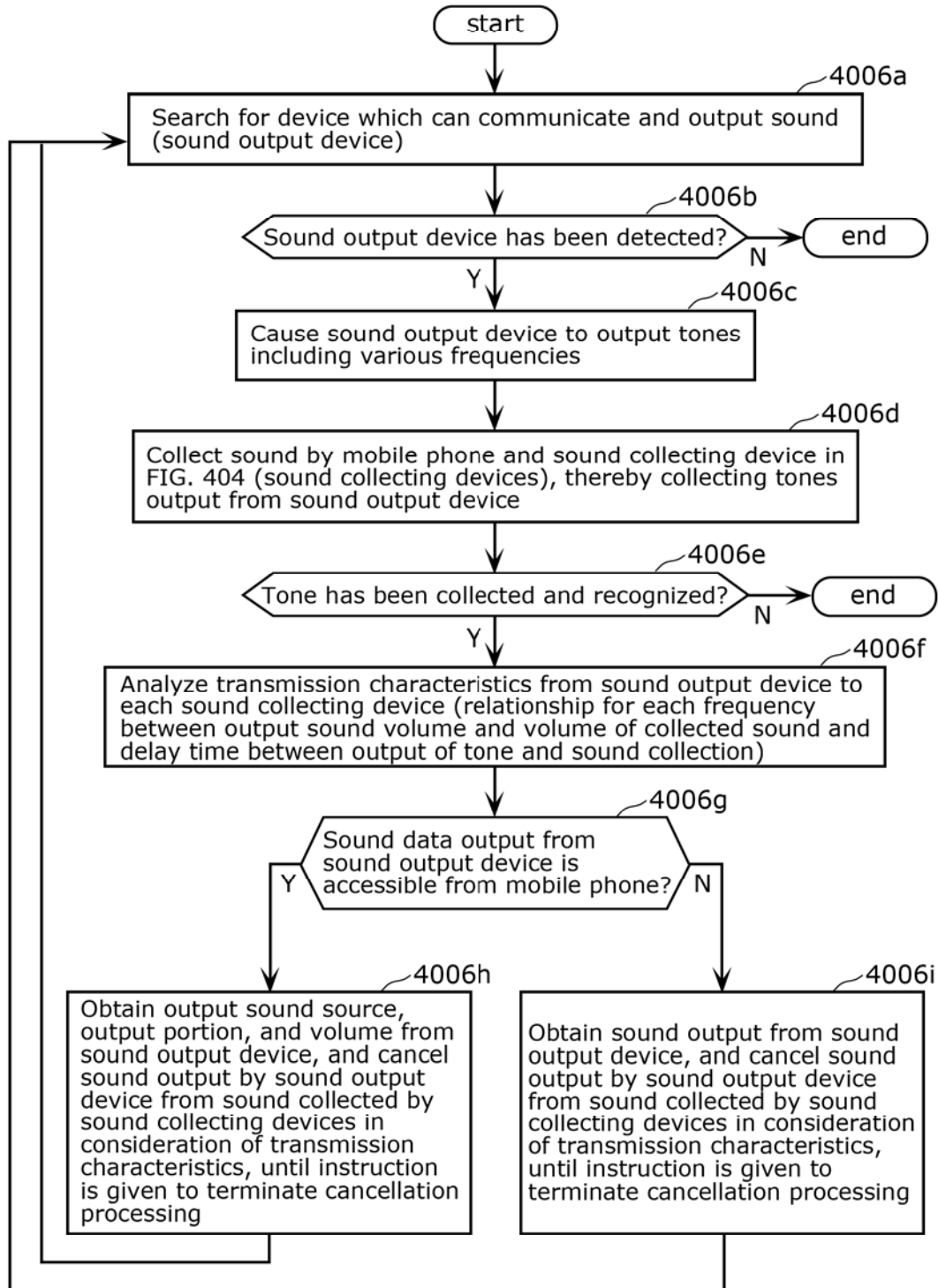


FIG. 151

Select what to cook, and set detailed operation in microwave

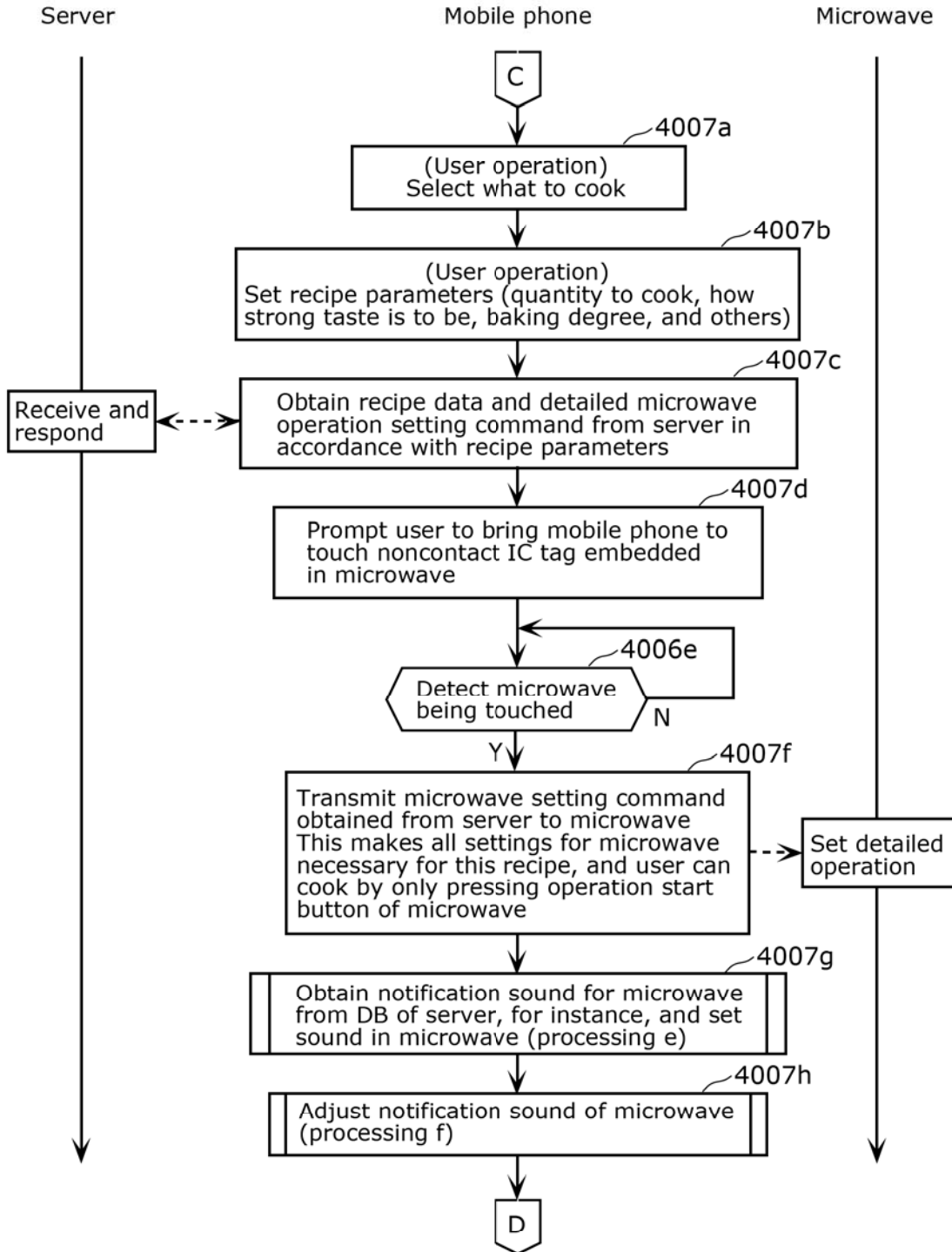


FIG. 152

(Processing e) Obtain notification sound for microwave from DB of server, for instance, and set sound in microwave

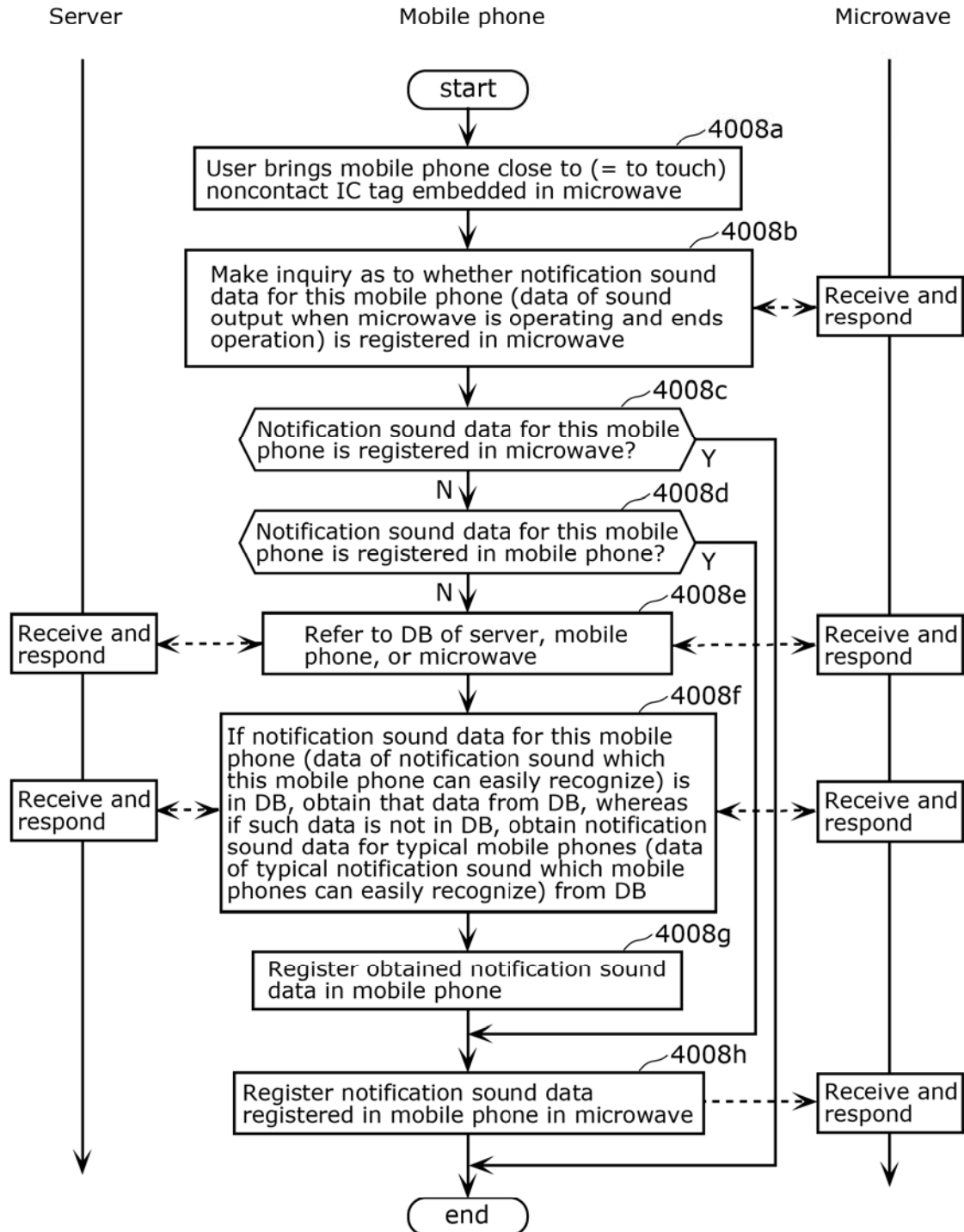




FIG. 153

(Processing f) Adjust notification sound of microwave

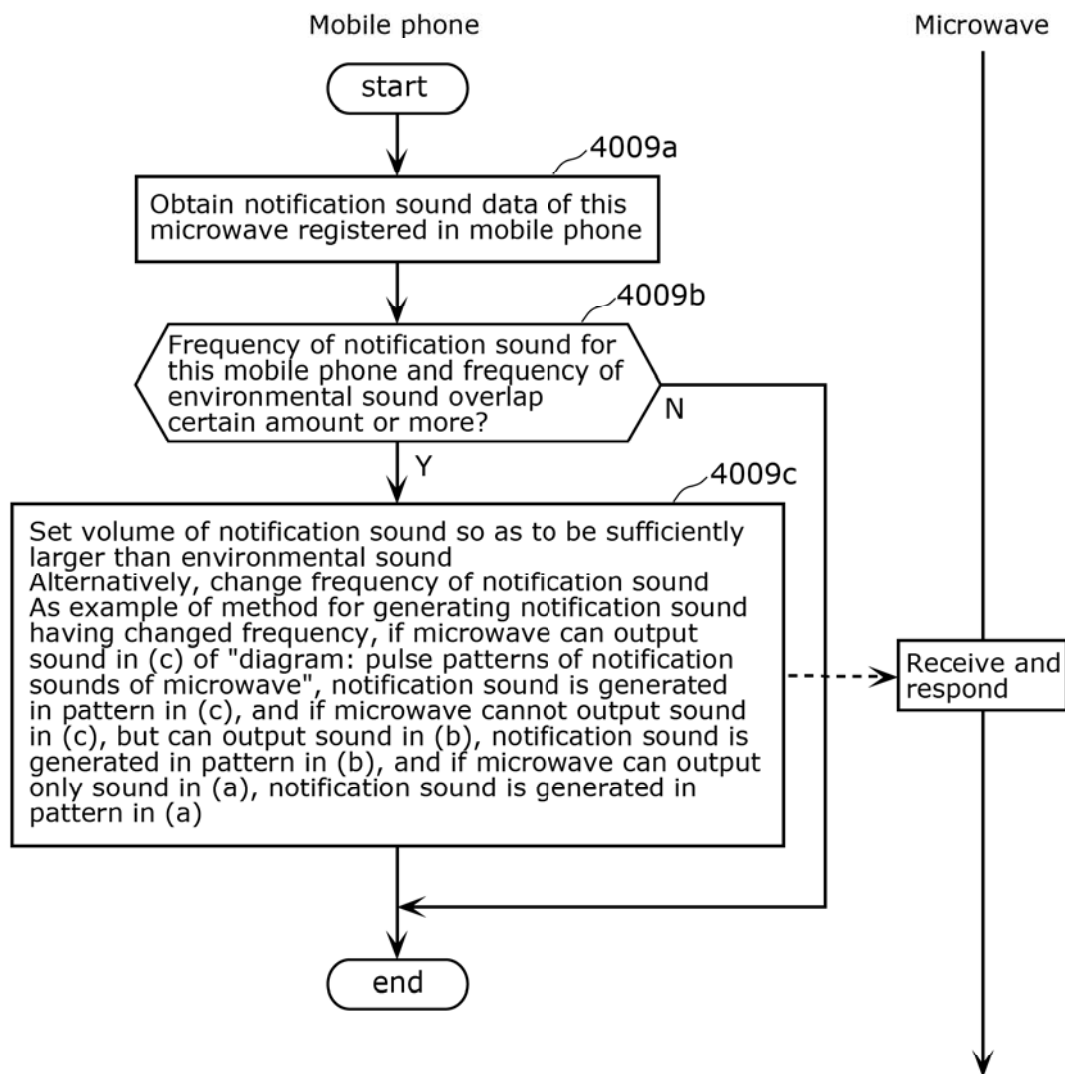


FIG. 154

Diagram: Pulse patterns of notification sounds of microwave

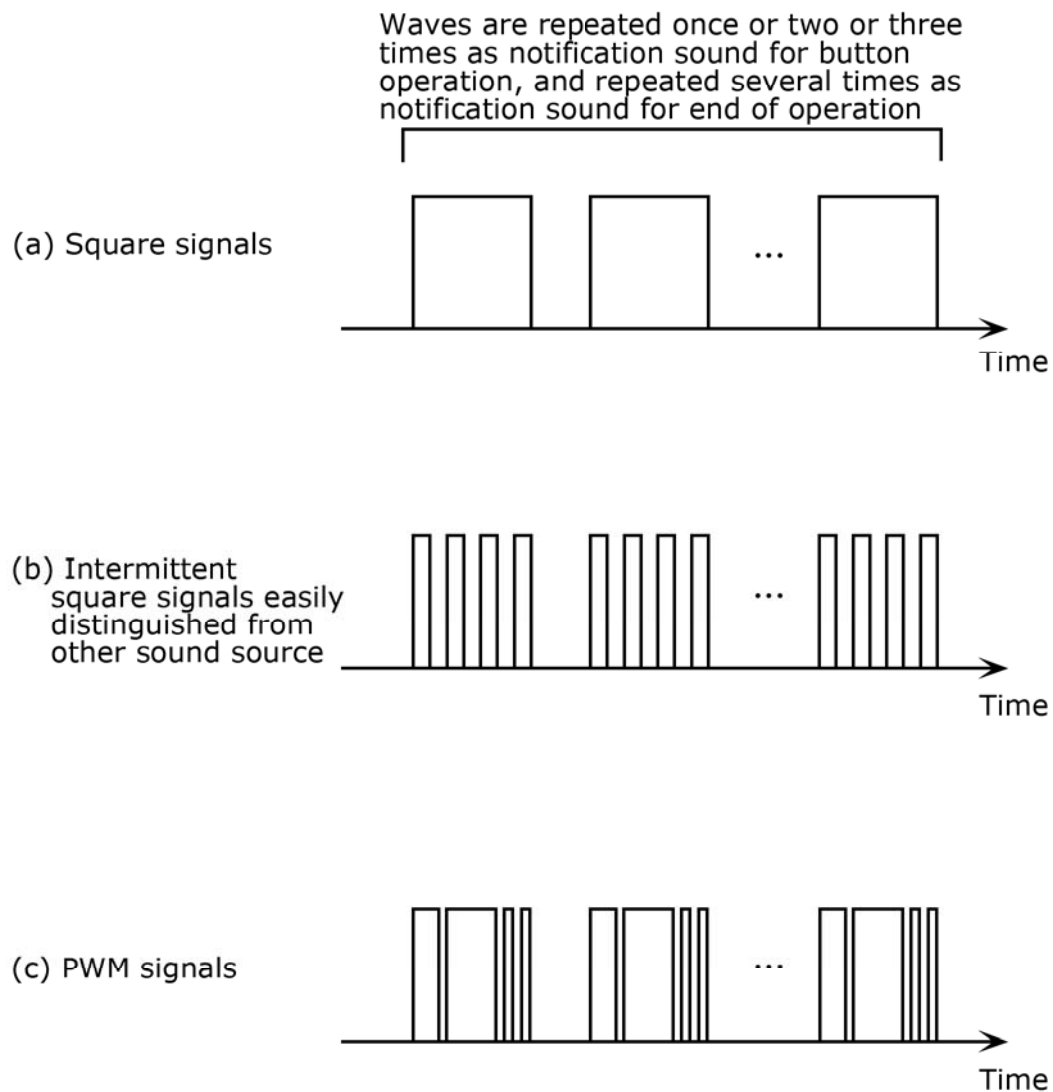


FIG. 155

Display details of cooking

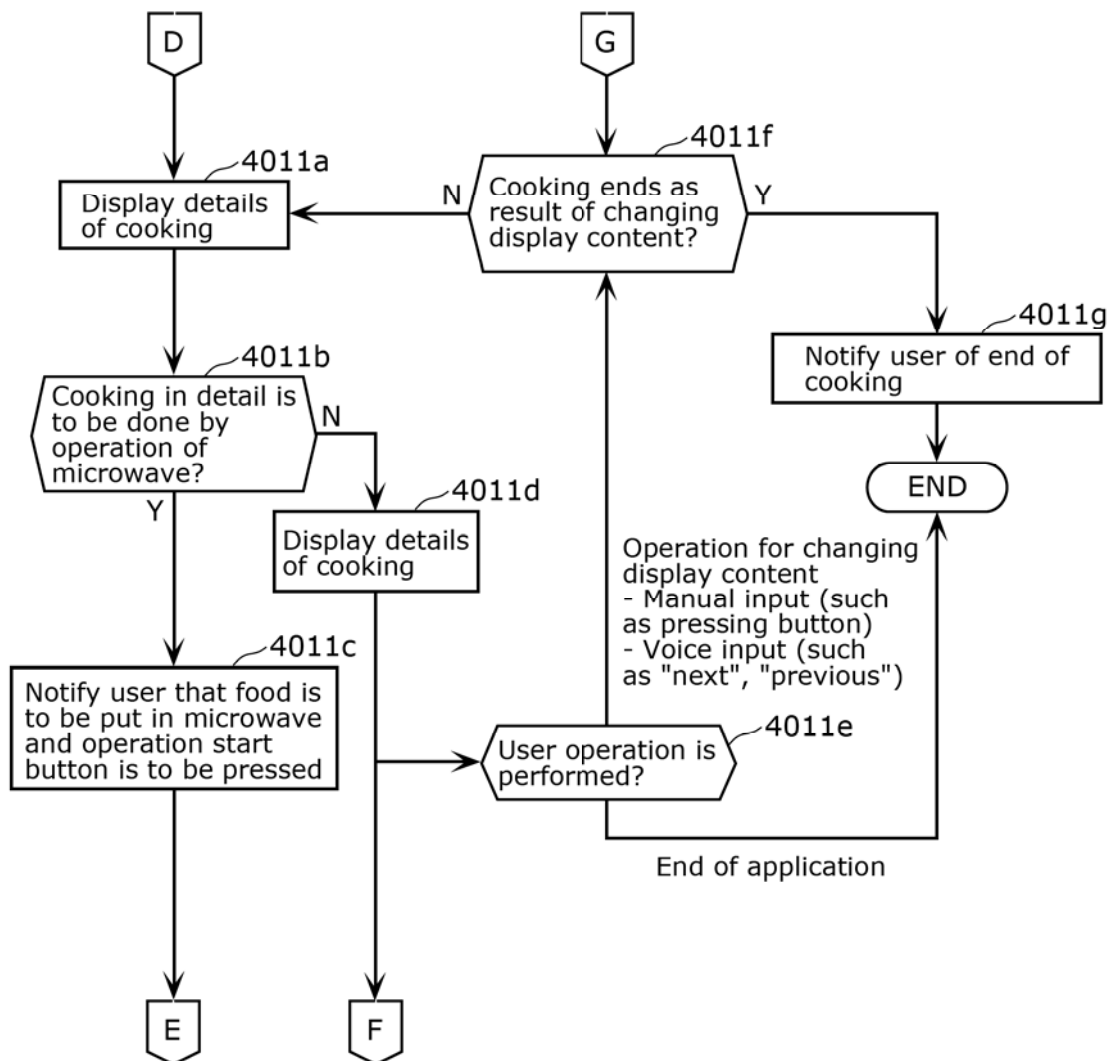
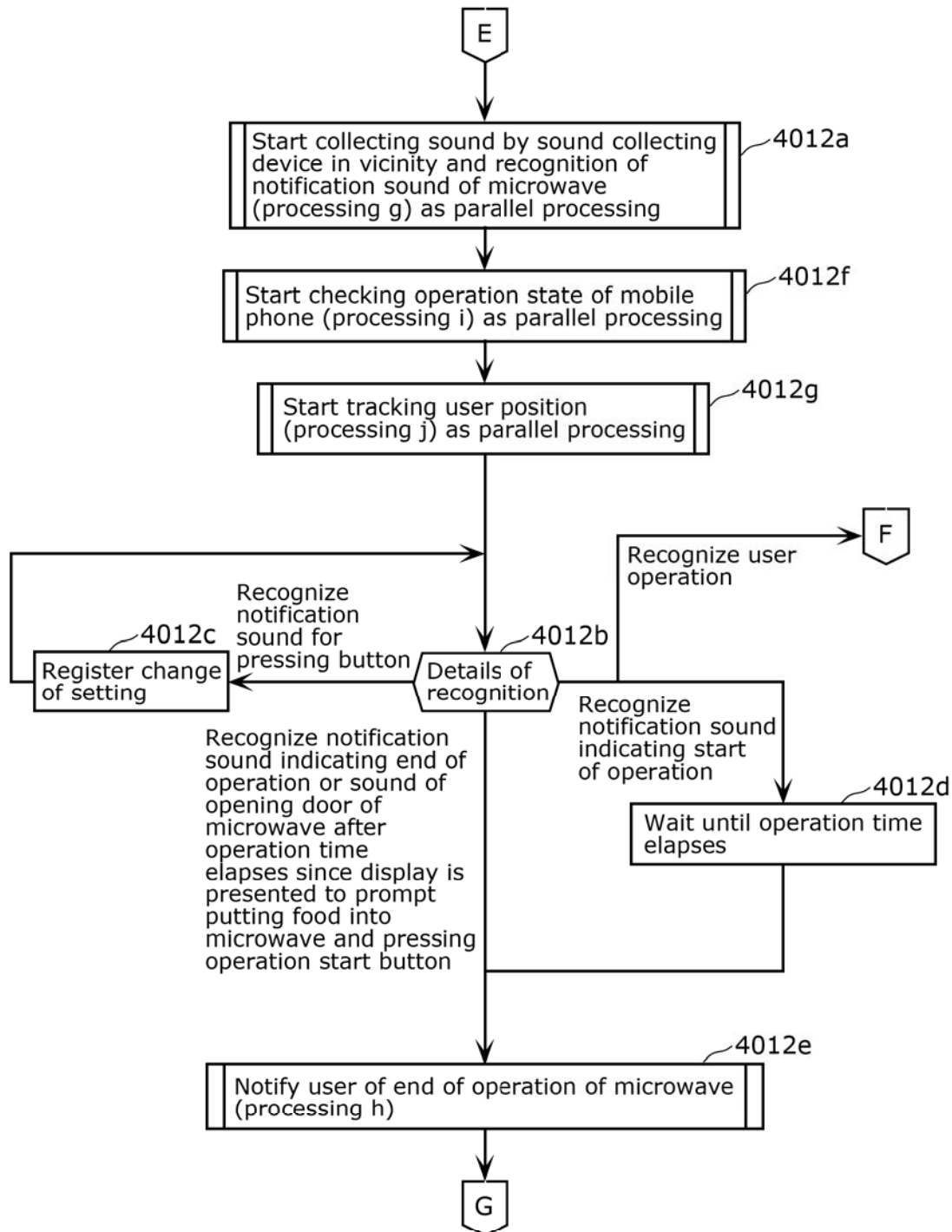


FIG. 156

Recognize notification sound of microwave



(Processing g) Collect sound by sound collecting device in vicinity and recognize notification sound of microwave

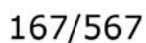


FIG. 158

(Processing h) Notify user of end of operation of microwave

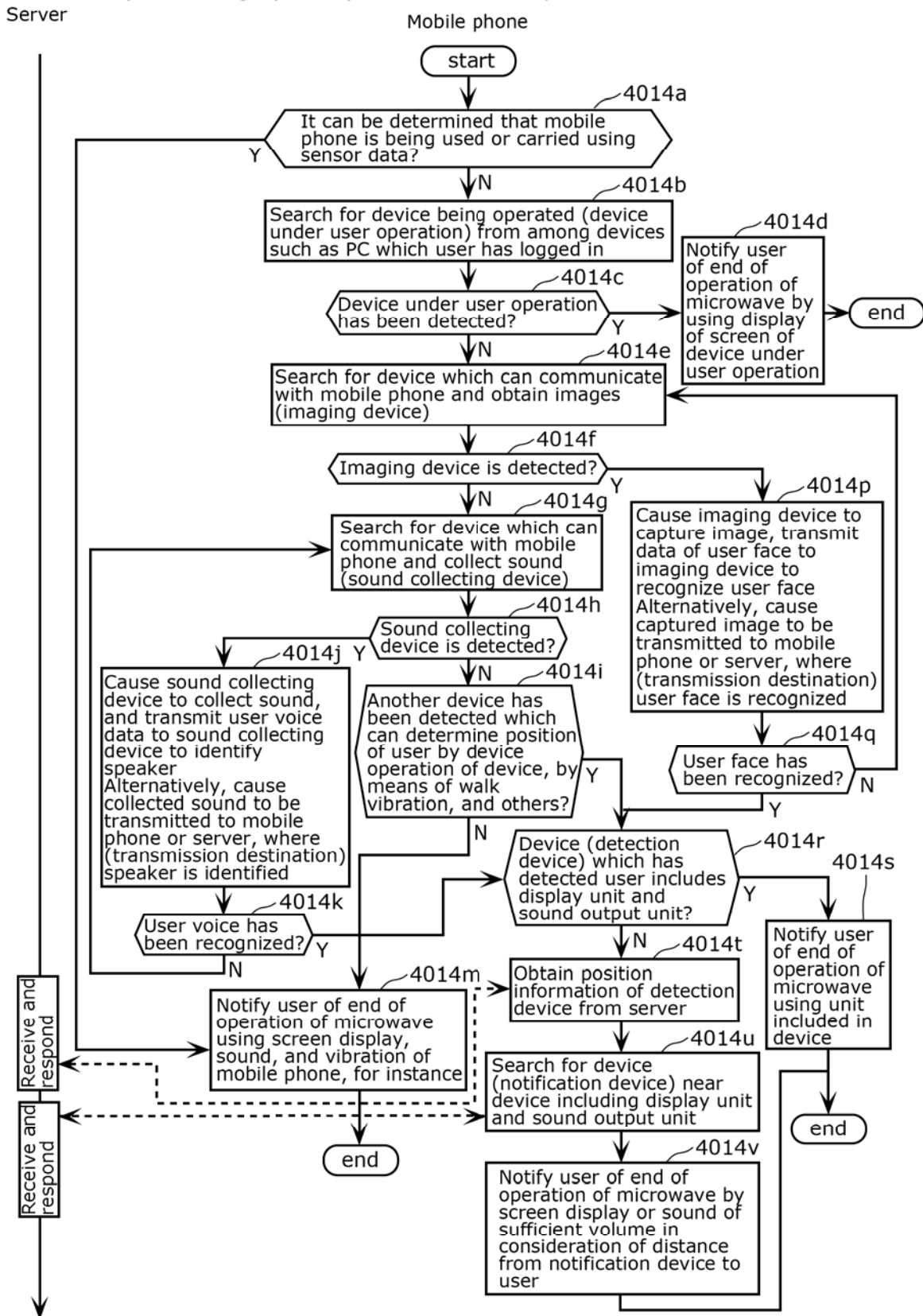
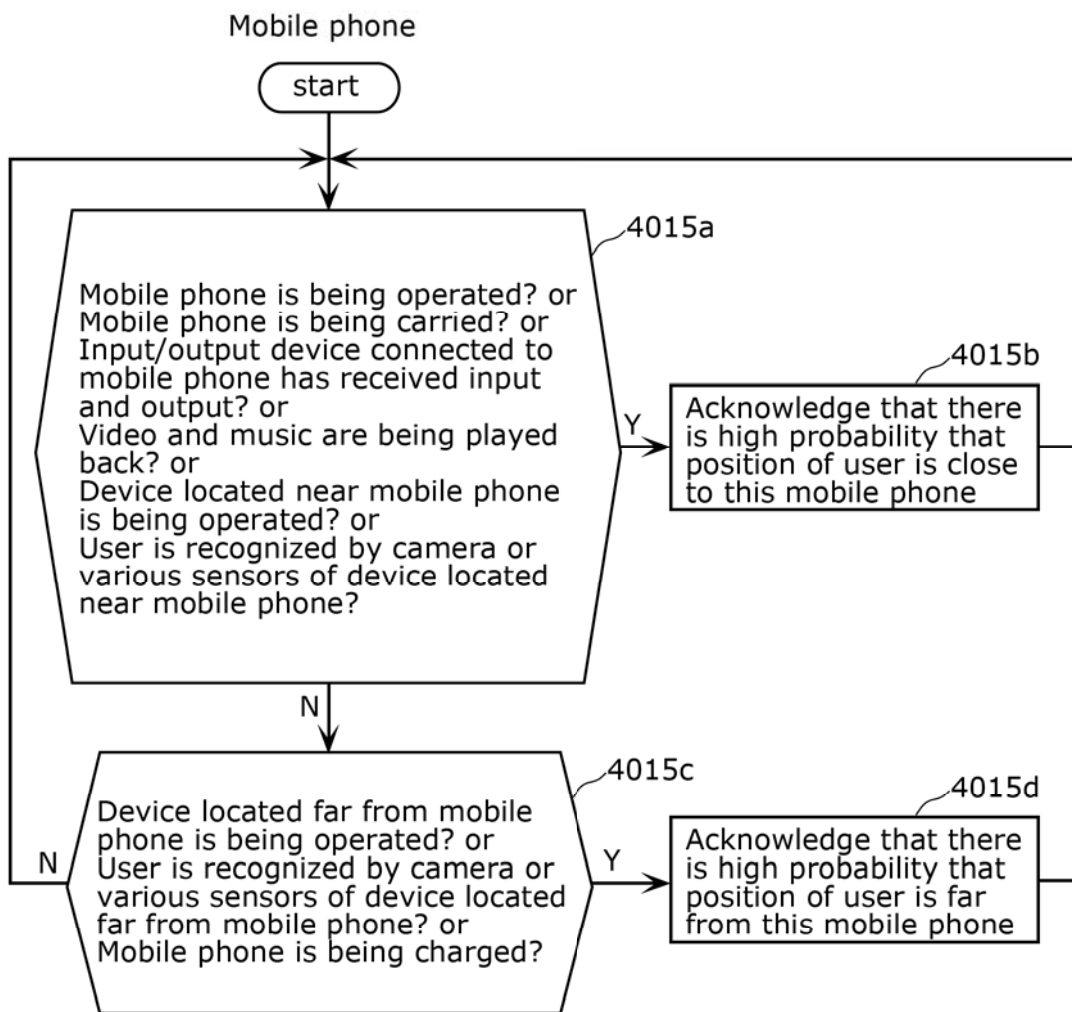


FIG. 159

(Processing i) Check operation state of mobile phone



# FIG. 160

(Processing j) Track user position

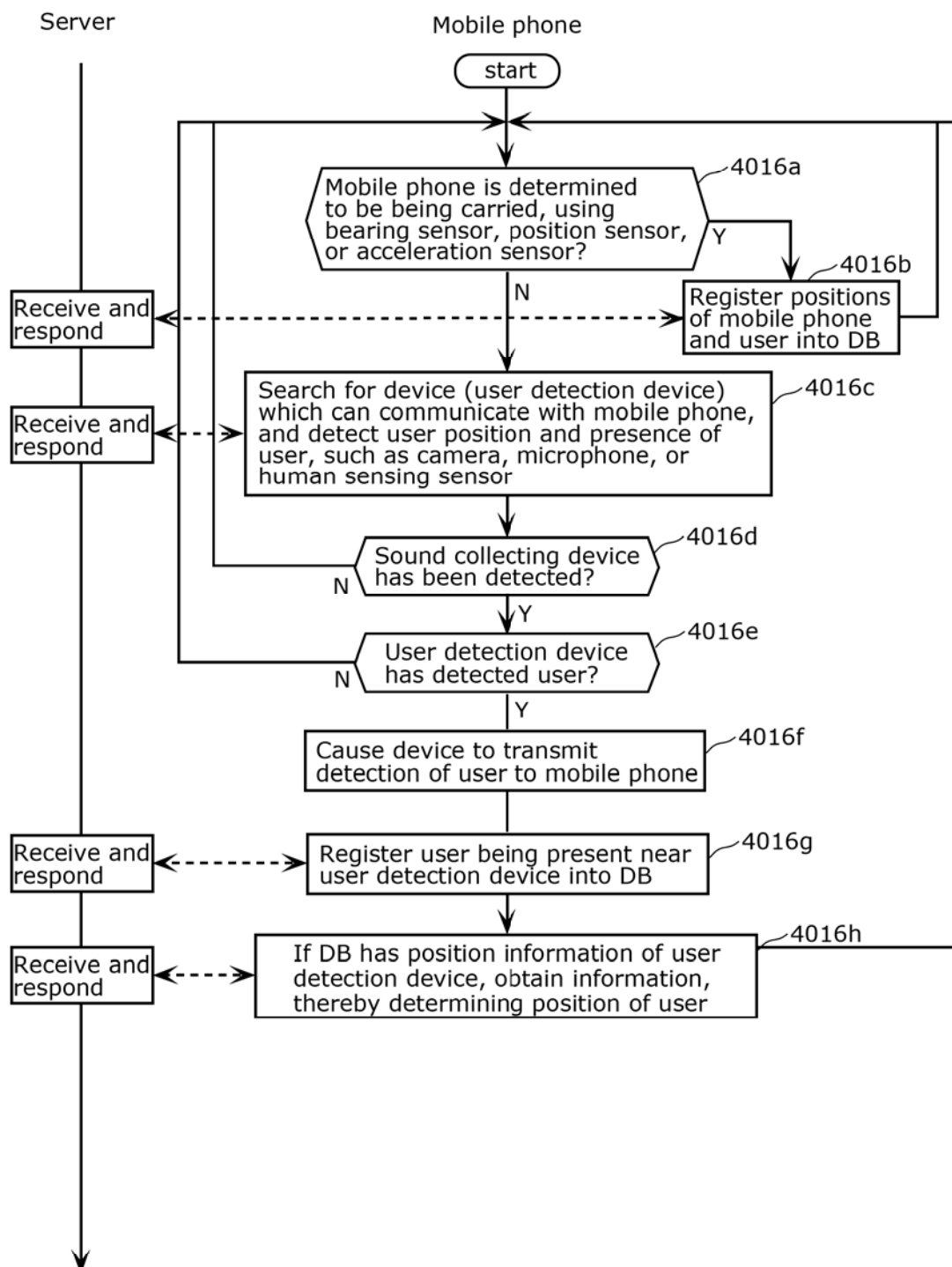
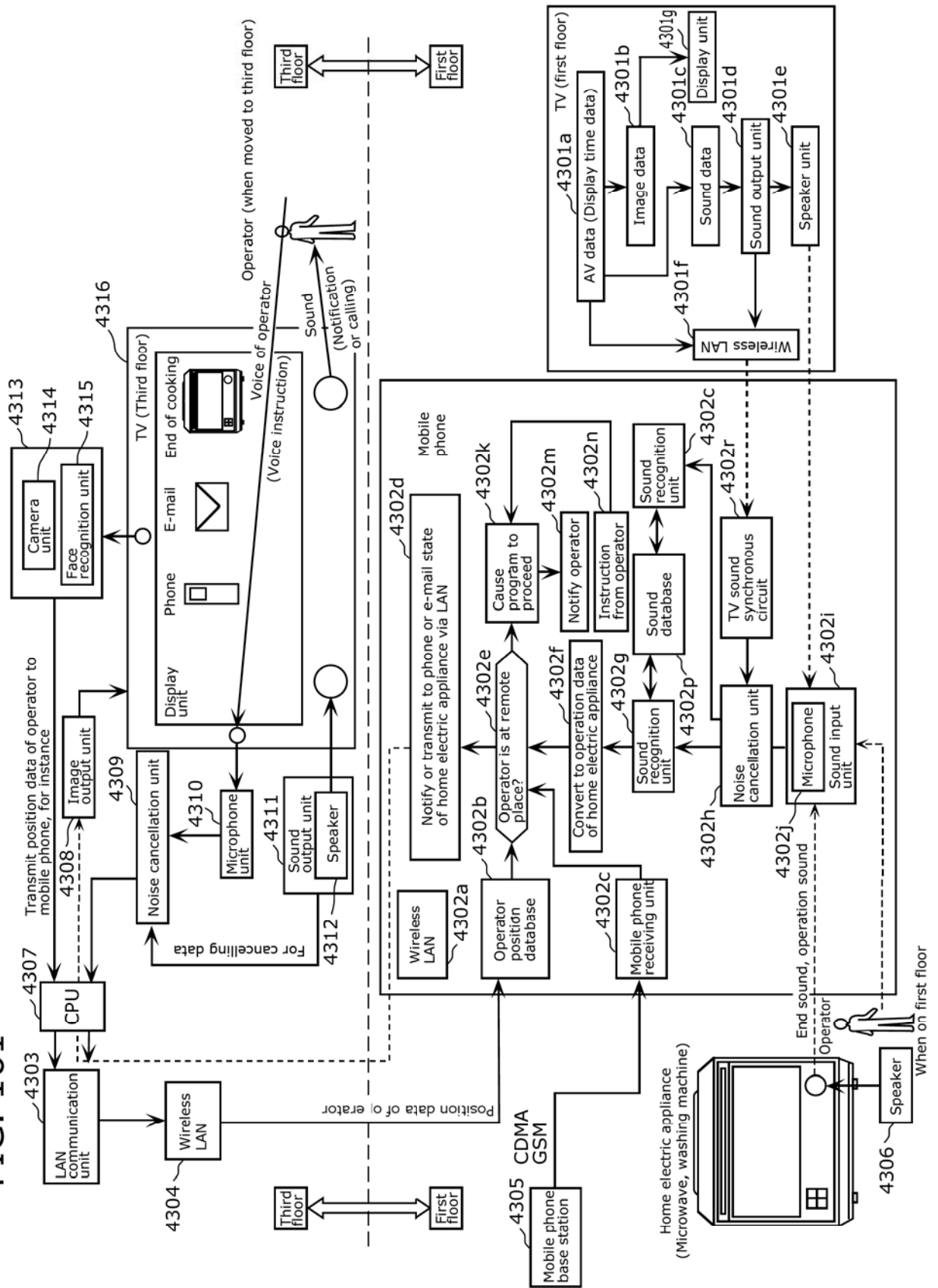




FIG. 161



# FIG. 162

## Database

|                       |                                                                                                                           |                                                                                 |                                                                                 |     |                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------|
| Microwave table 4040a |                                                                                                                           |                                                                                 |                                                                                 |     |                                                                                       |
| Model ID of microwave | Data for identifying sound which can be output by microwave (speaker characteristics and modulation method, for instance) | Notification sound data for mobile phone model A (sound easily recognized by A) | Notification sound data for mobile phone model B (sound easily recognized by B) | ... | Notification sound data for typical mobile phone (sound easily recognized on average) |
|                       |                                                                                                                           |                                                                                 |                                                                                 |     |                                                                                       |
|                       |                                                                                                                           |                                                                                 |                                                                                 |     |                                                                                       |

|                          |                       |         |                            |
|--------------------------|-----------------------|---------|----------------------------|
| Mobile phone table 4040a |                       |         |                            |
| Mobile phone ID          | Mobile phone model ID | User ID | Mobile phone position data |
|                          |                       |         |                            |
|                          |                       |         |                            |

|                                |                                  |
|--------------------------------|----------------------------------|
| Mobile phone model table 4040c |                                  |
| Mobile phone model ID          | Sound-collecting characteristics |
|                                |                                  |
|                                |                                  |

|                                       |                             |
|---------------------------------------|-----------------------------|
| User voice characteristic table 4040d |                             |
| User ID                               | User voice acoustic feature |
|                                       |                             |
|                                       |                             |

|                                |                                                     |
|--------------------------------|-----------------------------------------------------|
| User keyword voice table 4040e |                                                     |
| User ID                        | Voice waveform data obtained when user says keyword |
|                                |                                                     |
|                                |                                                     |

|                                        |                 |                            |
|----------------------------------------|-----------------|----------------------------|
| User owned device position table 4040f |                 |                            |
| User ID                                | Owned device ID | Owned device position data |
|                                        |                 |                            |
|                                        |                 |                            |

|                                          |                 |                                   |
|------------------------------------------|-----------------|-----------------------------------|
| User owned device sound data table 4040g |                 |                                   |
| User ID                                  | Owned device ID | Sound data output by owned device |
|                                          |                 |                                   |
|                                          |                 |                                   |

|                           |                    |
|---------------------------|--------------------|
| User position table 4040h |                    |
| User ID                   | User position data |
|                           |                    |
|                           |                    |

FIG. 163

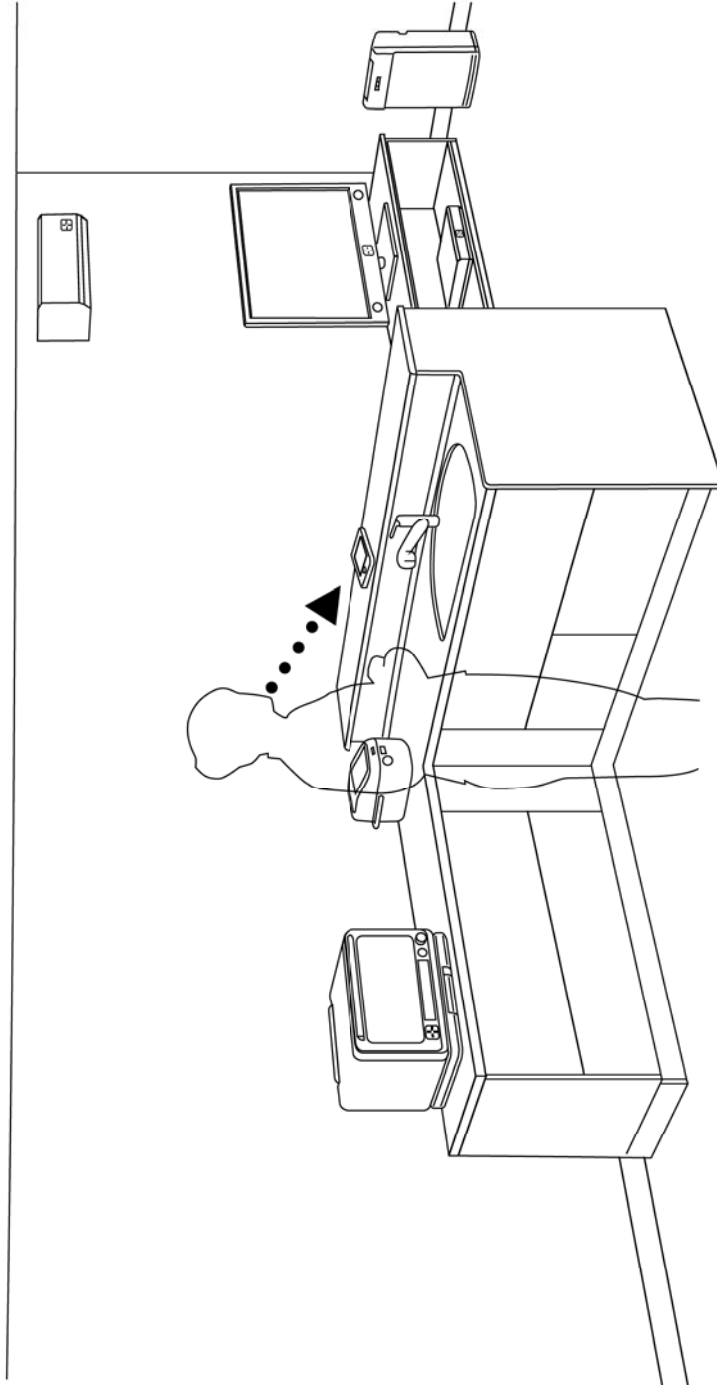


FIG. 164

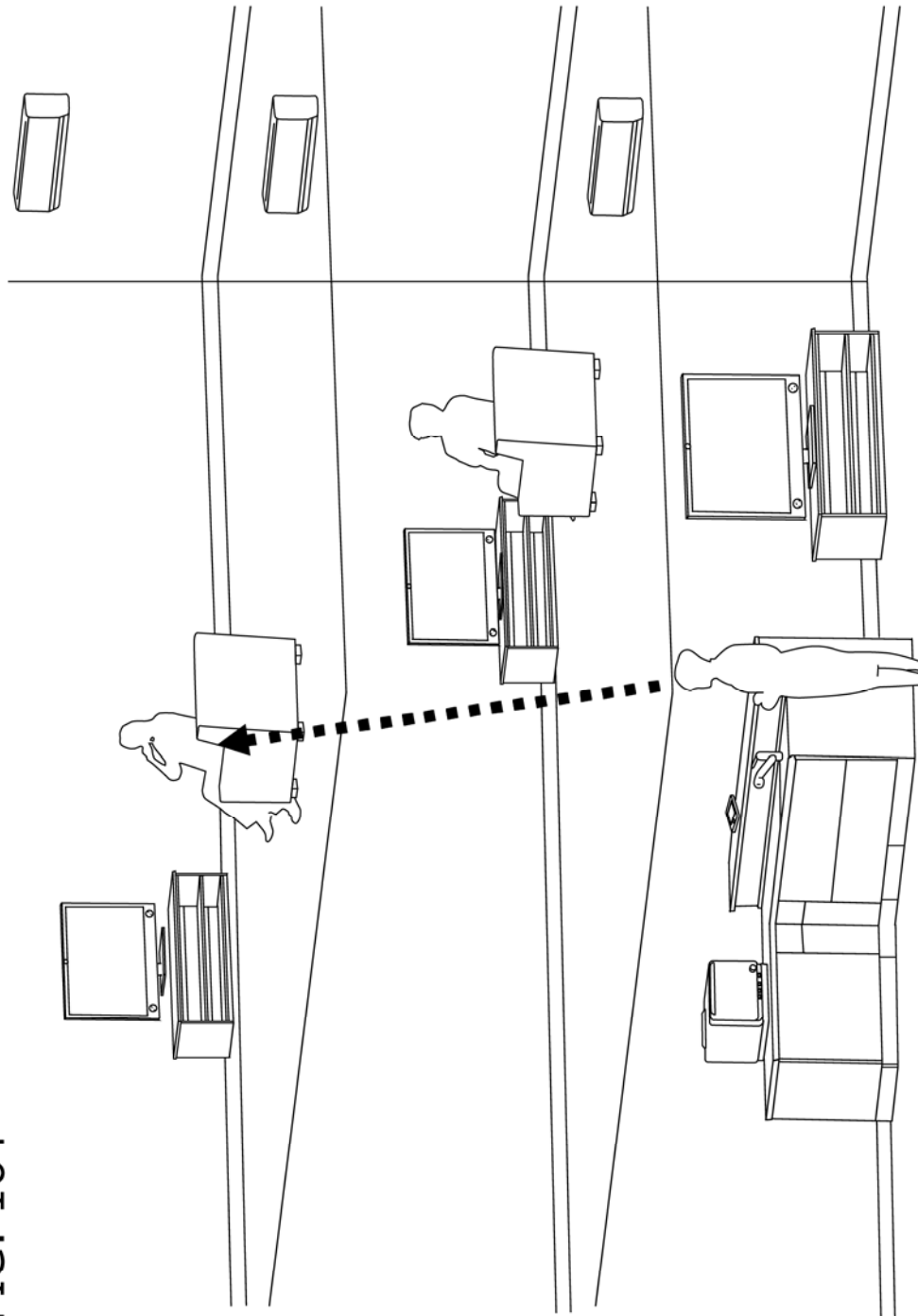


FIG. 165

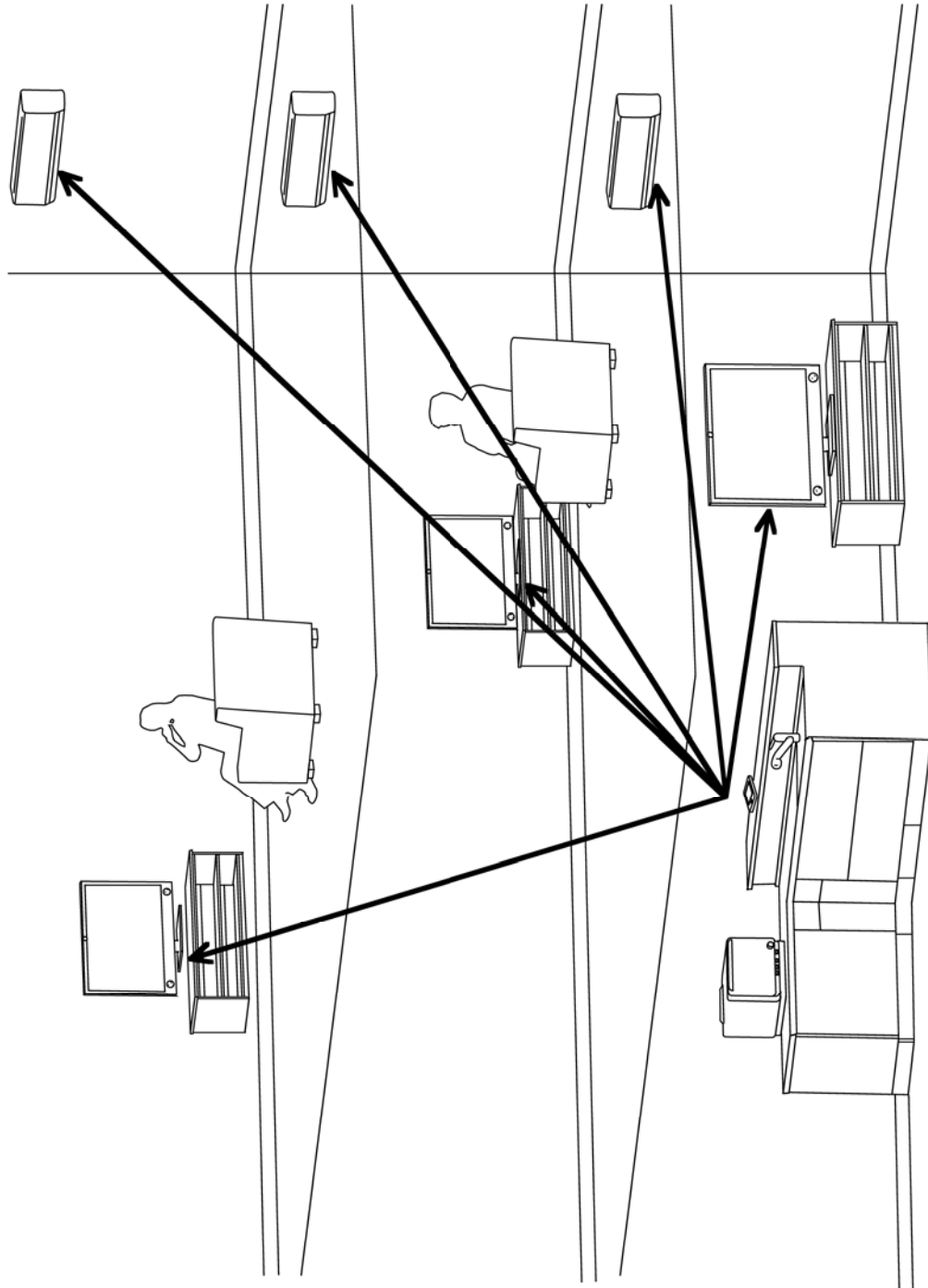


FIG. 166

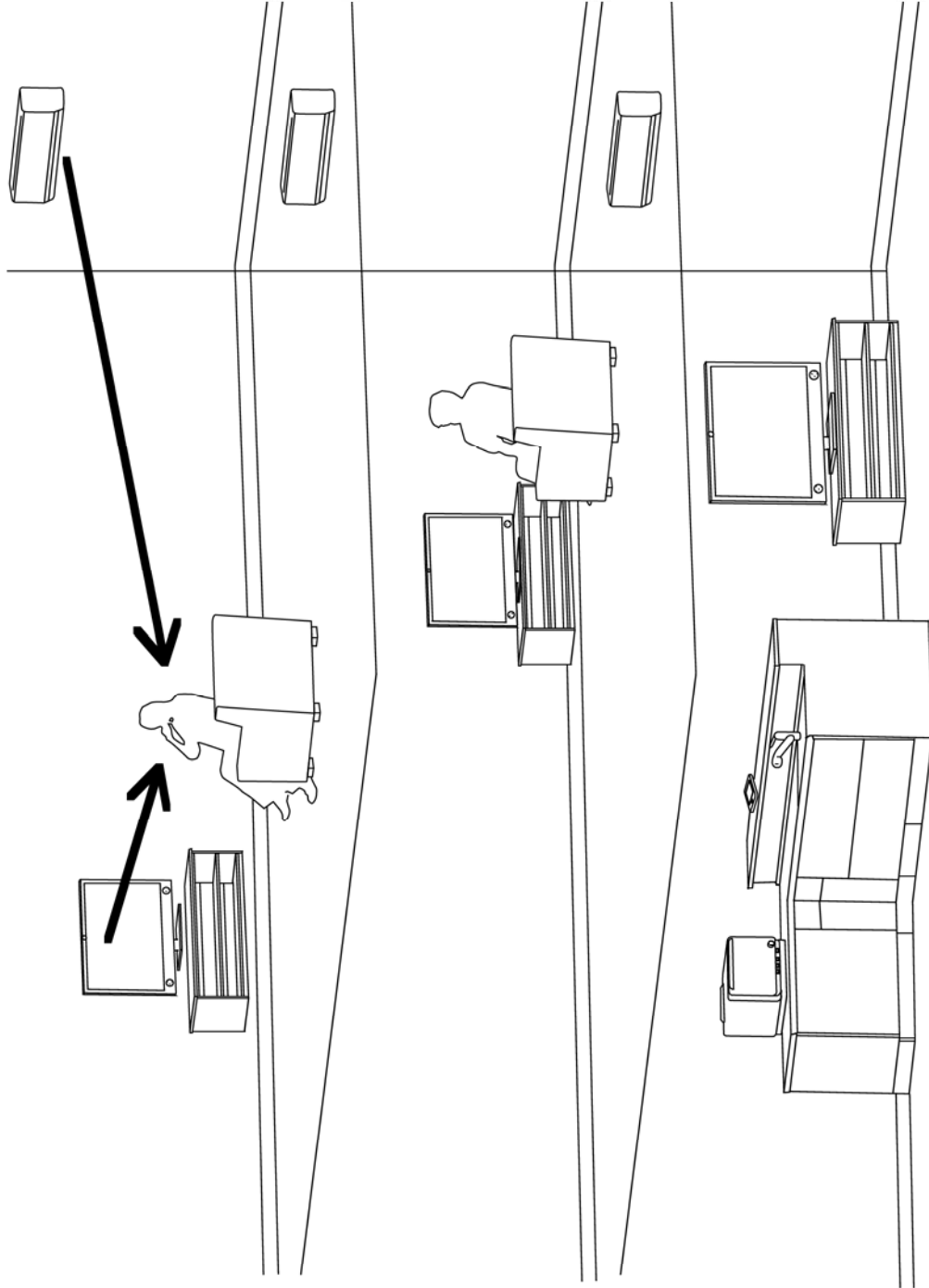


FIG. 167

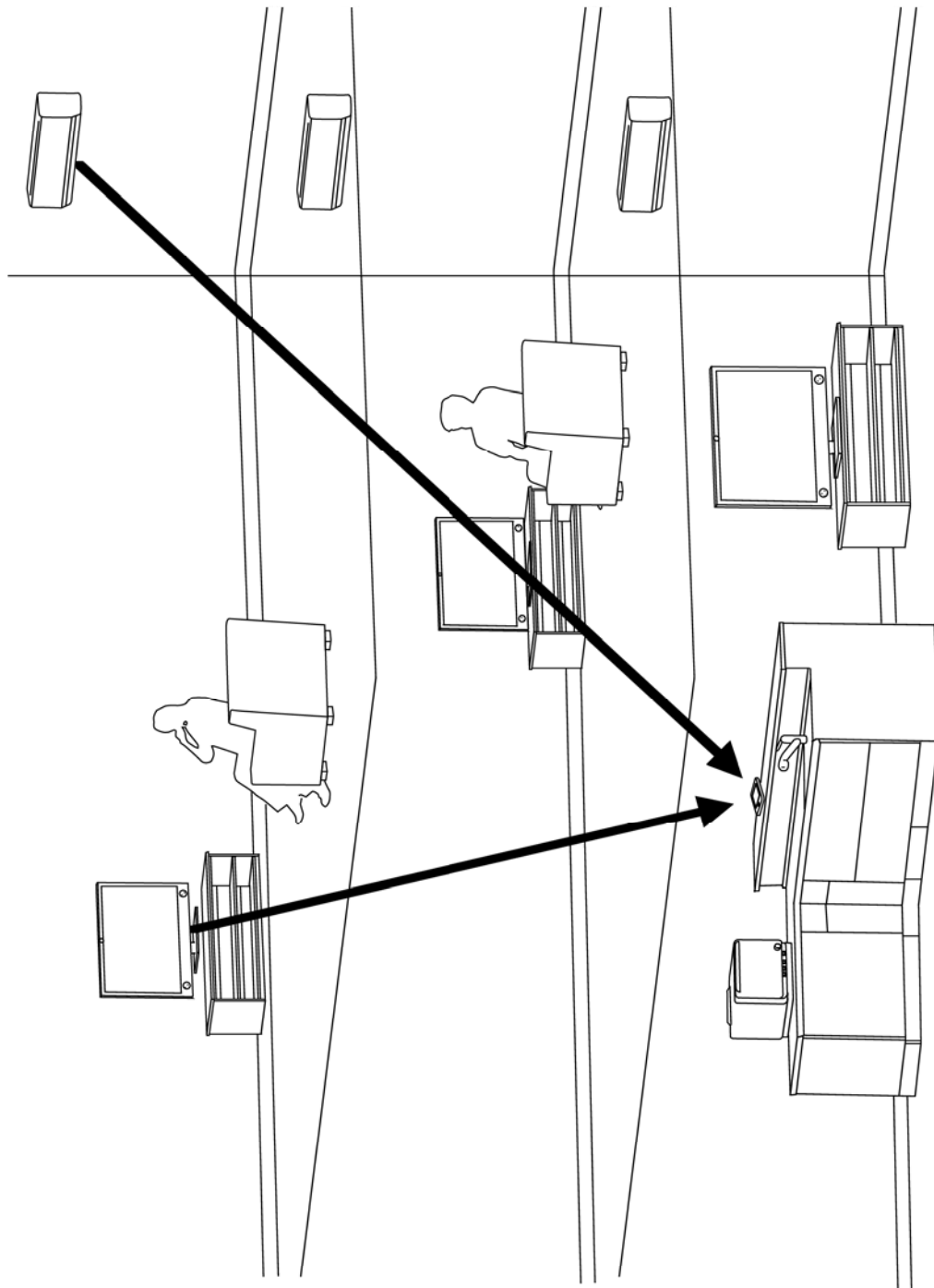


FIG. 168

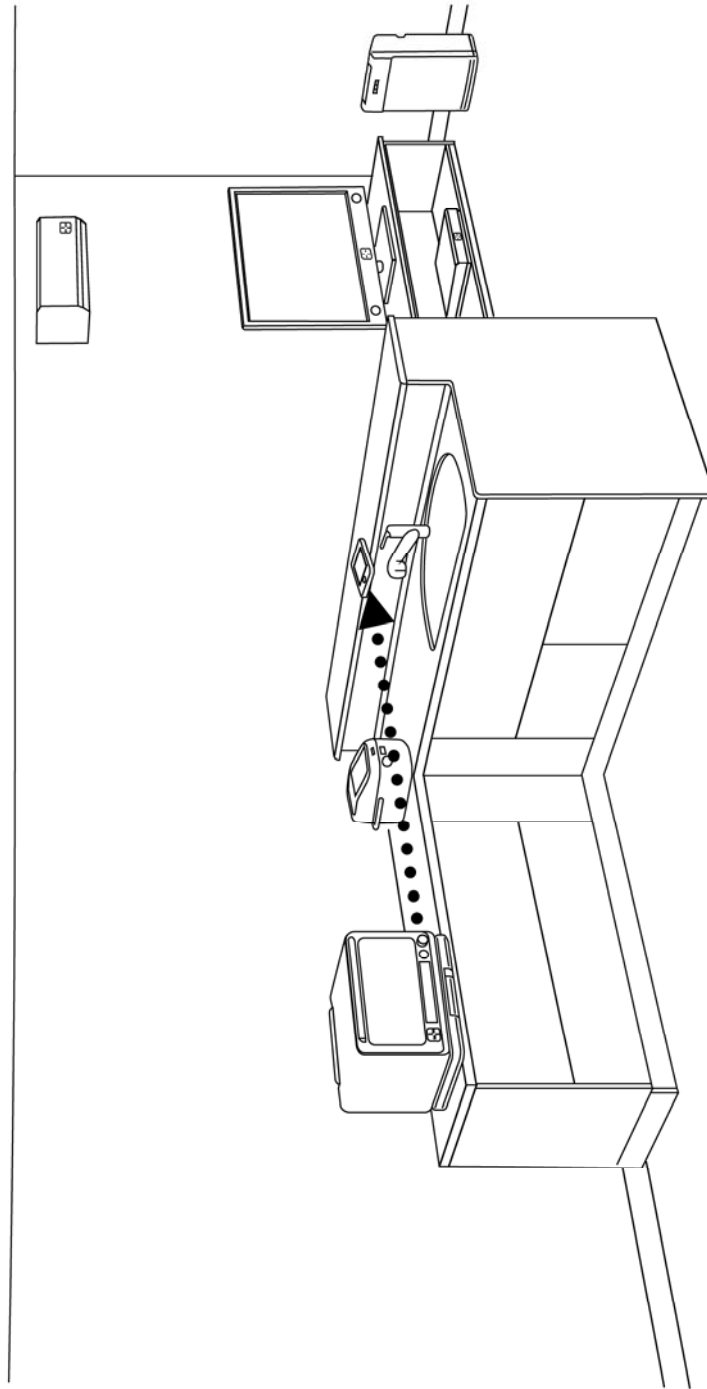




FIG. 169

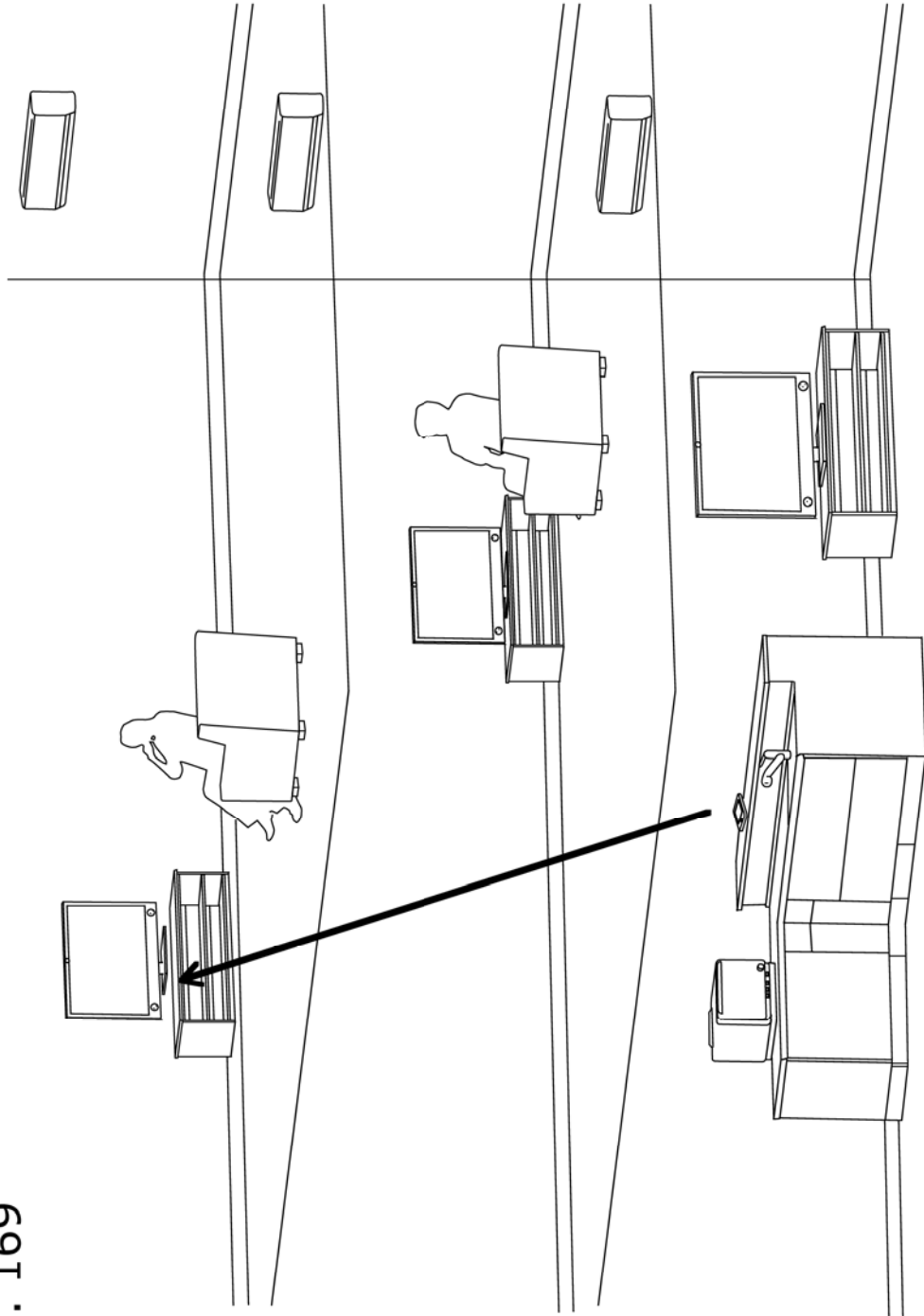


FIG. 170

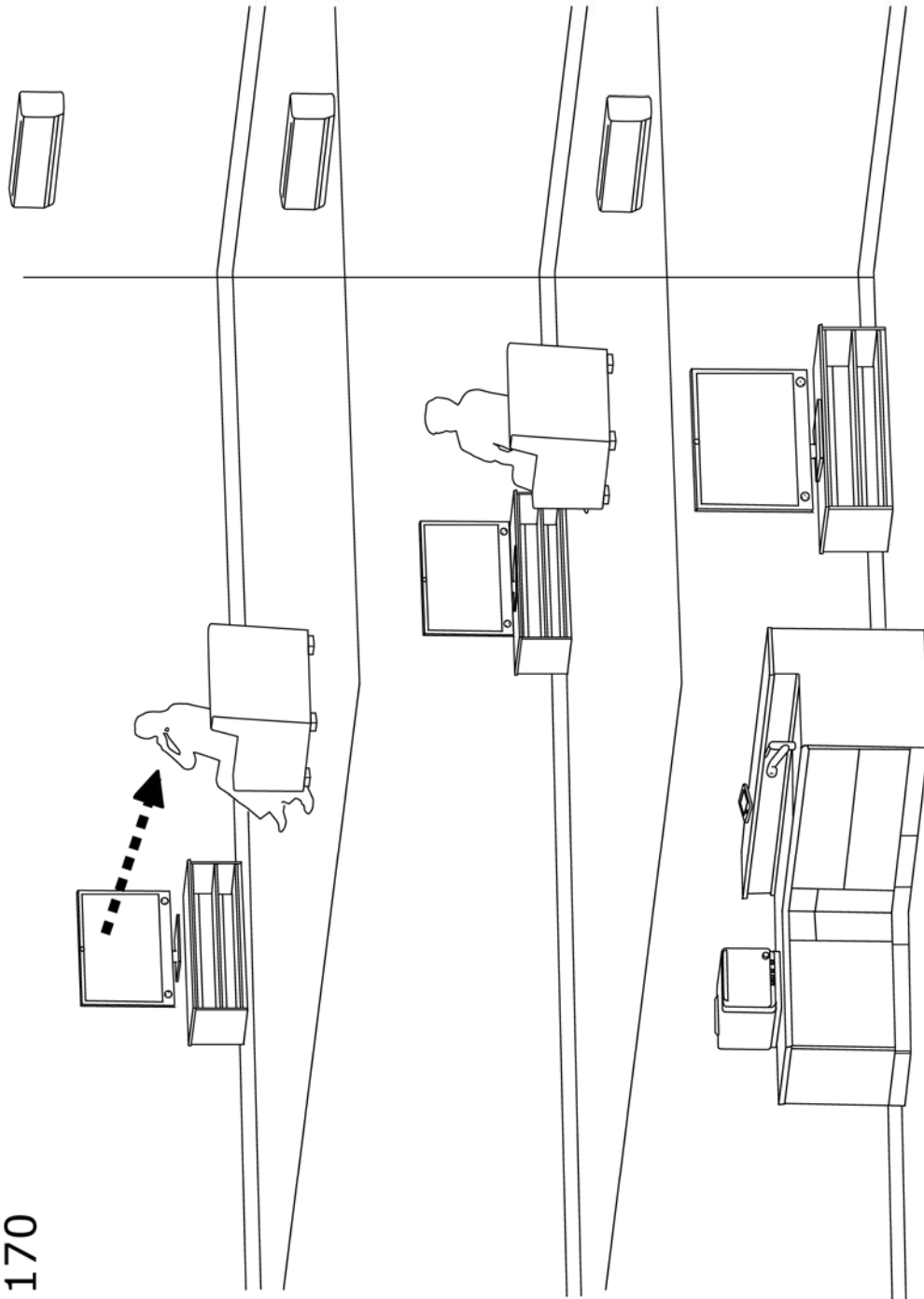


FIG. 171

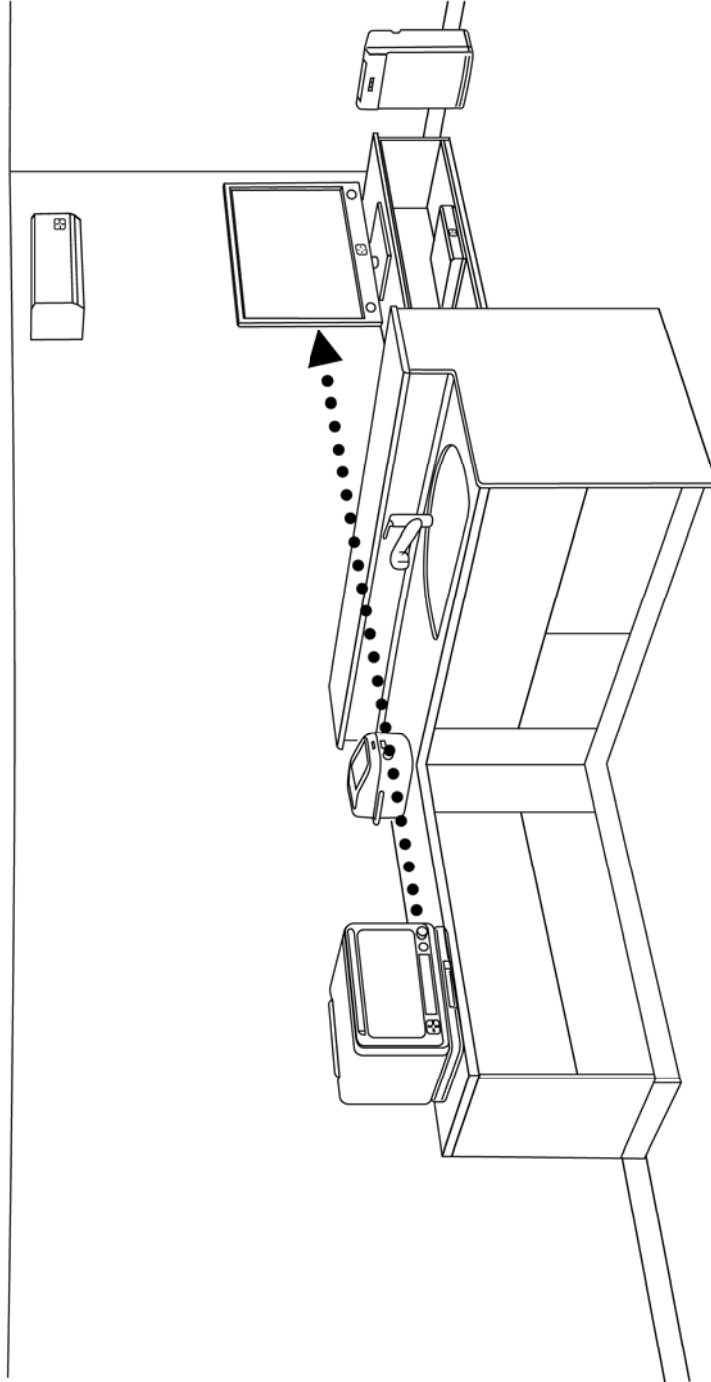


FIG. 172

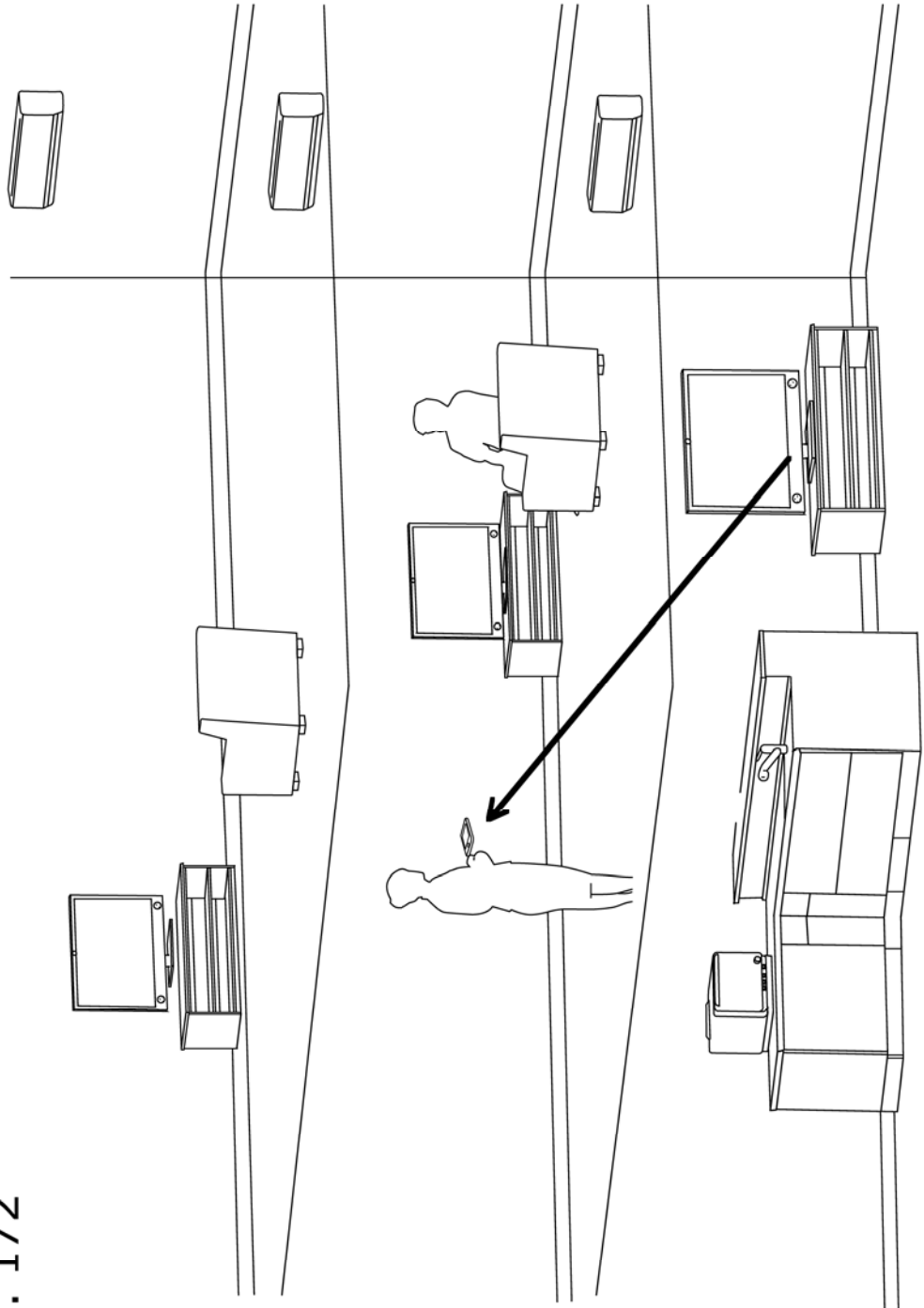


FIG. 173

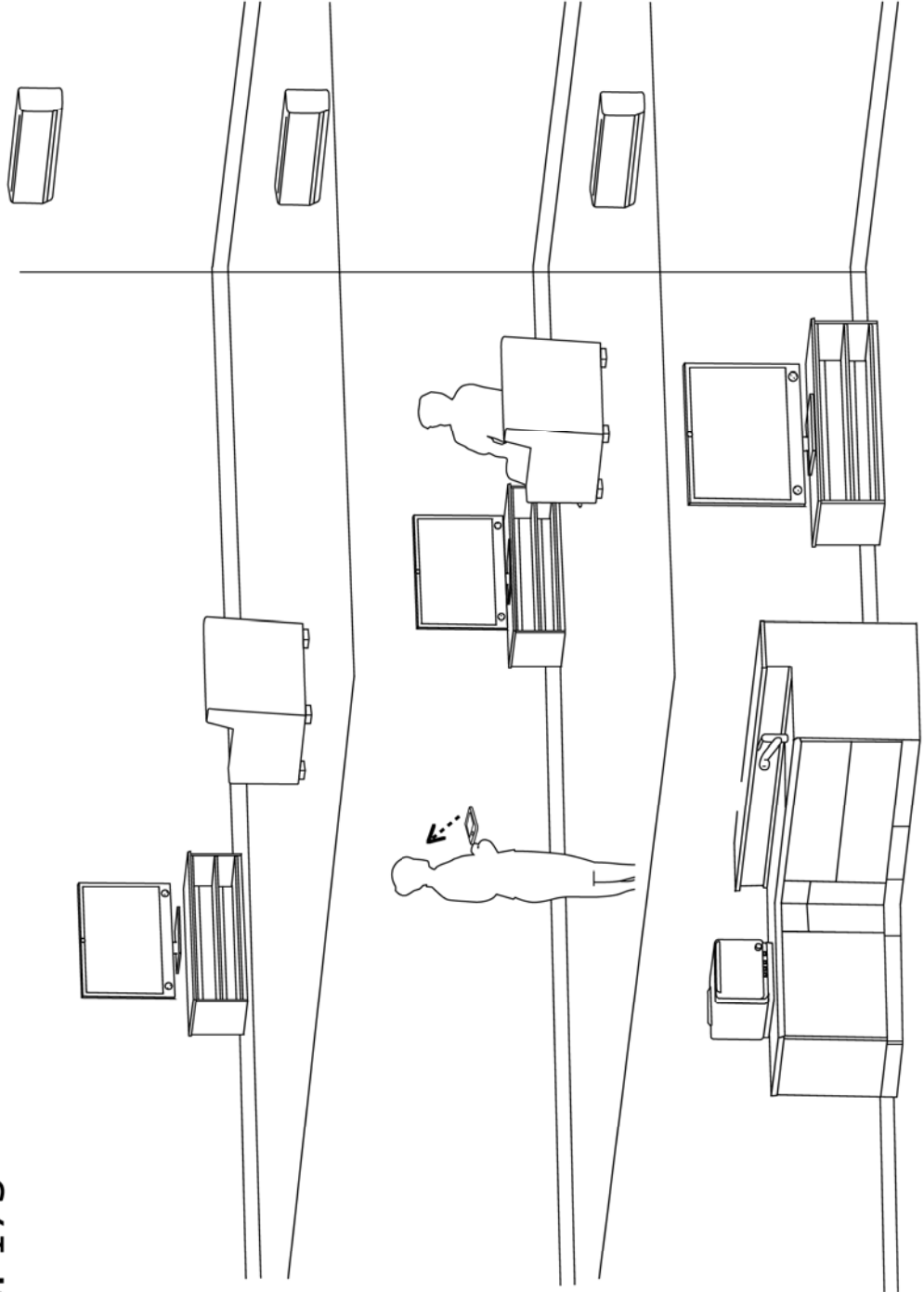


FIG. 174

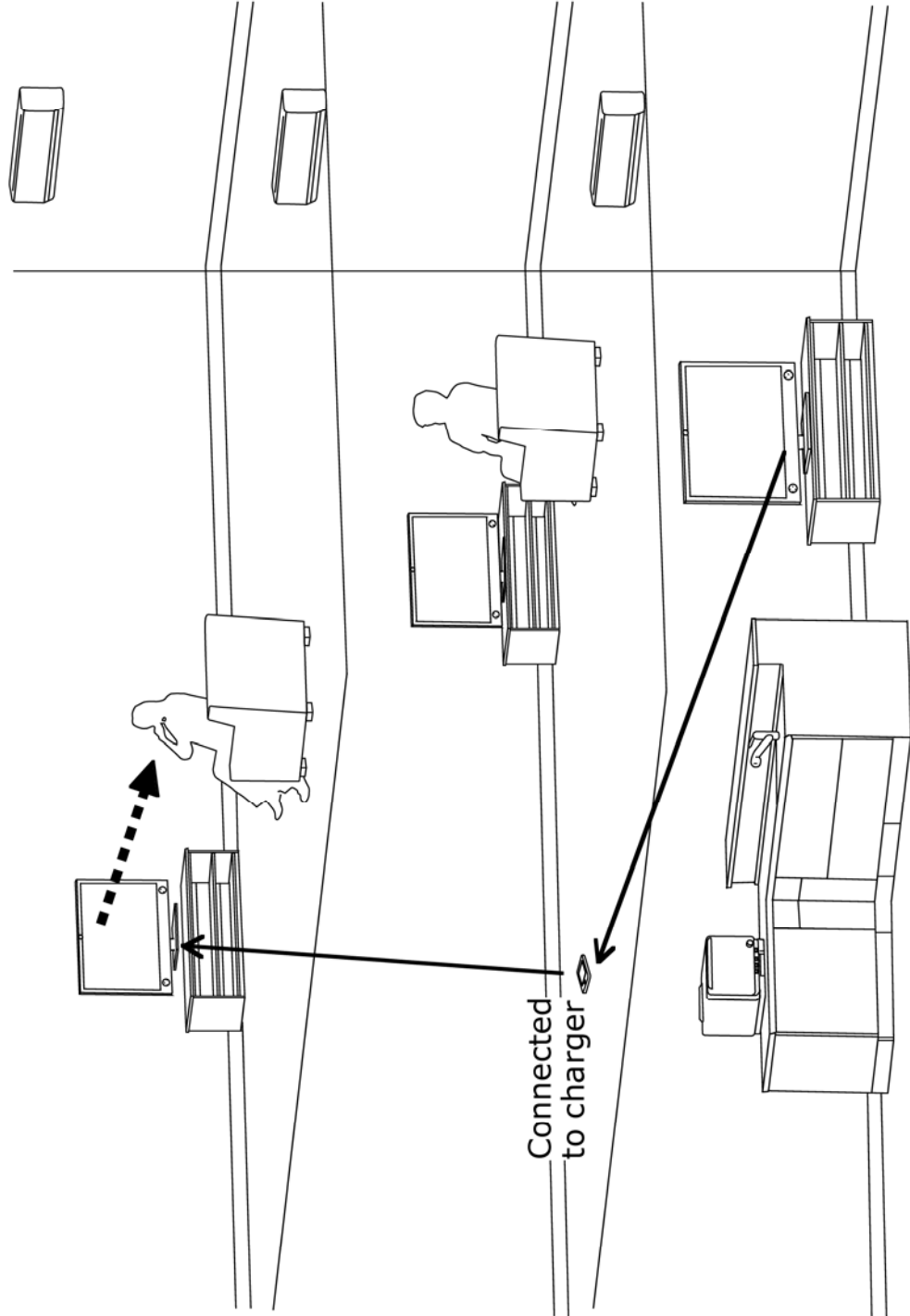


FIG. 175

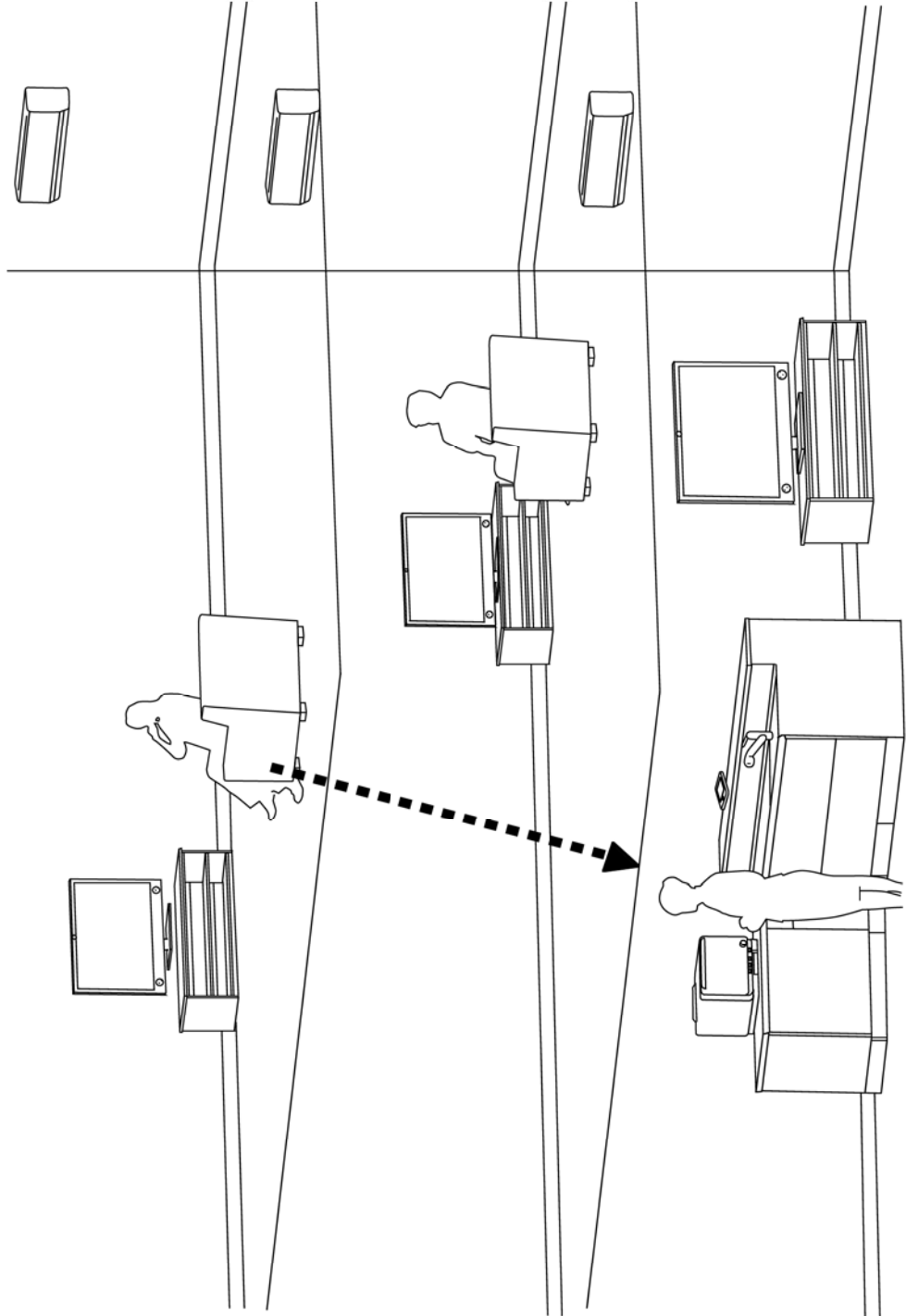


FIG. 176

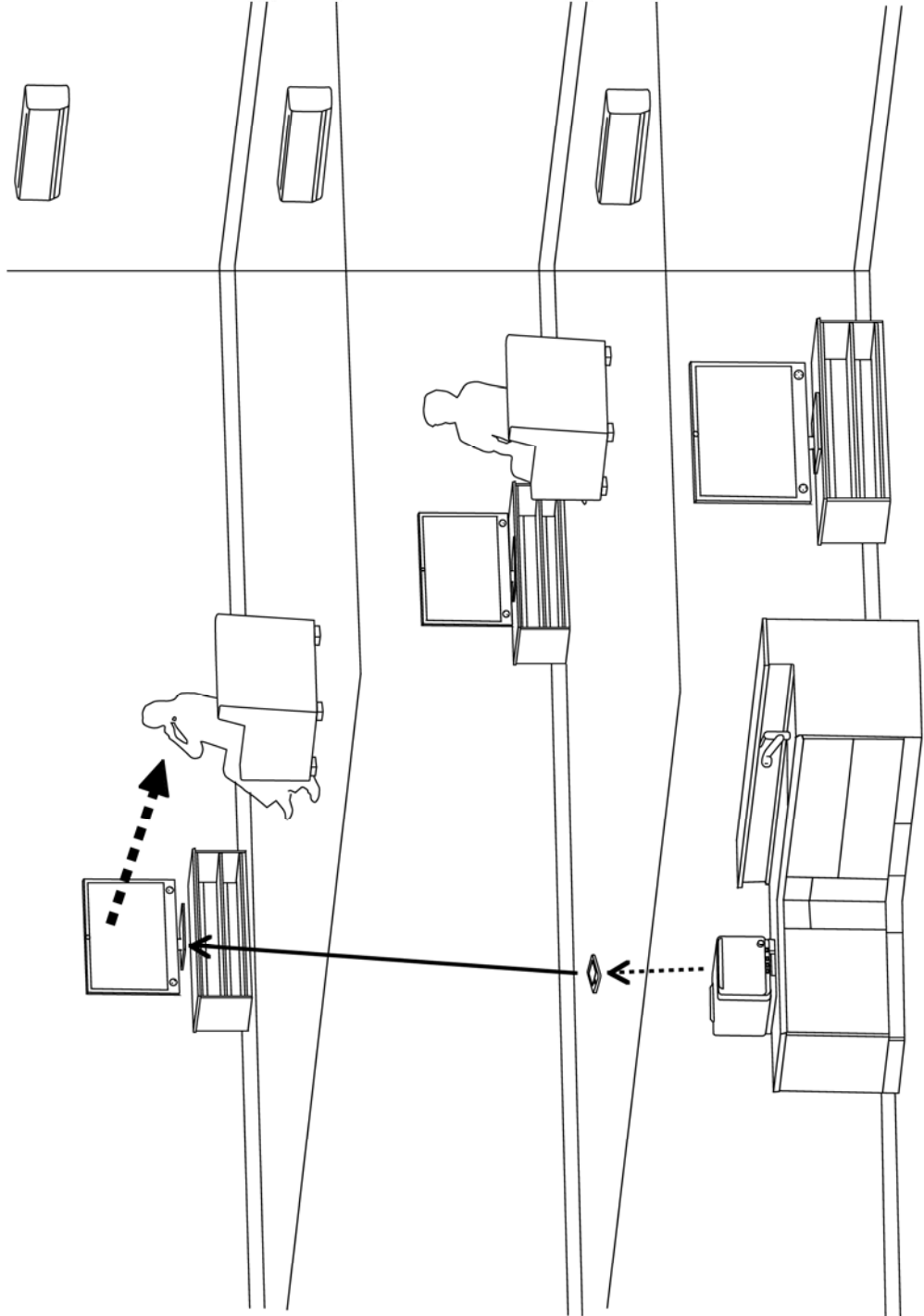




FIG. 177

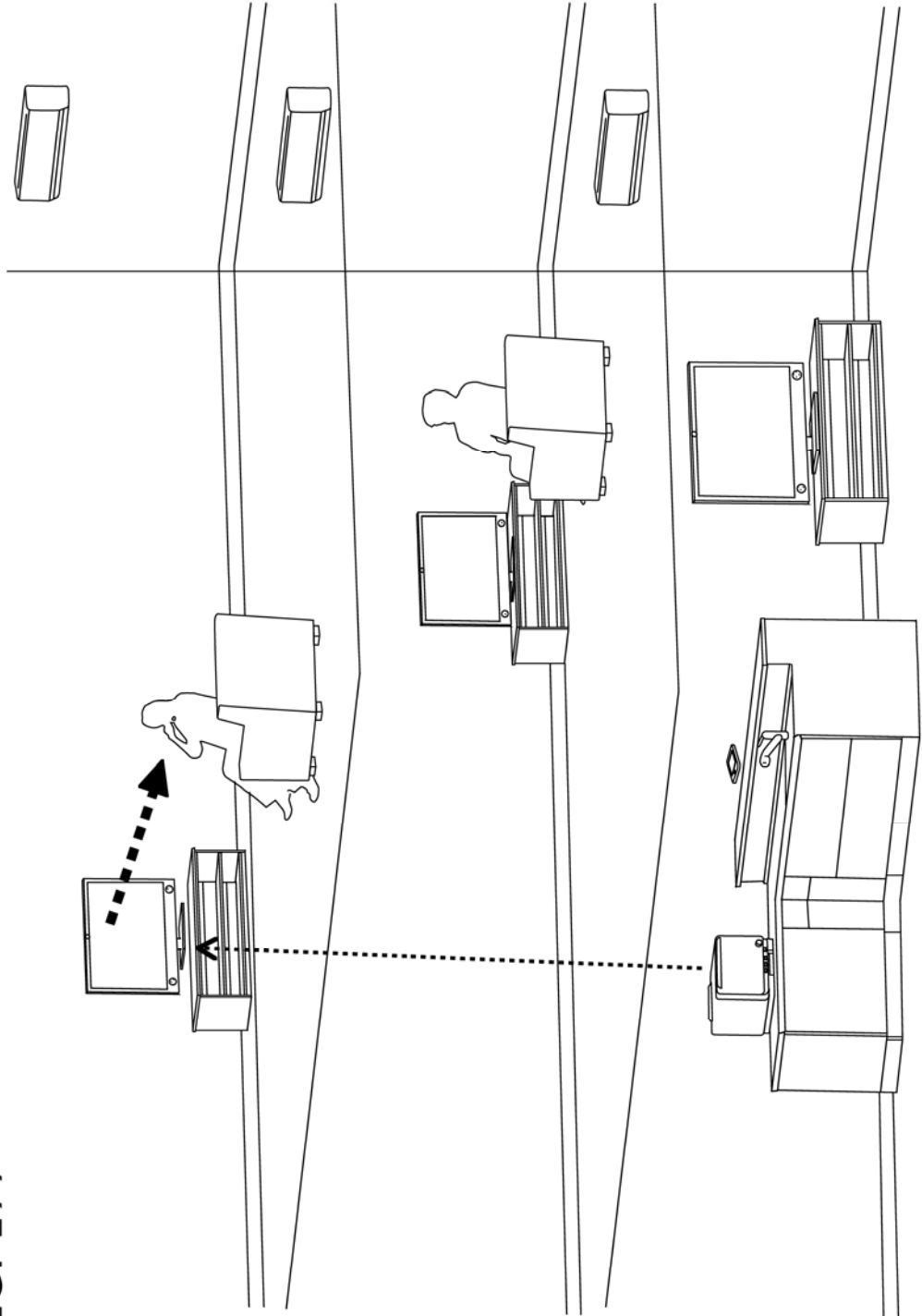




FIG. 179

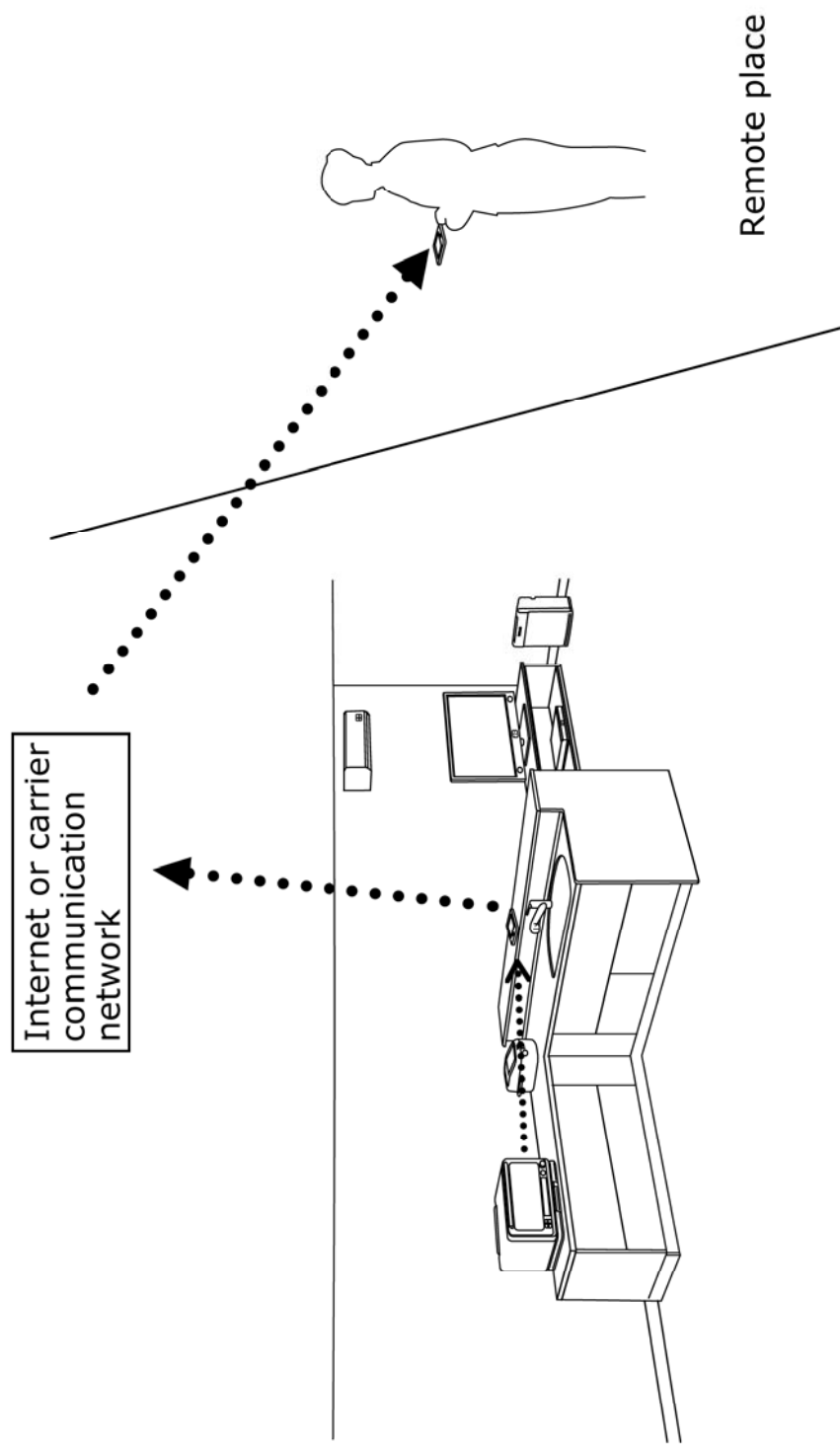


FIG. 180

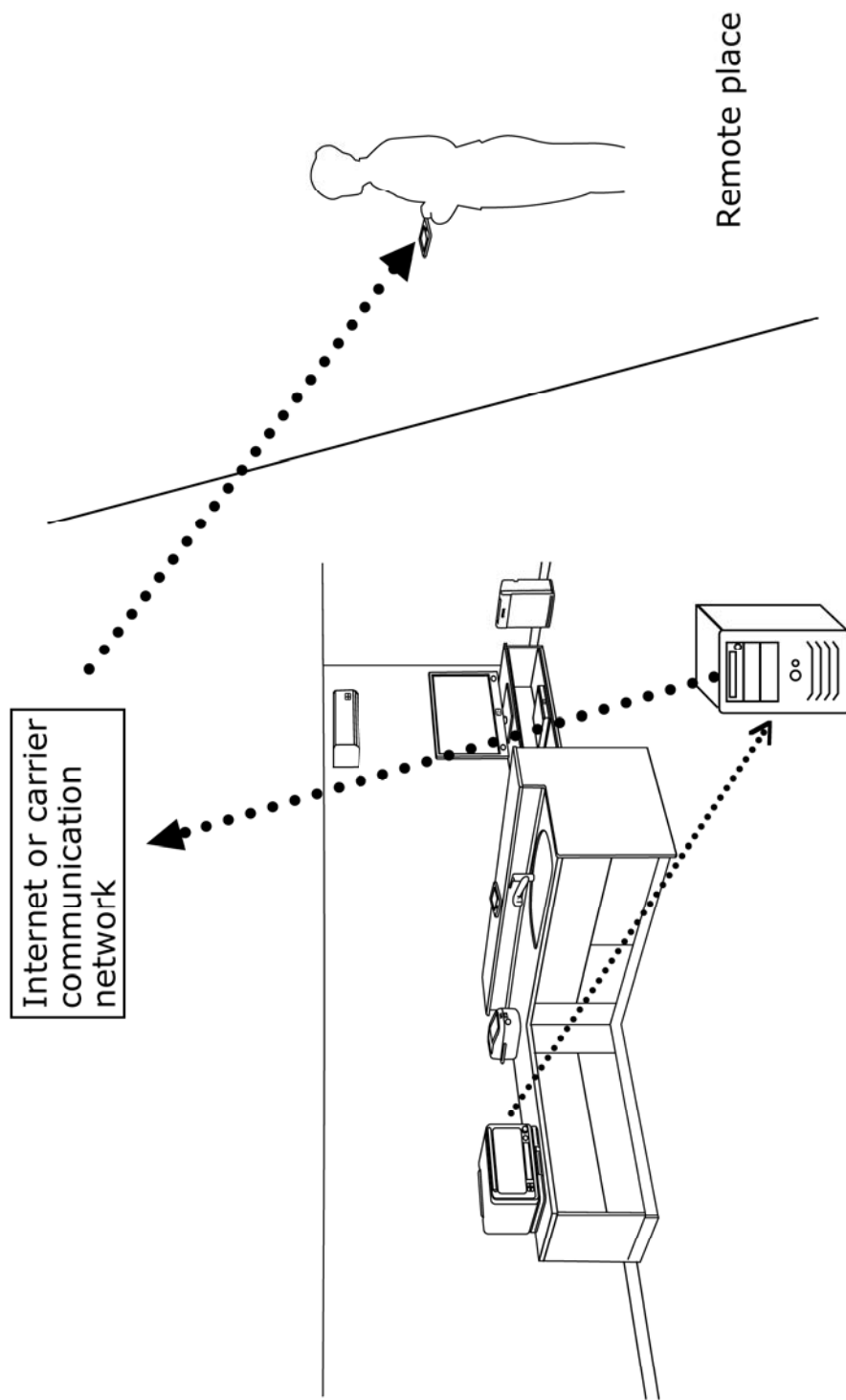


FIG. 181

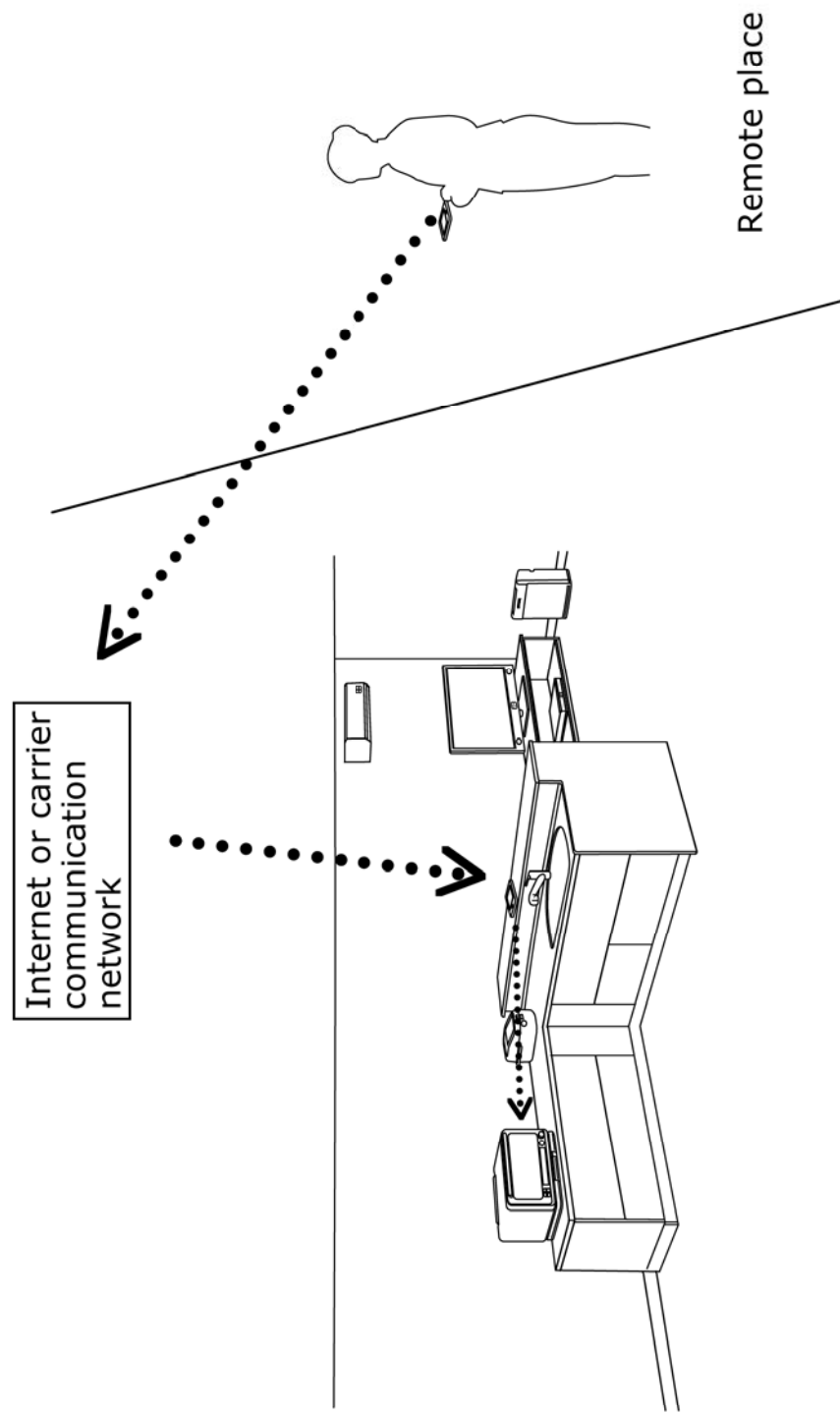


FIG. 182

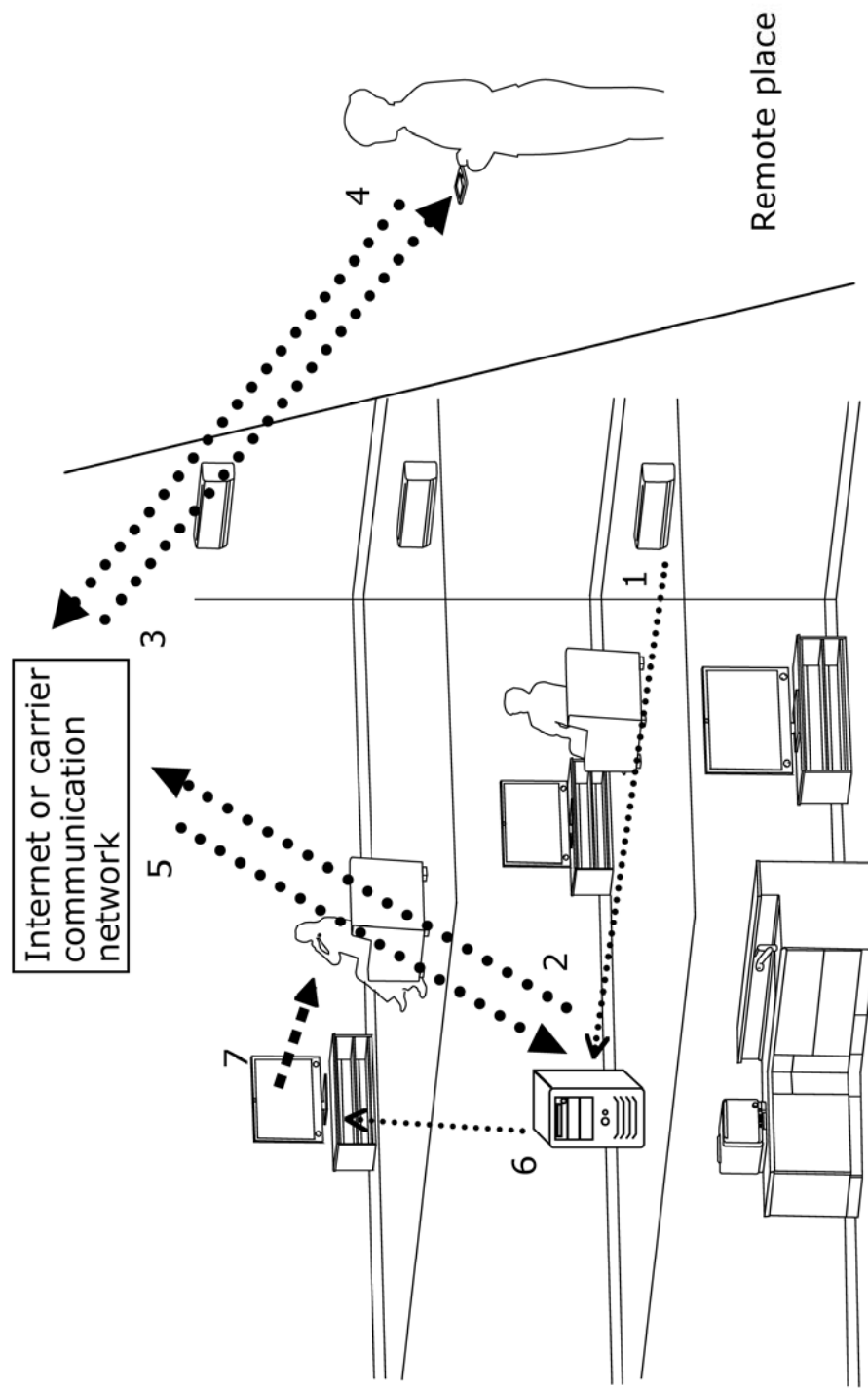


FIG. 183

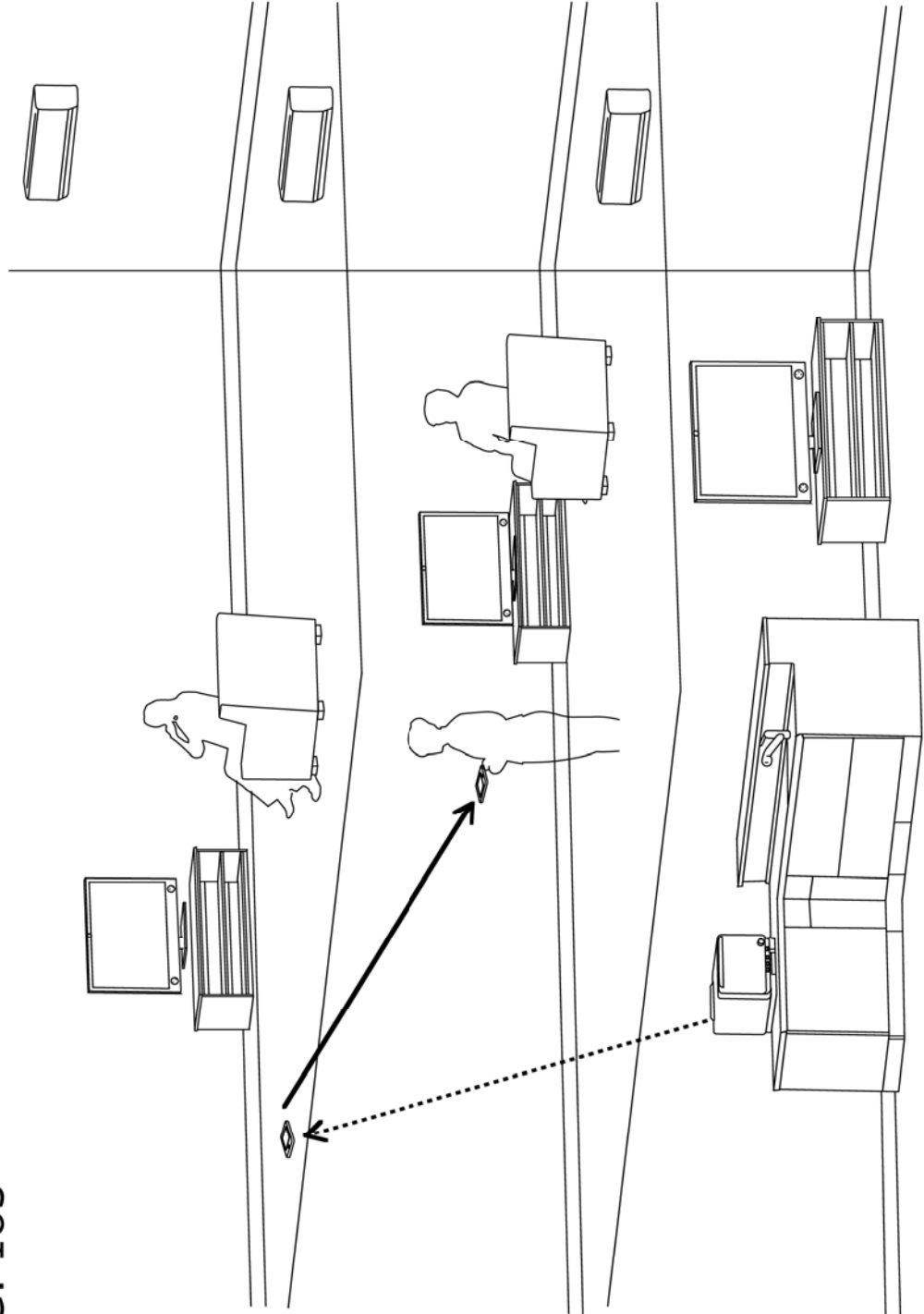


FIG. 184

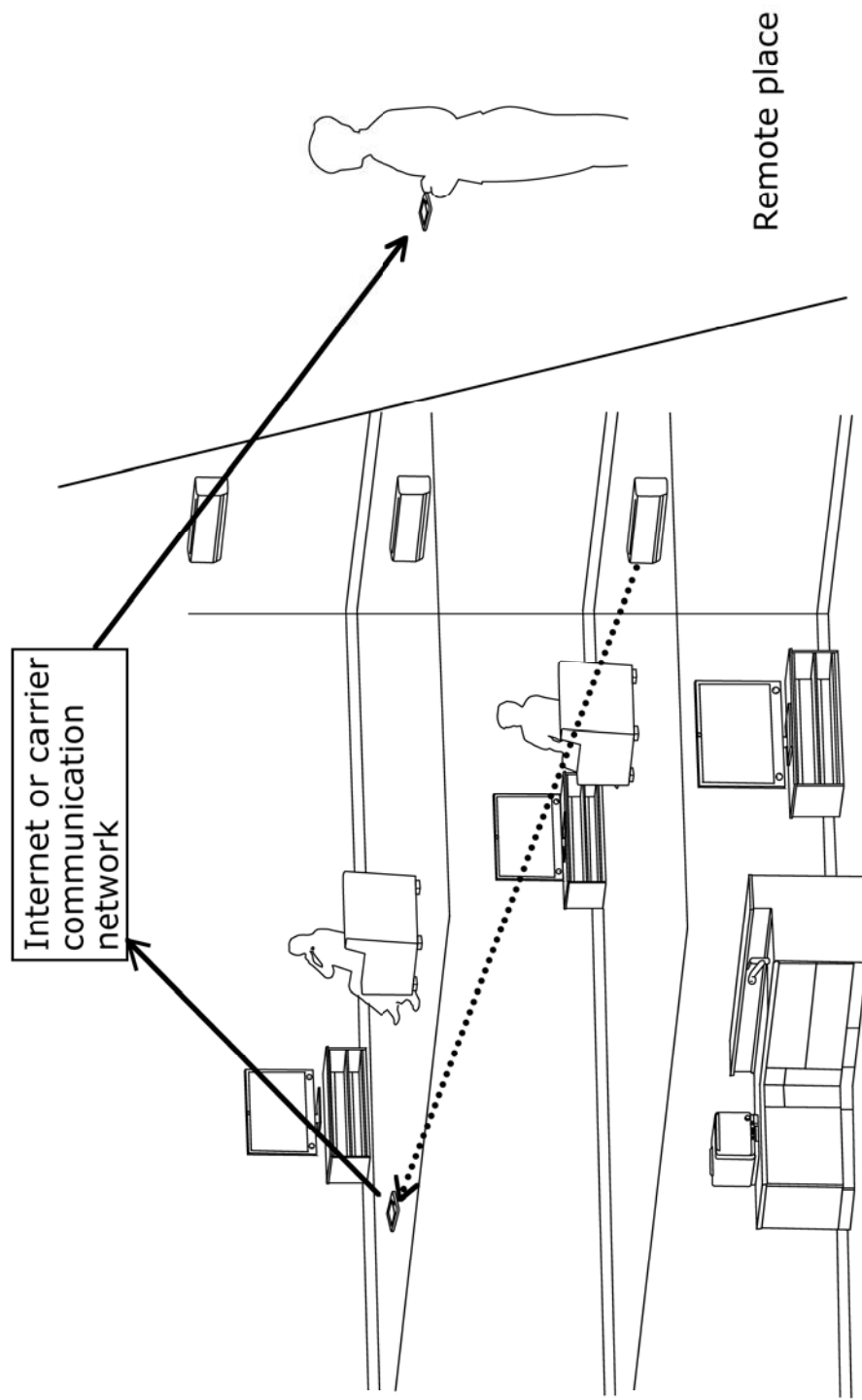




FIG. 185

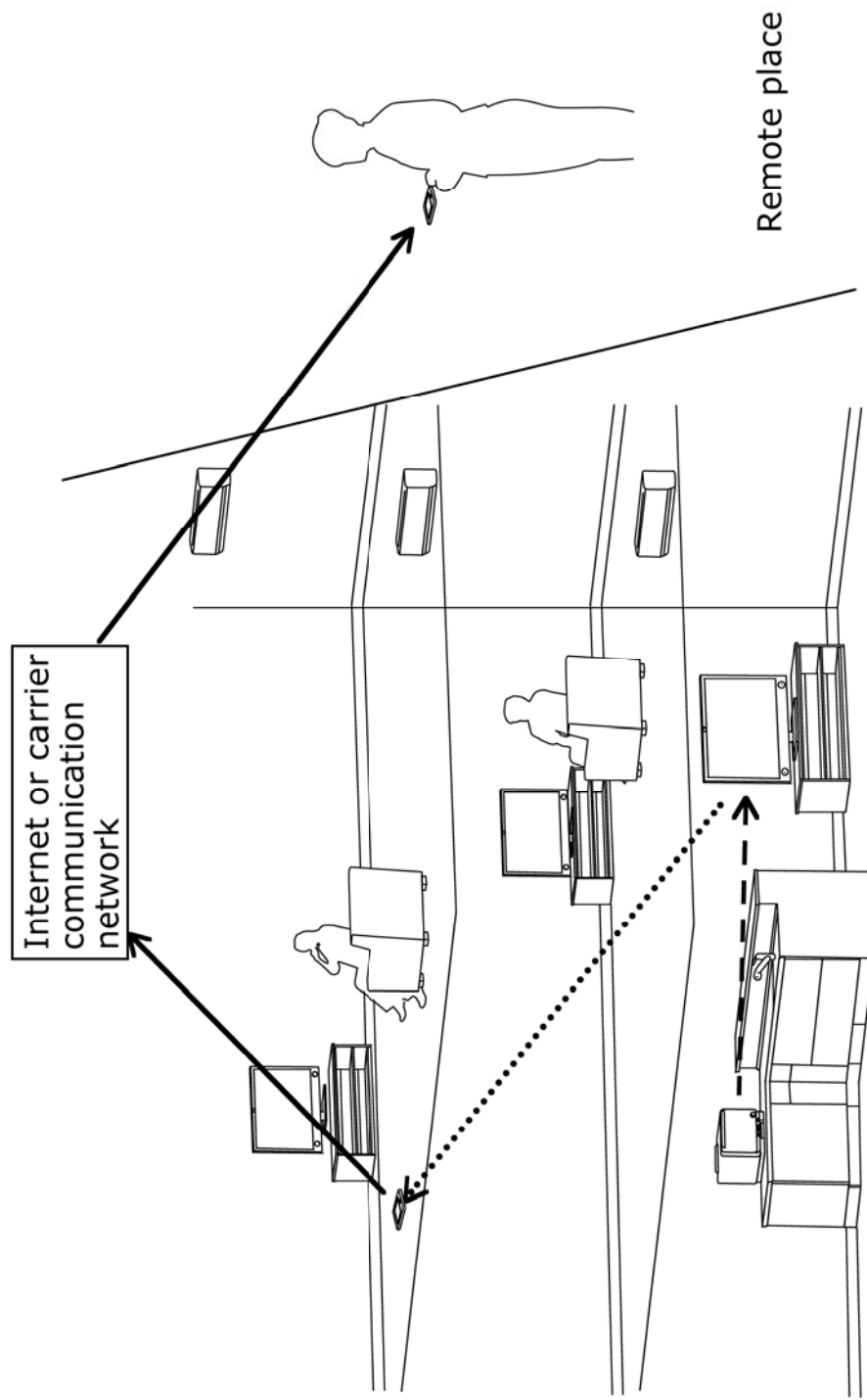


FIG. 186

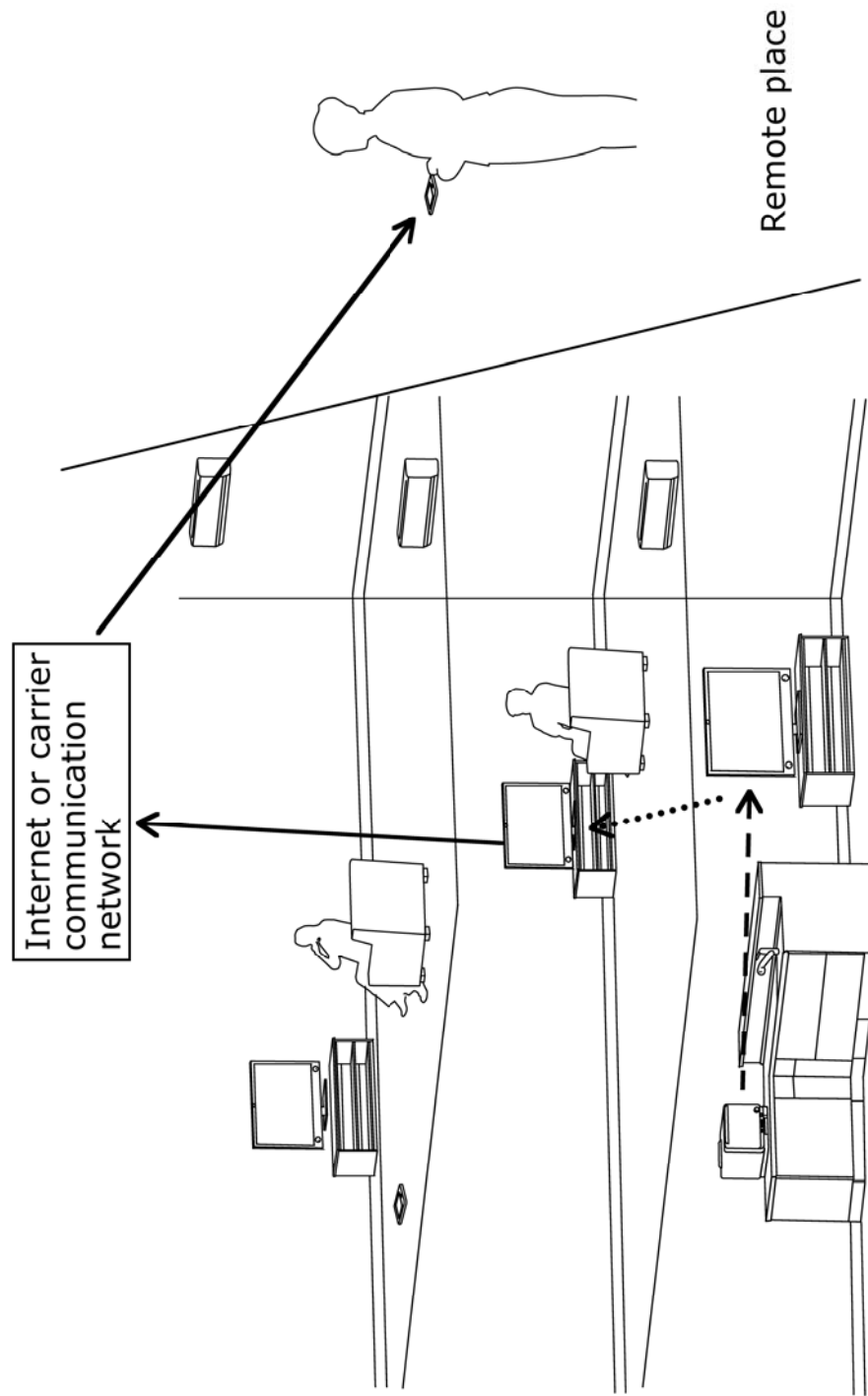


FIG. 187

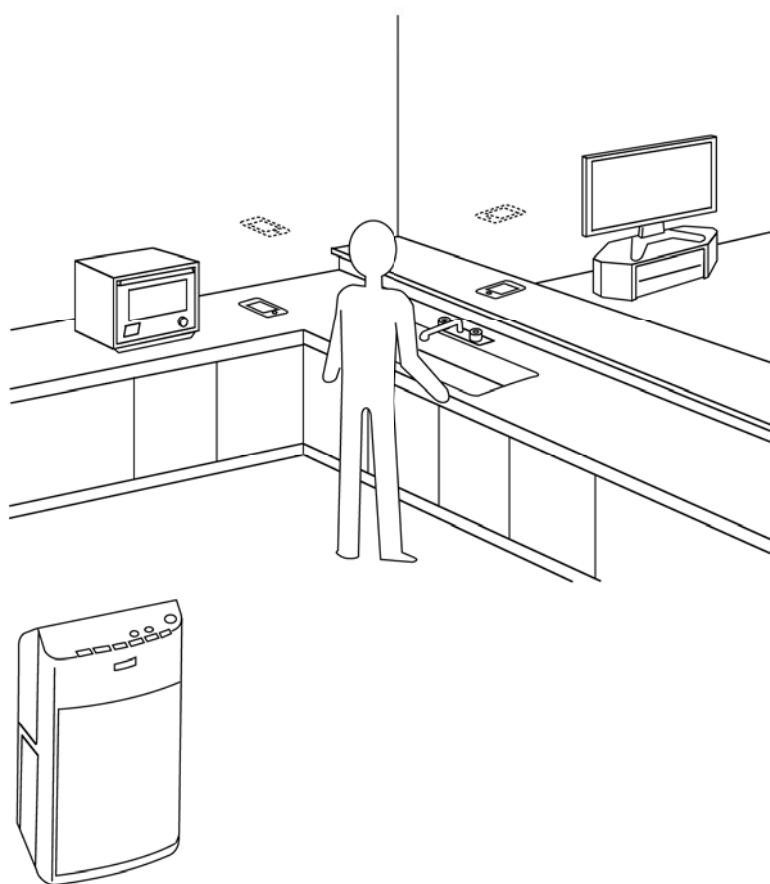


FIG. 188

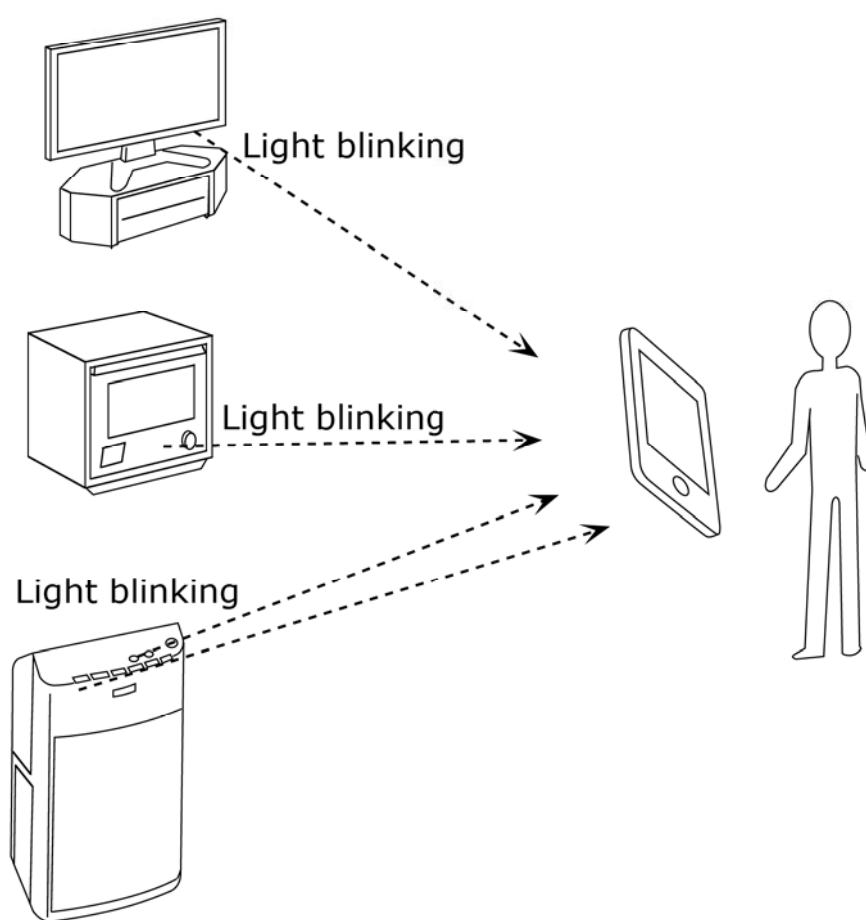


FIG. 189

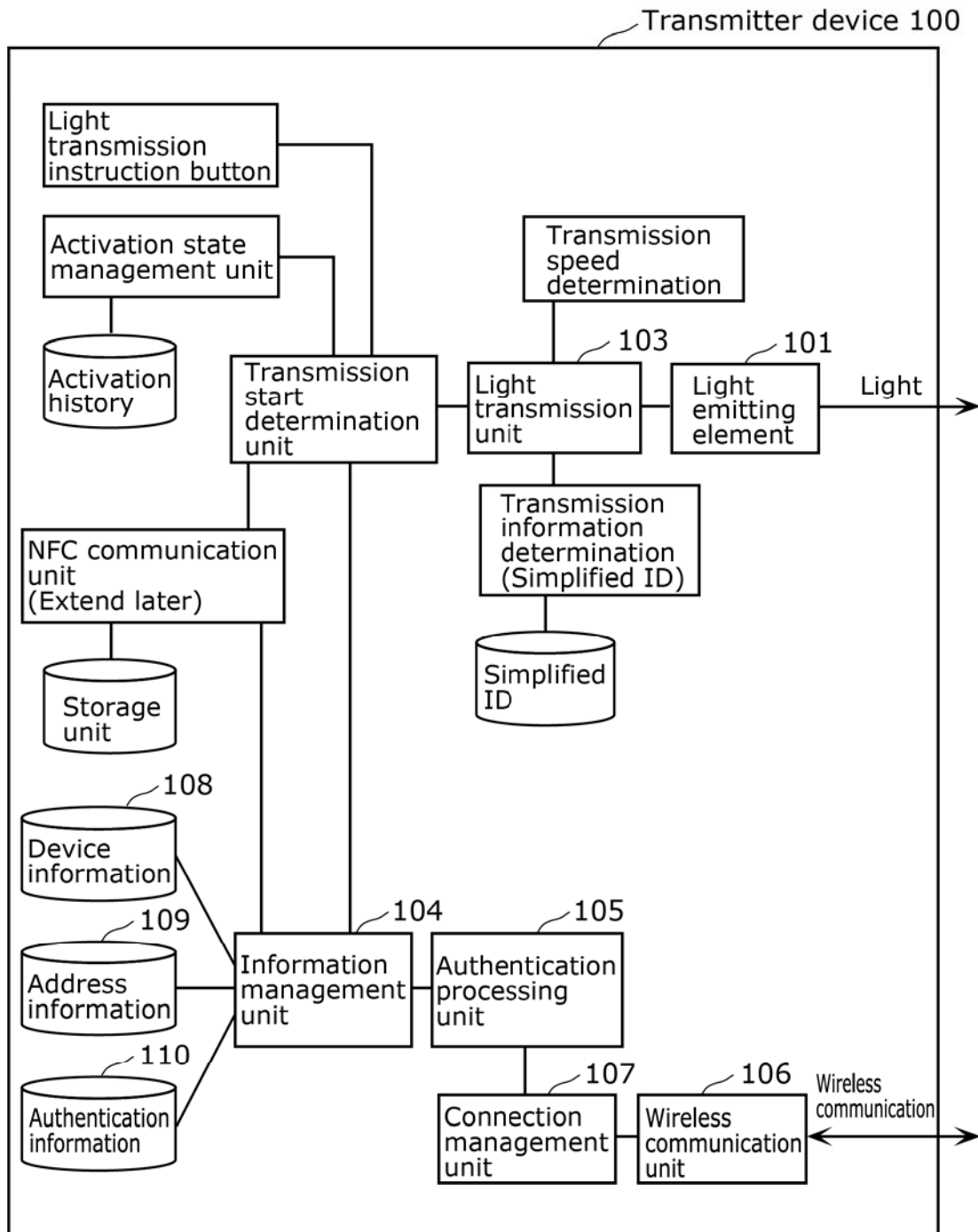


FIG. 190

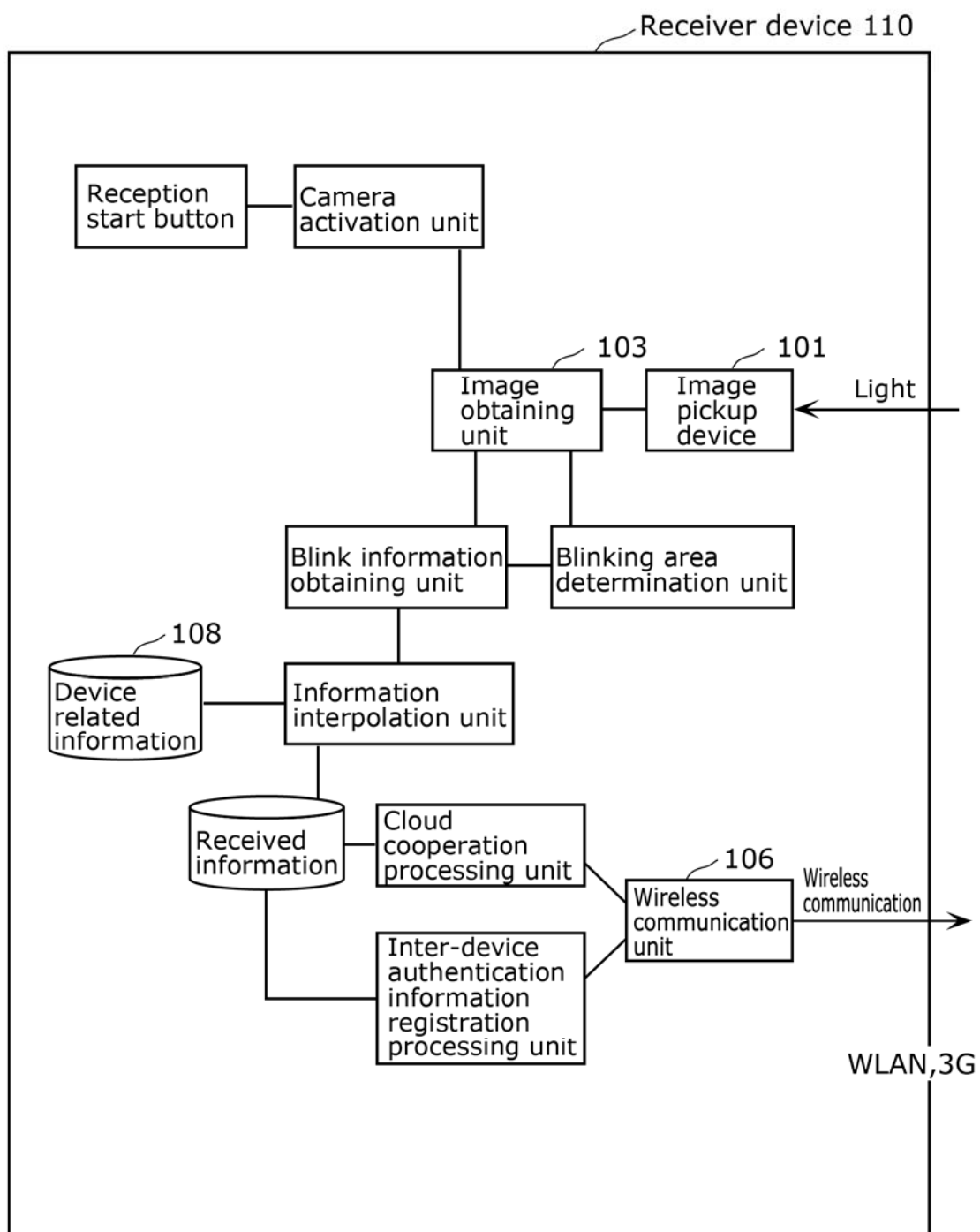


FIG. 191

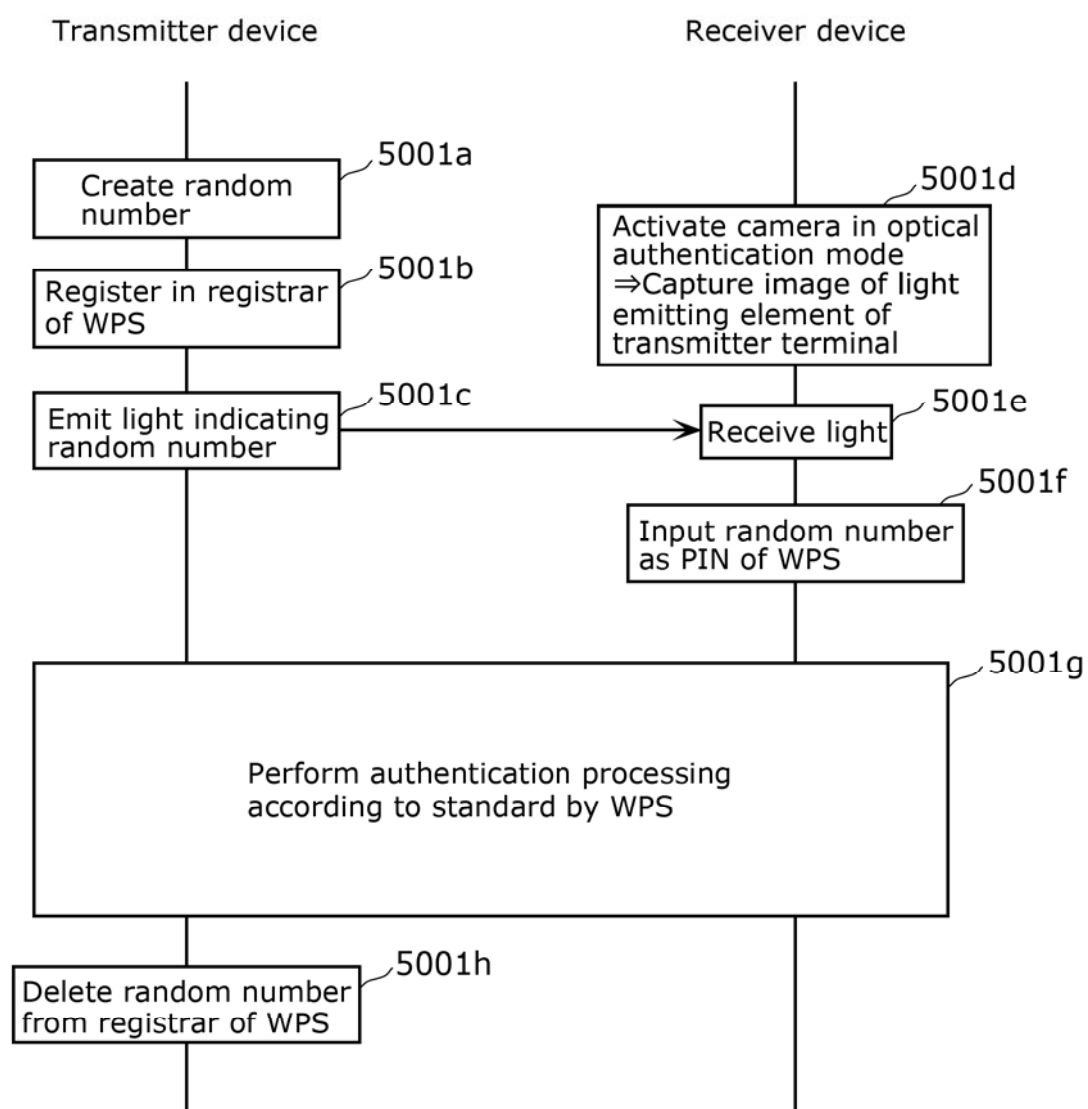


FIG. 192

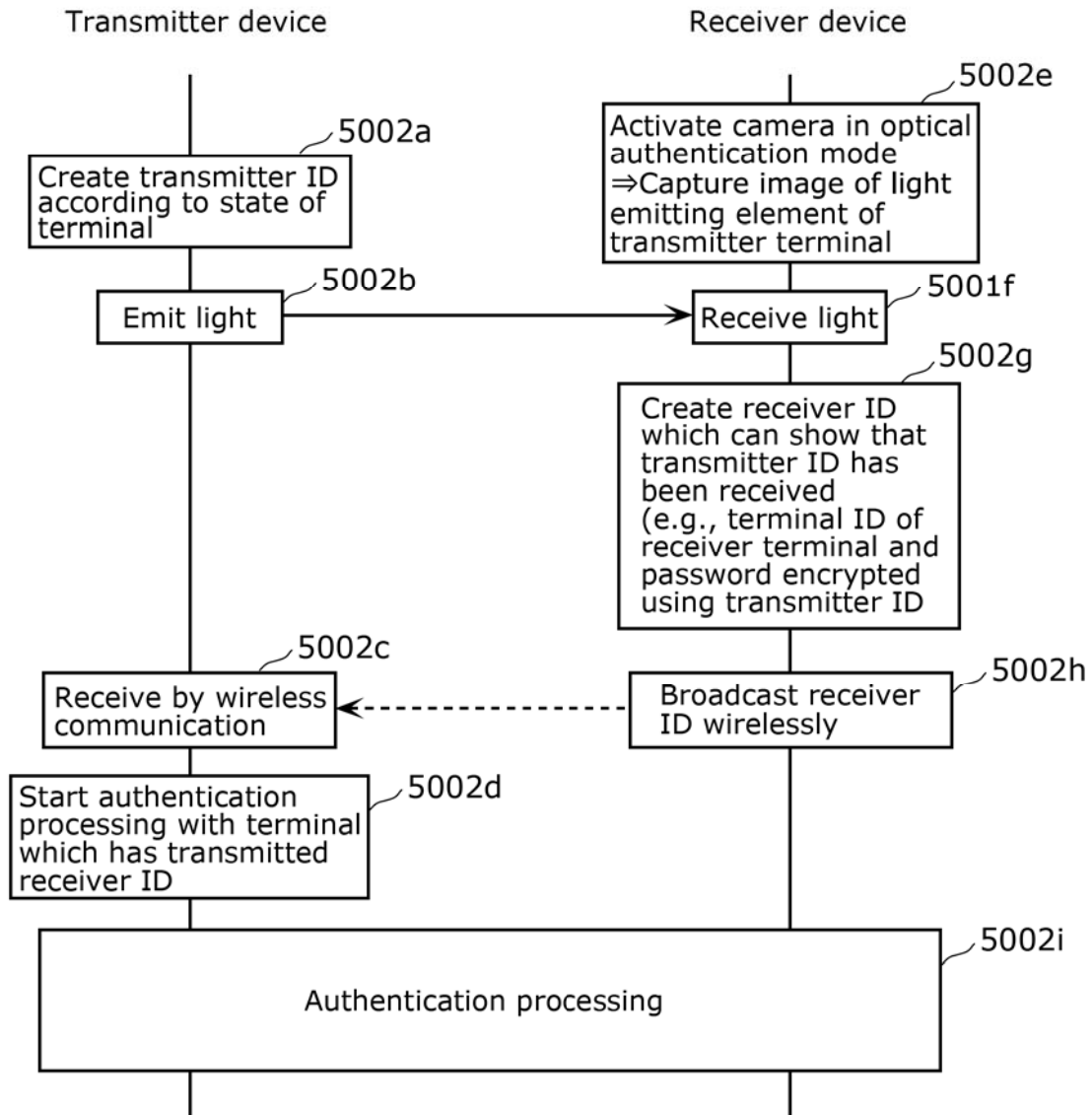




FIG. 193

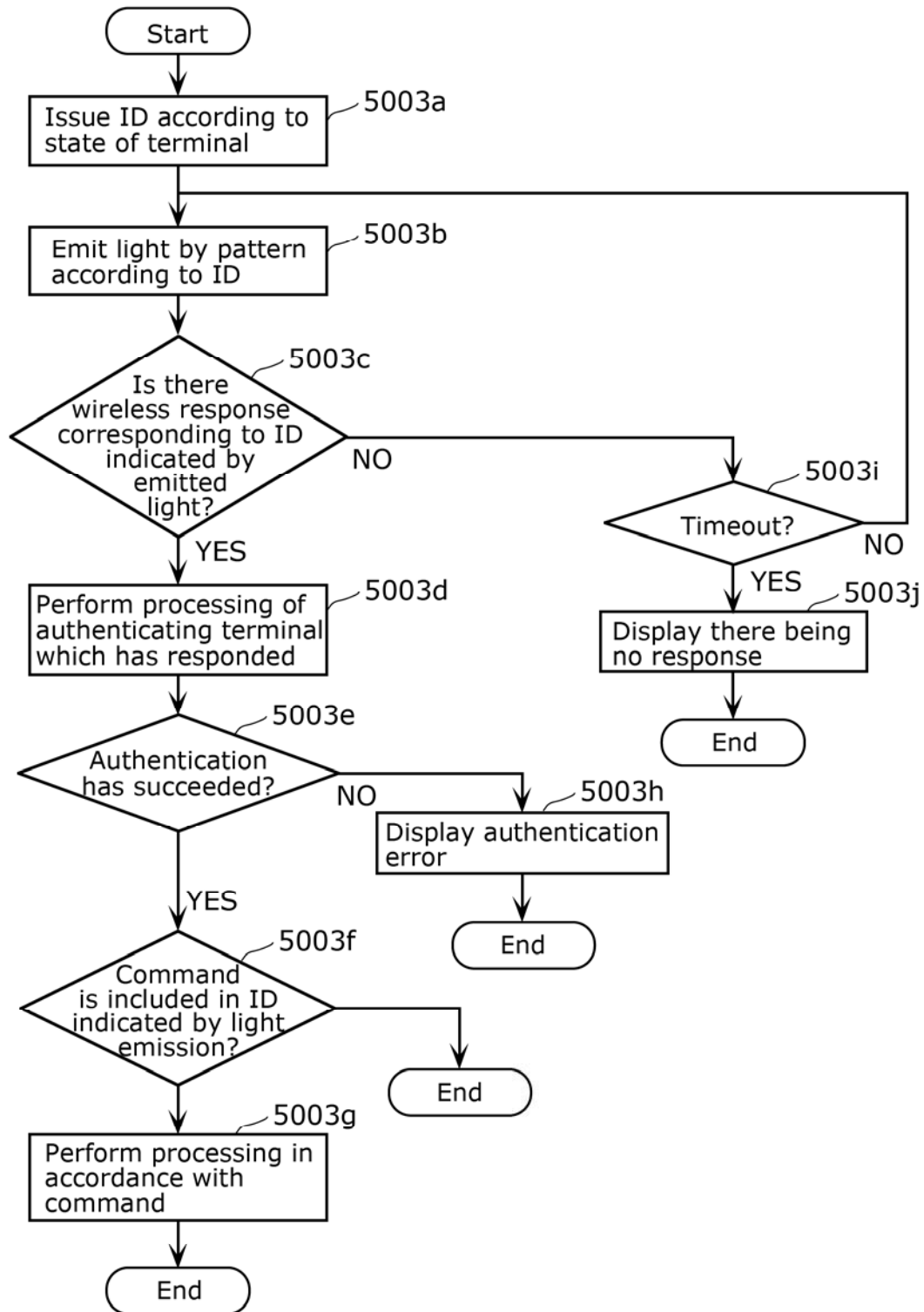


FIG. 194

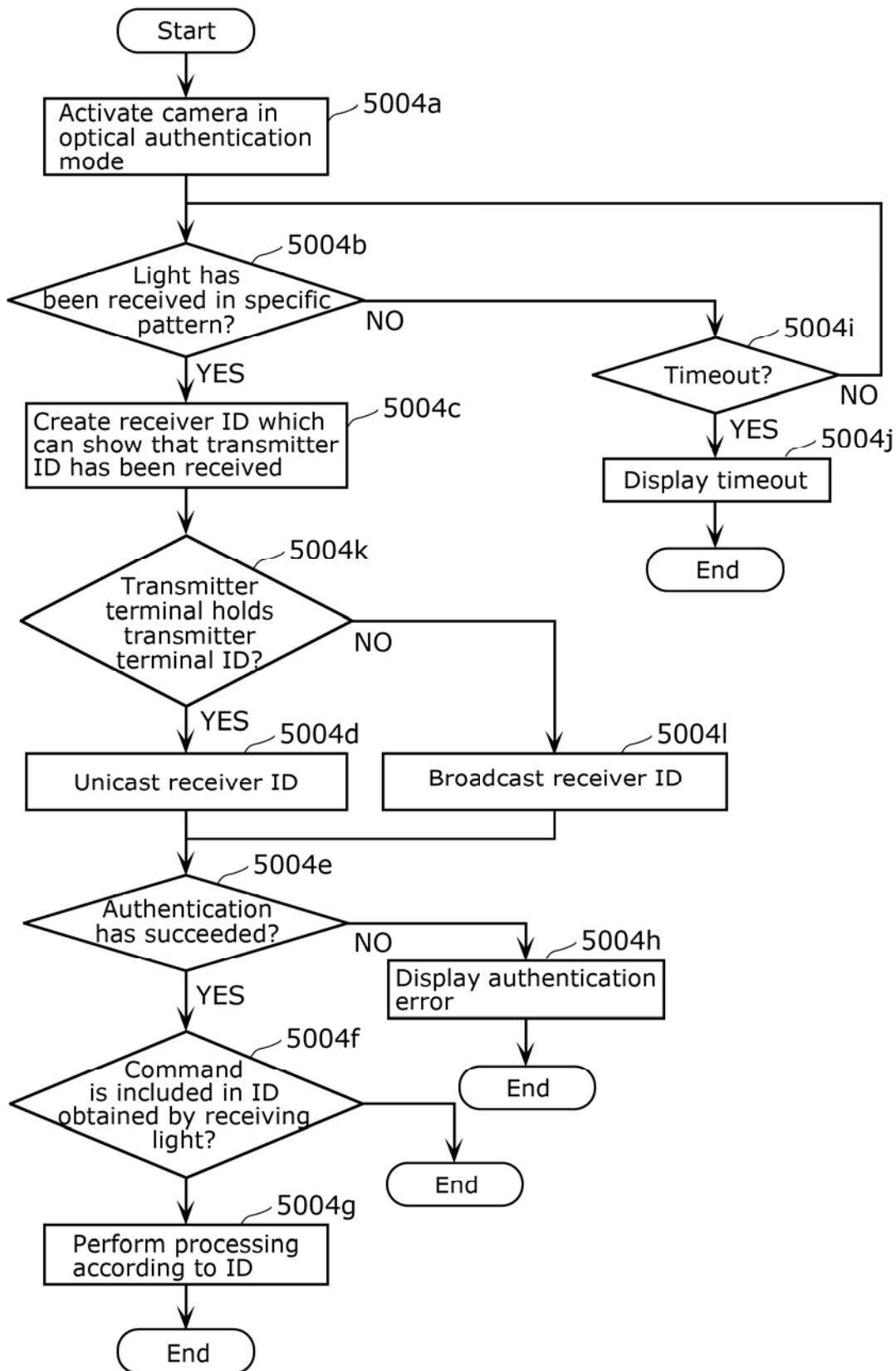


FIG. 195

Sequence diagram illustrating data transmission and reception using NFC/high speed wireless communication

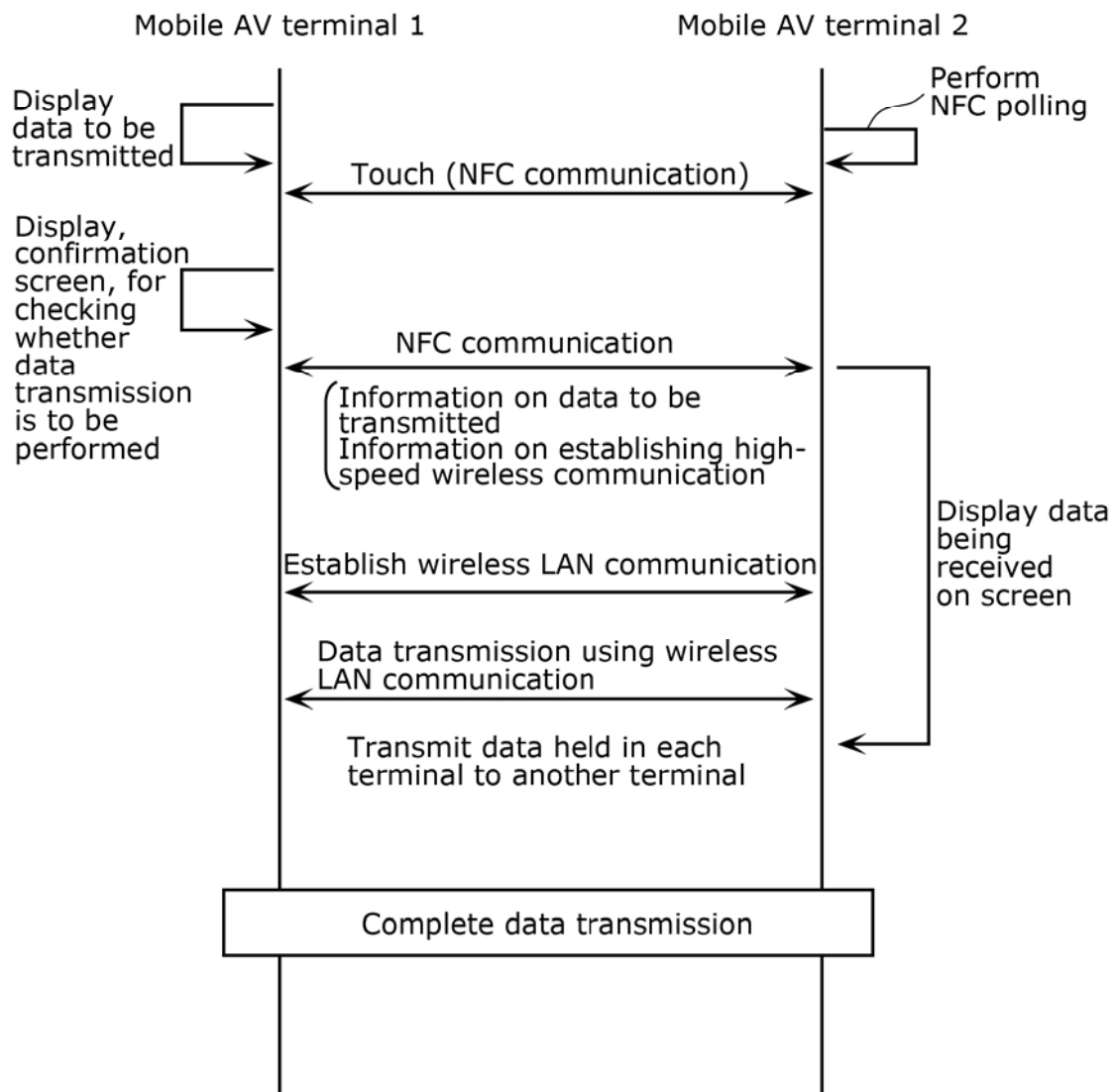


FIG. 196

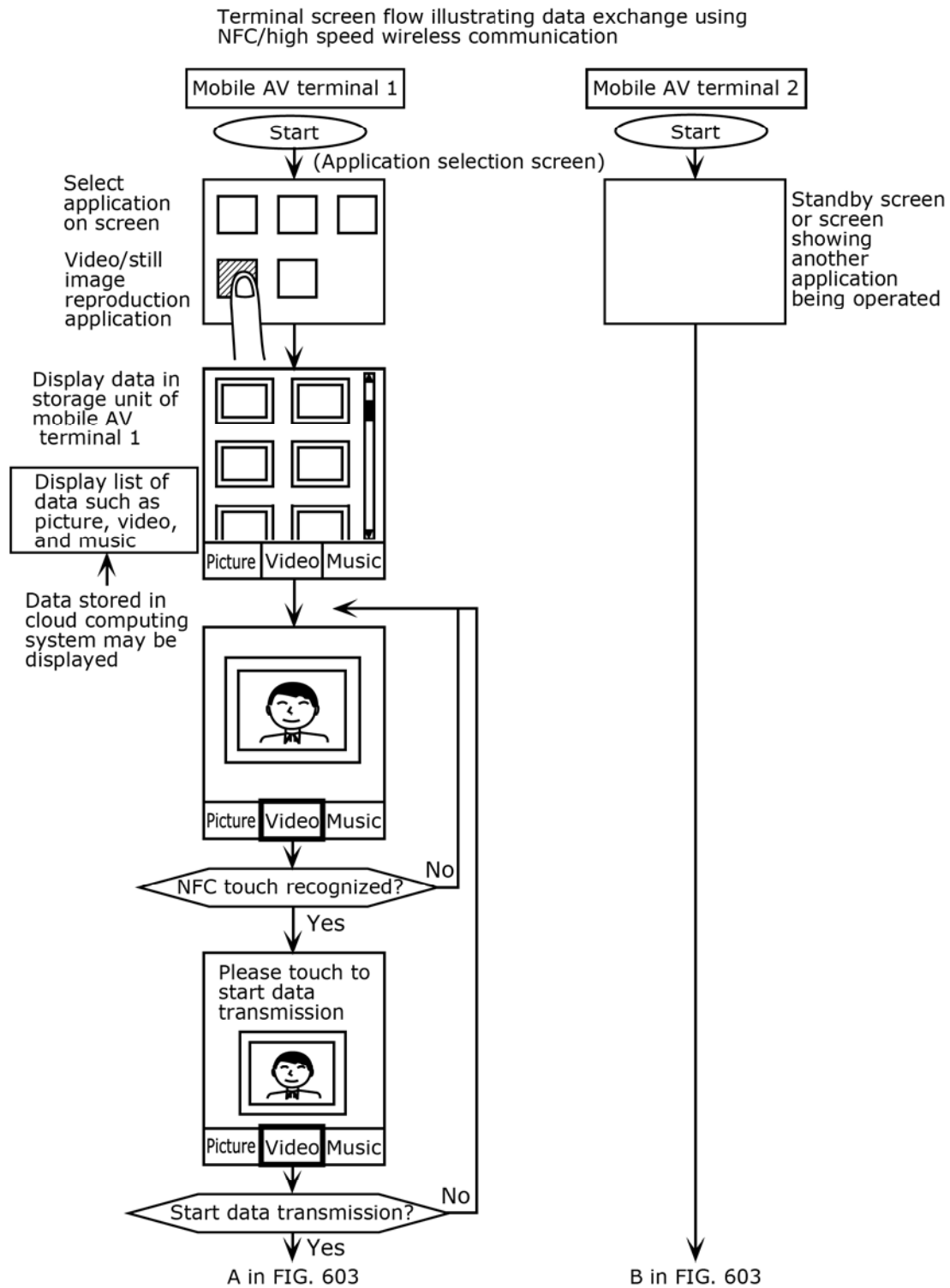


FIG. 197

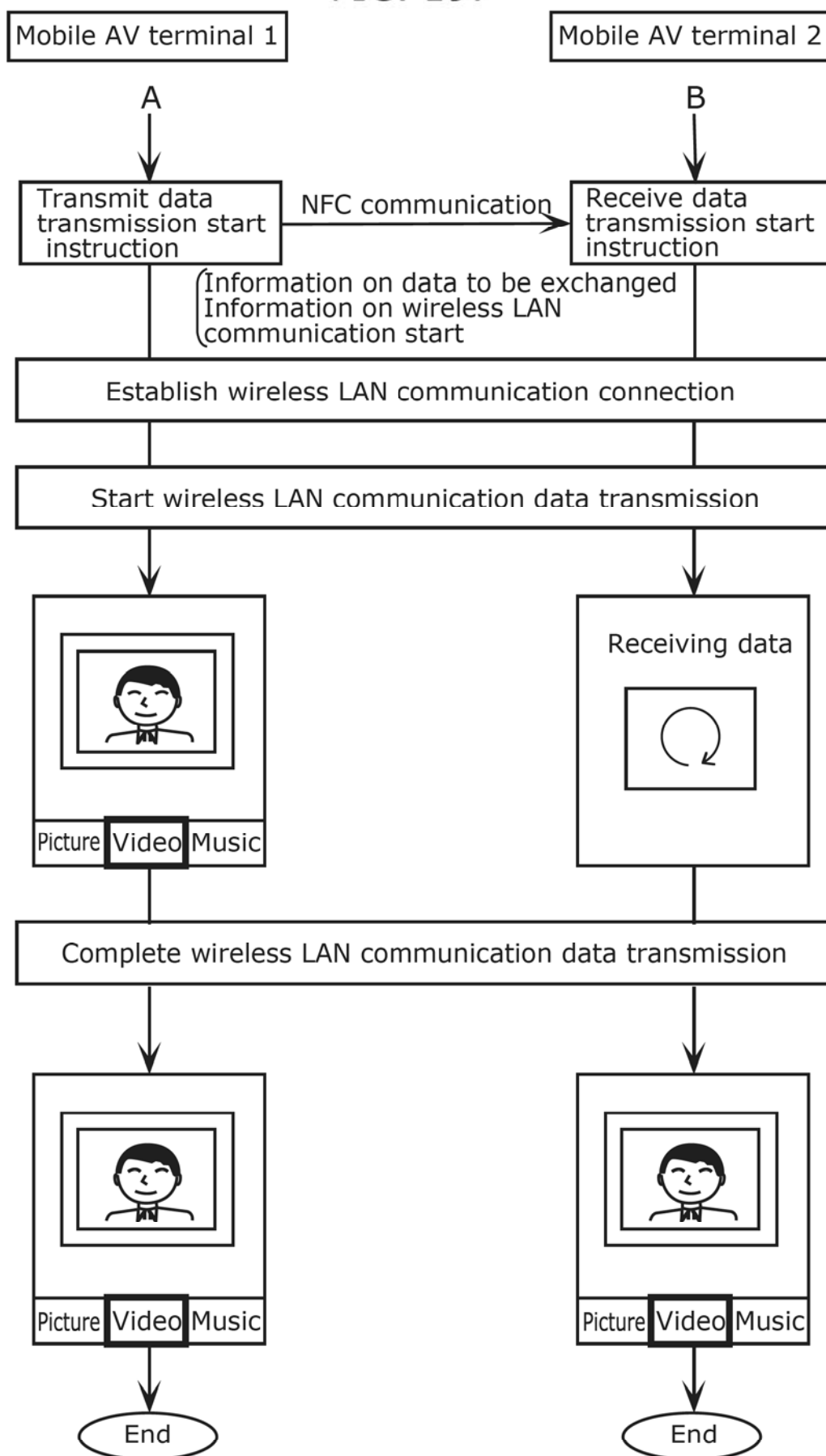


FIG. 198

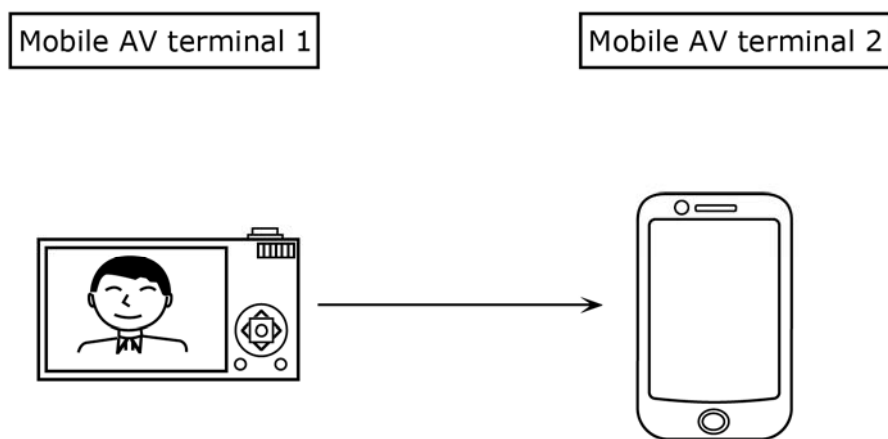


FIG. 199

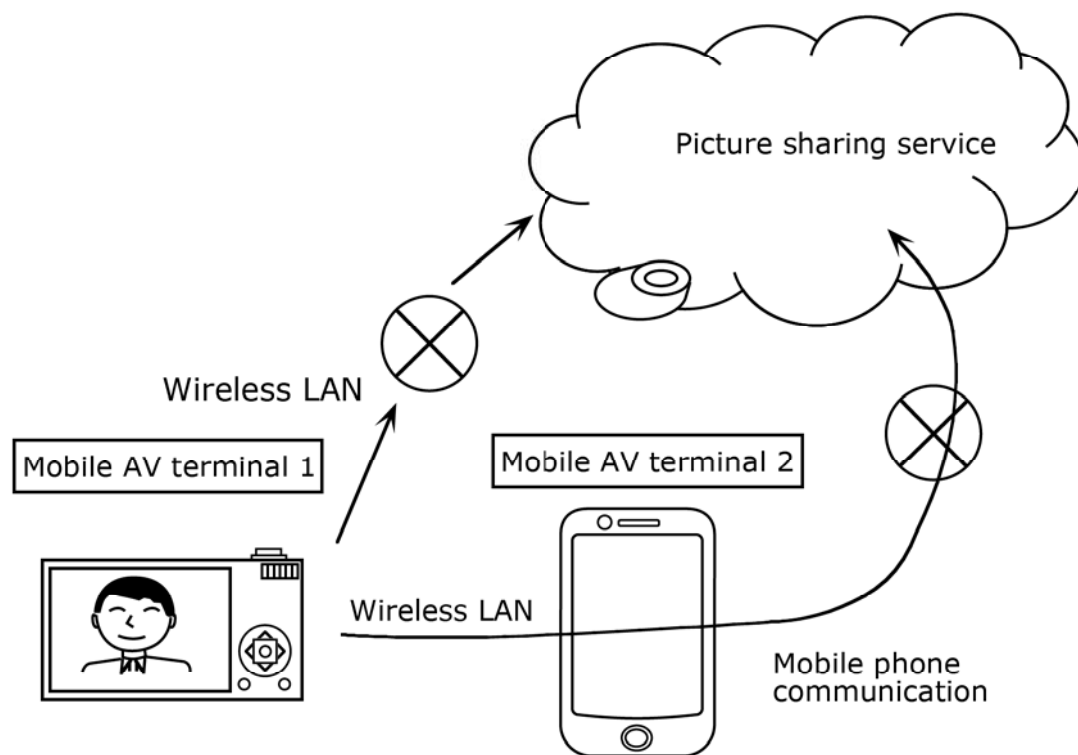


Figure 1 is a block diagram illustrating a mobile terminal 6602a and its connections to various external devices. The mobile terminal 6602a includes a Wireless LAN unit 6602d, an Authentication unit 6602e, a Server authentication succeeded block 6602m, a Start communication block 6602n, a Mobile phone communication unit 6602r, a Mobile phone base station 6603g, a GSM/CDMA/OFDM block 6603f, a Server 6603a, a Processing unit 6603b, an ID management unit 6603c, Memory 6603d, and a Picture data unit 6603e. The mobile terminal 6602a is connected to a Wireless LAN base station 6604, a Mobile phone base station 6603g, and a Server 6603a. The mobile terminal 6602a also includes a Second antenna unit 6602a, a First antenna unit 6602b, an Authentication data unit 6602f, an NFC unit 6602h, an Authentication unit 6602i, a Display unit 6602p, an Input unit 6602q, a Light receiving unit 6602c, and an Authentication data unit 6602j. The mobile terminal 6602a is connected to a Wireless LAN base station 6604, a Mobile phone base station 6603g, and a Server 6603a. The mobile terminal 6602a also includes a Second antenna unit 6602a, a First antenna unit 6602b, an Authentication data unit 6602f, an NFC unit 6602h, an Authentication unit 6602i, a Display unit 6602p, an Input unit 6602q, a Light receiving unit 6602c, and an Authentication data unit 6602j.



FIG. 201

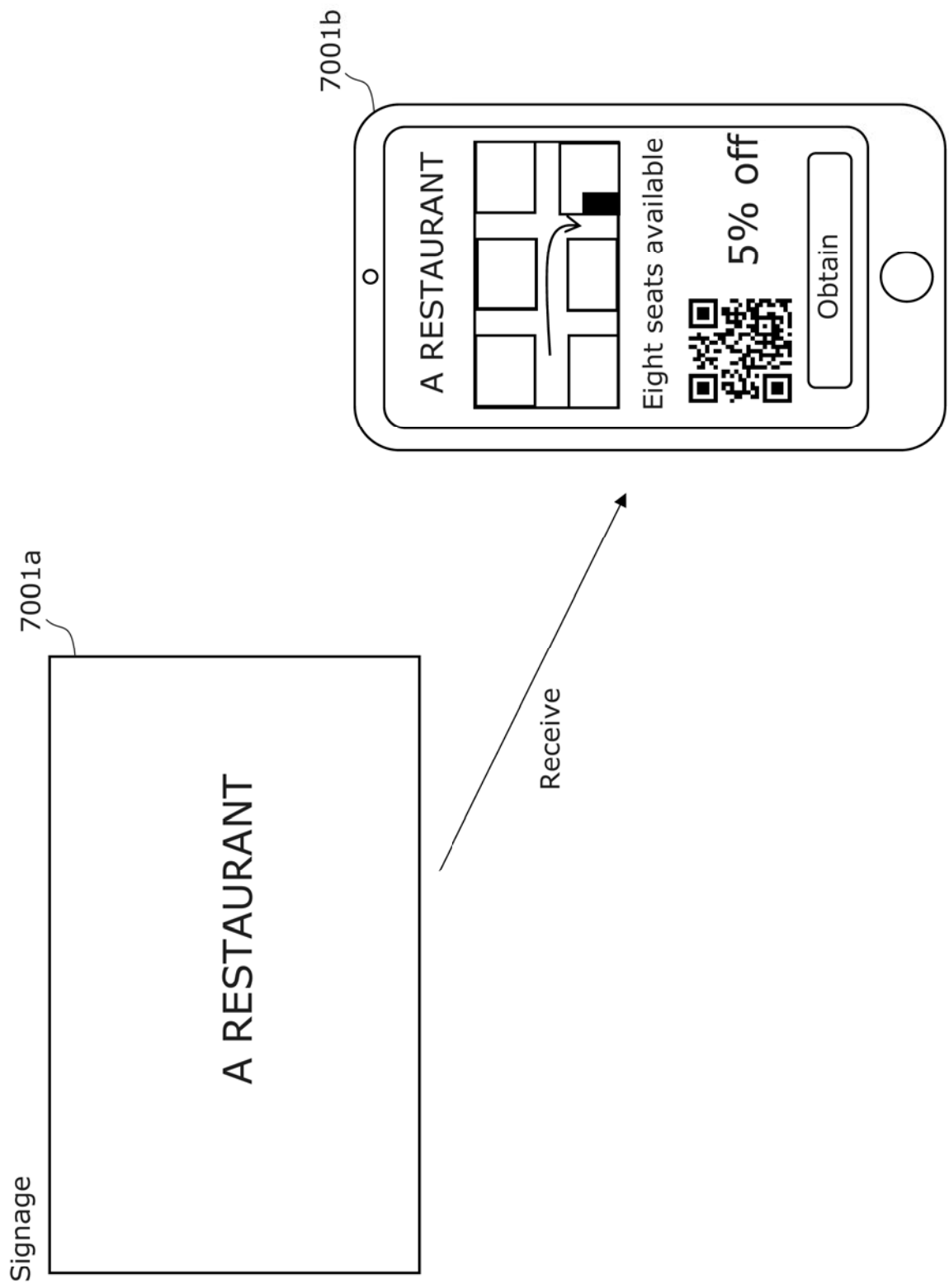


FIG. 202

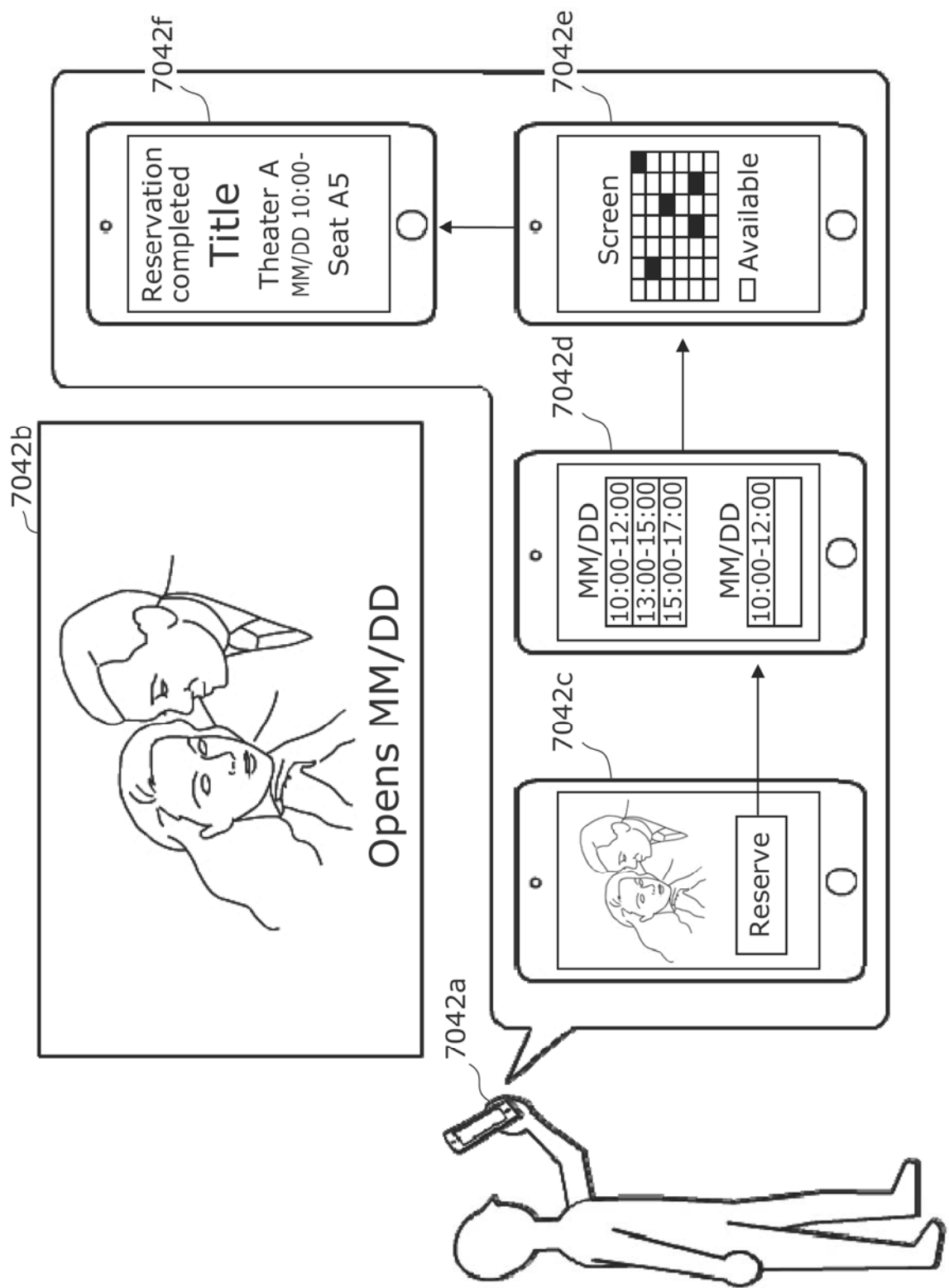


FIG. 203

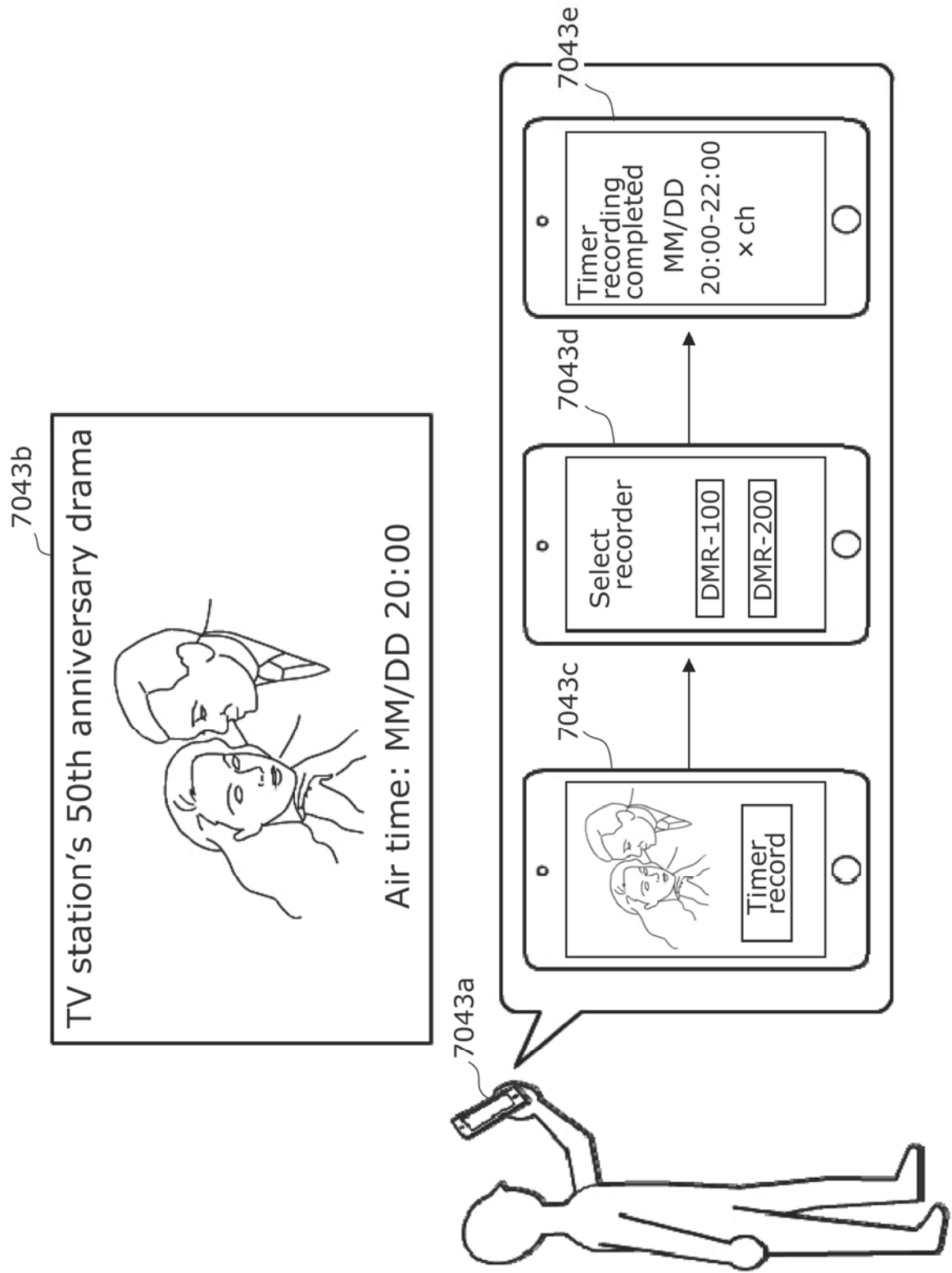


FIG. 204

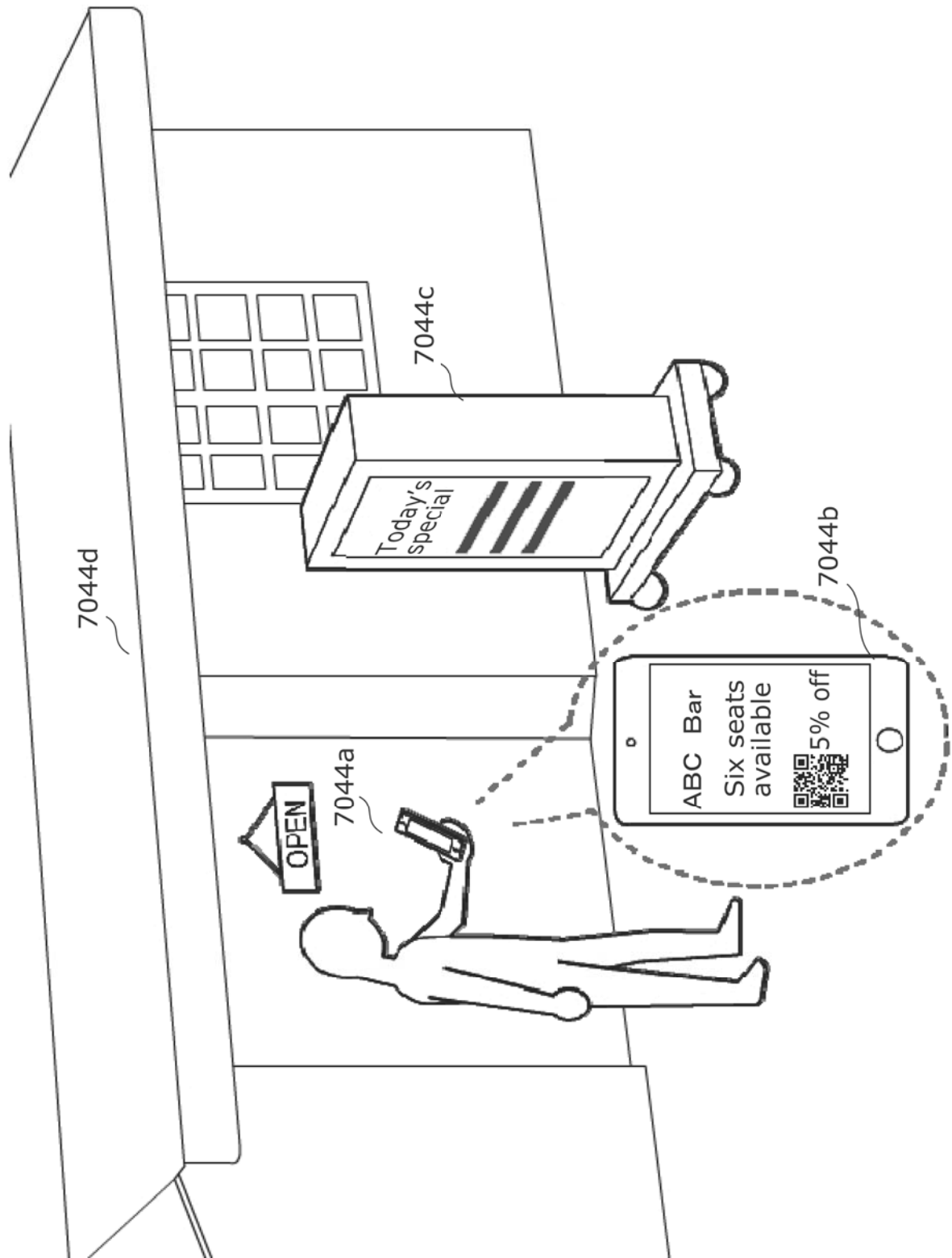


FIG. 205

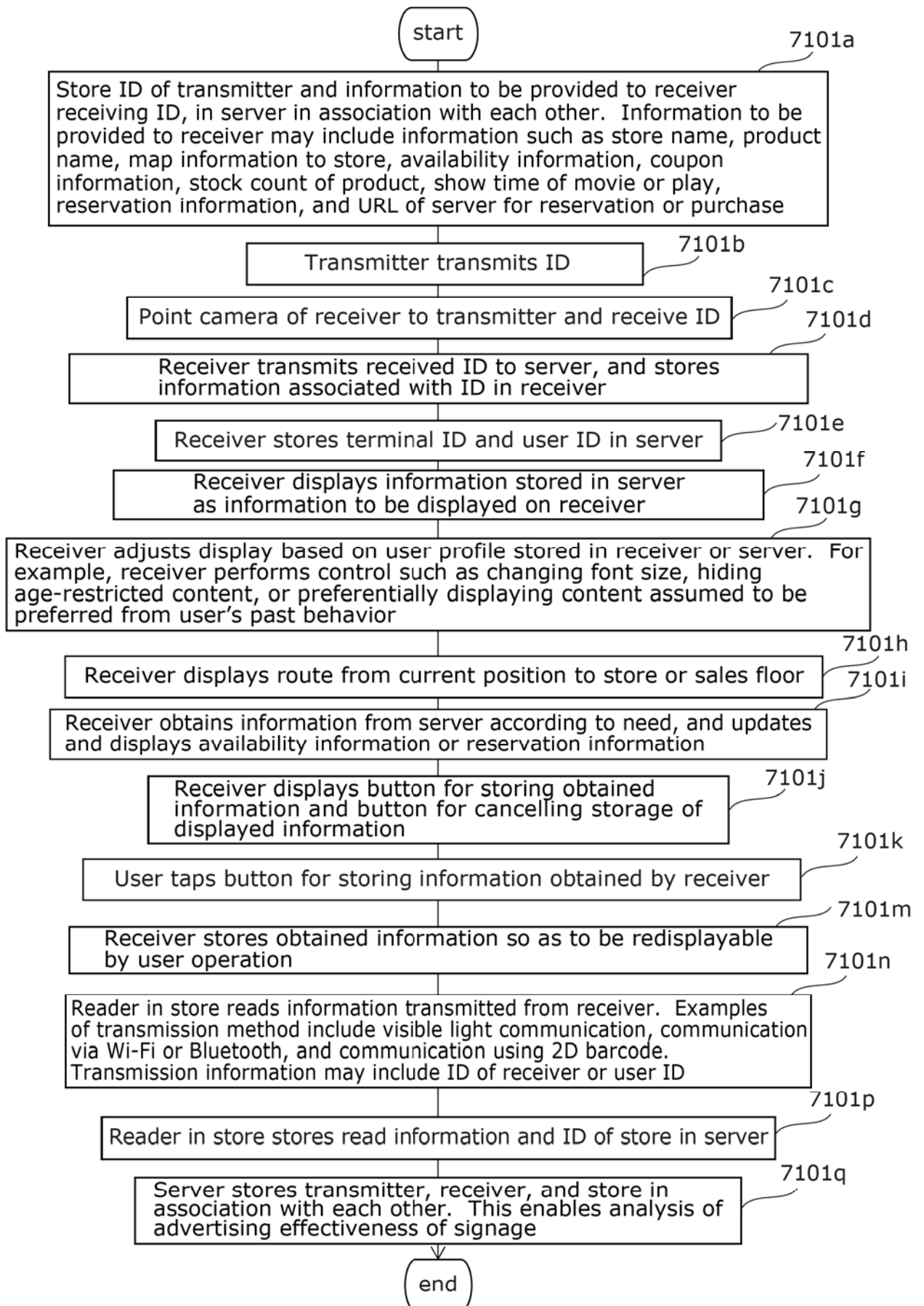


FIG. 206

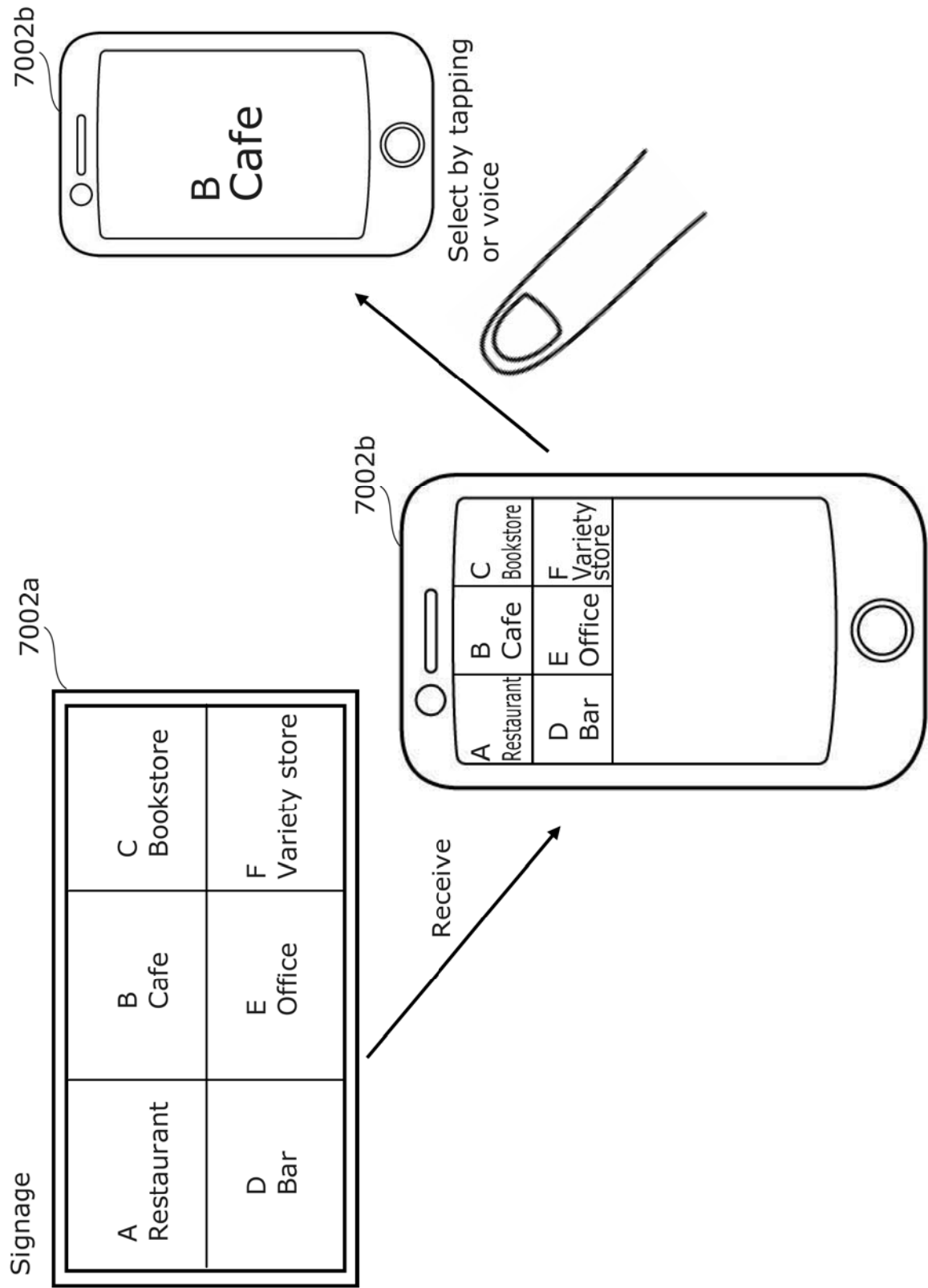


FIG. 207

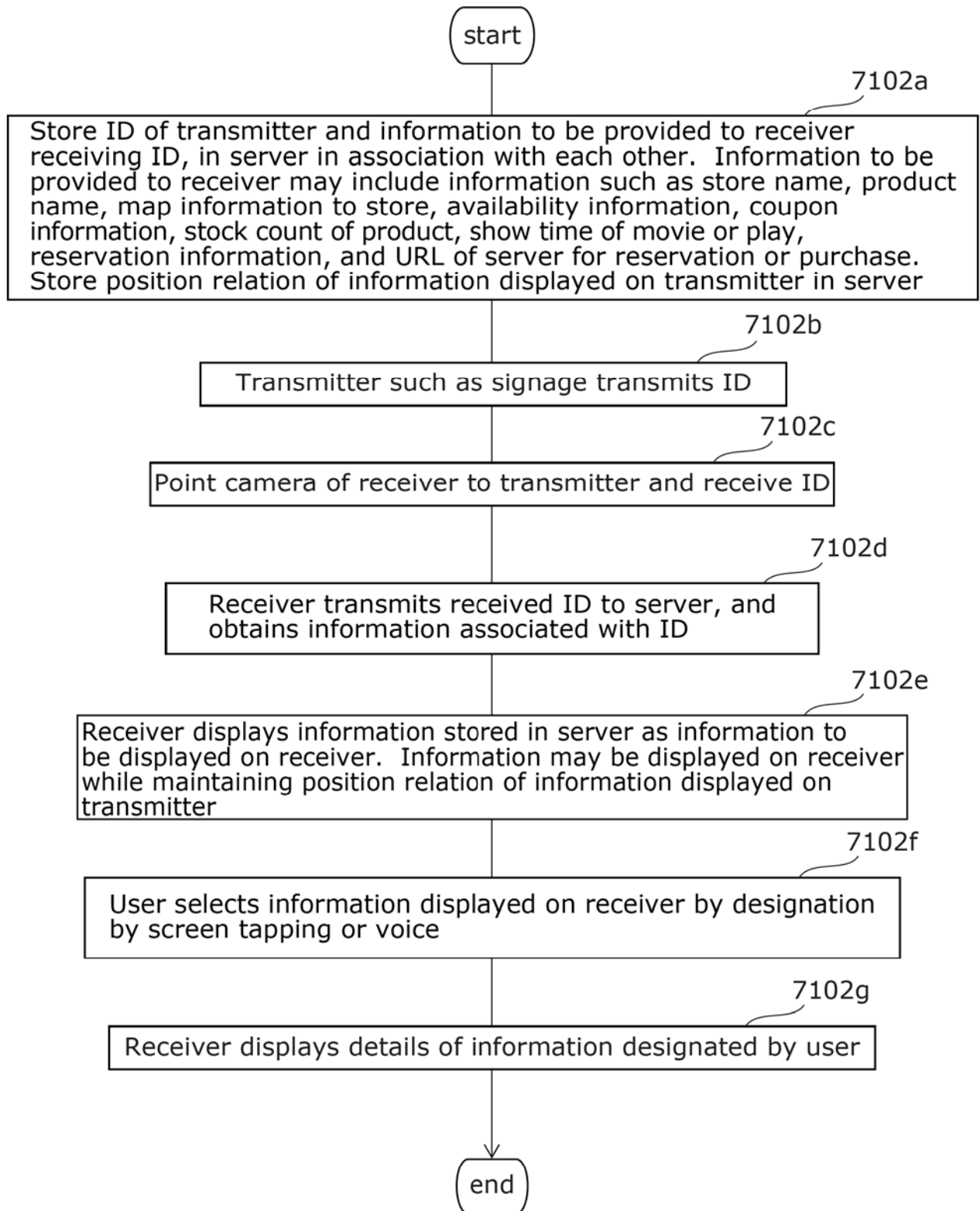


FIG. 208

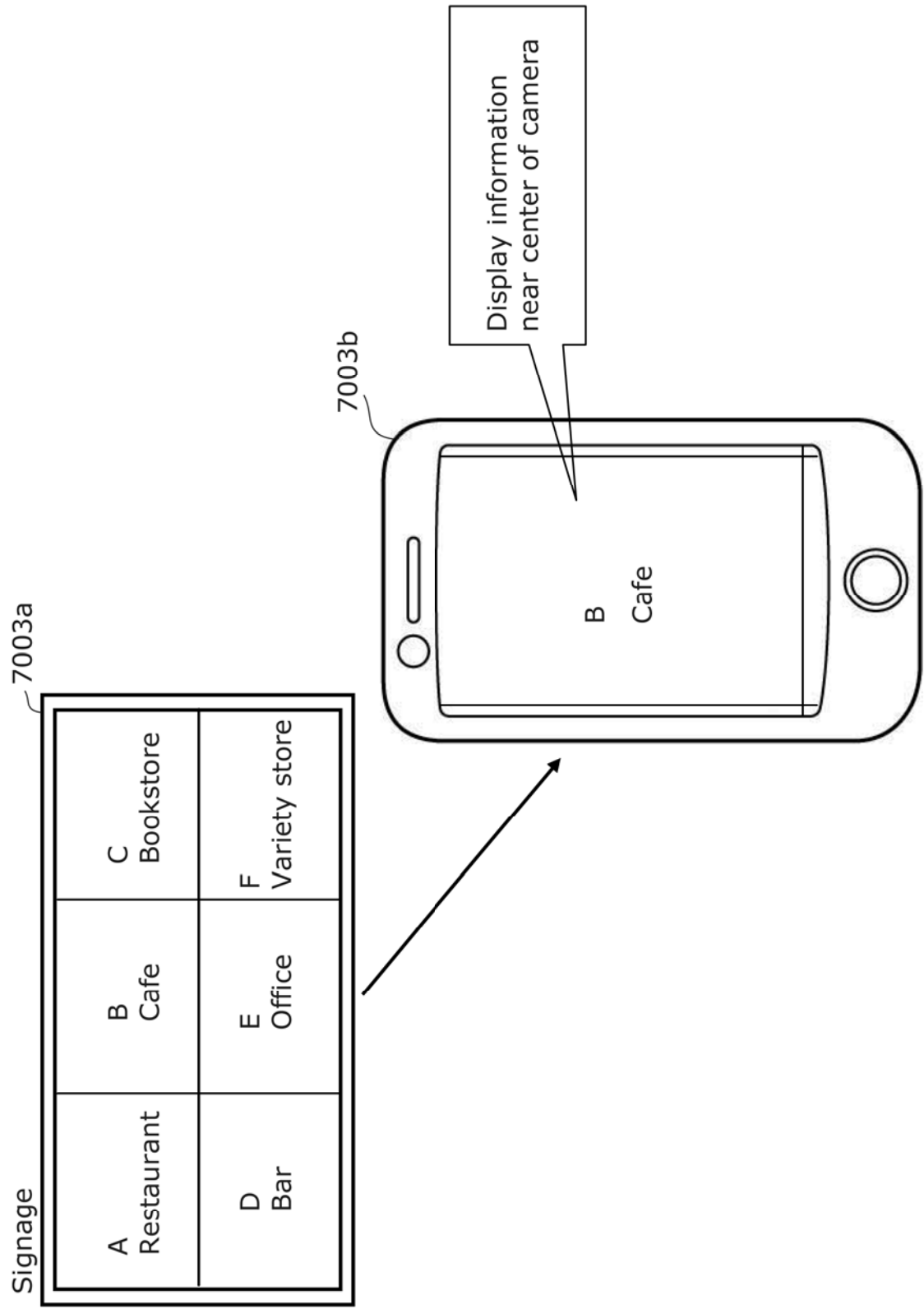




FIG. 209

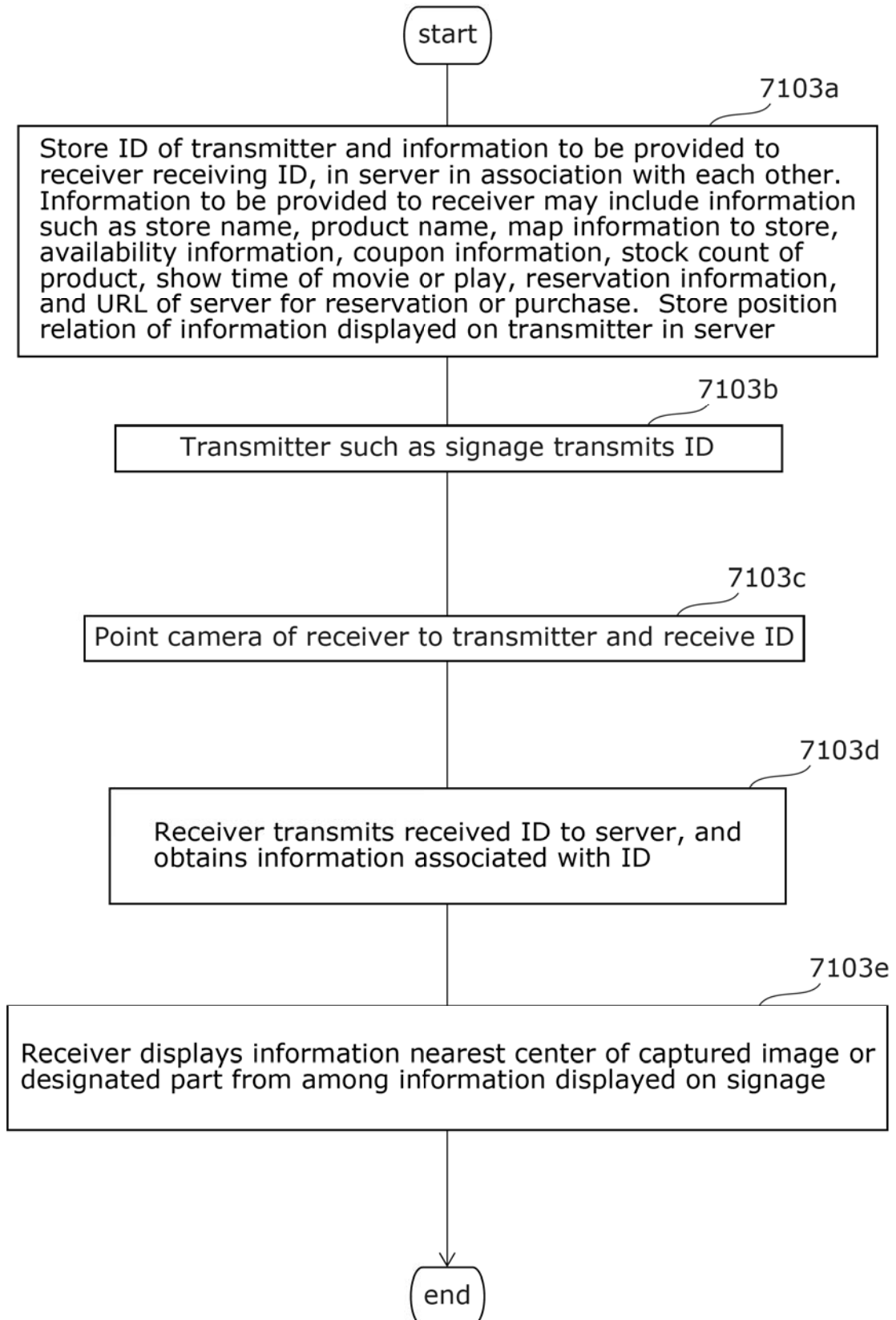


FIG. 210

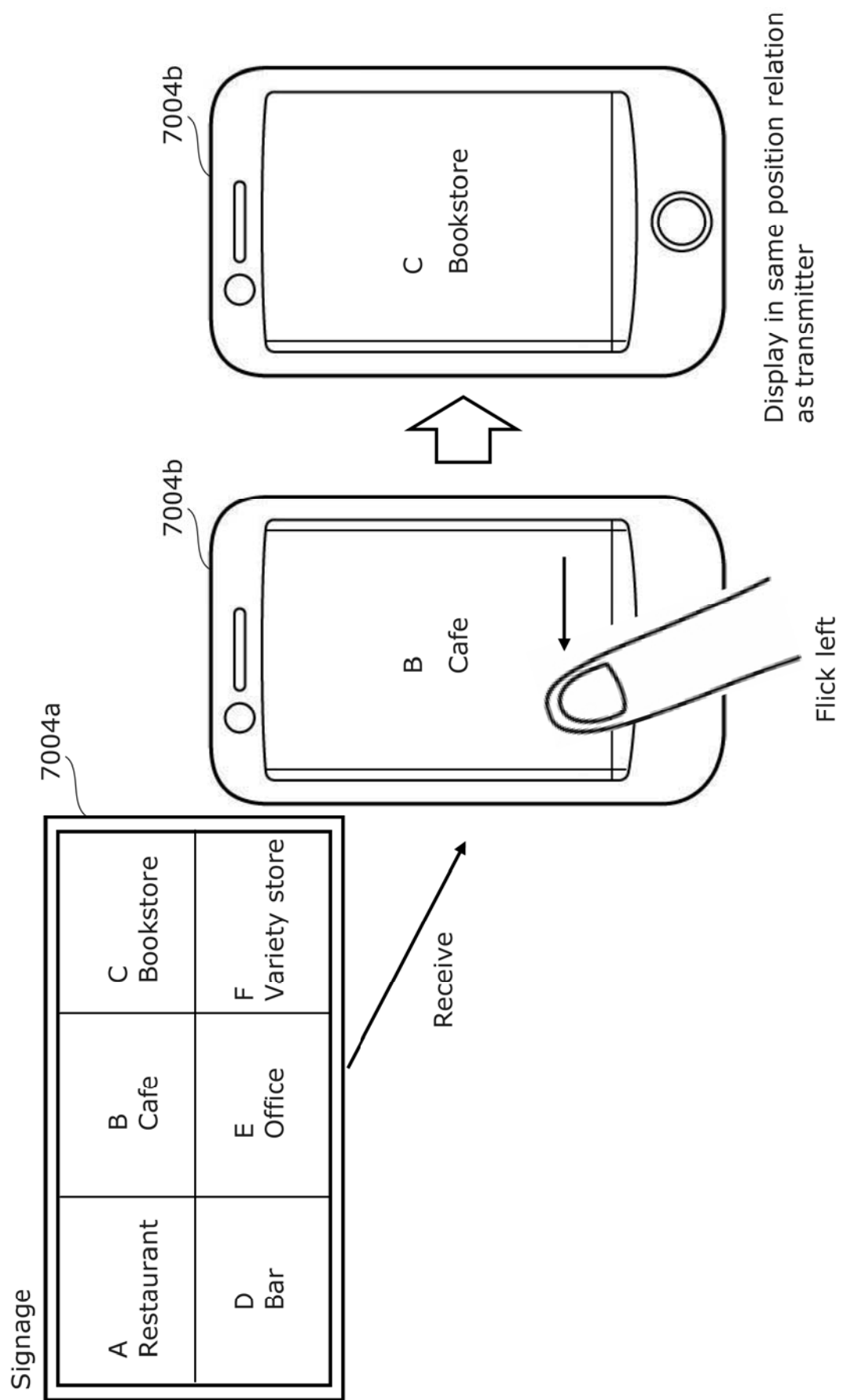


FIG. 211

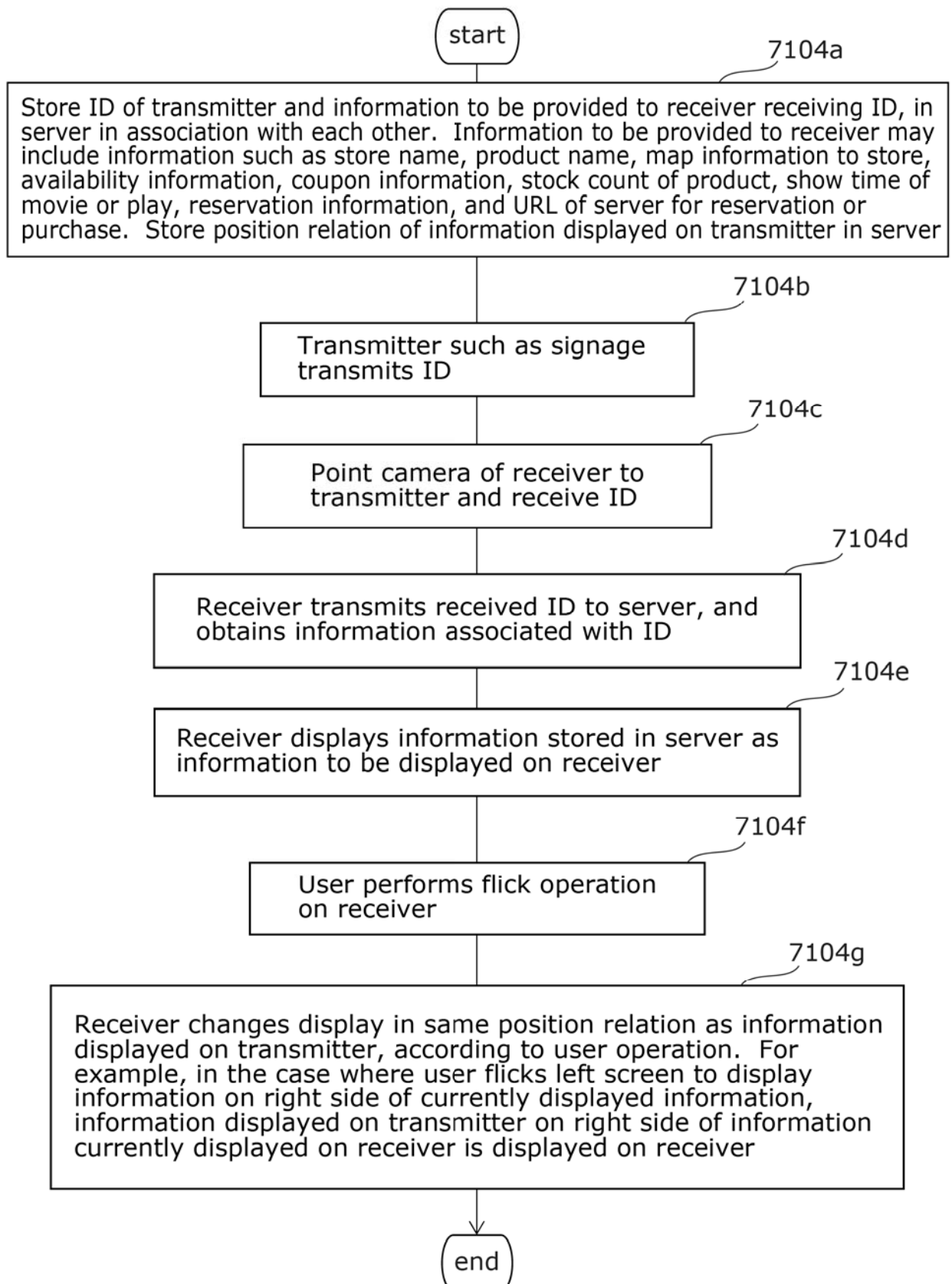


FIG. 212

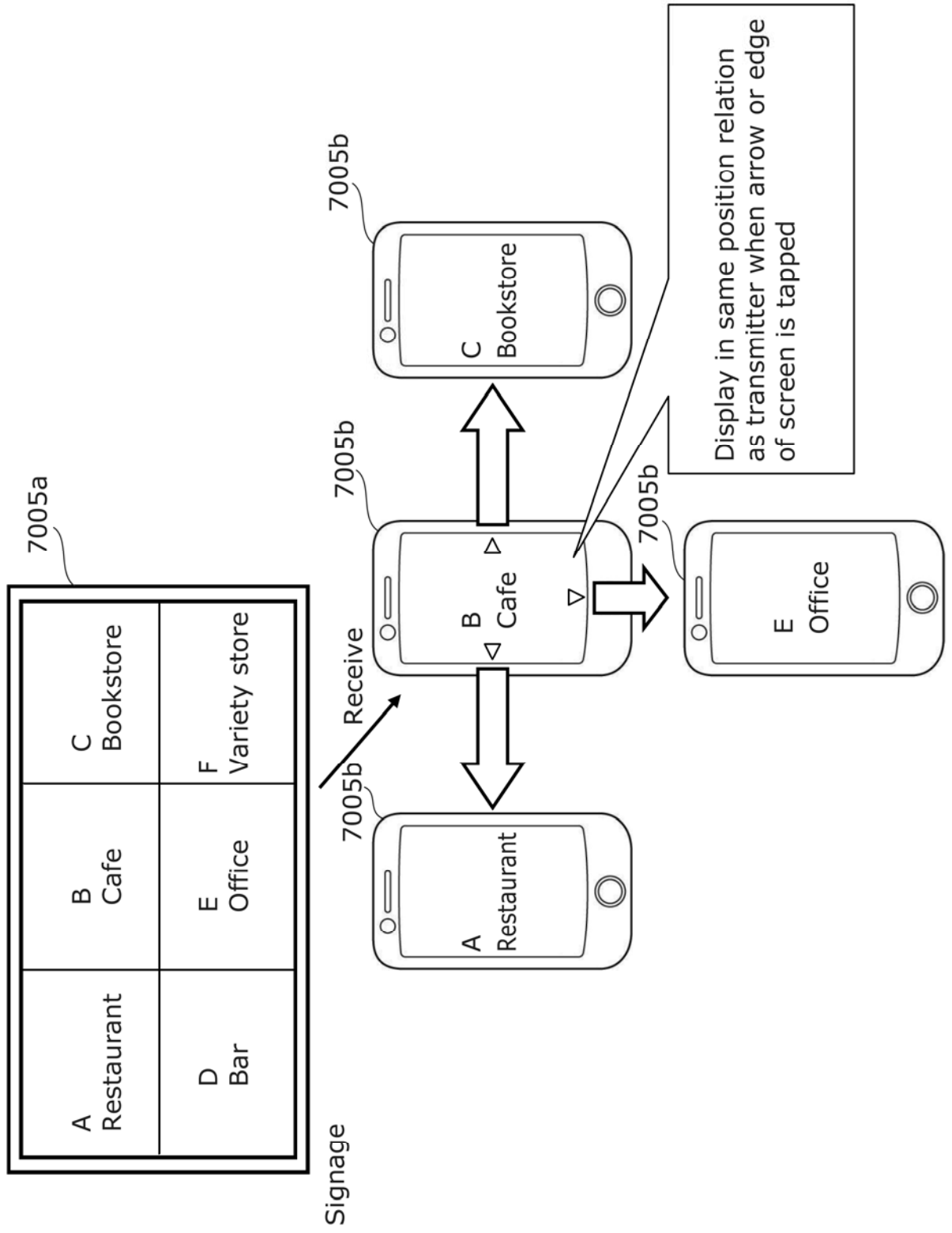


FIG. 213

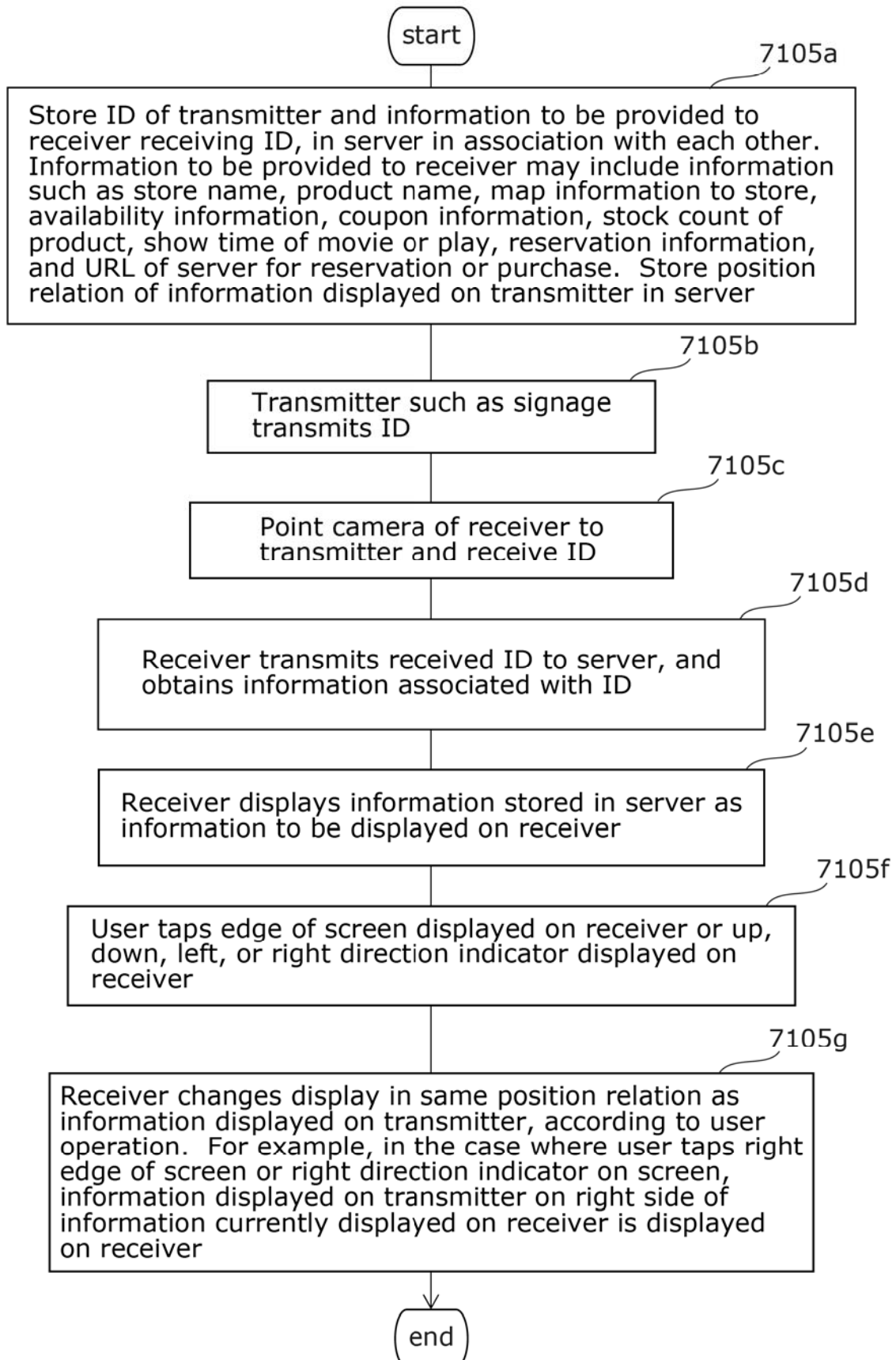


FIG. 214

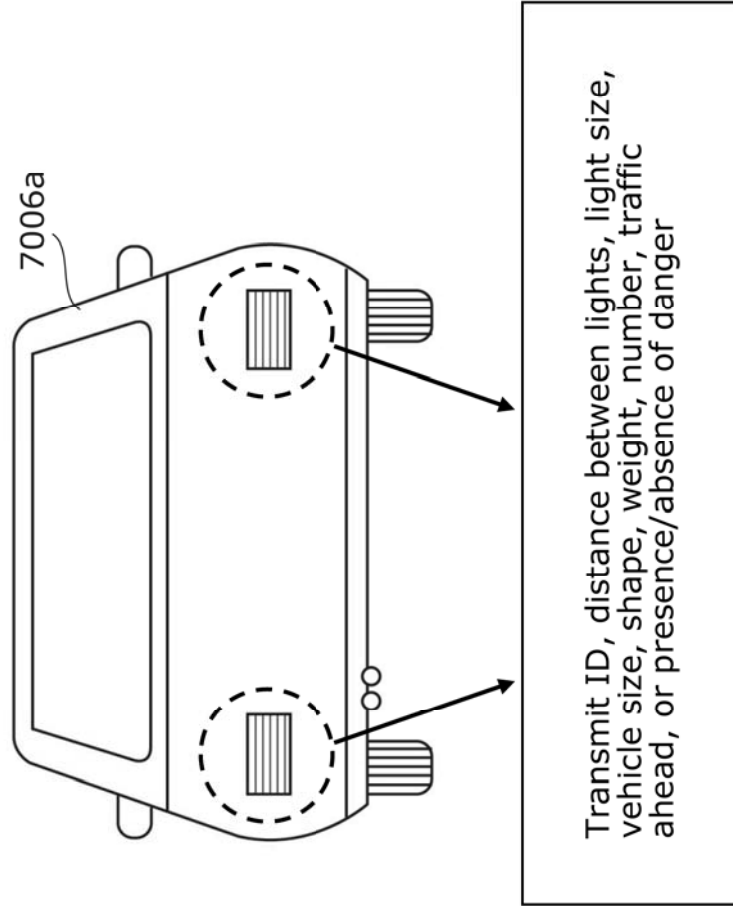


FIG. 215

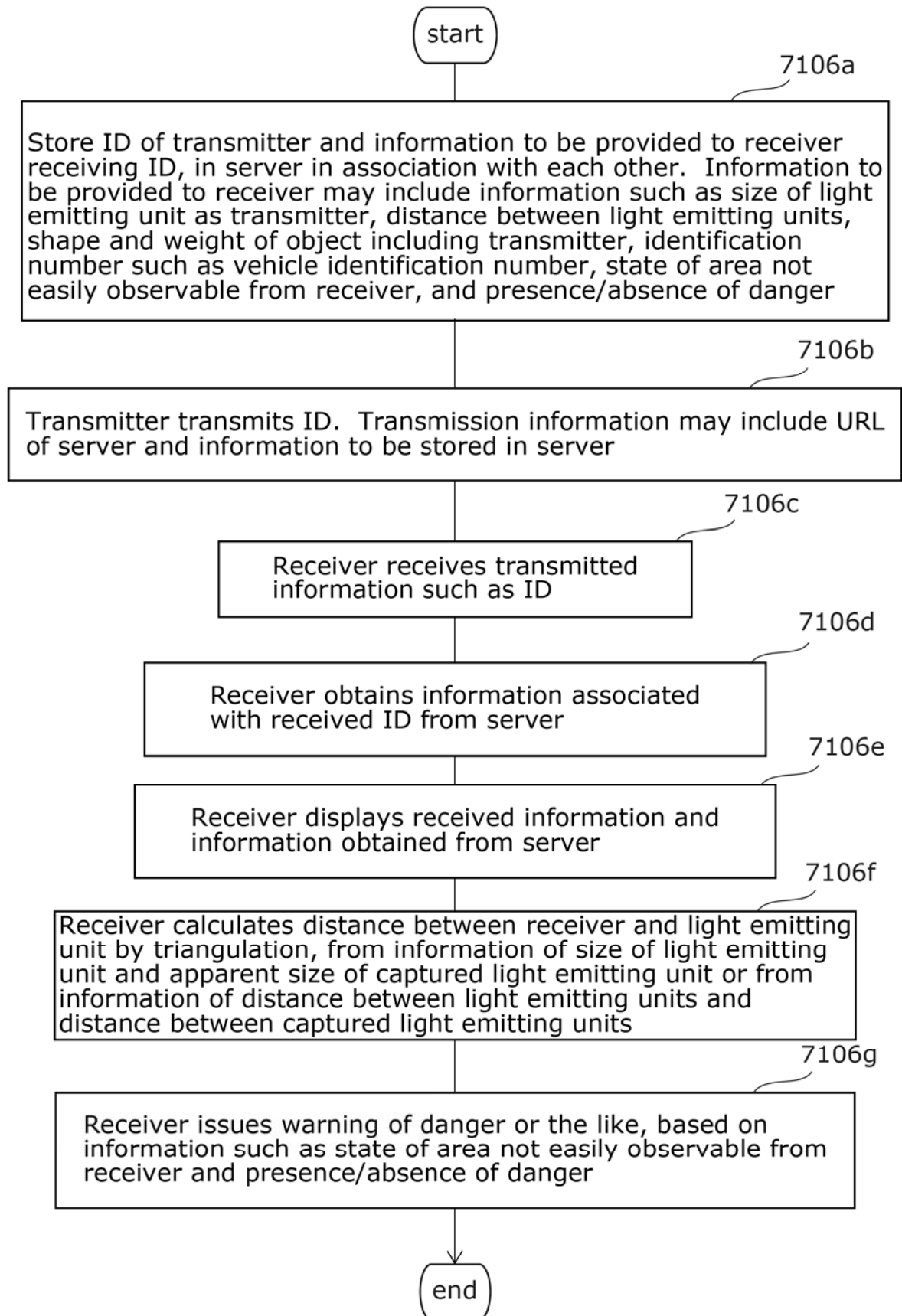


FIG. 216

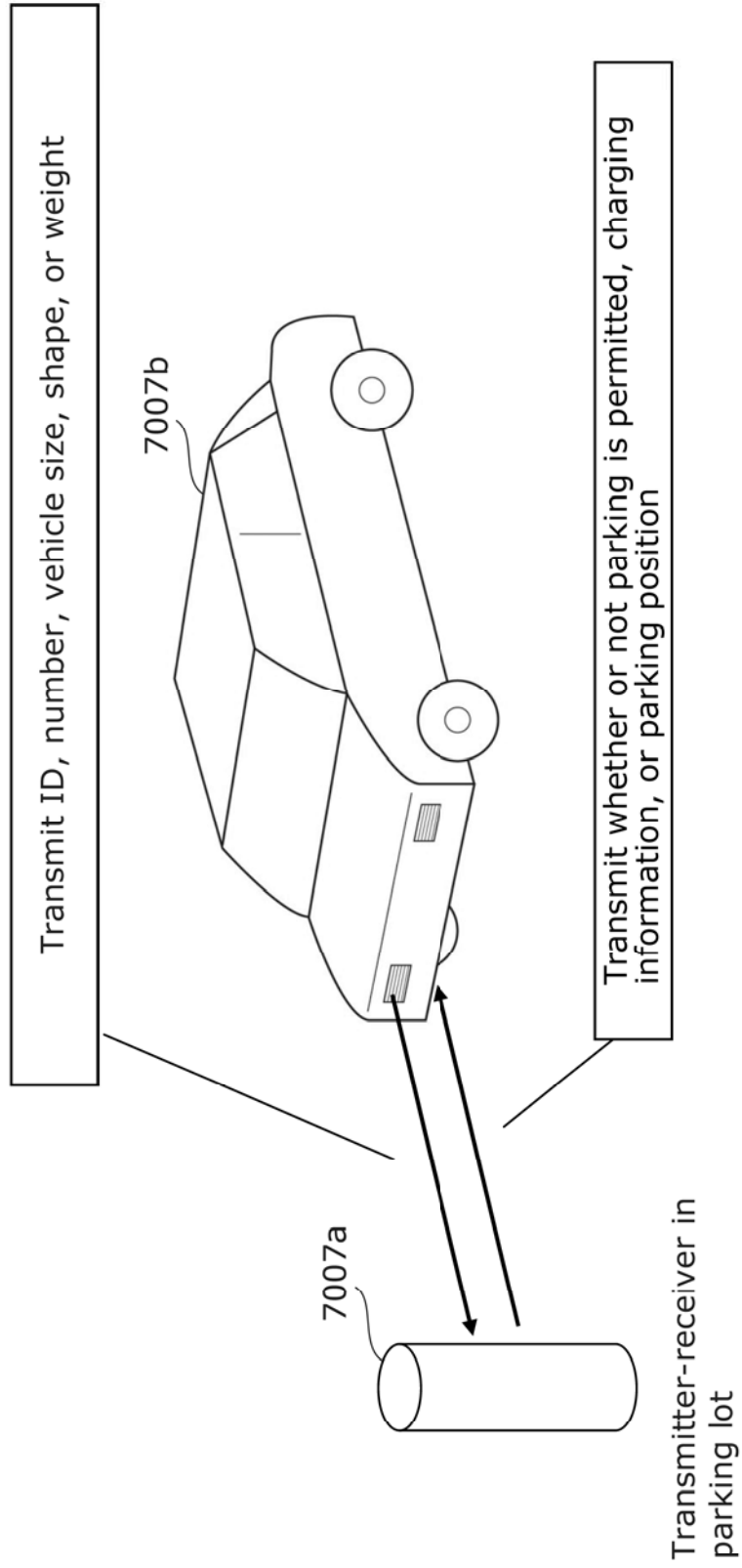




FIG. 217

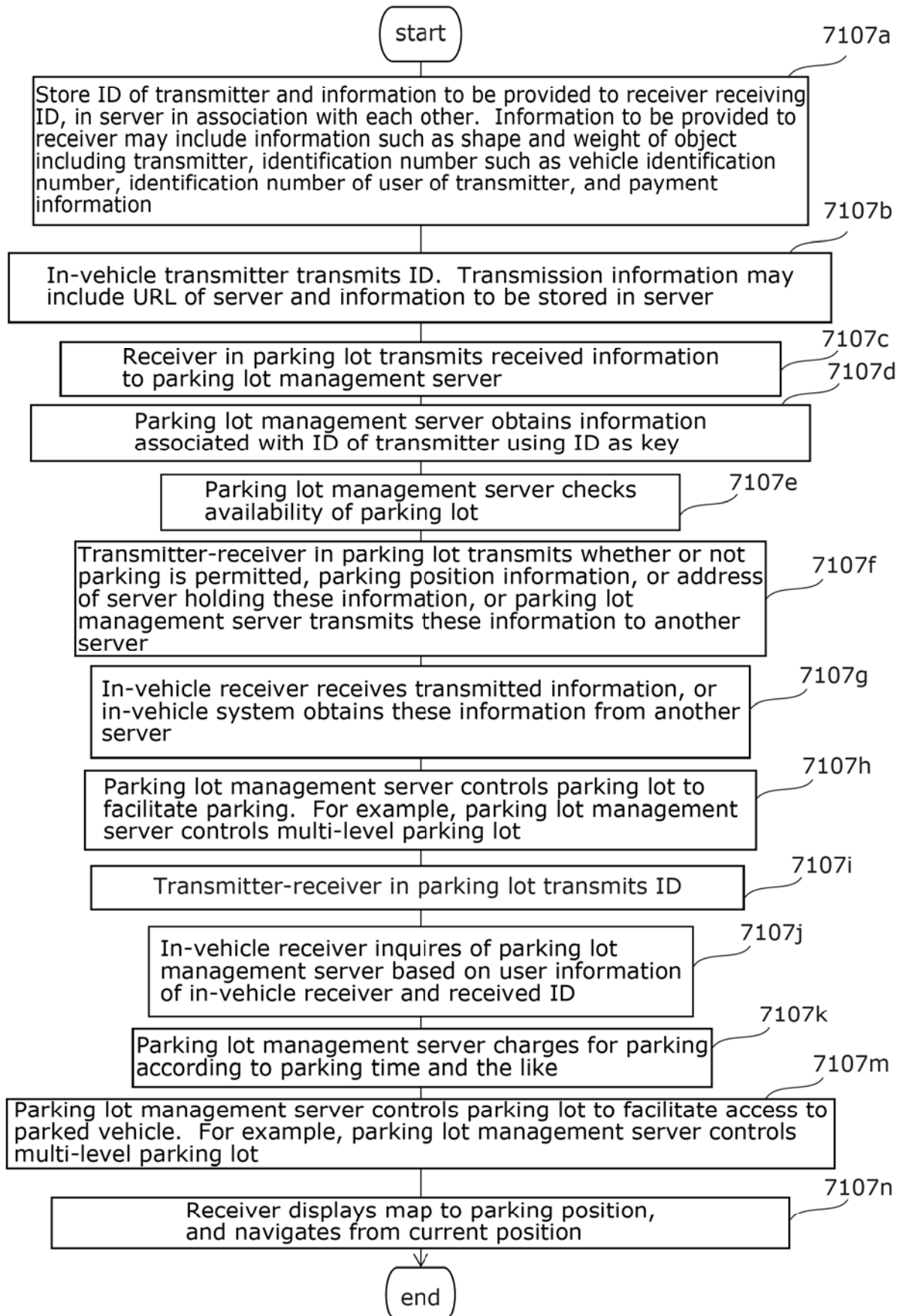


FIG. 218

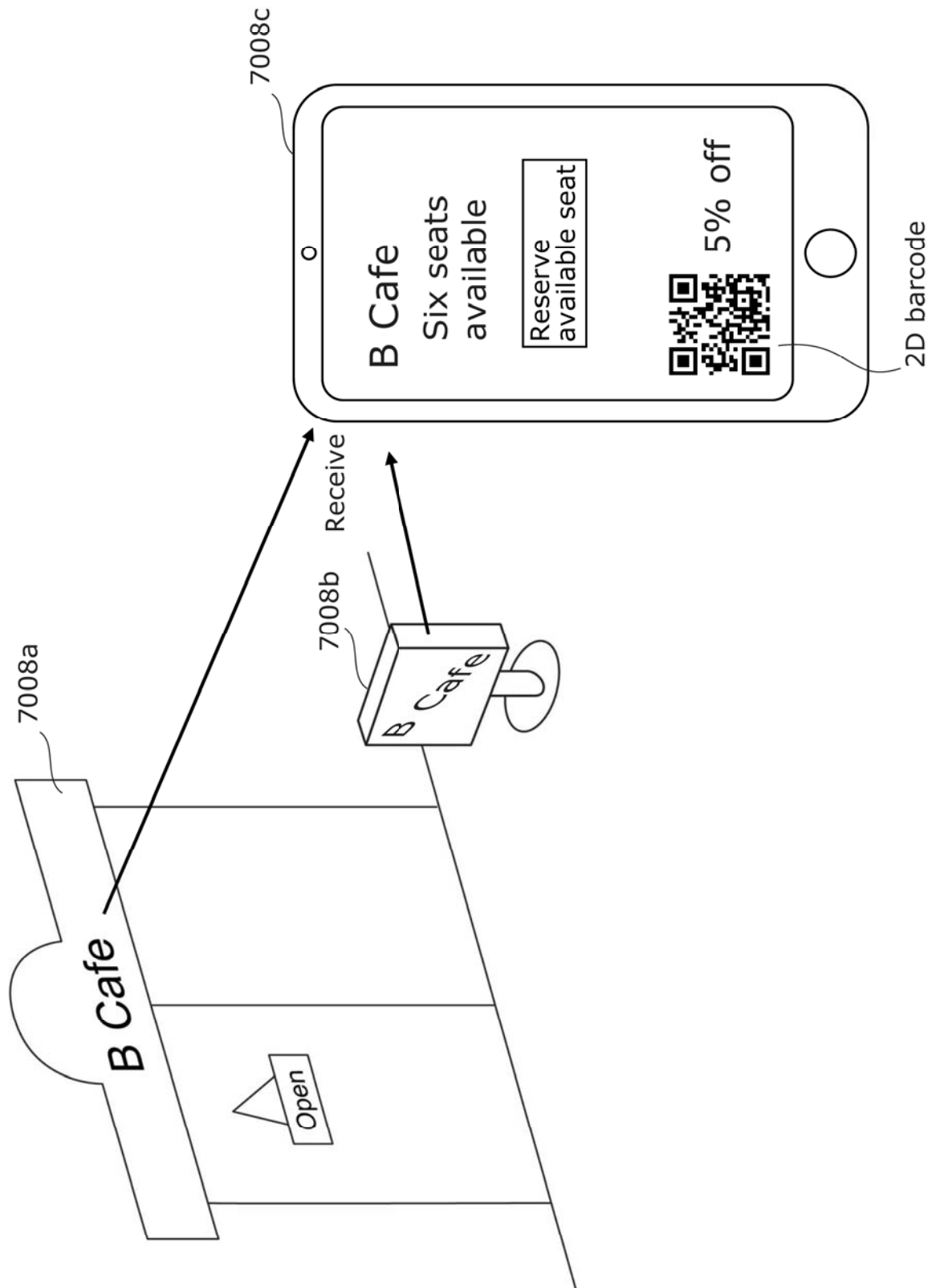


FIG. 219

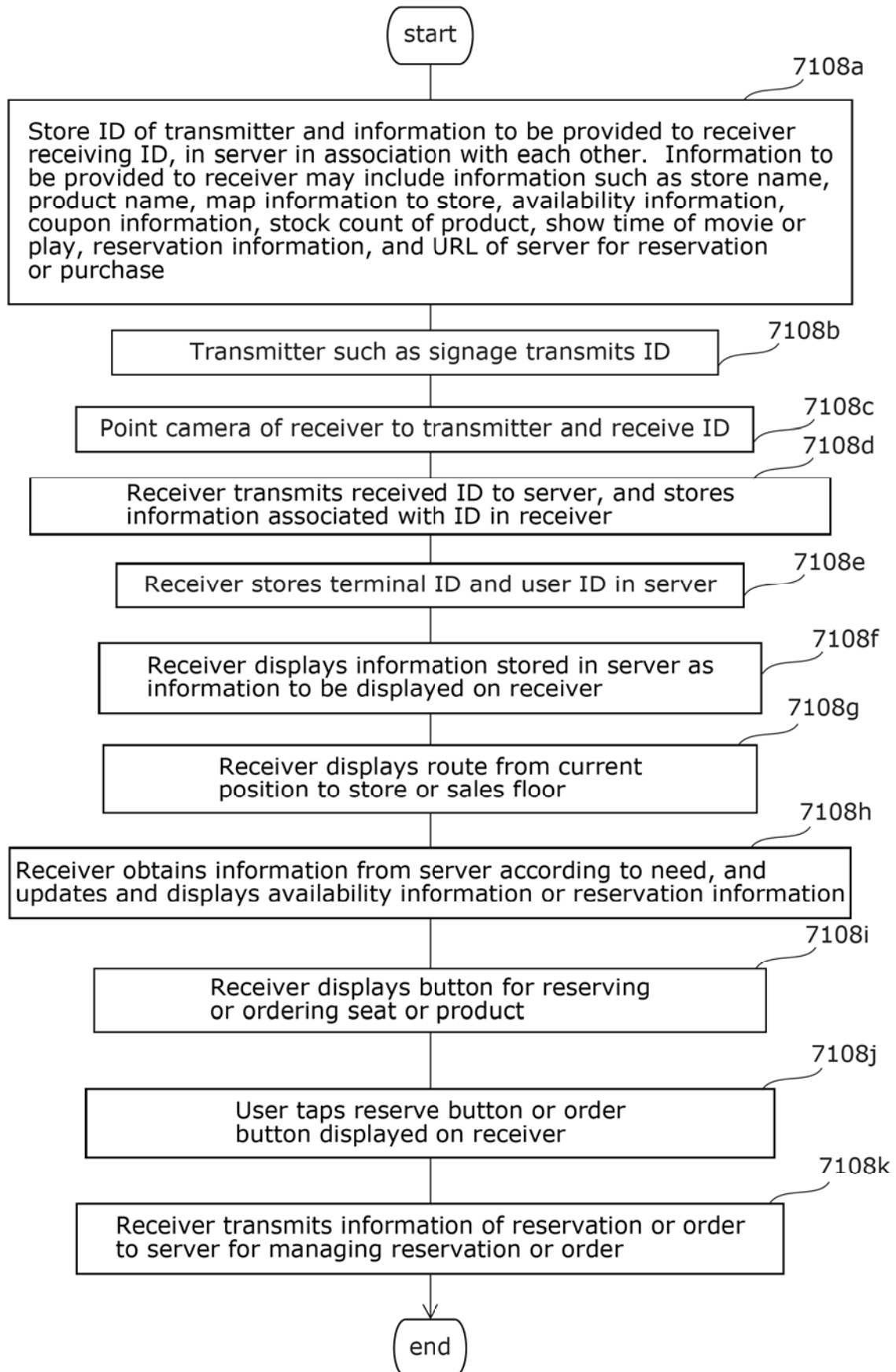


FIG. 220

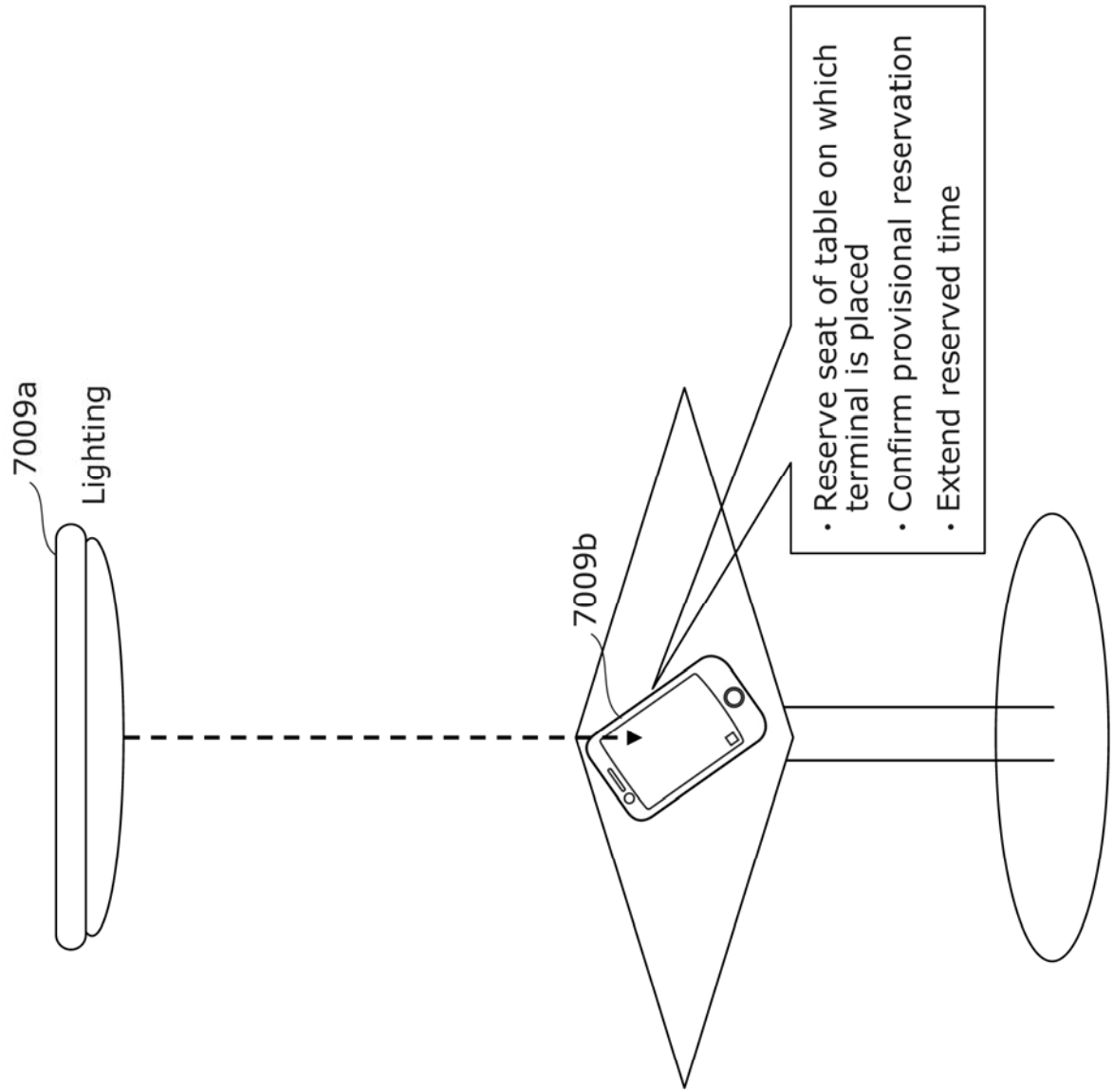


FIG. 221

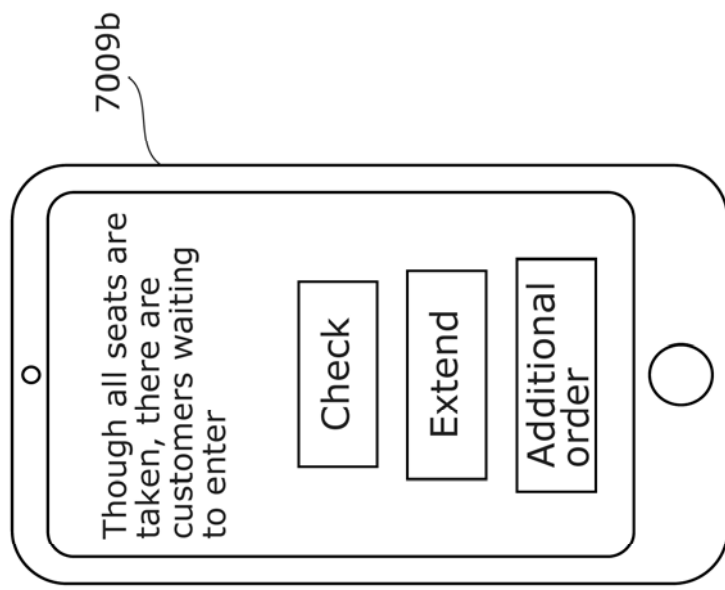


FIG. 222

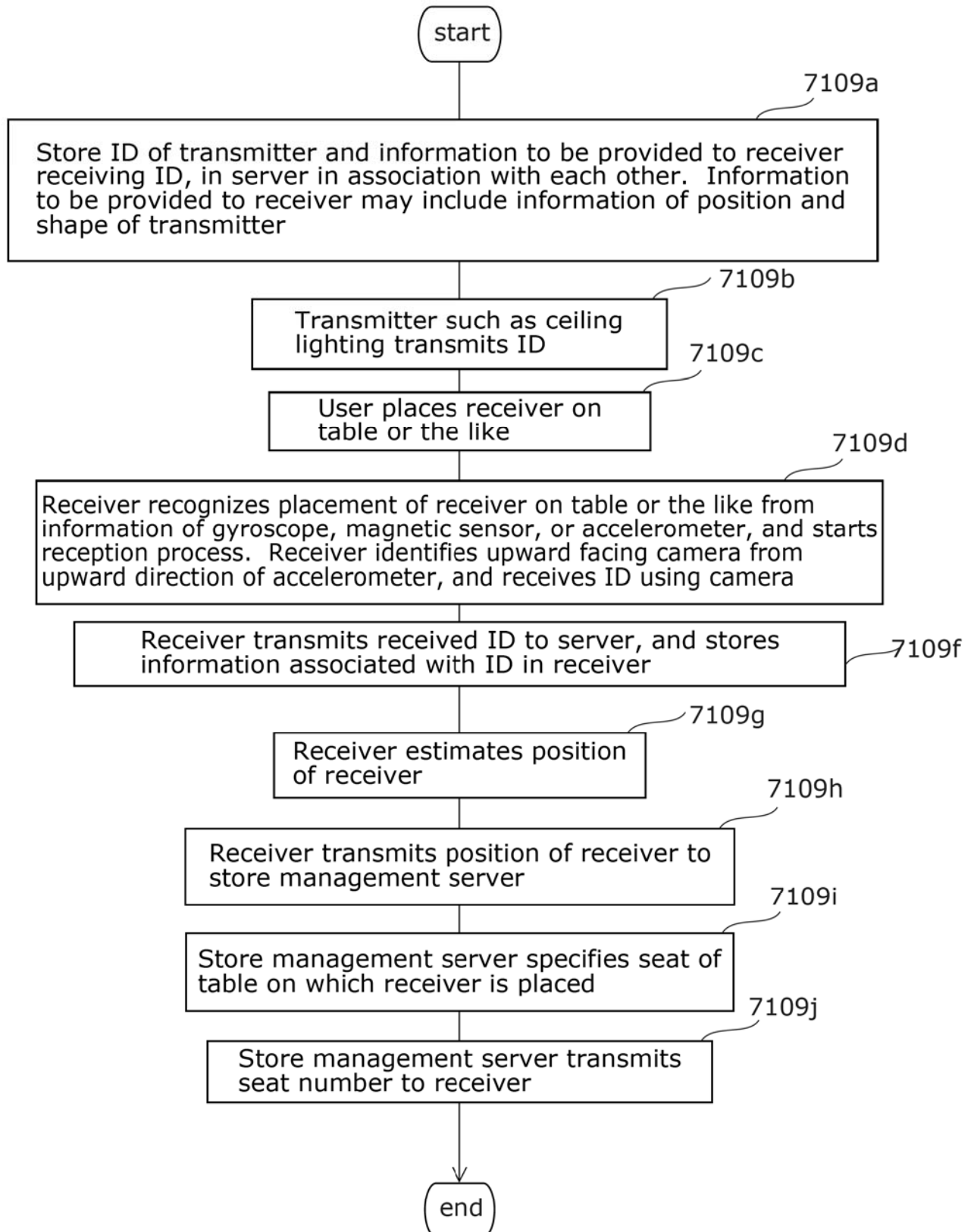


FIG. 223

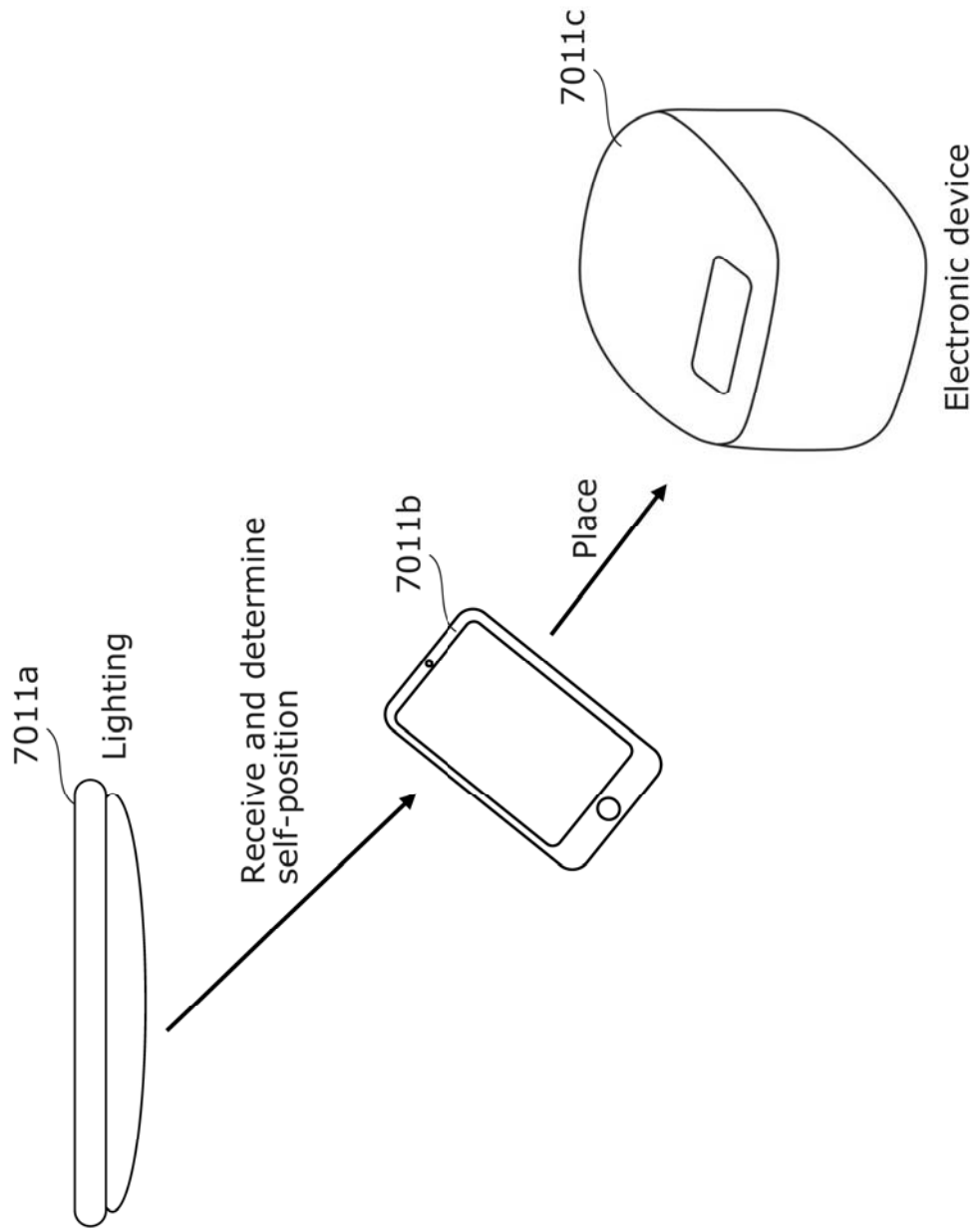


FIG. 224

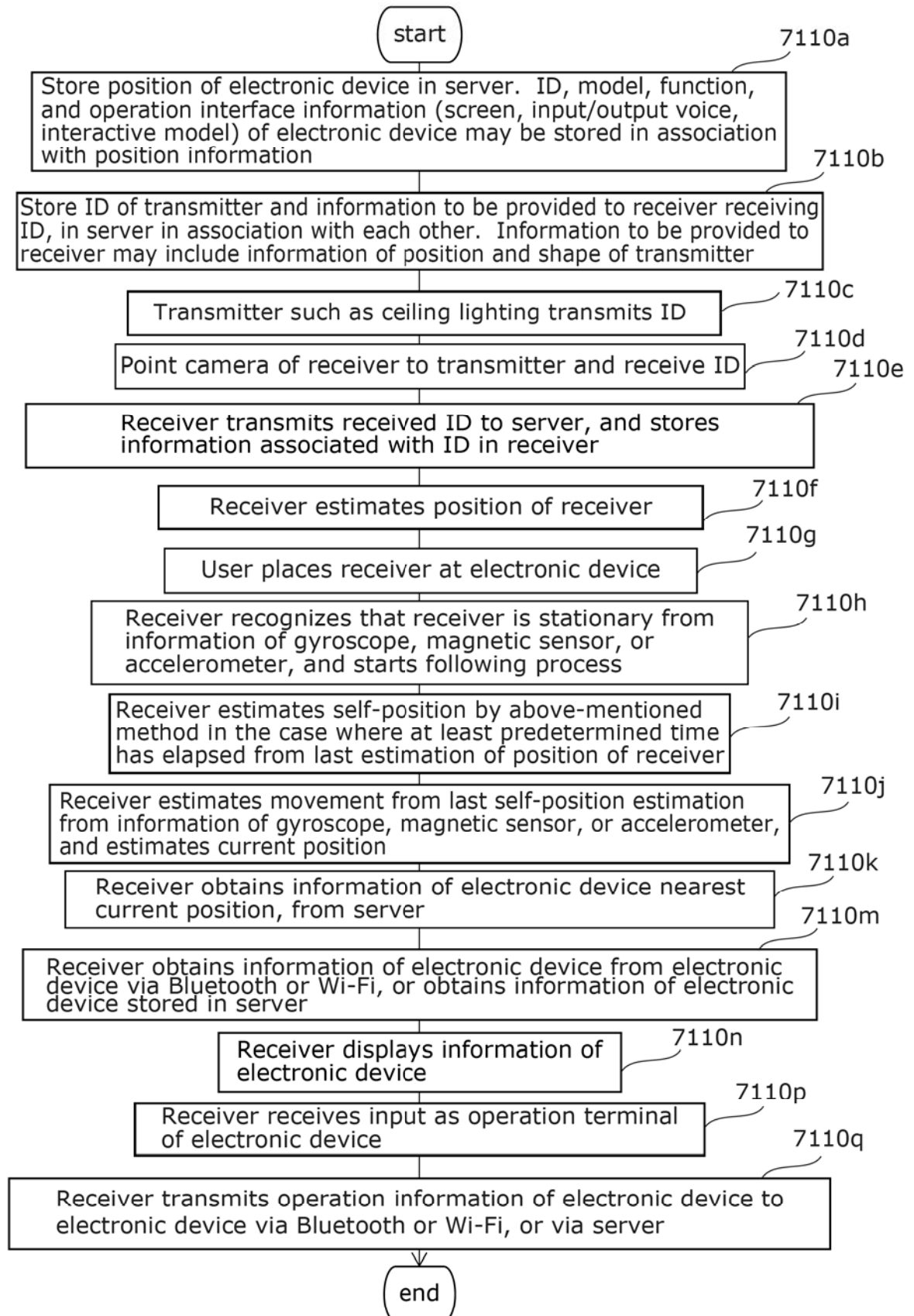




FIG. 225

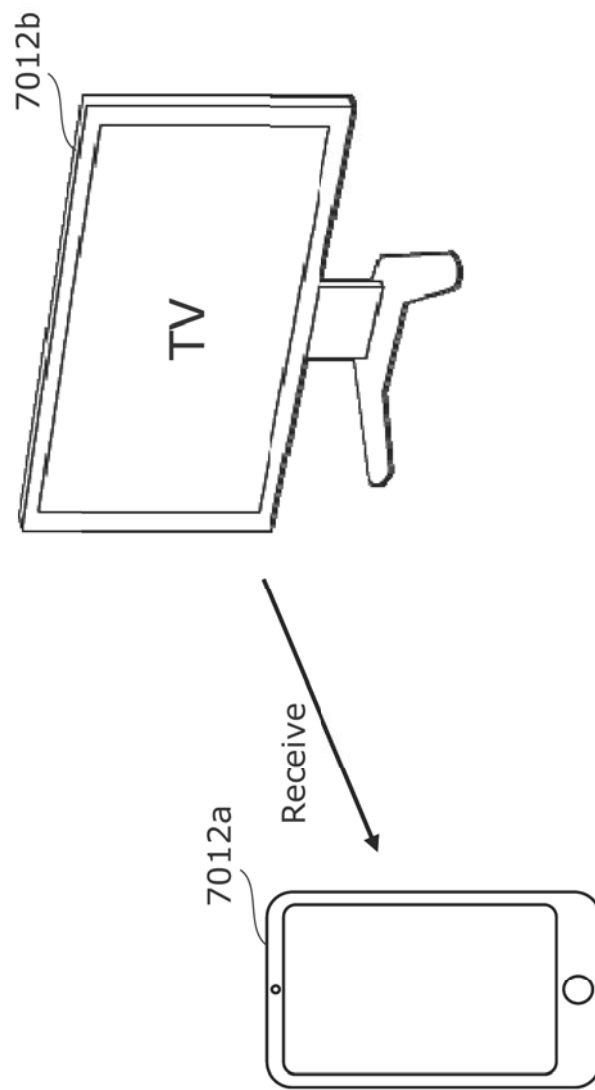


FIG. 226

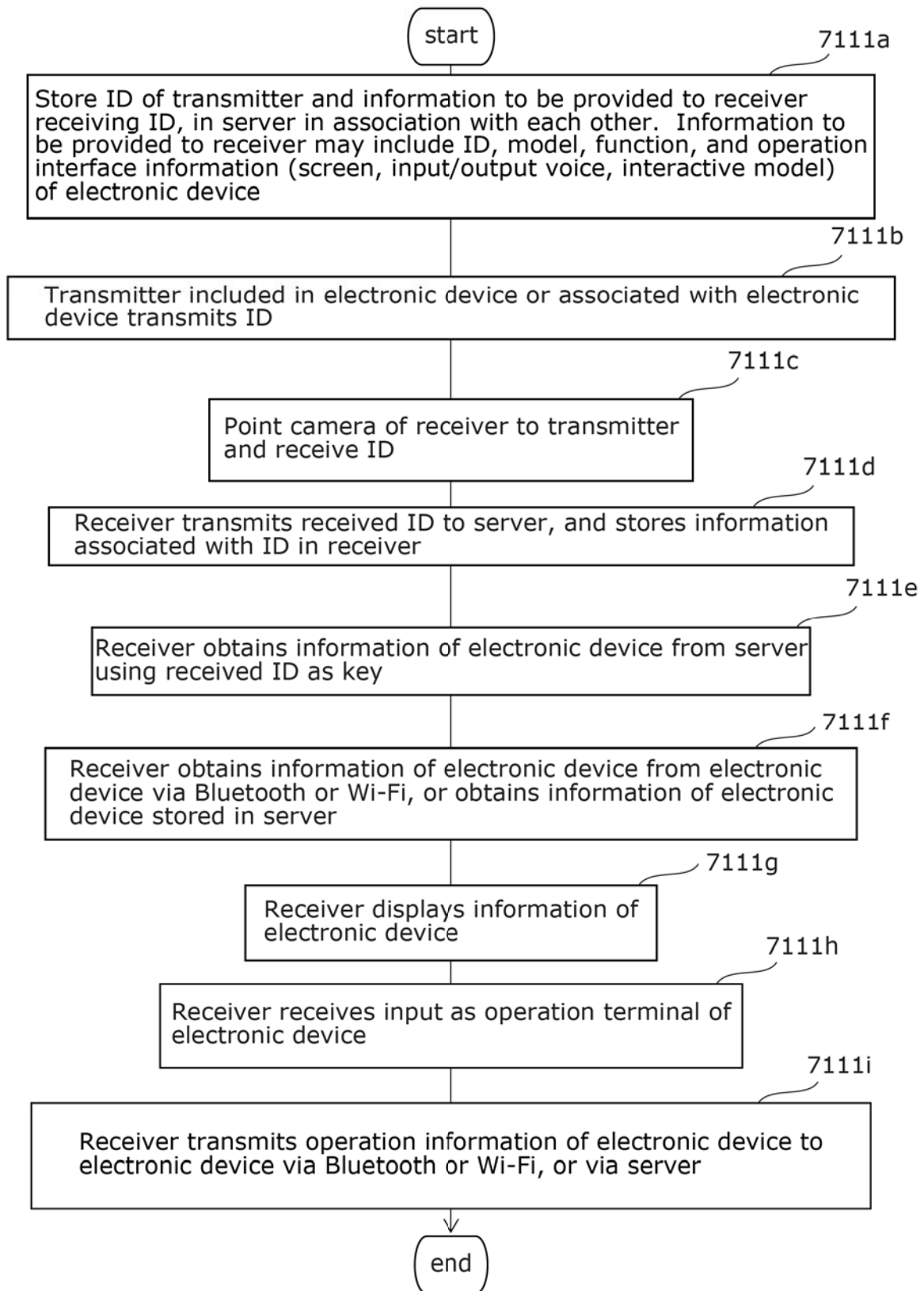


FIG. 227

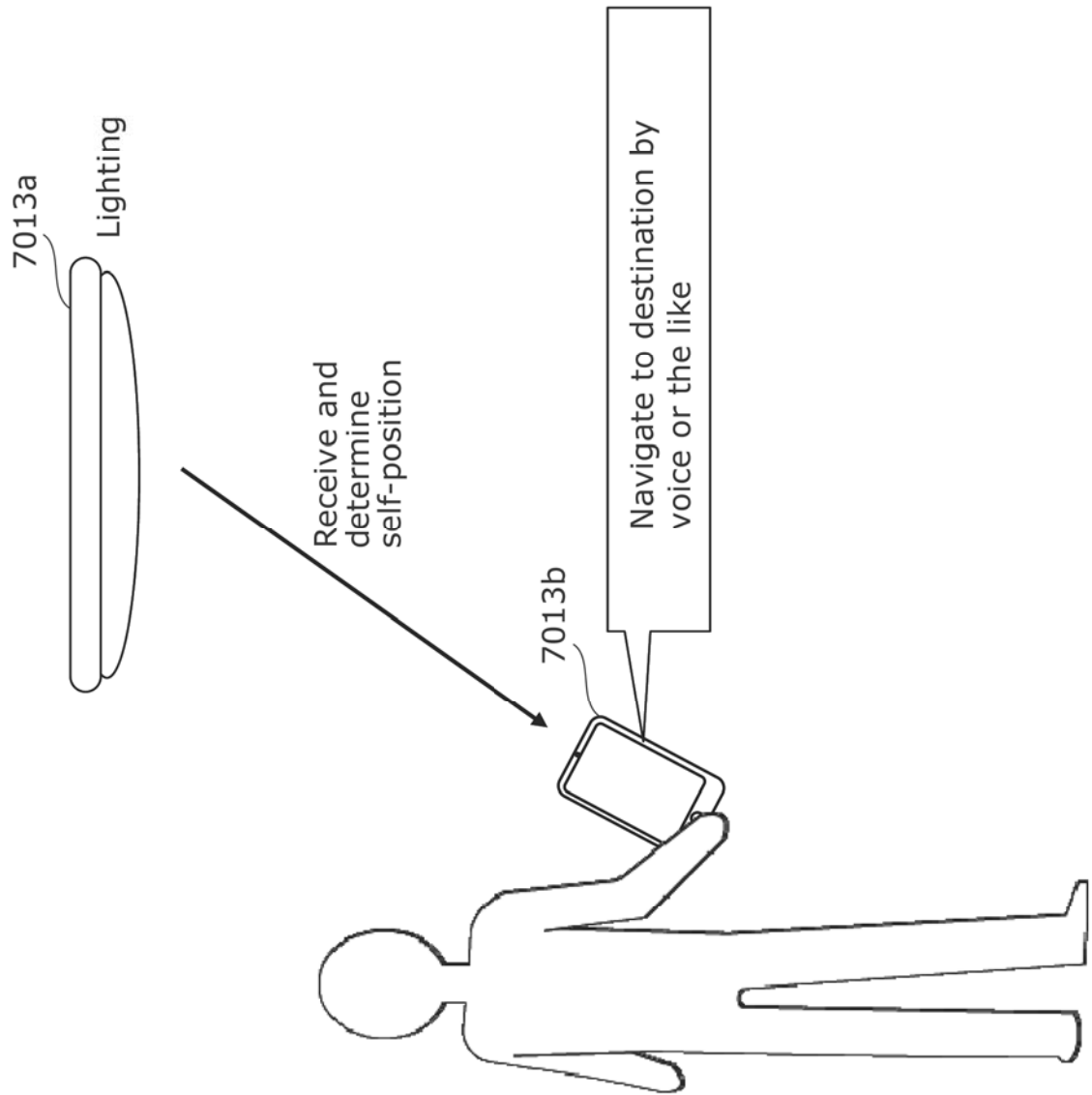


FIG. 228

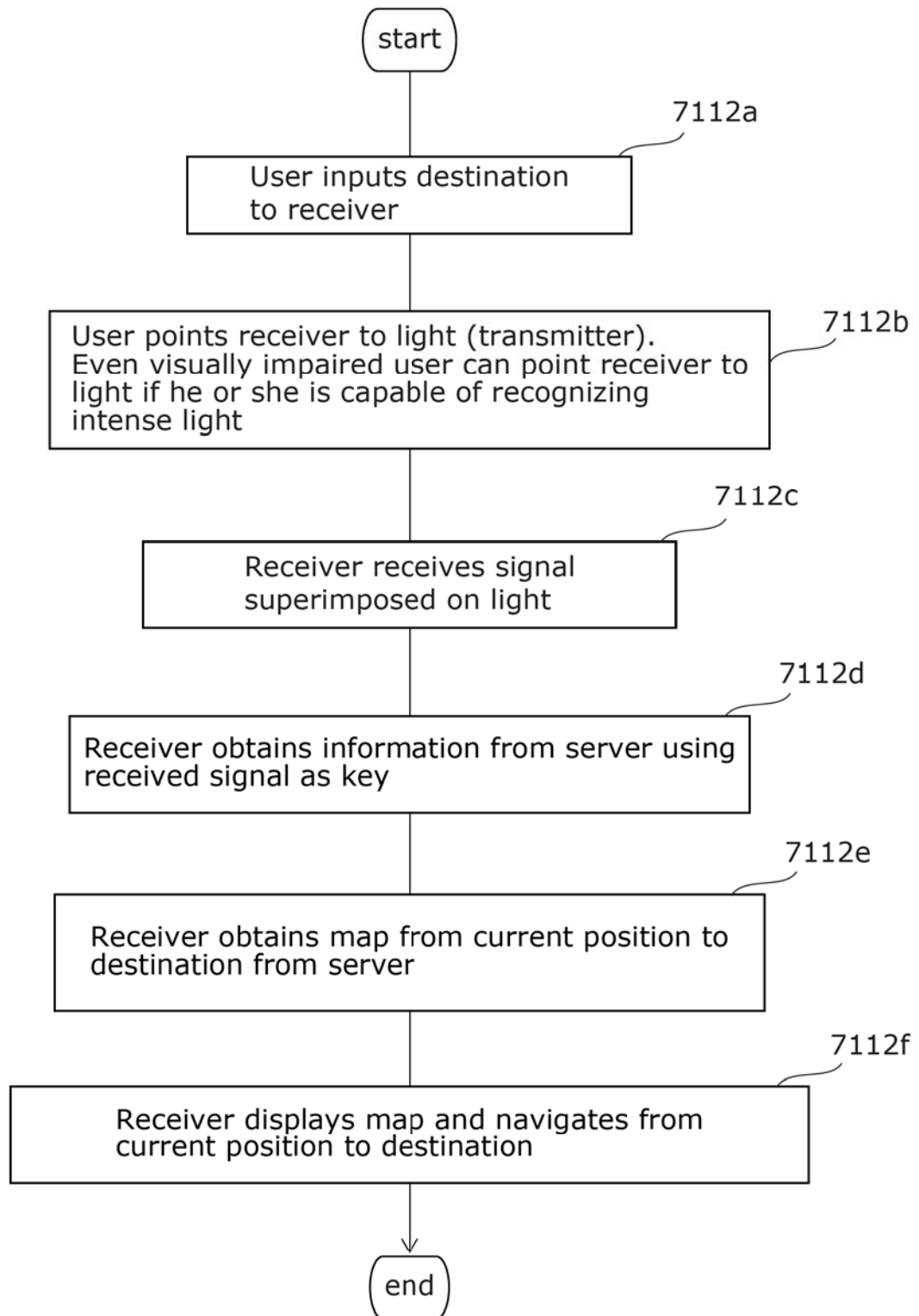


FIG. 229

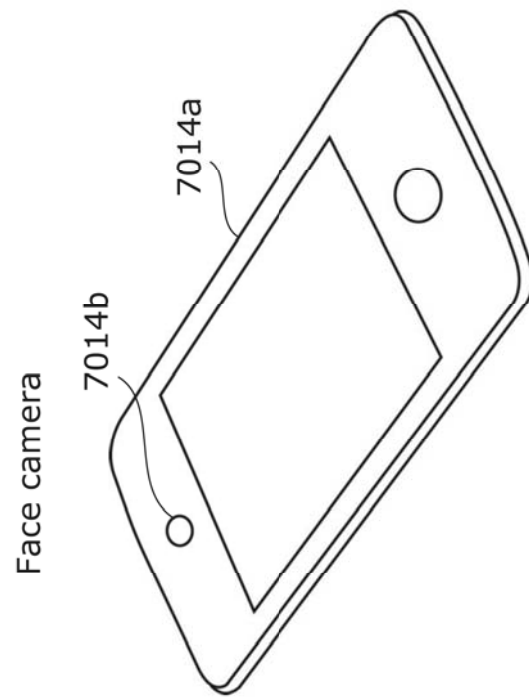


FIG. 230

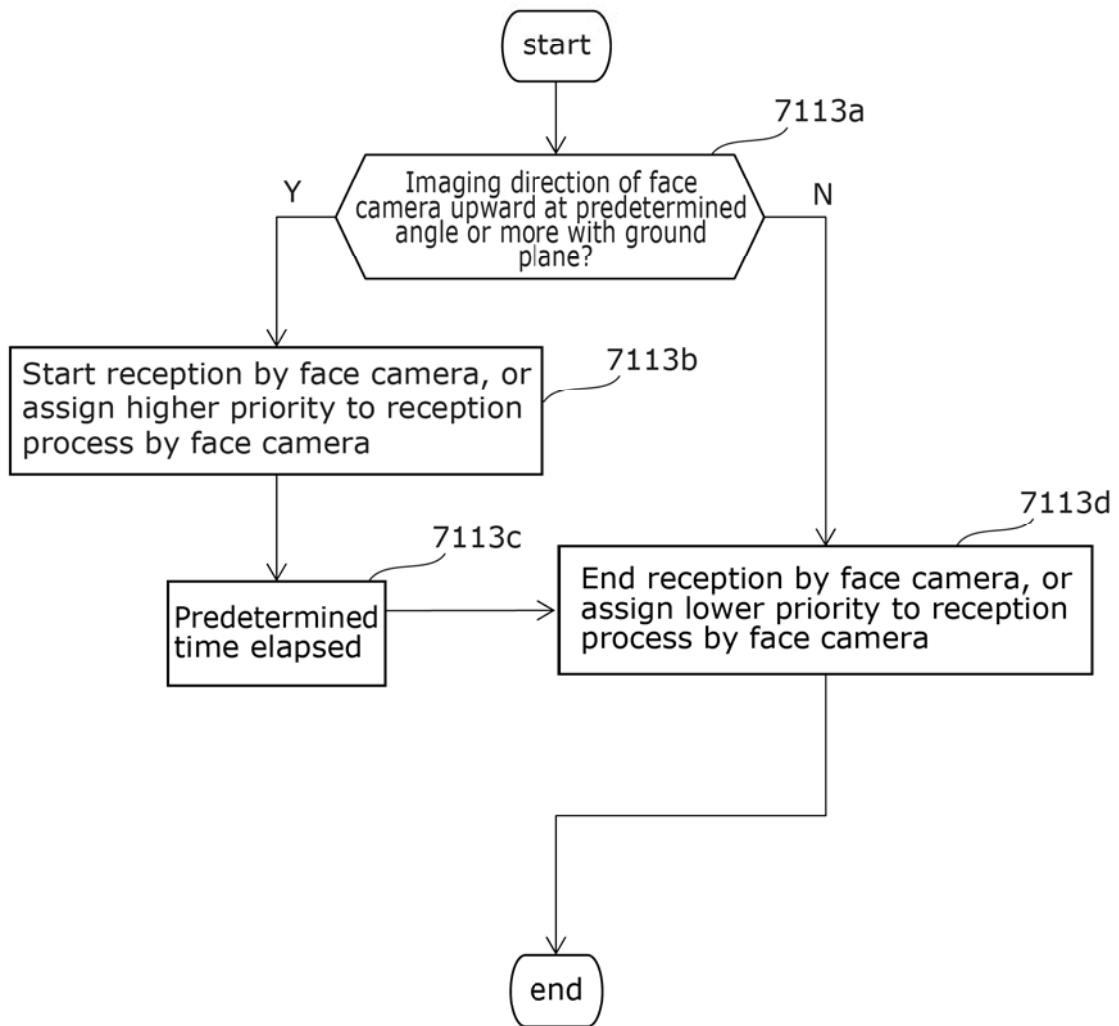


FIG. 231

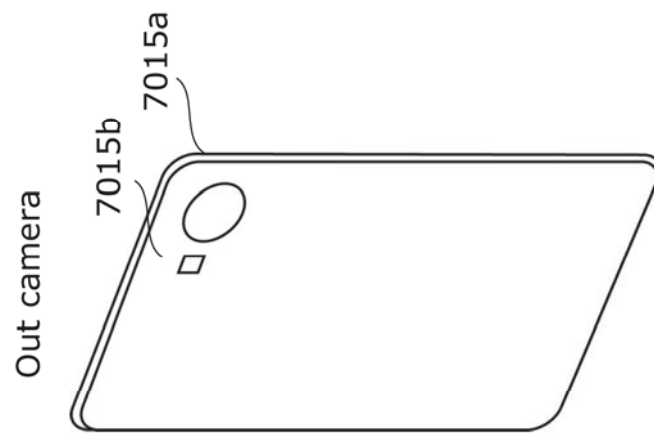


FIG. 232

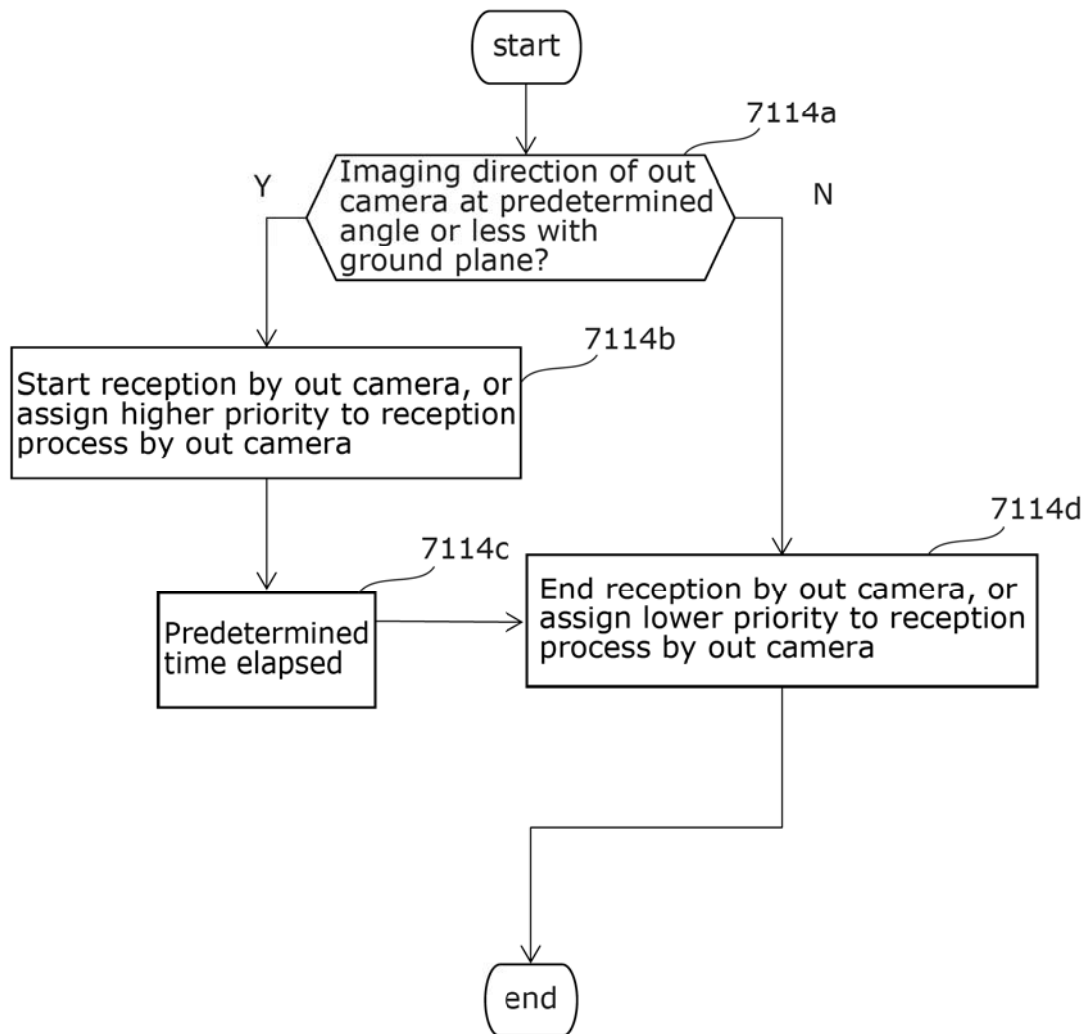




FIG. 233

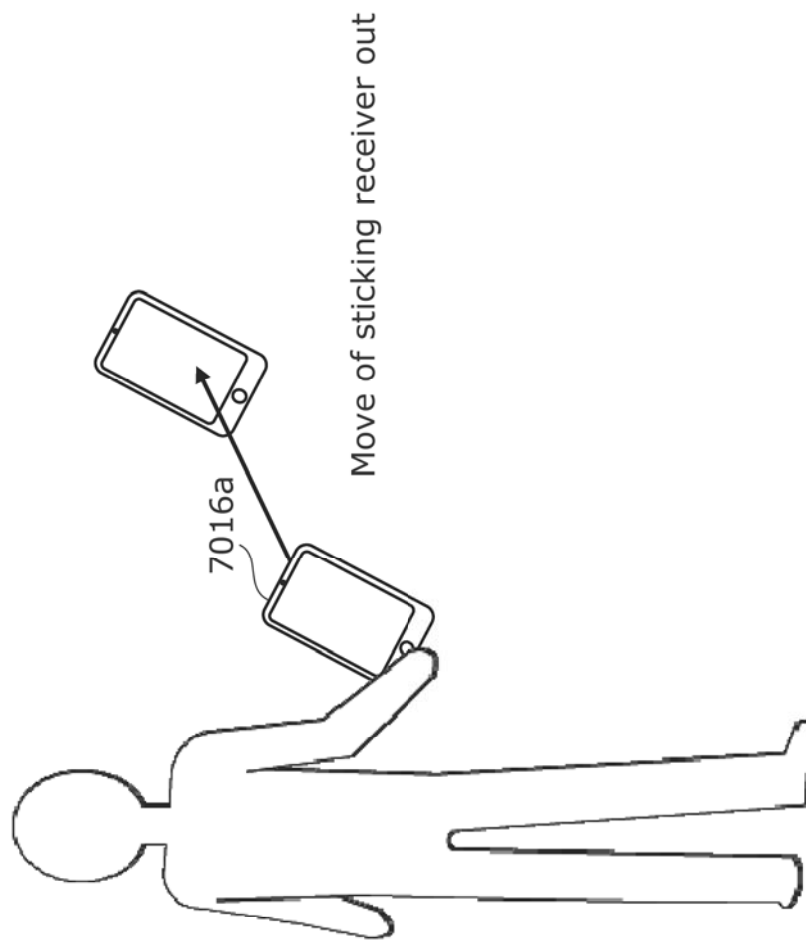


FIG. 234

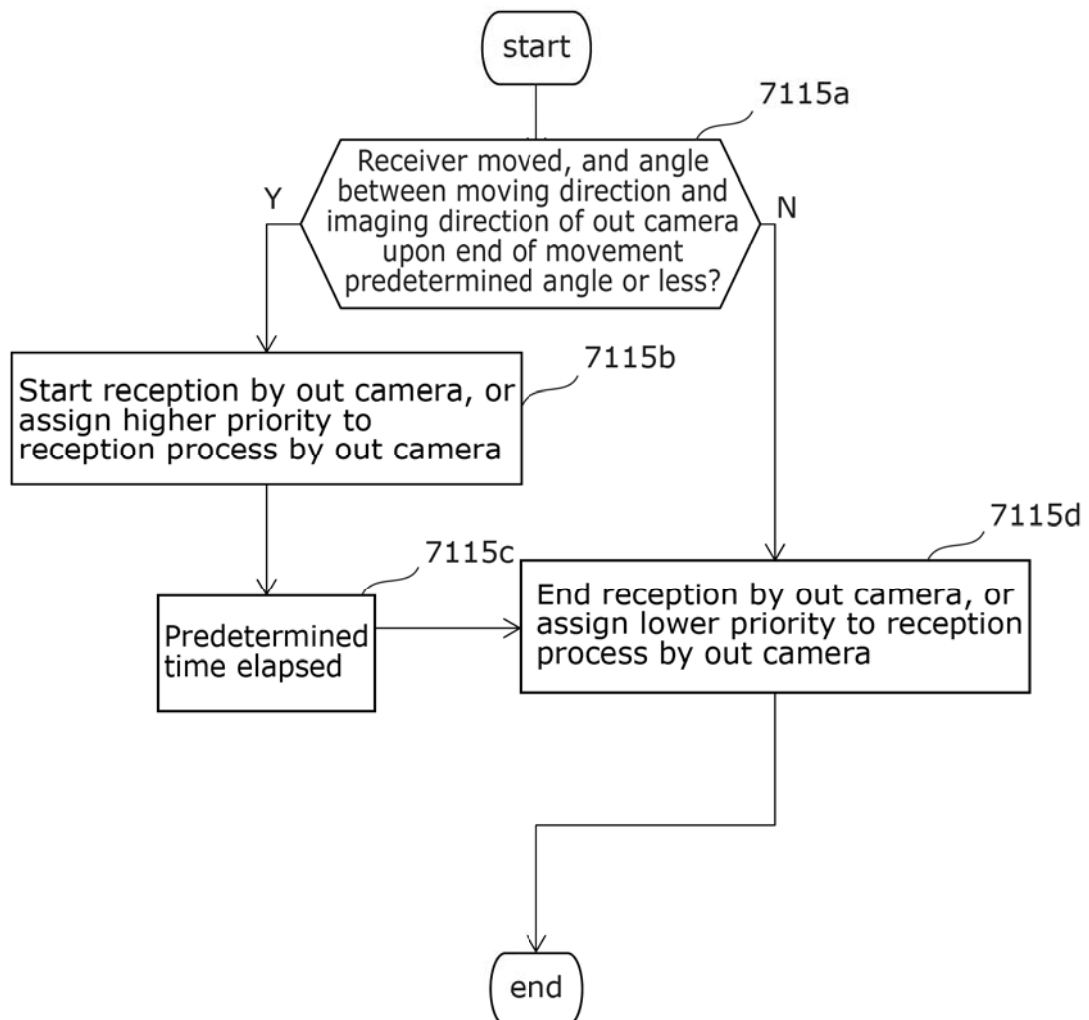


FIG. 235

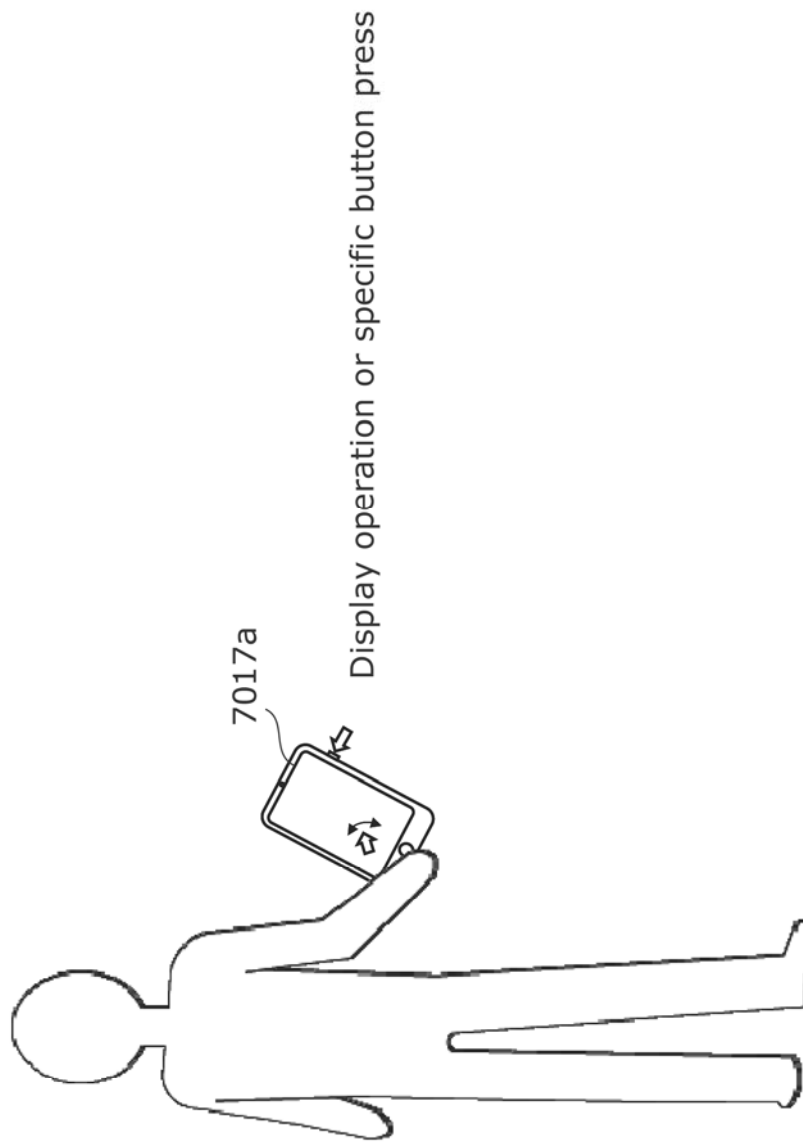


FIG. 236

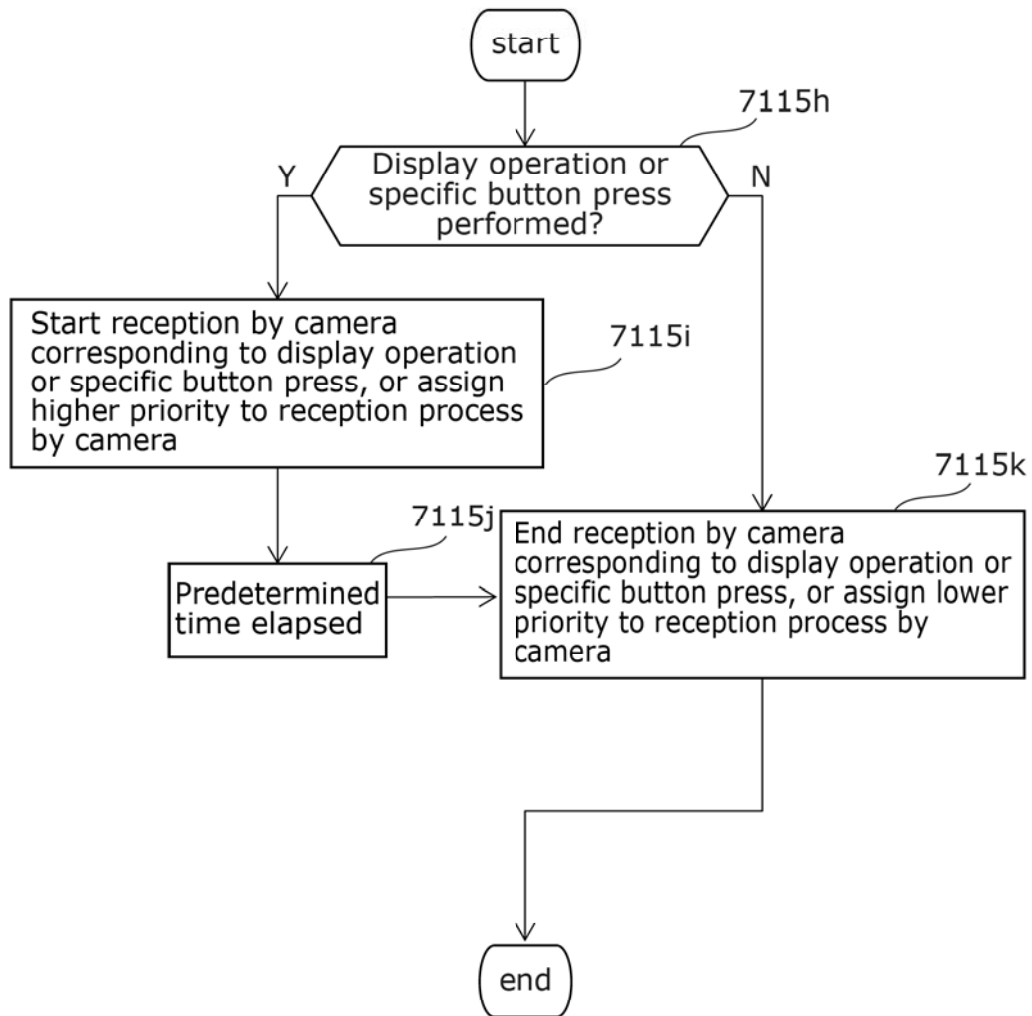


FIG. 237

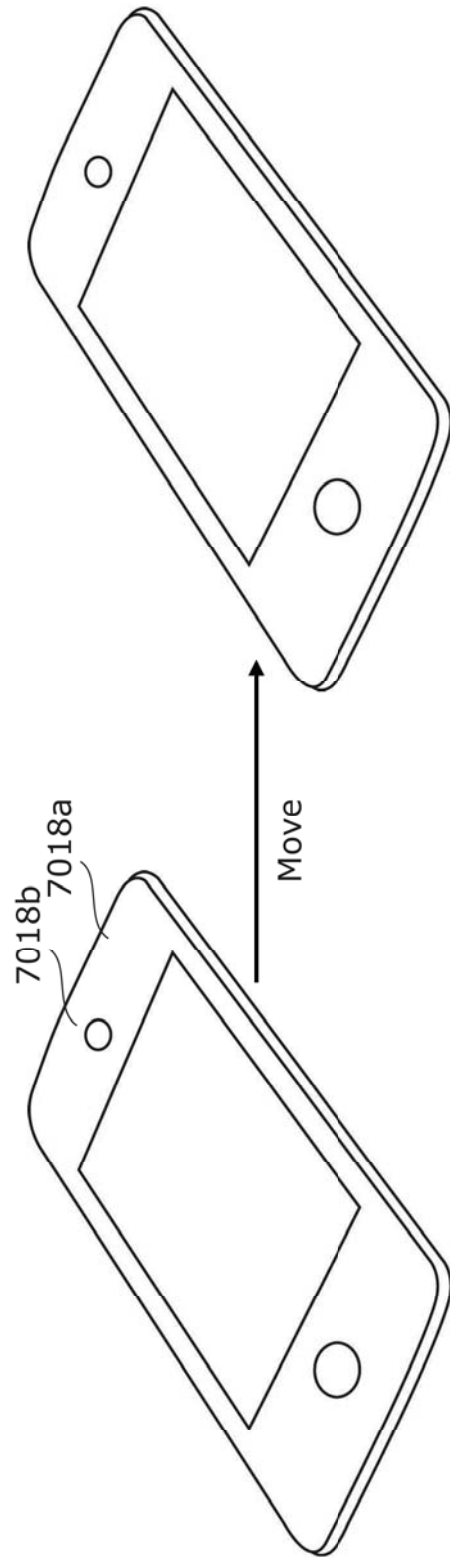


FIG. 238

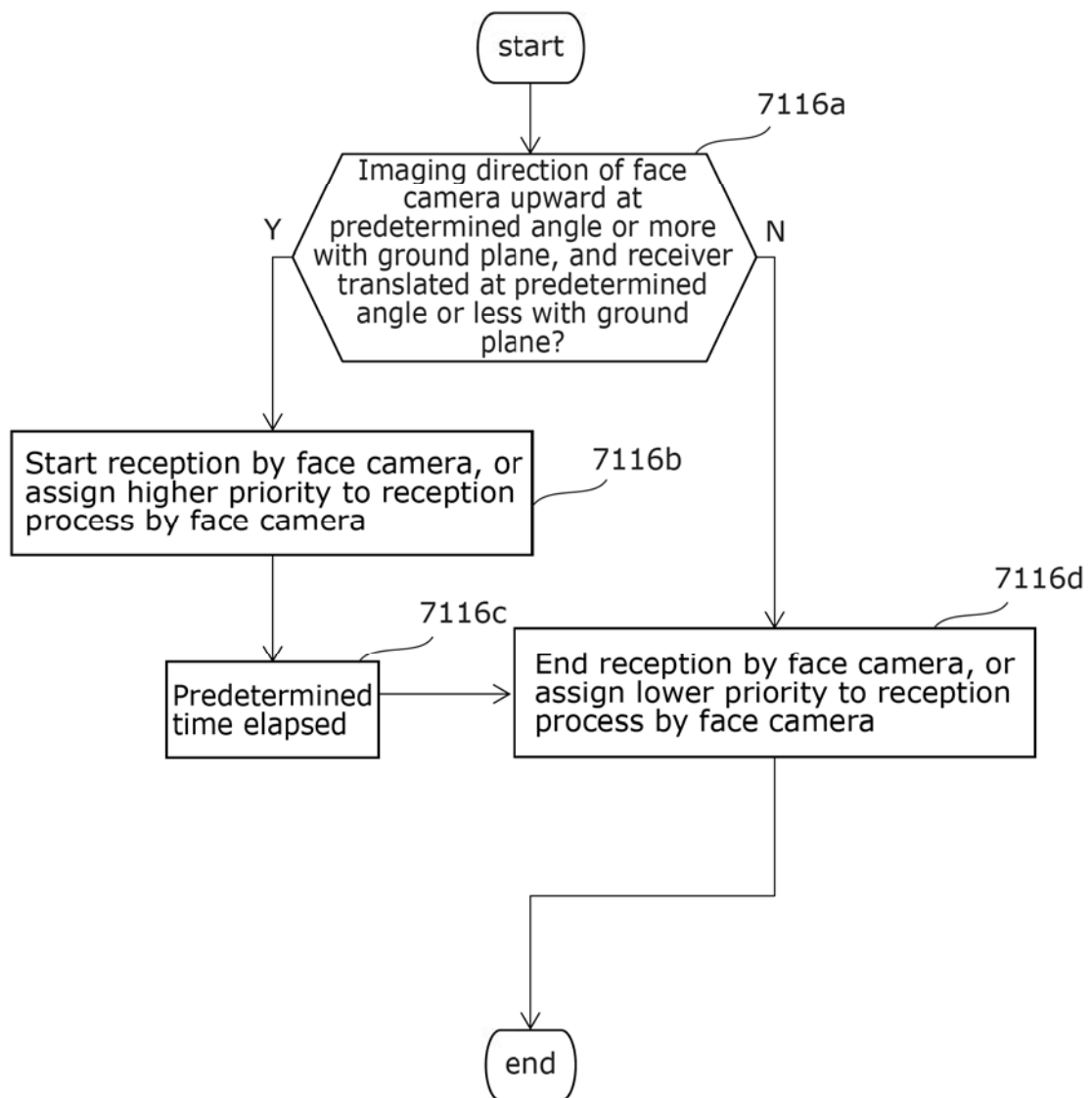


FIG. 239

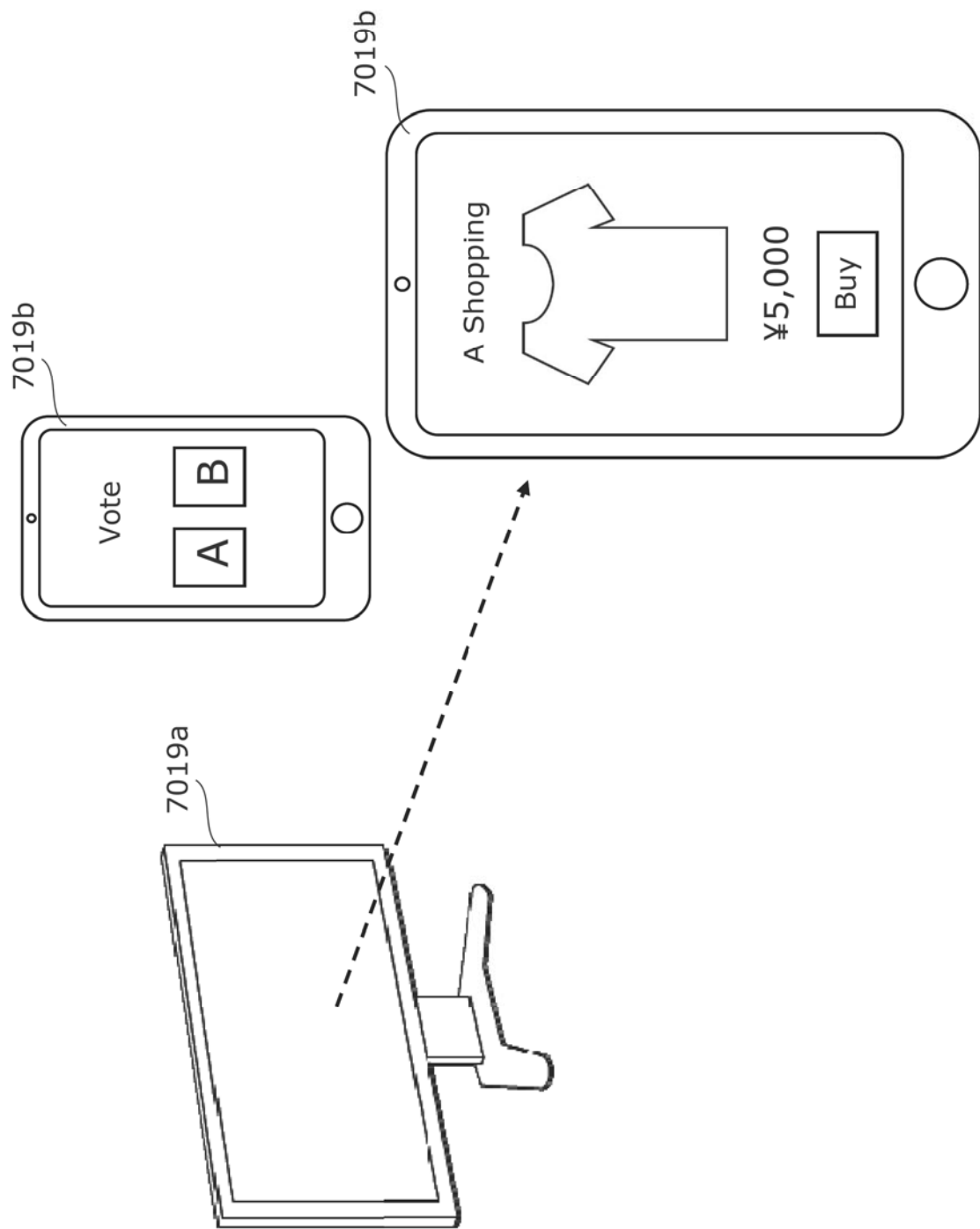


FIG. 240

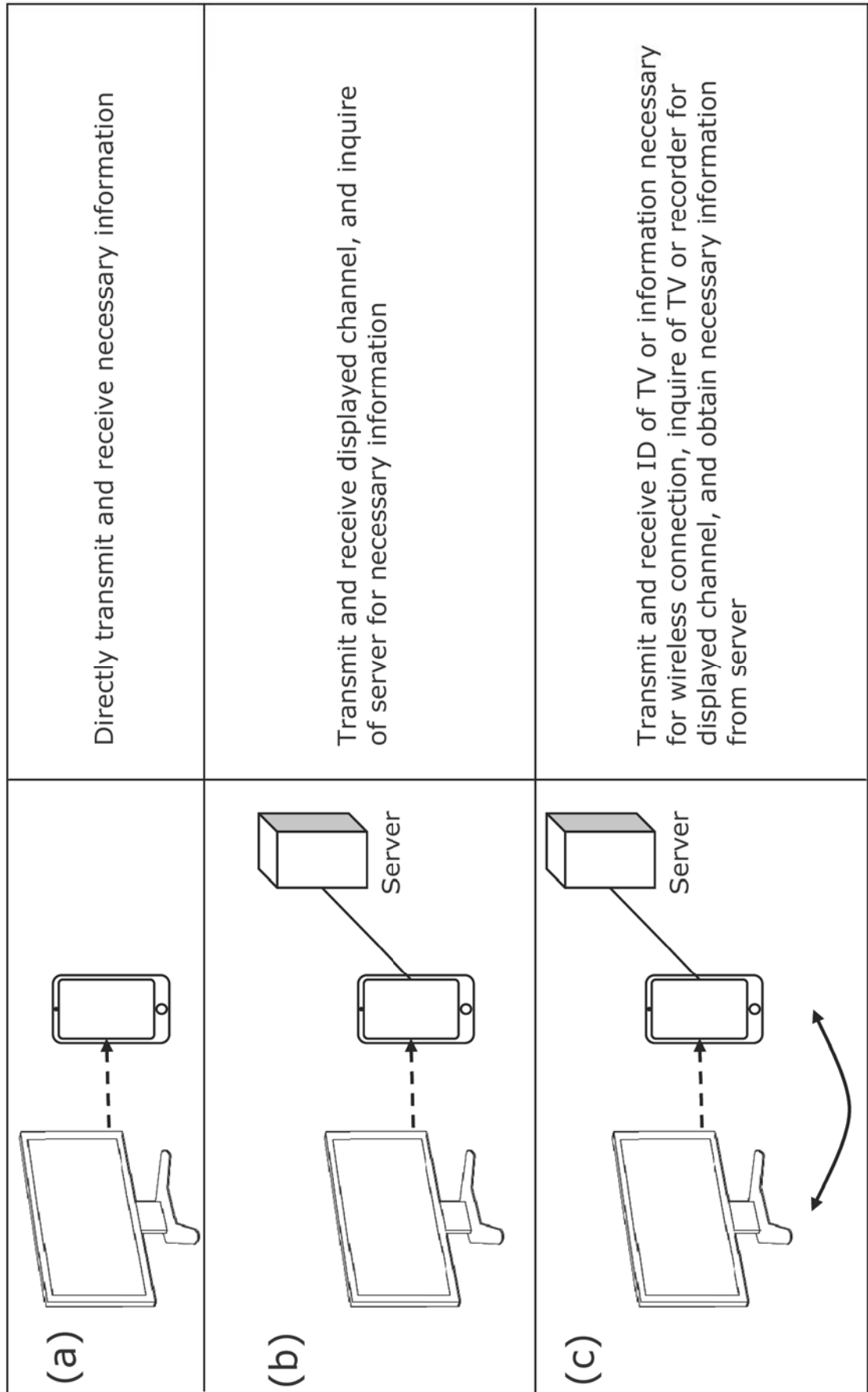




FIG. 241

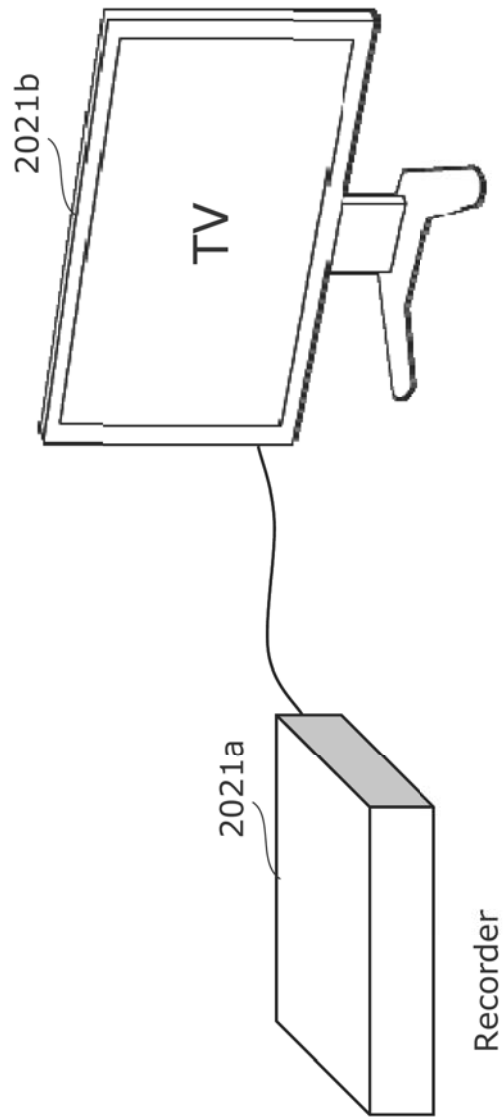


FIG. 242

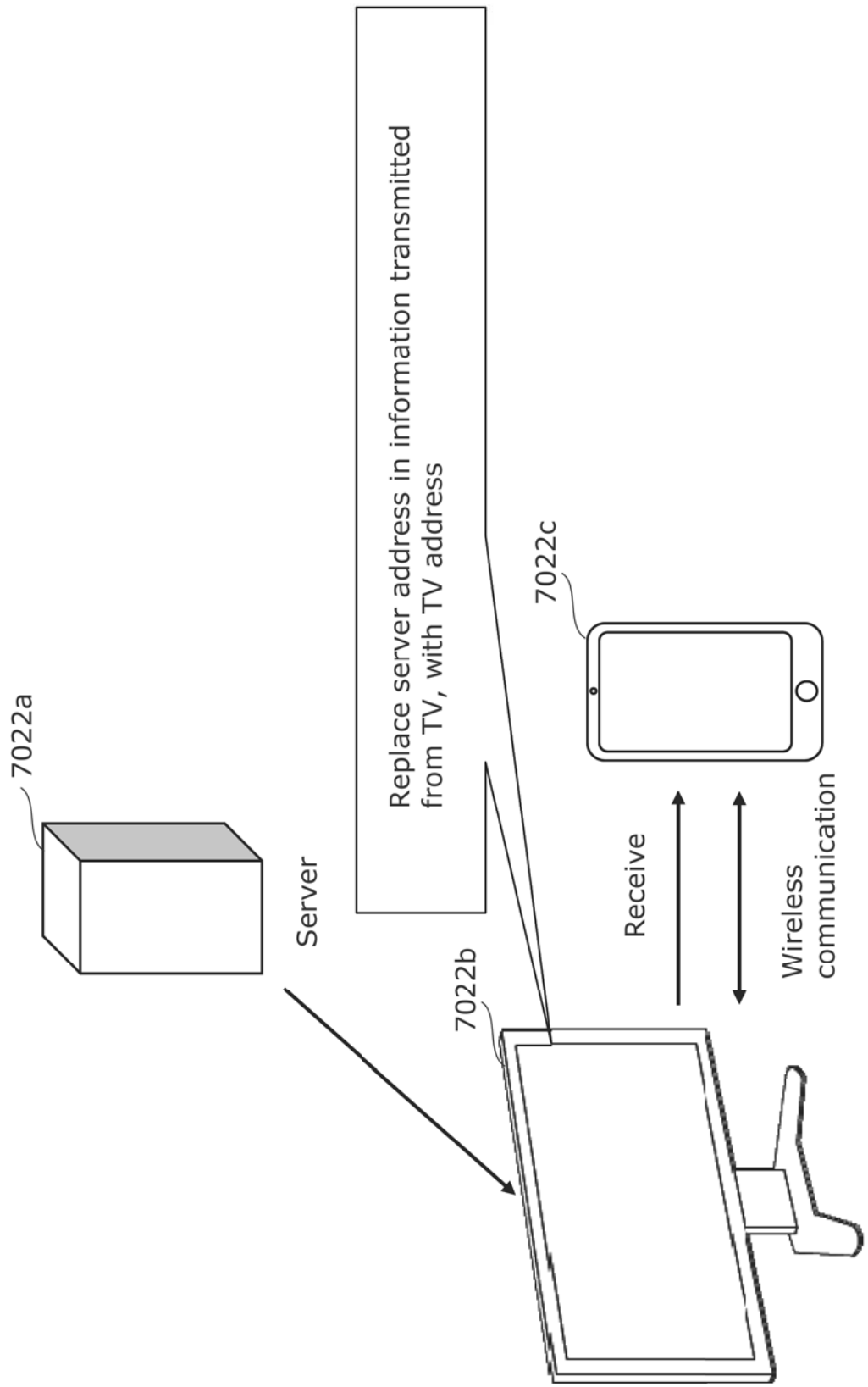
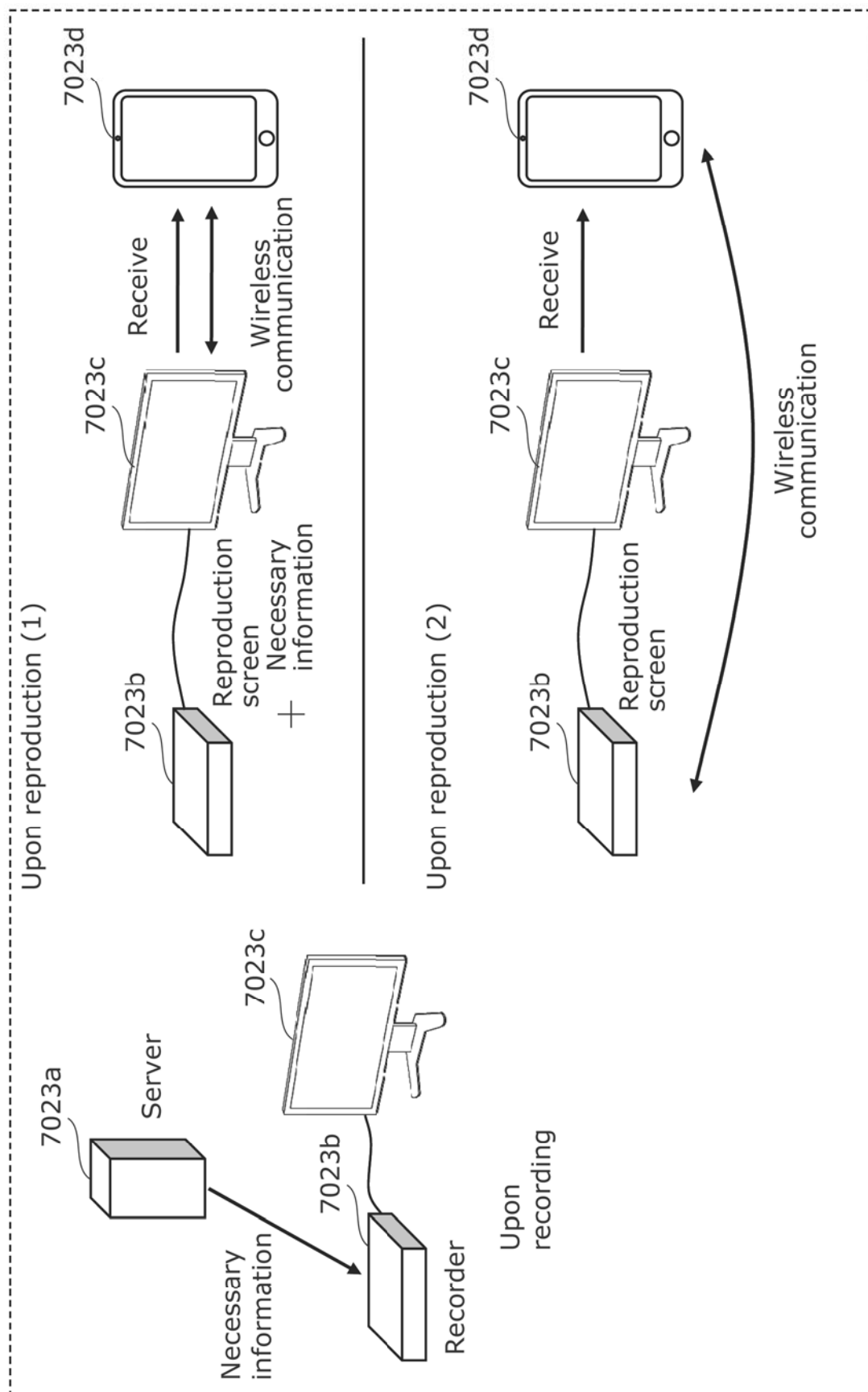


FIG. 243



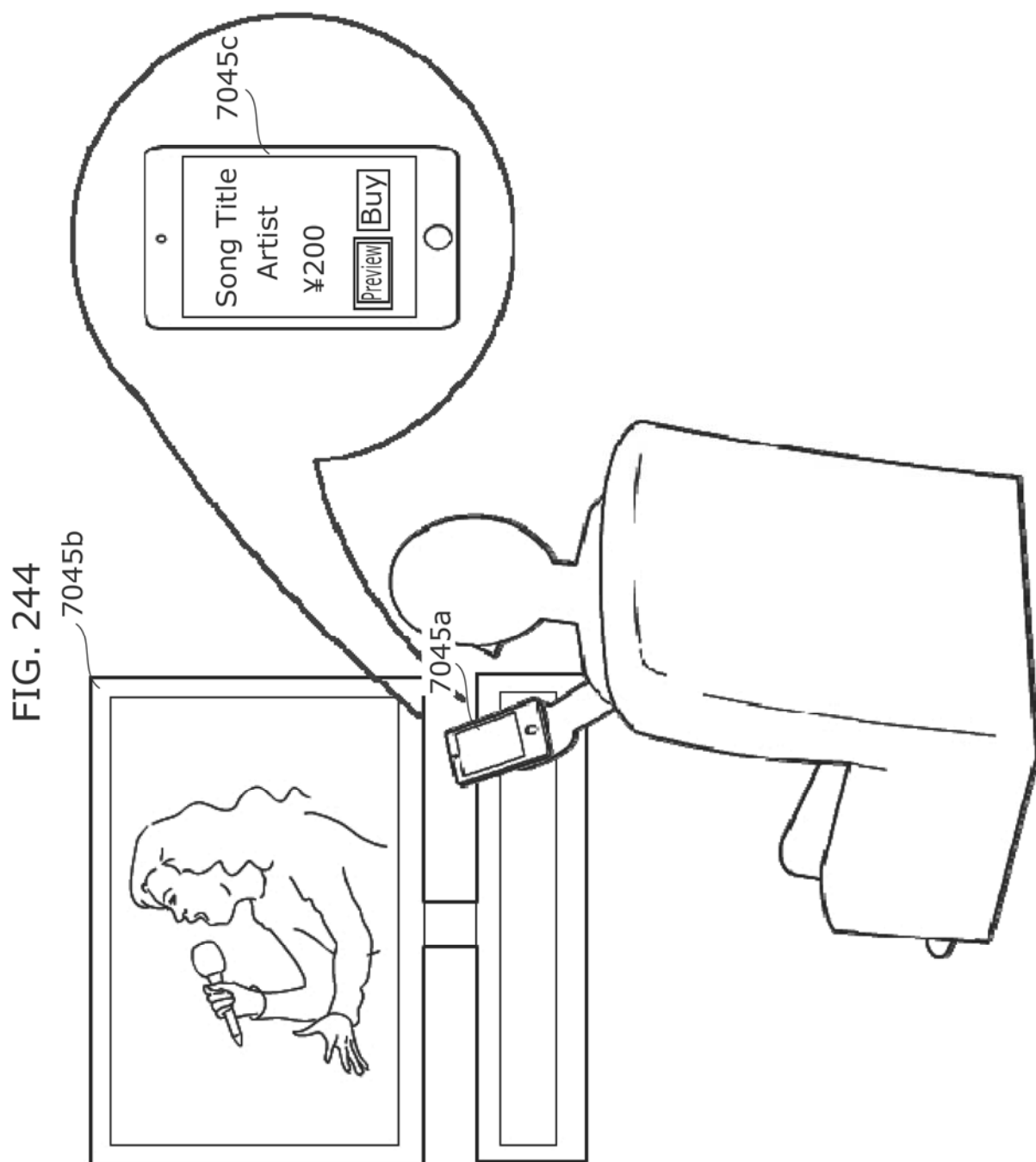


FIG. 245

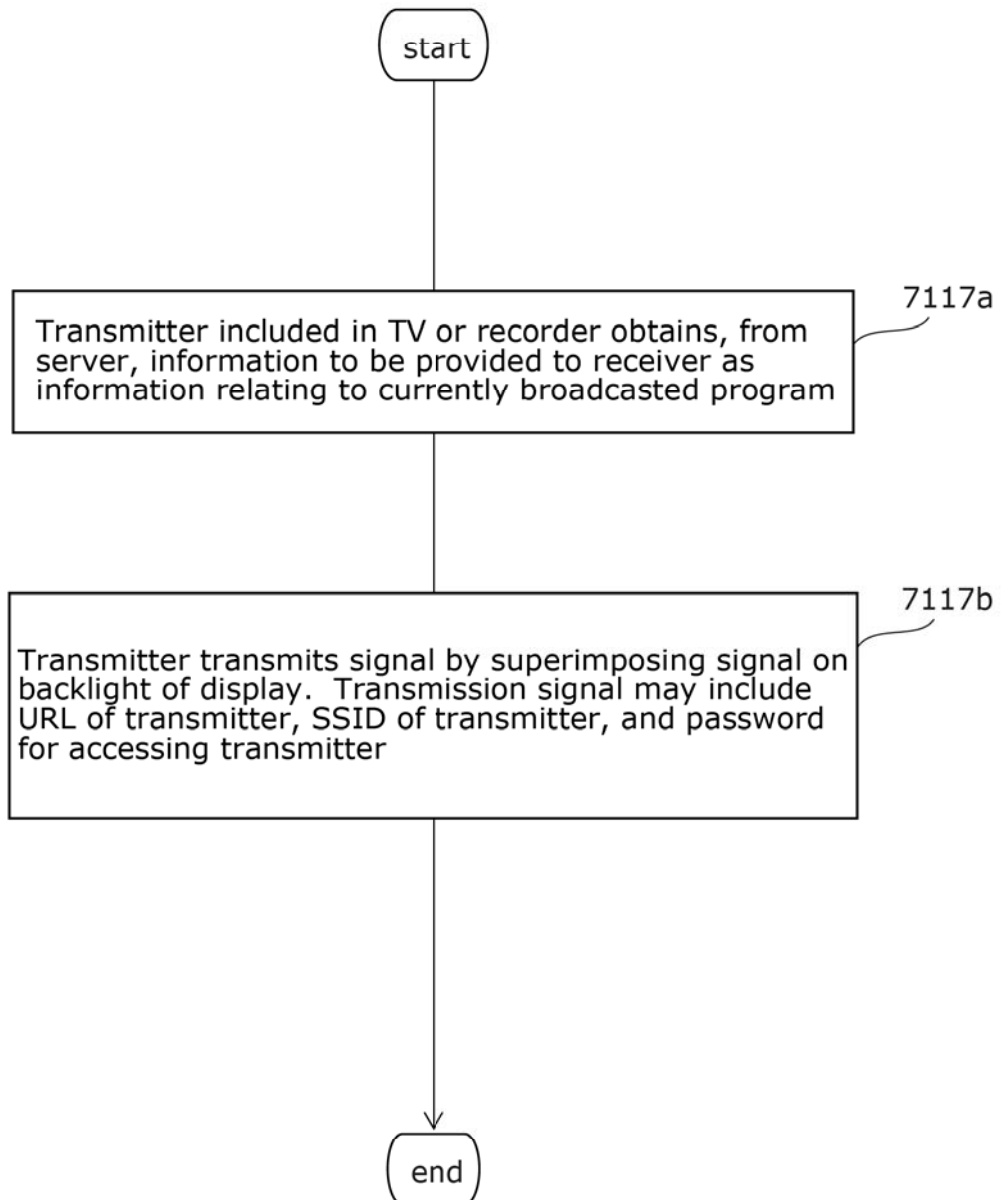


FIG. 246

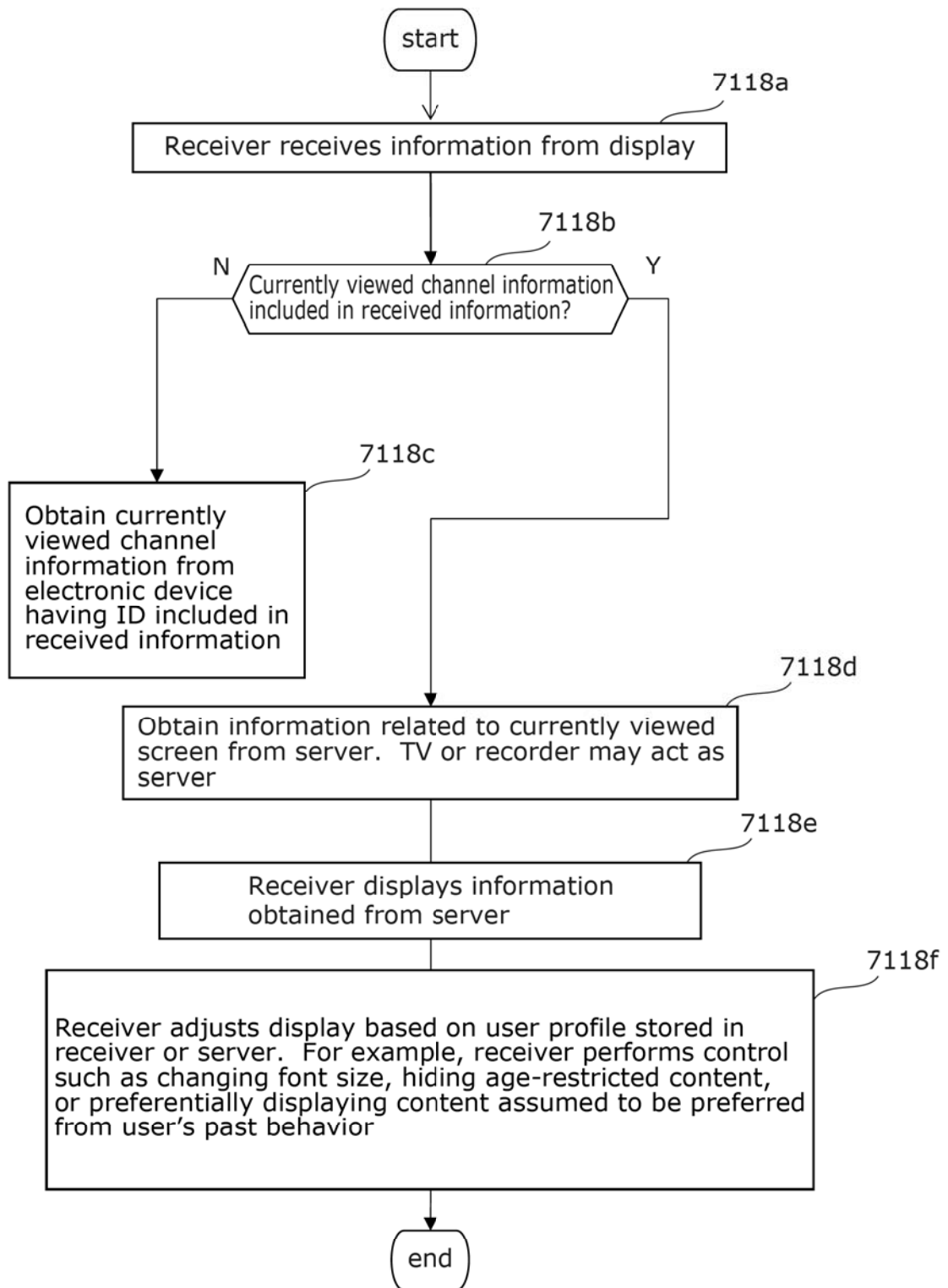


FIG. 247

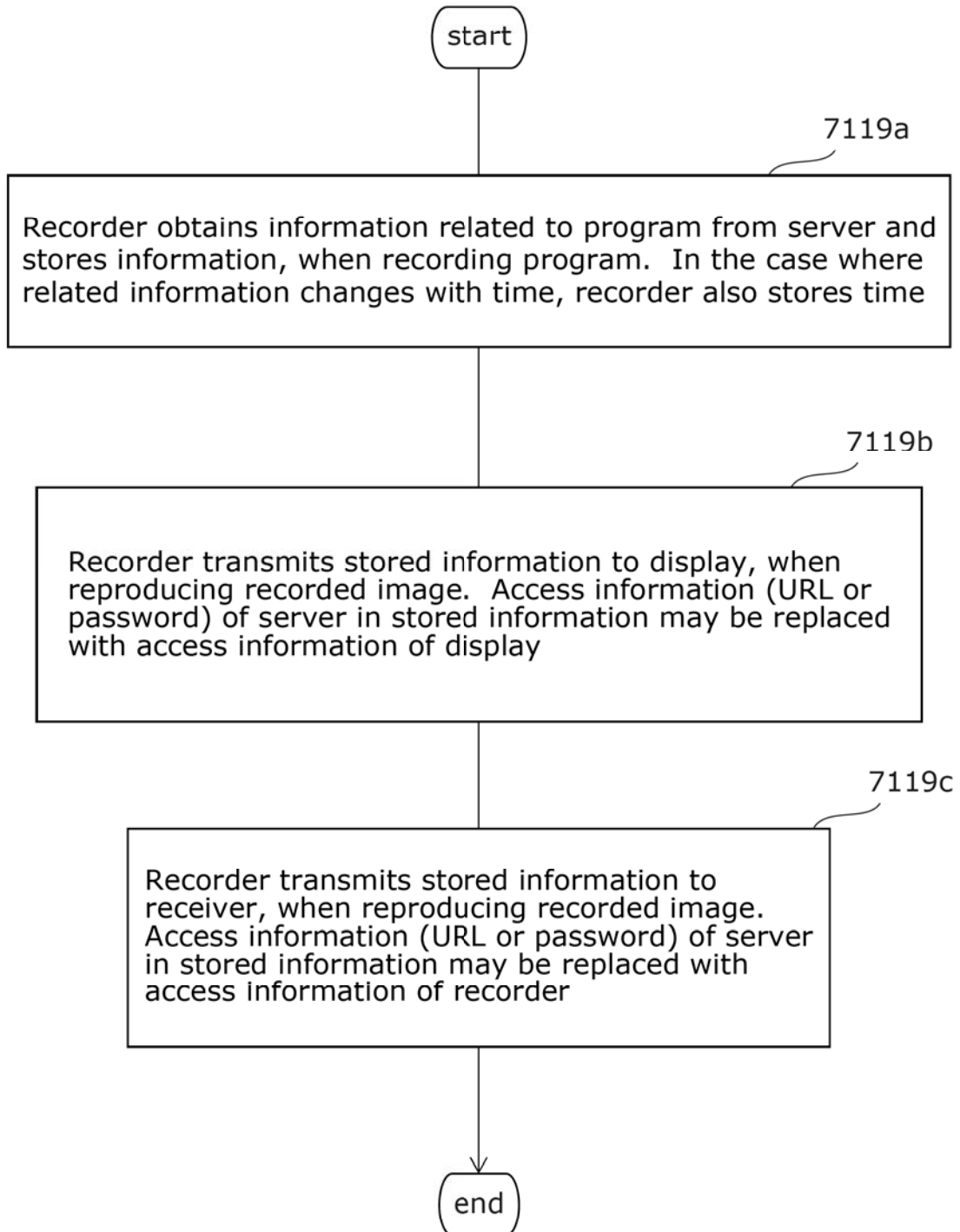


FIG. 248

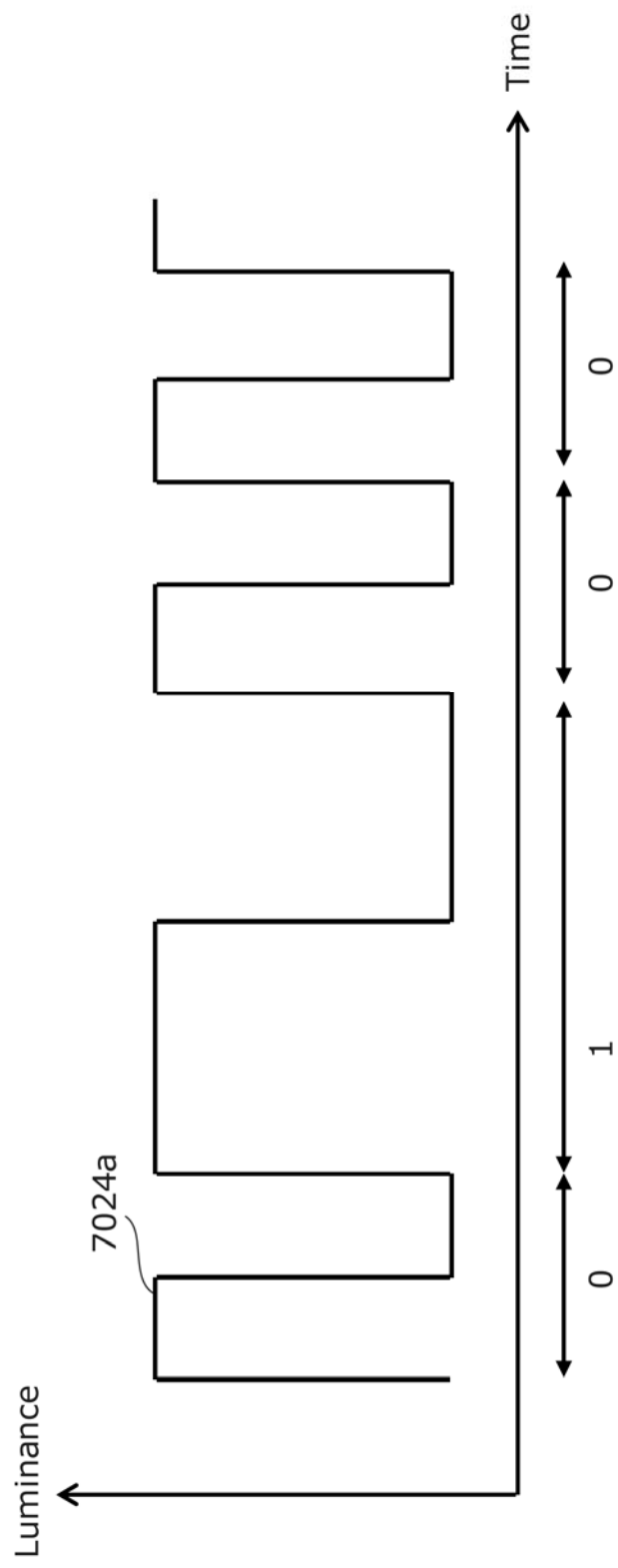




FIG. 249

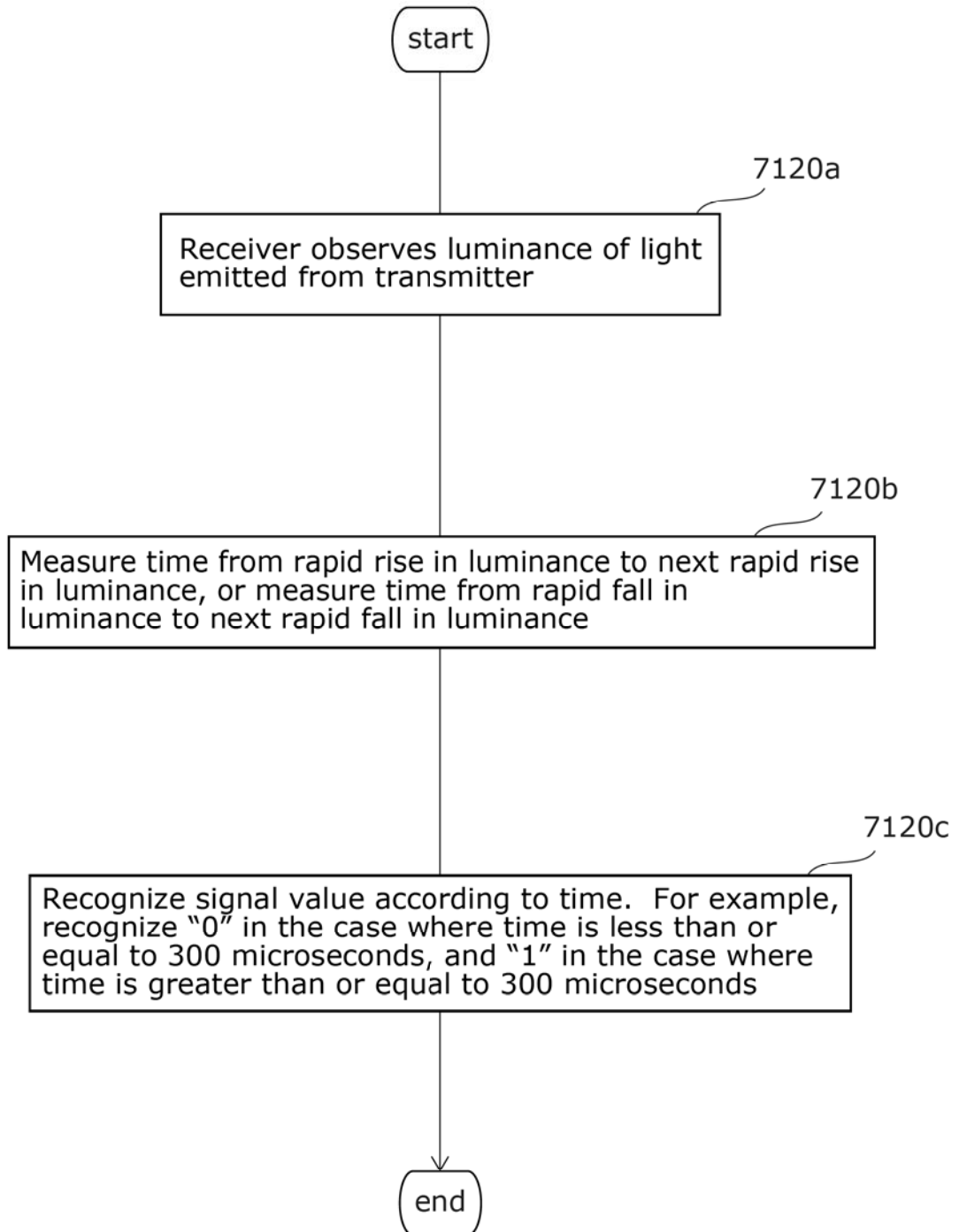


FIG. 250

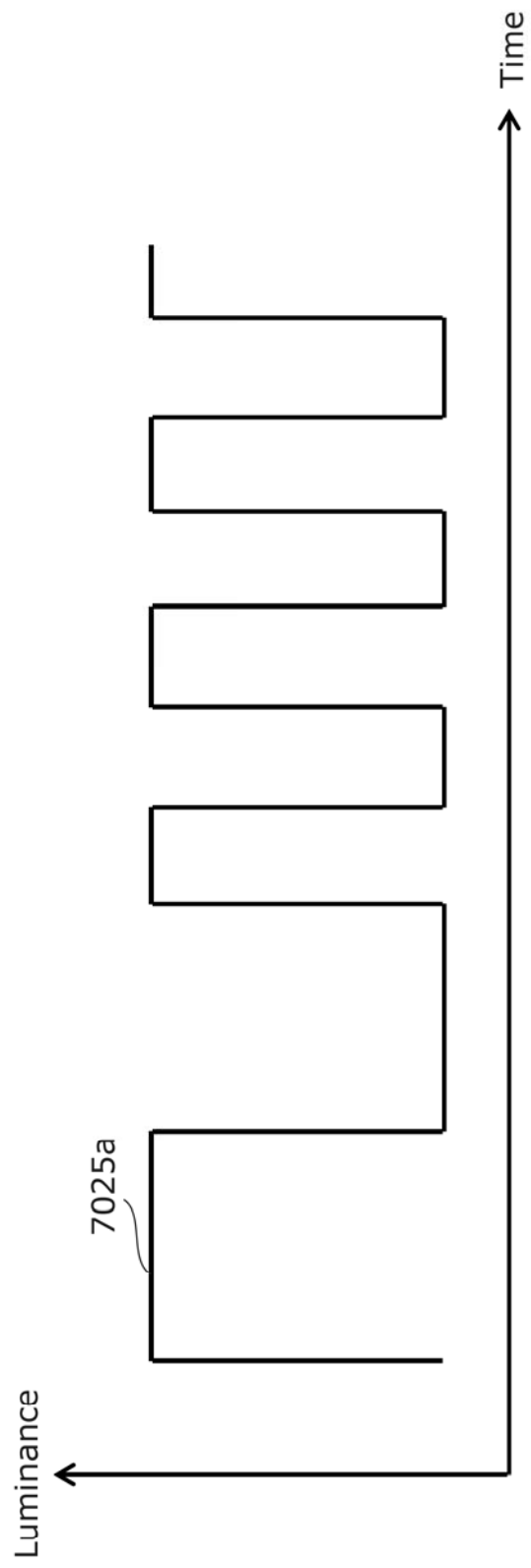


FIG. 251

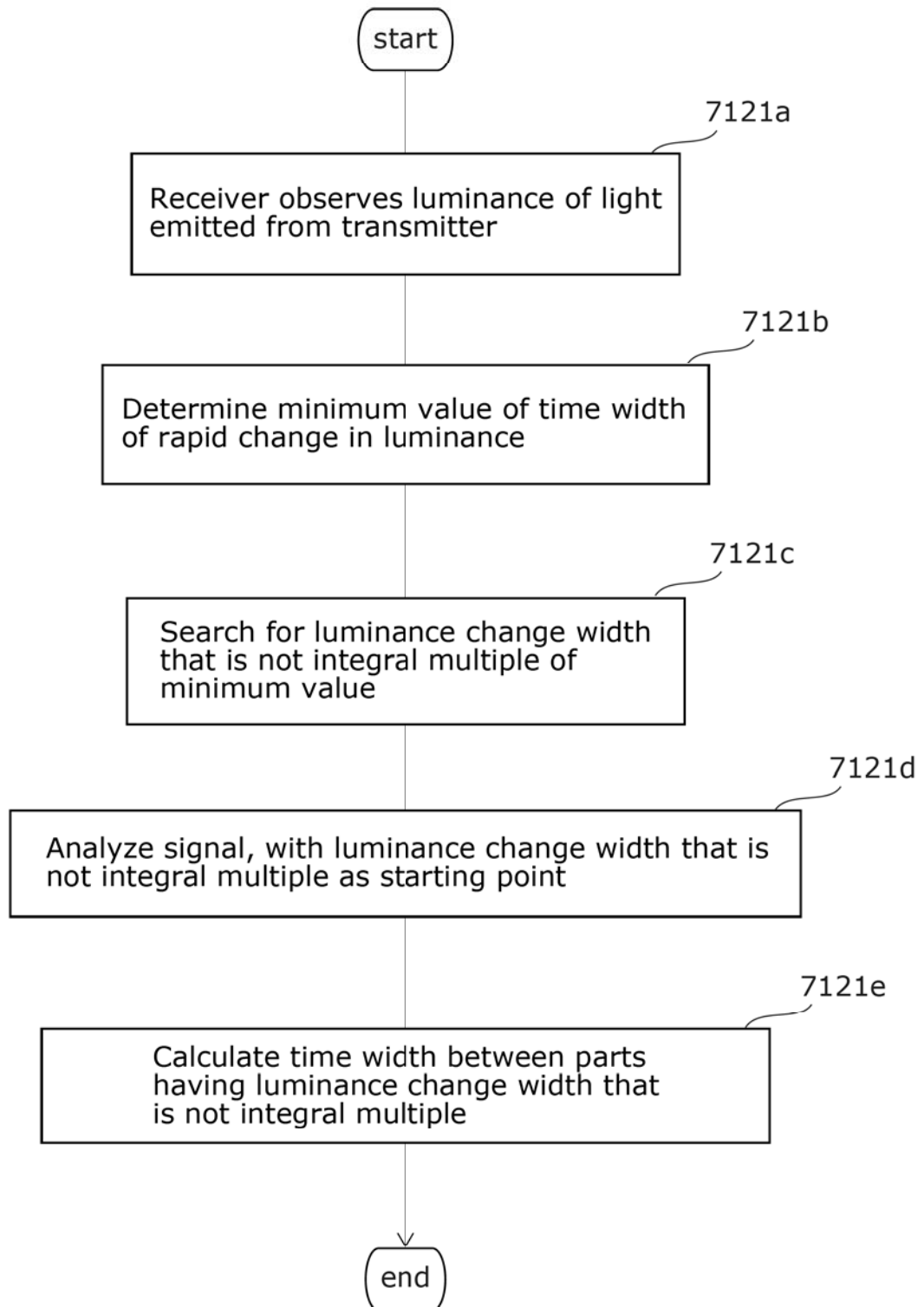


FIG. 252

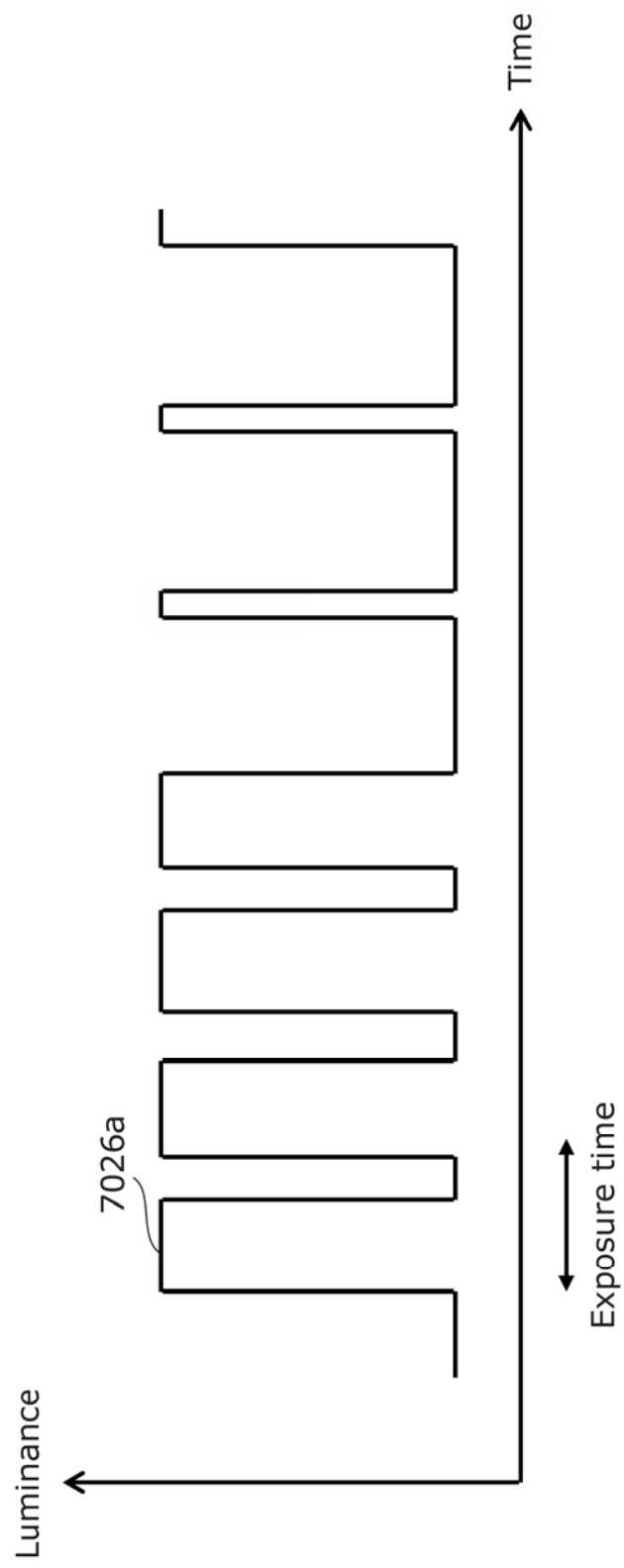


FIG. 253

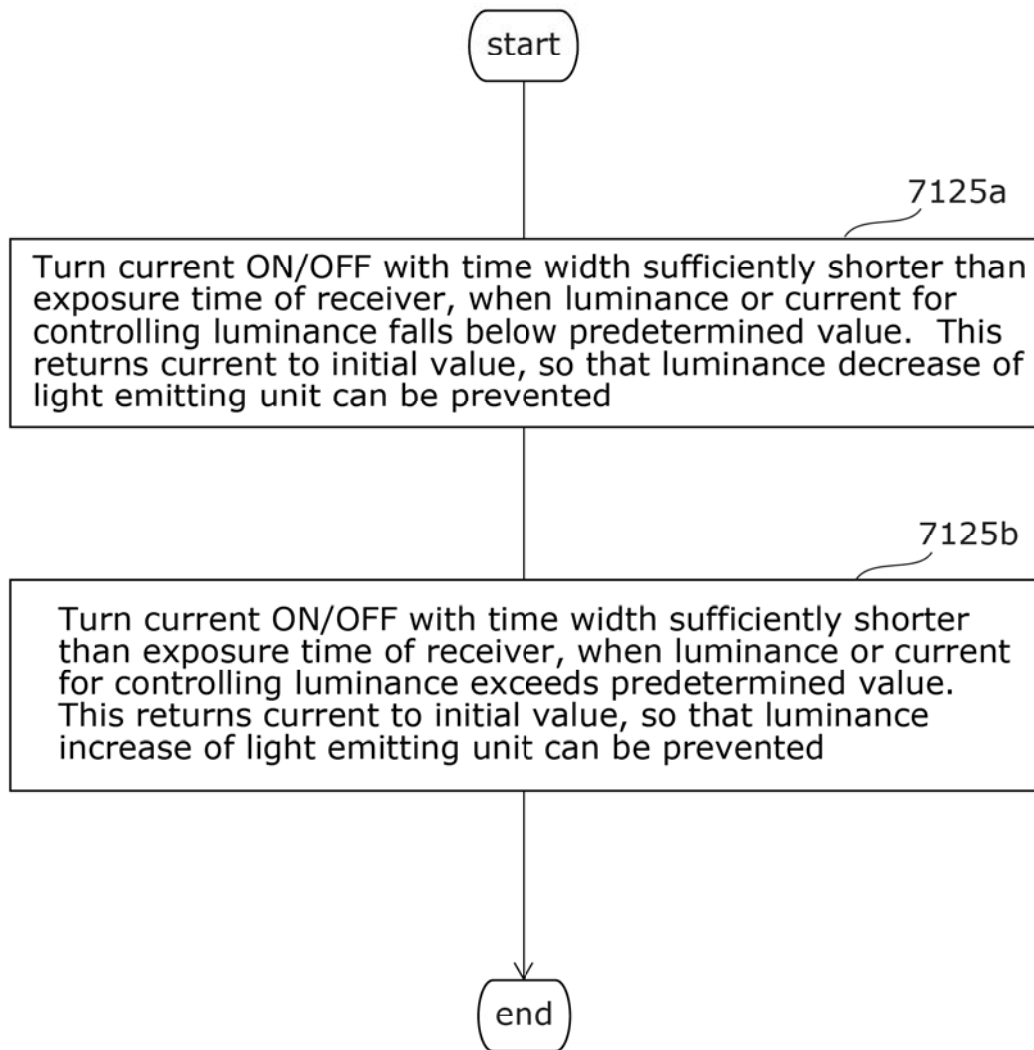


FIG. 254

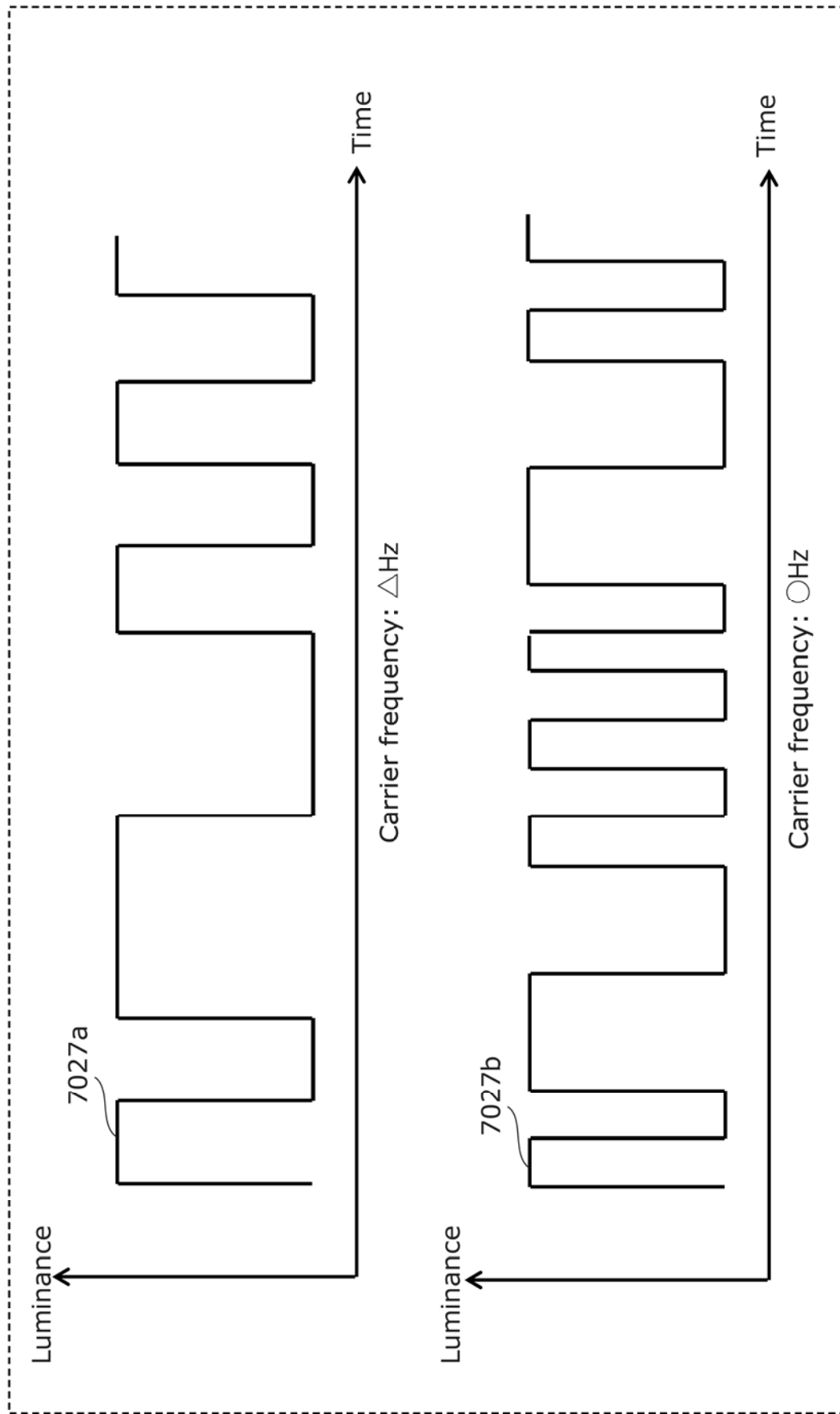


FIG. 255

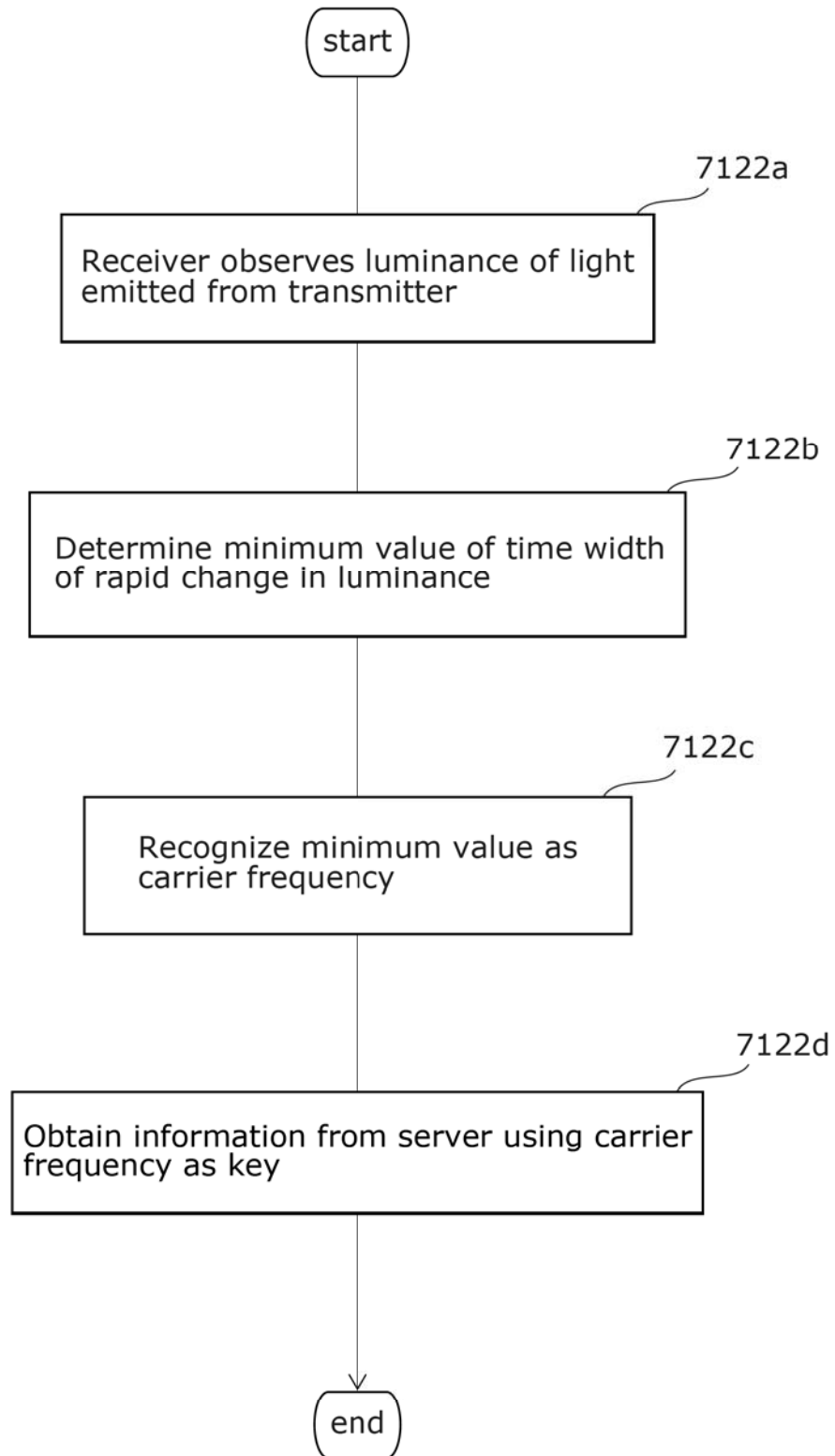


FIG. 256

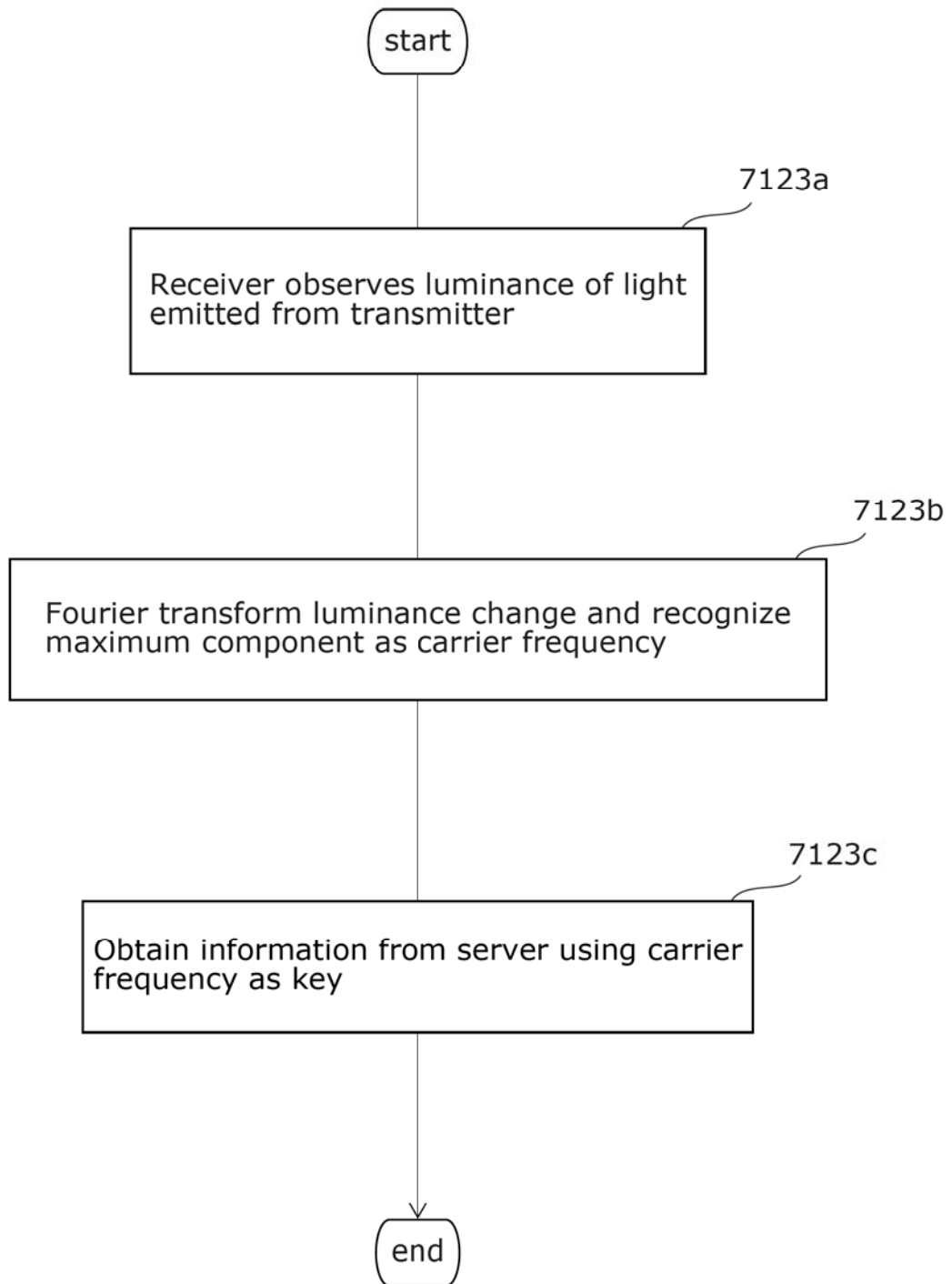




FIG. 257

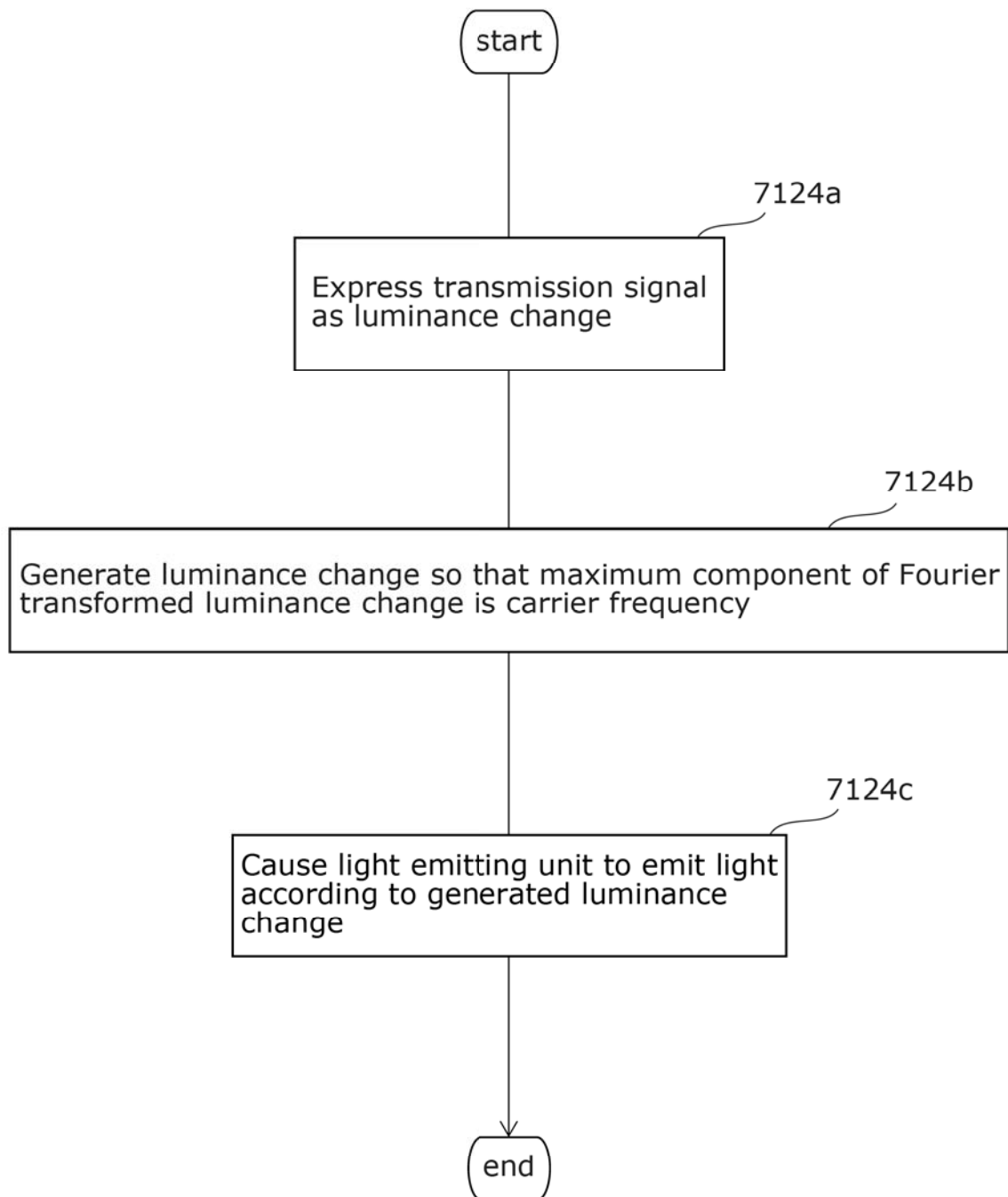


FIG. 258

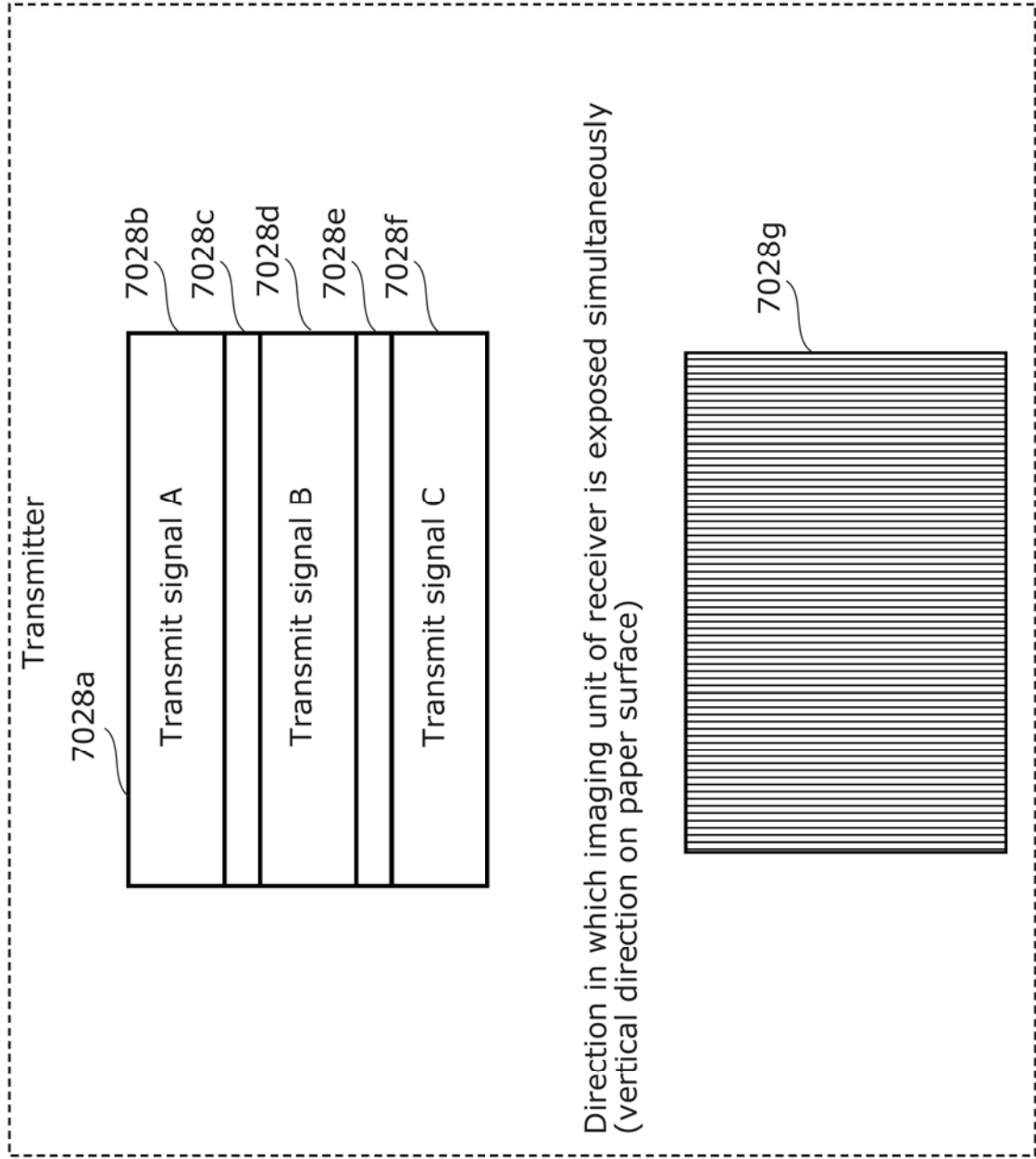


FIG. 259

Transmitter

|   |   |   |
|---|---|---|
| A | C | B |
| B | A | C |
| C | B | A |

7029a

FIG. 260

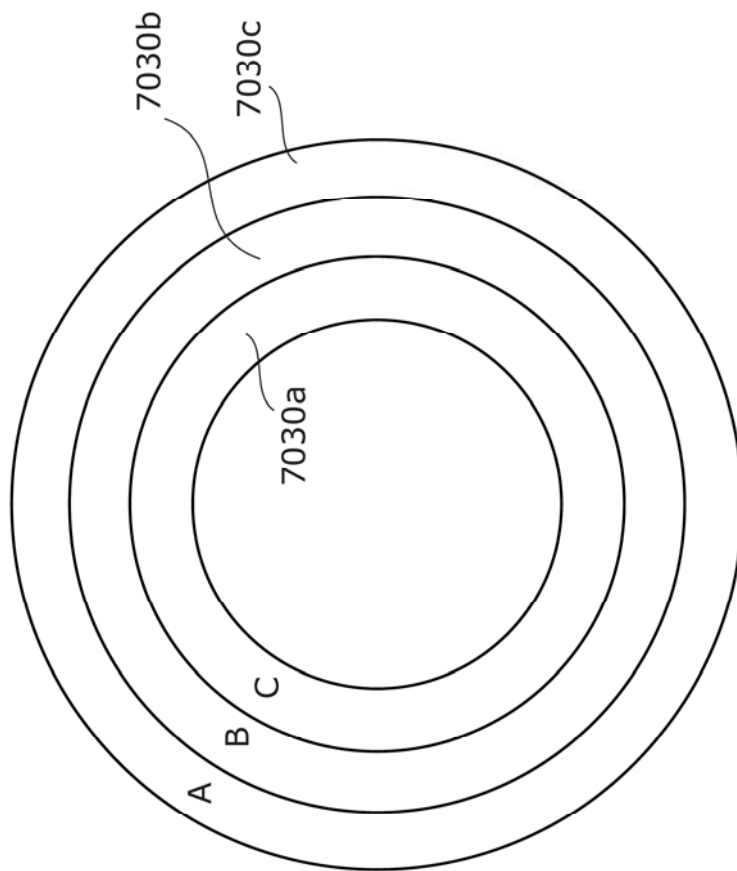


FIG. 261

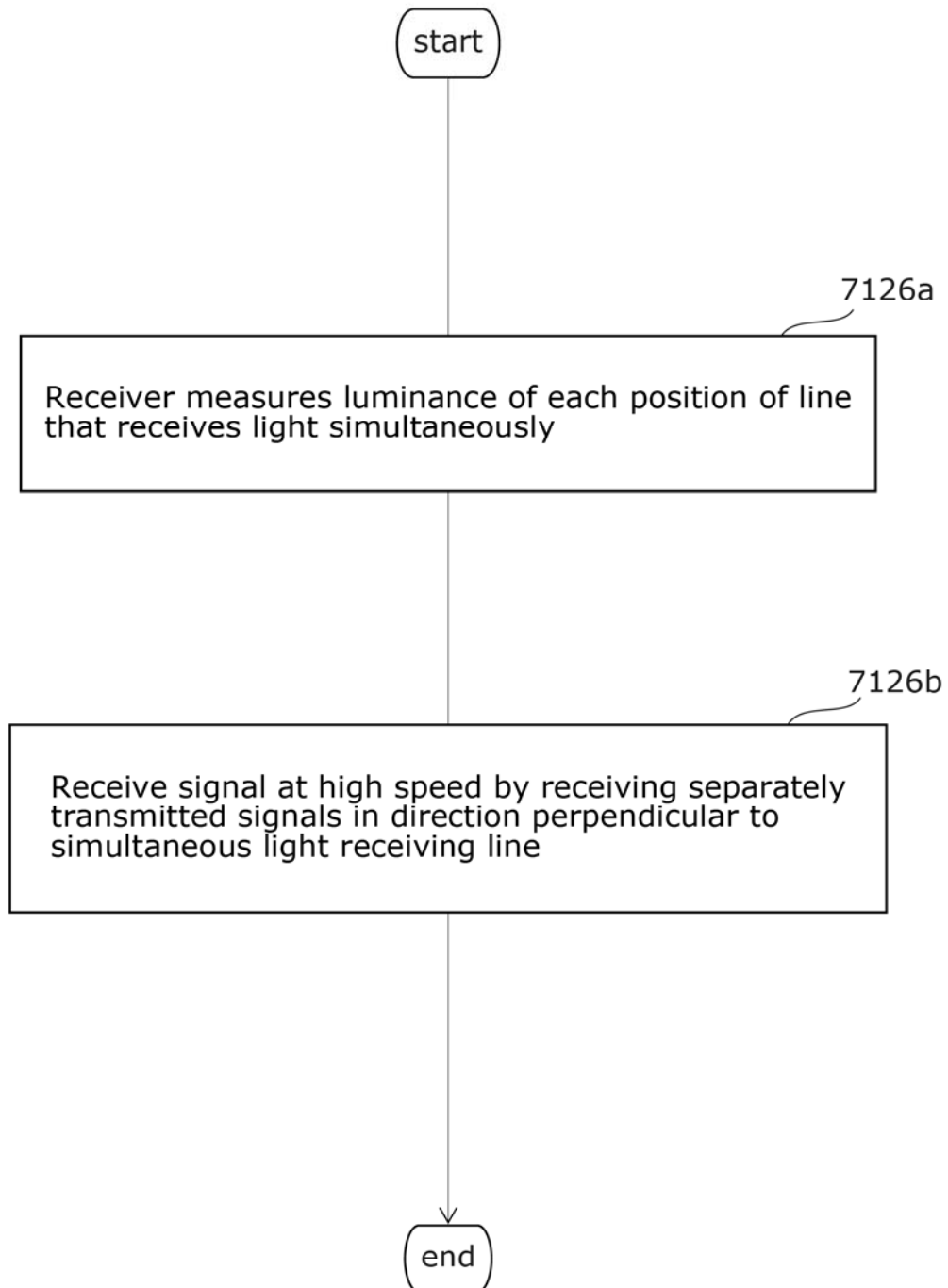


FIG. 262

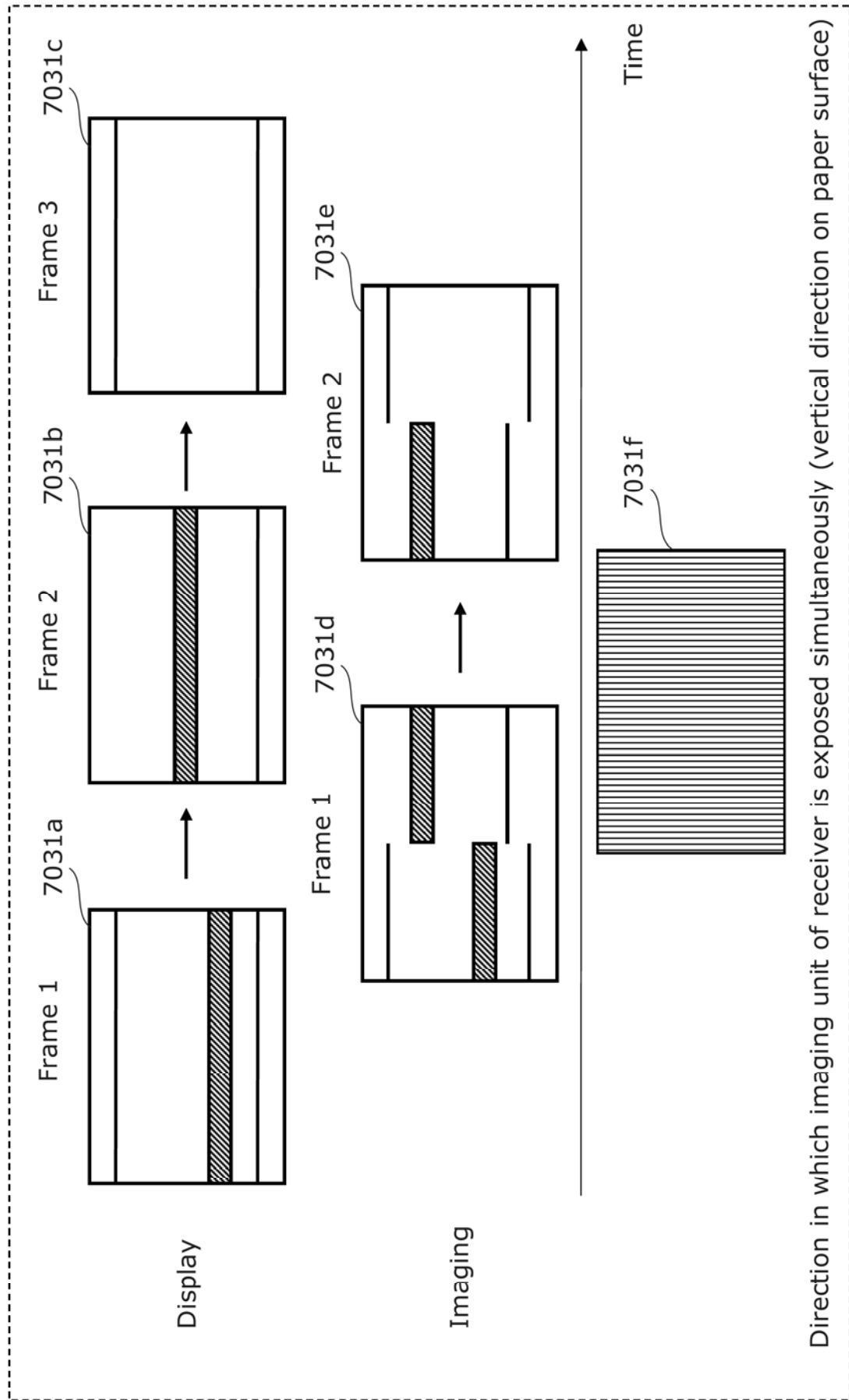


FIG. 263

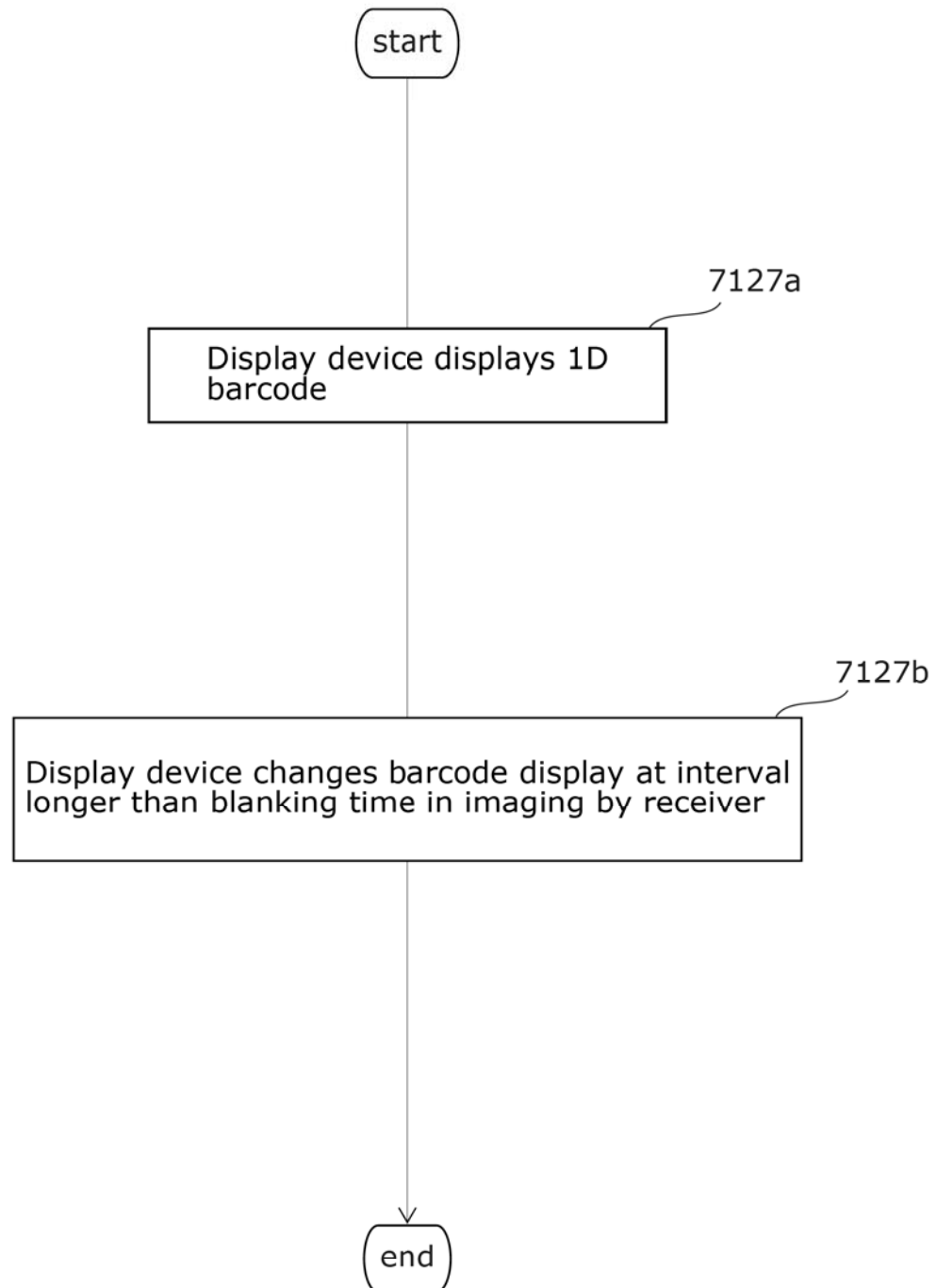


FIG. 264

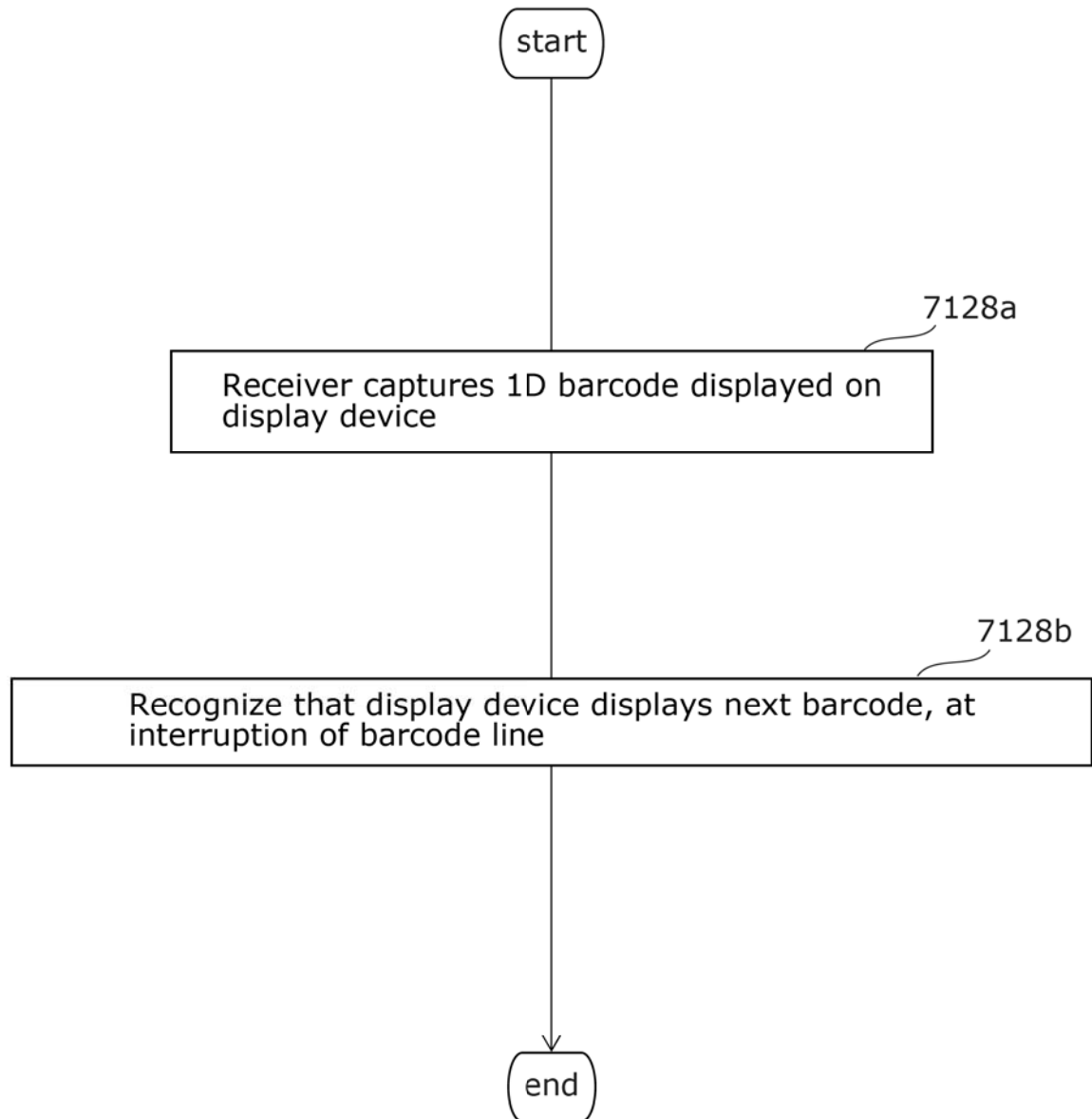




FIG. 265

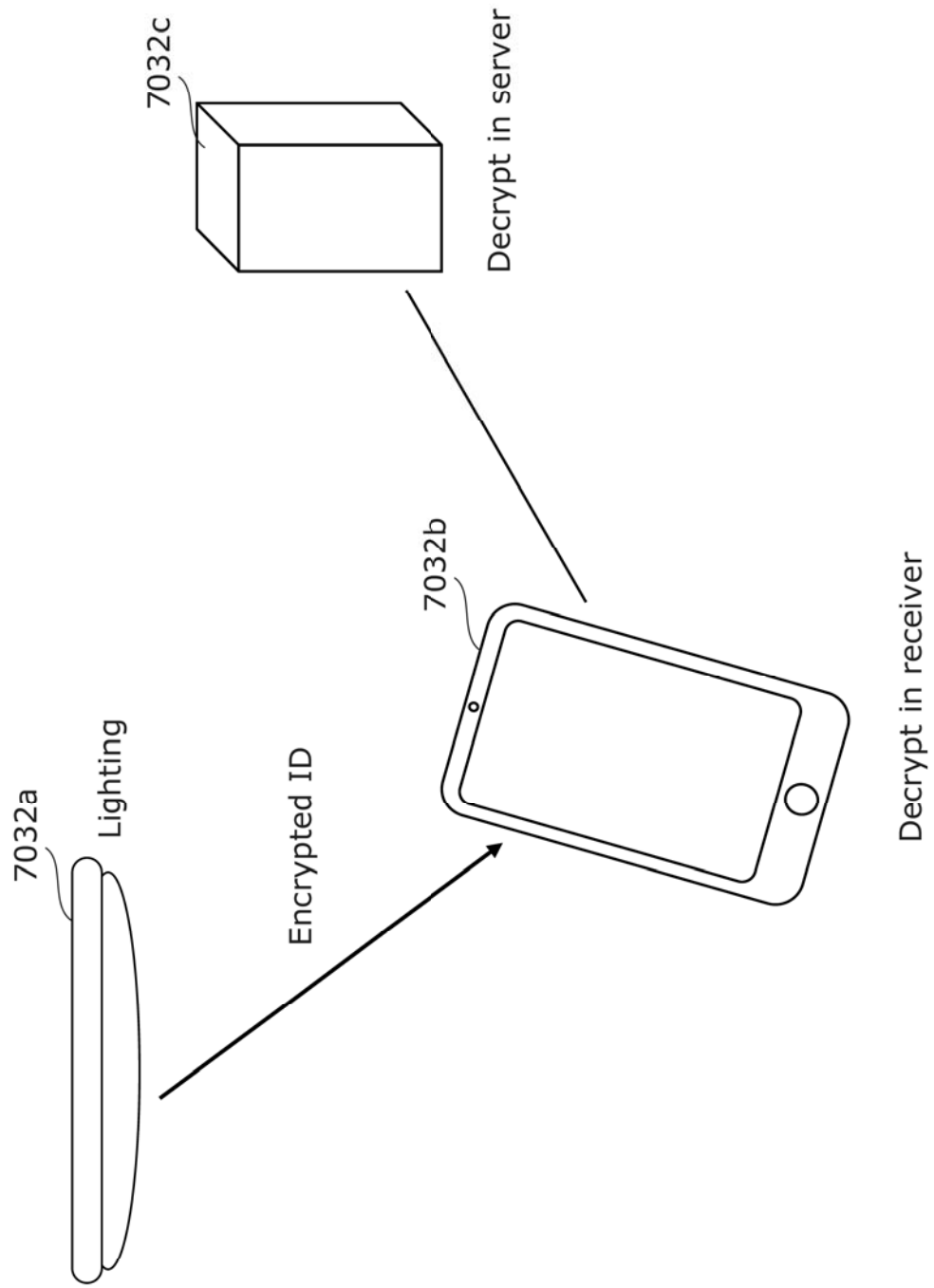


FIG. 266

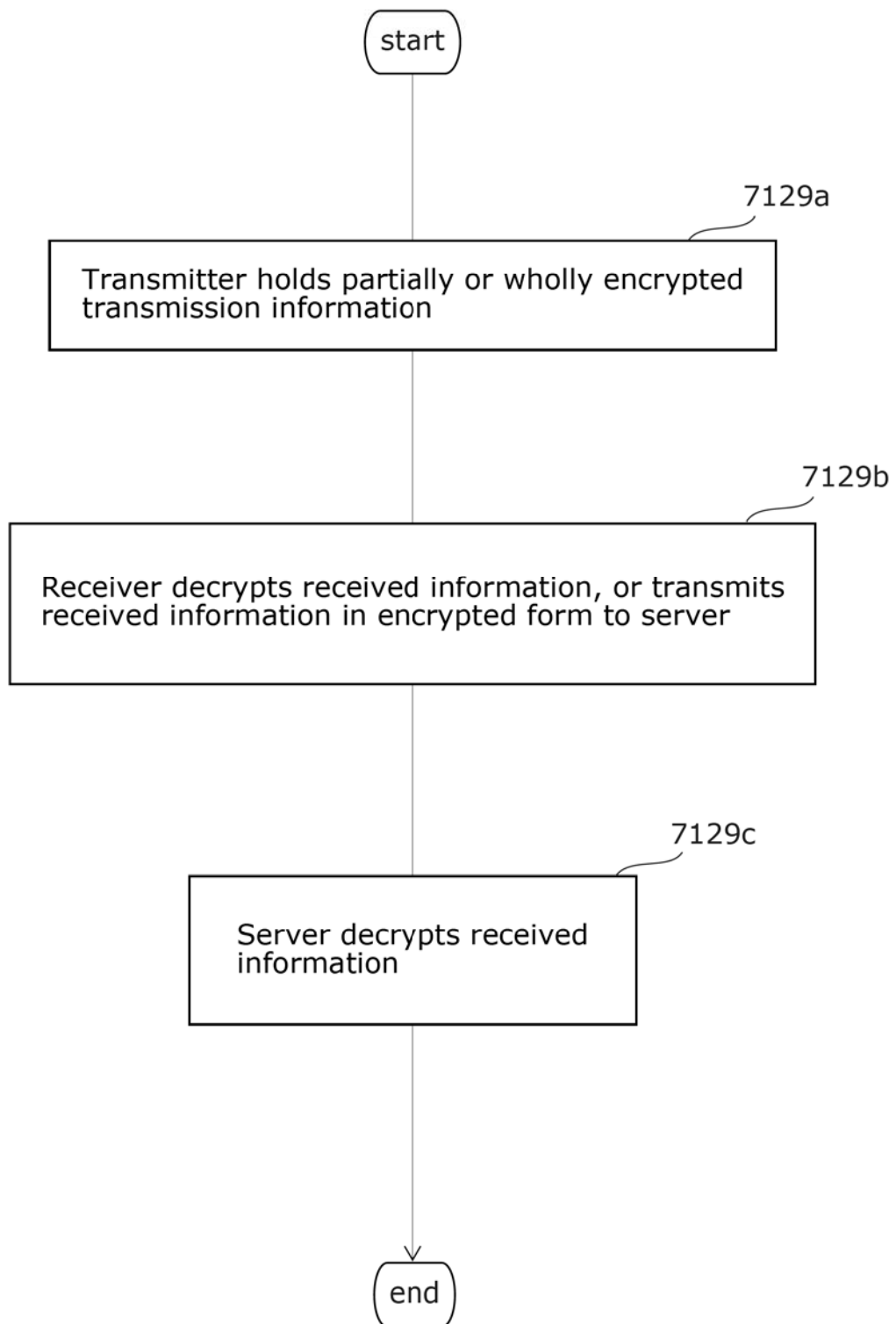
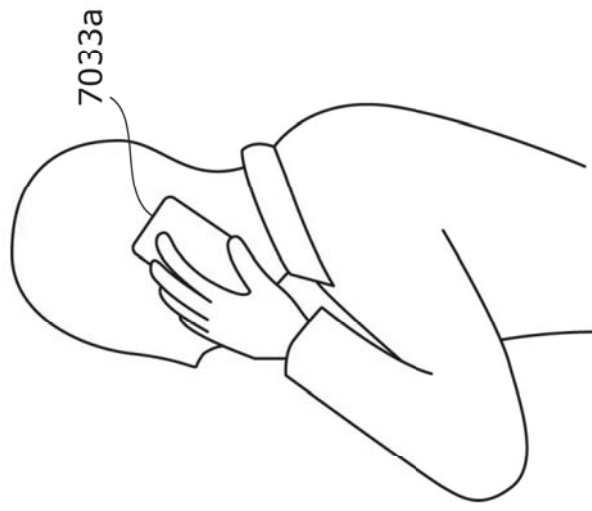


FIG. 267



Stop reception in the case where value of  
illuminance sensor is low and receiver is estimated  
to be in call state

FIG. 268

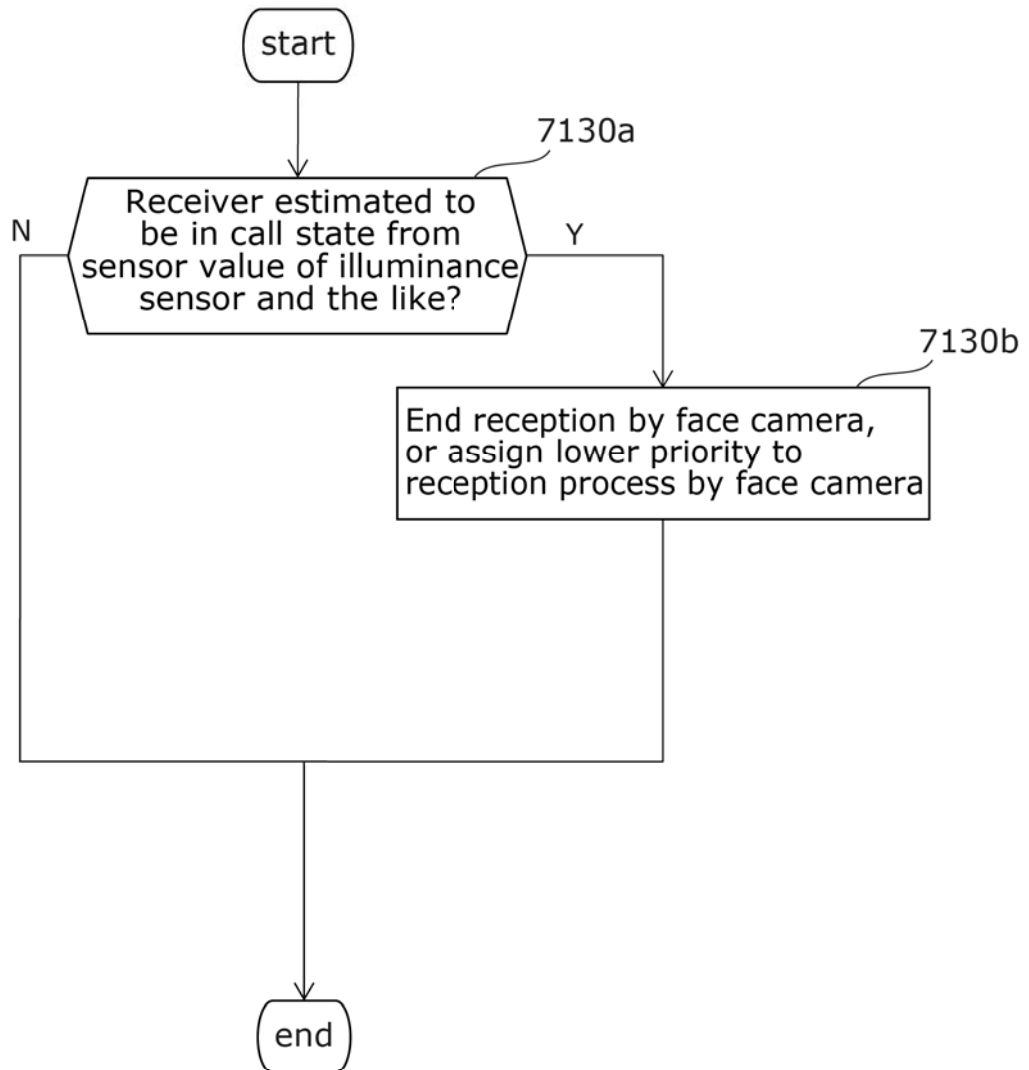
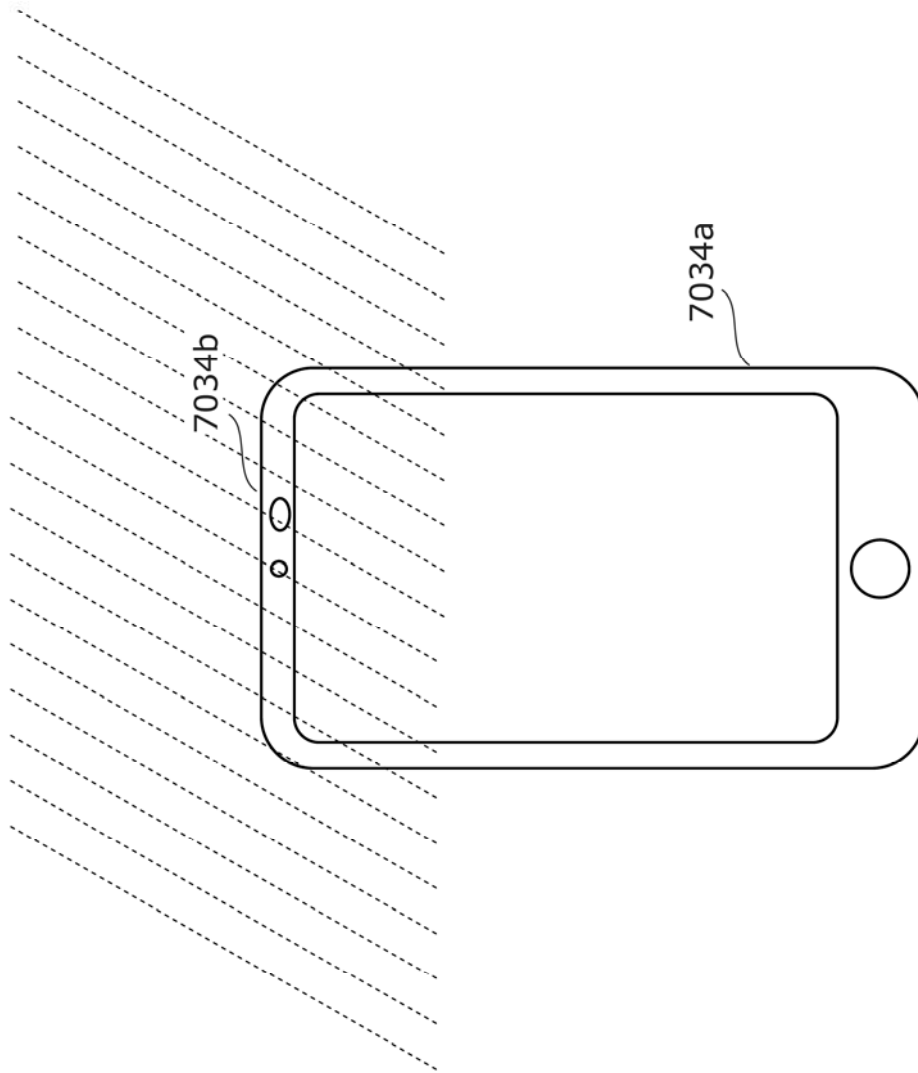


FIG. 269



Stop reception process by imaging device on illuminance sensor side or assign lower priority to reception process, in the case where measurement value of illuminance sensor is less than or equal to predetermined value

FIG. 270

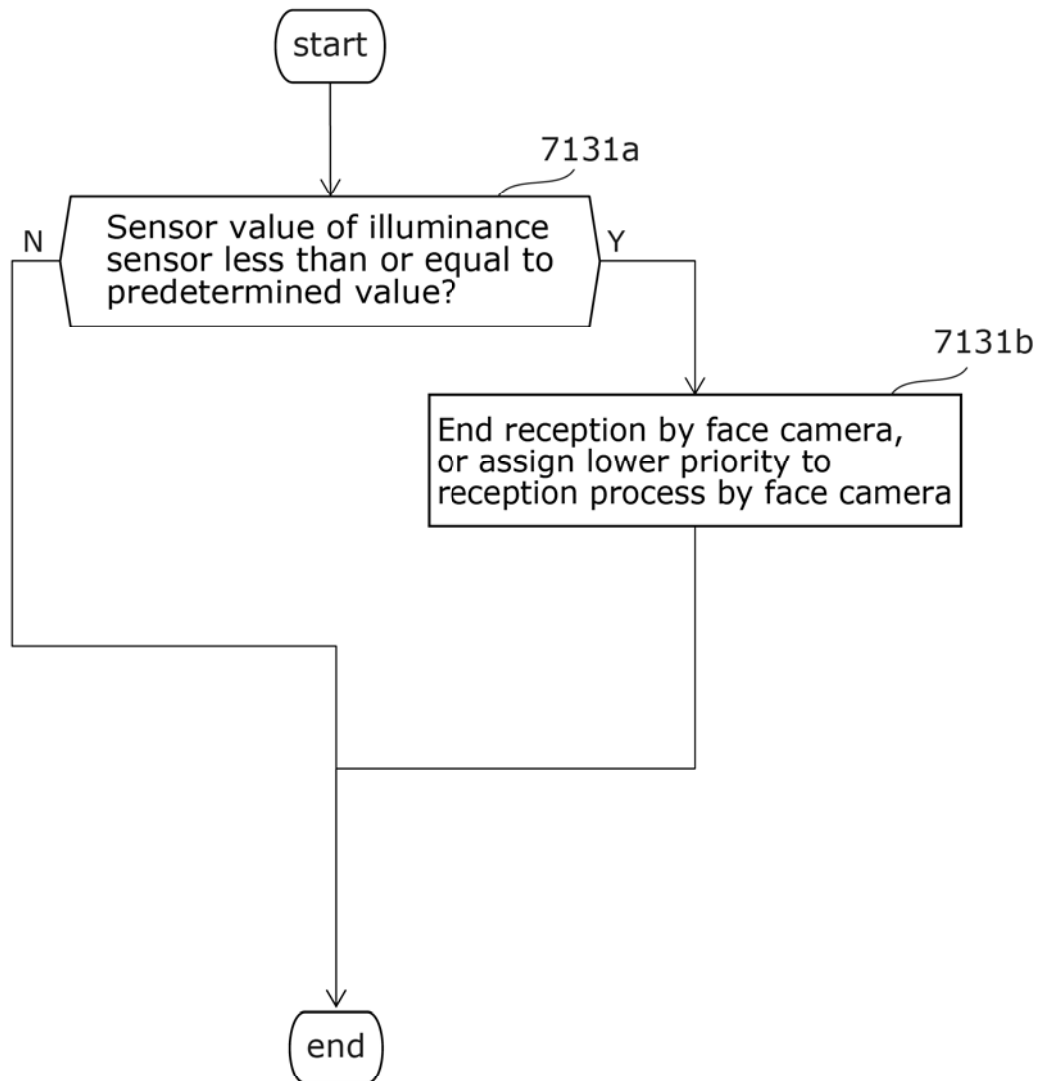


FIG. 271

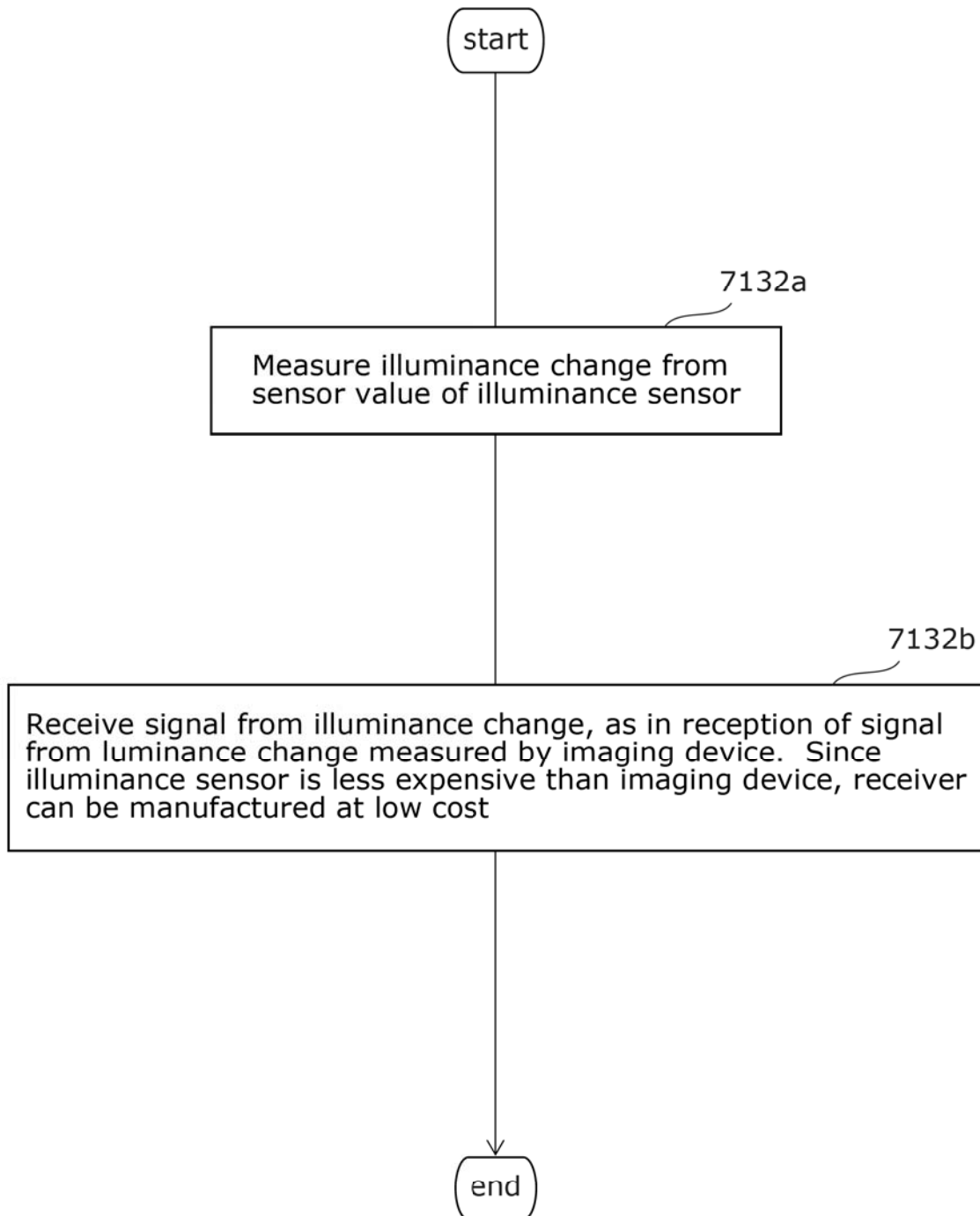


FIG. 272

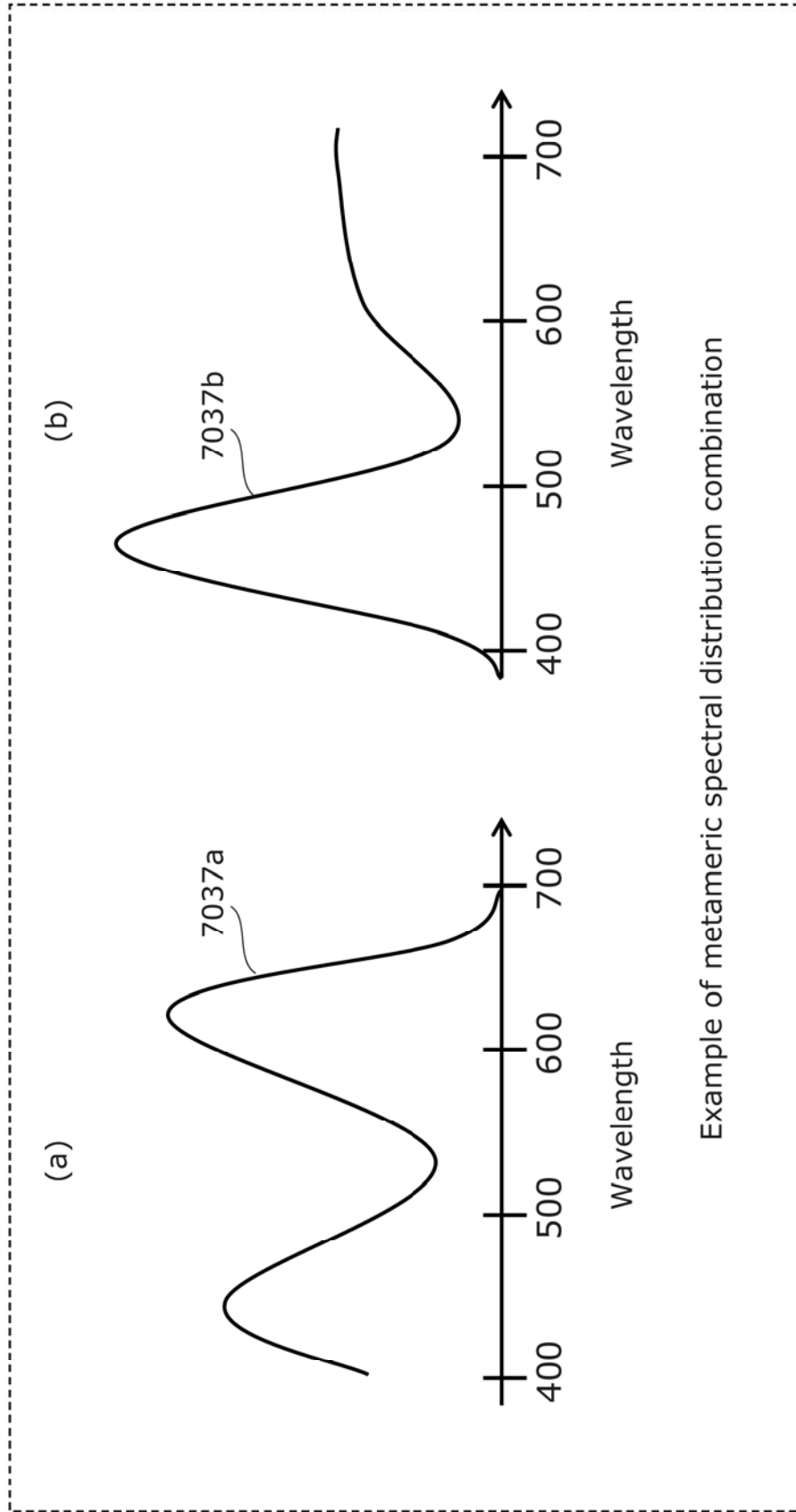




FIG. 273

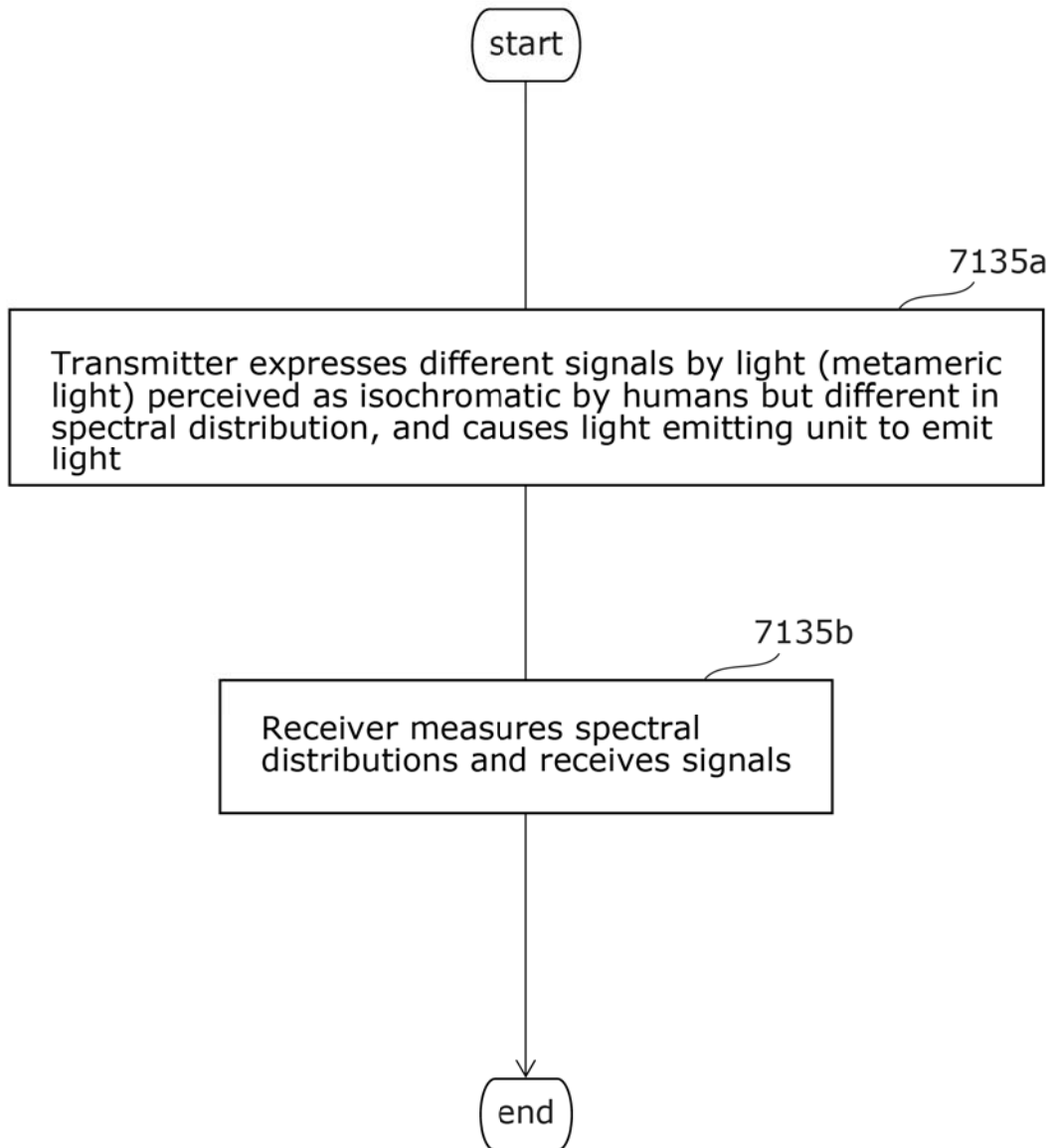


FIG. 274

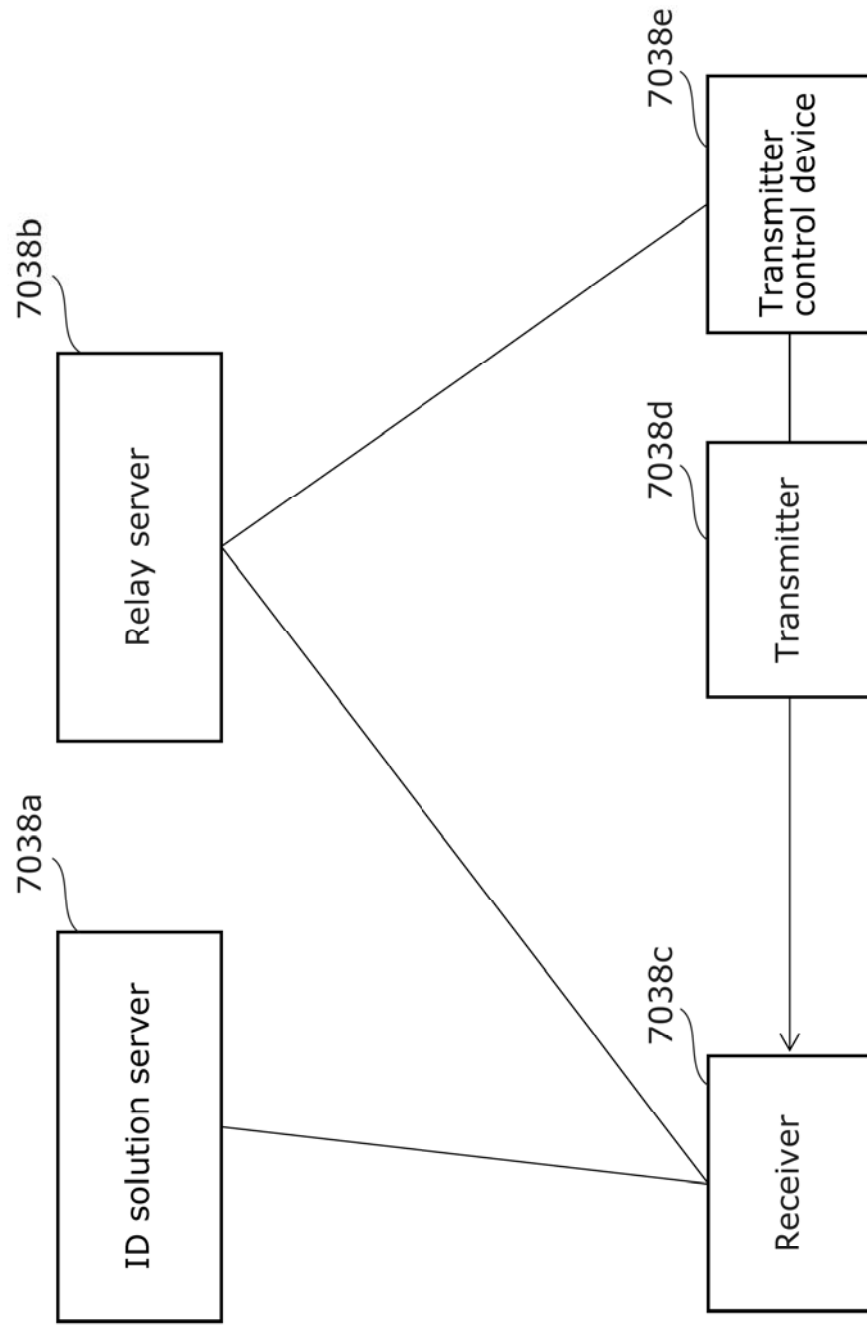


FIG. 275

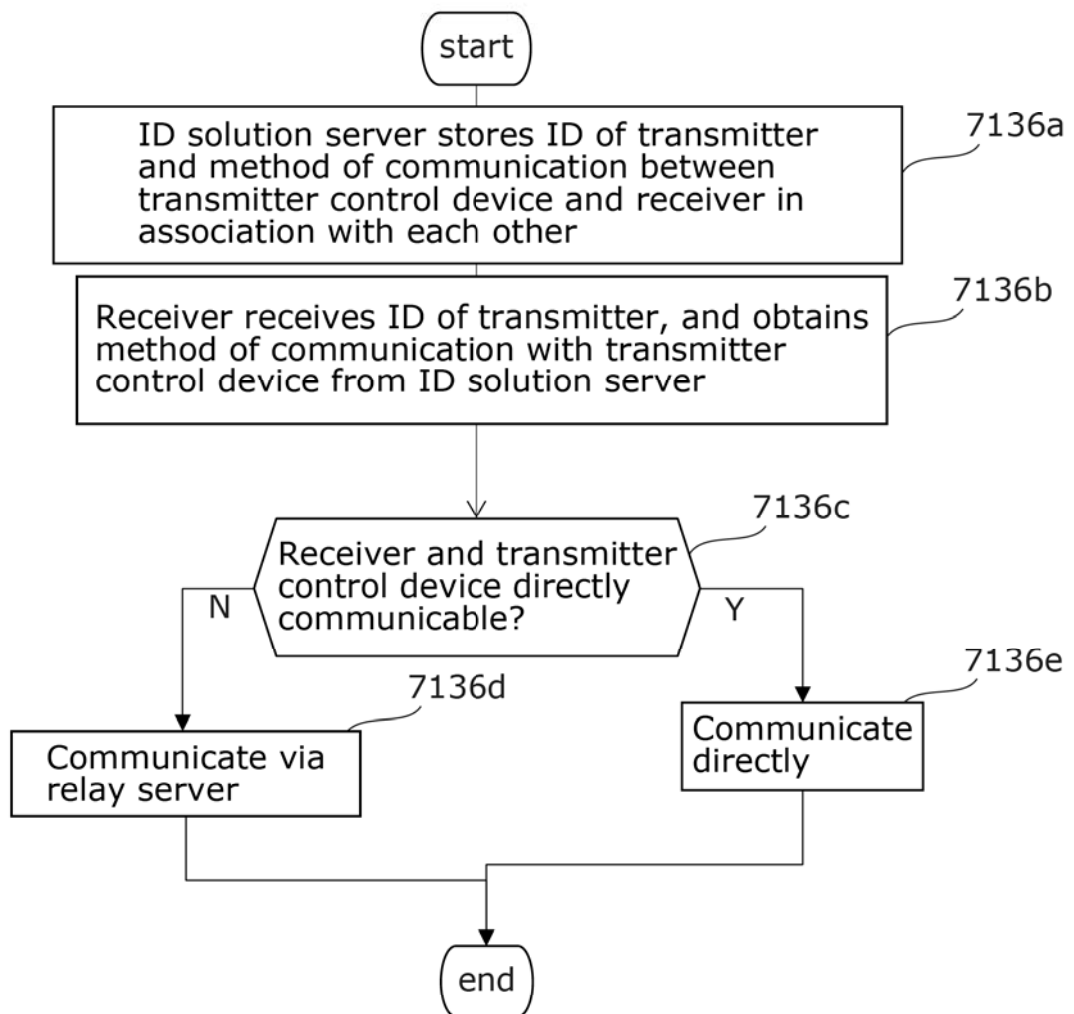


FIG. 276

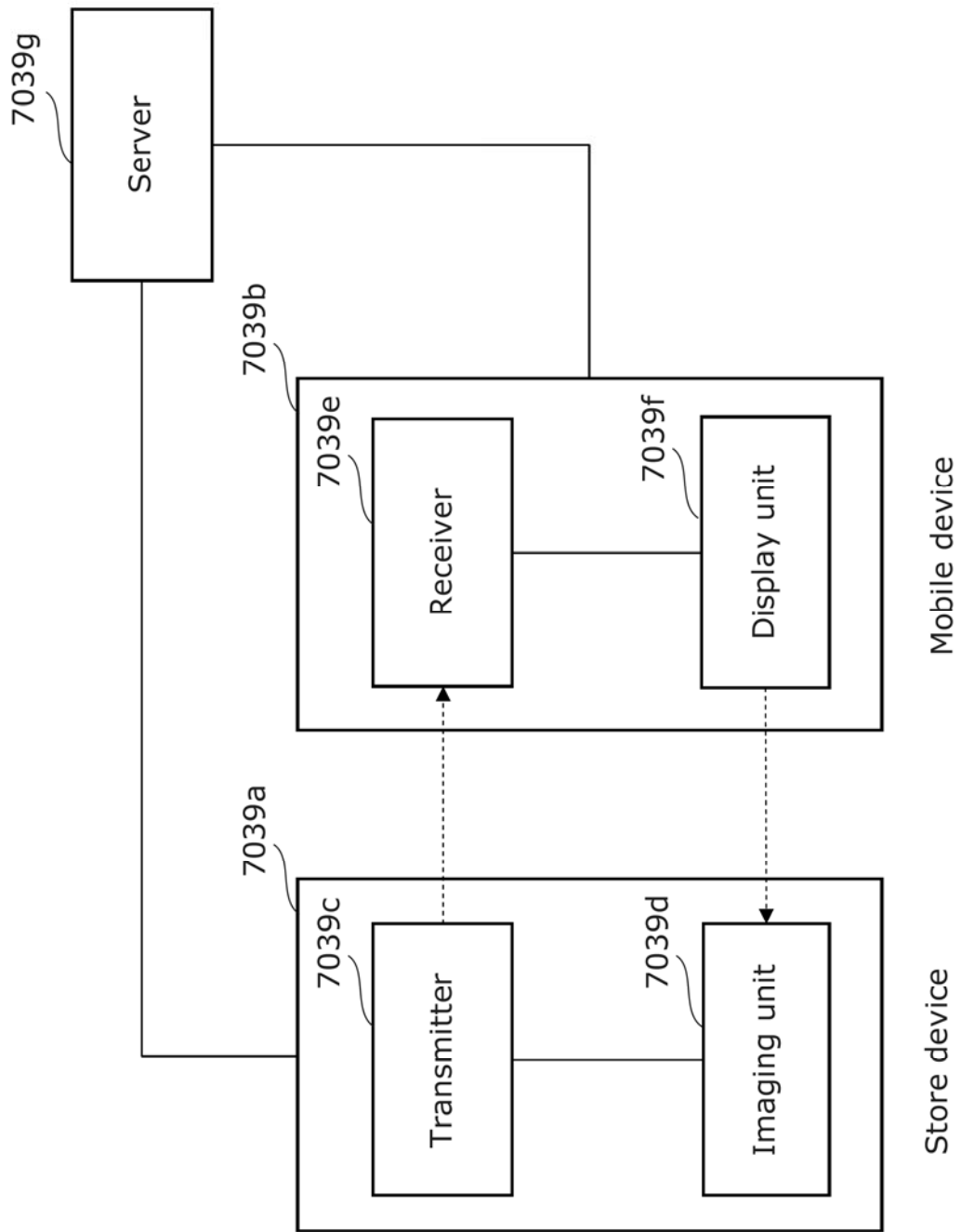


FIG. 277

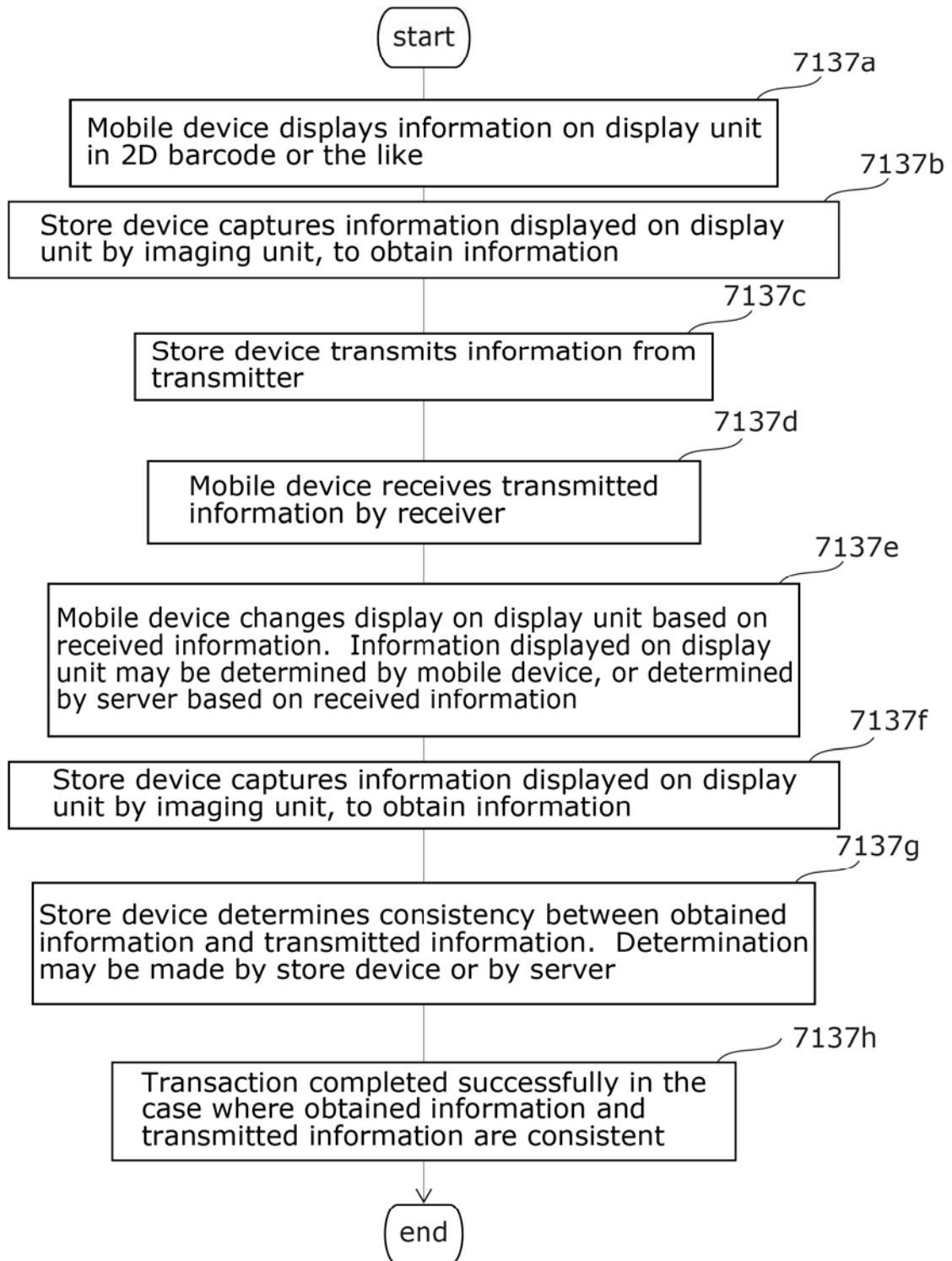


FIG. 278

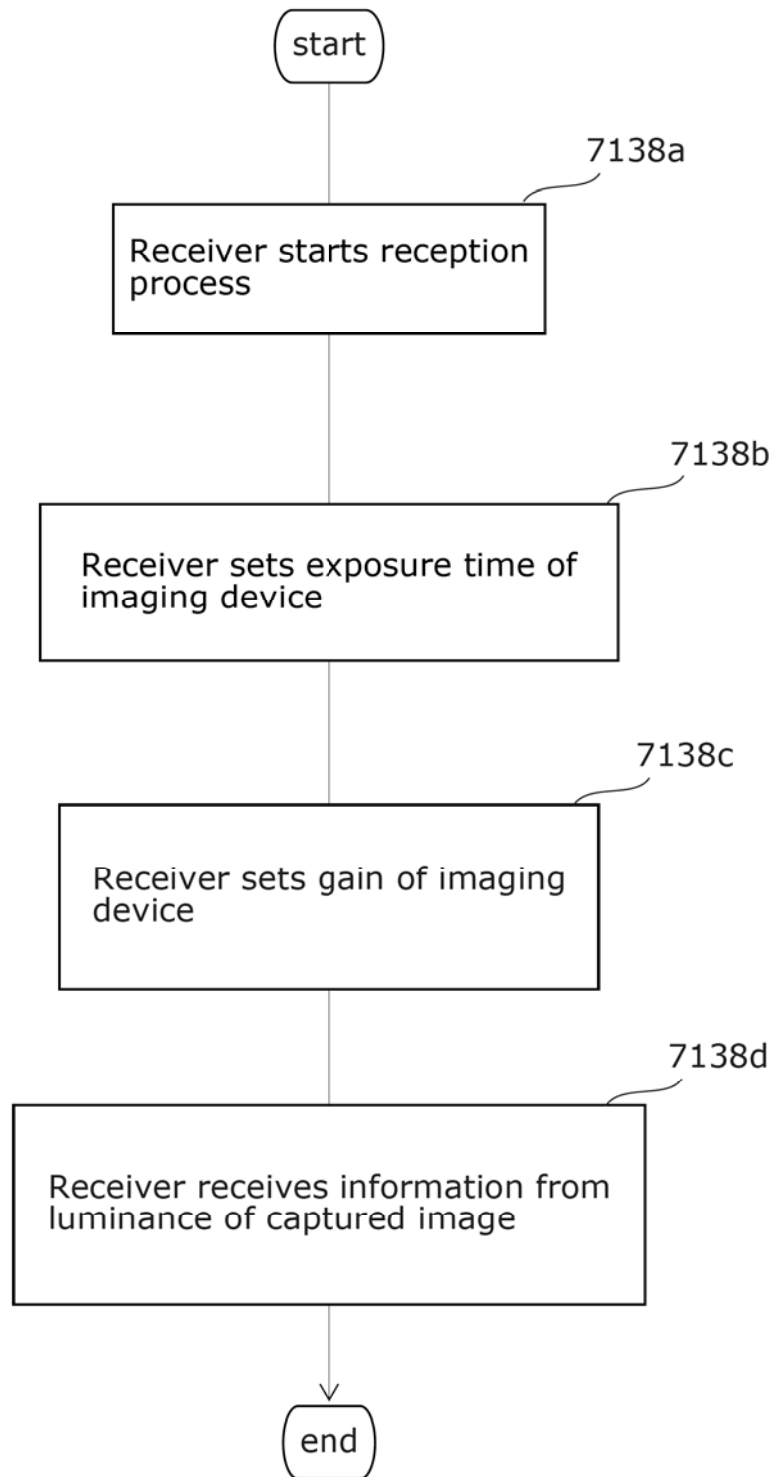


FIG. 279

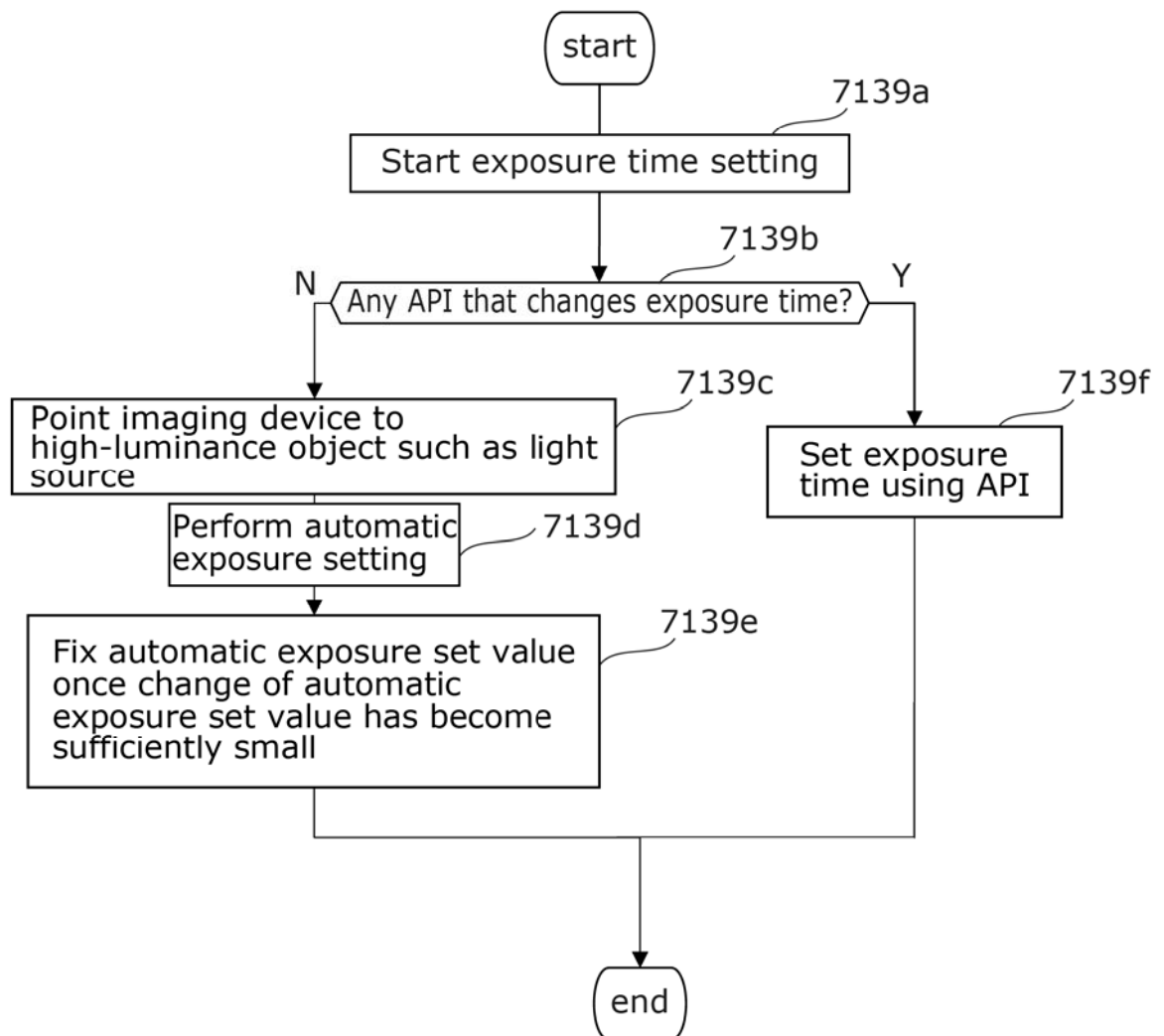


FIG. 280

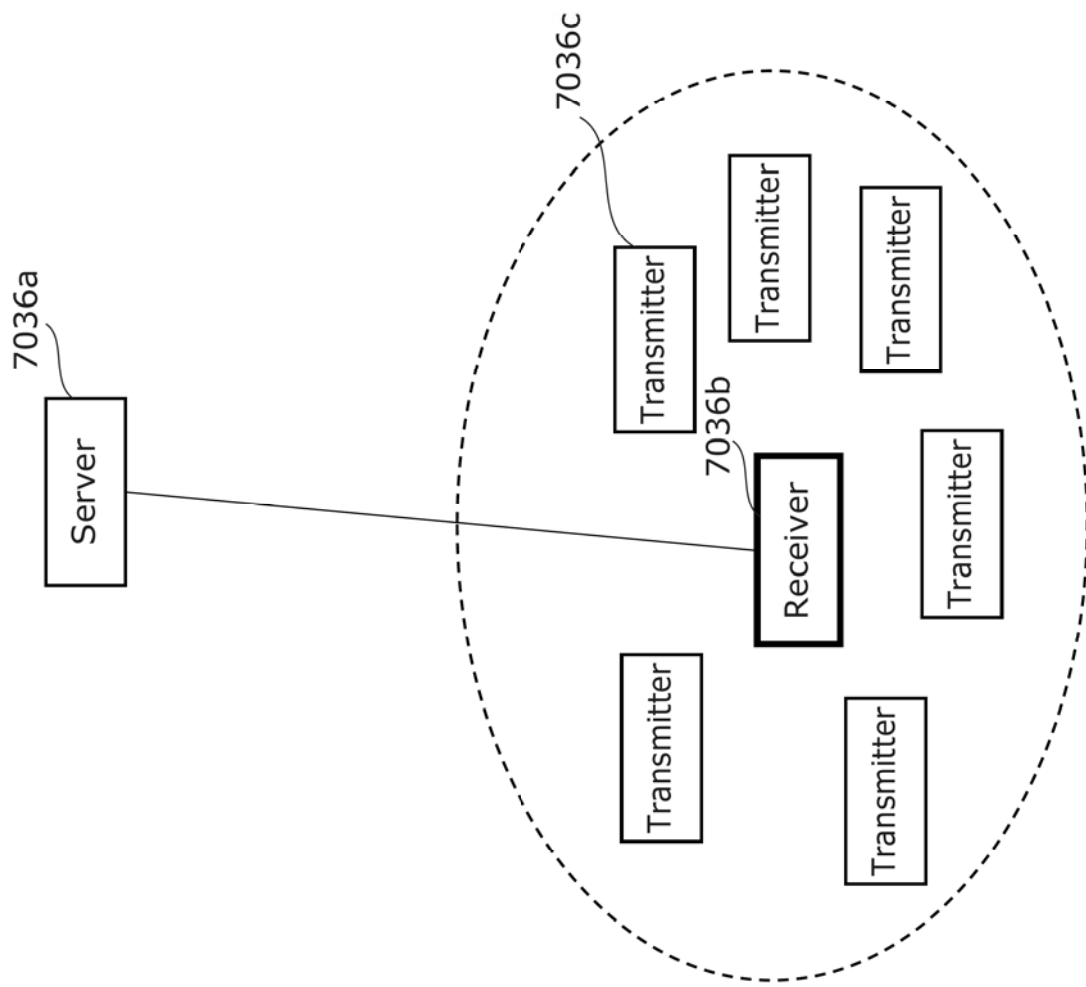




FIG. 281

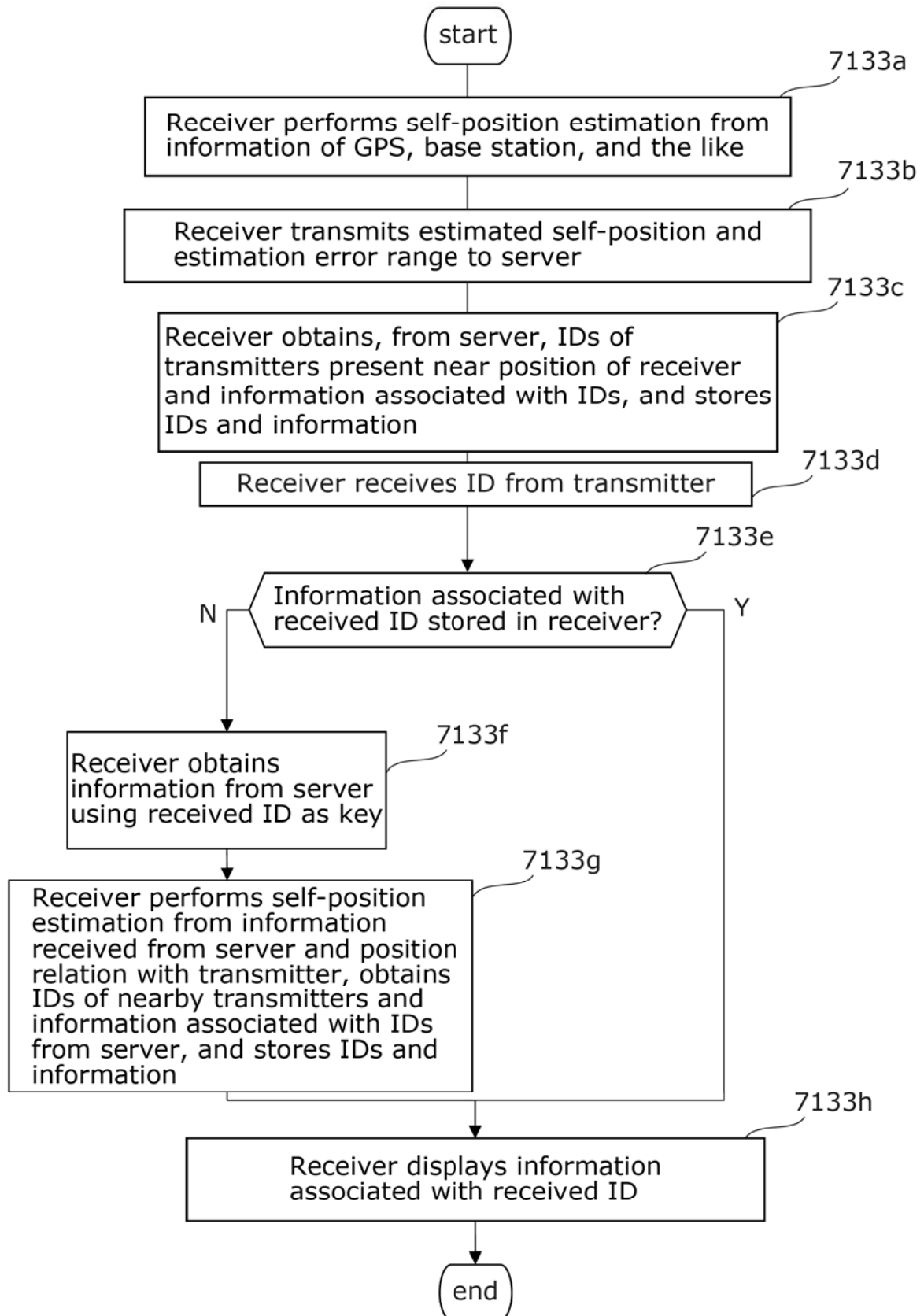


FIG. 282

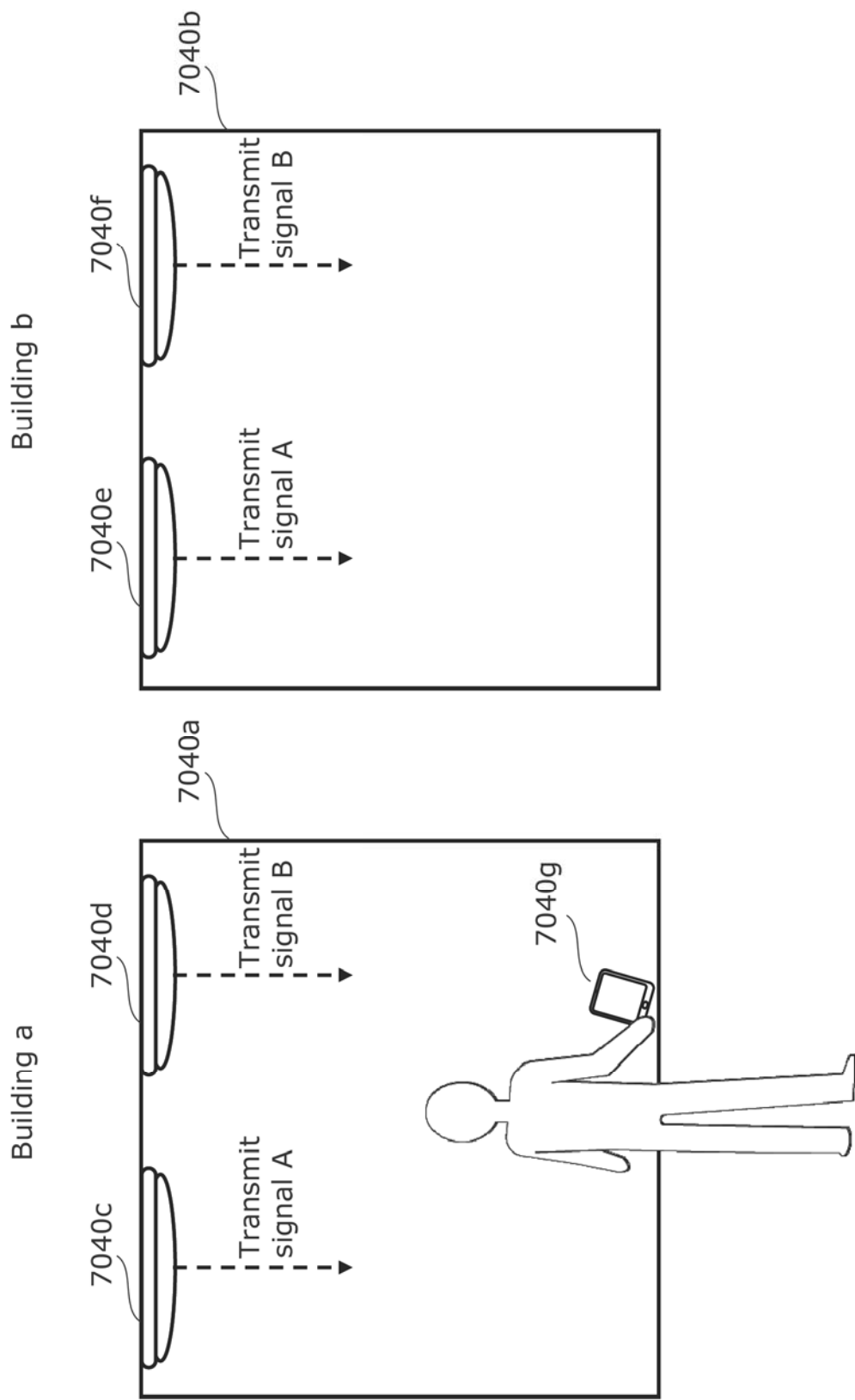


FIG. 283

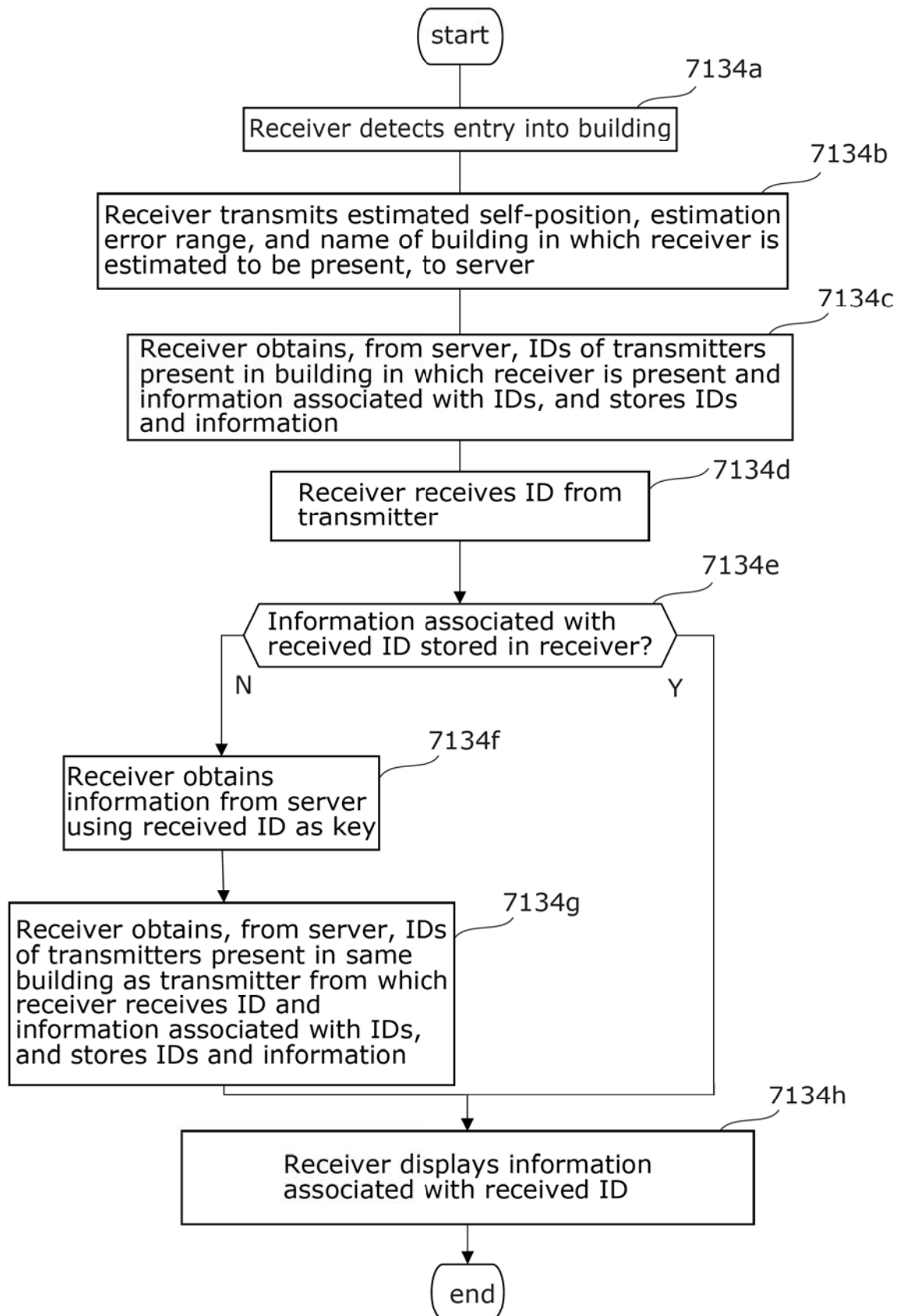


FIG. 284

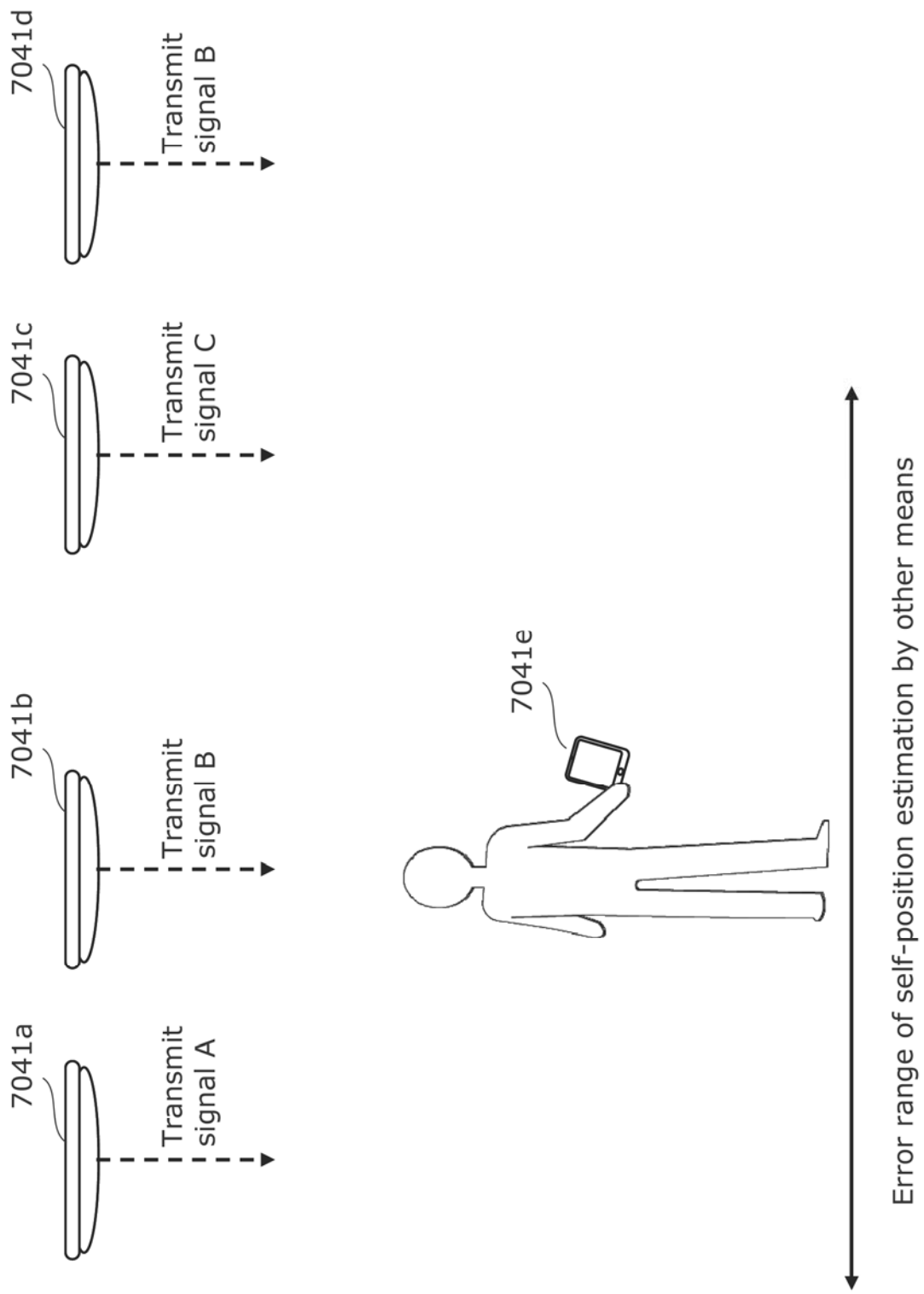


FIG. 285

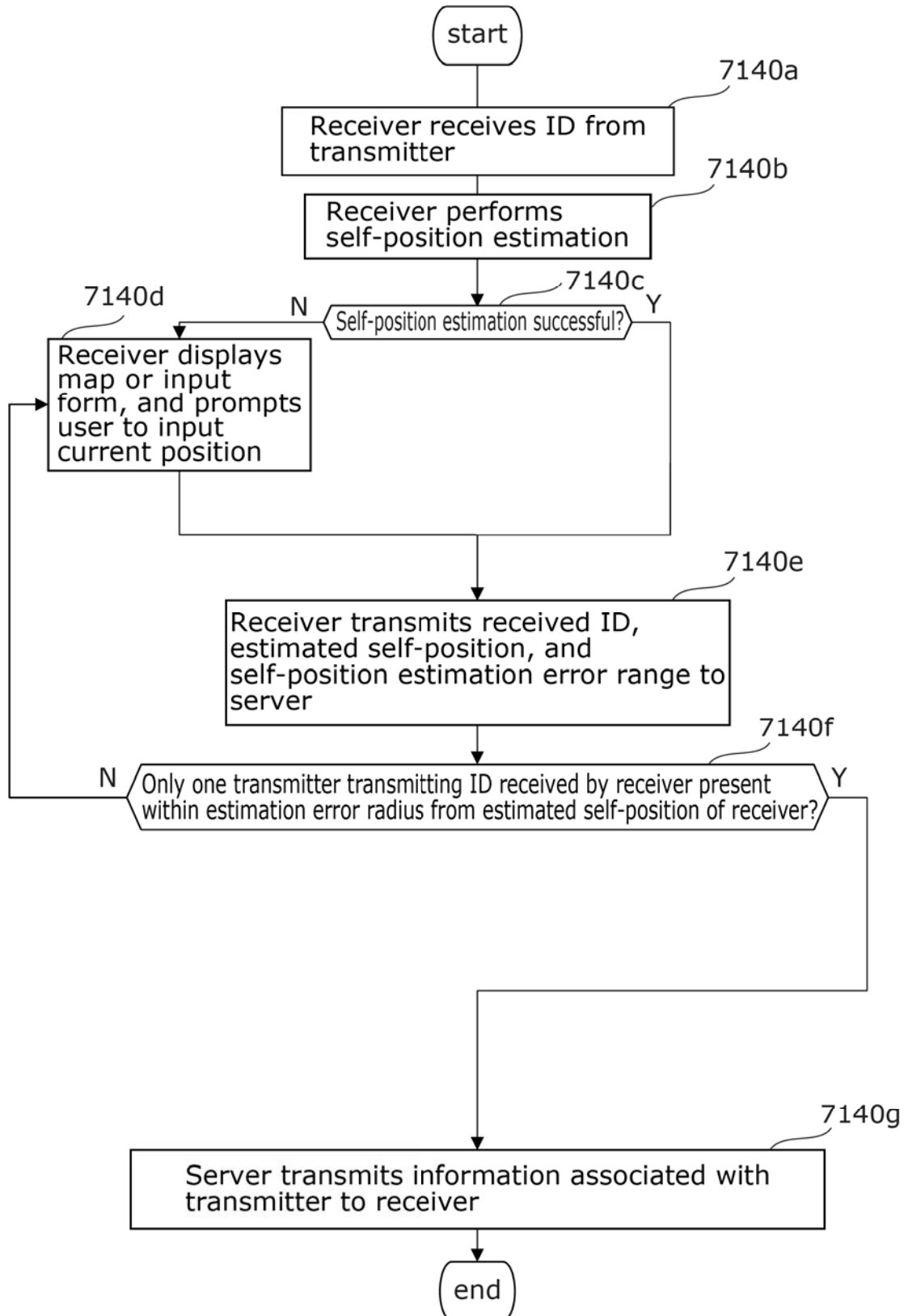


FIG. 286

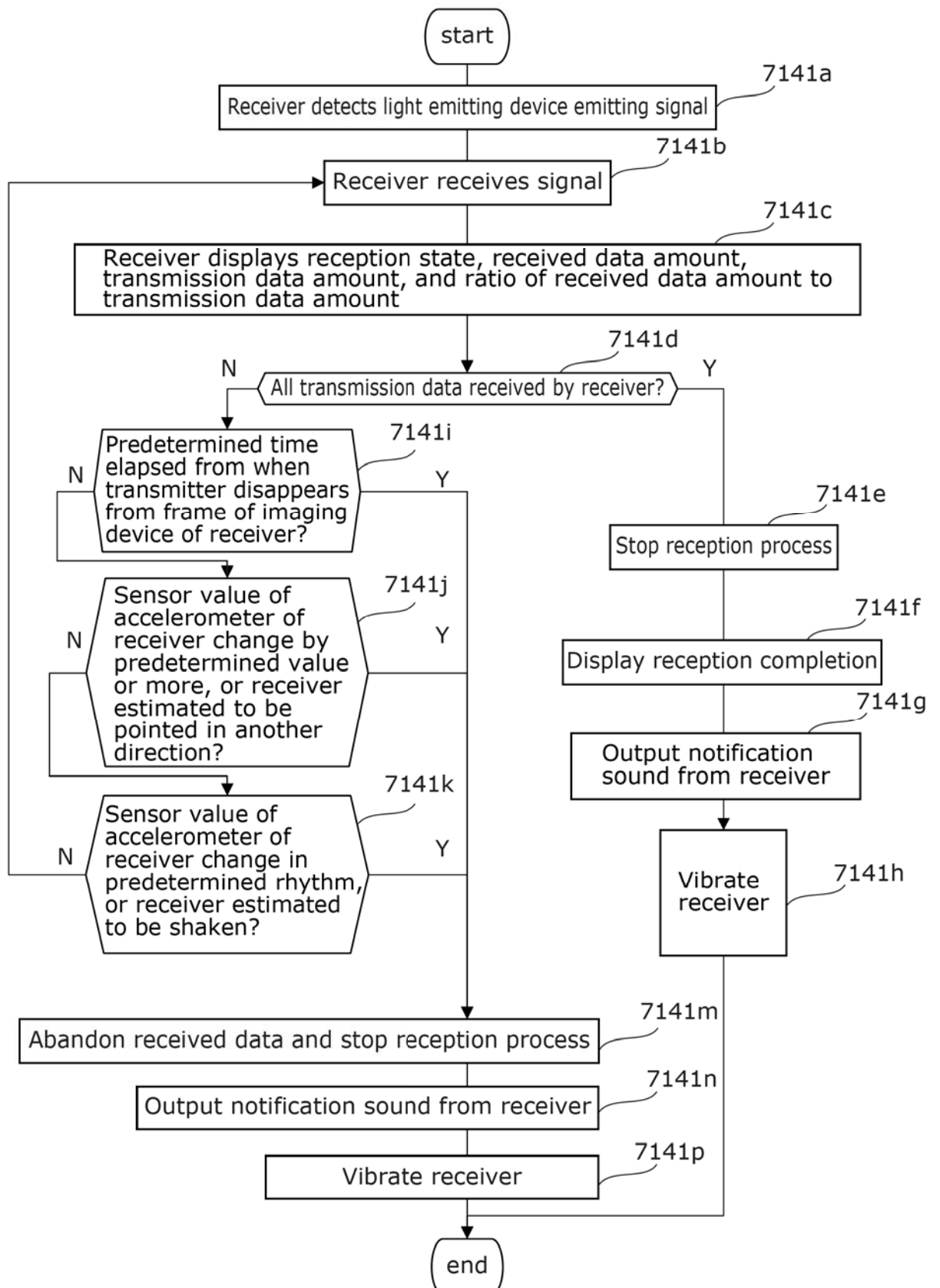


FIG. 287A

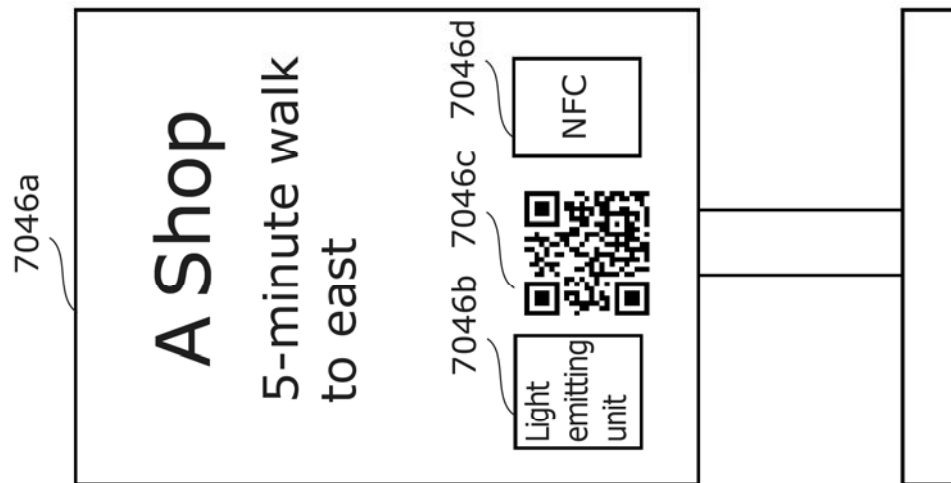


FIG. 287B

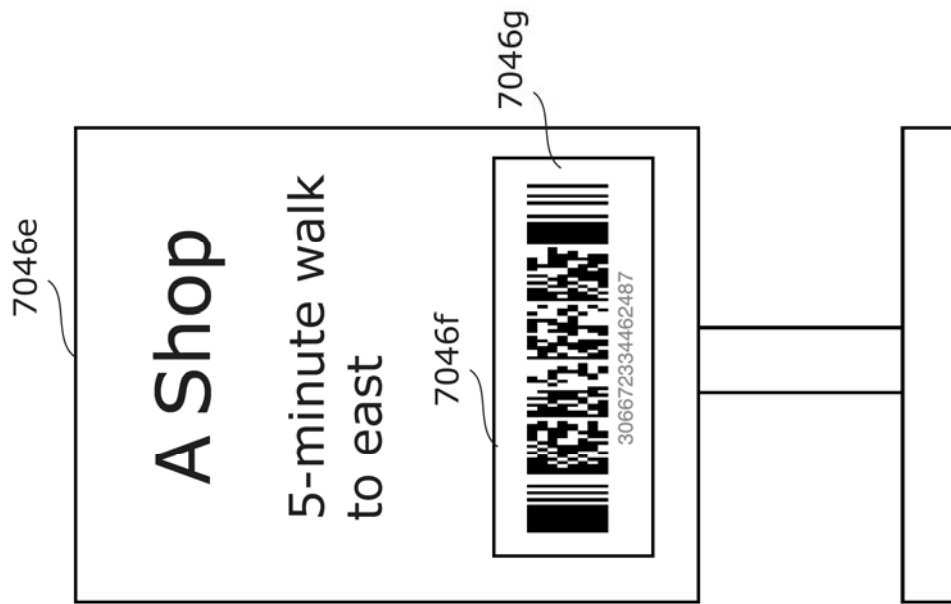


FIG. 288

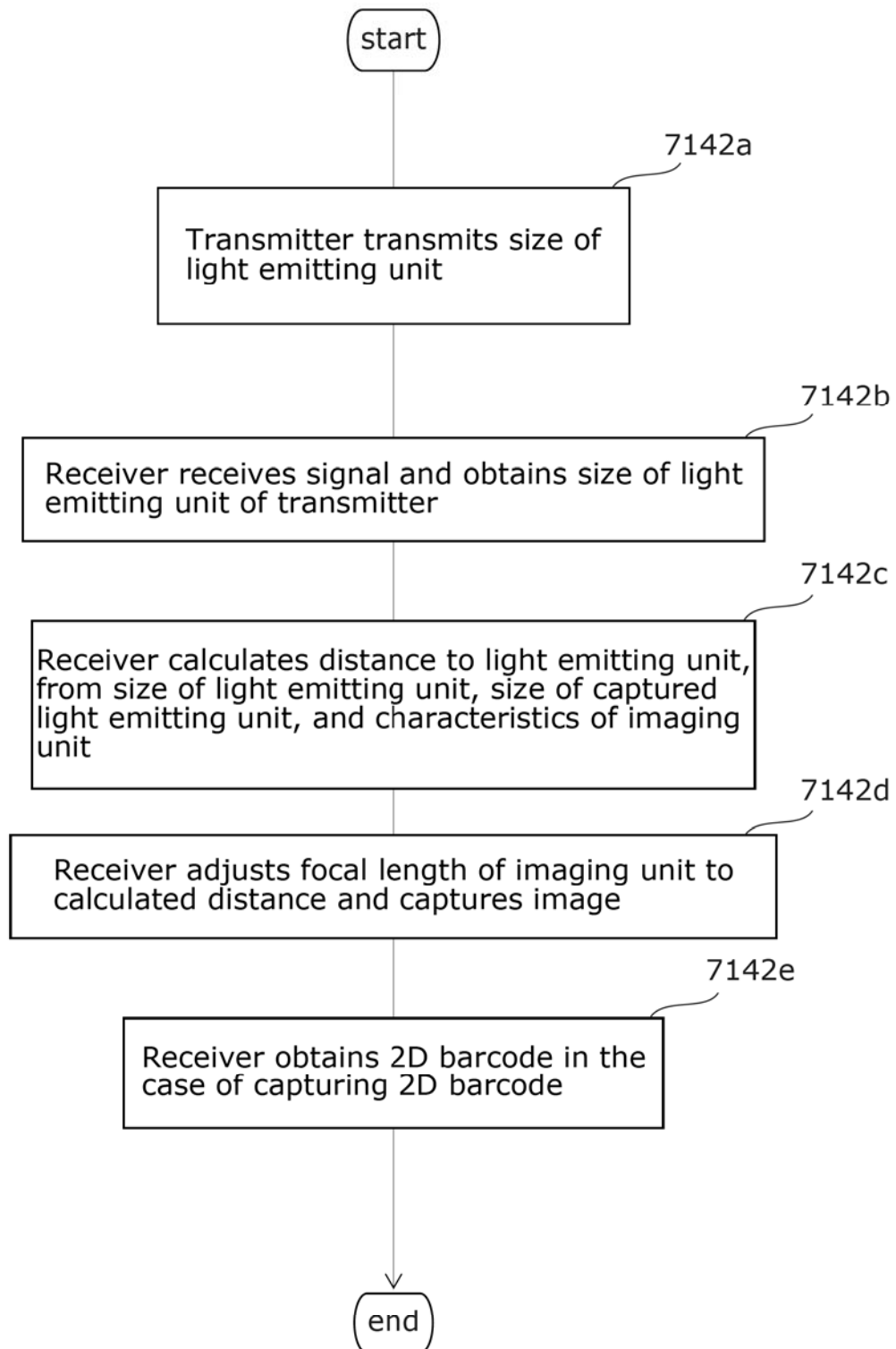




FIG. 289

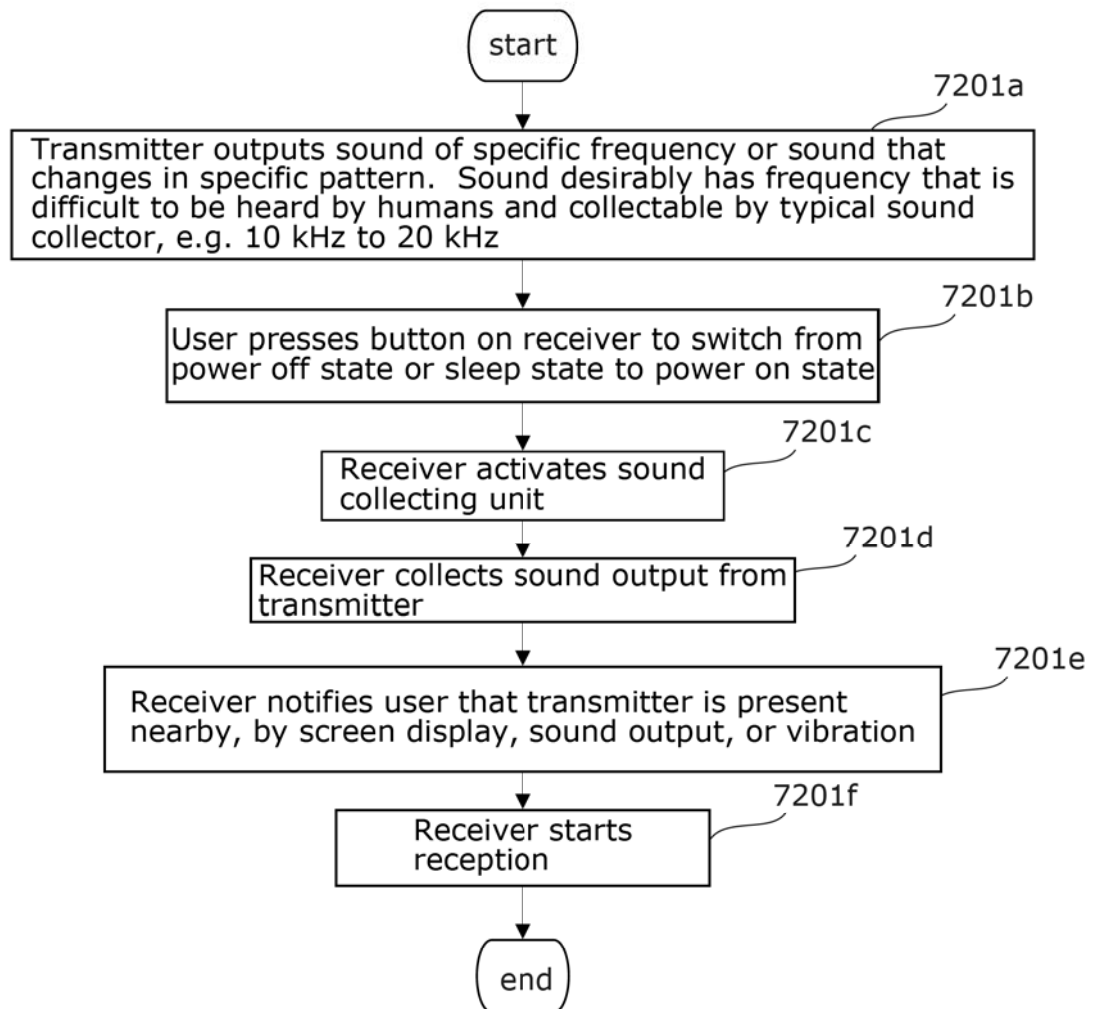


FIG. 290

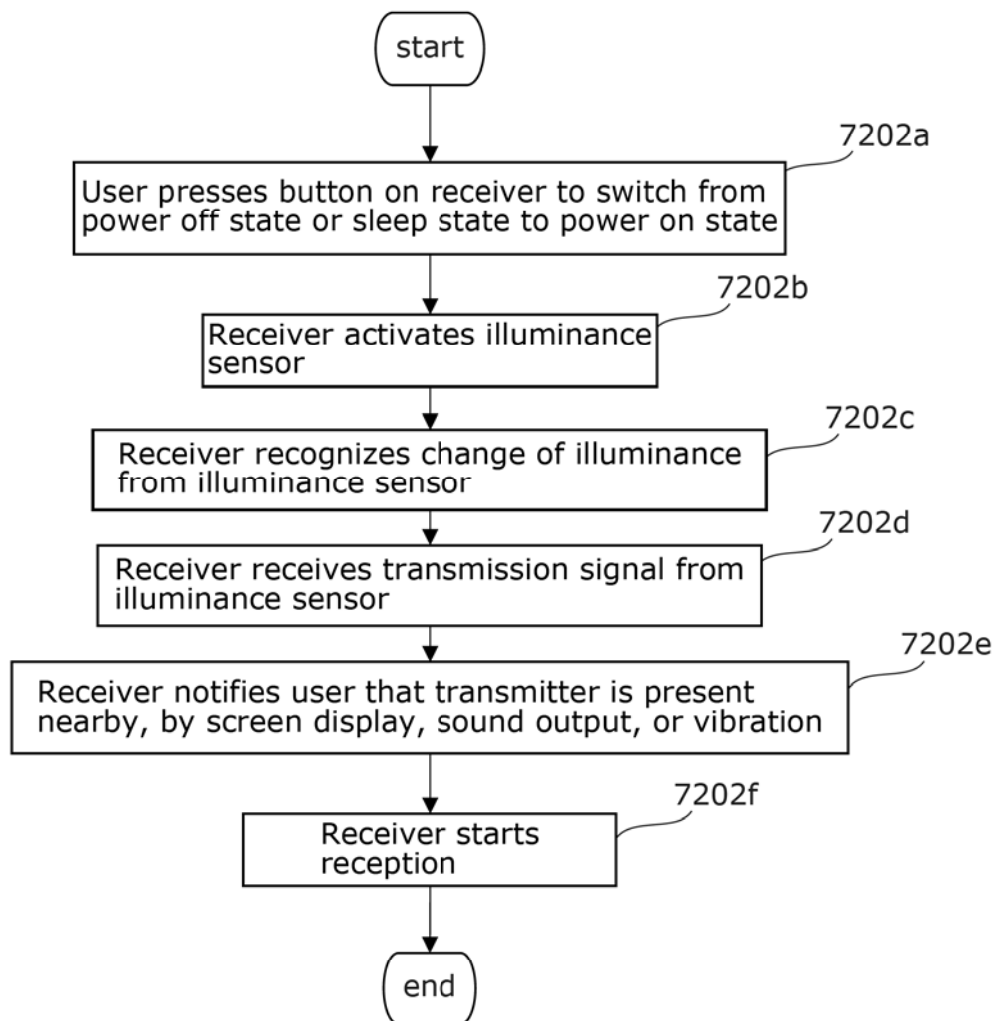


FIG. 291

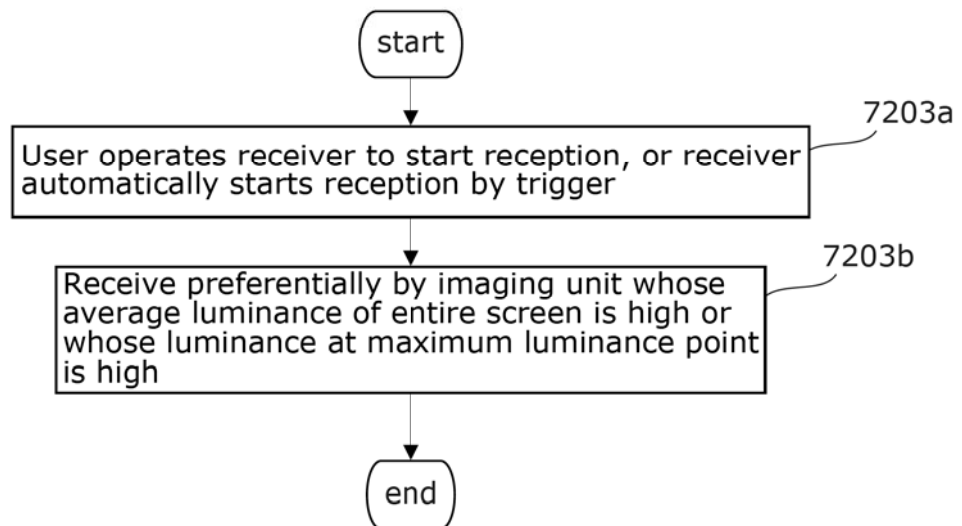


FIG. 292

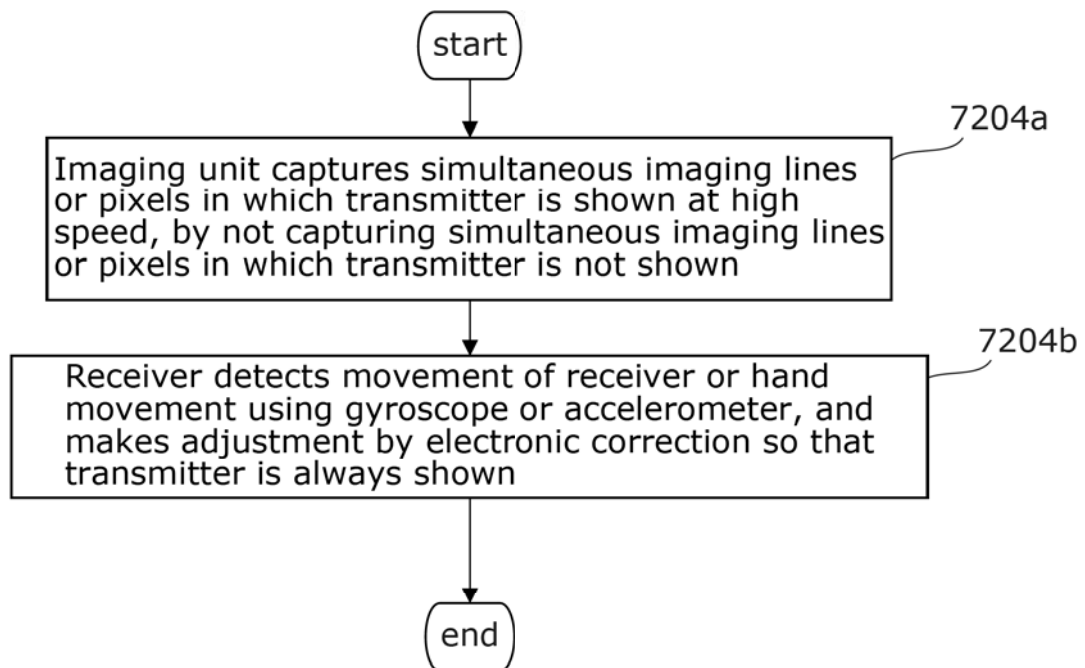


FIG. 293

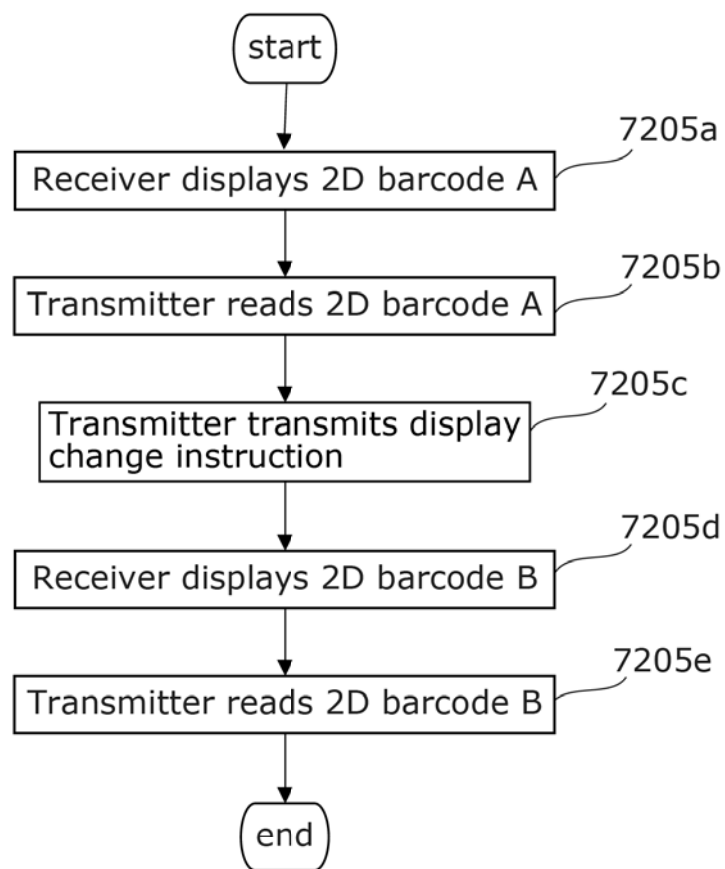


FIG. 294

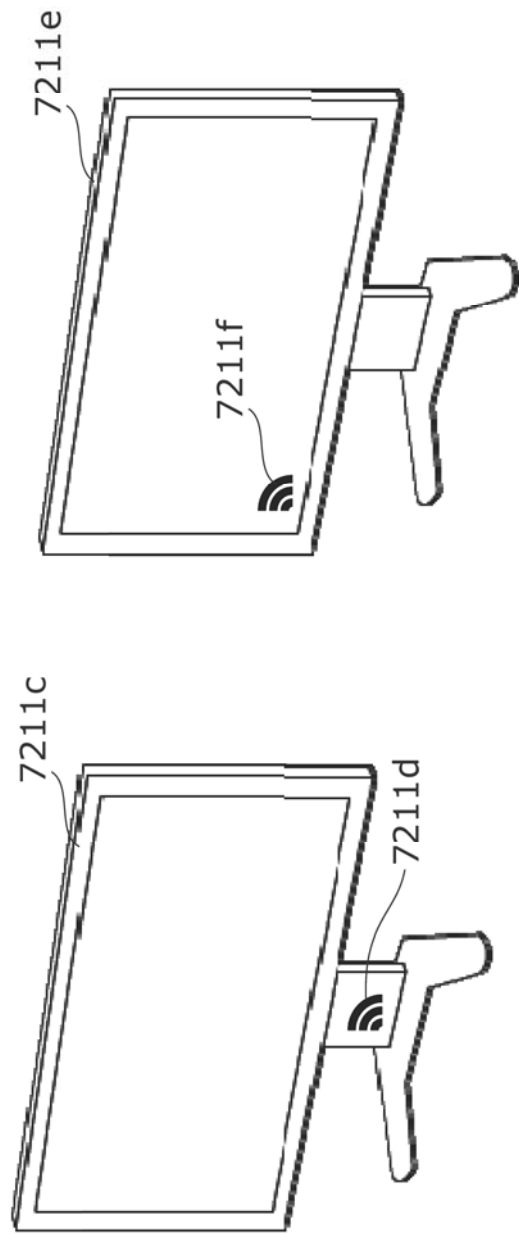
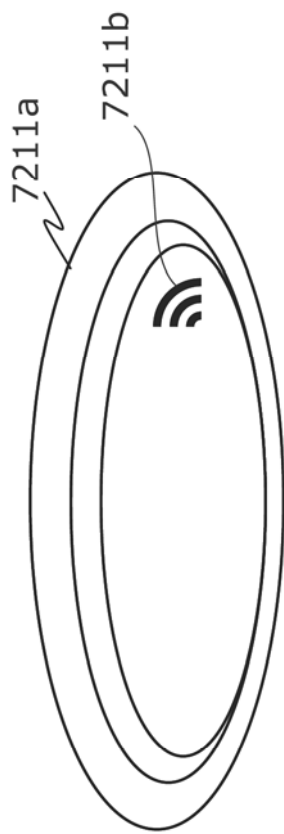


FIG. 295

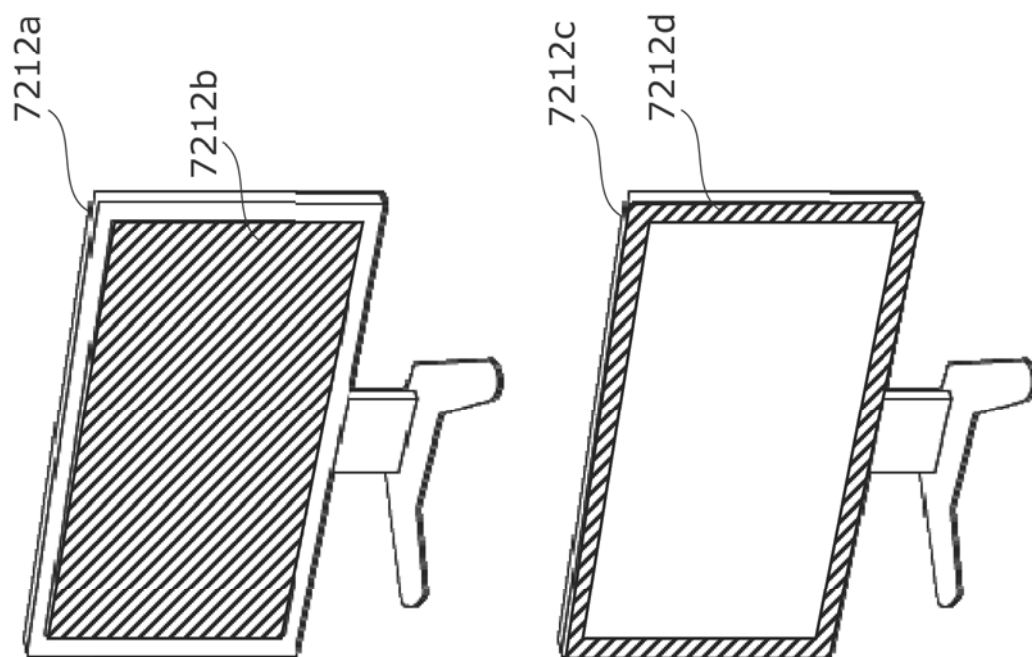


FIG. 296

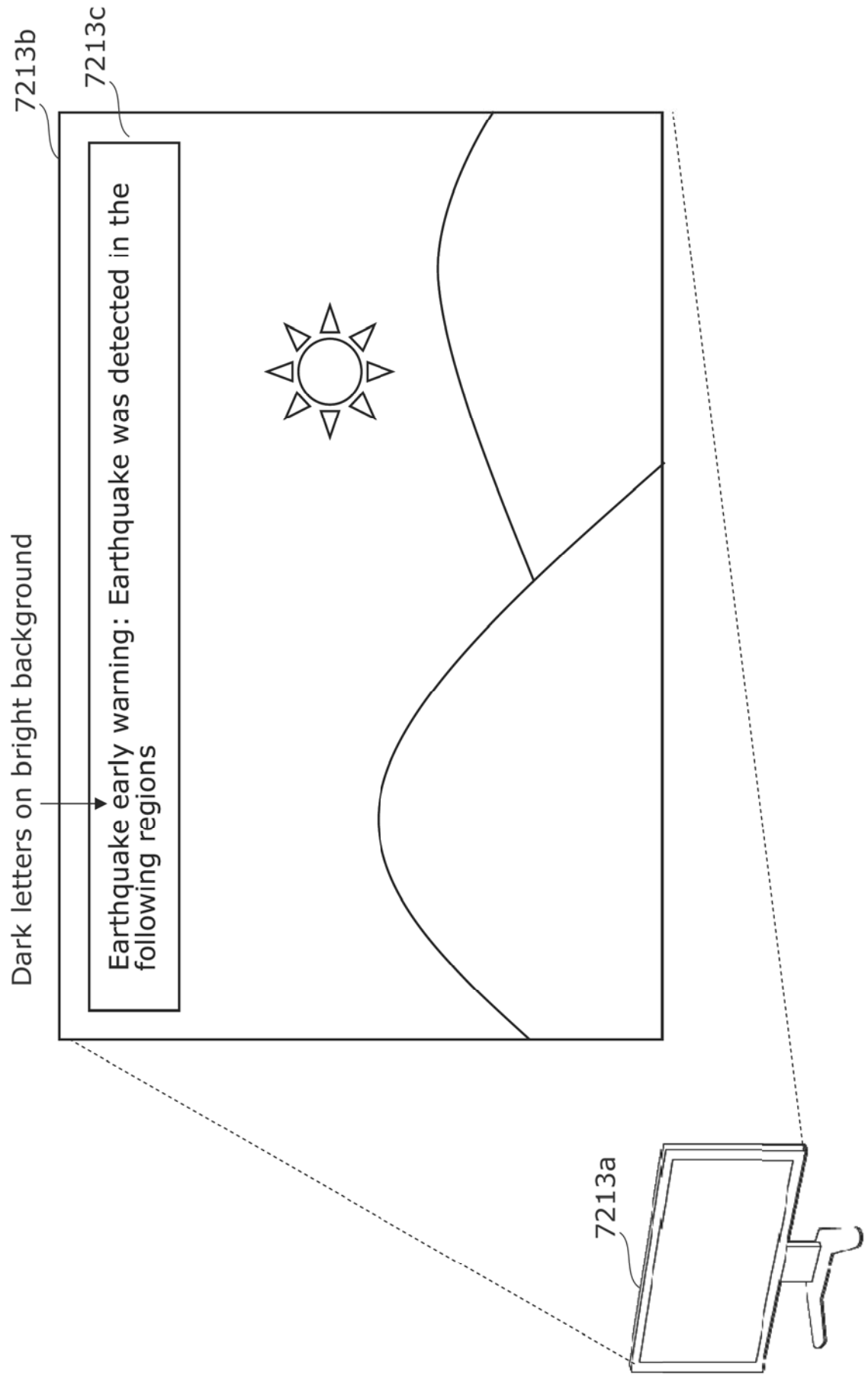




FIG. 297

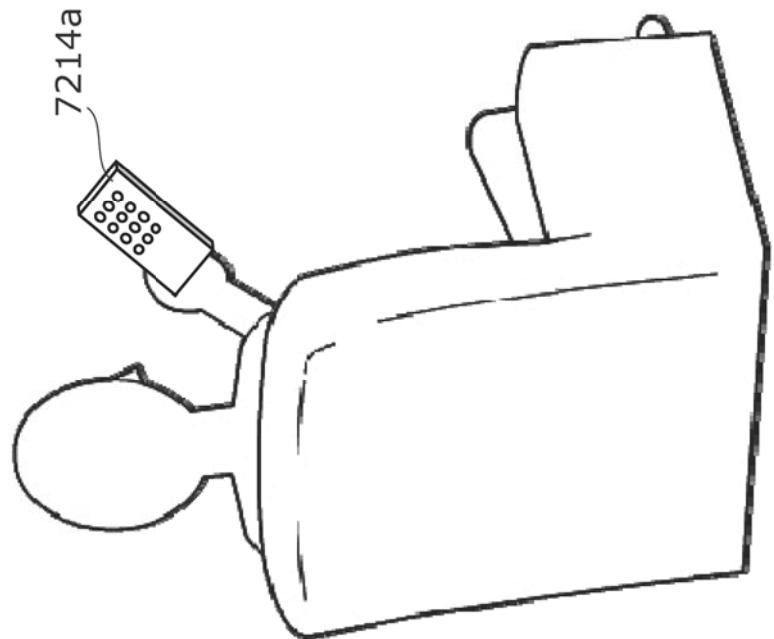
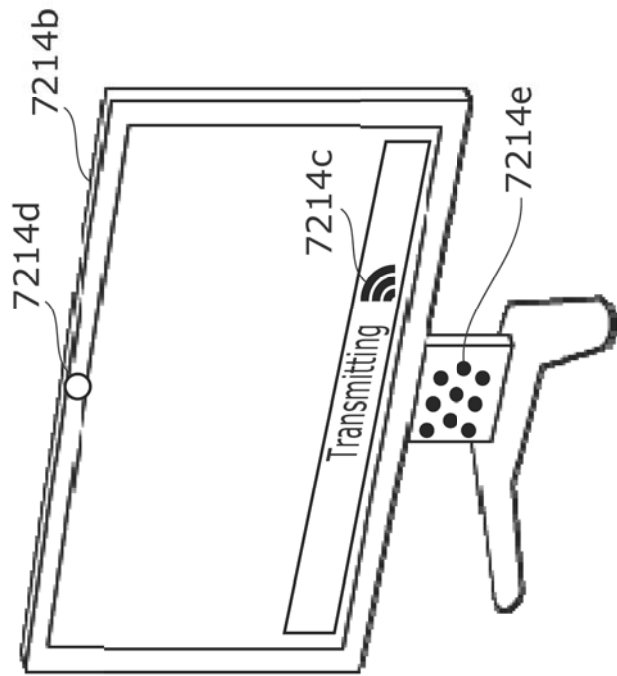


FIG. 298

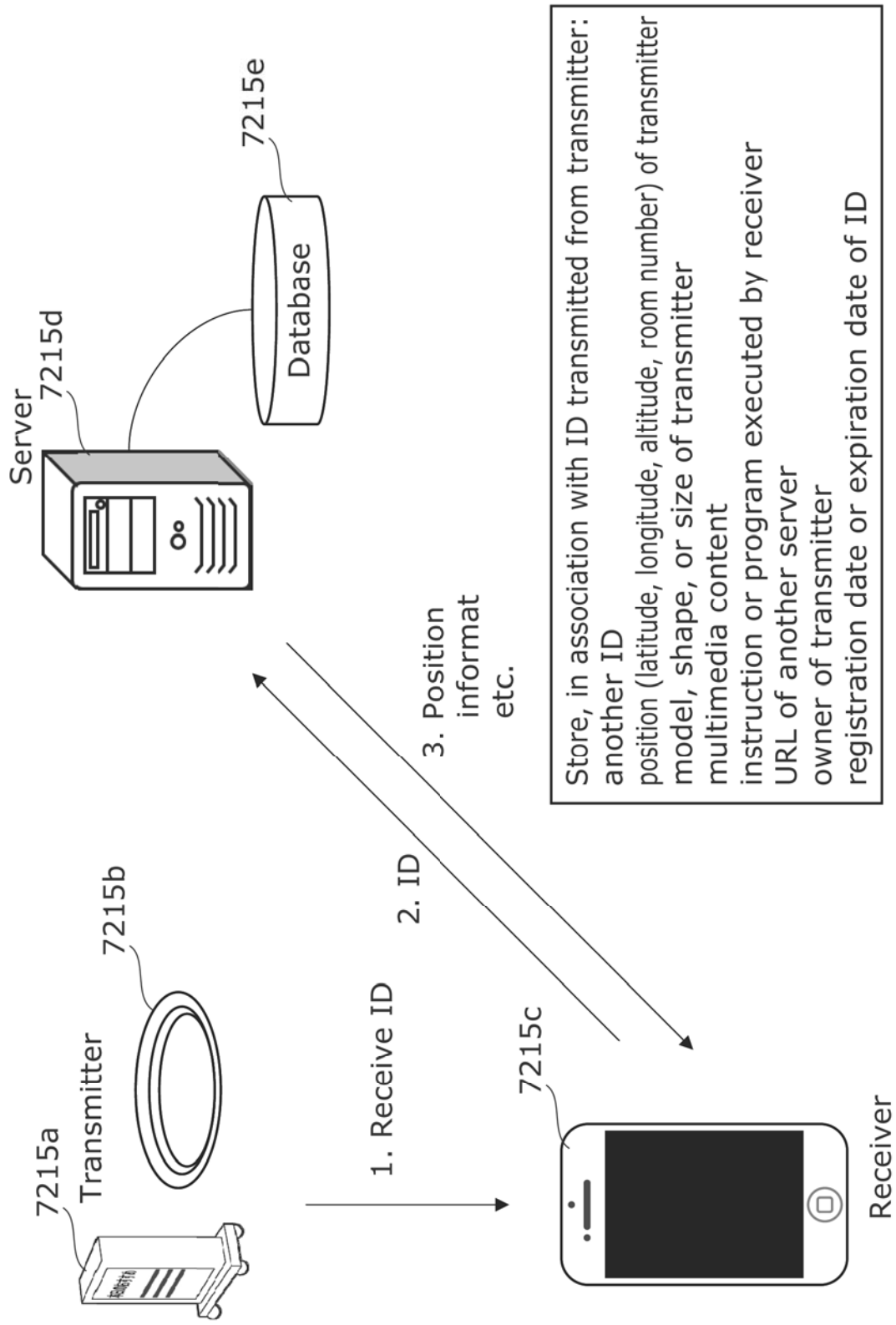


FIG. 299

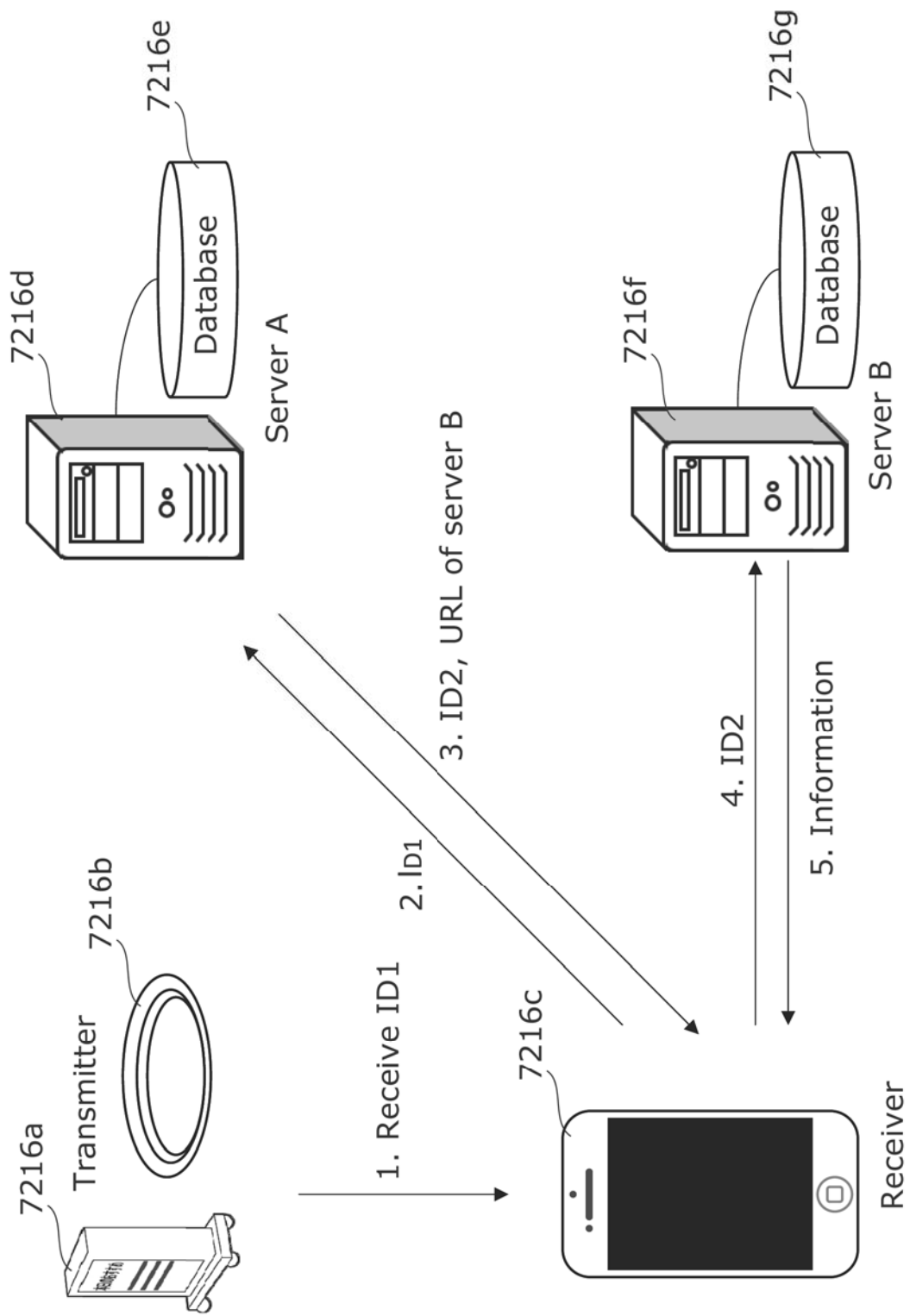


FIG. 300

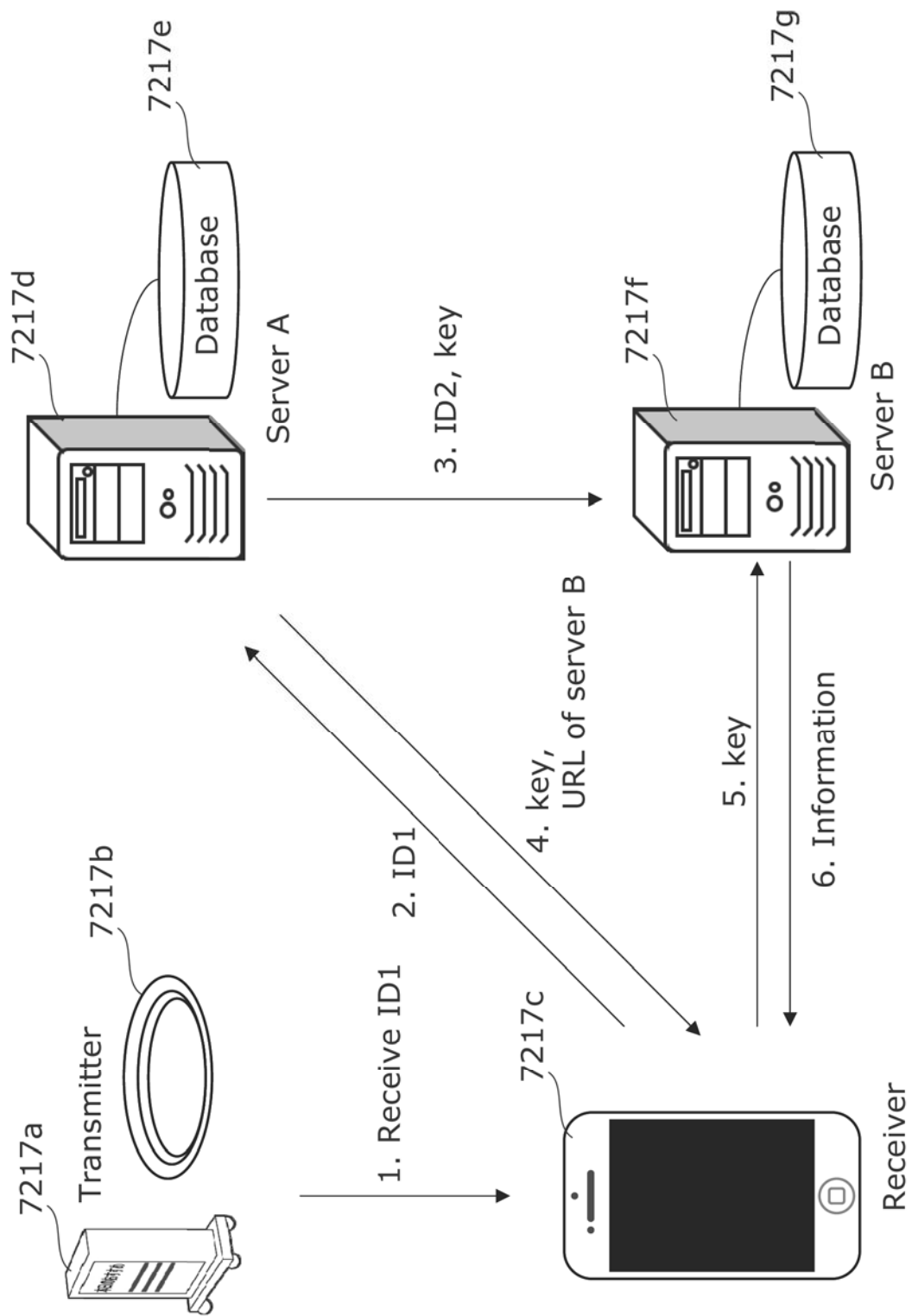


FIG. 301A

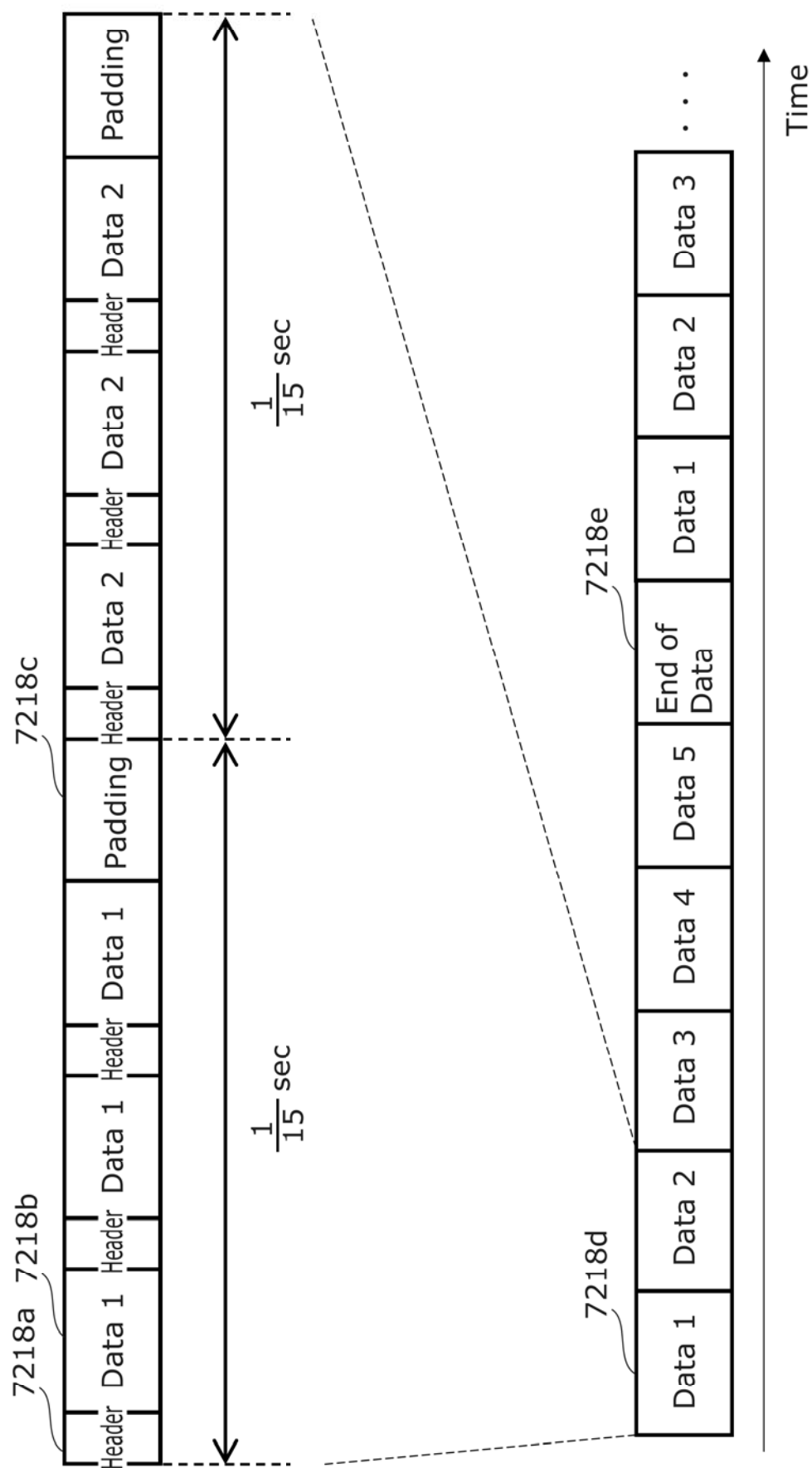


FIG. 301B

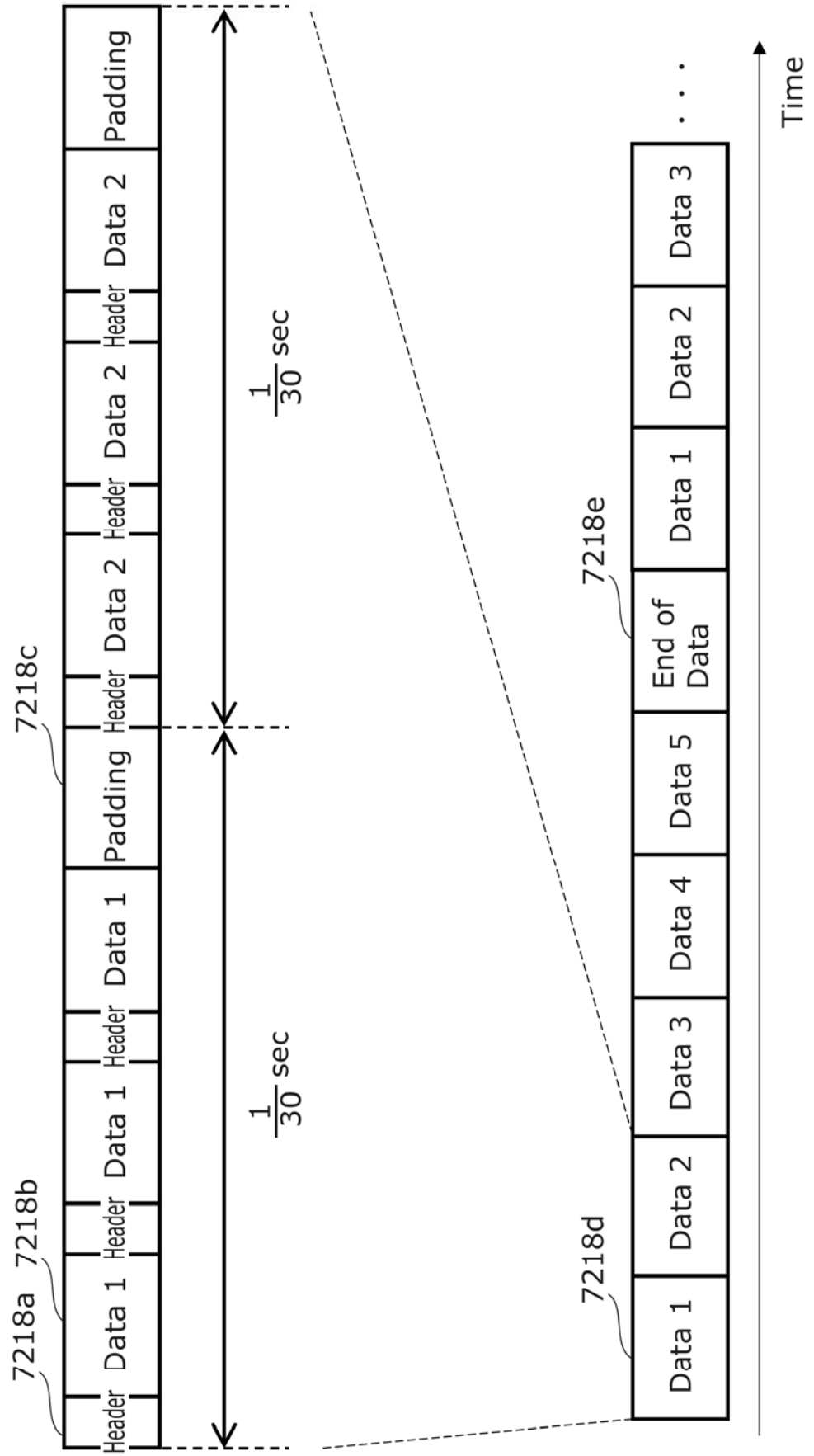


FIG. 302

| Transmission signal | Modulated signal |
|---------------------|------------------|
| 00 (0)              | 01111            |
| 01 (1)              | 10111            |
| 10 (2)              | 11011            |
| 11 (3)              | 11101            |
| Header              | 11110            |

7219a

FIG. 303A

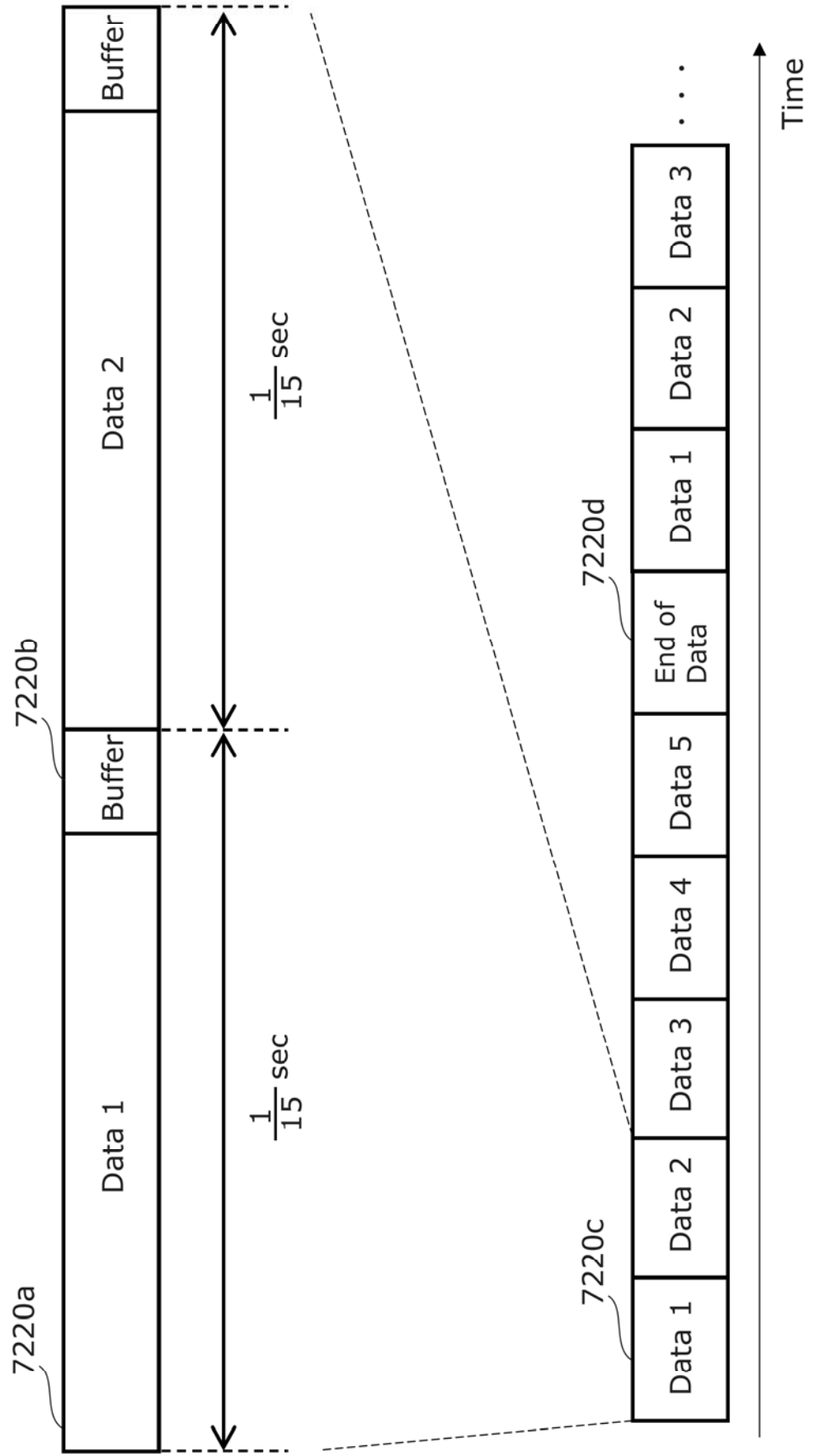




FIG. 303B

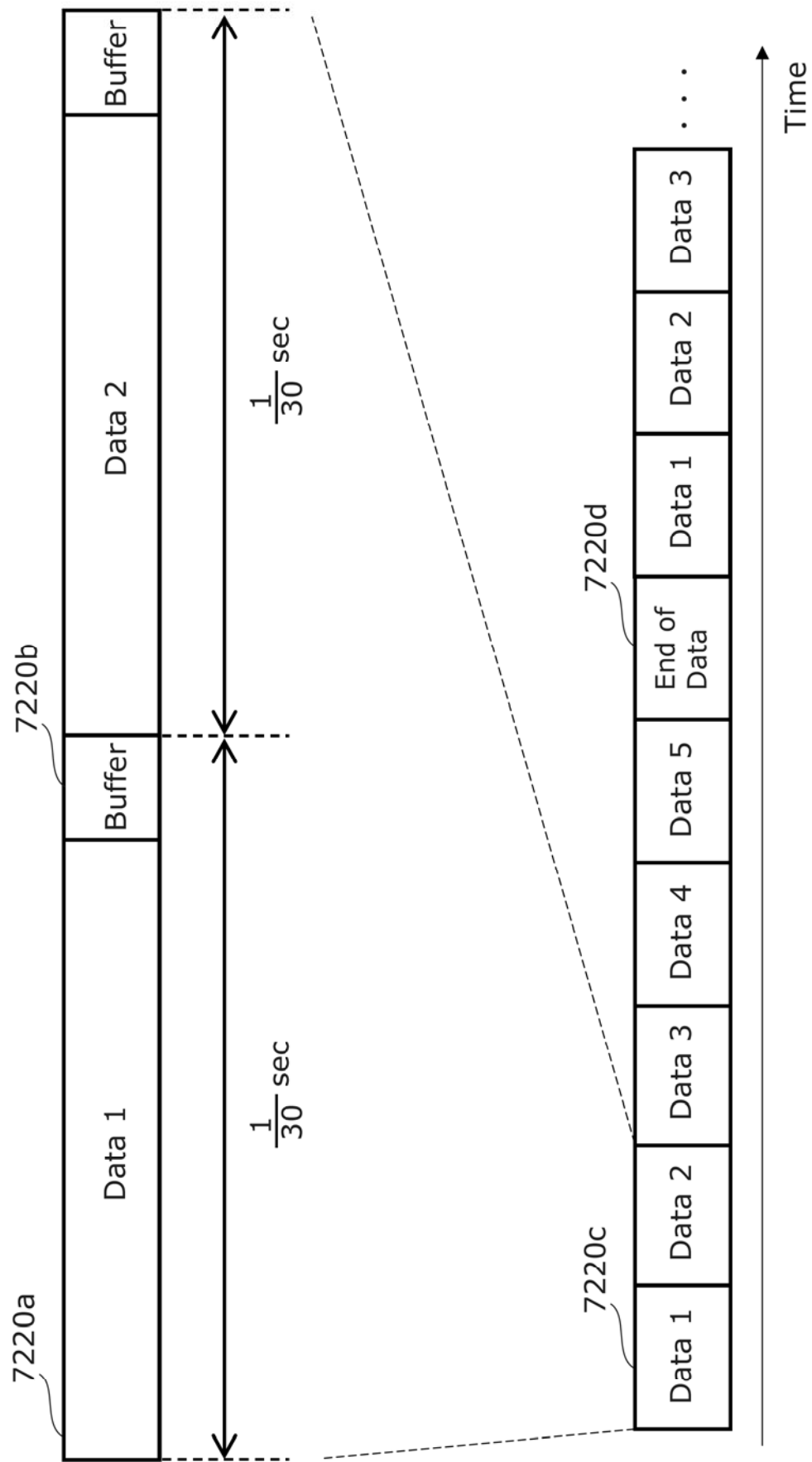


FIG. 304

7221a

| Transmission signal | Modulation frequency |
|---------------------|----------------------|
| 00 (0)              | 500Hz                |
| 01 (1)              | 1000Hz               |
| 10 (2)              | 2000Hz               |
| 11 (3)              | 5000Hz               |

FIG. 305A

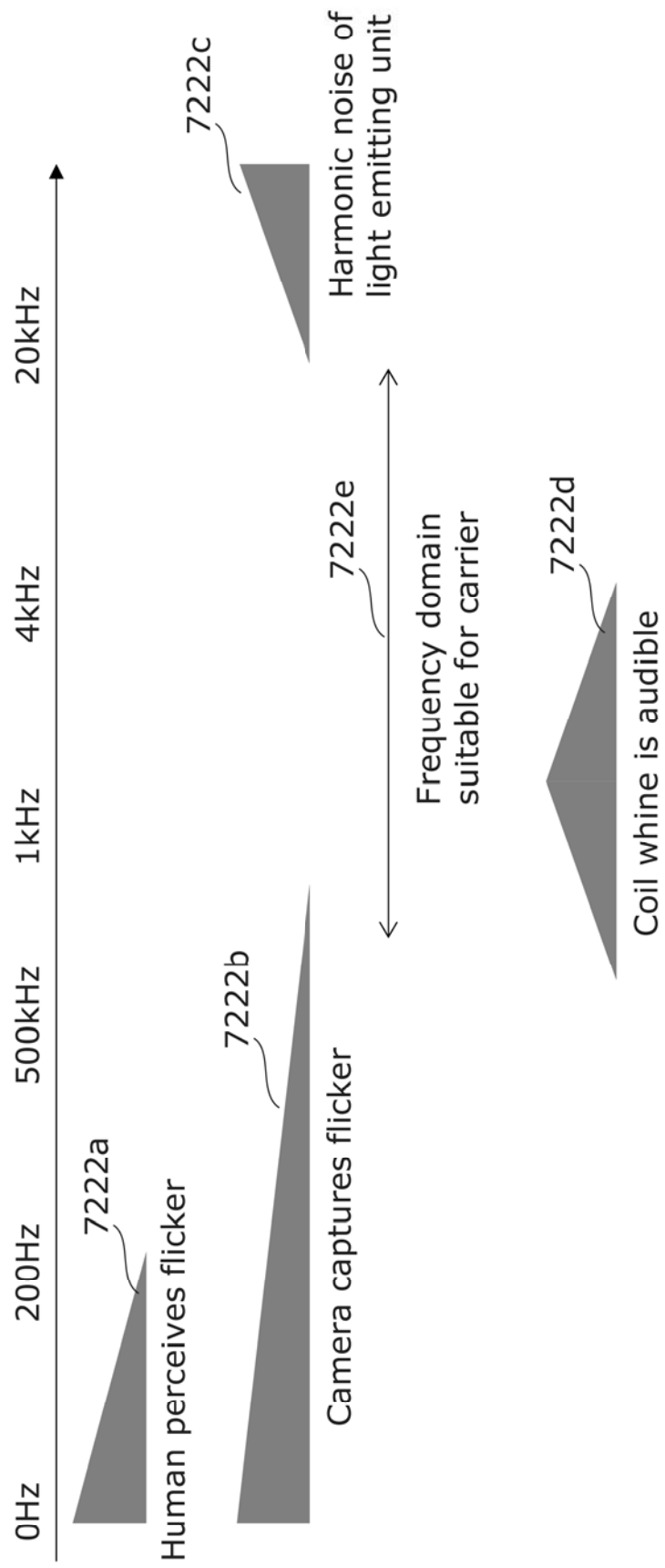


FIG. 305B

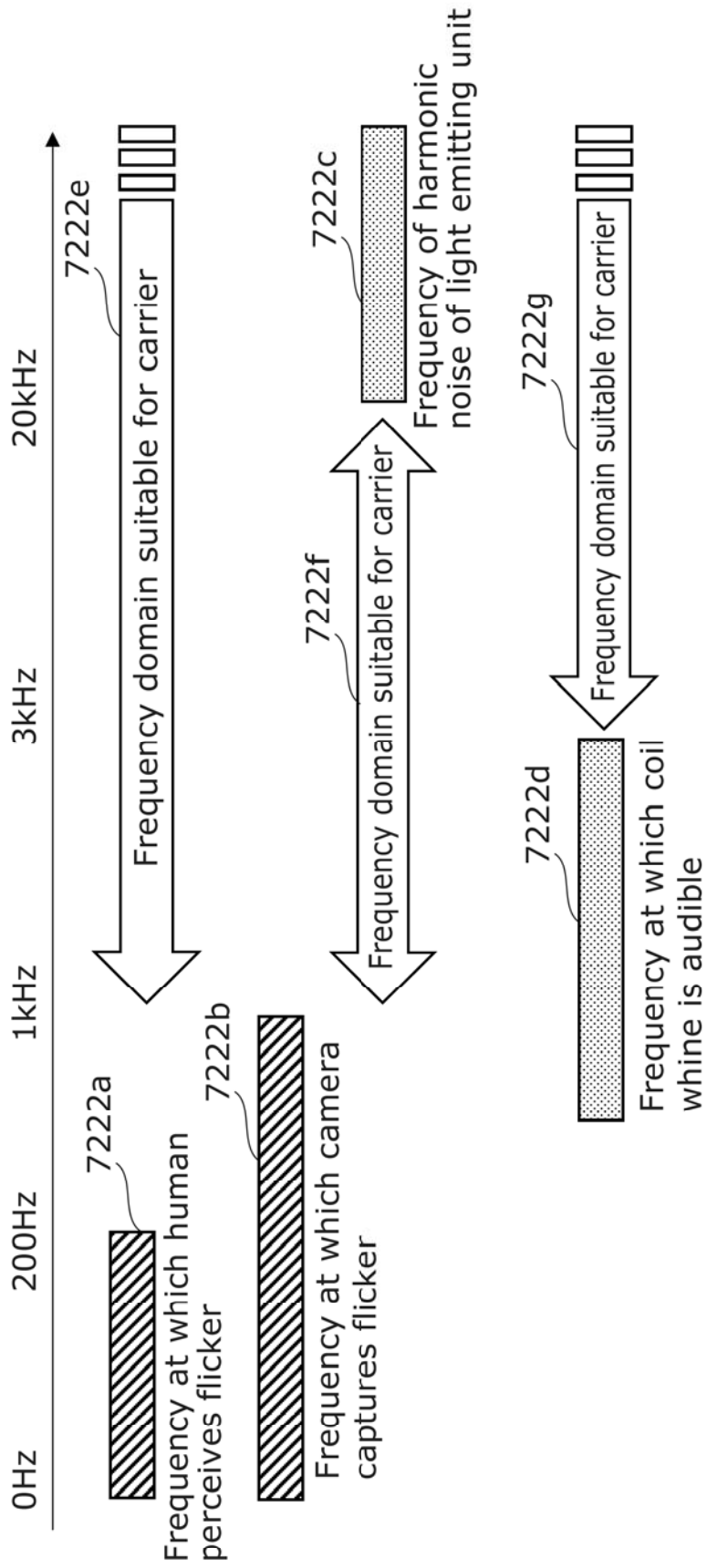


FIG. 306

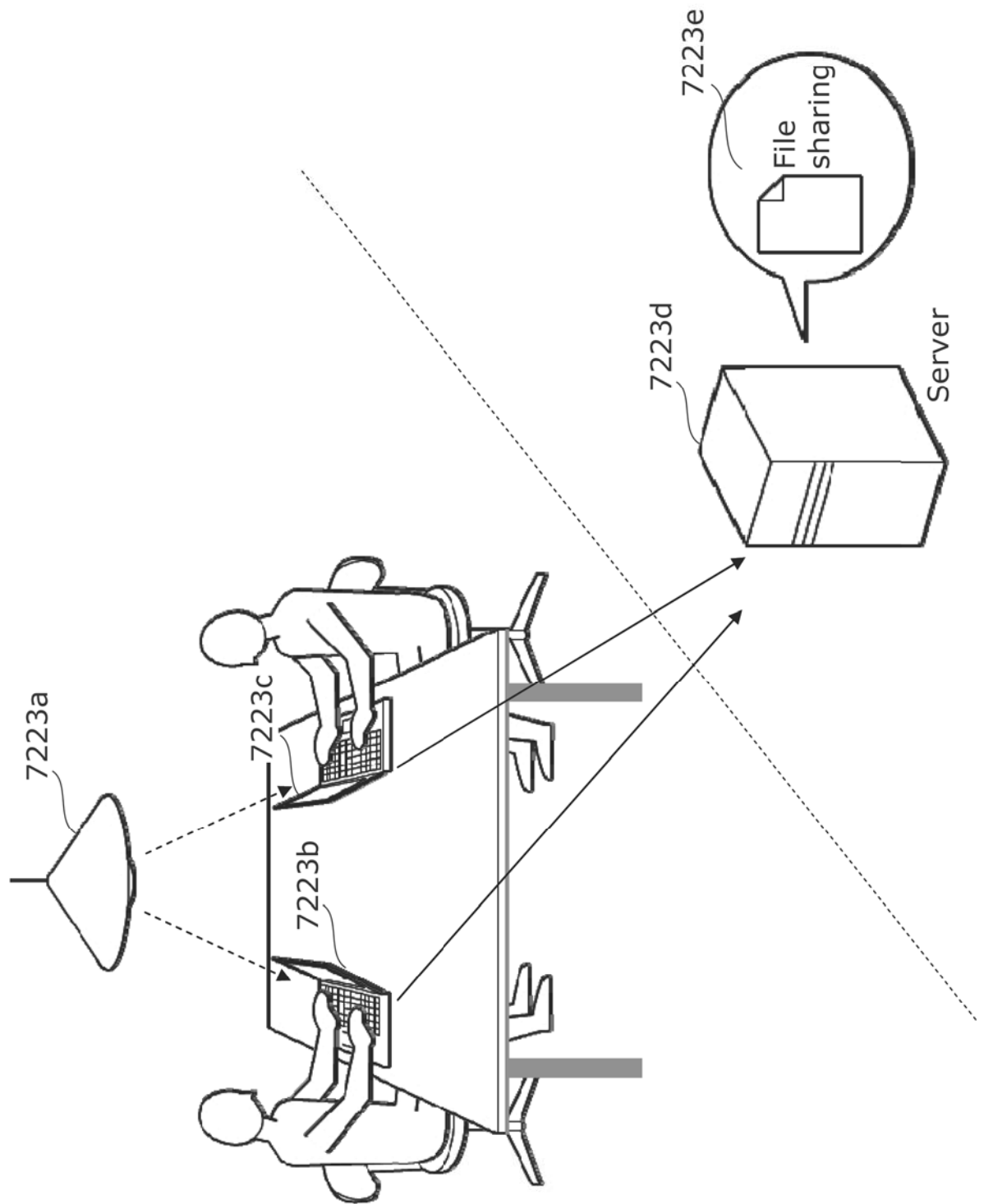


FIG. 307

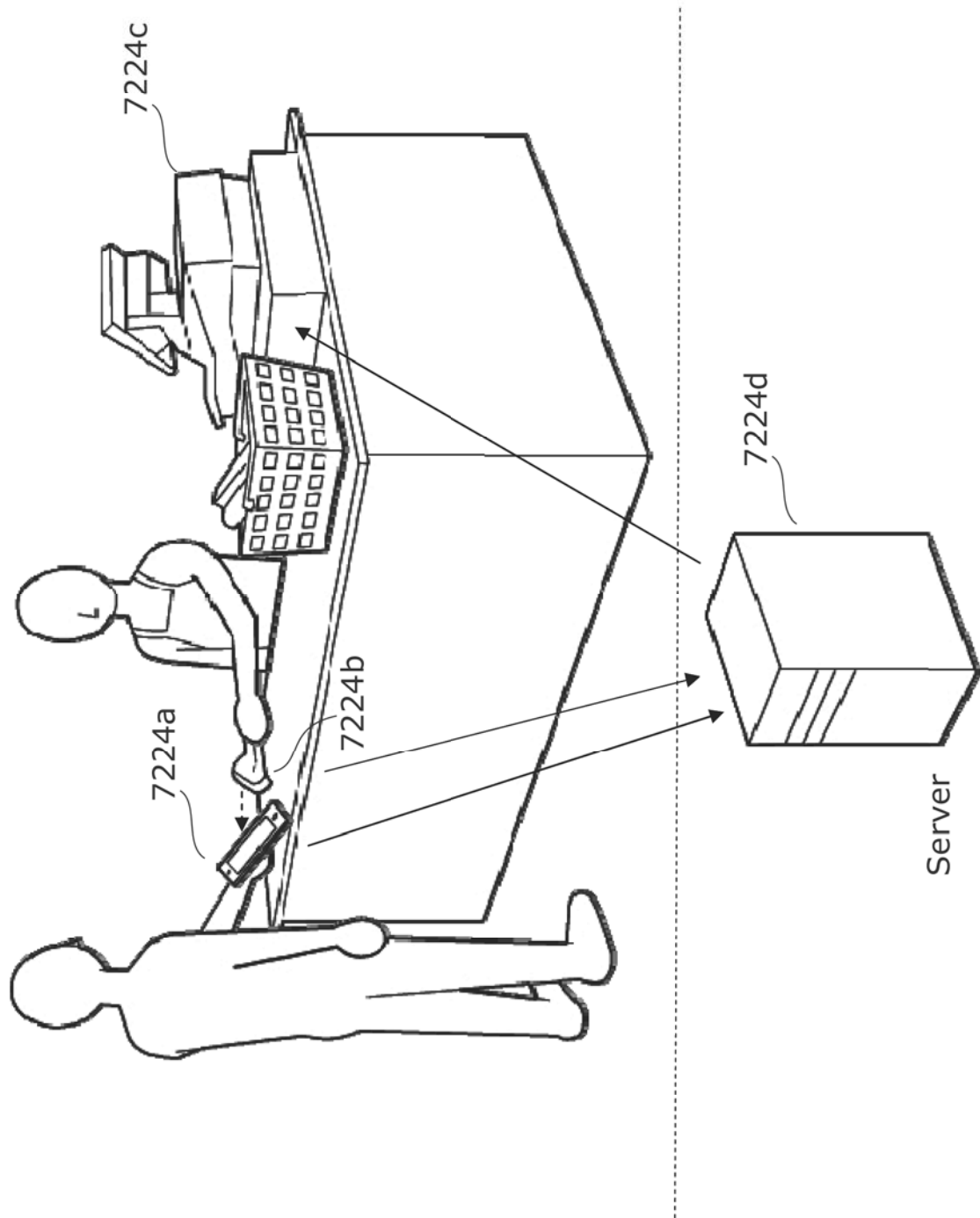


FIG. 308

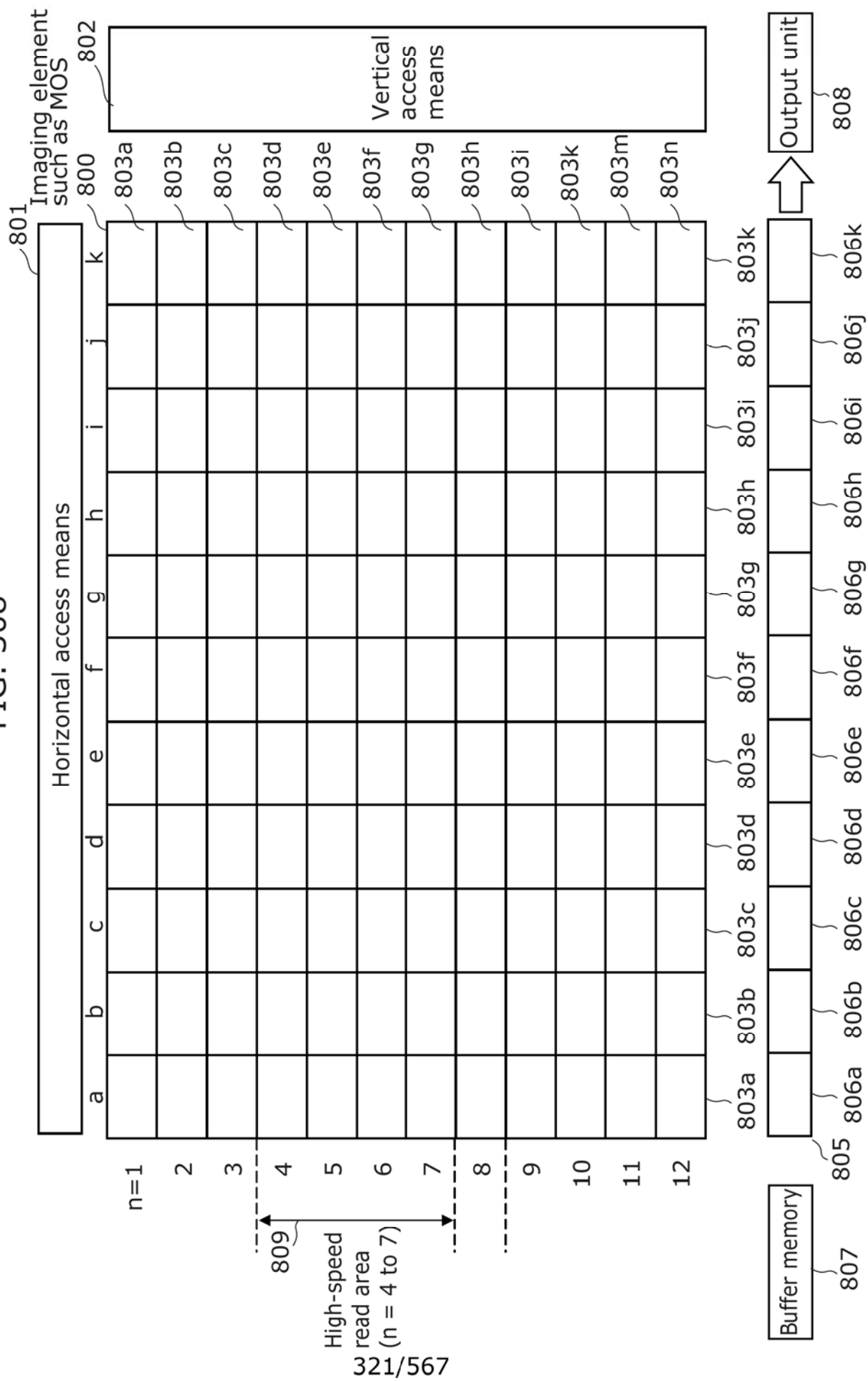


FIG. 309

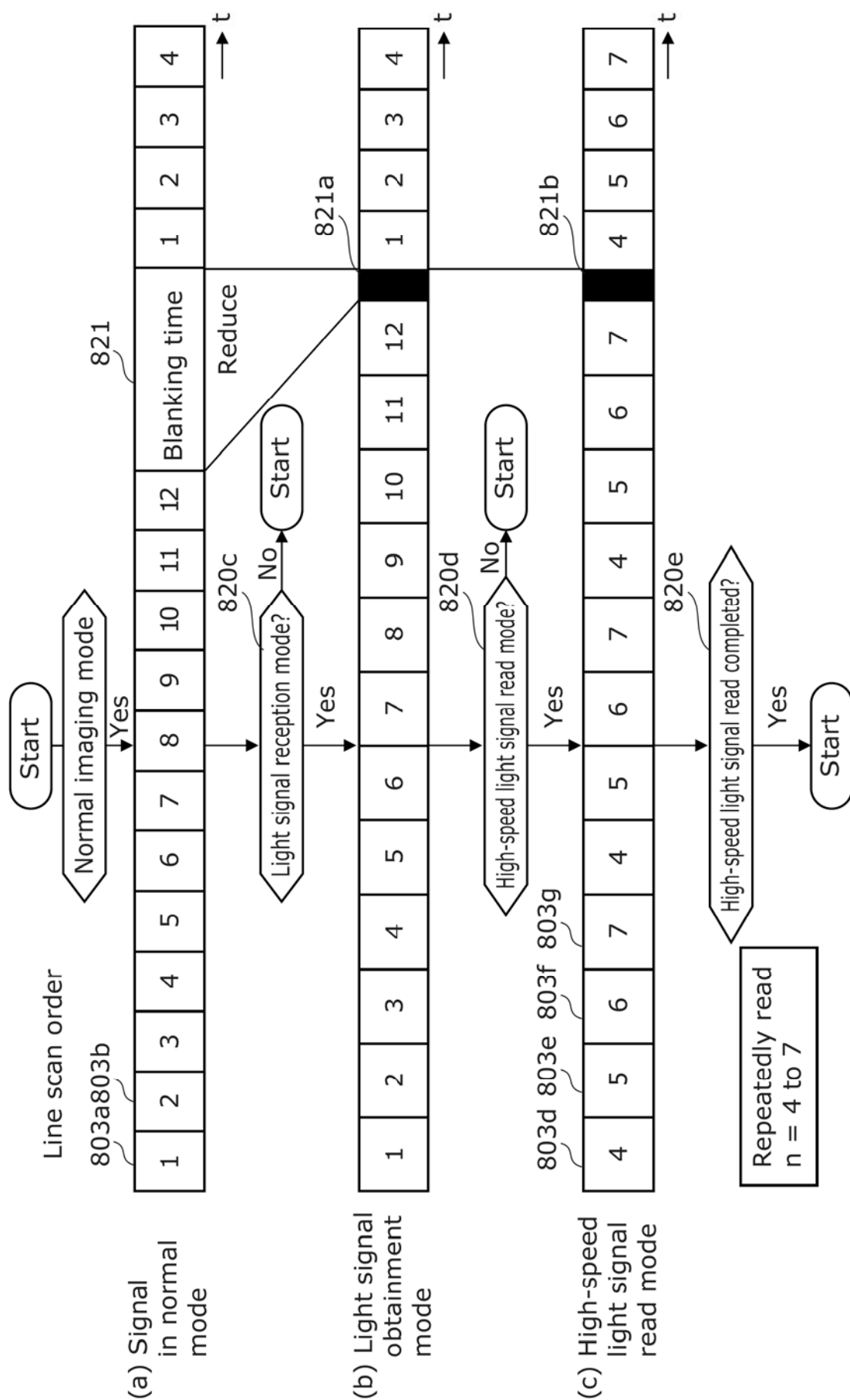




FIG. 310

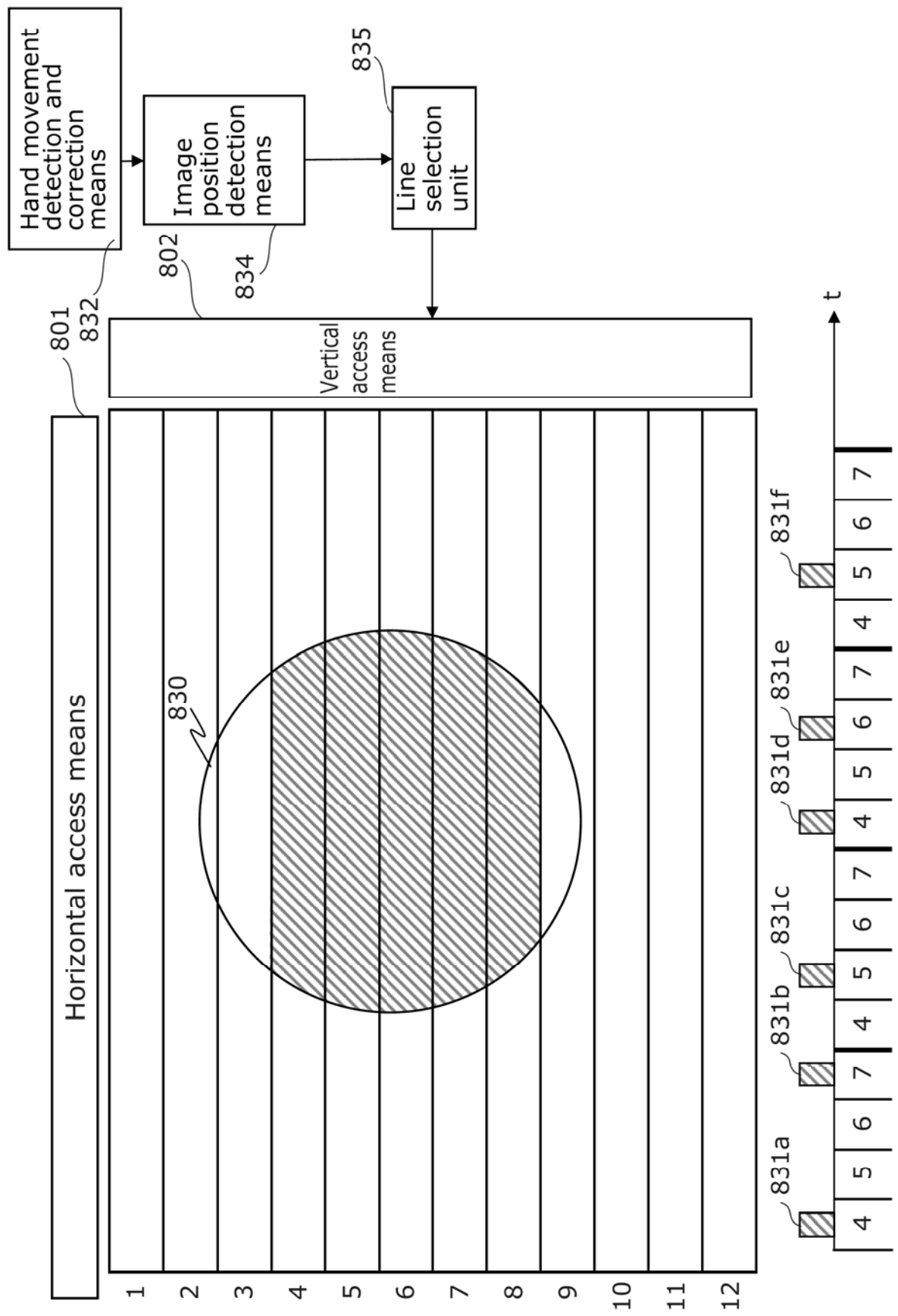


FIG. 311A

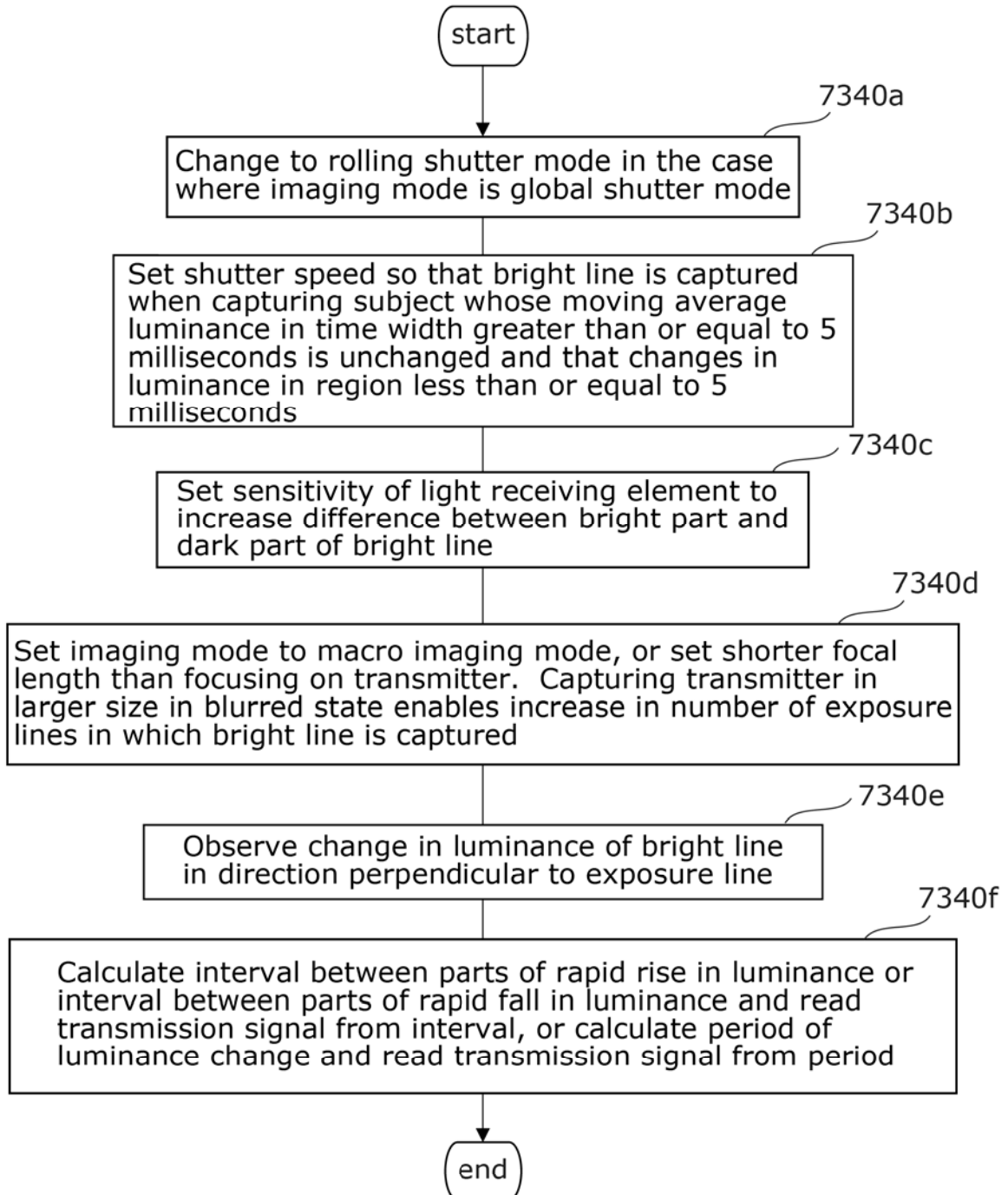


FIG. 311B

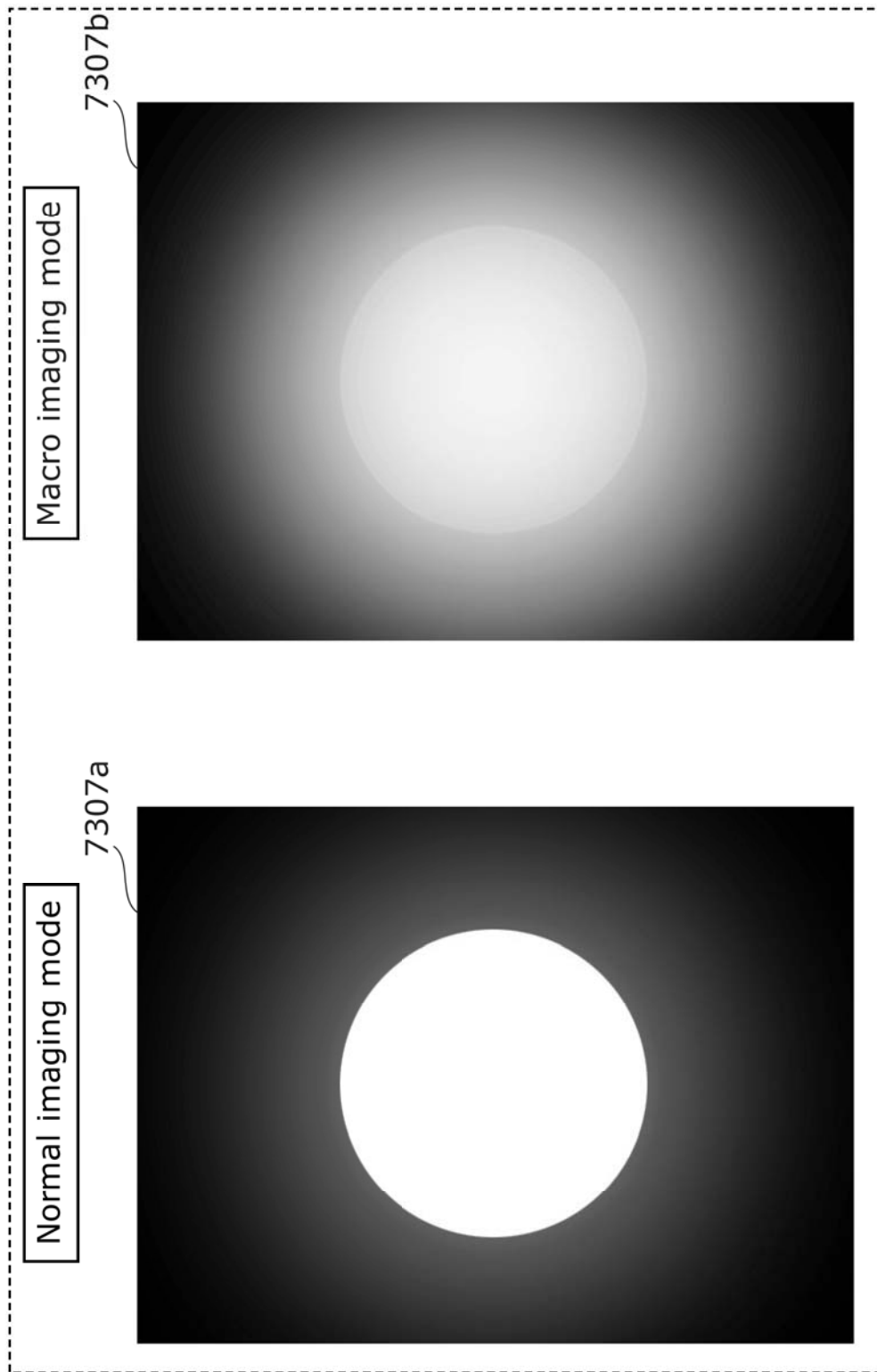


FIG. 312

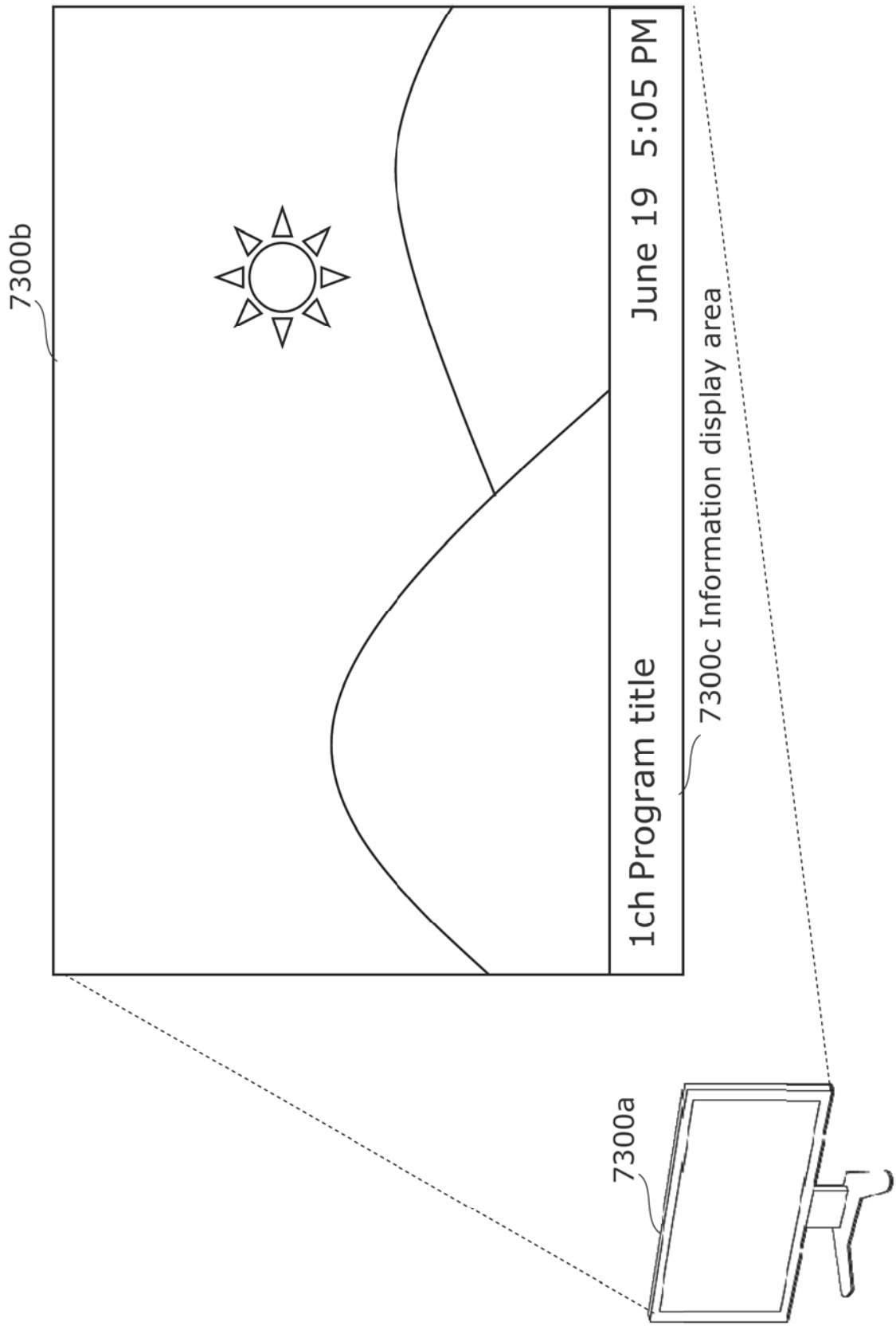


FIG. 313

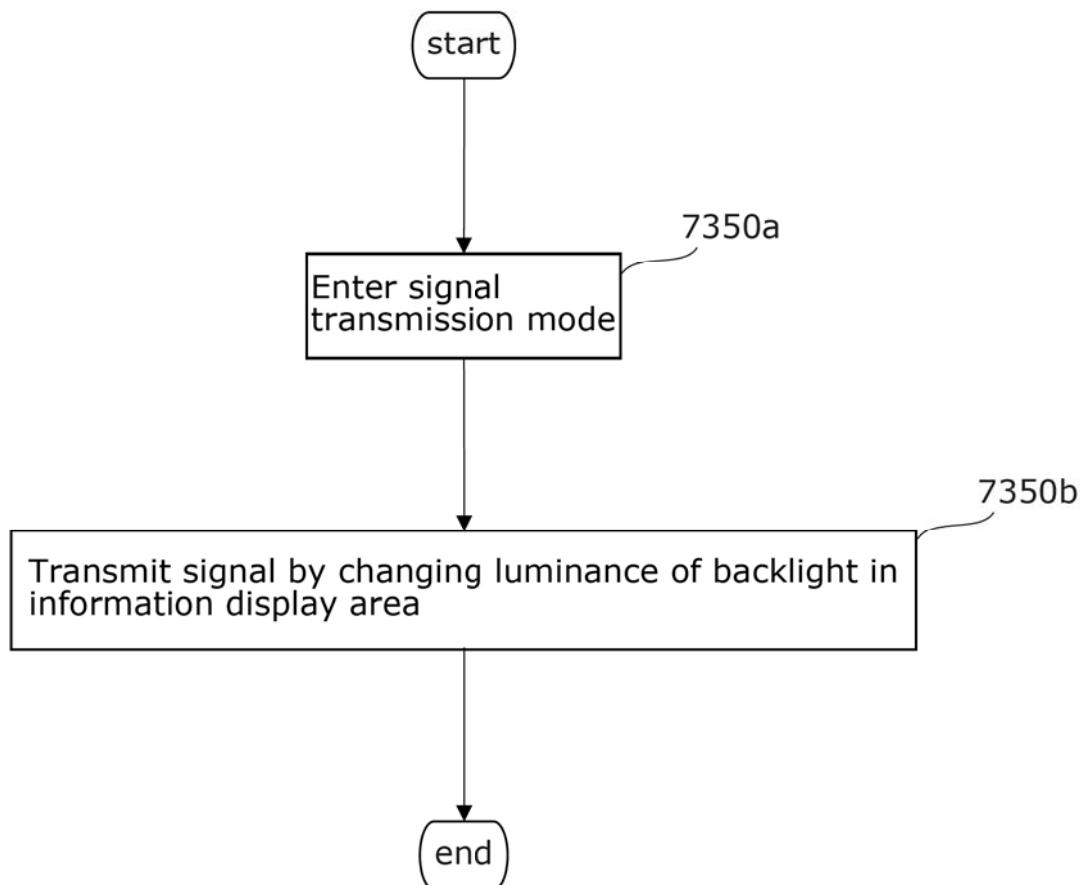


FIG. 314

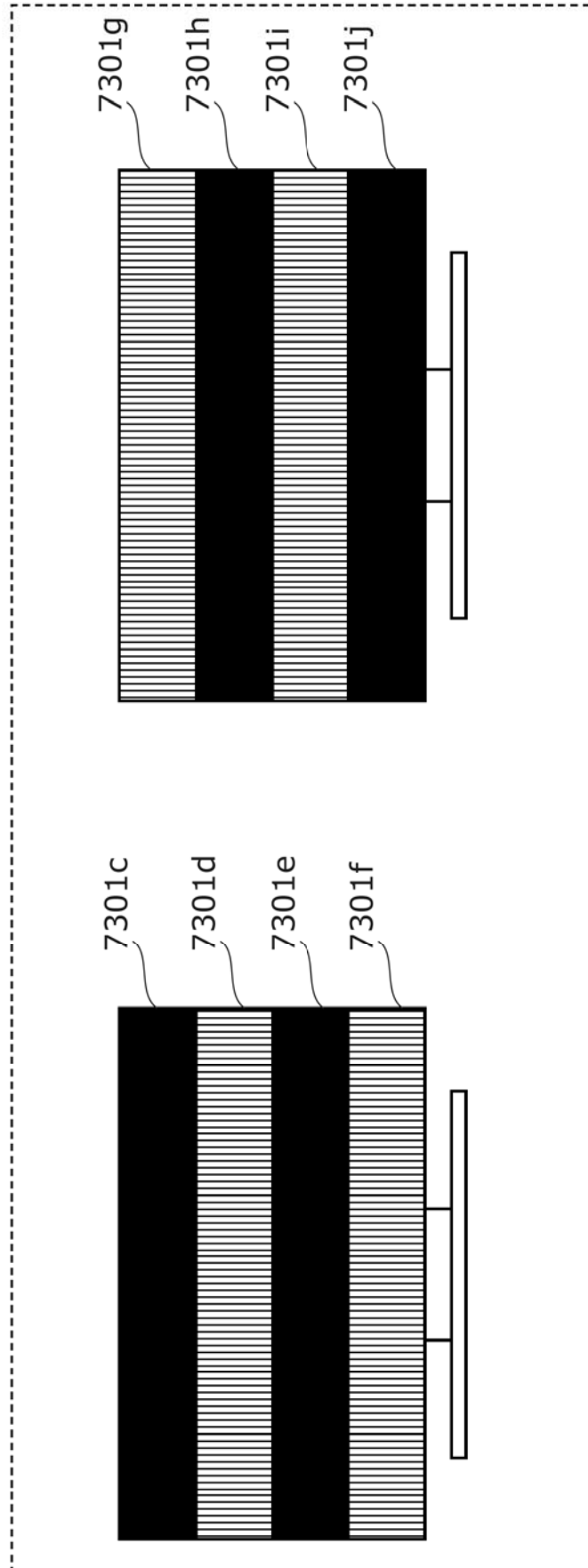


FIG. 315

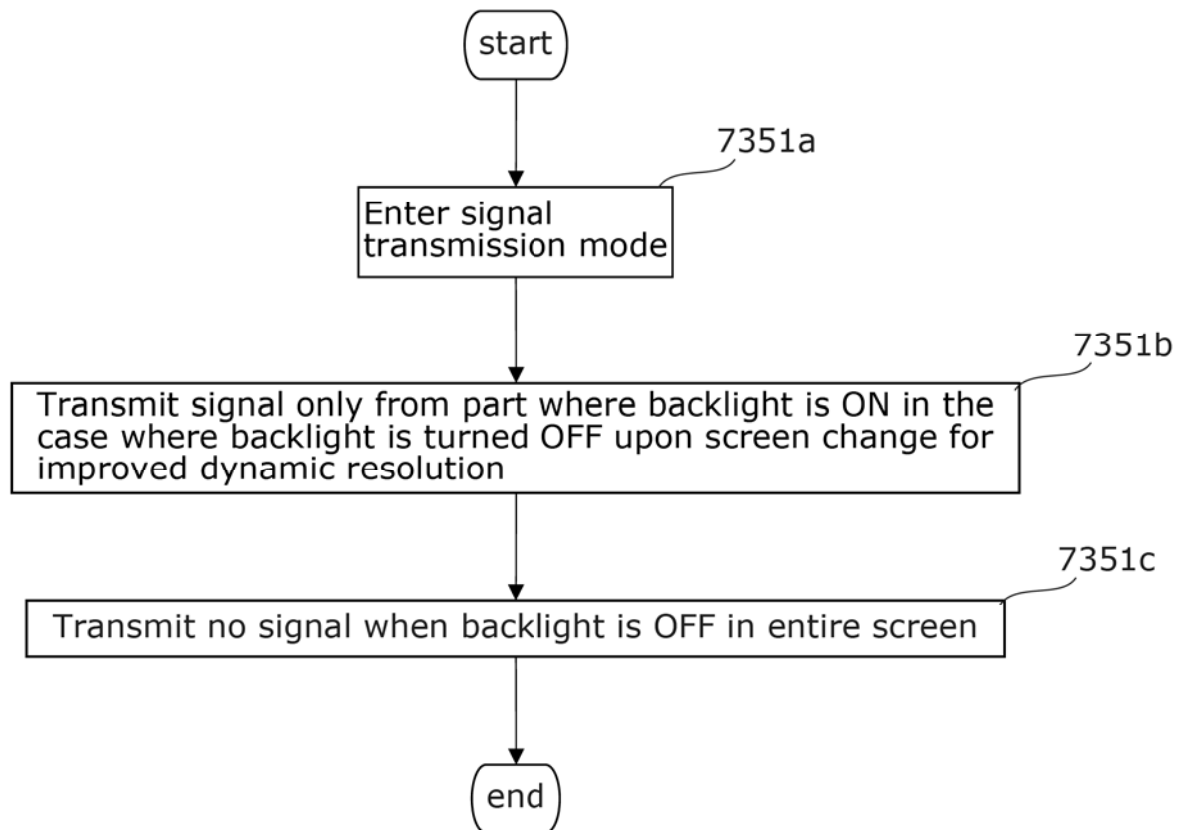


FIG. 316

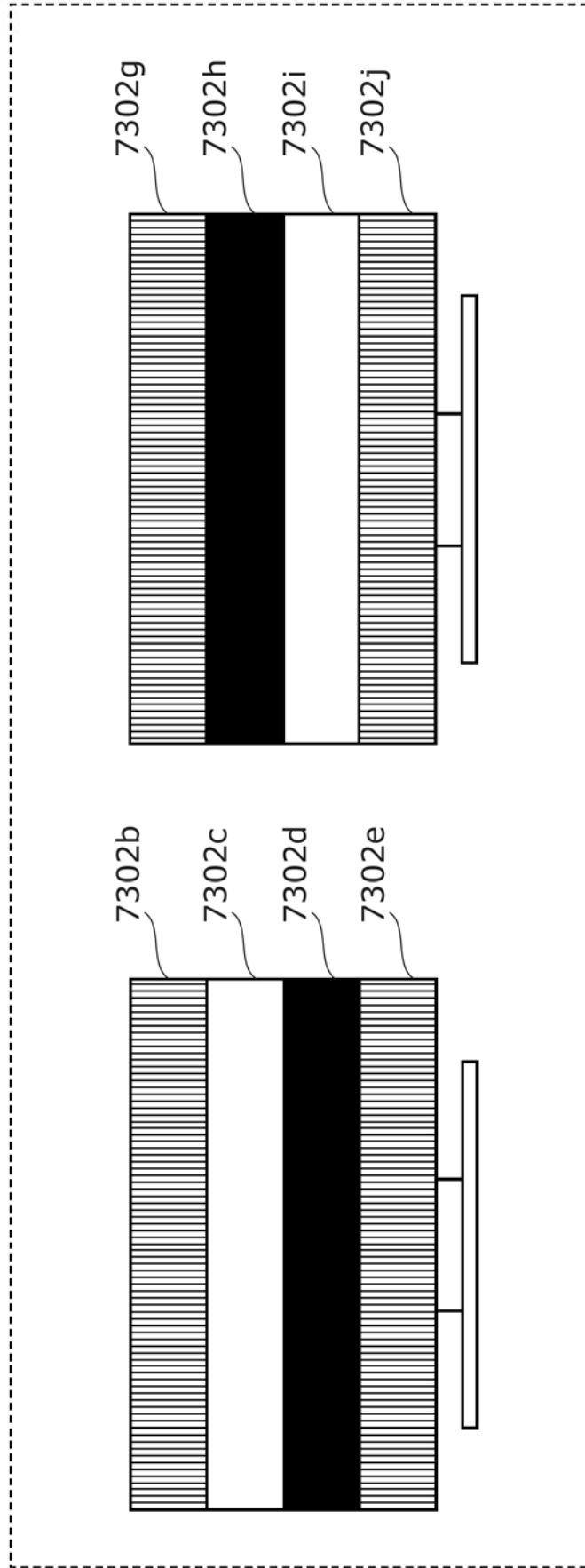




FIG. 317

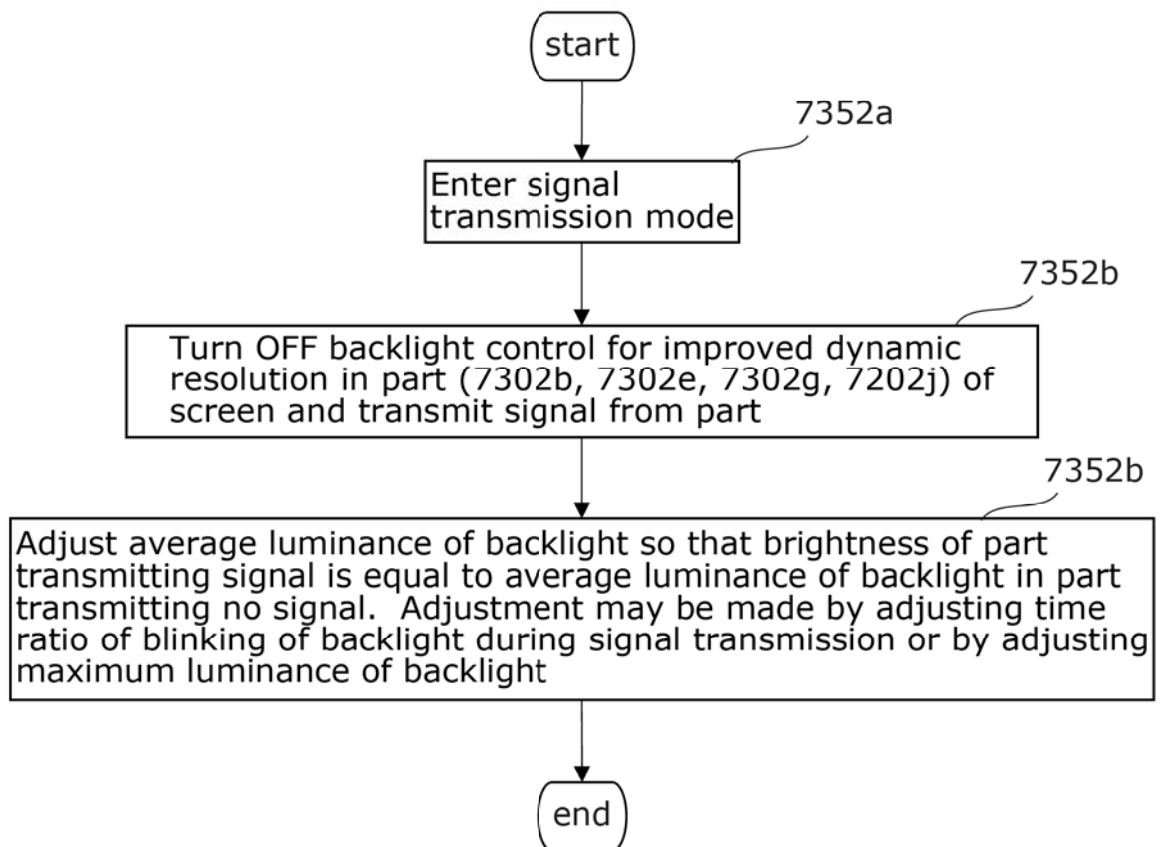


FIG. 318

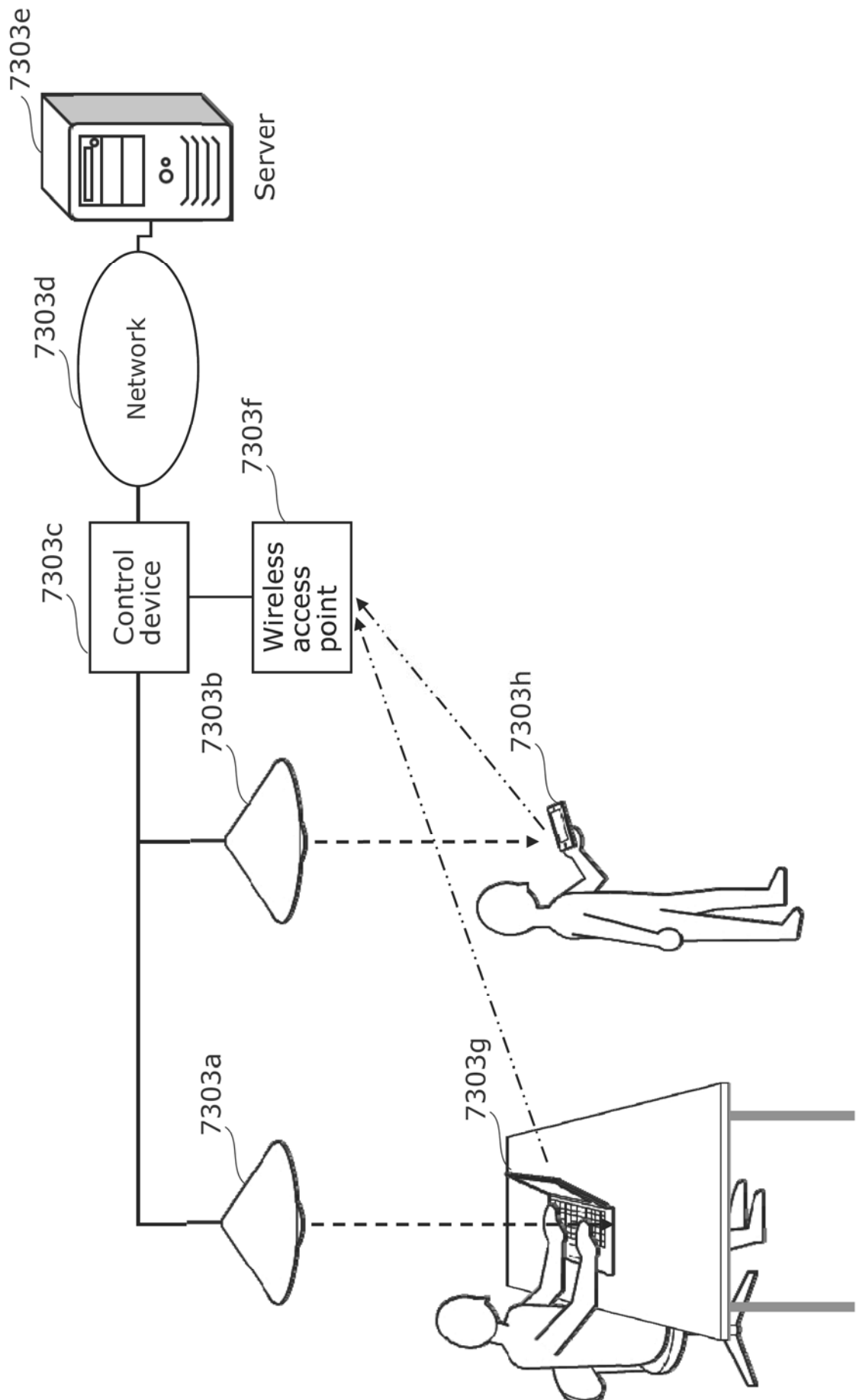


FIG. 319

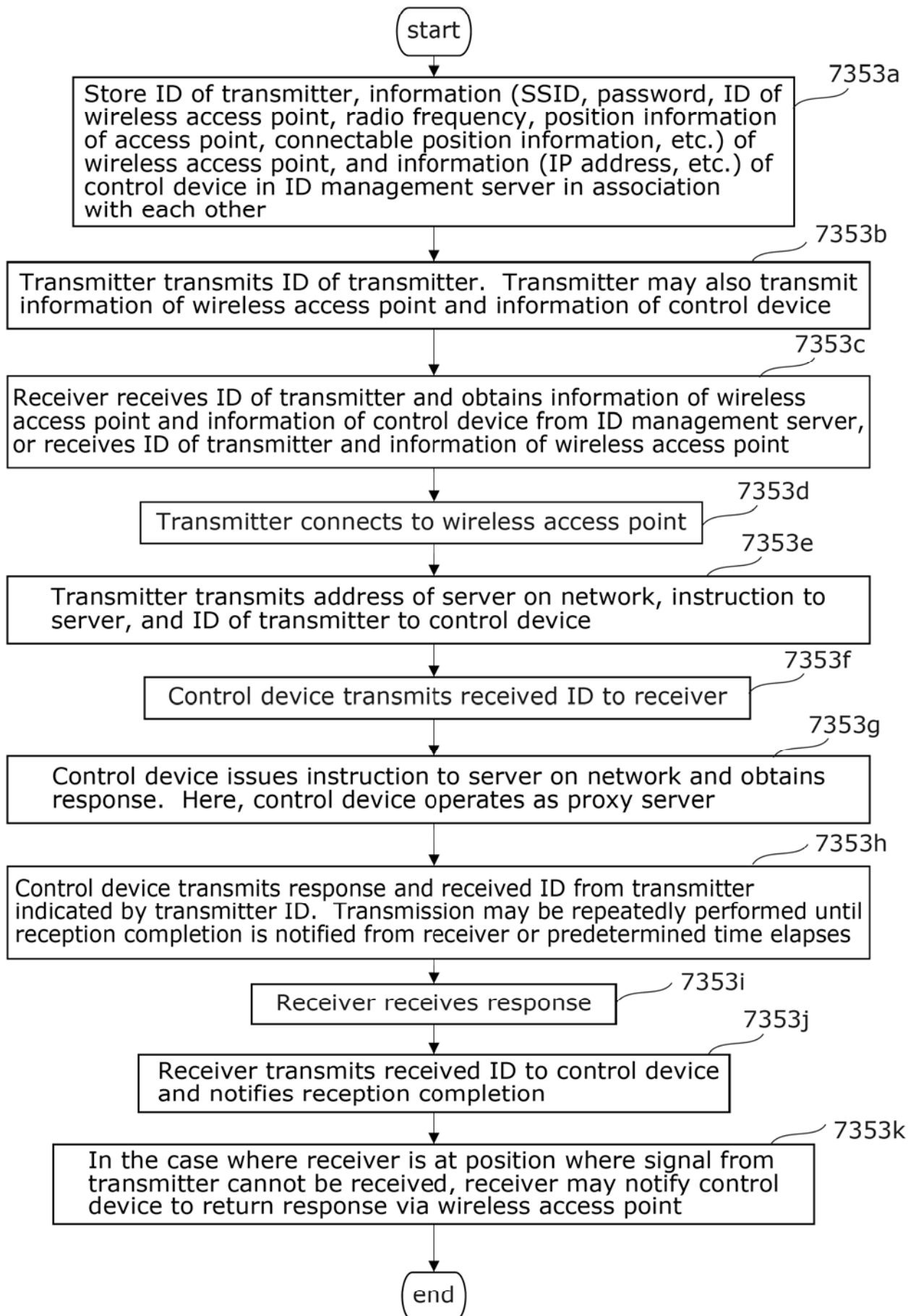


FIG. 320

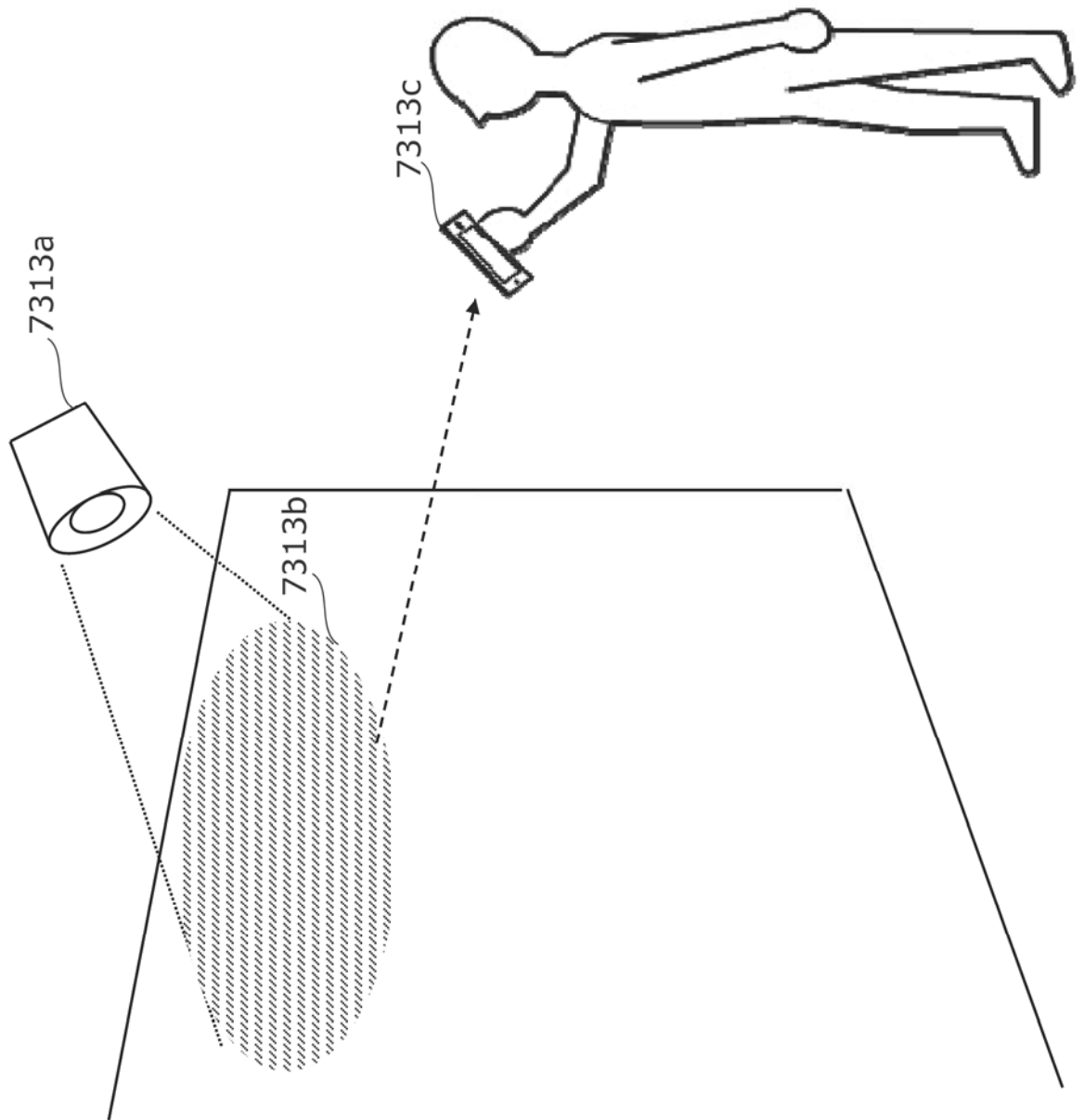


FIG. 321

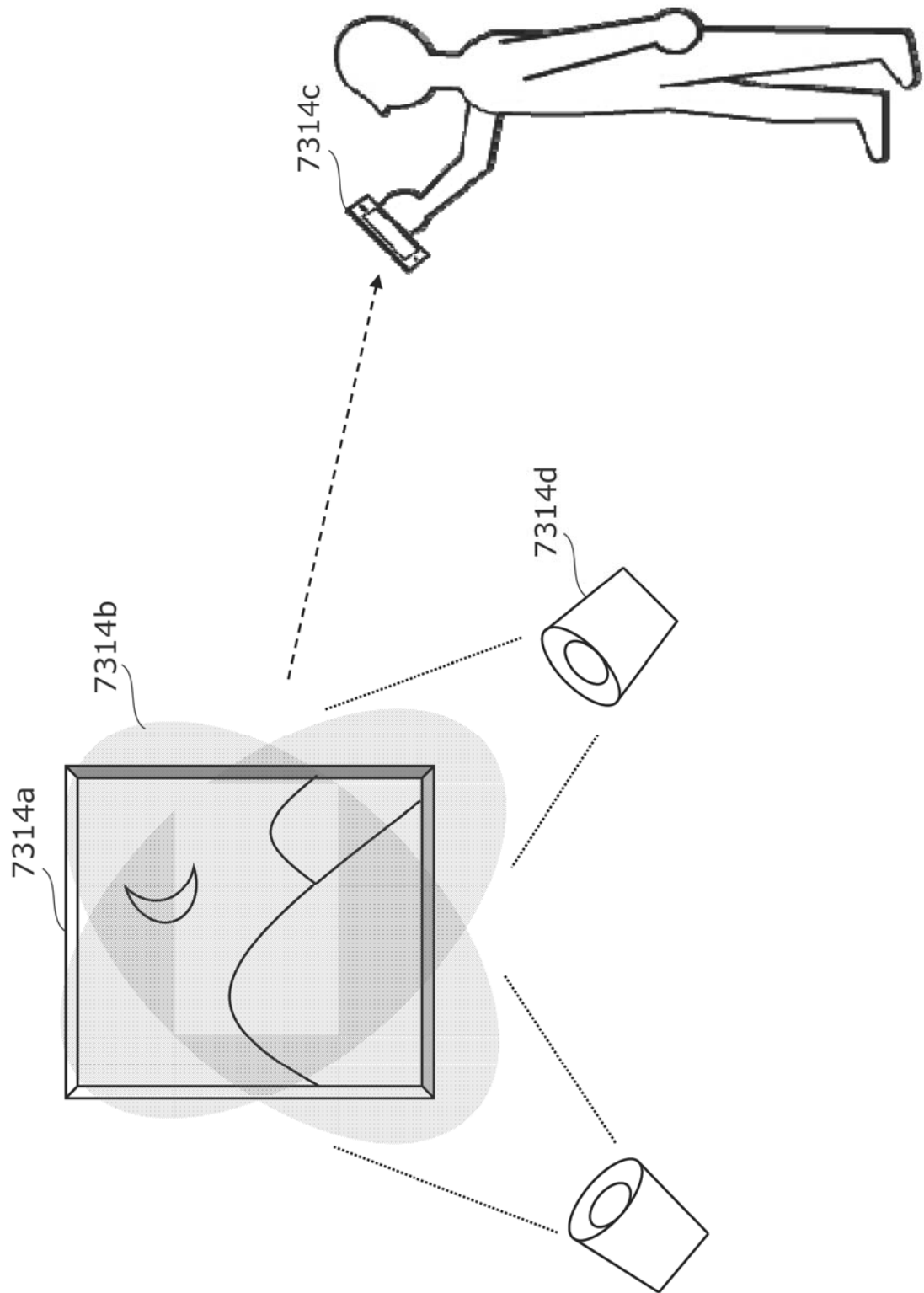


FIG. 322

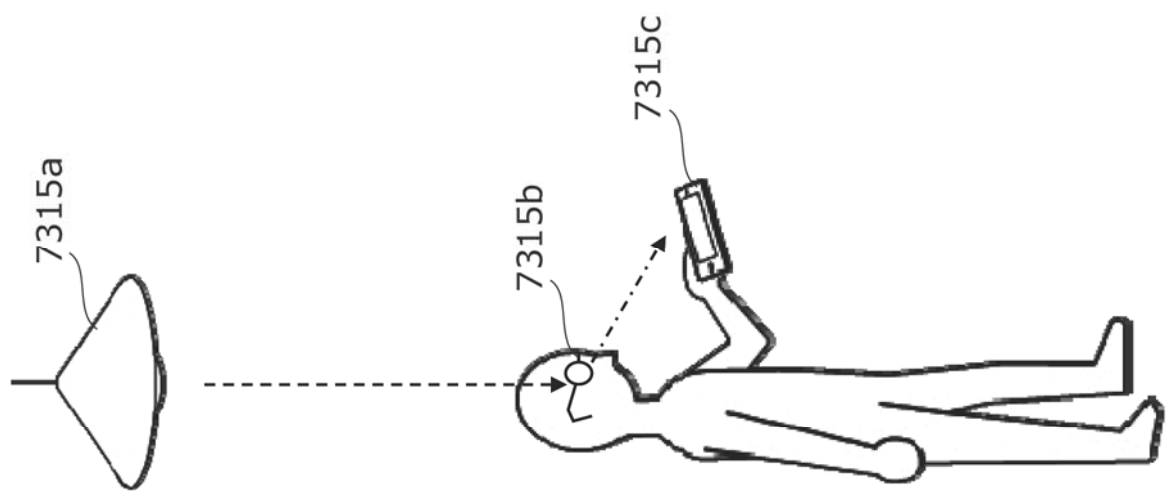


FIG. 323A

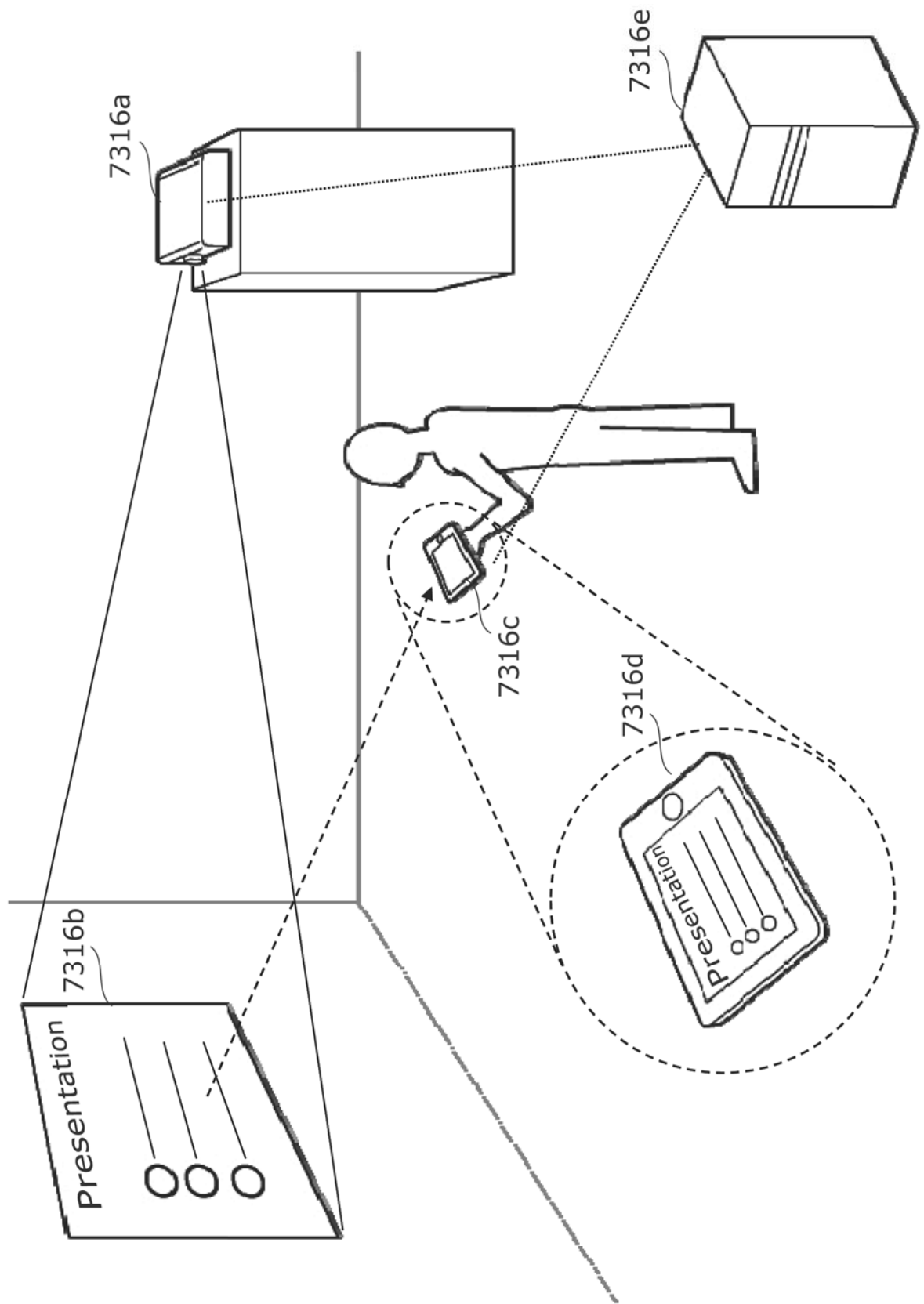


FIG. 323B

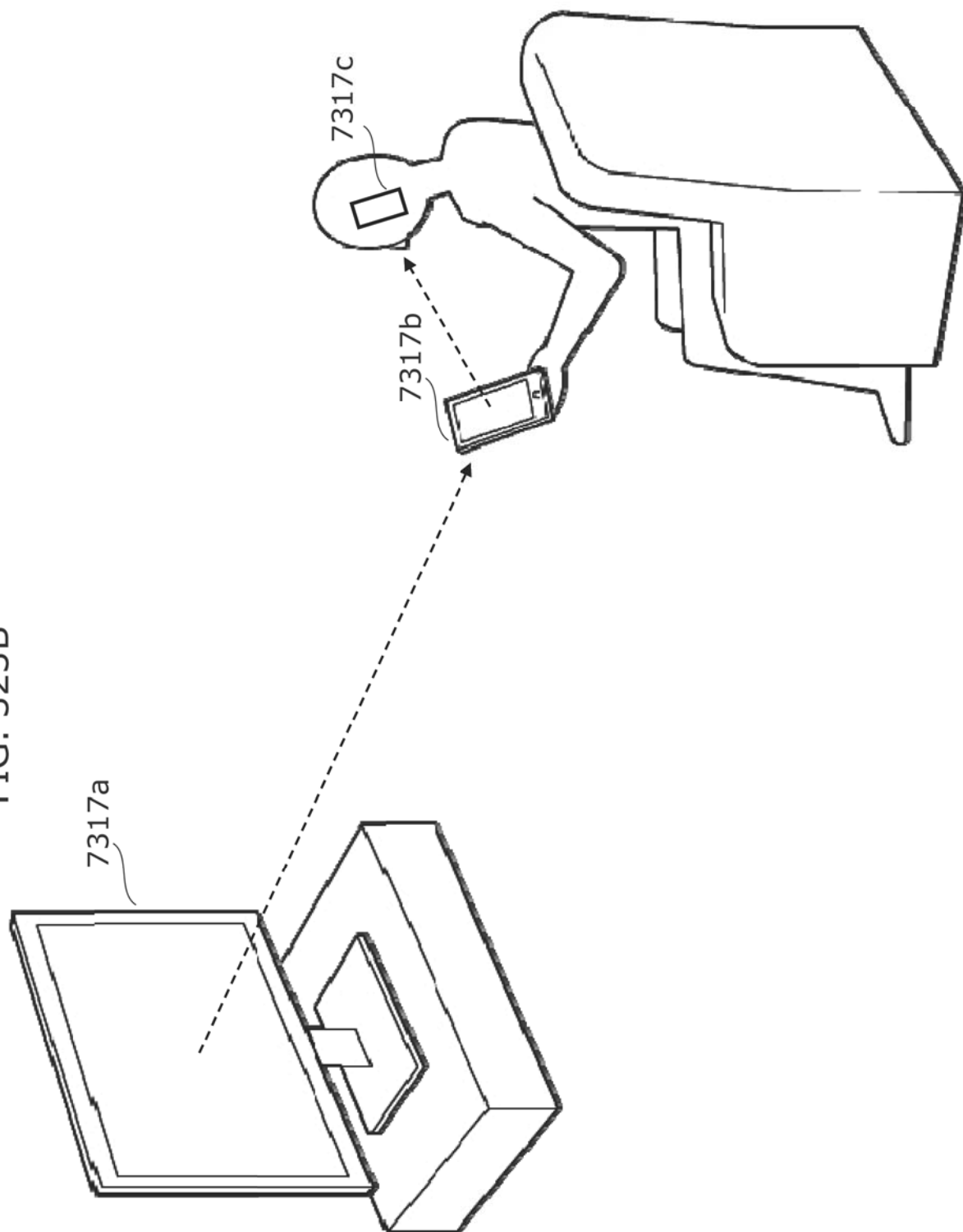




FIG. 323C

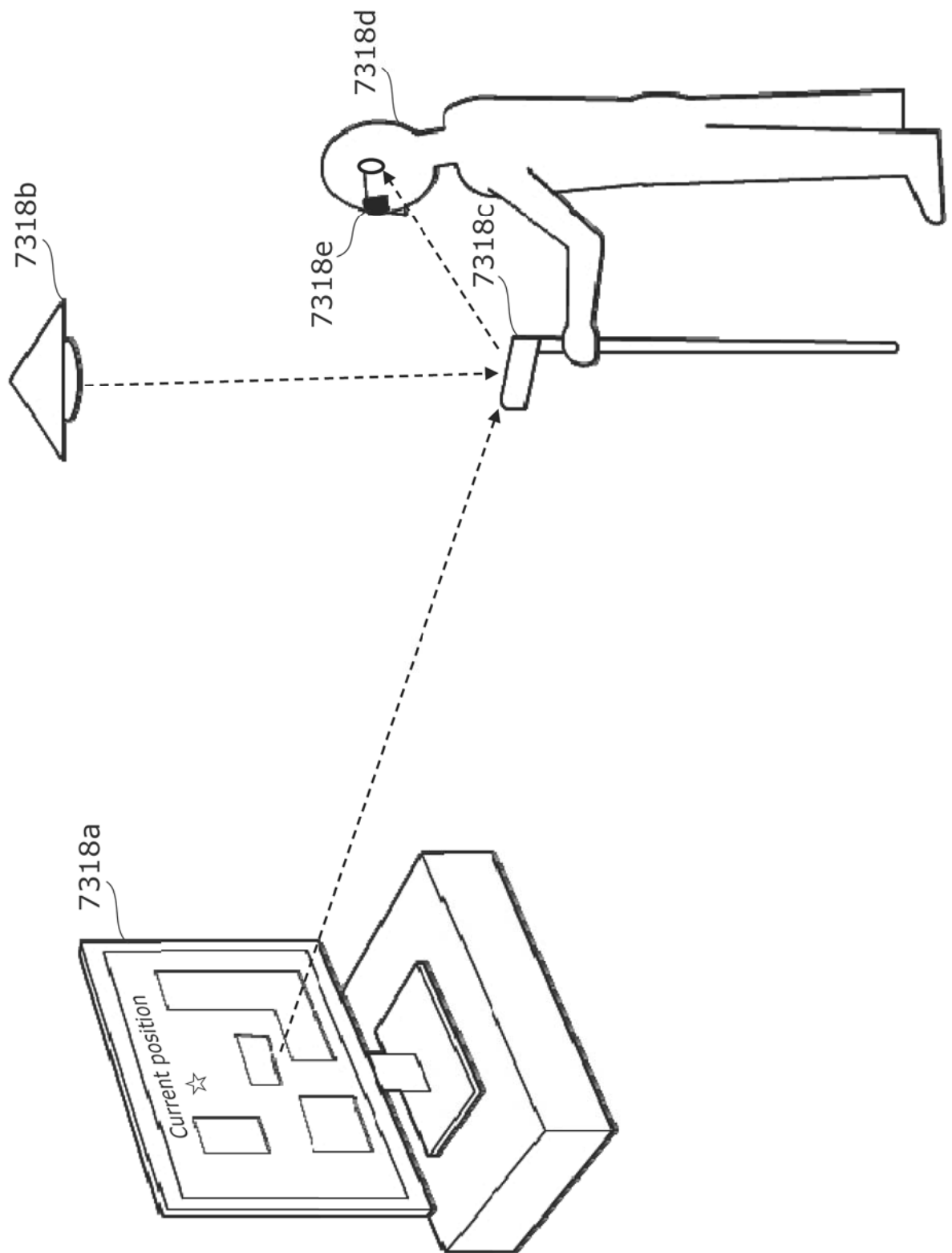


FIG. 323D

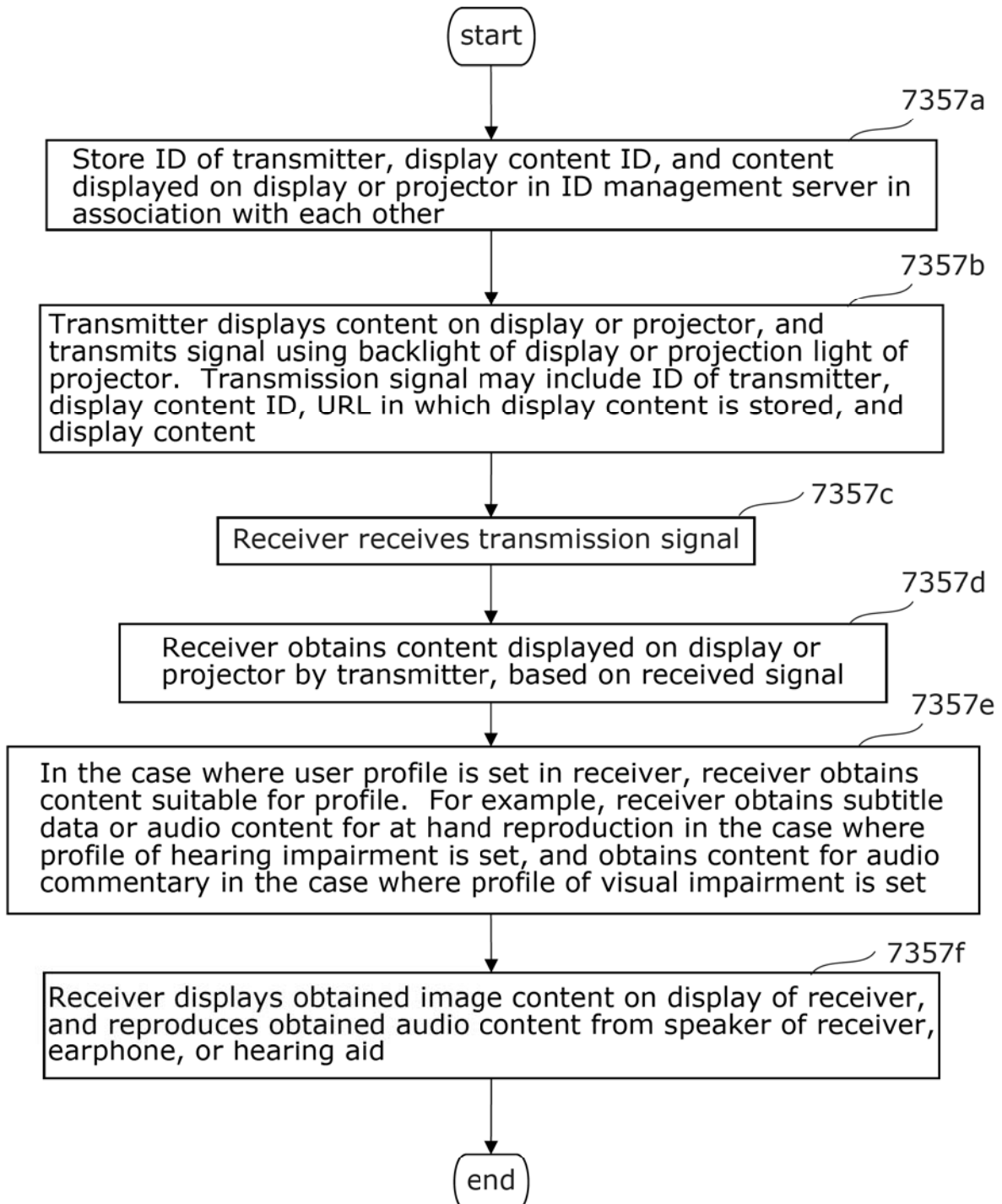


FIG. 324

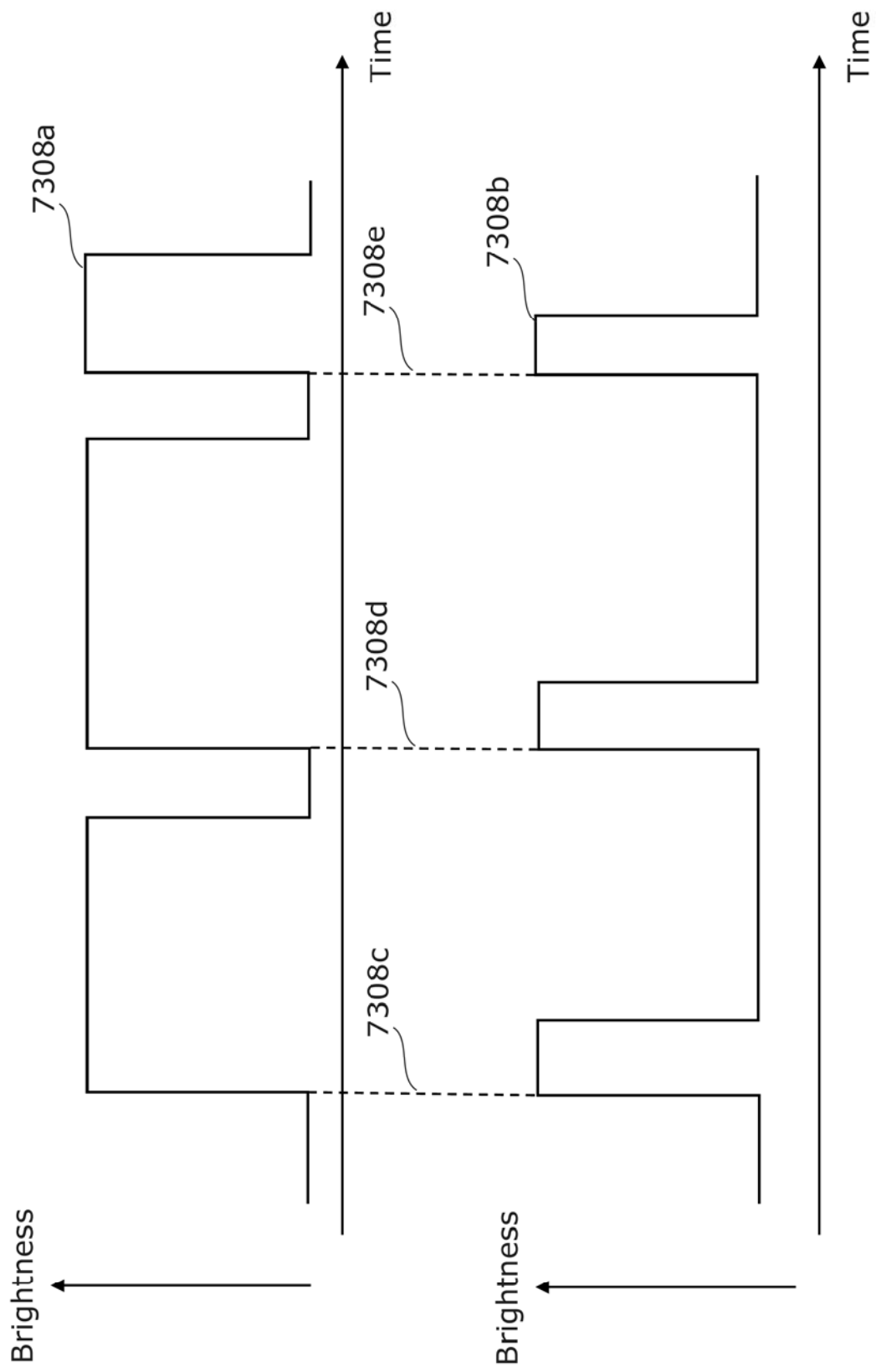


FIG. 325

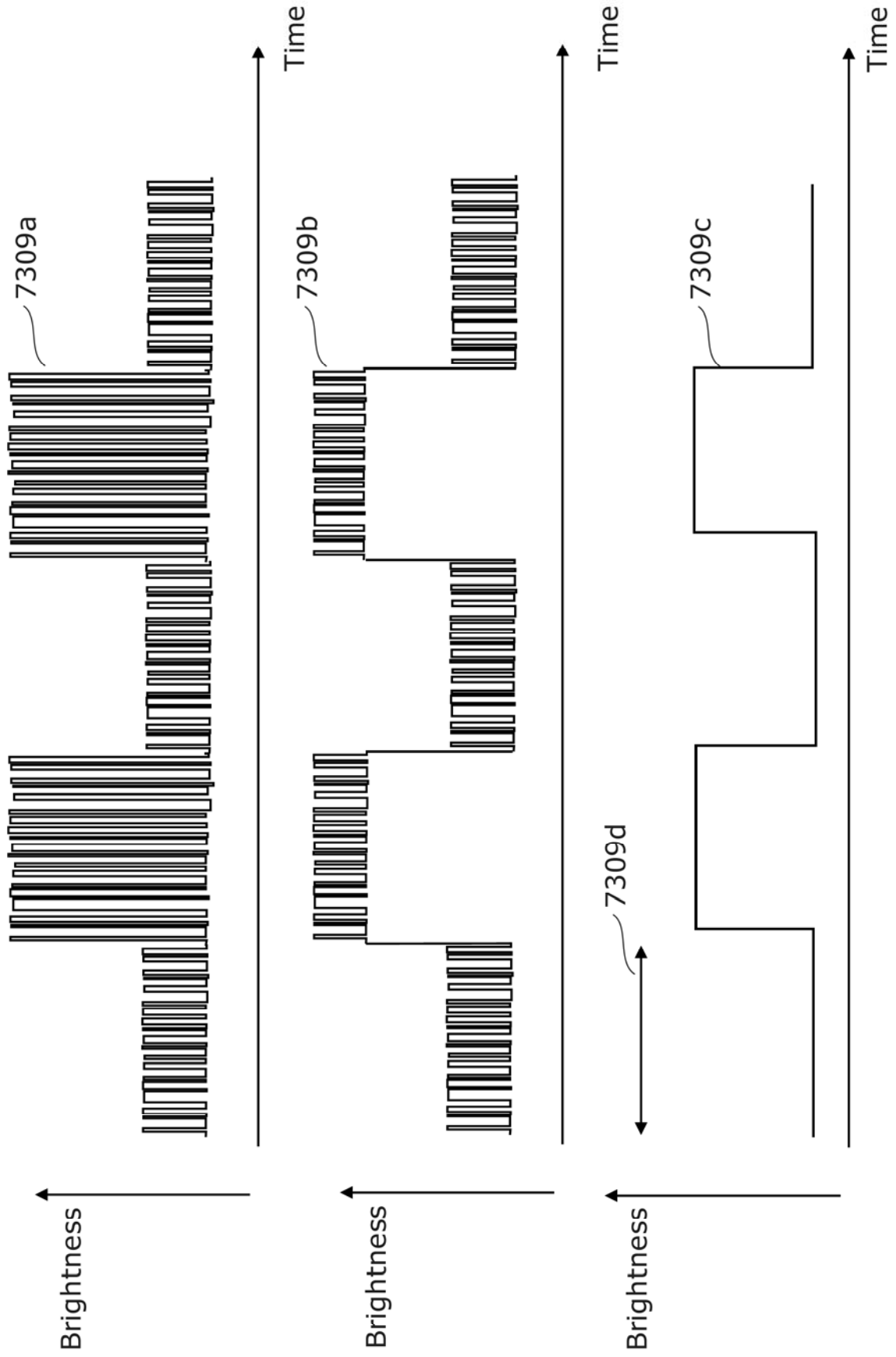


FIG. 326

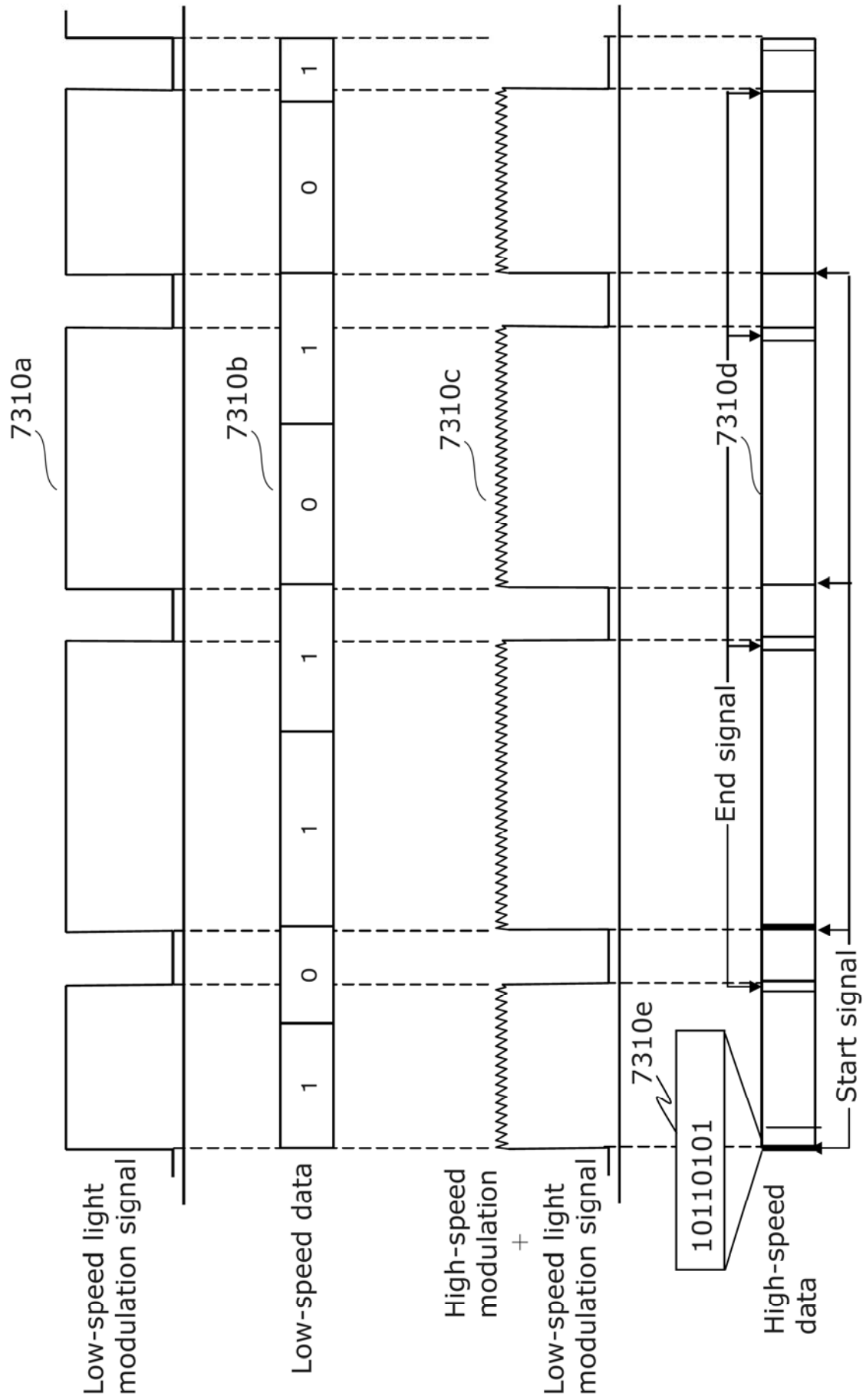


FIG. 327A

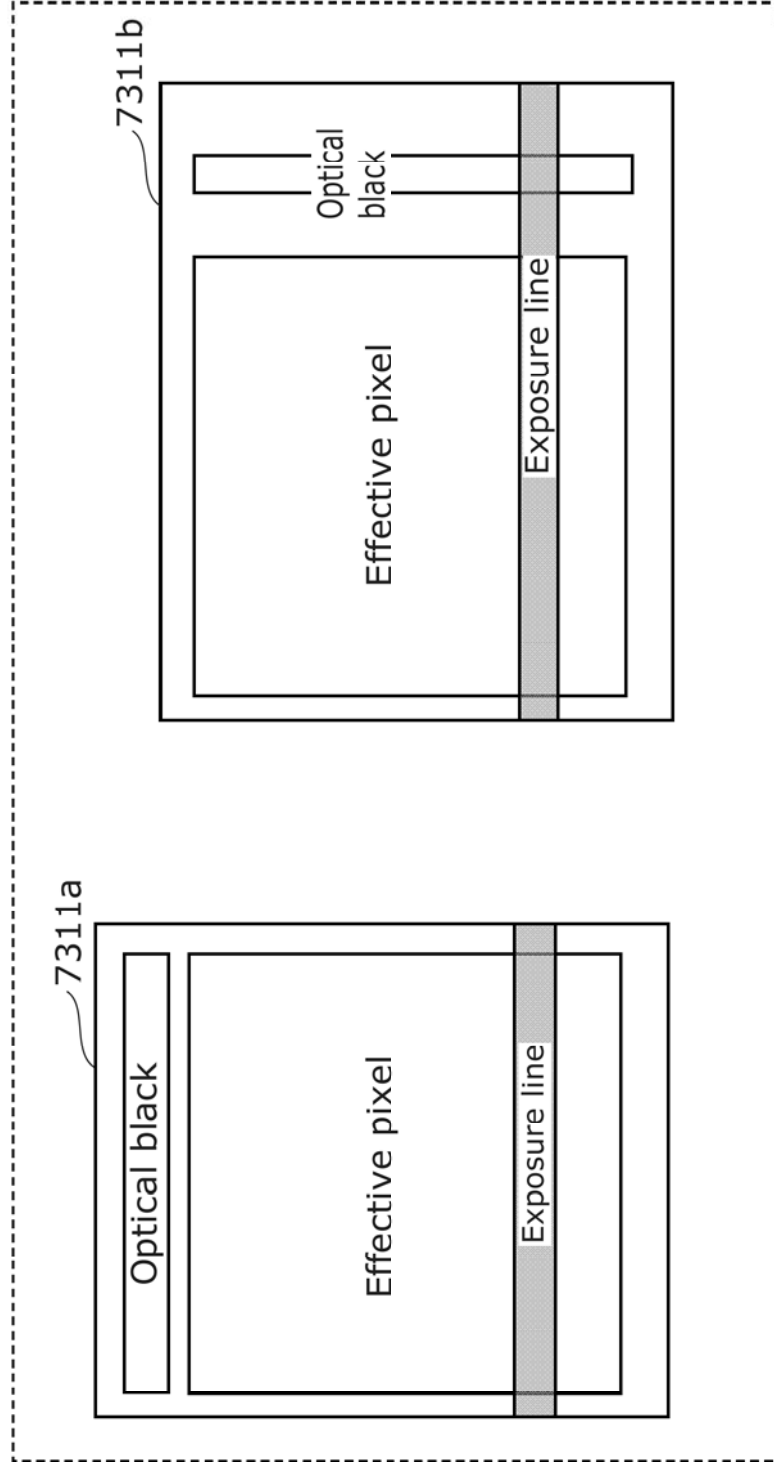


FIG. 327B

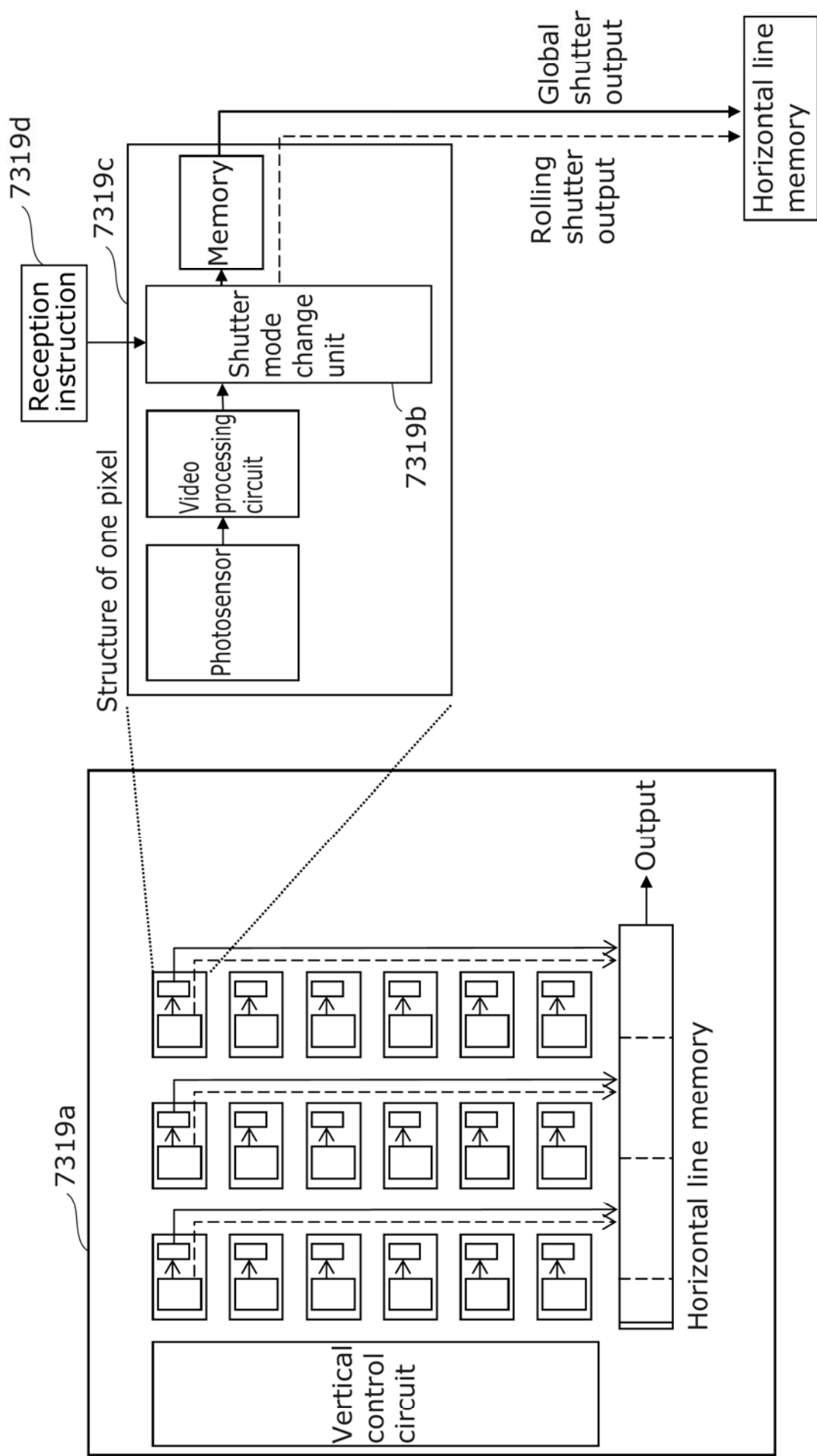


FIG. 327C

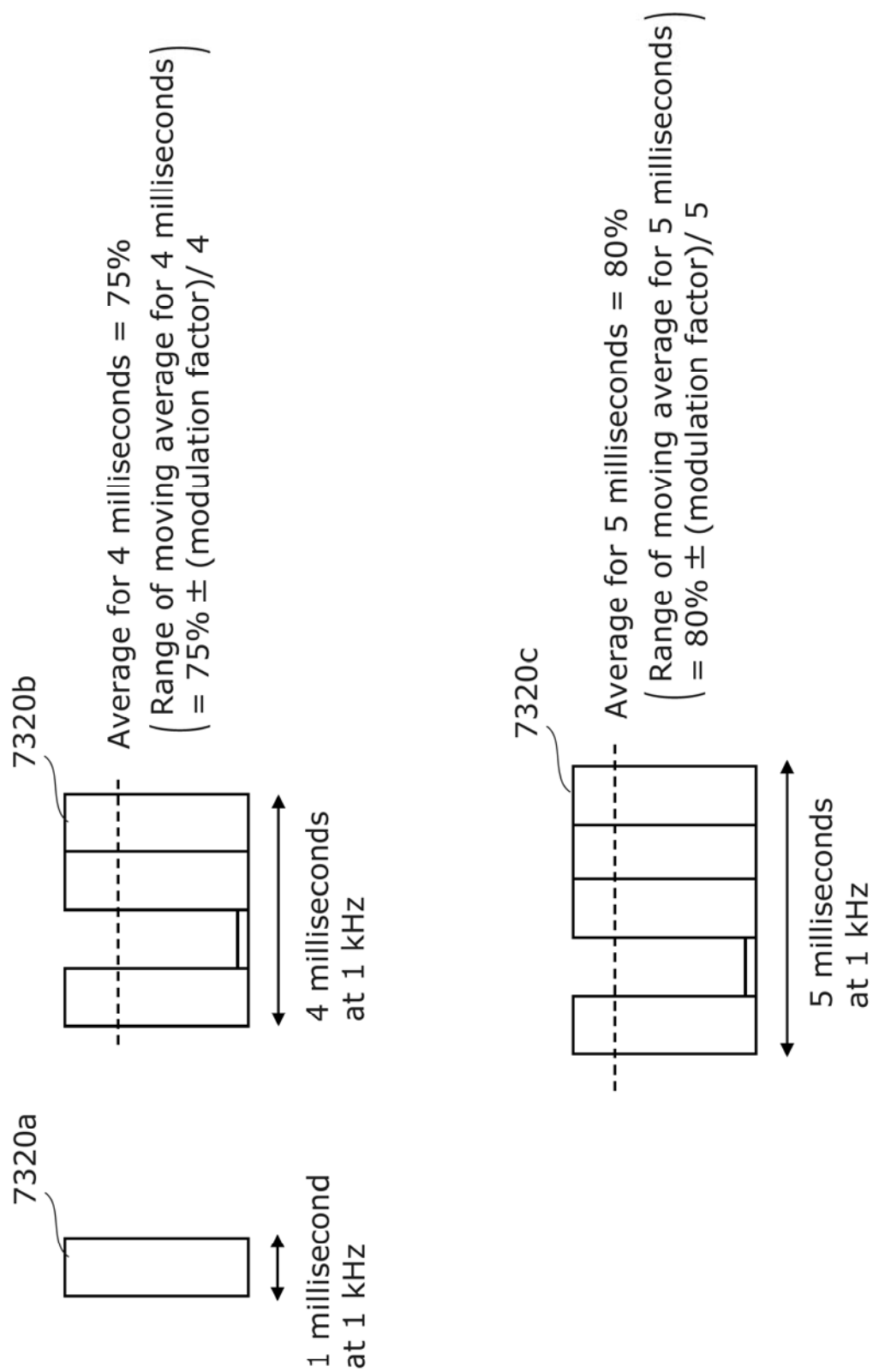




FIG. 327D

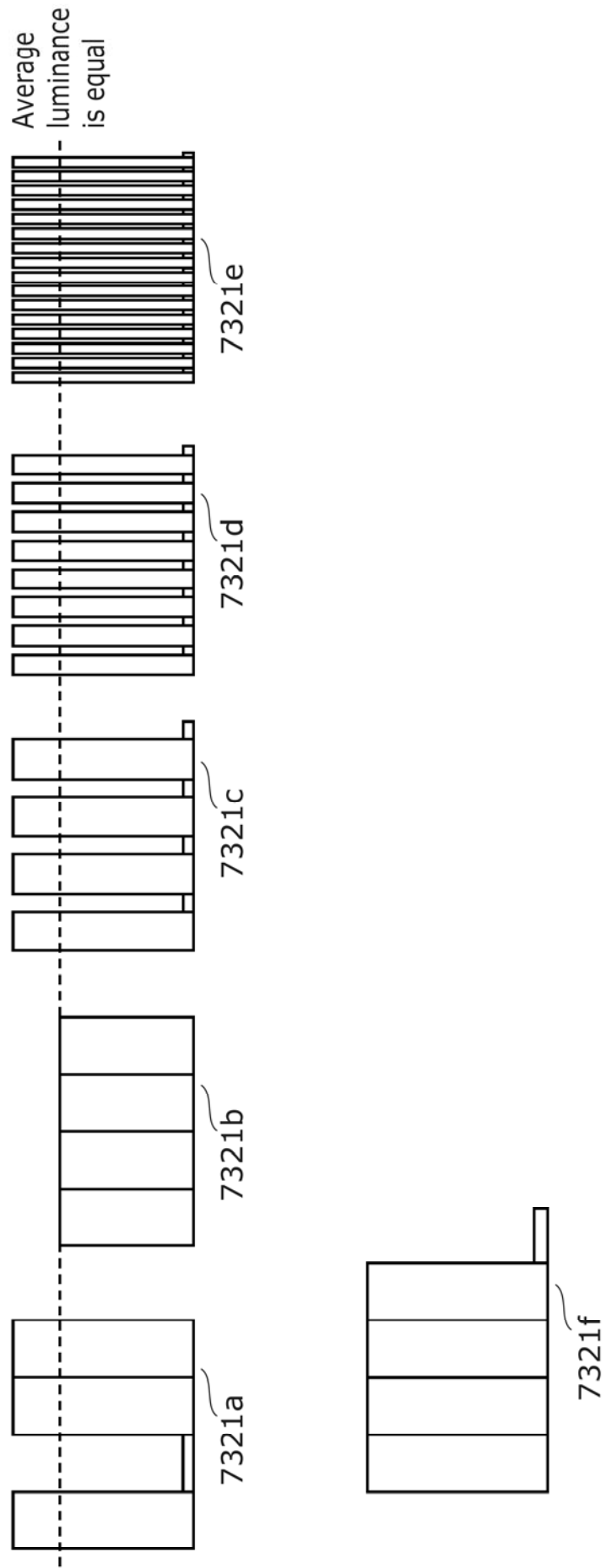


FIG. 328A

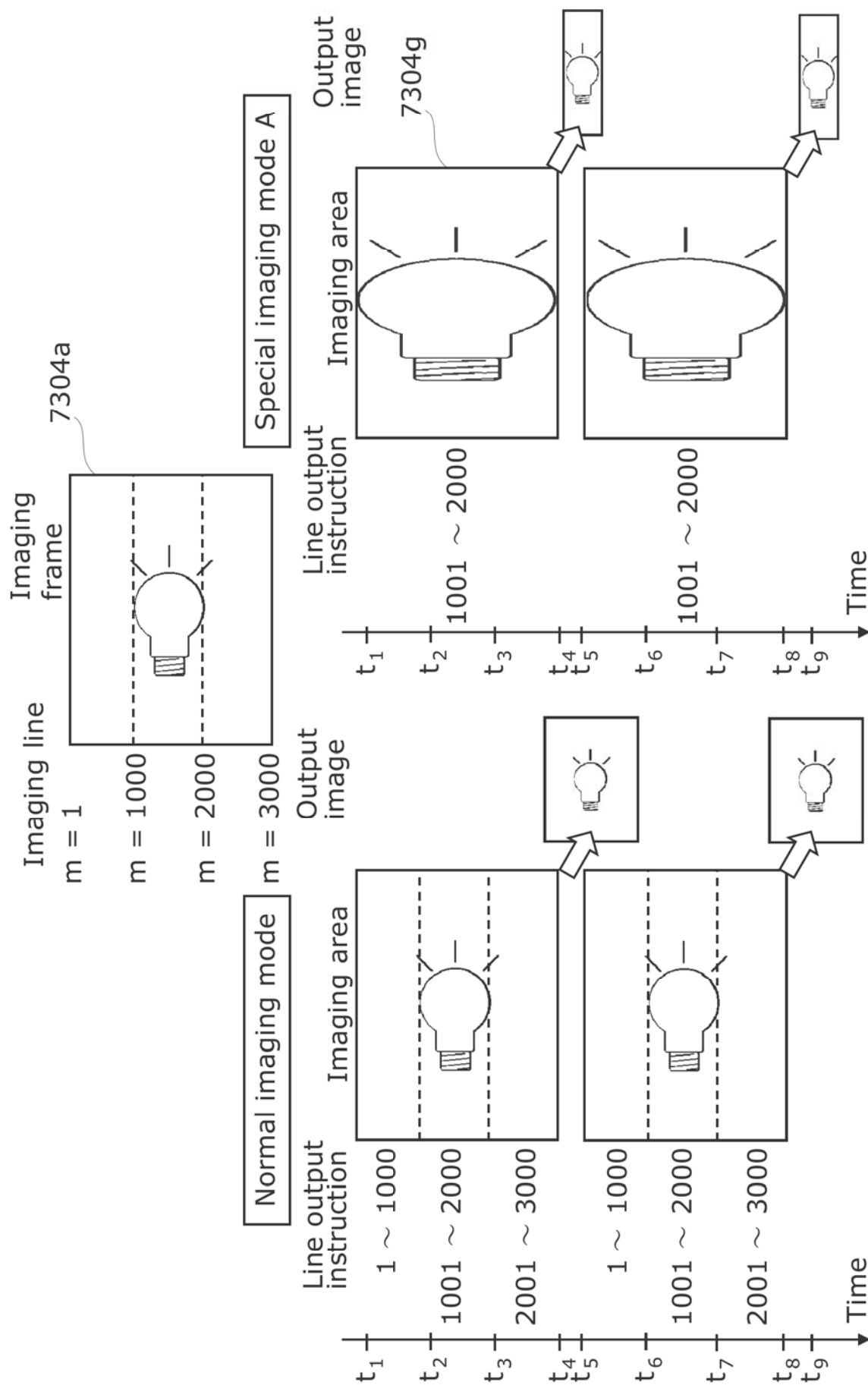


FIG. 328B

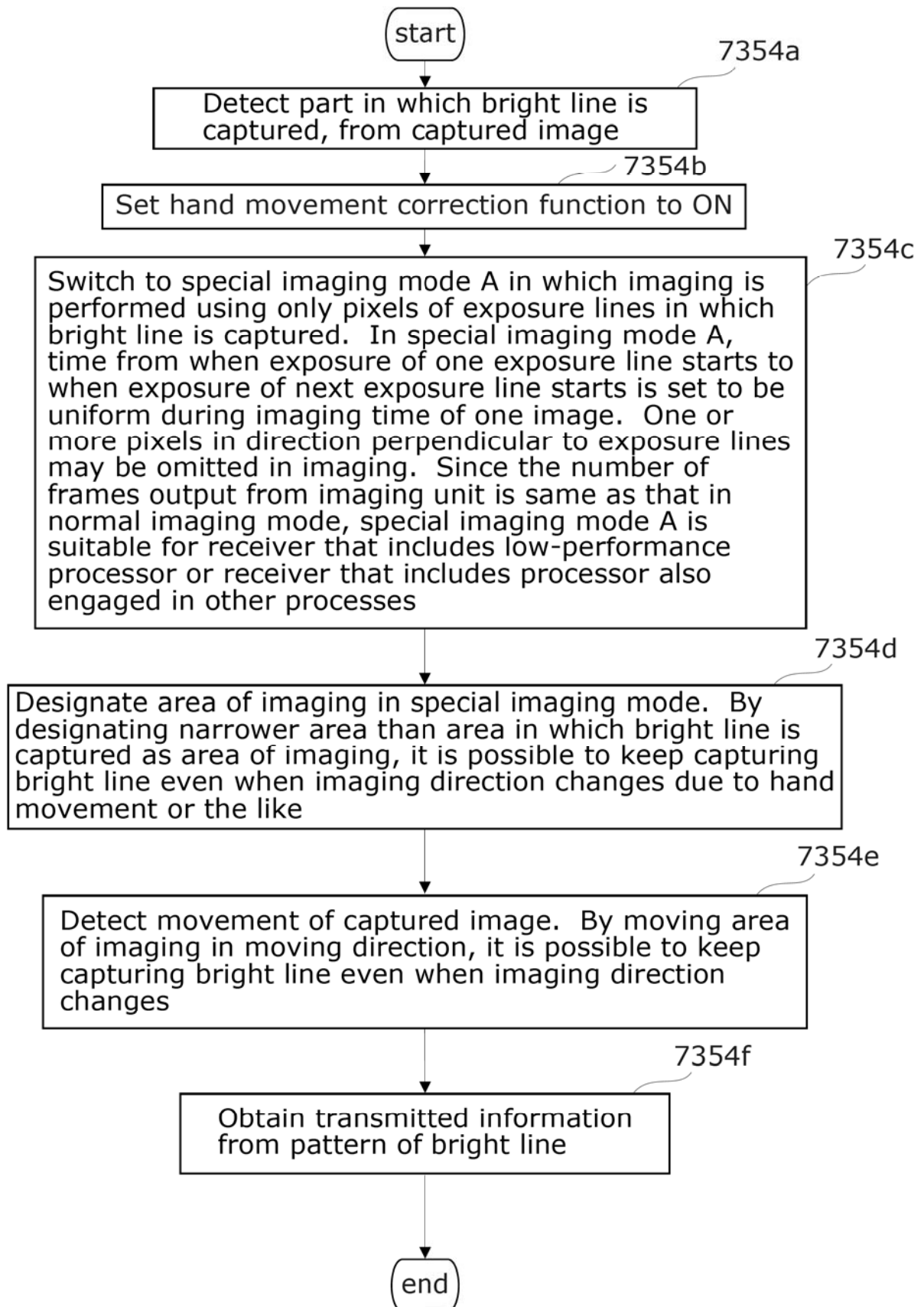


FIG. 329A

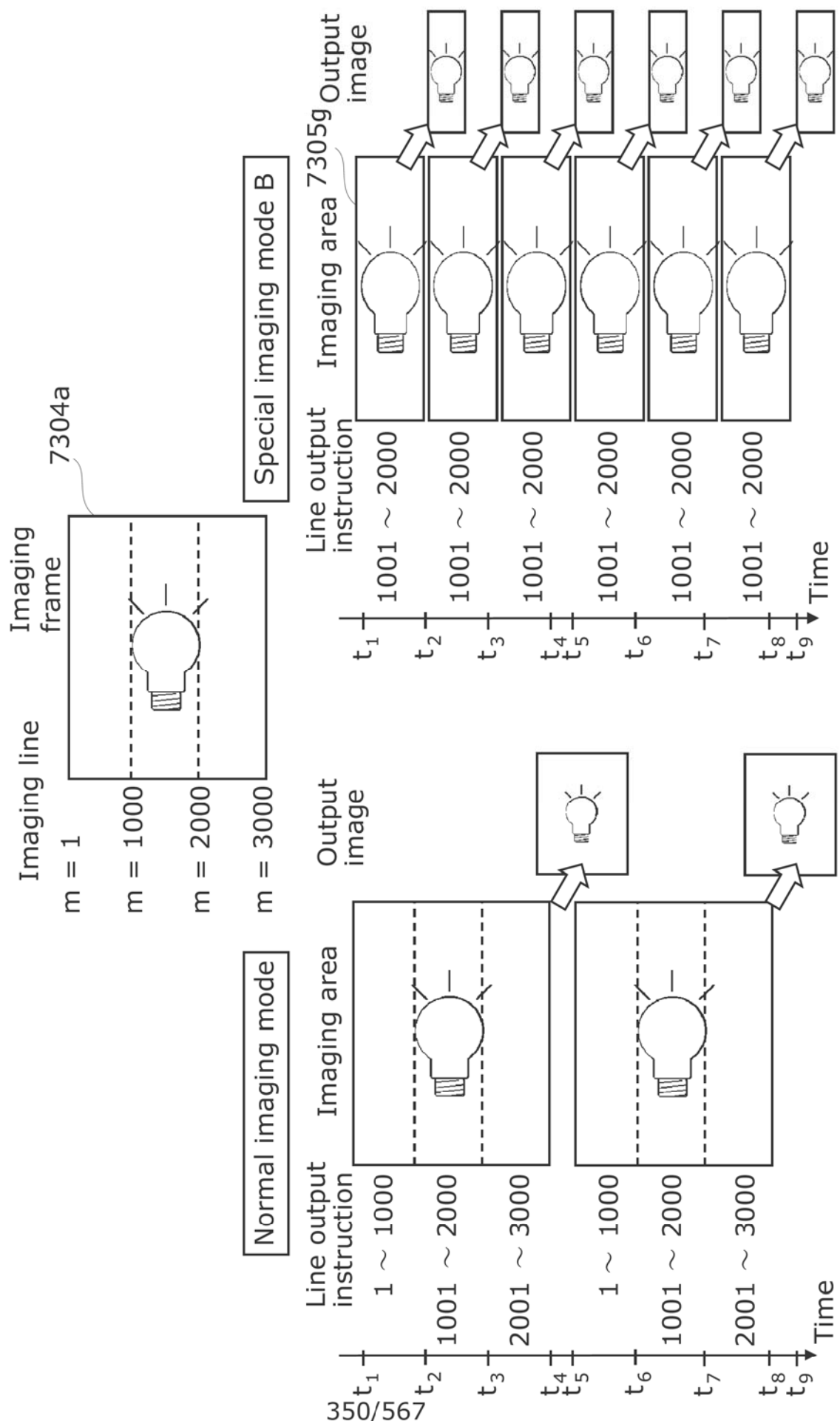


FIG. 329B

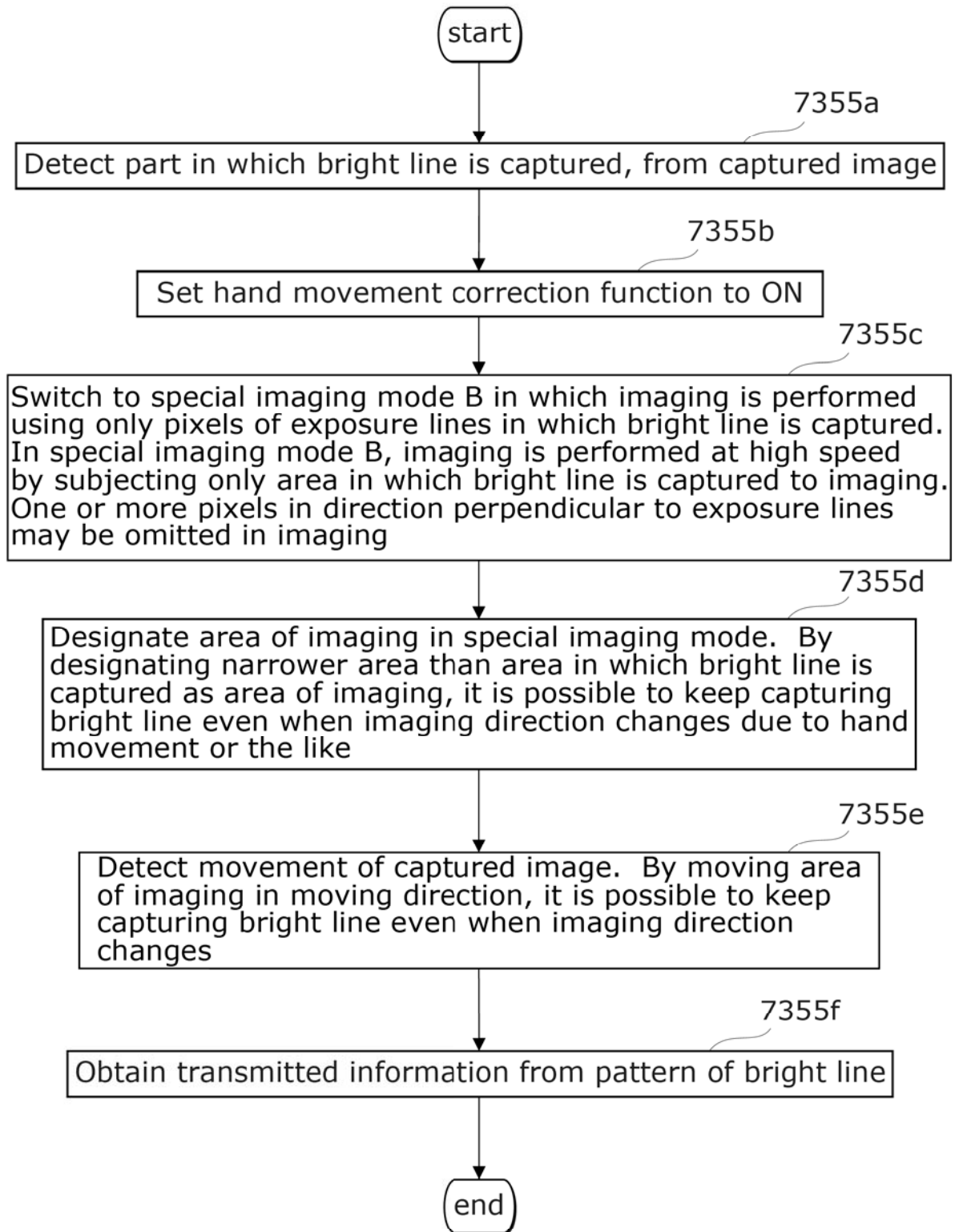


FIG. 330A

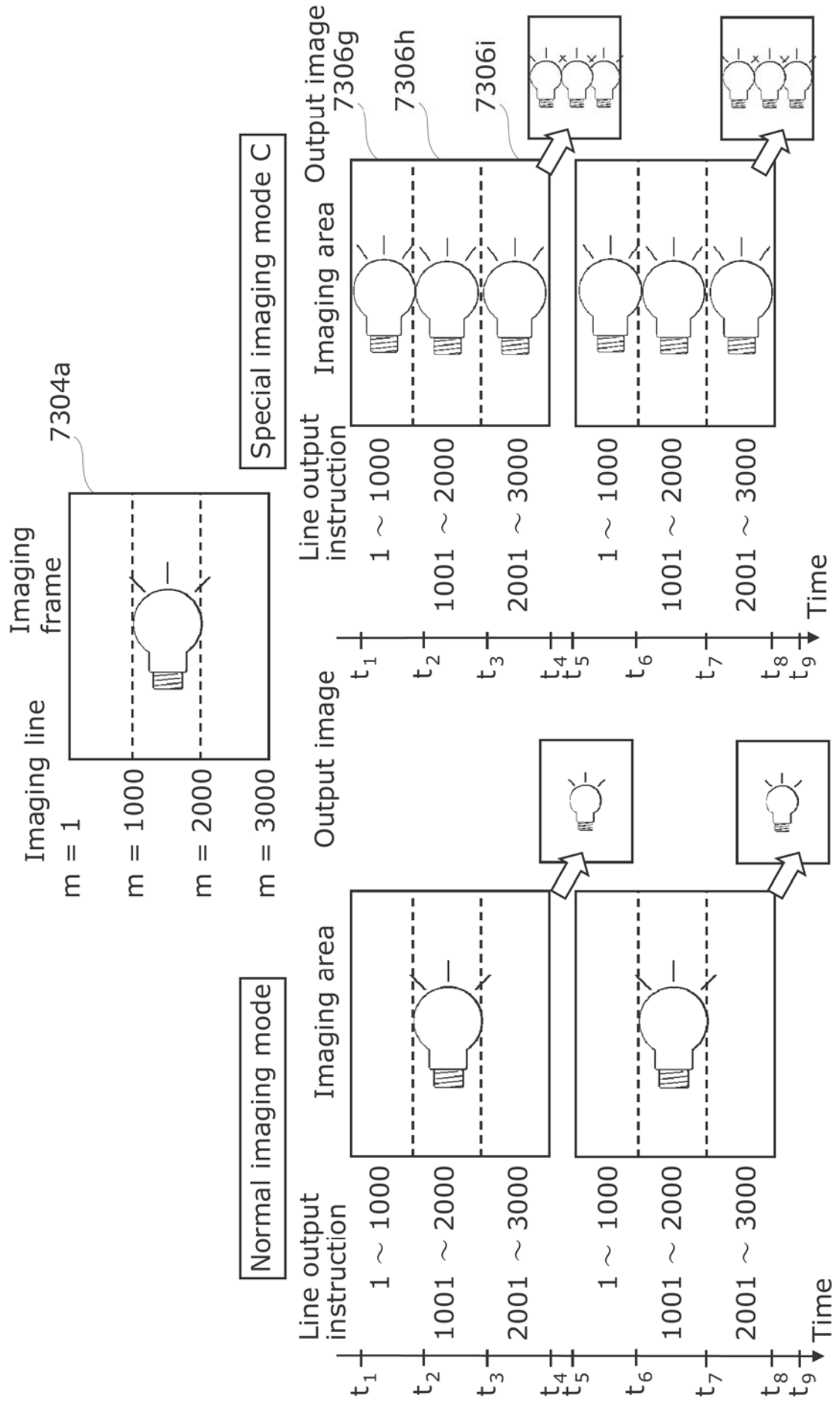


FIG. 330B

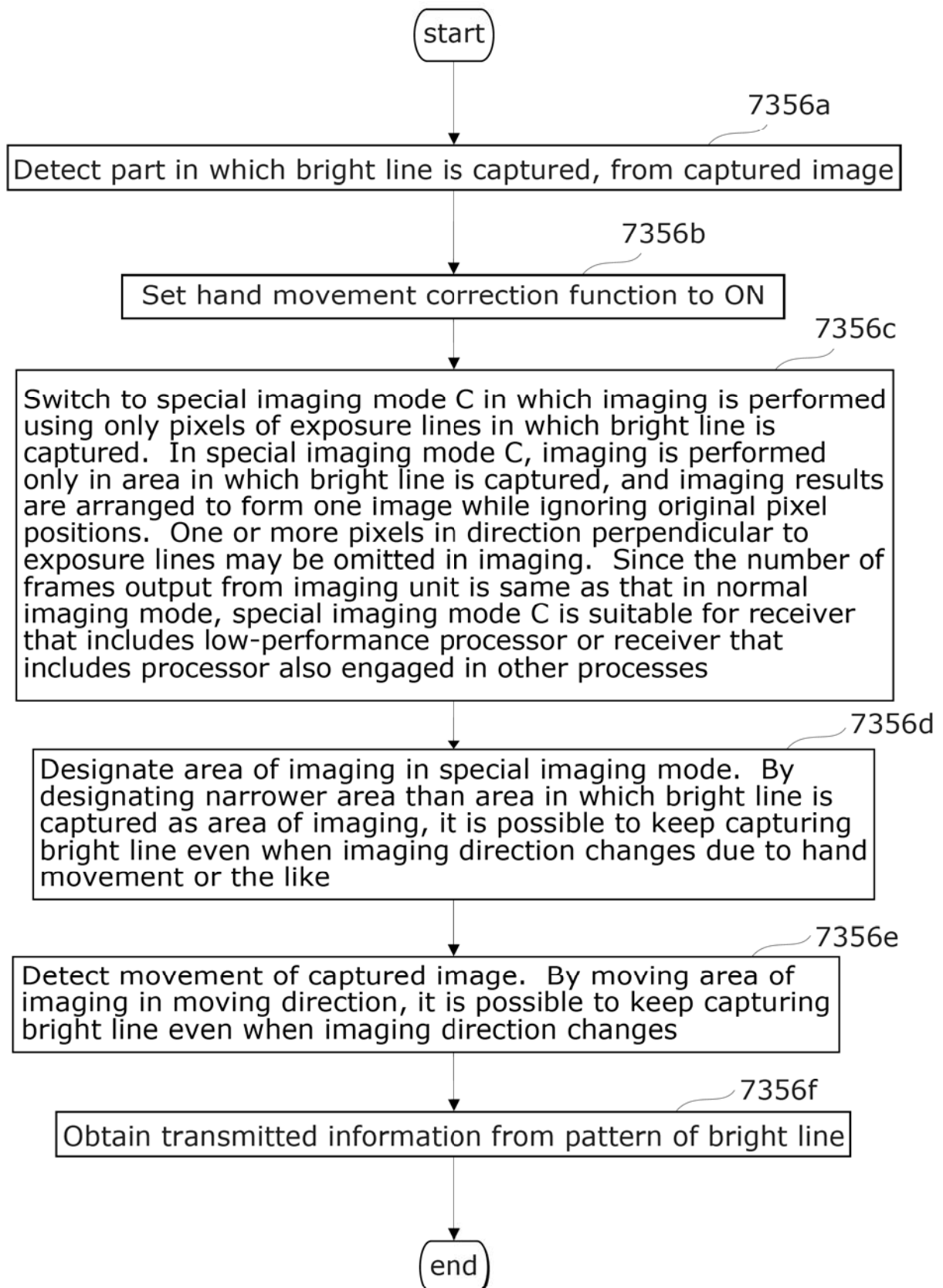


FIG. 331A

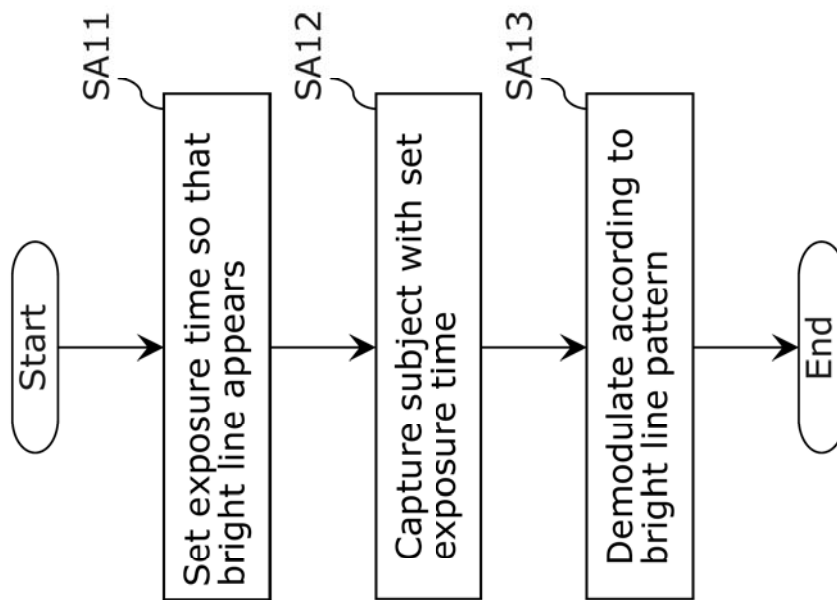


FIG. 331B

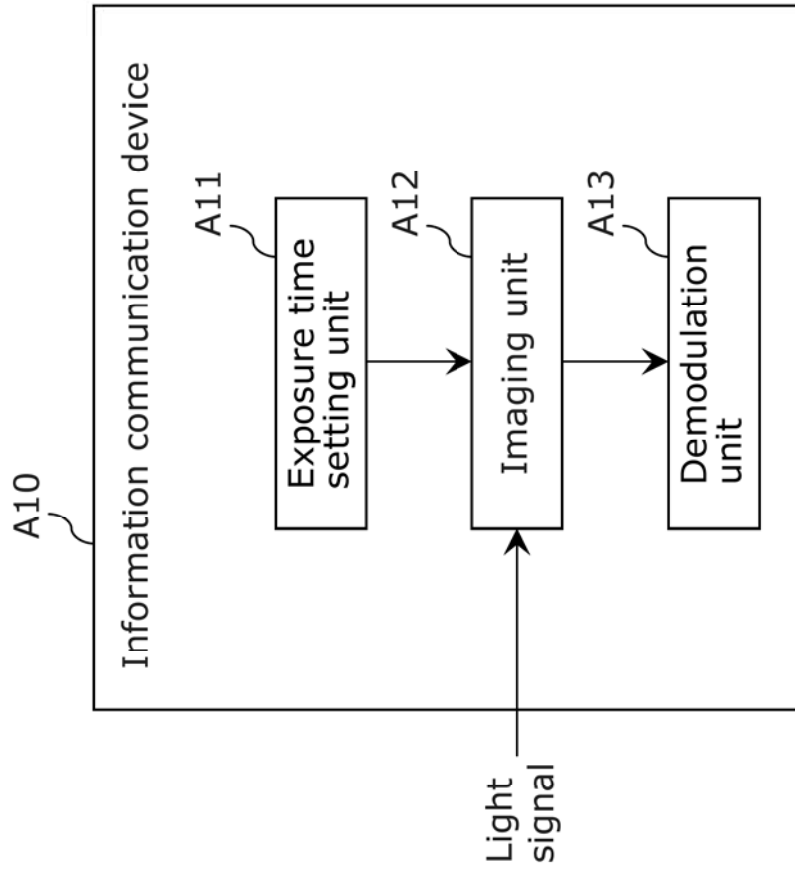




FIG. 331C

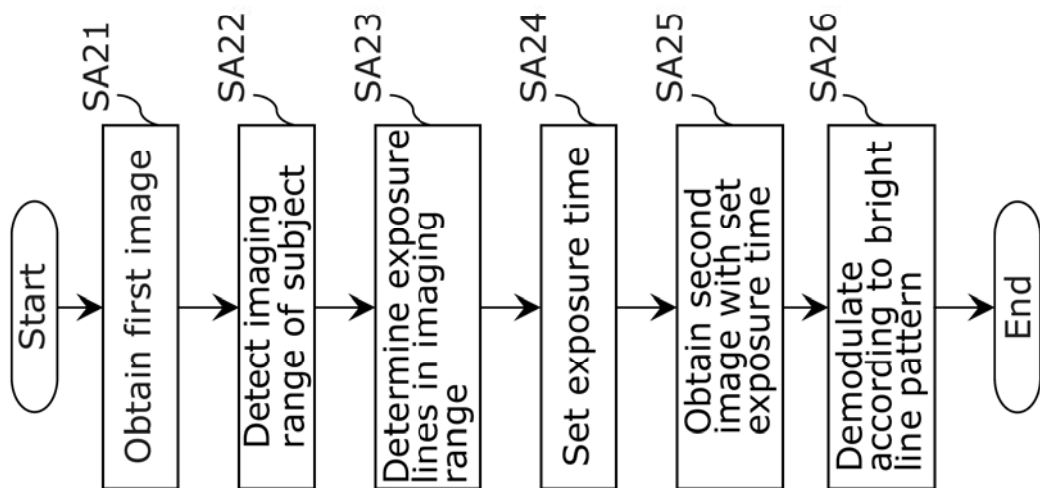


FIG. 331D

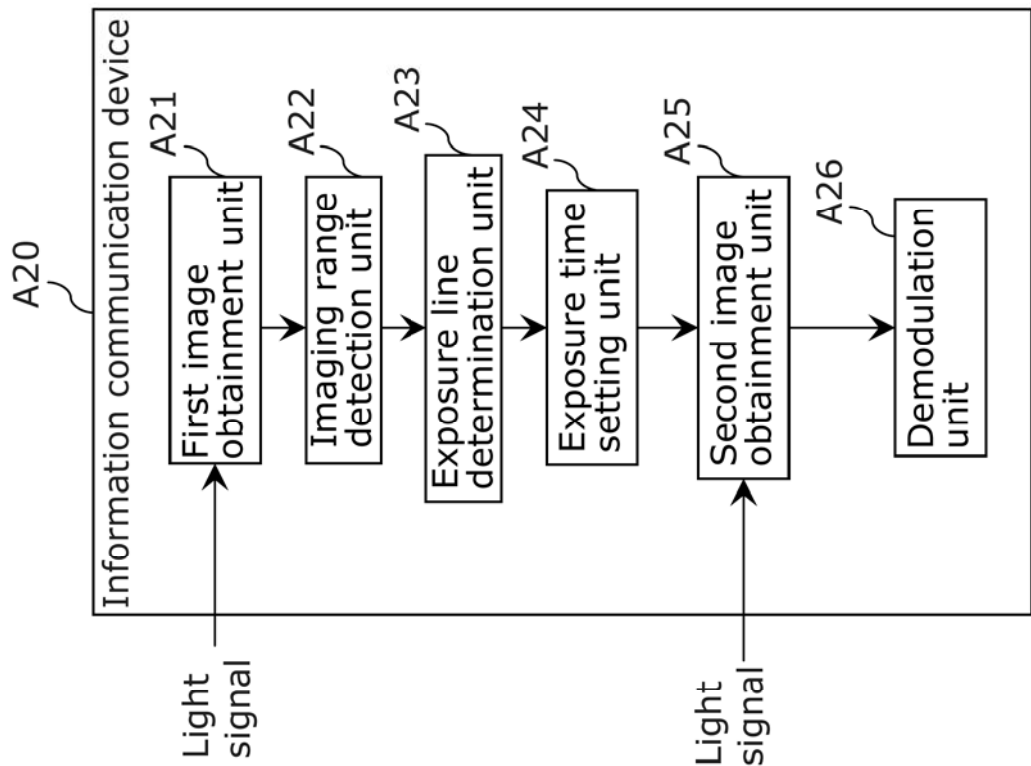


FIG. 332

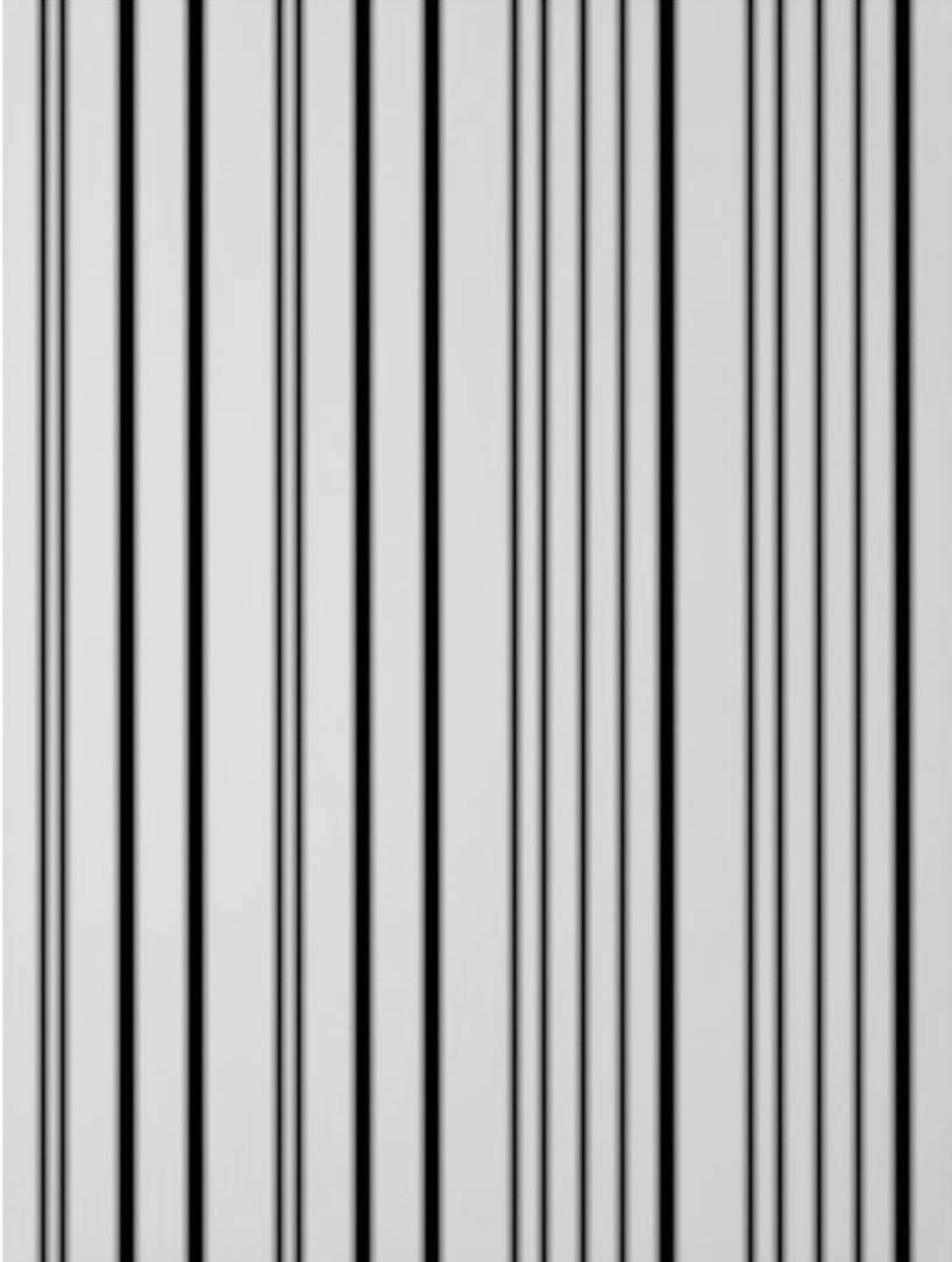


FIG. 333A

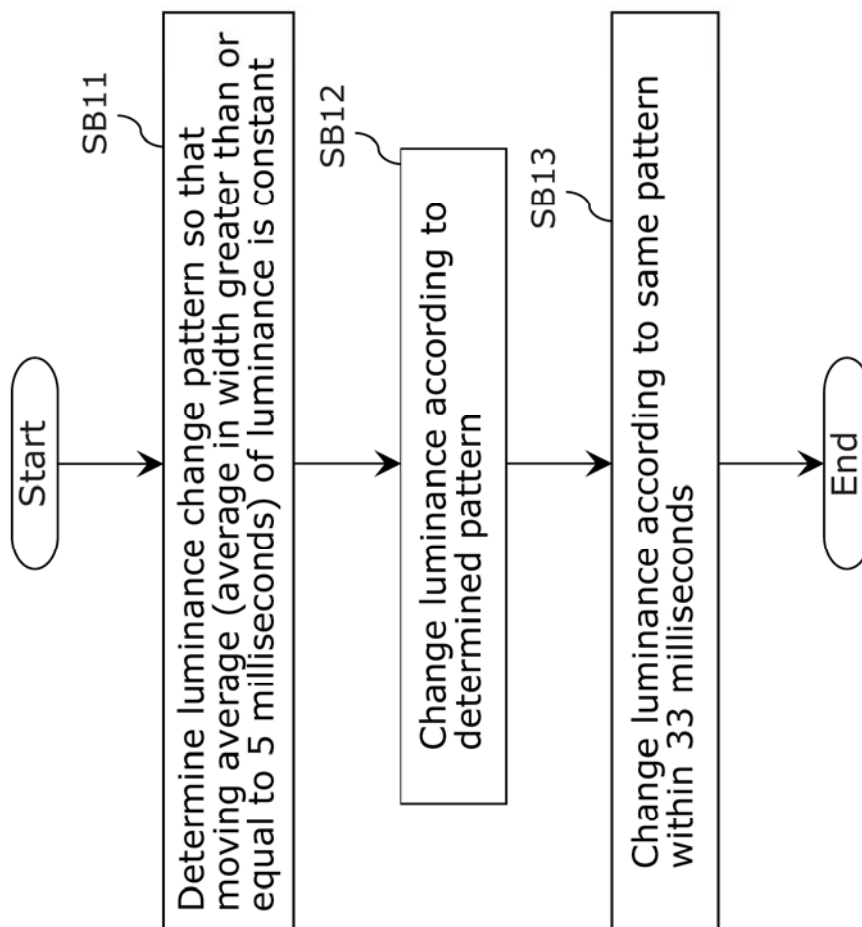


FIG. 333B

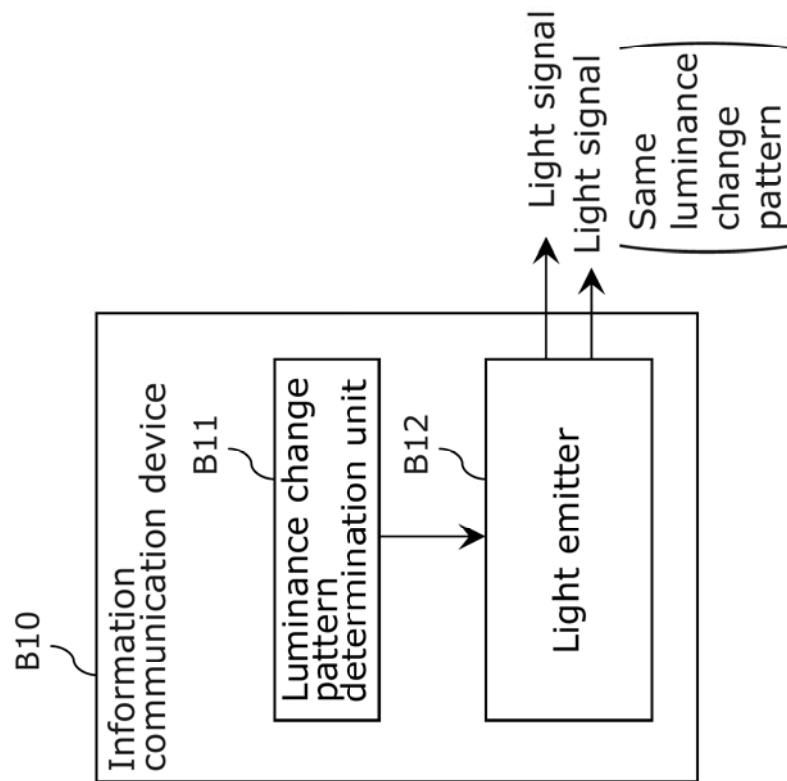


FIG. 334A

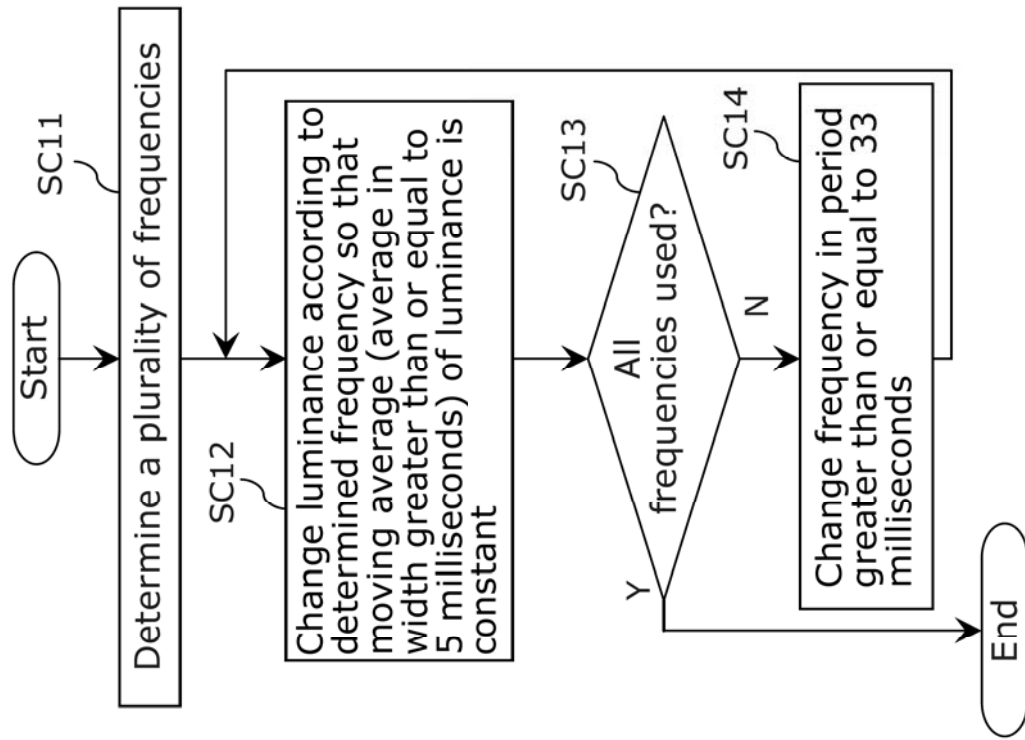


FIG. 334B

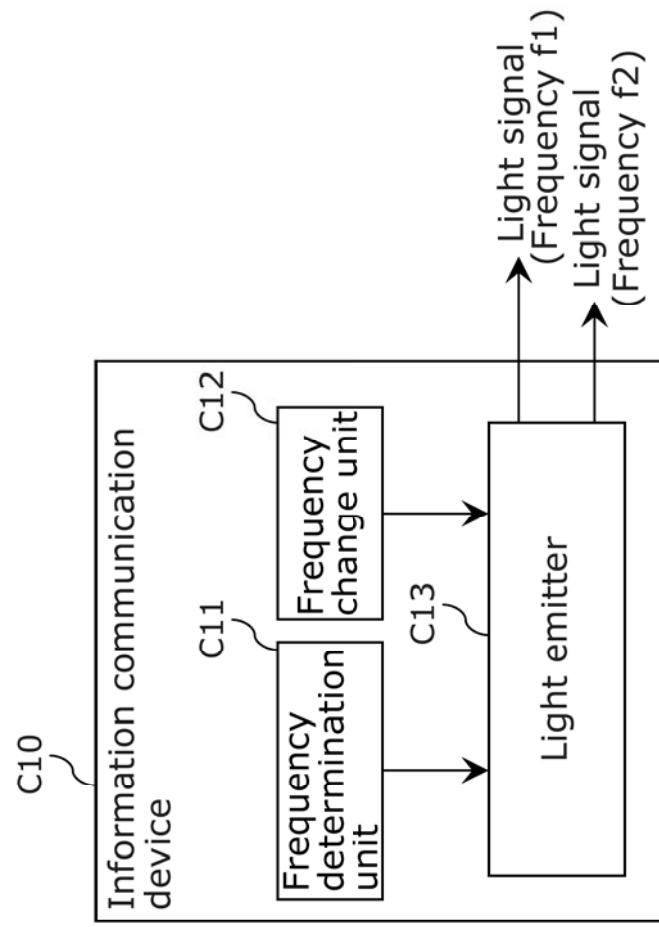


FIG. 335

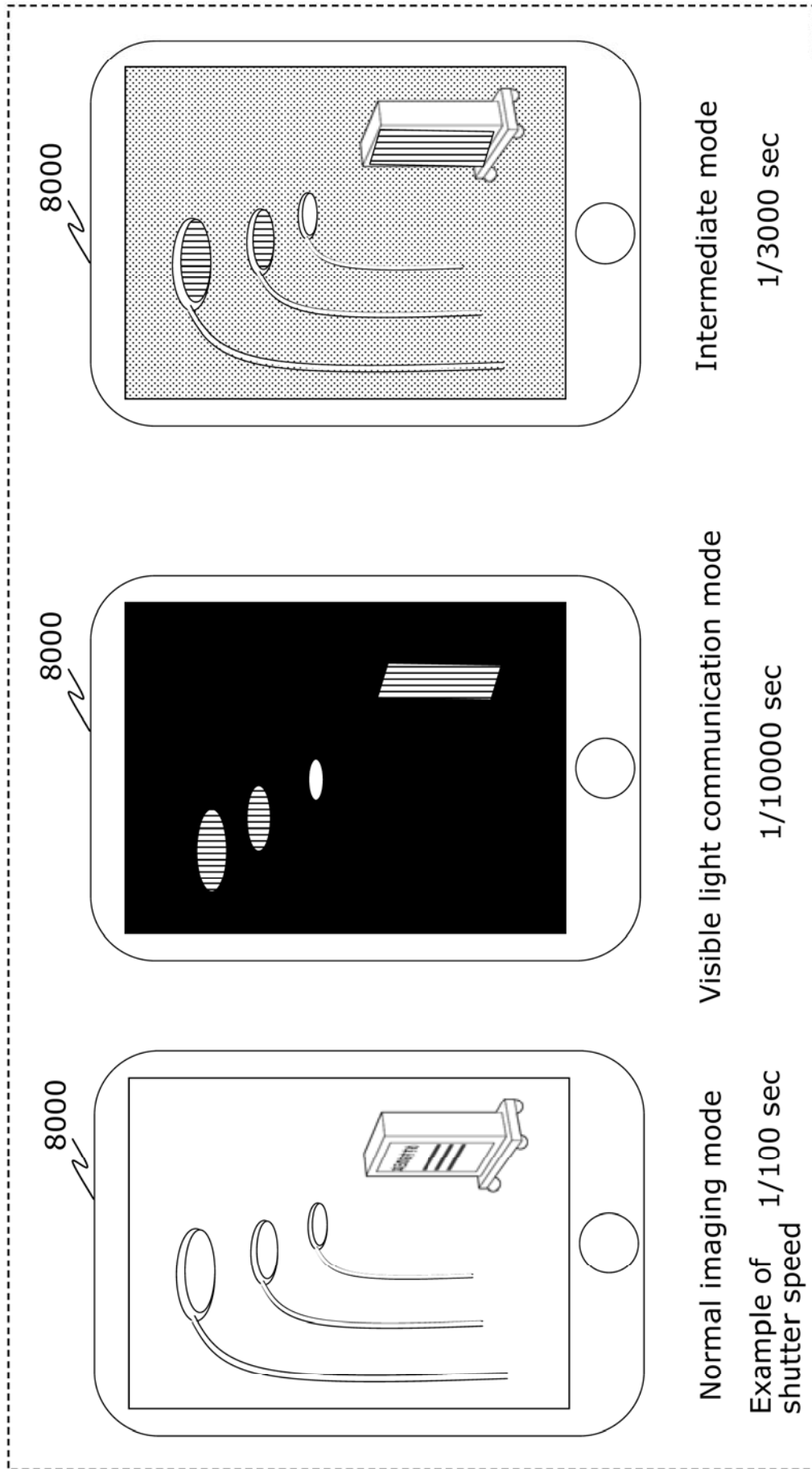


FIG. 336

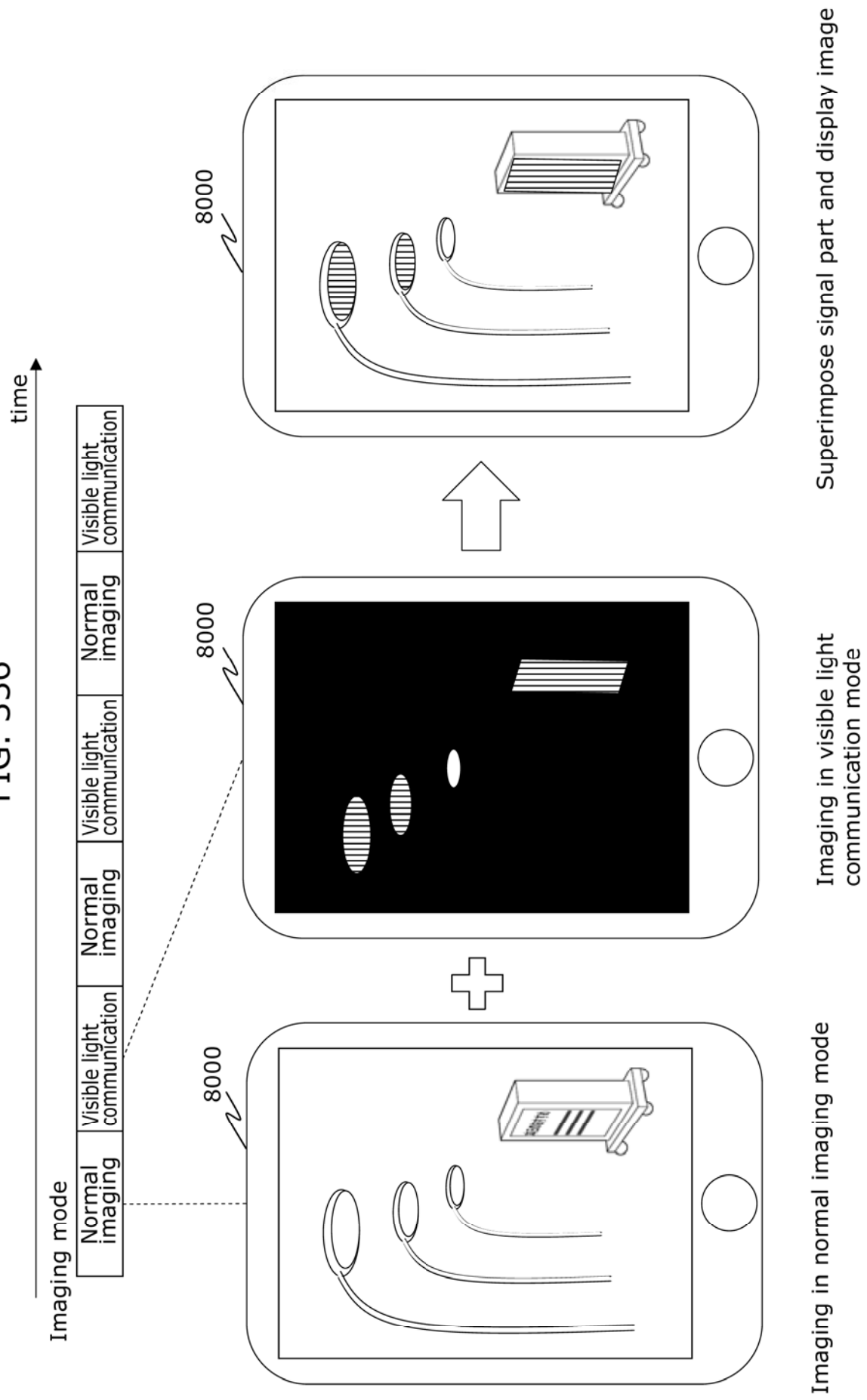


FIG. 337

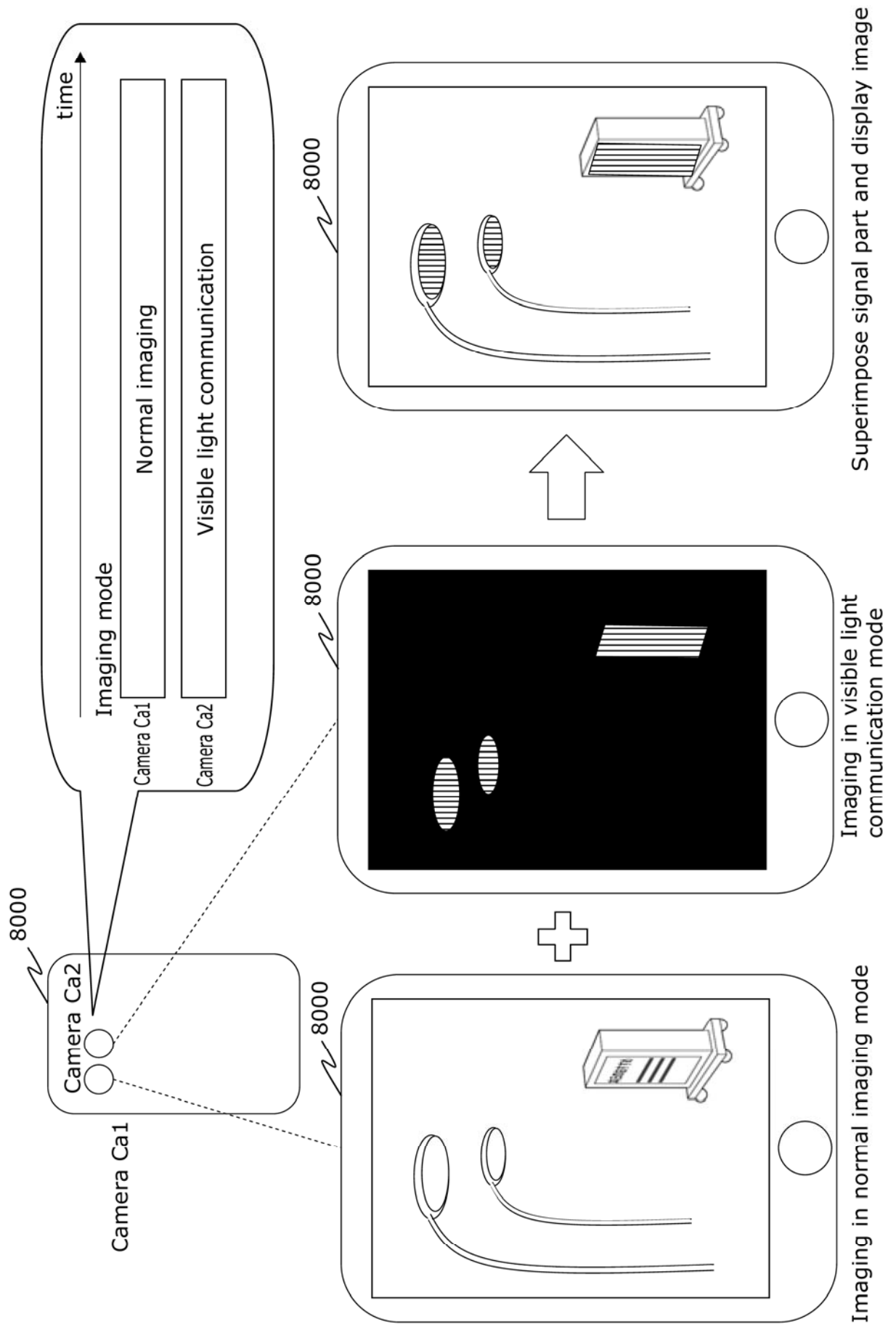


FIG. 338A

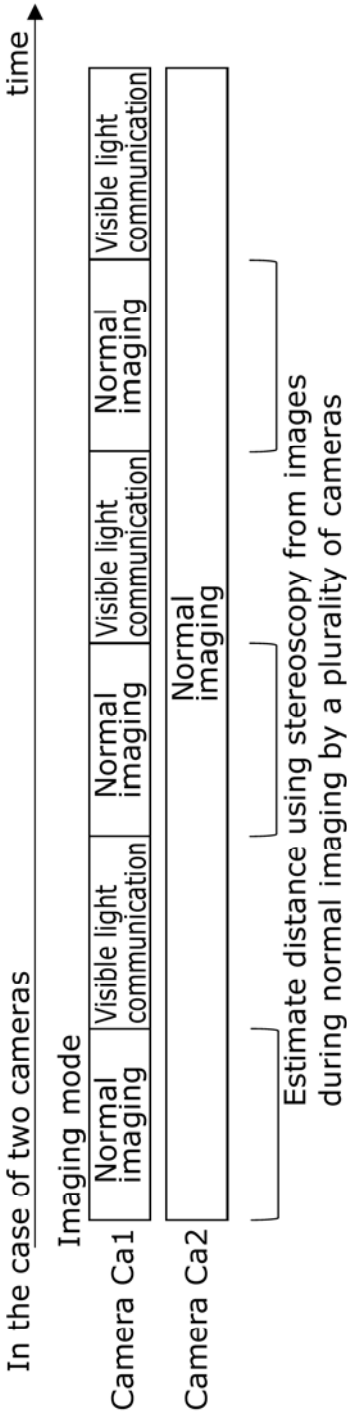


FIG. 338B

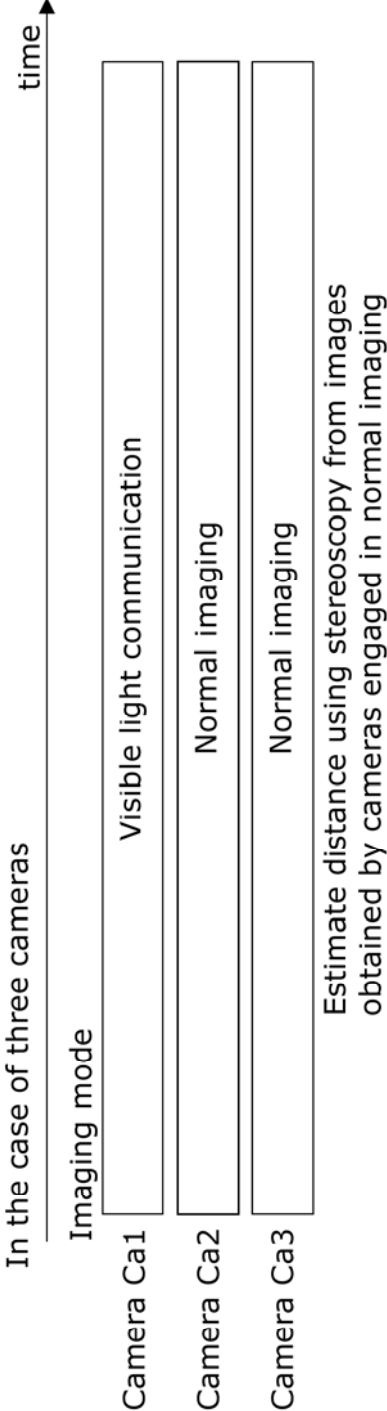


FIG. 338C

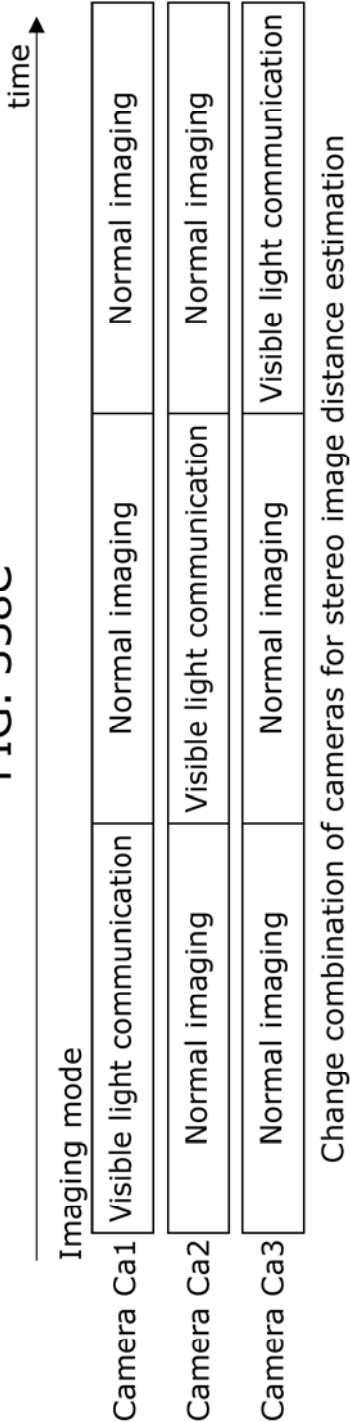
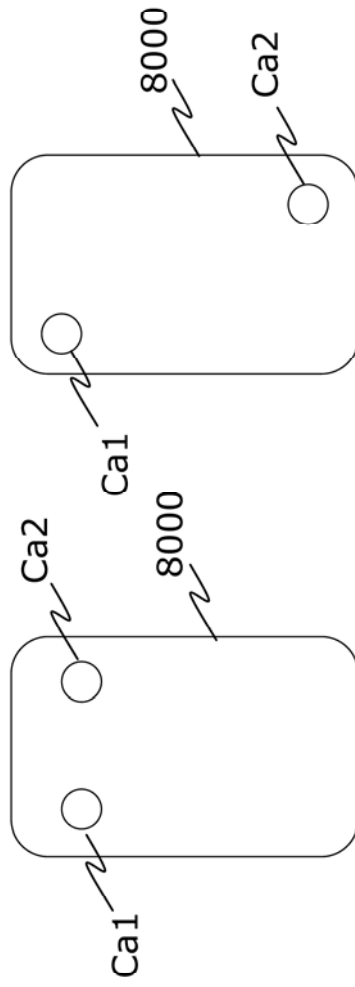




FIG. 339A

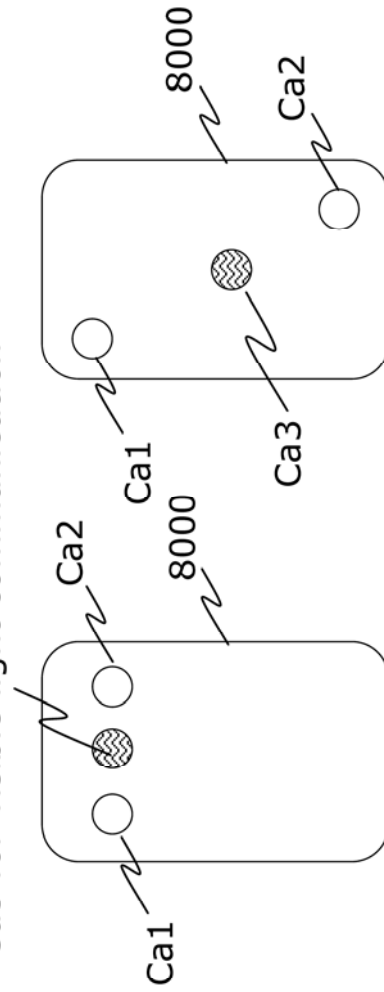
In the case of  
two cameras



Cameras are preferably away from each other in the case of performing  
stereo image distance estimation

FIG. 339B

In the case of  
three cameras



Perform stereo image distance estimation using cameras farthest away from  
each other, and perform visible light communication using other camera

FIG. 340

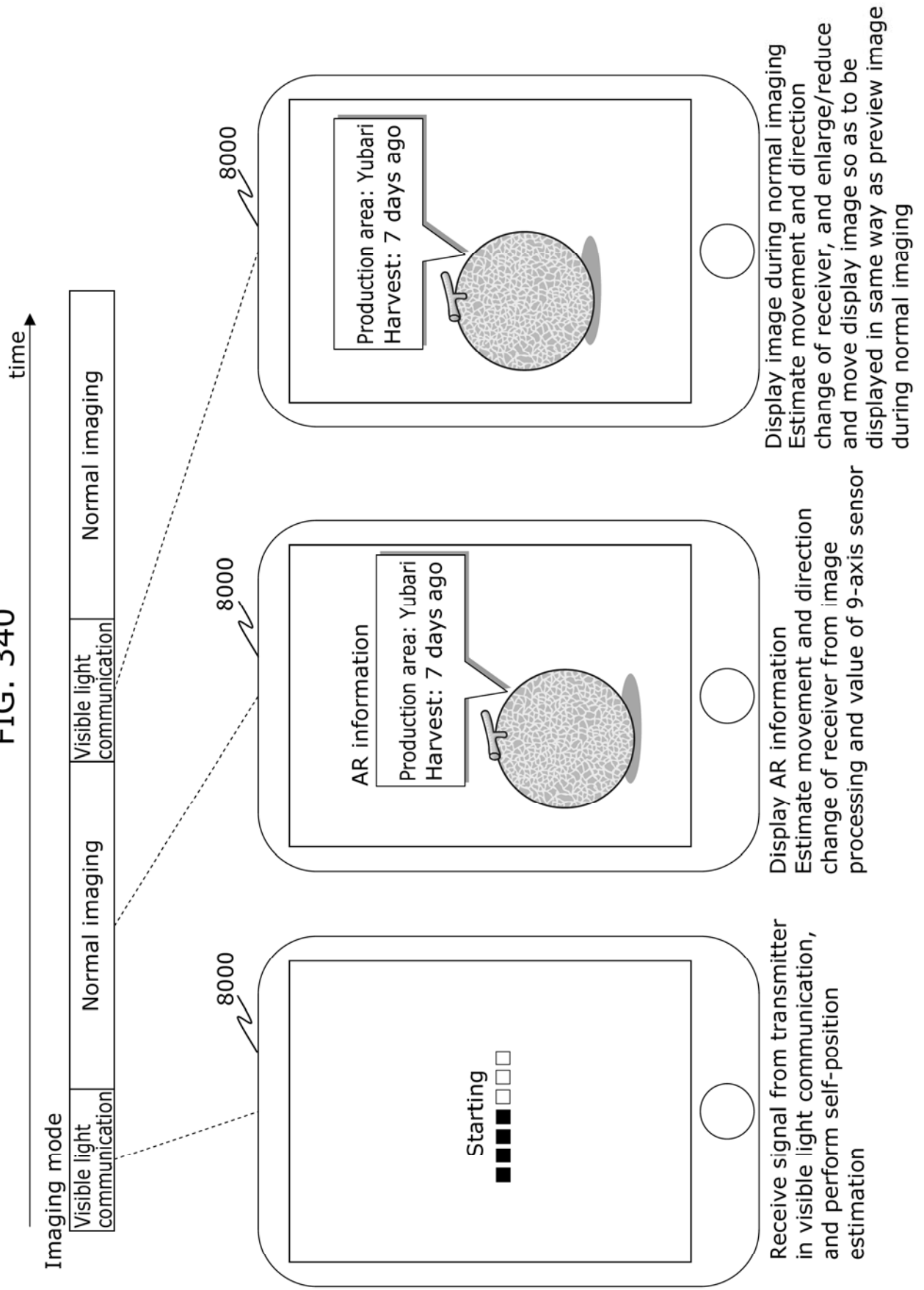


FIG. 341

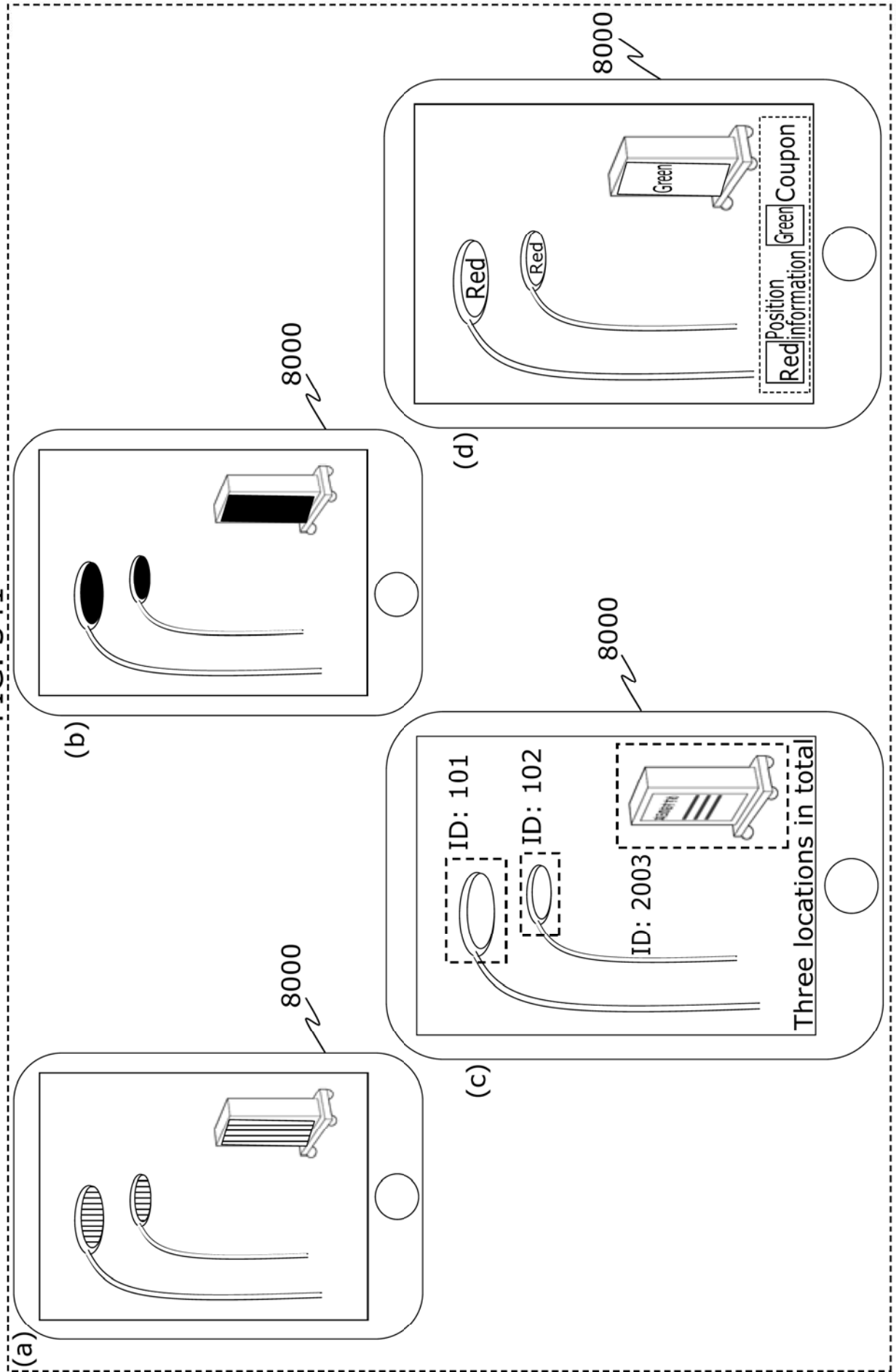


FIG. 342

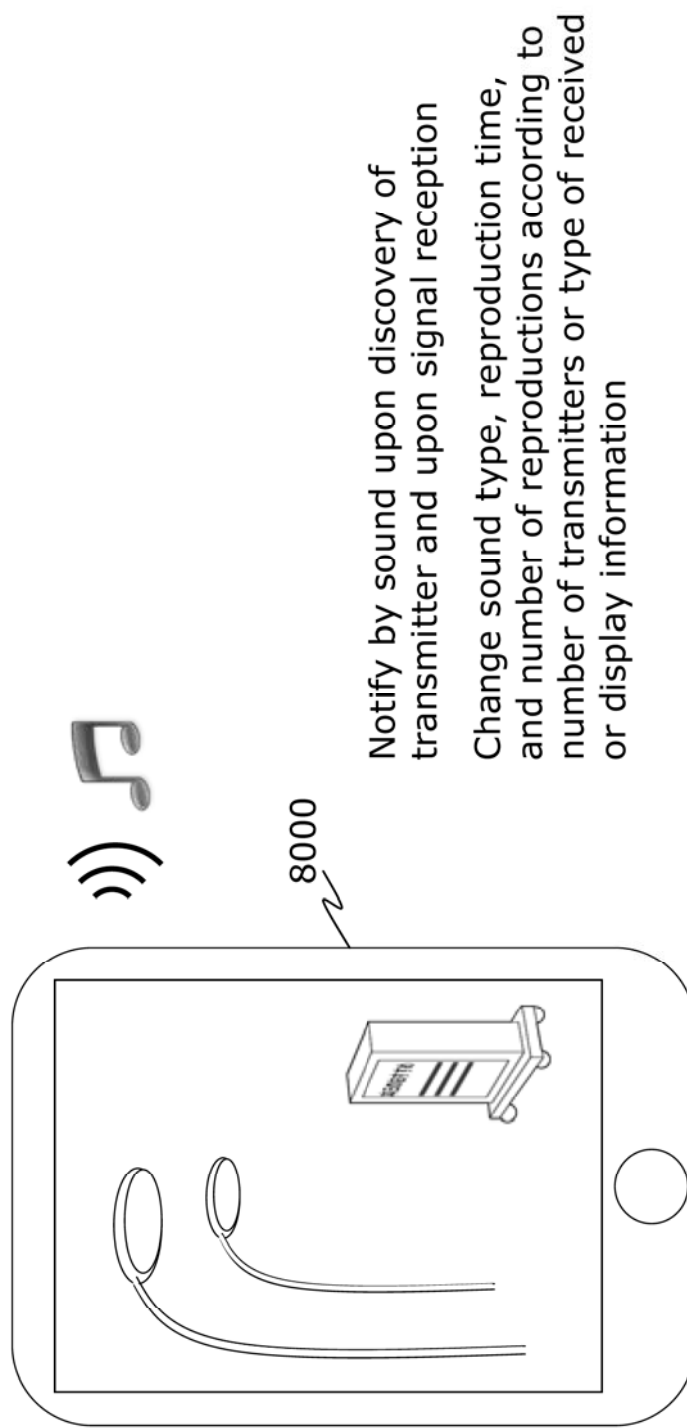


FIG. 343

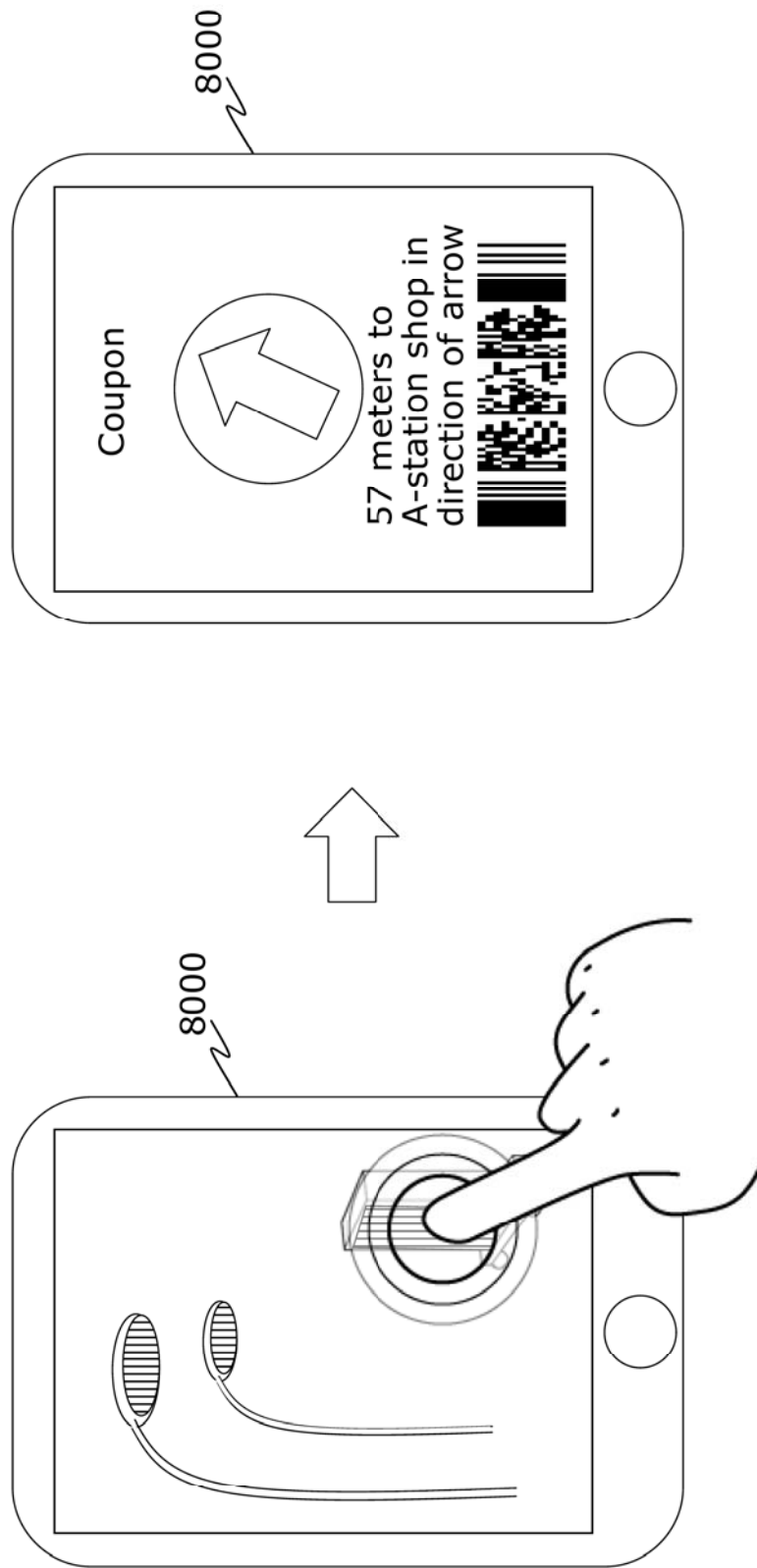


FIG. 344

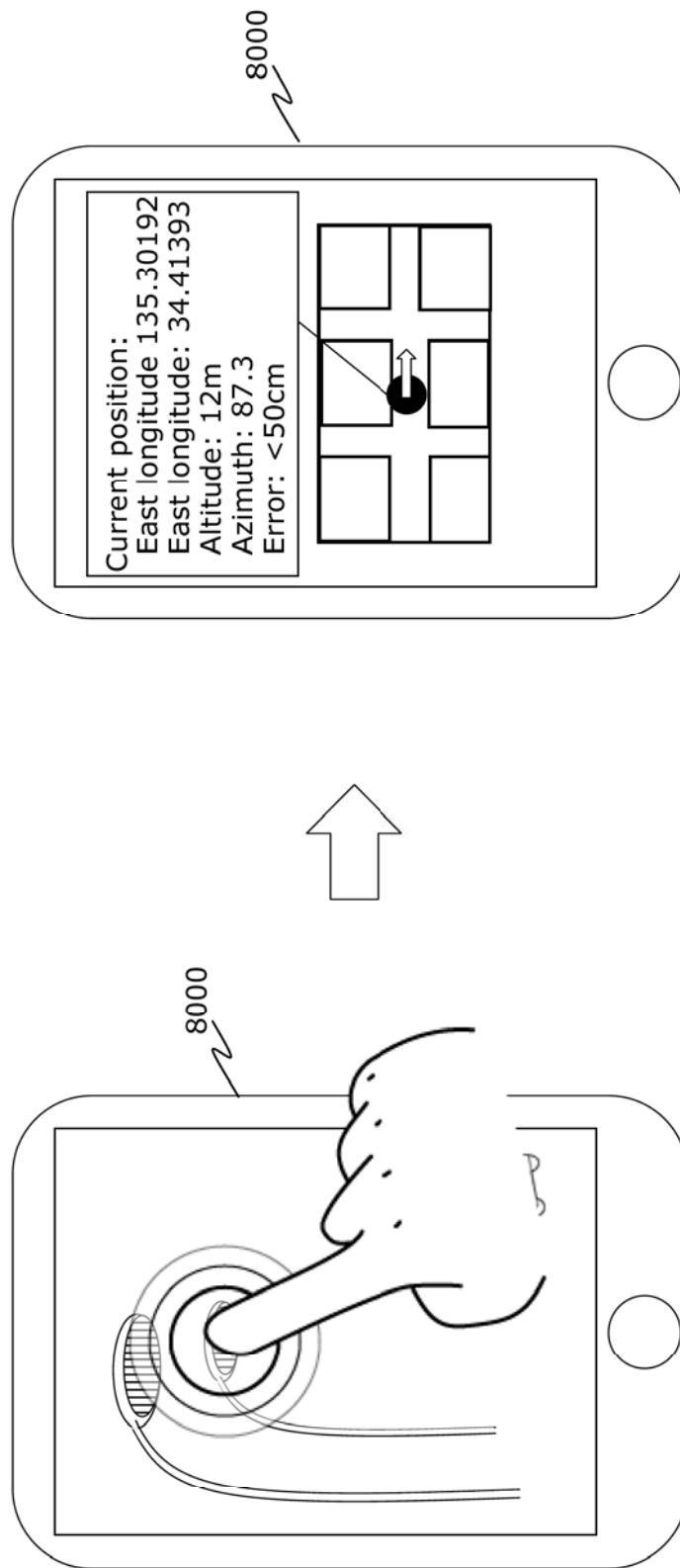


FIG. 345

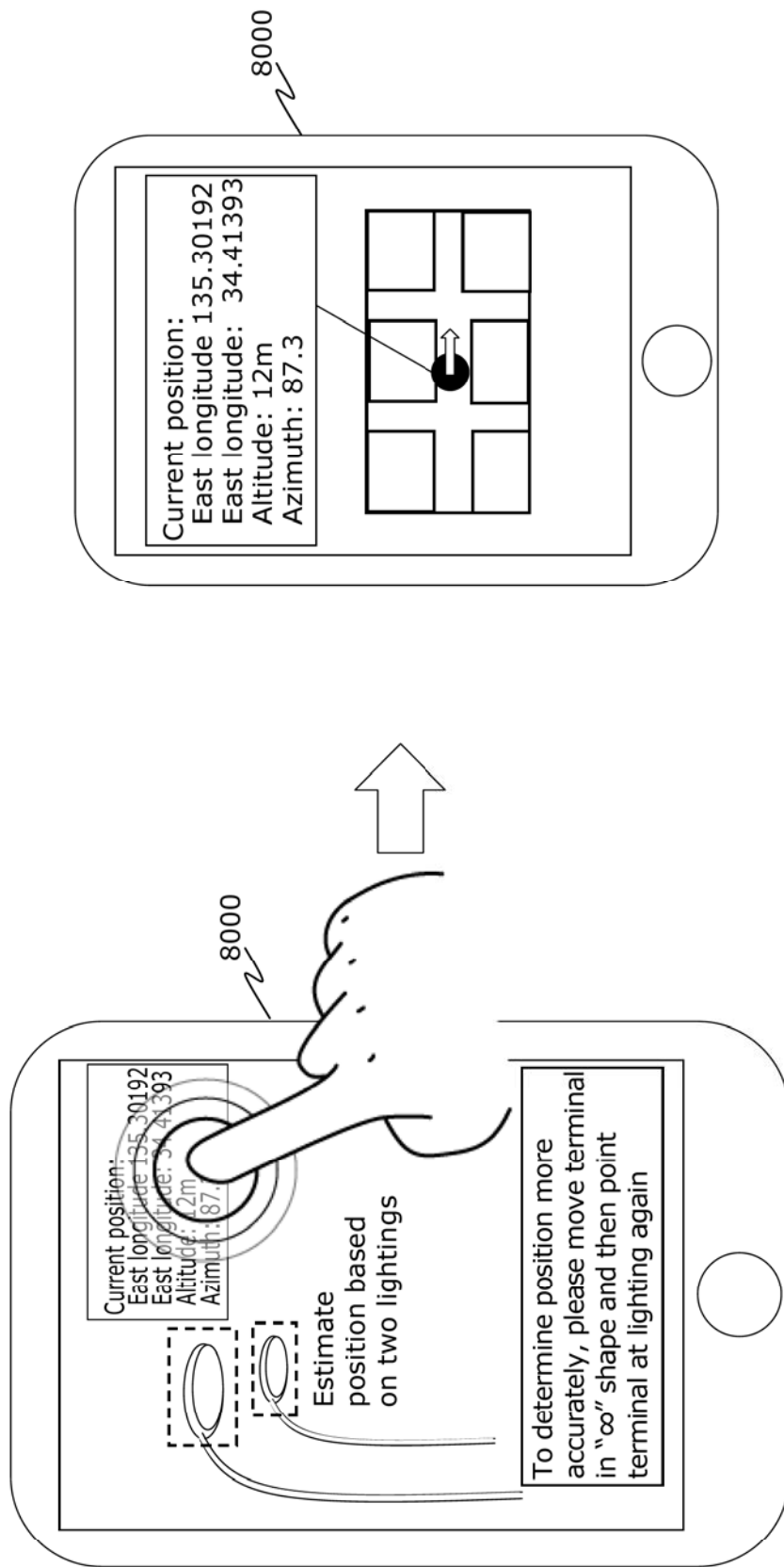


FIG. 346

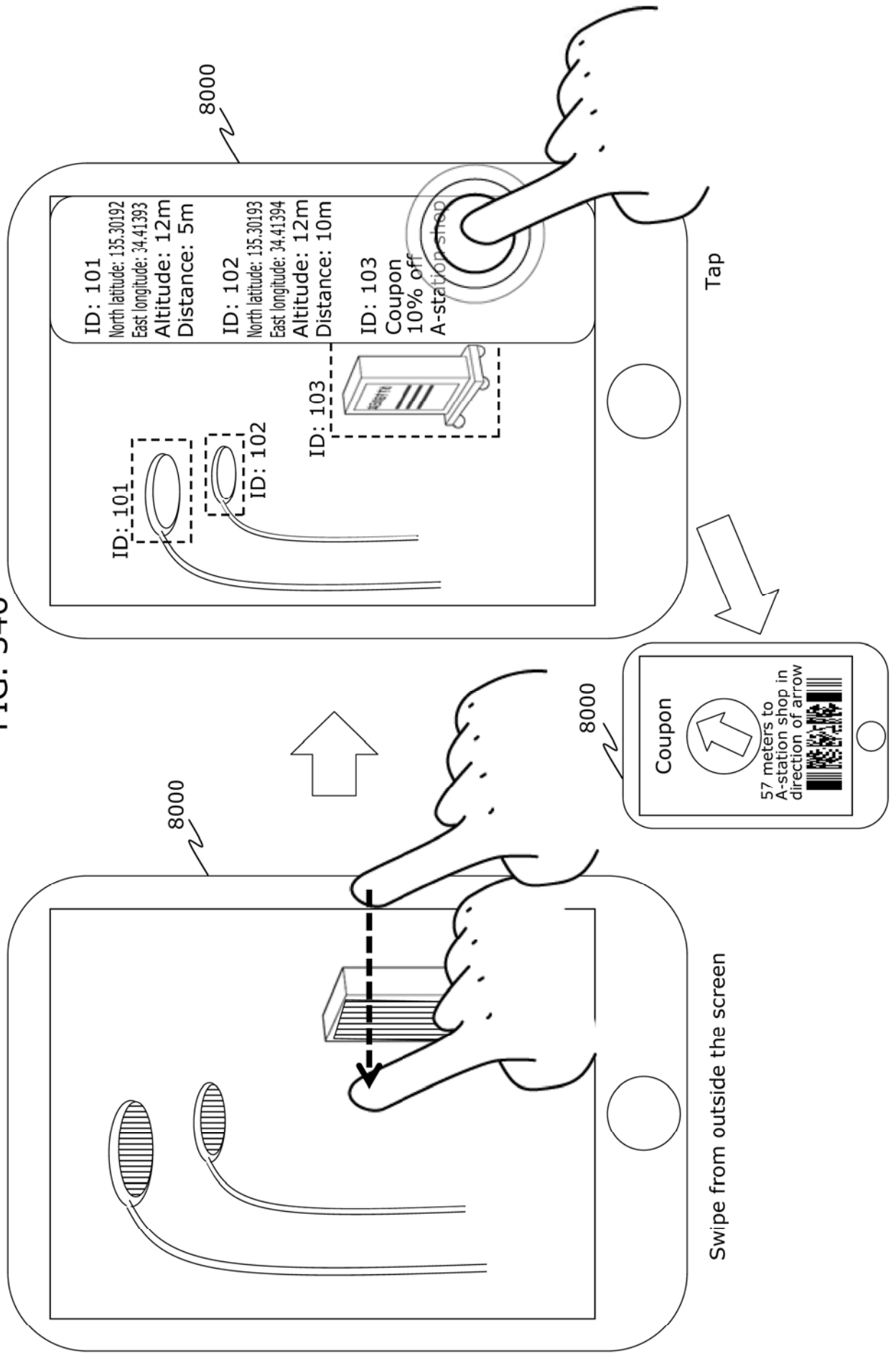




FIG. 347

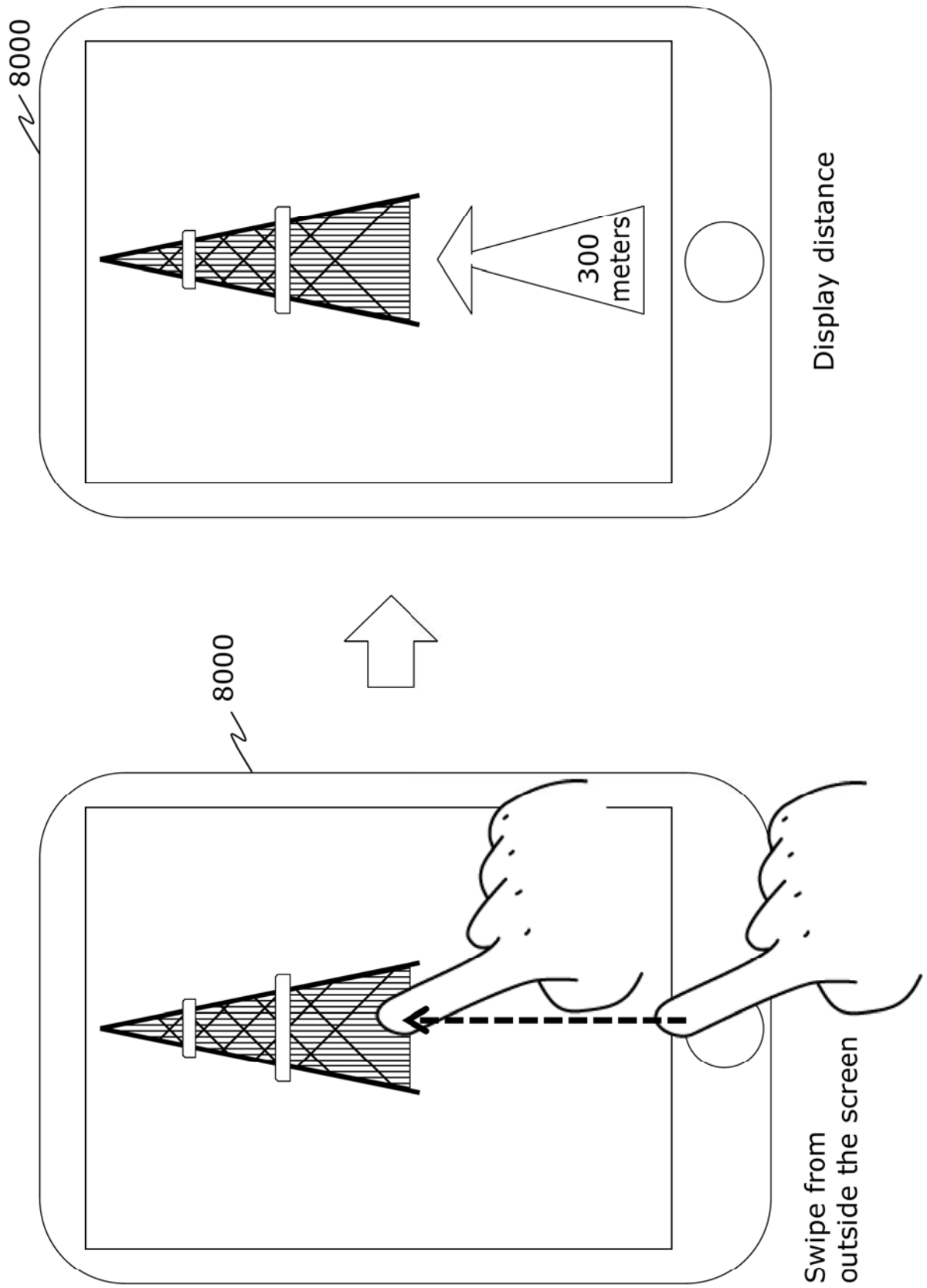


FIG. 348

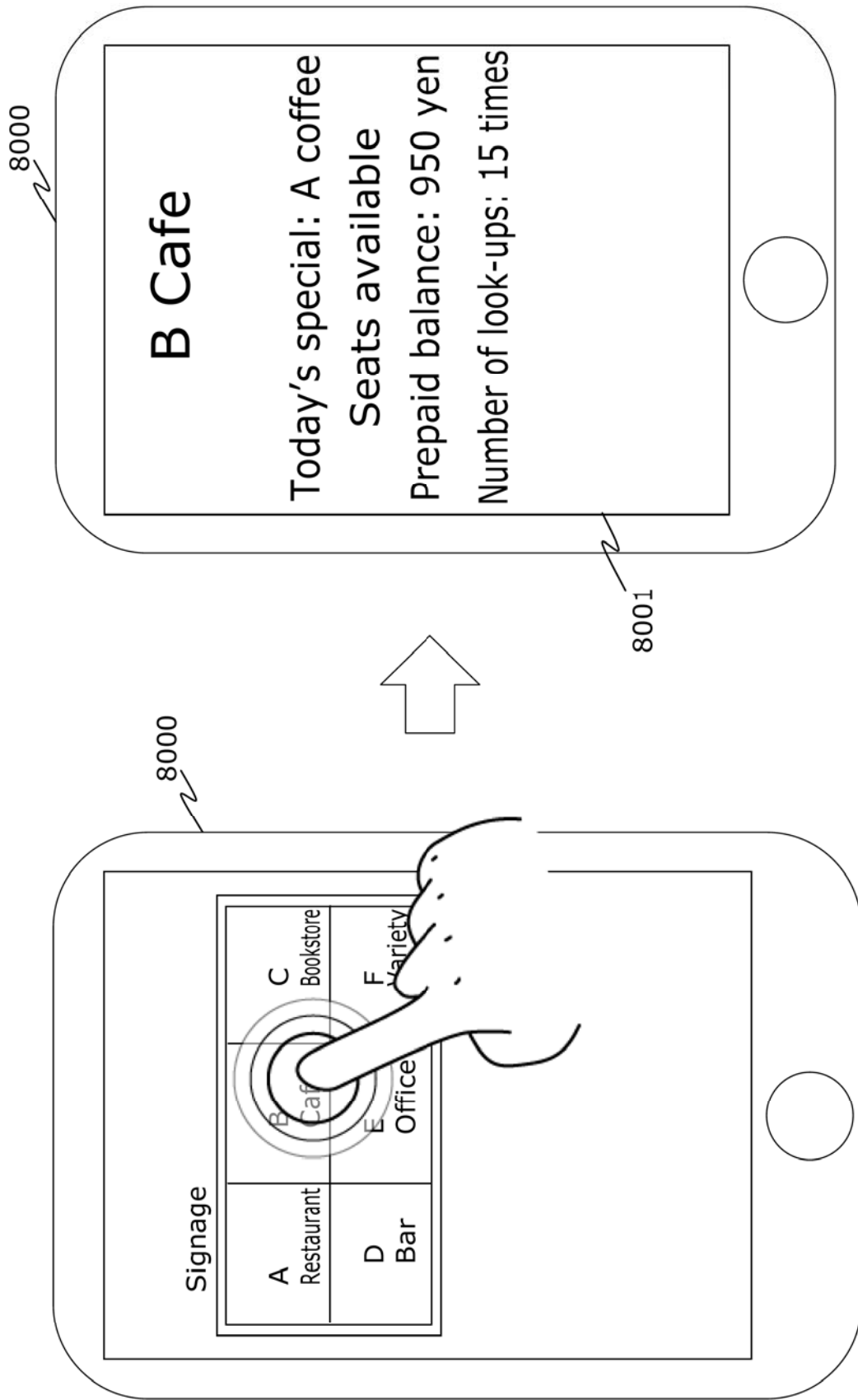


FIG. 349

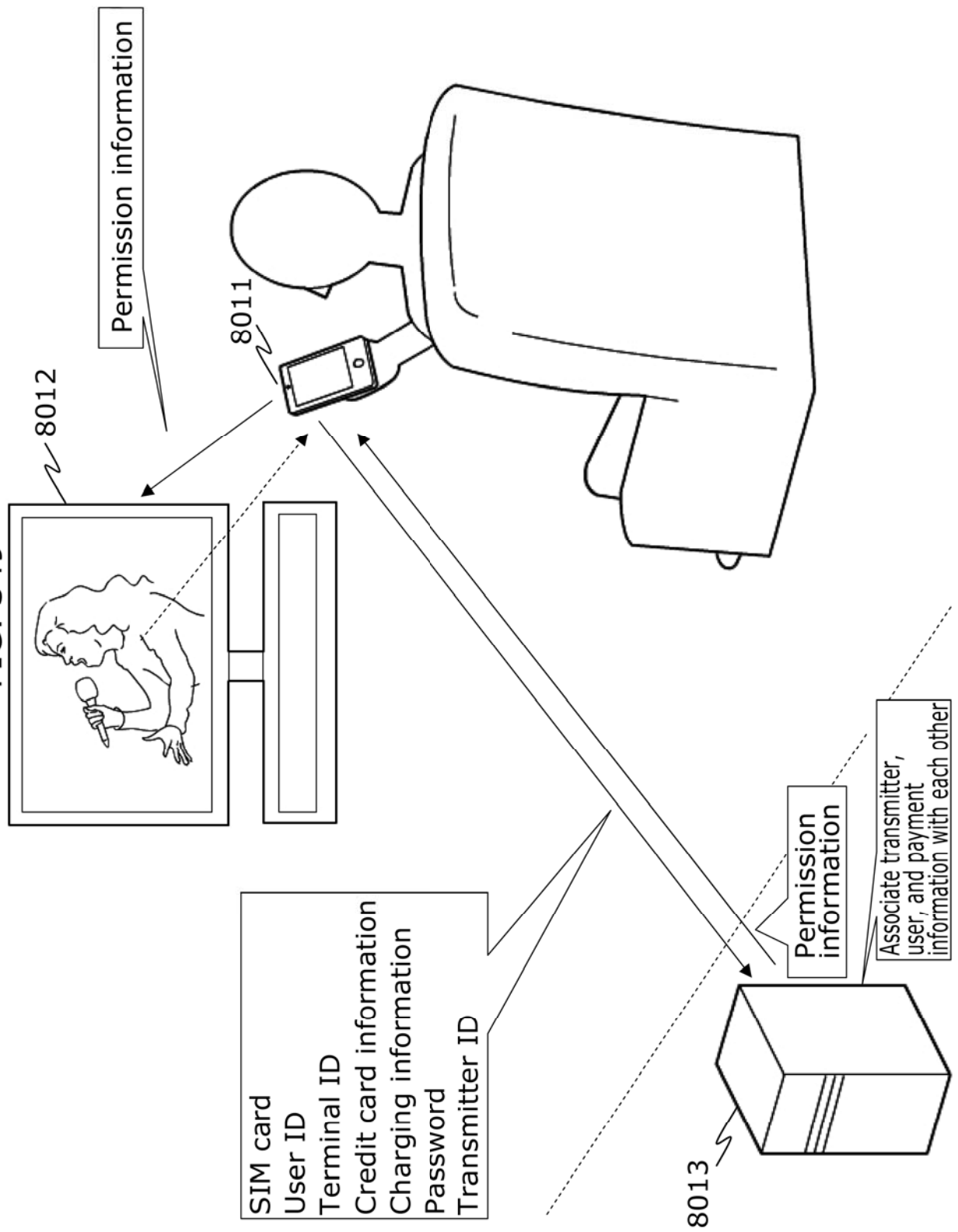


FIG. 350

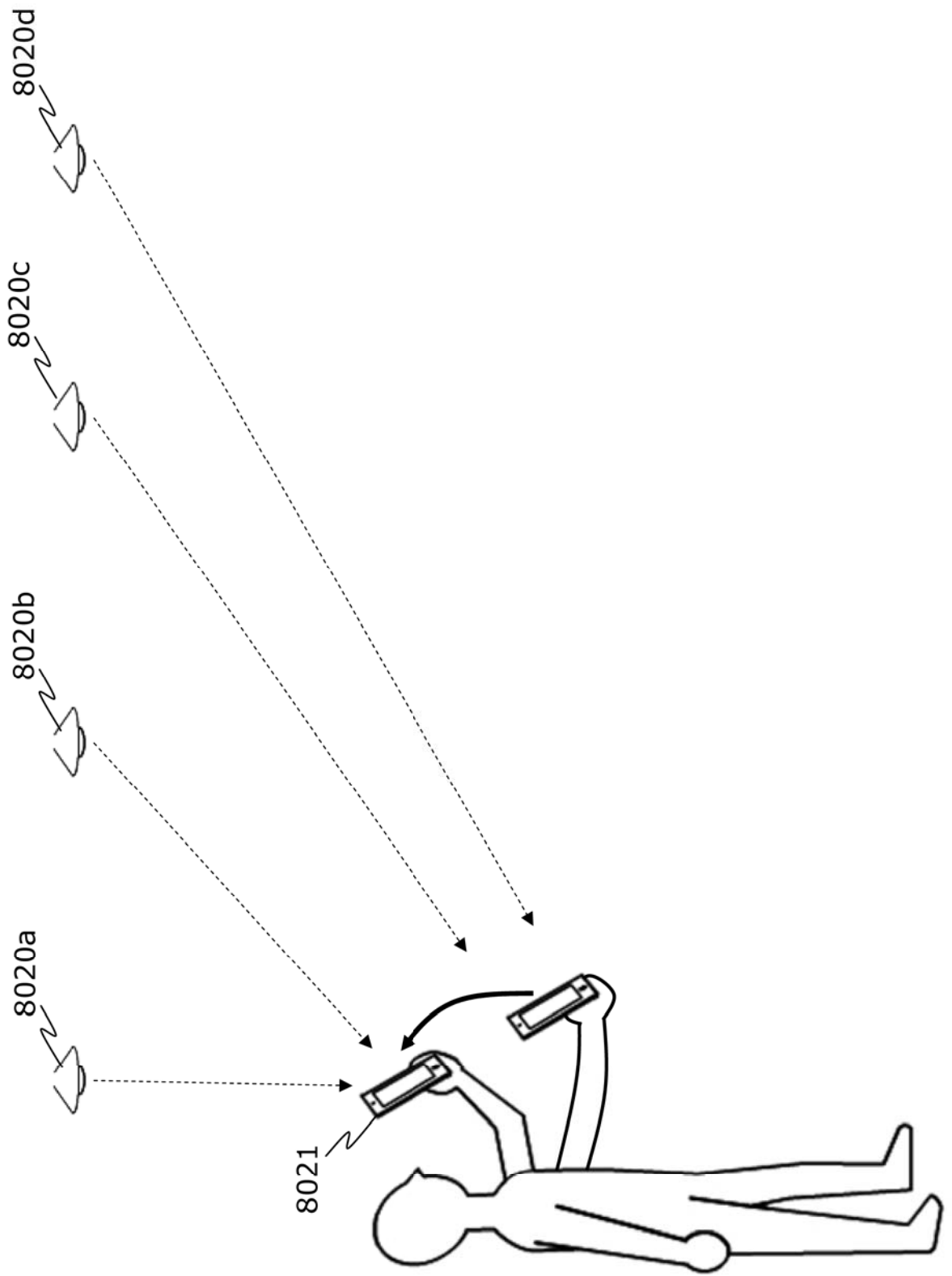


FIG. 351

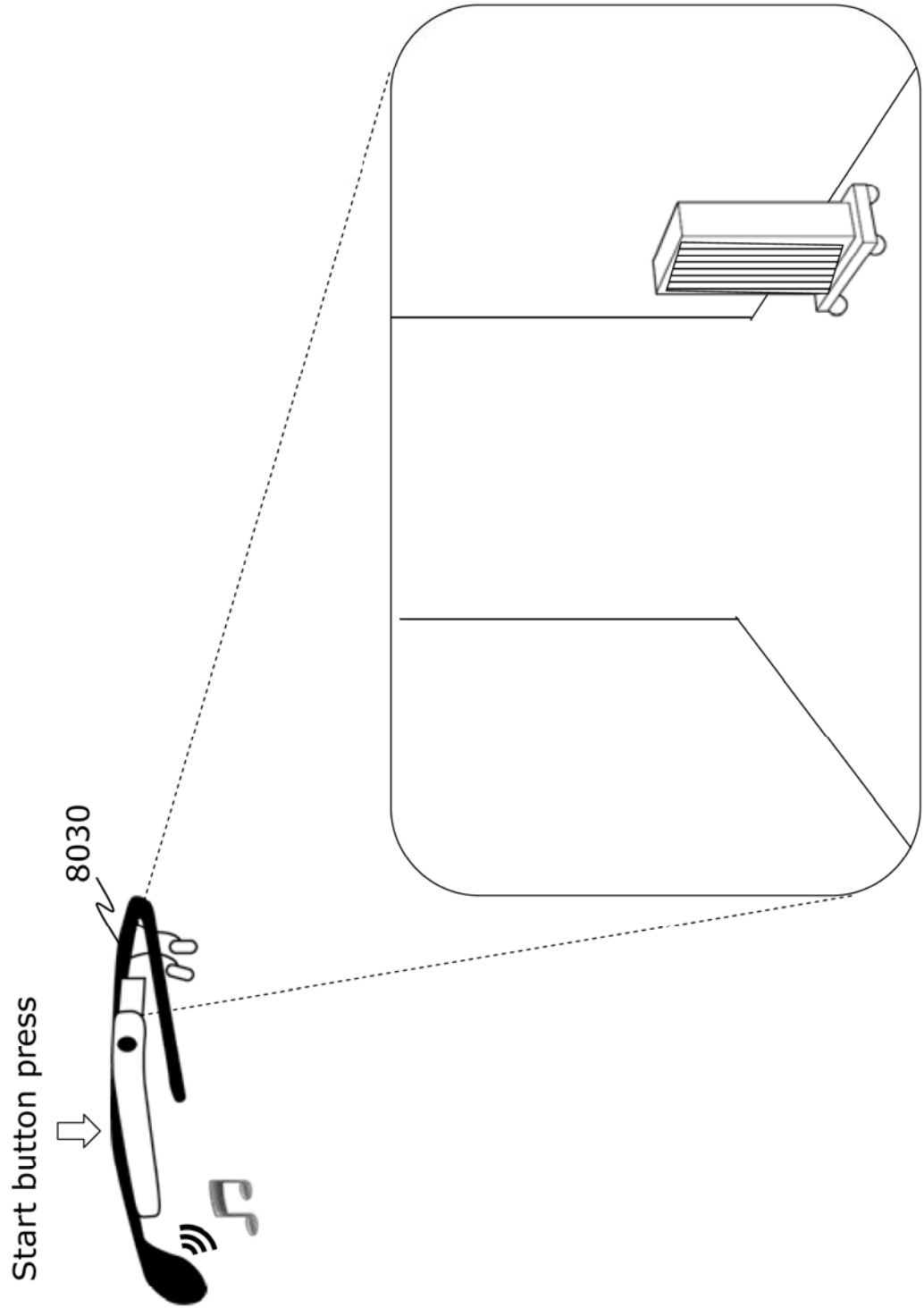
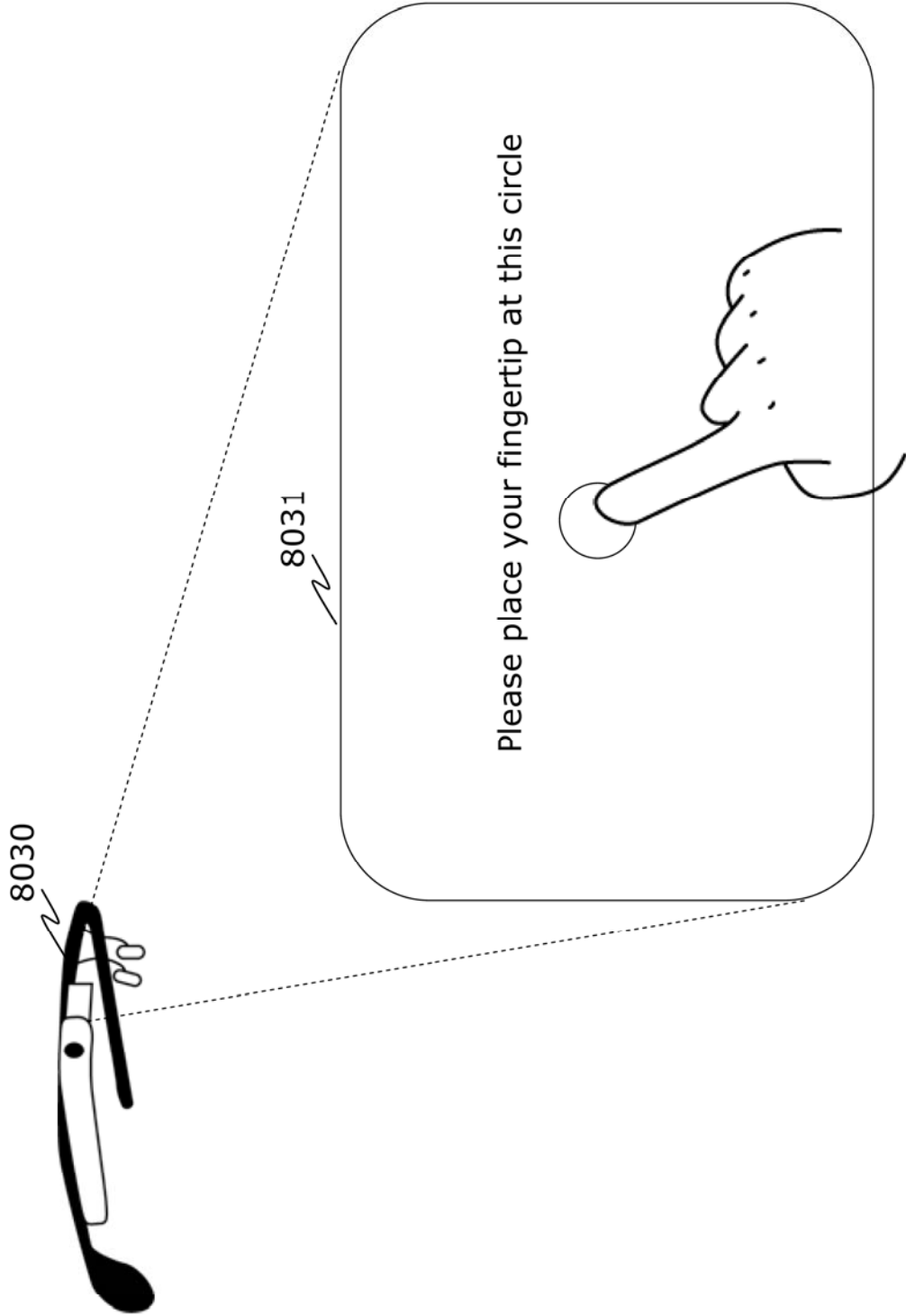


FIG. 352



Alignment of display position and imaging position

FIG. 353

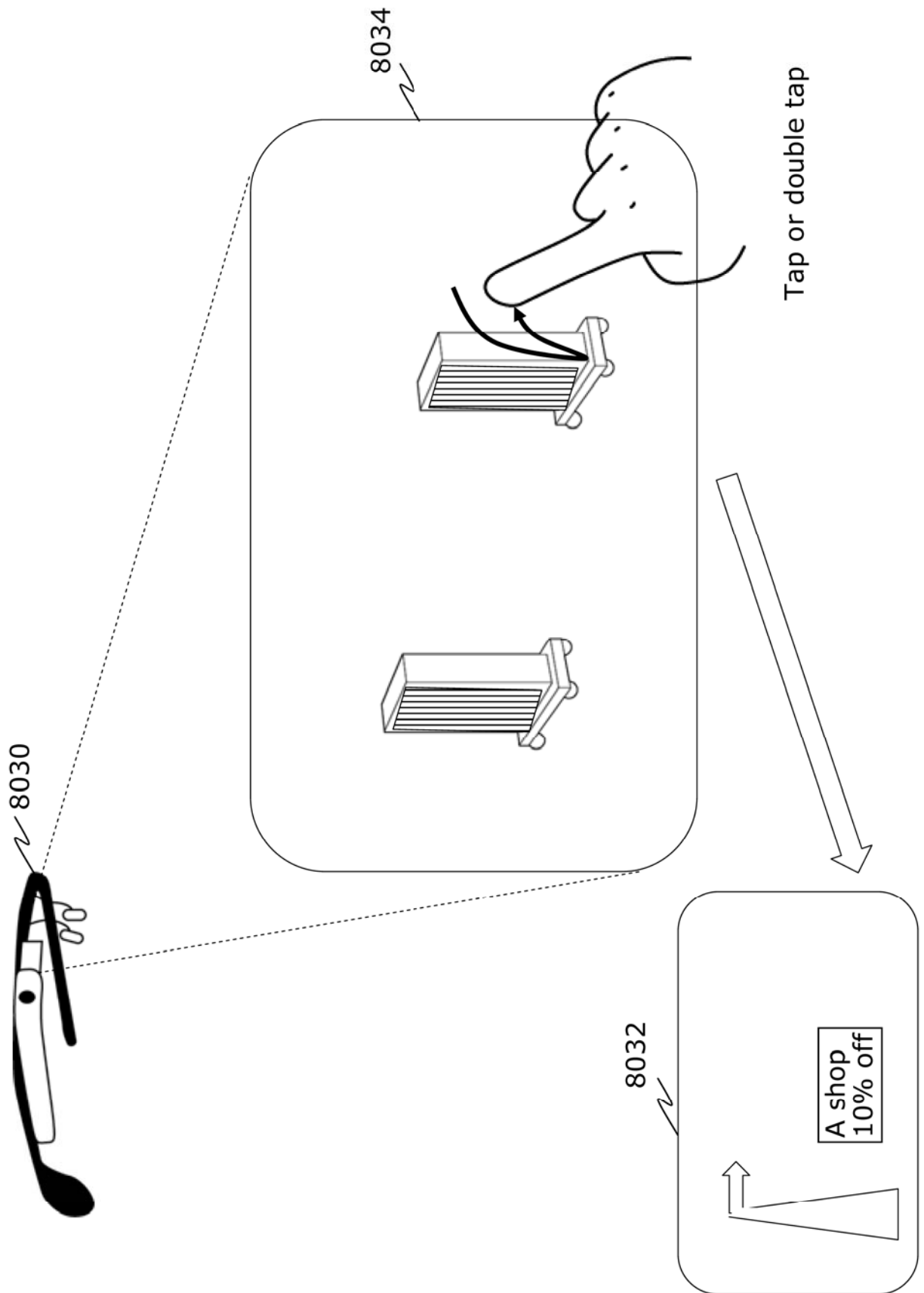


FIG. 354

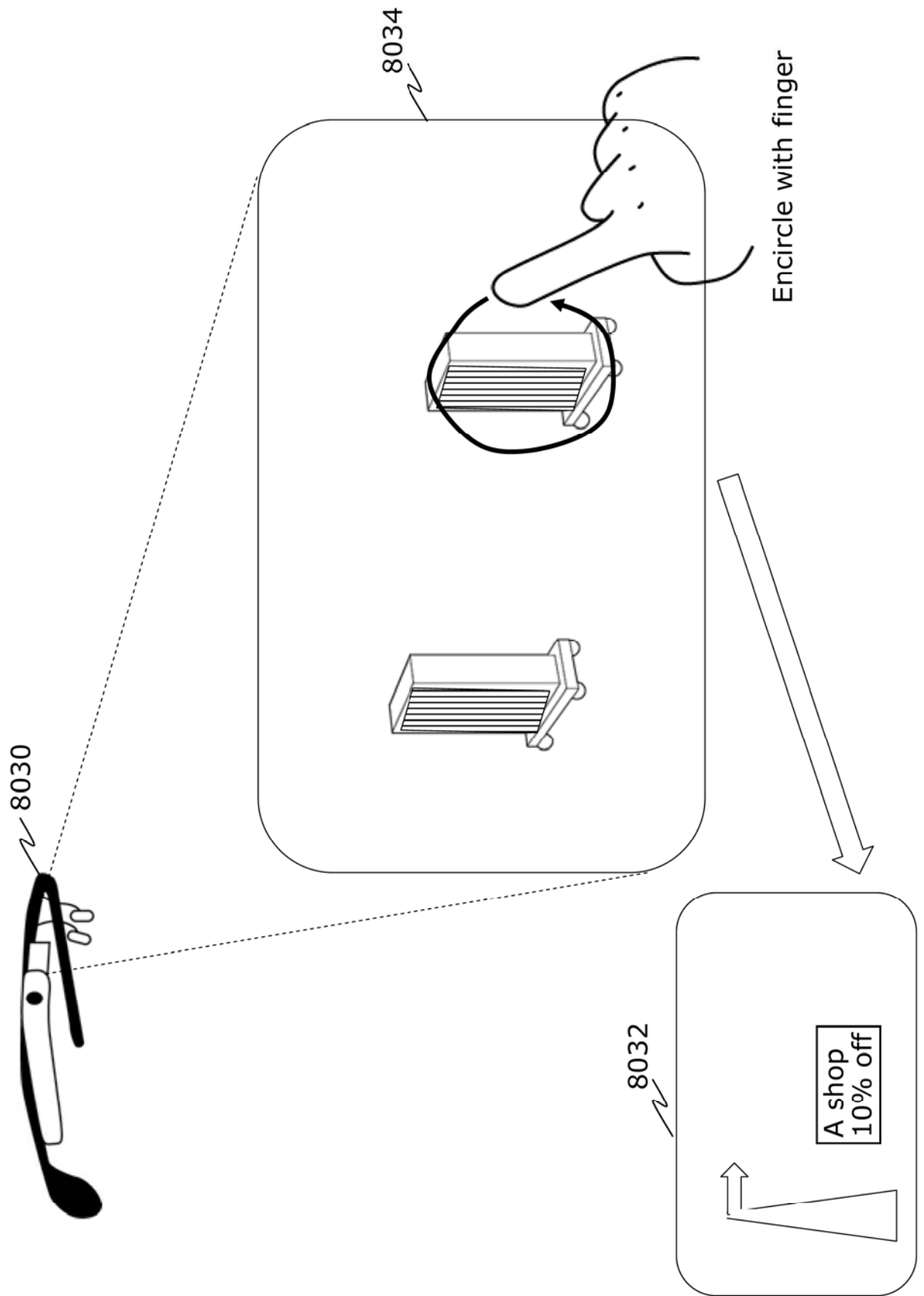




FIG. 355

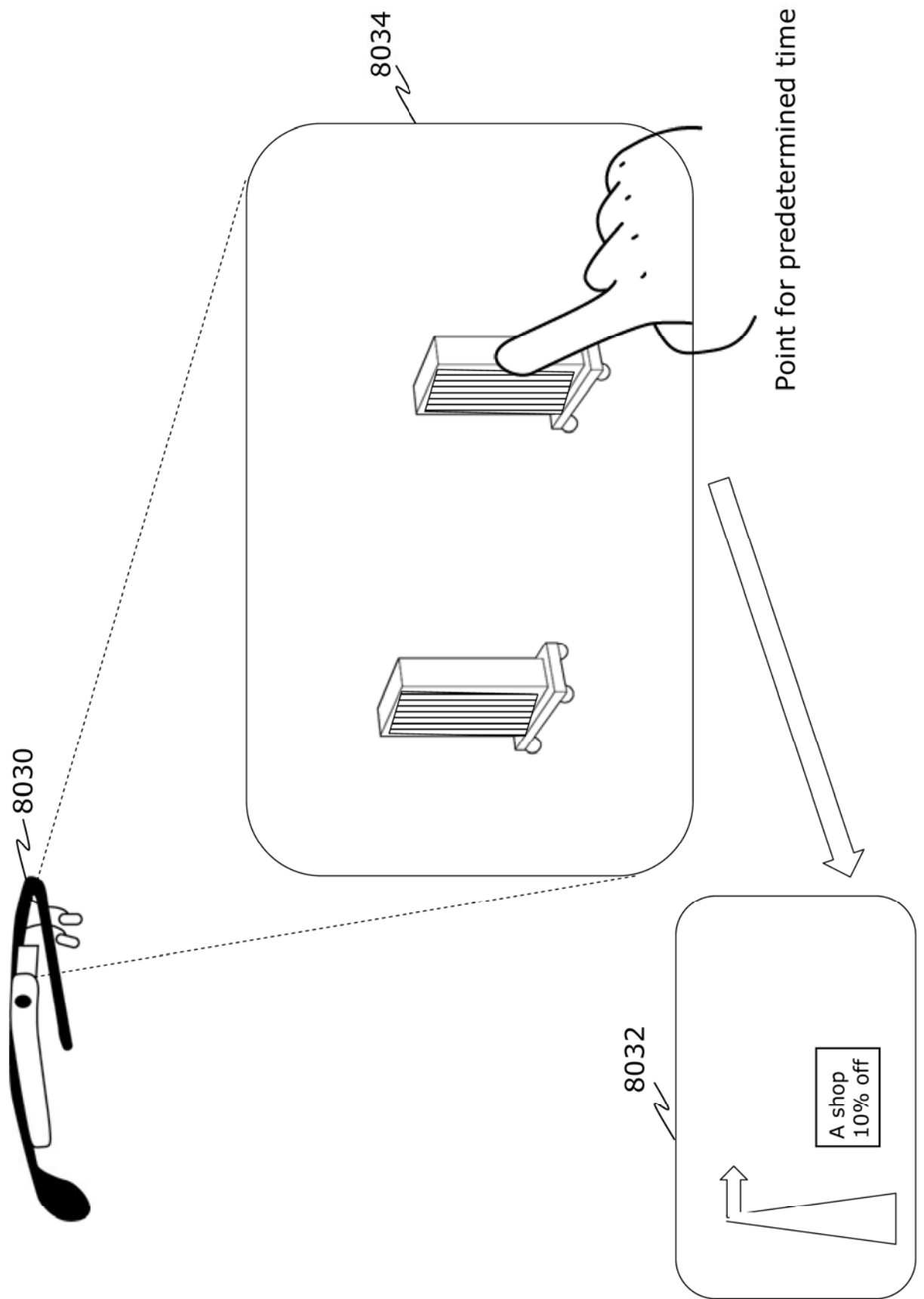


FIG. 356

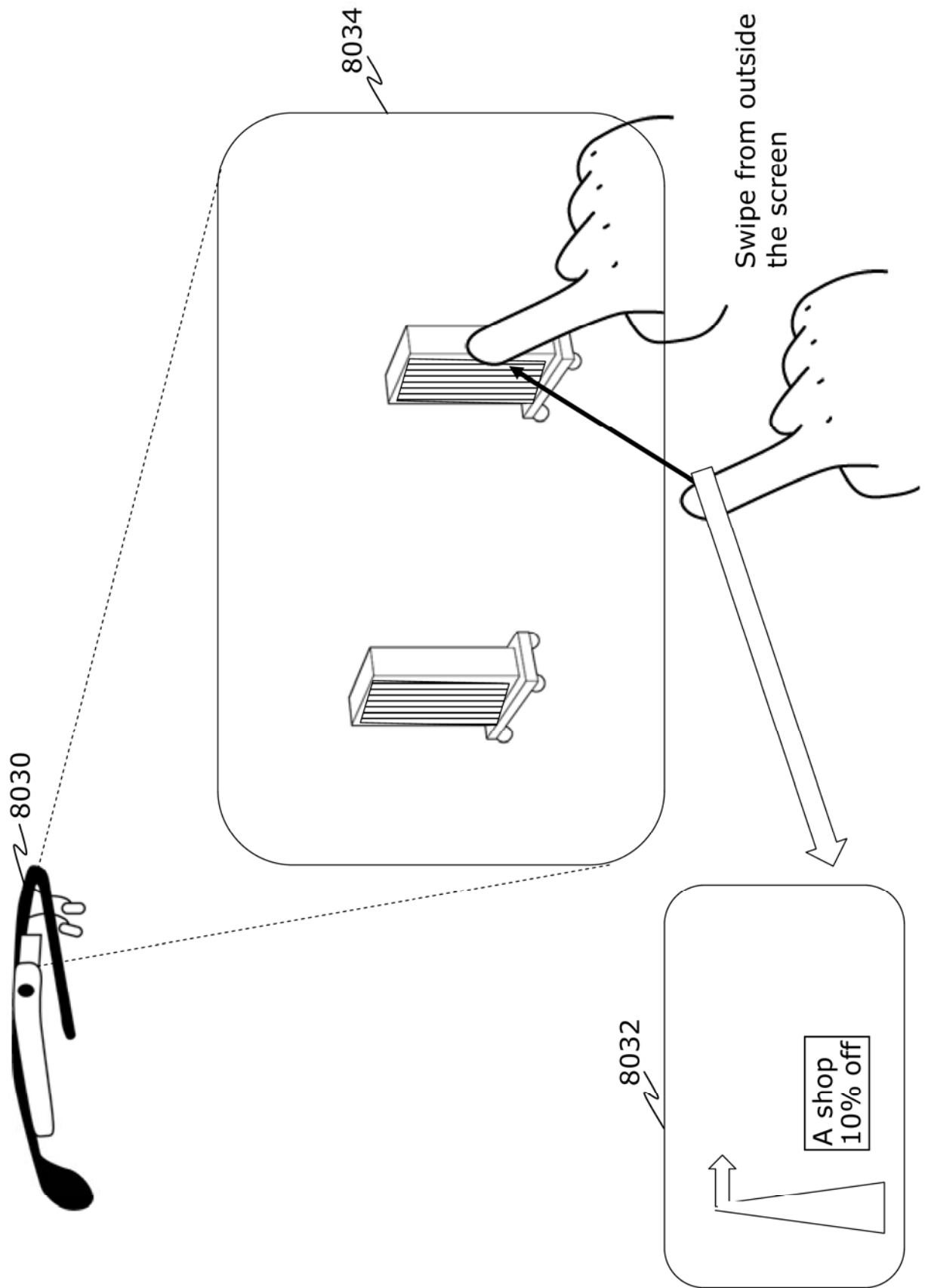


FIG. 357

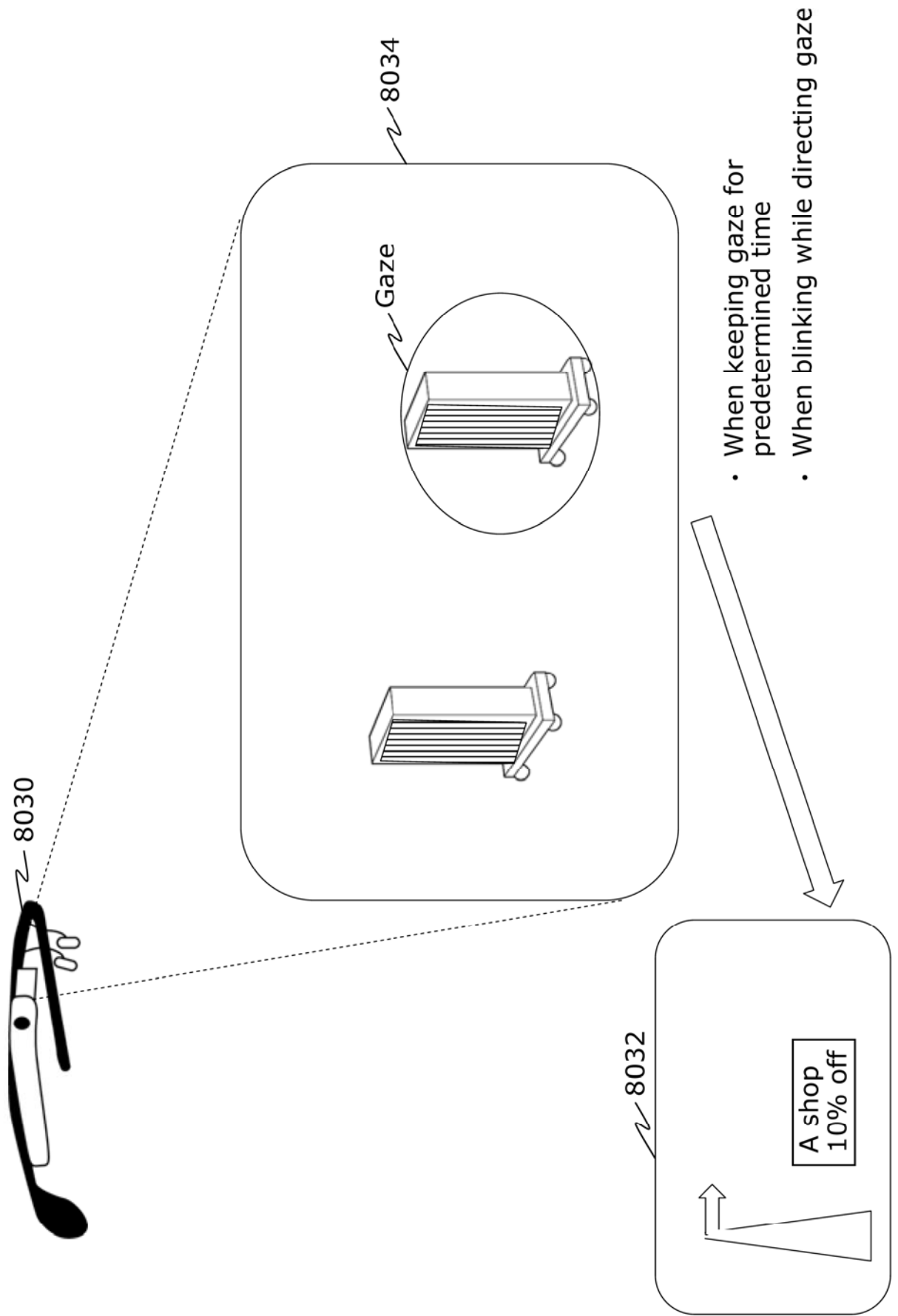


FIG. 358

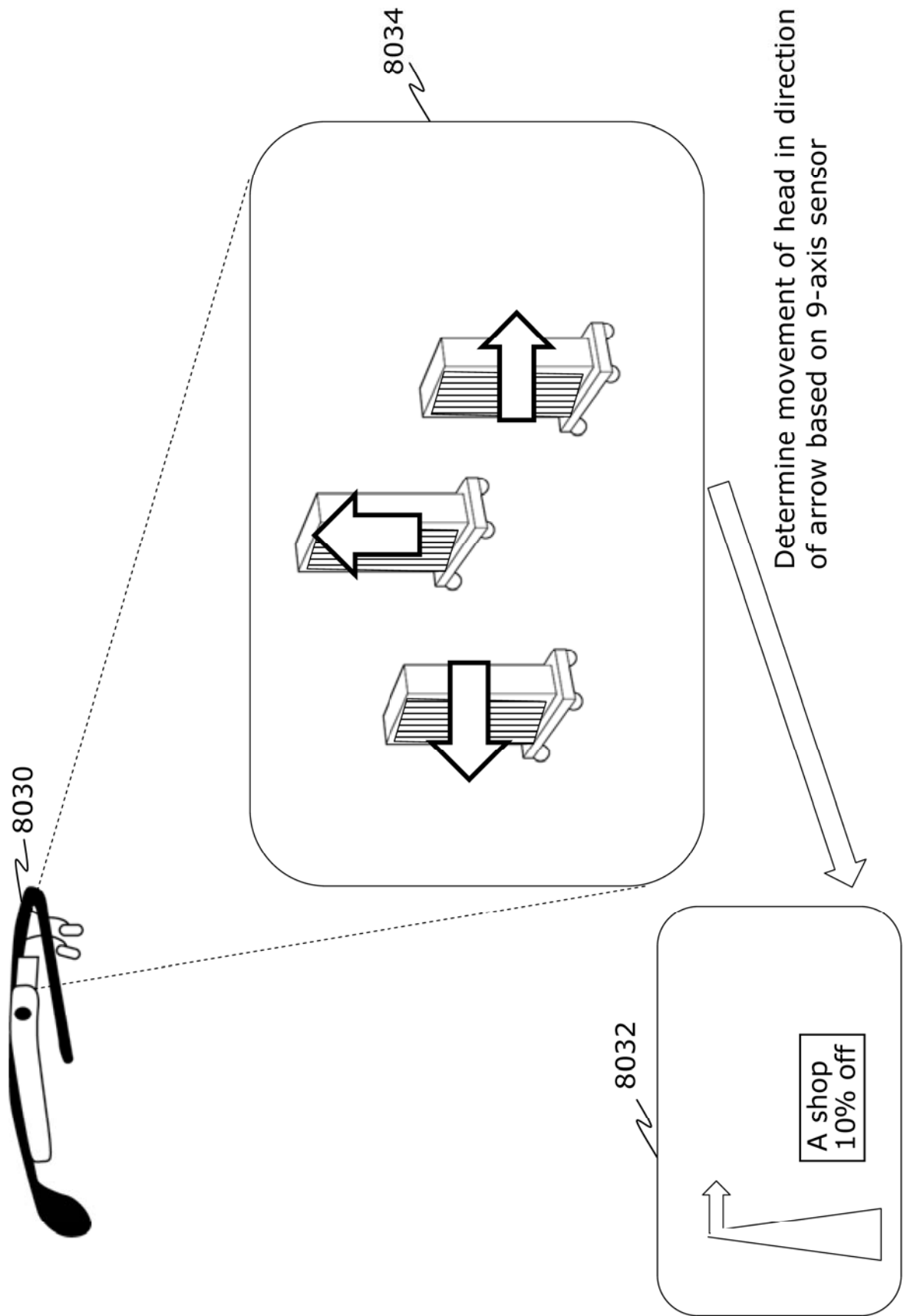


FIG. 359A

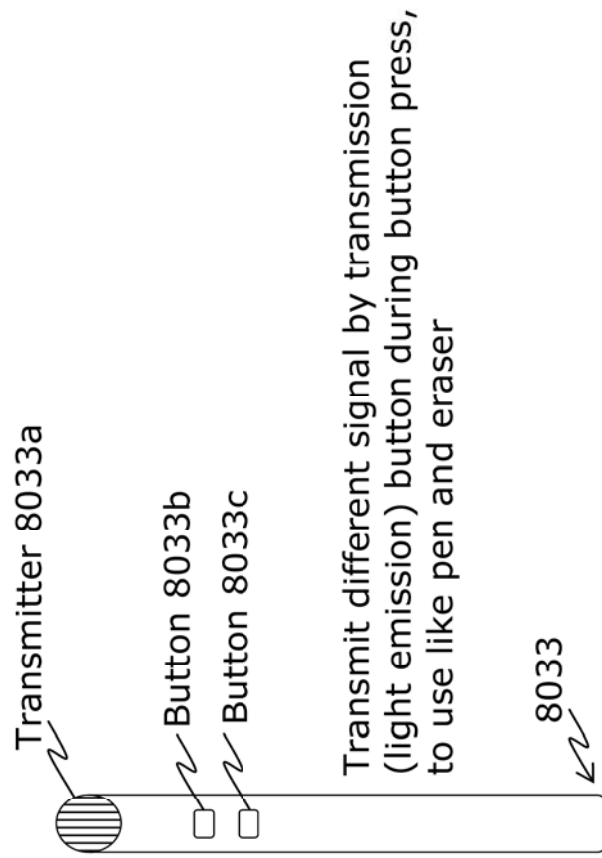


FIG. 359B

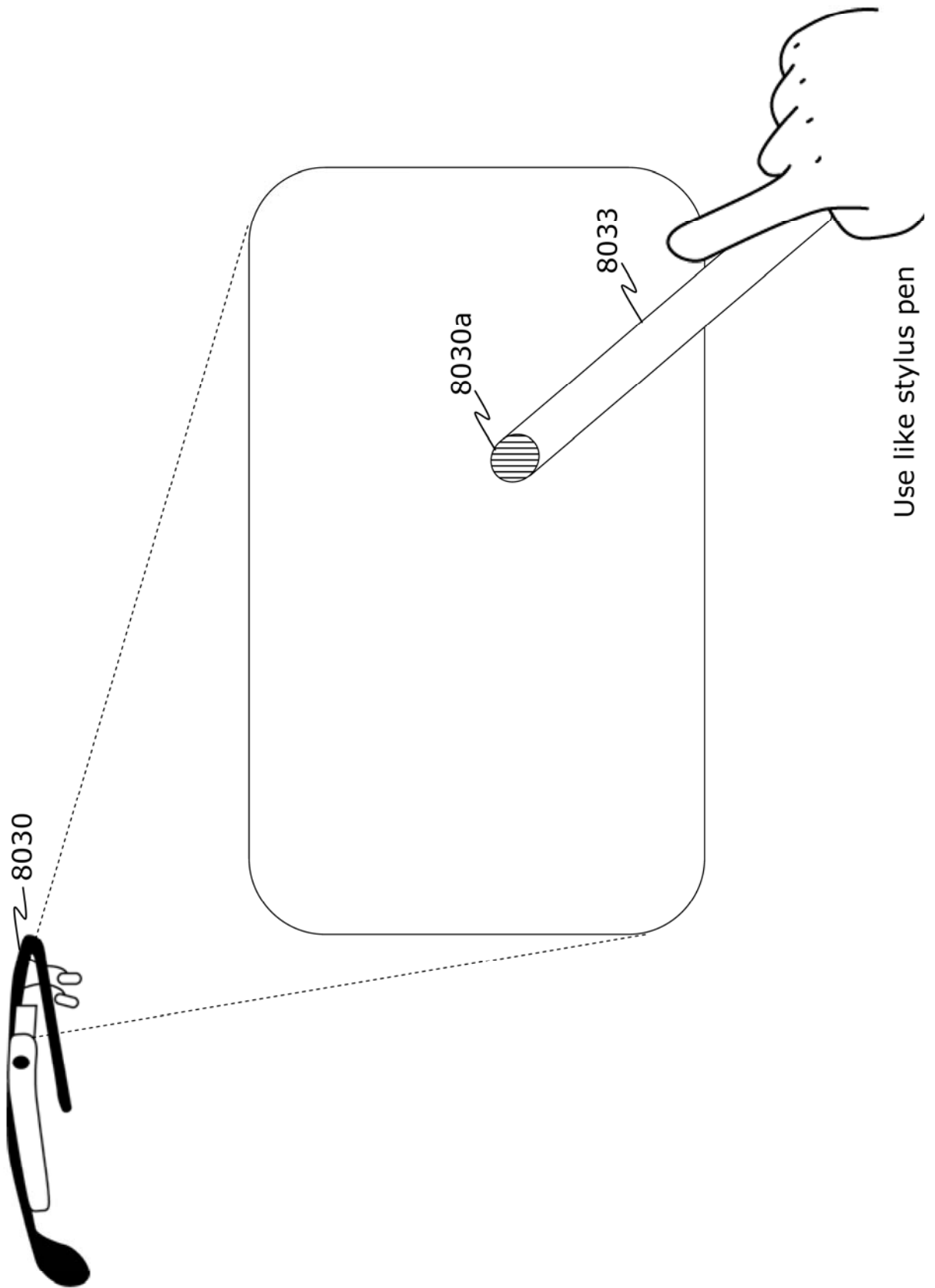


FIG. 360

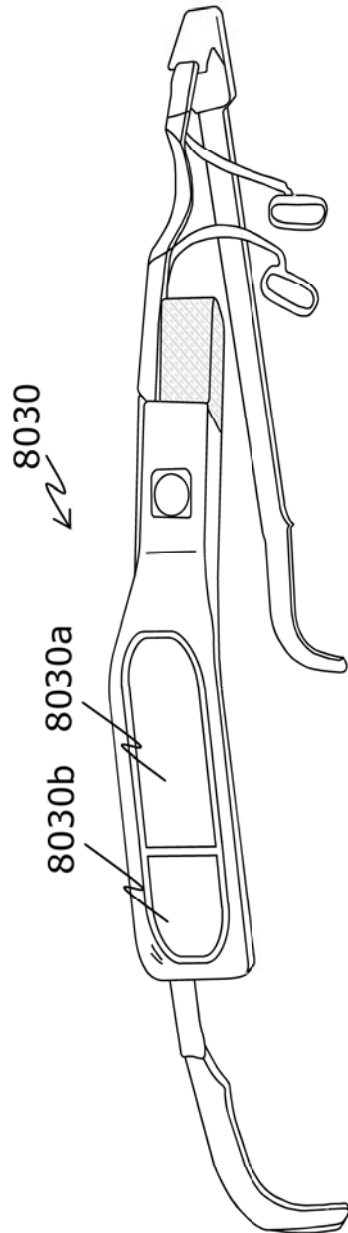


FIG. 361

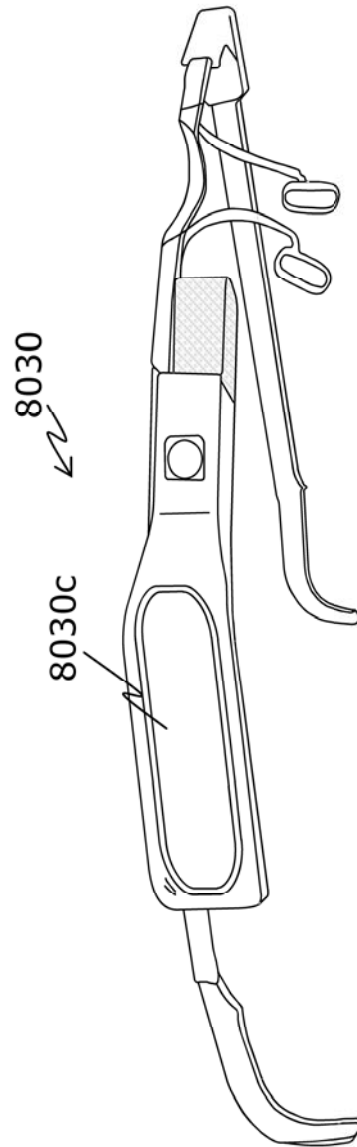




FIG. 362

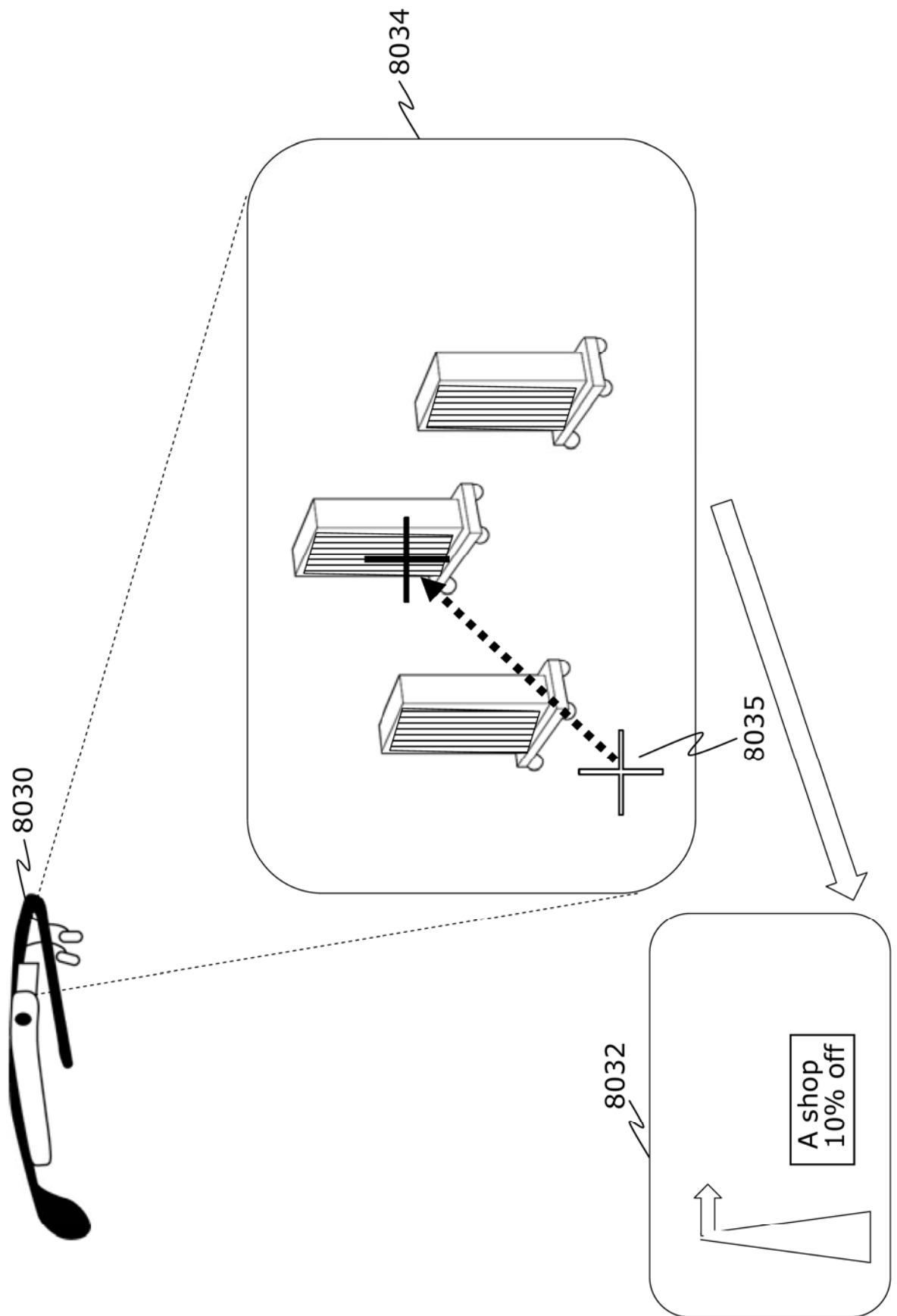


FIG. 363A

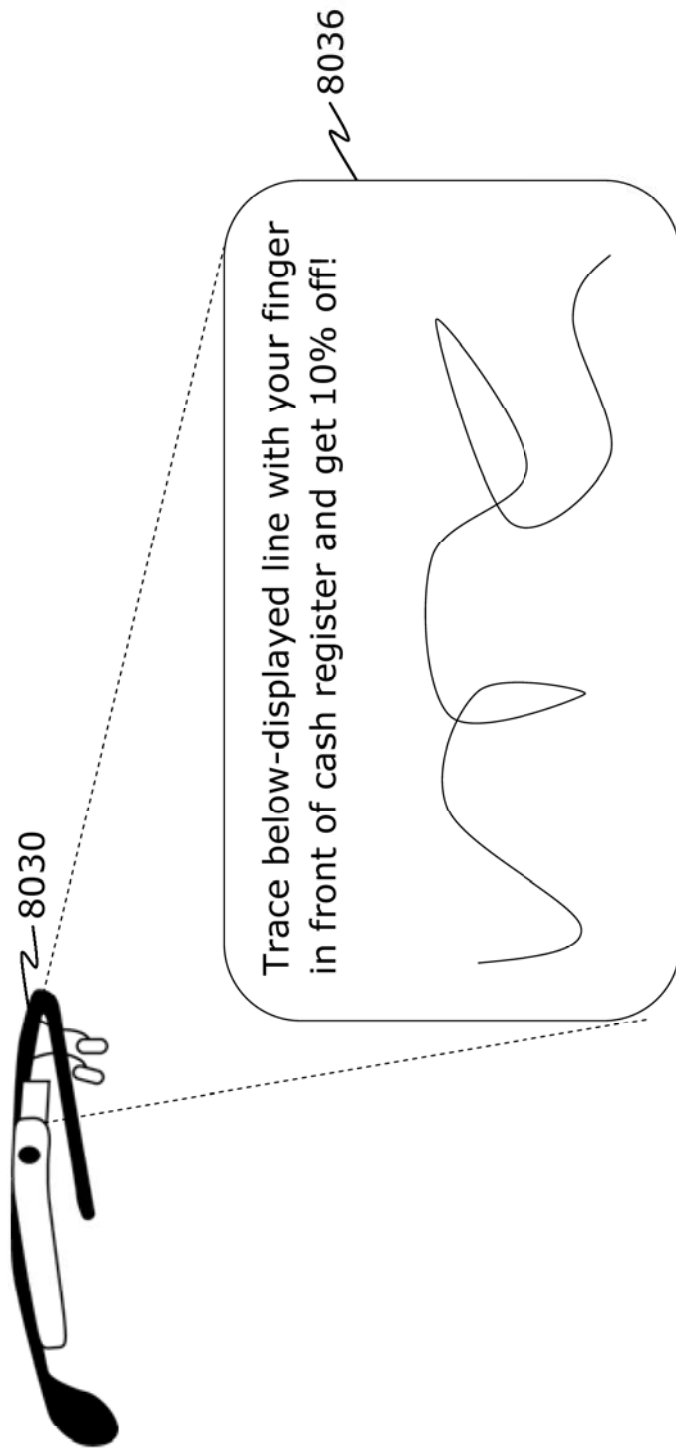


FIG. 363B

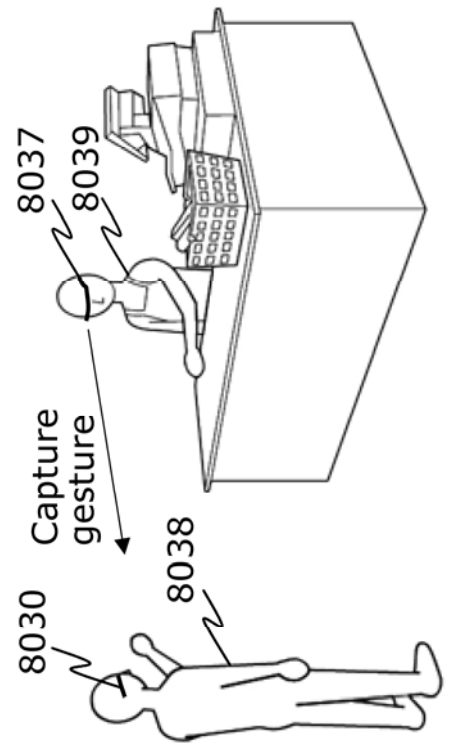


FIG. 364A

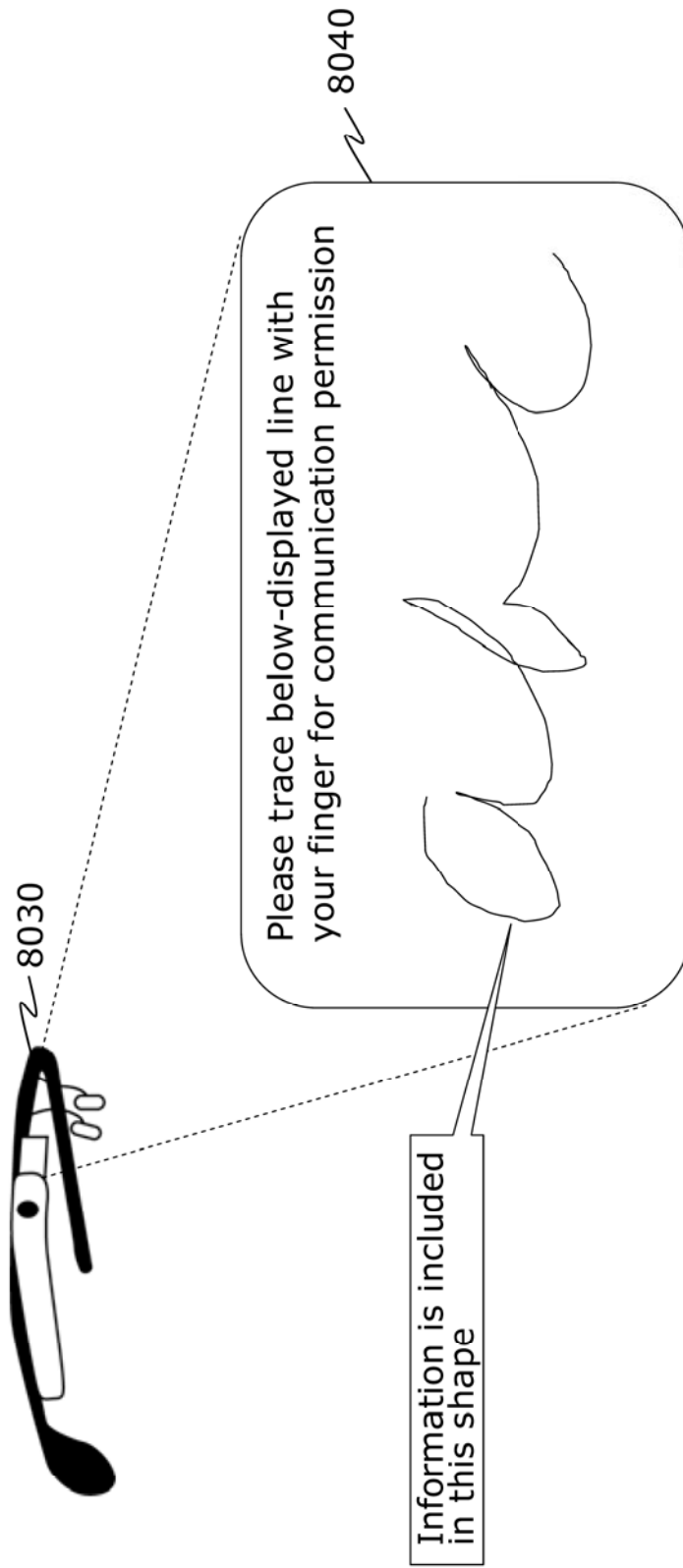


FIG. 364B

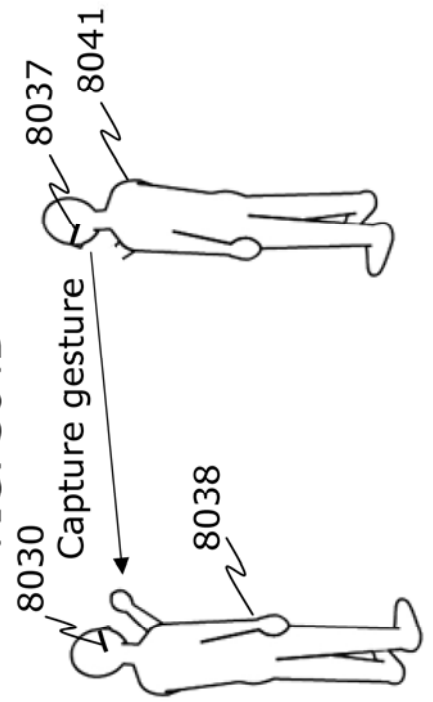
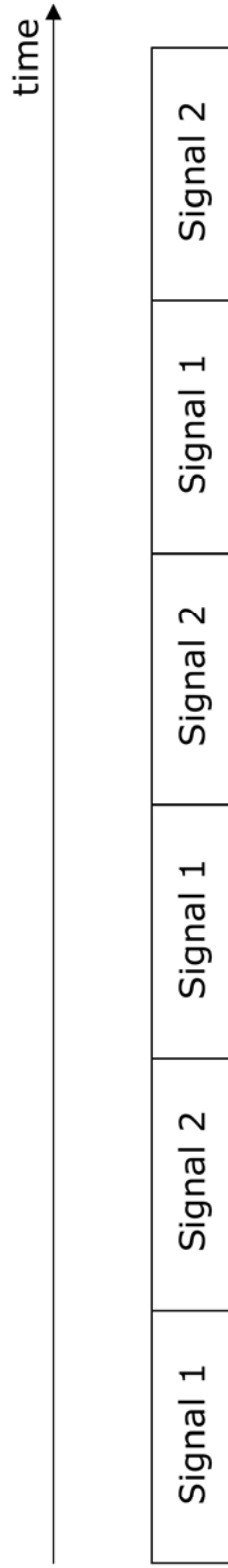


FIG. 365A



Alternately transmit signals of different types

FIG. 365B

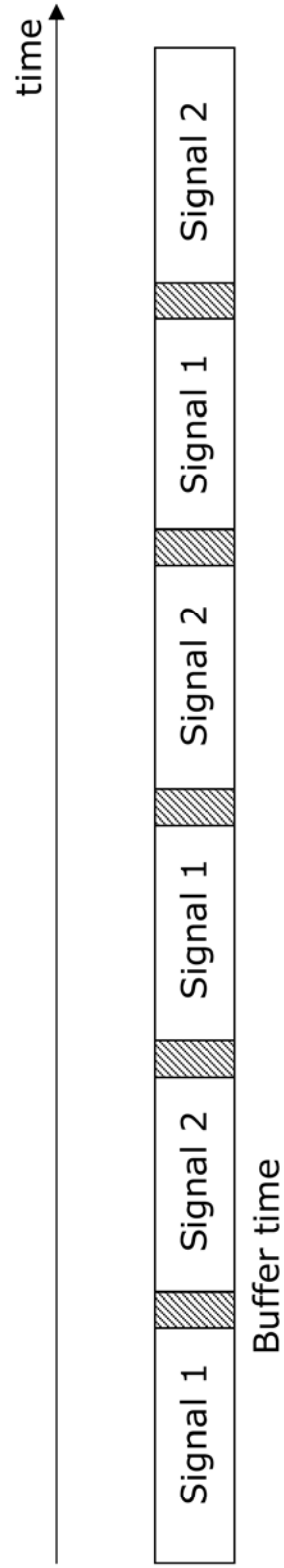


FIG. 366

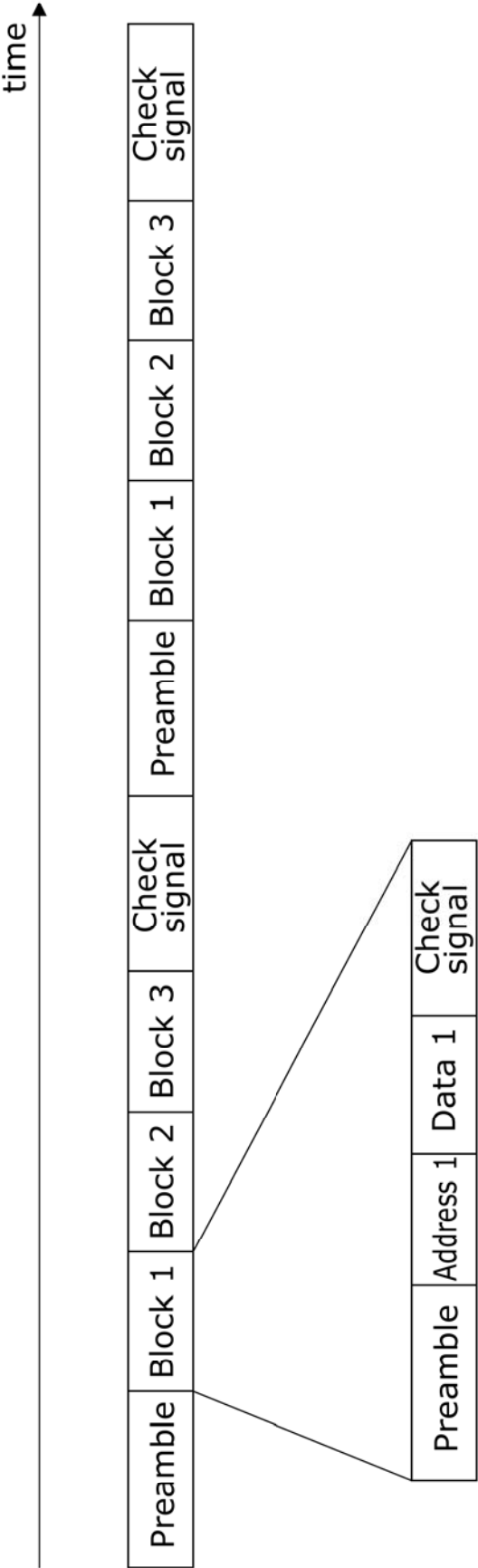


FIG. 367

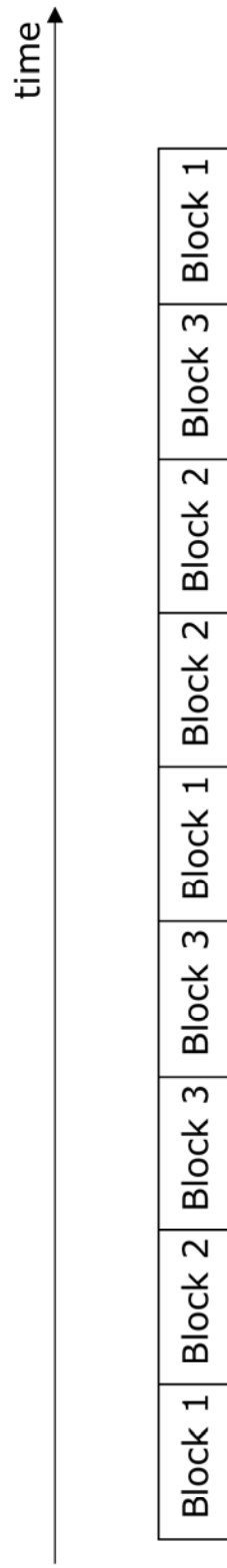


FIG. 368

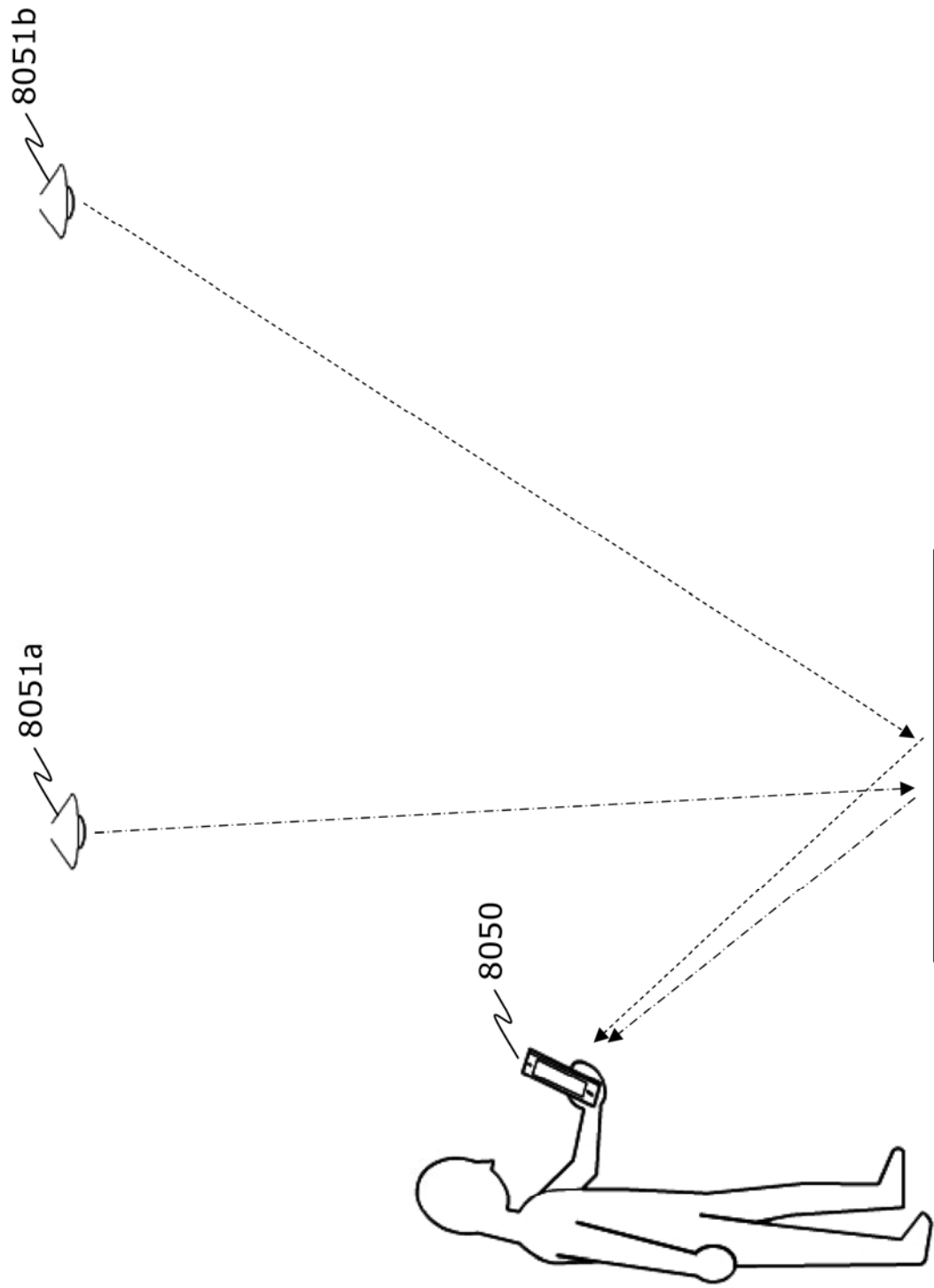
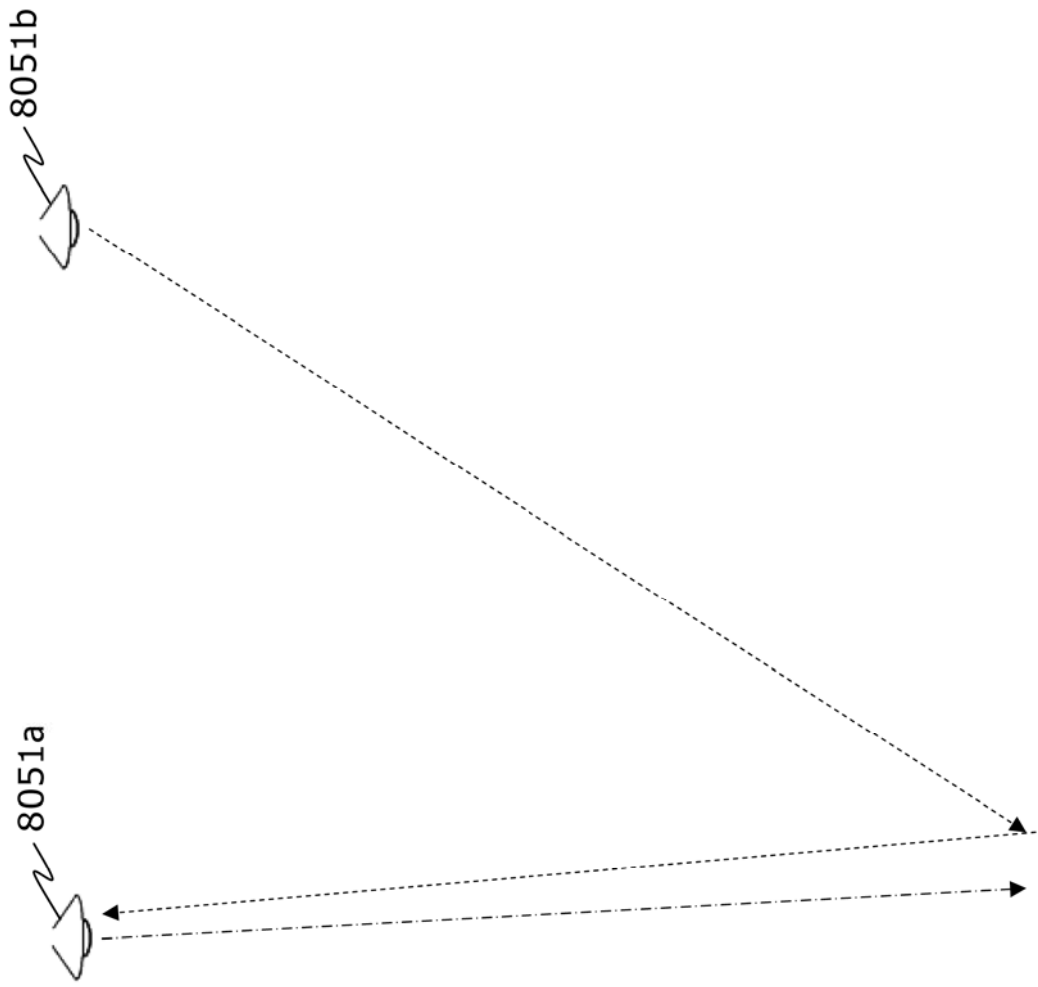


FIG. 369



Transmitter receives signal from other transmitter, and changes transmission protocol or transmits signal in period during which other transmitter is not transmitting signal, to prevent its transmission signal from interfering with transmission signal from other transmitter



FIG. 370

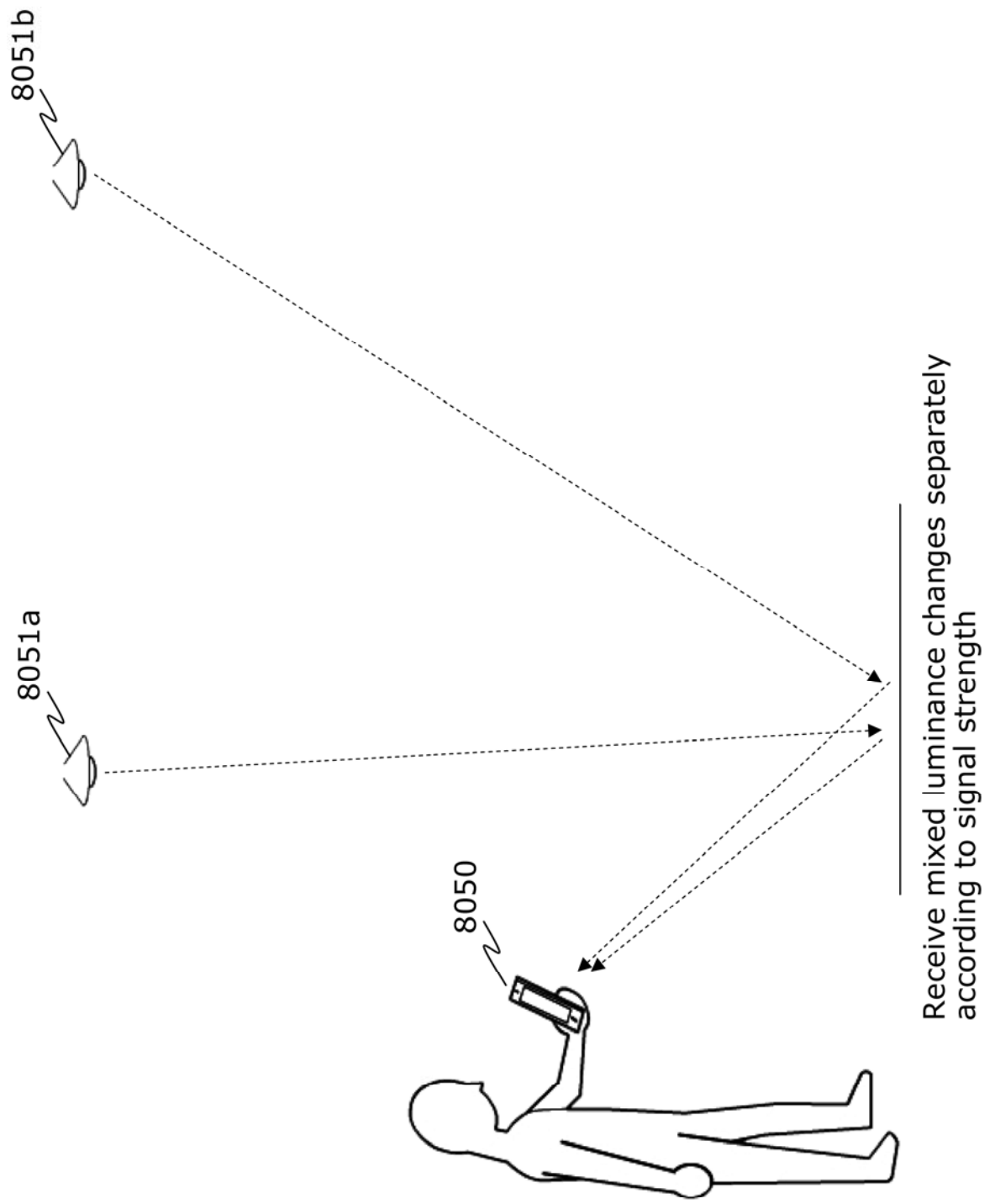


FIG. 371

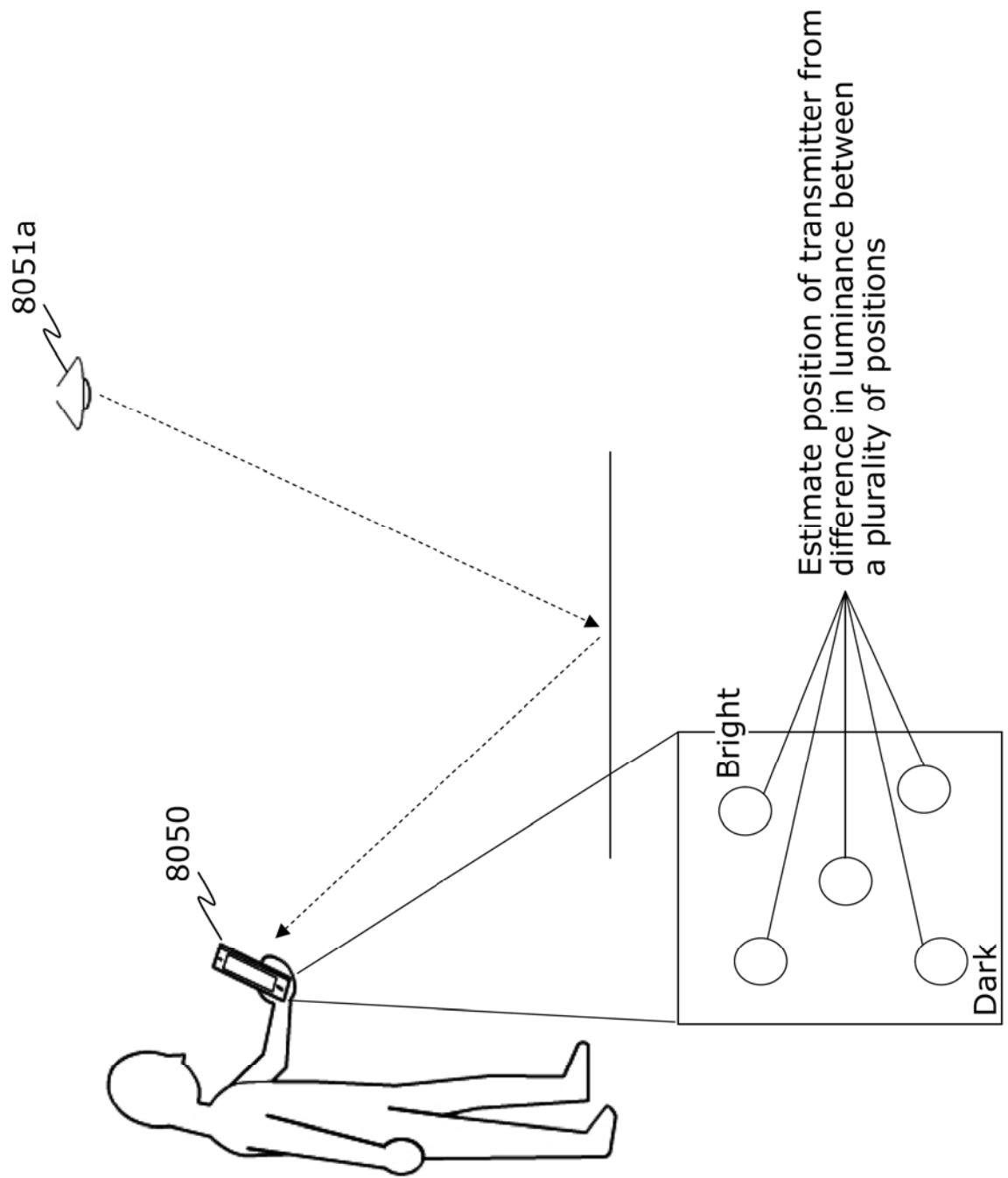


FIG. 372

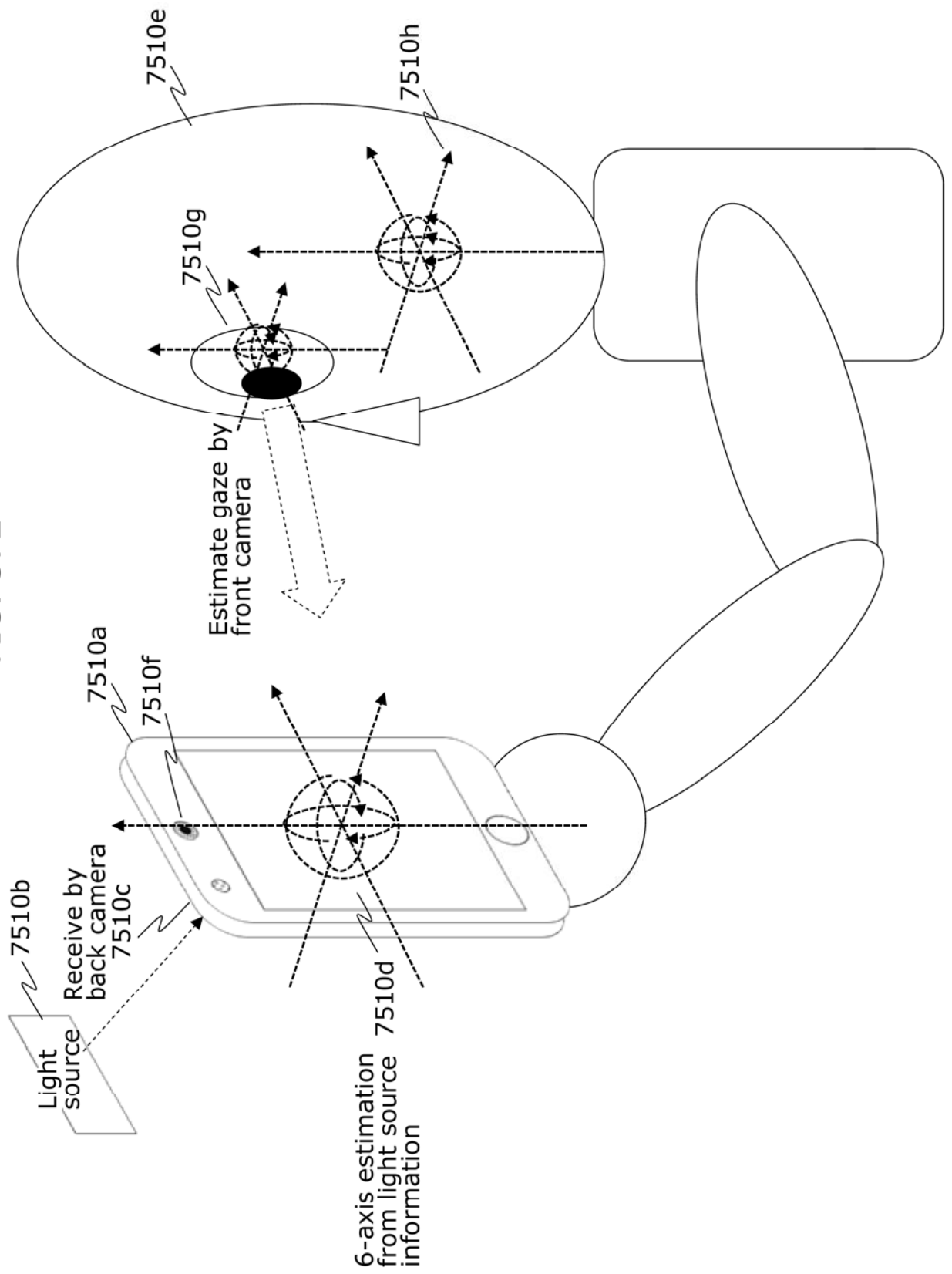


FIG. 373

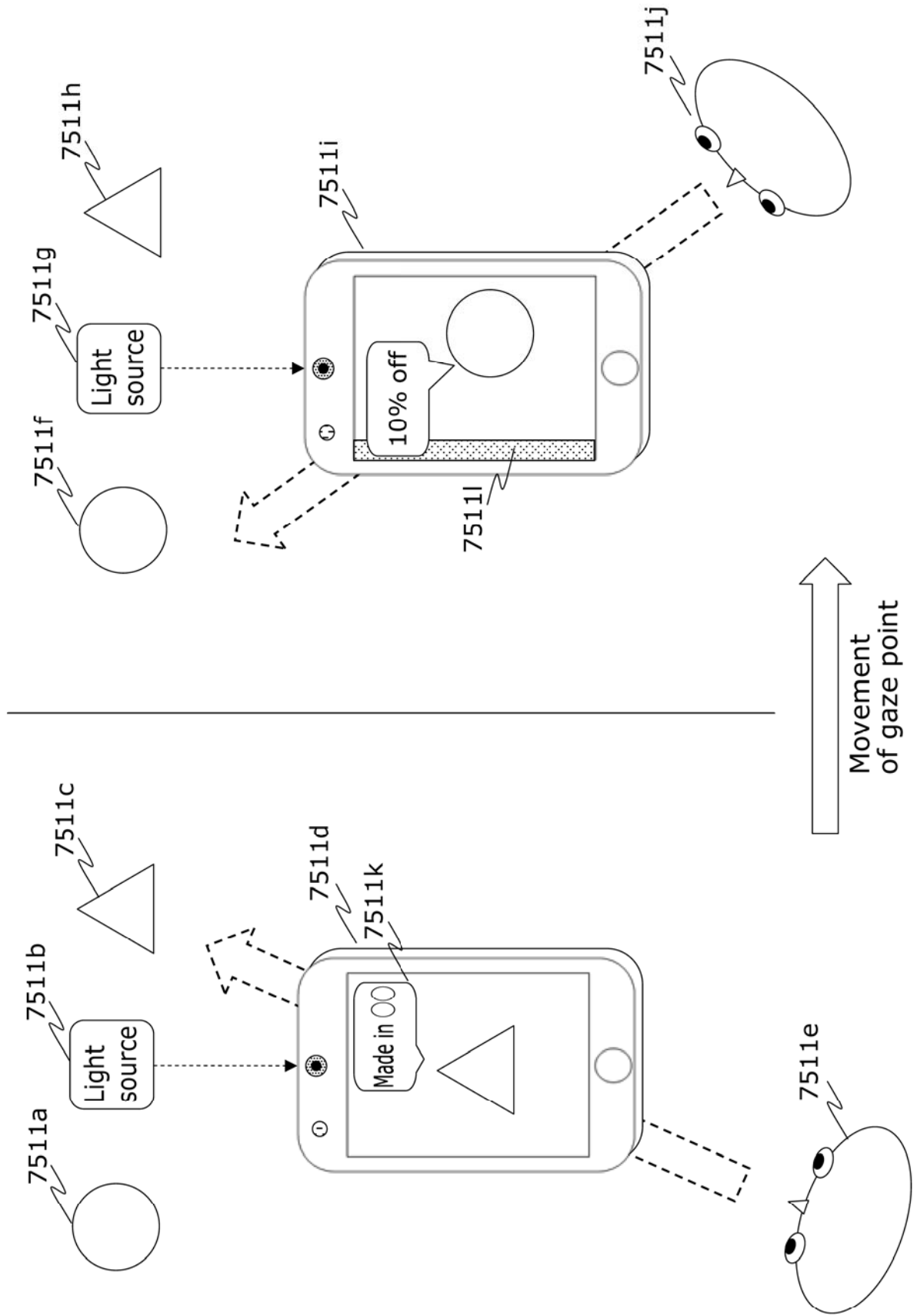


FIG. 374

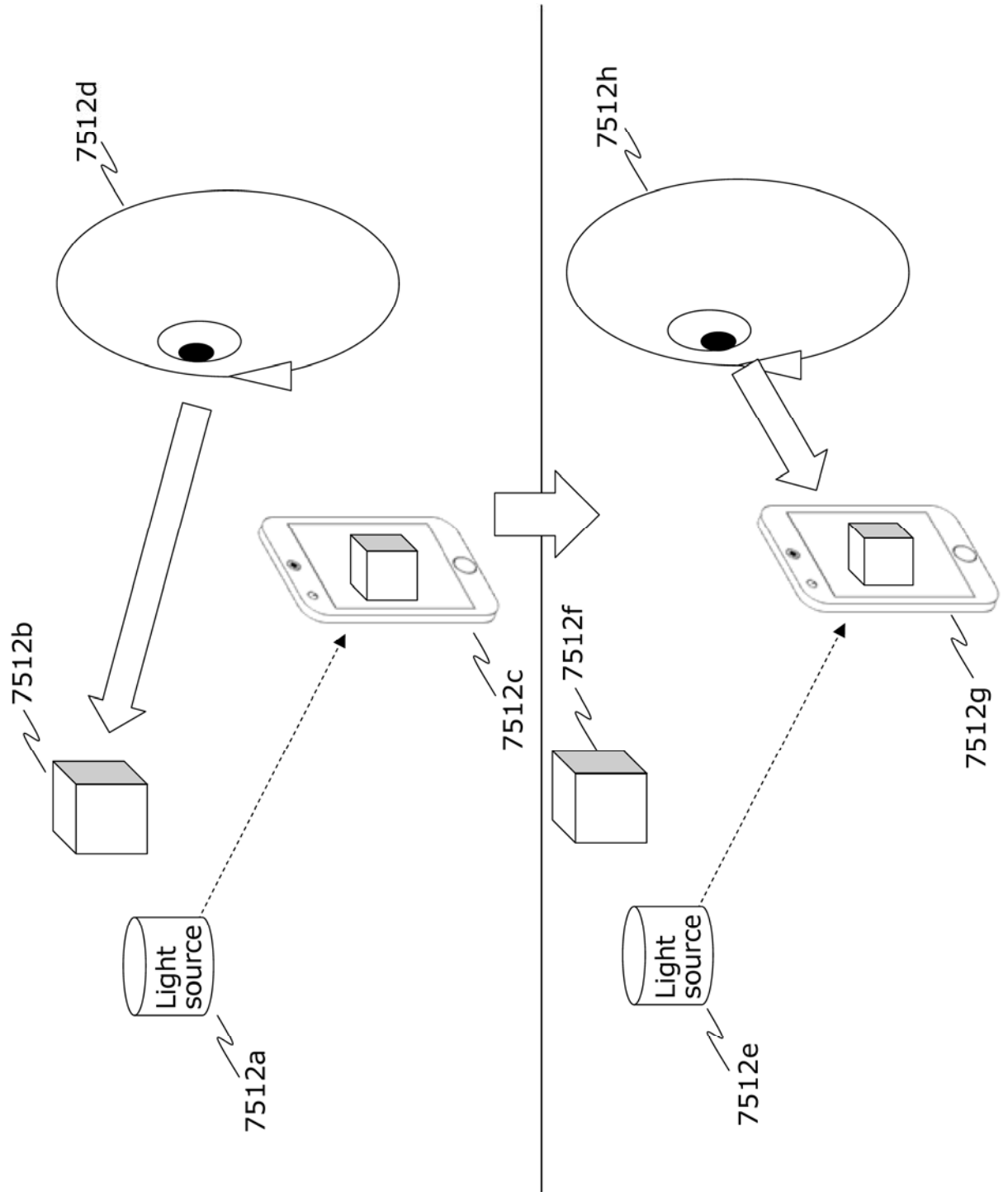


FIG. 375

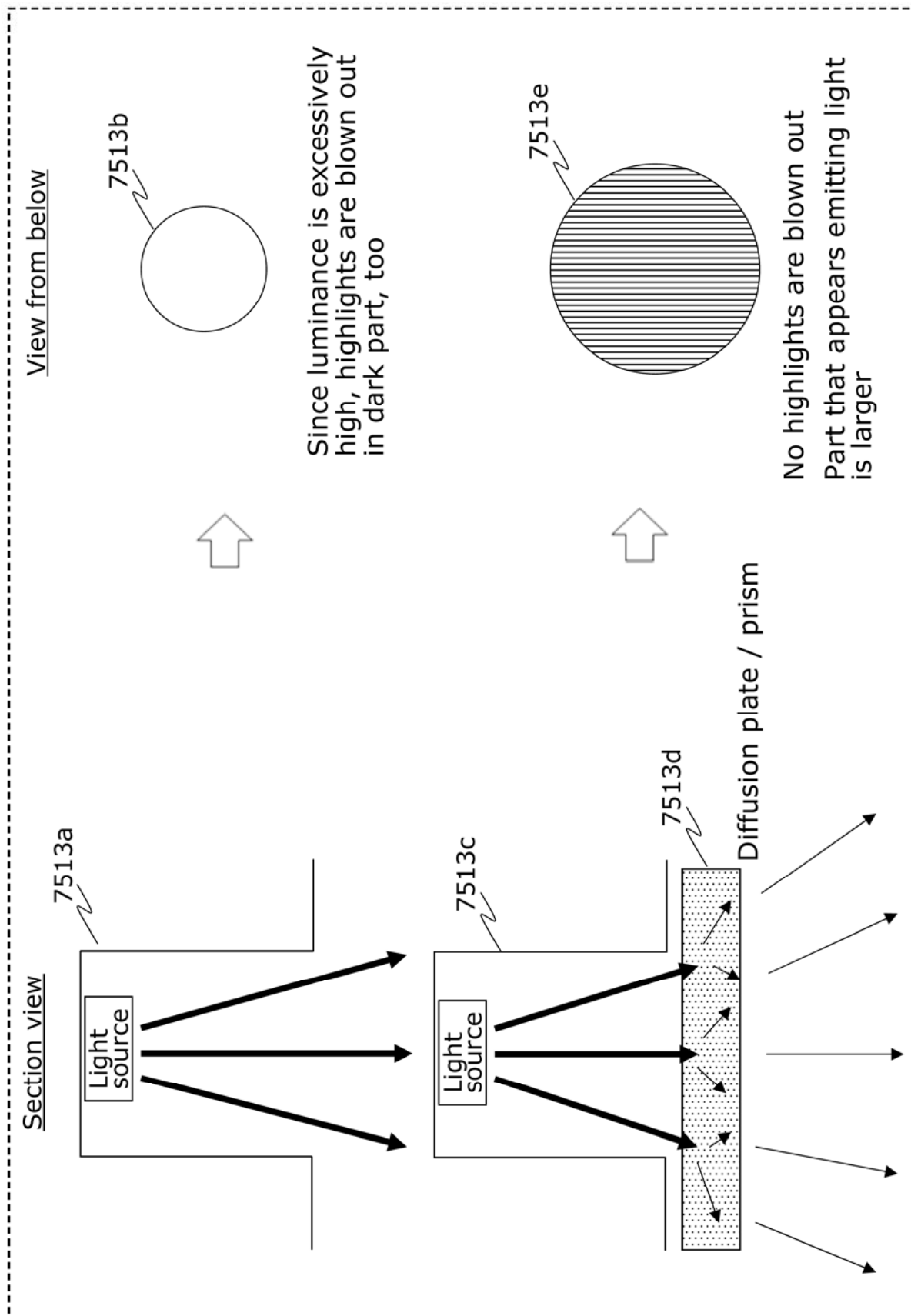


FIG. 376

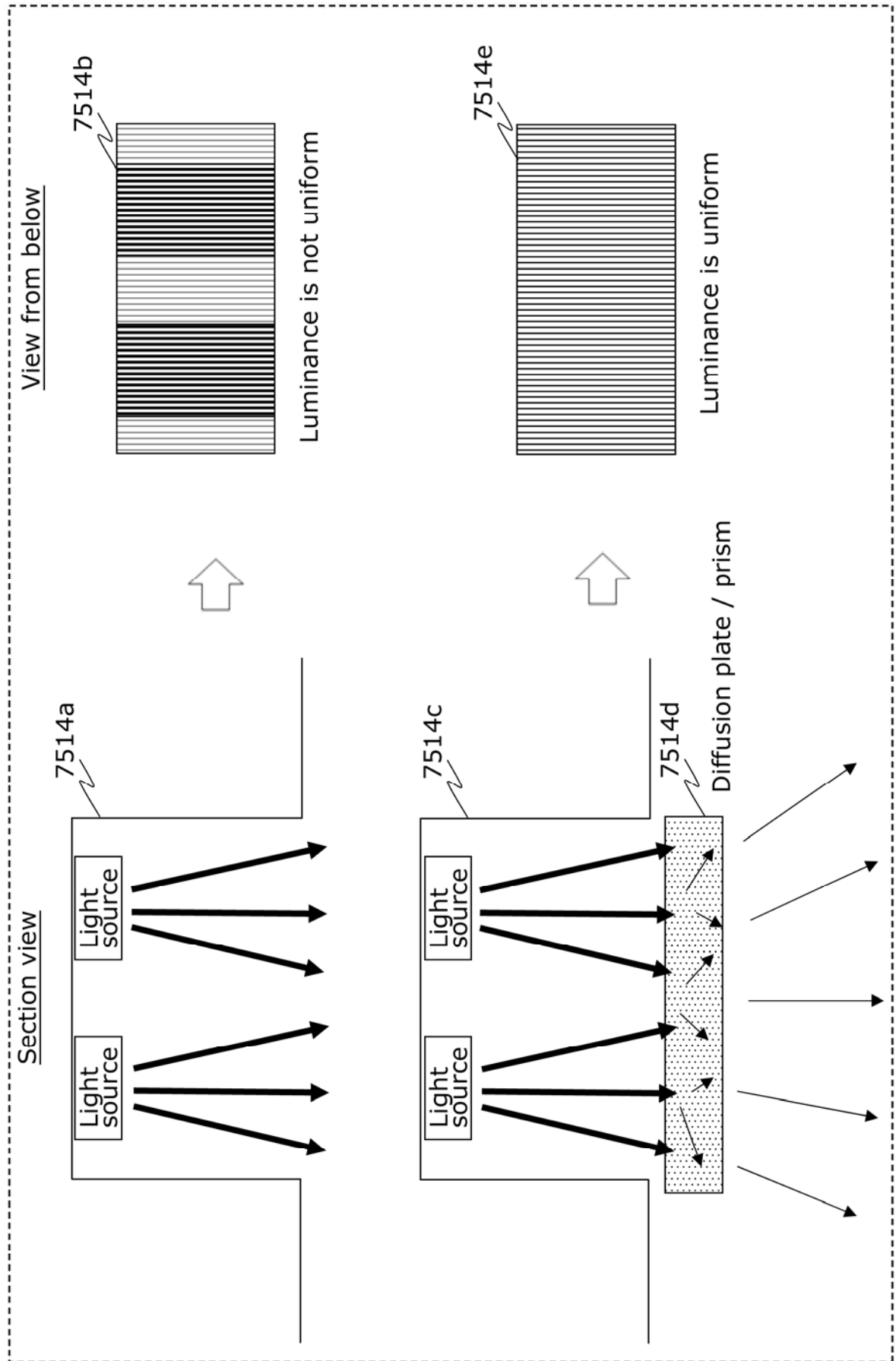


FIG. 377

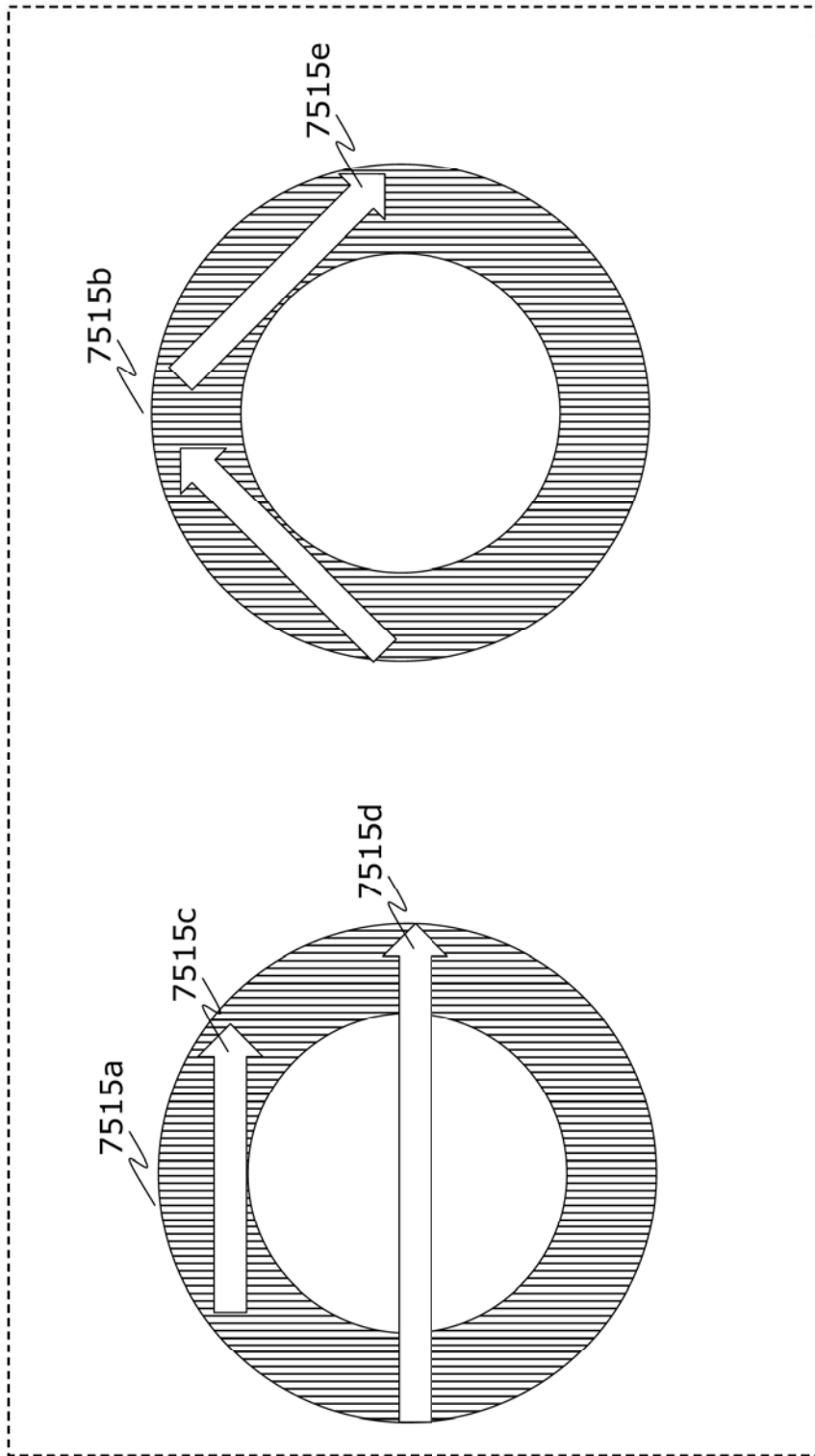




FIG. 378

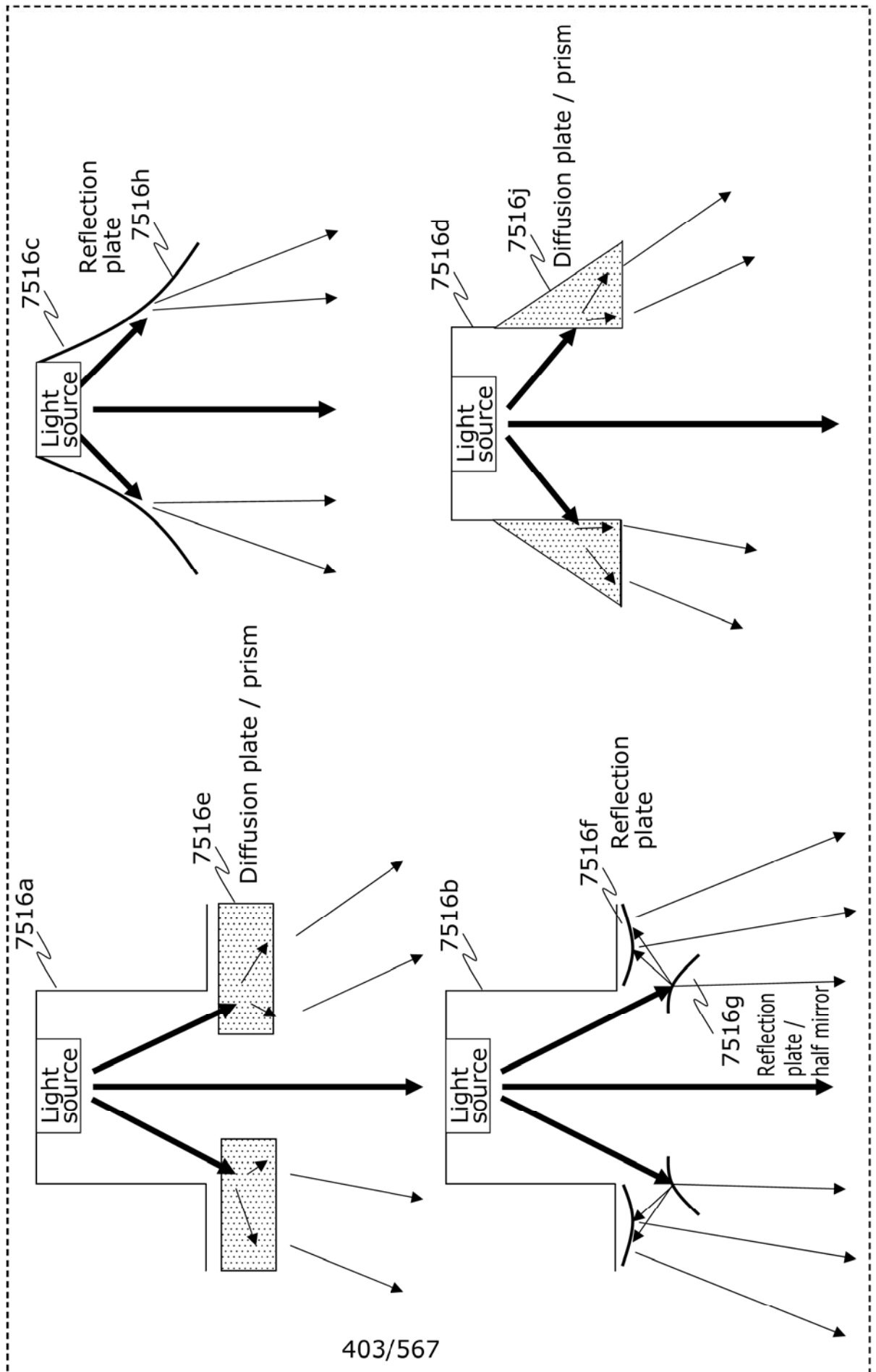


FIG. 379

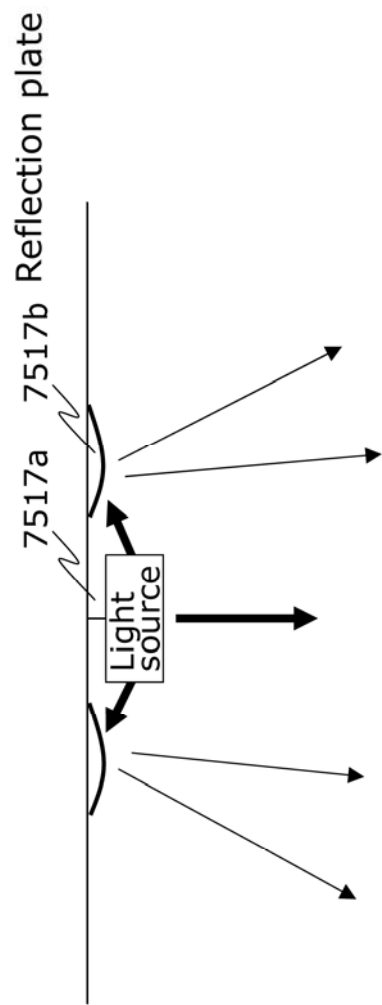


FIG. 380

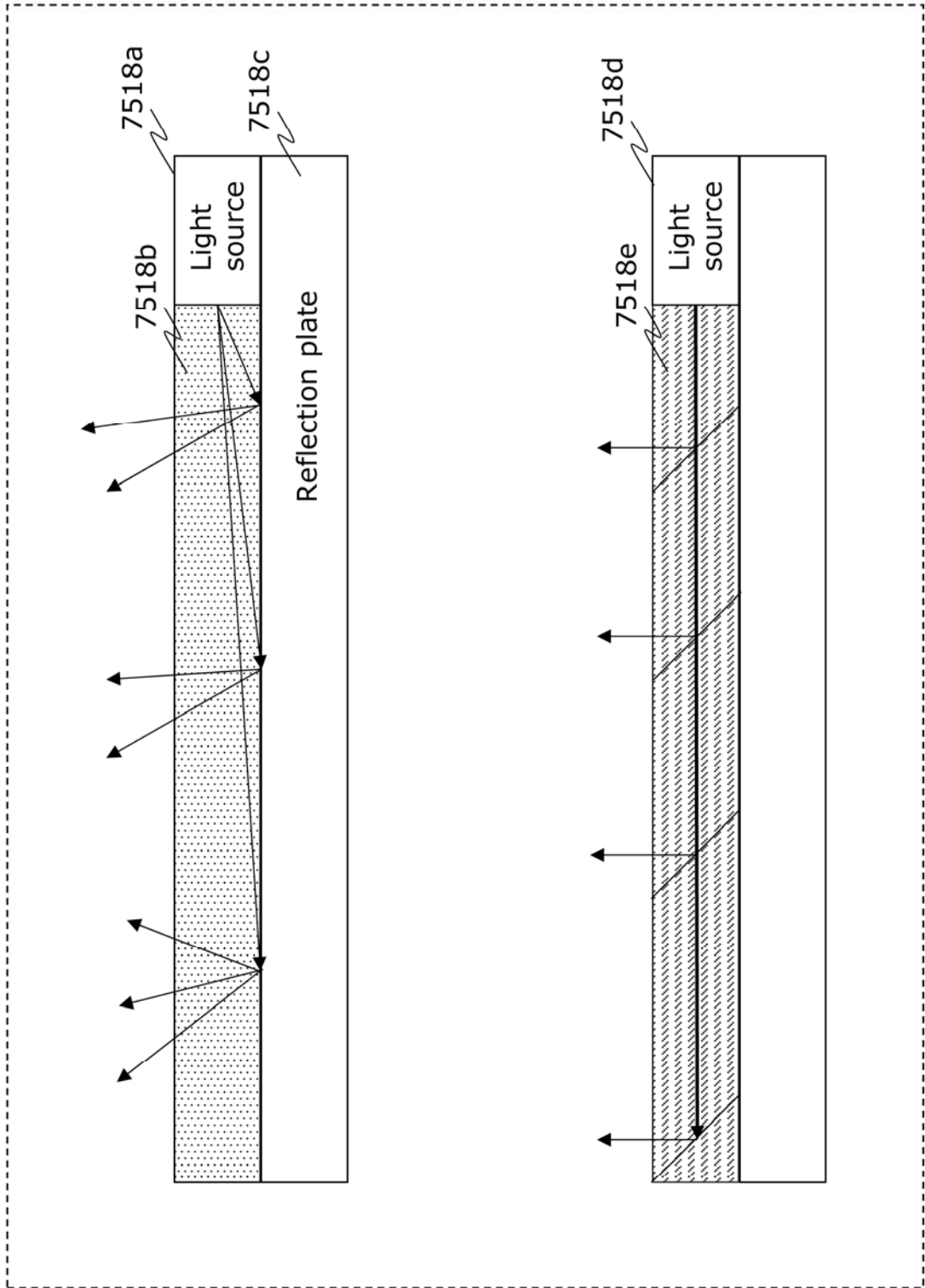
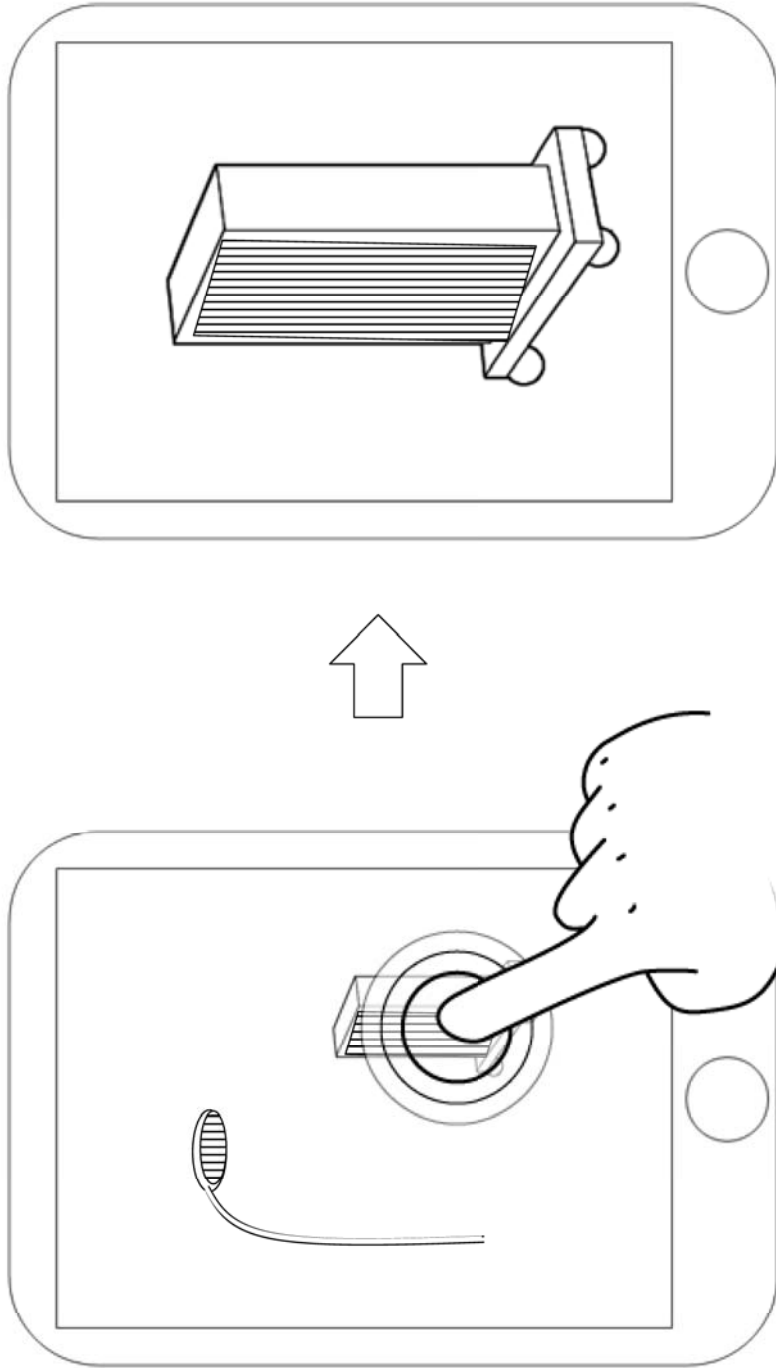


FIG. 381



Zoom in and receive signal

FIG. 382

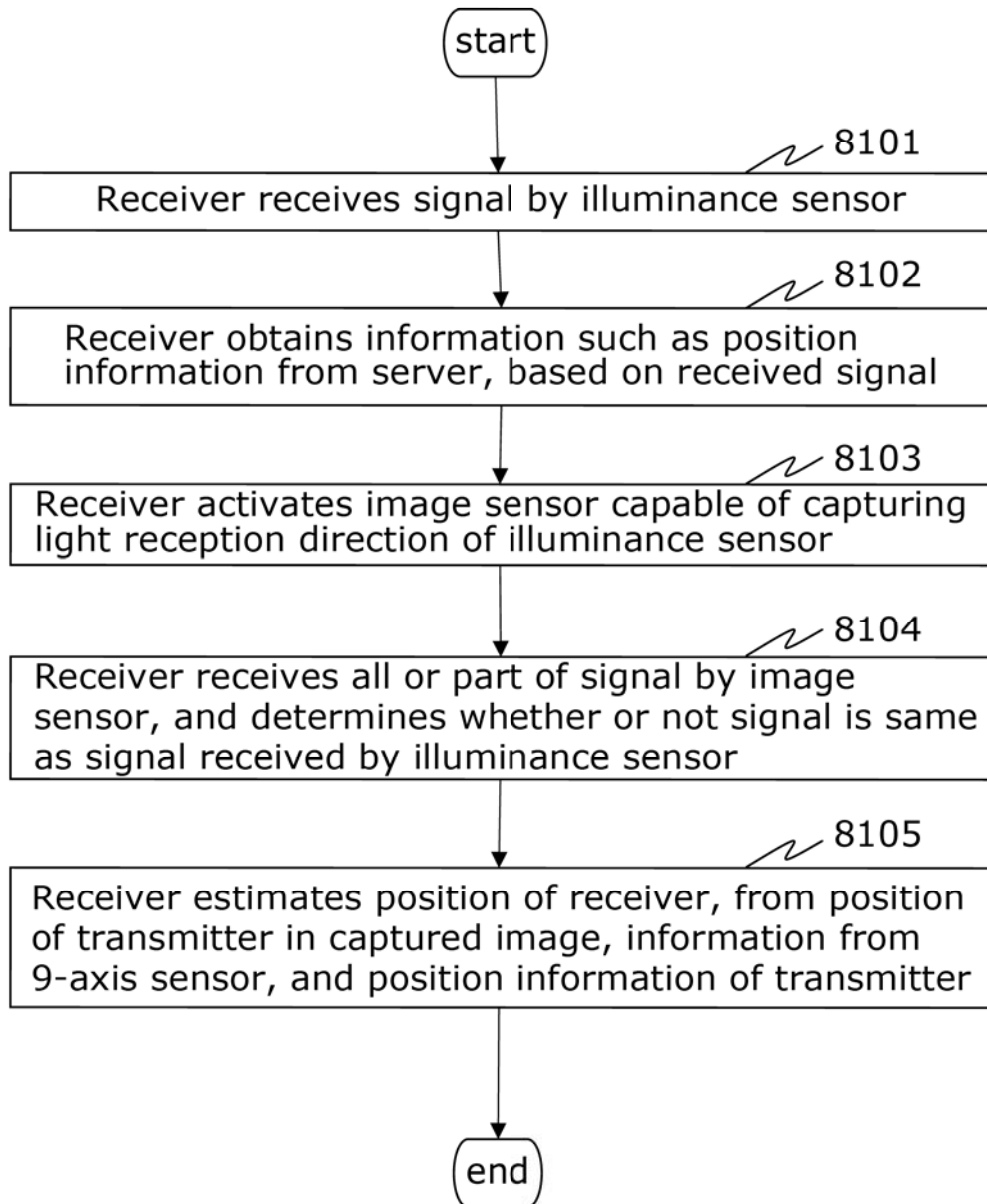
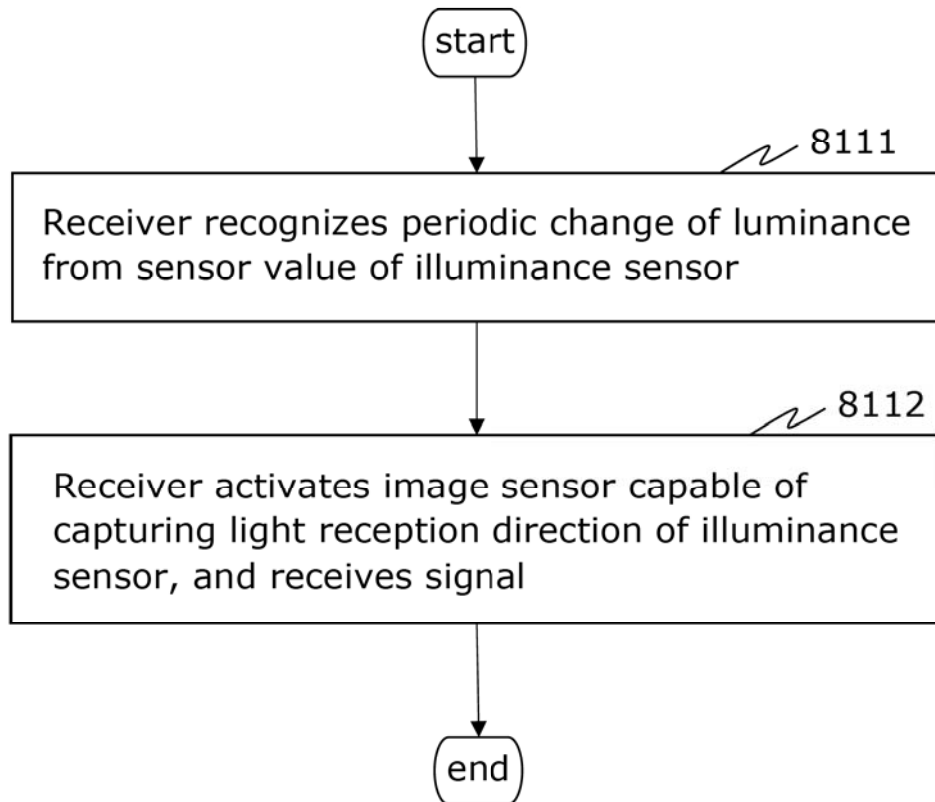


FIG. 383



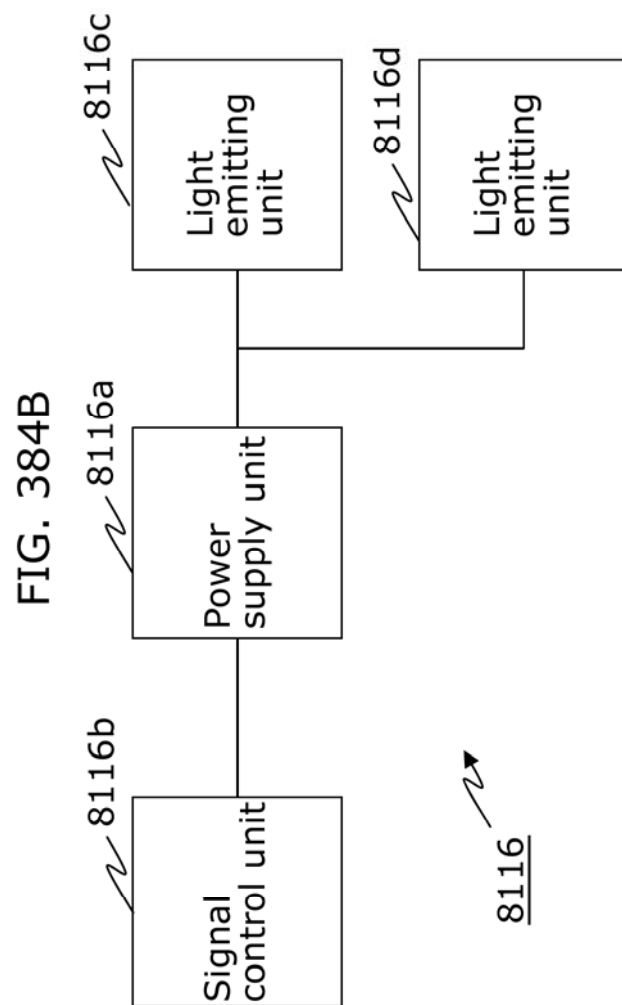
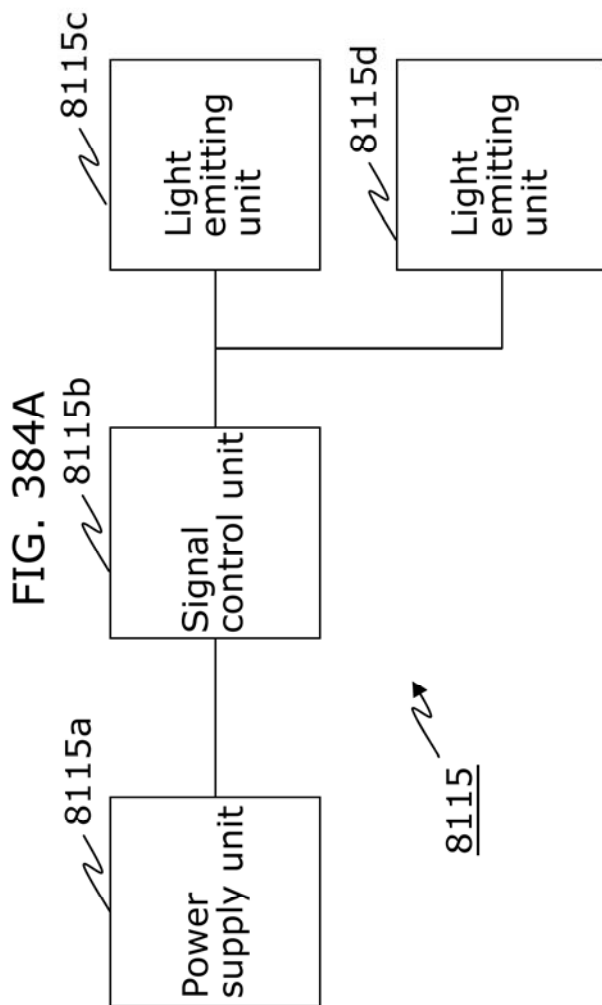


FIG. 385

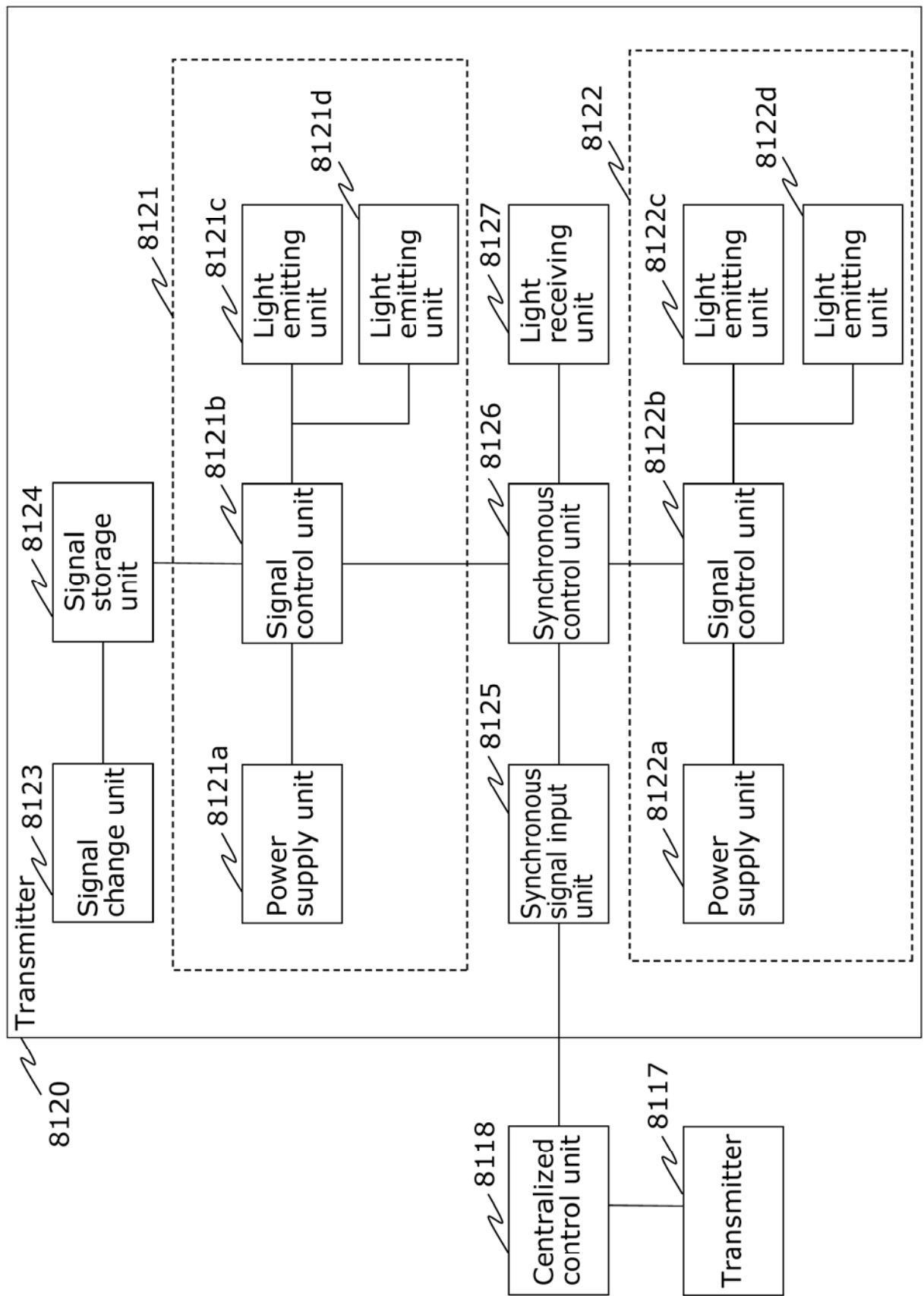




FIG. 386

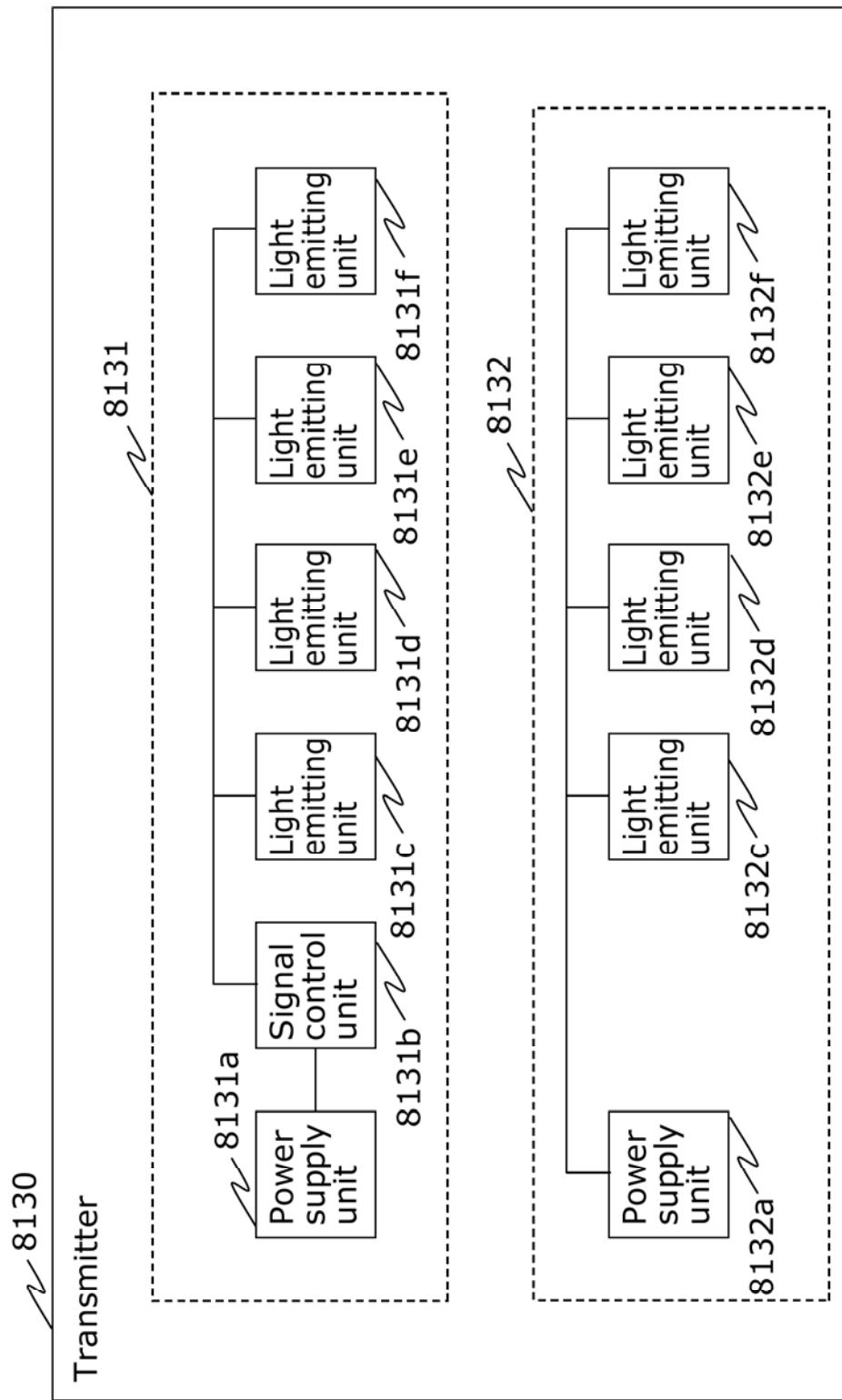


FIG. 387A

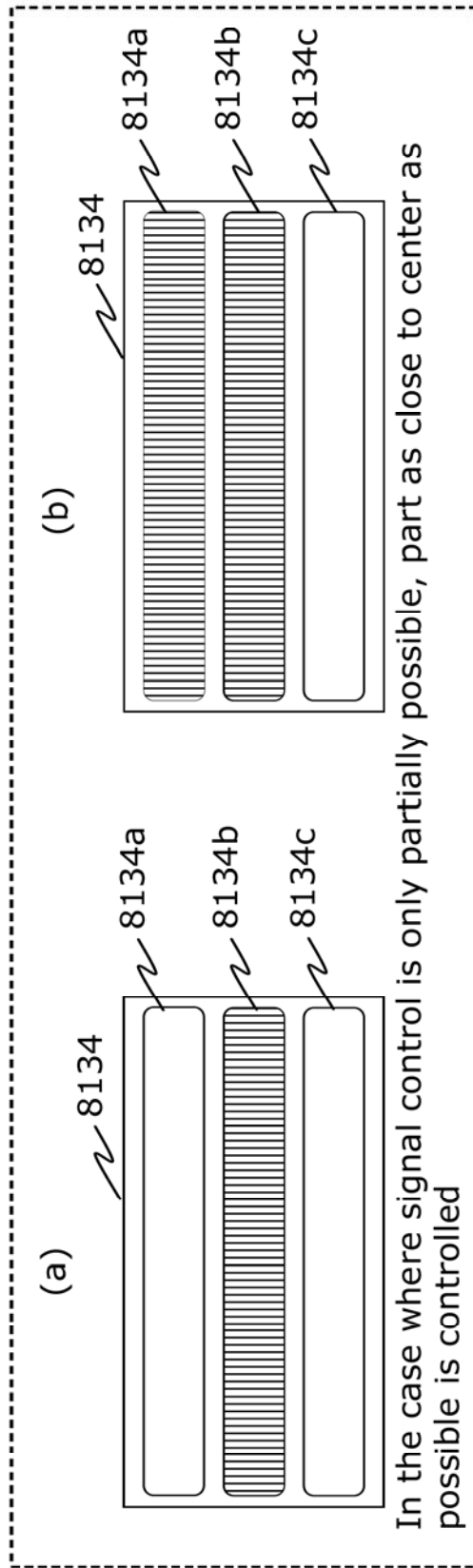


FIG. 387B

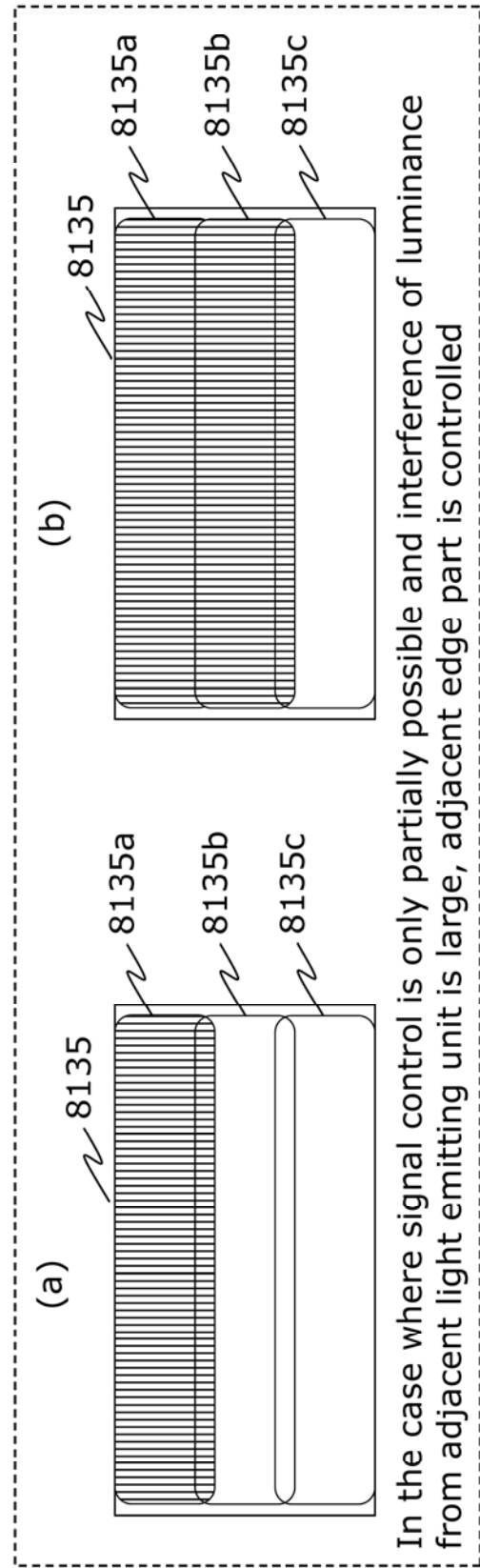
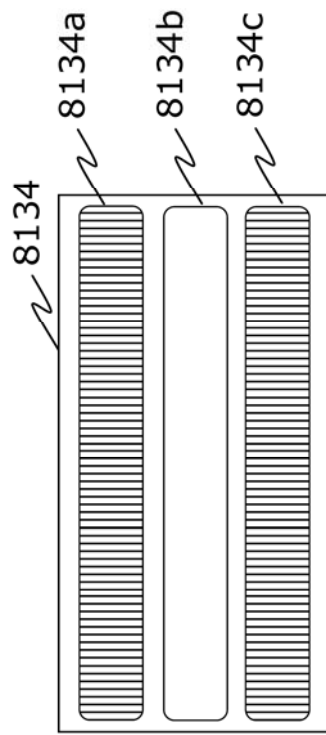
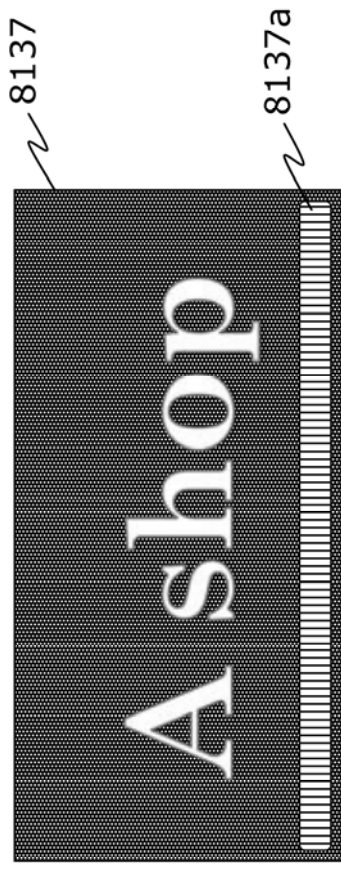


FIG. 387C



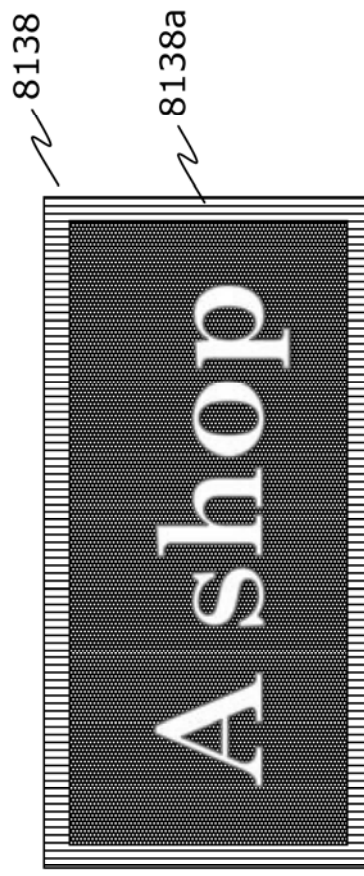
In the case where signal control is only partially possible and receivable range needs to be widened, edge part is controlled

FIG. 388A



Provide uniform light emitting portion in part of sign to facilitate reception

FIG. 388B



Arrange uniform light emitting portion so that uniform light emitting portion is present in large size in whichever direction image is captured

FIG. 389

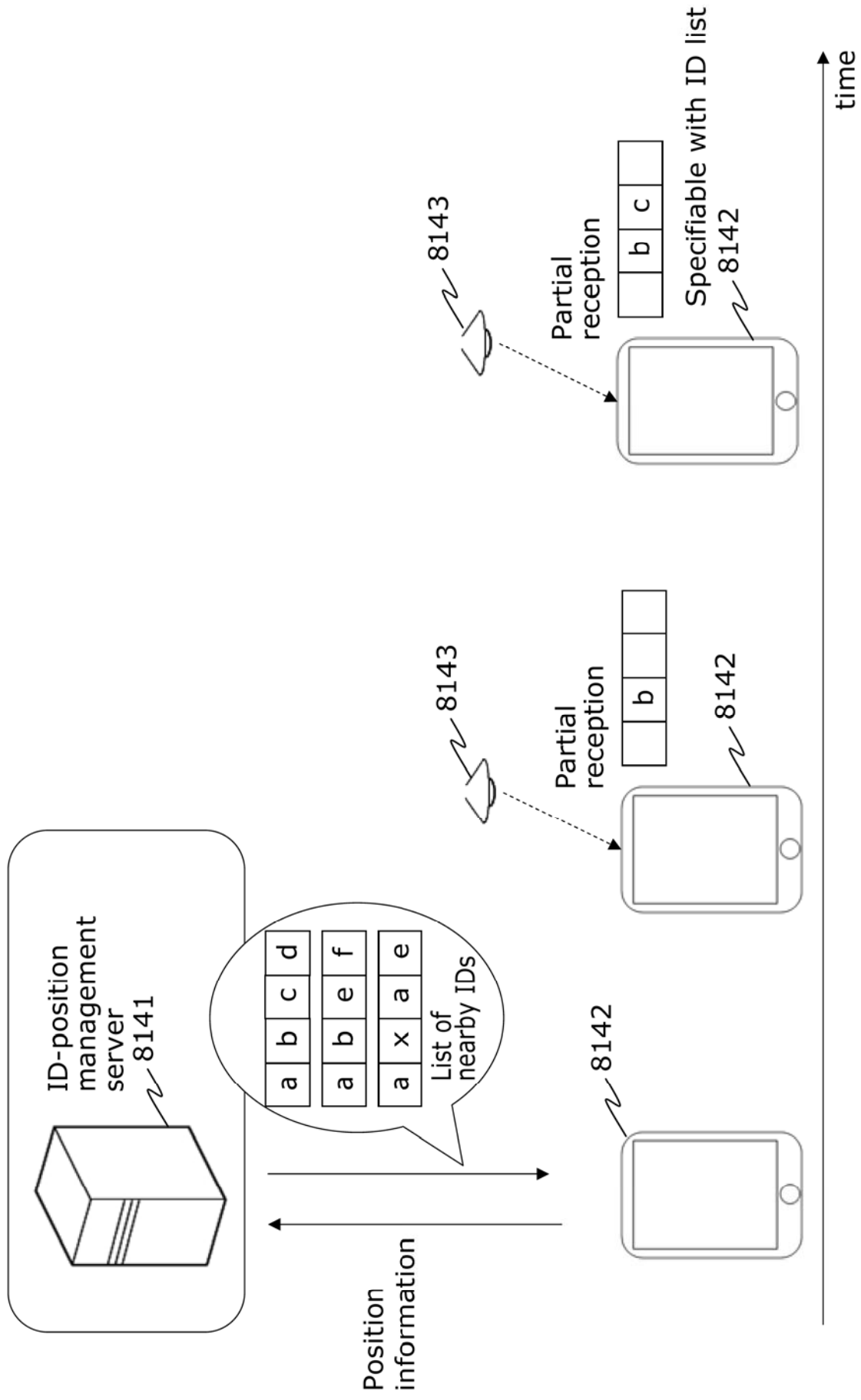


FIG. 390

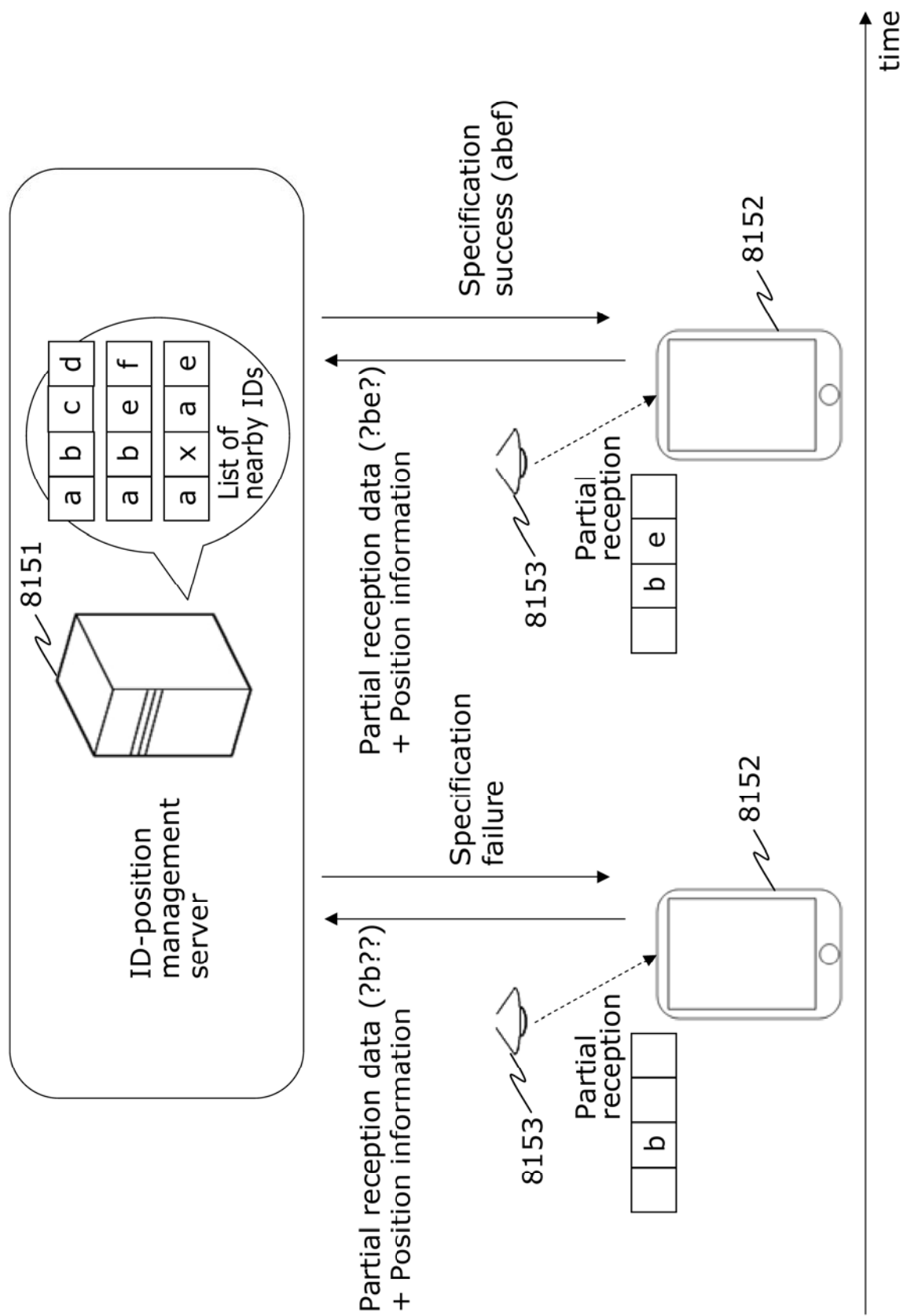


FIG. 391

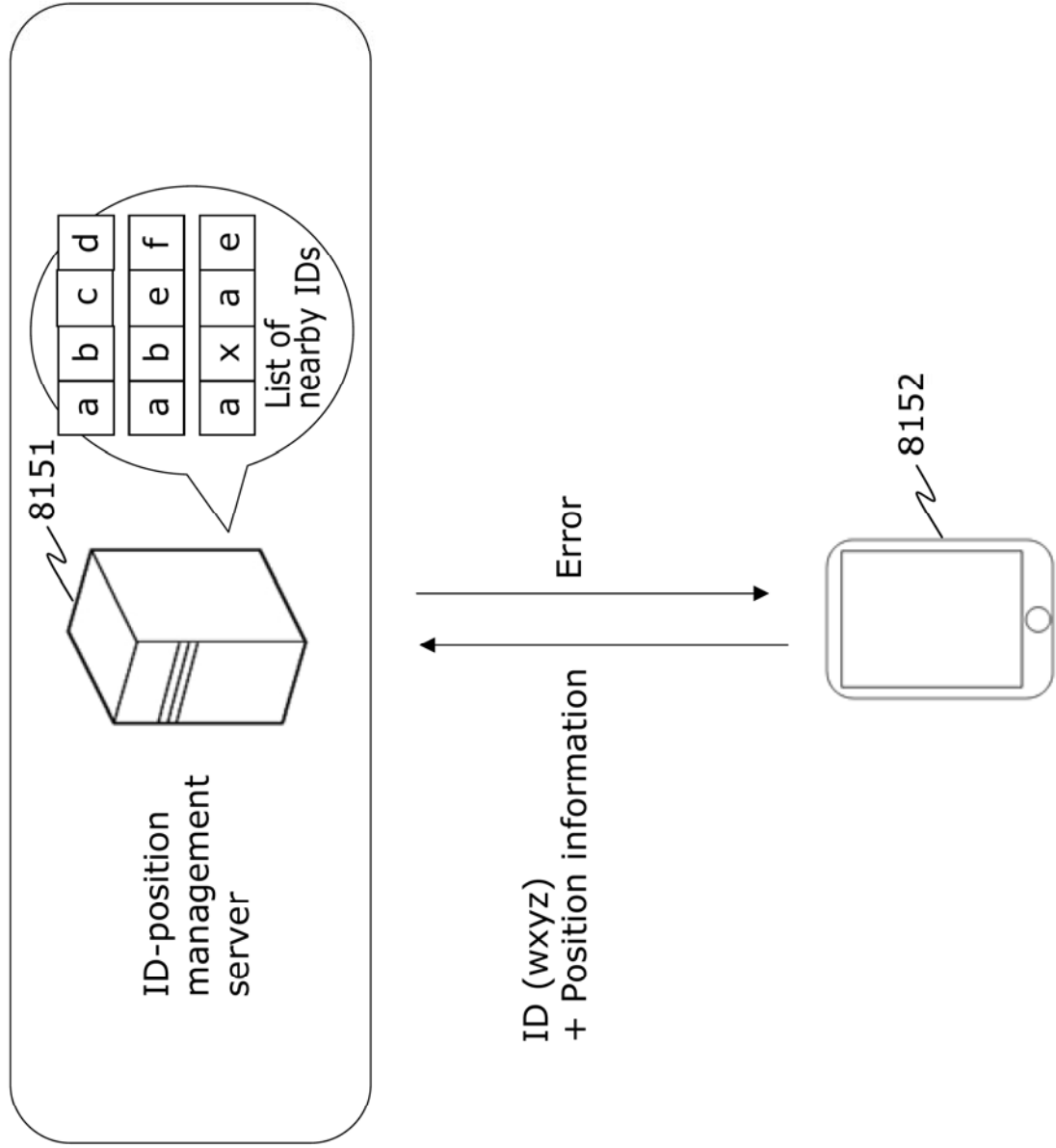


FIG. 392A

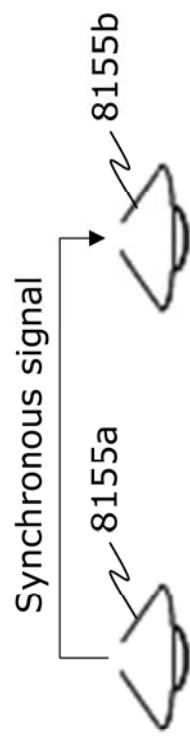


FIG. 392B

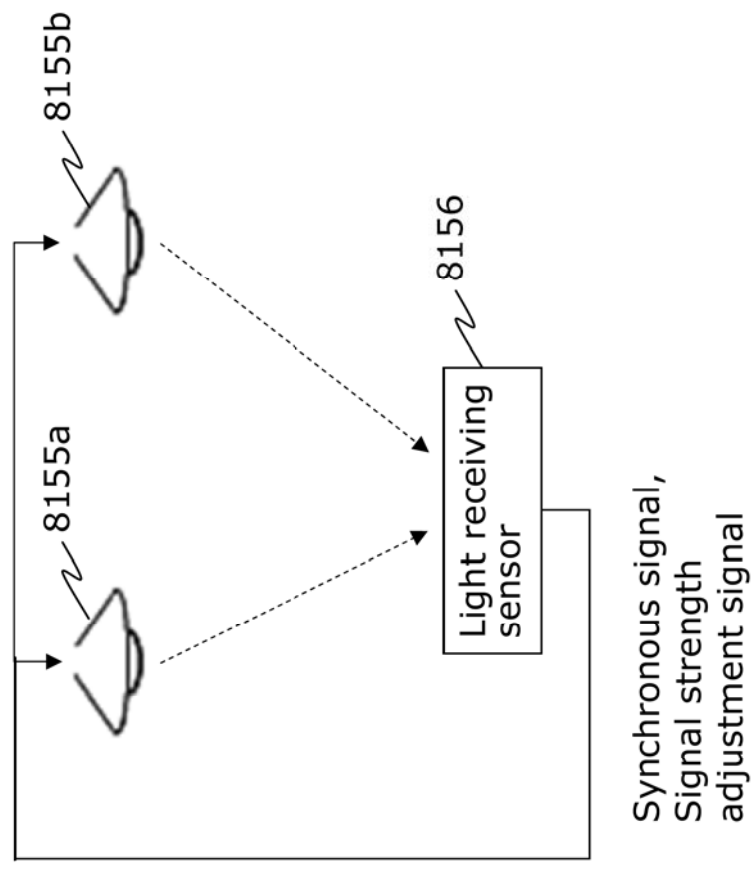




FIG. 393

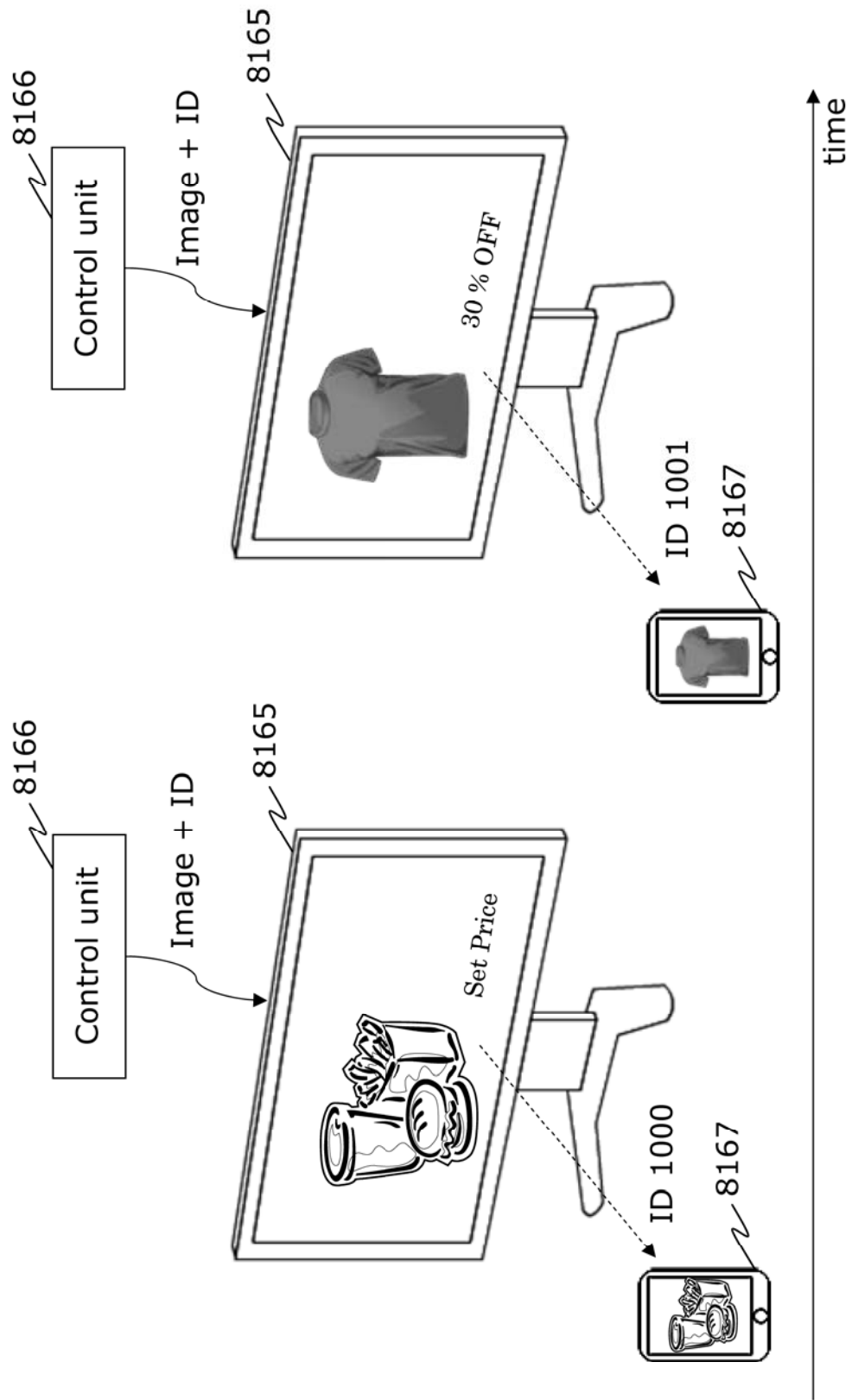


FIG. 394

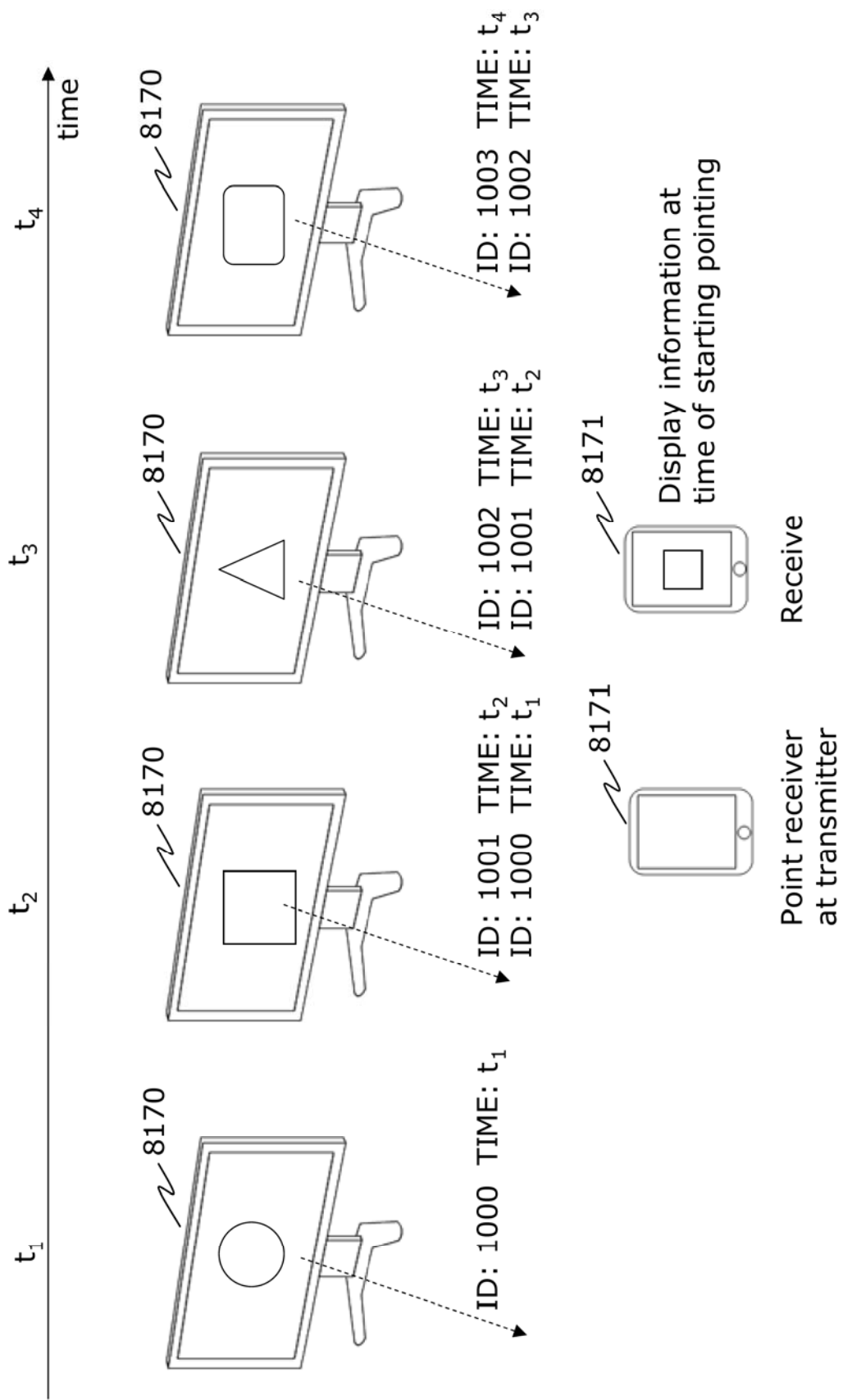


FIG. 395

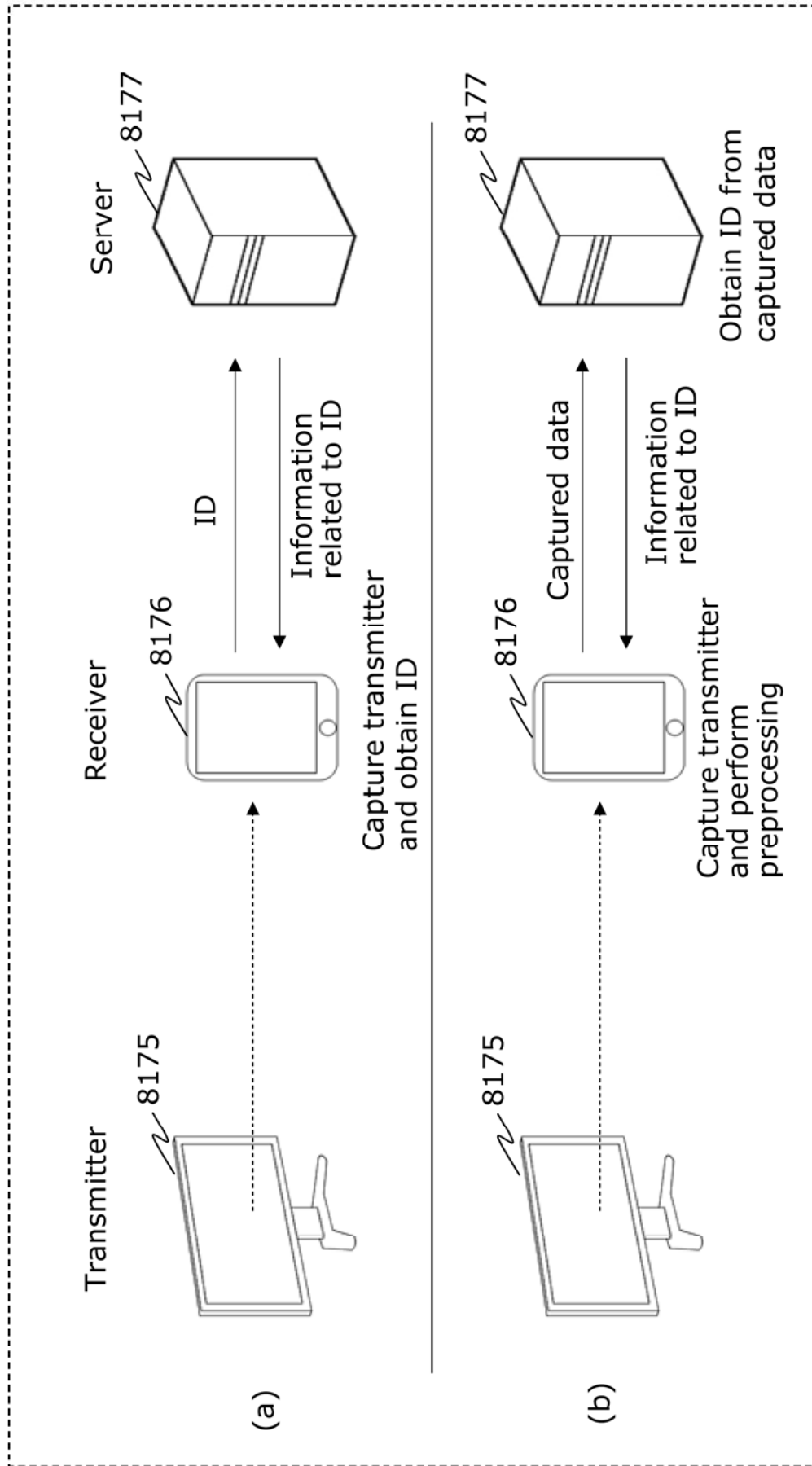


FIG. 396

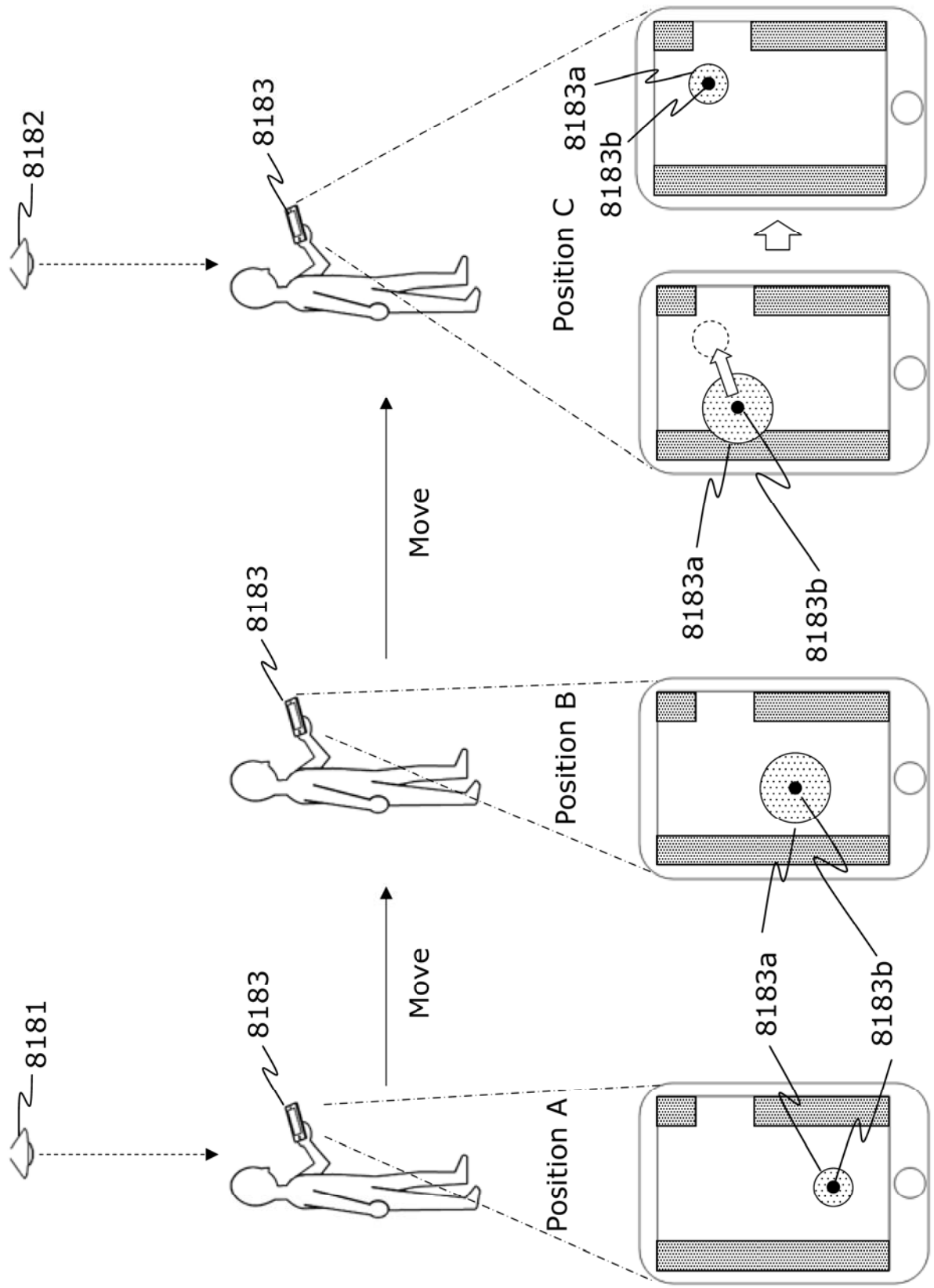


FIG. 397

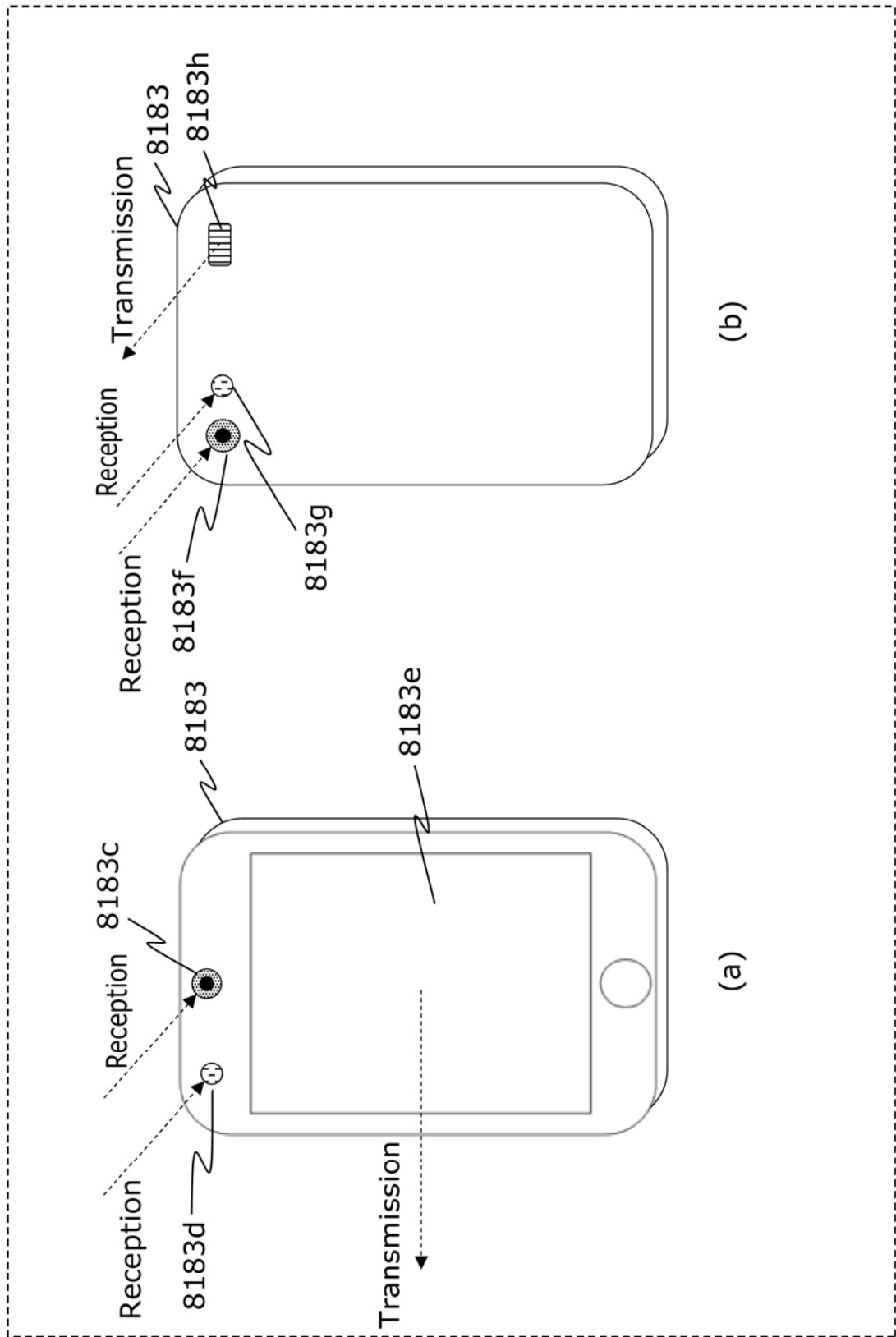


FIG. 398

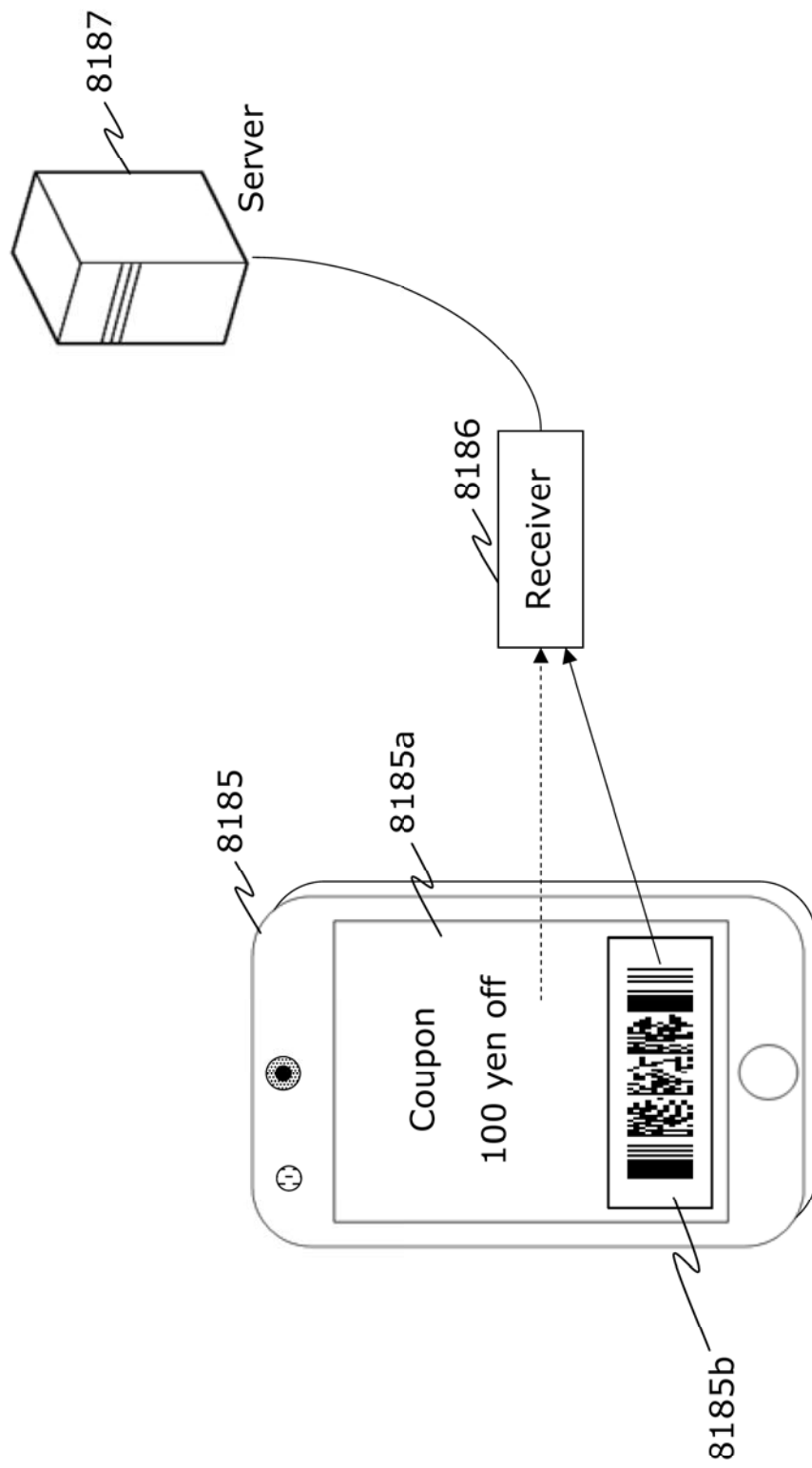


FIG. 399

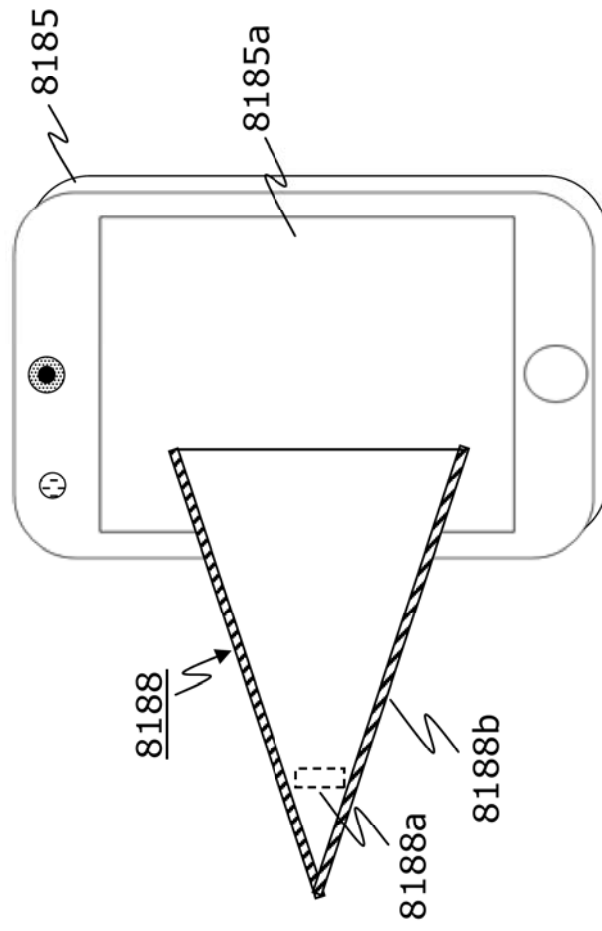


FIG. 400

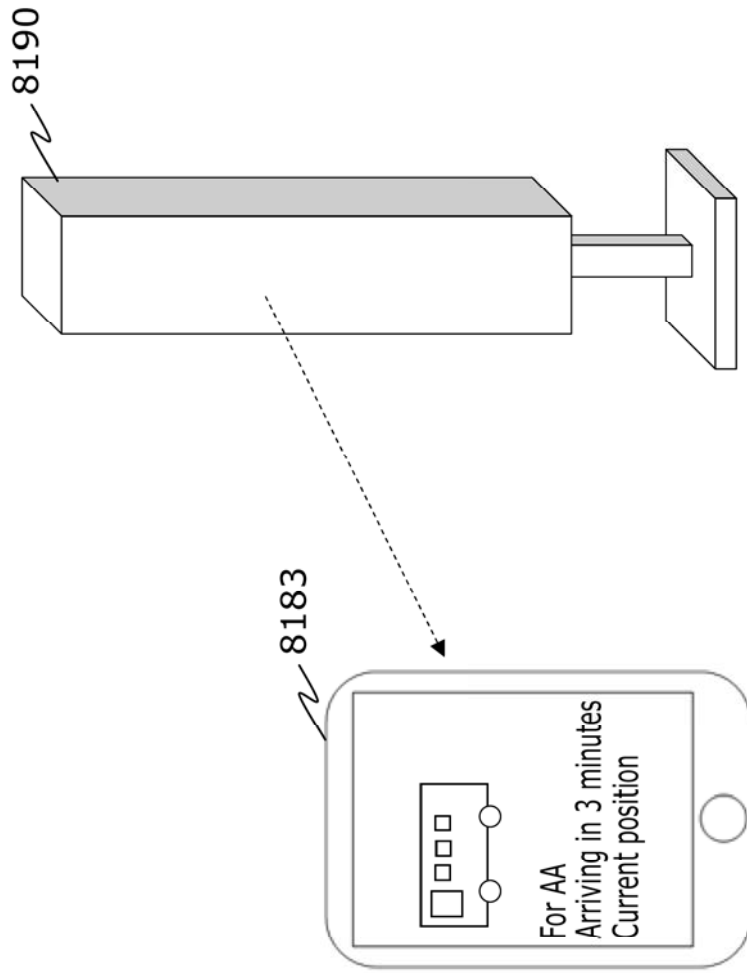




FIG. 401

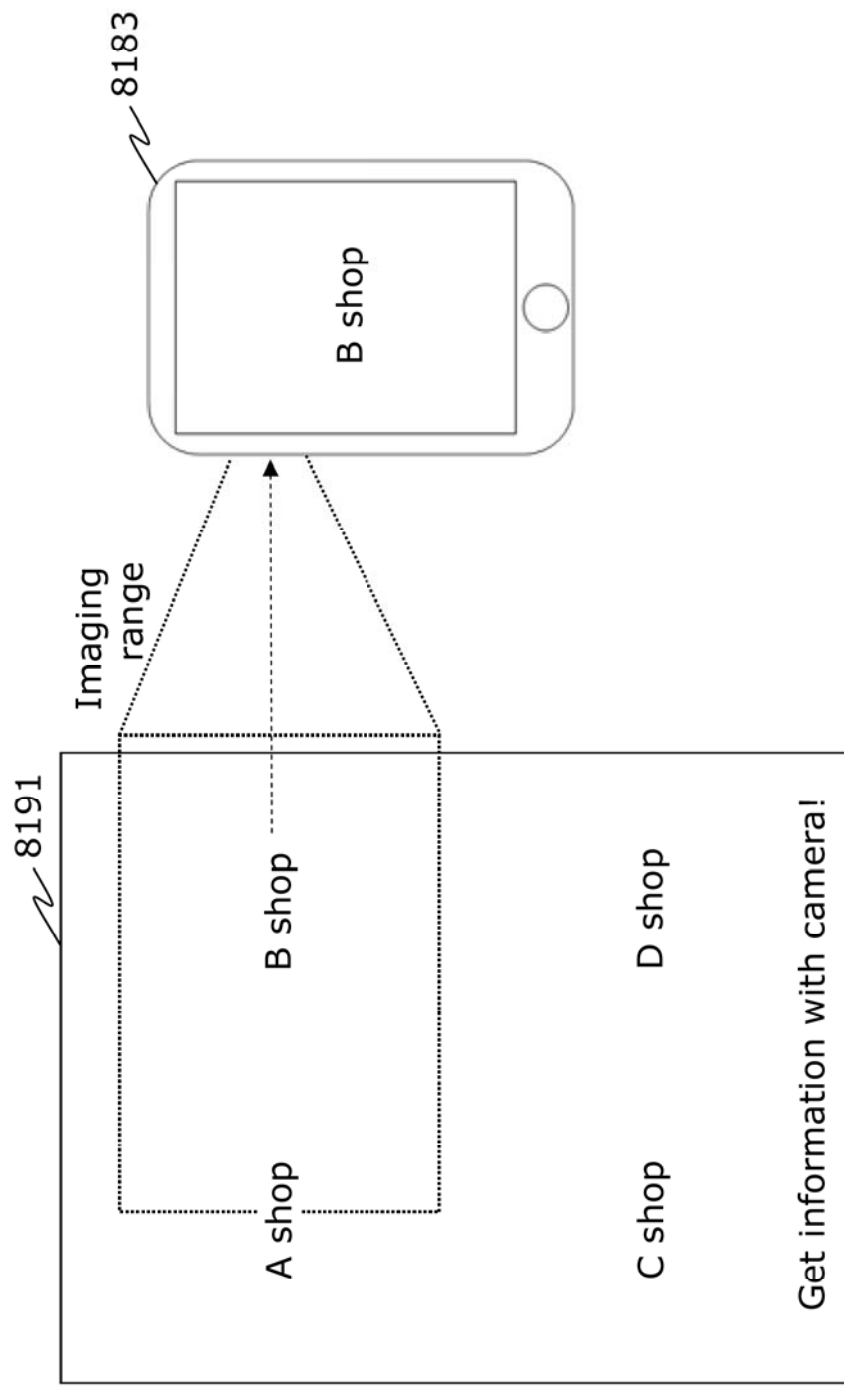


FIG. 402

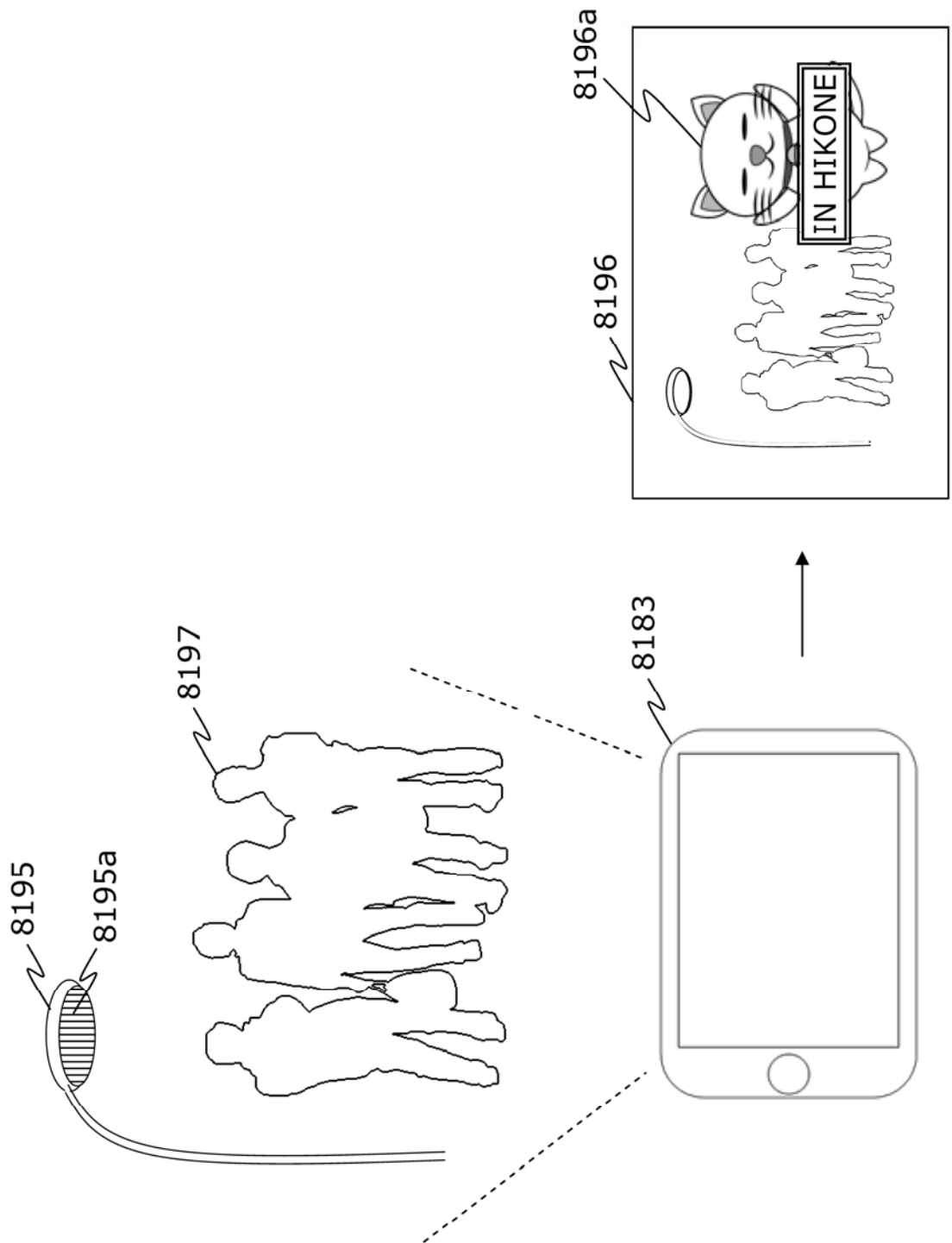


FIG. 403A

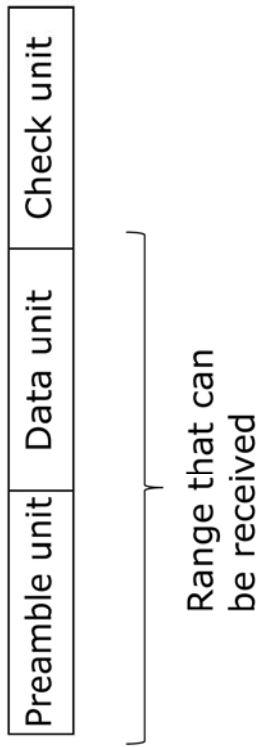


FIG. 403B

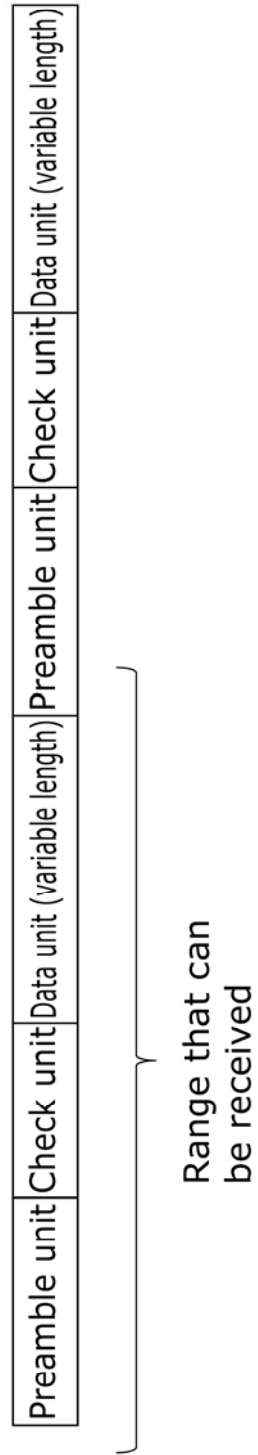


FIG. 404

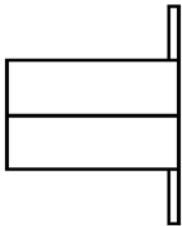
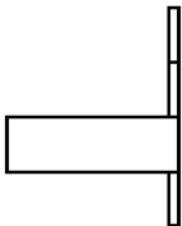
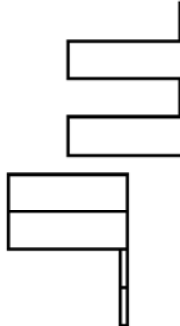
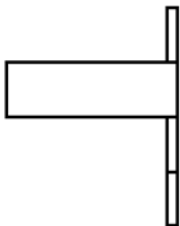
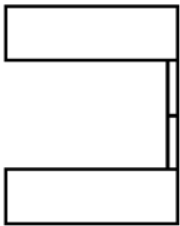
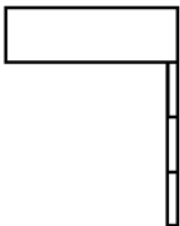
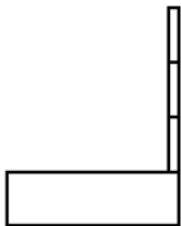
| Signal | Rise position | Brightness                                                                            |                                                                                     |                                                                                     |
|--------|---------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|        |               | 75 %                                                                                  | 50 %                                                                                | 25 %                                                                                |
| 00     | Slots 1 → 2   |    |    |    |
| 01     | Slots 2 → 3   |    |    |    |
| 10     | Slots 3 → 4   |   |   |   |
| 11     | None          |  |  |  |

FIG. 405

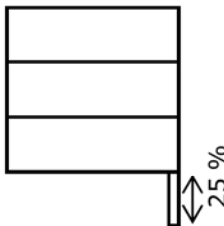
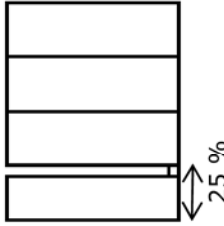
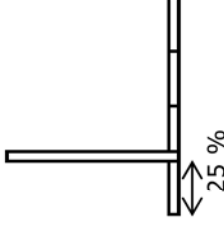
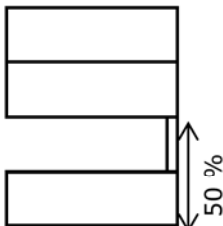
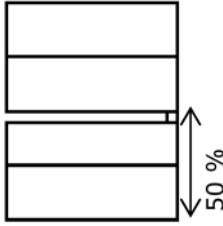
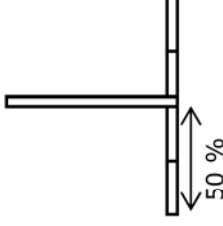
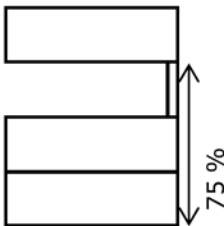
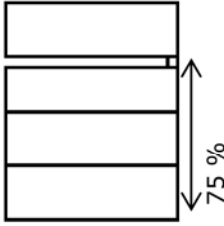
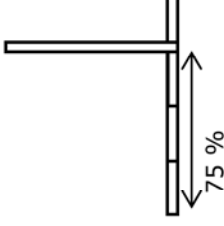
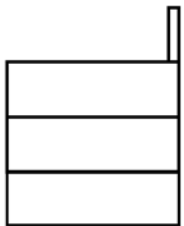
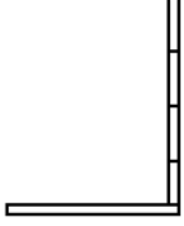
| Signal | Rise position   | Brightness                                                                            |                                                                                     |                                                                                     |
|--------|-----------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|        |                 | 75 % (Basic)                                                                          | 99 %                                                                                | 1 %                                                                                 |
| 00     | Position of 25% |    |    |    |
| 01     | Position of 50% |    |    |    |
| 10     | Position of 75% |   |   |   |
| 11     | None            |  |  |  |

FIG. 406

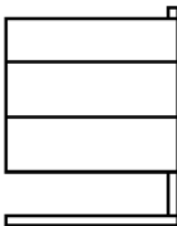
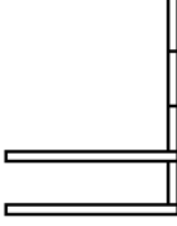
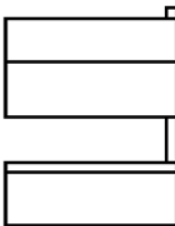
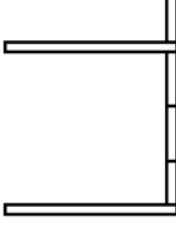
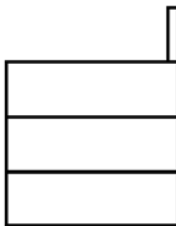
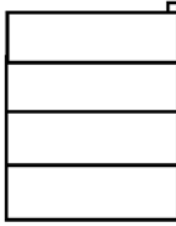
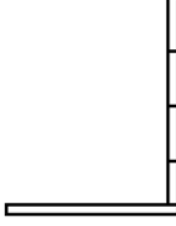
| Signal | Rise position   | Brightness                                                                            |                                                                                     |                                                                                     |
|--------|-----------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|        |                 | 75 %                                                                                  | 99 %                                                                                | 1 %                                                                                 |
| 00     | Position of 25% |    |    |    |
| 01     | Position of 50% |    |    |    |
| 10     | Position of 75% |   |   |   |
| 11     | None            |  |  |  |

FIG. 407A

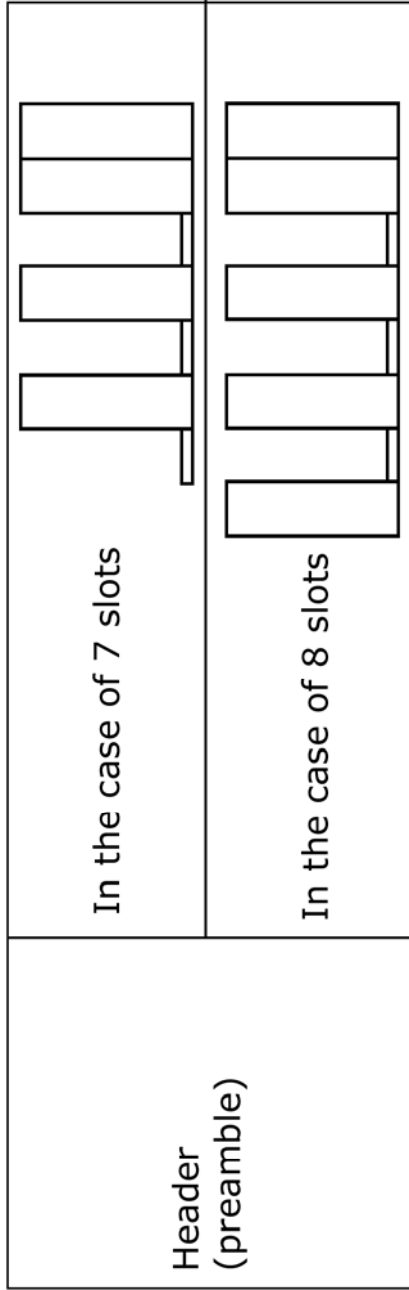


FIG. 407B

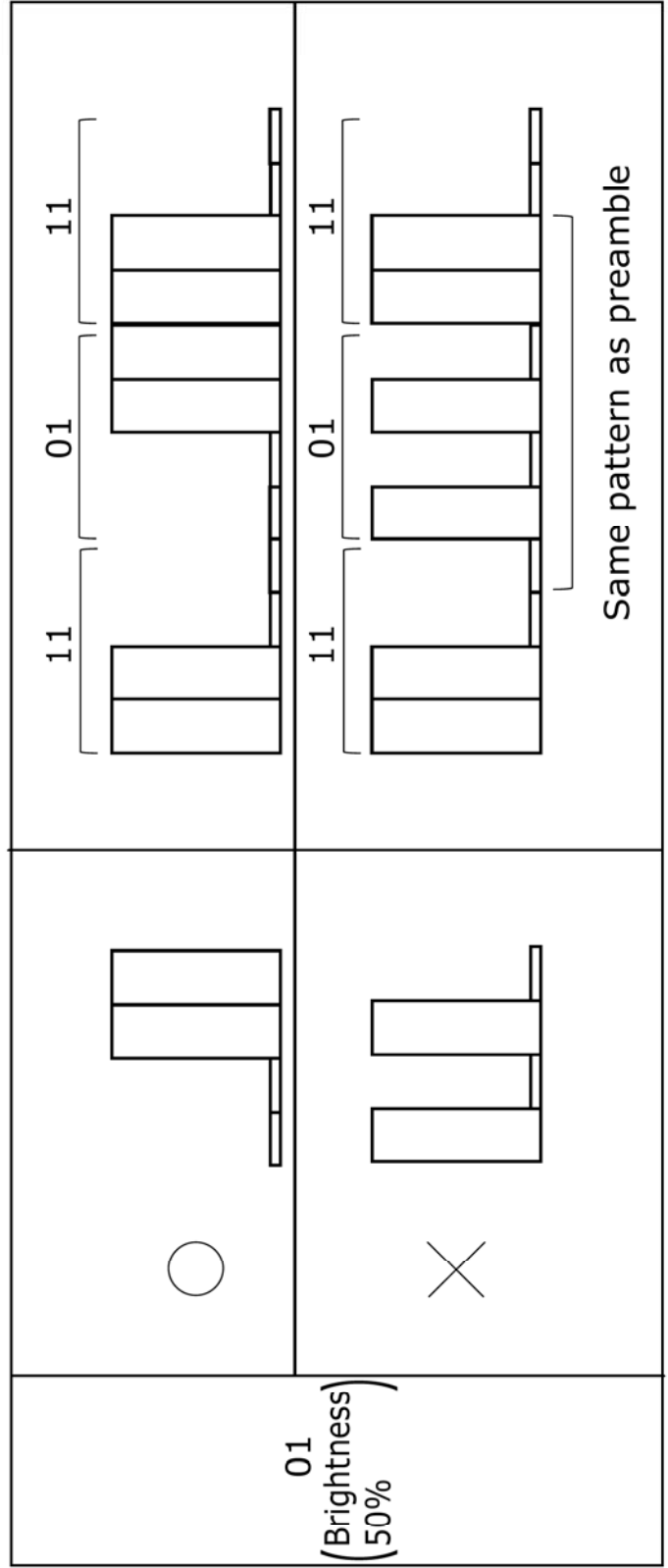


FIG. 408A

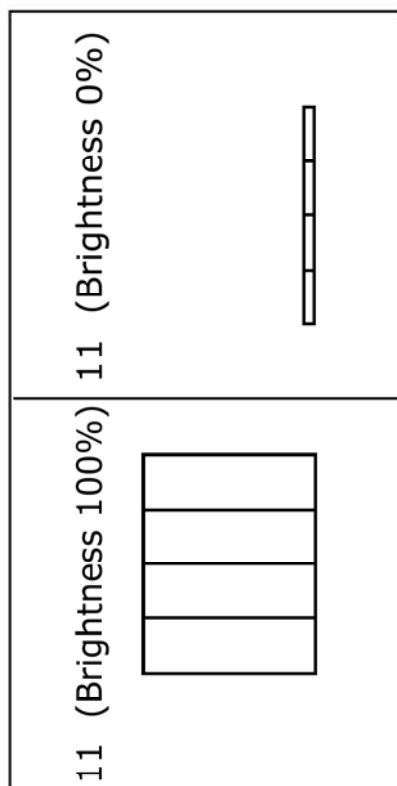
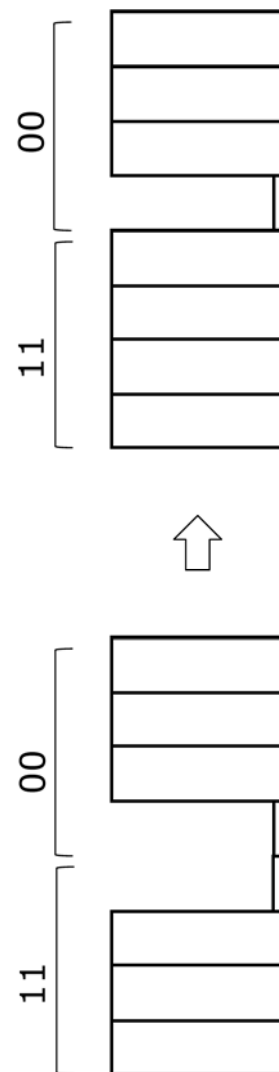


FIG. 408B



In the case of consecutive Ls,  
L other than last L is set to H



FIG. 409

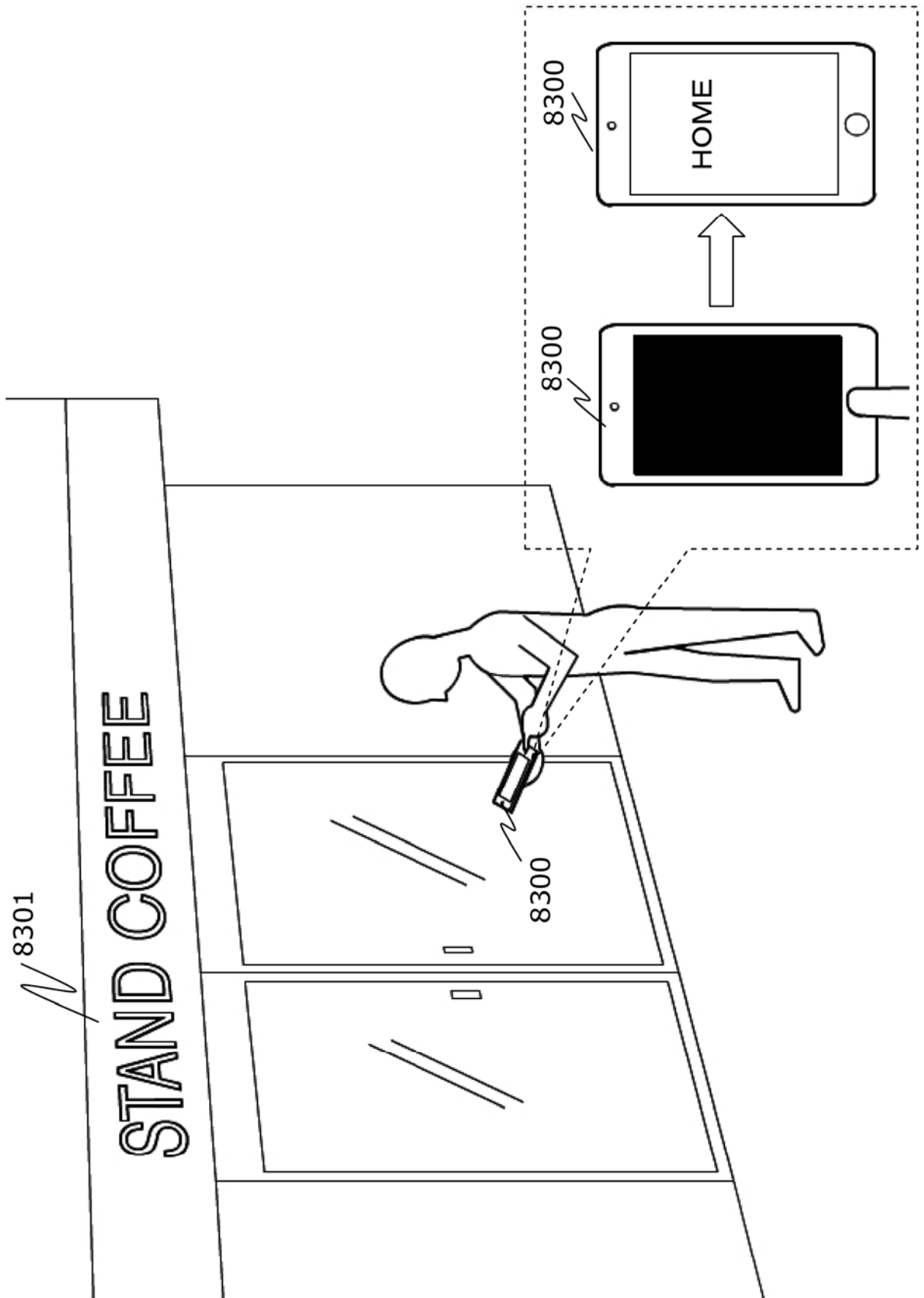


FIG. 410

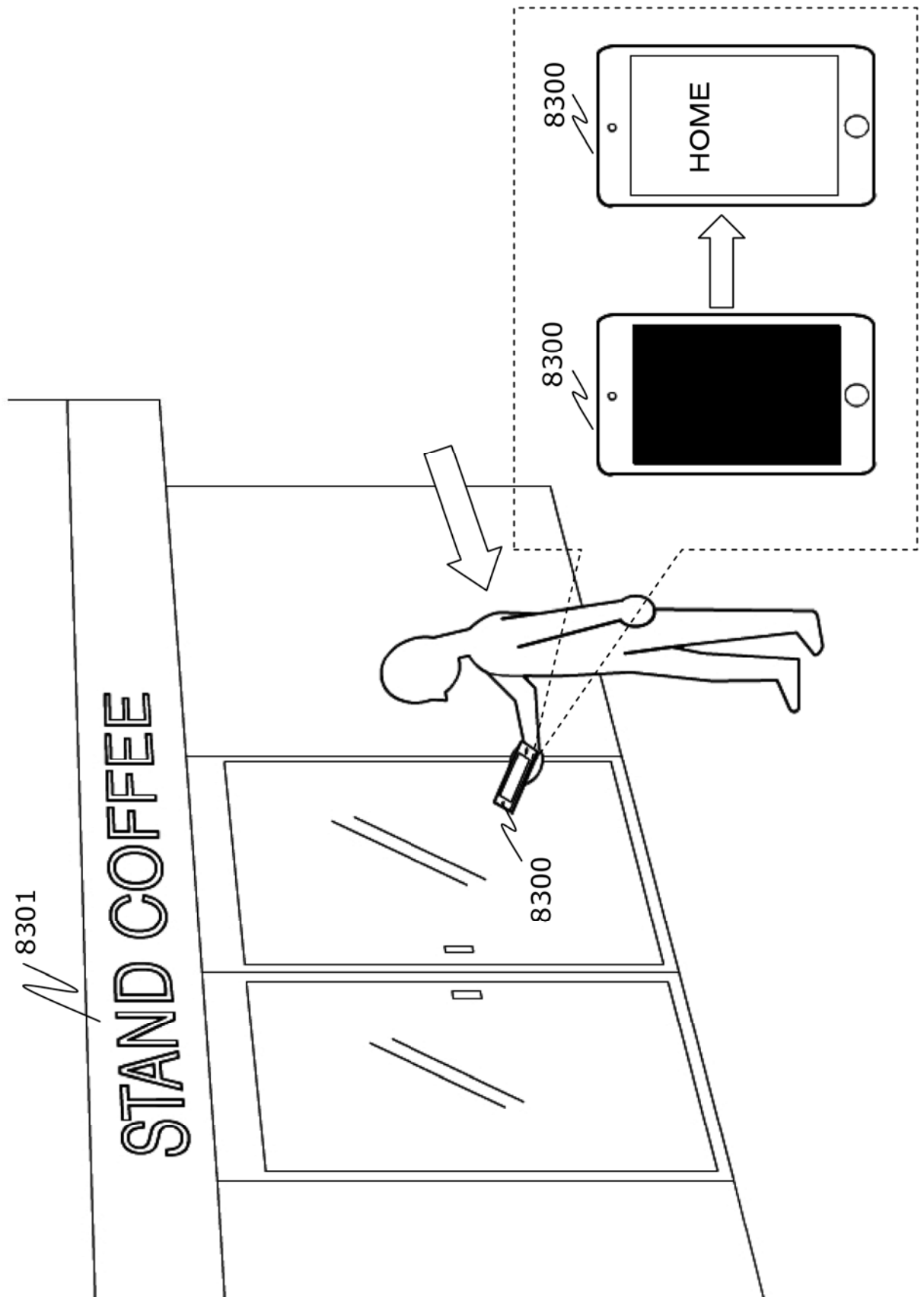


FIG. 411

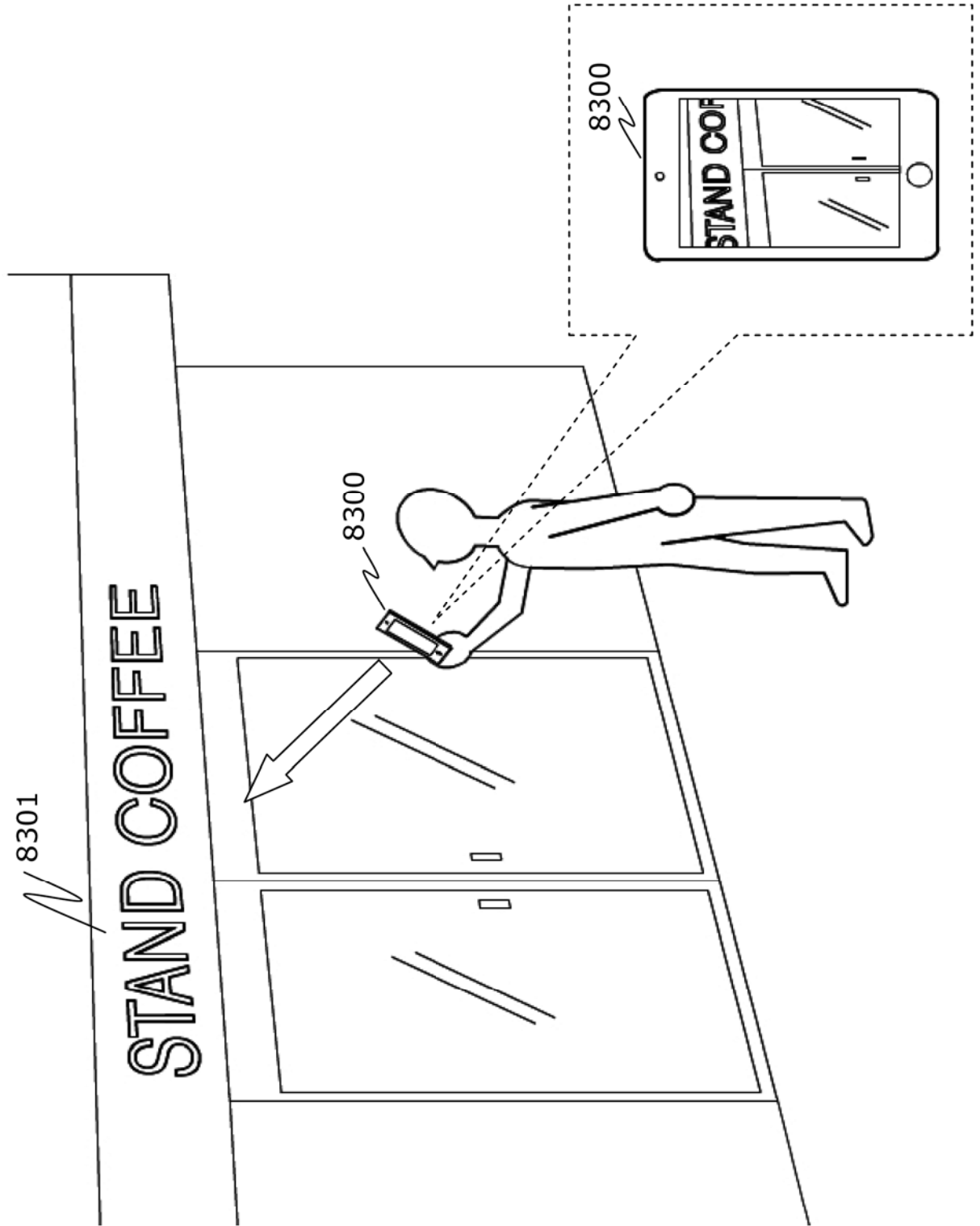


FIG. 412

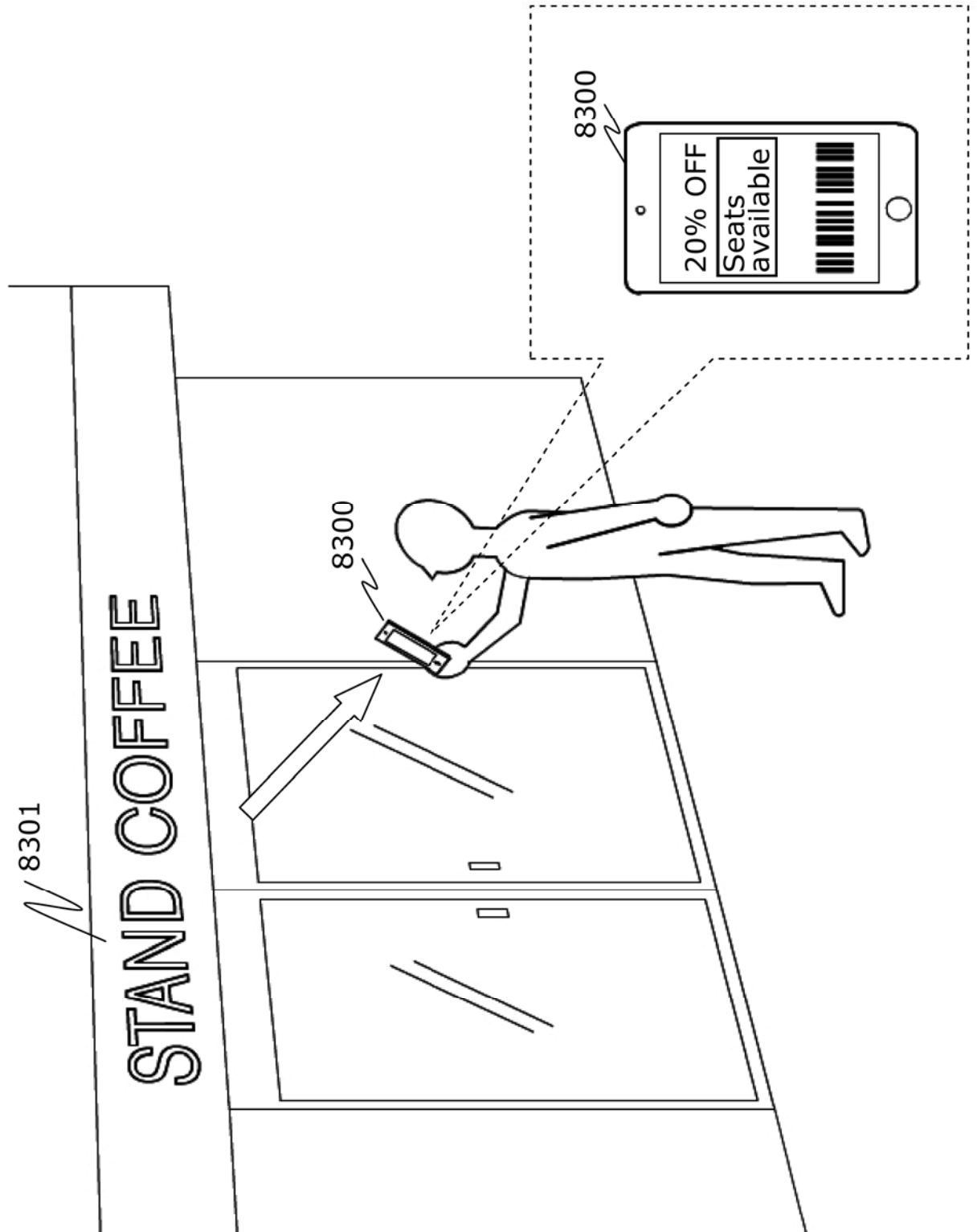


FIG. 413

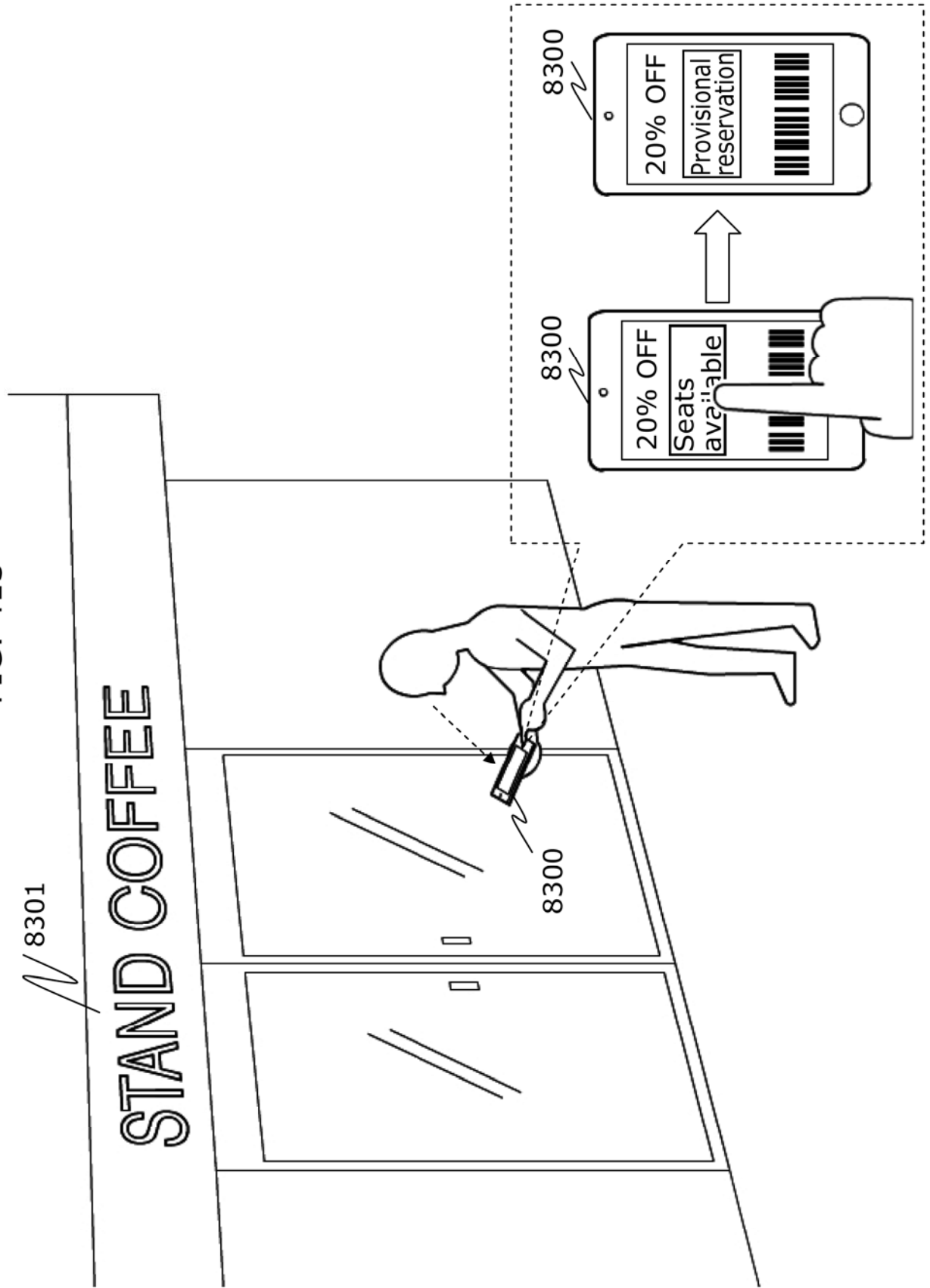


FIG. 414

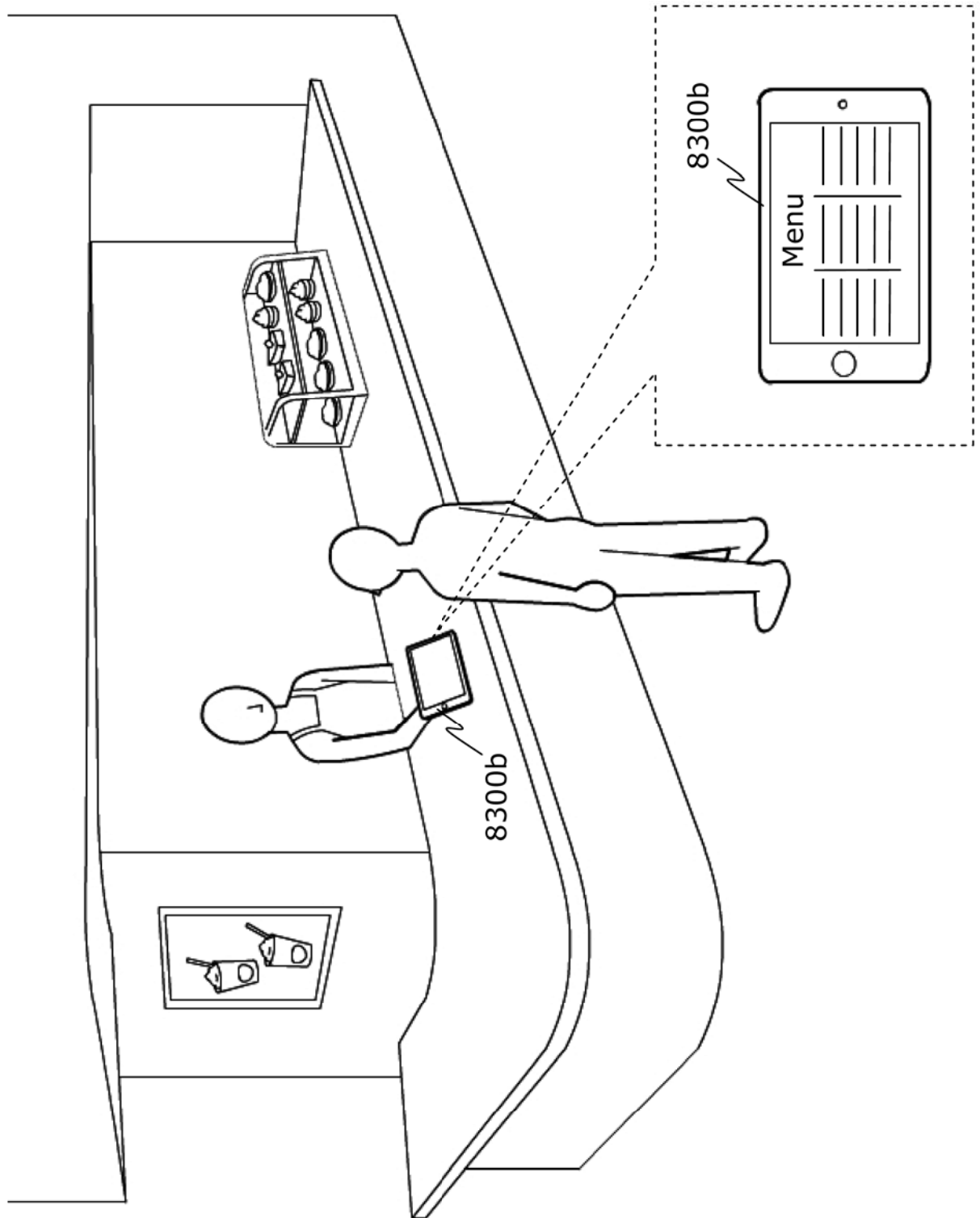


FIG. 415

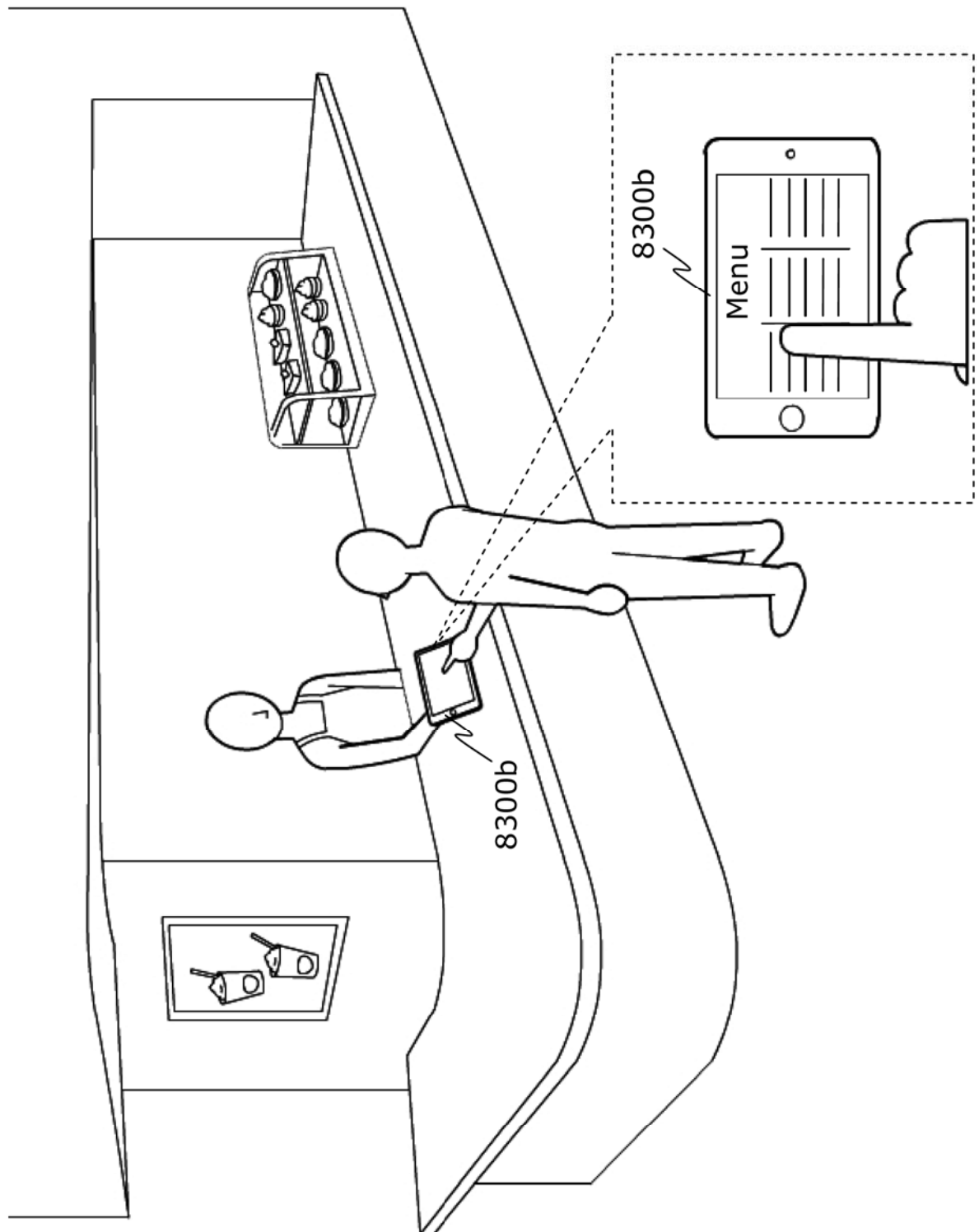


FIG. 416

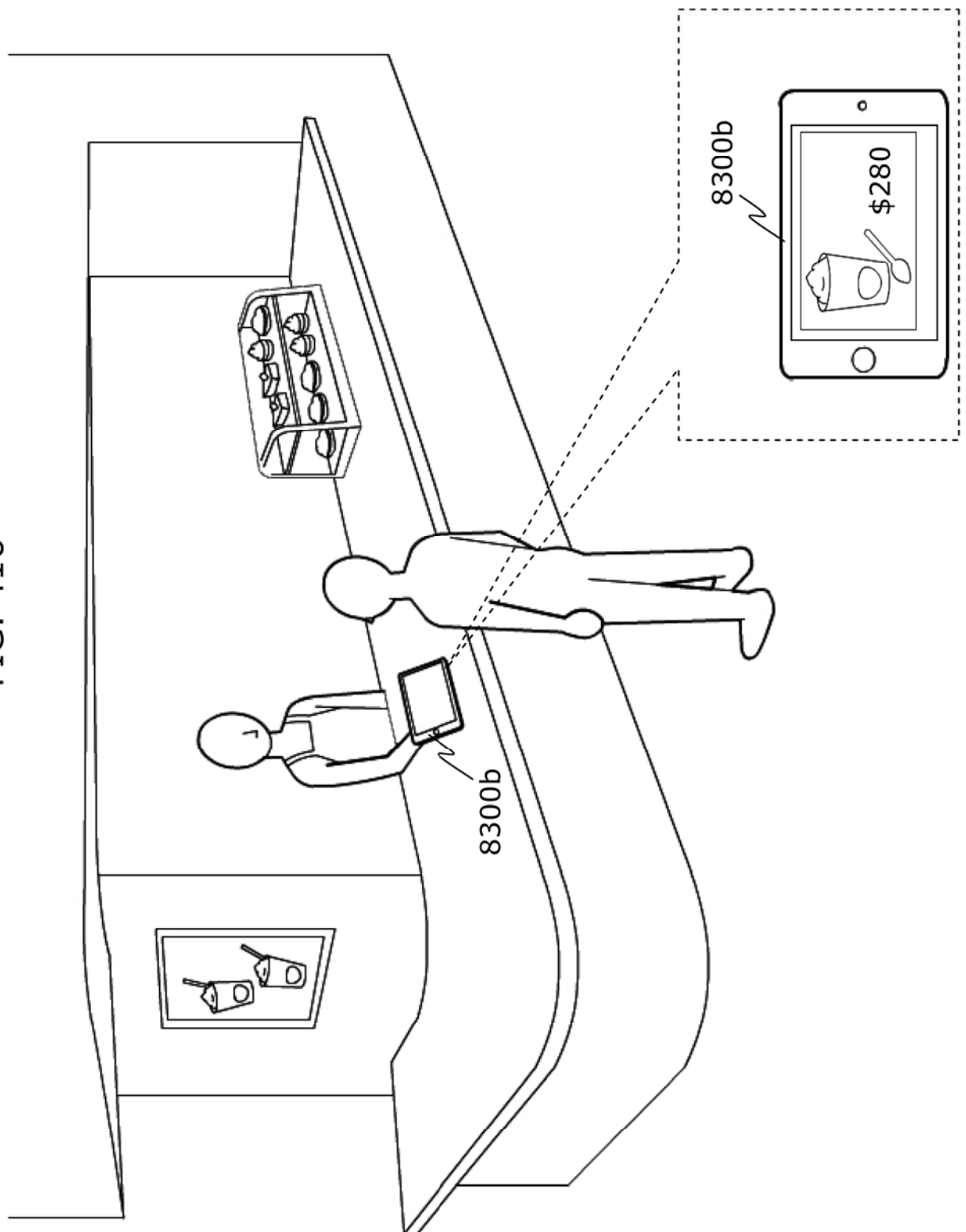




FIG. 417

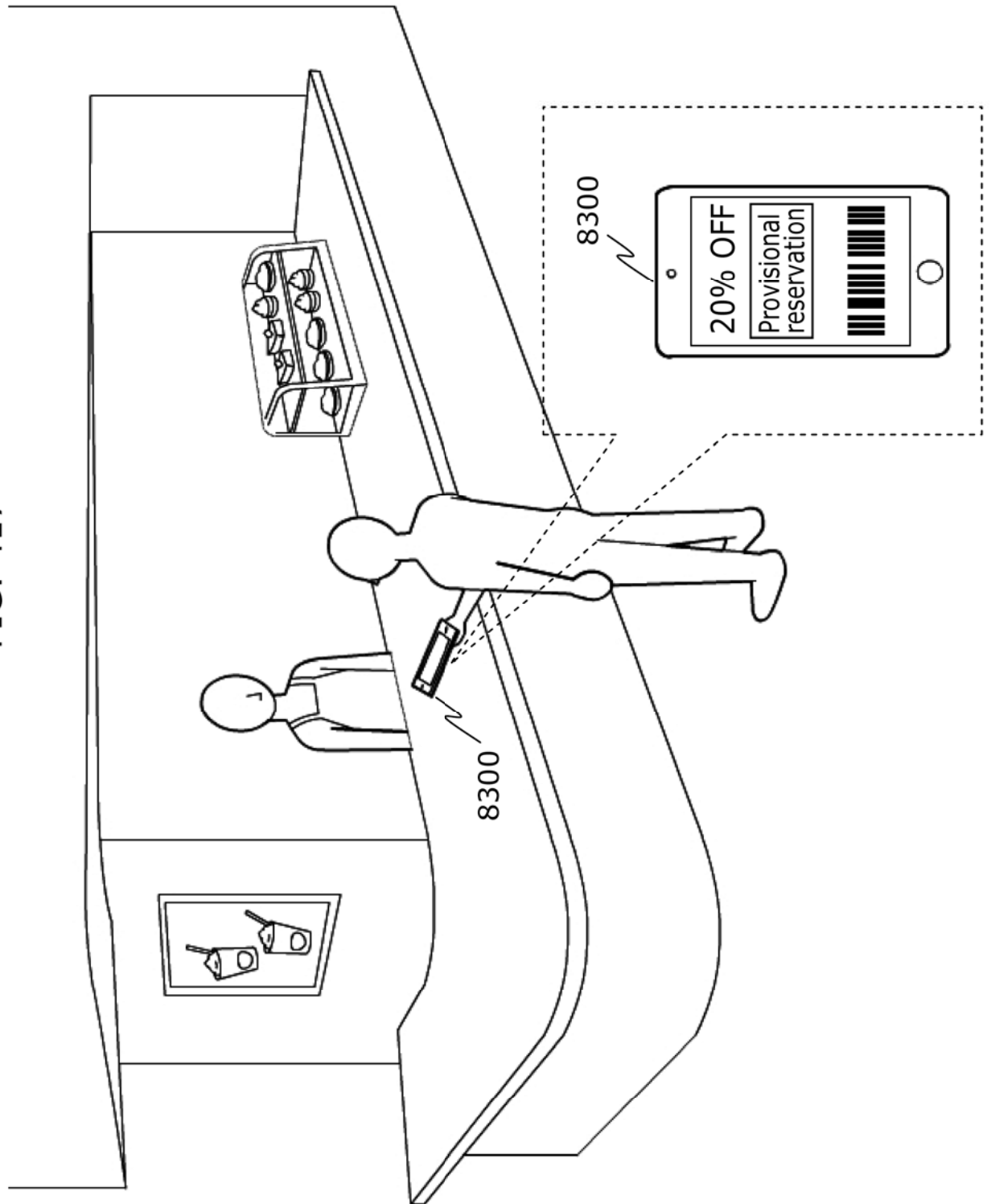


FIG. 418

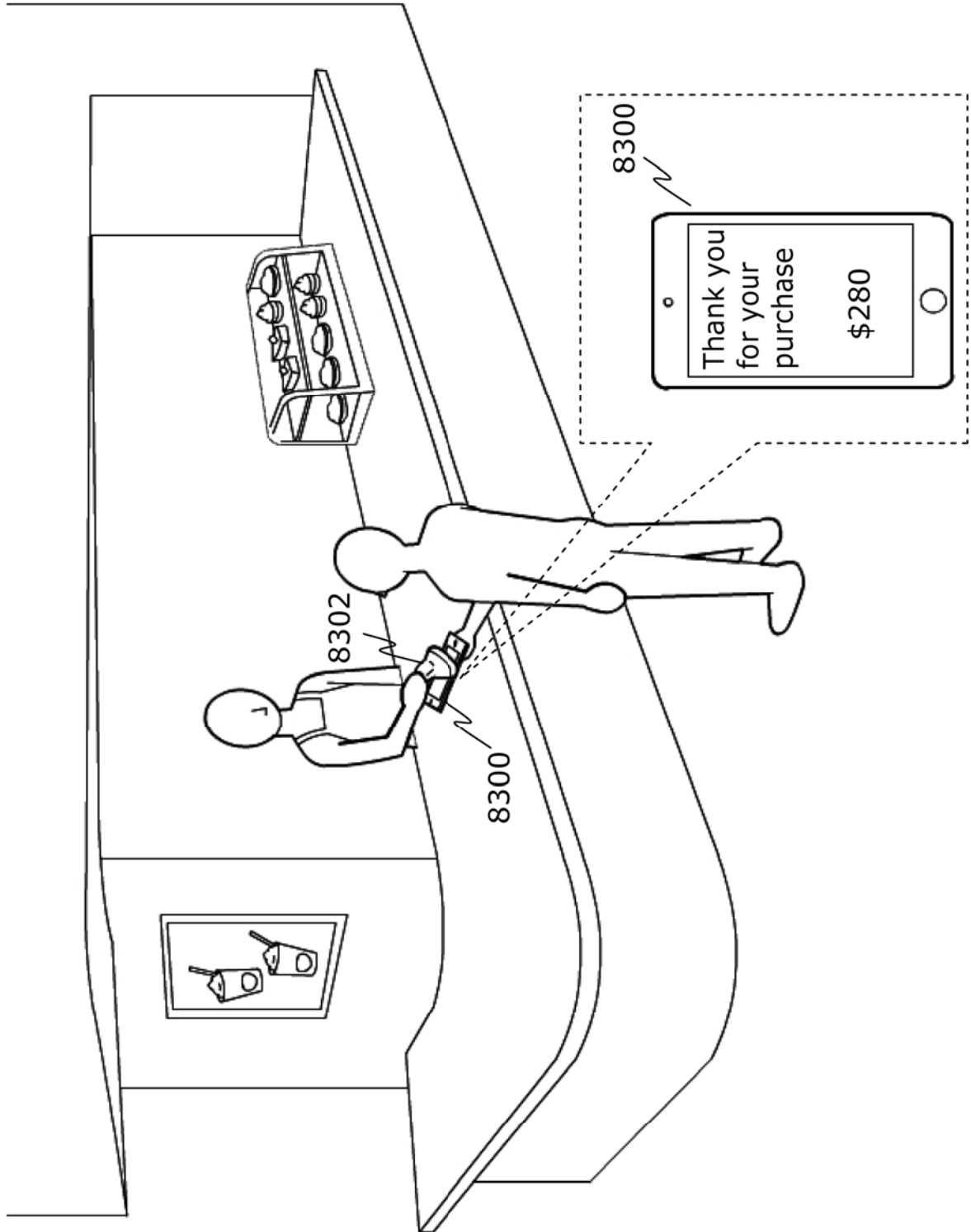


FIG. 419

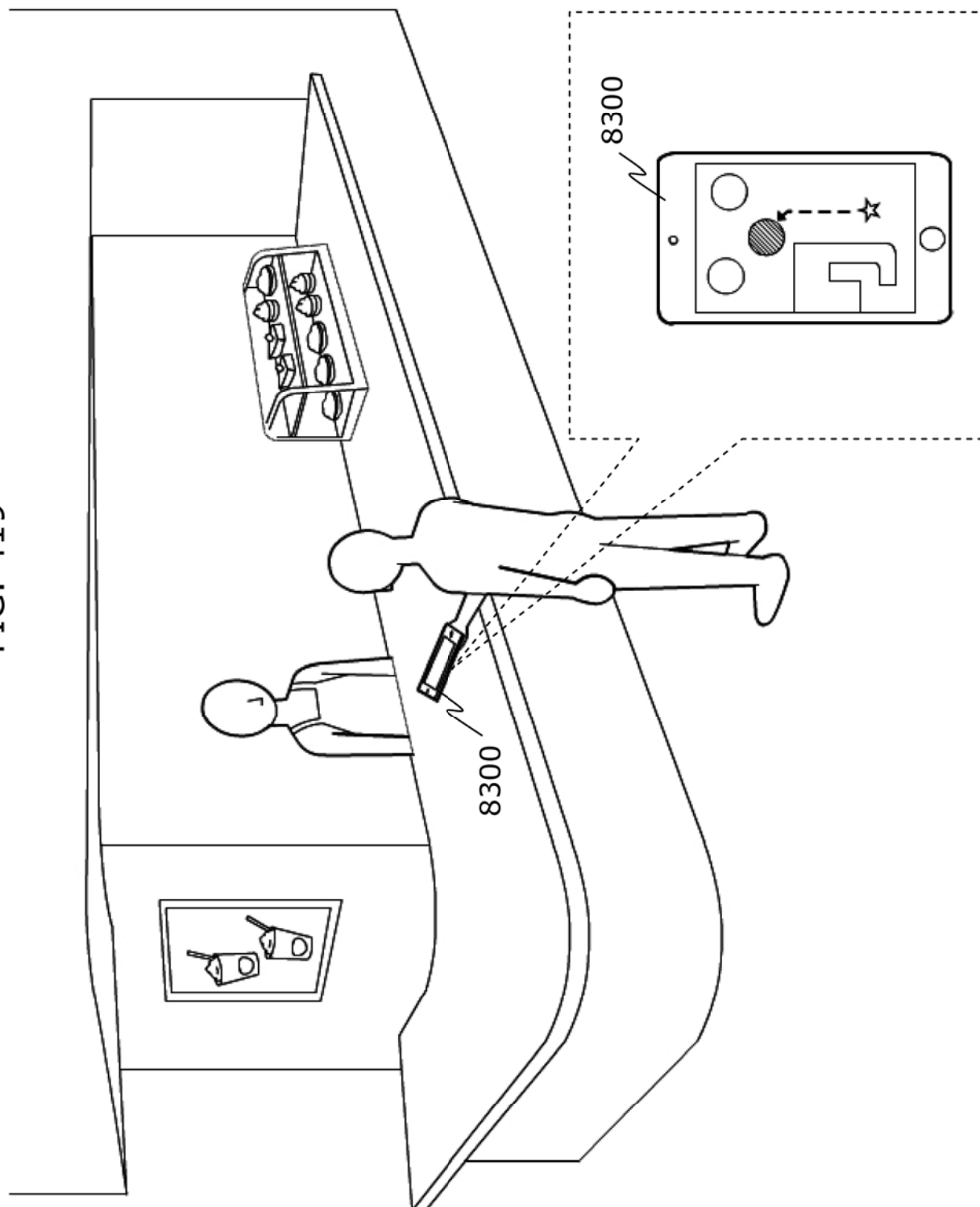


FIG. 420

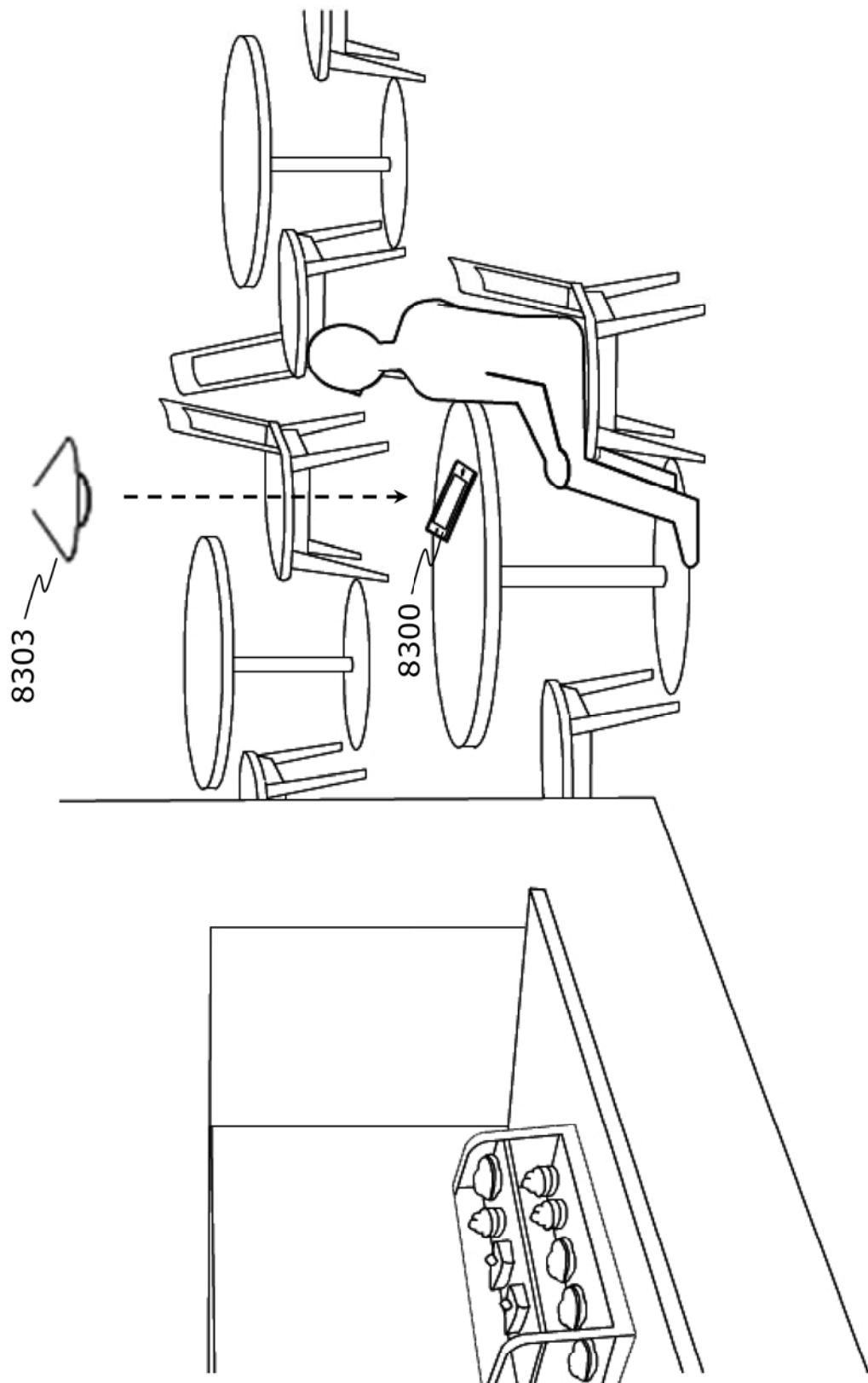


FIG. 421

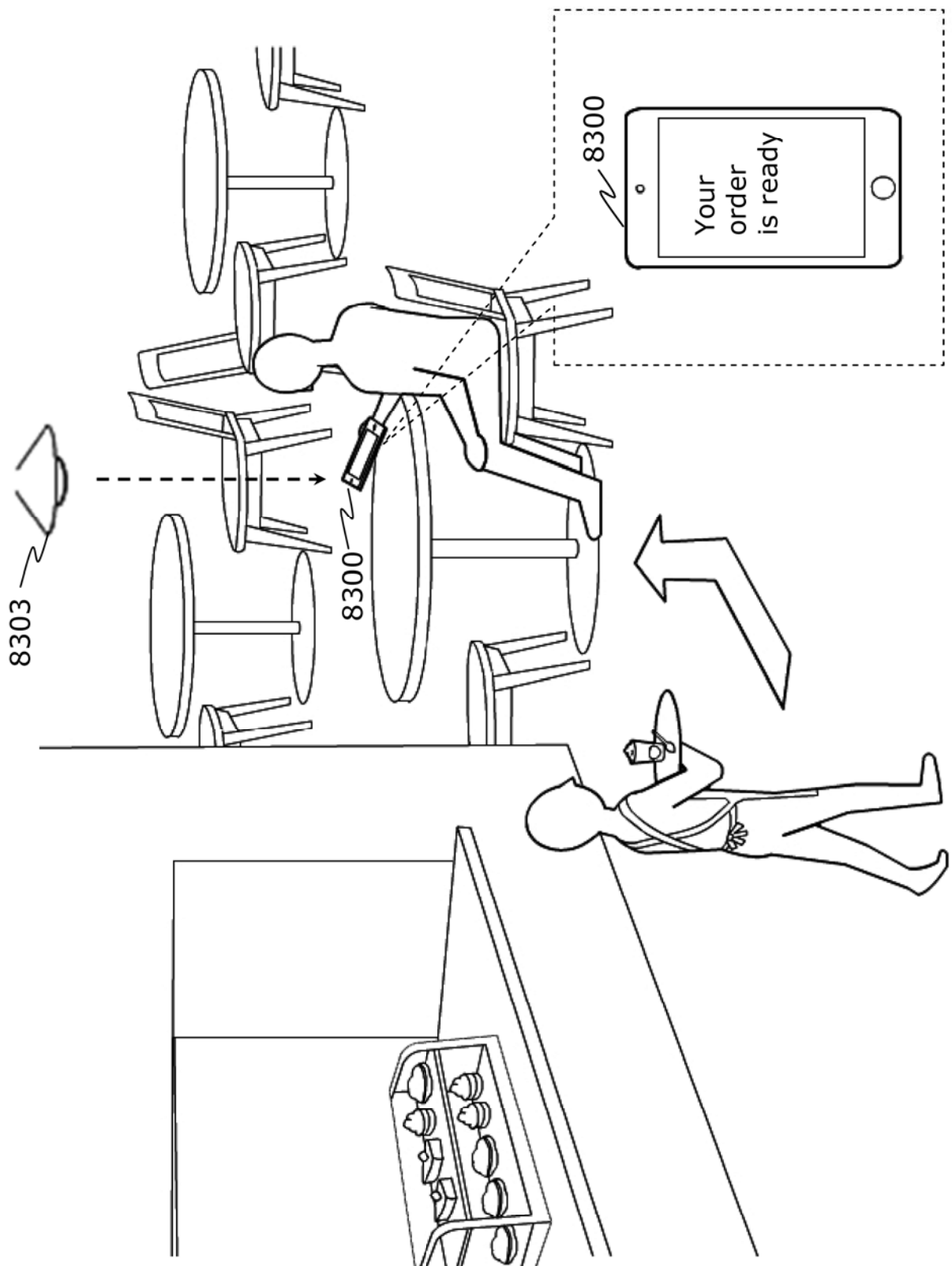


FIG. 422

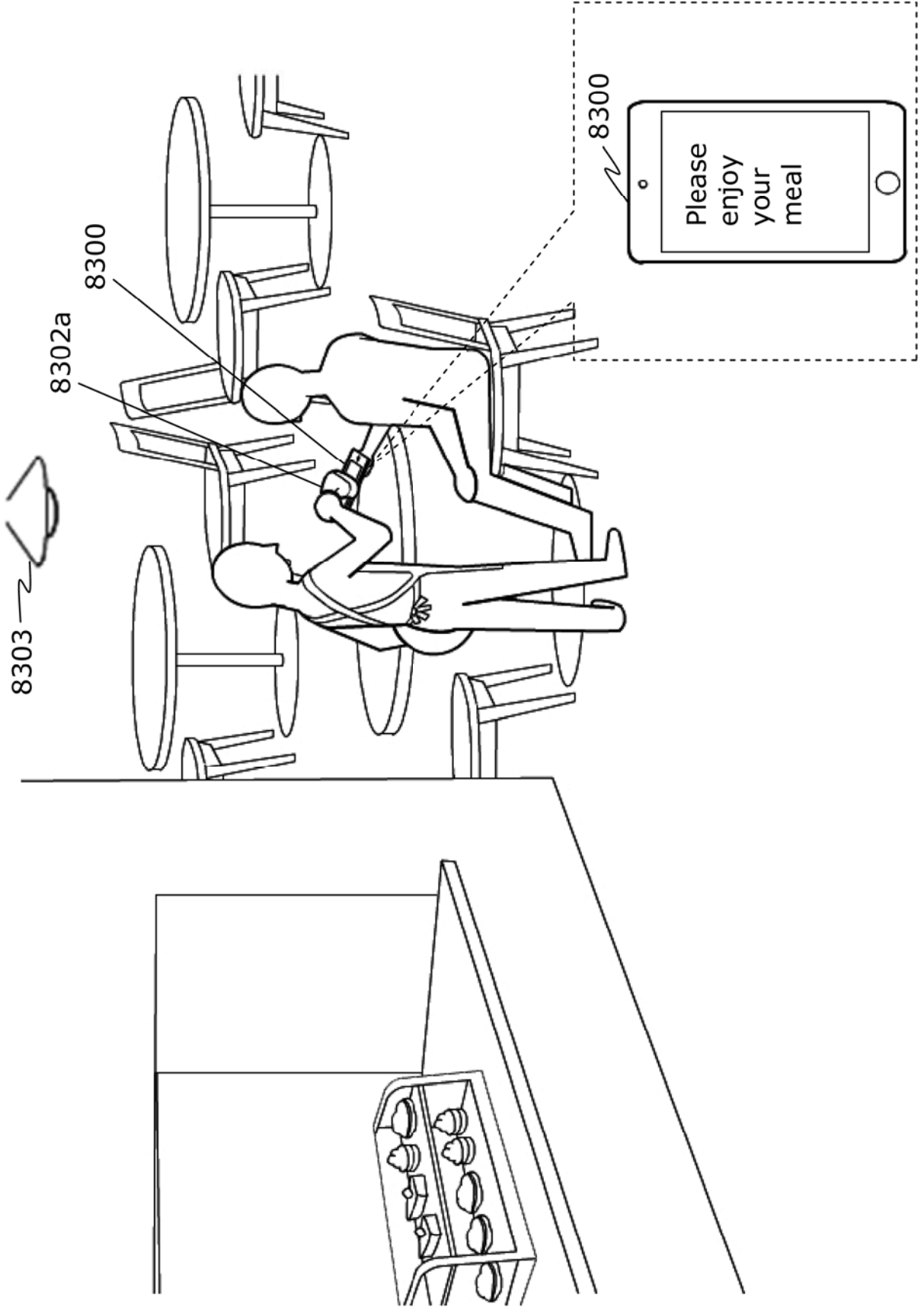


FIG. 423

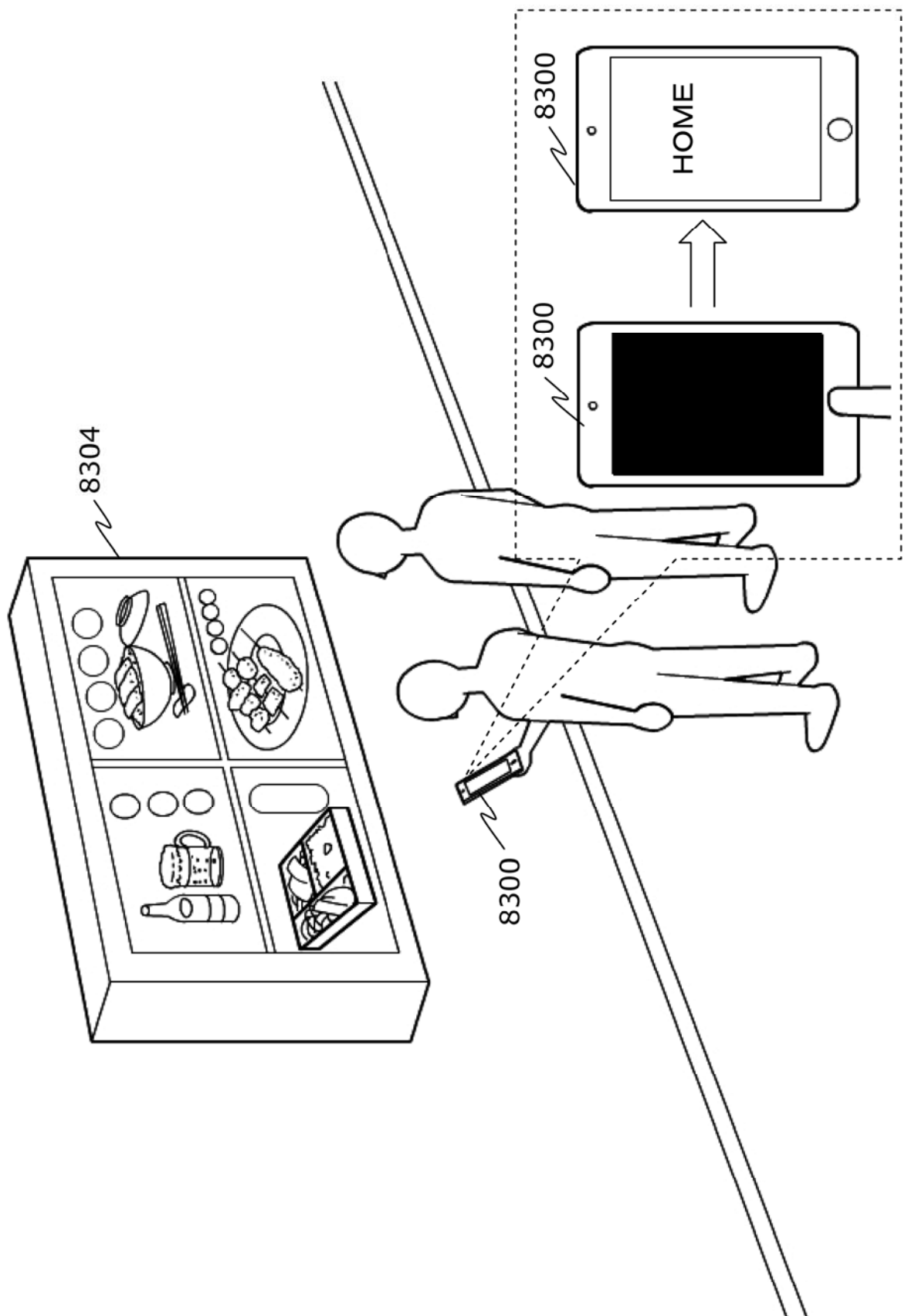


FIG. 424

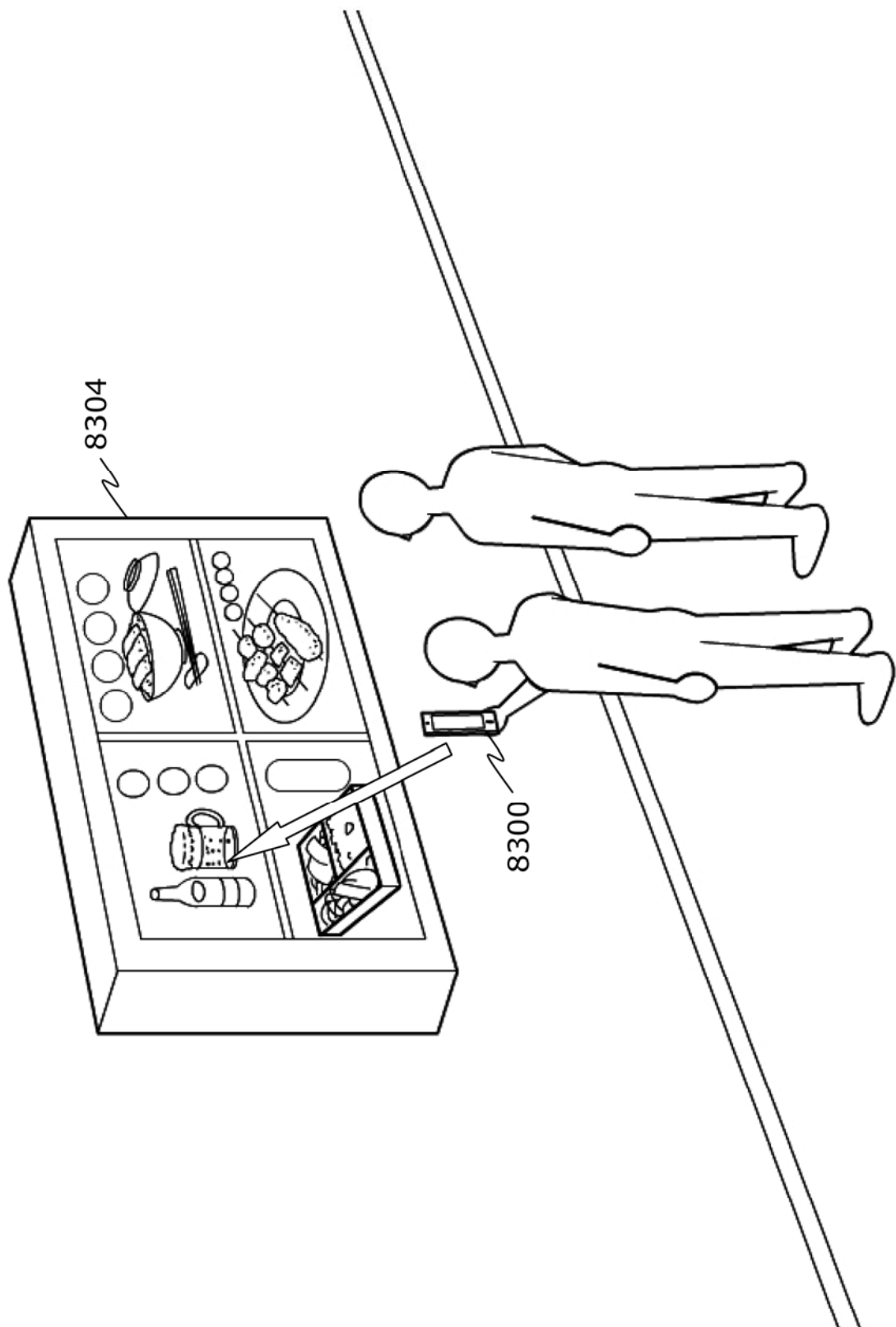




FIG. 425

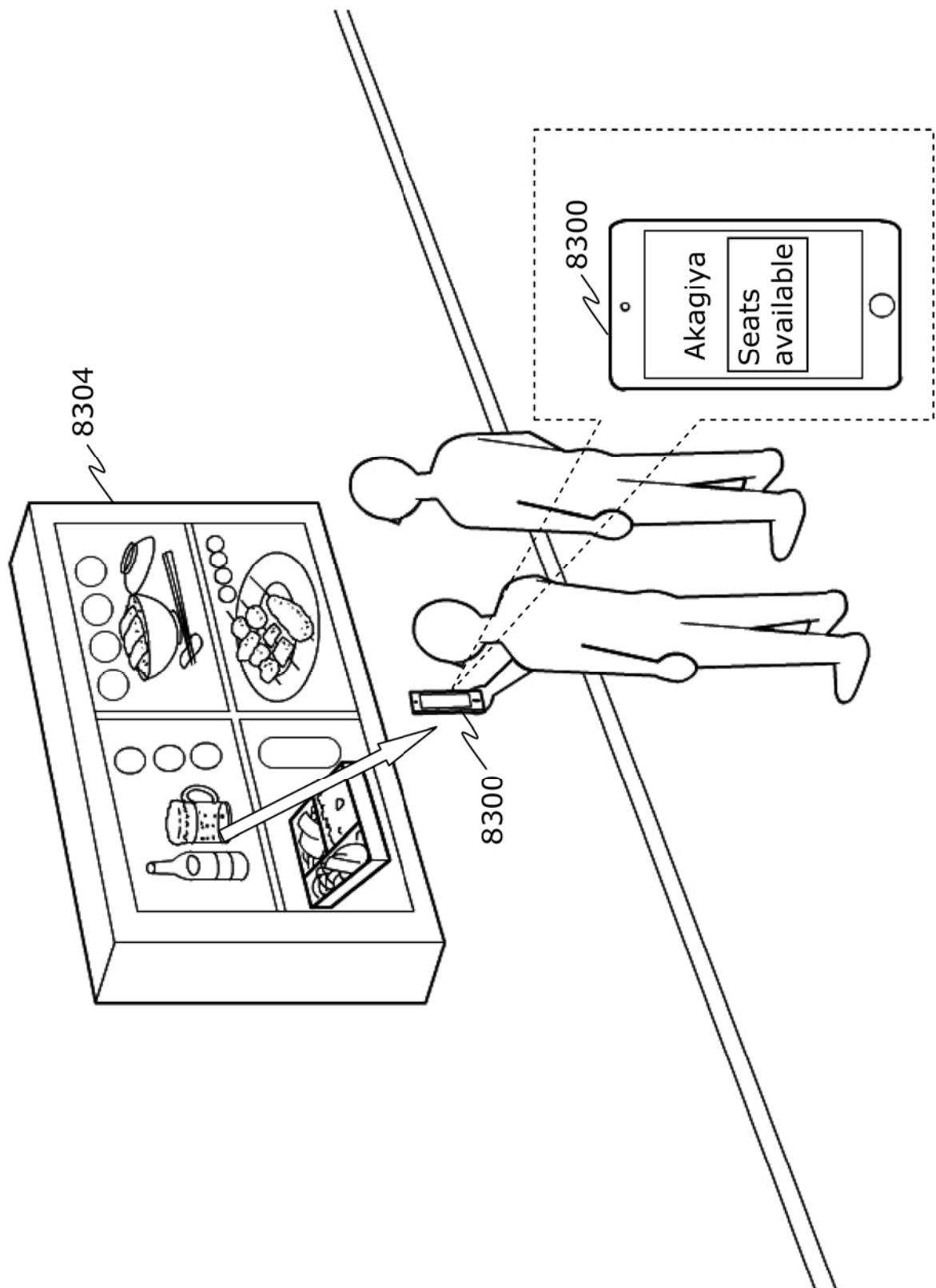


FIG. 426

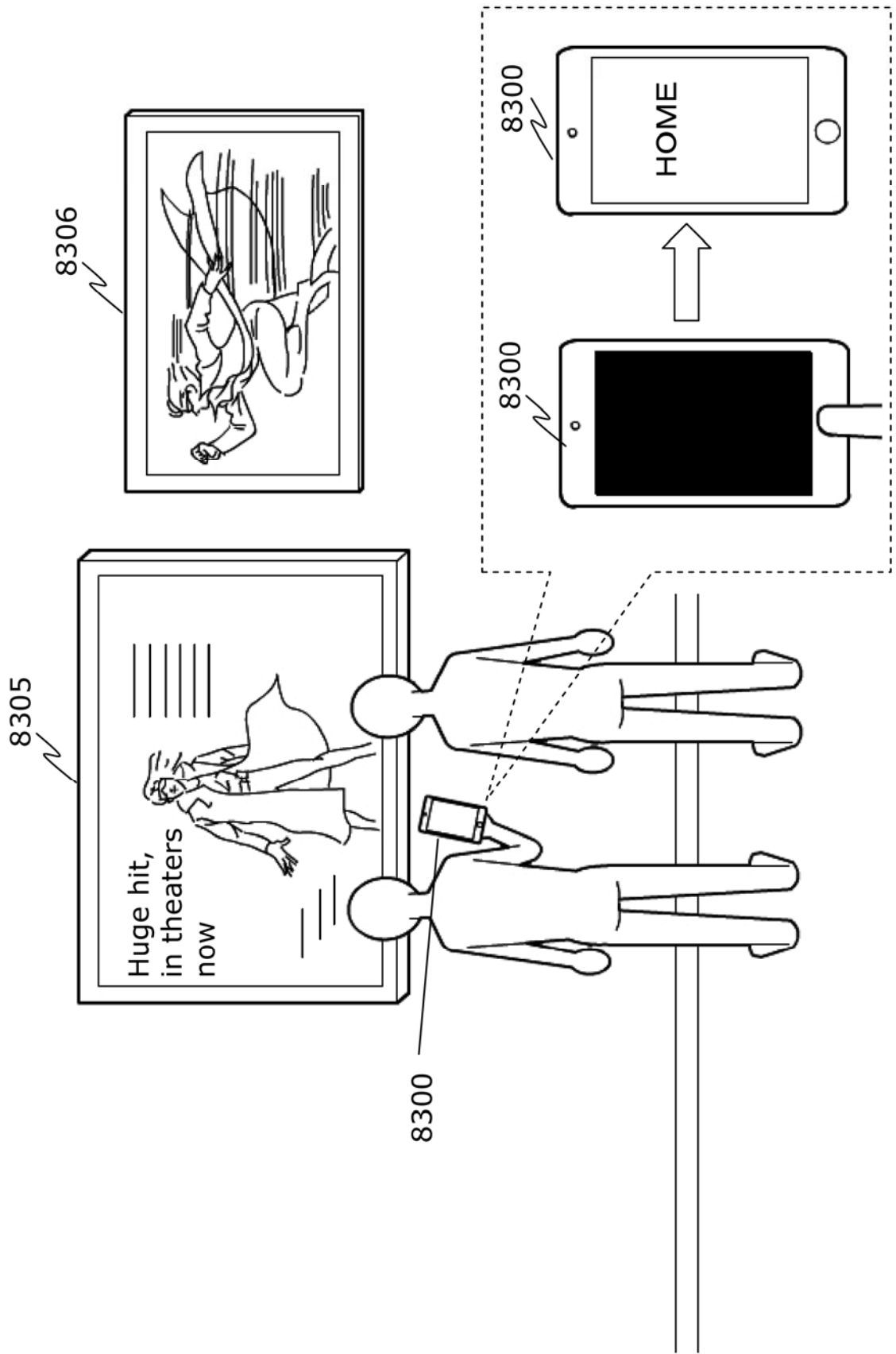


FIG. 427

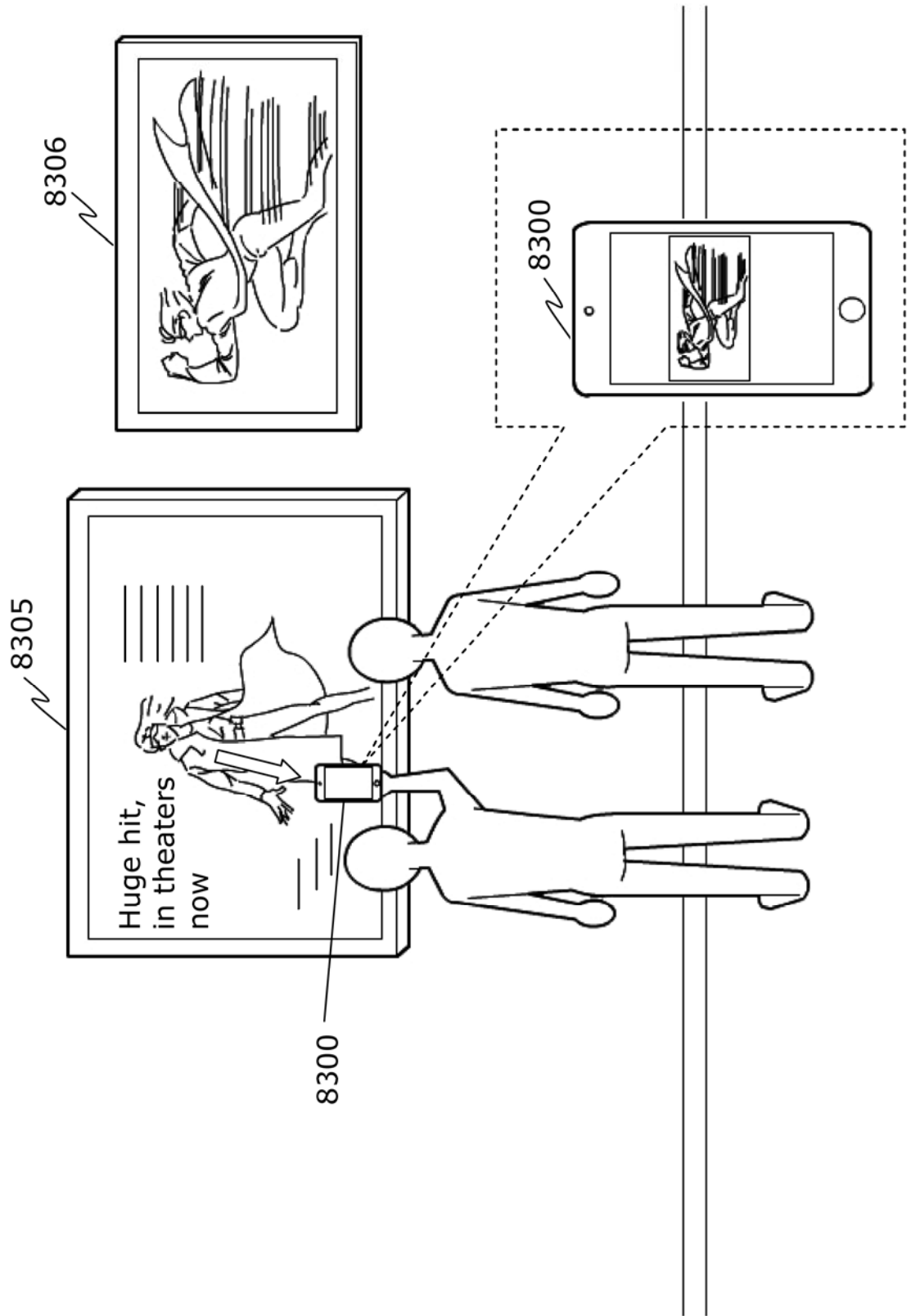


FIG. 428

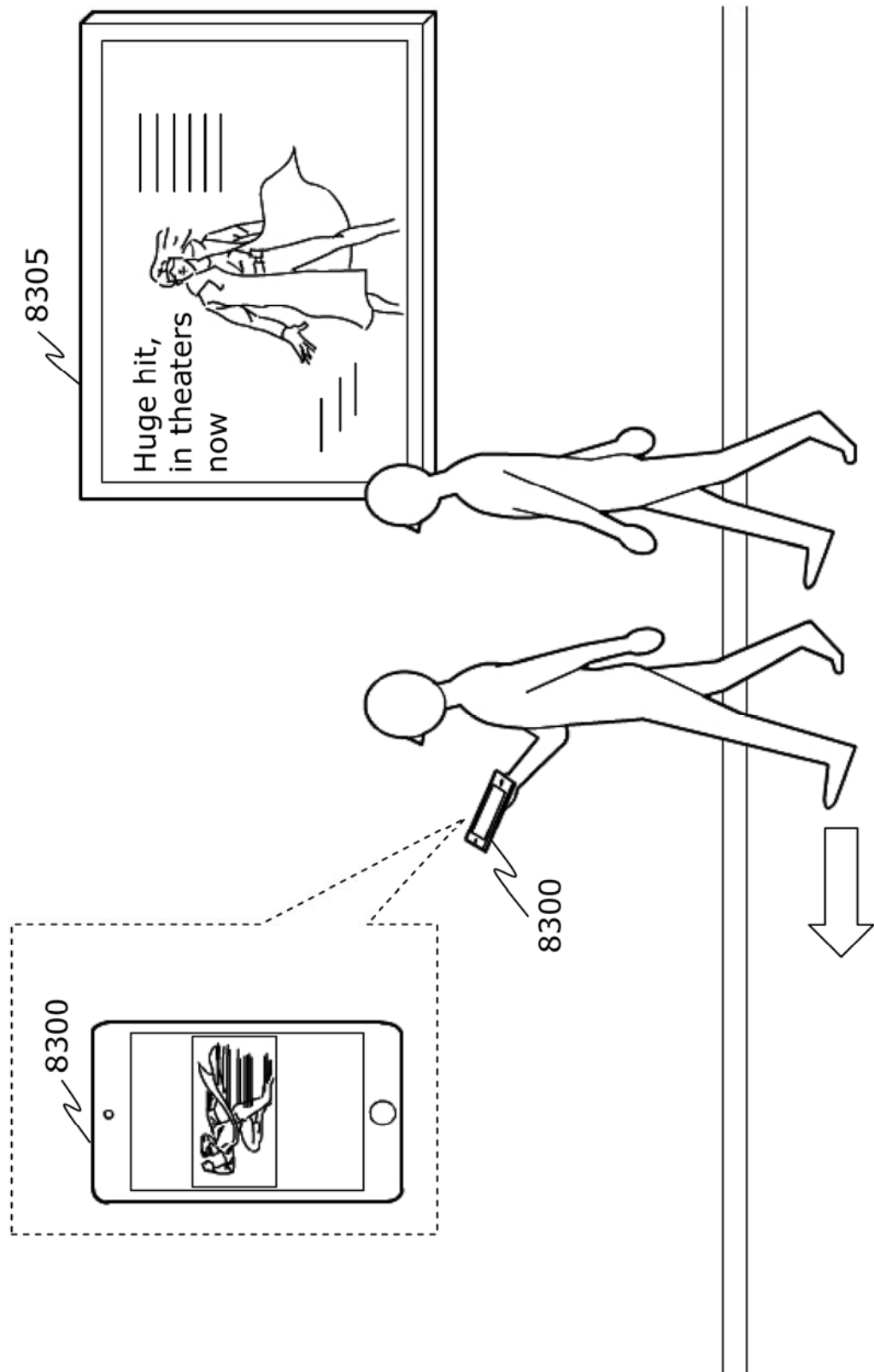


FIG. 429

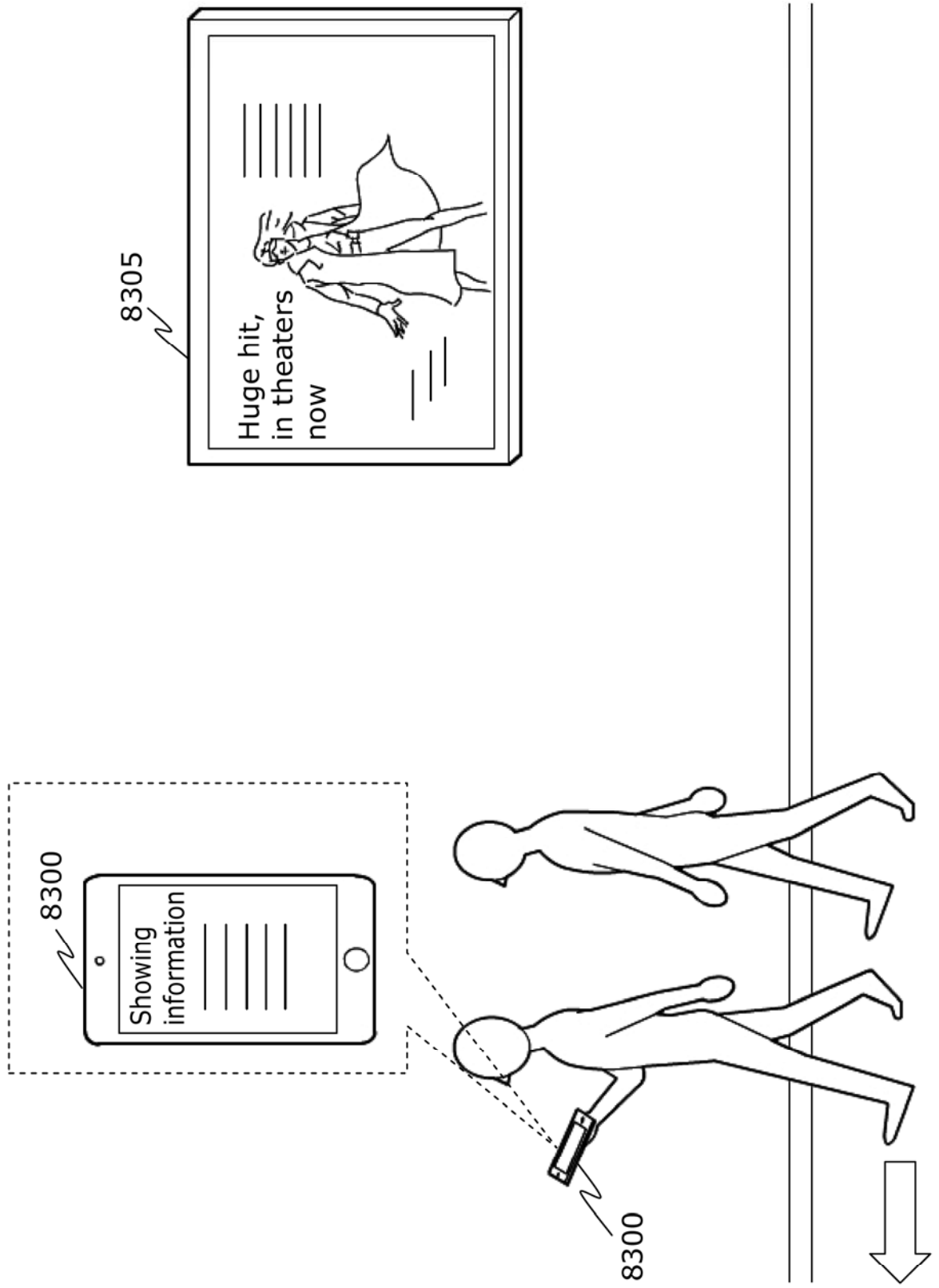


FIG. 430

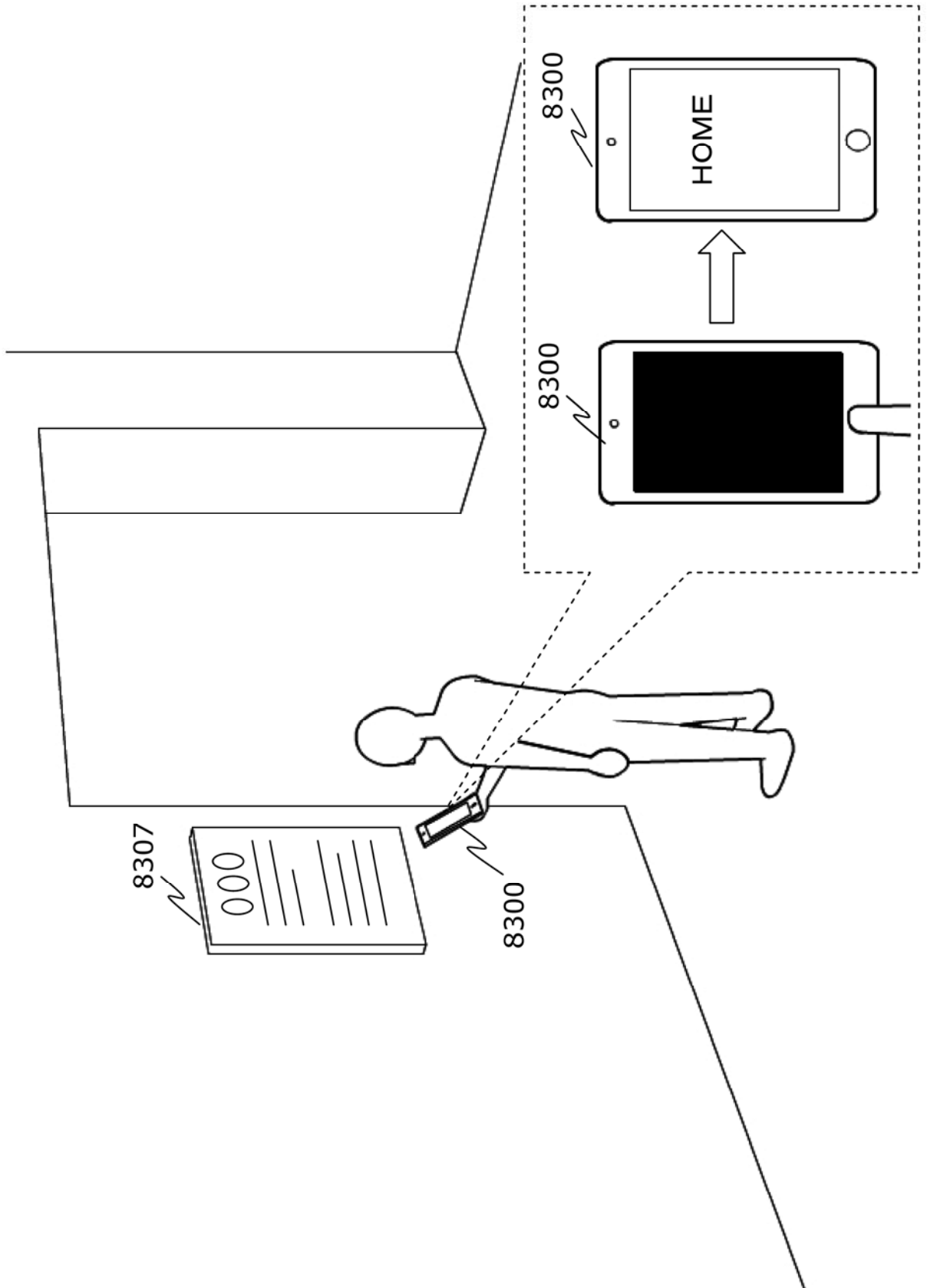


FIG. 431

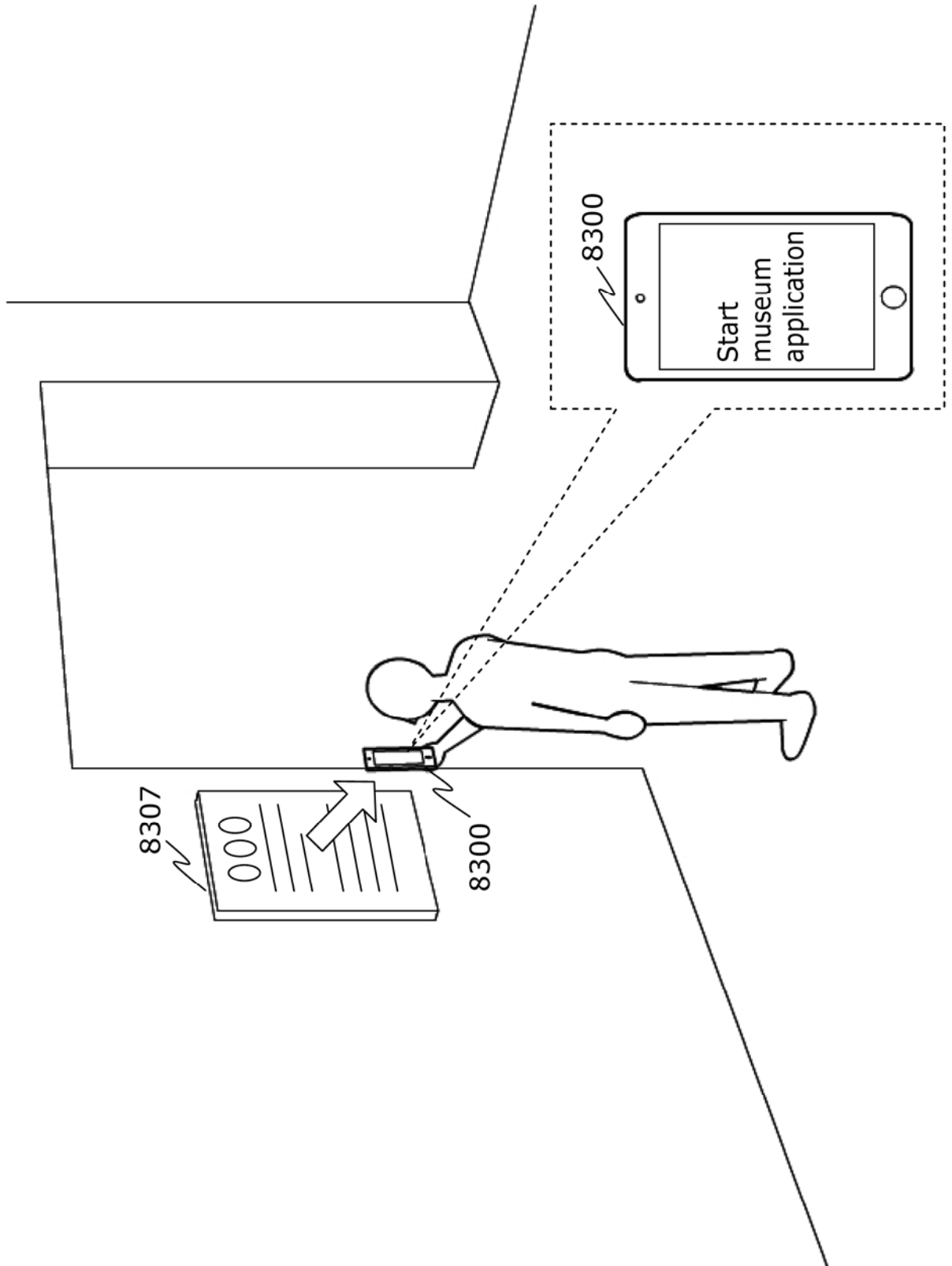


FIG. 432

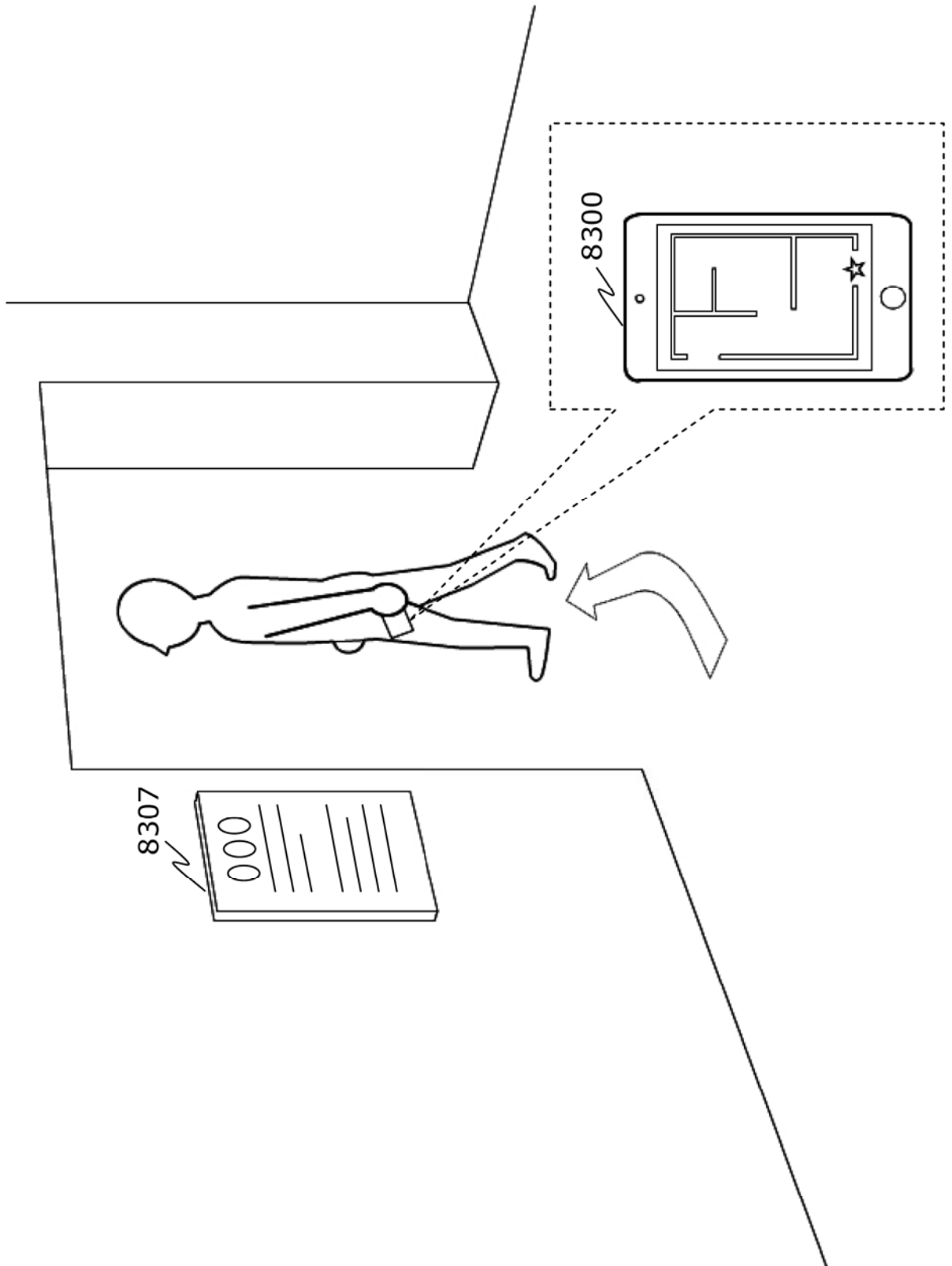




FIG. 433

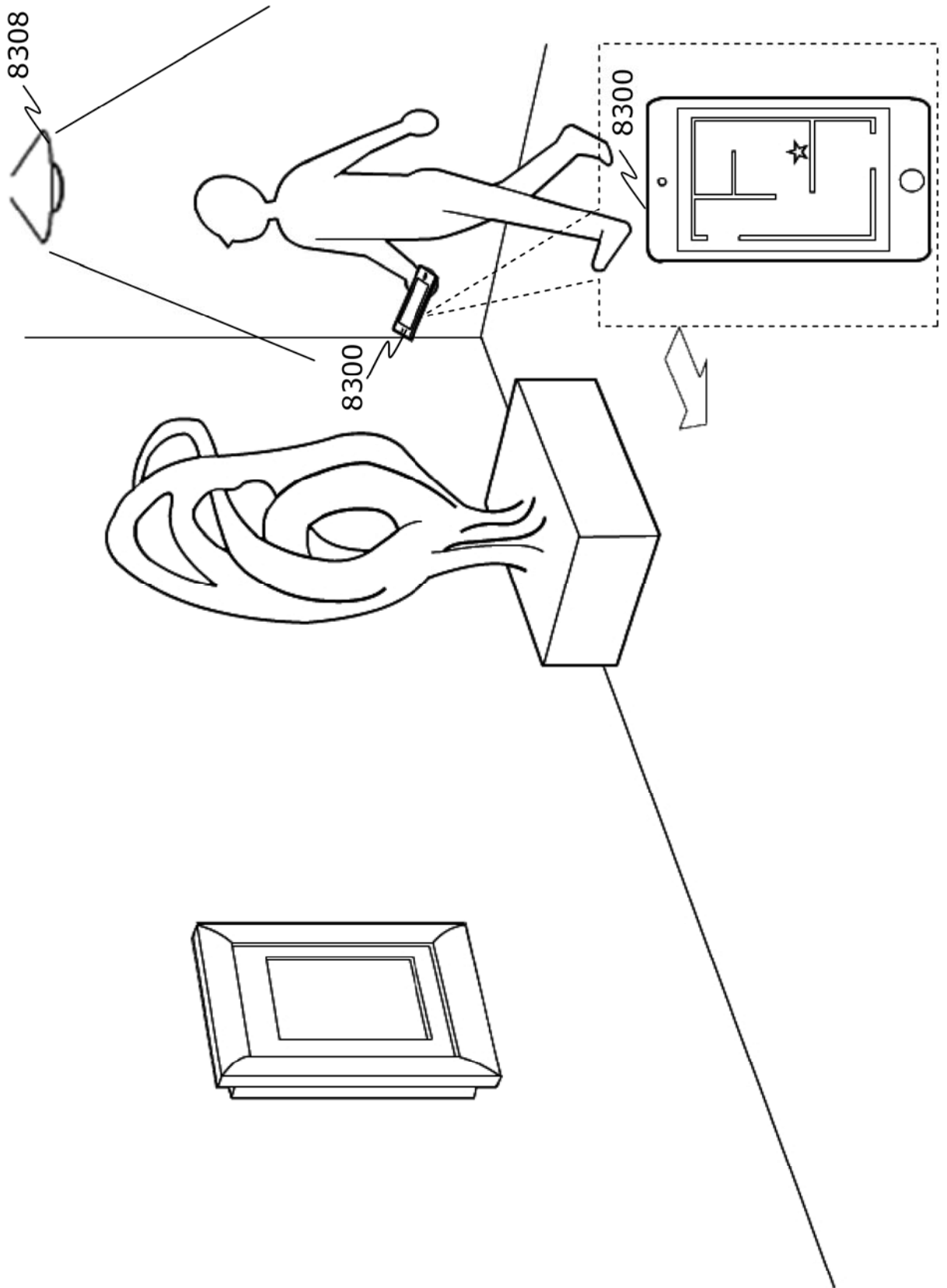


FIG. 434

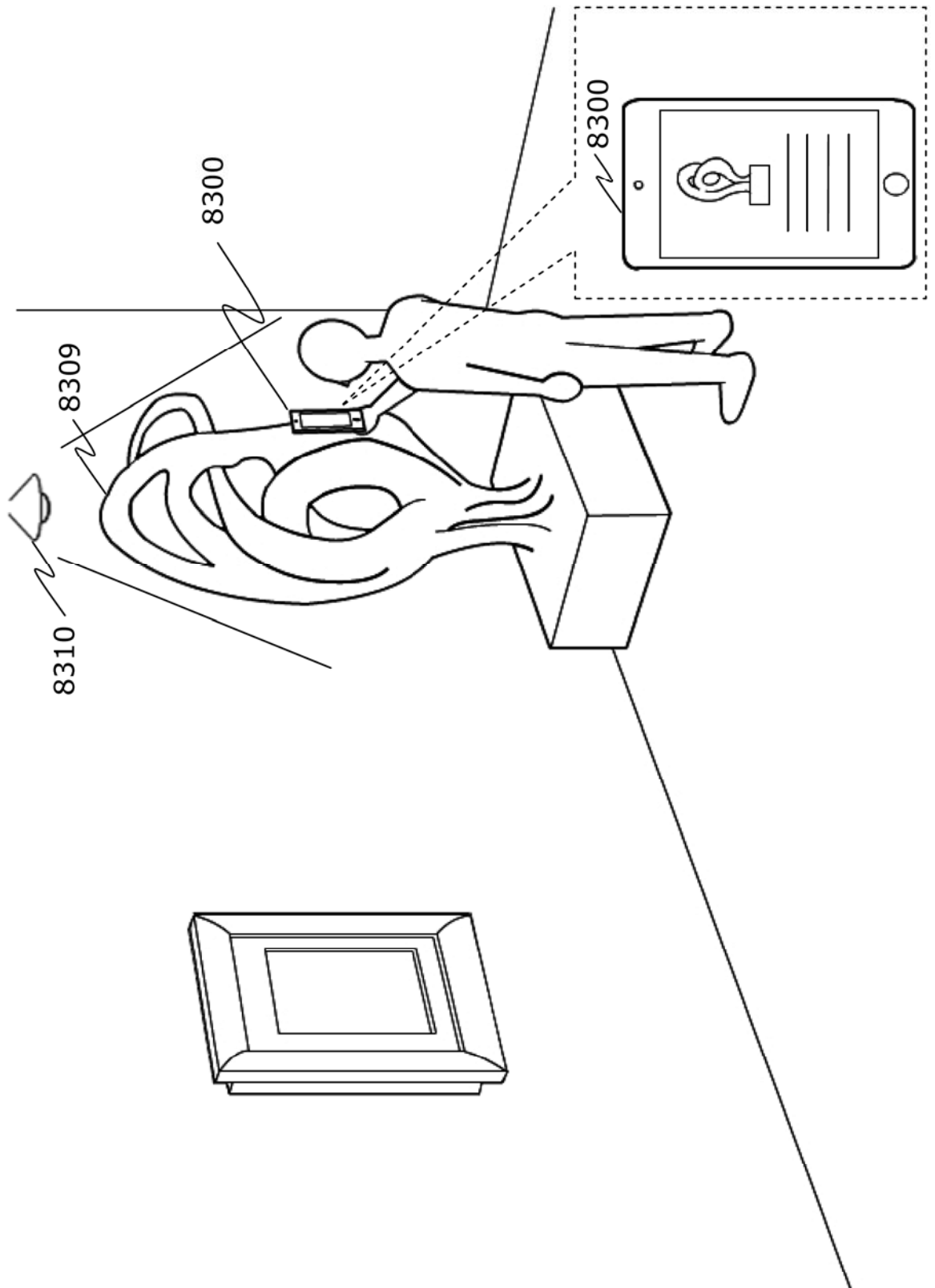


FIG. 435

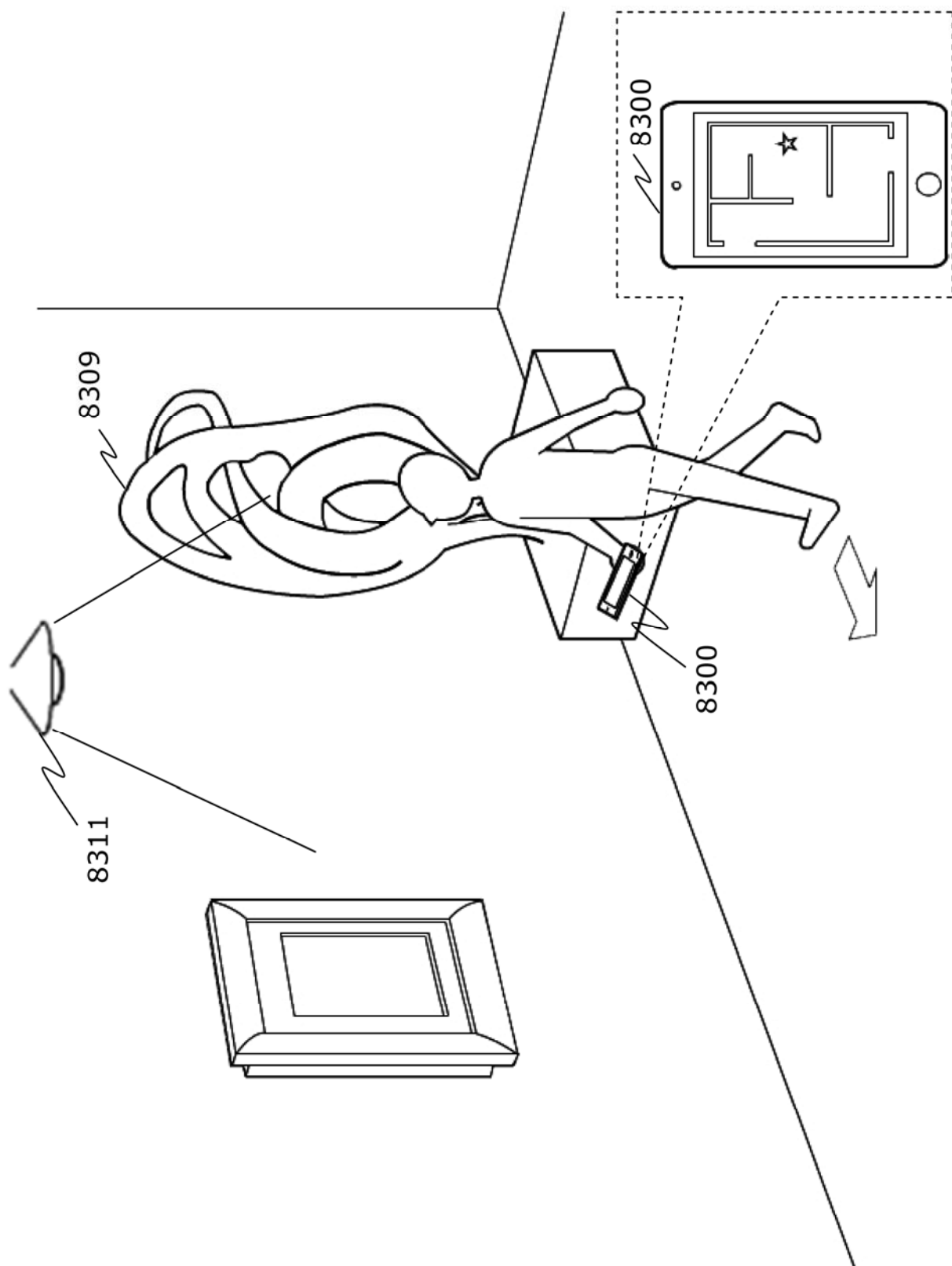


FIG. 436

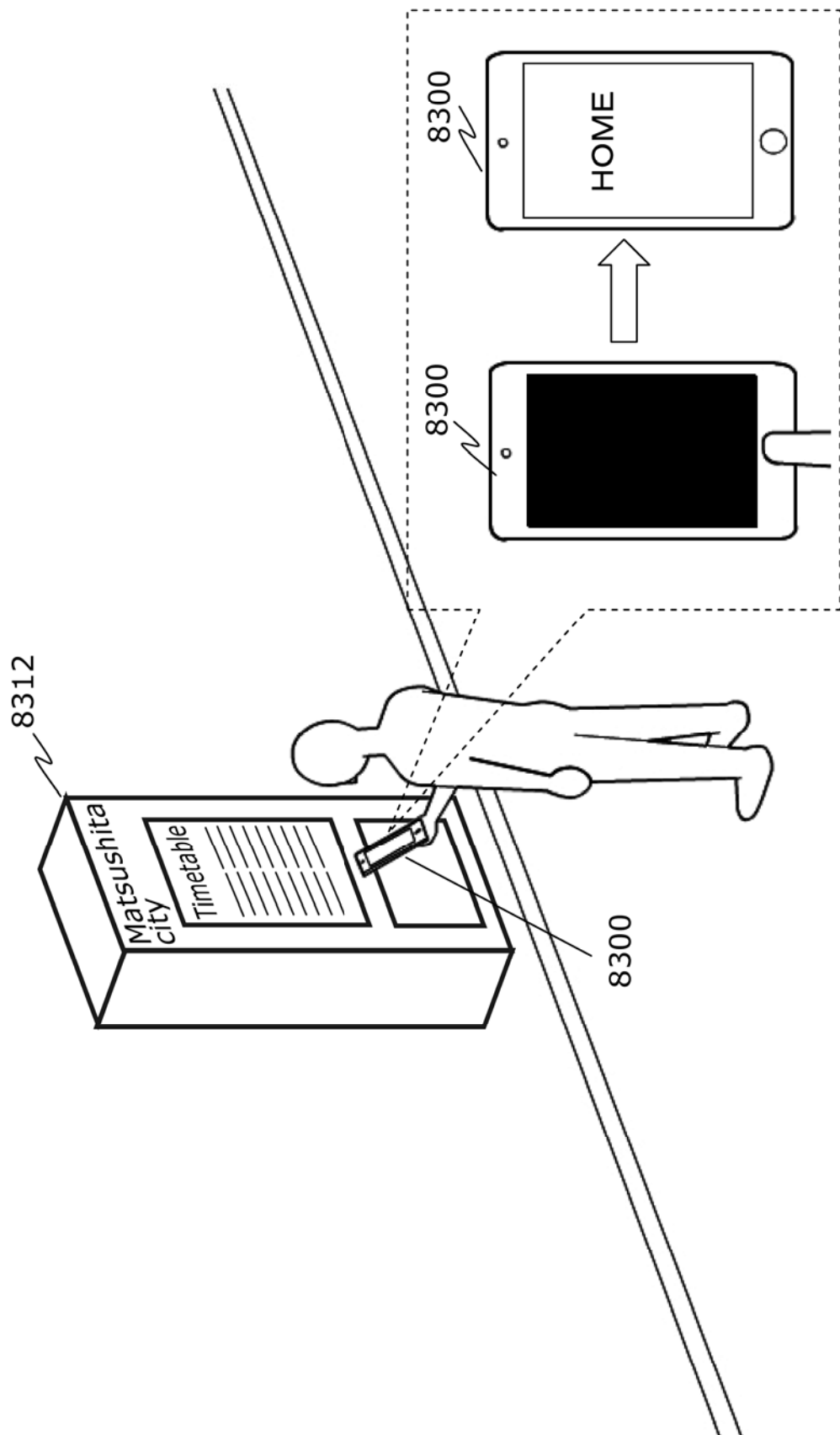


FIG. 437

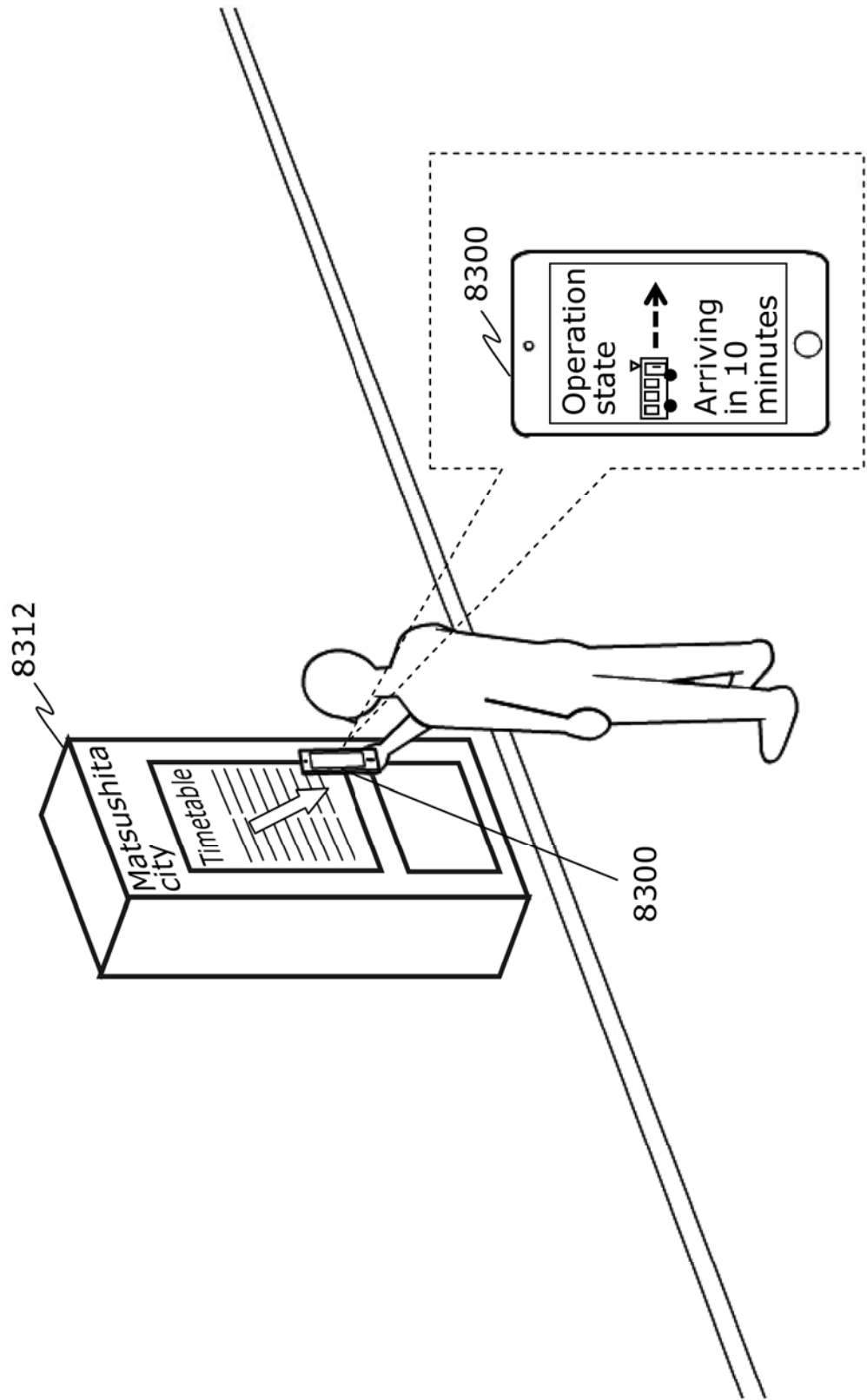


FIG. 438

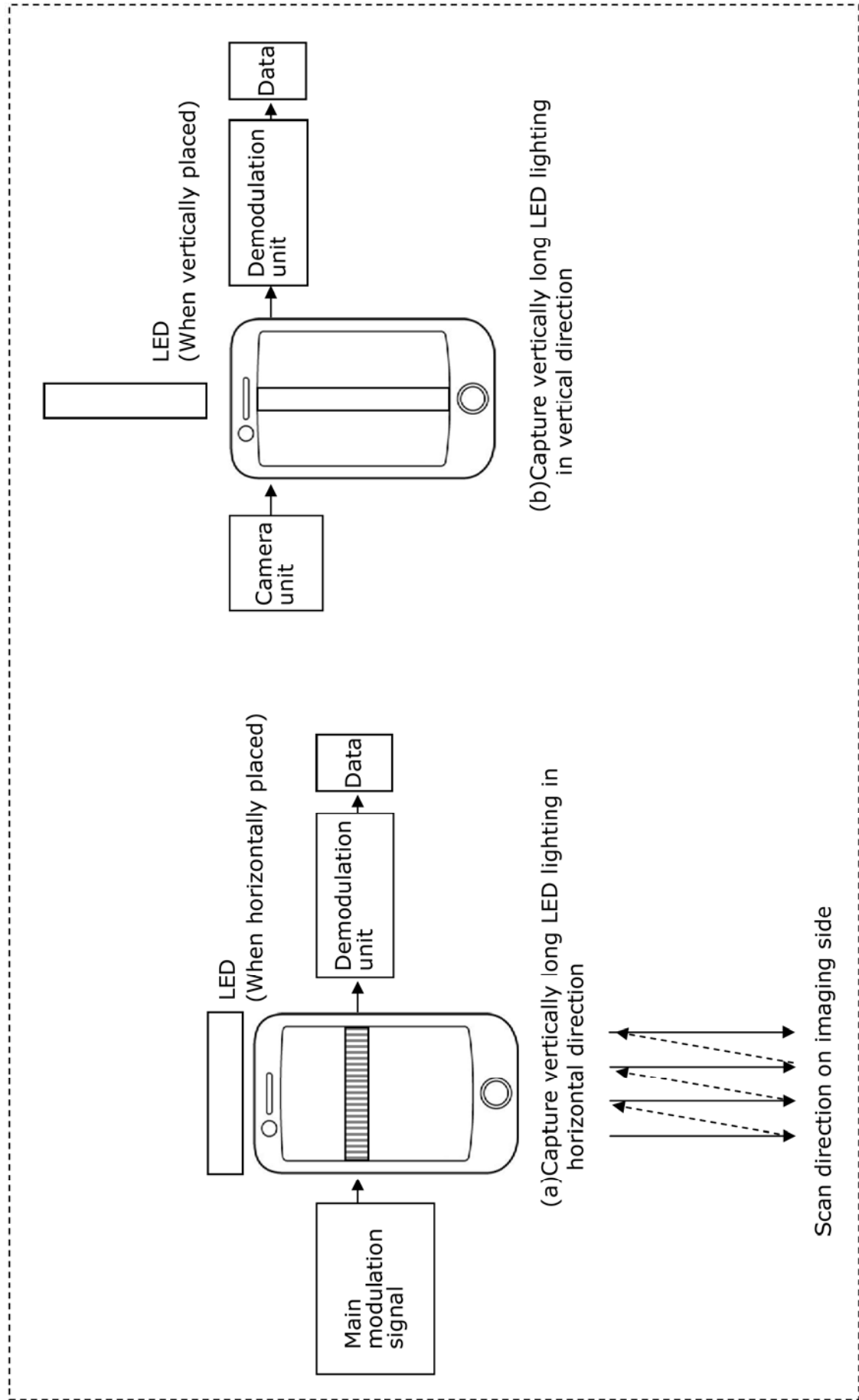


FIG. 439

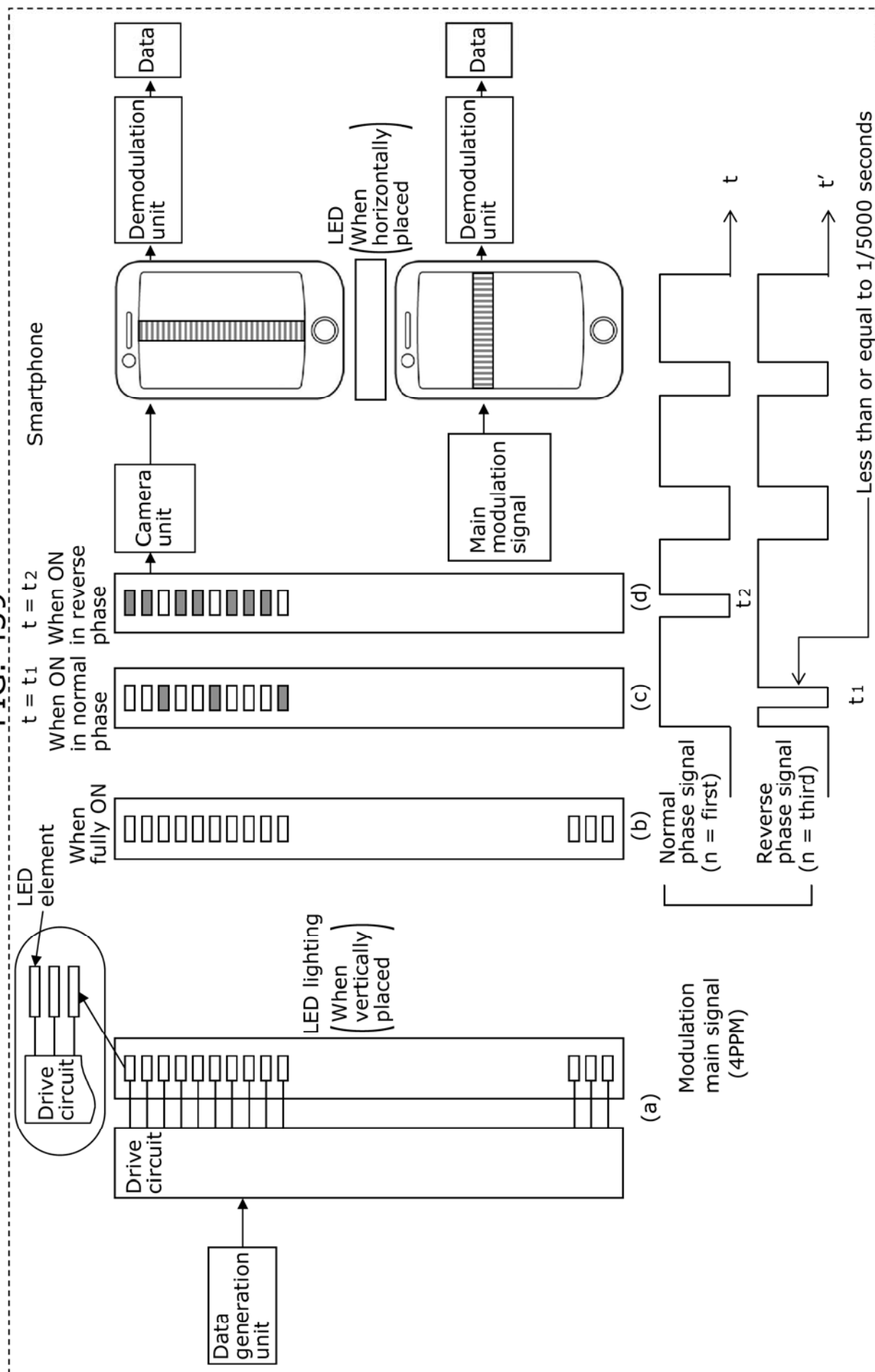


FIG. 440

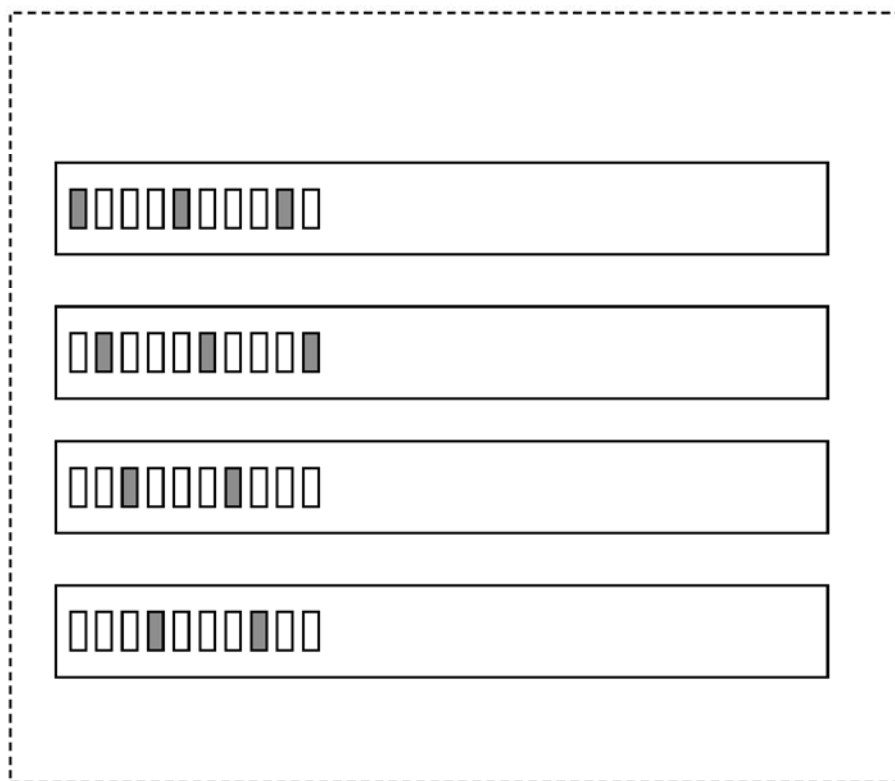




FIG. 441

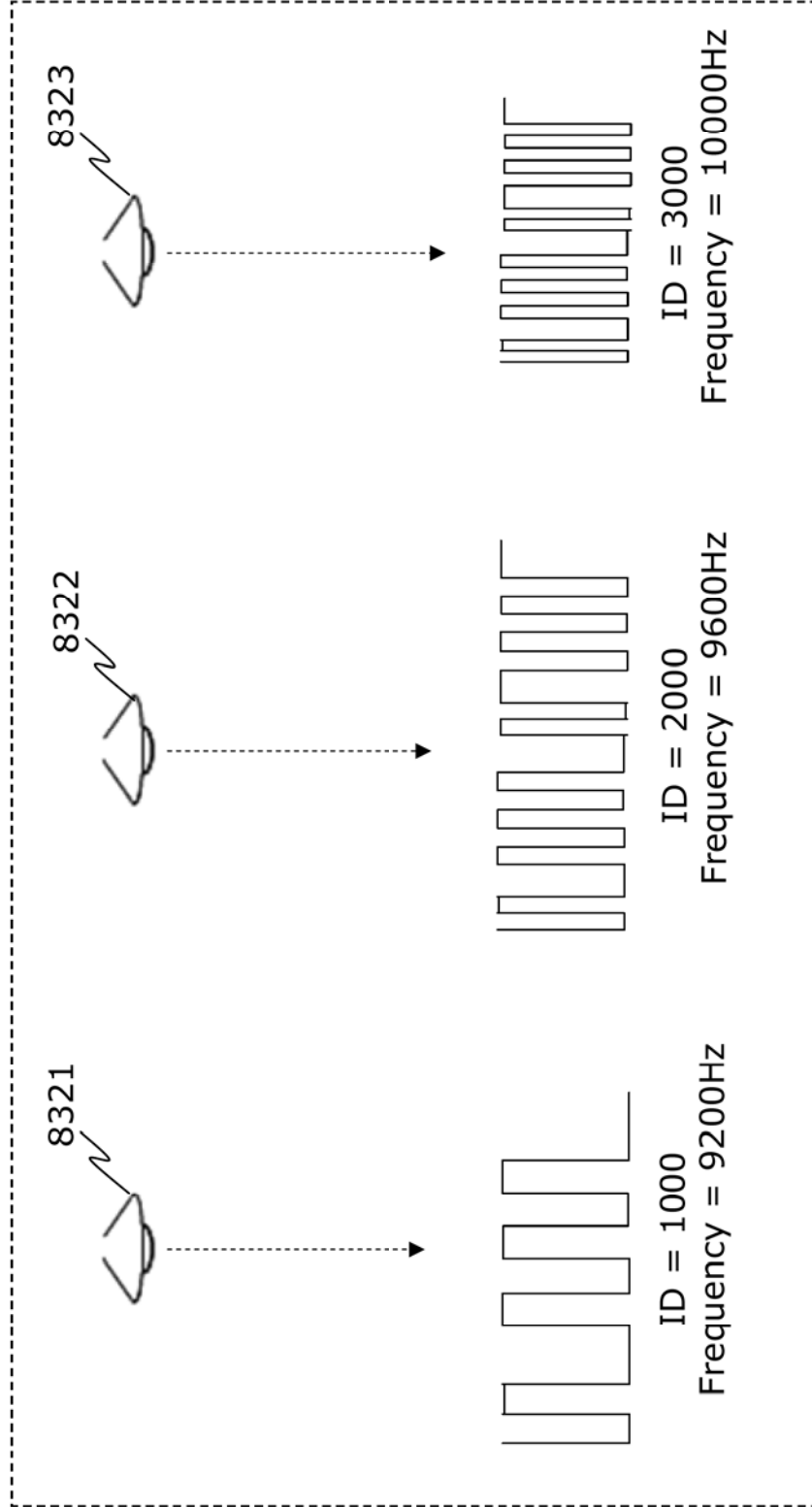


FIG. 442

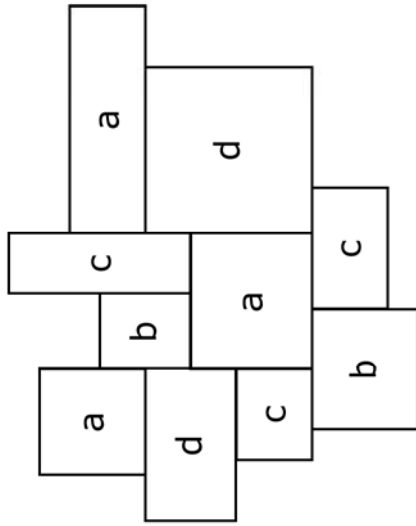


FIG. 443

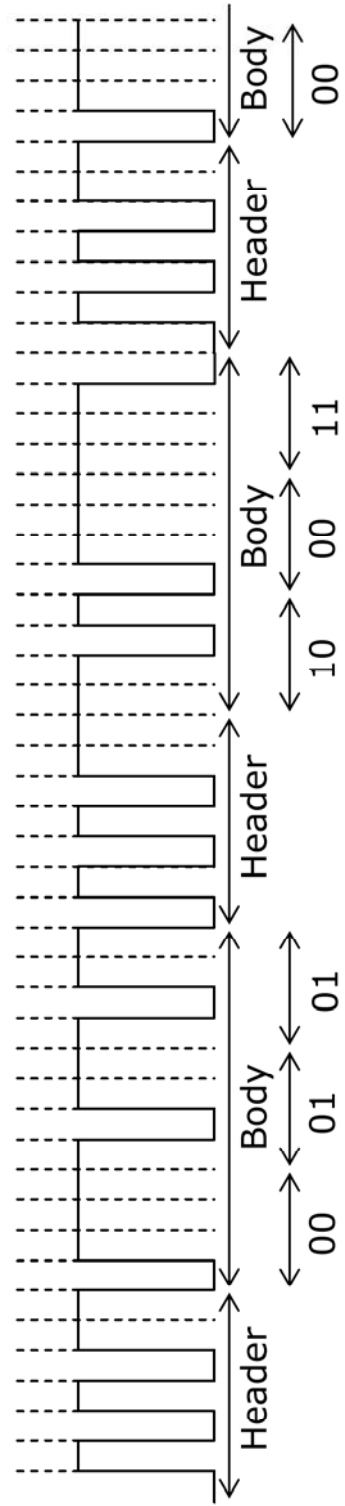


FIG. 444

|           |                   |                   |
|-----------|-------------------|-------------------|
| ID        | 100               | 110               |
| Frequency | 2 kHz             | 1 kHz             |
| Signal    | 1002 <sub>2</sub> | 1101 <sub>1</sub> |

FIG. 445

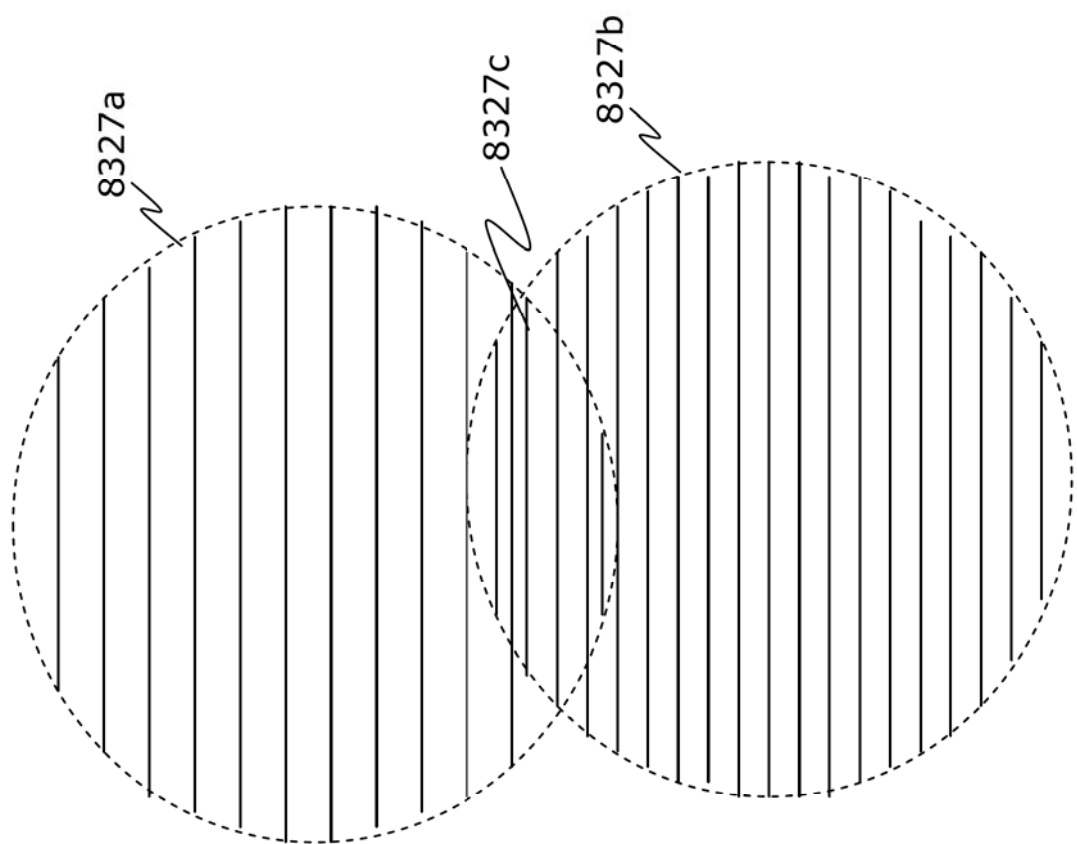


FIG. 446

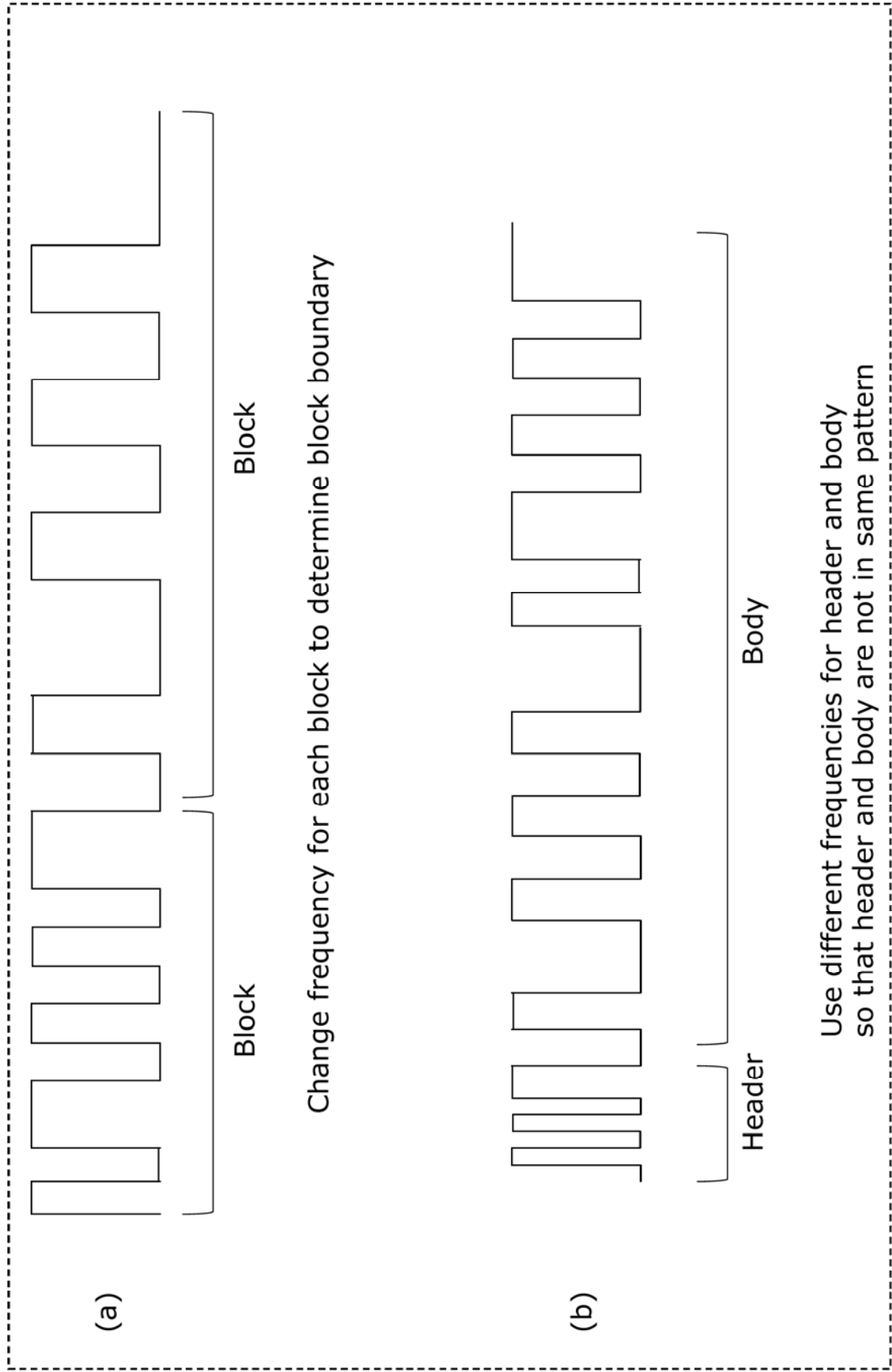


FIG. 447

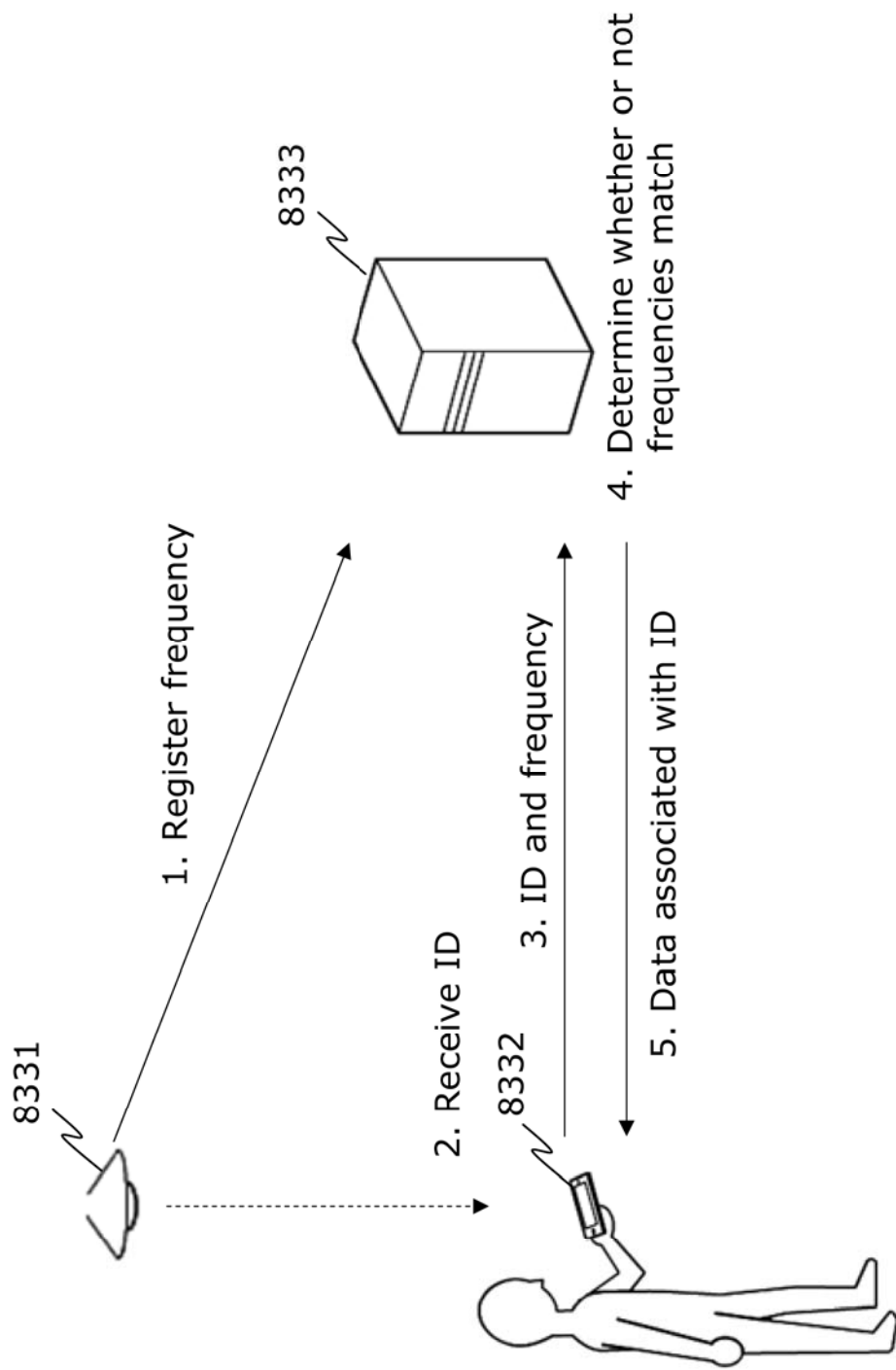


FIG. 448

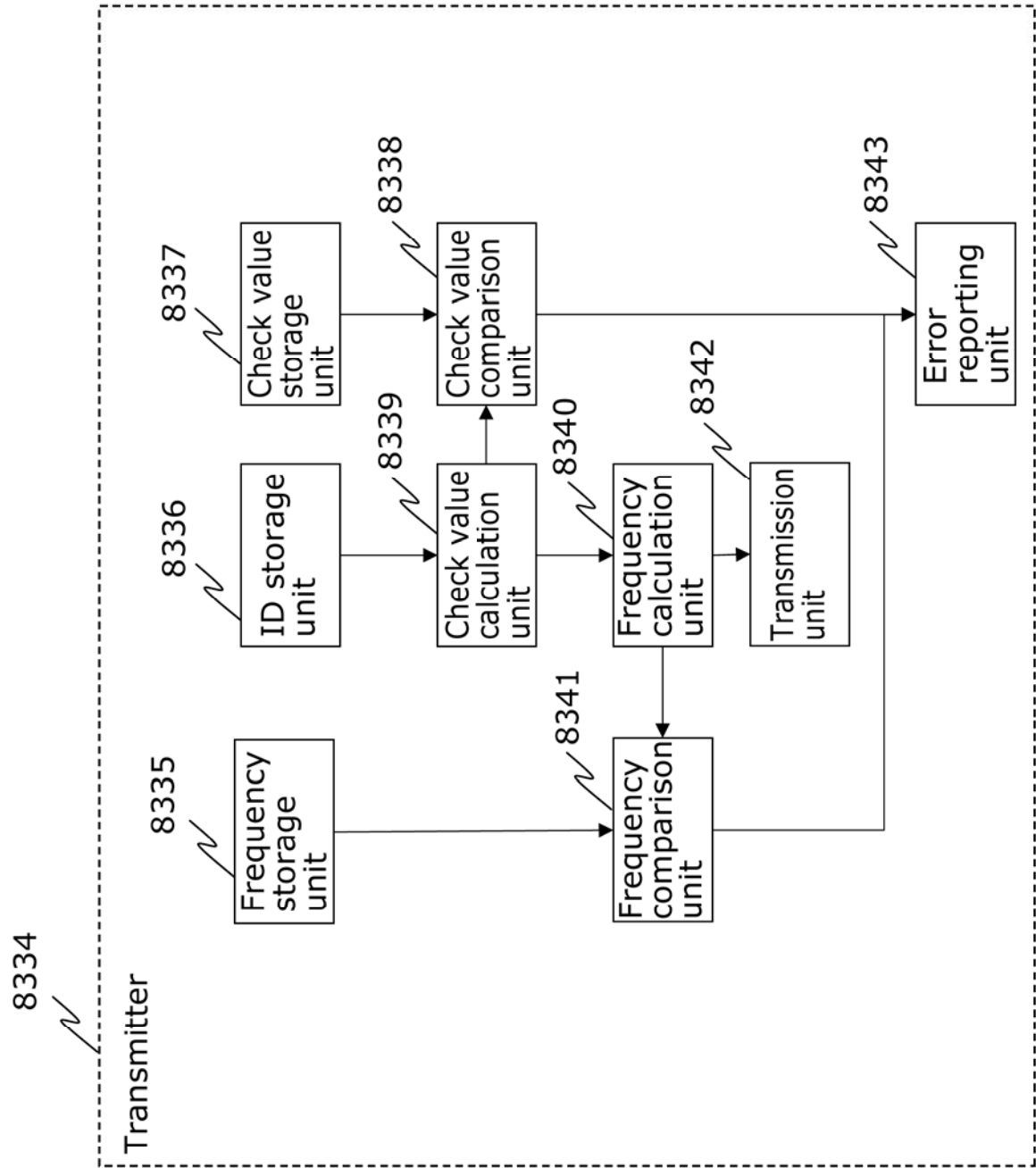


FIG. 449

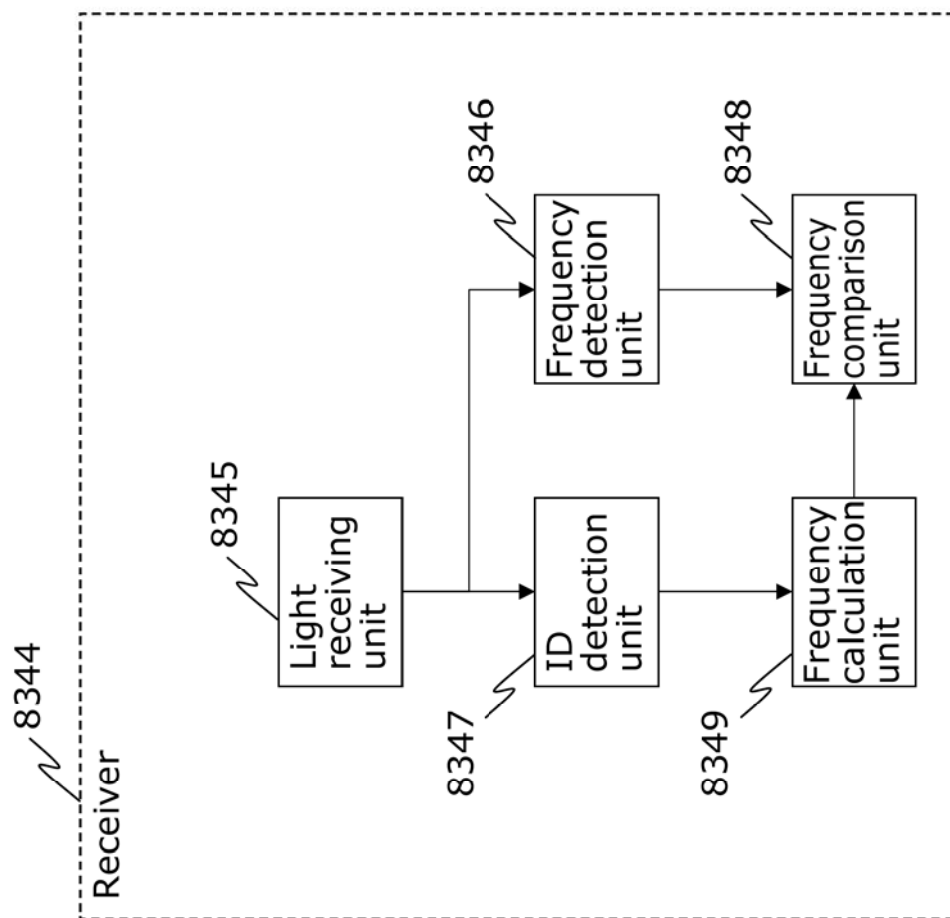




FIG. 450

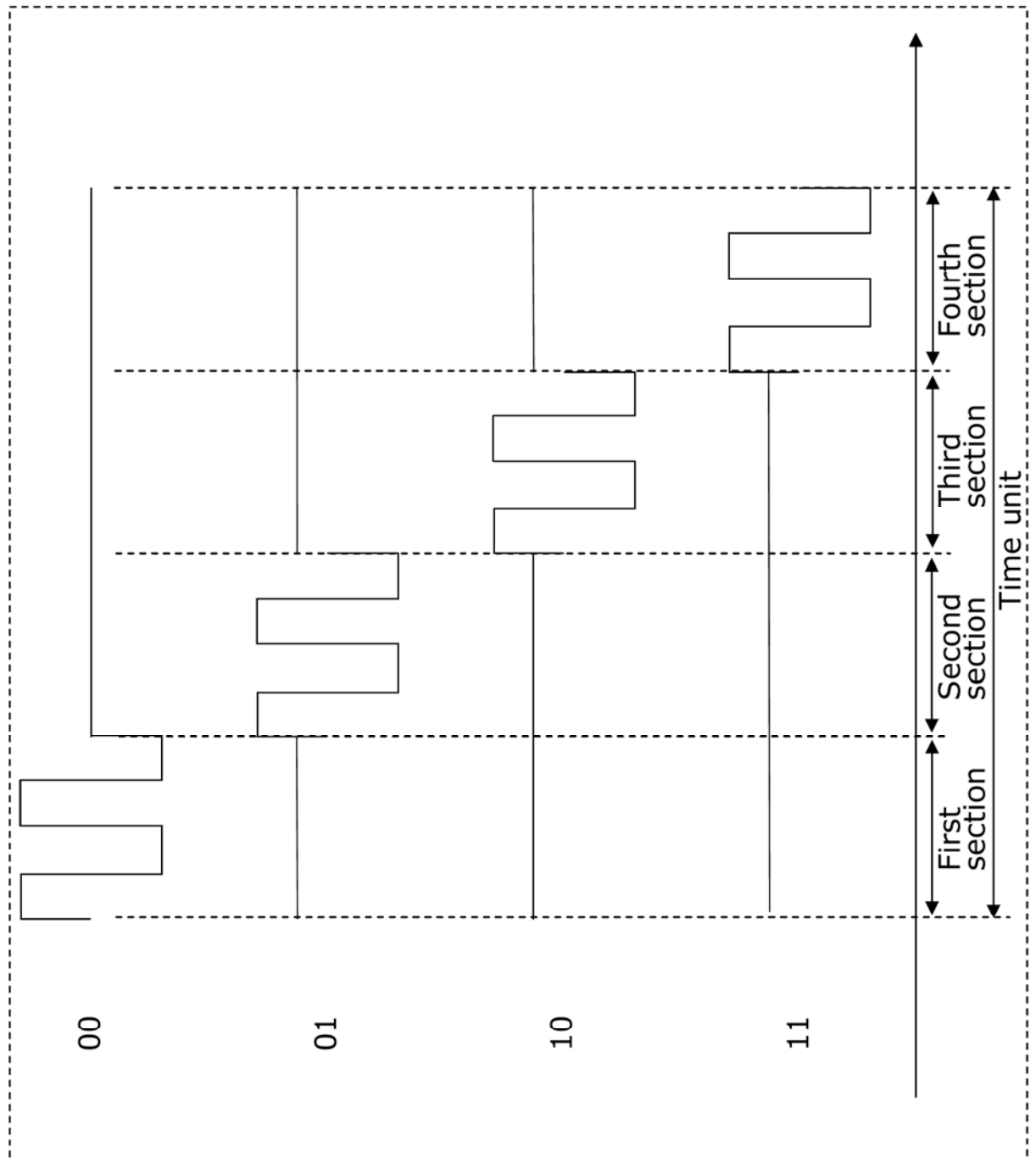


FIG. 451

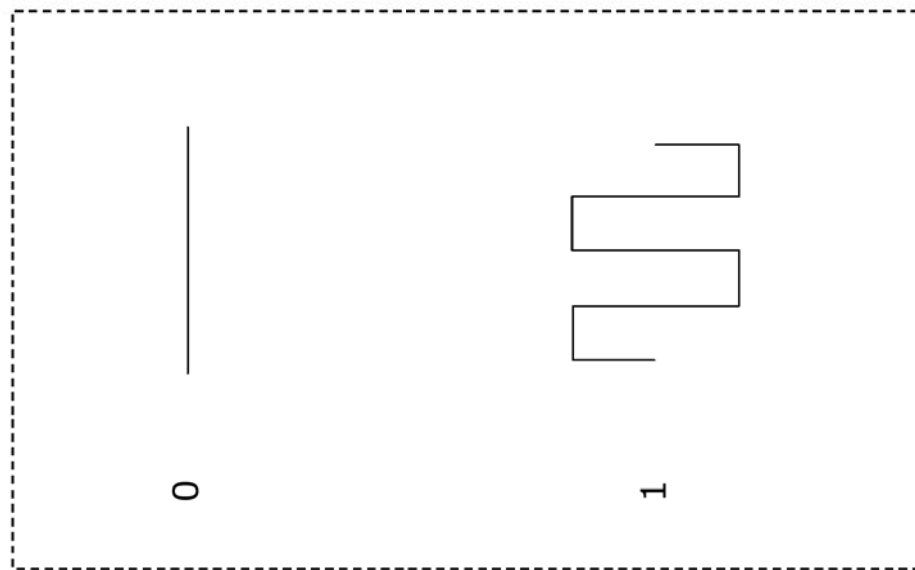


FIG. 452

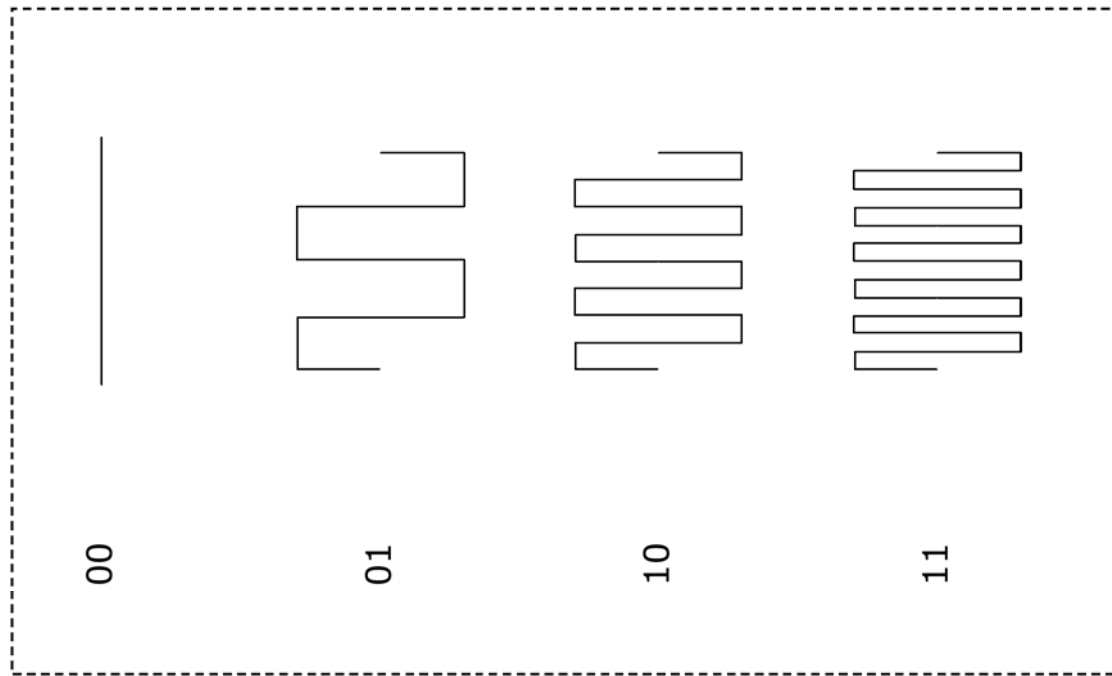


FIG. 453

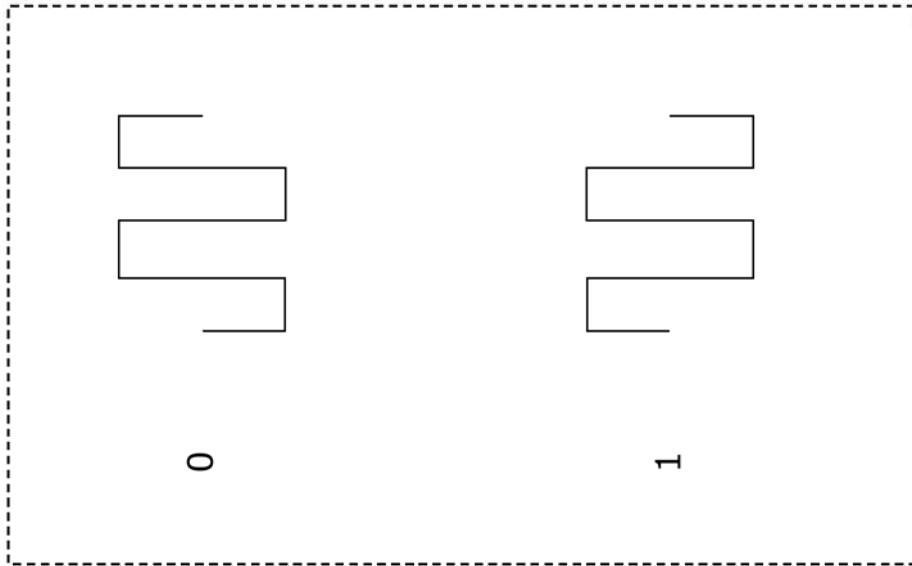




FIG. 455

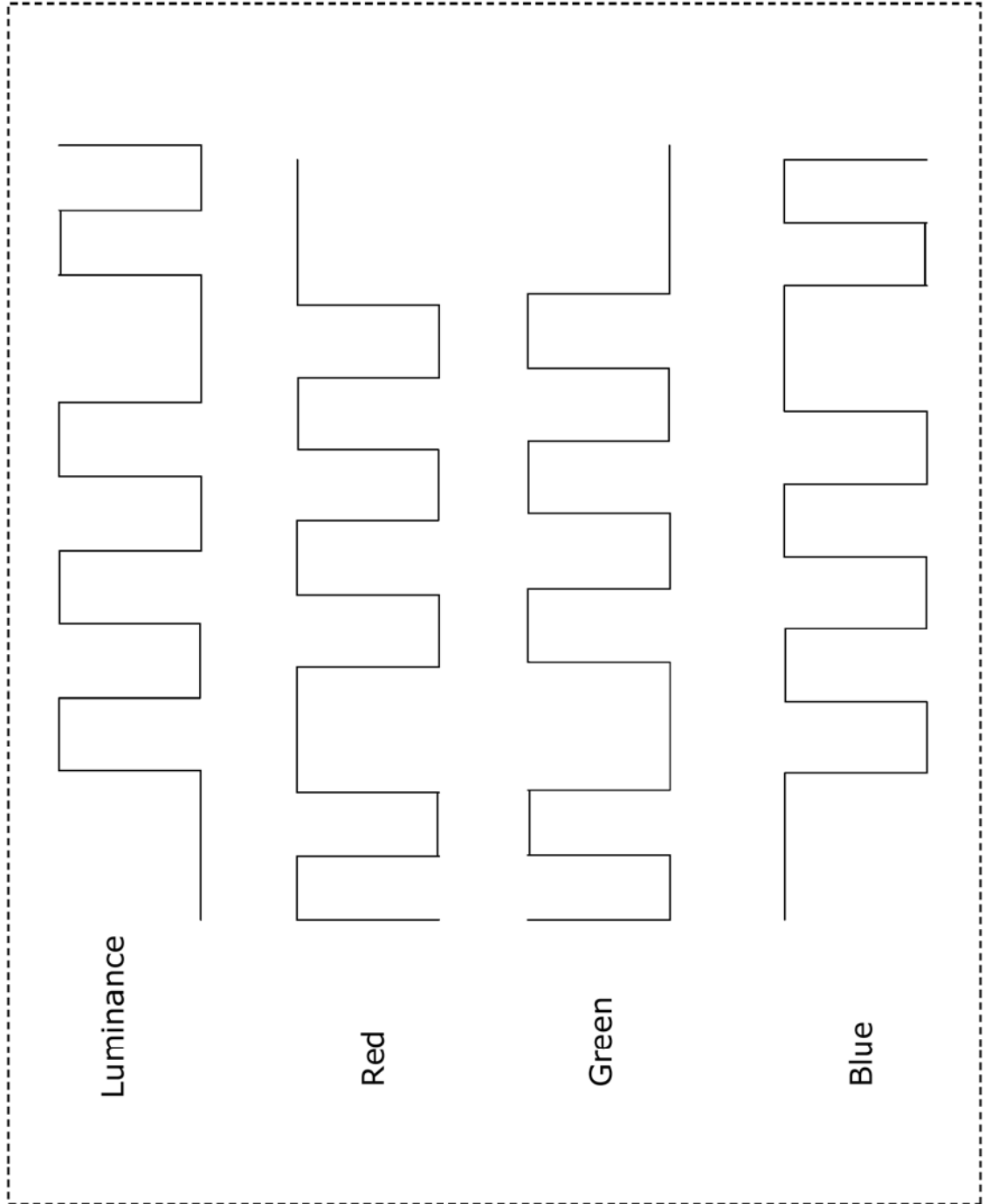


FIG. 456

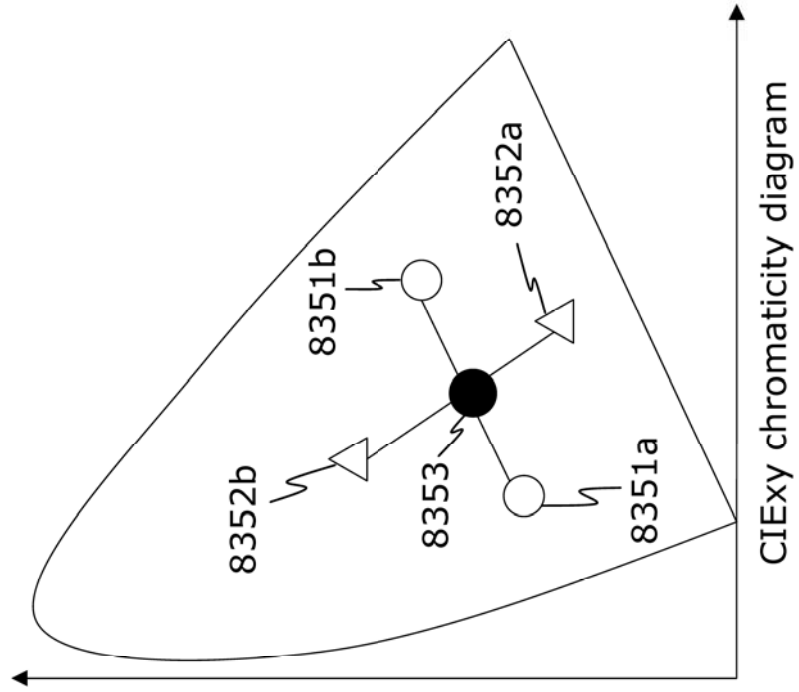


FIG. 457

Example 1 Example 2

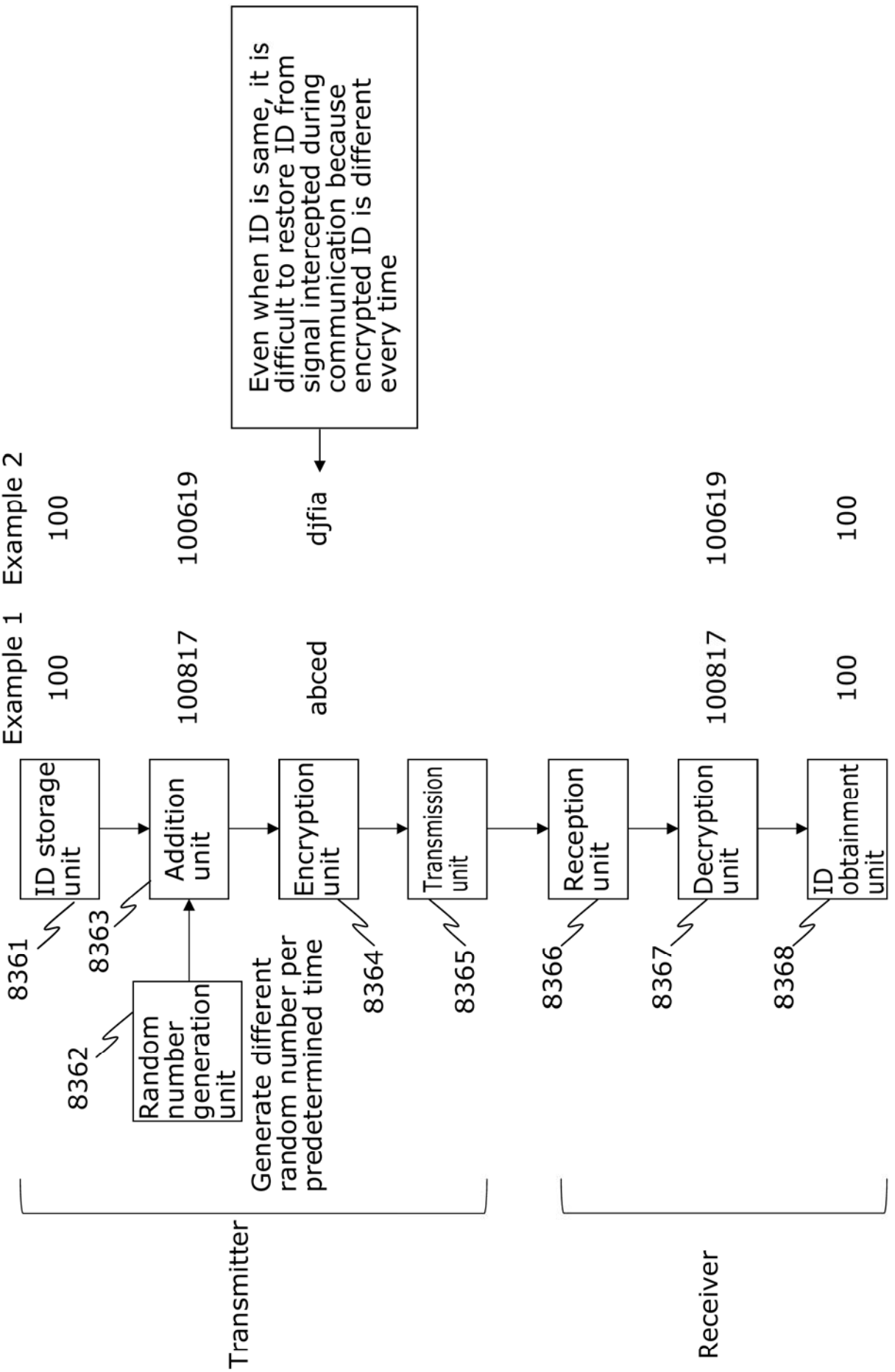


FIG. 458

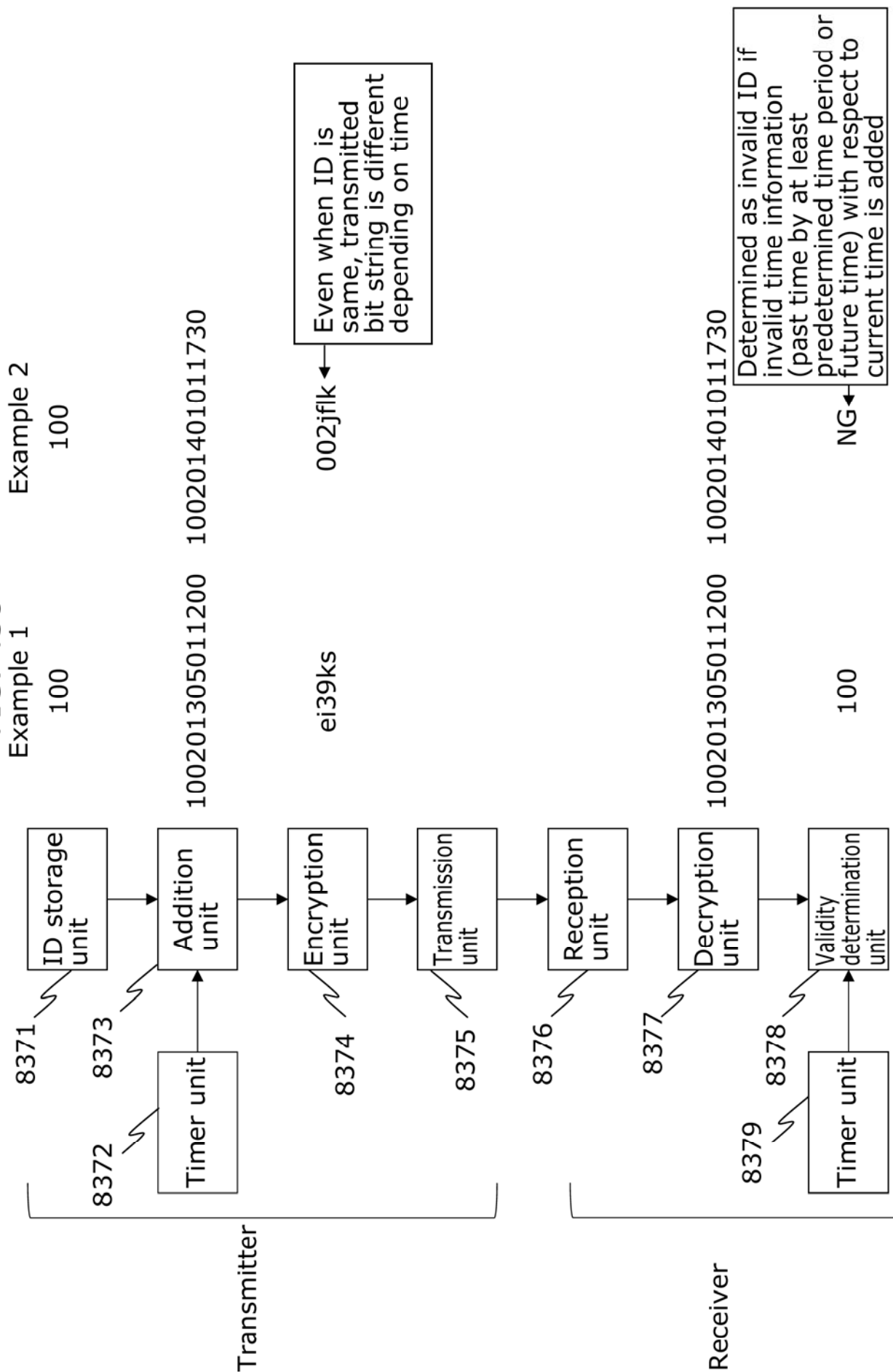




FIG. 459

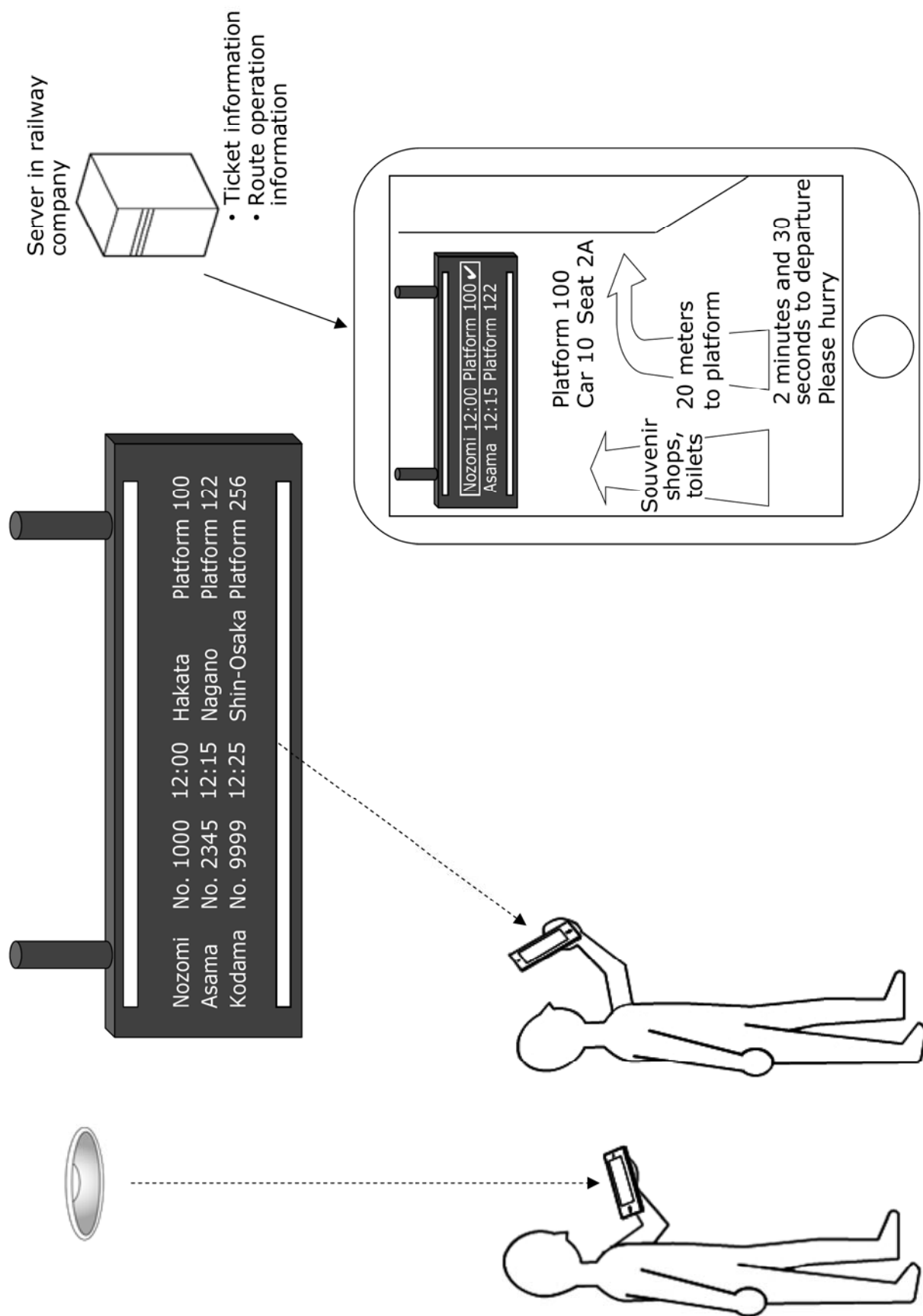


FIG. 460

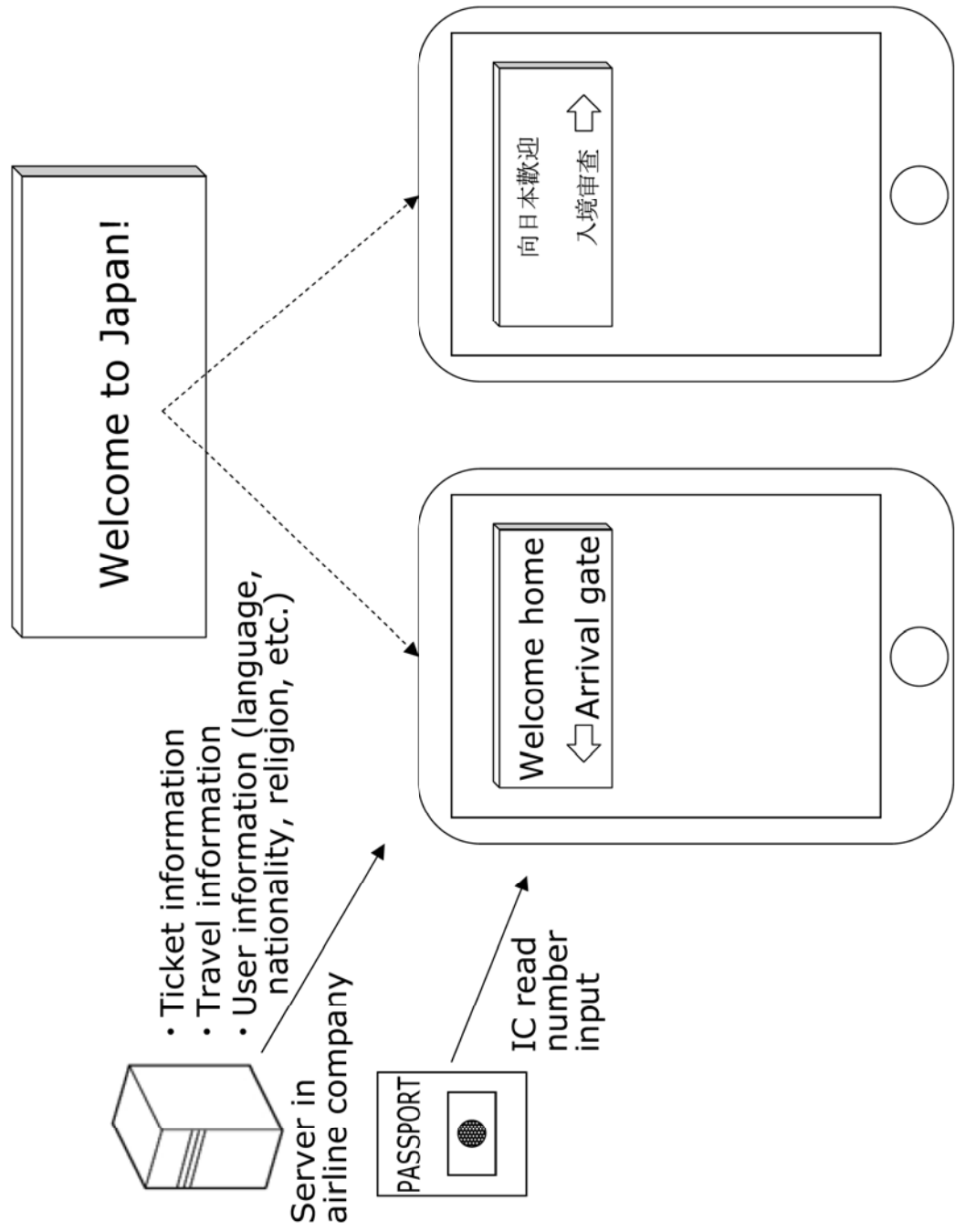


FIG. 461

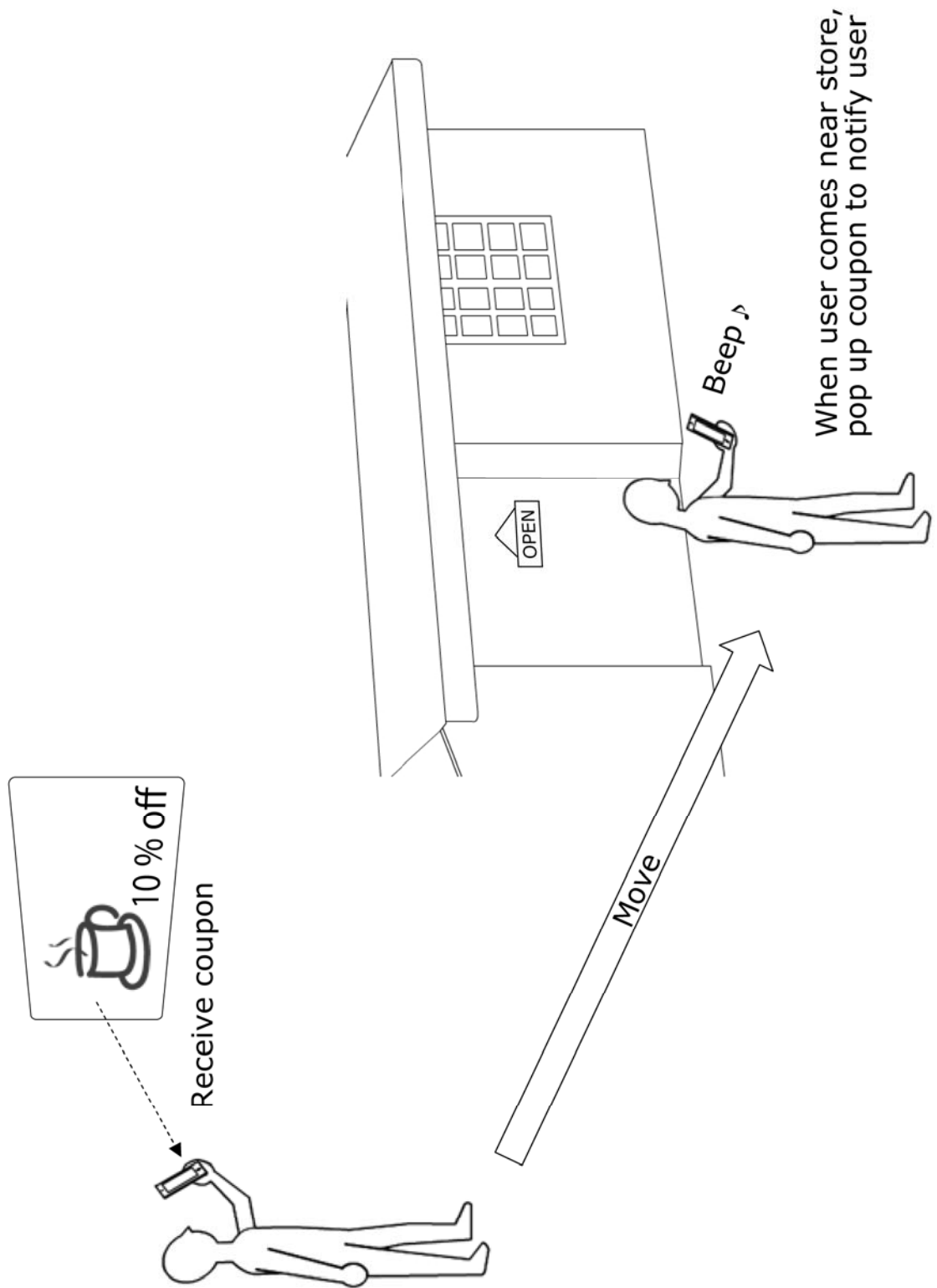


FIG. 462

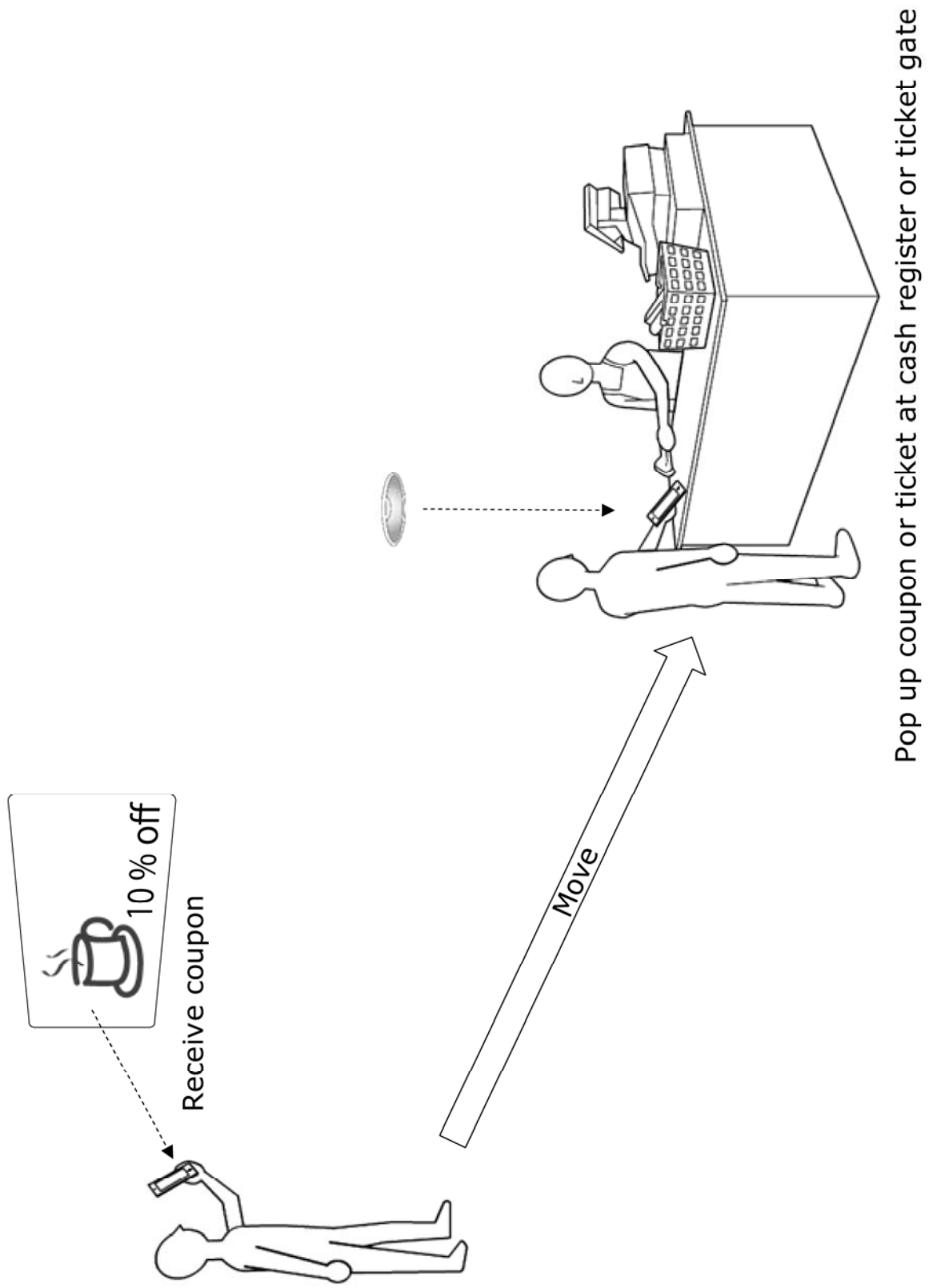


FIG. 463

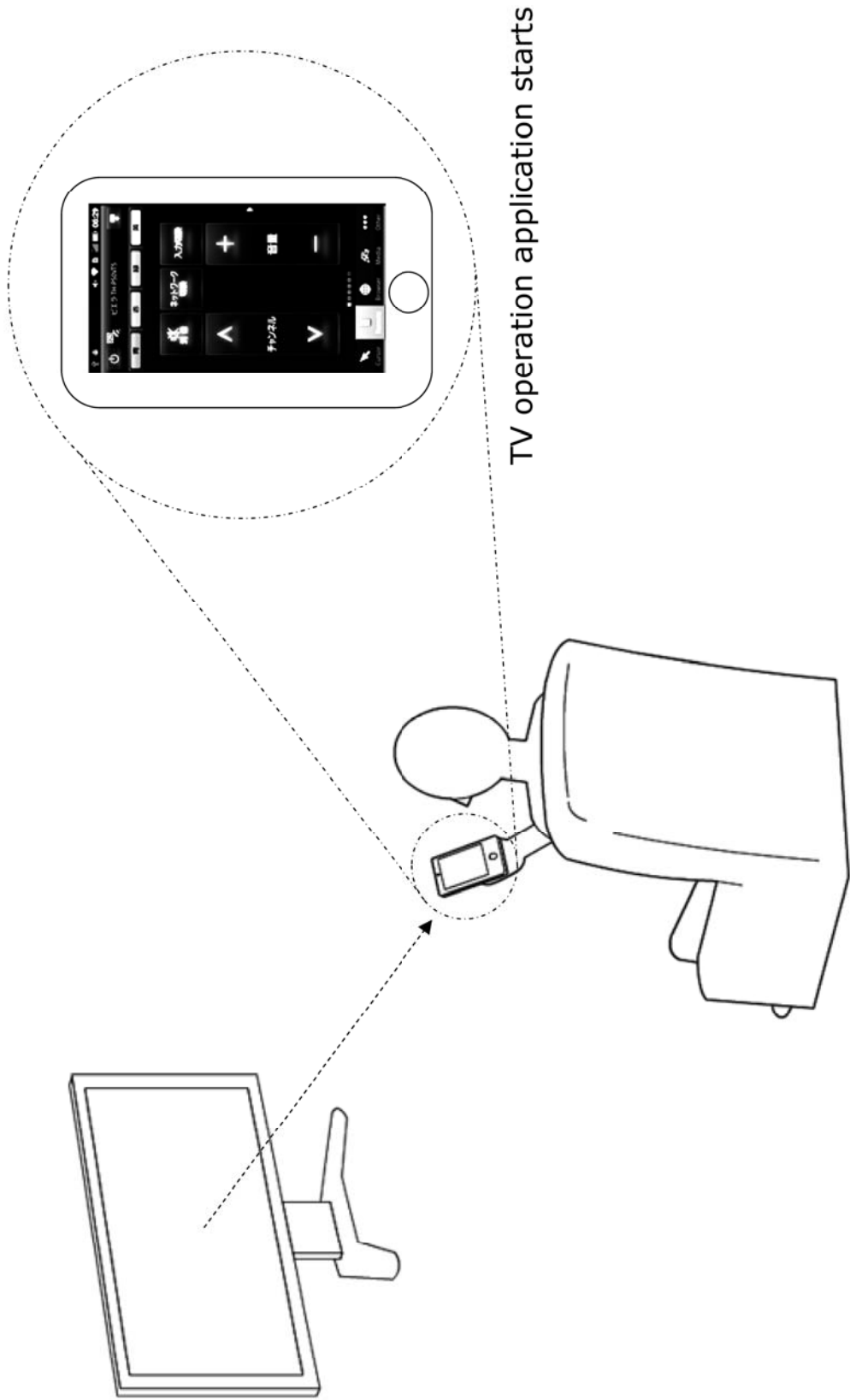


FIG. 464

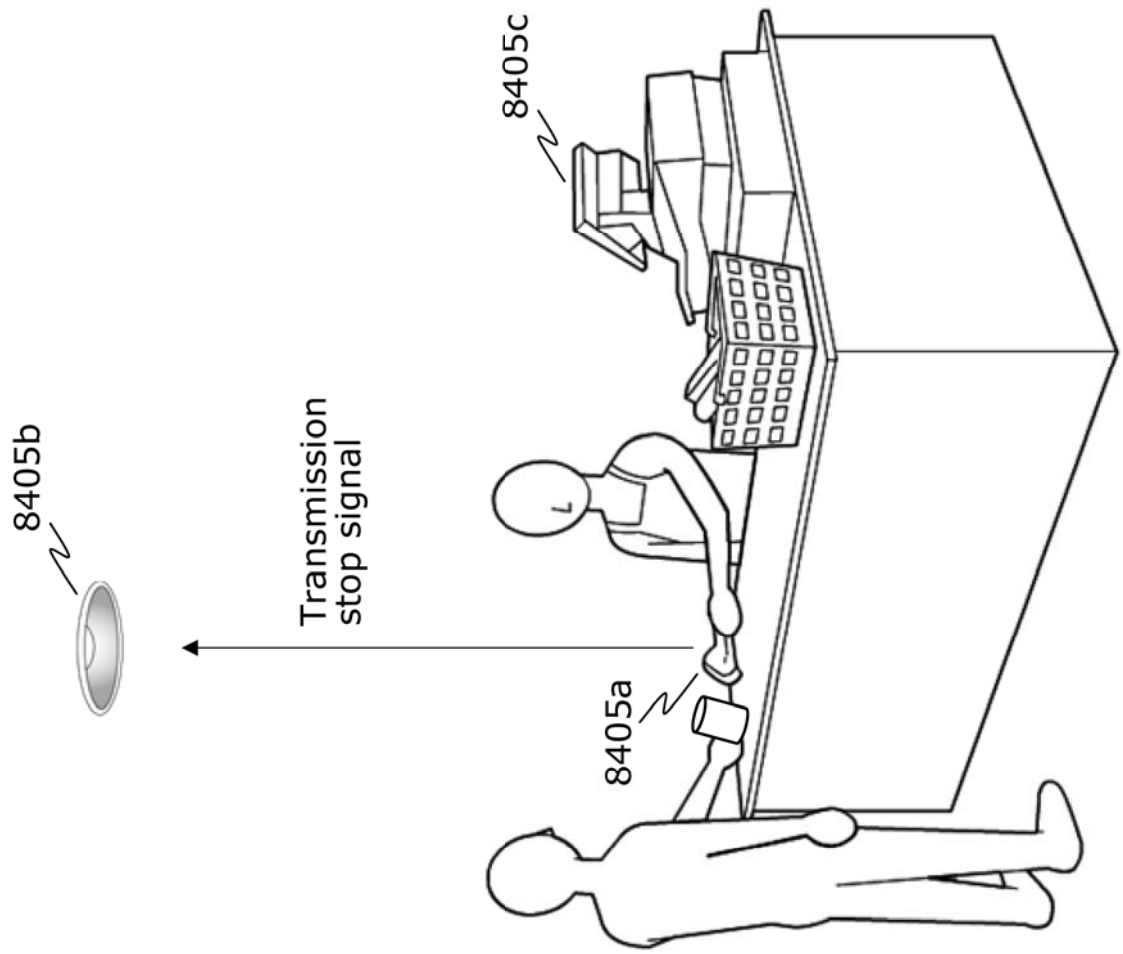


FIG. 465

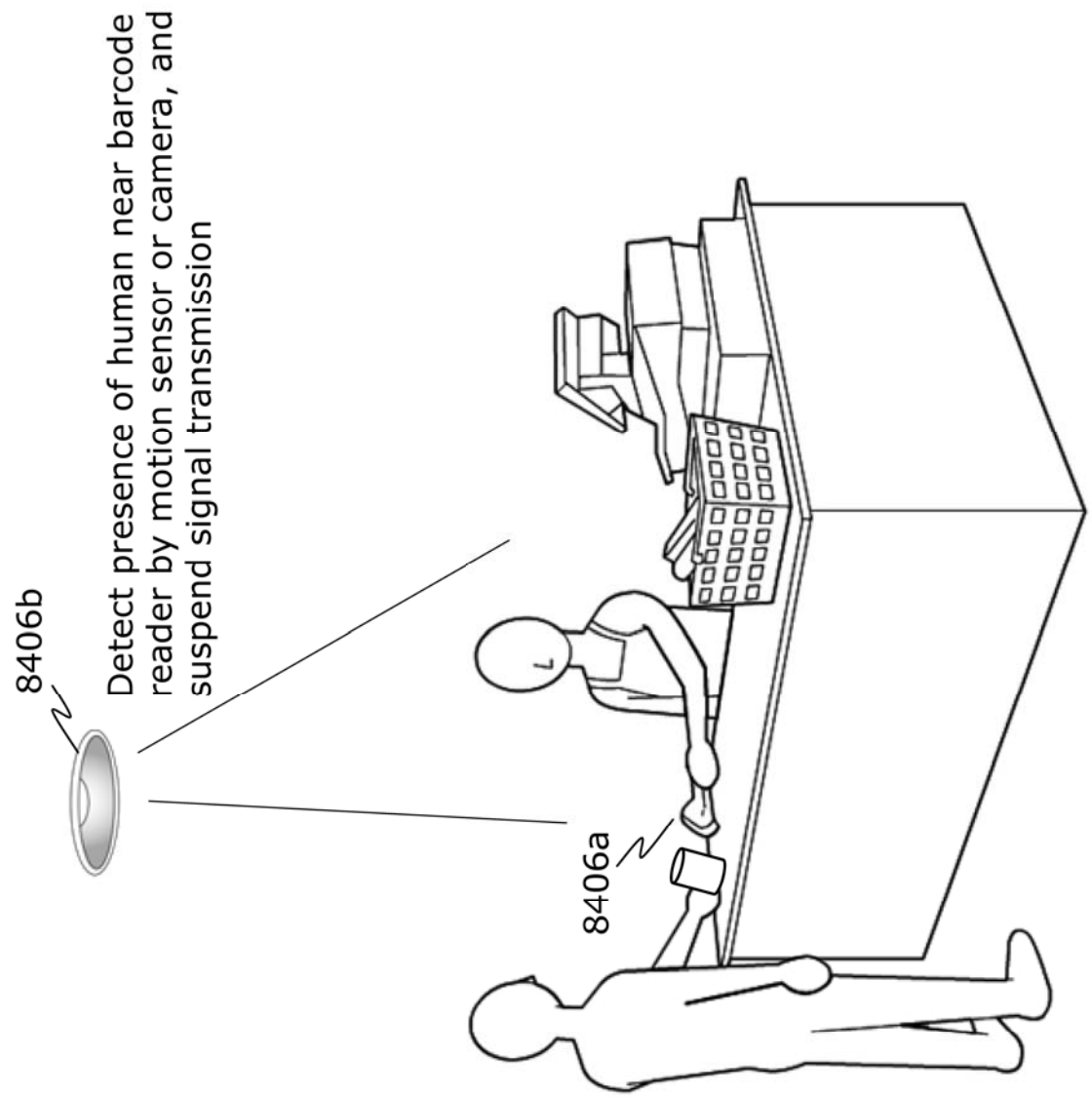


FIG. 466

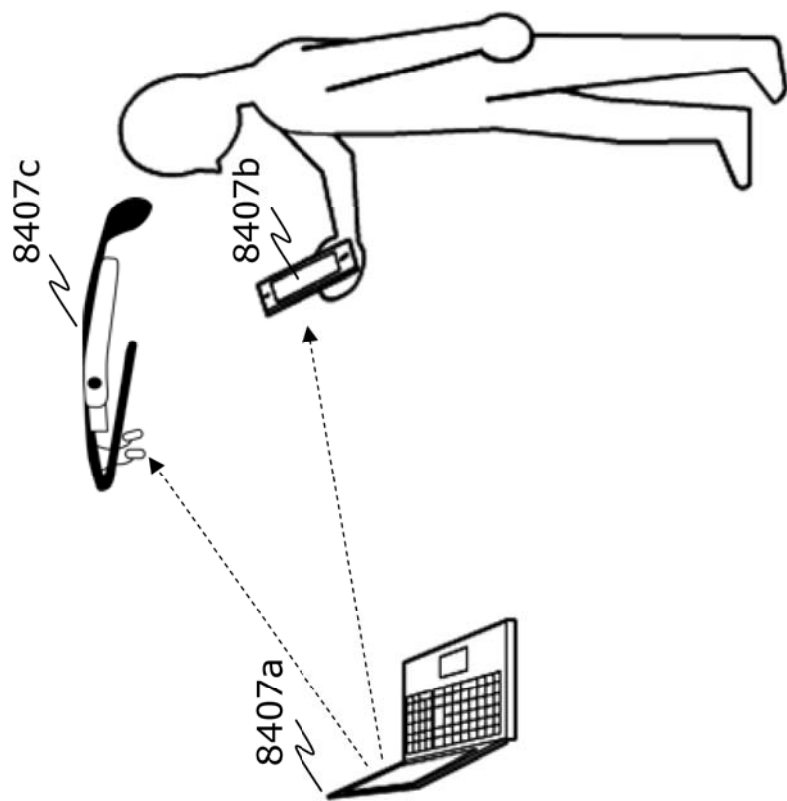
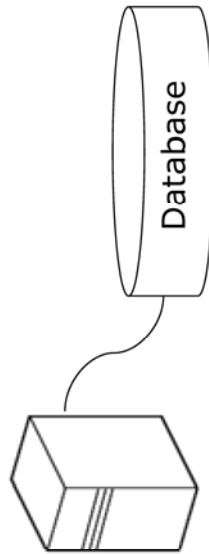




FIG. 467



| ID   | Data                                                                                      | Condition                                                  | Number of accesses | Number of successful accesses |
|------|-------------------------------------------------------------------------------------------|------------------------------------------------------------|--------------------|-------------------------------|
| 1000 | http://~~~                                                                                | From 2013/10/10 09:00 to 2013/10/25 20:00                  | 1234               | 567                           |
| 2000 | "Hello world"                                                                             | Number of successful accesses is less than or equal to 100 | 153                | 100                           |
| 3000 | 10% off                                                                                   | Female only                                                | 9999               | 666                           |
| 4000 | Position data (east longitude, north latitude, altitude, floor number, room number, etc.) | None                                                       | 2                  | 2                             |

(a) ID-data table

| ID   | User ID | Time             | Ancillary information           | Whether or not data is provided |
|------|---------|------------------|---------------------------------|---------------------------------|
| 1000 | 35393   | 2013/10/25 19:11 | Male, age 20, student ...       | ○ / http://~~~                  |
| 1000 | 49282   | 2013/10/25 19:57 | Female, age 30, housewife ...   | ○ / http://~~~                  |
| 1000 | 222     | 2013/10/25 20:15 | Male, age 40, civil servant ... | x / "Error"                     |
| 2000 | 30455   | 2013/10/27 12:12 | Female, age 50, unemployed ...  | ○ / "Hello world"               |

(b) Access log table

FIG. 468

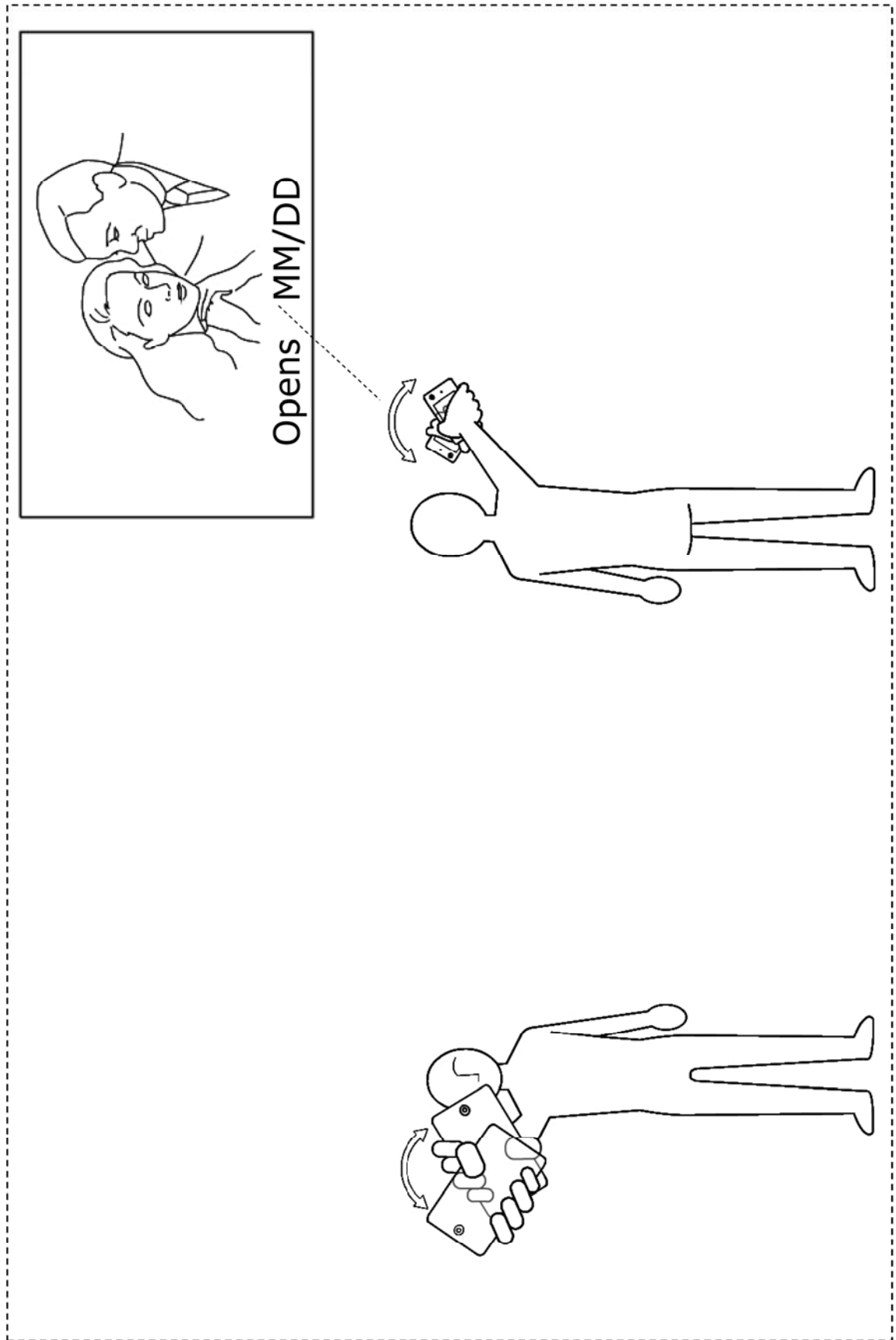


FIG. 469

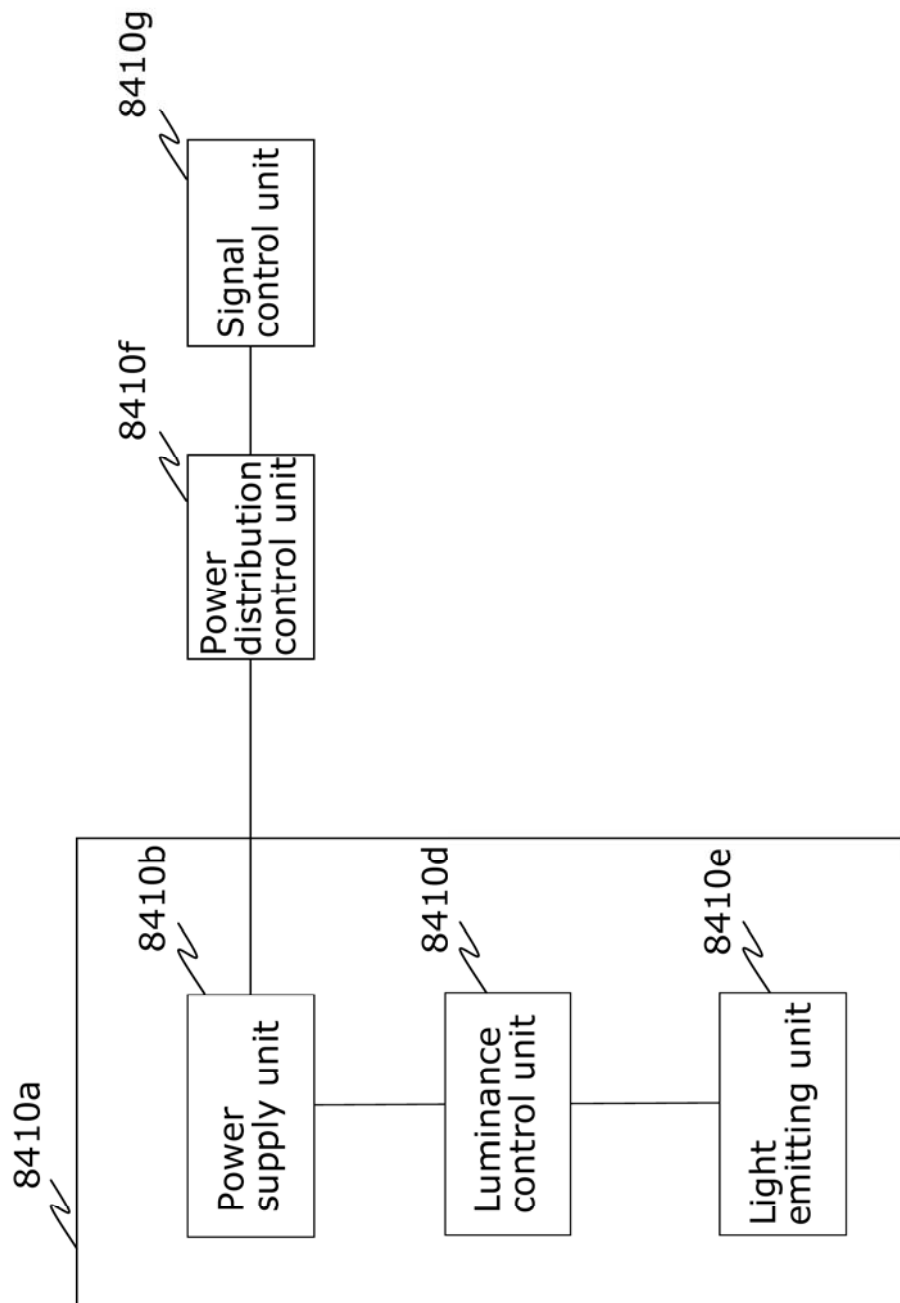


FIG. 470

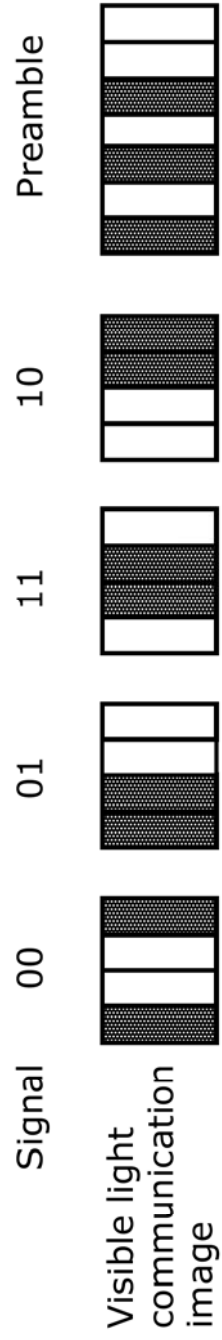


FIG. 471

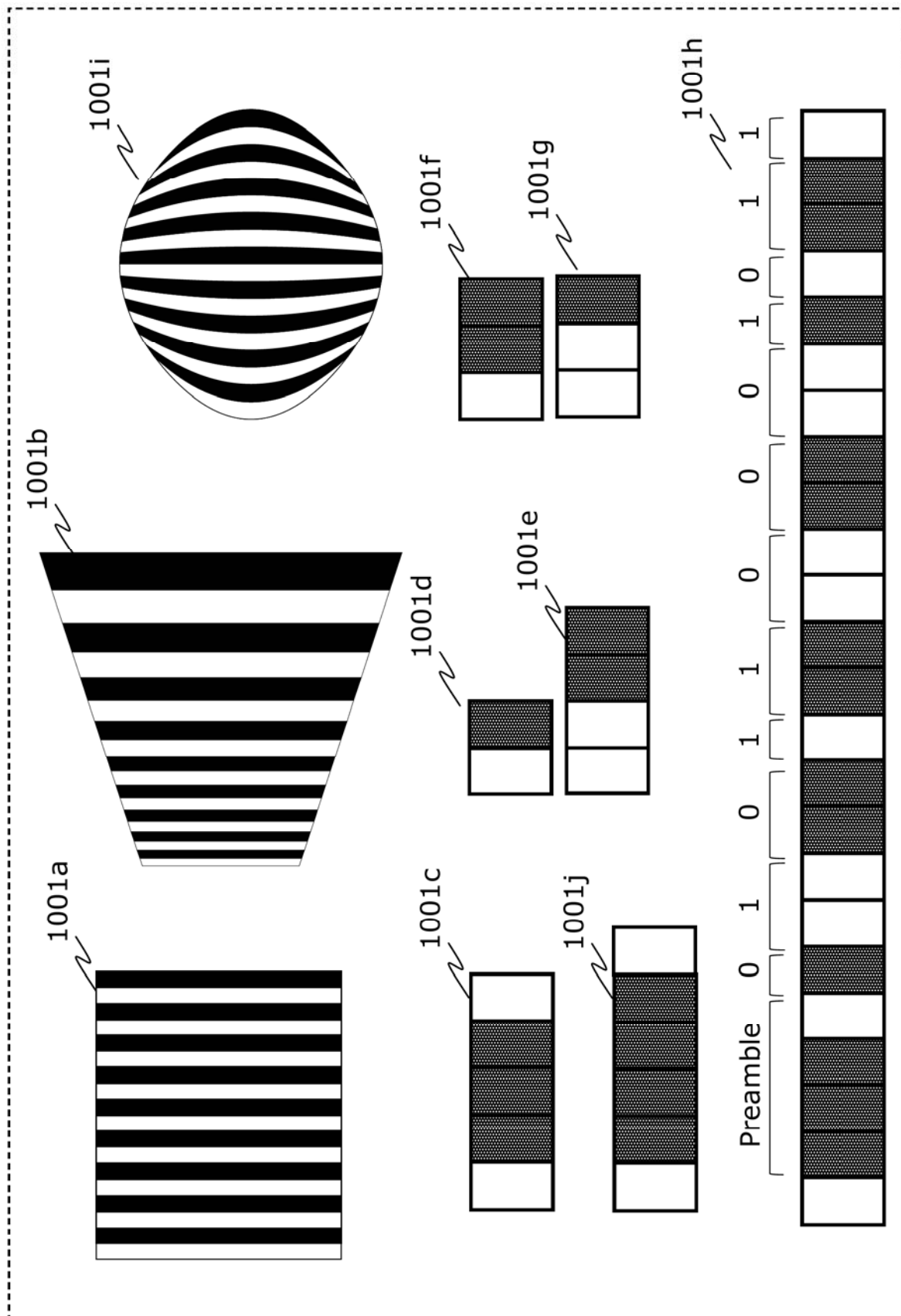


FIG. 472

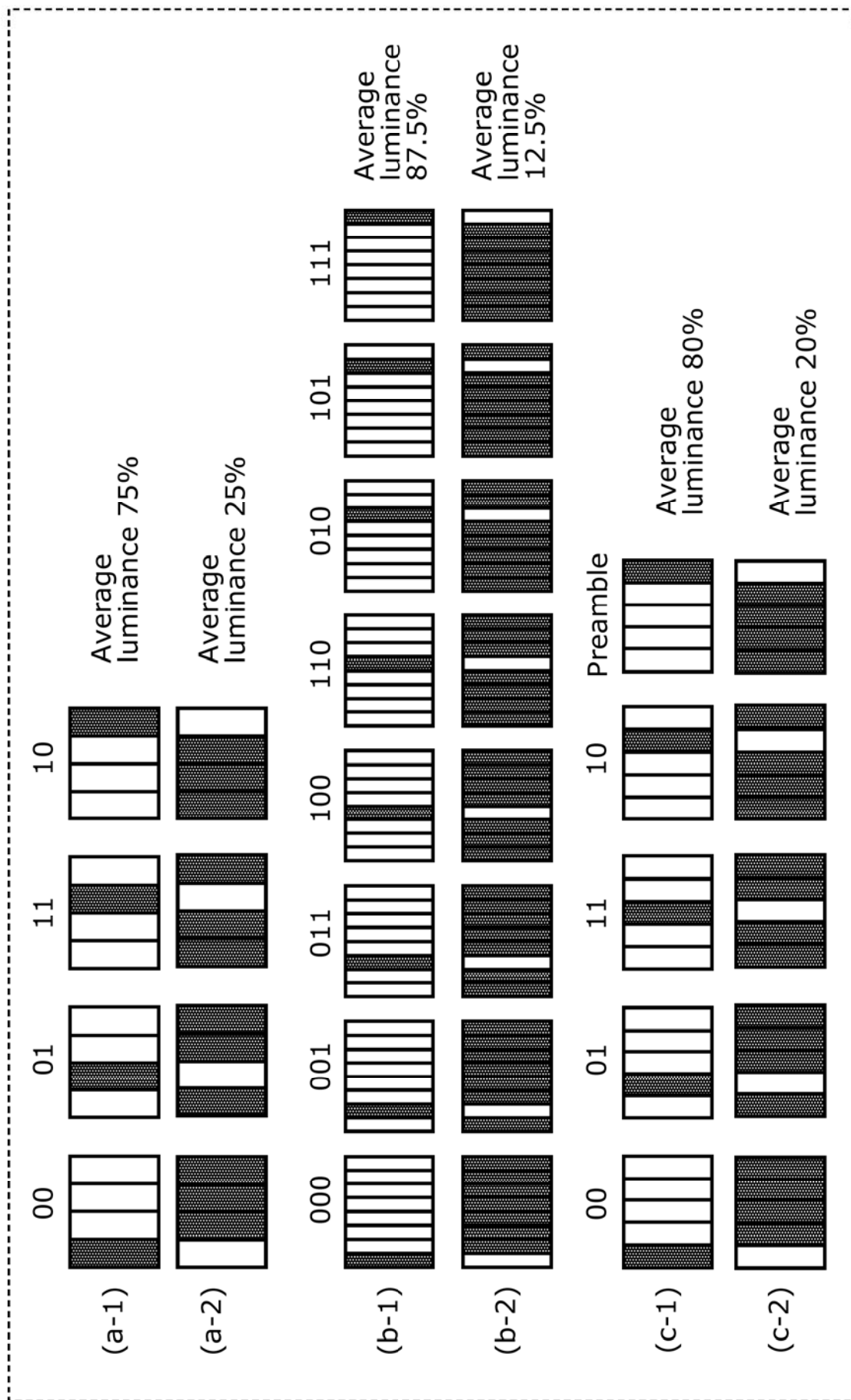


FIG. 473

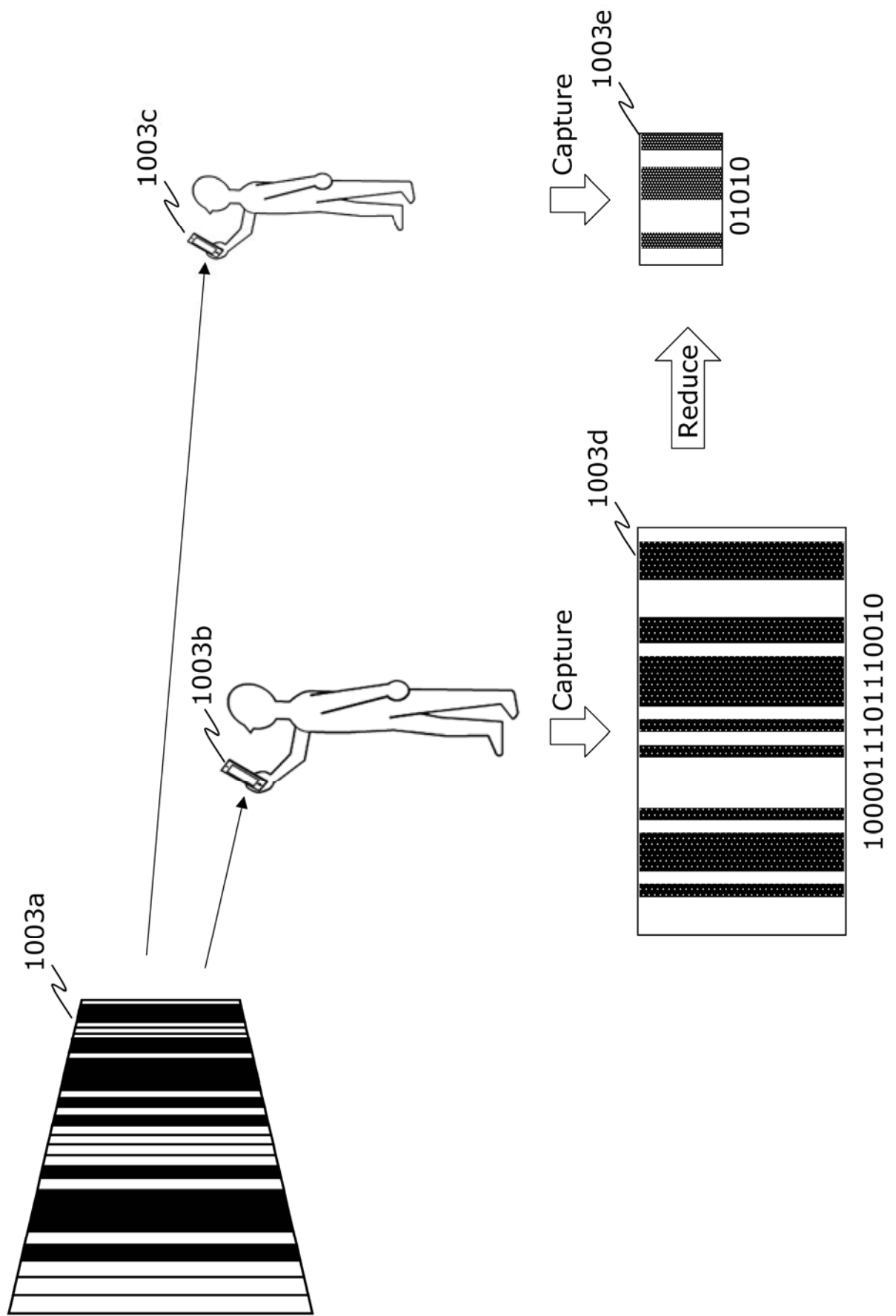


FIG. 474

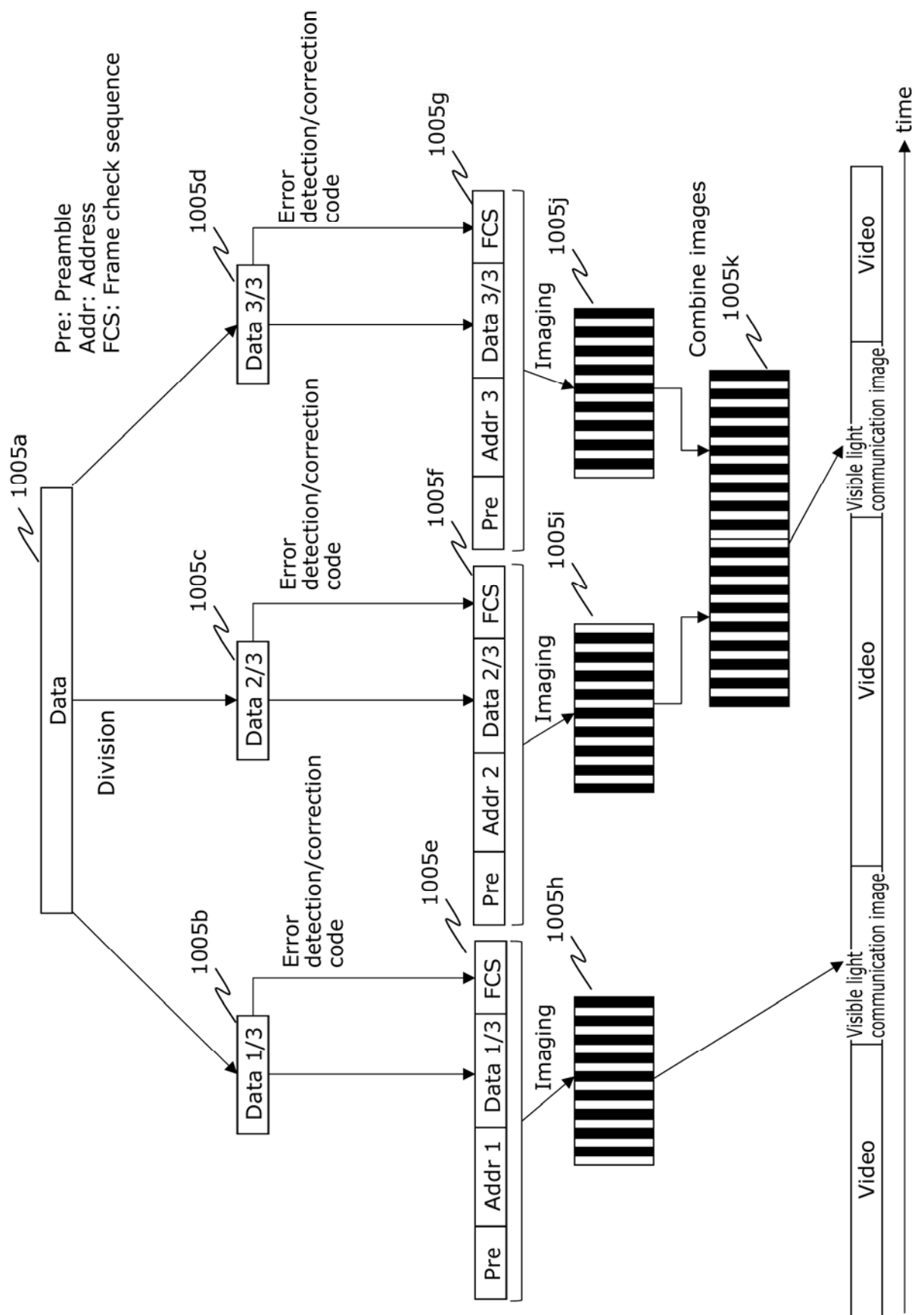




FIG. 475

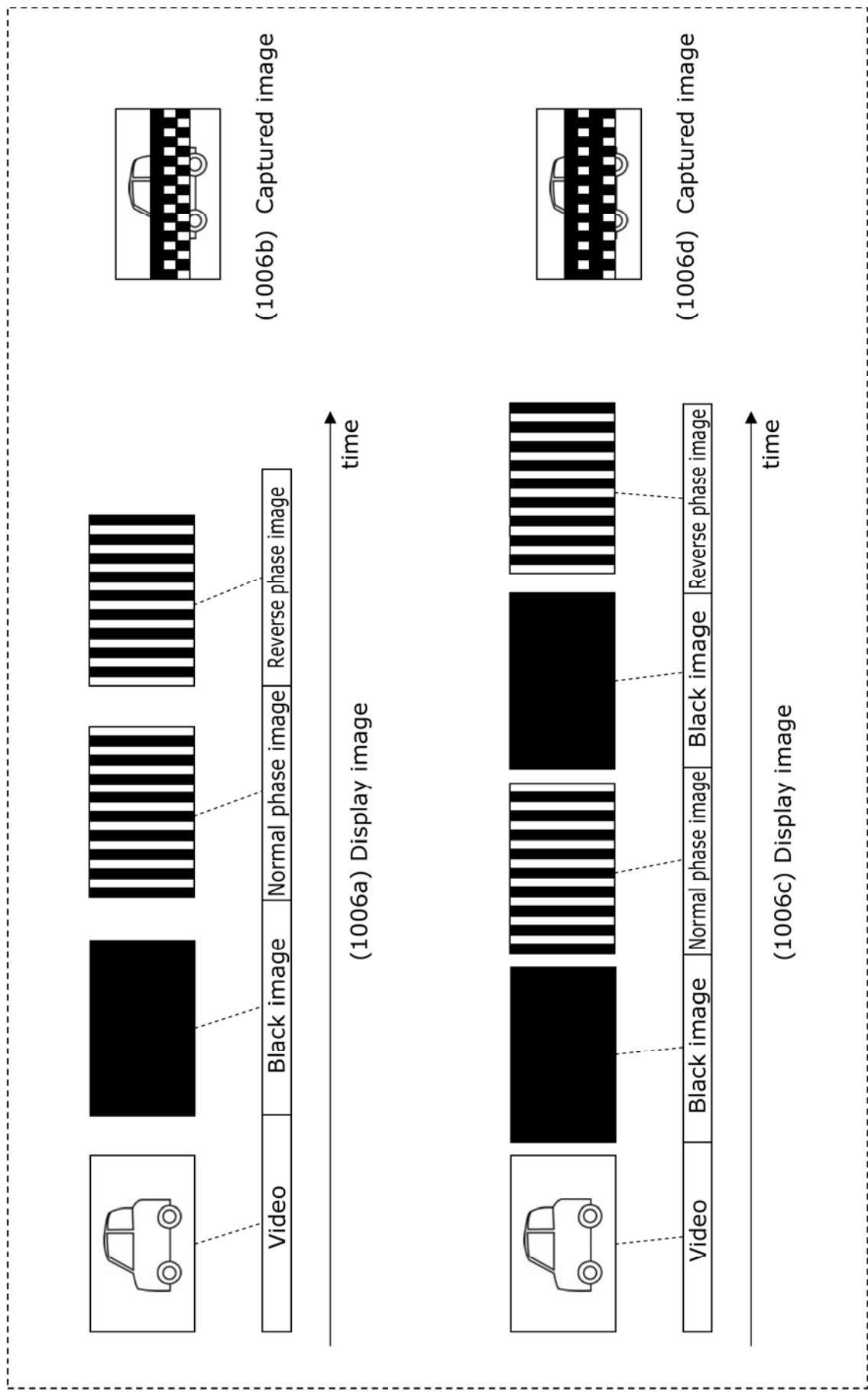


FIG. 476

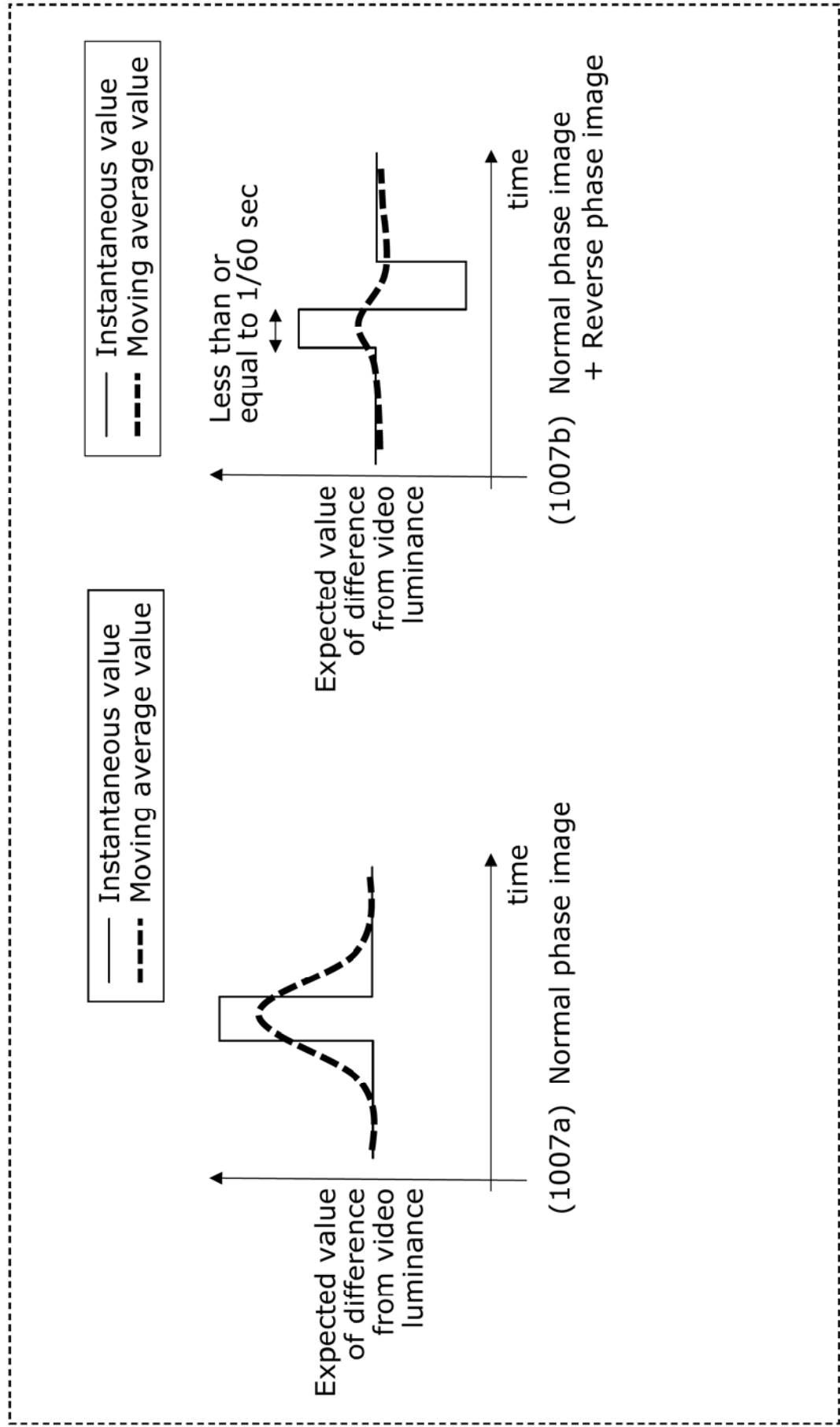


FIG. 477

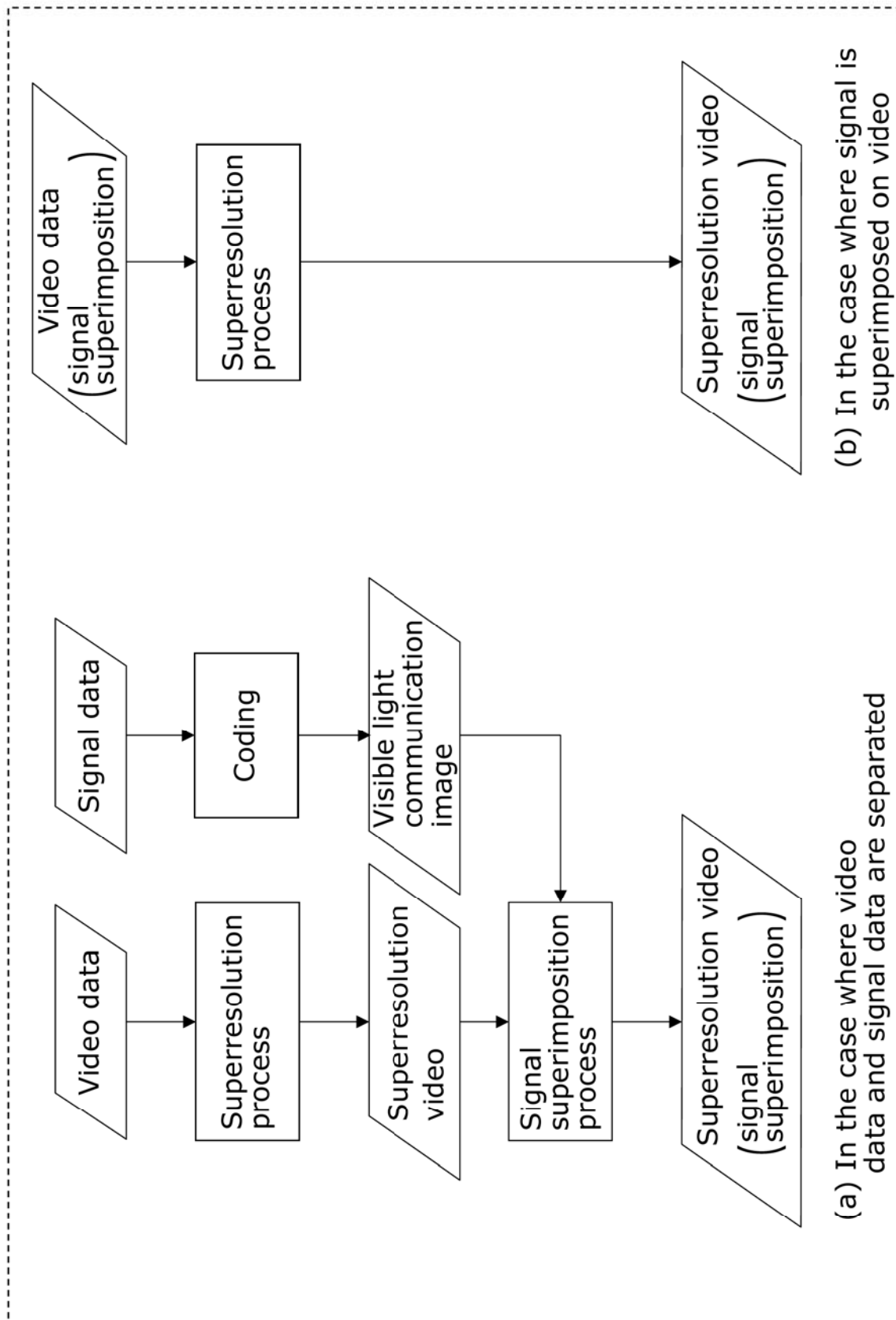


FIG. 478

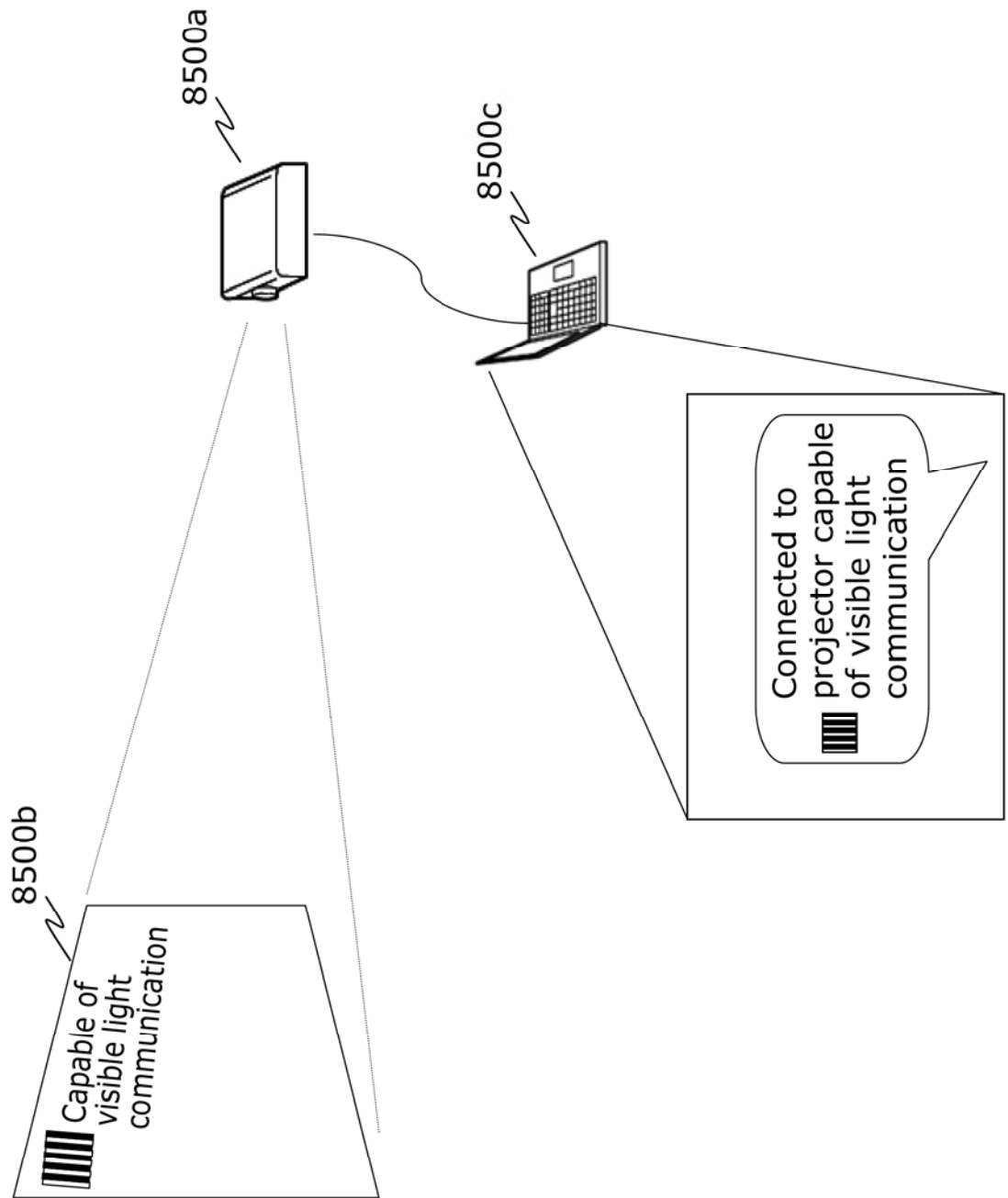


FIG. 479

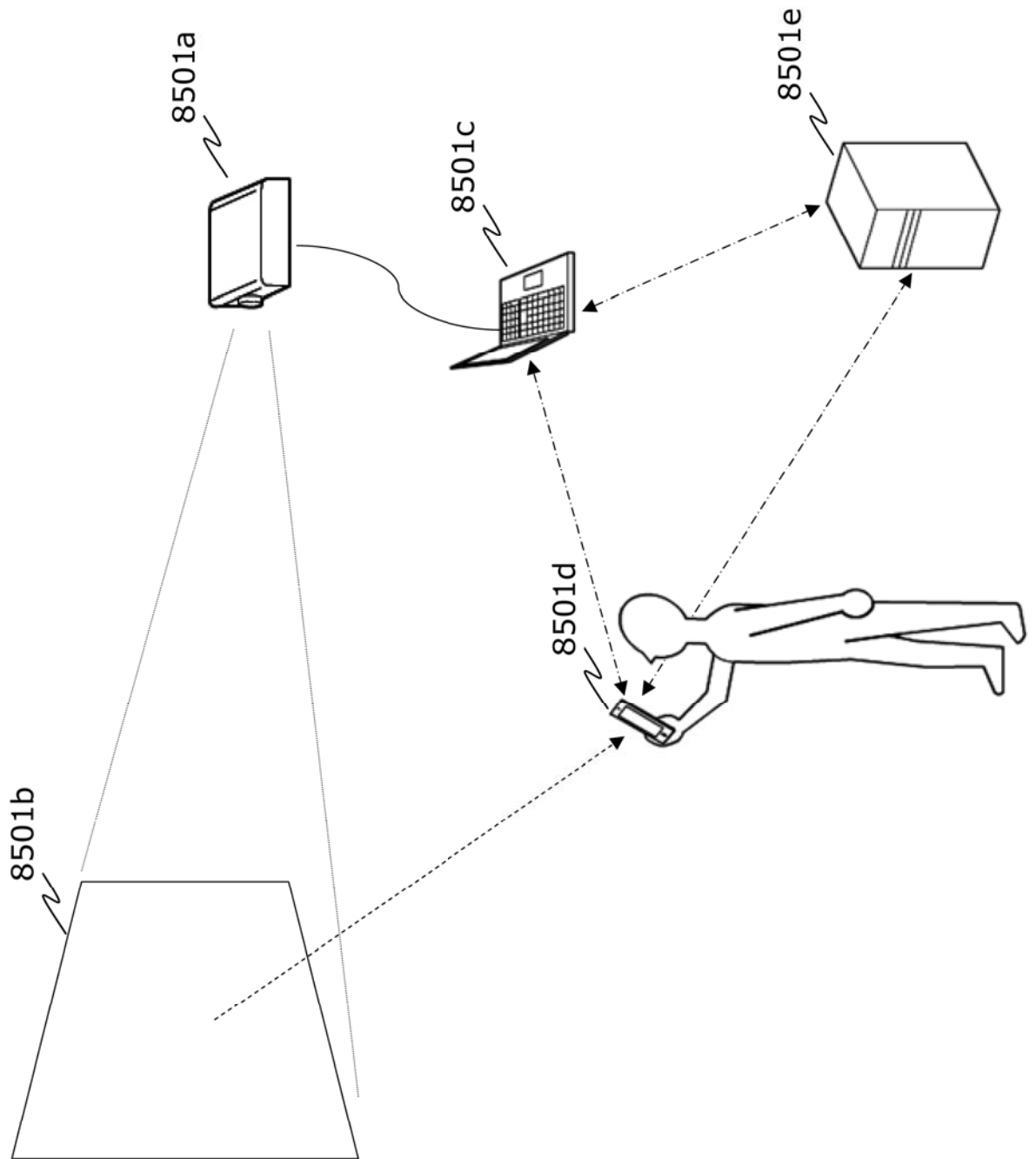


FIG. 480

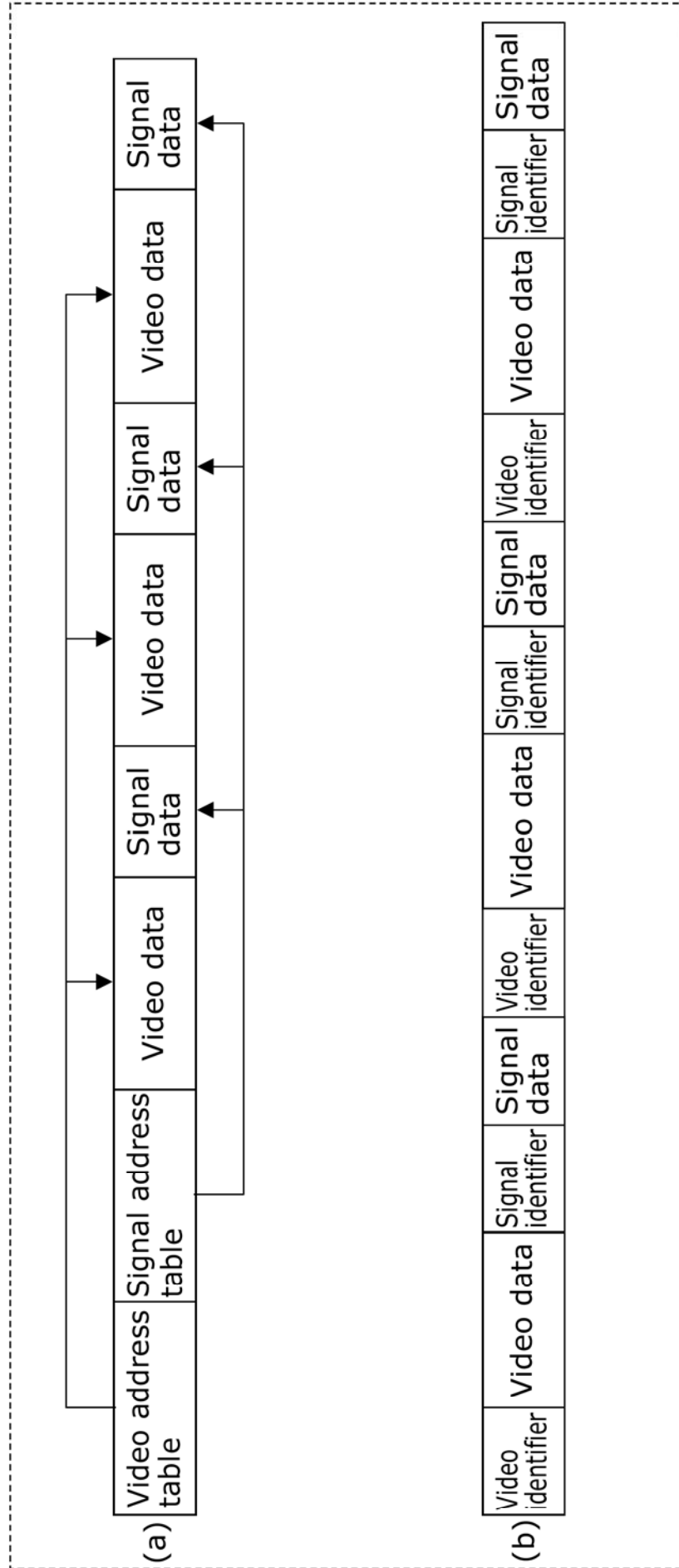


FIG. 481

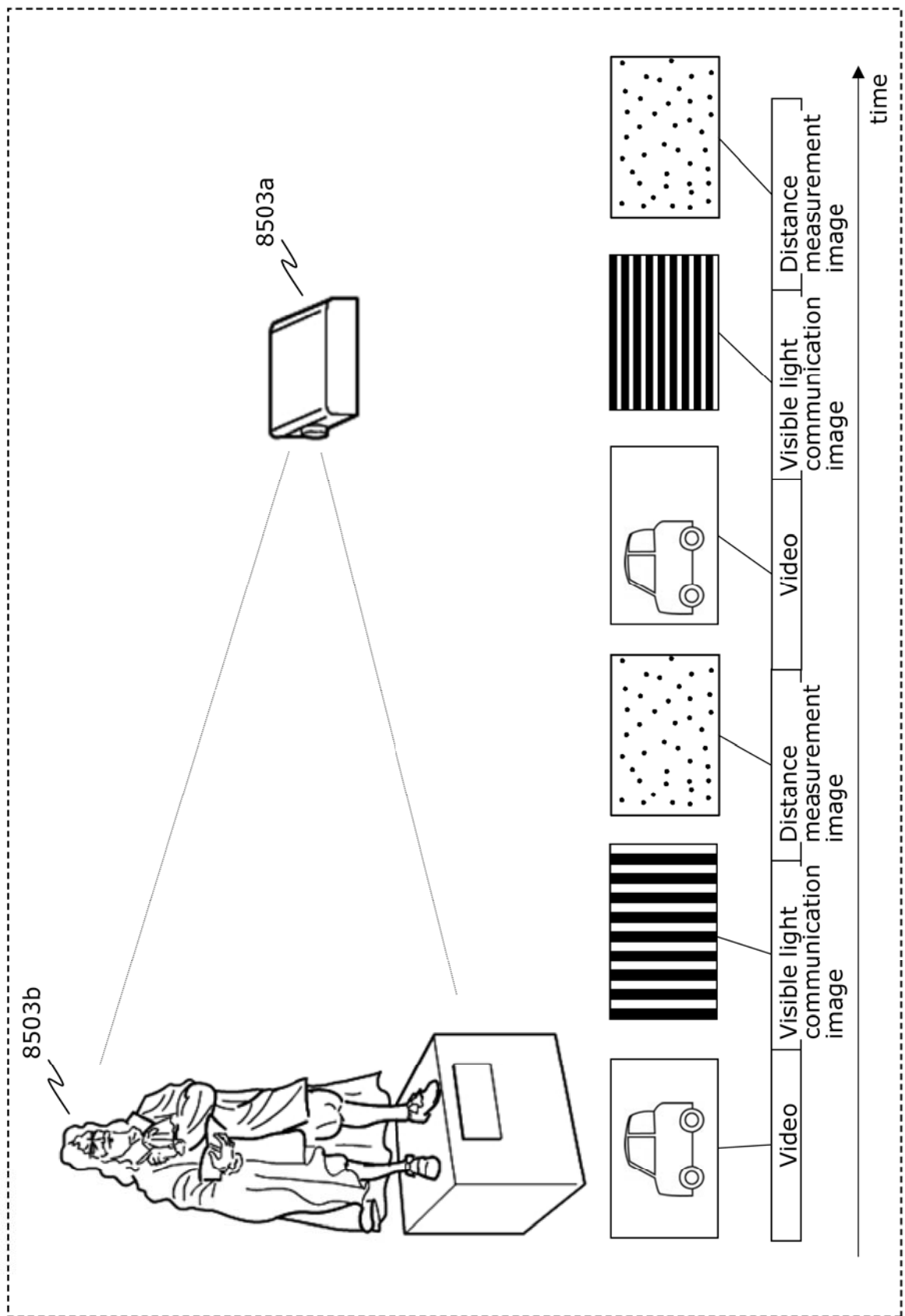


FIG. 482

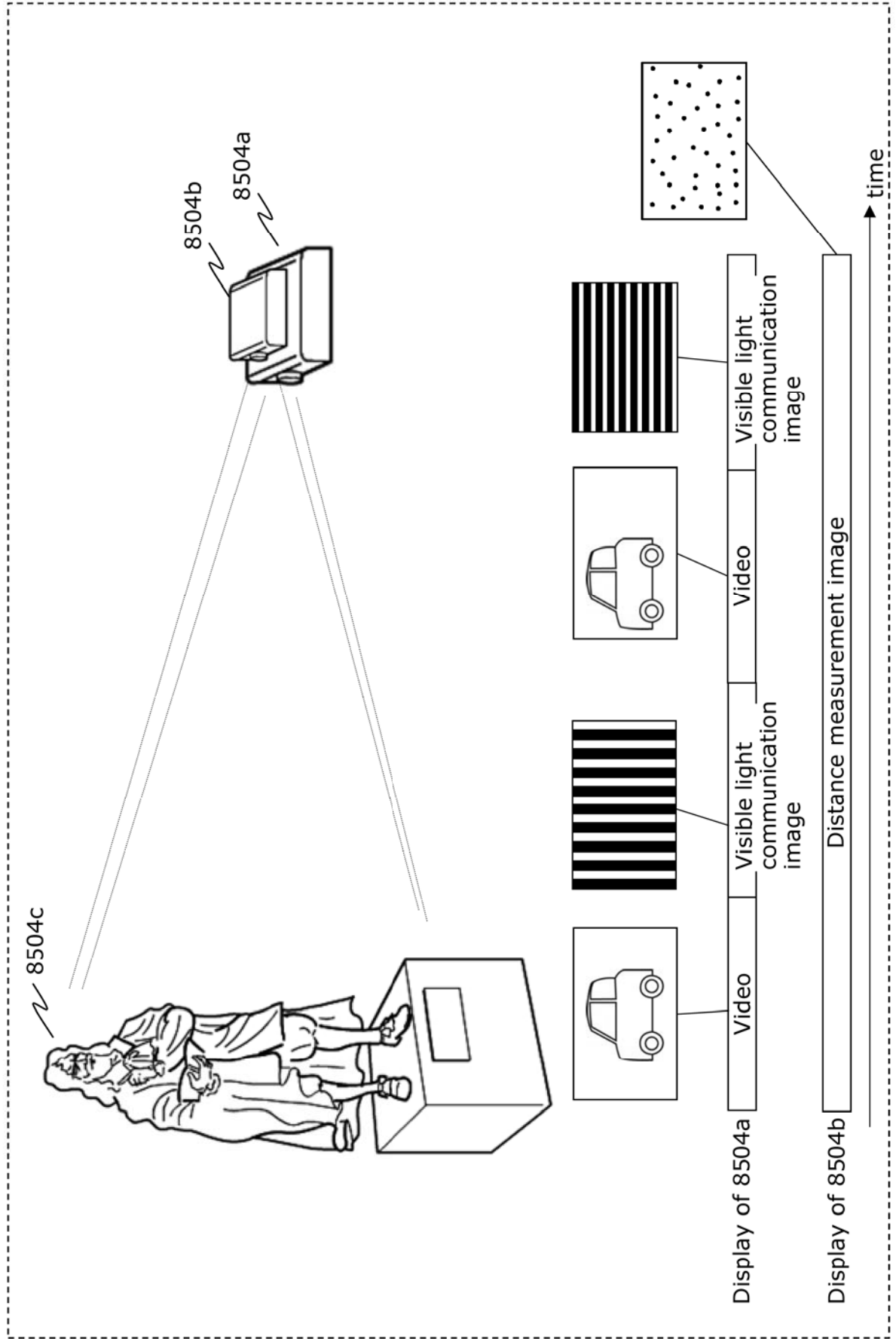




FIG. 483

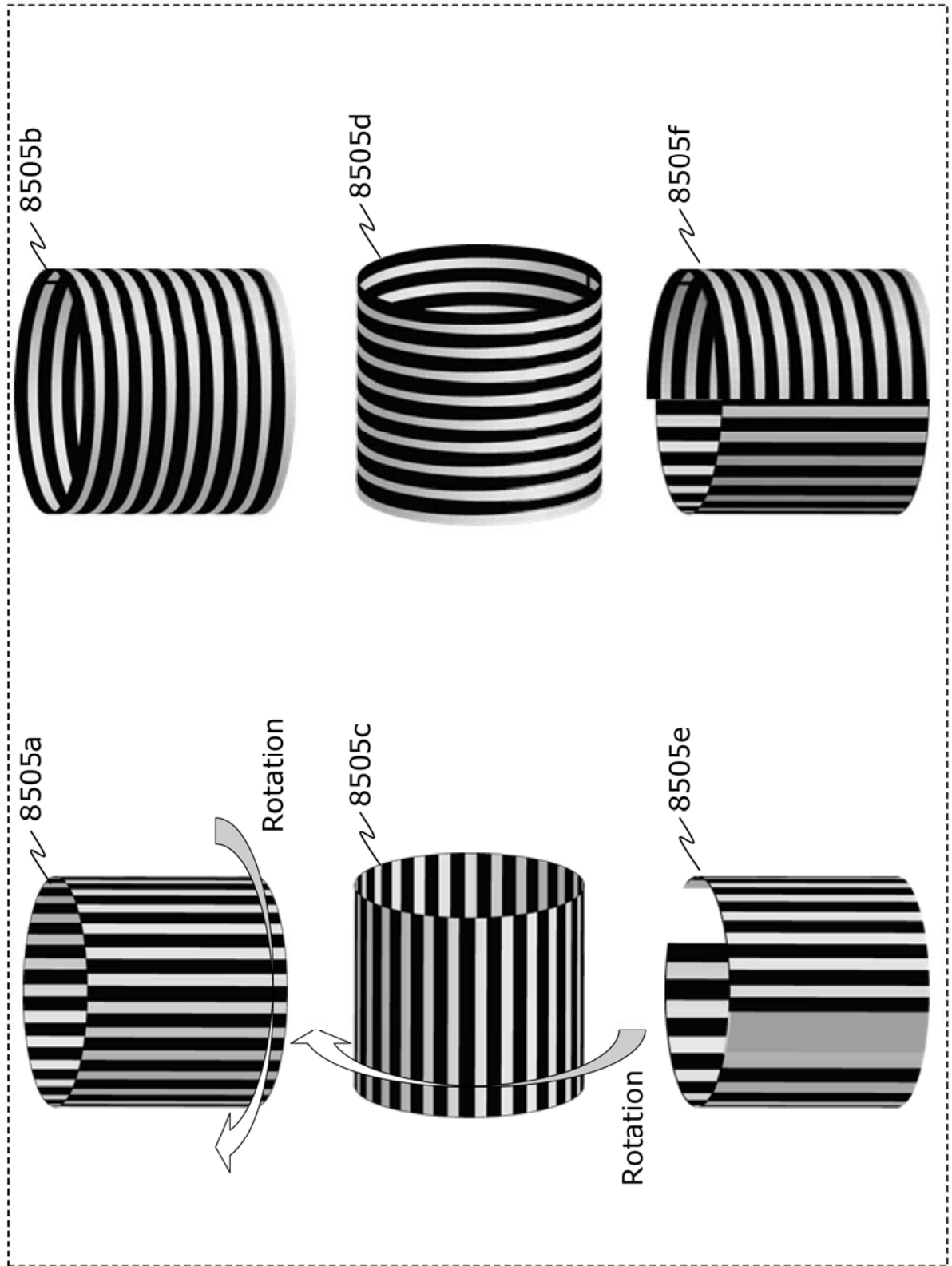


FIG. 484

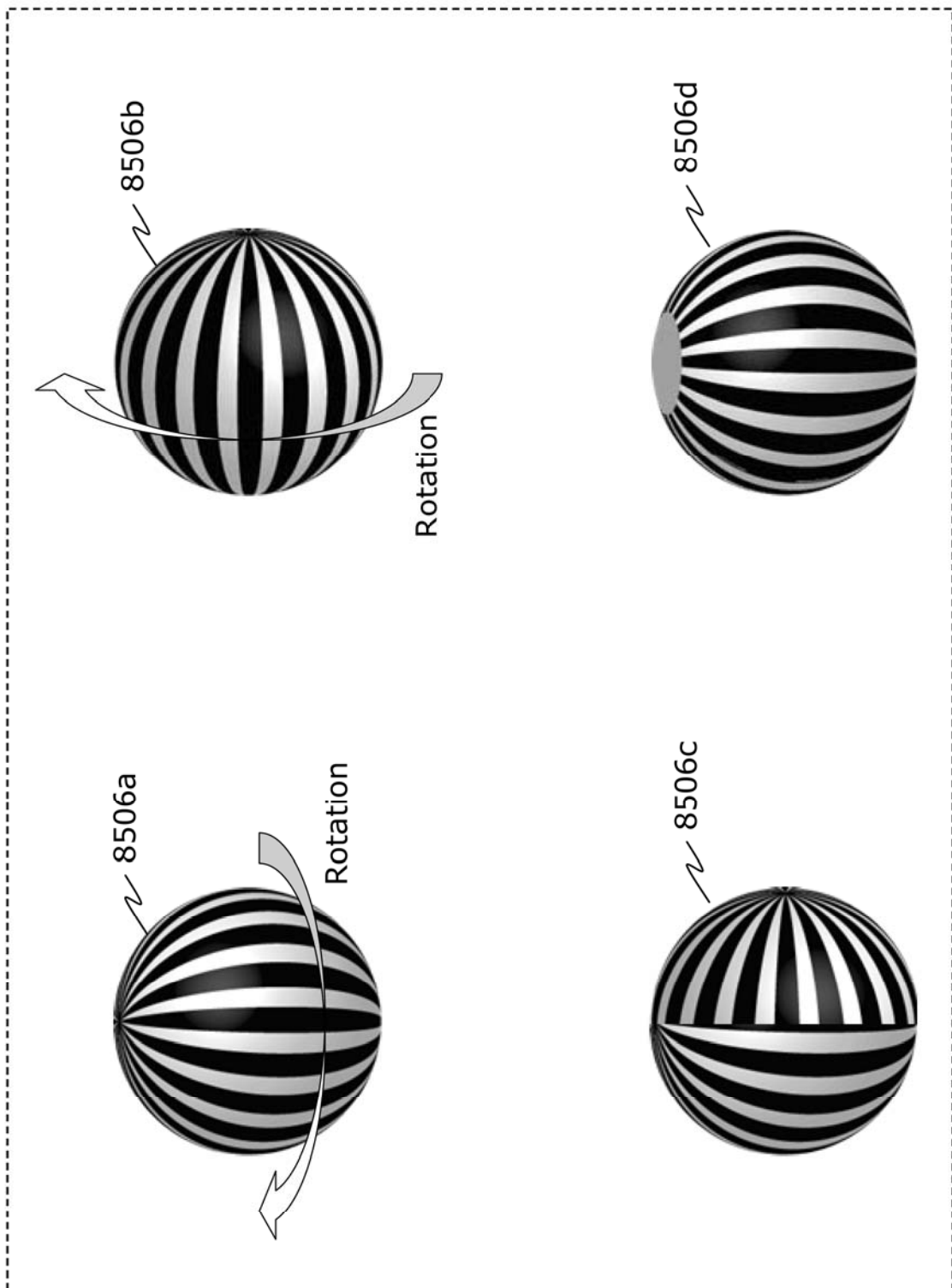


FIG. 485

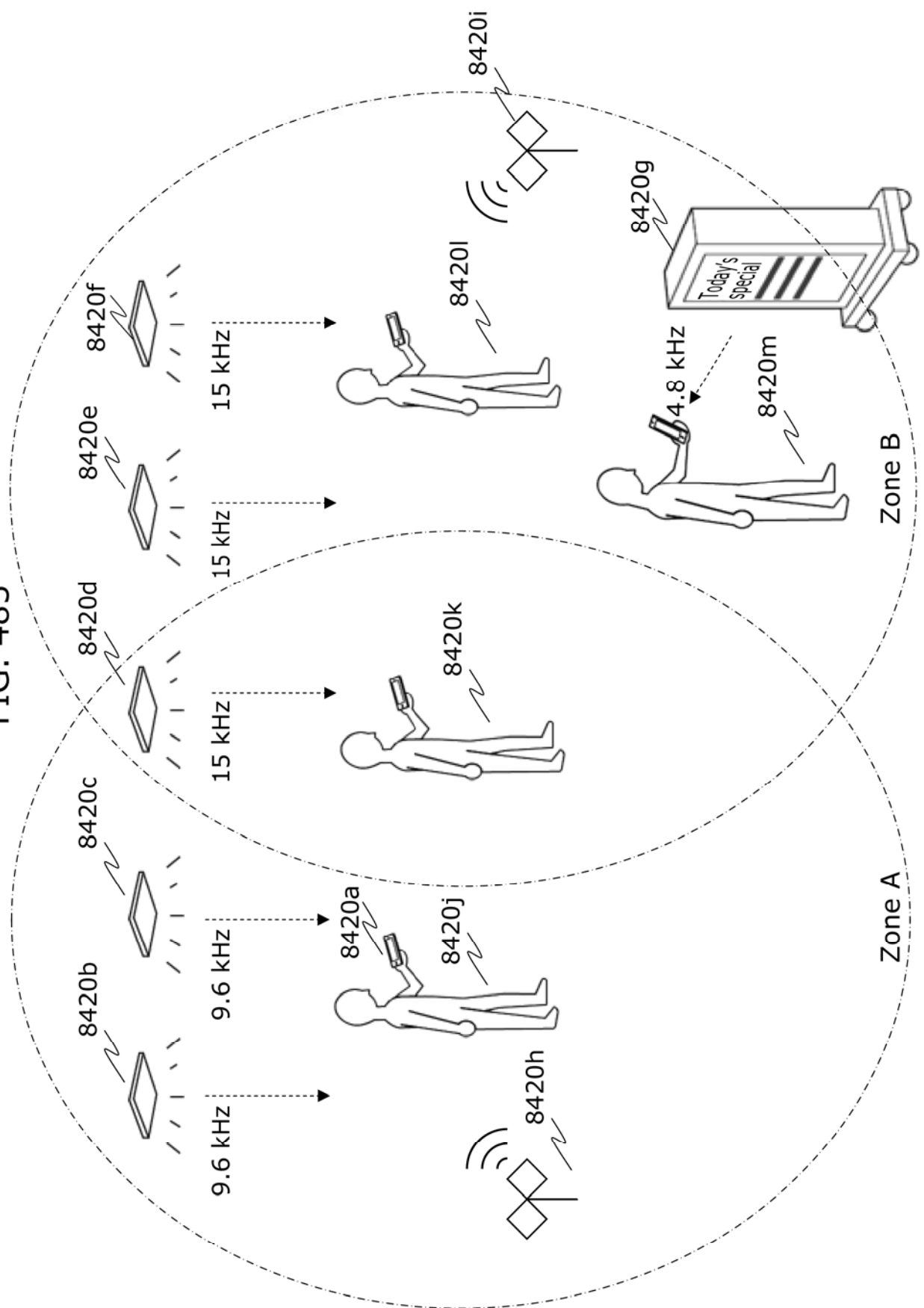


FIG. 486

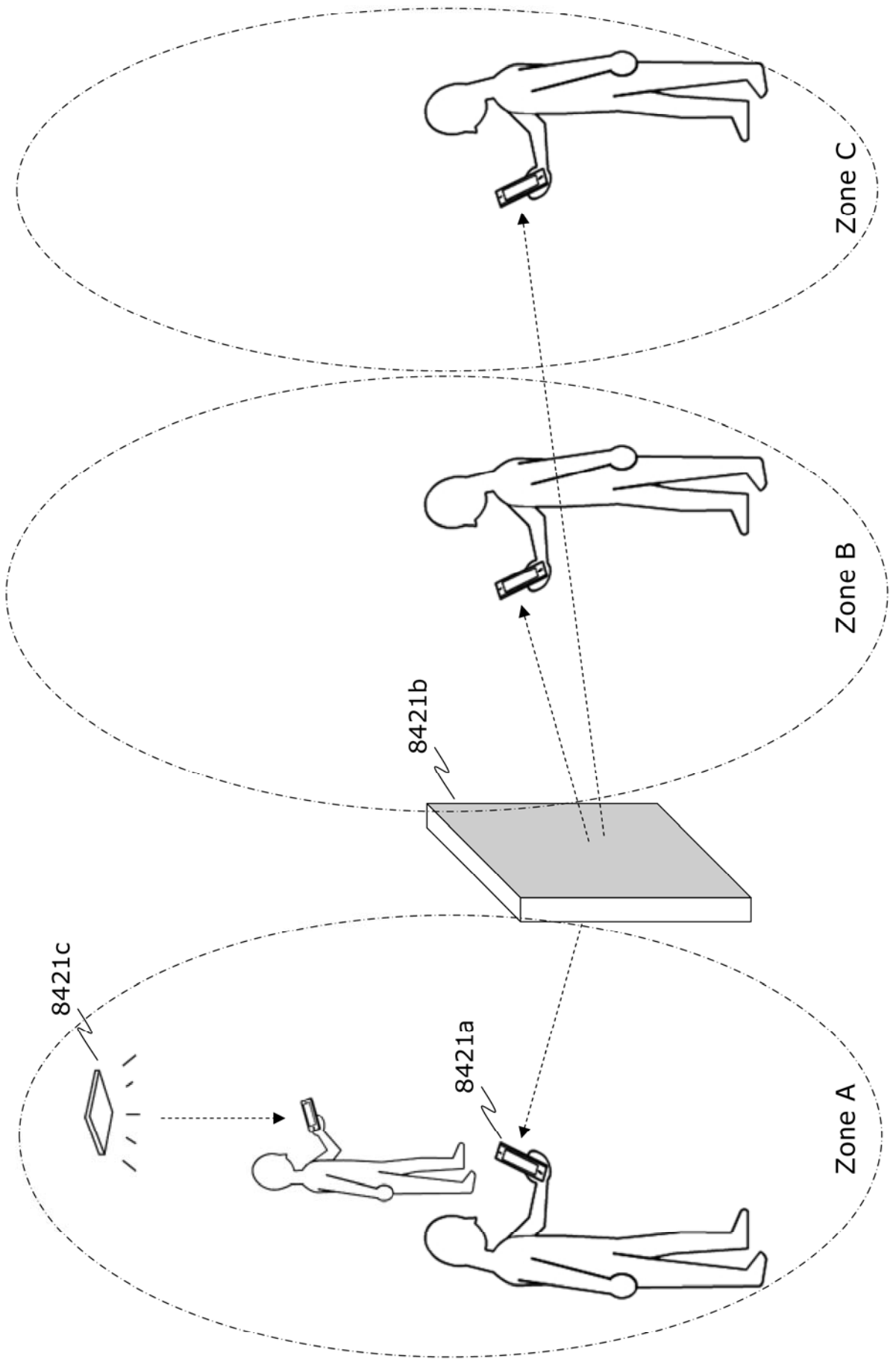


FIG. 487

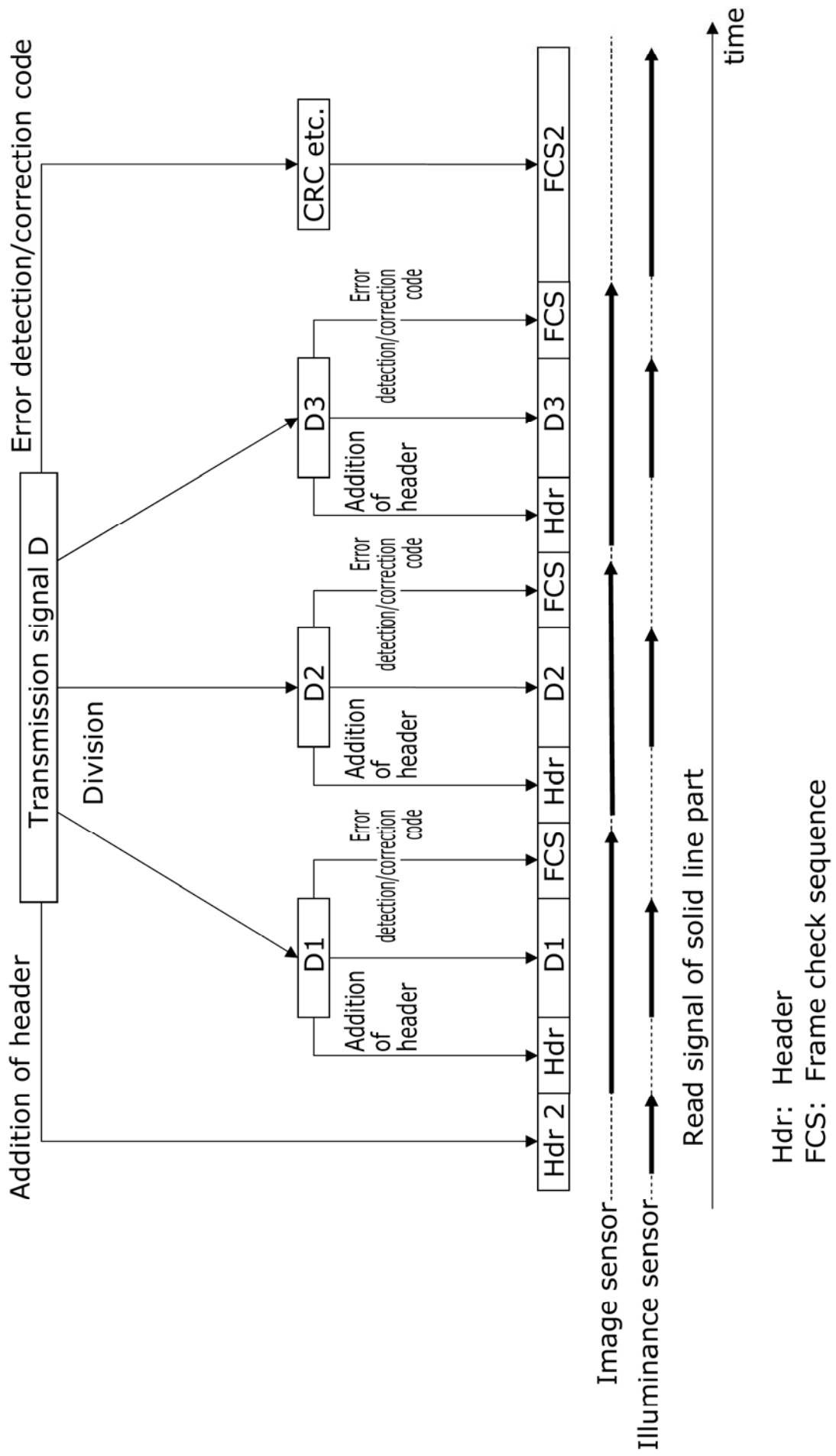


FIG. 488

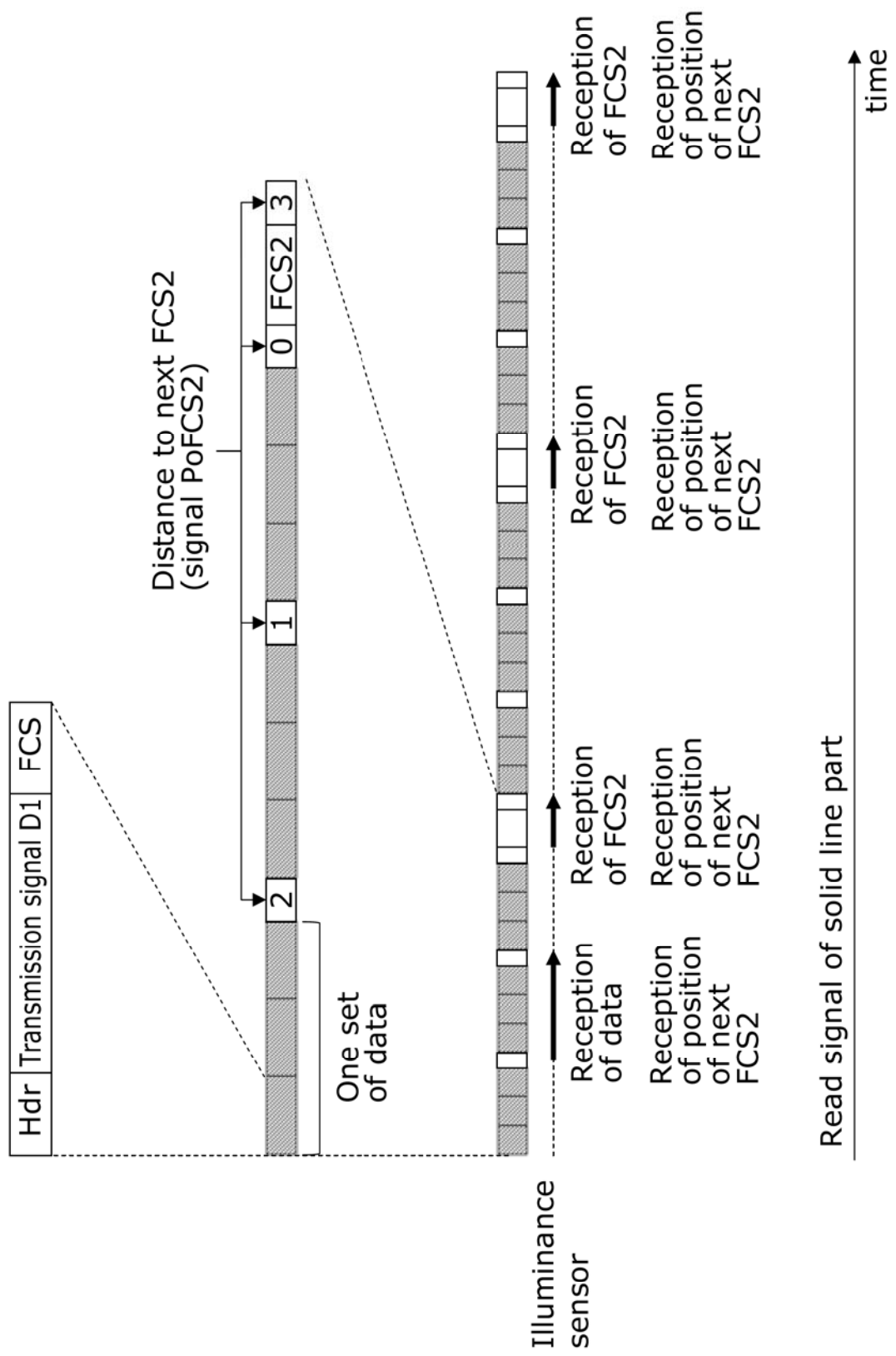


FIG. 489A

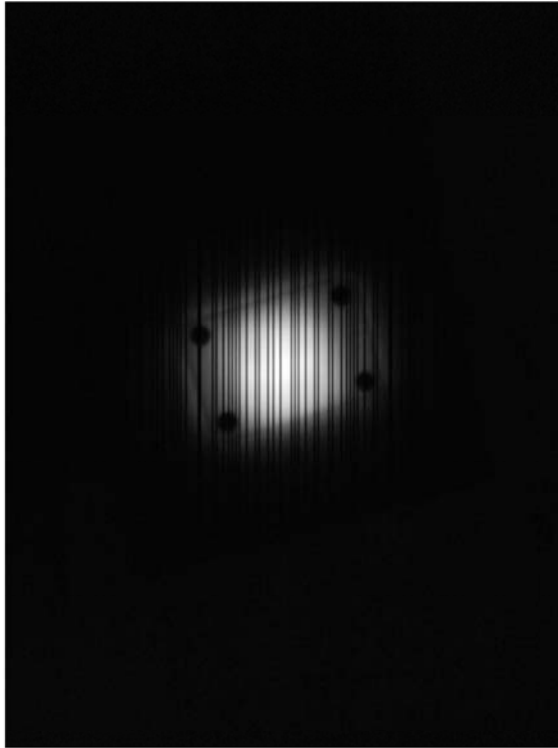


FIG. 489B

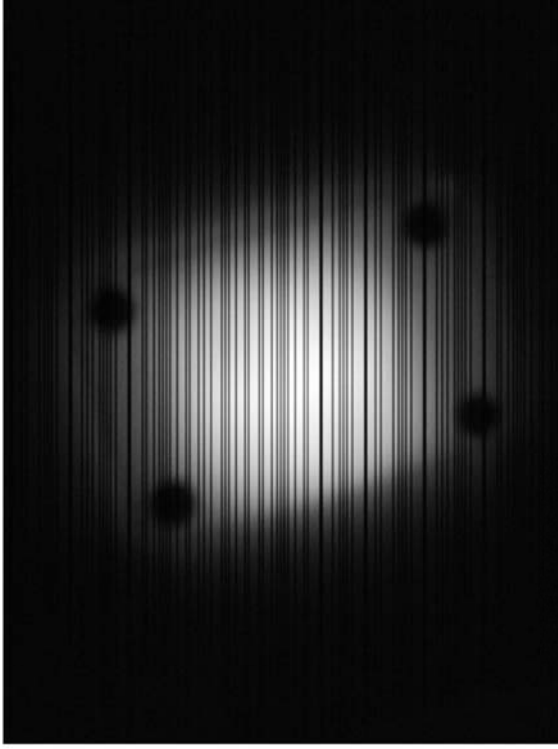


FIG. 489C

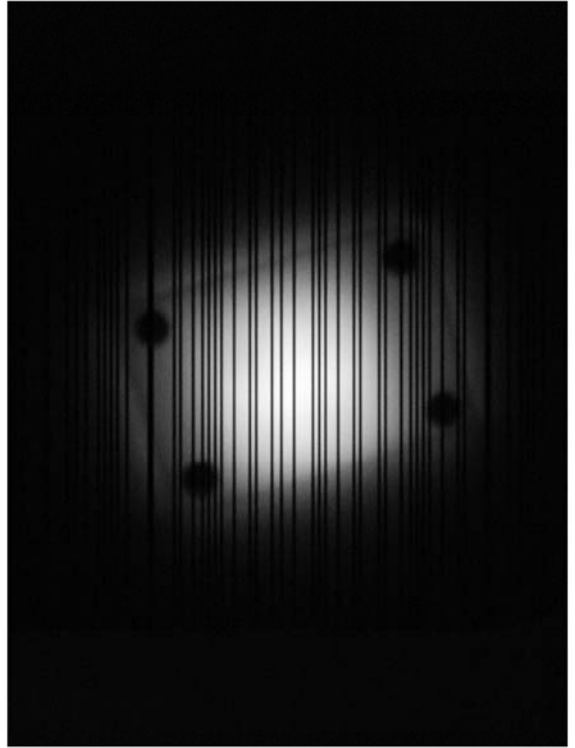


FIG. 490B

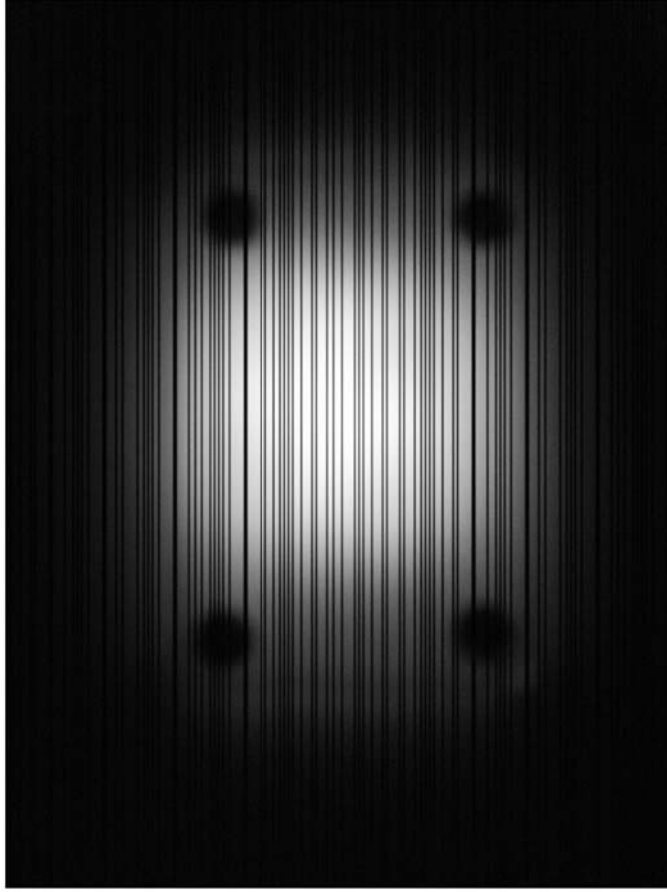


FIG. 490A

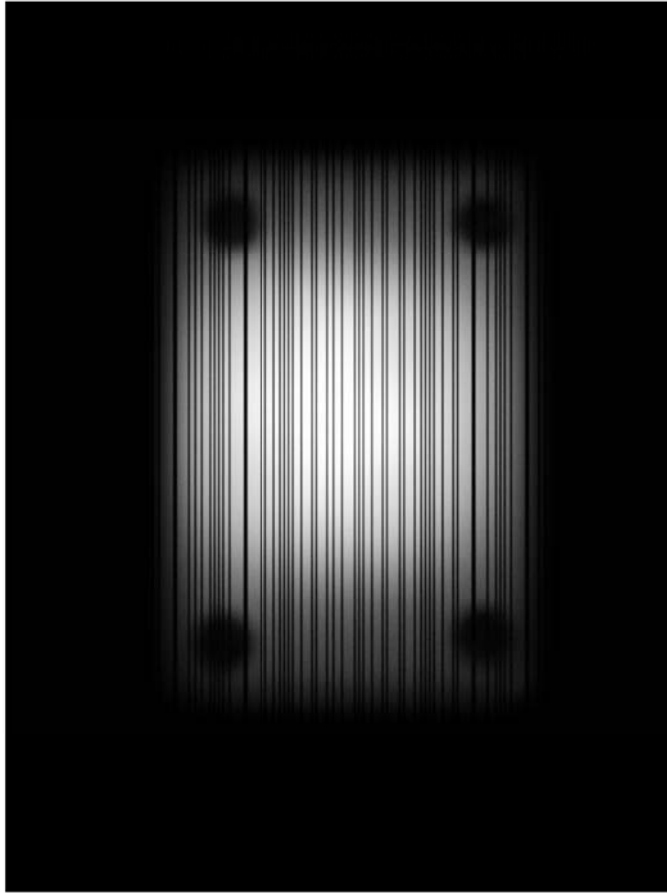




FIG. 491C

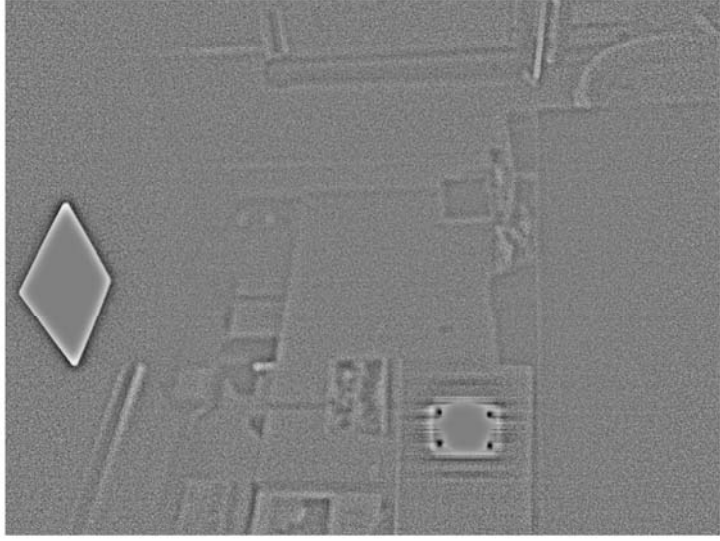


FIG. 491B

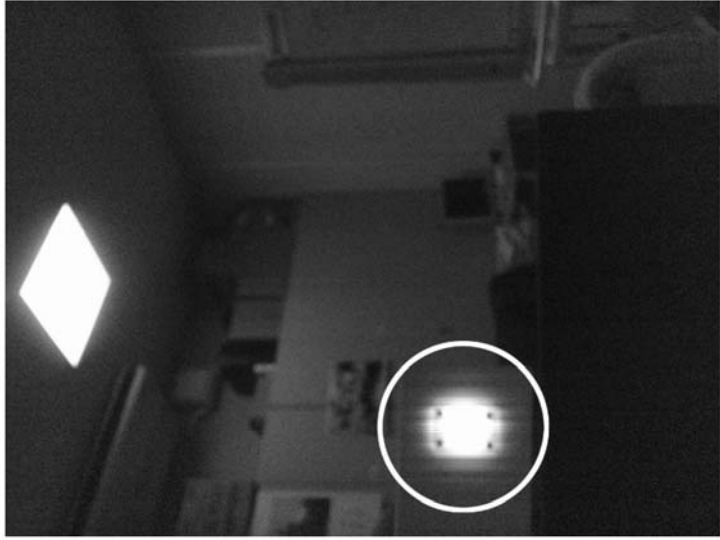


FIG. 491A



FIG. 492

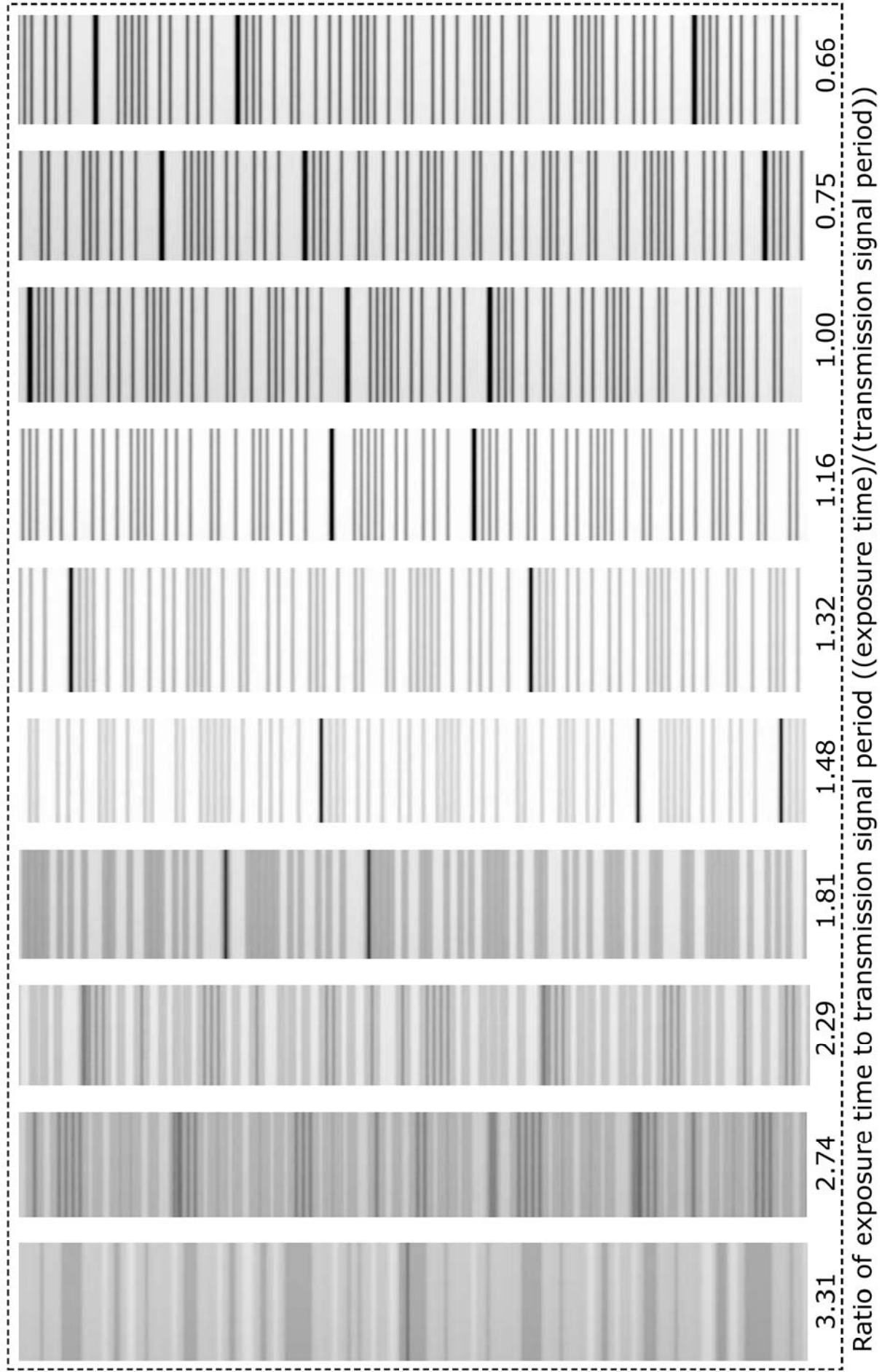


FIG. 493

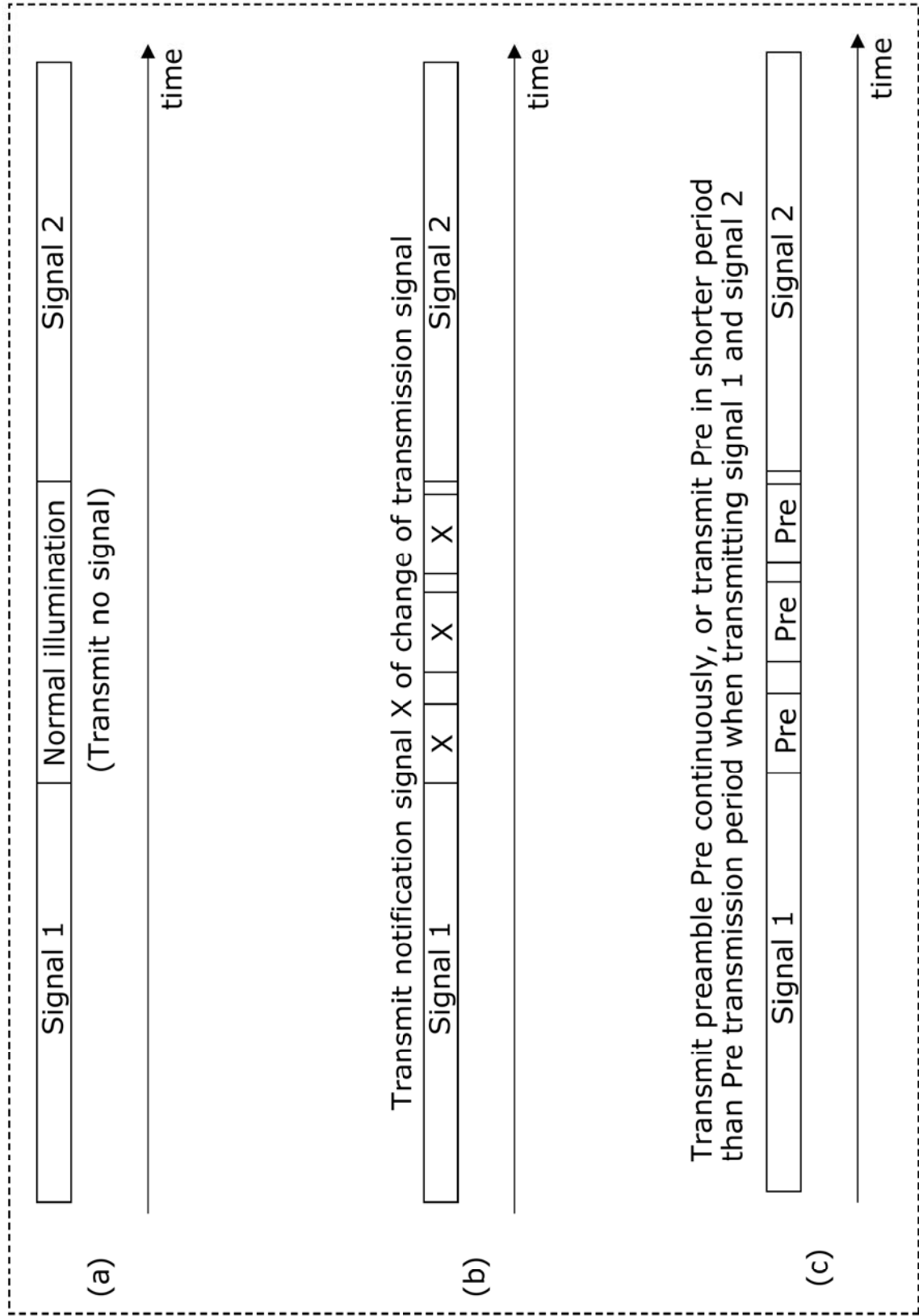
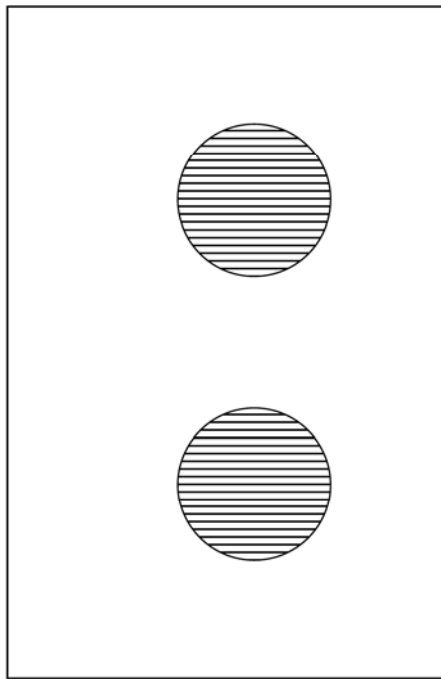
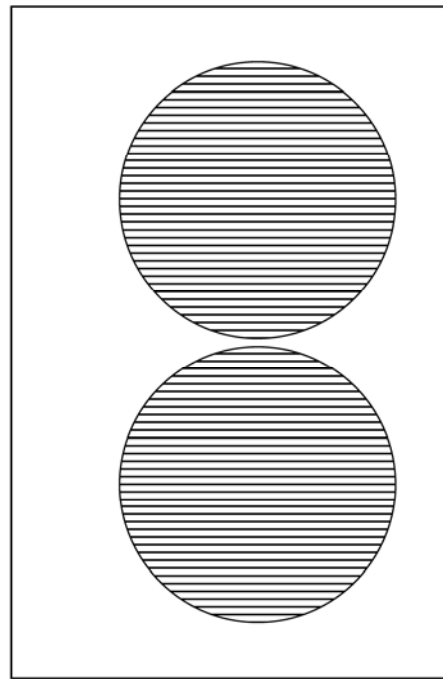


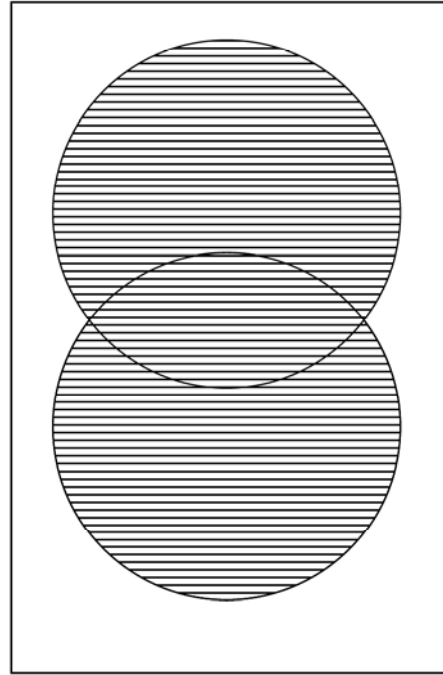
FIG. 494



(a)



(b)



(c)

FIG. 495

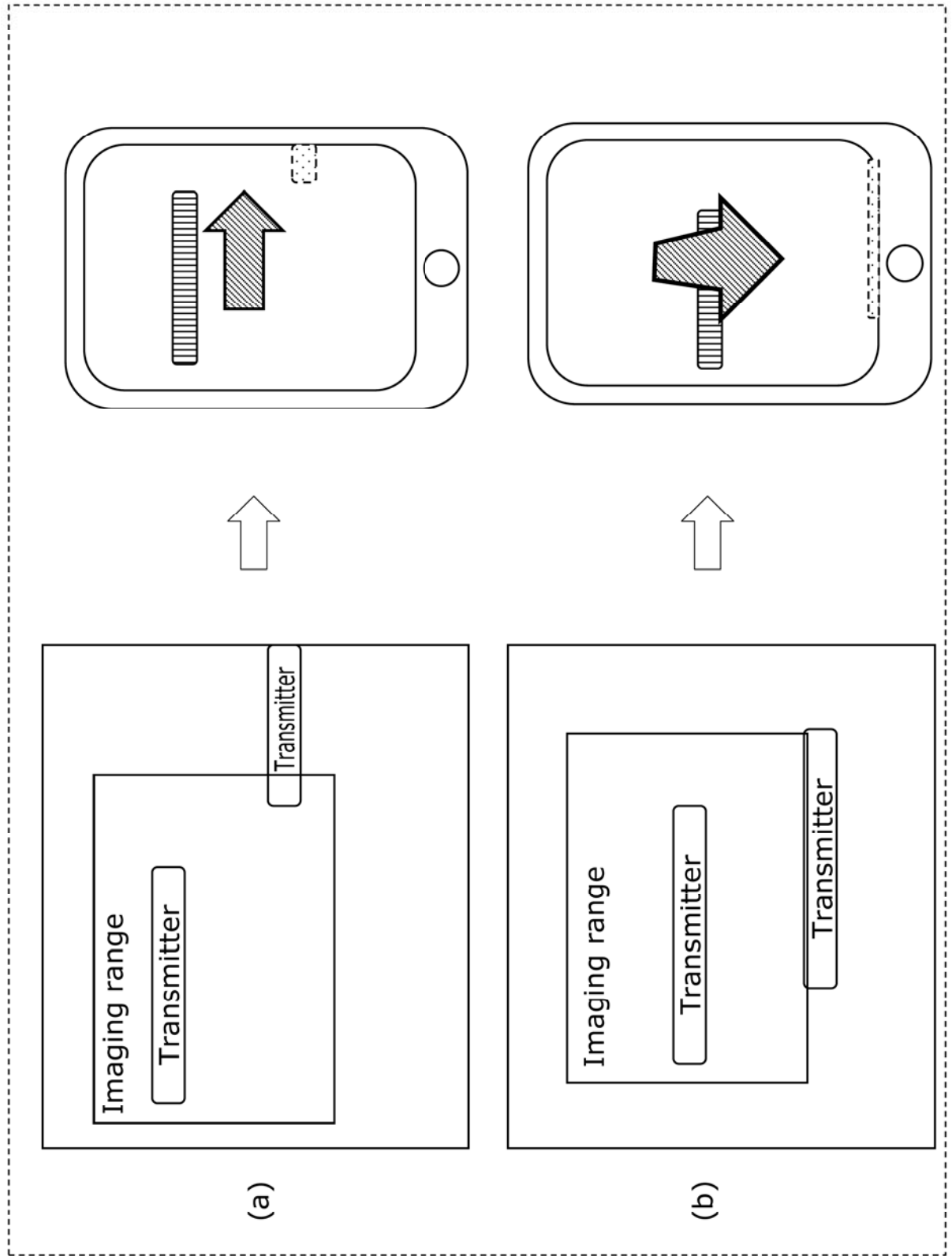


FIG. 496

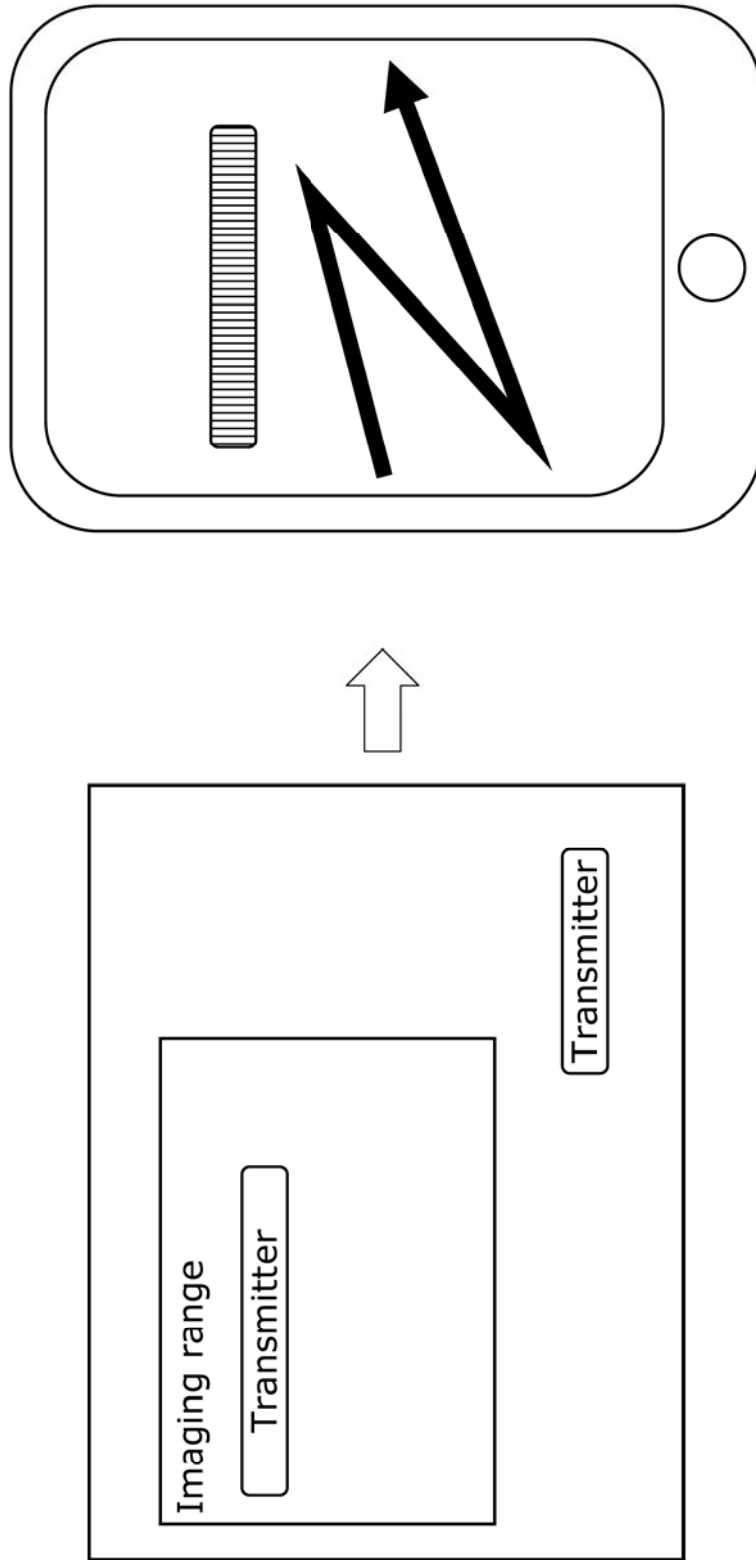


FIG. 497

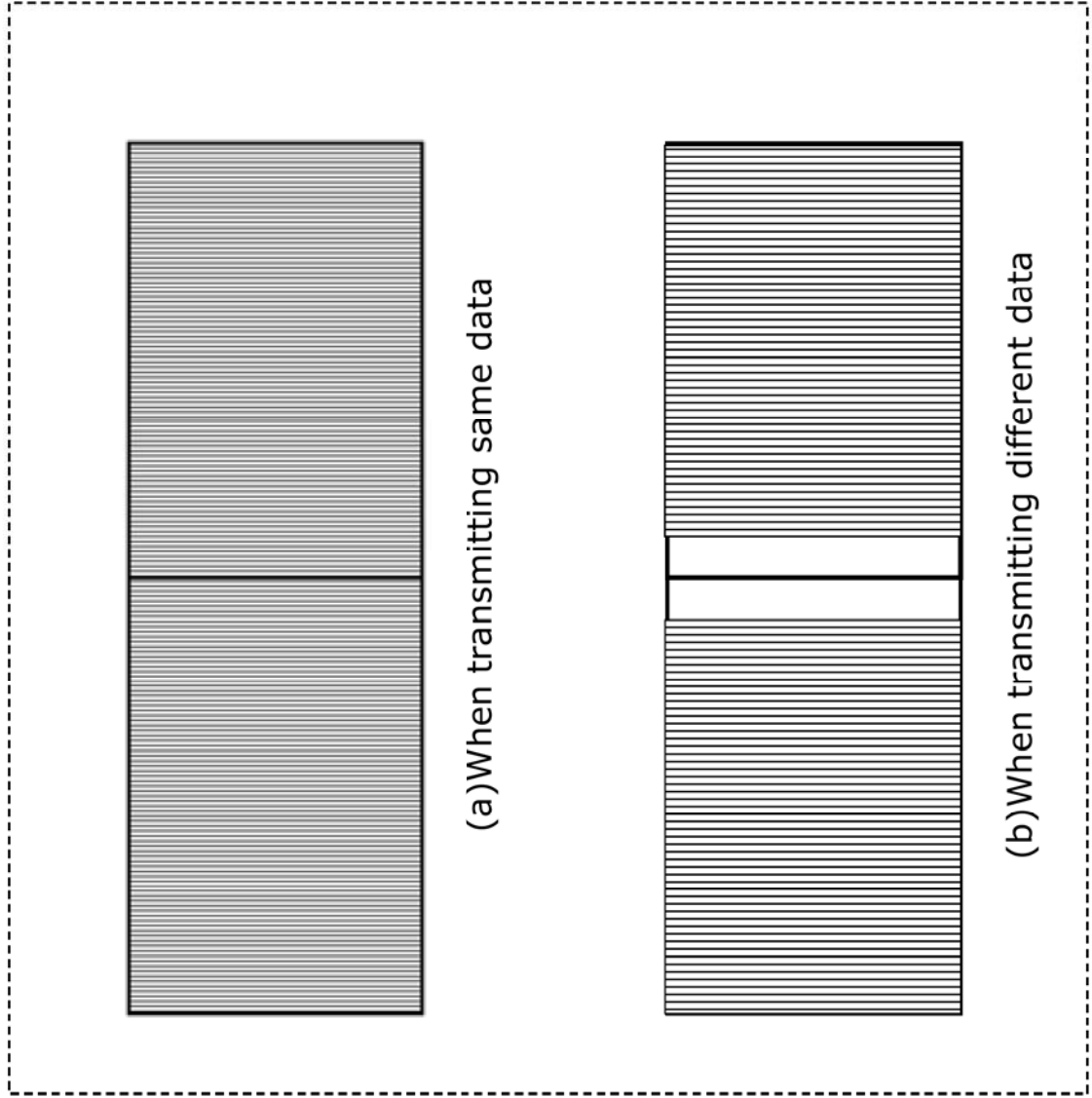


FIG. 498

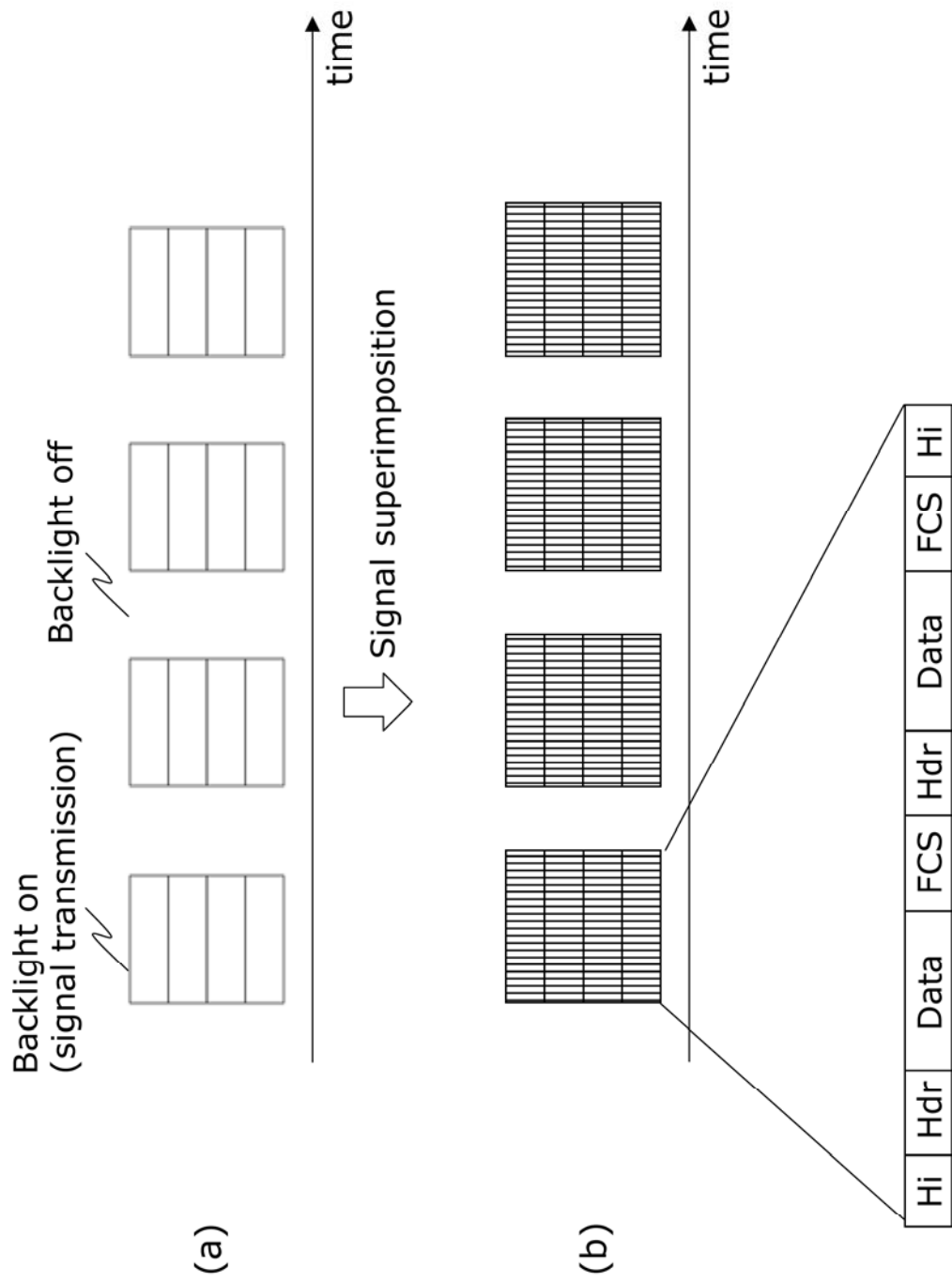




FIG. 499

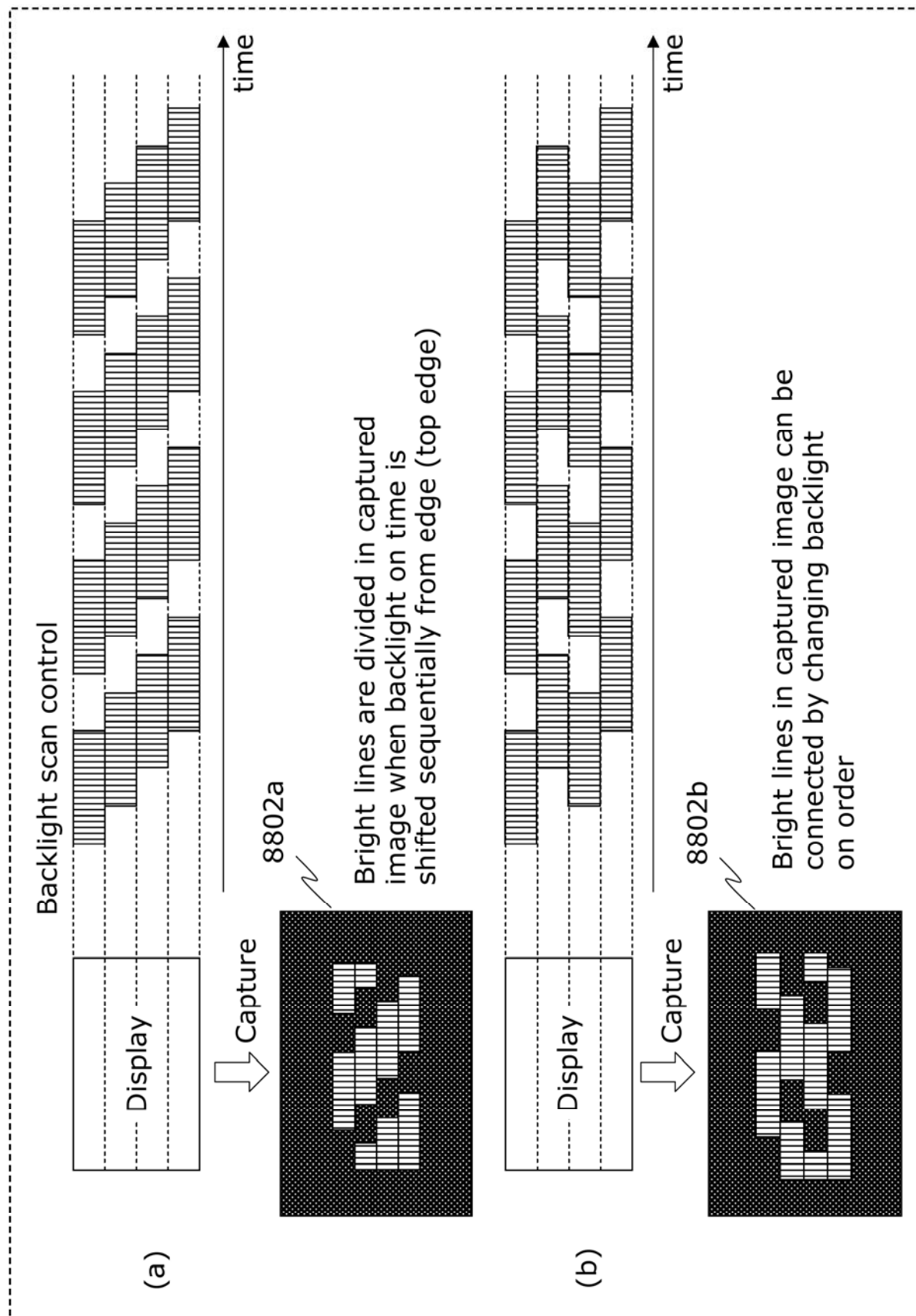


FIG. 500

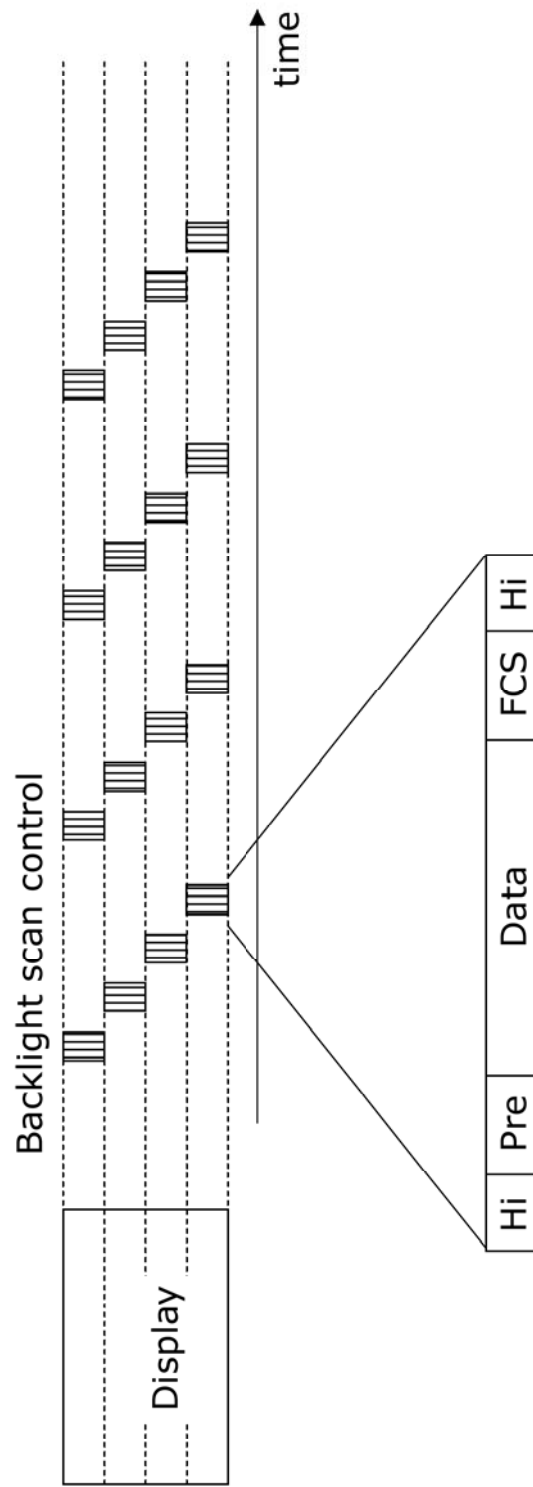


FIG. 501

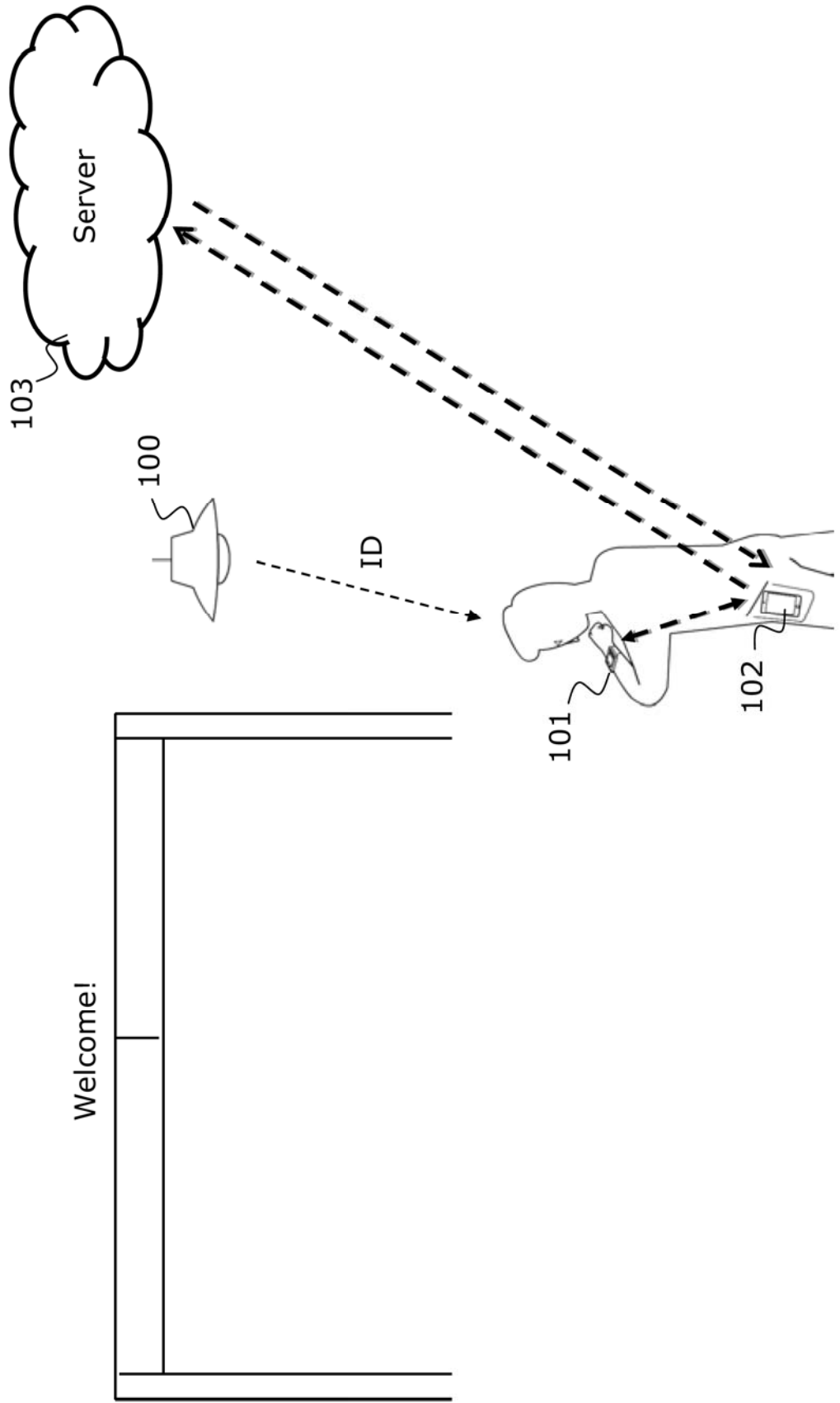


FIG. 502

| Membership number           | Store ID | Time                        | Position information |
|-----------------------------|----------|-----------------------------|----------------------|
| User preference information |          | User biological information |                      |
| User search history         |          | User behavior history       |                      |

FIG. 503

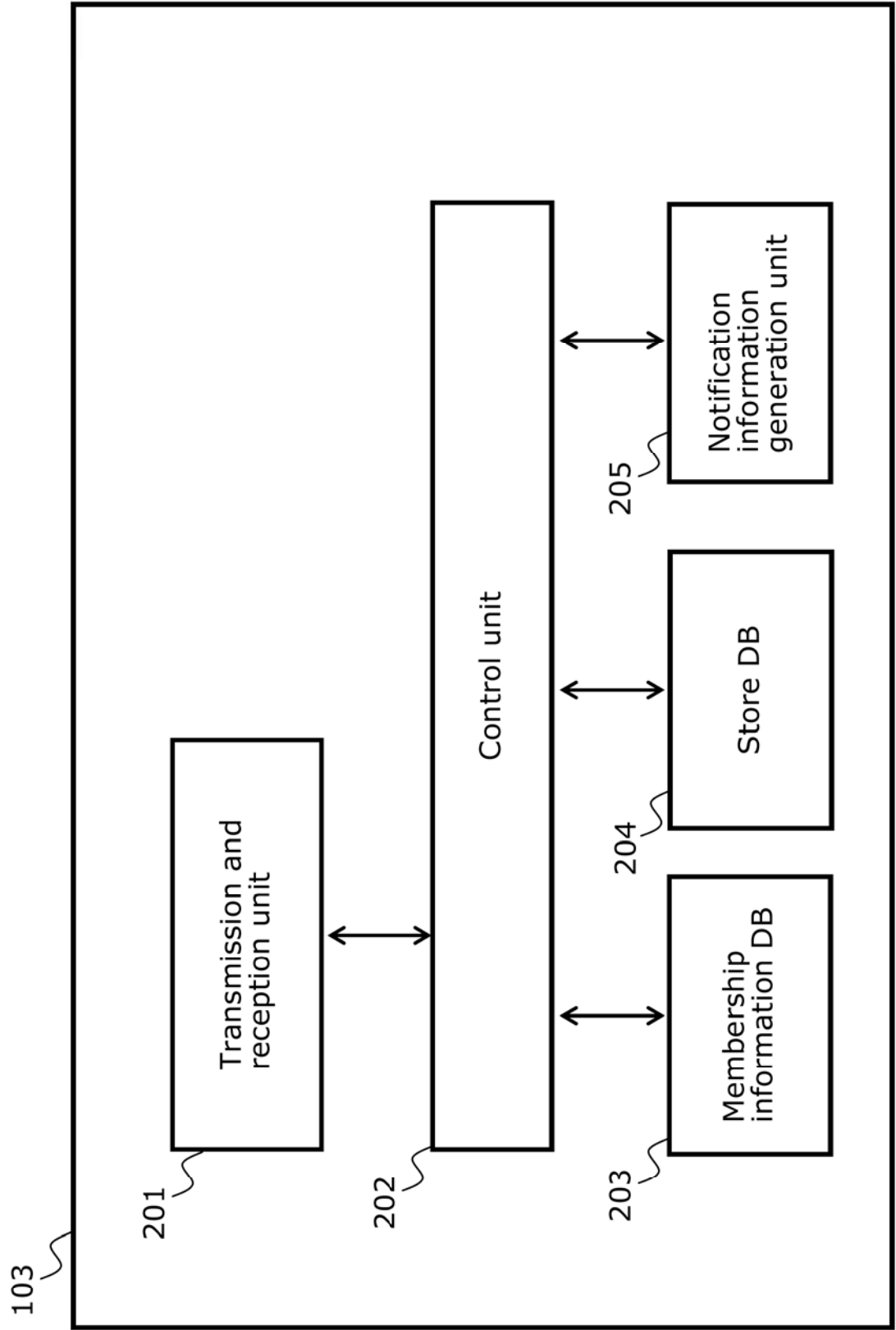


FIG. 504

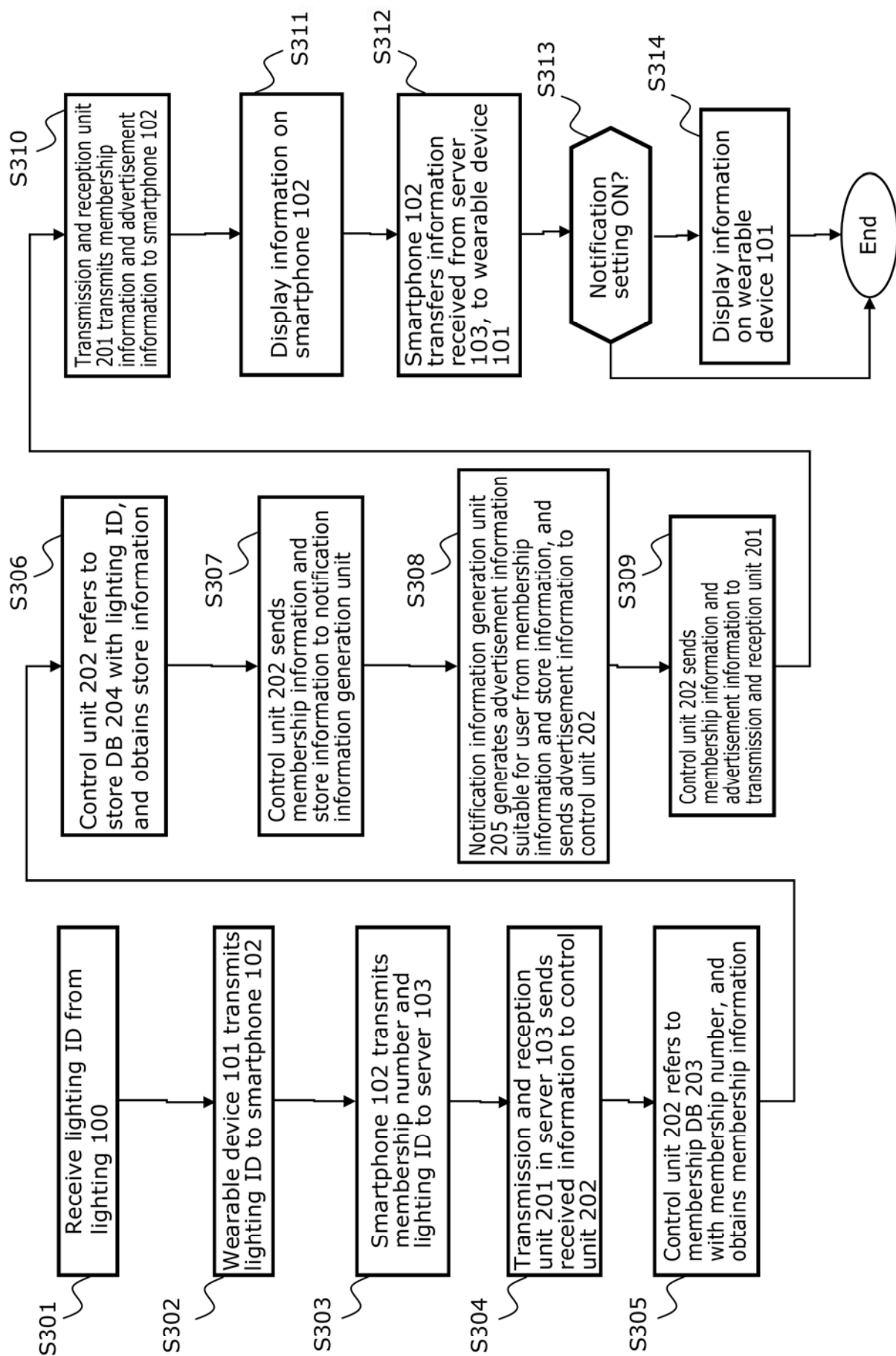


FIG. 505

| Membership number                               | Store ID                                                       | Time | Store map DB |
|-------------------------------------------------|----------------------------------------------------------------|------|--------------|
| Coupon information<br>Store product information | User membership information<br>(points, expiration date, etc.) |      |              |

FIG. 506

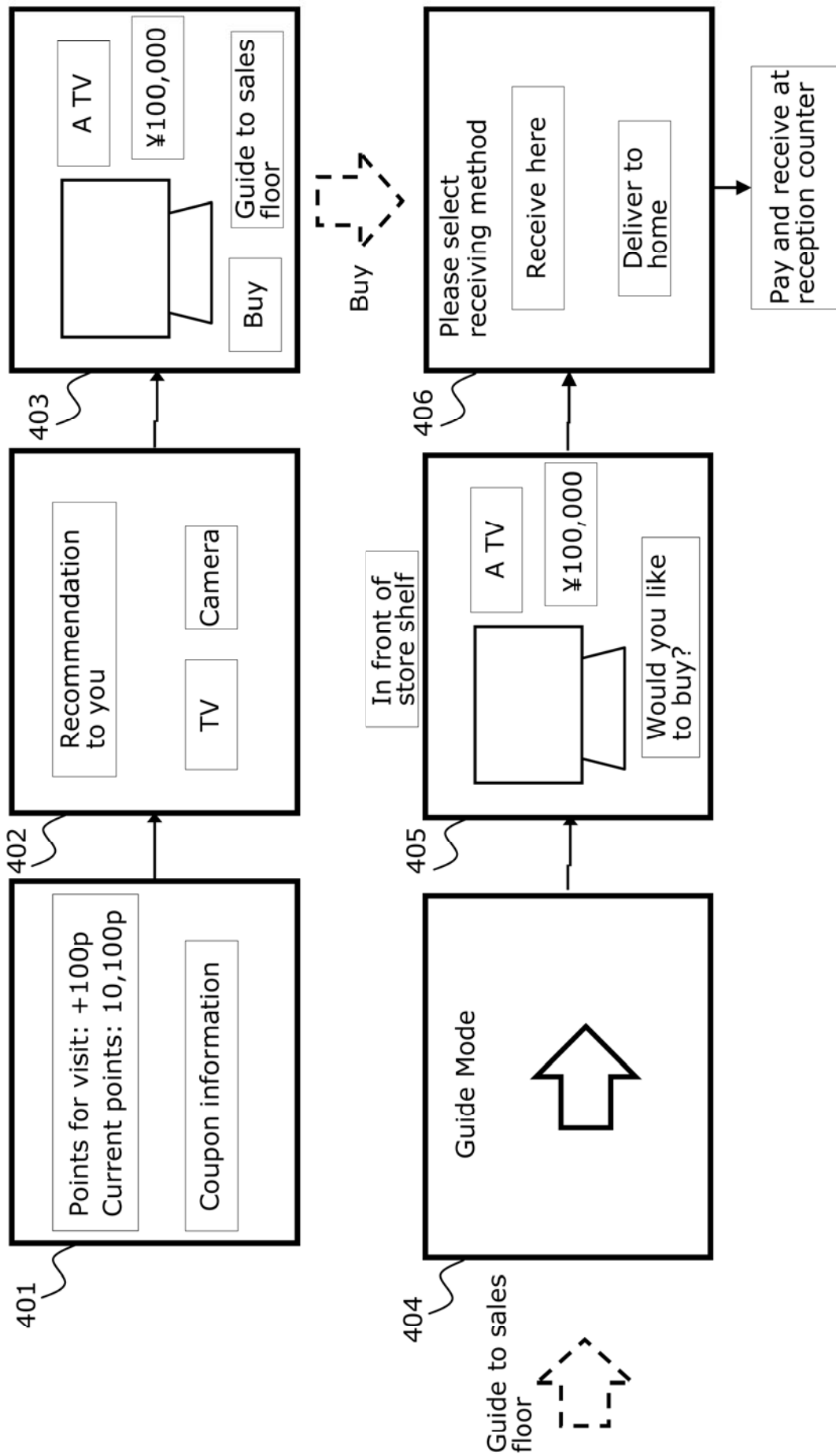




FIG. 507

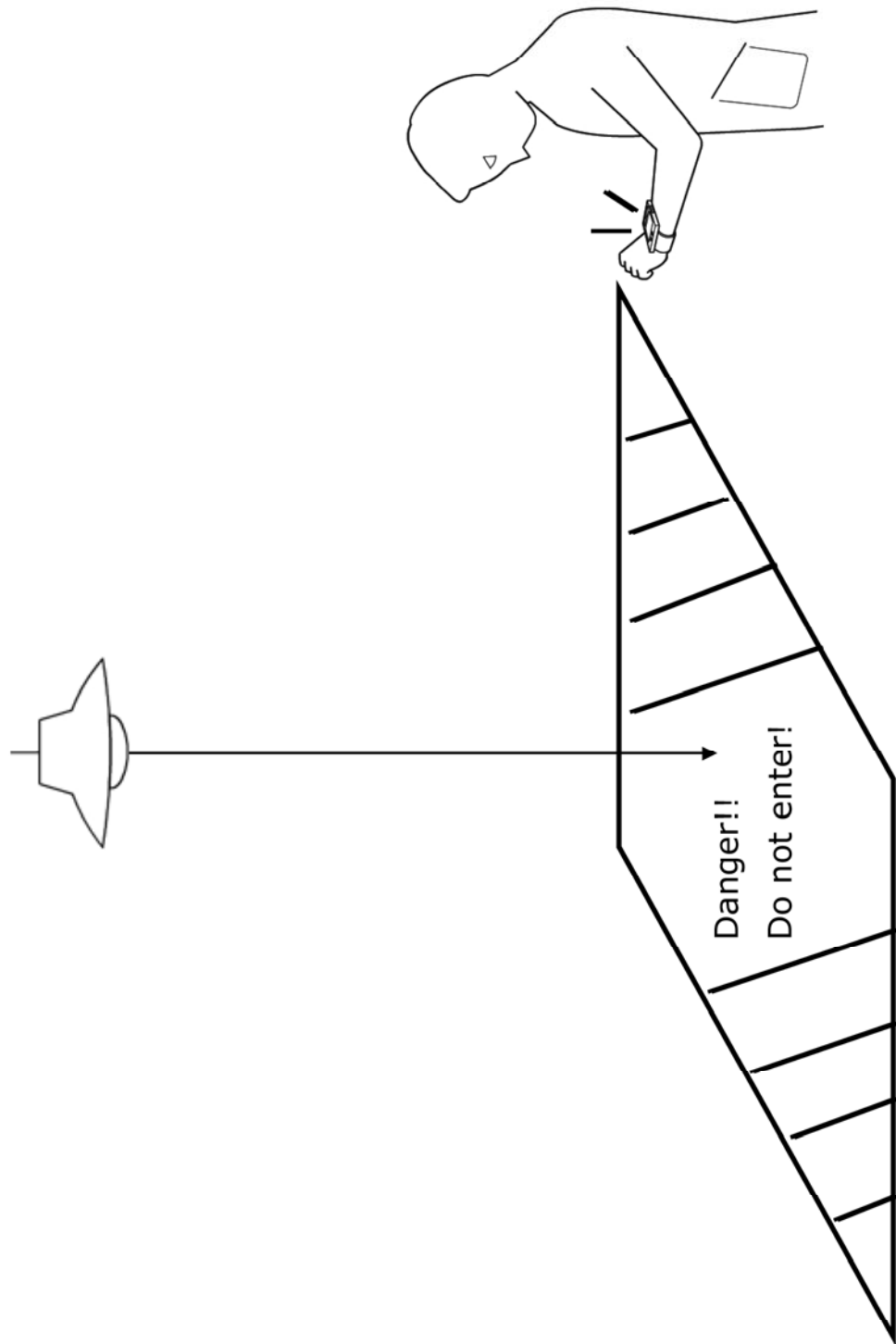


FIG. 508

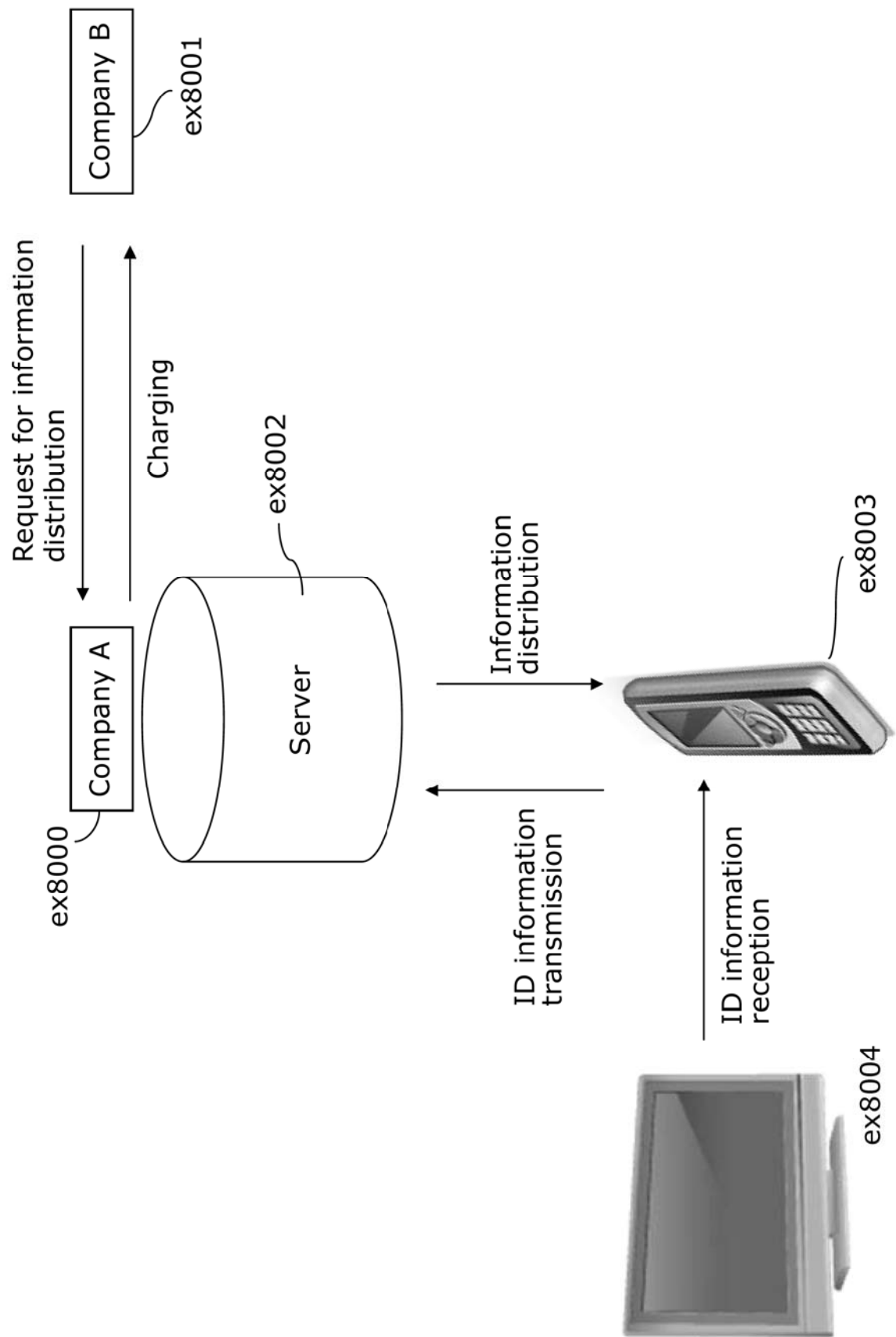


FIG. 509

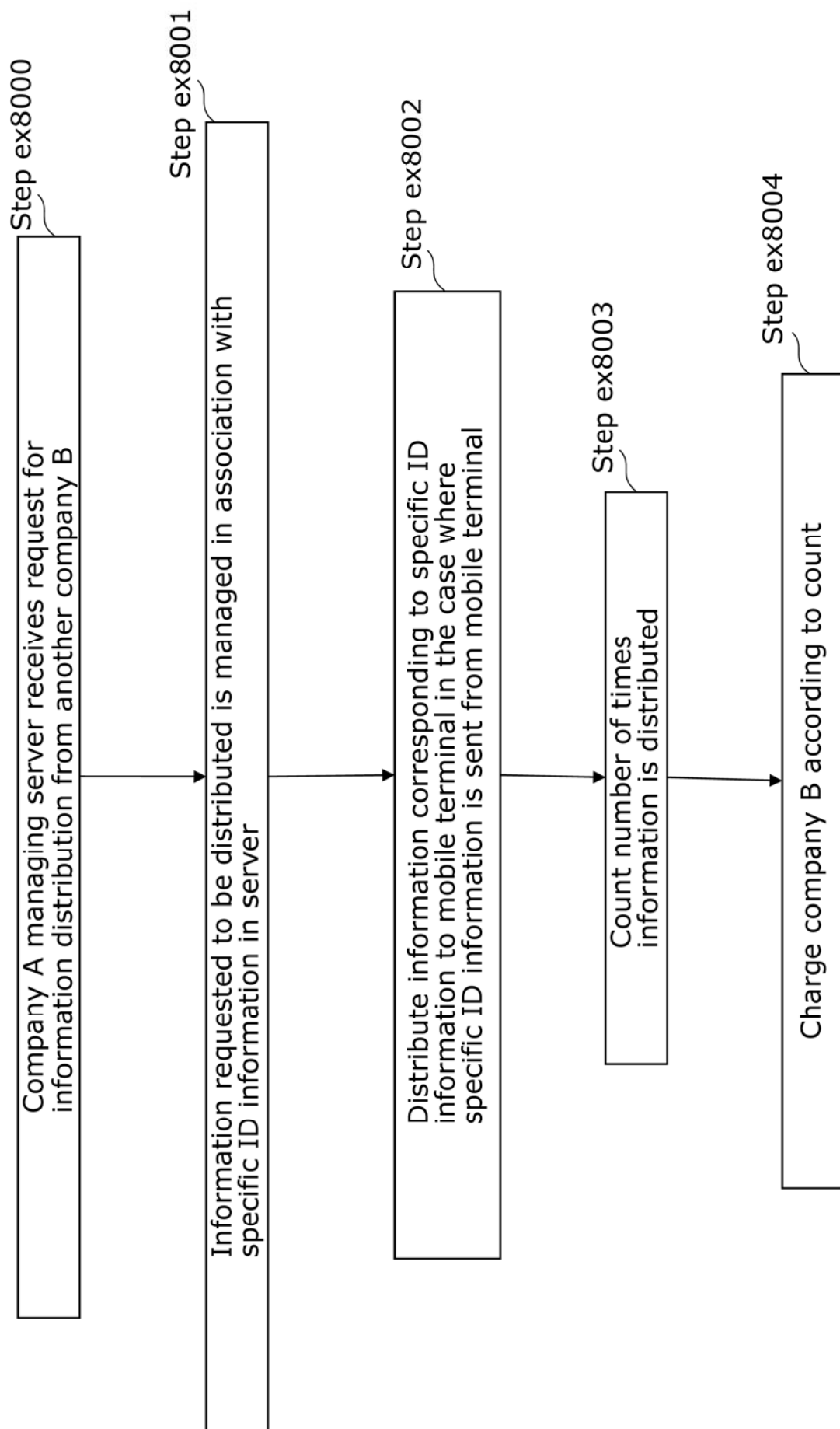


FIG. 510

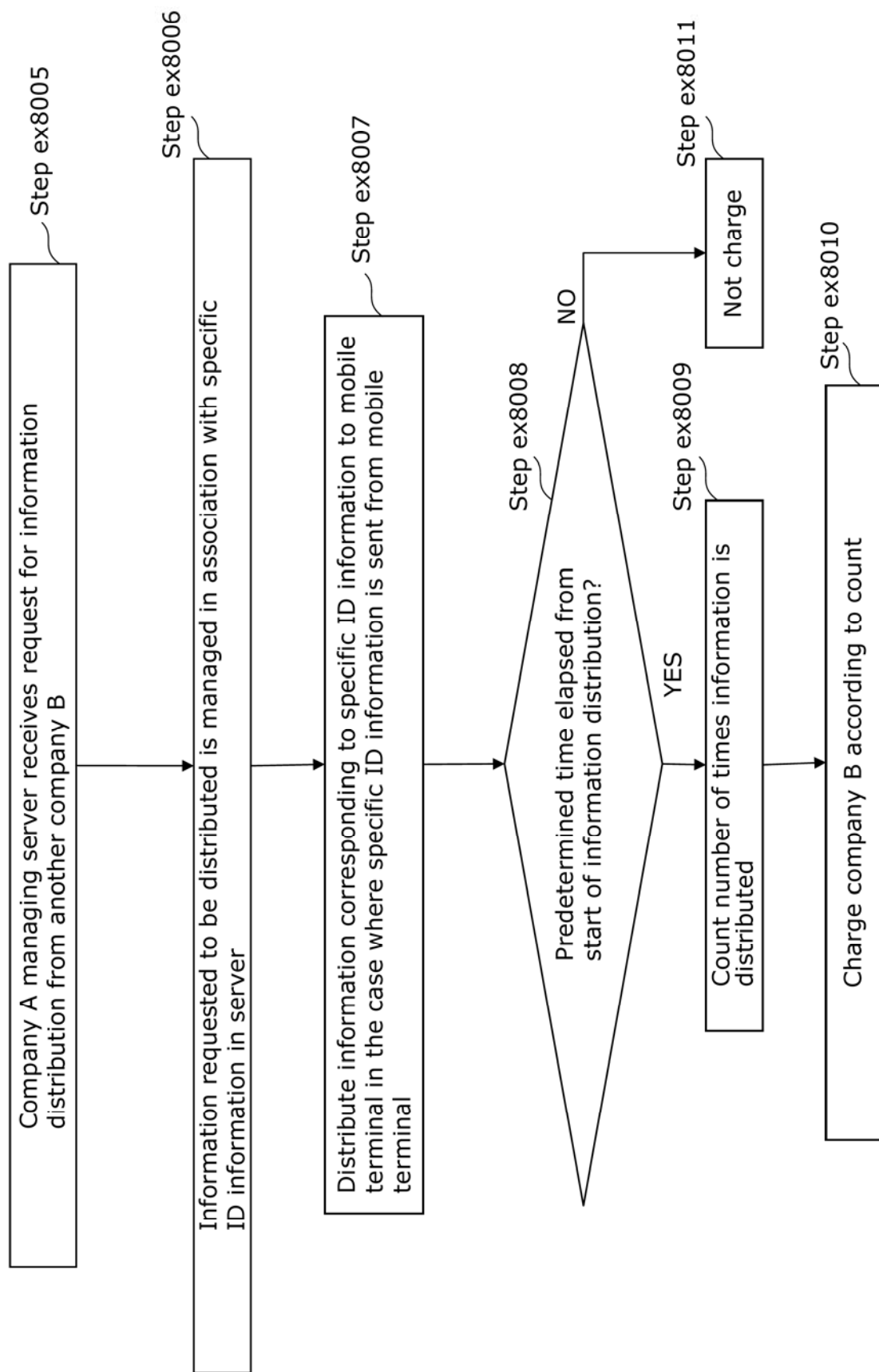


FIG. 511

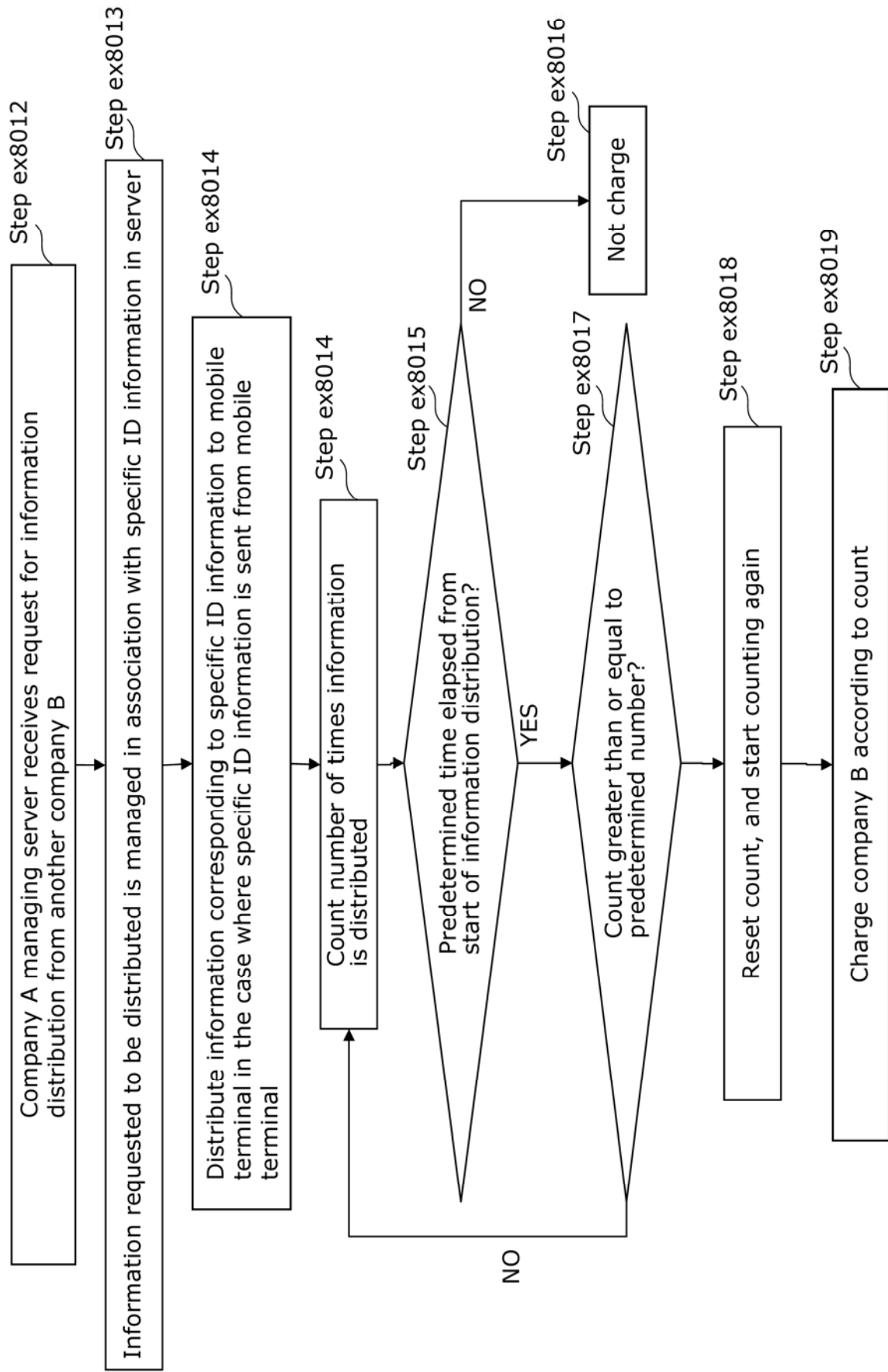


FIG. 512

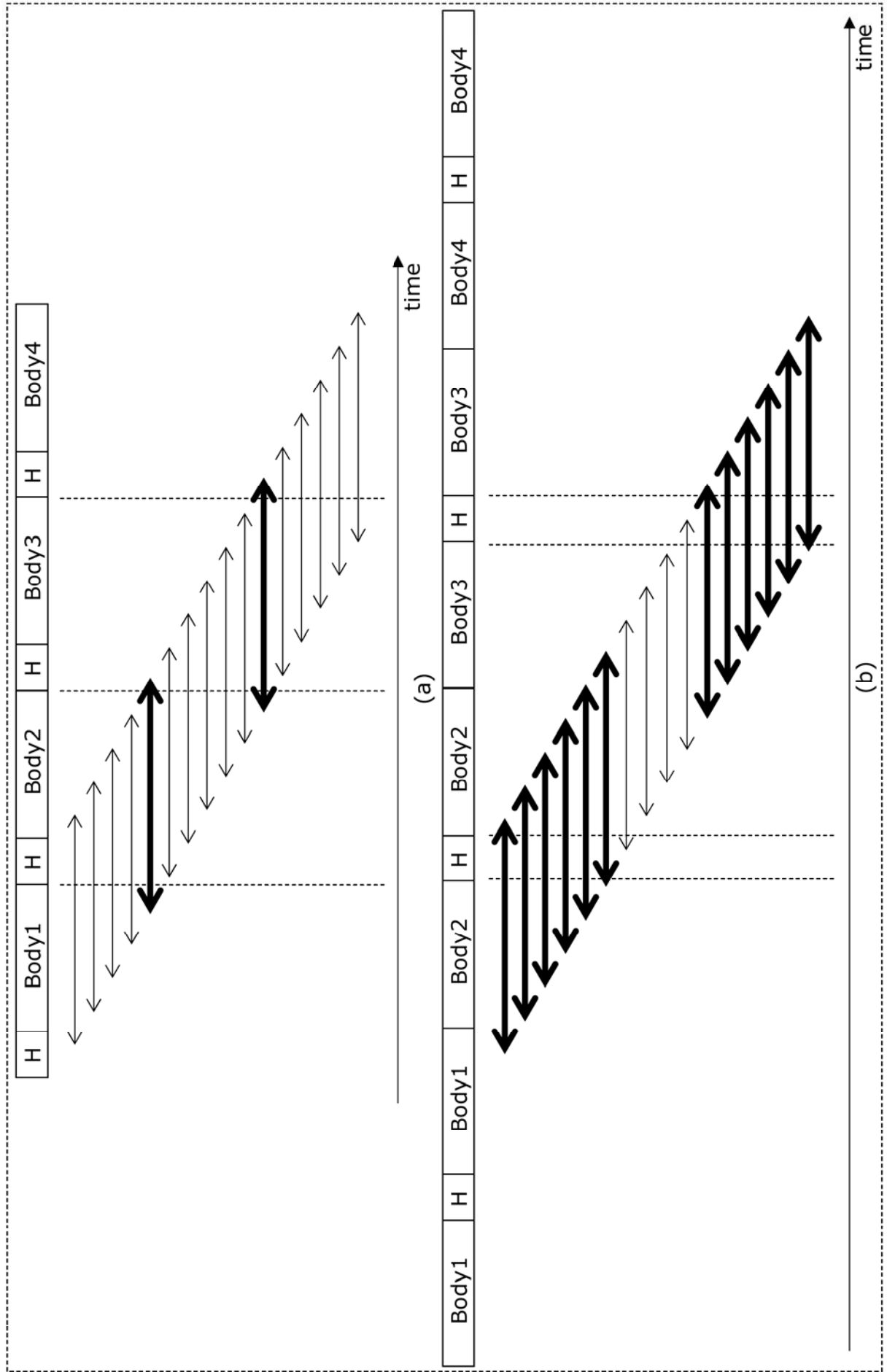


FIG. 513

|       |   |       |    |       |   |       |    |       |   |       |    |
|-------|---|-------|----|-------|---|-------|----|-------|---|-------|----|
| Body1 | H | Body1 | H2 | Body2 | H | Body2 | H2 | Body3 | H | Body3 | H2 |
|-------|---|-------|----|-------|---|-------|----|-------|---|-------|----|

(c)

FIG. 514

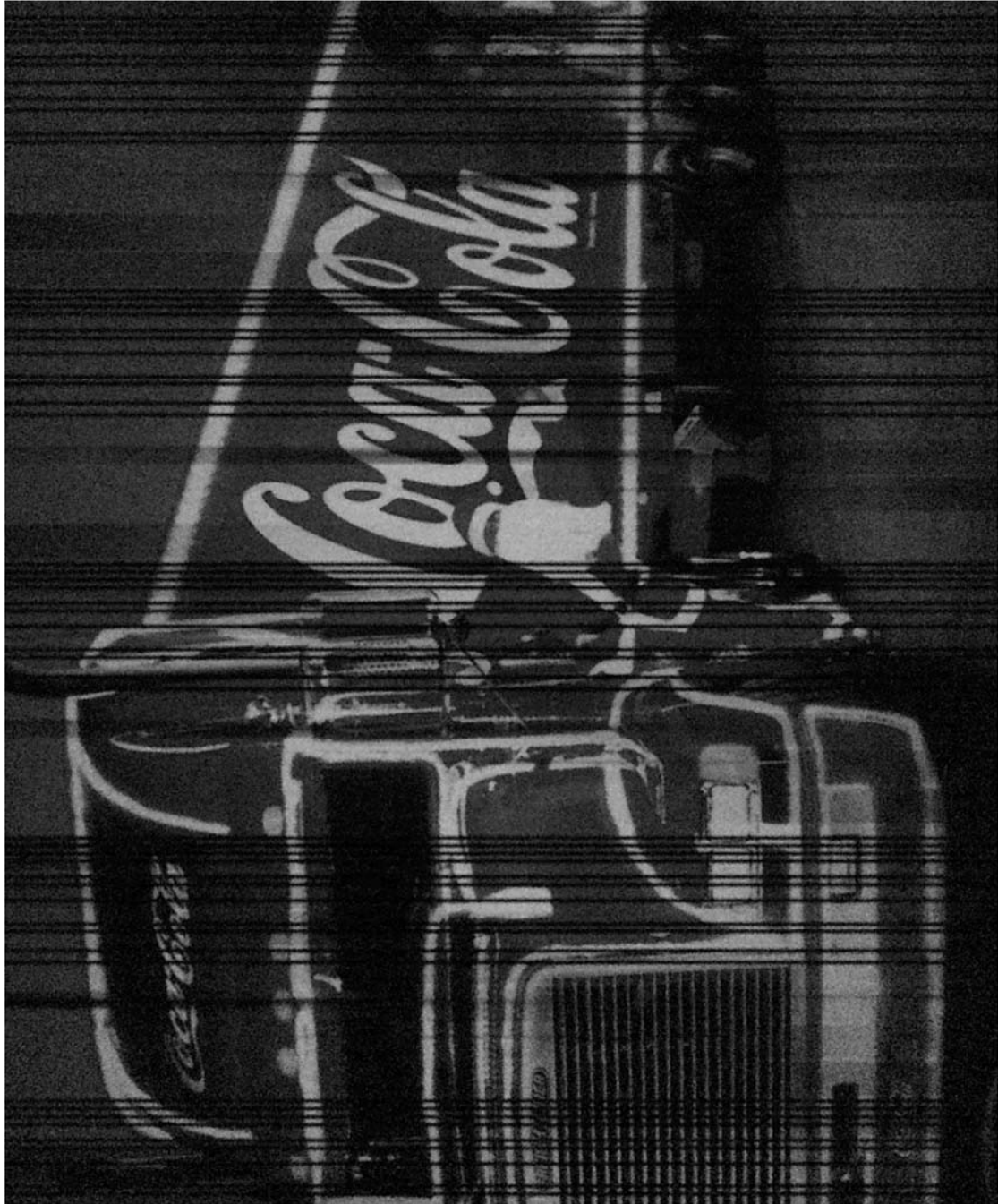




FIG. 515

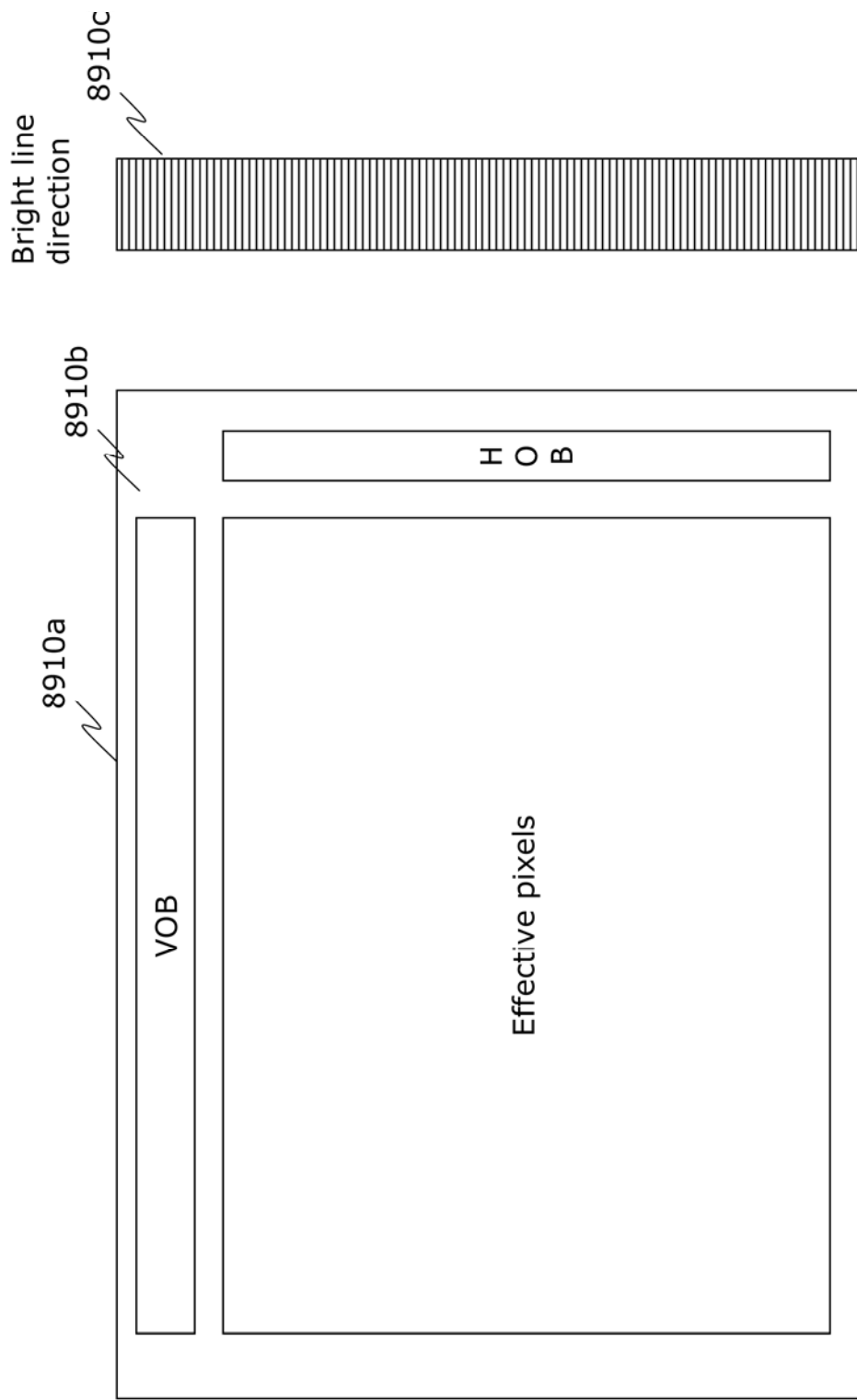
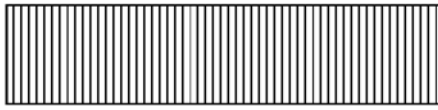
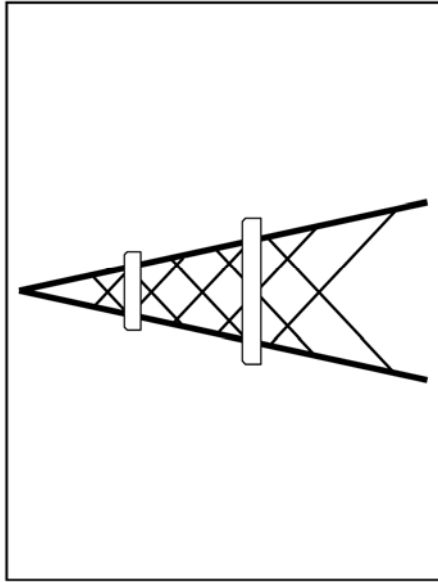
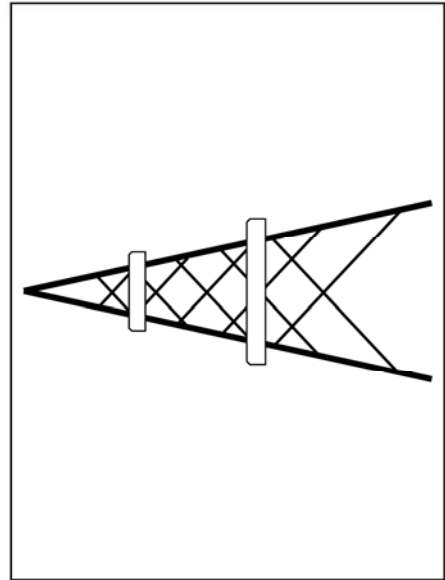


FIG. 516

Bright line direction



Capture at 4:3



Capture at 16:9

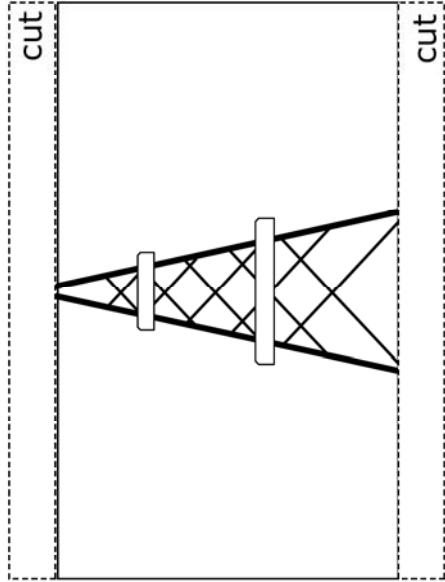


FIG. 517

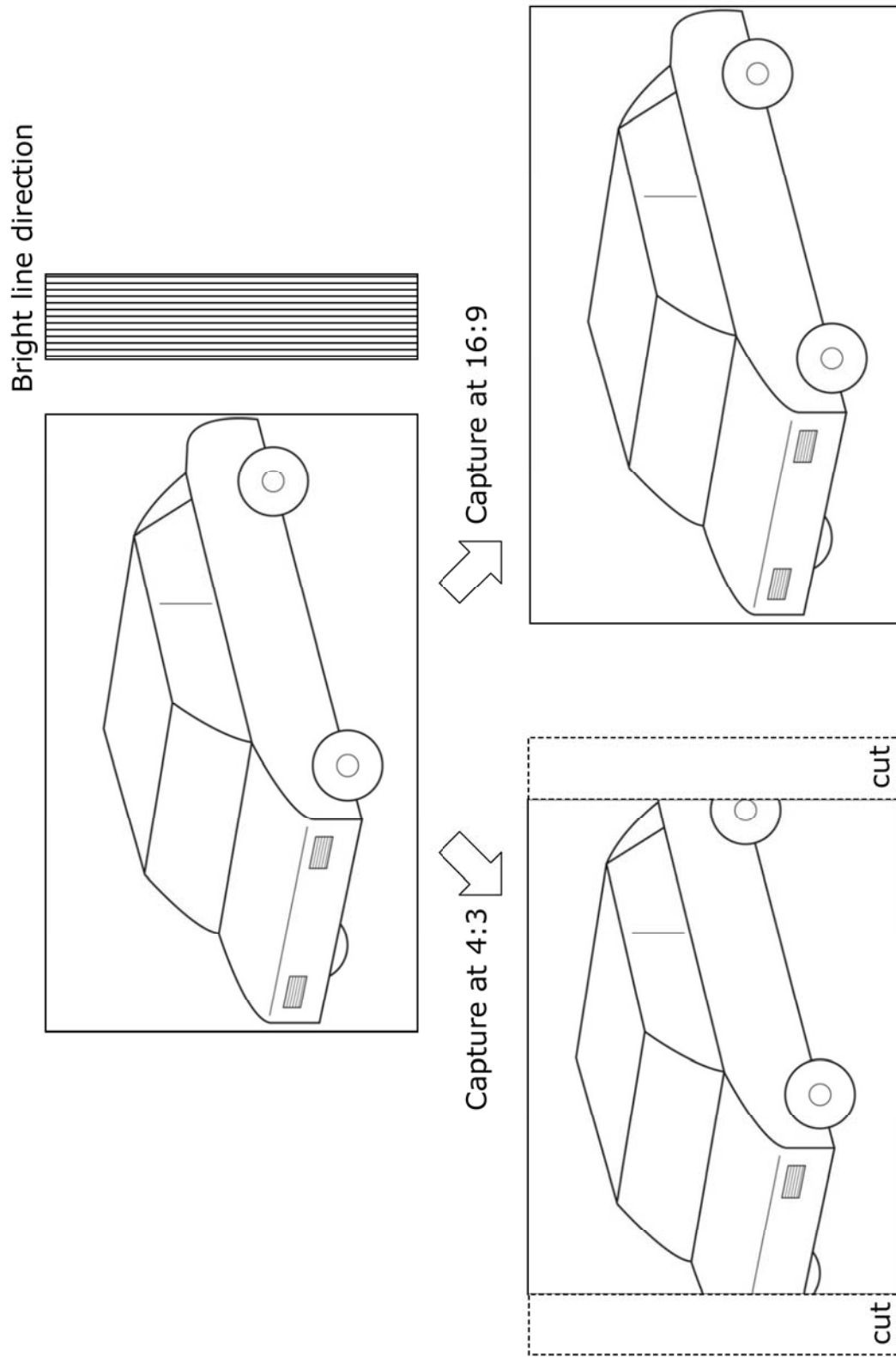


FIG. 518

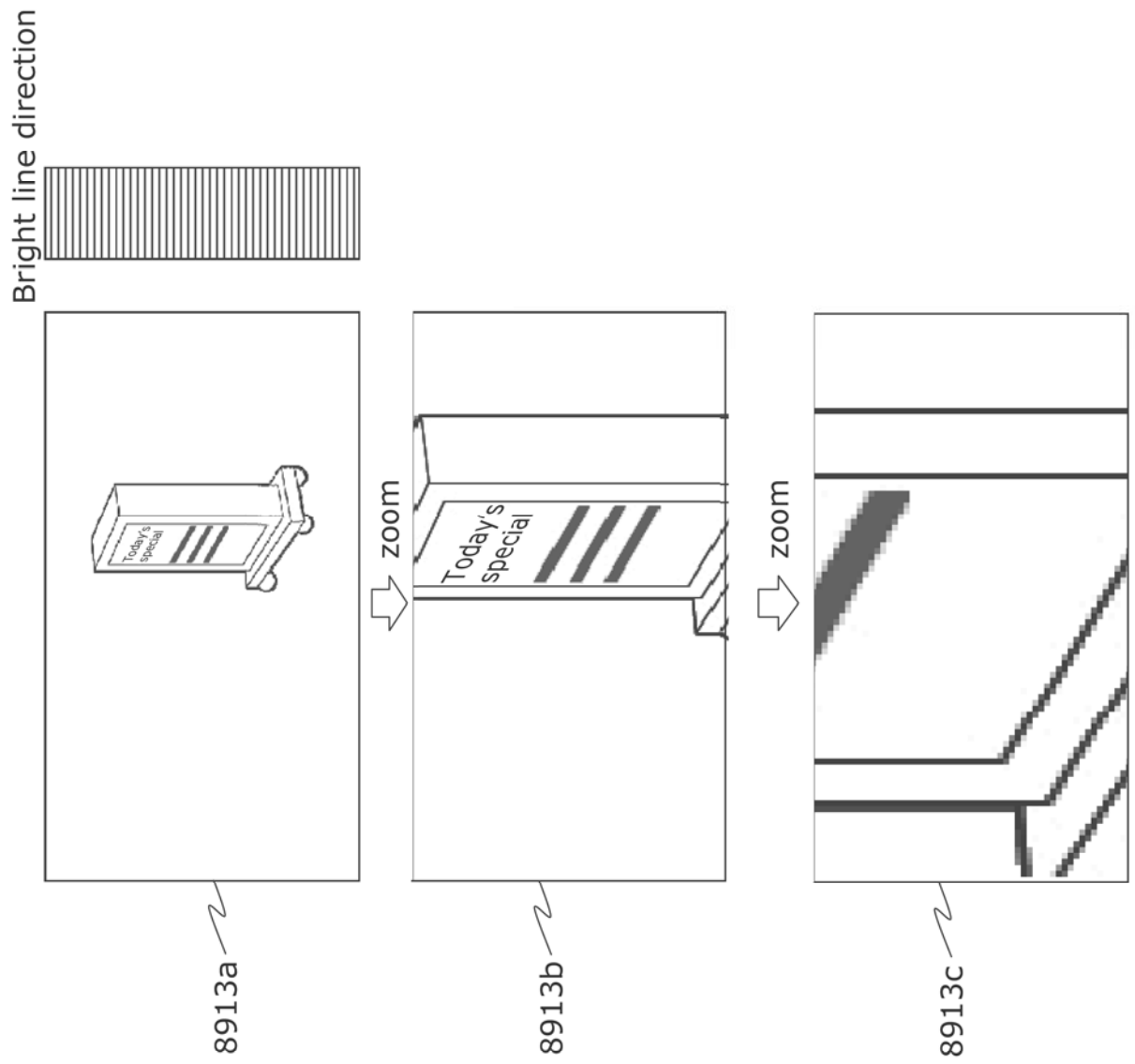


FIG. 519

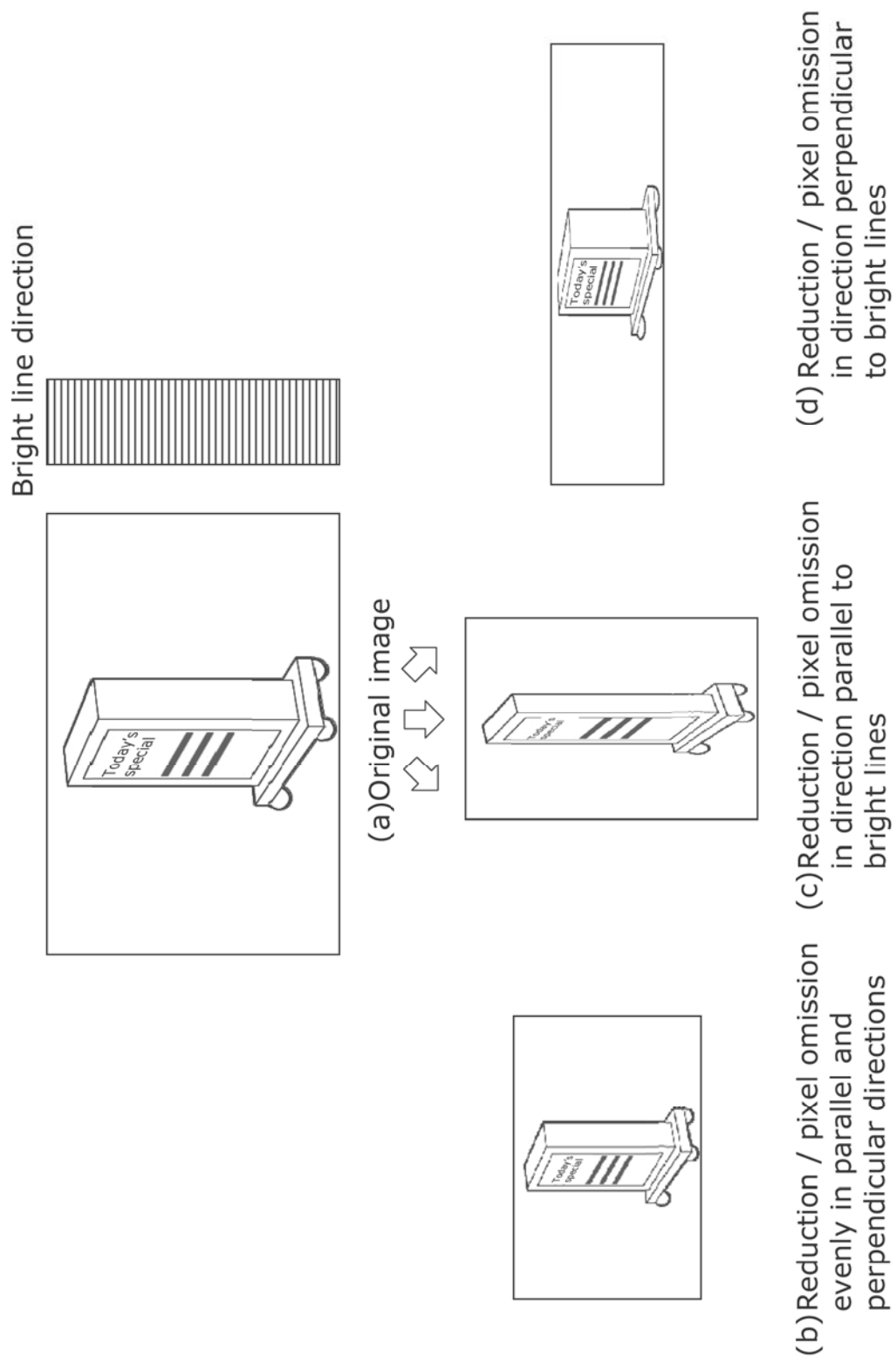


FIG. 520

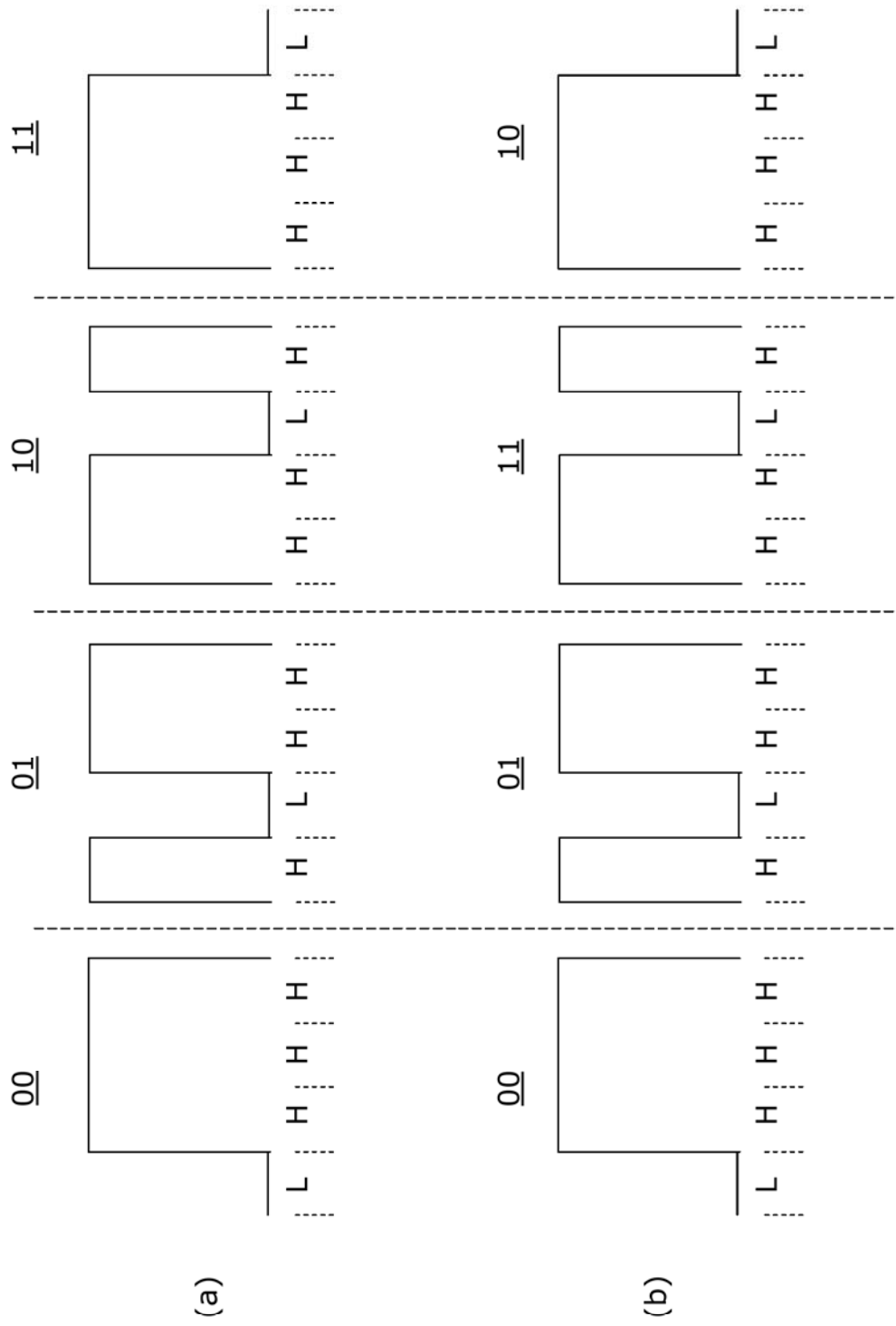


FIG. 521

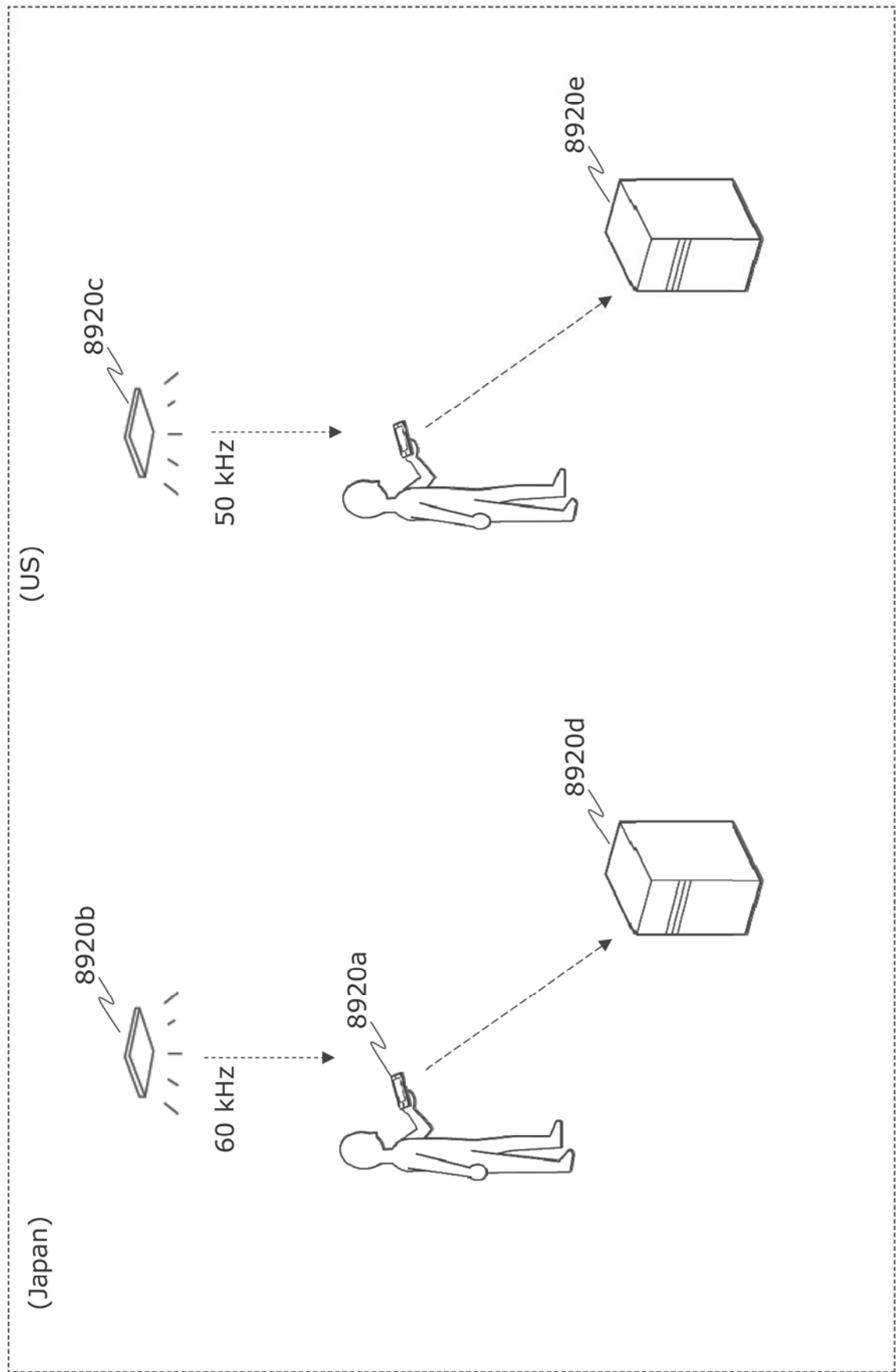


FIG. 522

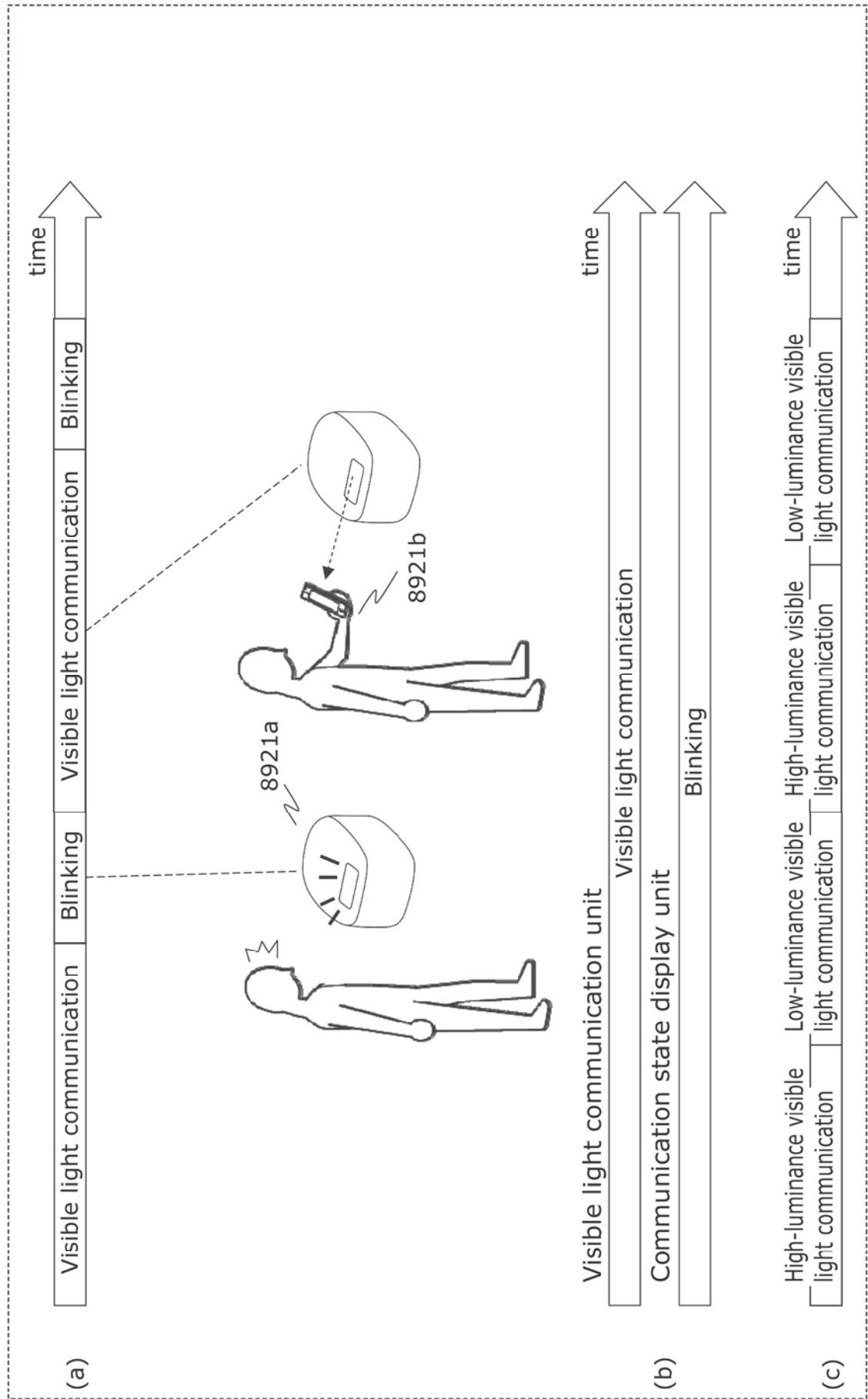




FIG. 523

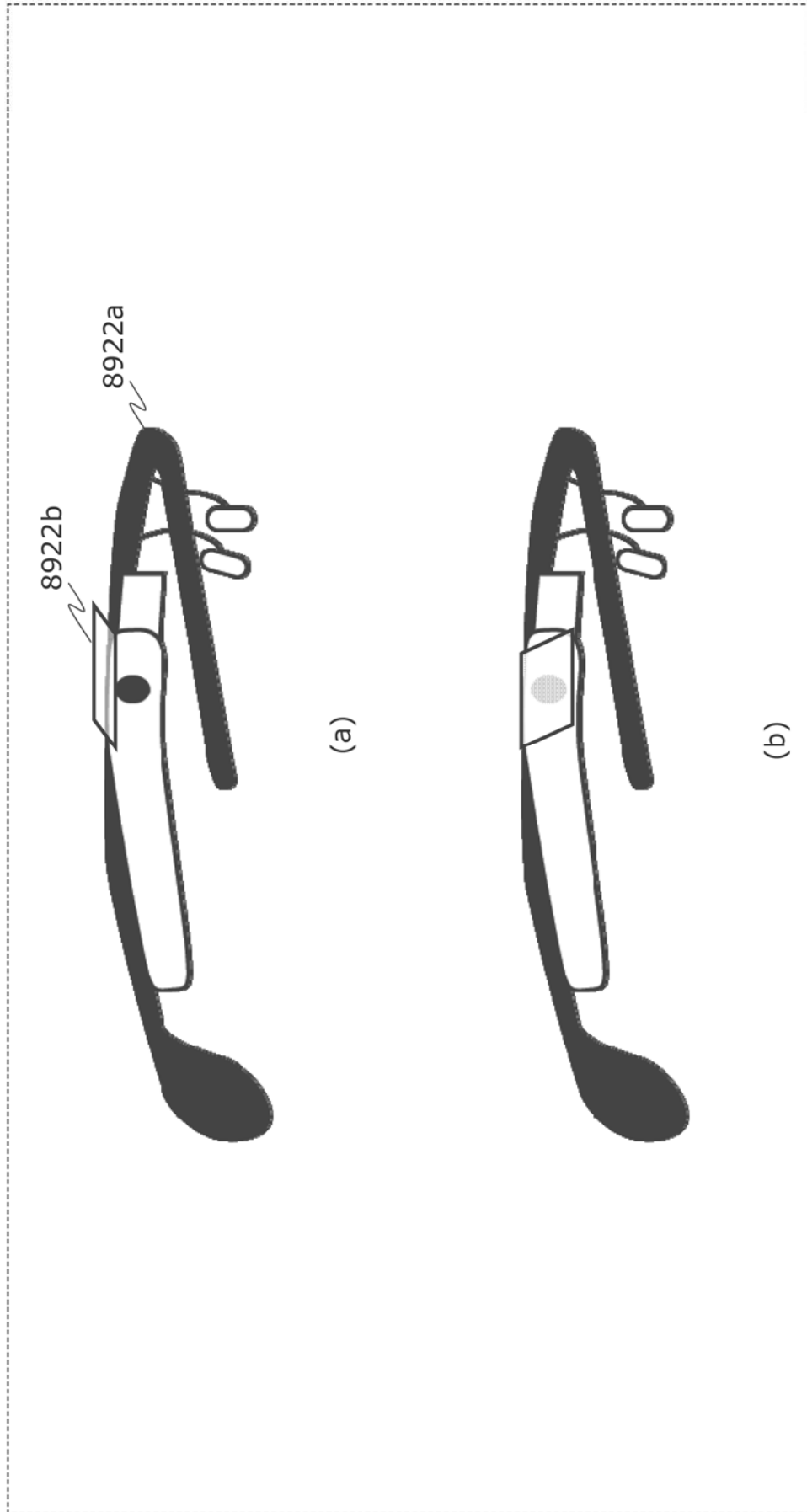


FIG. 524

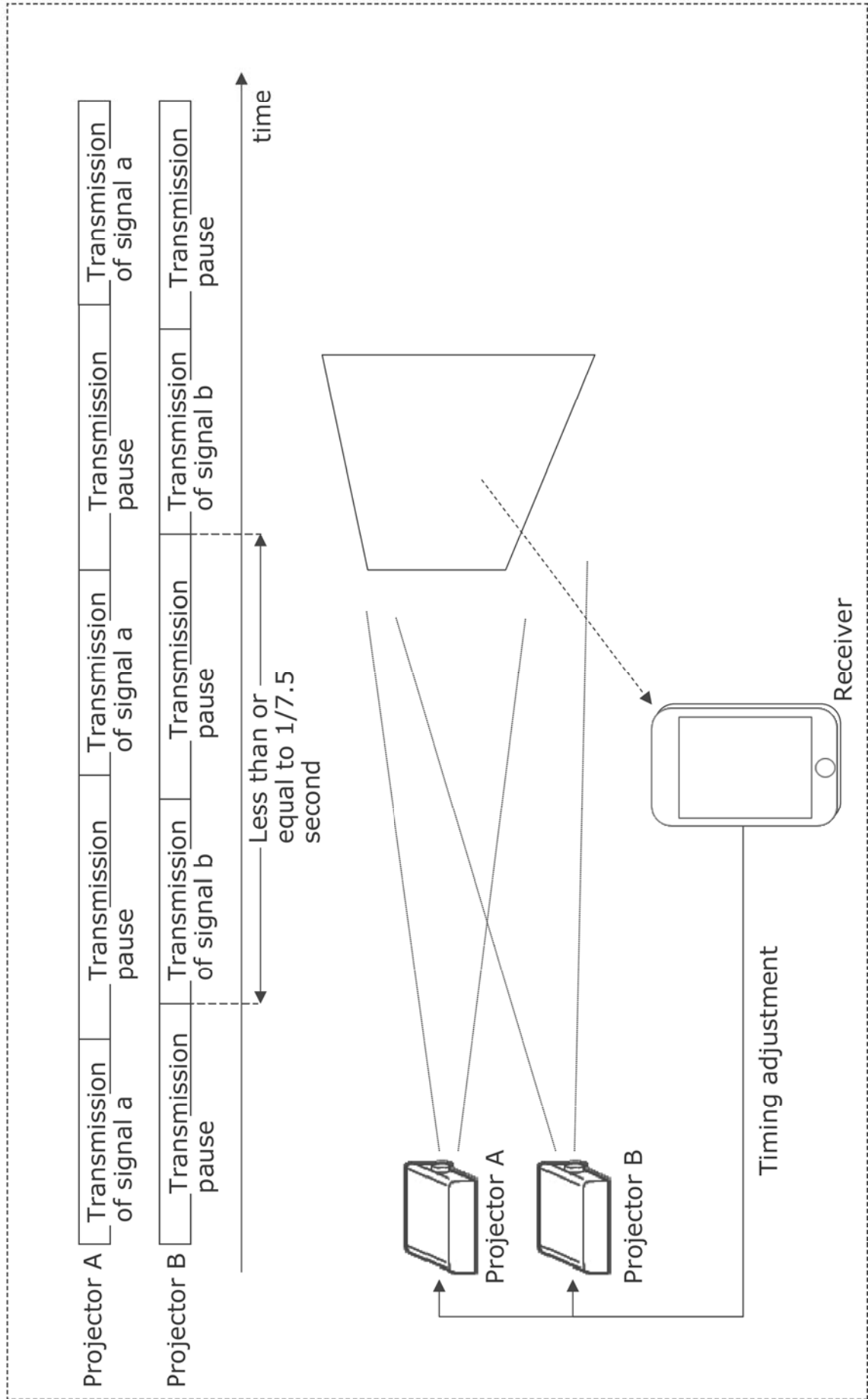


FIG. 525

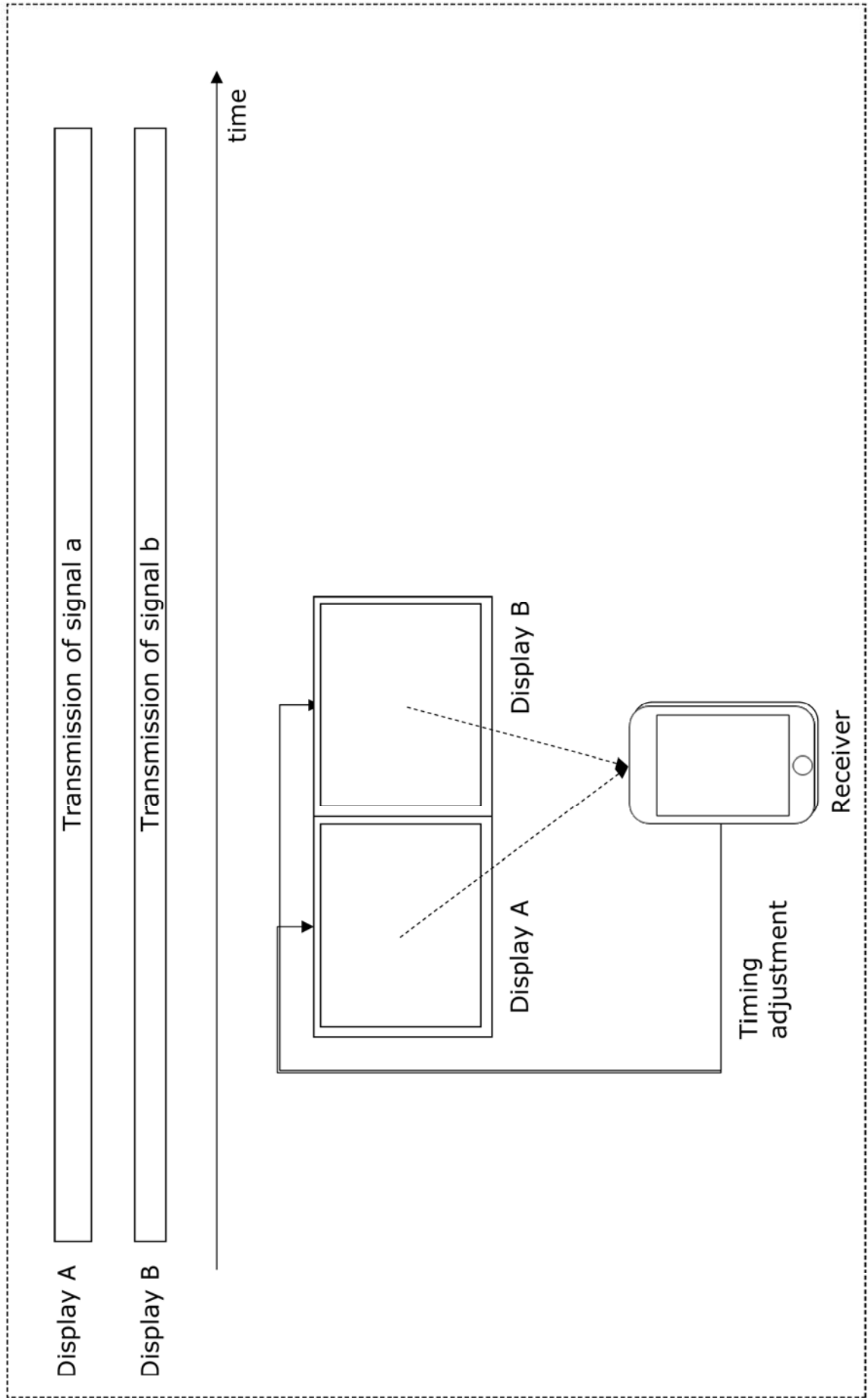


FIG. 526

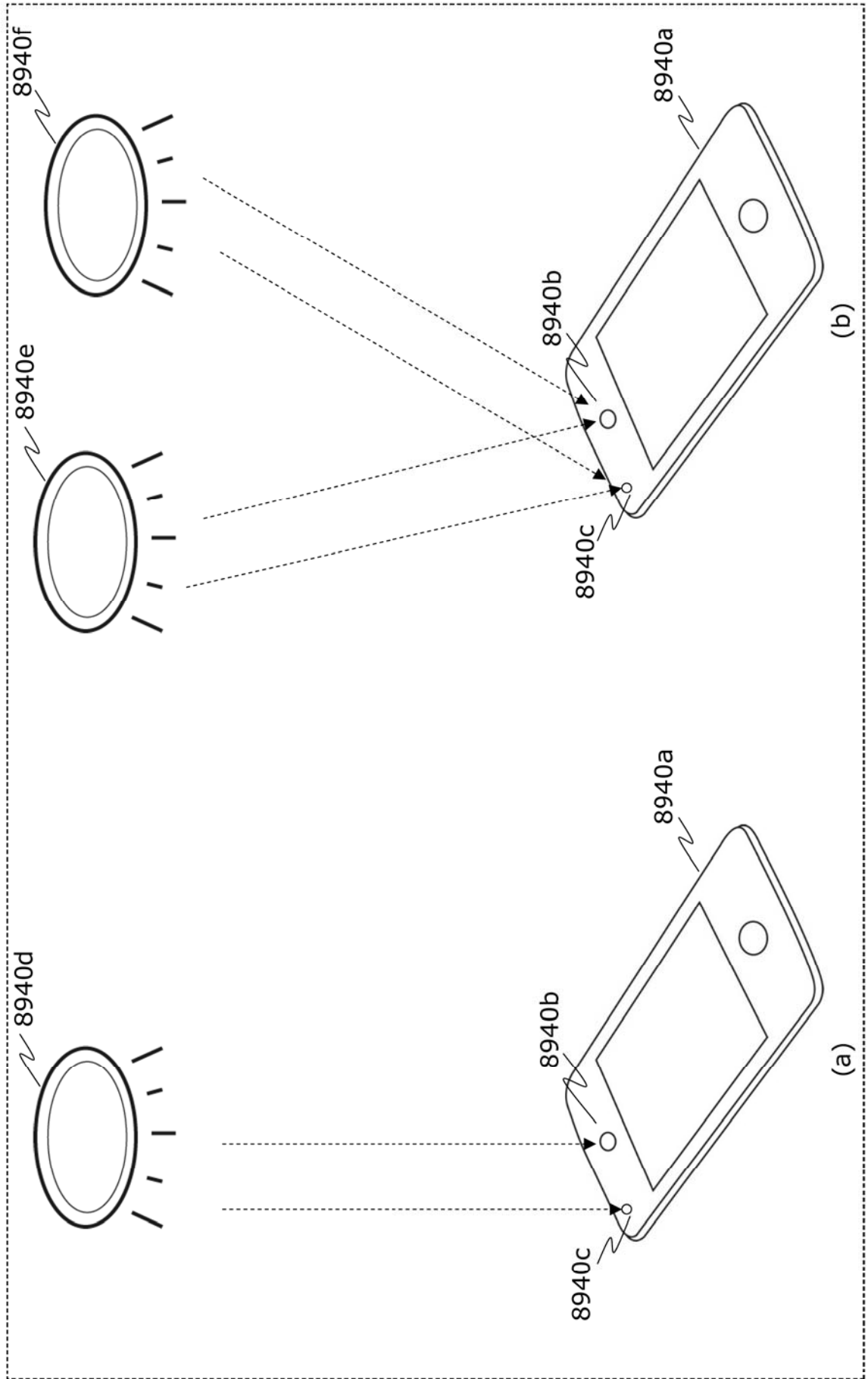


FIG. 527

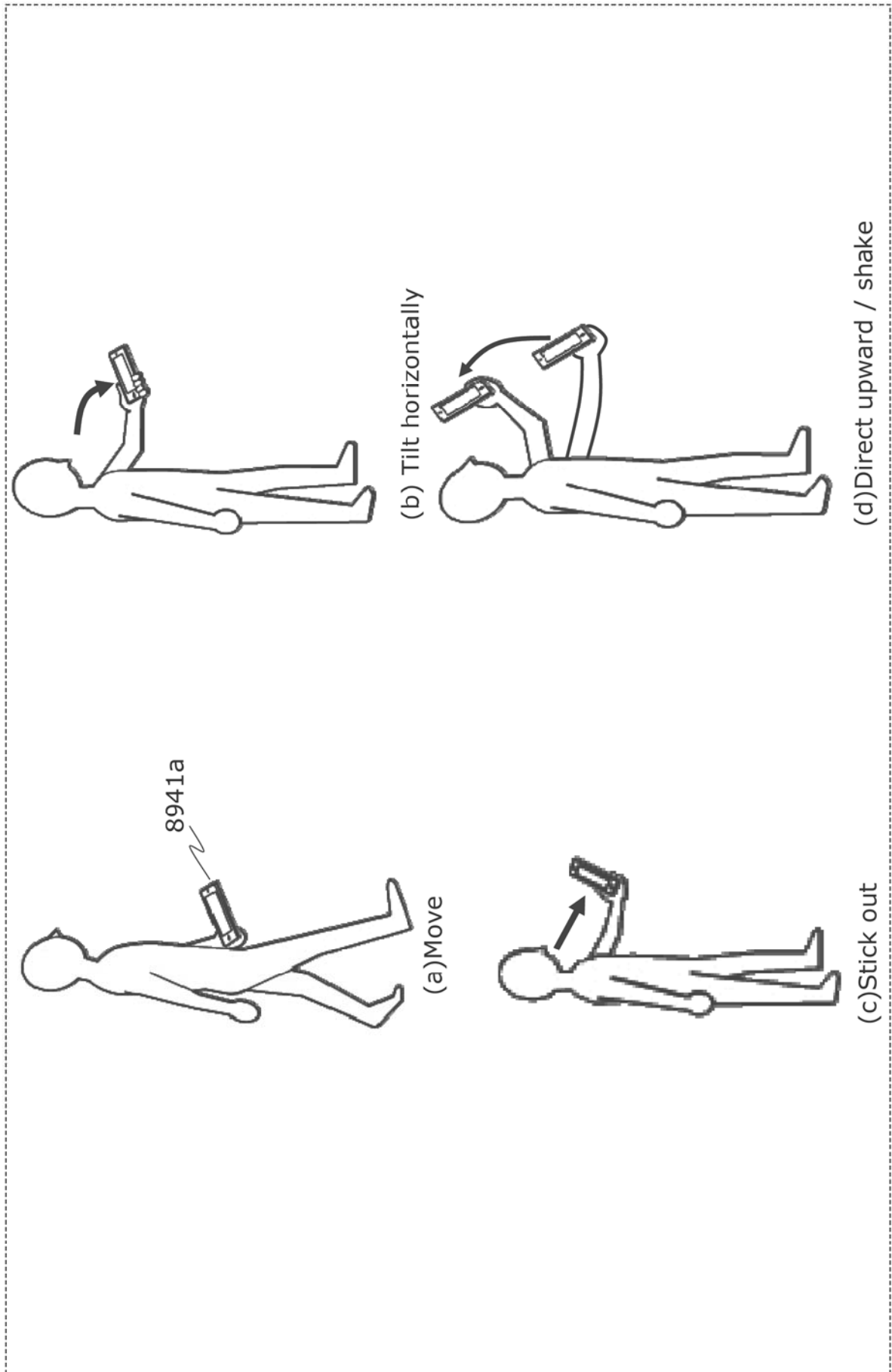


FIG. 528

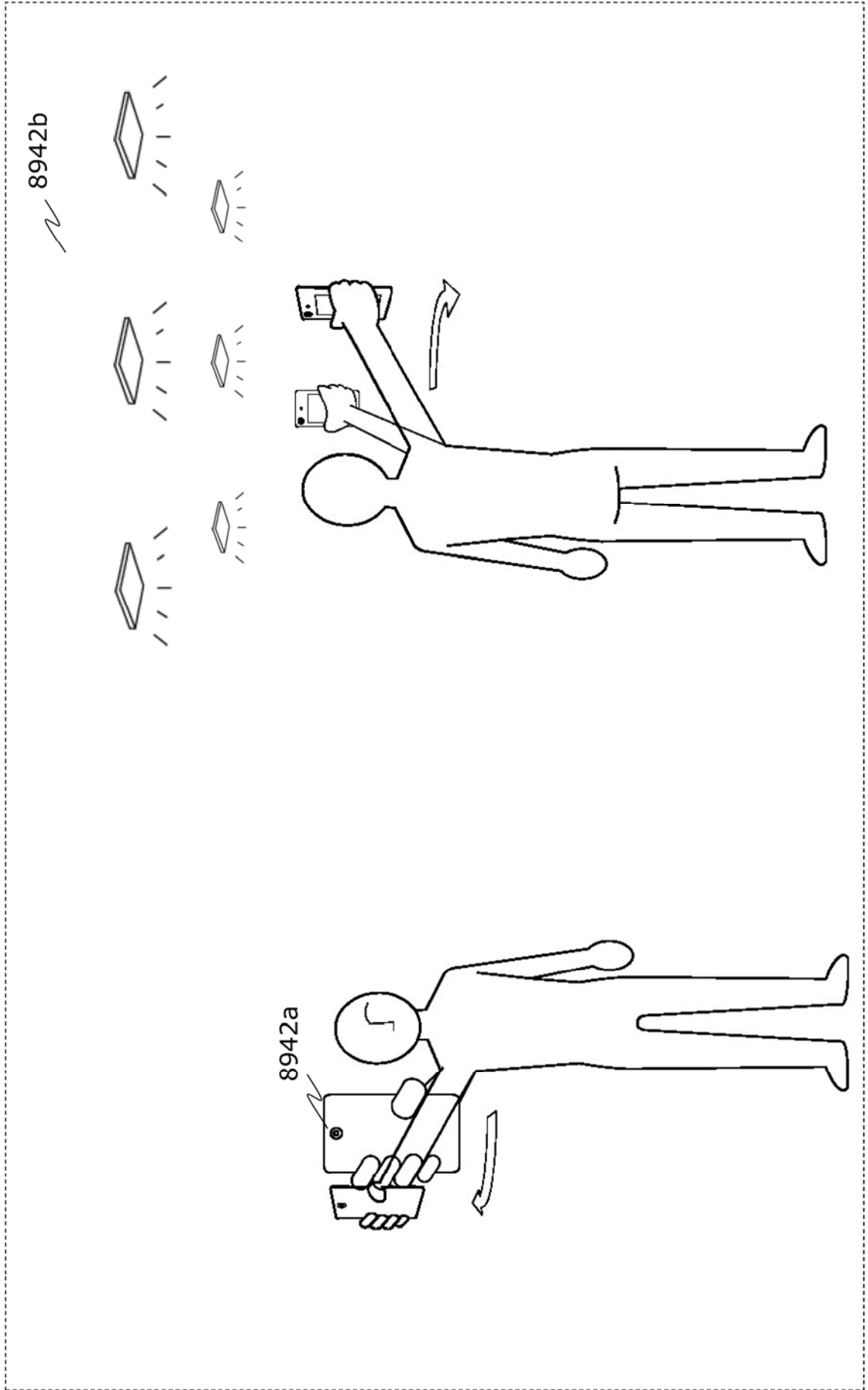


FIG. 529

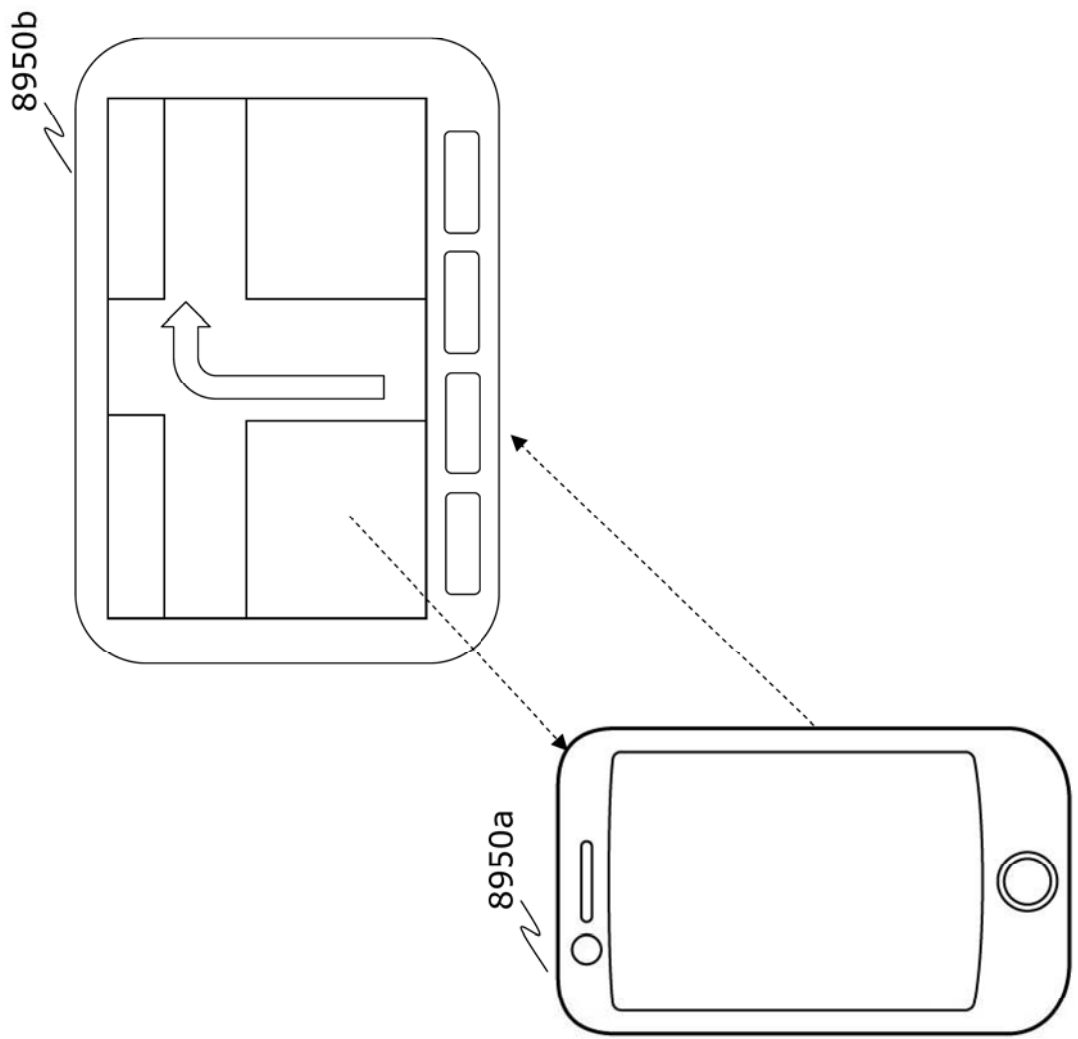


FIG. 530

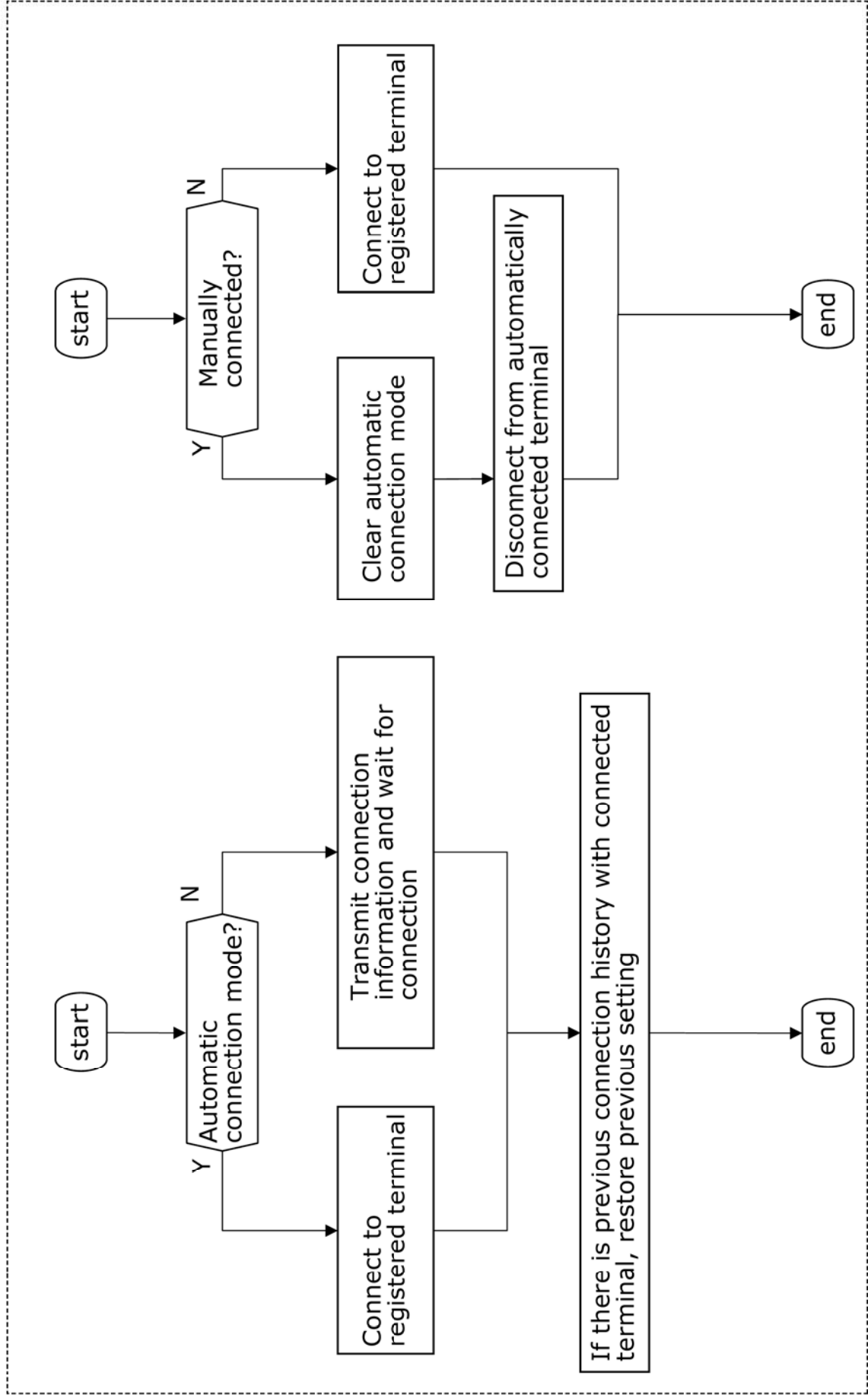
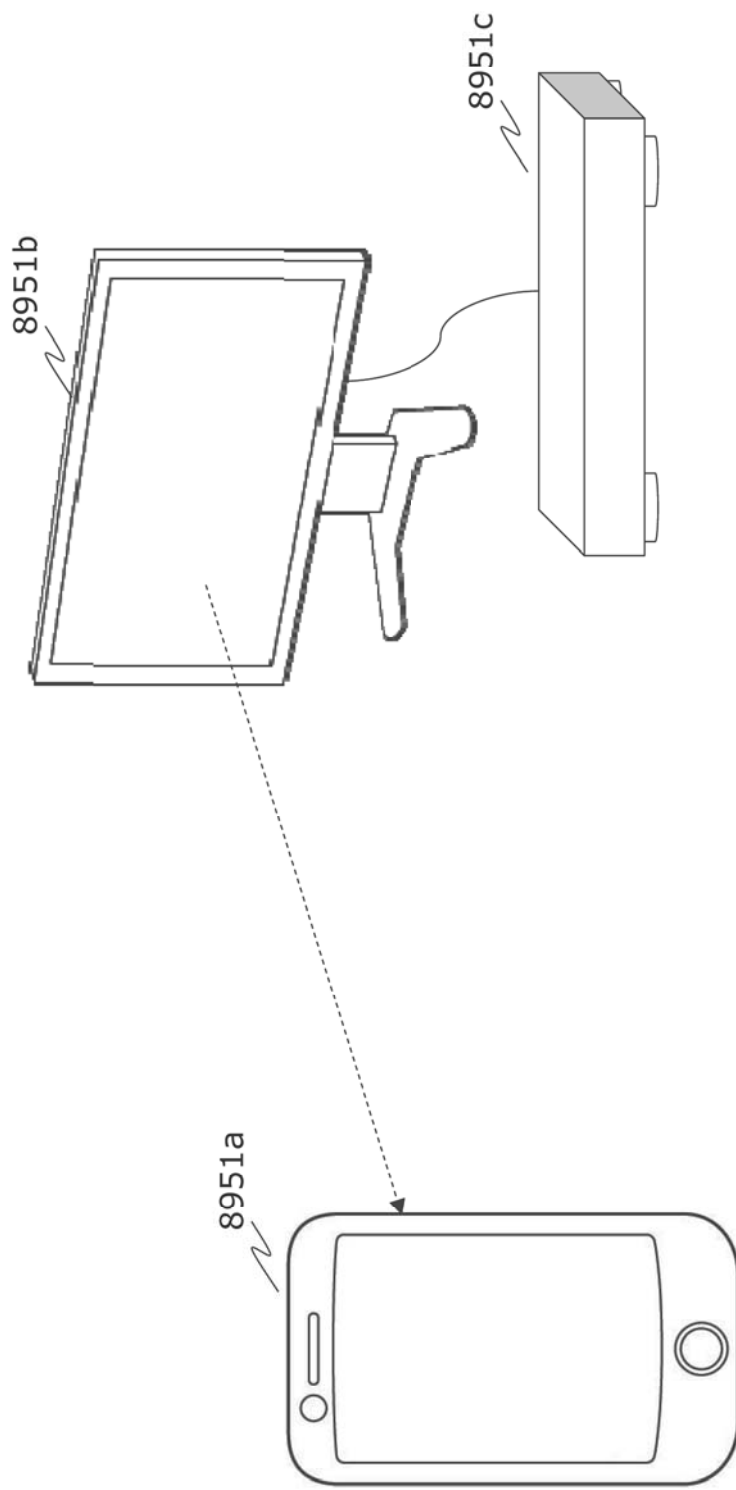




FIG. 531



CPRM can be cleared in predetermined time after light reception

FIG. 532

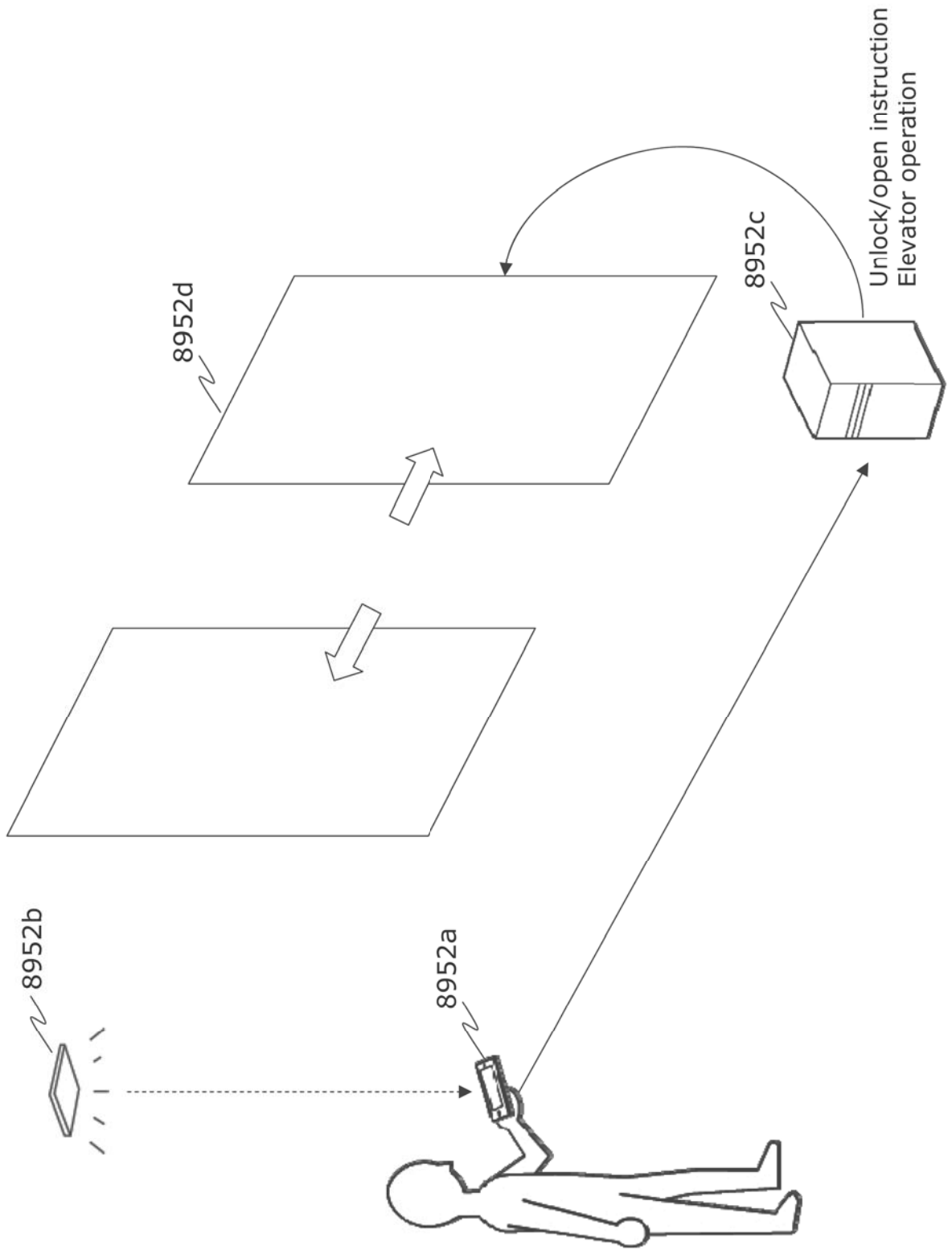


FIG. 533

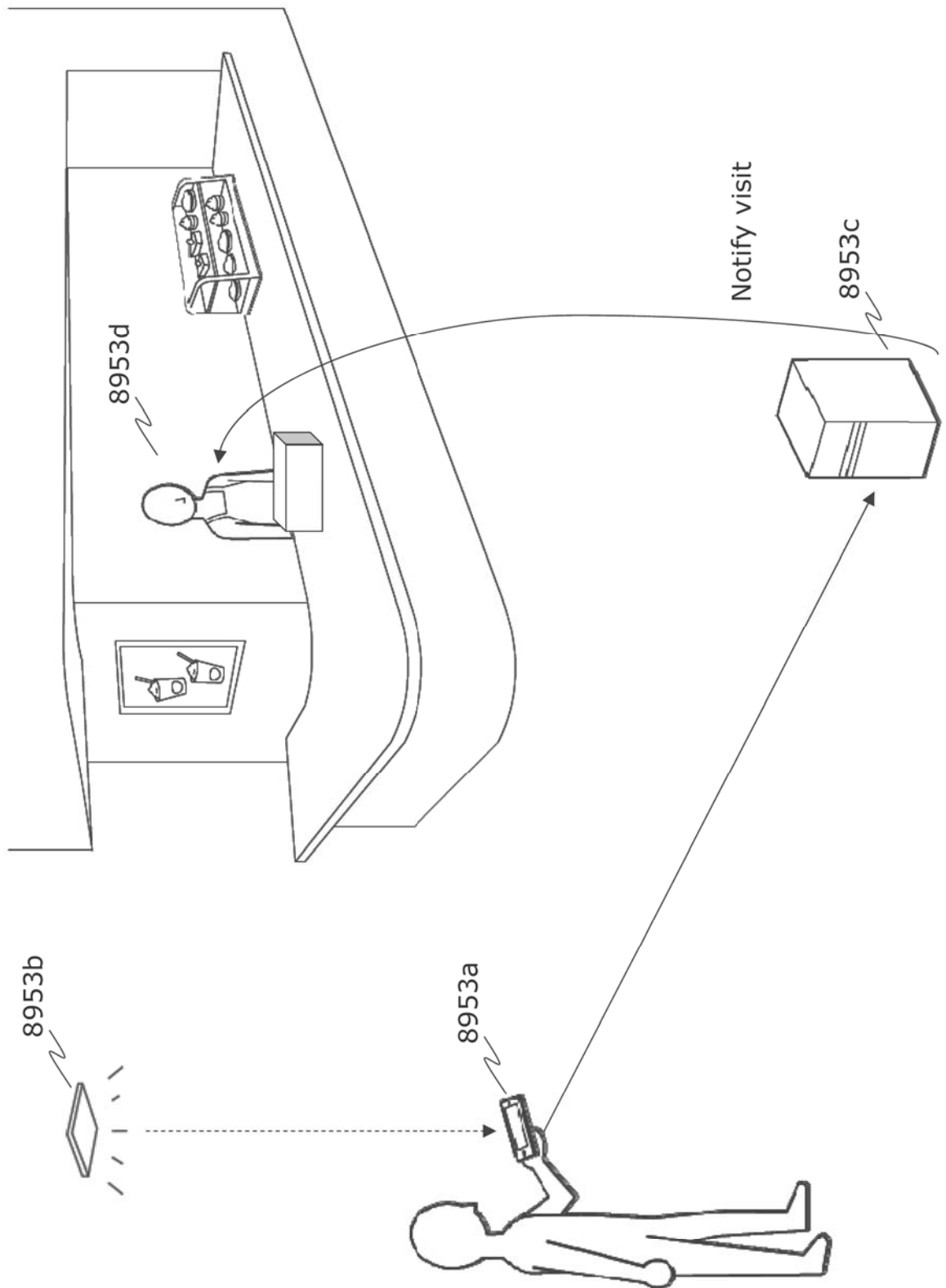


FIG. 534

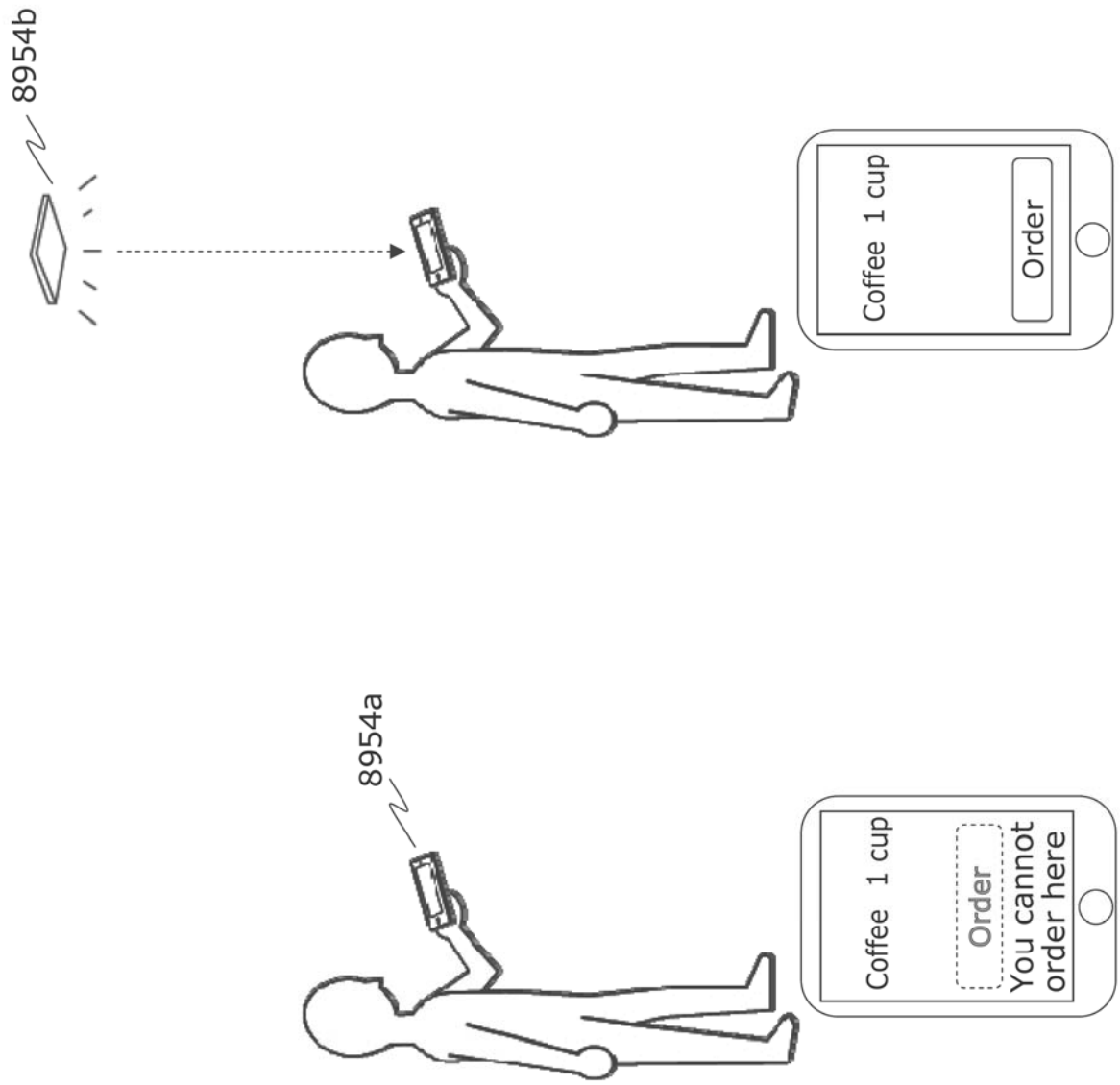


FIG. 535

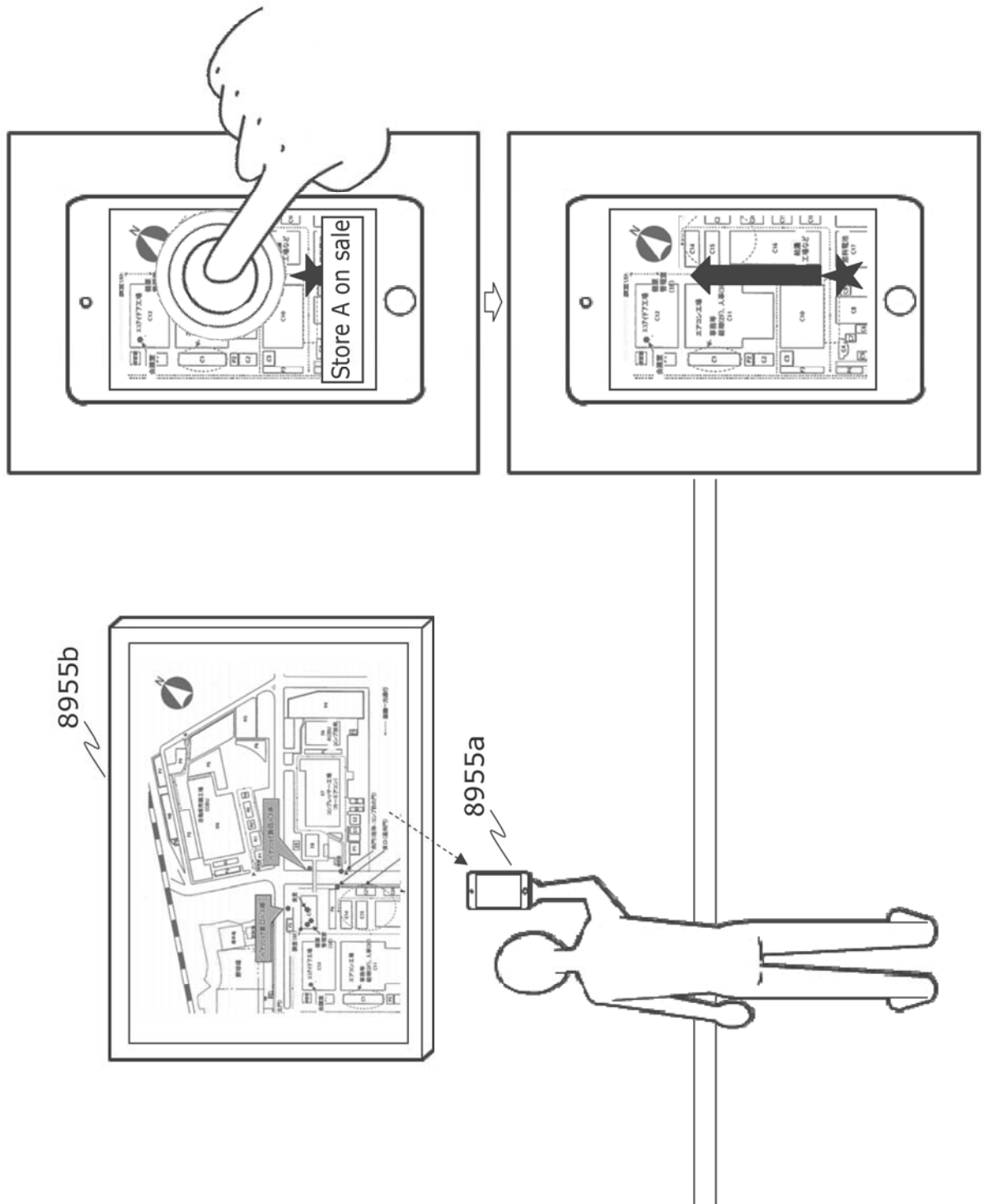


FIG. 536

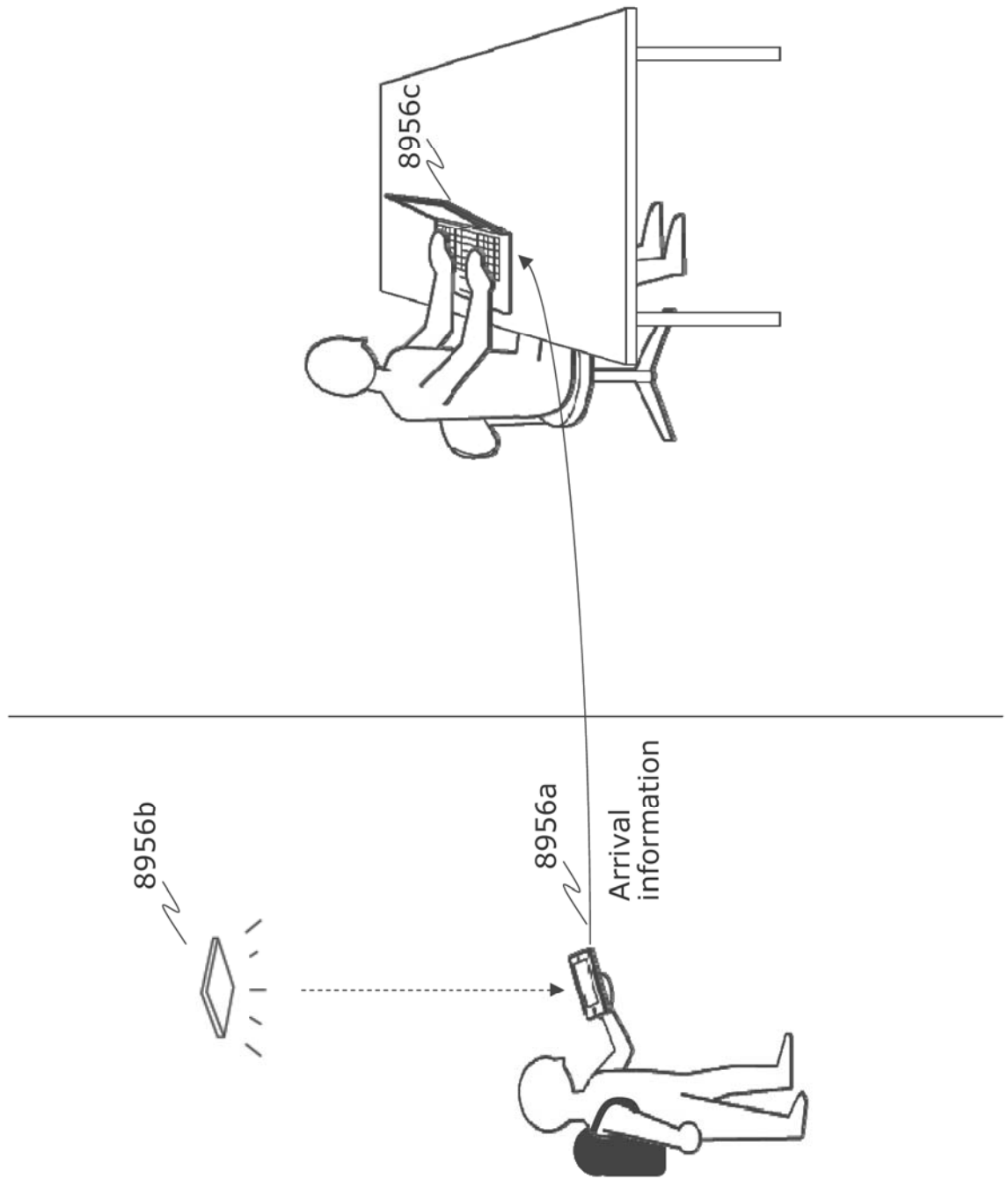


FIG. 537

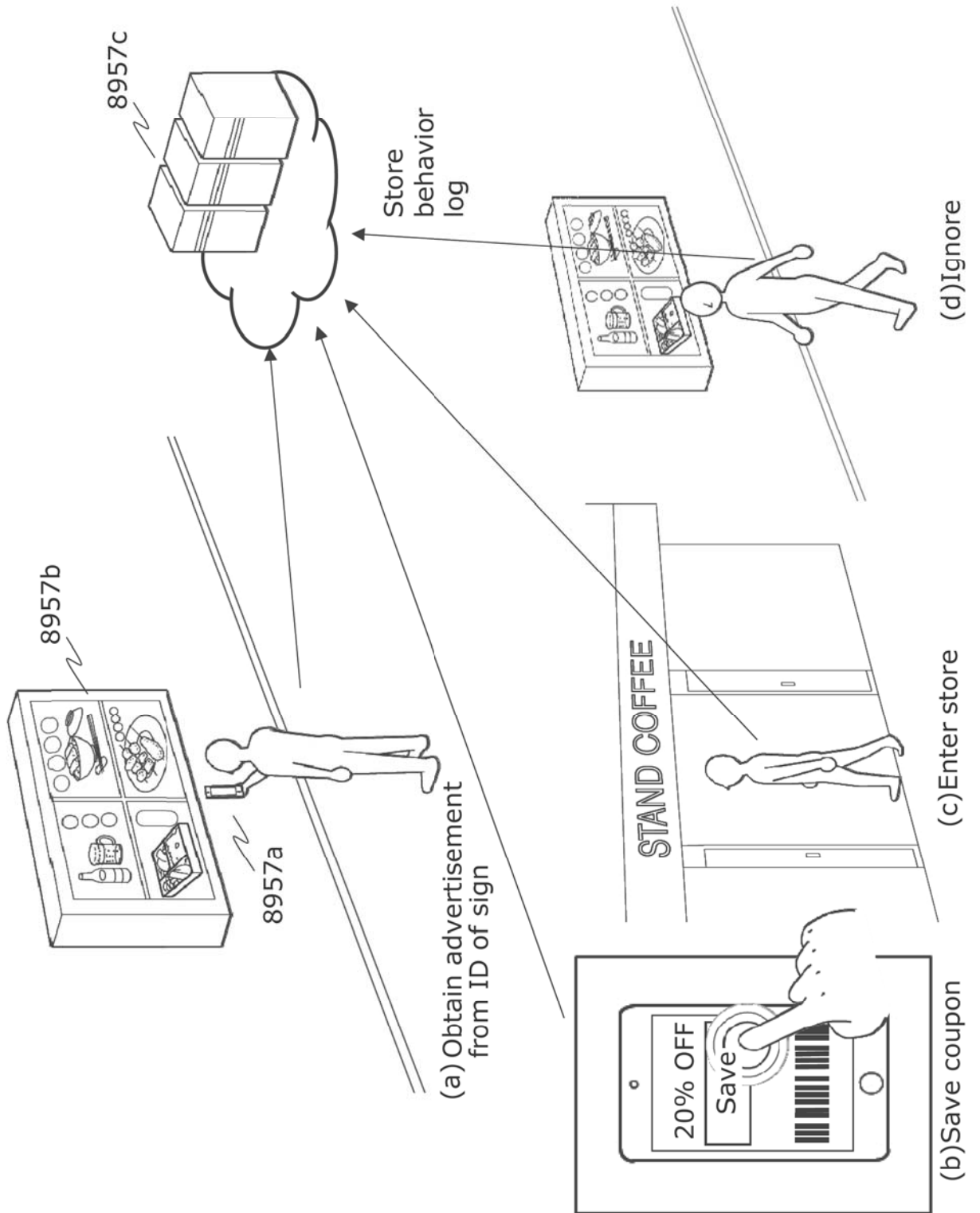


FIG. 538

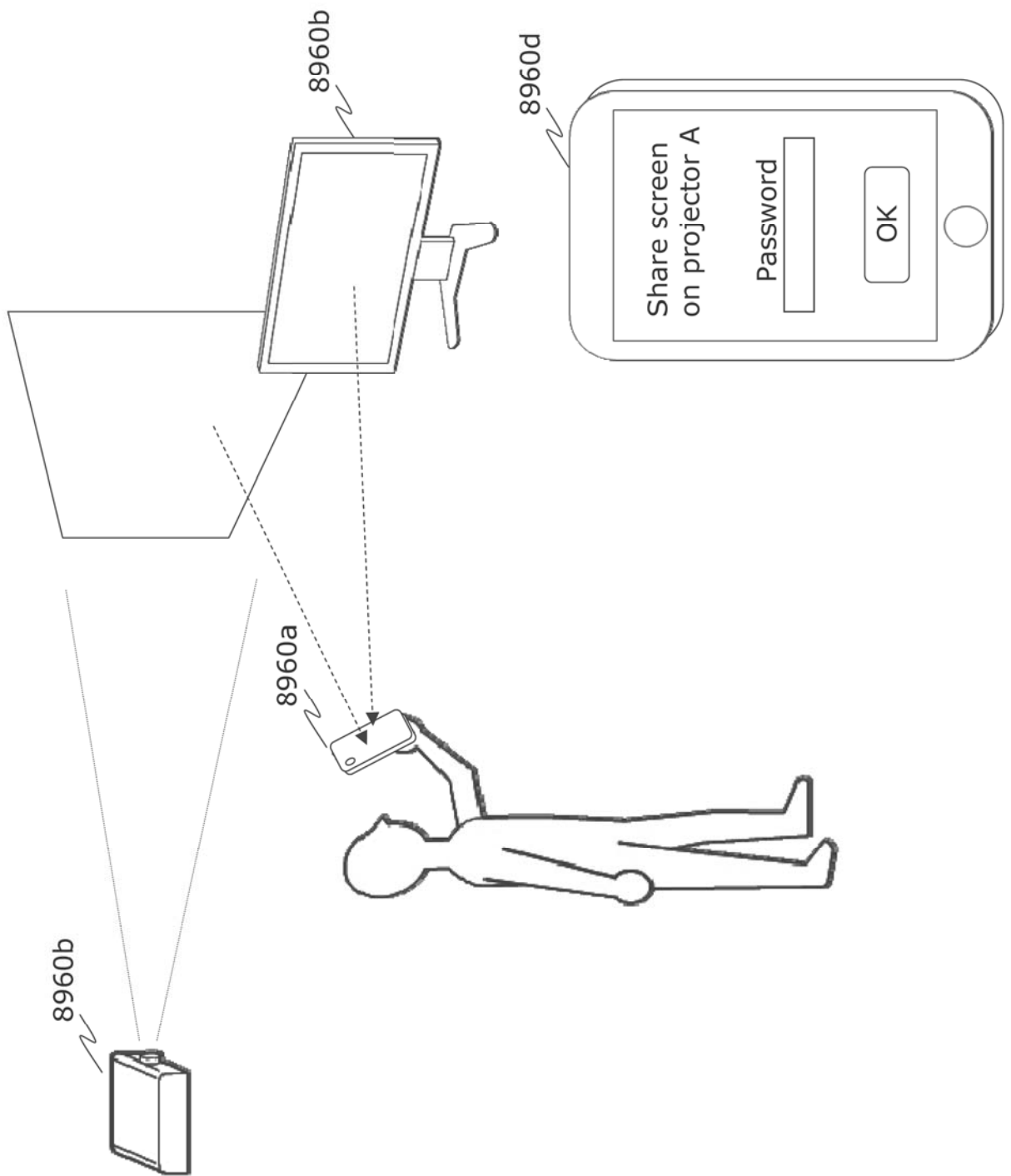




FIG. 539

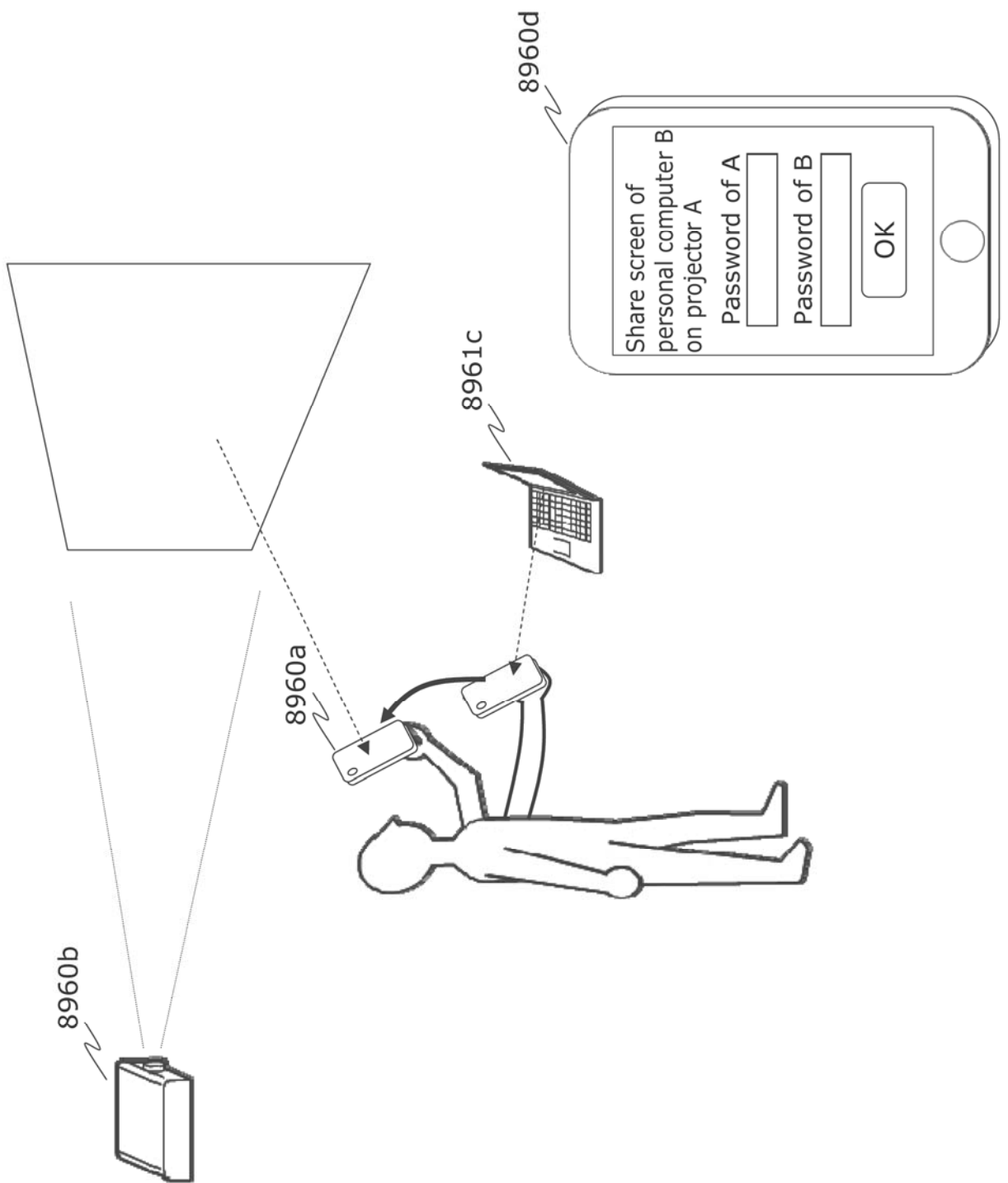


FIG. 540

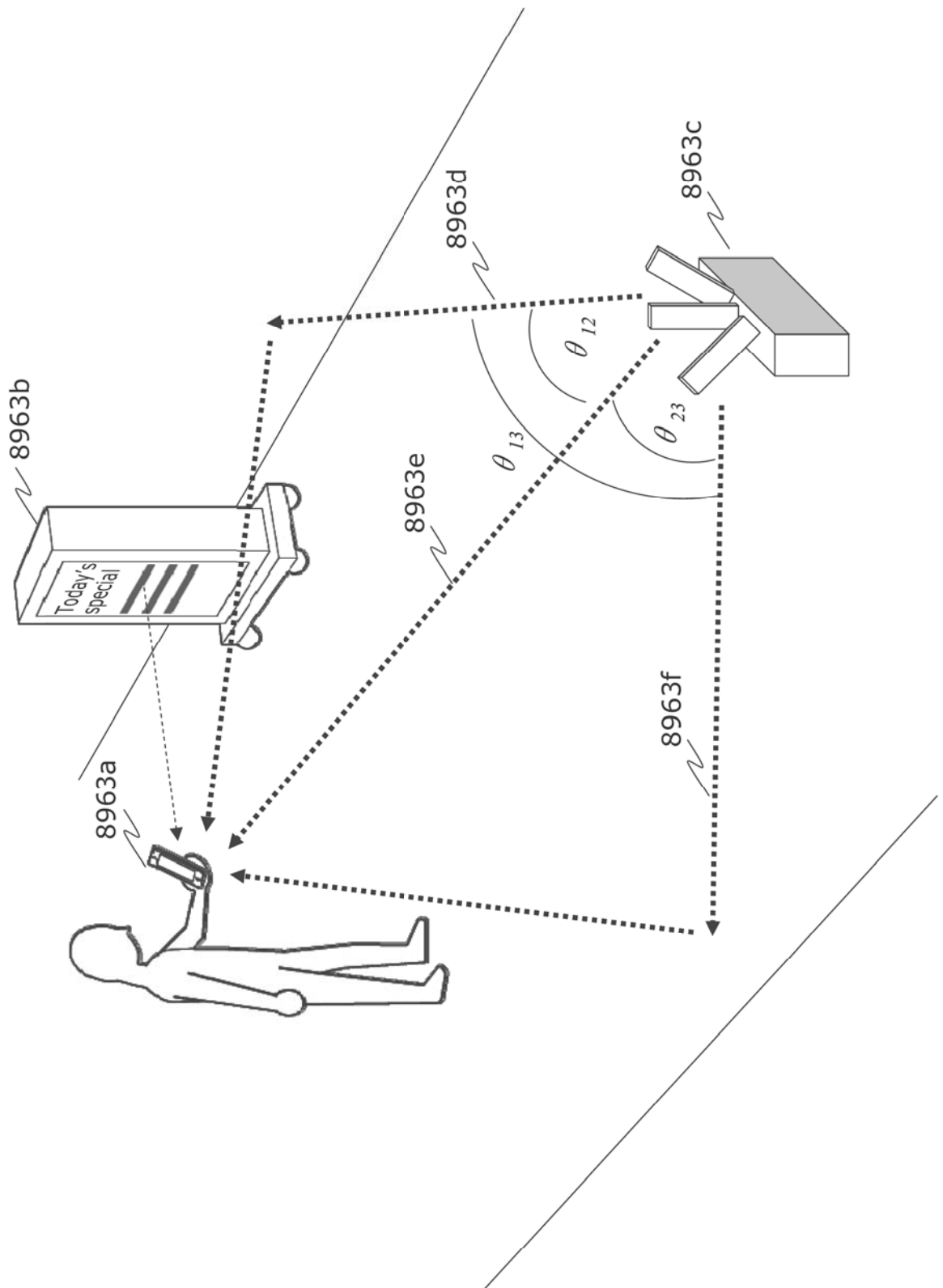


FIG. 541

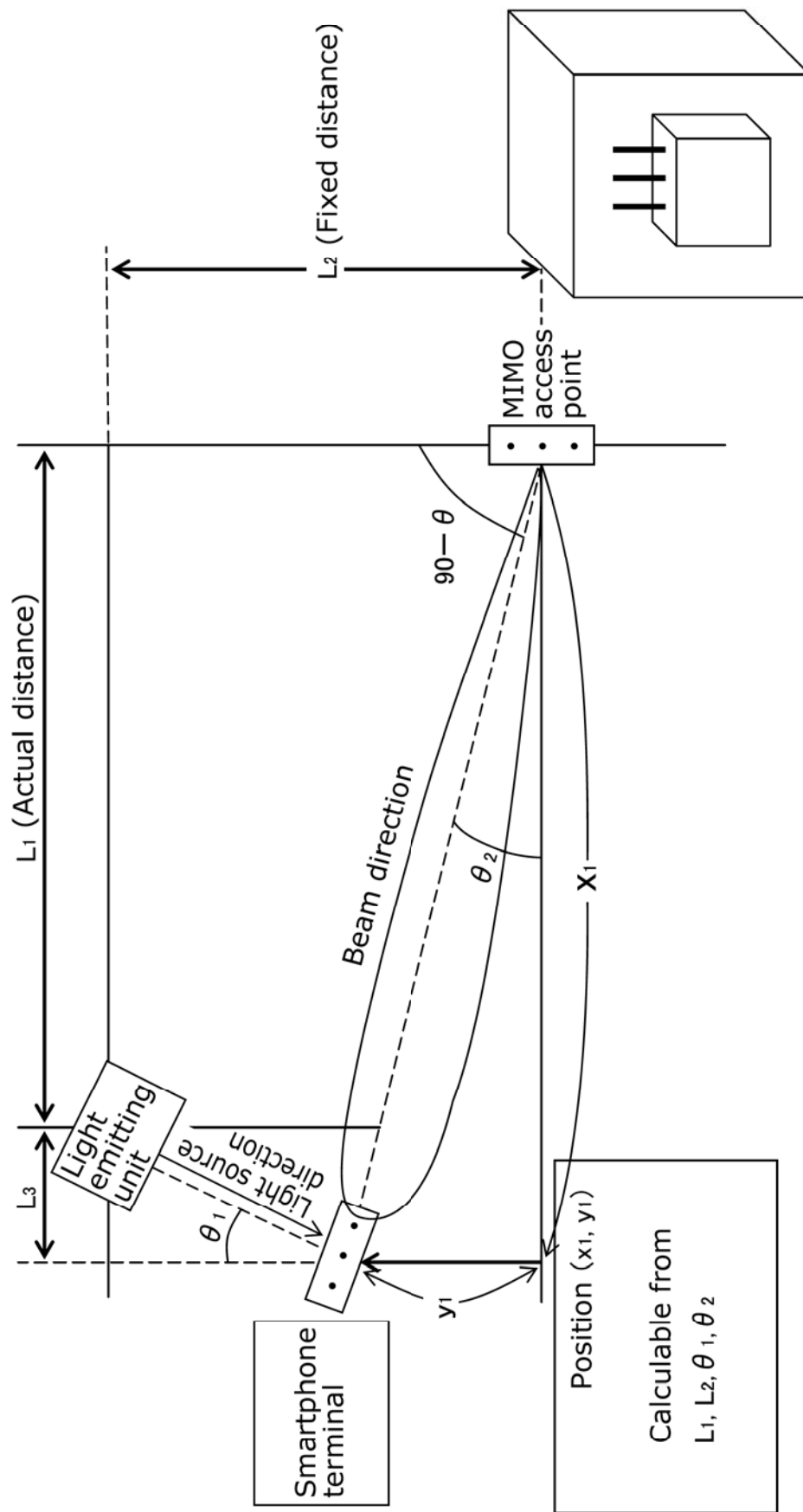


FIG. 542A

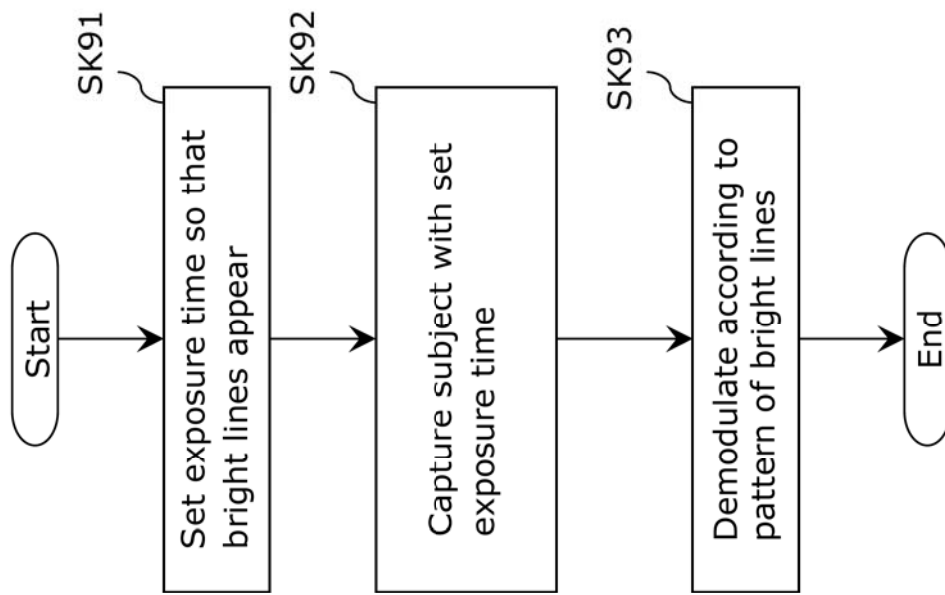


FIG. 542B

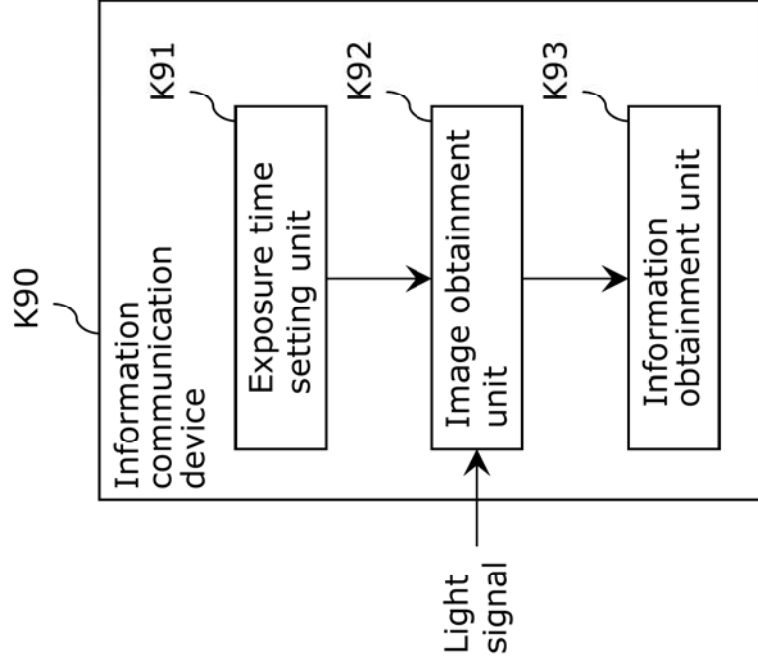


FIG. 543

