



(51) International Patent Classification:

G06F 1/16 (2006.01)

G06F 3/0482 (2013.01)

(21) International Application Number:

PCT/US2023/021285

(22) International Filing Date:

07 May 2023 (07.05.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/338,892 06 May 2022 (06.05.2022) US

63/404,535 07 September 2022 (07.09.2022) US

63/415,607 12 October 2022 (12.10.2022) US

63/382,697 07 November 2022 (07.11.2022) US

18/310,507 01 May 2023 (01.05.2023) US

(71) Applicant: **META PLATFORMS TECHNOLOGIES, LLC** [US/US]; 1 Meta Way, Menlo Park, California 94025 (US).

(72) Inventors: **DOSHI, Abhishek**; 1 Meta Way, Menlo Park, California 94025 (US). **SHEN, Mengnan**; 1 Meta Way, Menlo Park, California 94025 (US). **TROLLMAN, JR., John Henry**; 1 Meta Way, Menlo Park, California 94025

(US). **BRISTOL, Peter Wesley**; 1 Meta Way, Menlo Park, California 94025 (US). **LIANG, George**; 1 Meta Way, Menlo Park, California 94025 (US). **UCHIYAMA, Keito**; 1 Meta Way, Menlo Park, California 94025 (US). **JOSHI, Swapna**; 1 Meta Way, Menlo Park, California 94025 (US). **WANG, Yifan Geoffrey**; 1 Meta Way, Menlo Park, California 94025 (US). **VELZY, Allan**; 1 Meta Way, Menlo Park, California 94025 (US). **FAN, Michael**; 1 Meta Way, Menlo Park, California 94025 (US). **CHANG, Vicki**; 1 Meta Way, Menlo Park, California 94025 (US). **WOODLAND, David Sven**; 1 Meta Way, Menlo Park, California 94025 (US). **LOTT, William**; 1 Meta Way, Menlo Park, California 94025 (US). **BROOKS, Ian Taylor**; 1 Meta Way, Menlo Park, California 94025 (US). **DELACRUZ, John Matthew**; 1 Meta Way, Menlo Park, California 94025 (US). **GRICHNIK, James Matthew**; 1 Meta Way, Menlo Park, California 94025 (US). **RHODES, Tanner Wirig**; 1 Meta Way, Menlo Park, California 94025 (US). **VALKO, Andrew**; 1 Meta Way, Menlo Park, California 94025 (US). **PALOMINO, Jade Moana**; 1 Meta Way, Menlo Park, California 94025 (US). **BIONDOLILLO, Marc**; 1 Meta Way, Menlo Park, California 94025 (US). **EUN, Christine**; 1 Meta Way, Menlo Park, California 94025 (US). **HUANG, Willy**; 1 Meta Way, Menlo Park, California 94025 (US). **GOUDGE, Charles Liam**; 1 Meta Way, Menlo Park, Cali-

(54) Title: TECHNIQUES FOR ADJUSTING A DETACHABLE DISPLAY CAPSULE OF A WRIST-WEARABLE DEVICE TO OPERATIONALLY COMPLEMENT A WEARABLE-STRUCTURE ATTACHMENT, AND WEARABLE DEVICES AND SYSTEMS FOR PERFORMING THOSE TECHNIQUES

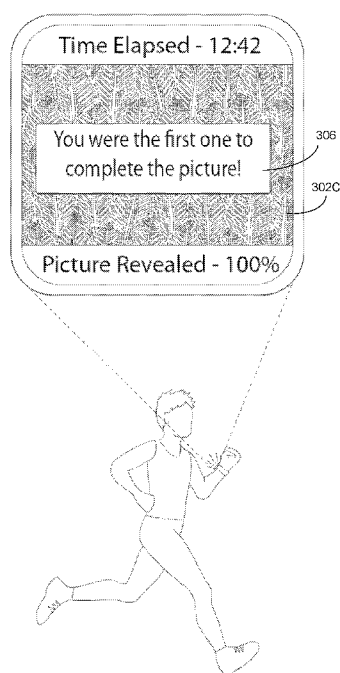


Figure 3D

(57) Abstract: An example method of adjusting a detachable display capsule of a wrist-wearable device to operationally complement a wearable-structure attachment is disclosed. The method includes, while a display capsule is configured to use a default set of display characteristics for operating-system or application-level user interfaces, receiving identifying information for a respective wearable structure, the display capsule being configured to detachably couple to one of a plurality of wearable structures to form a wrist-wearable device. In accordance with a determination that the display capsule should be adjusted based on the identifying information, the method further includes adjusting the display capsule (i) to cease using the first set of display characteristics and (ii) to instead use a customized set of display characteristics associated with the respective wearable structure. The customized set is distinct from the default set and is also used in conjunction with the operating-system or application-level user interfaces.



for 94025 (US). **RAMIREZ, Nicolas**; 1 Meta Way, Menlo Park, California 94025 (US). **TAN, Yuxiao**; 1 Meta Way, Menlo Park, California 94025 (US).

(74) **Agent: COLBY, Steven** et al.; Rimon Law, 420 West Main Street, Suite 101B, Boise, Idaho 83702 (US).

(81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

TECHNIQUES FOR ADJUSTING A DETACHABLE DISPLAY CAPSULE OF A WRIST-WEARABLE DEVICE TO OPERATIONALLY COMPLEMENT A WEARABLE-STRUCTURE ATTACHMENT, AND WEARABLE DEVICES AND SYSTEMS FOR PERFORMING THOSE TECHNIQUES RELATED APPLICATIONS

[0001] This application claims priority to U.S. Prov. App. No. 63/382,697, filed on November 7, 2022, and entitled “Controlling A Plurality Of Available Electronic Devices Based On In-Air Hand Gestures Detected Via A Wrist-Wearable Device, Using In-Air Hand Gestures To Modify Graphical Images Before Sending The Graphical Images Via A Messaging Application”; U.S. Prov. App. No. 63/415,607, filed on October 12, 2022, and entitled “Adjusting a Detachable Display Capsule to Operationally Complement a Wearable-Structure Attachment, Revealing a Hidden User-Interface Feature During a Self-Care Activity, and Adjusting a Background Image Based on Receipt of an Electronic Notification”; U.S. Prov. App. No. 63/404,535, filed on September 7, 2022, and entitled “Adjusting A Detachable Display Capsule To Operationally Complement A Wearable-Structure Attachment, Revealing A Hidden User-Interface Feature During A Self-Care Activity, And Adjusting A Background Image Based On Receipt Of An Electronic Notification”; and U.S. Prov. App. No. 63/338,892, filed on May 6, 2022, and entitled “Adjusting A Detachable Display Capsule To Operationally Complement A Wearable-Structure Attachment, Revealing A Hidden User-Interface Feature In Accordance With A User’s Performance Of A Self-Care Activity, And Systems And Methods Of Use Thereof,” each of which is incorporated herein by reference.

TECHNICAL FIELD

[0002] The present disclosure relates generally to wearable devices and methods for customizing experiences on wearable devices by presenting user-interface experiences (e.g., rendered on a display capsule of a wearable device which complement a characteristic of a wearable-structure attachment), including but not limited to techniques for adjusting a detachable display capsule of a wrist-wearable device to operationally complement a wearable-structure attachment (e.g., if a band portion of the wrist-wearable device has a certain theme, then user-experience features at the display capsule of the wrist-wearable device can be customized to complement the theme of the band portion of the wrist-wearable device).

BACKGROUND

[0003] Some wearable devices include detachable components (e.g., a detachable

band of a smartwatch). When detachable components are swapped out for other detachable components, display features and characteristics on the wearable devices remain unchanged. To get a new smartwatch experience, users typically must purchase an entirely new device and learn a whole new ecosystem of user options, user interfaces, and the like. And the users cannot easily utilize different interactive experiences using a single device.

[0004] Wearable devices can attempt to motivate users to participate in exercise activities in various ways (e.g., by providing textual or graphic reminders). But these current motivational techniques have become overused and are less interesting (and too familiar) and thus less motivating for many users. Explorations around new ways to motivate users to participate in exercise activities and to participate in self-care activities more generally are needed.

[0005] As such, there is a need for addressing one or more of the drawbacks discussed above by leveraging opportunities to provide customized experiences for different detachable components, thereby improving the mechanical coupling of the detachable components, and by developing new ways to motivate users to complete self-care activities, and these needs are particularly strong for wrist-wearable devices.

SUMMARY

[0006] Methods and devices (e.g., wearable devices) for addressing one or more of the drawbacks discussed above are provided herein. Several example methods will now be briefly summarized. A skilled artisan will appreciate that the example methods described herein are not exhaustive illustrations of the possible use cases for the devices and systems described herein, and aspects of each respective example can be combined with aspects of other respective examples, in accordance with some embodiments.

[0007] A first example method involves adjusting a detachable display capsule of a wrist-wearable device (e.g., a smartwatch) to operationally complement a wearable structure. In some embodiments, the wearable structure includes a band portion to allow for wearing the wrist-wearable device and/or a cradle portion to which the display portion can be securely attached. With this first example method, the wrist-wearable devices discussed herein can provide customized display experiences in the user interfaces that are coordinated with and complement an aesthetic theme of a wearable structure, such that a user can quickly and easily attach the display capsule with different bands to then activate a customized experience for each band. In some embodiments, aspects of the customized experiences can include color schemes of the displayed user interfaces, haptic feedback provided when notifications are received, how electronic messages are delivered, and other examples).

1 **[0008]** The first example method can include, while a display capsule is configured to
2 use a default set of display characteristics in conjunction with operating-system or
3 application-level user interfaces available via the display capsule, receiving, at the display
4 capsule, identifying information for a respective wearable structure of a plurality of wearable
5 structures. The display capsule can be configured to detachably couple to one of the plurality
6 of wearable structures to form a wrist-wearable device (e.g., as shown between Figures 1A-
7 1D and 2A-2D, the display capsule can be coupled with different wearable structures). In
8 accordance with a determination that the display capsule should be adjusted based on the
9 identifying information for the respective wearable structure, the method further includes,
10 adjusting the display capsule (i) to cease using the first set of display characteristics in
11 conjunction with the operating-system or application-level user interfaces, and (ii) to instead
12 use a customized set of display characteristics associated with the respective wearable
13 structure (e.g., in Figure 1B, after the display capsule has been coupled with the wearable
14 structure that has a particular aesthetic theme, visual characteristics of the display capsule are
15 adjusted to complement the particular aesthetic theme of the wearable structure). The
16 customized set of display characteristics is distinct from the default set of display
17 characteristics and is also used in conjunction with the operating-system or application-level
18 user interfaces (e.g., as shown in Figure 1A, when the default set is utilized, a watch-face user
19 interface has a different visual appearance as compared to when the customized set of visual
20 characteristics is utilized).

21 **[0009]** Turning next to the second example method, this one involves gradually
22 revealing a hidden user-interface feature (e.g., a background portion of a user interface, such
23 as a background of a watch-face user interface) in accordance with performance of a self-care
24 activity (e.g., a physical, meditative, or breathing exercise, or activity involving attendance at
25 health-related appointments). This helps to motivate users to perform, and complete
26 performance of, self-care activities to ensure they are able to reveal all of the hidden user-
27 interface feature.

28 **[0010]** The second example method can include, while a user of an electronic device
29 has performed less than a first threshold amount of a self-care activity, displaying, on a
30 display of the electronic device or another electronic device that is in communication with the
31 electronic device, a user interface without displaying a hidden user-interface feature that is
32 associated with the user interface (e.g., in Figure 3A, a workout user interface is shown and a
33 hidden user-interface feature in the form of a picture is not currently displayed). In
34 accordance with a determination that the user of the electronic device has performed more

1 than the first threshold amount of the self-care activity (e.g., the first threshold can
2 correspond to 30% completion of the self-care activity), the method also includes, revealing,
3 on the display, a first portion of the hidden user-interface feature within the user interface
4 (e.g., in Figure 3B, since the user has performed more than the first threshold amount of the
5 self-care activity, a first portion of the hidden user-interface feature is then displayed). In
6 accordance with a determination that the user of the electronic device has performed more
7 than a second threshold amount of the self-care activity, the second threshold amount being
8 an amount that is greater than the first threshold amount, the method additional includes,
9 continuing to display, on the display, the first portion of the hidden user-interface feature
10 within the user interface, and revealing, on the display, a second portion of the hidden user-
11 interface feature within the user interface.

12 **[0011]** Turning next to third example device, this one involves the mechanical aspects
13 of the detachable display capsule and a holding structure, which can be a part of a mechanical
14 structure that includes a wearable band portion (e.g., a wrist-wearable band), configured to
15 receive the display capsule. With this third example device, users are provided with an
16 efficient and intuitive experience for coupling a display capsule with one or more of a
17 plurality of potential holding structures. The display capsule and/or the holding structure can
18 include magnetic components for activating operations at the display capsule that correspond
19 to peripheral elements of the holding structure (e.g., depressible and/or rotatable elements
20 (e.g., dials or buttons)), such that the peripheral elements are properly positioned to interact
21 with the magnetic components of the display capsule.

22 **[0012]** The third example device can include a display capsule (e.g., the display
23 capsule shown in Figures 9A-9B) that includes (i) a touch-sensitive display and (ii) a housing
24 integrally formed with the touch sensitive display. The housing can define a first outer
25 perimeter that extends beyond a second outer perimeter of the touch sensitive display, such
26 that (i) a display-coupling edge is defined by a portion of the display capsule that extends
27 above the first outer perimeter of the housing and (ii) a housing-coupling edge is defined by
28 the portion of the housing between the first outer perimeter of the housing and the second
29 outer perimeter of the touch-sensitive display, the housing-coupling edge being generally
30 orthogonal to the display coupling edge. The display-coupling edge and the housing-
31 coupling edge are configured to be surrounded by a holding structure, wherein the holding
32 structure is configured to fixedly hold the display capsule in place. The holding structure can
33 be a component of a band of a wrist-wearable device, such as holding structure 1004 in
34 Figure 10B.

1 **[0013]** Turning next to a fourth example method, this one involves adjusting a
2 background image on a lock-screen user interface to identify an electronic notification.

3 **[0014]** The fourth example method can include displaying, on a lock-screen user
4 interface of an electronic device, a background image that has a default value for a visual
5 characteristic. The method further includes, in response to receiving an electronic
6 notification, updating the lock-screen user interface to include an indication that the
7 electronic notification was received. And the method includes modifying the presentation of
8 a background image displayed on the lock-screen user interface such that a notification-alert
9 value for the visual characteristic is utilized instead of the default value for the visual
10 characteristic, where the notification-alert value for the visual characteristic causes the
11 background image to visually direct a user of the electronic device to the indication that the
12 electronic notification was received.

13 **[0015]** Turning next to a fifth example method, this one involves using a wrist-
14 wearable device to obtain device identifiers of other electronic devices that the user is able to
15 control via in-air hand gestures that can be detected by neuromuscular-signal sensors of the
16 wrist-wearable device.

17 **[0016]** The fifth example method includes obtaining respective identifiers for a
18 plurality of available electronic devices configured to communicate with a wrist-wearable
19 device, the wrist-wearable device configured to monitor neuromuscular signals corresponding
20 to respective commands to be performed at one or more of the plurality of available
21 electronic devices. The method includes determining that a first in-air hand gesture, detected
22 using a neuromuscular-signal sensor of a wrist-wearable device, is directed towards a first
23 available electronic device of the plurality of available electronic devices, wherein the
24 determining includes analyzing (i) a direction associated with the gesture, and (ii) a
25 configuration of the first available electronic device. The method includes, based on
26 determining that the first in-air hand gesture is directed towards the first available electronic
27 device, causing an operation to be performed at the first available electronic device. The
28 method includes determining that a second in-air hand gesture, distinct from the first in-air
29 hand gesture, detected using the neuromuscular-signal sensor of the wrist-wearable device, is
30 directed towards the wrist-wearable device. And the method includes, based on determining
31 that the second in-air hand gesture is directed towards the wrist-wearable device, causing an
32 operation to be performed at the wrist-wearable device.

33 **[0017]** Turning next to a sixth example method, this one involves performing a two-
34 part gesture detected by neuromuscular-signal sensors of a wrist-wearable device to (i) select

1 a graphical image to present, and (ii) adjust a visual aspect of the graphical image based on
2 data from the neuromuscular-signal sensor.

3 **[0018]** The sixth example method includes, while causing display of a user interface
4 associated with a messaging application: (i) detecting, based at least in part on data from a
5 neuromuscular-signal sensor, a first in-air hand gesture performed by a user of a wrist-
6 wearable device, the first in-air hand gesture corresponding to a graphical image available
7 within the messaging application, and (ii) in response to detecting the in-air hand gesture,
8 presenting a representation of the graphical image within the messaging application. The
9 method includes, while presenting the representation of the graphical image, detecting, based
10 at least in part on data from the neuromuscular-signal sensor, a second in-air hand gesture
11 performed by the user, the second in-air hand gesture corresponding to an adjustment to the
12 graphical image. And the method includes, in response to detecting the second in-air hand
13 gesture, adjusting the presentation of the graphical image in accordance with a characteristic
14 of the second in-air hand gesture.

15 **[0019]** The seventh example method includes, after receiving a request to use a
16 protected resource, (i) detecting, via a neuromuscular-signal sensor of a wrist-wearable
17 device, an in-air hand gesture, and (ii) in accordance with a determination that the in-air hand
18 gesture is an authentication gesture associated with the protected resource, authorizing use of
19 the protected resource.

20 **[0020]** Further improvements are necessary to mechanical components of such
21 devices to make swapping of components more efficient for users to improve the man-
22 machine interface of the devices. Additionally, further improvements to customization of
23 display characteristics of electronic devices based on device identifiers cause a customized
24 experience to be provided to users based on their respective intended uses and interests at that
25 particular time. For example, a user may wish to experience one set of display characteristics
26 when they are performing the basic functions of their day (e.g., school, work, etc.). And the
27 same user may wish to be provided with a different experience when they are performing a
28 fitness activity or attending social gatherings. The devices, systems, and methods described
29 herein allow users to use the same display capsule (e.g., compute core) in conjunction with a
30 variety of housing structures (e.g., wearable bands, mountable cams, desk stands, etc.) in
31 order to adapt the computing experience accordingly intuitively and efficiently.

32 **[0021]** Because of the additional engagement and excitement that these new methods
33 offer (e.g., by encouraging users to explore the new visual characteristics activated as the
34 users make use of different wearable structures and by motivating users to stay engaged with

1 their self-care routines), these methods help to further the important goals of achieving
2 sustained user interactions with wearable devices, and with electronic devices more
3 generally. Improved man-machine interfaces are also achieved. These and more advantages
4 are described in detail below, but attention is first directed to a brief description of the
5 drawings.

6 BRIEF DESCRIPTION OF THE DRAWINGS

7 **[0022]** A more particular description may be had by reference to the features of
8 various embodiments, some of which are illustrated in the appended drawings. The appended
9 drawings illustrate pertinent example features of the present disclosure. The description may
10 admit to other effective features as the person of skill in this art will appreciate upon reading
11 this disclosure.

12 **[0023]** Figures 1A-1D illustrate a sequence in which a display capsule (e.g., display
13 capsule 121) is detachably coupled with a first wearable structure (which includes a band
14 portion 102 and a cradle portion 103 in the illustrated example) to then cause the display
15 portion to present display characteristics that are coordinated with the first wearable structure,
16 in accordance with some embodiments. A cradle portion is also referred to as a holding
17 structure herein for certain embodiments.

18 **[0024]** Figure 1E depicts an alternative configuration in which the display capsule is
19 attached to the wearable structure by pushing the display capsule in an upward direction to
20 couple it with the cradle, in accordance with some embodiments. Additional details
21 concerning embodiments of this mechanical coupling design are provided in reference to
22 Figures 9A-10B.

23 **[0025]** Figures 2A-2D illustrate a sequence in which a display capsule (e.g., display
24 capsule 121) is detachably coupled with a second wearable structure, distinct from the first
25 wearable structure of Figures 1A-1D, (which includes a band portion 102 and a cradle portion
26 103 in the illustrated example) to then cause the display portion to present display
27 characteristics that are coordinated with the second wearable structure, in accordance with
28 some embodiments.

29 **[0026]** Figures 3A-3F illustrate a scenario in which a user of a wearable device is able
30 to reveal a hidden user-interface feature while progressing through performance of a self-care
31 activity (e.g., running in the illustrated example), in accordance with some embodiments.

32 **[0027]** Figure 4 is a flow diagram of a method of adjusting a detachable display
33 capsule of a wrist-wearable device to operationally complement a wearable-structure
34 attachment, in accordance with some embodiments.

- 1 **[0028]** Figure 5 is a flow diagram of a method of gradually revealing a hidden user-
2 interface feature in accordance with performance of a self-care activity, in accordance with
3 some embodiments.
- 4 **[0029]** Figures 6A-6B illustrate an example wrist-wearable device used in
5 conjunction with the techniques described herein, in accordance with some embodiments.
- 6 **[0030]** Figure 7 is a block diagram of a wrist-wearable device system, according to at
7 least one embodiment of the present disclosure.
- 8 **[0031]** Figure 8 illustrates a system of one or more devices, which can include a head-
9 wearable device and a wrist-wearable device, which system can be used in conjunction with
10 the techniques described herein (e.g., customized experiences activated by attaching new
11 wearable structures to a display capsule can also be carried over to customize display features
12 at an associated head-wearable device as well), in accordance with some embodiments.
- 13 **[0032]** Figures 9A-9B illustrate an example display capsule configured to be coupled
14 with a holding structure in conjunction with the techniques described herein, in accordance
15 with some embodiments.
- 16 **[0033]** Figures 10A-10H illustrate a sequence for coupling an example display
17 capsule with an example wearable device that includes a band portion and a holding
18 structure, in accordance with some embodiments.
- 19 **[0034]** Figures 11A-11E illustrate an example sequence that includes removing an
20 example display capsule from a wearable electronic device that includes a band portion and a
21 holding structure and coupling the display capsule with another band portion and another
22 holding structure (to then form another wearable device), in accordance with some
23 embodiments.
- 24 **[0035]** Figures 12A-12F illustrate another example sequence that includes removing
25 an example display capsule from a wearable electronic device that includes a band portion
26 and a holding structure and coupling the display capsule with another band portion and
27 another holding structure (to then form another wearable device), in accordance with some
28 embodiments.
- 29 **[0036]** Figures 13A-13D illustrate an example sequence that includes placing and
30 removing a display capsule into a plurality of different holding structures of accessory
31 devices, in accordance with some embodiments.
- 32 **[0037]** Figures 14A-14B illustrate a flow diagram of an example method for using a
33 display capsule that is configured to be coupled with a holding structure.
- 34 **[0038]** Figures 15A-15C illustrate an example sequence in which a background user

1 interface (e.g., which can be display on a lock-screen user interface and/or home screen user
2 interface) is adjusted to visually alert a user to an indication associated with a received
3 electronic message.

4 **[0039]** Figures 16A-16B illustrate an example sequence in which a user performs
5 gestures that cause operations to be performed at respective electronic devices of a set of
6 electronic devices.

7 **[0040]** Figures 17A-17E illustrate an example sequence in which a user performs a
8 multi-part gesture that causes an operation to be performed at a protected resource electronic
9 device.

10 **[0041]** Figures 18A-18N illustrate an example sequence in which a user
11 communicates an electronic message with another electronic device of a different user.

12 **[0042]** Figures 19A-19F illustrate another example sequence in which a user is
13 performing gesture to cause an operation to be performed at a wrist-wearable device.

14 **[0043]** Figure 20 illustrates a method of determining an operation performed in a
15 gesture space corresponding to operations of a communication interface between a wrist-
16 wearable device and respective electronic devices of a set of electronic devices that are in
17 proximity to a user.

18 **[0044]** Figure 21 illustrates a method of causing operations to be performed at a
19 wrist-wearable device based on a user performing a multi-part gesture.

20 **[0045]** Figures 22A-22C illustrate an example of a wearable electronic device (e.g., a
21 wrist-wearable device, an ankle-wearable device, an arm-wearable device) that can sense
22 neuromuscular signals of a user.

23 **[0046]** Figure 23 illustrates a flow diagram of a method for a user to interact with a
24 plurality of electronic devices using at least one predefined set of gestures.

25 **[0047]** Figures 24A-24C illustrate an example sequence in which a user captures an
26 image and display customizations are caused to be applied to the captured image, in
27 accordance with some embodiments.

28 **[0048]** Figures 25A-25B illustrate an example sequence in which a user performs a
29 gesture that causes an audio track to be obtained, in accordance with some embodiments.

30 **[0049]** Figure 26 illustrates an example method of translating signals detected by one
31 or more neuromuscular-signal sensors into an audio track, in accordance with some
32 embodiments.

33 **[0050]** Figure 27 illustrates an example method for providing custom componentry
34 for use in conjunction with a wrist-wearable device at an event (e.g., a concert, a sports game,

1 a movie theater, an amusement park, etc.), in accordance with some embodiments.

2 **[0051]** Figure 28 illustrates an example method 2900 of adjusting a background
3 image on a lock-screen user interface to identify an electronic notification, in accordance with
4 some embodiments.

5 **[0052]** In accordance with common practice, like reference numerals are used to
6 denote like features throughout the specification and figures.

7 DETAILED DESCRIPTION

8 **[0053]** Numerous details are described herein to provide a thorough understanding of
9 the example embodiments illustrated in the accompanying drawings. However, some
10 embodiments may be practiced without many of the specific details, and the scope of the
11 claims is only limited by those features and aspects specifically recited in the claims.
12 Furthermore, well-known processes, components, and materials have not necessarily been
13 described in exhaustive detail so as to avoid obscuring pertinent aspects of the embodiments
14 described herein.

15 **[0054]** Figures 1A-1E illustrate a sequence in which a display capsule (e.g., display
16 capsule 121) is detachably coupled with a first wearable structure. The first wearable
17 structure includes a band portion 102 and a cradle portion 103 in the illustrated example, and
18 the cradle portion is also referred to as a holding structure in conjunction with other
19 embodiments discussed below) to then cause the display to present display characteristics that
20 are coordinated with the first wearable structure, in accordance with some embodiments. In
21 some embodiments, the display characteristics presented by the display of the display capsule
22 121 are based in part on a device identifier stored at the wearable structure while the display
23 capsule is detachably coupled to the first wearable structure. In some embodiments the
24 device identifier is a radio frequency identification (RFID) tag. A wearable structure can
25 include a band portion and a cradle portion/ holding structure such that once a display capsule
26 is coupled to the wearable structure, a wrist-wearable device is formed.

27 **[0055]** At a first time in the sequence, Figure 1A shows that a display capsule 101 has
28 not yet been coupled with the wearable structure (which includes a cradle portion 103 and a
29 band portion 102). As illustrated, when the display capsule 101 has not yet been coupled
30 with the wearable structure, the display capsule 121 can be using a default set of display
31 characteristics. For example, the watch-face user interface shown on the display capsule 121
32 in Figure 1A does not include any extra icons or features, but only displays a current time
33 (e.g., 04:10 in the illustrated example). In some embodiments, the default display
34 characteristics include a digital clock interface element shown in Figure 1A.

1 **[0056]** At a second point in time in the sequence, Figure 1B shows that the display
2 capsule 101 has been coupled with the wearable structure by attaching it to the cradle portion
3 103. This attachment can be made using frictional forces, magnetic-attractive forces, and
4 combinations of both, in some embodiments. Because the display capsule 121 is now
5 coupled with the wearable structure, Figure 1B also shows that customized display
6 characteristics can now be utilized. For example, the watch-face user interface no longer uses
7 the default set of display characteristics, but instead includes display features that correspond
8 to an aesthetic theme of the wearable structure (e.g., a space/rocket theme as depicted by
9 theme element 104 on the band portion 102). In some embodiments, some default display
10 characteristics are not overridden by customized display characteristics of respective
11 wearable structures.

12 **[0057]** In some embodiments, additional customized display characteristics are
13 applied based on the wearer of the wrist-wearable device causing one or more particular
14 operations to be performed (e.g., sending and/or receiving a message from another user of a
15 different electronic device). For instance, Figures 1C-1D show a display customization being
16 applied an electronic message is received, the wrist-wearable device can use customized
17 elements to assist in animating a presentation of the receipt of the electronic message 108
18 (e.g., in the depicted example of Figures 1C-1D, a rocket ship 106 is shown carrying the
19 electronic message on to the screen and, then once that electronic message has been carried
20 on screen, the rocket ship can move away from the electronic message and off screen). In
21 some embodiments, additional animation steps can be presented, including that an indication
22 of a sending user can be shown (which can be a textual or graphic indication of the sending
23 user's name and/or avatar), followed by the user of the customized elements to carry the
24 electronic message on to the screen.

25 **[0058]** Figure 1E depicts an alternative configuration in which the display capsule is
26 attached to the wearable structure by pushing the display capsule in an upward direction to
27 couple it with the cradle (rather than pushing the display capsule down into the cradle as
28 shown in the Figure 1A-1B example), in accordance with some embodiments. Once the
29 display capsule is pushed upward into the cradle for the alternative configuration of Figure
30 1E, the display capsule can then be held in place by a magnetic force and/or using a frictional
31 coupling of a portion of the cradle such that it can surround part of the display capsule to
32 further hold it in place. Other mechanical elements can also be utilized to further secure this
33 attachment. In some embodiments, as will be discussed below with respect to Figures 9A-
34 9B, the display capsule includes a housing that has a cornered edge that includes a display-

1 coupling edge and a housing-coupling edge, where the cornered edge formed by the display-
2 coupling edge and the housing-coupling edge is configured to couple with components of a
3 holding structure (e.g., the frictional coupling portion of the cradle shown in Figure 1E).

4 **[0059]** Attention is next directed to Figures 2A-2D, which generally show a wearable
5 structure different from the one shown in Figures 1A-1D, which then results in a presentation
6 of different customized experiences. In this way, users can quickly and easily swap in and
7 out of using different wearable structures and then receive a customized experience that
8 complements some characteristic of the band. In one more simplistic example, a color of the
9 band can be used to allow the wrist-wearable device to select appropriate color hues to use
10 through the operating system of the wrist-wearable device (e.g., if the band portion of the
11 wearable structure has a blue color, then the customizations of the display capsule can
12 include using a blue hue around certain icons and within certain user interfaces on an
13 operating-system-wide basis).

14 **[0060]** More specifically, Figures 2A-2D illustrate a sequence in which a display
15 capsule (e.g., display capsule 201) is detachably coupled with a second wearable structure,
16 distinct from the first wearable structure of Figures 1A-1D, (which includes a band portion
17 202 and a cradle portion 203 in the illustrated example) to then cause the display portion to
18 present display characteristics that are coordinated with the second wearable structure, in
19 accordance with some embodiments. In some embodiments, as shown in Figures 13A-13D,
20 other holding structures can be part of non-wearable devices (e.g., the bike cradle shown in
21 Figure 13A, the desk-mounted loop structure in Figure 13C, etc.). As shown in Figures 2A-
22 2D, because the wearable structure is associated with a flowery/ garden theme 204, once it is
23 coupled with the display capsule, customizations of the display capsule are made to
24 complement the flowery/ garden theme of the wearable structure (e.g., in Figure 2B, flowery/
25 garden themed elements are included on the watch-face user interface, and in Figures 2C-2D,
26 an animated sequence is used in which a received electronic message 208 is brought onscreen
27 using a butterfly 206). Other example wearable structures, and associated customized
28 experiences that are provided upon coupling of those wearable structures with a display
29 capsule, are described below in conjunction with Figures 10A-12F. Figures 13A-13D further
30 illustrate that the display capsule can also be coupled with many different accessory devices
31 to result in customized experiences upon coupling of the display capsule with those different
32 accessory devices.

33 **[0061]** Figures 3A-3F illustrate a scenario in which a user of a wearable device is able
34 to reveal a hidden user-interface feature while progressing through performance of a self-care

1 activity (e.g., running in the illustrated example), in accordance with some embodiments. As
2 discussed below with respect to Example Aspect B, such techniques can be used to reveal a
3 plurality of different types of features while performing a variety of different activities,
4 including activities that are not self-care activities. For example, a user could be motivated to
5 attain a streak of sharing at a particular set of sharing applications (e.g., social-media
6 applications, messaging applications, etc.).

7 **[0062]** As shown in the sequence depicted by Figures 3A-3F, as the user continues
8 their run, they cross various activity thresholds. As those activity thresholds as each crossed,
9 then wrist-wearable device reveals more and more of a hidden user-interface feature (e.g.,
10 first portion 302A is revealed in Figure 3B after a first activity threshold is crossed, second
11 portion 302B is revealed in Figure 3C after a second activity threshold is crossed, and third
12 portion 302C is revealed in Figure 3D after a third activity threshold is crossed). Some
13 embodiments can also cease displaying some of the portions if the user's activity level
14 decreases (e.g., they discontinue their self-care activity for some period of time, then one of
15 the respective portions 302 can cease to be displayed). Motivating messages can also be
16 displayed, such as the example motivating message 306 of Figure 3D.

17 **[0063]** Further, in some embodiments, additional motivations in the form of rewards
18 can also be provided, as is depicted for the reward user interface element 310 in Figure 3E,
19 which can then be accepted or rejected by selecting the checkmark or X elements,
20 respectively. If the reward is accepted, then the reward can, in one example, be used to
21 further attire an avatar of the user, as is shown for the avatar 312 in Figure 3F.

22 **[0064]** While Figures 3A-3F illustrate a particular subset of user interface adjustments
23 based on the user performing self-care activities, other user interface adjustment can occur
24 based on the same set of events with the same set of event characteristics. Additional
25 examples of techniques and scenarios for motivating users to perform activities will now be
26 described in more detail.

27 **[0065]** In accordance with some embodiments, a visual characteristic of an avatar
28 associated with the user can be adjusted (e.g., muscular features of the avatar) based on the
29 user performing the physical activity. In another example, an avatar associated with a user
30 can be displayed on the wrist-wearable device, or another electronic device that is in
31 communication with the wrist-wearable device. While the user performs physical activities,
32 the presentation of the avatar can be adjusted at the respective electronic device where the
33 avatar is being displayed, where the adjusting is based on the user's completion of physical
34 activities.

1 **[0066]** In some embodiments, an activity-completion metric is presented on a home-
2 screen user interface (e.g., a wake screen). In some embodiments, the activity-completion
3 metric can be visually modified (e.g., glow brighter or change colors, different haptic events
4 caused at a respective set of user-worn electronic devices) as the user meets respective
5 activity-completion goals. In some embodiments, a themed character associated with the
6 coupled band or associated with a location at which the device is determined to be is caused
7 to visually animate based on such activity goals being completed.

8 **[0067]** In some embodiments, the user is motivated to perform other activities besides
9 self-care activities, and the wrist-wearable device can provide similar adjustments to the
10 display of the wrist-wearable device to promote such activities. For example, the wrist-
11 wearable device can be caused to motivate the user to perform communications-based
12 activities (e.g., sharing applications), such as promoting the user to interact with colleagues
13 via workplace communication applications. In some embodiments, the wrist-wearable device
14 is configured to motivate the user to interact with other users of different electronic devices
15 via one or more social-media applications. For example, a user's avatar can be caused to
16 visually update (e.g., visually increasing in muscle size, performing new animations, and/or
17 updating the visual appearance of the avatar's outfit) based on the user increasing their
18 respective level of social engagement.

19 **[0068]** Figure 4 is a flow diagram of a method of adjusting a detachable display
20 capsule of a wrist-wearable device to operationally complement a wearable-structure
21 attachment, in accordance with some embodiments. Operations of the method 400 can be
22 performed by one or more processors of a wrist-wearable device 950 (Figure 6A) or 1000
23 (Figure 7), and which wrist-wearable devices can be configured to perform the operations
24 described with reference to the wearable devices of Figures 1A-3F. At least some of the
25 operations shown in Figure 4 correspond to instructions stored in a computer memory or
26 computer-readable storage medium. Operations of the method 400 can be performed by the
27 wrist-wearable device alone or in conjunction with one or more processors and/or hardware
28 components of another device (e.g., a head-wearable device and/or an intermediary device
29 described below in reference to Figure 8) communicatively coupled to the wrist-wearable
30 device and/or instructions stored in memory or computer-readable medium of the other
31 device communicatively coupled to the wrist-wearable device.

32 **[0069]** As depicted in Figure 4, the method 400 begins at operation 401 with the
33 provision of a display capsule that is configured to use a default set of display characteristics
34 (e.g., these display characteristics can include an operating system's color palette, haptic

1 patterns, sounds, app icons, notifications style, animation style, faces, favorite artists (e.g.,
2 musical artists), one or more sets of audio track elements, event-ticketing information (e.g.,
3 digital concert tickets), one or more sets of electronic devices configured to receive in-air
4 hand gestures, and the like) in conjunction with operating-system or application-level user
5 interfaces available via the display capsule.

6 **[0070]** At operation 403, the method 400 includes, receiving, at the display capsule,
7 identifying information (e.g., a device identifier) for a respective wearable structure (e.g., a
8 holding structure as discussed in Figures 10A-10H) of a plurality of wearable structures, the
9 display capsule being configured to detachably couple to one of the plurality of wearable
10 structures to form a wrist-wearable device. As discussed below, the identifying information
11 can be conveyed by scanning a QR code and/or by having the wearable structure provide the
12 identifying information directly to the display capsule (e.g., by communicating the
13 identifying information to the display capsule using a wireless-communication protocol). In
14 some embodiments, the identifying information is conveyed via RFID, UWB, NFC, Hall
15 effect sensing, etc.).

16 **[0071]** At operation 405, a determination is made and, in accordance with a
17 determination that the display capsule should be adjusted based on the identifying
18 information for the respective wearable structure, operation 407 is then performed. At
19 operation 407, the display capsule is adjusted (i) to cease using the first set of display
20 characteristics in conjunction with the operating-system or application-level user interfaces
21 and (ii) to instead use a customized set of display characteristics associated with the
22 respective wearable structure. The customized set of display characteristics is distinct from
23 the default set of display characteristics and is also used in conjunction with the operating-
24 system or application-level user interfaces. As depicted in the sequences of Figures 1A-1D
25 and 2A-2D, attachment of the display capsule to differently-themed wearable structures
26 results in presentation of different display characteristics at the display capsule that are
27 complementing the themes of each wearable structure. From the user's perspective, making
28 use of such wearable structure attachments thus allows them to experience a newly-
29 customized wrist-wearable device each time they try a different wearable-structure
30 attachment. Likewise, for embodiments that also make use of head-worn devices (e.g., head-
31 wearable devices 510 or 110, or both, Figure 8), the customization of the interactive
32 experiences can also be applied to features presented at the head-worn devices (e.g., the
33 customized display characteristics can also be used at the head-worn devices in some
34 embodiments).

1 **[0072]** In some embodiments of the method 400, one of the display characteristics
2 corresponds to a manner in which an electronic message is presented. The method 400 can
3 also include, while the display capsule is configured to use the default set of display
4 characteristics, receiving a first electronic message, and presenting a static representation of
5 the first electronic message on the display capsule (e.g., a static representation can be one
6 which does not move across or screen or at least is not carried across a screen using an
7 animated character or other user interface element). The method 400 can further include,
8 while the display capsule is configured to use the customized set of display characteristics
9 associated with the respective wearable structure, receiving a second electronic message, and
10 presenting a dynamic representation of the second electronic message such that the dynamic
11 representation of the second electronic message moves along with a representation of a
12 character associated a theme of the respective wearable structure. Illustrative examples of
13 this are shown in Figures 1C-1D and 2C-2D, where the depicted dynamic representations are
14 the ones in which an animated sequence is used to deliver the second electronic message (the
15 depicted sequences can include other steps as well, such as first step in which the sending
16 user's name or other identifying information, e.g., an avatar is shown before the second
17 electronic message is shown).

18 **[0073]** In some embodiments of the method 400, the display characteristics include
19 one or more of a color palette used in conjunction with the operating-system-level user
20 interfaces, icons associated with applications available via the display capsule, a style used to
21 present notifications on the display capsule, an animation style used by the display capsule,
22 and a manner in which faces of avatars are presented on the display capsule. Again, as was
23 noted above, the display characteristics can, in some embodiments also be applied at the
24 head-worn devices as well (e.g., 110 or 510, Figure 8).

25 **[0074]** In some embodiments of the method 400, the method further includes, in
26 conjunction with adjusting the display capsule to instead use the customized set of display
27 characteristics, adjusting the wrist-wearable device to use a new non-display setting
28 associated with the respective wearable structure. The new non-display setting can be a
29 setting used to generate haptic responses at the wrist-wearable device (e.g., ones that can
30 correspond to a rocket blasting off to carry forward the depicted example of Figures 1A-1D).

31 **[0075]** In some embodiments of the method 400, the customized set of display
32 characteristics is used to generate a watch-face user interface that is presented via the display
33 capsule while it is attached to the respective wearable structure. Examples of different
34 watch-face user interfaces associated with attachments to different wearable structures are

1 shown in the Figures 1A-1D and 2A-2D sequences. As is further described below, a
2 sequence of available features can also be customized for different wearable structure
3 attachments, e.g., as shown in Figure 10G, a first sequence of available features (Contacts,
4 Messages, Games, Calendar) can be available with a certain wearable structure attachment
5 and a different sequence of available features can be available with a different wearable
6 structure attachment (e.g., Trendy Restaurants, Top Night Clubs, New Stores, Avatar Gear,
7 Figures 11D).

8 **[0076]** In some embodiments of the method 400, the determination that the display
9 capsule should be adjusted based on the identifying information for the respective wearable
10 structure is: (i) made after a camera of the display capsule is used to scan a QR code
11 associated with the respective wearable structure, and/or (ii) made based on data
12 communicated to the display capsule from the respective wearable structure. In some
13 embodiments, the adjusting the display capsule is performed only after the display capsule
14 has been attached to the respective wearable structure, such that the identifying information
15 can be received slightly before (e.g., 5 milliseconds or less) before the adjusting is actually
16 performed such that a delay is utilized to ensure that the display capsule is not adjusted too
17 early and before the display capsule has actually been attached to the respective wearable
18 structure.

19 **[0077]** In some embodiments of the method 400, the respective wearable structure is
20 associated with a company, and a user of the wrist-wearable device is granted access to
21 limited-access user interface elements associated with the company while using the
22 respective wearable structure. In some embodiments, the user interface elements include one
23 or more of stickers for adding to images and attire used to dress up an avatar of a user of the
24 wrist-wearable device. Access to such limited-access user interface elements can, under
25 some circumstances, be allowed at the display capsule only while it is attached to the
26 respective wearable structure that is associated with the company.

27 **[0078]** In some embodiments of the method 400, the method also includes, adjusting
28 one or more additional visual characteristics at the display capsule when it is determined that
29 a predetermined event is occurring. For example, if a user's birthday is taking place on a
30 same day that the rocket-themed wearable structure is attached to the display capsule, then
31 the additional visual characteristics can include those associated with celebrating the user's
32 birthday, such as a rocket ship carrying a birthday cake across the screen.

33 **[0079]** In some embodiments of the method 400, the respective wearable structure is
34 one integrated structure that includes a band that is configured to be worn around a user's

1 wrist and a cradle to which the display capsule is attached, and the display capsule is attached
2 to the cradle by pushing the display capsule in an upward direction to fit into the cradle such
3 that a perimeter of the cradle is securely coupled around a portion of the display capsule. An
4 example of this configuration is shown in Figure 1E.

5 **[0080]** In some embodiments of the method 400, the respective wearable structure
6 includes two band portions that are each separately attached to the display capsule to form the
7 wrist-wearable device. In other words, the cradle piece can be optional in some embodiments
8 and, instead, such a band portion can be directly coupled to the display capsule to then cause
9 the customized experiences described herein to take place.

10 **[0081]** Having described the method 400, the method 500 of Figure 5 will next be
11 described. The methods 400 and 500, as well as many of the example aspects described later
12 below can exist on the wrist-wearable device together and can be accessed at different points
13 in time or user together (e.g., the hidden user-interface element that is discussed below can be
14 one of the customized set of display characteristics used in conjunction with the method 400).

15 **[0082]** Figure 5 is a flow diagram of a method of gradually revealing a hidden user-
16 interface feature in accordance with performance of a self-care activity, in accordance with
17 some embodiments. Similar to method 400 of Figure 4, operations of the method 500 can be
18 performed by one or more processors of a wrist-wearable device 950 (Figure 6A) or 1000
19 (Figure 7), and which wrist-wearable devices can be configured to perform the operations
20 described with reference to the wearable devices of Figures 1A-3F. At least some of the
21 operations shown in Figure 5 correspond to instructions stored in a computer memory or
22 computer-readable storage medium. Operations of the method 500 can be performed by the
23 wrist-wearable device alone or in conjunction with one or more processors and/or hardware
24 components of another device (e.g., a head-wearable device and/or an intermediary device
25 described below in reference to Figure 8) communicatively coupled to the wrist-wearable
26 device and/or instructions stored in memory or computer-readable medium of the other
27 device communicatively coupled to the wrist-wearable device.

28 **[0083]** As depicted in Figure 5, the method 500 begins at operation 501. At operation
29 501, while a user of an electronic device has performed less than a first threshold amount
30 (e.g., 20-30%) of a self-care activity, the method includes displaying, on a display of the
31 electronic device (e.g., a wrist-wearable device) or another electronic device (e.g., a head-
32 worn device such as those described with reference to Figure 8) that is in communication
33 with the electronic device, a user interface without displaying a hidden user-interface feature
34 that is associated with the user interface. The method 500 also includes, determining at

1 operation 503 and, in accordance with a determination that the user of the electronic device
2 has performed more than the first threshold amount of the self-care activity, the method
3 includes revealing (505), on the display, a first portion of the hidden user-interface feature
4 within the user interface. The method 500 further includes, determining at operation 507,
5 and, in accordance with a determination that the user of the electronic device has performed
6 more than a second threshold amount of the self-care activity (e.g., between 31% to 55%), the
7 second threshold amount being an amount that is greater than the first threshold amount,
8 performing operations 509 and 511. Operation 509 is continuing to display, on the display,
9 the first portion of the hidden user-interface feature within the user interface. Operation 511
10 is revealing, on the display, a second portion of the hidden user-interface feature within the
11 user interface. An example of these operations is depicted in the sequence shown in Figures
12 3A-3D, in which the user's performance of a running self-care activity causes revealing of a
13 hidden user-interface feature (e.g., in the depicted example of Figures 3A-3D, a piece of
14 artwork with many various leaves is revealed).

15 **[0084]** In some embodiments of the method 500, the method includes, in accordance
16 with a determination that all applicable threshold amounts of the self-care activity are
17 satisfied, revealing, on the display, all of the hidden user-interface feature within the user
18 interface (e.g., Figure 3D shows one example in which all of the hidden user-interface feature
19 has been revealed).

20 **[0085]** In some embodiments of the method 500, the hidden user-interface feature is
21 background artwork displayed for the user interface (e.g., this is shown in the example of
22 Figures 3A-3D). In some embodiments, the user interface is a watch-face user interface that
23 also displays a current time of day (e.g., the revealed artwork can be used as background
24 artwork on a watch-face user interface).

25 **[0086]** In some embodiments of the method 500, the hidden user-interface feature is
26 (i) a representation of a face of the user, or (ii) a representation of a face associated with a
27 contact of the user. After all of the representation of the face of the user has been revealed
28 within the user interface, the representation of the face of the user can be displayed with user
29 interface elements for modifying the face of the user. Similarly, after all of the representation
30 of the face of the contact of the user has been revealed within the user interface, the
31 representation of the face of the contact of the user can be displayed with user interface
32 elements for modifying the face of the contact of the user. In some embodiments, after a
33 modification to the representation of the face of the contact of the user is made, the method
34 includes sending a modified version of the representation of the face of the contact of the user

1 to a device associated with the contact of the user.

2 **[0087]** In some embodiments of the method 500, (i) a physical-exercise activity, (ii) a
3 meditative-exercise activity, (iii) a breathing exercise, or (iv) attendance at health-related
4 appointments (e.g., doctor's appointments, mental-health visits, etc.).

5 **[0088]** In some embodiments of the method 500, the self-care activity is a first self-
6 care activity and performance of other self-care activities, distinct from the self-care activity,
7 causes revealing of portions of respective hidden user-interface features, distinct from the
8 hidden user-interface feature, that are each associated with one of the other self-care activities
9 based on the user's performance of one of the other self-care activities. In this way, the user
10 of the wrist-wearable device can participate in many different self-care activities and reveal a
11 wide variety of different hidden user-interface features in conjunction with performance of
12 those different self-care activities.

13 **[0089]** In some embodiments of the method 500, the method also includes,
14 displaying, within the user interface, at least one user interface element that is selected for
15 display to visually correspond to a current holiday or season (e.g., in one example, a polar
16 bear can be presented as part of an animation used on a watch-face user interface during the
17 winter season, such that the polar bear can be part of the a clockface or can be used to deliver
18 electronic messages on screen in like fashion to that shown in Figures 1C-1D and 2C-2D).

19 **[0090]** In some embodiments of the method 500, the method also includes, while
20 displaying the first and second portions of the hidden user-interface feature: (i) receiving an
21 indication that another user has revealed a third portion of the hidden user-interface feature in
22 conjunction with the other user's performance of the self-care activity and (ii) providing a
23 notification, on the display, indicating that the other user has revealed the third portion of the
24 hidden user-interface. An example of this is shown in Figure 3C.

25 **[0091]** In some embodiments of the method 500, the display is a display of a wrist-
26 wearable device or a display of a head-worn device (e.g., 110 or 510, Figure 8) that is in
27 communication with the wrist-wearable device. In some embodiments, the display is the
28 display of the head-worn device, and one or more sensors of the wrist-wearable device are
29 used to monitor the user's performance of the self-care activity. In some embodiments, the
30 revealing of the hidden user-interface feature can be performed at both devices or can be
31 performed at one device and then transferred to a different device, e.g., can be started at the
32 display of the wrist-wearable device but switch to the display of the head-worn device if the
33 user ceases to be looking at the display of the wrist-wearable device.

34 ***Example Wrist-Wearable Devices***

1 **[0092]** Several examples of embodiments of wrist-wearable devices that include one
2 or more of the components and/or capabilities for performing one or more of the operations
3 described herein are discussed in more detail below.

4 **[0093]** Embodiments of the devices described herein can include any or all of the
5 components described with respect Figures 6A and 6B. Figures 6A and 6B illustrate an
6 example wrist-wearable device 950, in accordance with some embodiments. The wrist-
7 wearable device 950 is an instance of the wearable devices discussed above (e.g., 100, 200,
8 and those shown in Figures 3A-3F and 9A-12F as well) in reference to Figures 1A-5, such
9 that the wearable devices used as examples in conjunction with these earlier figures (e.g.,
10 wearable devices 100, 100A, 200, and those in Figures 3A-3F) should be understood to have
11 the features of wearable device 950 and vice versa.

12 **[0094]** Figure 6A illustrates a perspective view of the wrist-wearable device 950 that
13 includes a watch body 954 decoupled from a watch band 962. The watch body 954 and the
14 watch band 962 can have a substantially rectangular or circular shape and can be configured
15 to allow a user to wear the wrist-wearable device 950 on a body part (e.g., a wrist). The
16 wrist-wearable device 950 can include a retaining mechanism 963 (e.g., a buckle, a hook and
17 loop fastener, etc.) for securing the watch band 962. The wrist-wearable device 950 can also
18 include a coupling mechanism 960 (e.g., a cradle) for detachably coupling a capsule (e.g., the
19 watch body 954), via a coupling surface 956 of the watch body 954, to the watch band 962.

20 **[0095]** The wrist-wearable device 950 can perform various functions associated with
21 the user interfaces and interactions as described above with reference to Figures 1A-3F and
22 operations of the methods depicted in Figures 4-5. As will be described in more detail below
23 with reference to Figure 7, functions executed by the wrist-wearable device 950 can include,
24 without limitation, display of visual content to the user (e.g., visual content displayed on
25 display screen 115, which can be a touch-sensitive surface and/or display screen in
26 accordance with some embodiments), sensing user input (e.g., sensing a touch on button 958,
27 sensing biometric data on sensor 964, sensing neuromuscular signals on neuromuscular
28 sensor 965, etc.), messaging (e.g., text, speech, video, etc.), image capture, wireless
29 communications (e.g., cellular, near field, Wi-Fi, personal area network, etc.), location
30 determination, financial transactions, providing haptic feedback, alarms, notifications,
31 biometric authentication, health monitoring, sleep monitoring, etc. These functions can be
32 executed independently in watch body 954, independently in watch band 962, and/or in
33 communication between watch body 954 and watch band 962. In some embodiments,
34 functions can be executed on the wrist-wearable device 950 in conjunction with an artificial-

1 reality environment which includes, but is not limited to, virtual-reality (VR) environments
2 (including non-immersive, semi-immersive, and fully-immersive VR environments),
3 augmented-reality environments (including marker-based augmented-reality environments,
4 marker less augmented-reality environments, location-based augmented-reality environments,
5 and projection-based augmented-reality environments), hybrid reality, and other types of
6 mixed-reality environments. As the skilled artisan will appreciate upon reading the
7 descriptions provided herein, the novel wearable devices described herein can be used with
8 any of these types of artificial-reality environments.

9 **[0096]** The watch band 962 can be configured to be worn by a user such that an inner
10 surface of the watch band 962 is in contact with the user's skin. When worn by a user, sensor
11 964 is in contact with the user's skin. The sensor 964 can be a biosensor that senses a user's
12 heart rate, saturated oxygen level, temperature, sweat level, muscle intentions, or a
13 combination thereof. The watch band 962 can include multiple sensors 964 that can be
14 distributed on an inside and/or an outside surface of the watch band 962. Additionally, or
15 alternatively, the watch body 954 can include the same or different sensors than the watch
16 band 962 (or the watch band 962 can include no sensors at all in some embodiments). For
17 example, multiple sensors can be distributed on an inside and/or an outside surface of watch
18 body 954. As described below with reference to Figure 7, the watch body 954 can include,
19 without limitation, front-facing image sensor 925A and/or rear-facing image sensor 925B, a
20 biometric sensor, an IMU, a heart rate sensor, a saturated oxygen sensor, a neuromuscular
21 sensor(s) (e.g., EMG sensors 1046, Figure 7), an altimeter sensor, a temperature sensor, a
22 bioimpedance sensor, a pedometer sensor, an optical sensor, a touch sensor, a sweat sensor,
23 etc. The sensor 964 can also include a sensor that provides data about a user's environment
24 including a user's motion (e.g., an IMU), altitude, location, orientation, gait, or a combination
25 thereof. The sensor 964 can also include a light sensor (e.g., an infrared light sensor, a visible
26 light sensor) that is configured to track a position and/or motion of watch body 954 and/or
27 watch band 962. Watch band 962 can transmit the data acquired by the sensor 964 to watch
28 body 954 using a wired communication method (e.g., a UART, a USB transceiver, etc.)
29 and/or a wireless communication method (e.g., near field communication, Bluetooth, etc.).
30 Watch band 962 can be configured to operate (e.g., to collect data using sensor 964)
31 independent of whether watch body 954 is coupled to or decoupled from watch band 962.

32 **[0097]** The watch band 962 and/or watch body 954 can include a haptic device 966
33 (e.g., a vibratory haptic actuator) that is configured to provide haptic feedback (e.g., a
34 cutaneous and/or kinesthetic sensation, etc.) to the user's skin. The sensor 964 and/or haptic

1 device 966 can be configured to operate in conjunction with multiple applications including,
2 without limitation, health monitoring, social media, game playing, and artificial reality (e.g.,
3 the applications associated with artificial reality).

4 **[0098]** In some examples, the watch band 962 can include a neuromuscular sensor
5 965 (e.g., an electromyography (EMG) sensor, a mechanomyogram (MMG) sensor, a
6 sonomyography (SMG) sensor, etc.). Neuromuscular sensor 965 can sense a user's intention
7 to perform certain motor actions. The sensed muscle intention can be used to control certain
8 user interfaces displayed on the display 115 of the wearable device 100 and/or can be
9 transmitted to device responsible for rendering an artificial-reality environment (e.g., a head-
10 mounted display) to perform an action in an associated artificial-reality environment, such as
11 to control the motion of a virtual device displayed to the user.

12 **[0099]** Signals from neuromuscular sensor 965 can be used to provide a user with an
13 enhanced interaction with a physical object and/or a virtual object in an artificial-reality
14 application generated by an artificial-reality system (e.g., user interface objects presented on
15 the display of the wrist-wearable device, or another computing device (e.g., a head-mounted
16 display)). Signals from neuromuscular sensor 965 can be obtained (e.g., sensed and
17 recorded) by one or more neuromuscular sensors 965 of watch band 962. Although Figure
18 6A shows one neuromuscular sensor 965, watch band 962 can include a plurality of
19 neuromuscular sensors 965 arranged circumferentially on an inside surface of watch band
20 962 such that the plurality of neuromuscular sensors 965 contact the skin of the user. Watch
21 band 962 can include a plurality of neuromuscular sensors 965 arranged circumferentially on
22 an inside surface of watch band 962. Neuromuscular sensor 965 can sense and record
23 neuromuscular signals from the user as the user performs muscular activations (e.g.,
24 movements, gestures, etc.). The muscular activations performed by the user can include
25 static gestures, such as placing the user's hand palm down on a table; dynamic gestures, such
26 as grasping a physical or virtual object; and covert gestures that are imperceptible to another
27 person, such as slightly tensing a joint by co-contracting opposing muscles or using sub-
28 muscular activations. The muscular activations performed by the user can include symbolic
29 gestures (e.g., gestures mapped to other gestures, interactions, or commands, for example,
30 based on a gesture vocabulary that specifies the mapping of gestures to commands).

31 **[00100]** The wrist-wearable device 950 can include a coupling mechanism (also
32 referred to as a cradle) for detachably coupling watch body 954 to watch band 962. A user
33 can detach watch body 954 from watch band 962 in order to reduce the encumbrance of the
34 wrist-wearable device 950 to the user. The wrist-wearable device 950 can include a coupling

1 surface 956 on the watch body 954 and/or coupling mechanism(s) 960 (e.g., a cradle, a
2 tracker band, a support base, a clasp). A user can perform any type of motion to couple
3 watch body 954 to watch band 962 and to decouple watch body 954 from watch band 962.
4 For example, a user can twist, slide, turn, push, pull, or rotate watch body 954 relative to
5 watch band 962, or a combination thereof, to attach watch body 954 to watch band 962 and to
6 detach watch body 954 from watch band 962. An additional example cradle configuration
7 that relies on an upward pushing force to attach the display capsule to the cradle was
8 provided in Figure 1E.

9 **[00101]** As shown in the example of Figure 6A, watch band coupling mechanism 960
10 can include a type of frame or shell that allows watch body 954 coupling surface 956 to be
11 retained within watch band coupling mechanism 960. Watch body 954 can be detachably
12 coupled to watch band 962 through a friction fit, magnetic coupling, a rotation-based
13 connector, a shear-pin coupler, a retention spring, one or more magnets, a clip, a pin shaft, a
14 hook and loop fastener, or a combination thereof. In some examples, watch body 954 can be
15 decoupled from watch band 962 by actuation of release mechanism 970. The release
16 mechanism 970 can include, without limitation, a button, a knob, a plunger, a handle, a lever,
17 a fastener, a clasp, a dial, a latch, or a combination thereof.

18 **[00102]** The wrist-wearable device 950 can include a single release mechanism 970 or
19 multiple release mechanisms 970 (e.g., two release mechanisms 970 positioned on opposing
20 sides of the wrist-wearable device 950 such as spring-loaded buttons). As shown in Figure
21 6A, the release mechanism 220 can be positioned on watch body 954 and/or watch band
22 coupling mechanism 960. Although Figure 6A shows release mechanism 970 positioned at a
23 corner of watch body 954 and at a corner of watch band coupling mechanism 960, the release
24 mechanism 970 can be positioned anywhere on watch body 954 and/or watch band coupling
25 mechanism 960 that is convenient for a user of wrist-wearable device 950 to actuate. A user
26 of the wrist-wearable device 950 can actuate the release mechanism 970 by pushing, turning,
27 lifting, depressing, shifting, or performing other actions on the release mechanism 970.
28 Actuation of the release mechanism 970 can release (e.g., decouple) the watch body 954 from
29 the watch band coupling mechanism 960 and the watch band 962 allowing the user to use the
30 watch body 954 independently from watch band 962. For example, decoupling the watch
31 body 954 from the watch band 962 can allow the user to capture images using rear-facing
32 image sensor 925B.

33 **[00103]** Figure 6B is a side view of the wrist-wearable device 950. The wrist-wearable
34 devices 950 of Figure 6B can include a watch body interface 980 (another example of a

1 cradle for the capsule portion also referred to as a display capsule herein). The watch body
2 954 can be detachably coupled to the watch body interface 980. Watch body 954 can be
3 detachably coupled to watch body interface 980 through a friction fit, magnetic coupling, a
4 rotation-based connector, a shear-pin coupler, a retention spring, one or more magnets, a clip,
5 a pin shaft, a hook and loop fastener, or a combination thereof.

6 **[00104]** In some examples, watch body 954 can be decoupled from watch body
7 interface 980 by actuation of a release mechanism. The release mechanism can include,
8 without limitation, a button, a knob, a plunger, a handle, a lever, a fastener, a clasp, a dial, a
9 latch, or a combination thereof. In some examples, the wristband system functions can be
10 executed independently in watch body 954, independently in watch body interface 980,
11 and/or in communication between watch body 954 and watch body interface 980. Watch
12 body interface 980 can be configured to operate independently (e.g., execute functions
13 independently) from watch body 954. Additionally, or alternatively, watch body 954 can be
14 configured to operate independently (e.g., execute functions independently) from watch body
15 interface 980. As will be described in more detail below with reference to the block diagram
16 of Figure 7, watch body interface 980 and/or watch body 954 can each include the
17 independent resources required to independently execute functions. For example, watch
18 body interface 980 and/or watch body 954 can each include a power source (e.g., a battery), a
19 memory, data storage, a processor (e.g., a CPU), communications, a light source, and/or
20 input/output devices.

21 In this example, watch body interface 980 can include all of the electronic components of
22 watch band 962. In additional examples, one or more electronic components can be housed
23 in watch body interface 980 and one or more other electronic components can be housed in
24 portions of watch band 962 away from watch body interface 980.

25 **[00105]** Figure 7 is a block diagram of a wrist-wearable device system 1001, according
26 to at least one embodiment of the present disclosure. The wearable device 100 described in
27 detail above is an example wrist-wearable device system 1001, so the wearable device 100
28 will be understood to include the components shown and described for system below. In
29 some embodiments, the wrist-wearable devices 100, 100A, 200, and those in Figures 3A-3F
30 described above in reference to Figures 1A-3F include one or more components shown and
31 described for system below (e.g., any of the wearable devices 100, 100A, 200 and those in
32 Figures 3A-3F can be an instance of the system). The wrist-wearable device system 1001 can
33 have a split architecture (e.g., a split mechanical architecture, a split electrical architecture)
34 between a watch body 1009 (e.g., a capsule or watch body 954) and a watch band 1012 (e.g.,

a band portion or watch band 962), which was described above in reference to Figures 6A-6B. Each of watch body 1009 and watch band 1012 can have a power source, a processor, a memory, sensors, a charging device, and a communications device that enables each of watch body 1009 and watch band 1012 to execute computing, controlling, communication, and sensing functions independently in watch body 1009, independently in watch band 1012, and/or in communication between watch body 1009 and watch band 1012.

[00106] For example, watch body 1009 can include battery 1029, CPU 1026, storage 1005, heart rate sensor 1058, EMG sensor 1046, SpO₂ sensor 1054, altimeter 1048, IMU 1041, random access memory 1003, charging input 1033 and communication devices NFC 1015, LTE 1018, and Wi-Fi/Bluetooth 1020. Similarly, watch band 1012 can include battery 1038, microcontroller unit 1052, memory 1050, heart rate sensor 1058, EMG sensor 1046, SpO₂ sensor 1054, altimeter 1048, IMU 1041, charging input 1039 and wireless transceiver 1047. In some examples, a level of functionality of at least one of watch band 1012 or watch body 1009 can be modified when watch body 1009 is detached from watch band 1012. The level of functionality that can be modified can include the functionality of at least one sensor (e.g., heart rate sensor 1058, EMG sensor 1046, etc.). Each of watch body 1009 and watch band 1012 can execute instructions stored in storage 1005 and memory 1050 respectively that enables at least one sensor (e.g., heart rate sensor 1058, EMG sensor 1046, etc.) in watch band 1012 to acquire data when watch band 1012 is detached from watch body 1009 and when watch band 1012 is attached to watch body 1009.

[00107] Watch body 1009 and watch band 1012 can further execute instructions stored in storage 1005 and memory 1050 respectively that enables watch band 1012 to transmit the acquired data to watch body 1009 (or other computing device such as a head mounted display or other computing device 350; Figure 3) using wired communications 1027 and/or wireless transceiver 1047. For example, watch body 1009 can display visual content to a user on touchscreen display 1013 (e.g., an instance of display 115) and play audio content on speaker. Watch body 1009 can receive user inputs such as audio input from microphone and touch input from buttons 1024. Watch body 1009 can also receive inputs associated with a user's location and/or surroundings. For example, watch body 1009 can receive location information from GPS 1017 and/or altimeter 1048 of watch band 1012.

[00108] Watch body 1009 can receive image data from at least one image sensor 135 (e.g., a camera). Image sensor 135 can include front-facing image sensor 925A (Figure 6A) and/or rear-facing image sensor 925B (Figure 6B). Front-facing image sensor 925A and/or rear-facing image sensor 925B can capture wide-angle images of the area surrounding front-

1 facing image sensor 925A and/or rear-facing image sensor 925B such as hemispherical
2 images (e.g., at least hemispherical, substantially spherical, etc.), 180-degree images, 360-
3 degree area images, panoramic images, ultra-wide area images, or a combination thereof. In
4 some examples, front-facing image sensor 925A and/or rear-facing image sensor 925B can be
5 configured to capture images having a range between 45 degrees and 360 degrees. Certain
6 input information received by watch body 1009 (e.g., user inputs, etc.) can be communicated
7 to watch band 1012. Similarly, certain input information (e.g., acquired sensor data,
8 neuromuscular sensor data, etc.) received by watch band 1012 can be communicated to watch
9 body 1009.

10 **[00109]** Watch body 1009 and watch band 1012 can receive a charge using a variety of
11 techniques. In some embodiments, watch body 1009 and watch band 1012 can use a wired
12 charging assembly (e.g., power cords) to receive the charge. Alternatively, or in addition,
13 watch body 1009 and/or watch band 1012 can be configured for wireless charging. For
14 example, a portable charging device can be designed to mate with a portion of watch body
15 1009 and/or watch band 1012 and wirelessly deliver usable power to a battery of watch body
16 1009 and/or watch band 1012.

17 **[00110]** Watch body 1009 (which can be referred to as the display capsule herein) and
18 watch band 1012 (also referred to as the wearable structure herein that includes a band
19 portion and a cradle portion) can have independent power and charging sources to enable
20 each to operate independently. Watch body 1009 and watch band 1012 can also share power
21 (e.g., one can charge the other) via power management IC 1031 in watch body 1009 and
22 power management IC 1037 in watch band 1012. Power management IC 1031 and power
23 management IC 1037 can share power over power and ground conductors and/or over
24 wireless charging antennas.

25 **[00111]** Wrist-wearable device system 1001 can operate in conjunction with a health
26 monitoring application that acquires biometric and activity information associated with the
27 user. The health monitoring application can be designed to provide information to a user that
28 is related to the user's health. For example, wrist-wearable device system 1001 can monitor a
29 user's physical activity by acquiring data from IMU 1041 while simultaneously monitoring
30 the user's heart rate via heart rate sensor 1058 and saturated blood oxygen levels via SpO₂
31 sensor 1054. CPU 1026 can process the acquired data and display health related information
32 to the user on touchscreen display 1013.

33 **[00112]** Wrist-wearable device system 1001 can detect when watch body 1009 and
34 watch band 1012 are connected to one another (e.g., mechanically connected and/or

1 electrically or magnetically connected) or detached from one another. For example,
2 power/ground connections 1060, wireless transceiver 1047, and/or wired communications
3 1027, can detect whether watch body 1009 and watch band 1012 are mechanically and/or
4 electrically or magnetically connected to one another (e.g., detecting a disconnect between
5 the one or more electrical contacts of power/ground connections 1060 and/or wired
6 communications 1027). In some examples, when watch body 1009 and watch band 1012 are
7 mechanically and/or electrically disconnected from one another (e.g., watch body 1012 has
8 been detached from watch band 1012 as described with reference to Figures 6A-6B), watch
9 body 1009 and/or watch band 1012 can operate with modified level of functionality (e.g.,
10 reduced functionality) as compared to when watch body 1009 and watch band 1012 are
11 mechanically and/or electrically connected to one another. The modified level of
12 functionality (e.g., switching from full functionality to reduced functionality and from
13 reduced functionality to full functionality) can occur automatically (e.g., without user
14 intervention) when wrist-wearable device system 1001 determines that watch body 1009 and
15 watch band 1012 are mechanically and/or electrically disconnected from one another and
16 connected to each other, respectively.

17 **[00113]** Modifying the level of functionality (e.g., reducing the functionality in watch
18 body 1009 and/or watch band 1012) can reduce power consumption in battery 1029 and/or
19 battery 1038. For example, any of the sensors (e.g., heart rate sensor 1058, EMG sensor
20 1046, SpO₂ sensor 1054, altimeter 1048, etc.), processors (e.g., CPU 1026, microcontroller
21 unit 1052, etc.), communications elements (e.g., NFC 1015, GPS 1017, LTE 1018, Wi-
22 Fi/Bluetooth 1020, etc.), or actuators (e.g., haptics 1022, 1049, etc.) can reduce functionality
23 and/or power consumption (e.g., enter a sleep mode) when watch body 1009 and watch band
24 1012 are mechanically and/or electrically disconnected from one another. Watch body 1009
25 and watch band 1012 can return to full functionality when watch body 1009 and watch band
26 1012 are mechanically and/or electrically connected to one another. The level of
27 functionality of each of the sensors, processors, actuators, and memory can be independently
28 controlled.

29 **[00114]** As described above, wrist-wearable device system 1001 can detect when
30 watch body 1009 and watch band 1012 are coupled to one another (e.g., mechanically
31 connected and/or electrically connected) or decoupled from one another. In some examples,
32 watch body 1009 can modify a level of functionality (e.g., activate and/or deactivate certain
33 functions) based on whether watch body 1009 is coupled to watch band 1012. For example,
34 CPU 1026 can execute instructions that detect when watch body 1009 and watch band 1012

1 are coupled to one another and activate front-facing image sensor 925A. CPU 1026 can
2 activate front-facing image sensor 925A based on receiving user input (e.g., a user touch
3 input from touchscreen display 1013, a user voice command from microphone, a user gesture
4 recognition input from EMG sensor 1046, etc.).

5 **[00115]** When CPU 1026 detects that watch body 1009 and watch band 1012 are
6 decoupled from one another, CPU 1026 can modify a level of functionality (e.g., activate
7 and/or deactivate additional functions). For example, CPU 1026 can detect when watch body
8 1009 and watch band 1012 are decoupled from one another and activate rear-facing image
9 sensor 925B. CPU 1026 can activate rear-facing image sensor 925B automatically (e.g.,
10 without user input) and/or based on receiving user input (e.g., a touch input, a voice input, an
11 intention detection, etc.). Automatically activating rear-facing image sensor 925B can allow
12 a user to take wide-angle images without having to provide user input to activate rear-facing
13 image sensor 925B.

14 **[00116]** In some examples, rear-facing image can be activated based on an image
15 capture criterion (e.g., an image quality, an image resolution, etc.). For example, rear-facing
16 image sensor 925B can receive an image (e.g., a test image). CPU 1026 and/or rear-facing
17 image sensor 925B can analyze the received test image data and determine whether the test
18 image data satisfies the image capture criterion (e.g., the image quality exceeds a threshold,
19 the image resolution exceeds a threshold, etc.). Rear-facing image sensor 925B can be
20 activated when the test image data satisfies the image capture criterion. Additionally, or
21 alternatively, rear-facing image sensor 925B can be deactivated when the test image data fails
22 to satisfy the image capture criterion.

23 **[00117]** In some examples, CPU 1026 can detect when watch body 1009 is coupled to
24 watch band 1012 and deactivate rear-facing image sensor 925B. CPU 1026 can deactivate
25 rear-facing image sensor 925B automatically (e.g., without user input) and/or based on
26 receiving user input (e.g., a touch input, a voice input, an intention detection, etc.).
27 Deactivating rear-facing image sensor 925B can automatically (e.g., without user input)
28 reduce the power consumption of watch body 1009 and increase the battery charge time in
29 watch body 1009. In some examples, wrist-wearable device system 1001 can include a
30 coupling sensor 1007 that senses whether watch body 1009 is coupled to or decoupled from
31 watch band 1012. Coupling sensor 1007 can be included in any of watch body 1009, watch
32 band 1012, or watch band coupling mechanism 960 of Figures 6A-6B. Coupling sensor 1007
33 (e.g., a proximity sensor) can include, without limitation, an inductive proximity sensor, a
34 limit switch, an optical proximity sensor, a capacitive proximity sensor, a magnetic proximity

1 sensor, an ultrasonic proximity sensor, or a combination thereof. CPU 1026 can detect when
2 watch body 1009 is coupled to watch band 1012 or decoupled from watch band 1012 by
3 reading the status of coupling sensor 1007.

4 **[00118]** Figure 8 illustrates a system of one or more devices, which can include a head-
5 wearable device and a wrist-wearable device, which system can be used in conjunction with
6 the techniques described herein (e.g., customized experiences activated by attaching new
7 wearable structures to a display capsule can also be carried over to customize display features
8 at an associated head-wearable device as well), in accordance with some embodiments. The
9 system 800 can include one or more of servers 870, electronic devices 874 (e.g., a computer,
10 874a, a smartphone 874b, a controller 874c, and/or other devices), head-wearable devices
11 110, and/or wrist-wearable devices 170. In some embodiments, the one or more of servers
12 870, electronic devices 874, head-wearable devices 110, and/or wrist-wearable devices 170
13 are communicatively coupled via a network 872. In some embodiments, the wrist-wearable
14 device 170 is configured to cause one or more operations to be performed by a
15 communicatively coupled head-wearable device 110, and/or the two devices can also both be
16 connected to an intermediary device, such as a smartphone 874b, a controller 874c, or other
17 device that provides instructions and data to and between the two devices. In some
18 embodiments, the wrist-wearable device 170 is configured to cause one or more operations to
19 be performed by multiple devices in conjunction with the head-wearable device 110. In some
20 embodiments, instructions to cause the performance of one or more operations are controlled
21 via an artificial reality (AR) processing module 845. The AR processing module 845 can be
22 implemented in one or more devices, such as the one or more of servers 870, electronic
23 devices 874, head-wearable devices 110, and/or wrist-wearable devices 170. In some
24 embodiments, the one or more devices perform operations of the AR processing module 845,
25 using one or more respective processors, individually or in conjunction with at least one other
26 device as described herein.

27 **[00119]** In some embodiments, the wrist-wearable device 170 includes one or more
28 components such as a communication interface 815, one or more sensors 821, one or more
29 haptic generators 825, an AR processing module 845, one or more imaging devices 111 (e.g.,
30 a camera), one or more processors 850, and memory 860. In addition, in some embodiments,
31 the wrist-wearable device 170 includes a display 130 and one or more applications 835. In
32 some embodiments, the memory 860 is configured to store sensor data 864 and AR
33 processing data 863. Although not show, in some embodiments, the memory 860 can include
34 application data, device data (e.g., device hardware, device model, etc.), image data, and/or

1 user data (e.g., data collected through use of a device, data collected through use of an
2 application, user preferences, or other information stored by the user). In some embodiments,
3 the one or more components of the wrist-wearable device 170 are housed within a capsule (or
4 watch body) and/or a band of the wrist-wearable device 170.

5 **[00120]** In some embodiments, the communications interface 815 is configured to
6 communicatively couple the wrist-wearable device 170 to one or more other devices such as
7 the head-wearable device 110, electronic device 874 (e.g., a computer 874a, a smartphone
8 874b, a controller 874c, a tablet, etc.), and/or one or more servers 870. The communication
9 interface 815 is used establish wired or wireless connections between the wrist-wearable
10 device 170 and the other devices. In some embodiments, the communication interface 815
11 includes hardware capable of data communications using any of a variety of custom or
12 standard wireless protocols (e.g., IEEE 802.15.4, Wi-Fi, ZigBee, 6LoWPAN, Thread, Z-
13 Wave, Bluetooth Smart, ISA100.11a, WirelessHART, or MiWi), custom or standard wired
14 protocols (e.g., Ethernet or HomePlug), and/or any other suitable communication protocol.

15 **[00121]** The one or more sensors 821 can include heart rate sensors, electromyography
16 (EMG) sensors, SpO2 sensors, altimeters, thermal sensors or thermal couples, ambient light
17 sensors, ambient noise sensors, and/or inertial measurement units (IMU)s. Additional non-
18 limiting examples of the one or more sensors 821 include, e.g., infrared, pyroelectric,
19 ultrasonic, microphone, laser, optical, Doppler, gyro, accelerometer, resonant LC sensors,
20 capacitive sensors, acoustic sensors, and/or inductive sensors. In some embodiments, the one
21 or more sensors 821 are configured to gather additional data about the user (e.g., an
22 impedance of the user's body). Examples of sensor data output by these sensors includes
23 body temperature data, infrared range-finder data, positional information, motion data,
24 activity recognition data, silhouette detection and recognition data, gesture data, heart rate
25 data, and other wearable device data (e.g., biometric readings and output, accelerometer
26 data). The one or more sensors 821 can include location sensing devices (e.g., GPS)
27 configured to provide location information. In some embodiment, the data measured or
28 sensed by the one or more sensors 821 is stored in memory 860. In some embodiments, the
29 sensor data is used by the wrist-wearable device 170 for detecting one or more hand gestures
30 and determining one or more control gesture types, such as a camera-control gesture.

31 **[00122]** The one or more haptic generators 125 can include one or more actuators (e.g.,
32 eccentric rotating mass (ERM), linear resonant actuators (LRA), voice coil motor (VCM),
33 piezo haptic actuator, thermoelectric devices, solenoid actuators, ultrasonic transducers, or
34 sensors, etc.). In some embodiments, the one or more haptic generators 125 are hydraulic,

1 pneumatic, electric, and/or mechanical actuators. In some embodiments, the one or more
2 haptic generators 125 are part of a surface of the wrist-wearable device 188 that can be used
3 to generate a haptic response (e.g., a thermal change at the surface, a tightening or loosening
4 of a band, increase or decrease in pressure, etc.). For example, the one or more haptic
5 generators 125 can apply vibration stimulations, pressure stimulations, squeeze simulations,
6 shear stimulations, temperature changes, or some combination thereof to the user. In
7 addition, in some embodiments, the one or more haptic generators 125 include audio
8 generating devices (e.g., speakers and other sound transducers) and illuminating devices (e.g.,
9 light-emitting diodes (LED)s, screen displays, etc.). The one or more haptic generators 125
10 can be used to generate different audible sounds and/or visible lights that are provided to the
11 user as haptic responses. The above list of haptic generators is non-exhaustive; any affective
12 devices can be used to generate one or more haptic responses that are delivered to a user.

13 **[00123]** In some embodiments, the one or more applications 835 include social-media
14 applications, banking applications, health applications, messaging applications, web
15 browsers, gaming application, streaming applications, media applications, imaging
16 applications, productivity applications, social applications, etc. In some embodiments, the
17 one or more applications 835 include artificial reality applications. The one or more
18 applications 835 can be configured to provide data to the head-wearable device 110 that can
19 be used to determine variable light-based representations. In some embodiments, the one or
20 more applications 835 can be displayed via an optional display of the head-wearable device
21 110.

22 **[00124]** In some embodiments, the AR processing module 845 is configured to detect
23 and determine one or more gestures performed by a user 113 based at least on sensor data. In
24 some embodiments, the AR processing module 845 is configured detect and determine one or
25 more gestures performed by the user 113 based on camera data received that captures at least
26 a portion of the user 115's hand. For example, the wrist-wearable device 170 can receive
27 EMG data and/or IMU data from one or mor sensors 821 based on the user 115's
28 performance of a hand gesture and provide the sensor data to the AR processing module 845
29 for gesture detection and identification. The AR processing module 845, based on the
30 detection and determination of a gesture, causes a device communicatively coupled to the
31 wrist-wearable device 170 to perform an operation (or action). For example, a hand gesture
32 performed by the user and determined to be a camera-control gesture, based on the sensor
33 data received at the wrist-wearable device 170, causes a head-wearable device 110 or 510 to
34 capture image data as well as the presentation of a representation of the image data at a

1 coupled display (e.g., display 130). In some embodiments, the AR processing module 845
2 determines different characteristics between the hand gestures performed by the user based
3 on the sensor data and performs one or more operations or actions based on the
4 characteristics of the hand gesture satisfying one or more thresholds (e.g., force thresholds,
5 duration thresholds, contact number thresholds, etc.).

6 **[00125]** In some embodiments, the one or more imaging devices 111 can include an
7 ultra-wide camera, a wide camera, a telephoto camera, a depth-sensing cameras, or other
8 types of cameras. In some embodiments, the one or more imaging devices 111 are used to
9 capture image data and/or video data via the wrist-wearable device 170. The captured image
10 data can be processed and stored in memory and then presented to a user for viewing. The
11 one or more imaging devices 111 can include one or more modes for capturing image data or
12 video data. For example, these modes can include a high-dynamic range (HDR) image
13 capture mode, a low light image capture mode, burst image capture mode, and other modes.
14 In some embodiments, a particular mode is automatically selected based on the environment
15 (e.g., lighting, movement of the device, etc.). For example, a wrist-wearable device with
16 HDR image capture mode and a low light image capture mode active can automatically select
17 the appropriate mode based on the environment (e.g., dark lighting may result in the use of
18 low light image capture mode instead of HDR image capture mode). In some embodiments,
19 the user can select the mode. The image data and/or video data captured by the one or more
20 imaging devices 111 is stored in memory 860 (which can include volatile and non-volatile
21 memory such that the image data and/or video data can be temporarily or permanently stored,
22 as needed depending on the circumstances).

23 **[00126]** The one or more processors 850 can be implemented as any kind of computing
24 device, such as an integrated system-on-a-chip, a microcontroller, a fixed programmable gate
25 array (FPGA), a microprocessor, and/or other application specific integrated circuits (ASICs).
26 The processor may operate in conjunction with memory 860. The memory 860 may be or
27 include random access memory (RAM), read-only memory (ROM), dynamic random-access
28 memory (DRAM), static random-access memory (SRAM) and magnetoresistive random
29 access memory (MRAM), and may include firmware, such as static data or fixed instructions,
30 basic input/output system (BIOS), system functions, configuration data, and other routines
31 used during the operation of the wrist-wearable device 170 and the processor 850. The
32 memory 860 also provides a storage area for data and instructions associated with
33 applications and data handled by the processor 850.

34 **[00127]** In some embodiments, the memory 860 stores at least user data 862 including

1 sensor data 864 and AR processing data 863. The sensor data 864 includes sensor data
2 monitored by one or more sensors 821 of the wrist-wearable device 170 and/or sensor data
3 received from one or more devices communicative coupled with the wrist-wearable device
4 170, such as a head-wearable device 110, smartphone 874b, etc. The sensor data 864 can
5 include sensor data collected over a predetermined period of time that can be used by the AR
6 processing module 845. The AR processing data 863 can include one or more one or more
7 predefined camera-control gestures, user defined camera-control gestures, predefined non-
8 camera-control gestures, and/or user defined non-camera-control gestures. In some
9 embodiments, the AR processing data 863 further includes one or more predetermined
10 threshold for different gestures.

11 **[00128]** The head-wearable devices 110 and 510 can include a communication
12 interface 815, a display 130, one or more sensors 821, one or more haptic generators 825, one
13 or more imaging devices 111 (e.g., a camera), one or more applications 835, one or more
14 processors 850, and memory 860. In some embodiments, the wrist-wearable device 170
15 includes smart glasses (e.g., the augmented-reality glasses), artificial reality headsets (e.g.,
16 VR/AR headsets), or other head worn device. In some embodiments, one or more
17 components of the head-wearable device 110 are housed within a body of the head-wearable
18 device 110 (e.g., frames of smart glasses, a body of an AR headset, etc.). In addition, in some
19 embodiments, one or more components of the head-wearable device 110 are stored within or
20 coupled with lenses of the head-wearable device 110. The wrist-wearable device 170 is
21 configured to communicatively couple with the head-wearable devices 110 and/or 510 (or
22 other devices (e.g., electronic device 874)) using communication interface 815. In some
23 embodiments, the wrist-wearable device 170 is configured to communicatively couple with
24 the head-wearable device 110 (or other devices (e.g., electronic device 874)) via an
25 application programming interface (API). In some embodiments, the wrist-wearable device
26 170 operates in conjunction with the head-wearable device 110 to allow for offering the
27 customized experiences discussed herein when the display capsule of a device 170 is coupled
28 with different wearable structures (e.g., by using the customized display features at both the
29 head-wearable device 110 and the wrist-wearable device 170).

30 **[00129]** Electronic devices 874 can also include a communication interface 815, a
31 display 130, one or more sensors 821, one or more applications 835, an AR processing
32 module 845, one or more processors 850, and memory 860. The electronic devices 874 are
33 configured to communicatively couple with the wrist-wearable device 170 and/or head-
34 wearable device 110 (or other devices) using communication interface 815. In some

embodiments, the electronic devices 874 are configured to communicatively couple with the wrist-wearable device 170 and/or head-wearable device 110 (or other devices) via an application programming interface (API). In some embodiments, the electronic devices 874 operate in conjunction with the wrist-wearable device 170 and/or the head-wearable device 110 to determine a hand gesture and cause the performance of an operation or action at a communicatively coupled device. The electronic devices 874, like the head-wearable device 110.

[00130] Server 870 includes a communication interface 815, one or more applications 835, an AR processing module 845, one or more processors 850, and memory 860. In some embodiments, the server 870 is configured to receive sensor data from one or more devices, such as the head-wearable device 110, the wrist-wearable device 170, and/or electronic device 874, and use the received sensor data to determine a hand gesture. The server 870 can generate instructions that cause the performance of operations and actions associated with a determined hand gesture at communicatively coupled devices, such as the head-wearable device 110.

[00131] Figures 9A-9B illustrate an example display capsule 900 configured to be coupled with a holding structure (e.g., a holding structure 1004 in Figure 10A, which can also be referred to as a cradle 1004) in conjunction with the techniques described herein, in accordance with some embodiments. The display capsule can be any of the display capsules described above (e.g., display capsules 121, 121A, 201, and those in Figures 3A-3F). In some embodiments, the display capsule 900 includes some or all of the components described in any of Figures 6-8. The display capsule 900 can be configured to be coupled with any of the holding structures described herein (e.g., a holding structure 1204 attached to a wearable electronic device 1200, a holding structure 1304 attached to handlebars of a bicycle, a holding structure 1324 attached to a necklace, etc.). In some embodiments, characteristics of the user interface, including display characteristics of the display capsule 900, are modified based on a device identifier of the respective holding structure that the display capsule 900 is coupled with.

[00132] Further, many of the display capsules described herein are configured to be coupled with holding structures that have their own identifiers, which can cause modifications to characteristics of the user's experience. For example, the display capsule 900 can be coupled with the holding structure 1324 shown in Figure 13B (e.g., an electronic pendant configured to be worn on a necklace). The holding structure 1324 can be associated with a device identifier (e.g., which can be communicated to the display capsule by way of a

characteristic change in a magnetic field sensed by the display capsule, an RFID embedded in the holding structure, or other ways to uniquely identify the holding structure 1324 to the display capsule (e.g., RFID, UWB, NFC, Hall effect sensing)). Upon receipt of the device identifier, the display capsule can then be customized based on a set of customized display characteristics associated with the device identifier.

[00133] As described herein, characteristics can be understood as aspects of the user's experience with a computing system that includes or is otherwise associated with the display capsule 900. For example, the display capsule 900 includes a display 902 (which can be an example of the display 130 in Figure 8, according to some embodiments) that is configured to display visual elements to a user, including user interface elements, such as a clock user interface element (e.g., the clock user interface element 1036 in Figure 10D). Holding structures with distinct device identifiers can cause the clock user interface element to be displayed with visually perceptible differences at the display 902.

[00134] In some embodiments, the display capsule 900 can be in electronic communication with one or more other electronic devices (e.g., a head-wearable device such as AR glasses or VR goggles, and/or another mobile device such as a smartphone, laptop, etc.). The device identifier of the holding structure that the display capsule 900 is coupled with can modify one or more user interfaces of one or more of these other electronic devices. In some embodiments, the display capsule 900 can include default display characteristics, which can be stored in memory (e.g., the memory 860 in Figure 8) of the display capsule 900 and/or one or more electronic devices coupled with the display capsule 900.

[00135] Figure 9A illustrates a perspective view of the display capsule 900. The display capsule 900 includes a touch-sensitive display 902 (e.g., a display screen), which can be located on a top surface of the display capsule 900. The touch-sensitive display 902 is coupled with a housing 904, which can be integrally formed with the touch-sensitive display 902 of the display capsule 900, according to some embodiments. In some embodiments, the housing 904 can be removably coupled from the display 902 of the display capsule 900. In some embodiments, the entire exterior of the housing is made of a rigid material, such as stainless steel. In some embodiments, at least part of the exterior surface of the housing is made of a soft, flexible material, such as an elastomer material.

[00136] The housing 904 defines a first outer perimeter 906 that extends beyond a second outer perimeter 908 of the touch-sensitive display 902. In some embodiments, a display-coupling edge 910 is defined by a portion of the display capsule 900 that extends (e.g., vertically upward) above the first outer perimeter 906 of the housing 904. In some

embodiments, a housing-coupling edge 912 is defined by a portion of the housing 904 between the first outer perimeter 906 of the housing 904 and the second outer perimeter 908 of the touch-sensitive display 902. The housing-coupling edge 912 is generally orthogonal to the display-coupling edge 910. Generally, as described herein, orthogonal means within approximately five degrees of a perpendicular relationship between the two edges. In other words, the display-coupling edge 910 and the housing-coupling edge 912 can also be understood as together forming a cornered edge that extends outward beyond the outer perimeter of the touch-sensitive display 902.

[00137] In some embodiments, a lower surface 914 (e.g., a bottom surface) of the display capsule 900 includes one or more sensors (e.g., any of the sensors described in Figures 6-8). In some embodiments, the lower surface 914 of the display capsule 900 is configured to have an outwardly extending rounded profile that is configured to protrude into the skin of a wearer of the display capsule 900. There can be at least two purposes of such protrusion. First, the one or more sensors on the lower surface 914 of the display capsule 900 can be used to detect signals from the body of the user and/or other conditions of the user's external environment. Further, the protrusion of the lower surface 914 into the skin of the user can cause an upward force towards the housing coupling edge 912, which can be in contact with a coupling edge of a respective holding structure, according to some embodiments. In some embodiments, the lower surface 914 has a rounded surface profile representing the protrusion that a contact point of the lower surface 914 (e.g., a contact point that includes an electrode of one of the sensors) protrudes beyond a plane defined by a lower surface of a lower retaining portion of the holding structure.

[00138] In some embodiments, the display capsule 900 includes one or more electrical sensors (e.g., Hall effect sensors), which can be configured to sense a change in an electrical signal associated with the magnetic field at one or more discrete locations of the display capsule 900 (e.g., a magnetic field location 916, a magnetic field location 918, etc.). In some embodiments, the discrete locations can be indicated by visually perceptible features (e.g., button outlines, cutouts, distinct colorways) on an exterior surface of the housing 904. In some embodiments, one or more of the discrete locations are not indicated by any cutouts or other visually perceptible features on the exterior surface of the housing 904. In some embodiments there are depressible elements (e.g., buttons) instead of, or in addition to, the magnetic field locations 916 and 918. In other words, one or more of the magnetic field locations 916 and 918 can coincide with actual physical buttons that can be used instead of the Hall effect sensing capabilities associated with the magnetic field locations. In some

embodiments, a device identifier of a holding structure that the display capsule is placed in can cause one or more Hall effect sensors of the display capsule to receive reduced power, increased power, or no power. For example, the display capsule 900 can be configured to couple with a holding structure located in an automatic vehicle (e.g., a car, a dirt bike, etc.). In some embodiments, while the automatic vehicle is moving, one or more of the magnetic field locations of the display capsule (e.g., the magnetic field location 916, and/or the magnetic field location 918) can be configured to be disabled while the respective automatic vehicle is activated (e.g., being driven). For example, the holding structure can be associated with a separate touch screen display that is in communication with separate physical buttons (e.g., a holding structure connected to a dashboard display of a car).

[00139] Figure 9B illustrates a top view of the display capsule 900. The touch-sensitive display can have an inset 922, that can be a hard plastic material according to some embodiments. In some embodiments, a peripheral camera 920 can be located along an edge of the inset 922. In some embodiments, as shown in Figure 9C, the touch-sensitive display can include a cutout on the inset 922, and the peripheral camera 920 can be located within the cutout. In some embodiments, one or more cameras can be located at other locations of the display capsule 900, including on a rear side of the display capsule 900.

[00140] Figures 10A-10H illustrate a sequence for coupling the display capsule 900 with an example wearable device 1000 that includes a band portion 1006 and a holding structure 1004, in accordance with some embodiments. The operations of the sequence can be performed at a computing system that includes at least the display capsule 900 and a holding structure 1004, which can be attached to a wearable band (e.g., a band portion 1006) of a wearable electronic device. In some embodiments the band portion 1006 is configured to be worn around a wrist of a user 101. In some embodiments, the one or more band portions can include additional sensors besides the one or more sensors located at the display capsule. In some embodiments, a unitary structure (e.g., one continuous molded piece of plastic) is formed by the combination of the holding structure 1004, and the band portion 1006. In some embodiments, the band portion 1006 includes two or more sub-portions (e.g., a first band portion 1030, and a second band portion 1032), where each of the sub-portions are configured to be coupled by one or more coupling components disposed on at least one of the first band portion 1030 and the second band portion 1032.

[00141] Figure 10A illustrates a user 101 holding the display capsule 900 in their hand. A notification user interface element 1002 is displayed at the display 902 of the display capsule 900 (stating: "Using default display features for uncoupled state. Connect to a

1 capsule holder for customized features!”). In some embodiments, when the display capsule
2 900 is uncoupled from any holding structure with a respective device identifier or is coupled
3 with a holding structure that does not include a device identifier, the display capsule 900 is
4 configured to use default display characteristics (e.g., default user interface settings). In
5 some embodiments, the display characteristics of the display capsule 900 are configured to be
6 the same display characteristics that were activated at the display capsule 900 by the holding
7 structure that the display capsule was previously coupled with. In some embodiments, the
8 default display characteristics correspond to a device identifier of the display capsule 900. In
9 some embodiments, one or more of the default display characteristics of the display capsule
10 can be set by another electronic device. In some embodiments, display characteristics of the
11 display capsule can be configured by the user before they purchase the display capsule 900
12 (e.g., from a dedicated website that is in communication with a remote web server). In some
13 embodiments, users and/or equipment manufacturers can customize the design of one or
14 more of display capsules (e.g., the display capsule 900), holding structures, band portions,
15 and/or any other electronic components that can be associated with the display capsule 900.
16 In some embodiments, the value of the respective device identifier of the customized device
17 can be based on customizations that the respective user makes to the respective components
18 at the remote website.

19 **[00142]** Figure 10B illustrates the display capsule 900 being placed into a holding
20 structure 1004 of the wearable electronic device 1000. The holding structure 1004 is
21 physically attached to the band portion 1006 of the wearable electronic device 1000. In some
22 embodiments, the holding structure 1004 can be removably couplable with the band portion
23 1006. In some embodiments, an external surface of the holding structure includes one or
24 more attachment loops, and each of the attachment loops can be configured to hold at least
25 one part of the band portion 1006. In some embodiments, the holding structure 1004 can be
26 configured to be magnetically coupled with one or more band portions of the respective
27 wearable device (e.g., the band portion 1006).

28 **[00143]** In some embodiments, there is a lip 1008 on the holding structure 1004 that is
29 configured to receive a coupling edge of a display capsule (e.g., the housing-coupling edge of
30 the display capsule 900). In some embodiments, the lip 1008 extends inward towards a
31 lateral center of an opening defined by the holding structure. In some embodiments, the lip is
32 made of hard plastic. In some embodiments, at least a portion of the exterior surface of the
33 lip includes a silicone material. In some embodiments, the lip 1008 can include hard plastic
34 in certain locations of the inward extension (e.g., a first lateral width of the inward

extension), and can include soft elastomer material in other locations of the lip 1008. For example, the innermost portion of the lip 1008 can be made of a soft plastic and/or elastomer material, such that the portion of the lip 1008 that includes hard plastic can extend into the inner lateral edge of the housing-coupling edge (e.g., the corner where the housing-coupling edge joins the display-coupling edge).

[00144] As will be discussed below, there can be a second lip 1010 on a lower portion of the holding structure, that can be made of different materials than the lip 1008. In some embodiments, the lip 1008 can be made of a composite material that includes a layer of flexible silicone surrounding a layer of hard metal. In some embodiments, the lower lip 1010 can be configured to surround an outer portion of the lower surface of the display (e.g., the lower surface 917).

[00145] In some embodiments, the holding structure 1004 includes one or more embedded magnets. The one or more embedded magnets can be configured to generate a magnetic field at a discrete field location of the holding structure 1004. In some embodiments, at least one electrical sensor disposed within the display capsule 900 (e.g., a Hall effect sensor corresponding to one or both of the magnetic field locations described with respect to the display capsule 900) is configured to sense an adjustment to an electrical signal associated with the magnetic field generated by the one or more embedded magnets. In some embodiments, the holding structure 1004 includes a second group of one or more embedded magnets, where each of the one or more embedded magnets are configured to generate a second magnetic field at a second discrete location of the holding structure 1004, distinct from the first location. In some embodiments, after the display capsule 900 becomes coupled with the holding structure 1004, an indication is provided to the user 101 indicating which Hall effect sensors, and/or discrete magnetic field locations of the display capsule 900 are activated by the respective embedded magnets of the holding structure 1004.

[00146] Figure 10C illustrates a top perspective view of the display capsule 900 after it has been coupled with the holding structure 1004 of the wearable electronic device 1000, such that one or more coupling edges of the display capsule (e.g., the display-coupling edge 1010 and/or the housing-coupling edge 912) are in physical contact with one or more lips (e.g., the lip 1008) of the holding structure 1004. In some embodiments, both of the respective coupling edges of the display capsule 900 are configured to be pressed (e.g., providing an outward normal force) against portions of the lip 1008 of the holding structure 1004, such that the display capsule is held in place by the holding structure 1004 (e.g., snugly fit). In some embodiments, one of the display-coupling edge 1010 or the housing-coupling

1 edge 912 are configured to be rigidly pressed against a hard plastic portion of the holding
2 structure, while the other coupling edge (or a portion thereof) is configured to be encased by
3 a soft elastomer portion of the of the holding structure 1004. In some embodiments, the
4 display capsule is configured to be removably coupled with the holding structure such that
5 the display capsule is pushed through the opening such that the display-coupling edge is
6 fixedly held by the lip of the holding structure when the display-coupling edge and the
7 housing-coupling edge are surrounded by the holding structure.

8 **[00147]** In some embodiments, an inner surface of the holding structure 1004 is made,
9 at least partially, of a silicone material that is configured to accommodate the size of the
10 display capsule 900 to produce a snug fit. In some embodiments, the silicone material on the
11 inner surface of the display capsule 900 is configured to apply a retaining force to an exterior
12 surface of the display capsule 900, such that respective elements of the holding structure
13 corresponding to one or more Hall effect sensors associated with one or more discrete field
14 locations (e.g., the magnetic field location 916, the magnetic field location 918, etc.) of the
15 display capsule 900 are more performant, while the retaining force is not so much as to cause
16 damage to electronic and/or mechanical components of the display capsule 900 and/or the
17 holding structure 1004.

18 **[00148]** In some embodiments, upon coupling the display capsule 900 with the holding
19 structure, at least one display characteristic of the display capsule 900 is modified based on
20 the device identifier corresponding to the holding structure 1004. In some embodiments, an
21 indication can be provided to the user 101 when the display capsule 900 becomes sufficiently
22 coupled with the holding structure 1004. For example, in Figure 10C, a notification user
23 interface element 1021 is displayed on the display 902 of the display capsule 900 (stating:
24 “Custom display characteristics have been activated based on the device identifier of the
25 connected holding structure!”). In some embodiments, the indication includes a haptic event
26 provided at one or more of the display capsule 900, the holding structure 1004, or another
27 electronic device in communication with the display capsule and/or the holding structure
28 1004. In some embodiments, the indication includes a notification displayed at the display
29 capsule. In some embodiments, the indication causes an outer surface of the display capsule
30 900, the holding structure and/or another electronic device to change physical appearance.
31 For example, in some embodiments, when the display capsule 900 becomes coupled with a
32 holding structure with a particular device identifier, a glowing effect is applied to the band
33 portion 1006 of the wearable device corresponding to the holding structure 1004.

34 **[00149]** Display characteristics of the notification user interface element 1021 are

1 customized based on the device identifier of the holding structure 1104 of the wearable
2 electronic device 1000. In some embodiments, one or more non-display characteristics are
3 customized at the display capsule based on the device identifier of the respective holding
4 structure that it is connected to. For example, while the display capsule 900 is connected to
5 the holding structure 1004, an audial rocket noise can be emitted when a notification is
6 received at the display capsule 900.

7 **[00150]** In some embodiments, the indication that the display capsule 900 is
8 sufficiently coupled with the holding structure 1004 includes an adjustment to a display
9 characteristic of a virtual avatar associated with the user 101. For example, in some
10 embodiments, the virtual avatar associated with the user 101 is configured to be wearing one
11 of several outfits, and the respective outfit that the avatar is wearing after coupling the display
12 capsule 900 with the holding structure 1004 corresponds to the device identifier of the
13 holding structure.

14 **[00151]** In some embodiments, the device identifier of the holding structure 1004 is an
15 RFID tag, or another device for communicating a unique identifier and/or packets of data
16 related thereto (e.g., RFID, UWB, NFC, Hall effect sensing). In some embodiments, the
17 device identifier of the holding structure 1004 is a structured data object (e.g., data in a
18 database table (e.g., MySQL), JavaScript Object Notation (JSON), etc.). In some
19 embodiments, the structure data object includes one or more sets of weighted characteristics,
20 and the outfit of the avatar corresponding the device identifier of the holding structure 1004 is
21 based on a calculation that includes one or more of the weighted characteristics. As a
22 prophetic example, the weighted characteristics can include such features as “sportiness,”
23 “classiness,” “funniness,” and “trendiness.” And the selection of the avatars outfit, and/or
24 one or more individual aspects of the outfit are based on a calculation involving these
25 characteristics. In some embodiments, the respective outfits (or components thereof) have
26 corresponding identifiers that are used in conjunction with the information in the device
27 identifier in order to cause certain aspects of the avatar’s outfit to be selected. In an example
28 embodiment, the display capsule 900, the holding structure 1004, and each of the first band
29 portion 1030 and the second band portion 1032 have device identifiers, that are used in
30 conjunction with one another to determine culminated display characteristics of the display
31 capsule 900. In some embodiments, when the display capsule 900 becomes coupled with a
32 respective holding structure (e.g., the holding structure 1004) for the first time, the avatar
33 associated with the user 101 can receive a content item (e.g., loot box, virtual jersey, etc.) that
34 corresponds to the device identifier of the holding structure 1004. In some embodiments,

1 such content items can be received when the user 101 goes to a particular geographic location
2 (e.g., a trendy night club, a sporting event, a concert, etc.). In some embodiments, the
3 determination that the user 101 has arrived at a certain location can be determined based on
4 GPS coordinates (e.g., via the GPS 1017 in Figure 7), or by a determination that the user 101
5 accessed a particular Wi-Fi connection (e.g., via a Wi-Fi or Bluetooth module 1020 in Figure
6 7). The received content items can include accessories for an avatar associated with the user
7 101, custom photo stickers, frames, filters, and the like.

8 **[00152]** Figure 10D is a perspective of the wearable electronic device 1000, including
9 the display capsule 900, the holding structure 1004, a first band portion 1030, and a second
10 band portion 1032, while the wearable electronic device 1000 is configured (e.g., sized) with
11 a first circumference to be worn by the user 101. In some embodiments, the first band
12 portion 1030 and/or the second band portion 1032 include internal and/or external magnets,
13 which can be used according to some embodiments to maintain a coupling connection
14 between the first band portion 1030 and the second band portion 1032.

15 **[00153]** The wearable electronic device 1000 includes two depressible peripheral
16 elements, a first depressible peripheral element 1040, and a second depressible peripheral
17 element 1042. In some embodiments, the first depressible peripheral element 1040 and the
18 second depressible peripheral element 1042 are configured to be in positional alignment
19 with a mechanical button of a housing of the display capsule 900 while it is held within the
20 holding structure 1004. In some embodiments, one or more of the depressible peripheral
21 elements 1040 and 1042 are configured to be in positional alignment with magnetic field
22 locations (e.g., the magnetic field location 916, the magnetic field location 918, etc.), which
23 can be generated by Hall effect sensors of the display capsule 900, according to some
24 embodiments.

25 **[00154]** Figure 10D shows the display 902 of the display capsule 900 displaying a
26 clock user interface element 1036 (e.g., a digital clock), which can have one or more display
27 characteristics that correspond to the device identifier of the respective holding structure that
28 the display capsule 900 is connected to (e.g., the holding structure 1004). In some
29 embodiments, the clock user interface element 1036 is displayed at a home user interface that
30 is configured to be displayed when the user 101 wakes the display capsule 900.

31 **[00155]** Figure 10E is a bottom view of the display capsule 900 while the housing-
32 coupling edge 912 is coupled with the holding structure 1004. The lower surface 914 of the
33 display capsule 900 can include one or more sensors (e.g., the set of sensors 1035), which can
34 be distributed at different locations along the lower surface 914. In some embodiments, at

1 least one of the one sensors of the set of sensors 1035 on the lower surface 1016 includes one
2 or more electrodes that can be used to detect neuromuscular signals of the user 101. In some
3 embodiments, the shape of the lower surface 914 of the display capsule 900 is configured to
4 cause the neuromuscular signal sensor(s) on the lower surface to protrude into the user's skin
5 by a certain depth, and/or at a certain location, in order to detect a particular neural signal
6 with a desired level of fidelity. In some embodiments, one or more neuromuscular signal
7 sensors on wearable electronic device need to be located at a certain position on the wrist of
8 the user 101 in order to properly detect neuromuscular signals of the user 101.

9 **[00156]** Figure 10F illustrates the user 101 activating the depressible peripheral
10 element 1040 of the holding structure 1004, which causes a change in magnetic field to be
11 detected by a Hall effect sensor of the display capsule 900. In some embodiments, each of
12 the gestures illustrated by the Figures 10F-10H cause different operations to be performed at
13 a user interface displayed at a display of the display capsule 900. In some embodiments, the
14 distinct operations caused by each gesture at some of the user interfaces displayed at the
15 display 902 of the display capsule 900 correspond to a predefined set of navigational
16 operations at the user interface (e.g., a gesture directed to the depressible peripheral element
17 1040 can correspond to a downward movement in a particular user interface displayed at the
18 display 902 of the display capsule 900, and a gesture directed to the depressible peripheral
19 element 1042 can correspond to an upward movement in the particular user interface
20 displayed at the display 902 of the display capsule 900). In some embodiments, operations
21 corresponding to gestures directed to any depressible peripheral elements of the display
22 capsule 900 can be configured by the user 101. In some embodiments, the sensitivity of the
23 Hall effect sensors activatable by the depressible peripheral elements of the display capsule
24 900 are configurable by the user 101, and/or can be characteristics adjustable based on the
25 device identifier of the respective holding structure that the display capsule 900 is coupled
26 with.

27 **[00157]** Figure 10G illustrates the user 101 activating the depressible peripheral
28 element 1040 of the holding structure 1004 while a menu user interface element 1028 is
29 displayed at the display 902 of the display capsule 900, which can cause a change in
30 magnetic field at a discrete field location of the display capsule 900. The change in magnetic
31 field can be sensed by one or more Hall effect sensors of the display capsule 900. In some
32 embodiments, the control flow of a plurality of user interface elements displayed at the
33 display 902 of the display capsule 900 can be adjusted based on the device identifier of the
34 respective holding structure that the display capsule 900 is coupled with.

1 **[00158]** Figure 10H illustrates the user 101 performing a gesture directed to the
2 depressible peripheral element 1042 of the holding structure 1004 that causes a different
3 operation to be performed within a contact list user interface 1034 displayed at the display
4 902 of the display capsule 900. In some embodiments, one or more display characteristics of
5 the display capsule 900 are adjusted at individual user interfaces (e.g., the contact list user
6 interface 1034) of the display capsule 900 based on the device identifier of the holding
7 structure 1004.

8 **[00159]** Figures 11A-11E illustrate an example sequence that includes removing the
9 display capsule 900 from a wearable electronic device 1100 that includes a band portion 1106
10 and a holding structure 1104 and placing the display capsule 900 into another wearable
11 device that includes another band portion and another holding structure, in accordance with
12 some embodiments.

13 **[00160]** Figure 11A illustrates the user 101 placing the display capsule 900 into
14 another holdings structure 1104 of a wearable electronic device 1100 that is different than the
15 wearable electronic device 1000 in Figures 10A-10H. The wearable electronic device 1100
16 includes at least one device identifier that is distinct from the one or more device identifiers
17 of the respective components illustrated in Figures 10A-10I (e.g., the device identifier of the
18 holding structure 1004).

19 **[00161]** In some embodiments, the holding structure 1104 of the wearable electronic
20 device 1100 includes at least one of the same or similar mechanical components as the
21 holding structure 1004 of the wearable electronic device 1000 in Figures 10A-10H. In some
22 embodiments, the holding structure 1104 of the wearable electronic device 1100 includes one
23 or more different activatable mechanical elements than the depressible peripheral elements
24 illustrated in Figures 10A-10H. For example, the holding structure 1104 in Figure 11A
25 includes a twistable dial peripheral element 1140 that the user can activate by a rotational
26 gesture. In some embodiments, the dial peripheral element 1140 can cause a connected
27 mechanical component to be depressed towards a magnetic field location of the display
28 capsule 900. The holding structure 1104 also includes depressible peripheral element 1142.

29 **[00162]** Figure 11B illustrates the holding structure 1104 of the wearable electronic
30 device 1100 coupled with the display capsule 900. The different device identifier of the
31 holding structure 1104 can cause a dial clock user interface element to be displayed at the
32 display of the display capsule 900 (e.g., a dial clock instead of digital clock).

33 **[00163]** Figure 11C illustrates a notification user interface element 1112 displayed at
34 the display of the display capsule 900 (stating: “Custom identifier detected, customized

display characteristics active at the display.”). Display characteristics of the notification user interface element 1112 are customized based on a different customized set of characteristics corresponding to the device identifier of the holding structure 1104 of the wearable electronic device 1100. In some embodiments, one or more non-display characteristics are customized at the display capsule based on the device identifier of the respective holding structure that it is connected to. For example, while the display capsule 900 is connected to the holding structure 1104, a clinking noise of champagne glasses can be emitted when a notification is received at the display capsule 900.

[00164] Figure 11D illustrates the user 101 navigating a user interface displayed at the display capsule 900 based on the user performing a gesture at the peripheral dial element 1140. In some embodiments, different options can be displayed within a respective menu user interface element of the display capsule 900 based on the device identifier of the holding structure 1104. For example, the device identifier of the holding structure 1104 can be focused on social gatherings, and the menu options of the respective menu user interface element 1128 can be related to locations where social gatherings are likely to take place (e.g., “Trendy Restaurants”, “Top Night Clubs”, “New Stores”, and/or “Avatar Gear”).

[00165] Figure 11E illustrates the user performing a button press gesture at the peripheral dial element 1140. In some embodiments, different operations can be performed when the user 101 performs a gesture directed to the peripheral dial element 1140 than when the user 101 performs a gesture directed to a depressible peripheral element (e.g., the depressible peripheral element 1040, the depressible peripheral element 1042, the depressible peripheral element 1142, etc.). For example, rotating the peripheral dial element 1140 can cause a navigational operation to be performed, while a gesture directed to the depressible peripheral element 1142 (which is visible in Figures 11A-11C) can cause a selection to be performed. In some embodiments, based on performance of the operations from the computer-readable storage media stored in the respective holding structure, functionality and/or data related to such operations can be cached or otherwise stored at the display capsule 900 for later use.

[00166] Figures 12A-12F illustrate another example sequence that includes removing the display capsule 900 from a wearable electronic device 1200 and placing the display capsule 900 into another wearable electronic device 1200 that includes another band portion 1206 and another holding structure 1204, in accordance with some embodiments. In some embodiments, holding structures that are configured to couple with the display capsule 900 can include non-transitory computer readable storage media (e.g., application software) that

1 can be executed to cause performance of operations at the display capsule to modify the
2 user's experience based on the device identifier of the respective holding structure (e.g., the
3 holding structure 1204 can include computer-readable storage medium related to fitness
4 activity user interface elements, control flows, etc.).

5 **[00167]** Figure 12A illustrates the user 101 placing the display capsule 900 into the
6 holding structure 1204 of the wearable electronic device 1200. The wearable electronic
7 device 1200 includes at least one device identifier that is distinct from the one or more device
8 identifiers of the respective components illustrated in Figures 10A-10H (e.g., the device
9 identifier of the holding structure 1004). As shown in Figure 12A, the band portion 1206 of
10 the wearable electronic device 1200 includes different aesthetic features than the band portion
11 1006 of the wearable electronic device 1000, and the band portion 1106 of the wearable
12 electronic device 1100.

13 **[00168]** Figure 12B illustrates the holding structure 1204 of the wearable electronic
14 device 1200 coupled with the display capsule 900. In some embodiments, when the display
15 capsule 900 is coupled with the holding structure 1204, the housing-coupling edge 912 is in
16 physical contact with a lip 1208 of the holding structure 1204. The different device identifier
17 of the holding structure 1104 can cause a clock user interface element 1236 to be displayed
18 within a home user interface displayed at the display 902 of the display capsule 900.

19 **[00169]** The device identifier of the holding structure 1204 causes different user
20 interface elements to be displayed at the display 902 of the display capsule 900. For
21 example, the device identifier of the holding structure 1204 and/or a device identifier of the
22 band portion 1206 can be fitness-themed, which can cause the display capsule 900 to display
23 user interfaces and user interface elements related to fitness activities (e.g., a fitness-themed
24 user interface element 1212, a fitness-themed user interface element 1214, a fitness-themed
25 user interface element 1216, etc.). In some embodiments, data displayed at one or more of
26 the fitness-themed user interface elements can be based on data collected from one or more
27 sensors on the display capsule and/or one or more sensors on the holding structure 1204. In
28 some embodiments, the control flow of user interfaces that the user 101 can navigate through
29 at the display capsule 900 can be adjusted based on the device identifier of the respective
30 holding structure that the display capsule 900 is coupled with. For example, when the user
31 opens the display capsule 900 from the lock screen while the display is coupled with the
32 holding structure 1204, a user interface element can be displayed suggesting that the user go
33 for a run or allowing the user to select from a variety of physical activities to be performed.
34 In some embodiments, the order of user-interface elements, or the priority of displaying such

elements in a limited list at a given user interface can change based on a device identifier of the respective holding structure that the display capsule is coupled with at that time.

[00170] Figure 12C illustrates the holding structure 1204 of the wearable electronic device 1200 coupled with the display capsule 900. A notification user interface element 1238 is being displayed at the display 902 of the display capsule 900 (stating: “You have not worked out today!”). In some embodiments, notification delivery settings of the display capsule 900 and/or another electronic device in communication with the display capsule (e.g., a smartphone, a laptop, etc.) can be adjusted based on the device identifier of the holding structure 1204. For example, since the holding structure 1204 and band portion 1206 of the wearable electronic device 1200 are fitness-themed, notifications related to fitness activities can be displayed at the display capsule 900 that would not be displayed if the display capsule 900 was coupled with other holding structures and/or other electronic components having different device identifiers that are not fitness-themed.

[00171] Figure 12D illustrates the user 101 performing a gesture directed to a depressible peripheral element 1242 of the holding structure 1204. The depressible peripheral elements 1242 are configured to have a lower sensitivity than the depressible peripheral elements 1040 and 1042 on the holding structure 1004 displayed in Figures 10B-10F, which can help the user 101 to avoid accidentally depressing a depressible peripheral element 1240 or the depressible peripheral element 1242 while the user is performing a fitness activity. In other words, the lower sensitivity of the depressible peripheral elements 1240 and 1242 can be related to the device identifier of the holding structure 1204.

[00172] Figure 12E illustrates the holding structure 1204 of the wearable electronic device 1200 coupled with the display capsule 900. A notification user interface element 1250 is being displayed at the display 902 of the capsule device 900 (stating: “New jersey unlocked!”). The notification user interface element 1250 includes a virtual avatar 1252 of the user 101. In some embodiments, the virtual avatar 1252 of the user 101 can be displayed in conjunction with one or more accessory content items based on the device identifier of the respective holding structure that the display capsule 900 is coupled with.

[00173] Figure 12F illustrates the holding structure 1204 of the wearable electronic device 1200 coupled with the display capsule 900. A notification user interface element 1254 is displayed at the display 902 of the display capsule 900 (stating: “New message from: Claire T... You have 43 photos with Claire T, and 212 mutual friends”). There are ornamental user interface elements 1256 and 1258 (e.g., volleyball icons) displayed along with the notification about the new message. A haptic event is occurring at the display

capsule 900 in conjunction with the notification user interface element 1254 being displayed at the display 902 of the display capsule 900.

[00174] Figures 13A-13D illustrate an example sequence that includes placing and removing the display capsule 900 into a plurality of different holding structures of accessory devices that are not configured to be wearable devices, in accordance with some embodiments.

[00175] Figure 13A illustrates the user 101 placing the display capsule 900 into a holding structure 1304 mounted to the handlebars of a physical bicycle 1300. In some embodiments, the holding structure 1304 can optionally be coupled with a wearable electronic device (e.g., the wearable electronic device 1000, the wearable electronic device 1100, the wearable electronic device 1200, etc.) after being de-mounted from the handlebars of the physical bike. In other words, the holding structure 1304 can be coupled with band portions to form a unitary structure that can be worn around the wrist of a user. In some embodiments, power can be reduced to one or more of the peripheral sensors on the lower surface 917 of the display capsule 900, which can be to account for the fact that the peripheral sensors of the display capsule 900 are no longer protruding into the skin of the user 101. In some embodiments, the physical bicycle can have activatable display customizations, which can be activated by the user 101 placing the display capsule 900 into the holding structure 1304 mounted to the handlebars of the physical bicycle by the necklace mount 1302. In some embodiments, the necklace mount 1302 can include a device identifier that can adjust characteristics of the user experience at a computing system that includes or is otherwise associated with the display capsule 900.

[00176] Figure 13B illustrates the user 101 wearing a necklace structure 1322 that includes another holding structure 1324, and the display capsule 900 is coupled with the holding structure 1324. In some embodiments, the holding structure 1324 can be the same as the holding structure 1304, and the display characteristics can be further customized based on the necklace mount 1302 that the holding structure is mounted to (e.g., the bike mount in Figure 13A, the pendant in Figure 13B). In some embodiments, certain device identifiers of certain components of computing systems that include the capsule device 900 (e.g., a computing system 1320 displayed in Figure 13B) can take priority over device identifiers of other components. In some embodiments, a notification user interface element can be displayed at the display capsule 900 when two device identifiers have different characteristics, and the user can select which device identifiers to prioritize for one or more the individual characteristics, or all of the characteristics. In some embodiments, the display

902 of the display capsule 900 can display abstract shaped and/or other ornate elements, instead of or in addition to user interface elements.

[00177] Figure 13C illustrates the display capsule 900 coupled with a holding structure 1344 that is attached to a desk-mounted loop structure 1342. While the display capsule 900 is coupled with the holding structure 1344 of the desk-mounted loop structure 1342, the display 902 of the display capsule 900 is displaying mirror user interface element 1346. In some embodiments, the mirror user interface element 1346 is the home screen of the display capsule 900 based on the device identifier of either or both of the desk-mounted loop structure 1342 and/or the holding structure 1344.

[00178] Figure 13D illustrates the display capsule 900 coupled with a holding structure 1364 that is attached to a home speaker device 1362. While the display capsule 900 is coupled with the holding structure 1364 of the home speaker device 1362, the display capsule can be configured to display exclusive user interfaces of one or more music streaming applications. In some embodiments, the user interfaces displayed by the display capsule 900 when it is coupled with the home speaker device 1362 can only be displayed when the display capsule is coupled with either the holding structure 1364 or the home speaker device 1362.

[00179] Figure 14A-14B illustrate a flow diagram of a method 1400 for using a display capsule that is configured to be coupled with a holding structure.

[00180] Turning now to Figure 14A, the method includes causing (1402) a display capsule, uncoupled from any holding structure, to display a user interface at a touch-sensitive display, where the user interface has a first set of display characteristics. In some embodiments, the first set of display characteristics include a clock user interface element of a user interface displayed at a display of the wrist-wearable device.

[00181] The display capsule includes (1404) a touch-sensitive display and a housing integrally formed with the touch-sensitive display.

[00182] In some embodiments, the housing defines (1406) a first outer perimeter that extends beyond a second outer perimeter of the touch-sensitive display.

[00183] In some embodiments, a display-coupling edge is (1408) defined by the portion of the housing between the first outer perimeter of the housing, and a housing-coupling edge being generally orthogonal to the display-coupling edge.

[00184] In some embodiments, the display capsule includes (1410) at least one Hall effect sensor configured to cause an operation to be performed based on a magnetic change detected by the Hall effect sensor.

1 **[00185]** The method 1400 further includes placing (1412) the display capsule in a
2 holding structure that has a device identifier.

3 **[00186]** (e.g., a Hall effect sensor) disposed within the display capsule is configured to
4 sense a change in an electrical signal associated with the magnetic field generated by the one
5 or more embedded magnets. In some embodiments, the holding structure includes a second
6 group of one or more embedded magnets, the second group of one or more embedded
7 magnets configured to generate a second magnetic field at a second discrete location of the
8 holding structure.

9 **[00187]** In some embodiments, the holding structure includes a means for charging the
10 display capsule. In some embodiments, the holding structure includes a means for providing
11 wireless charging signals to the display capsule. In some embodiments, the display capsule
12 includes pogo pins configured to receive a charge from a charging device, and the holding
13 structure includes a charging device configured to couple with the pogo pins of the display
14 capsule while the display capsule is coupled with the holding structure.

15 **[00188]** display-coupling edge and the housing are configured (1414) to be surrounded
16 by a holding structure, where the holding structure is configured to fixedly hold the display
17 capsule in place.

18 **[00189]** In some embodiments, the device identifier includes (1416) an RFID tag. In
19 some embodiments, one or more other techniques described herein (e.g., UWB, NFC, Hall
20 effect sensing) can be used in addition and/or instead of RFID.

21 **[00190]** In some embodiments, the holding structure defines (1418) an opening, and
22 the opening includes a lip that extends towards a lateral center of the opening. In some
23 embodiments, the lower surface of the lip has a first angular profile distinct from a planar
24 surface of the touch-sensitive display (e.g., sloped outward, such that an outer edge of the
25 lower surface extends below an inner edge of the lower surface). In some embodiments, an
26 upper surface of the display-coupling edge of the display capsule has a second angular profile
27 distinct from the planar surface of the touch-sensitive display. In some embodiments, the
28 second angular profile corresponds to the first angular profile, such that the retaining first and
29 second angular profiles can be fit together to form so that the respective surfaces are in
30 contact along the outer surface.

31 **[00191]** In some embodiments, the display capsule is (1420) configured to be
32 removably coupled with the holding structure such that the display capsule is pushed through
33 the opening such that the display-coupling edge is fixedly held by the lip of the holding
34 structure when the display-coupling edge and the housing-coupling edge are surrounded by

1 the holding structure. In other words, the first outer perimeter of the housing is sized to fit
2 through the second end of the opening and can be pushed towards the first end until the
3 coupling edge of the housing contacts the retaining edge of the holding structure.

4 **[00192]** In some embodiments, the opening of the holding structure has an interior
5 surface that includes a formed silicone material (e.g., flexible silicone that is capable of
6 deforming outward to accommodate the exterior surface of the display capsule). While the
7 display-coupling edge and the housing-coupling edge are surrounded by the holding structure
8 such that the display-coupling edge is retained by the lip of the holding structure, the formed
9 silicone material is configured to apply a retaining force to an exterior surface of the display
10 capsule. In other words, for example, the opening of the holding structure can be sized to
11 have a slightly smaller circumferential cross-section than a cross-section of the exterior
12 surface of the coupling edge, such that the formed silicone material flexes outward to receive
13 the display capsule, and therefore applies force to the exterior surface of the coupling edge
14 based on the resulting flexure. In some embodiments, a lower portion of the holding
15 structure is comprised of a flexible formed silicone material, and the lip includes a non-
16 flexible hard plastic.

17 **[00193]** In some embodiments, the holding structure includes (1422) a peripheral
18 button structure that is configured to align with the Hall effect sensor locations of the display
19 capsule. In some embodiments, the holding structure includes more than one peripheral
20 button structures. The peripheral button structures can include mechanical button
21 components (e.g., a button cap, a stem, and/or a depressible coil spring). In some
22 embodiments, respective mechanical buttons of respective holding structures that are
23 associated with discrete field locations (e.g., have the same relative locations of their
24 respective structures, such that they are aligned when the display capsules are housed or
25 otherwise coupled with the holding structure). In other words, while the holding structure is
26 surrounding the housing, a mechanical button of the holding structure is configured to cover a
27 discrete field location (or, for example, a separate mechanical button) of the housing of the
28 display capsule. In some embodiments, a notification user interface element is provided at a
29 user interface displayed by the display capsule, or another device in electronic
30 communication with the wrist-wearable device (e.g., a head-wearable device), based on the
31 first mechanical button and the second mechanical button having sufficient positional
32 alignment (e.g., “The button on your watch band is now in communication with your capsule
33 device!”).

34 **[00194]** In some embodiments, the holding structure includes a hard plastic casing that

1 surrounds the depressible element of the holding structure. In other words, the hard plastic
2 casing can have a gap wherein there is only a soft material (e.g., a formed silicone material)
3 that corresponds to the peripheral affordance, such that the user can press the peripheral
4 affordance towards the discrete field location of the magnetic field generated by the
5 embedded magnets of the display capsule.

6 **[00195]** As mentioned briefly above, in some embodiments, respective mechanical
7 components of the display capsule and the holding structure can be used to activate
8 operations at the display capsule, in addition to or as an alternative to the Hall effect sensors.
9 For example, a mechanical button located on the housing of the display capsule can be
10 configured to be in positional alignment with mechanical button of the holding structure, and
11 the mechanical button of the housing can be activated by a user gesture directed to the
12 mechanical button of the holding structure.

13 **[00196]** In some embodiments, the embedded magnets of the display capsule have
14 distinct physical characteristics. In some embodiments, a peripheral component of a
15 respective holding structure includes a pivotable dial in addition to or in alternative to a
16 mechanical button functionality. In some embodiments, respective holding structures have
17 different actuators for providing haptic events in response to events (e.g., received message
18 notifications). In some embodiments, respective holding structures have different mechanical
19 components (e.g., speakers, sensors, etc.).

20 **[00197]** In some embodiments, the peripheral button structure includes a depressible
21 element at a discrete field location of the magnetic field generated by the one or more
22 embedded magnets while the display capsule is housed within the holding structure. In some
23 embodiments, in response to the change in the electrical signal associated with the magnetic
24 field generated by the one or more embedded magnets, causing an operation to be performed
25 at a user interface displayed via the touch-sensitive display of the display capsule, wherein
26 the change is caused by an interaction with the depressible element.

27 **[00198]** In some embodiments, a unitary structure is formed (1424) by the combination
28 of the holding structure and a band portion configured to be worn around a wrist of the user.
29 In some embodiments, while the band portion is being worn around the wrist of the user, the
30 holding structure is disposed at a discrete location along a circumference of the wrist of the
31 user. In other words, the holding structure is not a discrete component separate and/or
32 separable from the band portion but is instead integrated with the band portion as one unitary
33 structure.

34 **[00199]** In some embodiments, the holding structure is (1426) attached to an accessory

1 device that is not configured to be worn by a user.

2 **[00200]** The method 1400 further includes upon coupling (1428) the display capsule
3 with the holding structure, the holding structure is configured to customize at least one
4 display characteristic of the display capsule based on the device identifier. For example, in
5 some embodiments, a first holding structure includes an identifier that, when detected by the
6 display capsule, causes the display capsule to display a user interface having a first set of
7 display characteristics (e.g., default characteristics). In some embodiments, when the capsule
8 device is placed within a different holding structure having a different identifier, the capsule
9 device is caused to display a different user interface having a second set of display
10 characteristics (e.g., customized display characteristics).

11 **[00201]** In some embodiments, the default set of display characteristics include a home
12 user interface that includes a digital clock display and a color-based style that corresponds to
13 a default display color associated with an operating system that is causing operations to be
14 performed at the display capsule. And another set of display characteristics (e.g., customized
15 display characteristics) cause include a home user interface that includes a watch-face style
16 dial clock. In some embodiments, the customization further causes an adjustment to input
17 functionality corresponding to the button inputs of the peripheral embedded magnets. In
18 some embodiments, a non-display setting associated with the button inputs of the peripheral
19 embedded magnets is adjusted based on the adjustment to the default characteristics. In some
20 embodiments, the button inputs of the display capsule can be used to respond to notifications,
21 and the adjusting causes the inputs to perform different operations when the gestures are
22 detected in response to received notifications.

23 **[00202]** In some embodiments, the at least one display characteristic includes (1430)
24 display properties of a clock user interface element of a user interface of the display capsule.
25 For example, a clock user interface element caused to be displayed by the display capsule
26 when the display capsule is placed in a first holding structure can be a standard digital clock
27 user interface element, with display aspects that correspond to system settings of the holding
28 structure or its corresponding device (e.g., a wrist-wearable device).

29 **[00203]** In some embodiments, the holding structure is (1432) configured to customize
30 at least one non-display characteristic of the display capsule based on the device identifier.
31 Non-display characteristics can include functionality related to the user interface of the
32 display capsule and or mechanical components of the display capsule. For example, in some
33 embodiments, power is reduced to one or more sensors of the display capsule based on the
34 device identifier of the holding structure. For example, the holding structure may be

1 associated with an electronic fitness machine, such that one or more sensors of the display
2 capsule will not be in contact with a user's skin or otherwise able to detect aspects of the user
3 and are thereby turned off while the display capsule is coupled with the holding structure, so
4 that excess power (e.g., battery power) is not consumed by the display capsule.

5 **[00204]** In some embodiments, the at least one non-display characteristic includes
6 (1434) a notification delivery preference of the user. For example, a device identifier of one
7 respective holding structure can cause the display capsule to display notifications to the user
8 related to their health and/or the performance of a physical activity. And another device
9 identifier of a different holding structure can cause the display capsule to display notifications
10 to the user related to their work schedule (e.g., a notification user interface element stating:
11 "Matt just scheduled a meeting with you that starts fifteen minutes from now, titled "discuss
12 patent application"). In some embodiments, when the display capsule becomes coupled with
13 the holding structure, a notification user interface element can be displayed at the touch-
14 sensitive display of the display capsule, requesting whether the user would like to change the
15 display capsule's default notification settings based on the device identifier of the holding
16 structure.

17 **[00205]** In some embodiments, the non-display characteristic is (1436) customized
18 based on the display capsule not being surrounded by another holding structure with a
19 different device identifier.

20 **[00206]** In some embodiments, the method 1400 further includes after (1438) the
21 holding structure has customized at least one display characteristic or non-display
22 characteristic of the display capsule, cause an operation to be performed at the holding
23 structure, based in part on the device identifier of the holding structure.

24 **[00207]** In some embodiments, the non-display characteristic is (1440) based on usage
25 data associated with the device identifier of the holding structure. For example, the usage
26 data can indicate that while a user is wearing a holding structure having a particular device
27 identifier, the user is more likely to perform a physical activity (e.g., a hike). In some
28 embodiments, the display capsule can be caused to open an application based on the usage
29 data associated with the device identifier. For example, if the usage data indicates that the
30 user is more likely to do a cardio workout (e.g., a stair stepper workout) then the display
31 capsule can be caused to display a workout-related user interface.

32 **[00208]** In some embodiments, while (1442) the display-coupling edge and the
33 housing-coupling edge are surrounded by the holding structure, a lower retaining portion of
34 the holding structure is configured (e.g., sized, formed, etc.) to surround a bottom edge of the

1 housing of the display capsule that extends below the coupling edge. In other words, a
2 flexible formed silicone material, similar to that comprising the interior surface of the holding
3 structure, can extend toward the lateral center of the opening of the holding structure, such
4 that after the display capsule is pushed through the second end of the opening up to where the
5 coupling edge contacts the retaining edge, the flexible formed silicone material extends
6 inward towards the center of the opening such that it retains a portion of the bottom edge of
7 the display capsule.

8 **[00209]** In some embodiments, a bottom surface of the bottom edge of the housing
9 includes (1444) one or more peripheral sensors configured to contact a user, and the lower
10 retaining portion of the holding structure defines a sensor gap, such that while the lower
11 retaining portion is surrounding the bottom edge of the housing, the one or more peripheral
12 sensors on the bottom surface of the housing are exposed via the sensor gap, and not covered
13 by the lower retaining portion.

14 **[00210]** In some embodiments, the lower retaining portion of the holding structure
15 defines (1446) a sensor gap, such that while the lower retaining portion is surrounding the
16 bottom edge of the housing, at least one of the peripheral sensors on the bottom surface of the
17 housing are exposed to a user's body via the sensor gap.

18 **[00211]** Further embodiments also include various subsets of the above embodiments
19 including embodiments described with reference to Figures 1A-5 combined or otherwise re-
20 arranged.

21 **[00212]** Figures 15A-15C illustrate an example sequence at a user interface of the
22 display capsule 900 that is coupled with a holding structure 1504 of a wearable electronic
23 device 1500 that includes a band portion 1506.

24 **[00213]** Figure 15A shows the display capsule 900 coupled with a holding structure
25 1504 of a wearable electronic device 1500 that includes a band portion 1506. The band
26 portion 1506 includes aesthetic features 1501, which can be an indication of a type of device
27 identifier of the band portion 1506 and/or the holding structure 1504. In some embodiments,
28 users can customize the aesthetic features of the band portion 1506 and/or the holding
29 structure 1504 from within a web page hosted by a remote server. In some embodiments,
30 users can also customize aspects of the respective device identifiers of the customizable
31 components.

32 **[00214]** In some embodiments, images that the user 101 takes can be modified by an
33 artistic filter, which can be applied based on the device identifier of the respective holding
34 structure that the display capsule 900 is attached to. In some embodiments, such artistic

1 filters can also be applied to a face and/or other body part of an avatar associated with the
2 user. In some embodiments, the artistic filter applied to the image(s) and/or avatar(s)
3 associated with the user 101 can be based on the device identifier of the holding structure or
4 other component that the display capsule 900 is coupled with at that time.

5 **[00215]** An artistic rendering 1502 of a user's avatar is displayed at the display 902 of
6 the display capsule 900. In some embodiments, the artistic rendering 1502 is displayed at a
7 home-screen user interface of the display capsule 900. In some embodiments a home screen
8 or other displayed element of another electronic device associated with the user (e.g., a phone
9 background) is also updated to have a theme related to the new band on watch (e.g., once new
10 band is attached to watch, the user is also provided with an option to apply the new theme on
11 other smart devices, including laptop, smartphone, tablet, etc.). In some embodiments, the
12 updated theme can be automatically pushed to one or more of the user's other devices based
13 on the user 101 coupling the display capsule with a holding structure or other connected
14 electronic device that is associated with the background theme (e.g., via the device identifier).
15 In some embodiments, a device identifier of one or more of the holding structure 1504 and
16 the band portion 1506 indicates a style of artistic rendering, and/or a specific artist's style,
17 and the artistic rendering 1502 is adjusted based on the style of artistic rendering and/or the
18 specific artist's style. In some embodiments, the holding structure 1504 and the band portion
19 1506 each include different device identifiers that indicate different styles of artistic
20 rendering and/or specific artists' styles, and the artistic rendering 1502 is a combination of
21 the styles.

22 **[00216]** Figure 15B shows a haptic event occurring at the display capsule 900 based on
23 the display capsule receiving a notification (the lines extending from the corners of the
24 holding structure 1504 indicate that the display capsule 900 is vibrating). which is also
25 indicated by the notification user interface element 1508 that is displayed on the display 902
26 of the display capsule 900. The artistic rendering 1502 is reacting to the receipt of the
27 notification (e.g., making a surprised face).

28 **[00217]** Figure 15C shows the artistic rendering 1502 directing a focus towards the
29 notification user interface element 1508 (the pupils of the artistic rendering 1502 are pointed
30 in a direction toward the notification user interface element 1508). In some embodiments, the
31 artistic rendering 1502 and/or other user interface elements can cause non-visual aspects of
32 the user interface to be directed to a received notification. For example, an audial or haptic
33 event can be emitted in a direction of the user interface element representing the notification.

34 **[00218]** In some embodiments, the visual characteristics of a lock screen image and/or

1 background image of the display capsule 900 can adjust based on other events besides
2 received notifications. For example, environmental context of the display capsule 900 can
3 cause the background image to adjust. As a specific example, the artistic rendering 1502 can
4 be caused to squint based on the user being in a sunny or otherwise bright environment. The
5 artistic rendering 1502 can appear sleepy or otherwise weary in response to an alarm (e.g., a
6 wake-up alarm) that is activated at the display capsule 900.

7 **[00219]** A method for performing the operations described in Figures 15A to 15C will
8 now be described in detail. A display of an electronic device can be configured to adjust a
9 background image on a lock-screen user interface to identify an electronic notification. The
10 method includes displaying, on a lock-screen user interface of an electronic device, a
11 background image having a default value for a visual characteristic. And the method
12 includes, in response to receiving an electronic notification: (i) updating the lock-screen user
13 interface to include an indication that the electronic notification was received, and (ii)
14 modifying presentation of the background image displayed on the lock-screen user interface
15 such that a notification-alert value for the visual characteristic is utilized instead of the default
16 value for the visual characteristic. The notification-alert value for the visual characteristic
17 causes the background image to visually direct a user of the electronic device to the
18 indication that the electronic notification was received.

19 **[00220]** In some embodiments, the electronic device is a wrist-wearable device that
20 includes a holding structure with a device identifier and at least one band portion.

21 **[00221]** In some embodiments, the background image is a representation of an avatar
22 associated with a user, and the default value of the visual characteristic of the avatar
23 associated with the user corresponds to eyes of the avatar facing in a forward-looking
24 direction.

25 **[00222]** In some embodiments, the notification-alert value for the visual characteristic
26 corresponds to eyes of the avatar facing towards a location on the lock-screen user interface
27 at which the indication is displayed.

28 **[00223]** Figures 16A-16B illustrate an example sequence where a user 1601 is
29 performing gestures that cause operations to be performed at respective electronic devices of
30 particular sets of electronic devices. The user 1601 is wearing a wrist-wearable device 1602
31 that includes at least one EMG sensor. The wrist-wearable device 1602 can further include
32 some or all of the components of any of the wrist-wearable devices described herein (e.g., the
33 IMU 1041 show in Figure 7). The wrist-wearable device 1602 can further include one or
34 more constituent components, such as the display capsule 900 and the holding structure 1008,

1 as described in Figures 10A-10H.

2 **[00224]** The user 1601 is further wearing a head-wearable device 1604. The head-
3 wearable device 1604 can be configured to (i) detect a gaze direction and/or a pupil direction
4 of the user to determine which electronic device of a set of electronic device that a gesture is
5 directed to, and/or (ii) present a user interface (e.g., at a display of the head-wearable device
6 1604 that is configured to display an artificial-reality environment).

7 **[00225]** In Figure 16A, the user 1601 is shown standing in a first room 1605, where the
8 room that the user 1601 is in includes a plurality of electronic devices (e.g., electronic
9 speaker devices 1612 and 1618, and adjustable electronic lights 1614 and 1616), which
10 together can form a set of access-control devices, in accordance with some embodiments.
11 Specifically, the user 1601 standing in a first location 1603 within the room 1605 and is
12 turned in a direction that is substantially facing the electronic speaker device 1612 and the
13 adjustable electronic light 1614.

14 **[00226]** In some embodiments, one or more of the plurality of electronic devices are
15 added to a set of electronic devices that is capable of being interacted with by the user based
16 on the user's relative proximity to a respective electronic device. In some embodiments, a
17 threshold proximity can be preconfigured for each respective electronic device, separately.
18 For example, a first proximity threshold can be associated with the electronic speaker device
19 1612, and a second proximity threshold can be associated with the adjustable electronic light
20 1614. In some embodiments, the threshold proximity can be based on a physical aspect of a
21 space that the user is in when they are performing a respective gesture that targets the
22 respective electronic device.

23 **[00227]** In Figure 16A, the user is performing a gesture 1628 (e.g., an in-air gesture)
24 that is directed towards the adjustable electronic light 1614. In some embodiments, a gesture
25 can be determined to be directed to a particular electronic device despite the gesture not being
26 made physically in the direction of the respective electronic device. For example, a gesture
27 can have a particular gesture profile, and the particular gesture profile can be associated with
28 a particular device of the set of electronic devices. Based on the user performing the gesture
29 1628, a brightness value 1622 of the adjustable electronic light 1614 increases. In some
30 embodiments, the adjustment of a particular value associated with a respective electronic
31 device (e.g., the adjustable electronic light 1614) can depend on a value detected by an EMG
32 sensor of the wrist-wearable device 1602.

33 **[00228]** In Figure 16B, the user 1601 is shown standing in a second location 1607 in
34 another room 1609. Based on the user being in the second location 1607, another set of

1 electronic devices, different than the first set, can have operations that are accessible to the
2 user via in-air hand gestures detected by neuromuscular-signal sensors of the wrist-wearable
3 device 1602. In some embodiments, the second set of electronic devices that are available to
4 the user 1601 at the second location 1607 can be any of a plurality of electronic devices that
5 are within a threshold proximity of the user 1601. In some embodiments, one or more
6 additional proximity criteria can be used to determine which electronic devices of the second
7 set of electronic devices are accessible to the user 1601 to cause operations to be performed
8 based on gestures detected by an EMG sensor of the wrist-wearable device 1602. In some
9 embodiments, the wrist-wearable device 1602 is associated with one or more device
10 identifiers, which can correspond to: (i) a device identifier of a holding structure of the wrist-
11 wearable device, (ii) a device identifier of a display capsule of the wrist-wearable device
12 1602, (iii) one or more device identifiers of one or more band portions of the wrist-wearable
13 device 1602, etc. In some embodiments, two or more device identifiers of different
14 constituent components of a wrist-wearable device can be combined to cause a combined
15 customization of a display property.

16 **[00229]** As shown in Figure 16B, the user's movement from the location 1603 to the
17 other location 1607 can cause notifications to be provided from electronic devices of the set
18 of electronic devices that were accessible to the user for causing operations to be performed
19 based on gestures detected by neuromuscular-signal sensors of the wrist-wearable device
20 1602.

21 **[00230]** The head-wearable device 1604 is causing several user interface elements to
22 be presented to the user in Figure 16B. For example, the user interface element 1630 displays
23 information about a media application 1632 that is configured to provide audio output via the
24 electronic speaker device 1618. The head-wearable device 1604 is further presenting a
25 notification user interface element 1638 and another user interface element 1636, which
26 provide textual prompts for the user indicating information about gestures that are currently
27 available to the user 1601. One or more of the electronic devices from the first set of
28 electronic devices can also be accessible via user input gestures detectable by neuromuscular-
29 signal sensors (e.g., EMG sensors) of the wrist-wearable device 1602.

30 **[00231]** Figures 17A-17E illustrate an example sequence that shows a user performing
31 a multi-part gesture, where the multi-part gesture causes an operation to be performed at a
32 protected resource electronic device (e.g., a kiosk 1704). The operations of the sequence can
33 be performed at a computing system that includes at least the display capsule 900 and the
34 holding structure 1004 described with respect to Figures 10A-10H. When the display capsule

900 is coupled with the holding structure 1004, they can together form a unitary wrist-wearable device (e.g., the wrist-wearable device 1702 in Figures 17A-17E). In some embodiments, the operations discussed with respect to Figures 17A-17E can be made available to the user as part of a third-party payment application (e.g., a payment application configured to secure payment transactions via one or more authentication techniques). In some embodiments, the operations discussed with respect to Figures 17A-17E are part of an access-control technique (e.g., a technique for ensuring secure access to a physical establishment).

[00232] In Figure 17A, the user 1701 is wearing a wrist-wearable device 1702, and the user 1701 is standing next to a kiosk 1704. The kiosk 1704 is configured to provide user access to a protected resource (e.g., user credentials and/or restricted content). In some embodiments, the protected resource is a monetary resource.

[00233] There is a user interface element 1706 shown in Figure 17A, which can be configured to be presented by the wrist-wearable device 1702 or a head-wearable device (e.g., the head-worn wearable device 110 described in Figure 8). Figure 17A also shows a hardware component 1708 for facilitating provisioning of the gesture space for providing access to the protected resource. The hardware component 1708 can be configured to enable additional sensing capabilities for detecting an aspect of the user 1701 and/or a gesture performed by the user to authenticate the user 1701 to access the protected resource, which may be associated with the kiosk 1704. There is a textual prompt 1712 located at the kiosk 1704 that is displaying a message to the user indicating that access to the protected resource is required (“Access to protected resource is required.”). There is another textual prompt 1710 at the hardware component 1708, which is prompting the user to place the user’s hand near the hardware component 1708. In some embodiments, in addition to and/or alternatively to the textual prompts 1710 and 1712, additional indications can be provided at the wrist-wearable device 1702 and/or another electronic device associated with the user 1701. For example, a haptic event can be provided at the wrist-wearable device 1702, which can be accompanied by a message or other visual notification to the user 1701 that an authentication gesture is required. In some embodiments, when the wrist-wearable device is in proximity to the kiosk 1704 and/or the hardware component 1708, power can be provided and/or reduced to one or more sensors, including EMG sensors, of the wrist-wearable device 1702 in conjunction with providing the capability to the user to perform the authentication gesture.

[00234] In Figure 17B, the user 1701 is performing a rolling wrist gesture 1716 near the hardware component 1708. In some embodiments, the rolling wrist gesture 1716 is a

1 context-agnostic gesture corresponding to a context-agnostic operation that can be used in
2 conjunction with authentication techniques of one or more third-party applications. In some
3 embodiments, one or more aspects of the rolling wrist gesture are part of an authentication
4 technique for the kiosk. In some embodiments, the rolling wrist gesture 1716 must include a
5 threshold level of exertion by one or more EMG sensors and/or EMG sensor channels of the
6 wrist-wearable device 1702 in order to be received as an authentication gesture at the
7 hardware component 1708 and/or the kiosk 1704. The hardware component 1708 is
8 displaying a textual notification 1717 to the user indicating to the user 1701 that the
9 initialization gesture was recognized.

10 **[00235]** In Figure 17C, the user is receiving a notification user interface element 1730
11 within an authentication application user interface 1732 at the display of the wrist-wearable
12 device 1702, which is asking the user to confirm that the user 1701 is intending to
13 authenticate themselves in order to access the protected resource at the kiosk 1704. There is
14 a cancellation user interface element 1738, and confirmation user interface element 1740, that
15 are configured to receive user inputs regarding intentions of the user 1701 to access the
16 resource. In some embodiments, one or more additional sensors are disposed, so as to be in
17 electronic communication with a touch-sensitive surface of the display of the wrist-wearable
18 device 1702, which can be configured to detect a biometric aspect of the user's identity (e.g.,
19 a fingerprint, and/or a current body temperature of the user) while the user provides an input
20 to the selectable user interface elements 1738 and 1740. In some embodiments, software is
21 made available, via electronic communication signals from the kiosk 1704 and/or the
22 hardware component 1708, to the wrist-wearable device 1702, based on the user 1701 being
23 in proximity to the means for accessing the protected resource(s). In some embodiments,
24 additional textual prompts can be provided at the kiosk 1704, and/or the hardware component
25 1708. For example, the textual prompt 1734, stating: "Confirm your request to access the
26 protected resource" and the other textual prompt 1736, stating: "Power reduced to hardware
27 component." In some embodiments, power (e.g., from a battery) is reduced to one or more
28 sensors of the wrist-wearable device 1702 and/or the hardware component 1708, after the
29 user 1701 has performed the gesture 1716.

30 **[00236]** Figure 17D shows the display of the wrist-wearable device 1702 displaying a
31 notification element 1742 indicating that a user credential token is being displayed at the
32 display of the wrist-wearable device 1702 (stating: "User credential token (e.g., QR code)").
33 Additional textual prompts can be displayed at the kiosk 1704 and/or the hardware
34 component 1708, which can provide indications, and/or prompts to the user regarding the

1 user's access to the protected resource. For example, a textual prompt 1746 states: "Provide
2 user authentication token at image sensor of hardware component," and a textual prompt
3 1748 states: "Power increased to image sensor." In some embodiments, one or more sensors
4 at the wrist-wearable device 1702, the kiosk 1704, and/or the hardware component 1708 can
5 receive increased power for a second part of a multi-part gesture, and not a first part of the
6 multi-part gesture, and vice versa.

7 **[00237]** Figure 17E shows the user performing a gesture 1750, which can be part of a
8 multi-part gesture performed by the user 1701 to access a protected resource. The hardware
9 component 1708 is displaying a textual prompt 1754, that states: "Code being read from
10 watch face display. Please don't move your hand." In some embodiments, at least a portion
11 of the gesture 1750 includes a rolling wrist motion that can be detected by an IMU sensor of
12 the wrist-wearable device 1702. In some embodiments, detecting the rolling wrist motion by
13 the IMU sensor of the wrist-wearable device 1702 cause power to be increased to one or
14 more EMG sensors of the wrist-wearable device 1702.

15 **[00238]** Figures 18A-18K illustrate an example sequence in which a user
16 communicates an electronic message with another electronic device of a different user. The
17 operations of the sequence can be performed at a computing system that includes at least the
18 display capsule 900 and the holding structure 1004 described with respect to Figures 10A-
19 10H. When the display capsule 900 is coupled with the holding structure 1004, they can
20 together form a unitary wrist-wearable device. That is, the wrist-wearable device 1802 in
21 Figures 18A-18K.

22 **[00239]** Figure 18A shows a user 1801 that is wearing a wrist-wearable device 1802
23 and a head-wearable device 1804. The user 1801 is performing a gesture 1806 that is
24 detected by sensors 1850, which can be located at one or more of the wrist-wearable device
25 1802 and/or the head-wearable device 1804. As shown as by the block diagram for the
26 sensors 1850, the EMG sensors 1852 can detect voltage signals corresponding to user
27 gestures detected at the wrist-wearable device. The sensor channel 1859-a illustrated by the
28 block diagram can be one of a set of EMG sensor channels that can correspond to a plurality
29 of EMG electrodes disposed at different locations along the inner surface of the wrist-
30 wearable device 1802. In some embodiments, an aspect of one or more operations
31 corresponding to the gesture 1806 is based on a signal amplitude 1857 (e.g., a voltage
32 amplitude). In addition to the EMG sensors 1852, there can one or more sensors of the wrist-
33 wearable device 1802 and/or another electronic device in communication with the wrist-
34 wearable device 1802 (e.g., the head-wearable device 1804) that are not EMG sensors. For

1 example, an electronic device used in conjunction with detecting the gesture can include one
2 or more IMU sensors 1854, one or more imaging sensors 1856, one or more time-of-flight
3 sensors 1857, and/or one or more photoplethysmography (PPG) sensors 1858. In some
4 embodiments, an IMU sensor of the IMU sensors 1854 can be used to determine a first aspect
5 of the gesture 1806 (e.g., a direction of movement of one or more appendages of the hand
6 involved in the gesture 1806), and the EMG sensors 1852, either alone or in combination
7 with another set of sensors, can be used to detect one or more levels of exertion associated
8 with the gesture 1806. In some embodiments, the gesture 1806 is a context-agnostic gesture
9 based on an operating-system-level interface that includes a gesture space (e.g., a context-
10 agnostic operation), and the user 1801 can interact with an application-specific interface by
11 performing gestures that corresponds to the operating-system-level interface.

12 **[00240]** While the user 1801 is performing the gesture 1806 to select the emotion
13 selector user interface element 1808, a display 1805 of the wrist-wearable device is
14 displaying a message-thread user interface and a selectable emotion selector input 1808. The
15 gesture 1806 also causes the focus selector 1810 to move in a direction corresponding to the
16 direction of a thumb movement of the gesture 1806. In some embodiments, the thumb
17 movement of the user gesture causes the wrist-wearable device to cause operations
18 corresponding to selecting the emotion selector user interface element 1808. In some
19 embodiments, a threshold exertion detected by the EMG sensor 1852 is required to activate
20 the selectable user interface element 1808.

21 **[00241]** Figure 18B shows the user 1801 performing another gesture at a different user
22 interface 1822. The user interface 1822 includes a plurality of user interface elements 1824-a
23 – 1824-f (e.g., “Happy” 1824-a, “Confused” 1824-b, “Sad” 1824-c, “Angry” 1824-d,
24 “Surprised” 1824-e, and “Bored” 1824-f) associated with a plurality of predefined moods,
25 which can correspond to emotions having a predefined set of representations corresponding
26 to a magnitude (e.g., an amount). In some embodiments, the predefined emotions displayed
27 by the emotion selector can be determined based on configuration data by the user, and/or a
28 device identifier associated with the wrist-wearable device (e.g., a device identifier of a
29 display capsule of the wrist-wearable device 1802, and/or a device identifier of a holding
30 structure and/or band portion of the wrist-wearable device that is configured to receive the
31 display capsule). In some embodiments, one or more of the predefined sets of representations
32 corresponding to each of the emotions in the emotion selector can be adjusted with by a
33 device identifier associated with the wrist-wearable device 1802. As described herein, an
34 emotion is a type of selectable entity describing a reaction of a user (e.g., the user 1801). In

1 some embodiments, emotions have magnitudes, and different magnitudes of an emotion can
2 correspond to distinct reactions of a user (e.g., the user 1801).

3 **[00242]** The user 1801 is performing the gesture 1812, and a block diagram of a group
4 of sensors 1850 that can be located at one or both of the wrist-wearable device 1802 and the
5 head-wearable device 1804. As shown in the block diagram for the sensors 1850, different
6 voltages can be measured at different points in time. In some embodiments, the voltages over
7 a period of time (e.g., the time between t_0 and t_1 on the time axis of the graphical
8 representation of the EMG sensor signals) can be represented as a spectral density graph,
9 where the spectral density graph can correspond to an aggregated, or otherwise transformed
10 value for the EMG sensor signals. In some embodiments, the magnitude of the adjustment in
11 location of the focus selector can correspond to a magnitude of an aspect of the gesture 1812.
12 For example, if the gesture 1812 has a threshold glide exertion based on the voltages detected
13 by the EMG sensors, the focus selector 1810 can move further (e.g., in the direction of a
14 thumb movement corresponding to the gesture 1810).

15 **[00243]** Figure 18C shows the user 1801 during performance of another gesture 1818
16 to adjust magnitude of a selected user interface element 1820, which can correspond to a
17 magnitude of the selection gesture 1812 shown in Figure 18B. In some embodiments, the
18 gesture 1806 was a priming gesture that caused power to be provided to one or more
19 neuromuscular-signal sensors at the wrist-wearable device, and one or more of these
20 neuromuscular-signal sensors are used to detect, at least in part, the other gesture 1818. The
21 size of the selected user interface element 1820 can be dependent on an exertion of the user
22 1801 during performance of the gesture 1818, which can be detected, at least in part, by the
23 EMG sensors 1852 of the wrist-wearable device 1801. In some embodiments the user can
24 perform a thumb movement like the one shown in Figure 18B to change the selected user
25 interface element while adjusting the magnitude of exertion of the gesture 1818. In some
26 embodiments, the user 1801 can perform an eye movement that is tracked by an eye-tracking
27 module at the head-wearable device 1804 to cause a different adjustment to the selected user
28 interface element 1820 while adjusting the exertion of the gesture 1818.

29 **[00244]** Figure 18D shows the user 1801 continuing the gesture 1818, and increasing
30 the exertion detected by the EMG sensors 1852. By adjusting the magnitude of the gesture
31 1818, the size 1826 of the selected user interface element 1820 changes corresponding to the
32 adjustment. In some embodiments, the size 1826 of the selected user interface element 1820
33 changes linearly based on the amount of exertion provided by the user via the gesture 1818.
34 In some embodiments, the increase in exertion is based on a number of oscillations that are

1 performed by one or more micro-crystals enclosed by the wrist-wearable device while
2 threshold exertion levels are measured by the wrist-wearable device. In some embodiments,
3 the micro-crystals are part of a time-keeping operation performed by the wrist-wearable
4 device (e.g., at the display capsule) As shown in by the EMG sensor 1852, the user is
5 increasing a level of exertion detected by the EMG sensor channel 1859-a (which can
6 correspond to one of the sensor channels 2212a-2212f in Figure 22C). The emotion selector
7 user interface element 1822 illustrates the difference in magnitude of exertion of the gesture
8 1818. In some embodiments, as the user 1801 applies more exertion, detected by the EMG
9 sensors 1852, the focus selector 1828 moves between a predefined list of message objects
10 (e.g., emojis related to the emotion). In some embodiments, the individual message objects
11 shown in the predefined list corresponding to the selected emotion can include at least one
12 message object related to a device identifier associated with the wrist-wearable device 1802.

13 **[00245]** Figure 18E shows the user 1801 continuing to increase the exertion of the
14 gesture 1818. Based on the increase in exertion of the gesture 1818, which can be detected
15 by the EMG sensors 1852 of the wrist-wearable device 1802, the user interface displays a
16 different message object 1832 that is also in the list of message objects 1830 that correspond
17 to the selected emotion at the emotion selector 1822. In some embodiments, the message
18 object corresponding to the gesture 1818 changes when the size 1826 of the message object
19 reaches a threshold magnitude. In some embodiments, when the message object associated
20 with the gesture 1818 changes, the size of the message object returns to the original size (e.g.,
21 the size 1826 shown in Figure 18C).

22 **[00246]** Figure 18F shows the user 1801 performing a release gesture 1836, which
23 causes the selected user interface element, after the adjustment to the magnitude of the
24 selected user interface element (e.g., the adjusted user interface element 1832 shown in
25 Figure 18E) to be sent to another user of a different electronic device. In some embodiments,
26 an aspect of a message object sent to another user of a different electronic device is based on
27 an aspect of the release gesture 1836 that is detected by sensors (e.g., the EMG sensors 1852)
28 of the wrist wearable device. In some embodiments, the message object is an animated
29 message object.

30 **[00247]** The display 1805 of the wrist-wearable device 1802 is displaying a user
31 textual prompt 1840 within a notification user interface element, indicating to the user that
32 the message was sent to the other user. The display 1805 is also displaying a textual prompt
33 1842 within another notification element, prompting the user to return to the message-thread
34 user interface (e.g., to share additional content with another user of another different

1 electronic device). The user is performing a tracked eye movement to cause the focus
2 selector 1810 to move over the selectable user interface element 1843. In some
3 embodiments, the gesture can include the tracked eye movement to move the focus selector
4 1810, and another gesture detected by an EMG sensor of the wrist wearable device 1802 can
5 cause the user interface element 1843 to actually be selected. In some embodiments, a
6 different set of EMG sensor channels (e.g., the EMG sensor channel 1859-a) can be used to
7 detect the selection gesture than was used to detect the release gesture. For example, the
8 release gesture can be detected by between four to six different channels, corresponding to at
9 least that many EMG electrodes (e.g., of the electrodes 2212a-2212f), and then the
10 subsequent selection gesture can be detected by a single electrode (e.g., the electrode 2212e)
11 that corresponds to exertion levels detected by one finger of the user's hand.

12 **[00248]** Figure 18G shows the user 1801 performing a gesture 1846 that includes a
13 thumb movement in vertically upward direction (e.g., a "+z" direction based on a particularly
14 oriented three-dimensional axis). The gesture 1846 causes the focus selector 1810 to move
15 upward within the display 1805 of the wrist-wearable device 1802 to move over the
16 selectable emotion selector user interface element 1808.

17 **[00249]** Figure 18H shows the user 1801 performing a signature gesture 1848 (e.g., a
18 "thumbs up" gesture) that corresponds to an emotion of the predefined emotion elements
19 1824-a – 1824-f. Based on the user performing the signature gesture 1848, the emotion
20 selector element 1824-a is automatically selected since the associated emotion (e.g.,
21 "Happy") corresponds to the signature gesture 1848. In some embodiments, the user 1801
22 can configure which signature gestures correspond to respective emotion selector elements.
23 In some embodiments, the signature gestures for causing operations to be performed at the
24 wrist-wearable device 1802 are configured based on a device identifier associated with the
25 wearable electronic device 1802.

26 **[00250]** Figure 18I shows the user 1801 continuing the performance of the same
27 signature gesture 1848 shown in Figure 18H. In some embodiments, a gesture corresponding
28 to a selection of a user interface element can be the same gesture that is detected by the EMG
29 sensor 1852 to determine a magnitude of an aspect of a resulting representation of the user
30 interface element, which can be saved and/or sent to another user of a different electronic
31 device.

32 **[00251]** As shown by the respective voltage magnitudes 1871 and 1873 in Figure 18H
33 and 18I, corresponding to respective portions of the signature gesture 1848, the same gesture
34 can be associated with different levels of exertion detected by one or more channels (e.g., the

1 EMG sensor channel 1859-a) of the EMG sensors 1852 at the wrist-wearable device, at
2 different points in time. In some embodiments, different sensor channels can be used to
3 detect different aspects of the gesture 1848. For example, a first EMG sensor channel 1859-a
4 can be used to determine that the user 1801 has exerted a threshold exertion at an EMG
5 sensor channel corresponding to the user's thumb movement in performing the thumbs-up
6 signature gesture 1848, and a different EMG sensor channel can be used to detect an amount
7 of exertion at one of the fingers, collectively forming fist portion of the signature gesture
8 1848.

9 **[00252]** Figure 18J shows the user continuing the gesture 1848 that is shown in Figures
10 18G-18H. A signal amplitude 1875 detected at the EMG sensor channel 1859-a of the wrist-
11 wearable device 1802 meets a threshold exertion level to cause the emotion selector
12 application 1822 to select a different emotion user interface element 1864 to be display at the
13 display 1805 of the wrist-wearable device 1853. In some embodiments, the threshold for
14 selecting a different emotion user interface element 1864 is based on the previous emotion
15 user interface element 1862 reaching a maximum size (which can be configured by the user
16 1801, according to some embodiments). Based on the emotion selector application 1822
17 selecting a different emotion user interface element 1864, the focus selector 1828 of the
18 message object list 1830.

19 **[00253]** Figure 18K shows the display 1805 of the wrist-wearable device 1802
20 displaying the representation of the emotion user interface element 1864 with a customization
21 applied based on the device identifier of the wrist-wearable device 1802.

22 **[00254]** Figure 18L shows another user 1851 that is wearing a different wrist-wearable
23 device 1853. The wrist-wearable device 1853 can include some or all of the components of
24 any of the wrist-wearable devices described herein. However, the wrist-wearable device
25 1853 includes a device identifier that is different than device identifiers associated with the
26 wrist-wearable device 1802. The device identifier associated with the wrist-wearable device
27 1853 can be the same device identifier as that of the wearable electronic device 1100. The
28 wrist-wearable device 1802 is displaying a textual-prompt user interface 1880, which
29 includes a subset of flavor text (e.g., "Good sir," "what a charm"), which is based on a device
30 identifier associated with the wrist-wearable device 1802. The wrist-wearable device is also
31 displaying to selectable user interface elements 1882 and 1884, which can be used to interact
32 with message objects. In some embodiments, notification-delivery preferences associated
33 with the delivery of such messages can be adjusted based on a device identifier of the user's
34 respective wrist-wearable device.

1 [00255] Figure 18M shows the display 1853 displaying a representation 1875 of the
2 emotion user interface element 1864 with a customization applied based on the device
3 identifier of the wrist-wearable device 1802. The representation 1875 of the emotion user
4 interface element 1864 includes additional user interface options that were not visually
5 present in the display 1805 of the emotion user interface element 1864 at the wrist-wearable
6 device 1802 of the user 1801.

7 [00256] Figure 18N shows the representation 1875 of the emotion user interface
8 element 1864. But the representation 1875 has been customized based on a device identifier
9 of the wrist-wearable device 1853 of the user 1851. In some embodiments the emotion user
10 interface element 1864 is replaced with a different user interface element (e.g., a smiley face
11 can be modified to be represented as a “thumbs-up” gesture) based on a determination that
12 there is no corresponding representation available at the wrist-wearable device of the
13 respective user receiving the message. The representation 1875 of the emotion user interface
14 element 1864 includes an accessory item 1889 that is associated with a device identifier of
15 the wrist-wearable device 1802. The wrist-wearable device is also displaying a flair identifier
16 user interface element 1887 which is based on the device identifier associated with the wrist-
17 wearable device 1802 of the user 1801.

18 [00257] Figures 19A-19F illustrate another example sequence in which a user is
19 performing gesture to cause an operation to be performed at a wrist-wearable device 1901.
20 Specifically, the user performs gestures that cause different watch faces to be displayed at the
21 wrist-wearable device of the user. In some embodiments, one or more of the watch faces
22 discussed below are included at the wrist-wearable device 1901 based on respective device
23 identifiers associated with the wrist-wearable device 1901.

24 [00258] Figure 19A shows a user performing a gesture 1902 while a clock user
25 interface 1904 is displayed at a wrist-wearable device worn by the user. The gesture 1902
26 includes a thumb movement in the +y direction and causes the clock user interface to be
27 displayed.

28 [00259] Figure 19B shows the user performing a gesture 1906 while another user
29 interface 1908 is displayed at the wrist-wearable device. The gesture involves a pressing
30 motion in the -x direction (e.g., towards the user’s knuckle). Based on the user performing
31 the gesture 1906, the watch face shrinks slightly as a scrollable watch face selector user
32 interface is displayed at the wrist-wearable device.

33 [00260] Figure 19C shows the user performing another gesture 1910 while another
34 user interface 1912 is displayed. The gesture 1910 includes a thumb movement in the +y

1 direction and causes the scrollable watch face selector user interface to scroll horizontally
2 through a plurality of watch faces available at the wrist-wearable device.

3 **[00261]** Figure 19D shows the user performing another gesture 1914 while another
4 user interface 1916 is displayed. The gesture 1914 includes a thumb movement in the -y
5 direction and causes the scrollable watch face selector user interface to scroll in the opposite
6 direction from the direction of scrolling illustrated in Figure 19C.

7 **[00262]** Figure 19E shows the user performing another gesture 1918 while another
8 user interface 1920 is displayed. The gesture includes a thumb movement in the -x direction
9 (e.g., a pressing motion towards the user's knuckle).

10 **[00263]** Figure 19F shows another user interface 1924 displayed at the wrist-wearable
11 device. The new watch face displayed in the user interface is different than the watch face
12 displayed in the user interface 1904 shown in Figure 19A.

13 **[00264]** Figure 20 illustrates a method 2000 of determining an operation performed in
14 a gesture space corresponding to operations of a communication interface between a wrist-
15 wearable device and respective electronic devices of a set of electronic devices that are in
16 proximity to a user.

17 **[00265]** The method 2000 includes obtaining (2002) respective identifiers for a
18 plurality of available electronic devices configured to communicate with a wrist-wearable
19 device, the wrist-wearable device configured to monitor neuromuscular signals corresponding
20 to respective commands to be performed at one or more of the plurality of available
21 electronic devices. As described herein, a set of electronic devices can include one or more
22 respective electronic devices.

23 **[00266]** In some embodiments, the set of electronic devices in proximity to the user
24 includes (2003) a plurality of distinct electronic devices that are configurable to perform
25 different sets of operations.

26 **[00267]** The method 2000 further includes detecting (2004) using an EMG sensor of a
27 wrist-wearable device, a gesture directed toward an electronic device of the of the set of
28 electronic devices, where determining that the gesture is directed to the electronic device
29 includes analyzing (e.g., separately or in combination) (i) a direction associated with the
30 guest, and (ii) a configuration of the particular electronic device. In some embodiments, the
31 direction can be the direction of motion of the gesture itself. In some embodiments, the
32 direction can be associated with another direction of a different electronic device.

33 **[00268]** The method 2000 further includes, based on (2006) the gesture detected using
34 the EMG sensor of the wrist-wearable device, causing an operation (e.g., a volume control

operation, a song selection operation) to be performed at the particular electronic device corresponding to the respective user interface. As described herein, a user interface can be a visual interface presented by an electronic device (e.g., a display of the wrist-wearable device). ISE, the operation is a sharing operation that includes sharing a representation of a user interface element displayed at the wrist-wearable device with another user of a different electronic device.

[00269] In some embodiments, the method 2000 further includes, based on (2008) a determination that the user has a different orientation, detect, based on wireless communication signals, that each respective device of a second set of electronic devices, distinct from the first set of electronic devices, is within proximity to the user. In some embodiments, one or more of the same devices are in the first set of electronic devices and the second set of electronic devices. That is, the sets of electronic devices are not necessarily mutual exclusive, in accordance with some embodiments.

[00270] In some embodiments, the difference in orientation of the user includes (2010) one or more of (i) a location of the user, and (ii) a gaze direction of the user. As described herein, a difference in orientation detected by a difference in gaze direction can correspond to a difference in pupil location detected by an eye-tracking module, and/or a different orientation of a user's head that does not correspond to a direction of the user's actually gaze (e.g., based on their pupil position).

[00271] Figure 21 illustrates a method 2100 of causing operations to be performed at a wrist-wearable device based on a user performing a multi-part gesture.

[00272] The method 2100 includes detecting (2102), based at least in part on the EMG sensor (e.g., the EMG sensor 1852 in Figures 18A-18G), a gesture performed by a user of the wrist-wearable device, corresponding to an operation at the user interface of the wrist-wearable device, wherein the operation causes a selection of a user interface element associated with the user interface of the wrist-wearable device (e.g., the selection of the emotion user interface element 1824-c (corresponding to "Sad") in Figure 18B).

[00273] In some embodiments, the method 2100 includes causing (2104) the operation that selects the user interface object is a signature gesture that corresponds to one of a predefined set of signature gestures associated with one or more elements of a message object. For example, the thumbs up signature gesture 1848 shown in Figure 18H causes an automatic selection of the emotion user interface element 1824-a).

[00274] The method 2100 includes detecting (2106), based at least in part on the EMG sensor, another gesture performed by the user that corresponds to an operation of the selected

1 interface element. In some embodiments, the selected user interface element includes (2108)
2 an optional adjustable magnitude, and detecting the other gesture includes detecting a
3 magnitude of an aspect of the other gesture. In some embodiments, the gesture corresponds
4 (2110) to a user interface element representing an emotion of the user, and the intensity of the
5 emotion corresponds to the detected magnitude of the aspect of the other gesture.

6 **[00275]** The method 2100 includes causing (2112) an operation to be performed at a
7 display of the wrist-wearable electronic device that is based on the selection of the user
8 interface element and the magnitude of the aspect of the other gesture. In some
9 embodiments, the operation is (2114) a sharing operation that includes sharing a
10 representation of the selected user interface element with another user of a different
11 electronic device. In some embodiments, the representation is (2116) associated with an
12 emotion of a predefined set of emotions.

13 **[00276]** Figures 22A-22C illustrate an example of a wearable electronic device 2200
14 (e.g., a wrist-wearable device, an ankle-wearable device, an arm-wearable device) that can
15 sense neuromuscular signals of a user. The wrist-wearable device 102 in Figures 1A-2G can
16 include all of the components of the wearable electronic device 2200, in accordance with
17 some embodiments. The wearable electronic device 2200 is a band-shaped electronic device
18 (e.g., a smart watch, a sensor-laden band with no display) which can be worn on a wrist of a
19 user.

20 **[00277]** Figure 22A illustrates a perspective view of the wearable electronic device
21 2200. The wearable electronic device 2200 has a first band portion 2202, a second band
22 portion 2204, a cinch structure 2206, a compute core 2208, an optional display 2210, and a
23 plurality of neuromuscular-signal sensing structures 2212a-2212f distributed along a length
24 of the second band portion 2204. In some embodiments, the wearable electronic device 2200
25 does not include the display 2210. In some embodiments, the display 2210 is detachable
26 from the wearable electronic device 2200. In some embodiments, the first band portion 2202
27 and the second band portion 2204 are separated by a compute core 2208. The first band
28 portion 2202 and the second band portion 2204 are secured via the cinch structure 2206 to
29 form an adjustable loop that has a circumference, which can be sized to fit around a user's
30 wrist. In some embodiments, the second band portion 2204 does not include any electronic
31 components.

32 **[00278]** Figure 22B illustrates a perspective top view of the wearable electronic device
33 2200, where the wearable electronic device 2200 is unstrapped. That is, the first band portion
34 2202 and the second band portion 2204 are shown uncoupled and extending outward in

1 substantially opposite directions. The first band portion 2202 has a distal end 2214, which
2 can be made of a different material and/or have a different geometry than a separate part of
3 the length of the first band portion, such that it is configured to be fed through an opening
4 defined by the cinch structure 2206. For example, the distal end 2214 can include an
5 elastomeric material. The elastomeric material can be stiffer than the rest of the first band
6 portion 2202, which can make the distal end 2214 easier to feed through an opening of the
7 cinch structure 2206 without bending the distal end 2214 while it is fed through the cinch
8 structure 2206.

9 **[00279]** Figure 22C illustrates a perspective bottom view of the wearable electronic
10 device 2200. In addition to the neuromuscular-signal sensing structures 2212a-2212f
11 distributed across the second band portion 2204, the wearable electronic device 2200 includes
12 a plurality of sensors (e.g., a sensor 2216a) on a bottom surface of the compute core 2208. In
13 some embodiments one or more of the sensors on the bottom surface of the compute core
14 2208 are EMG sensors. In some embodiments, there is a minimum separation distance 2218a
15 between each contact point on the bottom surface of the compute core 2208. In some
16 embodiments, sensors having at least the separation distance 2218a can be associated with
17 separate EMG sensor channels (e.g., the EMG sensor channel 1859-a). The first band portion
18 2202 and the second band portion 2204 can have respective lengths 2222 and 2224, which
19 can be sized from 75-175 millimeters, respectively. In some embodiments, the respective
20 lengths of each of the band structures can be distinct, but still sum to a total length of between
21 150-350 millimeters based on the respective stock keeping unit (e.g., small, medium large) of
22 the wearable electronic device that includes the first band portion 2202 and the second band
23 portion 2204.

24 **[00280]** Figure 23 illustrates a flow diagram of a method 2300 for a user to interact
25 with a plurality of electronic devices using at least one predefined set of gestures. The
26 method can be performed by a user with a wrist-wearable device, which can be any of the
27 wrist-wearable devices described herein.

28 **[00281]** In some embodiments, the method 2300 includes putting on (2302) (e.g.,
29 donning) a wrist-wearable device (e.g., a smart watch). In some embodiments, a haptic event
30 can be provided at the wrist-wearable device based on, for example, a device identifier within
31 the wrist-wearable device.

32 **[00282]** In some embodiments, the method 2300 includes calibrating (2304) one or
33 more neuromuscular-signal sensors of the wrist-wearable device. For example, a user can
34 select a particular device identifier of a set of device identifiers associated with the respective

1 wrist-wearable device and/or other electronic devices that are in communication with the
2 wrist-wearable device.

3 **[00283]** The method 2300 includes determining (2306) a set of electronic devices that
4 are in proximity to a user of the respective wrist-wearable device associated with the method
5 2300.

6 **[00284]** In some embodiments, in accordance with determining what other electronic
7 devices are in proximity to the user, the method 2300 includes determining (2312) what other
8 gestures are generally available at the wrist-wearable device, which can be used to determine
9 what gesture spaces should be created for each electronic device that is in proximity to the
10 user. In some embodiments, the gestures that are generally available are based on a user
11 interface that is concurrently being displayed at the wrist-wearable device.

12 **[00285]** In some embodiments, in accordance with determining what other electronic
13 devices are in proximity to the user, the method 2300 further includes (2314) what gestures
14 are in the user's constellation of gesture spaces. In some embodiments, the user's
15 constellation of gesture spaces is based on one or more additional wearable devices being
16 worn by the user. For example, the user can be wearing a head-wearable device, and there
17 can be one or more gestures that are configured to be detected (e.g., by the wrist-wearable
18 device or by sensors (e.g., imaging sensors) of the head-wearable device).

19 **[00286]** The method 2300 includes installing (2308) one or more relevant gesture
20 profiles at the wrist-wearable device in accordance with one or more electronic devices that
21 are determined to be in proximity to the user.

22 **[00287]** In some embodiments, the method further includes getting (2310)
23 disambiguation priorities from the user. For example, a notification can be provided to the
24 user about a gesture that is available in more than one gesture space (e.g., a gesture conflict).
25 And the user can provide an indication as to what gesture space to associate with a respective
26 gesture.

27 **[00288]** The method 2300 includes detecting (2316), via one or more sensors of the
28 wrist-wearable device and/or another electronic device that is in electronic communication
29 with the wrist-wearable device, a gesture performed by the user.

30 **[00289]** The method 2300 includes determining whether a respective gesture
31 performed by the user unambiguously applies to one gesture space. In accordance with the
32 gesture unambiguously applying to one gesture space, the method includes targeting (2318)
33 the electronic device corresponding to the respective user gesture. In accordance with an
34 ambiguity as to which gesture space the respective gesture corresponds to, the method

1 2300 includes applying rules to disambiguate which gesture space the respective gesture
2 applies to.

3 **[00290]** In some embodiments, applying rules to disambiguate which gesture space a
4 respective gesture applies to includes using data (2322) (e.g., from a UWB connection) which
5 electronic device the respective gesture is most likely to apply to.

6 **[00291]** In some embodiments, the respective plurality of electronic devices which the
7 gesture is applies to collectively settle (2324) on the mostly target of the respective gesture.

8 **[00292]** In some embodiments, a device context is (2326) utilized to determine which
9 device is most likely to be targeted by the respective gesture.

10 **[00293]** In some embodiments, disambiguation rules of the wrist-wearable device are
11 used (2328) to determine which electronic device is most likely to be the target of a
12 respective gesture performed by the user. In some embodiments, the rules are (2330)
13 configurable by the user of the wrist-wearable device.

14 **[00294]** Figures 24A-24C illustrate an example sequence in which a user captures an
15 image and display customizations are caused to be applied to the captured image, in
16 accordance with some embodiments.

17 **[00295]** Figure 24A shows a user 2401 performing a physical activity (e.g., running).
18 The user 2401 is wearing a wrist-wearable device 2401 that includes a display capsule and a
19 holding structure as described in Figures 9A-10H. The user is depressing a button contact
20 2408 with a press gesture 2406, which corresponds to a field location associated with one or
21 more Hall effect sensors of the wrist-wearable device 2402. Based on the press gesture 2406,
22 an image 2404 of the user 2401 is captured at the wrist-wearable device (e.g., a selfie). In
23 some embodiments, a device identifier associated with the wrist-wearable device 2402 can
24 cause neuromuscular-signal sensed gestures to cause operations for capturing the image 2404
25 without the user providing the input at the button contacts 2408.

26 **[00296]** Figure 24B shows the display of the wrist-wearable device 2402 displaying a
27 default representation 2404-1 of the image 2404, which can be configured to be displayed
28 with a first filtering effect based on one or more device identifiers associated with the wrist-
29 wearable device 2402 (e.g., a lighting filter, a venom flair filter as described with respect to
30 Figures 18A-18K). A customization user input 2412 is presented in conjunction with the
31 default representation 2404-1, which the user 2401 is selecting with a selection input 2410.
32 In some embodiments, the display of the wrist-wearable device 2402 is a touch-sensitive
33 display, and the selection input 2410 can be selected by a touch input directed to the touch-
34 sensitive display. In some embodiments, the user 2401 can select the customization input

2412 via a gesture detected by neuromuscular-signal sensors of the wrist-wearable device 2402. In some embodiments, the customization input 2412 can be selected by a gesture directed to a field location generated by one or more Hall effect sensors of the wrist-wearable device 2402.

[00297] Figure 24C shows, based on the selection of the customization input 2412, a customized representation 2404-2 that includes customized display elements (e.g., fangs, horns), which can be based on a current event associated with a date and/or time of capture (e.g., the displayed date 2416 indicating that it is Halloween). In some embodiments, the customized display elements can be based on a combination of a current event and one or more device identifiers of the wrist-wearable device 2402. That is, if the wrist-wearable device 2402 has a different device identifier, a similar selection of the customization input 2412 in Figure 24B could cause the customized representation 2404-2 to include a zombified version of the image 2404.

[00298] Figures 25A-25B illustrate an example sequence in which a user performs a gesture that causes an audio track to be obtained, in accordance with some embodiments.

[00299] Figure 25A shows a user 2501 wearing a wrist-wearable device 2502, which can include some or all of the components of any of the wrist-wearable devices described herein. The user 2501 is performing a gesture 2512 that includes a thumb movement in +y direction according to a particular coordinate plane associated with the gesture 2512. The gesture 2512 is detected by one or more neuromuscular-signal sensors of the wrist-wearable device 2502.

[00300] Concurrently with the gesture 2512 being performed, an instrument selector user interface 2522 is displayed at a display of the wrist-wearable device 2502. The instrument selector user interface 2522 includes a plurality of user interface elements 2524-a – 2524-f, which correspond to a plurality of musical instruments. In some embodiments, one or more of the plurality of user interface elements 2524-a – 2524-f can correspond to one or more predefined musical tracks (e.g., musical tracks associated with a media providing service (e.g., a music streaming service) available at the wrist-wearable device 2502.

[00301] The gesture 2512 performed by the user 2501 causes a focus selector 2510 to move within the user interface 2522 to select one or more of the user interface elements 2524-a – 2524-f (e.g., a guitar user interface element 2524-a). Based on a selection caused by the gesture 2512, subsequent user gestures and/or continuations of the user gesture 2512 can cause an audio track to be obtained that is based on the selected user interface element 2524-a.

1 **[00302]** Figure 25B shows the user performing another gesture 2518 (e.g., an in-air
2 hand gesture) that is caused to be detected by one or more neuromuscular-signal sensors of
3 the wrist-wearable device 2502. Based on the gesture 2518, an audio track to be obtained
4 based on the combination of the gesture 2512 and 2518 can be adjusted (e.g., adjusting a
5 respective volume, tone, pitch, chord, and/or chord pattern associated with the audio track).
6 For example, an exertion level corresponding to the gesture 2518 can correspond to a chord
7 to be selected by the gesture 2518 (e.g., a higher level of exertion can correspond to a chord
8 having a first tone, and a lower level of exertion can correspond to a chord having a second
9 tone).

10 **[00303]** In some embodiments, after the user completes the gesture 2518, an audio
11 track is caused to be obtained at the wrist-wearable device 2502, where the audio track can be
12 automatically sent in a message to another user of a different electronic device. In some
13 embodiments, after the user completes the gesture 2518, the user can perform another user
14 gesture to further modify the obtained audio track (e.g., causing another chord and/or chord
15 pattern to be selected). In some embodiments, the obtained audio track, while being provided
16 for playback at the other electronic device with the different device identifier, can be adjusted
17 based on one or more device identifiers at the other electronic device. Such adjustment can
18 include a disambiguation related to the availability of the musical instrument and/or the
19 selected audio track at the other user's electronic device. For example, if a particular selected
20 instrument and/or audio track is not available for playback at the other electronic device, a
21 different electronic device and/or audio track can be determined to be suitable for playback of
22 the selected audio track based on, for example, a similarity between the obtained audio track
23 and another audio track that is available at the other electronic device.

24 **[00304]** Figure 26 illustrates an example method 2700 of translating signals detected
25 by one or more neuromuscular-signal sensors into an audio track, in accordance with some
26 embodiments. In some embodiments, the audio track can be a single musical note.

27 **[00305]** The method 2700 includes detecting (2702), via one or more neuromuscular-
28 signal sensors located at a wrist-wearable device, a first gesture performed by a wearer of the
29 wrist-wearable device. The first gesture is (2704) directed to a selection input at a first user
30 interface that is caused to be presented, at least in part, by the wrist-wearable device. In some
31 embodiments, one or more elements of the user interface can be caused to be presented by
32 other electronic devices (e.g., a head-wearable device) that are in electronic communication
33 with the wrist-wearable device.

34 **[00306]** The method includes, based on detecting (2706) the first gesture, causing an

1 audio interface to be selected (e.g., a list of sample tracks associated with a particular
2 instrument, a set of sample tracks of a particular song, a mixer, etc.).

3 **[00307]** The method includes, detecting (2708), via the one or more neuromuscular-
4 signal sensors at the wrist-wearable electronic device, a second gesture. The second gesture
5 includes (2710) detecting an amount of exertion associated with a portion of the second
6 gesture (e.g., a maximum level of exertion detected during the gesture, an average of a
7 plurality of individual levels of exertion detected during the gesture).

8 **[00308]** In some embodiments, the second gesture is an in-air hand gesture that
9 includes (2712) a plurality of sub-gestures (e.g., individual finger movements, such as two
10 distinct movements of the same finger that correspond to different levels of exertion).

11 **[00309]** In some embodiments, based on (2714) a first sub-gesture of the second
12 gesture, the first sub-gesture including movement of a first finger of the wearer's hand,
13 causing a first portion of an audio track to be produced, where the first audio track is
14 associated with a first pitch level (e.g., a high-pitch tone). In some embodiments, the method
15 includes, based on (2716) a second sub-gesture of the second gesture, distinct from the first
16 sub-gesture, the second sub-gesture including movement of a second finger of the wearer's
17 hand, causing a second portion of the audio track to be produced, where the second portion of
18 the audio track is associated with a second pitch level (e.g., a low-pitch tone). In some
19 embodiments, the first finger and the second finger can be the same finger.

20 **[00310]** The method includes, based on detecting (2718) the second gesture, obtaining
21 one or more audio tracks via the musical interface. In some embodiments, an audio track can
22 be a single note, a portion of a song, a composition that includes a plurality of instruments, a
23 remix of a song, and the like. In some embodiments of B1-B9, obtaining the one or more
24 audio tracks via the musical interface includes providing a representation of the first gesture
25 and the second gesture to a Musical Instrument Digital Interface (MIDI).

26 **[00311]** In some embodiments, the method 2700 includes, based on a third sub-gesture,
27 distinct from the first sub-gesture and the second sub-gesture of the second gesture, the third
28 sub-gesture including movement of a third finger of the wearer's hand, causing one of the
29 first portion of the audio track and the second portion of the audio track to have a particular
30 tone.

31 **[00312]** In some embodiments, the audio track includes a chord (e.g., a guitar chord)
32 that includes a plurality of individual musical notes. In some embodiments, the chord
33 includes a tone and a tension, where one or more of the tone and the tension are based on a
34 level of exertion of the second gesture. In some embodiments, the audio track includes a

1 chord pattern having a plurality of chords, and each respective chord of the chord pattern
2 includes a plurality of individual musical notes.

3 **[00313]** In some embodiments, the method 2700 includes providing the audio track to
4 another user of a different electronic device. In some embodiments, providing the audio track
5 to the other user includes providing a selectable user interface element to the other user, and
6 the selectable user interface element is associated with a multi-player game related to the
7 audio track. In some embodiments, the method 2700 further includes, after providing the
8 audio track to the other user of the different electronic device, receiving another audio track
9 from the other user of the different electronic device. In some embodiments, the other audio
10 track received from the other user is a remix of the audio track provided to the user.

11 **[00314]** Figure 27 illustrates an example method 2800 for providing custom
12 componentry for use in conjunction with a wrist-wearable device at an event (e.g., a concert,
13 a sports game, a movie theater, an amusement park, etc.), in accordance with some
14 embodiments. The method 2800 can include some or all of the operations described herein
15 (e.g., the operations discussed above with respect to the Example Aspect B (Customized
16 and/or Dynamic Display Elements and Customized User Experiences on Wrist-Wearable
17 Device).

18 **[00315]** The method 2800 includes providing (2802) a portion of a wrist-wearable
19 device (e.g., a band portion, a display capsule, and/or a holding structure) to a user, where the
20 portion of the wrist-wearable device is associated with a particular event. In some
21 embodiments, the event is (2804) a limited access event. In some embodiments, the event is
22 (2806) related to access to a protected resource. For example, the kiosk 1704 in Figure 17A-
23 17E can be an example of a protected resource access point. In some embodiments, a
24 particular hardware component is used in conjunction with allowing the user to access the
25 protected resource (e.g., the hardware component 1708). In some embodiments, the kiosk is
26 and/or is associated with a locked physical object. For example, the kiosk can include a
27 locked safe-like object, and/or the kiosk may be an access-point for an establishment (e.g., an
28 office building).

29 **[00316]** The method 2800 includes causing (2808) (e.g., via one or more customized
30 components, including hardware and/or software componentry) the wrist-wearable device to
31 perform one or more operations related to the event. In some embodiments, exclusive video
32 content is (2810) available at the wrist-wearable device via a customized component. In
33 some embodiments, by accessing (2812) the exclusive video content, the user causes an
34 interaction with the particular event.

1 **[00317]** In some embodiments, the method 2800 includes causing (2814) customized
2 notifications to be provided to the user of the wrist-wearable device related to the particular
3 event. For example, the wrist-wearable device can be caused to provide a summary recap of
4 a respective event that the user attended, where the summary recap can include data captured
5 by the wrist-wearable device while the user was at the particular event.

6 **[00318]** In some embodiments, the customized components of the wrist-wearable
7 device cause (2816) a substantial portion of at least one constituent component of the wrist-
8 wearable device (e.g., a band portion) to change colors (e.g., a visual adjustment that affects a
9 large area of the constituent component. In some embodiments, the color of the band portion
10 is (2818) configured to match a color of an alternative physical access identifier (e.g., a non-
11 electric wrist band). In some embodiments, the color of the band portion is (2820) based on
12 an alert gesture received from another user who is also at the event (e.g., a contact).

13 **[00319]** Figure 28 illustrates an example method 2900 of adjusting a background
14 image on a lock-screen user interface to identify an electronic notification, in accordance with
15 some embodiments. The method 2900 can include some or all of the operations described
16 herein (e.g., the operations discussed above with respect to Figures 15A-15C, which can be
17 performed in conjunction with any of the other sequences described herein)).

18 **[00320]** The method 2900 includes displaying (2902), on a lock-screen user interface
19 of an electronic device, a background image that has a default value for a visual
20 characteristic.

21 **[00321]** In some embodiments, the electronic device is (2904) a wrist-wearable device
22 that includes a holding structure with a device identifier and at least one band portion.

23 **[00322]** The method 2900 includes receiving (2906) an electronic notification. the
24 method further includes updating the lock-screen user interface to include an indication that
25 the electronic notification was received.

26 **[00323]** In accordance with receiving the electronic the electronic notification, the
27 method 2900 includes updating (2908) the lock-screen user interface to include an indication
28 that the electronic notification was received.

29 **[00324]** The method 2900 includes modifying (2910) presentation of the background
30 image displayed on the lock-screen user interface such that a notification-alert value for the
31 visual characteristic is utilized instead of the default value for the visual characteristic,
32 wherein the notification-alert value for the visual characteristic causes the background image
33 to visually direct a user of the electronic device to the indication that the electronic
34 notification was received.

1 [00325] In some embodiments, the background image (2912) is a representation of an
2 avatar associated with a user, and the default value of the visual characteristic of the avatar
3 corresponds to eyes of the avatar facing in a forward-looking direction.

4 [00326] In some embodiments, the notification-alert value for the visual characteristic
5 corresponds to eyes of the avatar facing towards a location at which the indication is
6 displayed.

7 [00327] In some embodiments of the method 2900, the eyes of the avatar are caused to
8 move (2914) in an animated sequence between the forward-looking direction and the location
9 at which the indication is displayed.

10 ***Other Example Aspects***

11 [00328] A discussion of certain example aspects will now be provided. The example
12 methods 400, 500, 1400, 2000, 2100, 2300, 2700, 2800, and 2900, described above, as well
13 as the features depicted and described with reference to Figures 1A-3F, 9A-13D, 15A-19F,
14 and 24A-25B, can also be used in conjunction with additional Example Aspects, and each of
15 these additional Example Aspects will now be briefly described below. Any of the example
16 aspects discussed below can be used in conjunction with any of the devices and/or systems
17 discussed with respect to Figures 6-8, and 22A-22C.

18 ***Example Aspect A: Custom-Designed Wrist-Wearable Device and/or Constituent*** 19 ***Components thereof (e.g., “Event Bands” for use at live events)***

20 [00329] The wrist-wearable device can be configured to offer a digital canvas for the
21 user to design their own watch face from scratch (e.g., at a dedicated remote website and/or a
22 subset of webpages of a respective remote website). This digital canvas can offer creation
23 tools (e.g., digital pens, paint brushes, stickers, templates, pre-made art, design themes) to
24 make it easier to customize the new watch-face user interface to the user’s liking. In some
25 embodiments, creating/ designing a new watch-face user interface can also include creating a
26 portion of the watch-face user interface dynamically by taking a picture of outfit or colors
27 that inspire the user and using that as a seed to autogenerate a starting point of a new watch-
28 face user interface. This example aspect can be extended to allow users to customize watch-
29 face user interfaces for their friends and/or partners as well, provided that, in some
30 embodiments, those friends and/or partners have opted-in to participate in such an
31 experience. This can include the ability to control a friend / partner’s watch face in real-time
32 - e.g., could include artistic customization (e.g., a drawing / sketch) or a message (e.g., good
33 luck).

34 [00330] In some embodiments, a customized watch face interface and/or a custom

1 display capsule, band portion, and/or holding structure can be designed to be used at a
2 specific event (e.g., a concert). In some embodiments, different components can be used to
3 indicate different levels of access. For example, a particular band portion can indicate a
4 general access entry pass to an event, and the particular band portion in addition to a
5 particular holding structure for holding a display can be used to indicate an elevated entry
6 pass (e.g., VIP).

7 **[00331]** In some embodiments, in addition to and/or alternatively to custom
8 components, custom software can be provided to a wrist-wearable device and/or constituent
9 components thereof that perform one or more particular operations corresponding to the event
10 that they are intended for. For example, a software application can cause a recap summary to
11 be generated by the wrist-wearable device, for presentation to the user and/or sharing with a
12 different user of a different electronic device. In some embodiments, the summary can
13 include videos and/or pictures that the user captured during the concert, which can be
14 accompanied by songs (e.g., live recordings) therefrom. In some embodiments, sensors at the
15 wrist-wearable device and/or another electronic device in communication with the wrist-
16 wearable device can be used to detect health attributes of the user during the event (e.g., a
17 number of calories burned by the user). In some embodiments, the custom componentry
18 and/or software can include additional sensors and/or other computing components to enable
19 the user to access all of the provided functionality.

20 **[00332]** In some embodiments, in addition to and/or alternatively to custom
21 components and/or custom software, custom media content (e.g., images, videos, music, etc.)
22 can be provided with a customized wrist-wearable device and/or constituent component. For
23 example, a customized component of a wrist-wearable device can cause video content to be
24 displayed at the wrist-wearable device. In some embodiments, the respective user of the
25 customized wrist-wearable device can interact with an aspect of the event by consuming the
26 content provided at the custom component. For example, by accessing video content at a
27 wrist-wearable device that includes a customized component for a concert, the user can make
28 themselves eligible to be displayed on public visual display (e.g., a jumbotron) located at the
29 concert.

30 **[00333]** In some embodiments, a custom component of a wrist-wearable device can
31 cause one or more customized notifications to be surfaced at the wrist-wearable device. For
32 example, a custom component designed for a concert can provide custom notifications, which
33 can be based on real-time data, about when a particular artist is on stage and/or playing a
34 particular song during the concert. In some embodiments, the customized notification about

1 when a particular artist is about to come on stage can include navigational directions, which
2 can be provided to the user based on the user's current location. In some embodiments,
3 notifications provided at the wrist-wearable device can include lyrics (e.g., based on real-time
4 data) of a song that is currently being played at the concert.

5 **[00334]** In some embodiments, the wrist-wearable device can be caused to change
6 color to a same color (e.g., neon green) as physical access bands for a particular event, in
7 addition, or in alternative to other means of authenticating the user's access at the event. For
8 example, a security resource may check whether the user's wrist-wearable device is glowing
9 with a particular color that corresponds with physical event bands for the same event. In
10 some embodiments, the color or other visual features of the band can further signify that the
11 user is eligible for a particular elevated level of access (e.g., a "fast-track" line, a private
12 suite).

13 **[00335]** In some embodiments, a user can provide an alert gesture at their own wrist-
14 wearable device. And based on the alert gesture, the wrist-wearable device can cause other
15 wrist-wearable devices associated with other users that are at a particular event to receive a
16 customized notification experience that is different than the conventional notification
17 experience for the respective wrist-wearable device (e.g., the entire wrist-wearable device can
18 be caused to glow a certain color). The inventors recognized that this functionality allows
19 users to be notified quickly and efficiently, even when normal capacities are made
20 unavailable (e.g., based on noise or crowd movement at a concert that could prevent a user
21 from checking their notifications for messages and/or responding to phone calls). In some
22 embodiments, a user can cause a post on a social-media application (e.g., related to a local
23 sports team) to receive a reaction based on a user-performed gesture while the user is in
24 proximity to an event that is associated with the post. As a first example, consider a user of a
25 wrist-wearable device is at a sporting event, and the jumbotron displays information related
26 to a post on a social-media application. The user performs a thumbs up gesture that is
27 detected by one or more neuromuscular-signal sensors (e.g., EMG sensors) at the user's
28 wrist-wearable device.

29 **[00336]** In some embodiments, a user can use the wrist-wearable device to interact
30 with, or be interacted with the physical surroundings of an event. For example, the bass or
31 other musical qualities associated with an event can caused haptic events at one or more
32 haptic devices at the wrist-wearable device. In some embodiments, the user can use EMG
33 gestures (e.g., directed to particular electronic devices, as discussed in further detail with
34 respect to Figures 16A and 16B) to cause visual aspects of the electronic devices at the event

1 to be adjusted. For example, the user can point to particular lights on the ceiling of an event
2 venue, and provide an EMG-detectable input, and the gesture can cause the appearance of the
3 lights to change. In some embodiments, the adjustment to the visual aspect of the electronic
4 device can be based on a number of users that perform the gesture within a predefined
5 interval.

6 **[00337]** In some embodiments, an event band can have a display capsule with a
7 physical background (e.g., non-digital) that can be displayed in conjunction with, or as an
8 alternative to the digital display of the wrist-wearable device. In some embodiments, an artist
9 and/or artwork associated with the artwork (e.g., an album cover) can be displayed, either via
10 the touch-sensitive display, or via the physical background. In some embodiments, the event
11 band can include exclusive video content (e.g., artist stories) that are not otherwise accessible
12 to other users that do not have the particular event band.

13 **[00338]** In some embodiments, an event band can have customized event triggers (e.g.,
14 instructing a user to capture a picture at a certain moment, and/or record live audial output
15 from the event. In some embodiments, such captures can be provided to a publicly-displayed
16 live stream at the event. In some embodiments, the captures can be used to generate a
17 customized recap of the event (e.g., a highlight video) which the user can save to their wrist-
18 wearable device and/or share via one or more sharing applications available at the wrist-
19 wearable device and/or another electronic device that is in communication with the wrist-
20 wearable device.

21 ***Example Aspect B: Customized and/or Dynamic Display Elements and Customized User***
22 ***Experiences on Wrist-Wearable Device.***

23 **[00339]** In accordance with some embodiments, an aspect of a watch-face user
24 interface of the wrist-wearable device can be visually adjusted (e.g., an increased brightness,
25 fills up, changes in size such as increases and then decreases in size, etc.) when there is an
26 incoming communication from another user in the social network (e.g., a friend or even a
27 designated subset of friends selected by the user of the wrist-wearable device) of the user of
28 the wrist-wearable device.

29 **[00340]** For example, in some embodiments, there can be an artistic face presented in
30 the background of a watch-face user interface (e.g., the artistic face 1502 shown in Figures
31 15A-15C) and simultaneously and/or sequentially, a heart icon can be presented as well that
32 glows a particular color (e.g., red), which can signify receipt of a notification from a contact
33 (e.g., a significant other) of a wrist-wearable device. In this way, notifications can be
34 presented in a more artistic fashion and aspects of the notification can be embedded in the

1 watch-face user interface itself (e.g., the watch-face user interface can change away from
2 displaying certain default or wearable-structure-specific features to instead display the artistic
3 notification features when a message is received from the designated other users).

4 **[00341]** In some embodiments, customizations can be applied to user interface
5 elements based on other aspects besides the respective device identifiers of one or more
6 constituent components of a wrist wearable electronic device.

7 **[00342]** In one example, a Halloween theme can be applied throughout the operating
8 system, such that Halloween-themed characters and/or colorways can be presented in
9 conjunction with and/or as an alternative to the standard user interface elements that are
10 normally displayed by the wrist-wearable device.

11 **[00343]** In another example, a theme can be applied based on a specific object (e.g., an
12 animal, such as a dragon) such that the respective theme can be applied to a plurality of user
13 interface elements throughout the respective operating system of the wrist-wearable device.

14 **[00344]** In another example, as shown in Figures 24A-24C, the wrist-wearable device
15 can be configured to have a particular theme, and images and/or other media content captured
16 by the wrist-wearable device can be adjusted based on the theme. In some embodiments,
17 reactions (e.g., thumbs-up applied to a message from another user, a “poke,” etc.) can be
18 caused to have a corresponding customization applied thereto. For example, a user with a
19 wrist-wearable device that has a particular display customization can send a thumbs-up
20 reaction to another user, and the reaction can be caused to be a fireball symbol instead of the
21 typical thumbs-up symbol.

22 **[00345]** In some embodiments, different art collections and/or artists may cause their
23 own particular styles to be presented at the wrist-wearable device (including visual and/or
24 non-visual artistic elements). In some embodiments, stylistic elements can be unique to
25 device identifiers associated with one or more particular artists. In some embodiments, a
26 camera application that is available at the wrist-wearable device can be caused to transfer one
27 or more artistic style elements to filters that can be used in conjunction with the camera
28 application of the wrist-wearable device.

29 **[00346]** In some embodiments, a respective user of the wrist-wearable device can
30 apply an artistic style filter at one or more of a pre-capture state (e.g., before capturing a
31 photograph or video) and a post-capture state (e.g., after capturing an image or video) by
32 performing user inputs directed to user interface controls, which can be made available at the
33 wrist-wearable device after an image is captured using the camera of the wrist-wearable
34 device. For example, a user that enjoys art by D’Artagnan might select a filter that turns an

1 image that they have taken of themselves into an artistic rendering in the style of Picasso (or
2 another artist of their choosing). In some embodiments, one or more artistic style elements
3 include three-dimensional visual aspects. In some embodiments, three-dimensional visual
4 aspects of artistic style elements can be configured to account for movement. For example,
5 the user can rotate their face within a field of view of a camera that is located at the wrist-
6 wearable device, based on the rotation of the user's face, the artistic rendering will track
7 those movements (e.g., on a display of a wrist wearable device).

8 **[00347]** Customized experiences can be provided across one or more applications
9 and/or a respective operating system of the wrist-wearable device (e.g., this includes
10 operating-system-provided features such as the watch-face user interface, notification-
11 delivery mechanism, in-app experiences facilitated by the operating system, etc.) based on
12 culturally relevant moments (like holidays, major events, your own birthday). In some
13 embodiments, watch face user interfaces can be updated based on the occurrence of a
14 particular event reunion (e.g., like a Christmas face) that includes customization to basic
15 utility (e.g., like Santa's hands replace clock hands) and also adds fun/delightful moments
16 (e.g., like snow falling on the face).

17 **[00348]** In some embodiments, the particular events that are associated with the
18 customization are not widely-celebrated events (e.g., national holidays), but significant events
19 for the individual wearer of the electronic device (e.g., a birthday and/or anniversary of one
20 or more contacts of the wearer). In some embodiments, general customizations of features
21 can be caused by specific events.

22 **[00349]** In some embodiments, customized experiences change notification-delivery
23 experiences (e.g., a bird-themed customization can cause notifications to appear to be
24 delivered by a bird flying across the display screen of the wrist-wearable device) or cause
25 modifications to application experiences as well (e.g., like Santa encouraging the user of the
26 wrist-wearable device to reach their step goals during the holiday season).

27 **[00350]** Time doesn't matter - hide time when you are in a concert or an event. When
28 you have a good time, time doesn't matter. In some embodiments, one or more elements are
29 caused to be hidden from the display at the wrist-wearable device based on contextual
30 conditions of the user. For example, the wrist-wearable sensor can detect (e.g., via a location
31 sensor, or by detecting a device identifier corresponding to a kiosk at a concert hall) that the
32 user is currently attending a concert, and the wrist-wearable can cause a notification to be
33 provided to the user, where the notification states "time doesn't matter." In some
34 embodiments, the clock can be hidden based on a sensed tenseness of the user (e.g., detected

1 by the EMG sensors of the wrist-wearable device).

2 **[00351]** In some embodiments, vintage user interface elements of a particular social-
3 media application (e.g., the Facebook poke) can be provided based on the user celebrating a
4 birthday (e.g., “remember this”). In some embodiments, based on the type of event (e.g.,
5 “Mother’s Day”) user’s can be notified about providing specific messages and/or reactions to
6 specific other users of the respective social-media application (e.g., “Wish xxx a Happy
7 Mothers’ day!”). In some embodiments, quick reactions that can be applied from a preset list
8 of quick reactions (e.g., reactions that can be provided via one or more signature gestures can
9 be adjusted based on a temporal event associated with the time in which the user is wearing
10 the wrist-wearable device).

11 ***Example Aspect C: Wrist-Wearable Devices Use Watch-Face User Interface Drops from a***
12 ***Social-Media Application (e.g., Instagram).***

13 **[00352]** In accordance with some embodiments, individual shareable and otherwise
14 usable content items (e.g., watch-face user interface layouts and/or collections of watch-face
15 user interfaces) drop on the social-media application (e.g., via a product-dedicated account
16 from a provider of the wrist-wearable device and, in some embodiments, via accounts
17 associated with business partners of the provider of the wrist-wearable device). In some
18 embodiments, the individual sharable and usable content items will either be available to
19 anyone to download, or available to a predefined limited number of users to access the
20 shareable and usable content items (e.g., the first hundred people, etc.) to create a sense of
21 buzz and limited availability.

22 **[00353]** Certain of the individual sharable and usable content items can also be
23 available on occasion only for people who “hit” a certain goal or engagement level, e.g., only
24 users who hit their daily fitness goal that week are eligible to access or download a certain
25 individual sharable and usable content item. In another example, a user may receive a
26 content drop by keeping a streak of activity at a social-media application (e.g., a number of
27 days in a row of sharing a certain type of content). Other examples of the individual sharable
28 and usable content items include unique stickers that can be released on the social-media
29 platform (e.g., on Instagram, including Instagram Stories sticker packs/collections). For
30 example, a social-media application can include a feature for sharing time-limited content
31 (e.g., stories). And the shareable content can be graphical representations (e.g., stickers) for
32 causing presentation of in conjunction with other shareable content. These sticker drops can
33 be associated with certain collaborations (e.g., a collaboration between sports teams, such as
34 soccer teams) with external companies (e.g., sports vendors) and/or “unlocked” via hitting

1 certain achievements.

2 **[00354]** Non-sticker special effects drops are also contemplated, including dropping
3 clothing for use with a user's virtual avatar. For example, as shown in the example of Figure
4 3F, the user's avatar has been dressed up (e.g., equipped) using attire that corresponds to the
5 hidden user-interface element that was revealed in Figure 3E. In one example, multiple types
6 of sharable and usable content items can be released as a content item package (e.g., a limited
7 set). In some embodiments, a content item package includes two or more of a watch-face
8 user interface associated with a manufacturing company (e.g., a fashion clothing company),
9 virtual stickers associated with that same manufacturing company, and attire from that same
10 manufacturing company for the user's avatar. In some embodiments, content item packages
11 can be revealed and/or otherwise made usable after a user couples their respective wrist-
12 wearable device and/or display capsule to a wearable structure from that same fashion
13 company.

14 **[00355]** In addition to avatar dress up features, this example aspect could also be
15 extended to some embodiments to also include operating-system-level effects, such as a
16 particular notification-delivery style (e.g., a certain cartoon character delivers incoming
17 messages as an animated sequence shown on the display capsule of a wrist-wearable device).
18 In some embodiments, the usable content items can be released in accordance with the user
19 arriving at or near a certain geographic location and/or event (e.g., the empire state building,
20 a concert, a corgi convention, and the like). In some embodiments, one or more content
21 drops may first be accessed and/or otherwise received by a first electronic device (e.g., a
22 user's smartphone) and then the respective one or more content items can be made available
23 at a wrist-wearable device of the user.

24 **[00356]** In some embodiments, the locational drops of content items can be related to a
25 particular item-collection application (e.g., a trading card game and/or superhero action
26 figure (physical, and/or virtual) collection application).

27 **[00357]** As was described earlier in conjunction with Figures 3A-3F, certain
28 embodiments can gradually reveal hidden user-interface features. One other example of a
29 hidden user-interface feature is a watch-face user interface that can auto populate (e.g.,
30 reveals itself piece by piece) as a user of the wrist-wearable device crosses more self-care
31 completion thresholds (e.g., health or fitness related thresholds). For example, when the user
32 hits 30% of a walking or fitness activity or breathe daily goal, 30% of the watch-face user
33 interface can then be filled in. When the user hits 100% of the daily goal, then the whole
34 watch-face user interface can then be filled in. This watch-face user interface, in some

embodiments, can be a piece of artwork that unveils itself throughout the day (e.g., the artistic drawing of leaves in the example of Figures 3A-3F), or another creative format.

Example Aspect D: Activity Status Sharing.

[00358] A user of the wrist-wearable device can show their passive status across activity, location, and other dimensions (e.g., indicate to other users that they are walking, driving, at the office, sleeping, running, at home). This passive status may manifest through plain text (“jane is running”) but also could manifest as a digital avatar (see jane’s avatar running), and these manifestations can be communicated to other user’s devices (so the user of the wrist-wearable device can see status indicators for other user’s avatars and those other users can see status indicators by looking at the user’s avatar on their own devices).

[00359] In some embodiments, the wrist-wearable device and/or a constituent component of the wrist-wearable device can be used to present a physical status to different users of different electronic devices (e.g., a persistent group message). For example, a user of a particular wrist-wearable device can be at an event (e.g., a concert) with a group of other users of different electronic devices (e.g., other wrist-wearable devices). The user can cause a red indication to be displayed at a component (e.g., a display of a wrist-wearable device) to indicate that the user would like other users to meet up at a particular location (e.g., a designated meetup location). In some embodiments, each of the respective other users can receive directions in addition to the alert, where the respective directions are based on the respective locations of the users from where they are receiving the alert.

Example Aspect E: Mirror app with the encouraging art/quote that can be provided on the wrist-wearable device.

[00360] In some embodiments, a respective electronic device (e.g., a removable display capsule of a wrist-wearable device) can be configured to provide one or more operations of a mirror application to a user. In some embodiments, the mirror application allows a respective user of a wrist-wearable device to use the camera of the wrist-wearable device as a quick reference for checking the user’s appearance (e.g., is eyeliner smearing, applying lipstick), lighting, and/or surroundings. The mirror app can default to a more zoomed-in view similar to a pocket mirror’s fields of view, such that when the camera application is normally opened to take a picture a first zoom level is used but when the mirror app is used image data from the camera is presented at a second zoom level that is higher than the first zoom level. Gestures including pinch/double tap can allow for zooming in and out within the mirror app. Mirror app can have digital designs (e.g., colorful frames) or inspirational text (e.g., hello, gorgeous!) as a confidence booster to the user of the wrist-

1 wearable device.

2 ***Example Aspect F: Additional EMG Functionality.***

3 **[00361]** In some embodiments, a user can perform a gesture detected by a
4 neuromuscular-signal sensor of a sensor-laden wrist-wearable device, where the gesture
5 includes a rotation movement of the user's hands and/or fingers. Based on the rotational
6 movement, watch hands on the display of the wrist-wearable device (or corresponding digits
7 on a digital clockface) are caused to be adjusted in accordance with the rotational movement.
8 In some embodiments, as the clockface display is caused to be adjusted, notification user
9 interface elements can be caused to be provided at the wrist-wearable device based on one or
10 more events that the user has planned at the time passed. The inventors have recognized that
11 such quick and efficient scheduling review can motivate users to perform tasks more quickly
12 so they can move on to other endeavors. In some embodiments, user gestures detected by
13 neuromuscular-signal sensors of wrist-wearable devices can be used to perform interactive
14 games with another user (e.g., physically, in a virtual-reality environment, etc.).

15 **[00362]** In some embodiments, a signature gesture (e.g., the signature gesture 1848
16 discussed with respect to Figure 18H) can be the user drawing a particular symbol (e.g., a
17 heart) with one or more of the user's fingers, which can be detected by one or more of (i)
18 neuromuscular-signal sensors, and (ii) IMU sensors at the wrist-wearable device. In some
19 embodiments, when the user performs the signature gesture, the respective message is
20 automatically sent to another user of a different electronic device, without further instructions
21 by the user. In some embodiments, there can be a predefined set (e.g., six shortcuts) of
22 signature gestures that are always available to the user while they are wearing the wrist-
23 wearable device. In some embodiments, one or more of the predefined shortcuts are based on
24 a device identifier associated with the wrist-wearable device.

25 **[00363]** As was mentioned above, these additional Example Aspects A-F can be added
26 to, or used as alternatives to, certain features made available on the wrist-wearable devices
27 discussed herein and shown in the associated Figures. In accordance with some
28 embodiments, a system including a wrist-wearable device is configured to perform or cause
29 performance of the Example Aspects A-F and/or other alternatives described herein. In
30 accordance with some embodiments, a non-transitory, computer-readable storage medium
31 including instructions that, when executed by a wrist-wearable device and/or an intermediary
32 device in communication with wrist-wearable device, cause performance of the Example
33 Aspects A-F and/or other alternatives described herein. In another aspect, a means on a
34 wrist-wearable device and/or intermediary device for performing or causing performance of

1 the Example Aspects A-F and/or other alternatives described herein.

2 **[00364]** Any data collection performed by the devices described herein and/or any
3 devices configured to perform or cause the performance of the different embodiments
4 described above in reference to Figures 1A-29, hereinafter the “devices,” is done with user
5 consent and in a manner that is consistent with all applicable privacy laws. Users are given
6 options to allow the devices to collect data, as well as the option to limit or deny collection of
7 data by the devices. A user is able to opt-in or opt-out of any data collection at any time.
8 Further, users are given the option to request the removal of any collected data.

9 **[00365]** It will be understood that, although the terms “first,” “second,” etc. may be
10 used herein to describe various elements, these elements should not be limited by these terms.
11 These terms are only used to distinguish one element from another.

12 **[00366]** The terminology used herein is for the purpose of describing particular
13 embodiments only and is not intended to be limiting of the claims. As used in the description
14 of the embodiments and the appended claims, the singular forms “a,” “an” and “the” are
15 intended to include the plural forms as well, unless the context clearly indicates otherwise. It
16 will also be understood that the term “and/or” as used herein refers to and encompasses any
17 and all possible combinations of one or more of the associated listed items. It will be further
18 understood that the terms “comprises” and/or “comprising,” when used in this specification,
19 specify the presence of stated features, integers, steps, operations, elements, and/or
20 components, but do not preclude the presence or addition of one or more other features,
21 integers, steps, operations, elements, components, and/or groups thereof.

22 **[00367]** As used herein, the term “if” can be construed to mean “when” or “upon” or “in
23 response to determining” or “in accordance with a determination” or “in response to detecting,” that a
24 stated condition precedent is true, depending on the context. Similarly, the phrase “if it is determined
25 [that a stated condition precedent is true]” or “if [a stated condition precedent is true]” or “when [a
26 stated condition precedent is true]” can be construed to mean “upon determining” or “in response to
27 determining” or “in accordance with a determination” or “upon detecting” or “in response to
28 detecting” that the stated condition precedent is true, depending on the context.

29 **[00368]** The foregoing description, for purpose of explanation, has been described with
30 reference to specific embodiments. However, the illustrative discussions above are not intended to be
31 exhaustive or to limit the claims to the precise forms disclosed. Many modifications and variations
32 are possible in view of the above teachings. The embodiments were chosen and described in order to
33 best explain principles of operation and practical applications, to thereby enable others skilled in the
34 art.

1 What is claimed is:

2 1. A method, comprising:

3 while a display capsule is configured to use a default set of display characteristics in
4 conjunction with a plurality of operating-system-level or application-level user interfaces
5 available via the display capsule:

6 receiving identifying information, at the display capsule, for a respective
7 wearable structure of a plurality of wearable structures, the display capsule being configured
8 to detachably couple to one of the plurality of wearable structures to form a wrist-wearable
9 device; and

10 in accordance with a determination that the display capsule should be adjusted based
11 on the identifying information for the respective wearable structure:

12 adjusting the display capsule (i) to cease using the default set of display
13 characteristics in conjunction with the plurality of operating-system-level or application-level
14 user interfaces and (ii) to use a customized set of display characteristics associated with the
15 respective wearable structure, wherein the customized set of display characteristics is distinct
16 from the default set of display characteristics and is also used in conjunction with the
17 operating-system or application-level user interfaces.

18 2. The method of claim 1, further comprising, after adjusting the display capsule to use
19 the customized set of display characteristics:

20 receiving, at the display capsule, identifying information for a different wearable
21 structure of the plurality of wearable structures, the different wearable structure having an
22 aesthetic theme that is distinct from an aesthetic theme for the respective wearable structure;
23 and

24 in accordance with a determination that the display capsule should be adjusted based
25 on the identifying information for the different wearable structure:

26 adjusting the display capsule (i) to cease using the customized set of display
27 characteristics in conjunction with the operating-system or application-level user interfaces
28 and (ii) to use a different customized set of display characteristics associated with the
29 different wearable structure, wherein the different customized set of display characteristics is
30 distinct from the customized set of display characteristics and from the default set of display
31 characteristics and is also used in conjunction with the operating-system or application-level
32 user interfaces.

33 3. The method of claim 1, wherein one or more display characteristics of the set of
34 display characteristics corresponds to a manner in which an electronic message is presented,

1 and

2 the method further comprises:

3 while the display capsule is configured to use the default set of display
4 characteristics, receiving a first electronic message, and presenting a static representation of
5 the first electronic message on the display capsule; and

6 while the display capsule is configured to use the customized set of display
7 characteristics associated with the respective wearable structure, receiving a second
8 electronic message, and presenting a dynamic representation of the second electronic
9 message such that the dynamic representation of the second electronic message moves along
10 with a representation of a character associated a theme of the respective wearable structure.

11 4. The method of claim 1, wherein the display characteristics include one or more of a
12 color palette used in conjunction with the operating-system-level user interfaces, icons
13 associated with applications available via the display capsule, a style used to present
14 notifications on the display capsule, an animation style used by the display capsule, and a
15 manner in which faces of avatars are presented on the display capsule.

16 5. The method of claim 1, further comprising:

17 in conjunction with adjusting the display capsule to instead use the customized set of
18 display characteristics, adjusting the wrist-wearable device to use a new non-display setting
19 associated with the respective wearable structure.

20 6. The method of claim 5, wherein the new non-display setting is a setting used to
21 generate haptic responses at the wrist-wearable device.

22 7. The method of claim 1, wherein the customized set of display characteristics are used
23 to generate a watch-face user interface that is presented via the display capsule while it is
24 attached to the respective wearable structure.

25 8. The method of claim 1, wherein the determination that the display capsule should be
26 adjusted based on the identifying information for the respective wearable structure is:

27 made after a camera of the display capsule is used to scan a QR code associated with
28 the respective wearable structure, and/or

29 made based on data communicated to the display capsule from the respective
30 wearable structure.

31 9. The method of claim 1, wherein the adjusting the display capsule is performed only
32 after the display capsule has been attached to the respective wearable structure.

33 10. The method of claim 1, wherein the respective wearable structure is associated with a
34 company, and a user of the wrist-wearable device is granted access to limited-access user

1 interface elements associated with the company while using the respective wearable
2 structure.

3 11. The method of claim 10, wherein the limited-access user interface elements include
4 one or more of stickers for adding to images and attire used to dress up an avatar of a user of
5 the wrist-wearable device.

6 12. The method of claim 1, further comprising:
7 adjusting one or more additional visual characteristics at the display capsule when it is
8 determined that a predetermined event is occurring.

9 13. The method of claim 1, wherein:
10 the respective wearable structure is one integrated structure that includes a band that
11 is configured to be worn around a user's wrist and a cradle to which the display capsule is
12 attached, and

13 the display capsule is attached to the cradle by pushing the display capsule in an
14 upward direction to fit into the cradle such that a perimeter of the cradle is securely coupled
15 around a portion of the display capsule.

16 14. The method of claim 1, wherein the respective wearable structure includes two band
17 portions that are each separately attached to the display capsule to form the wrist-wearable
18 device.

19 15. A non-transitory, computer-readable storage medium including instructions that,
20 when executed by a wrist-wearable device or a display portion thereof, cause performance of
21 operations for:

22 while a display capsule is configured to use a default set of display characteristics in
23 conjunction with a plurality of operating-system-level or application-level user interfaces
24 available via the display capsule:

25 receiving, at the display capsule, identifying information for a respective
26 wearable structure of a plurality of wearable structures, the display capsule being configured
27 to detachably couple to one of the plurality of wearable structures to form a wrist-wearable
28 device; and

29 in accordance with a determination that the display capsule should be adjusted
30 based on the identifying information for the respective wearable structure:

31 adjusting the display capsule (i) to cease using the default set of
32 display characteristics in conjunction with the plurality of operating-system-level or
33 application-level user interfaces and (ii) to instead use a customized set of display
34 characteristics associated with the respective wearable structure, wherein the customized set

1 of display characteristics is distinct from the default set of display characteristics and is also
2 used in conjunction with the operating-system or application-level user interfaces.

3 16. The non-transitory computer-readable storage medium of claim 15, further including
4 instructions for, after adjusting the display capsule to use the customized set of display
5 characteristics:

6 receiving identifying information, at the display capsule, for a different wearable
7 structure of the plurality of wearable structures, the different wearable structure having an
8 aesthetic theme that is distinct from an aesthetic theme for the respective wearable structure;
9 and

10 in accordance with a determination that the display capsule should be adjusted based
11 on the identifying information for the different wearable structure:

12 adjusting the display capsule (i) to cease using the customized set of display
13 characteristics in conjunction with the operating-system or application-level user interfaces
14 and (ii) to instead use a different customized set of display characteristics associated with the
15 different wearable structure, wherein the different customized set of display characteristics is
16 distinct from the customized set of display characteristics and from the default set of display
17 characteristics and is also used in conjunction with the operating-system or application-level
18 user interfaces.

19 17. The non-transitory computer-readable storage medium of claim 15, wherein one or
20 more display characteristics of the set of display characteristics corresponds to a manner in
21 which an electronic message is presented, and

22 the non-transitory computer-readable storage medium further including instructions
23 for:

24 while the display capsule is configured to use the default set of display
25 characteristics, receiving a first electronic message, and presenting a static representation of
26 the first electronic message on the display capsule; and

27 while the display capsule is configured to use the customized set of display
28 characteristics associated with the respective wearable structure, receiving a second
29 electronic message, and presenting a dynamic representation of the second electronic
30 message such that the dynamic representation of the second electronic message moves along
31 with a representation of a character associated a theme of the respective wearable structure.

32 18. The non-transitory computer-readable storage medium of claim 15, wherein the
33 display characteristics include one or more of a color palette used in conjunction with the
34 operating-system-level user interfaces, icons associated with applications available via the

1 display capsule, a style used to present notifications on the display capsule, an animation
2 style used by the display capsule, and a manner in which faces of avatars are presented on
3 the display capsule.

4 19. The non-transitory computer-readable storage medium of claim 15, further including
5 instructions for:

6 in conjunction with adjusting the display capsule to instead use the customized set of
7 display characteristics, adjusting the wrist-wearable device to use a new non-display setting
8 associated with the respective wearable structure.

9 20. A wrist-wearable device or a display portion thereof configured to perform or cause
10 performance of operations for:

11 while a display capsule is configured to use a default set of display characteristics in
12 conjunction with a plurality of operating-system-level or application-level user interfaces
13 available via the display capsule:

14 receiving identifying information, at the display capsule, for a respective
15 wearable structure of a plurality of wearable structures, the display capsule being configured
16 to detachably couple to one of the plurality of wearable structures to form a wrist-wearable
17 device; and

18 in accordance with a determination that the display capsule should be adjusted based
19 on the identifying information for the respective wearable structure:

20 adjusting the display capsule (i) to cease using the default set of display
21 characteristics in conjunction with the plurality of operating-system-level or application-level
22 user interfaces and (ii) to instead use a customized set of display characteristics associated
23 with the respective wearable structure, wherein the customized set of display characteristics
24 is distinct from the default set of display characteristics and is also used in conjunction with
25 the operating-system or application-level user interfaces.

1/73

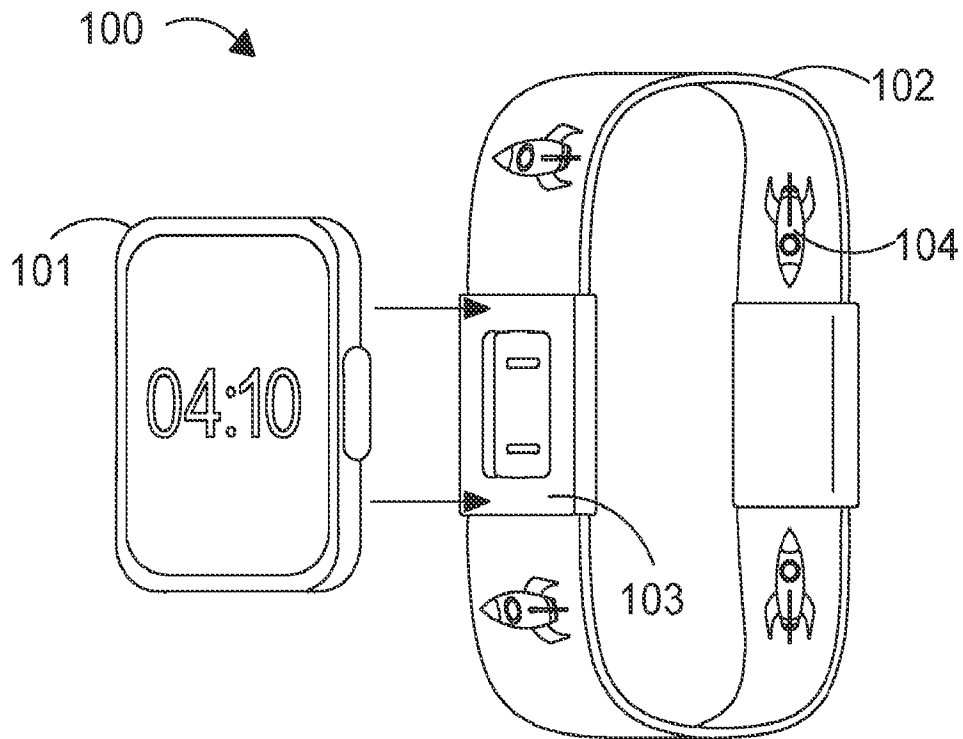


FIG. 1A

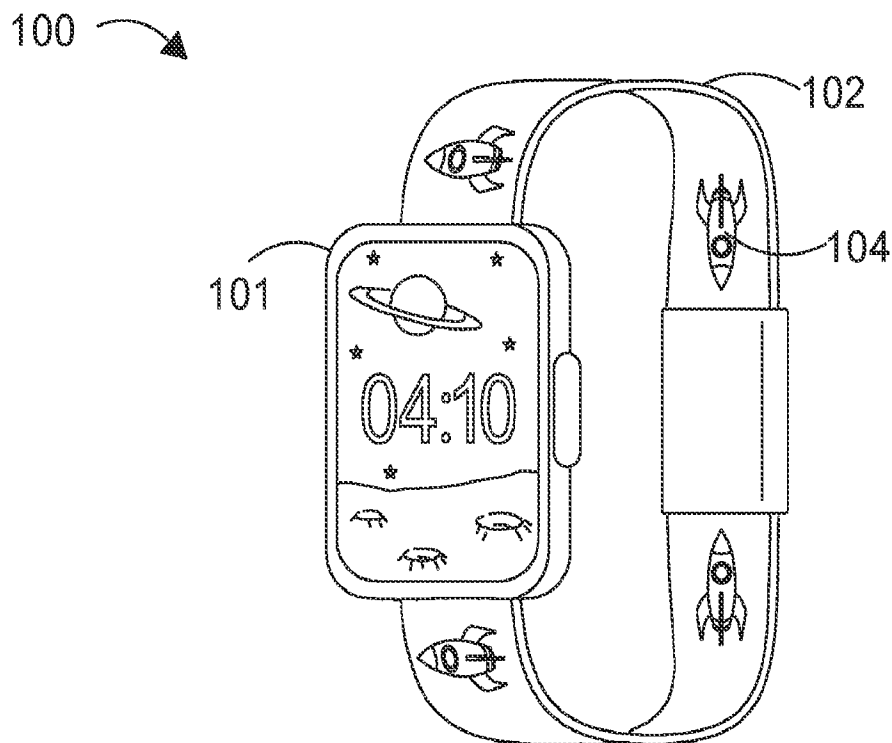


FIG. 1B

2/73

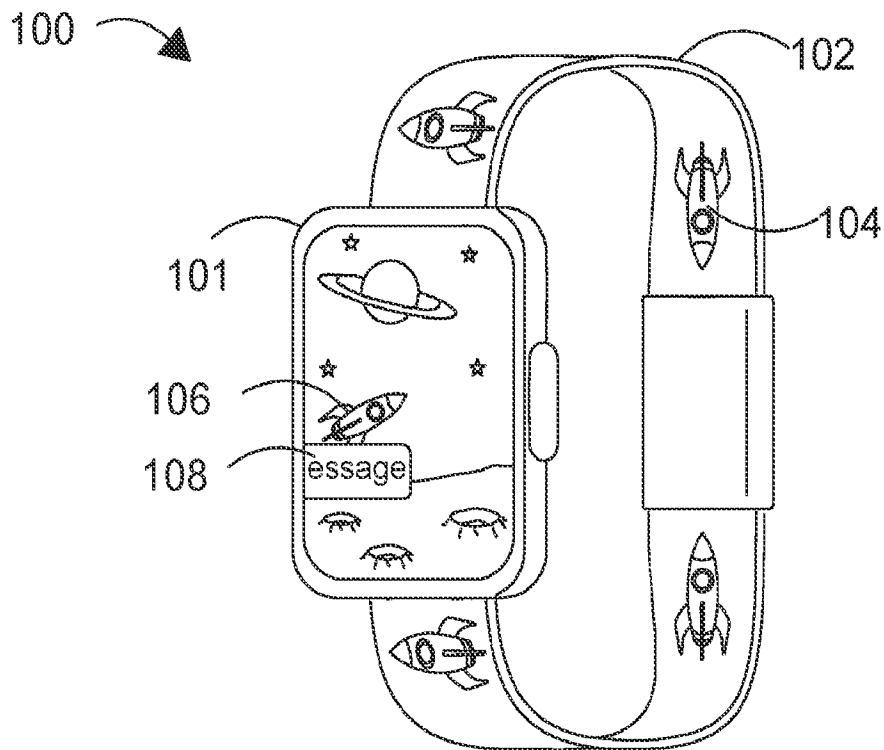


FIG. 1C

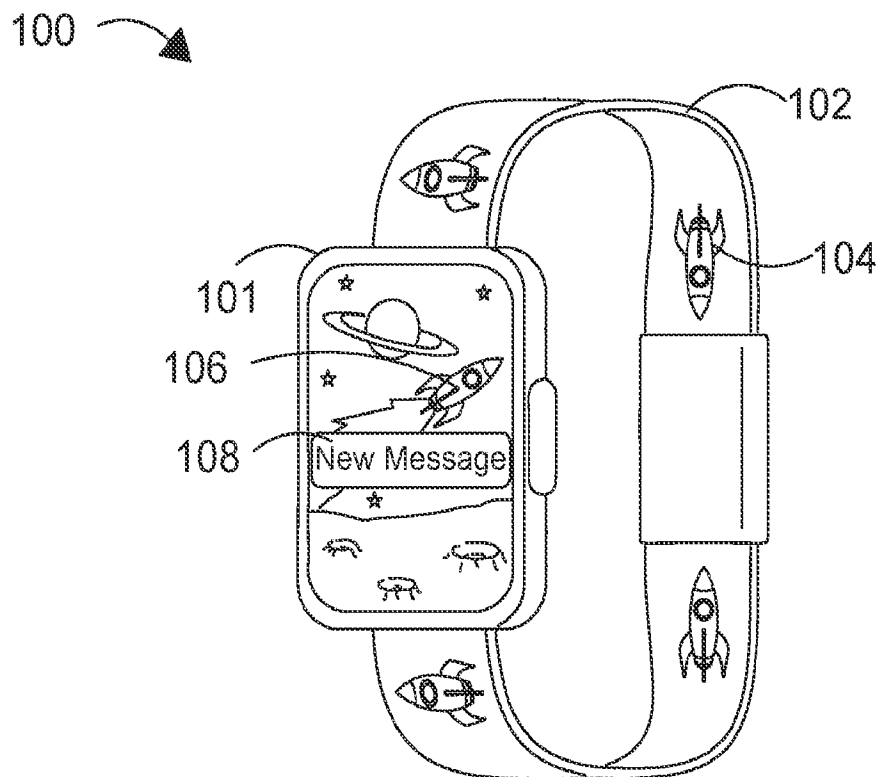


FIG. 1D

3/73

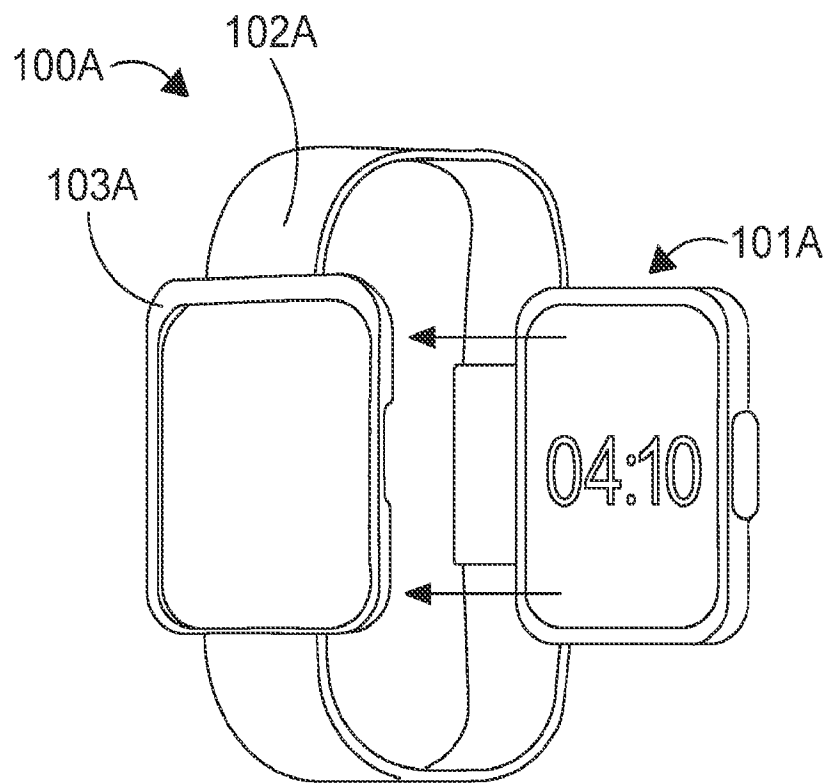


FIG. 1E

4/73

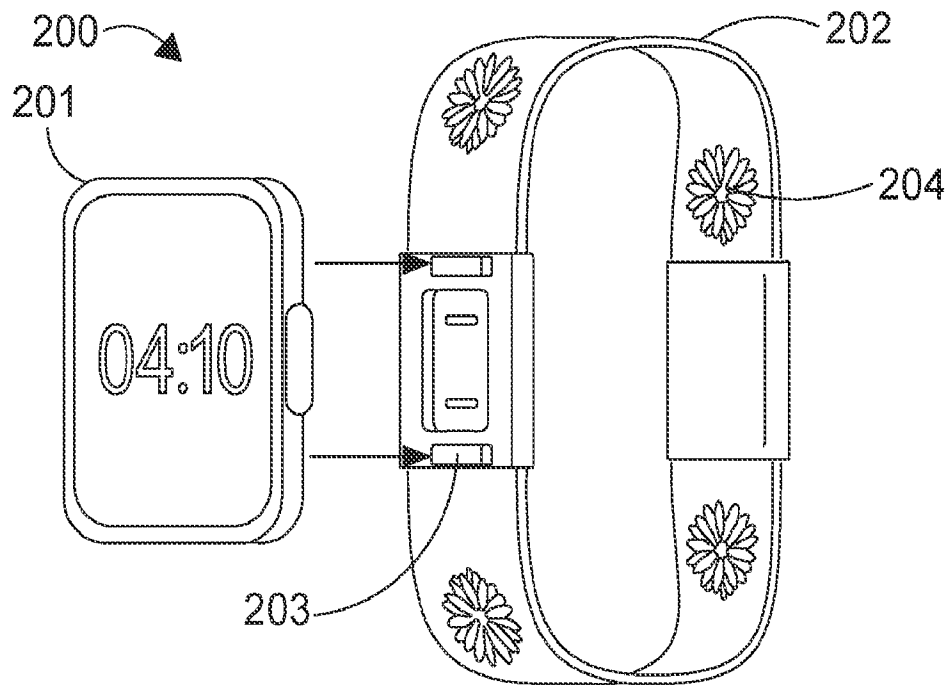


FIG. 2A

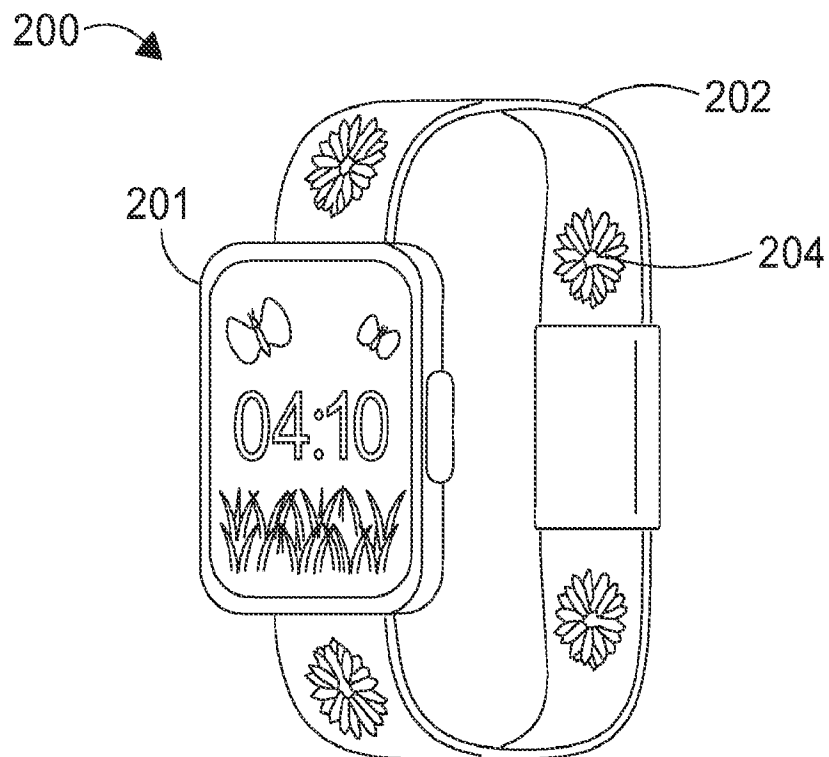


FIG. 2B

5/73

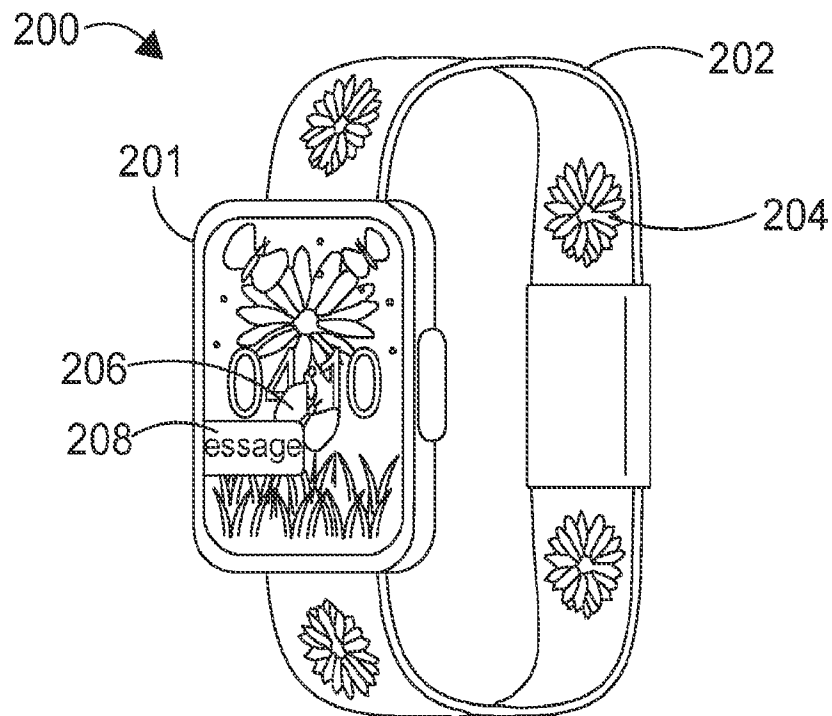


FIG. 2C

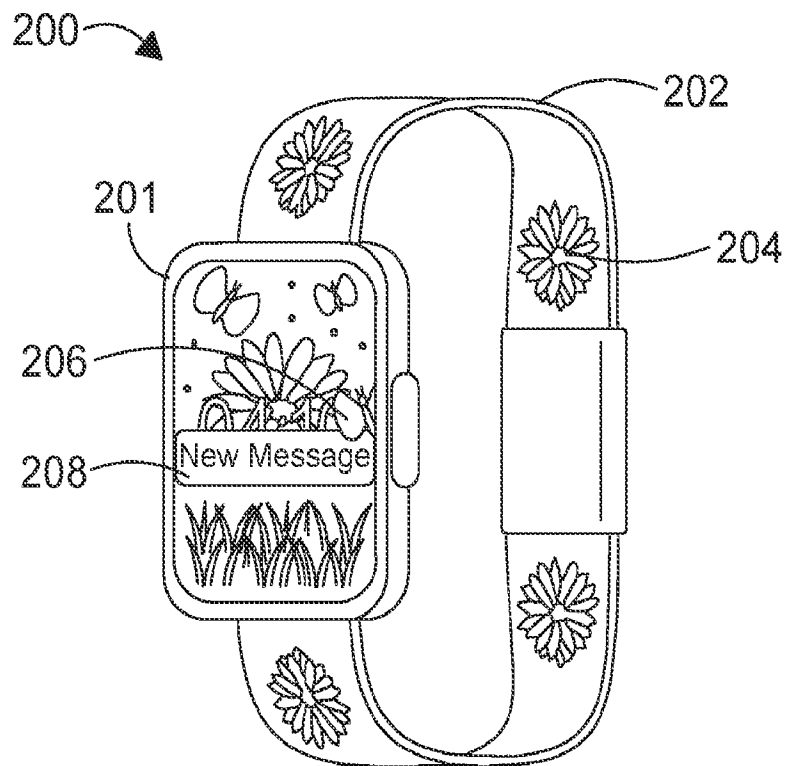


FIG. 2D

6/73

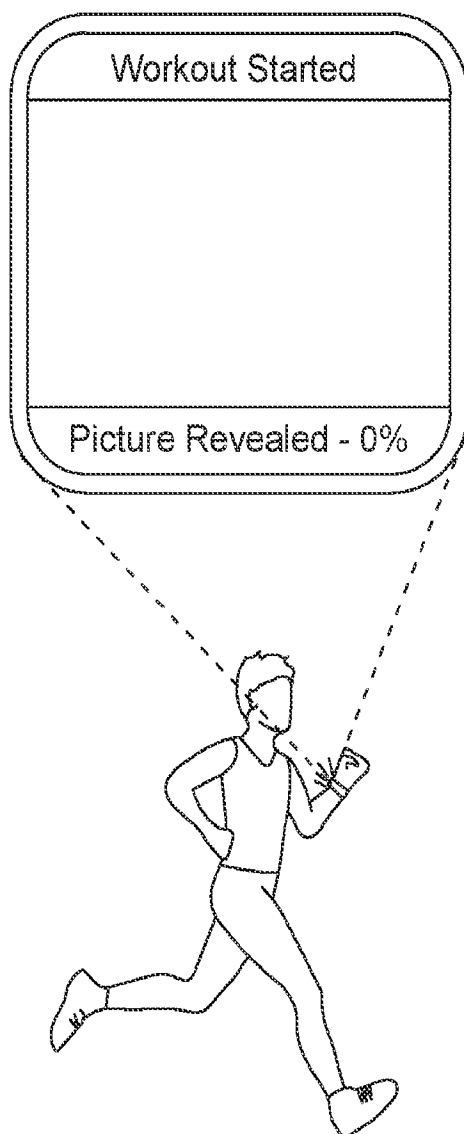


FIG. 3A

7/73

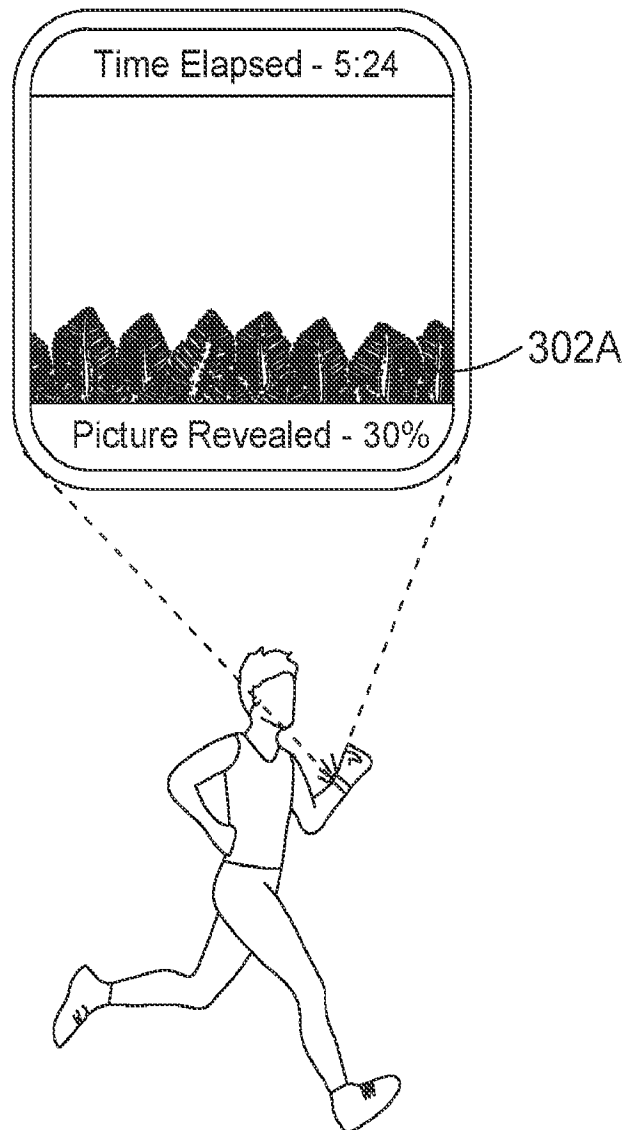


FIG. 3B

8/73

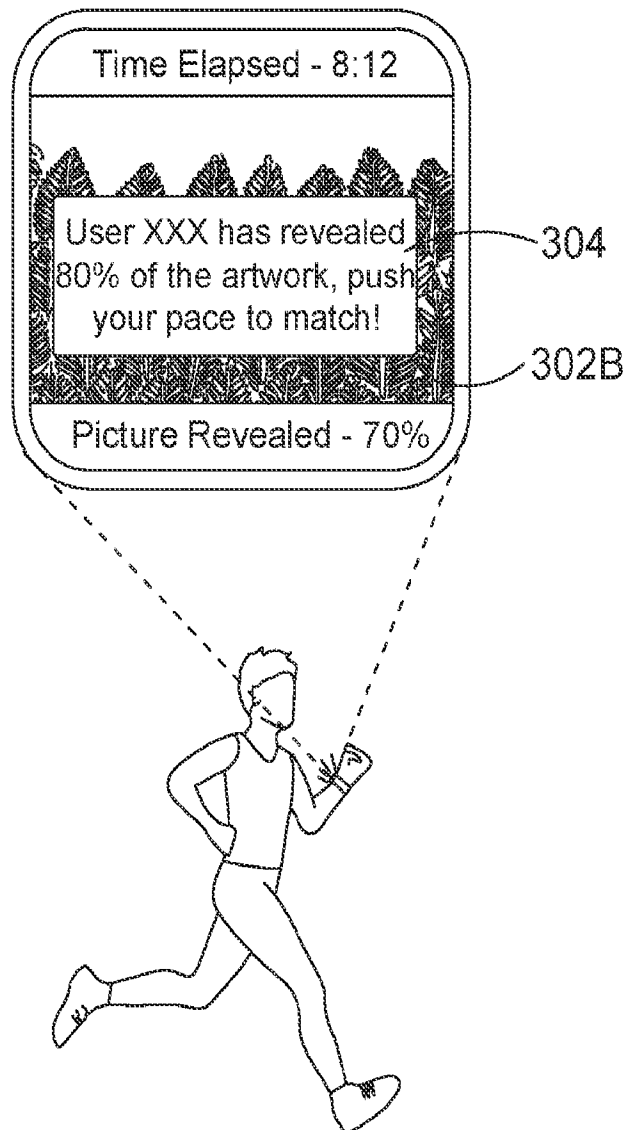


FIG. 3C

9/73

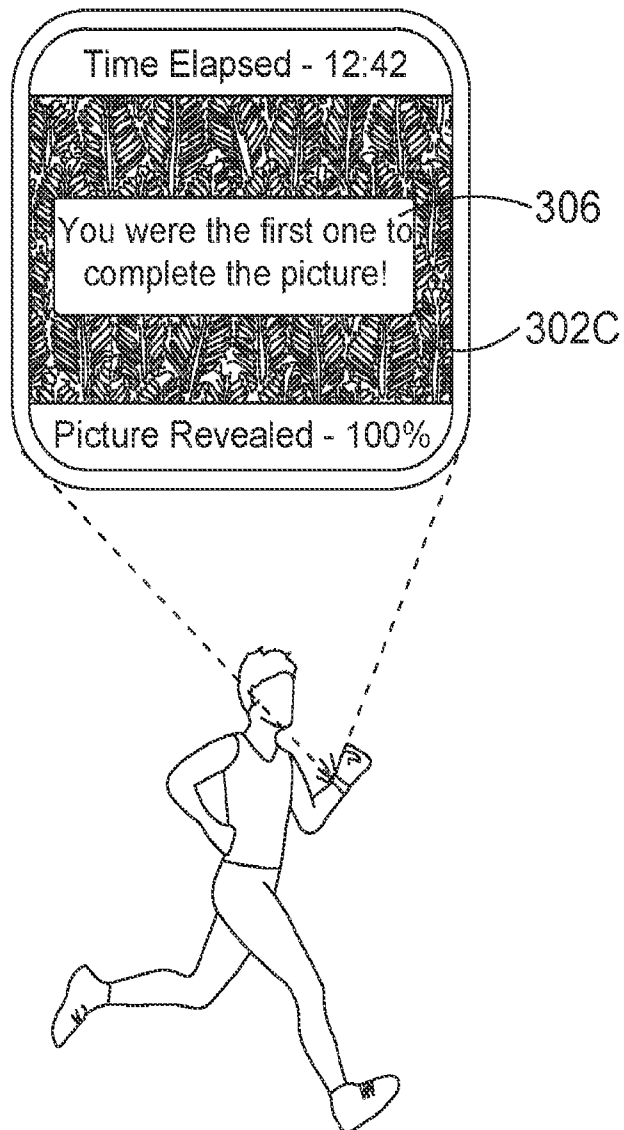
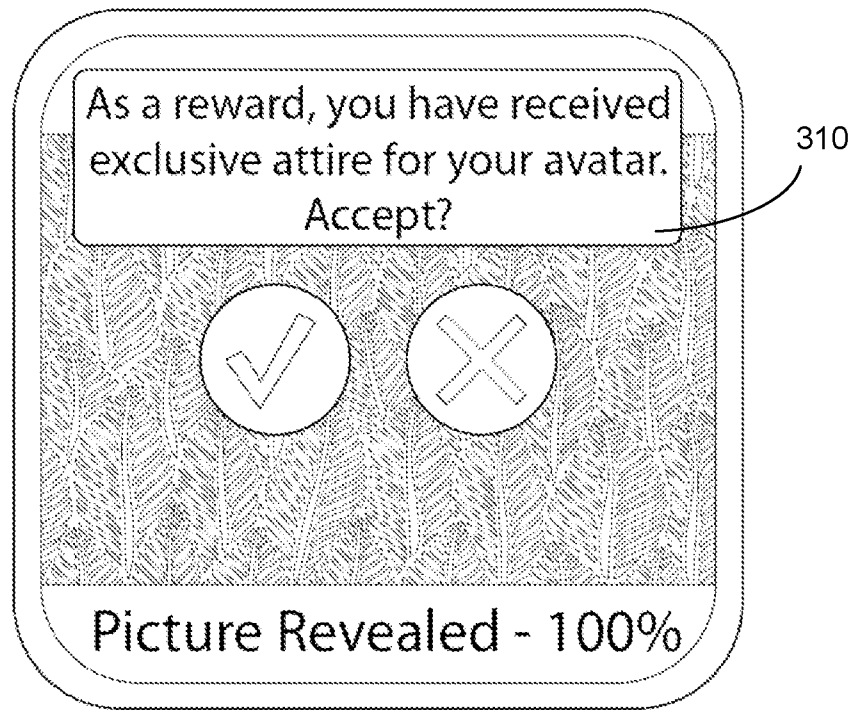
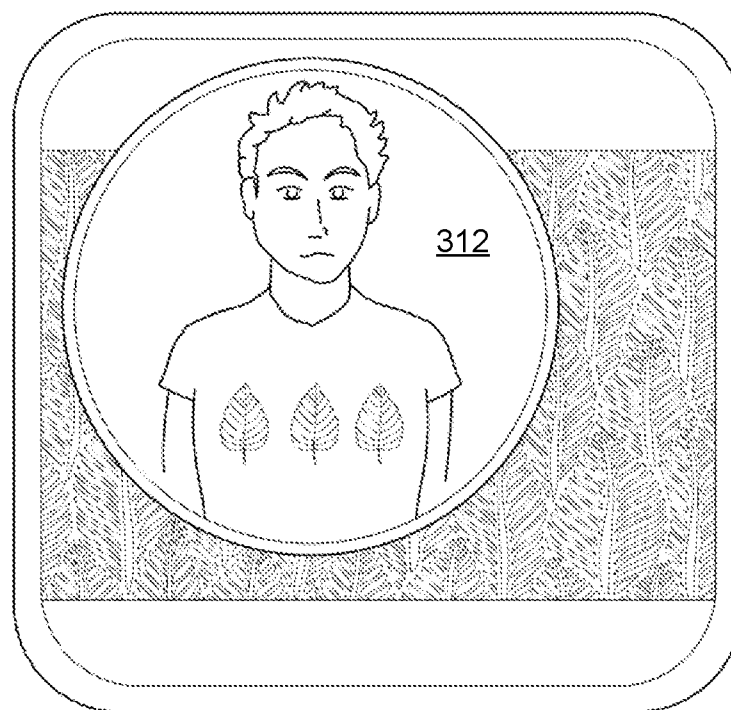
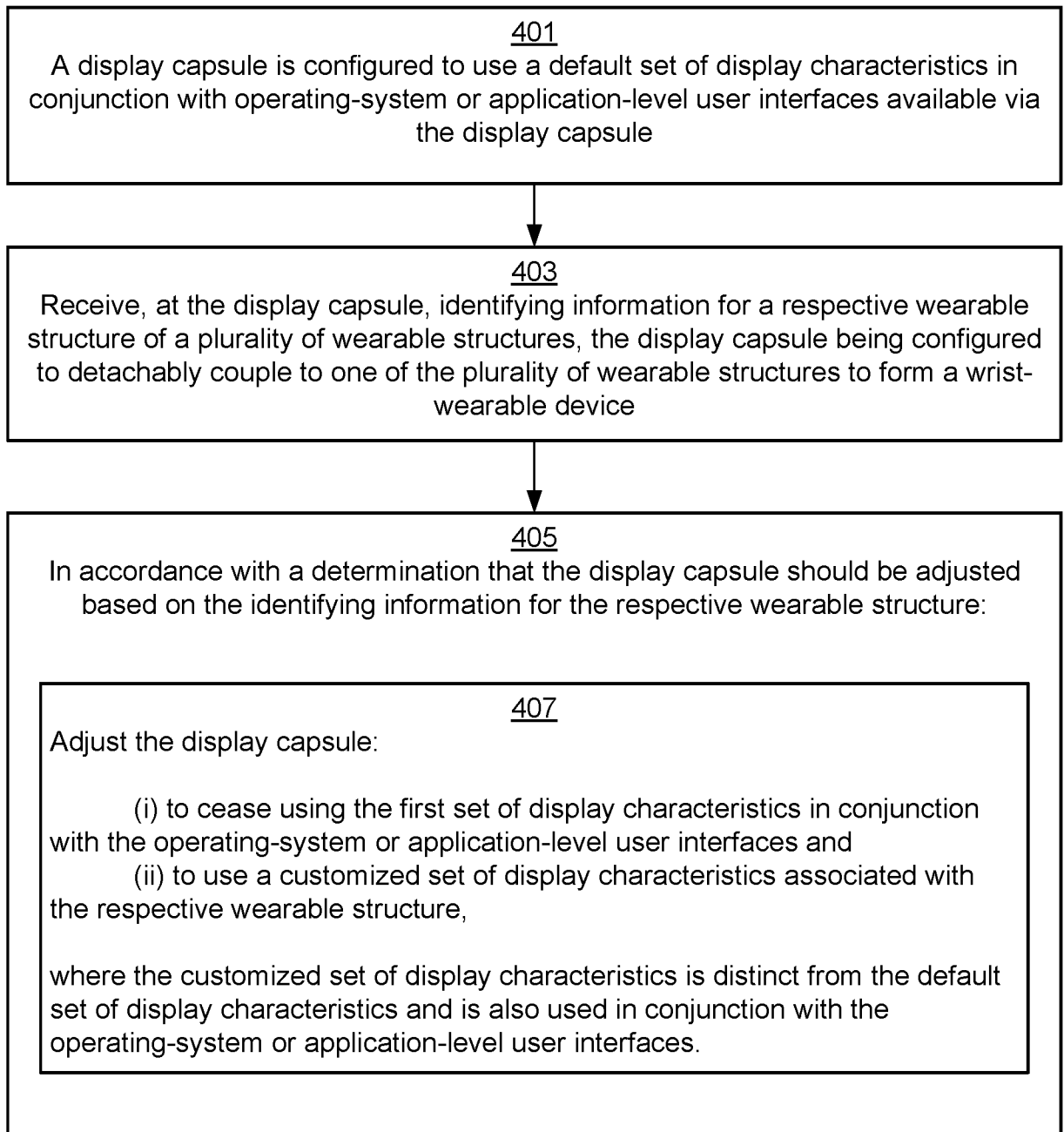


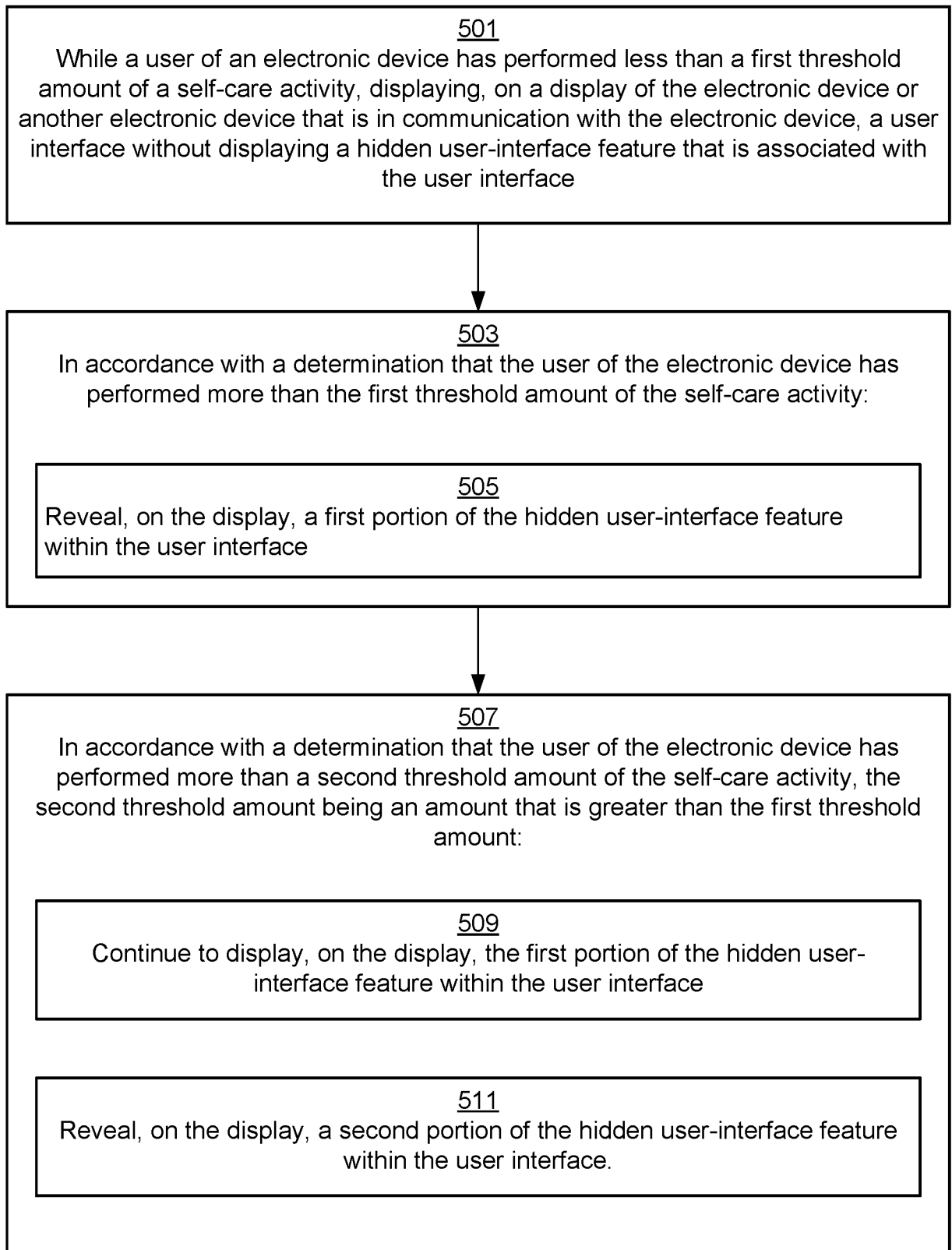
FIG. 3D

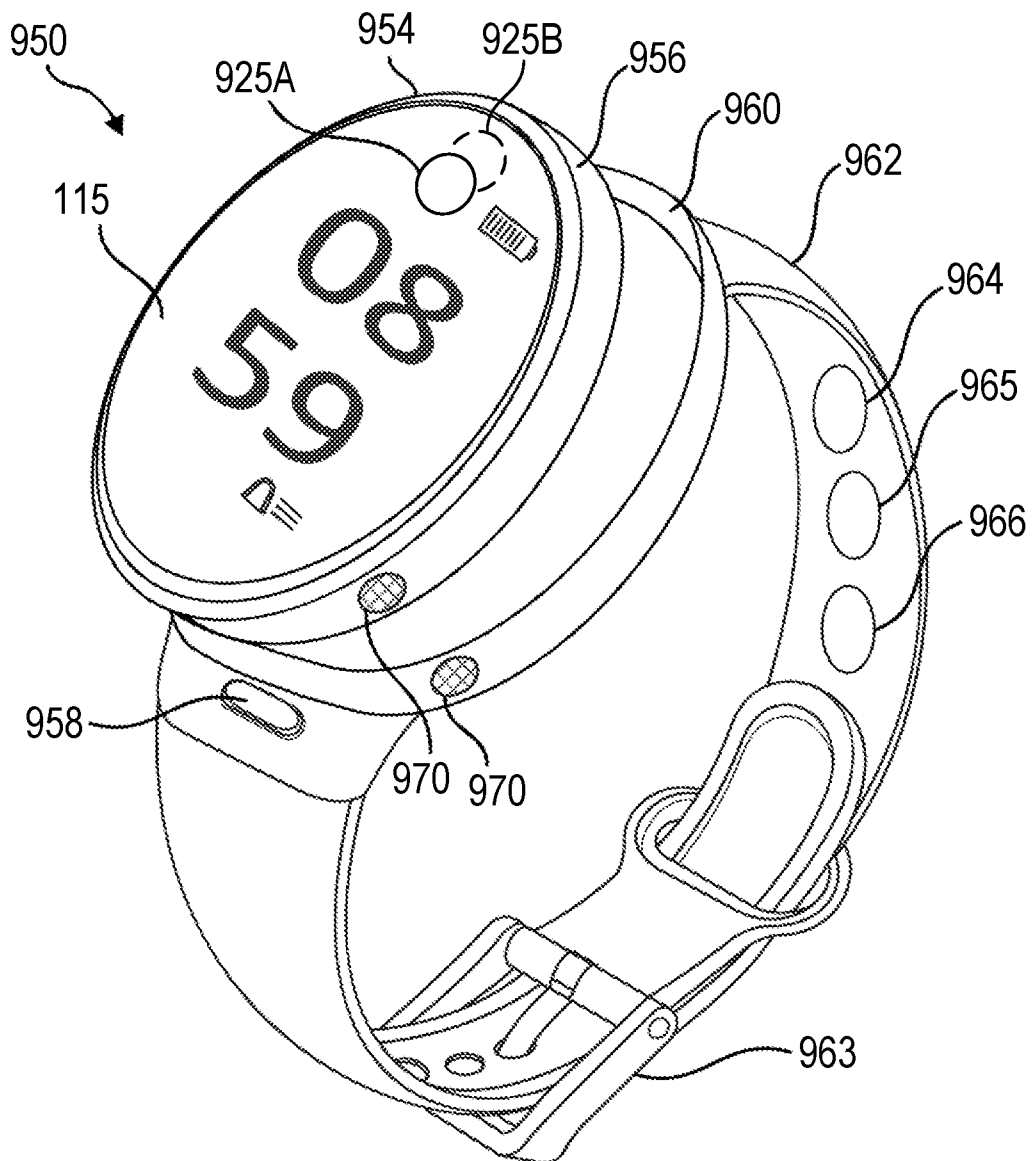
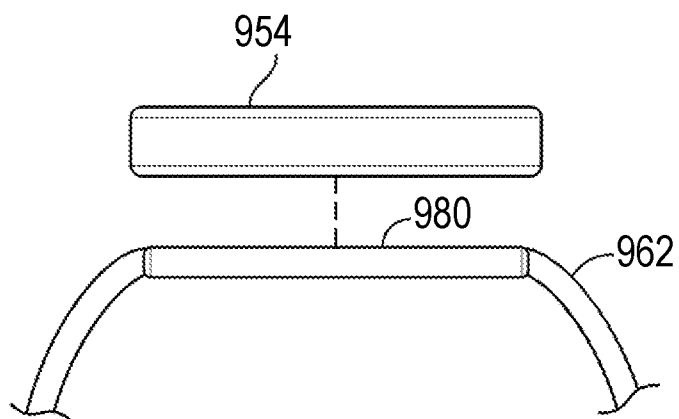
**Figure 3E****Figure 3F**

400 →

**Figure 4**

500 →

**Figure 5**

**Figure 6A****Figure 6B**

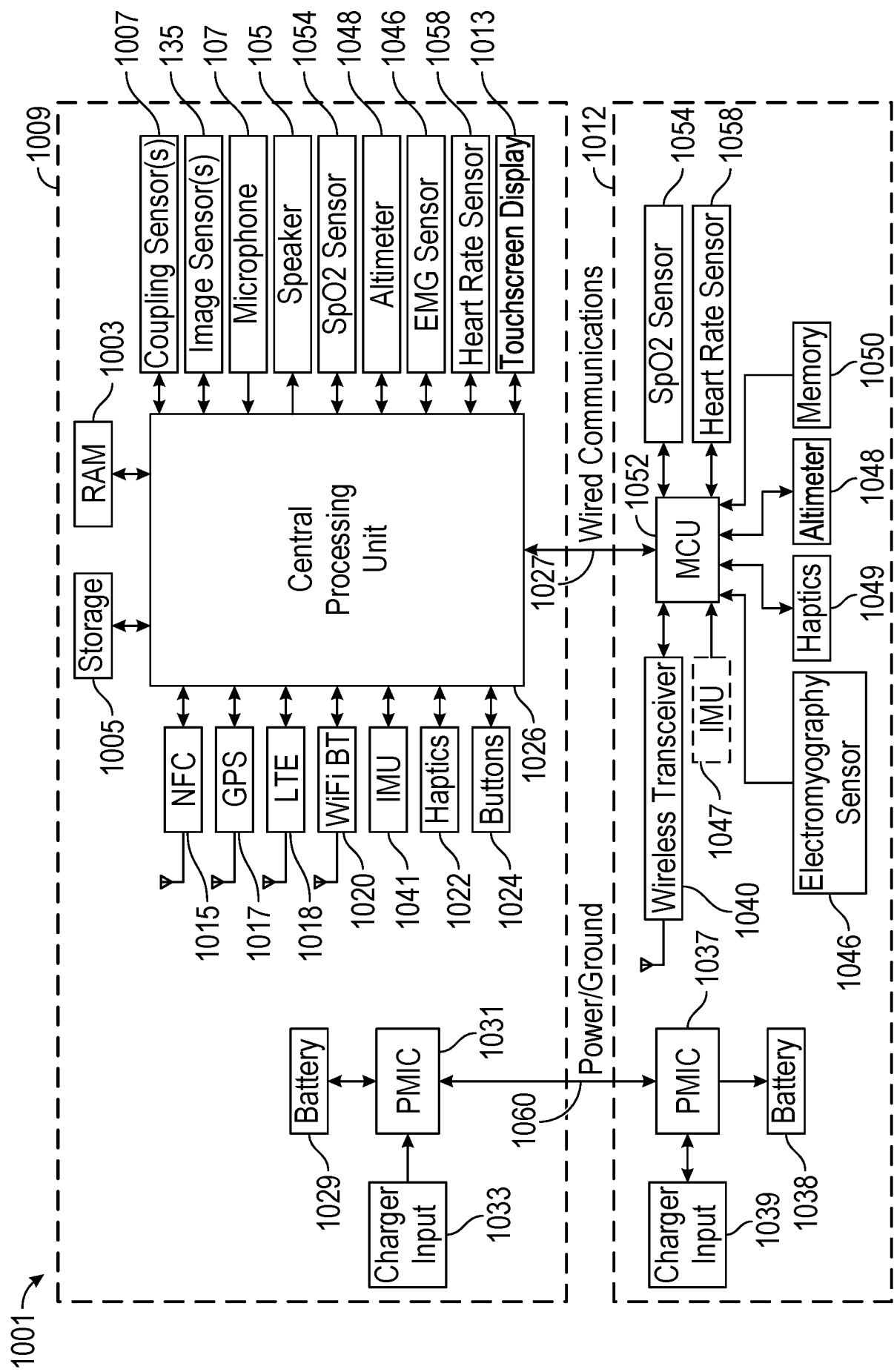


Figure 7

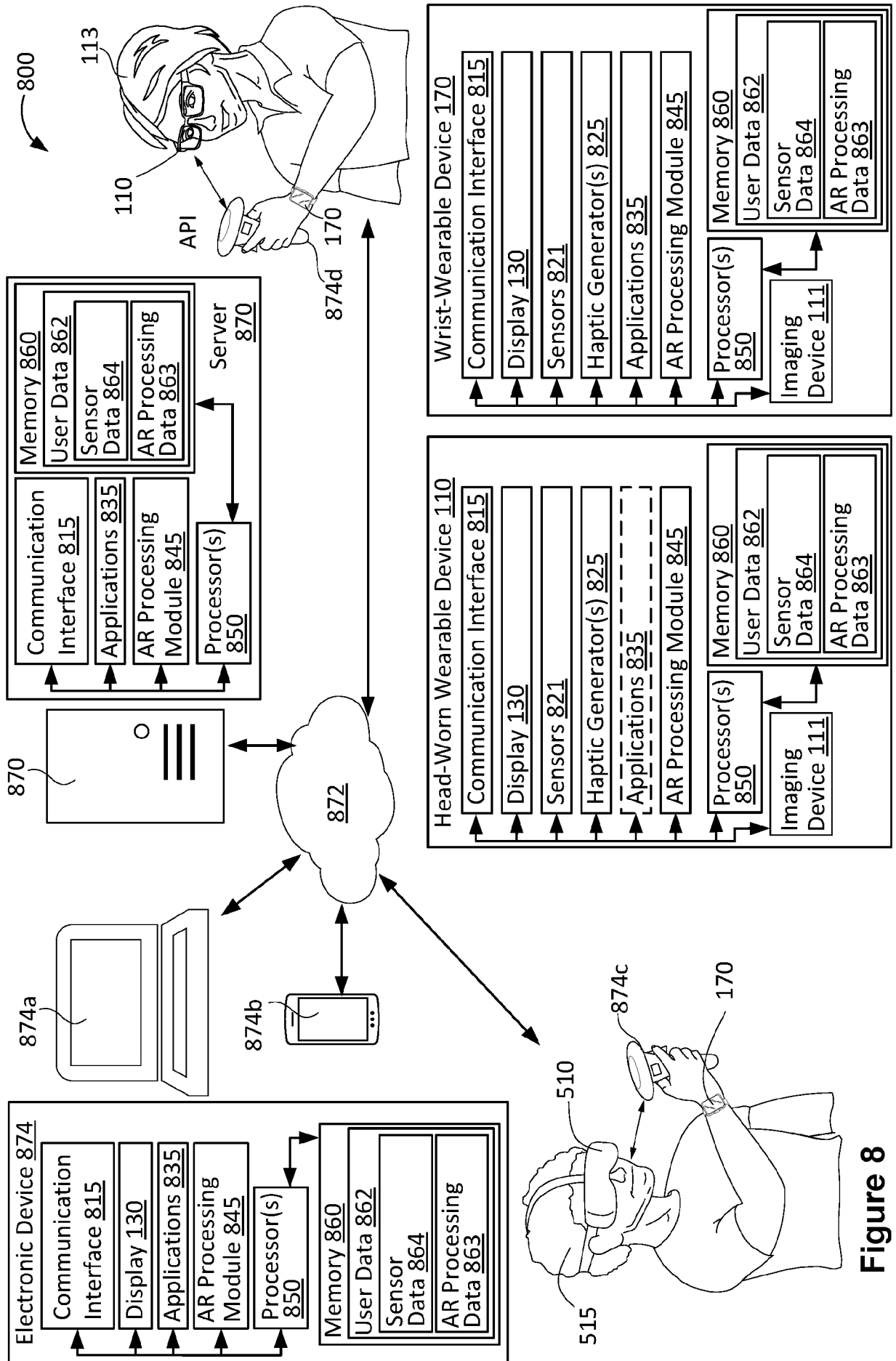


Figure 8

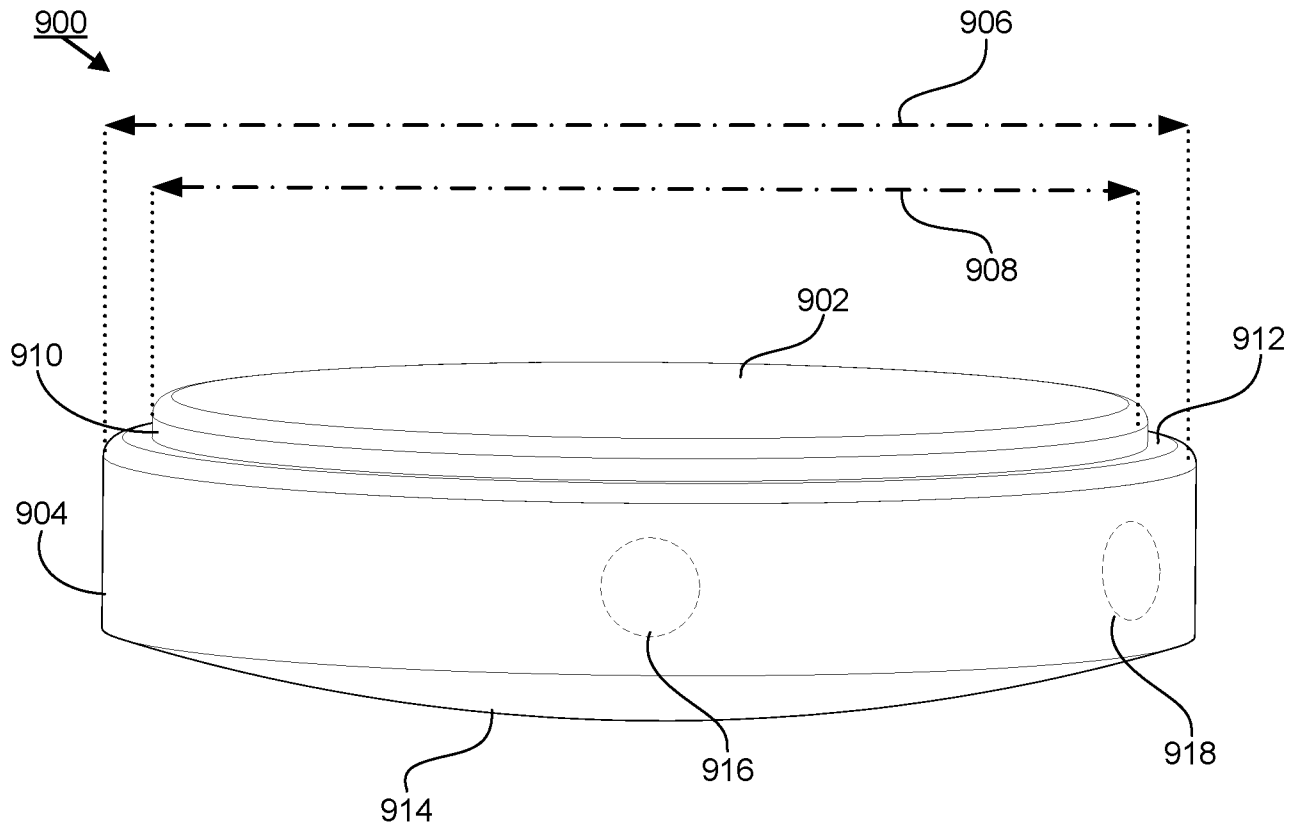


Figure 9A

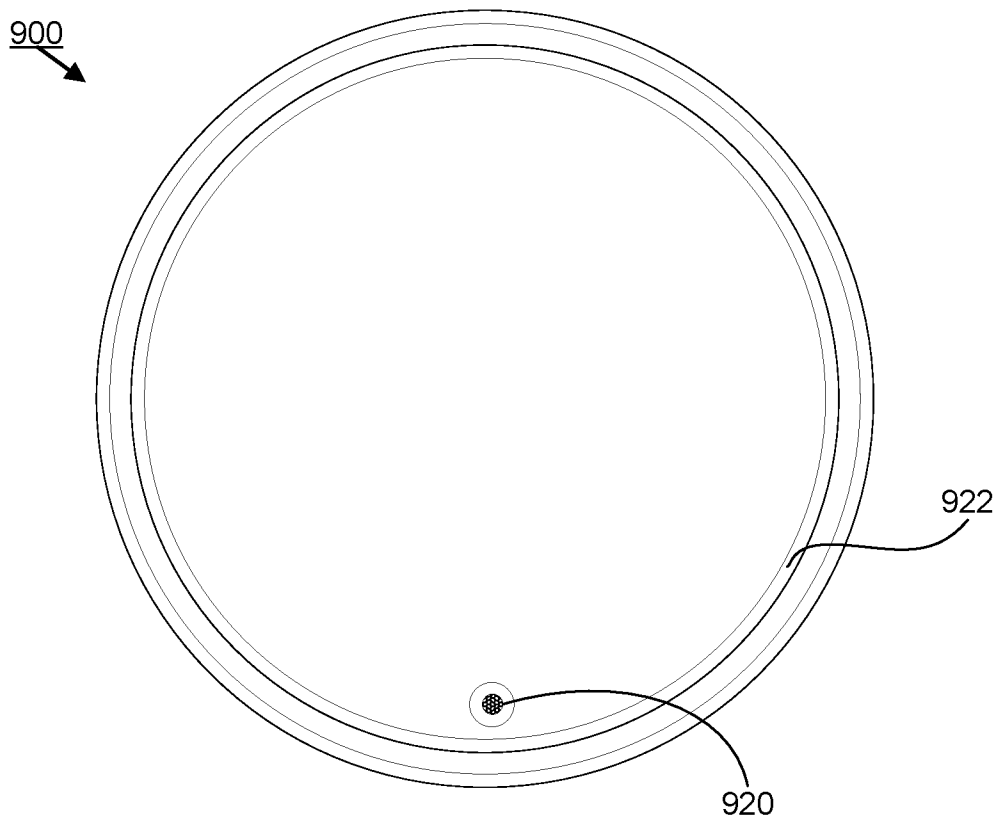


Figure 9B

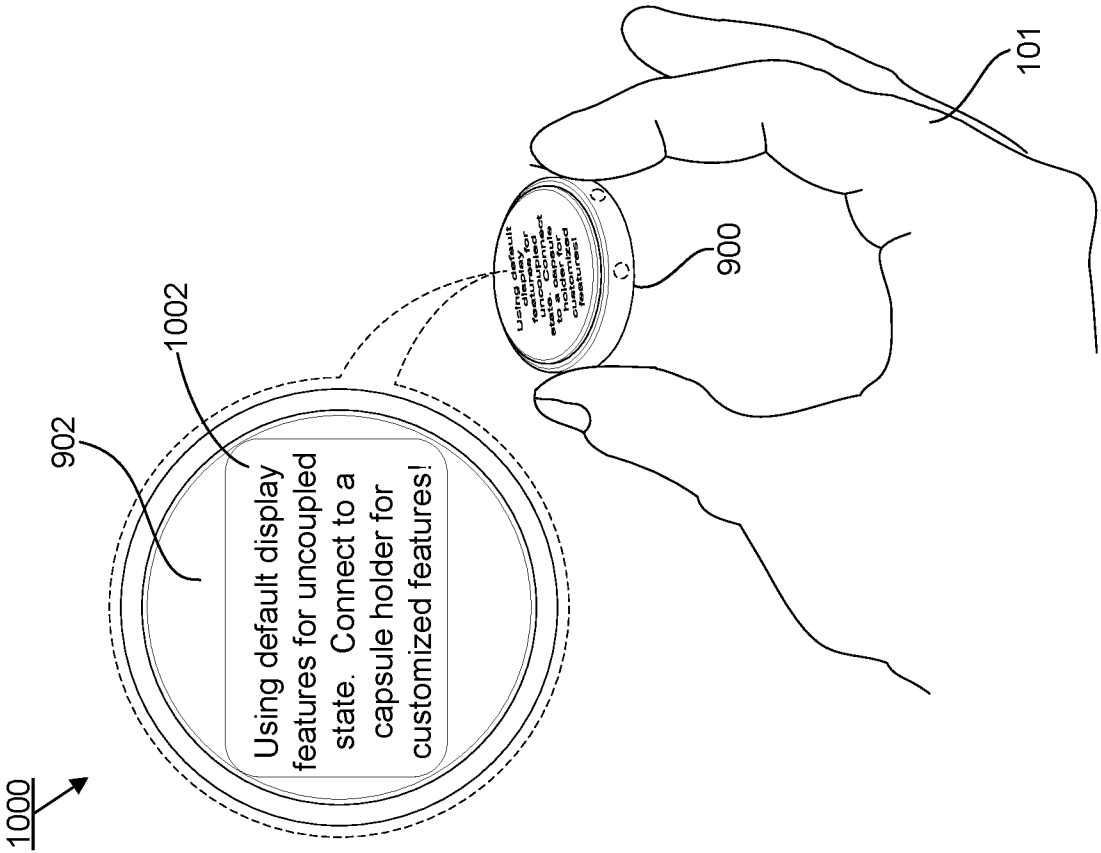


Figure 10A

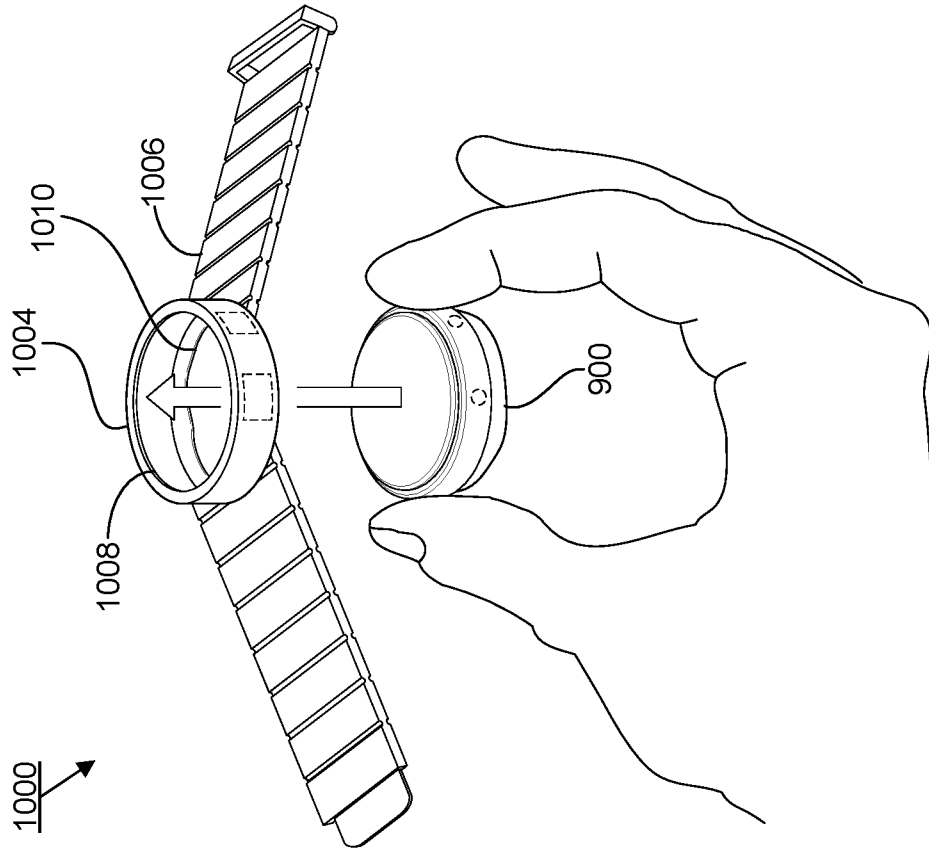


Figure 10B

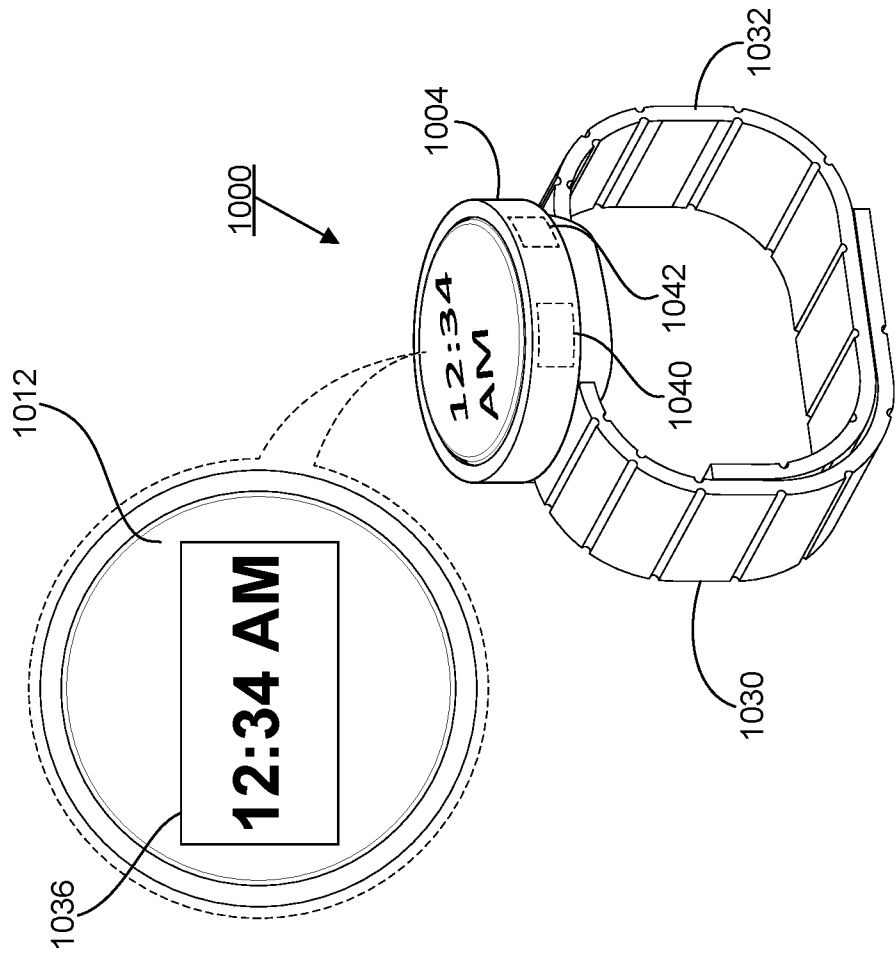


Figure 10D

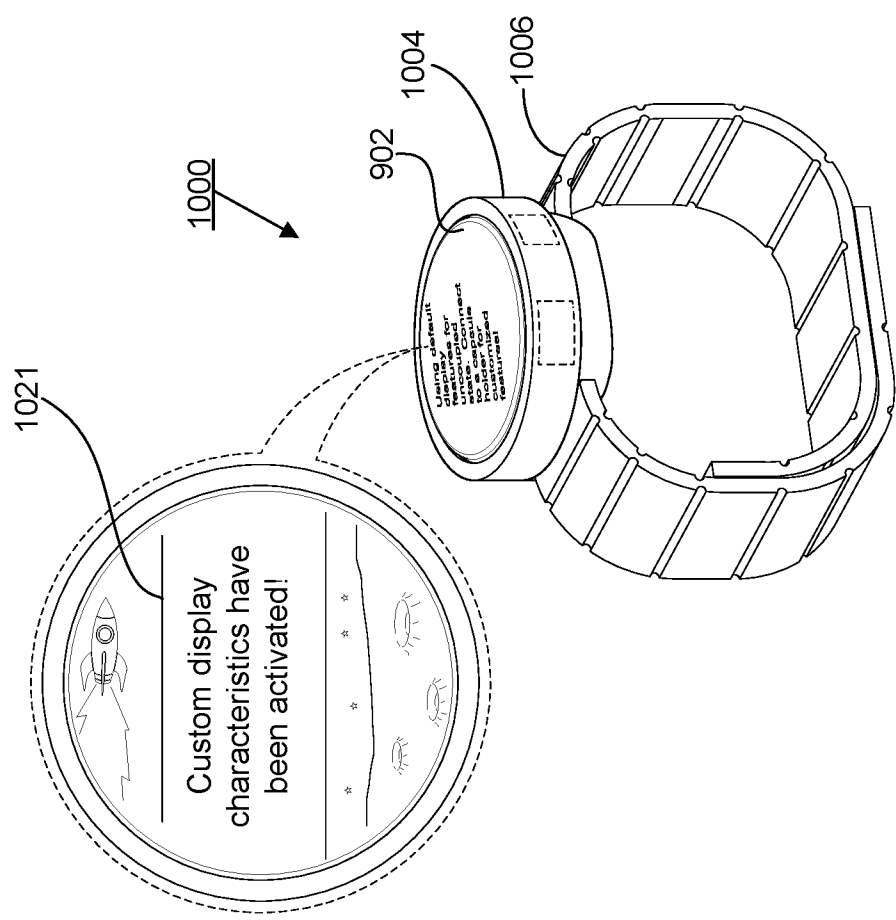


Figure 10C

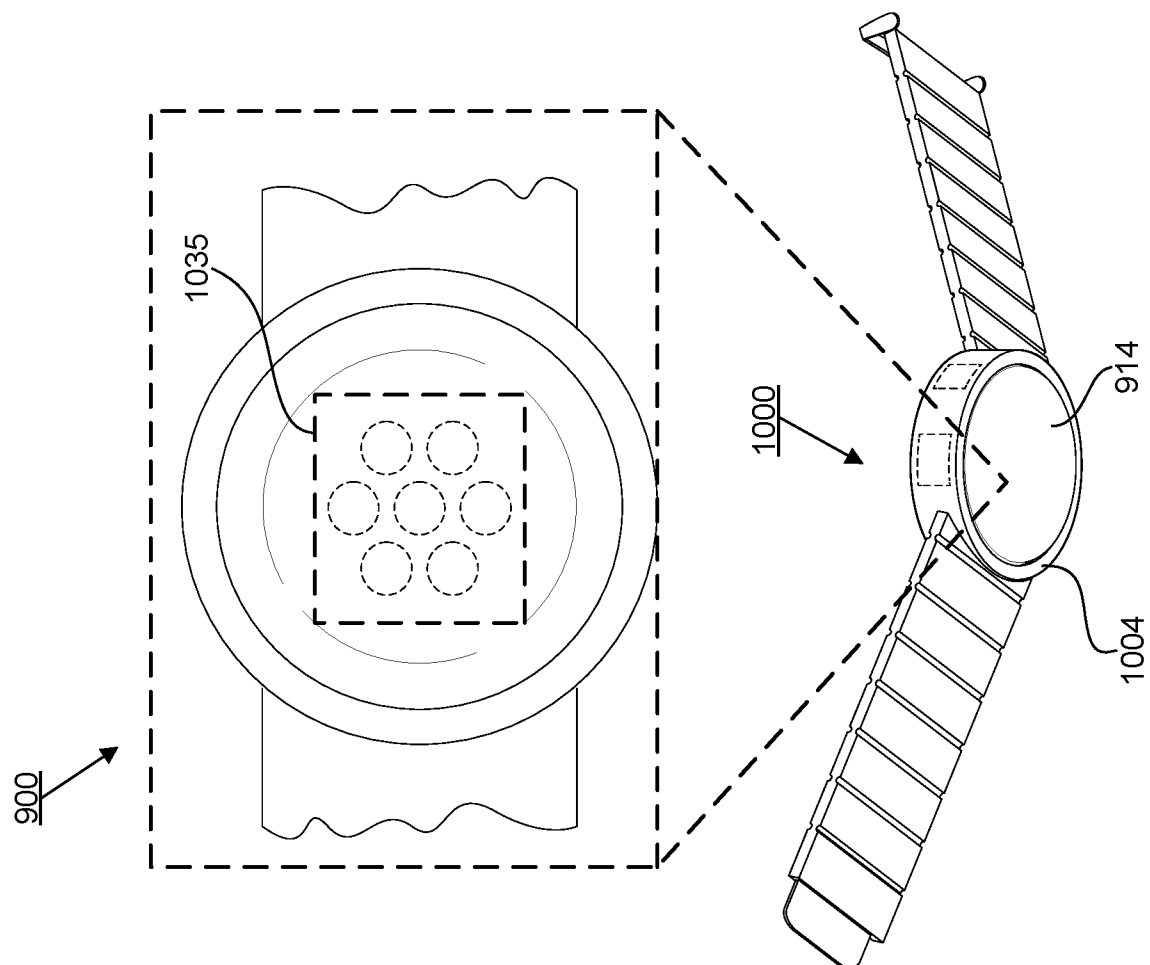


Figure 10E

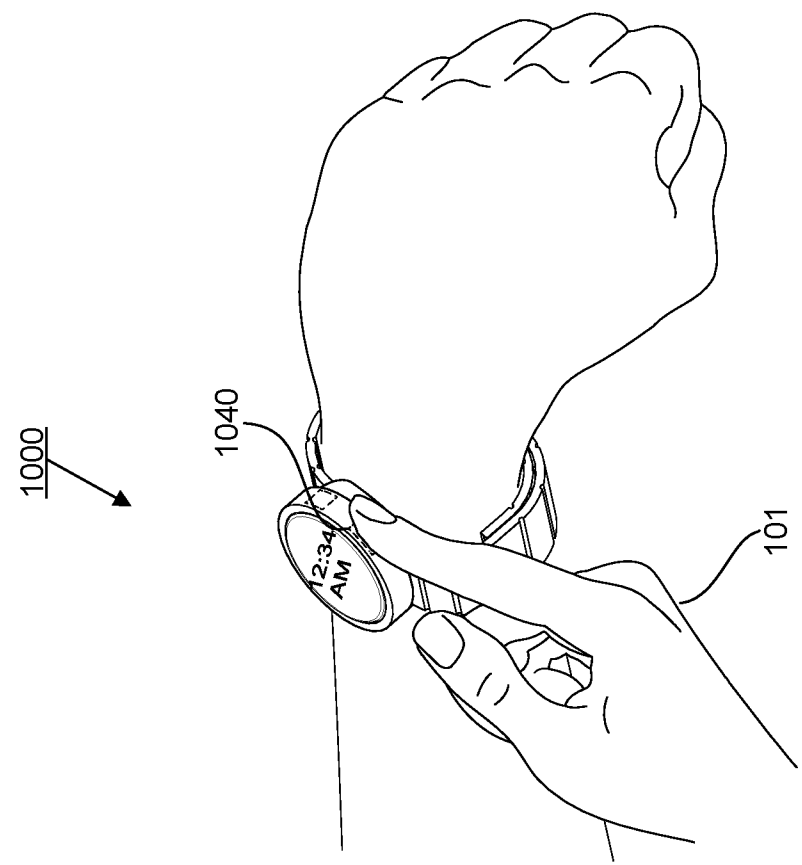


Figure 10F

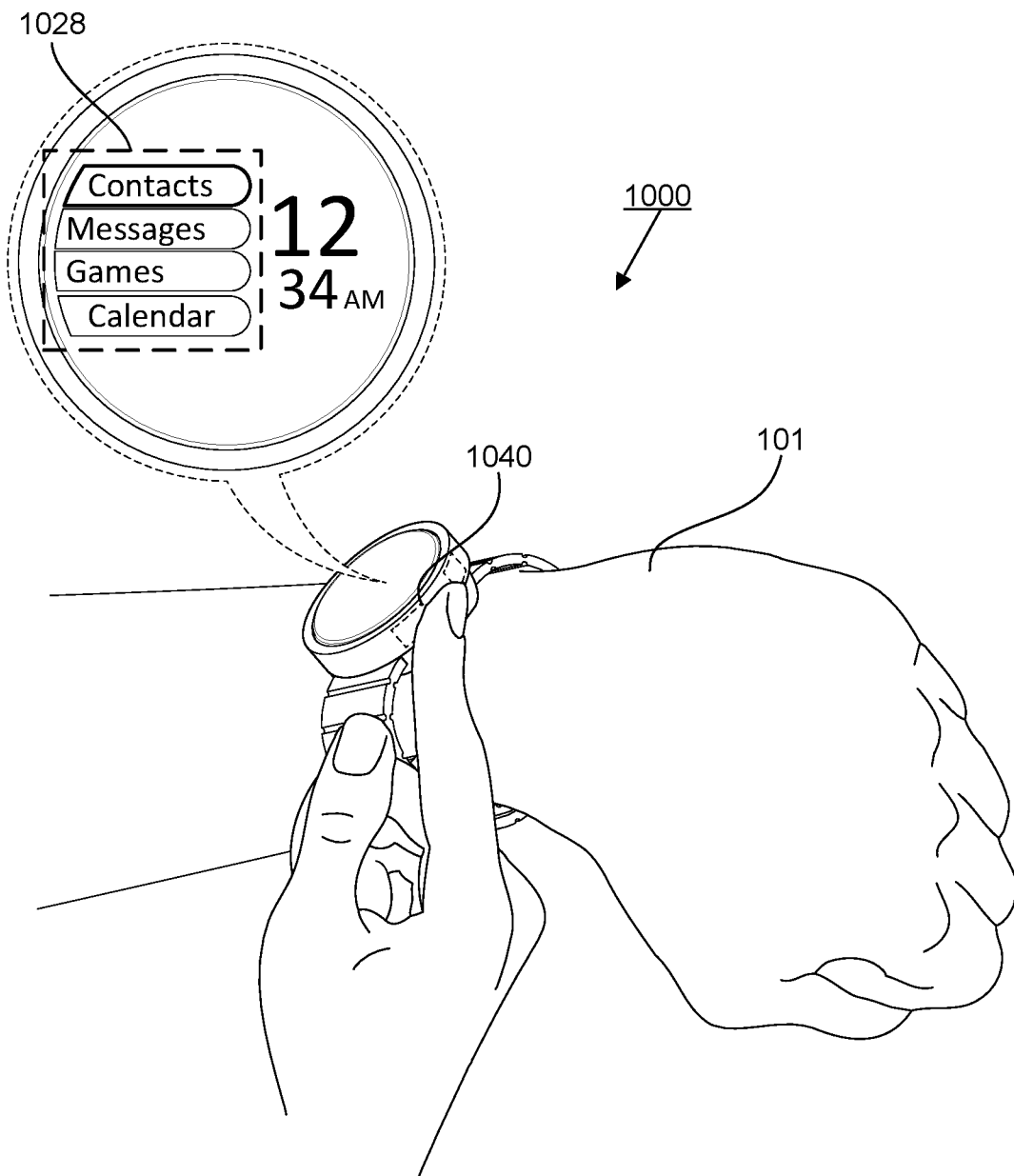


Figure 10G

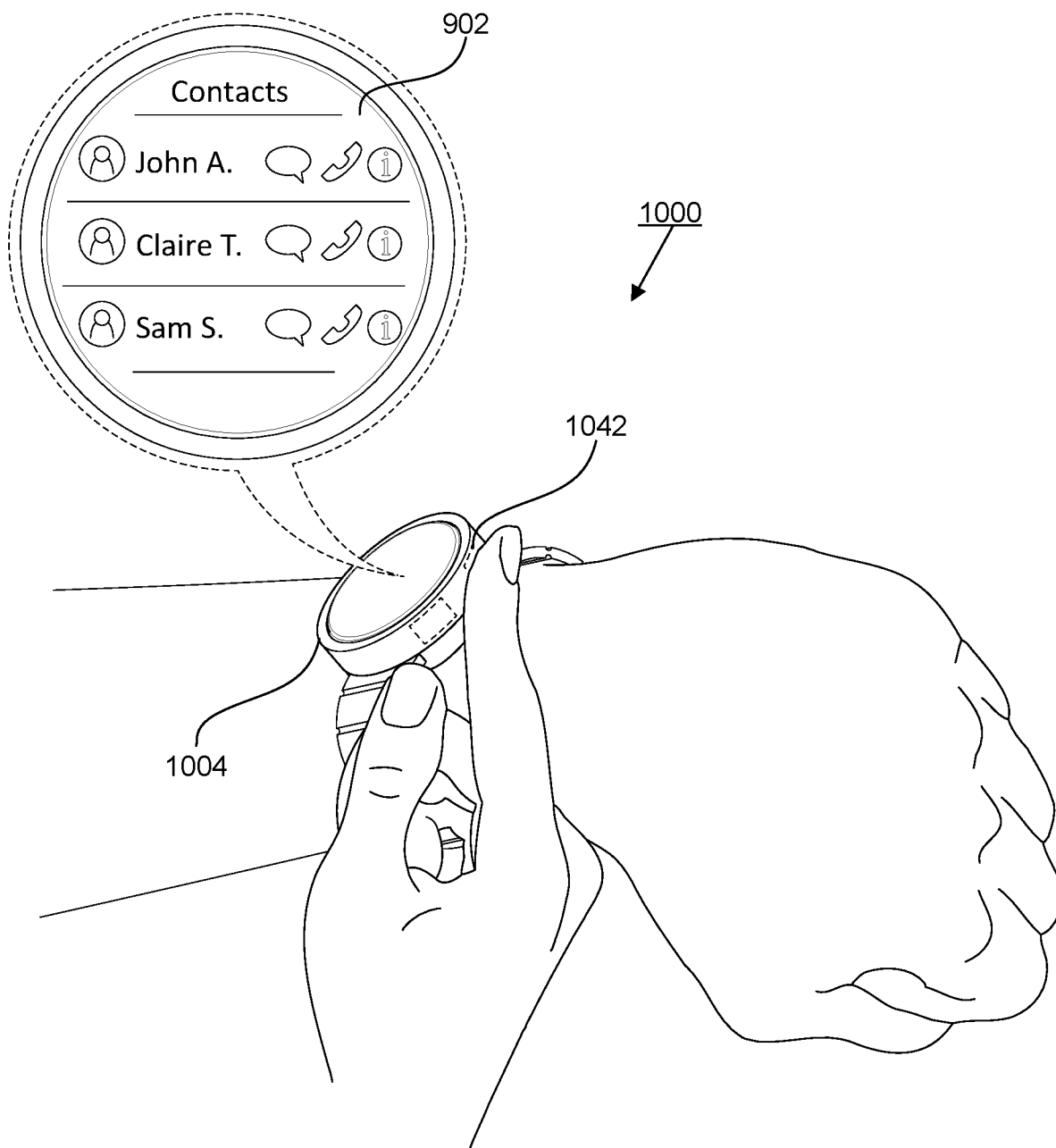


Figure 10H

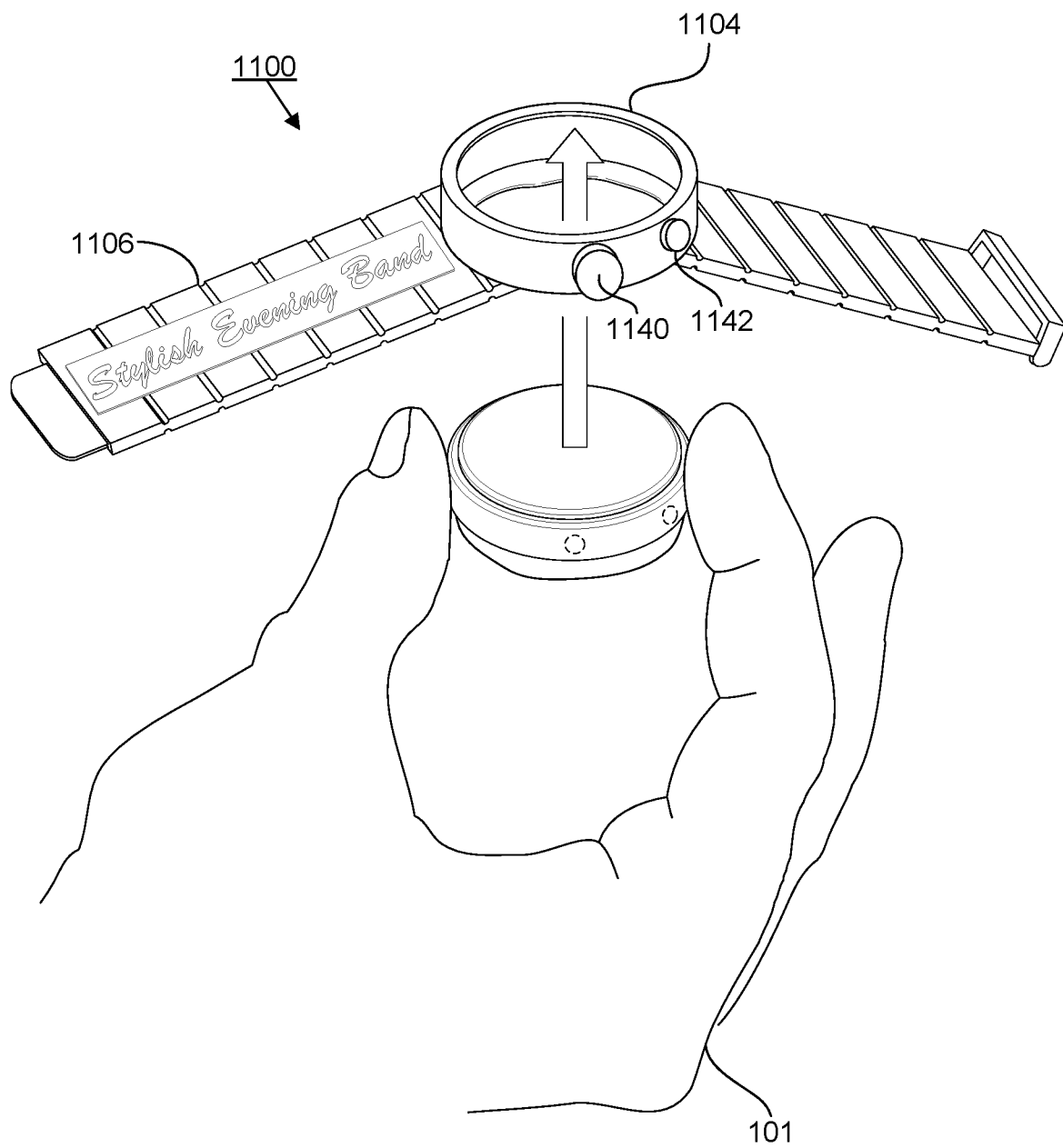


Figure 11A

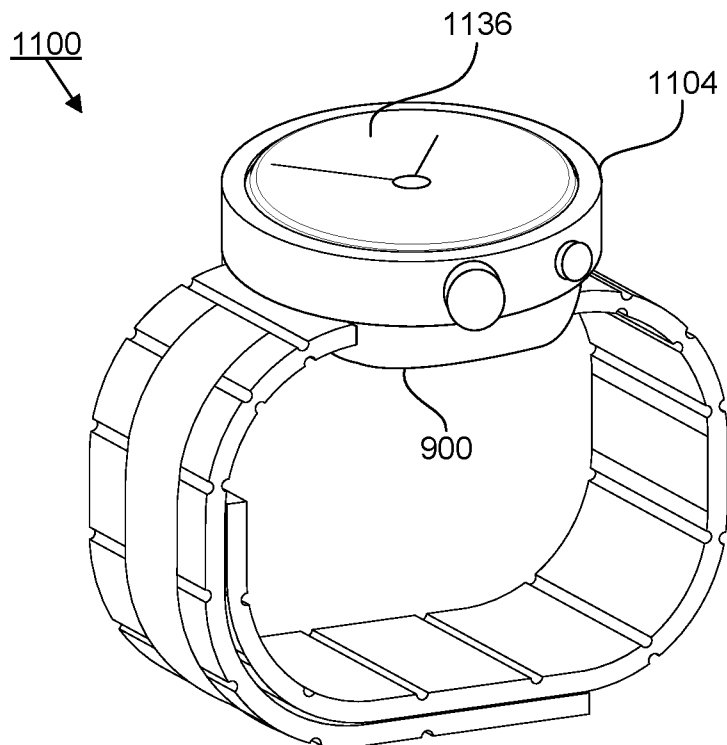


Figure 11B

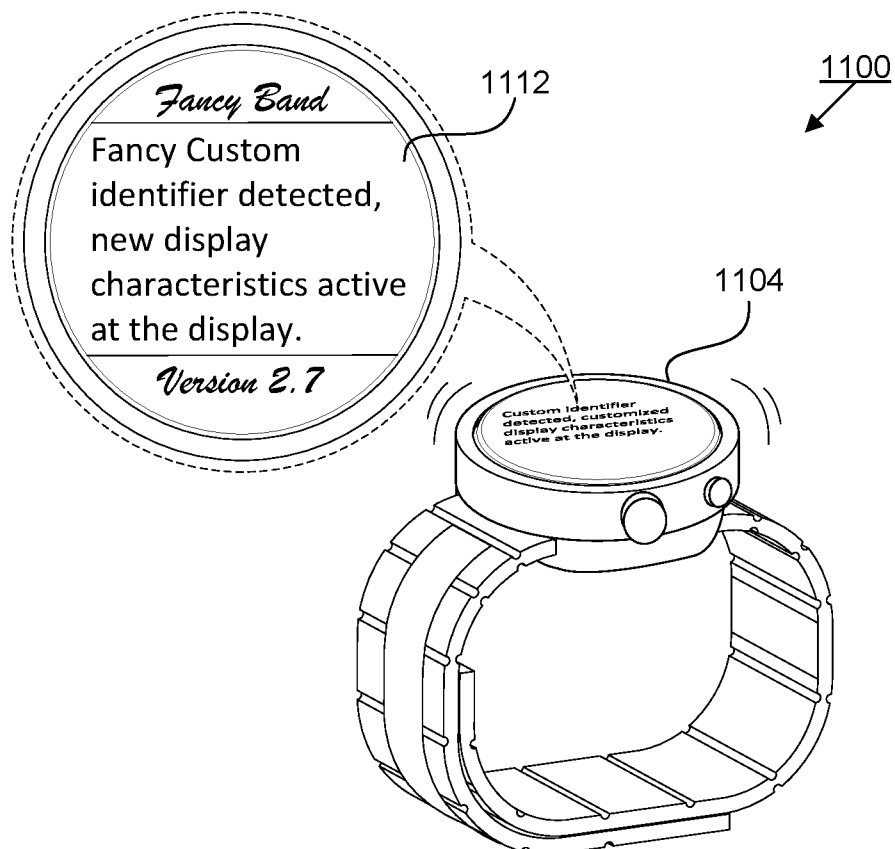


Figure 11C

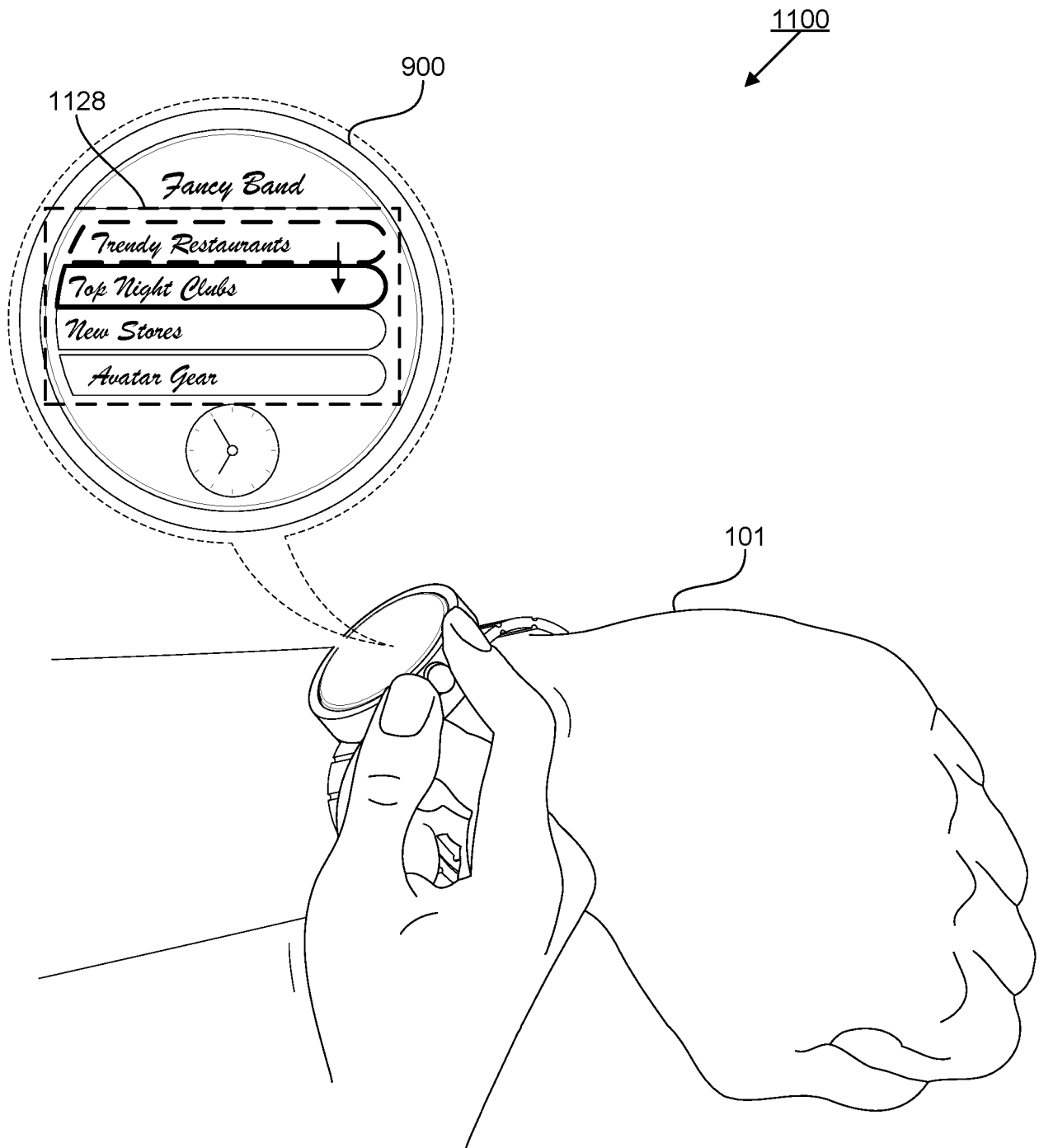


Figure 11D

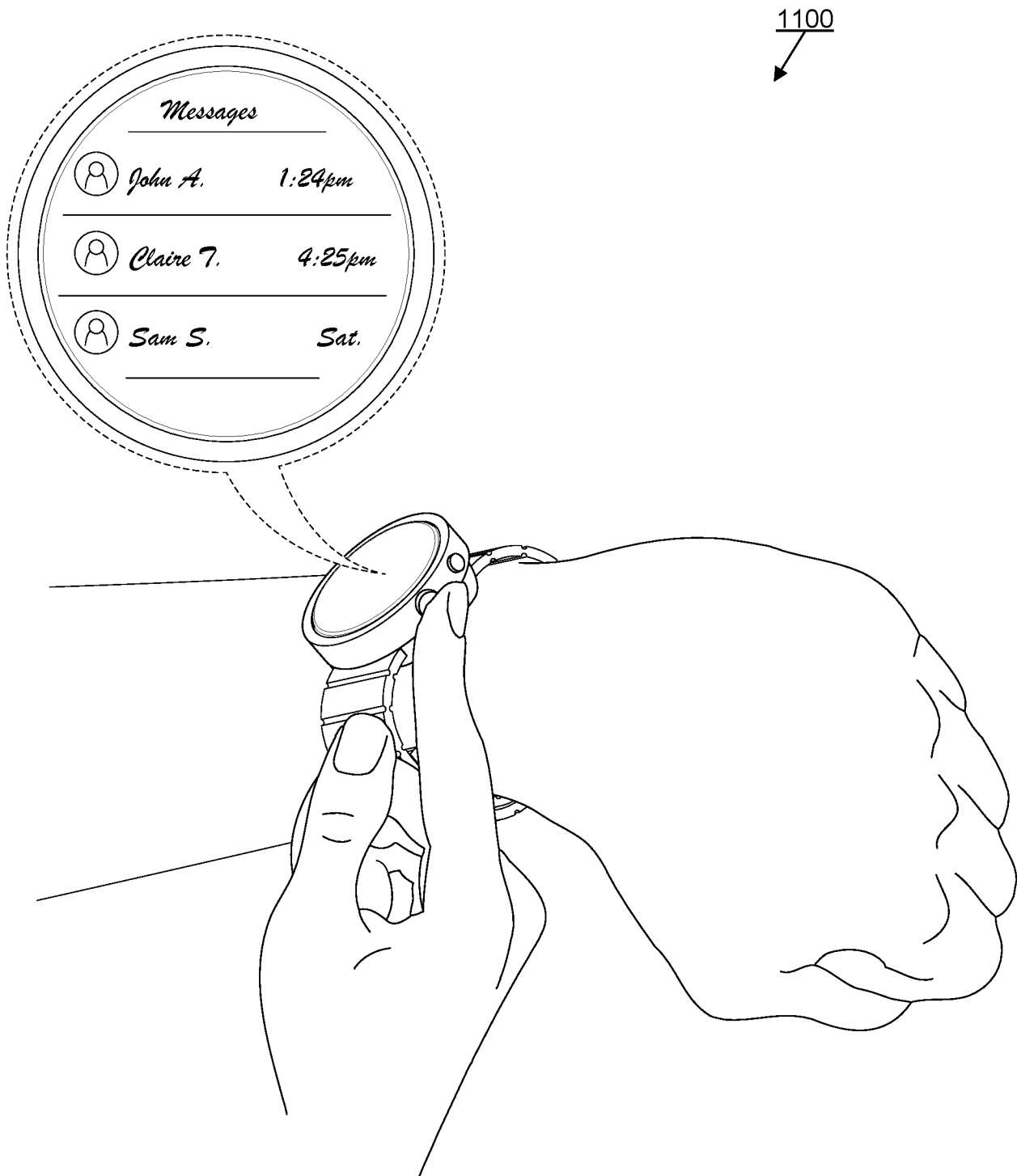


Figure 11E

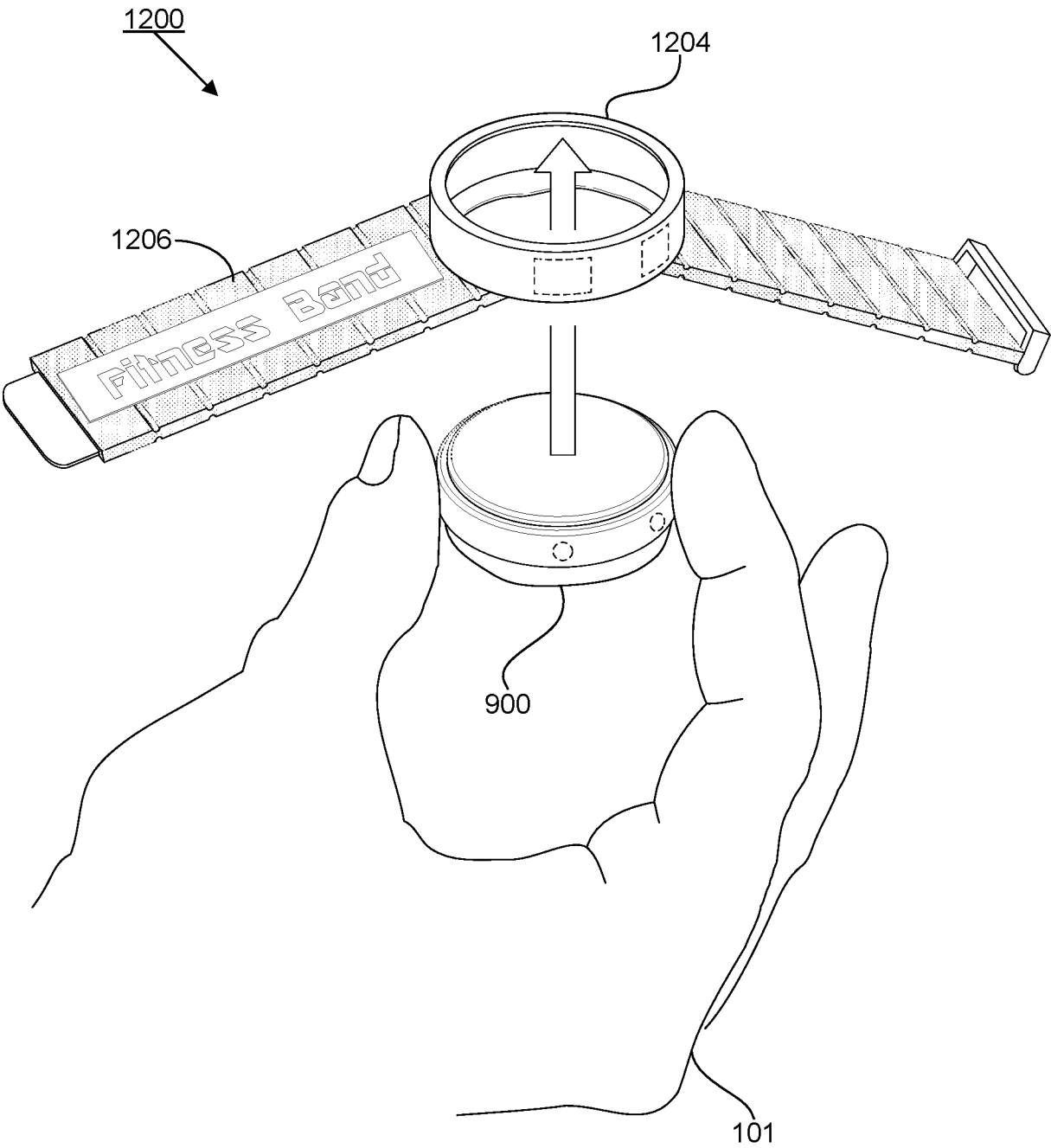


Figure 12A

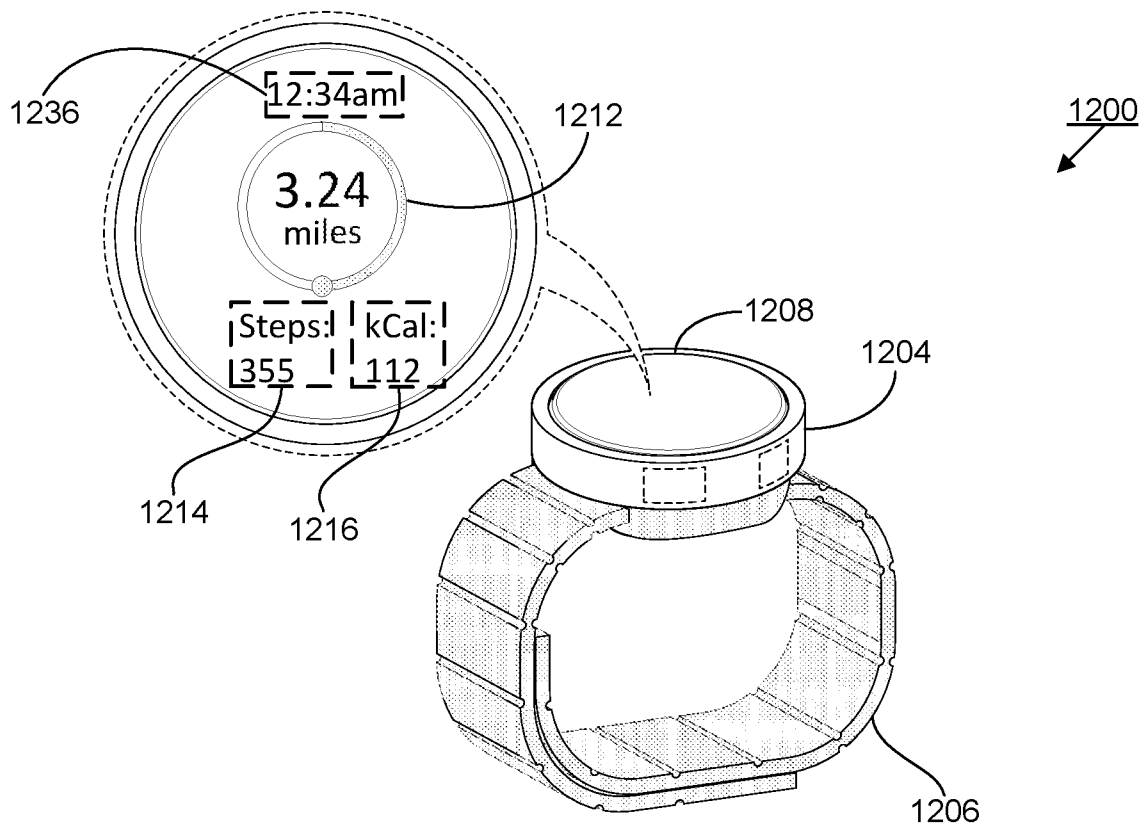


Figure 12B

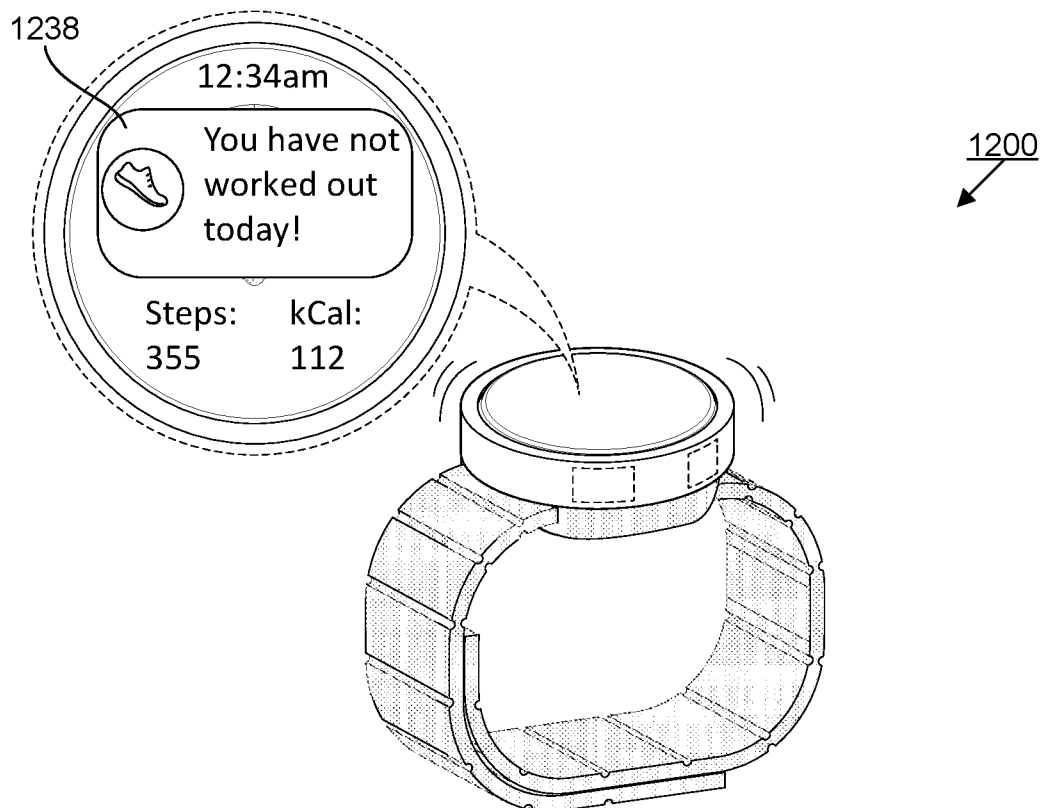


Figure 12C

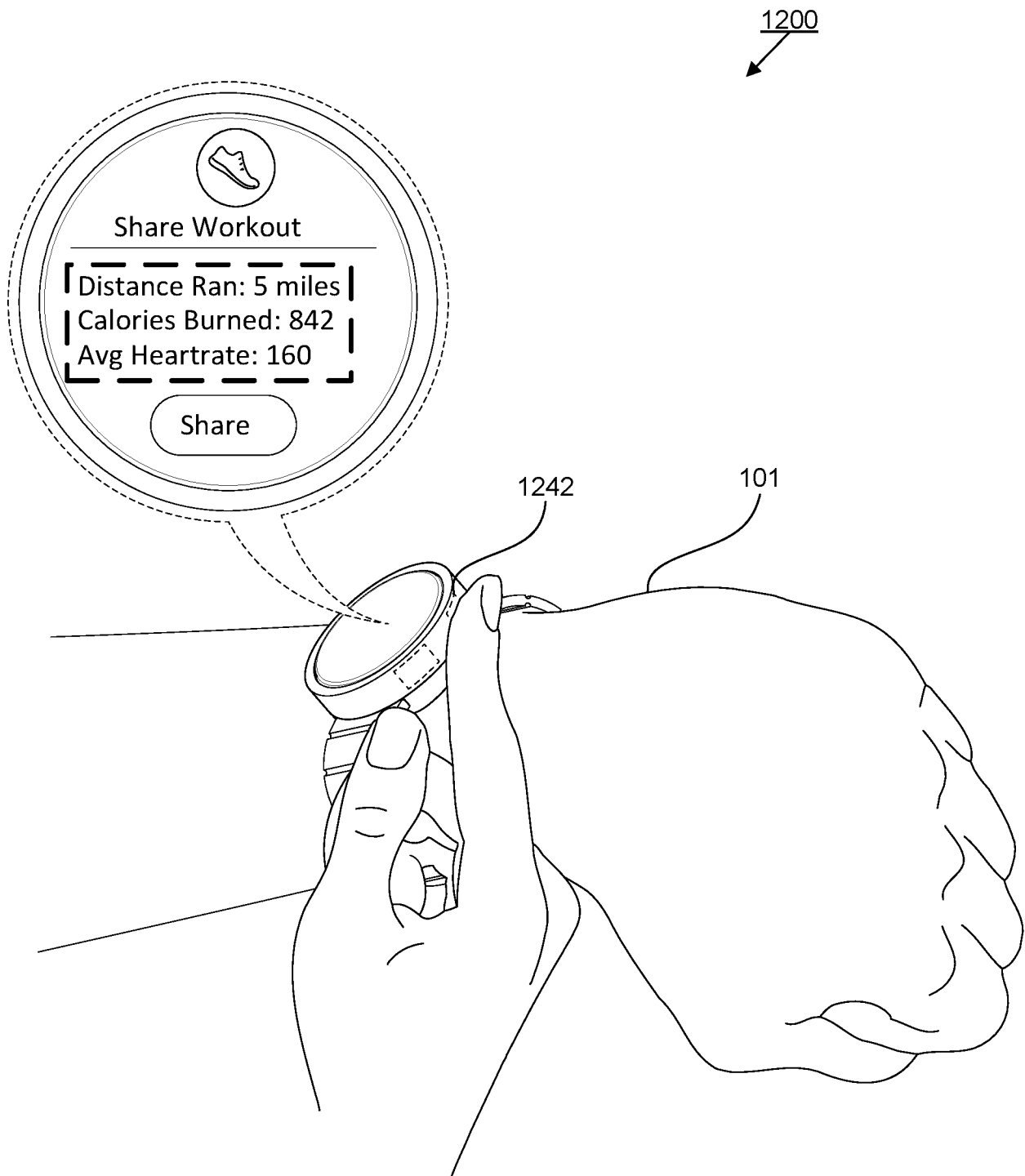


Figure 12D

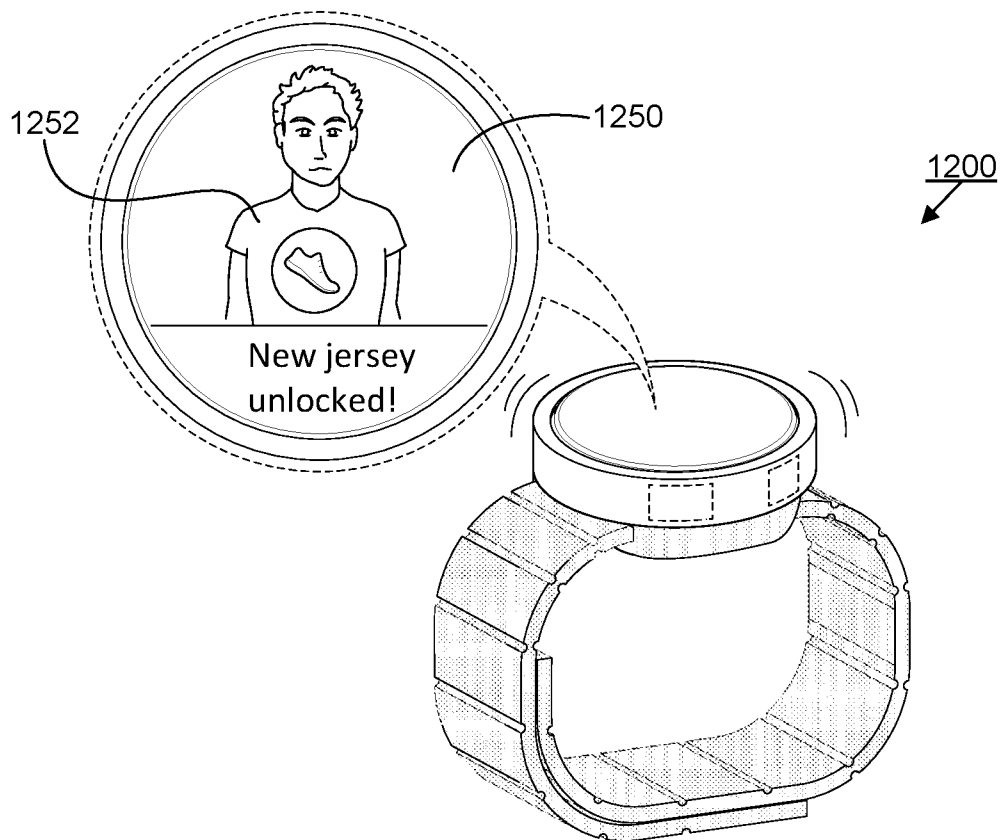


Figure 12E

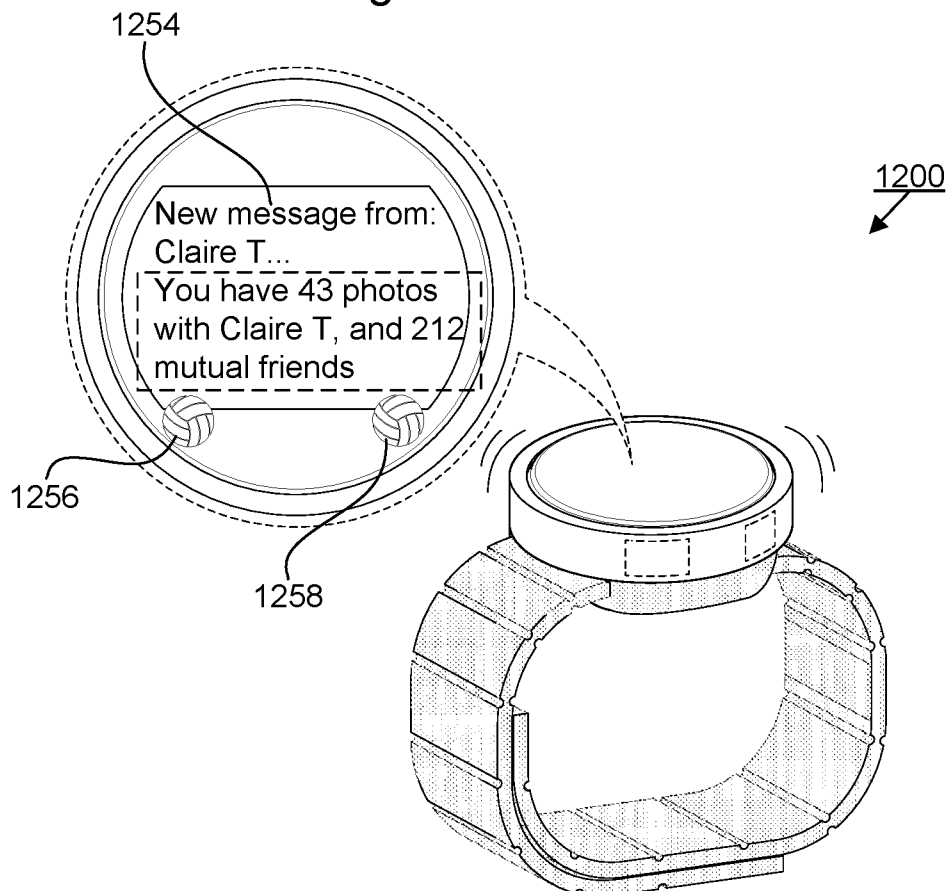


Figure 12F

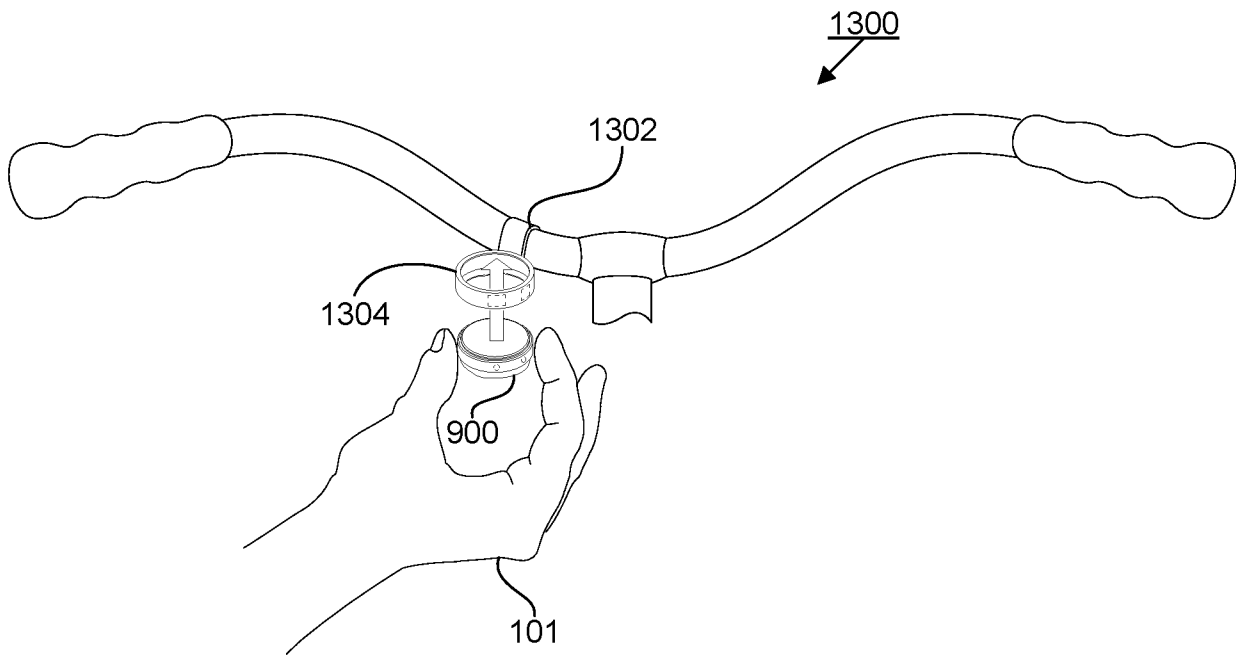


Figure 13A

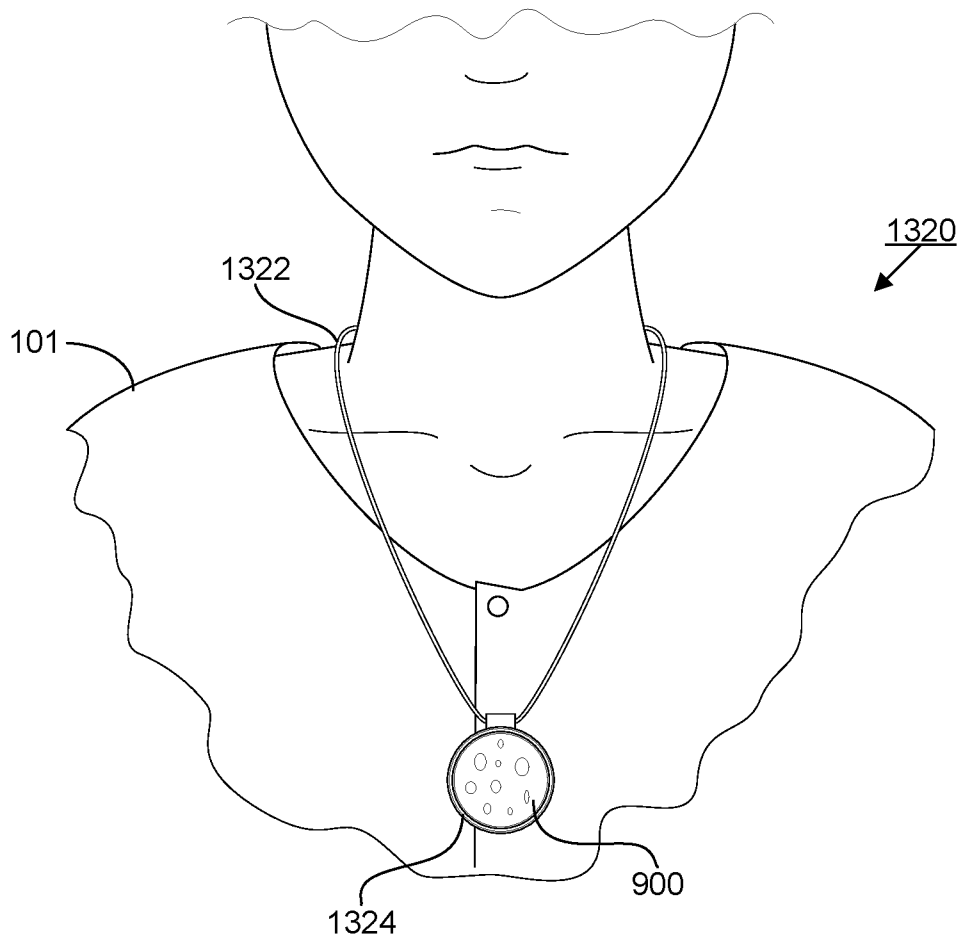


Figure 13B

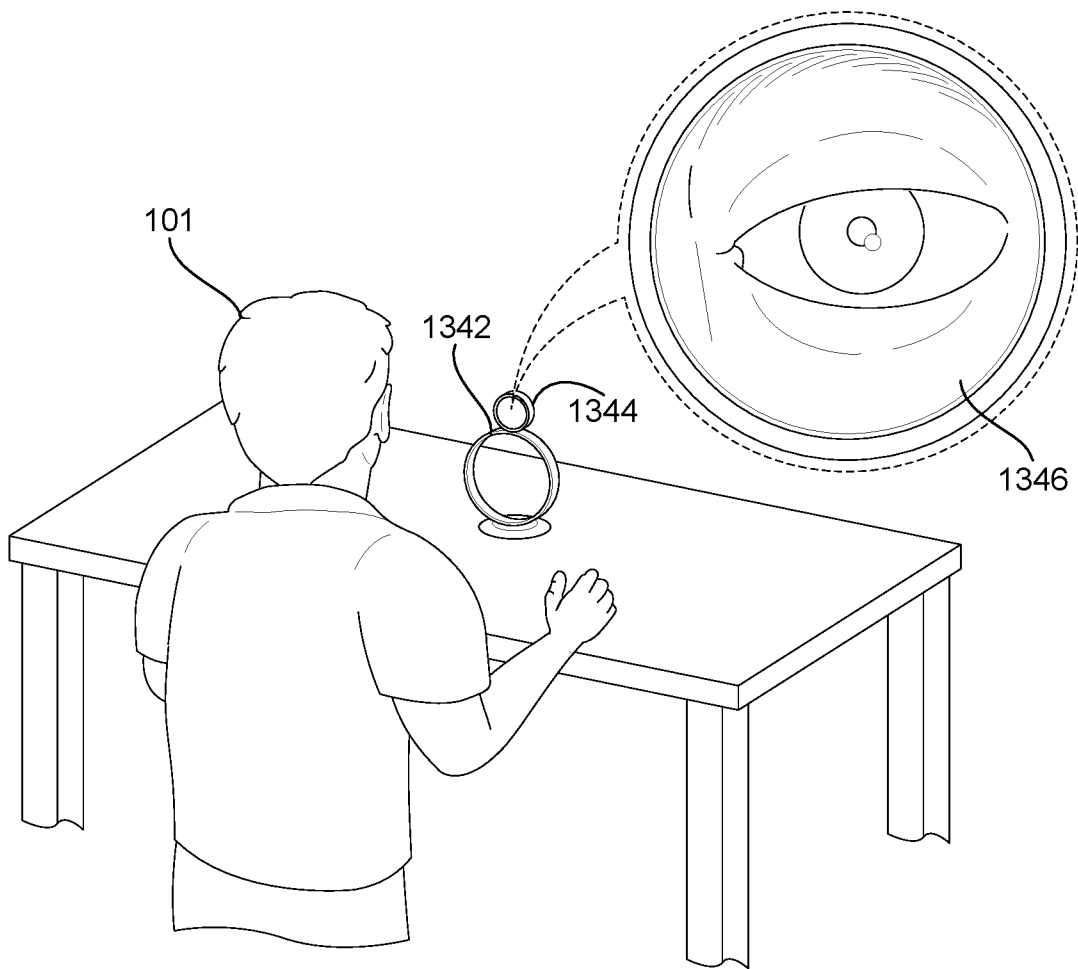


Figure 13C

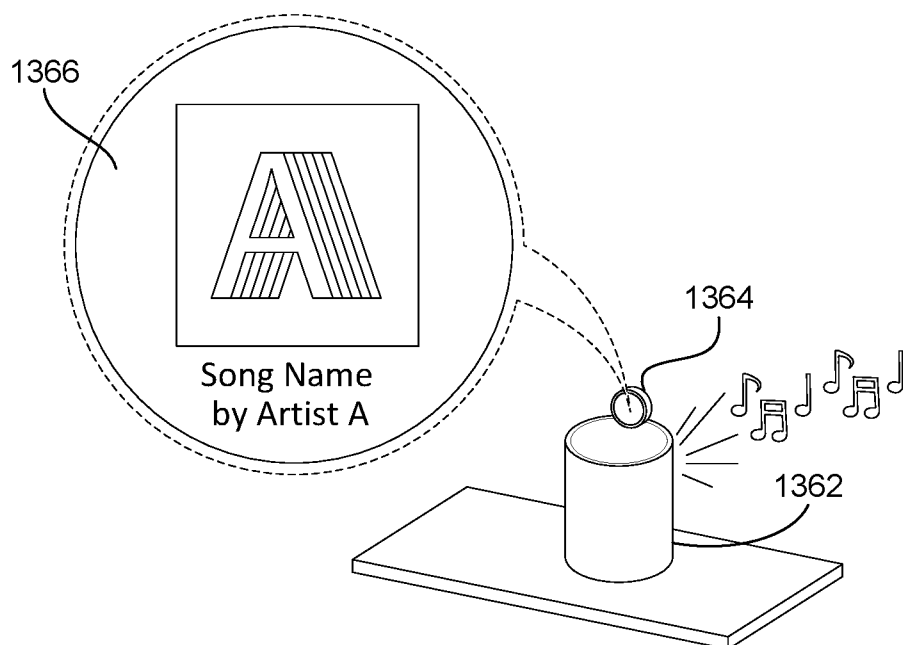


Figure 13D

1400 →

1402 Cause a display capsule, uncoupled from any holding structure, to display a user interface at a touch-sensitive display, where the user interface has a first set of display characteristics.

1404 The display capsule includes (i) a touch-sensitive display and (ii) a housing integrally formed with the touch-sensitive display.

1406 The housing defines a first outer perimeter that extends beyond a second outer perimeter of the touch-sensitive display.

1408 A display-coupling edge is defined by the portion of the housing between the first outer perimeter of the housing, and a housing-coupling edge being generally orthogonal to the display-coupling edge.

1410 The display capsule includes at least one Hall effect sensor configured to cause an operation to be performed based on a magnetic change detected by the Hall effect sensor.

1412 Place the display capsule in a holding structure that has a device identifier.

1414 The display-coupling edge and the housing are configured to be surrounded by a holding structure, where the holding structure is configured to fixedly hold the display capsule in place.

1416 The device identifier includes an RFID tag.

1418 The holding structure defines an opening, and the opening includes a lip that extends towards a lateral center of the opening.

1420 The display capsule is configured to be removably coupled with the holding structure such that the display capsule is pushed through the opening such that the display-coupling edge is fixedly held by the lip of the holding structure when the display-coupling edge and the housing-coupling edge are surrounded by the holding structure.

1422 The holding structure includes a peripheral button structure that is configured to align with the Hall effect sensor locations of the display capsule.

1424 A unitary structure is formed by the combination of the holding structure and a band portion configured to be worn around a wrist of the user.

1426 The holding structure is attached to an accessory device that is not configured to be worn by a user.



Figure 14A

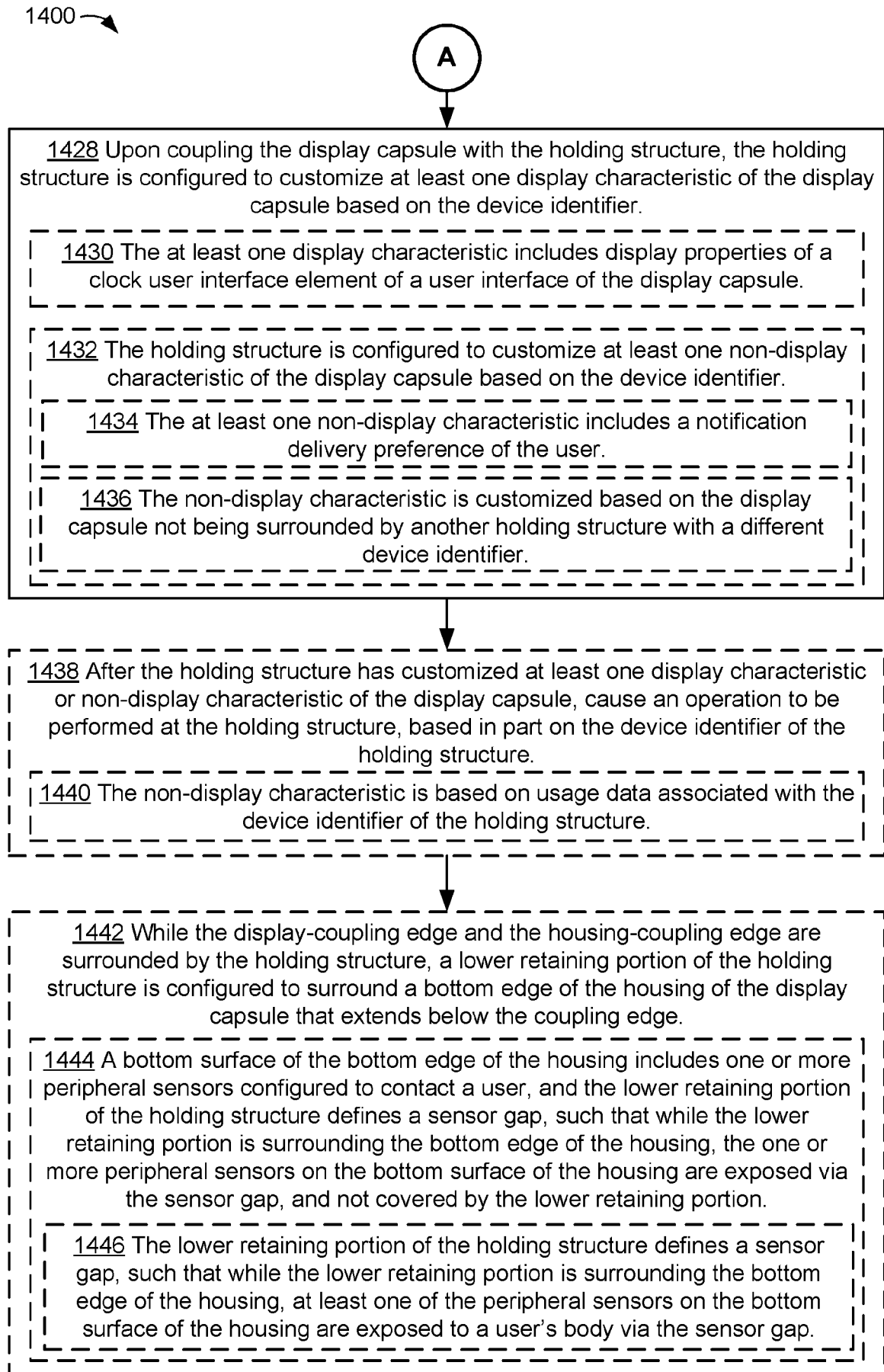


Figure 14B

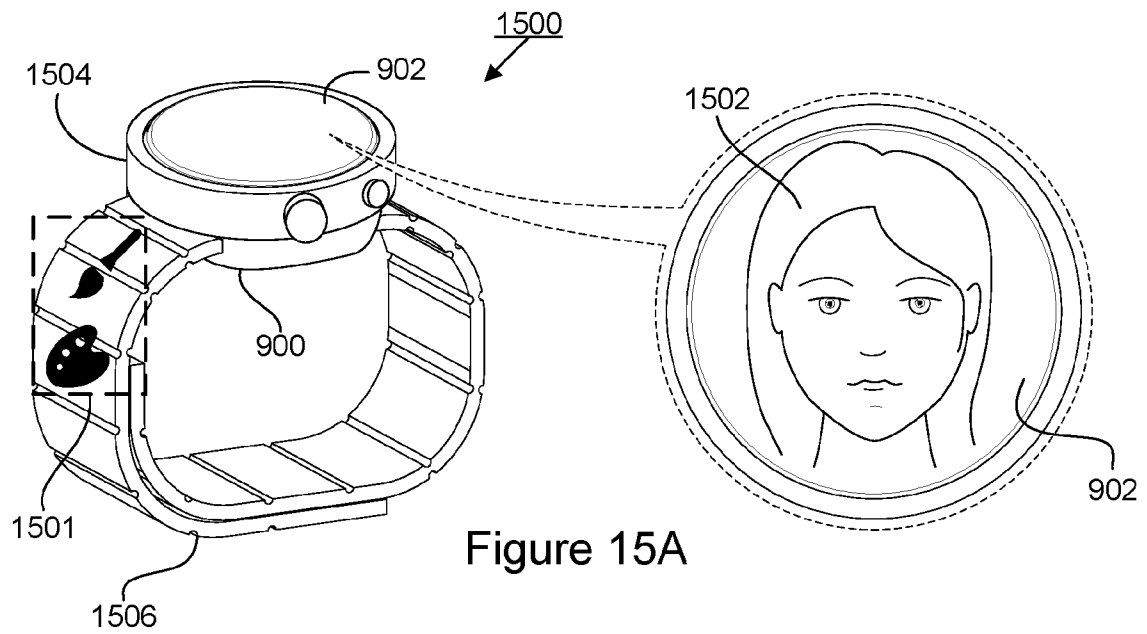


Figure 15A

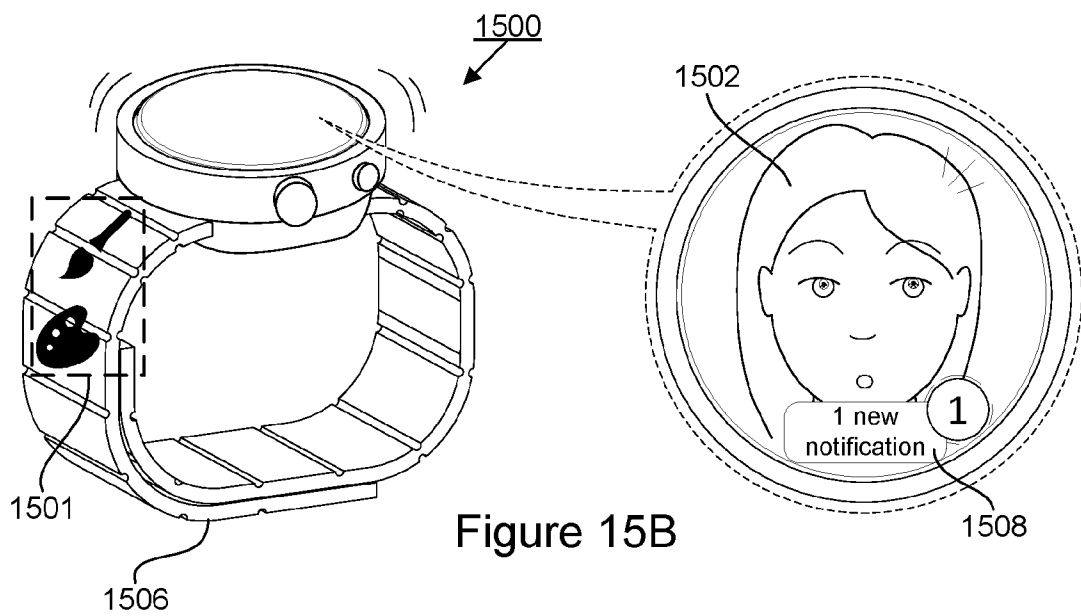


Figure 15B

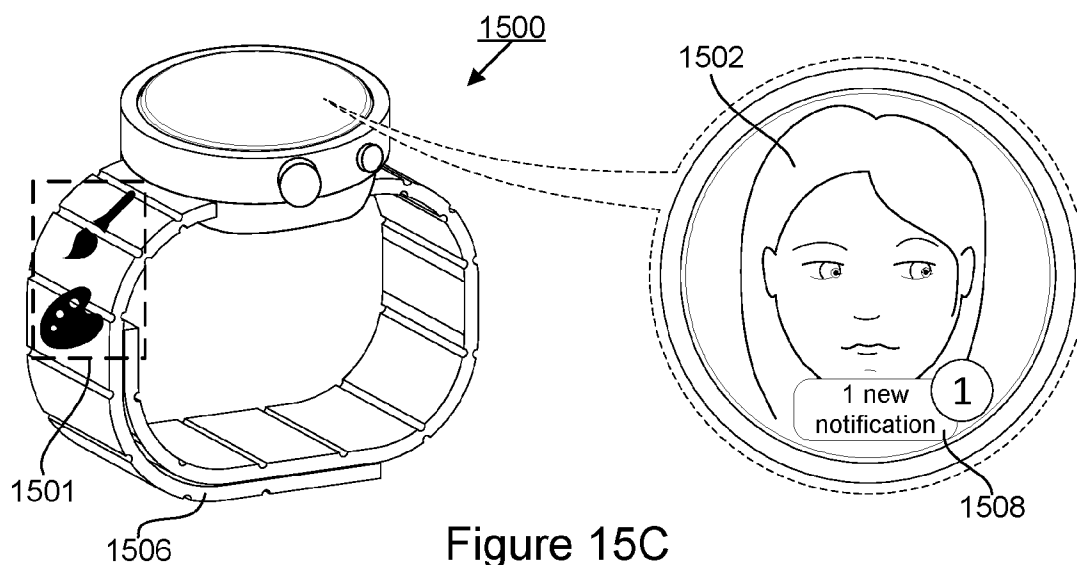


Figure 15C

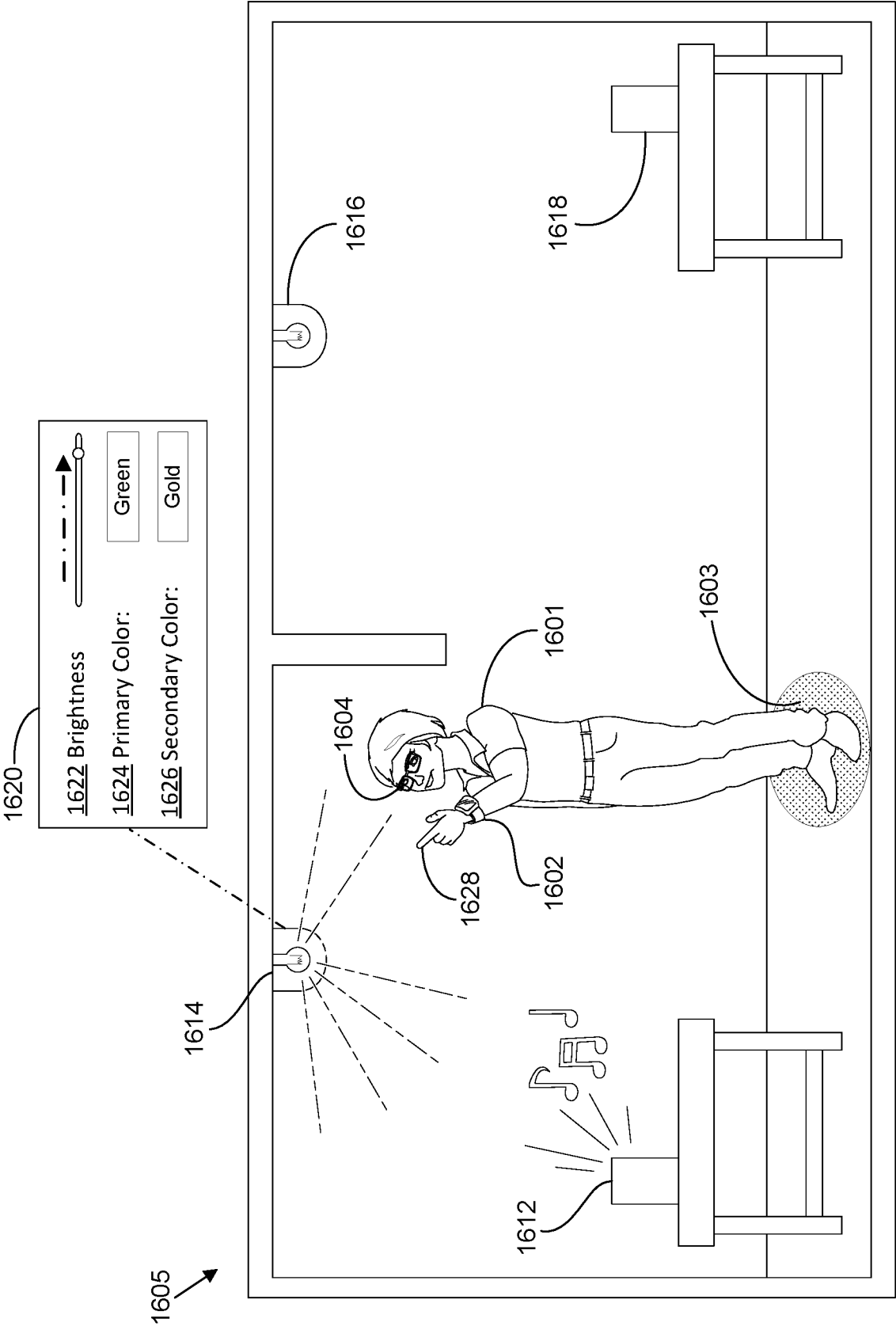


Figure 16A

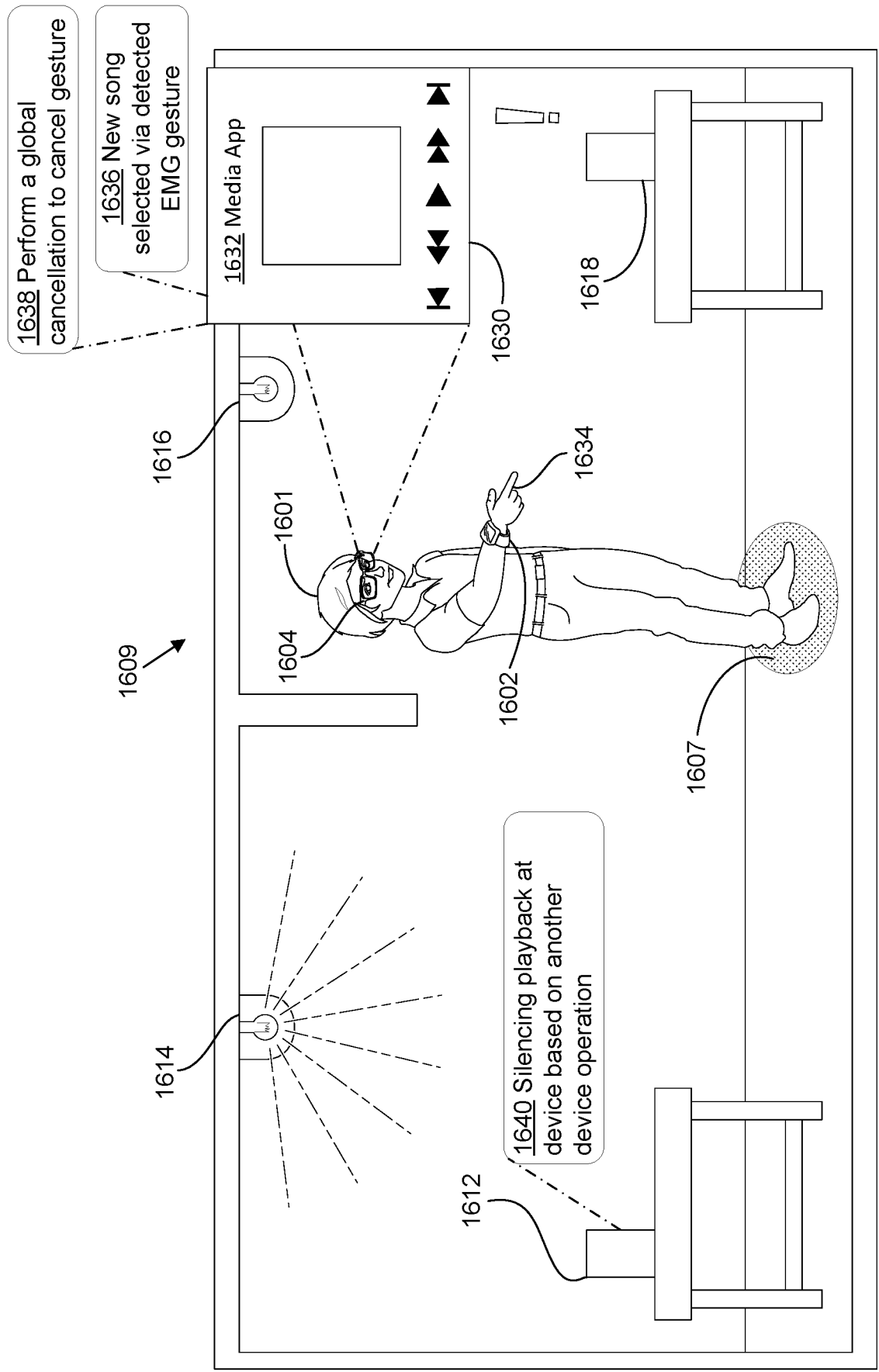


Figure 16B

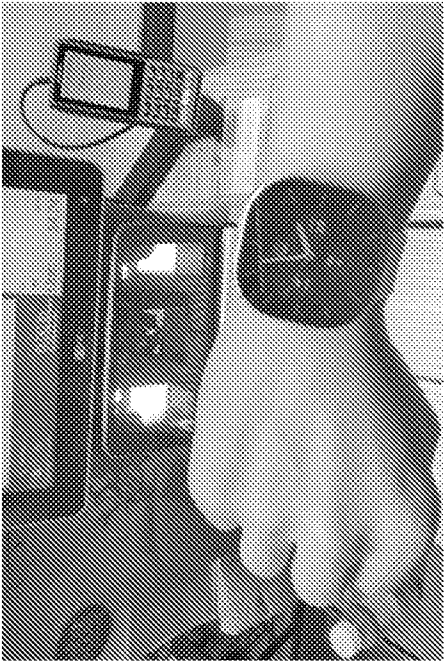
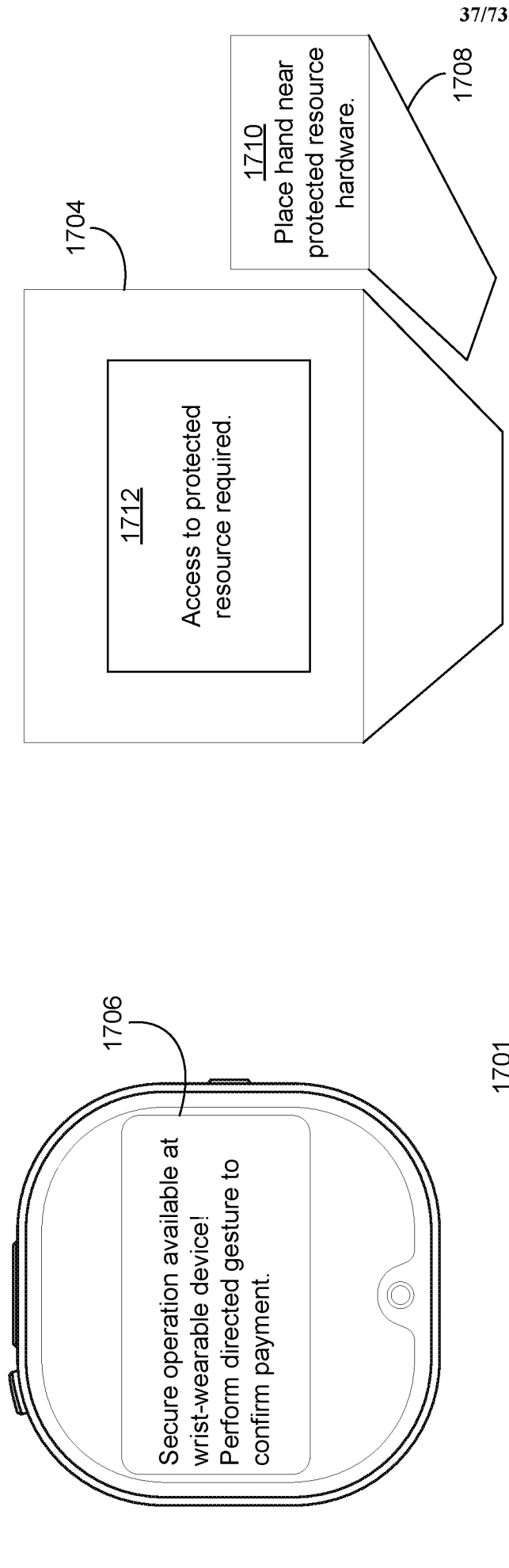


Figure 17A

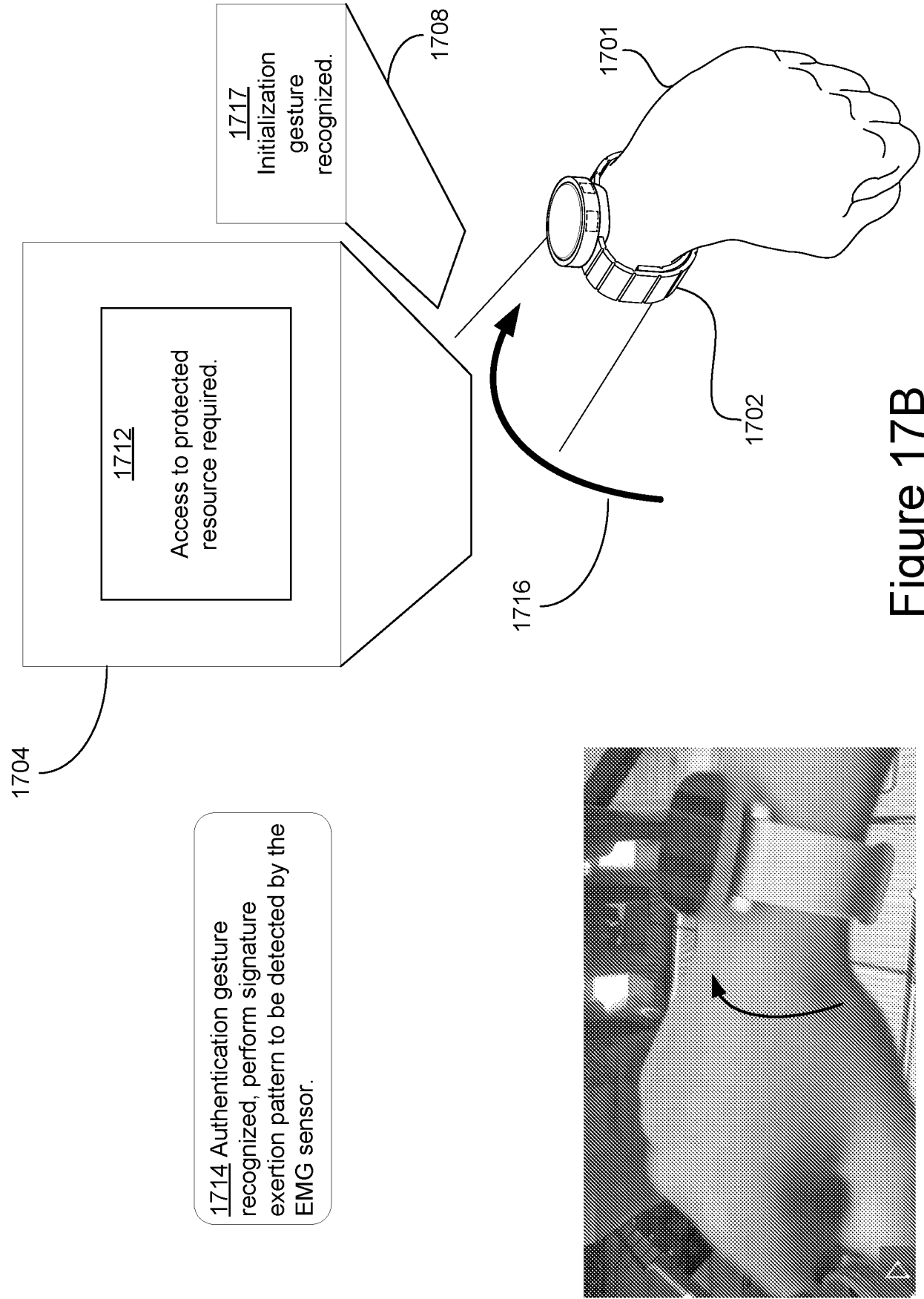


Figure 17B

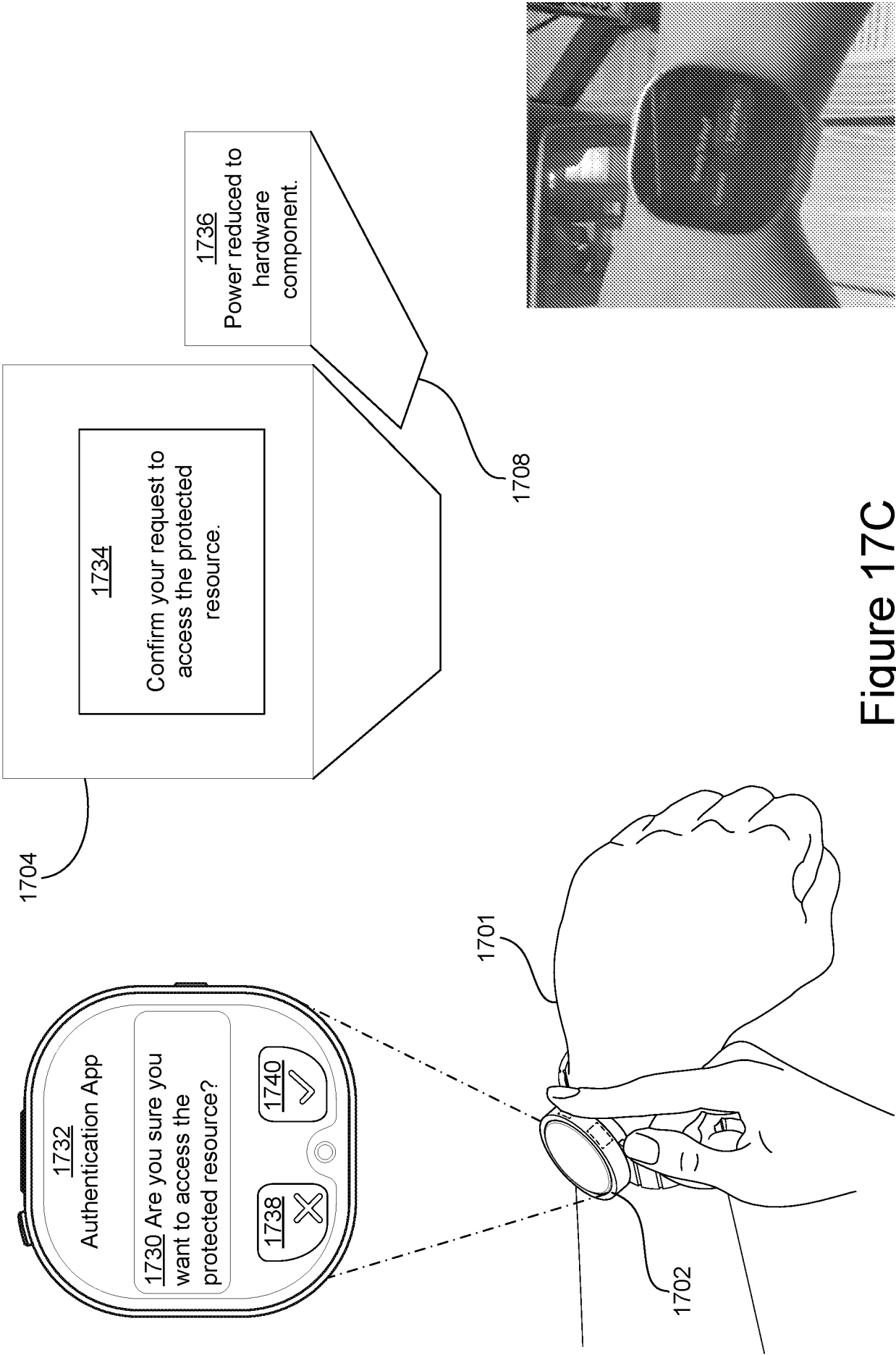


Figure 17C

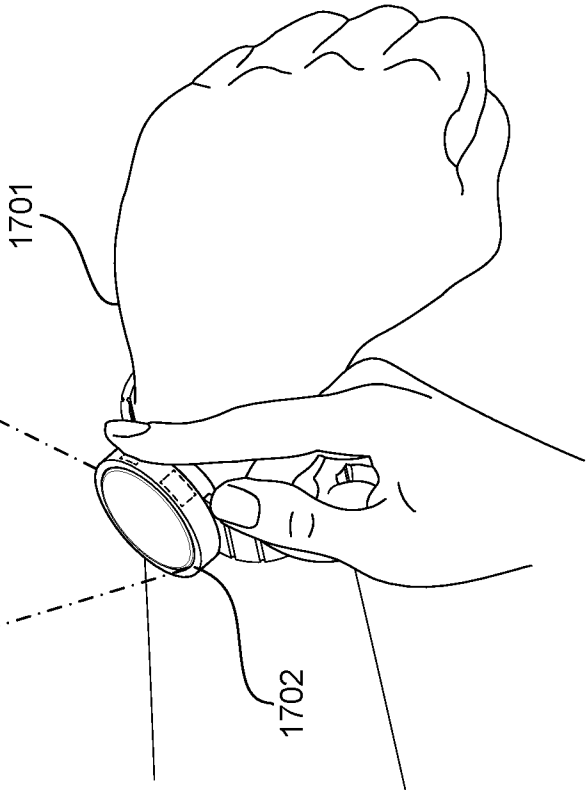
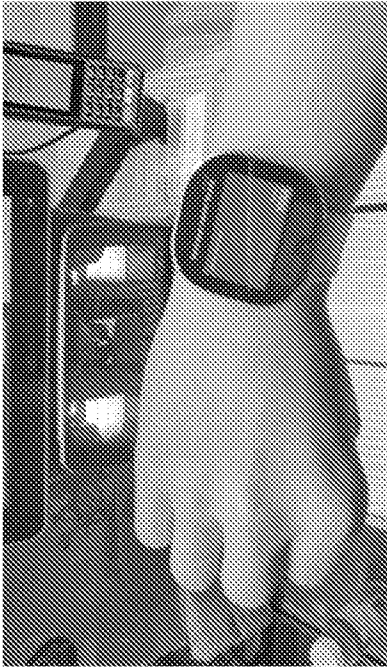
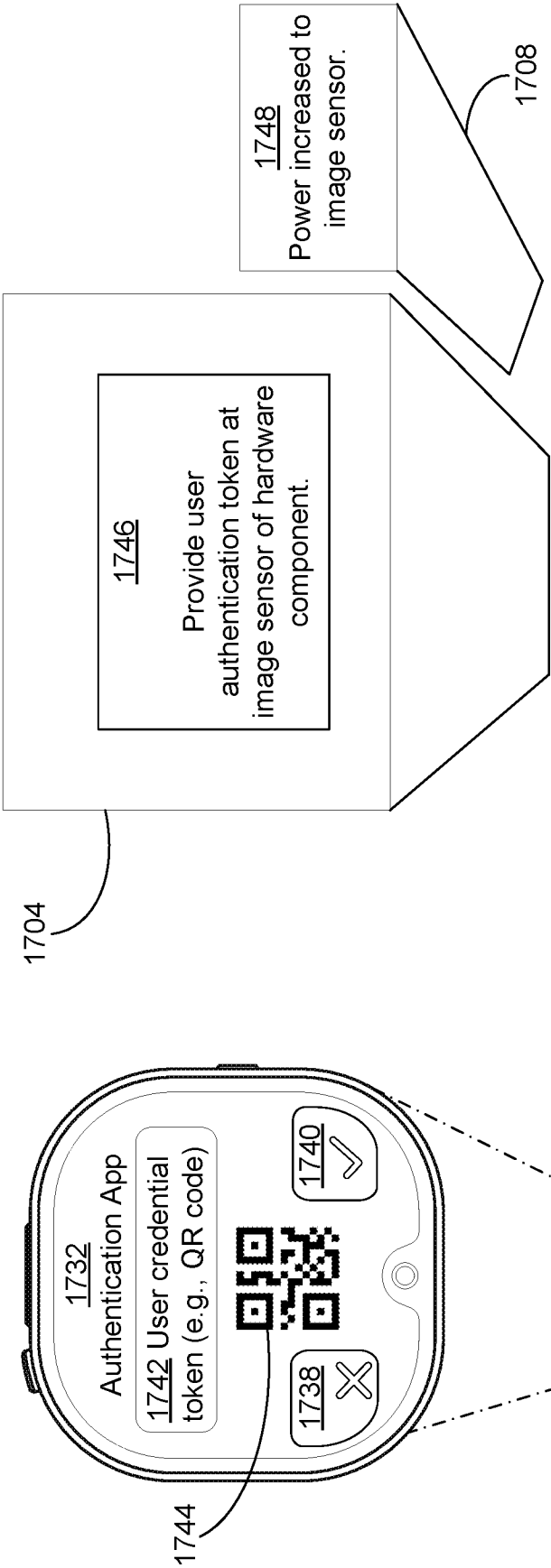


Figure 17D

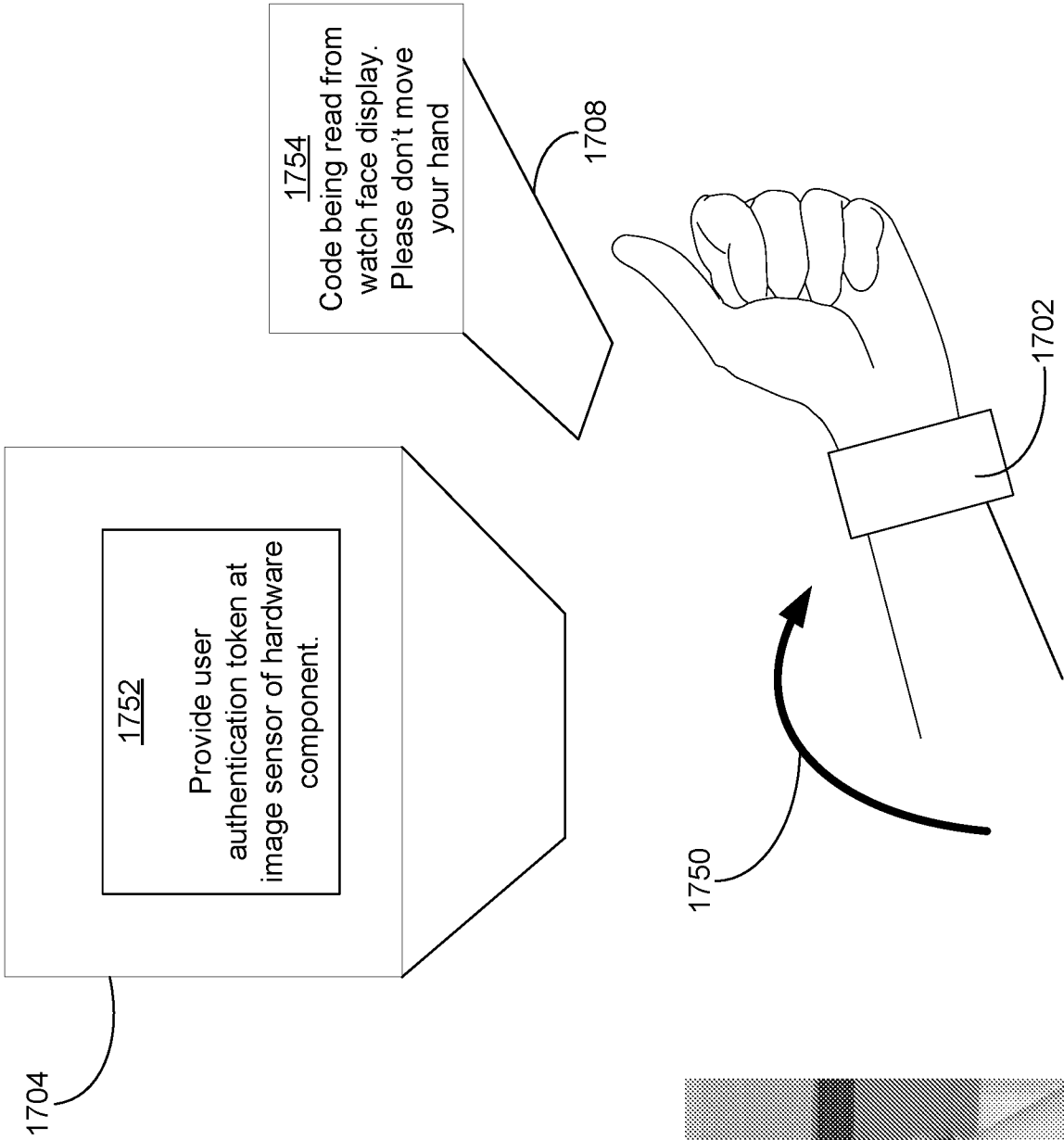
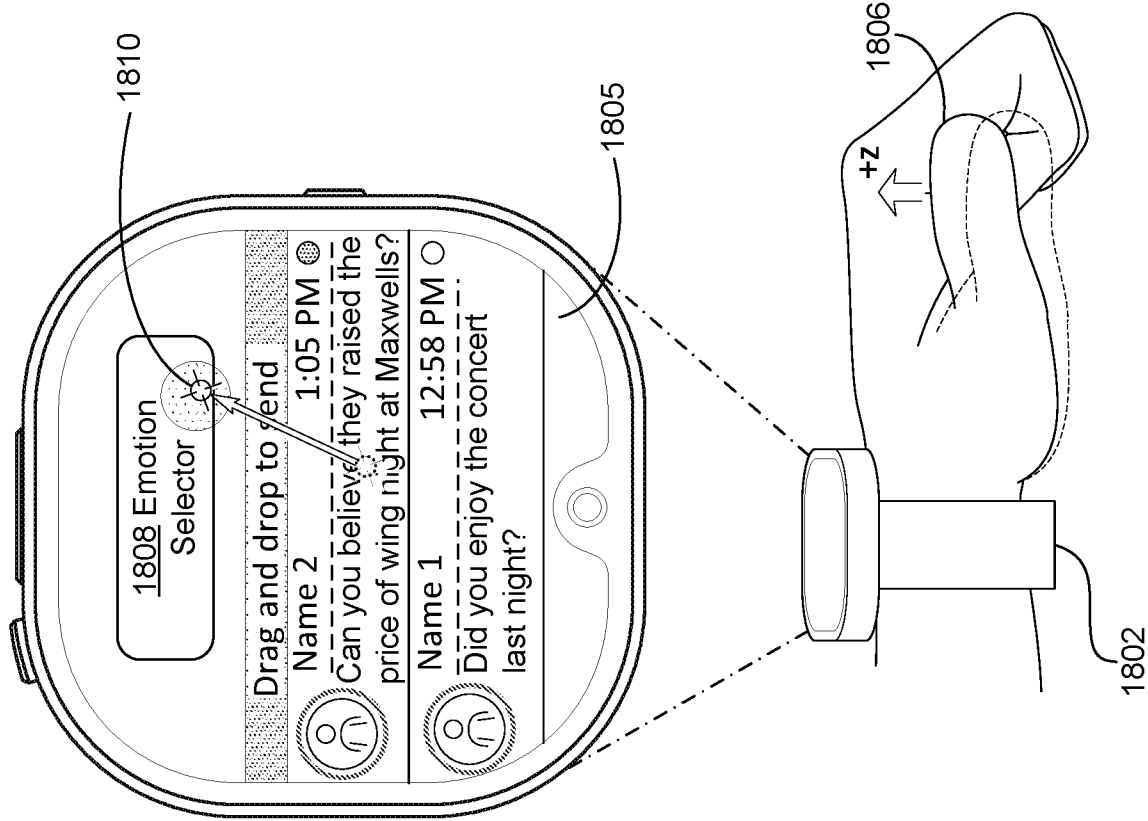
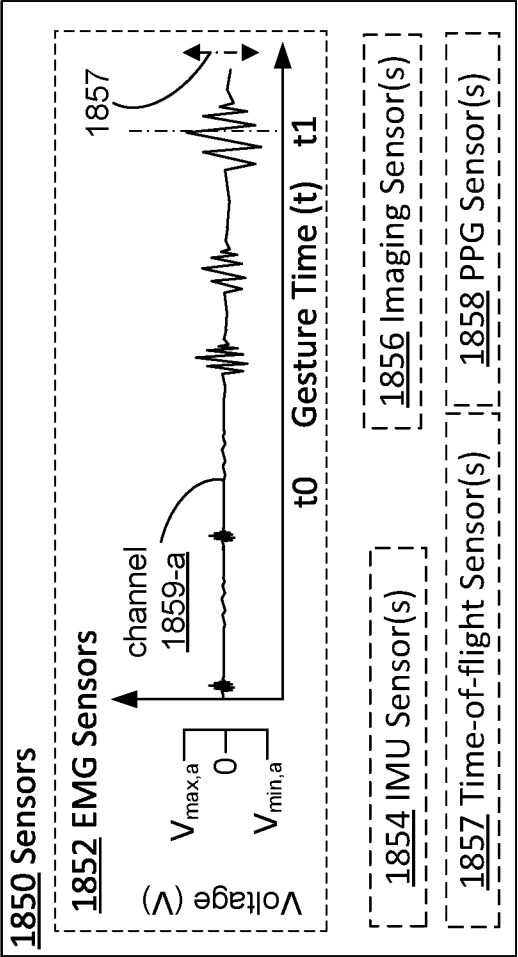


Figure 17E





1800-b



1800-a

Figure 18A

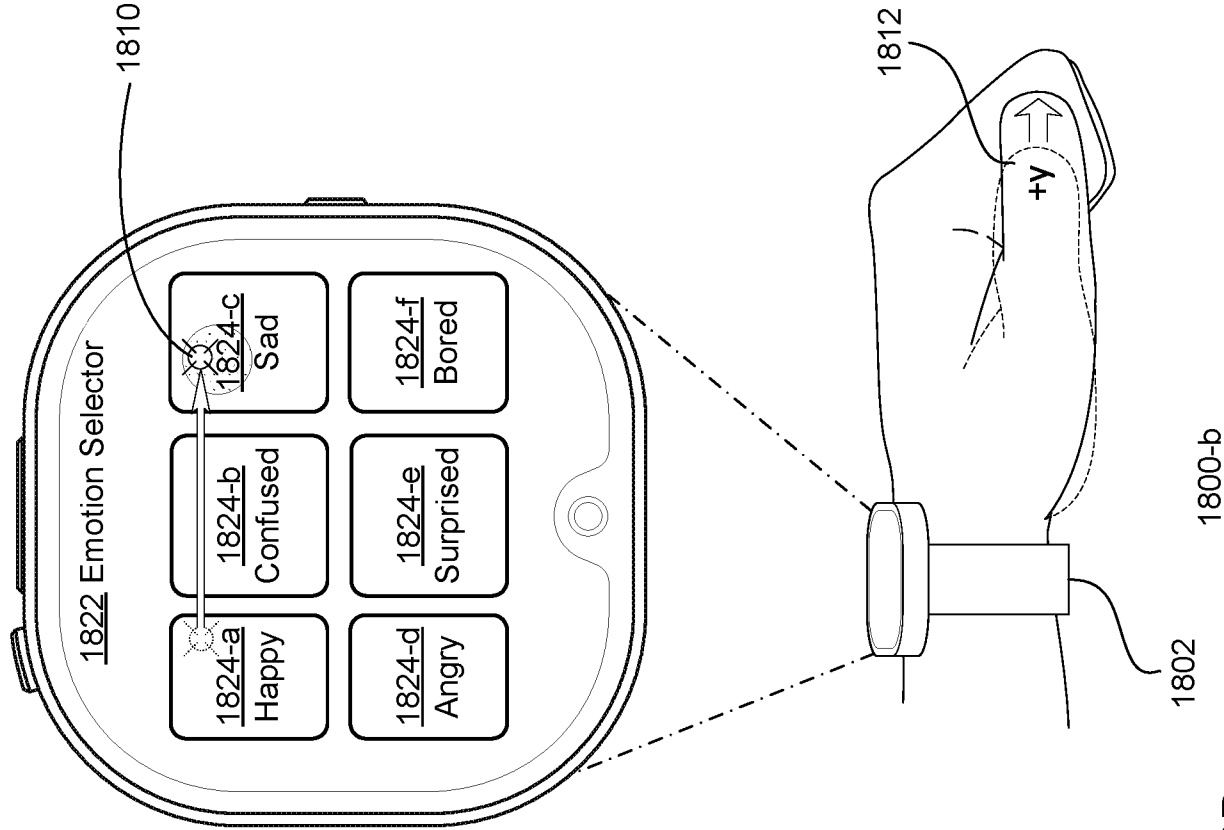
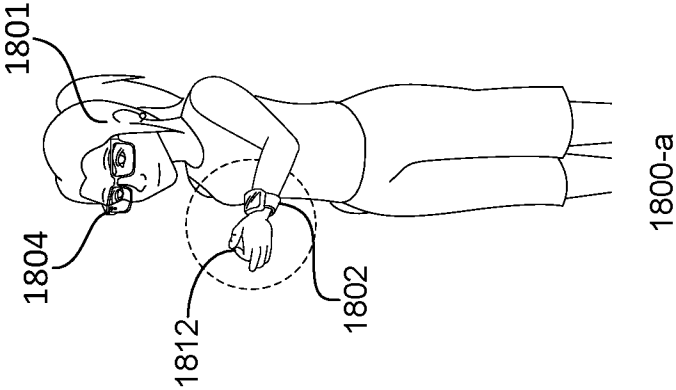
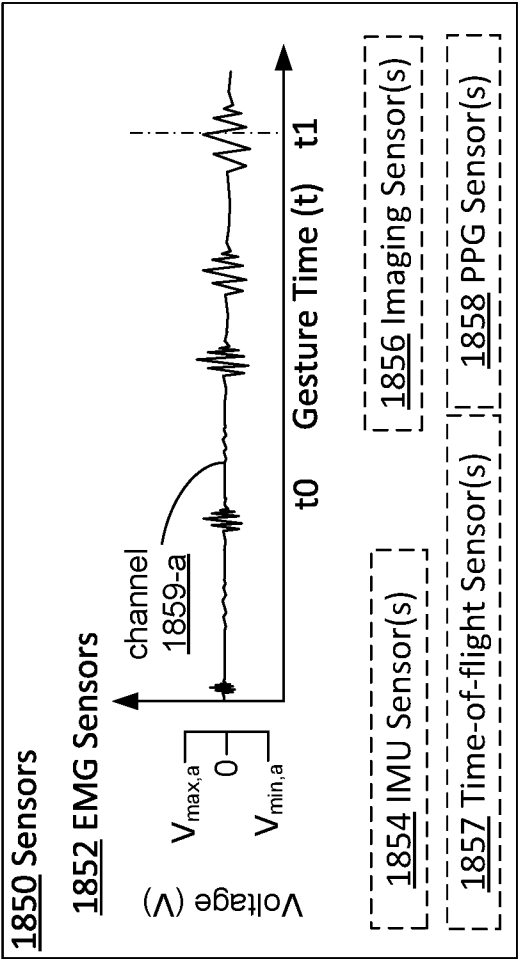


Figure 18B

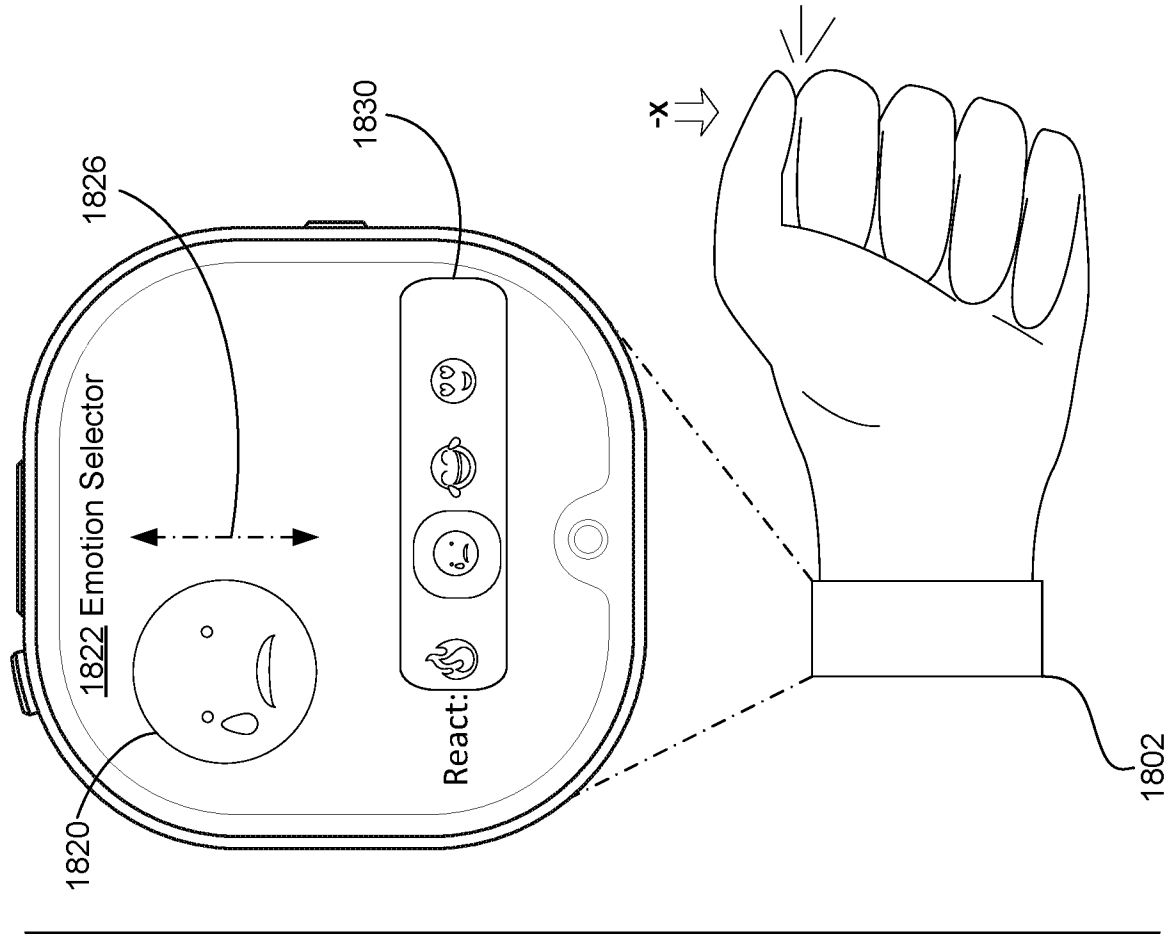
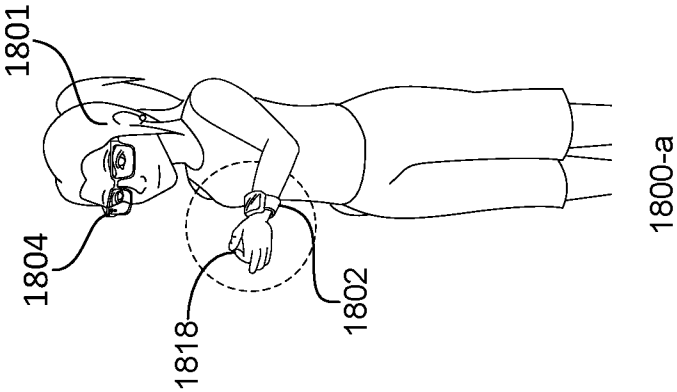
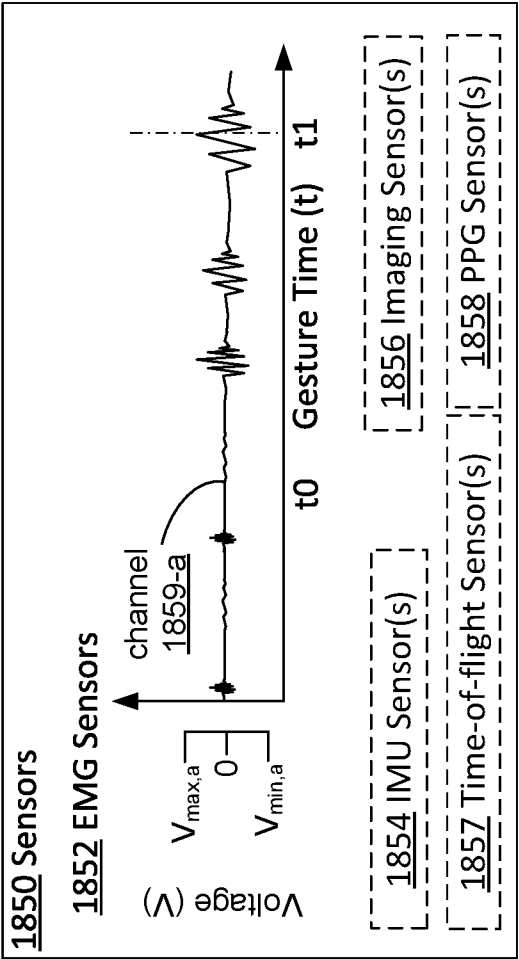


Figure 18C

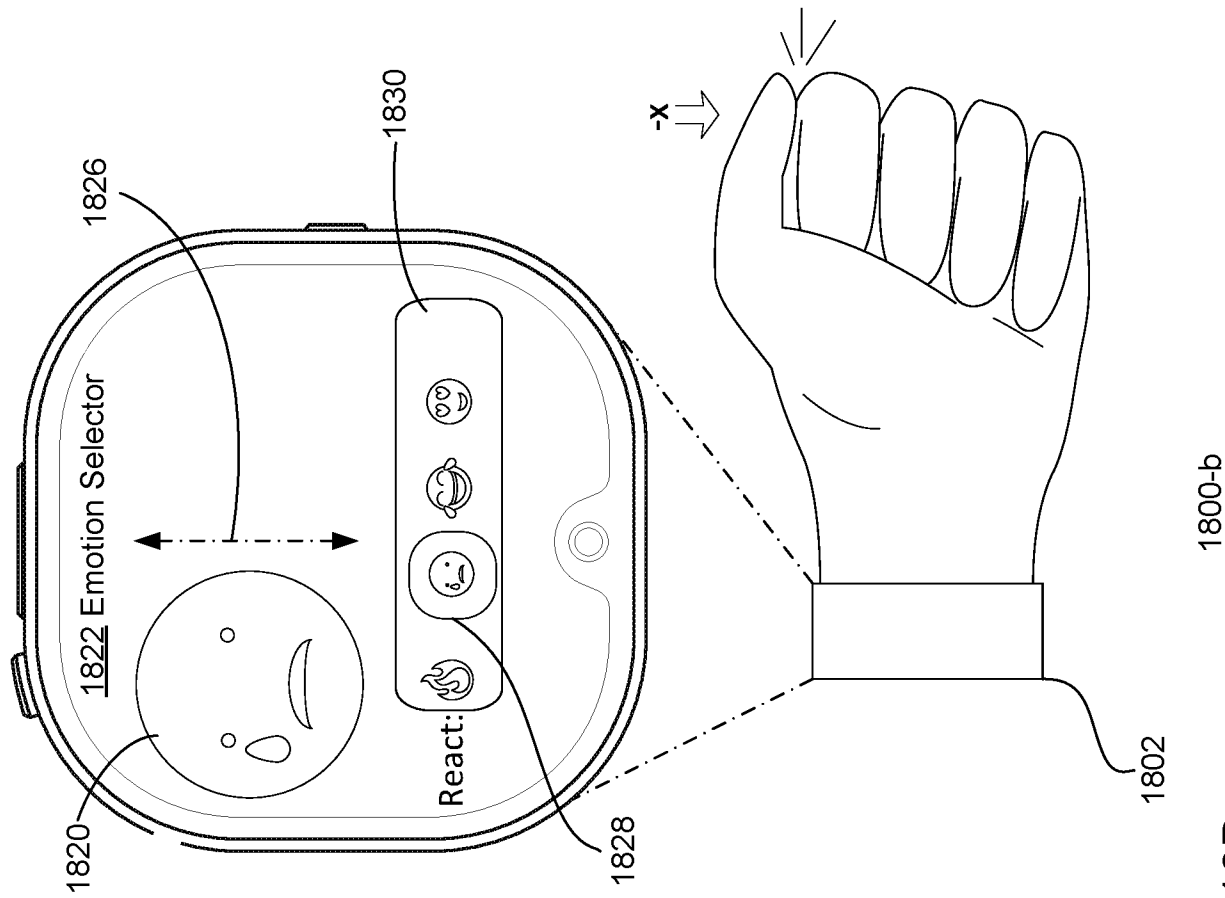
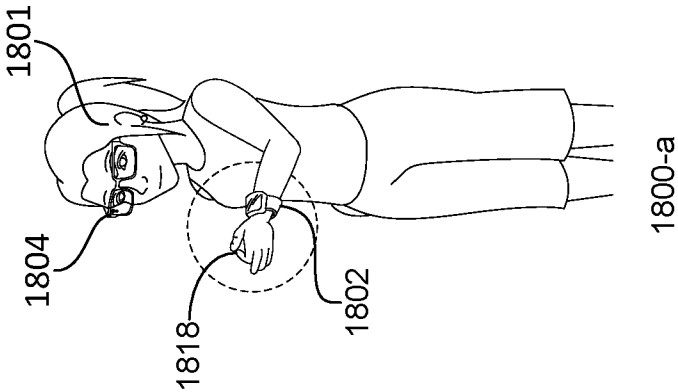
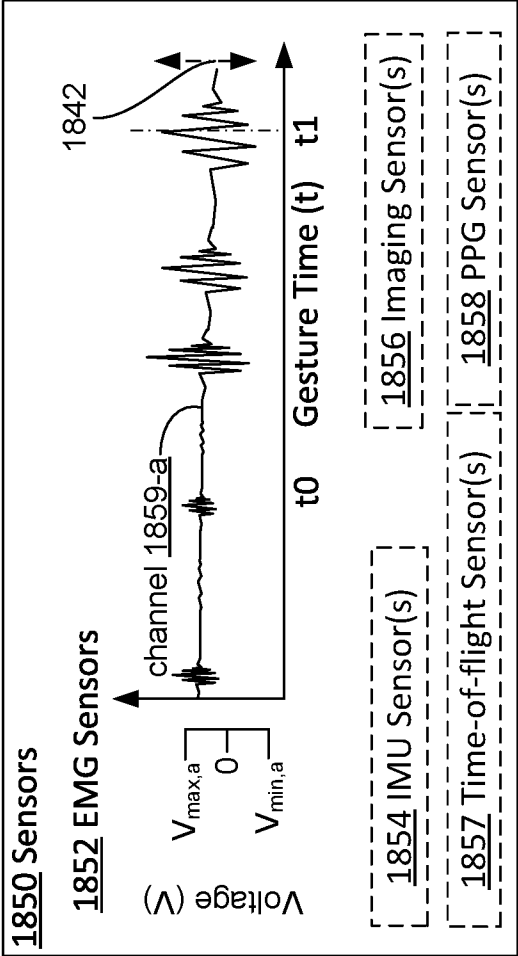


Figure 18D

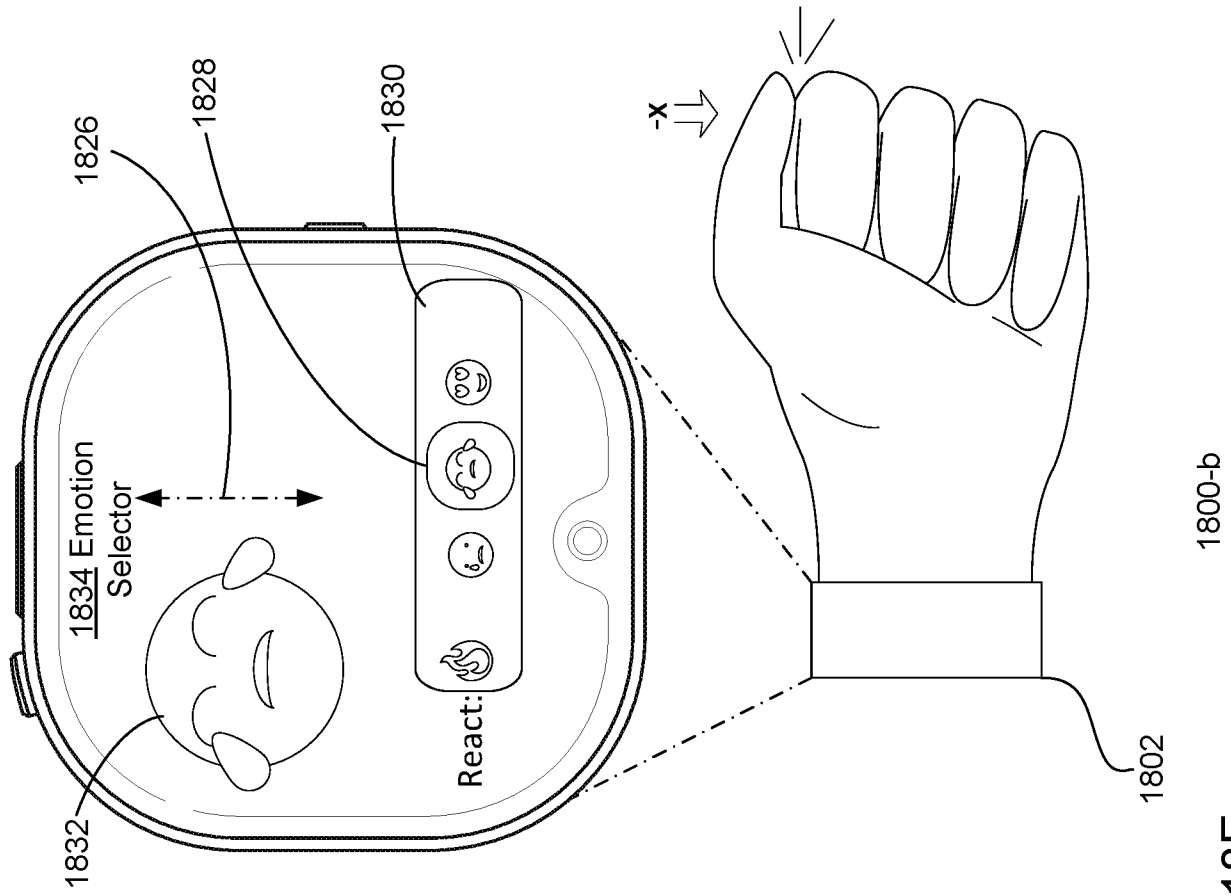
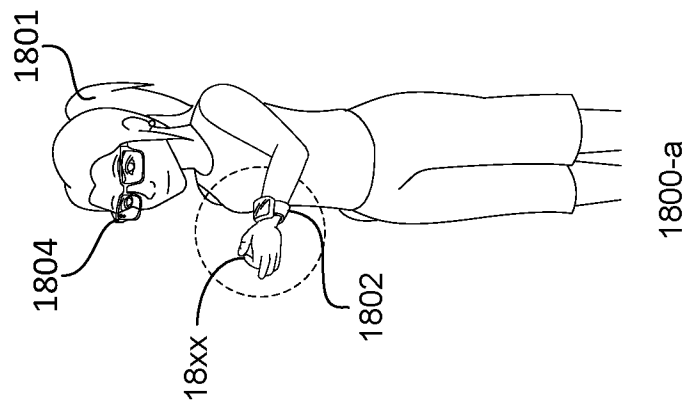
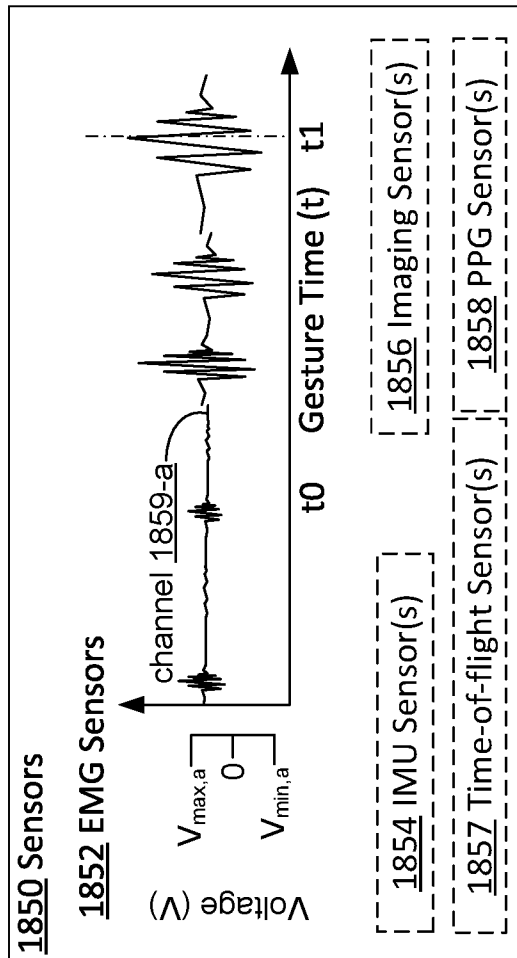


Figure 18E

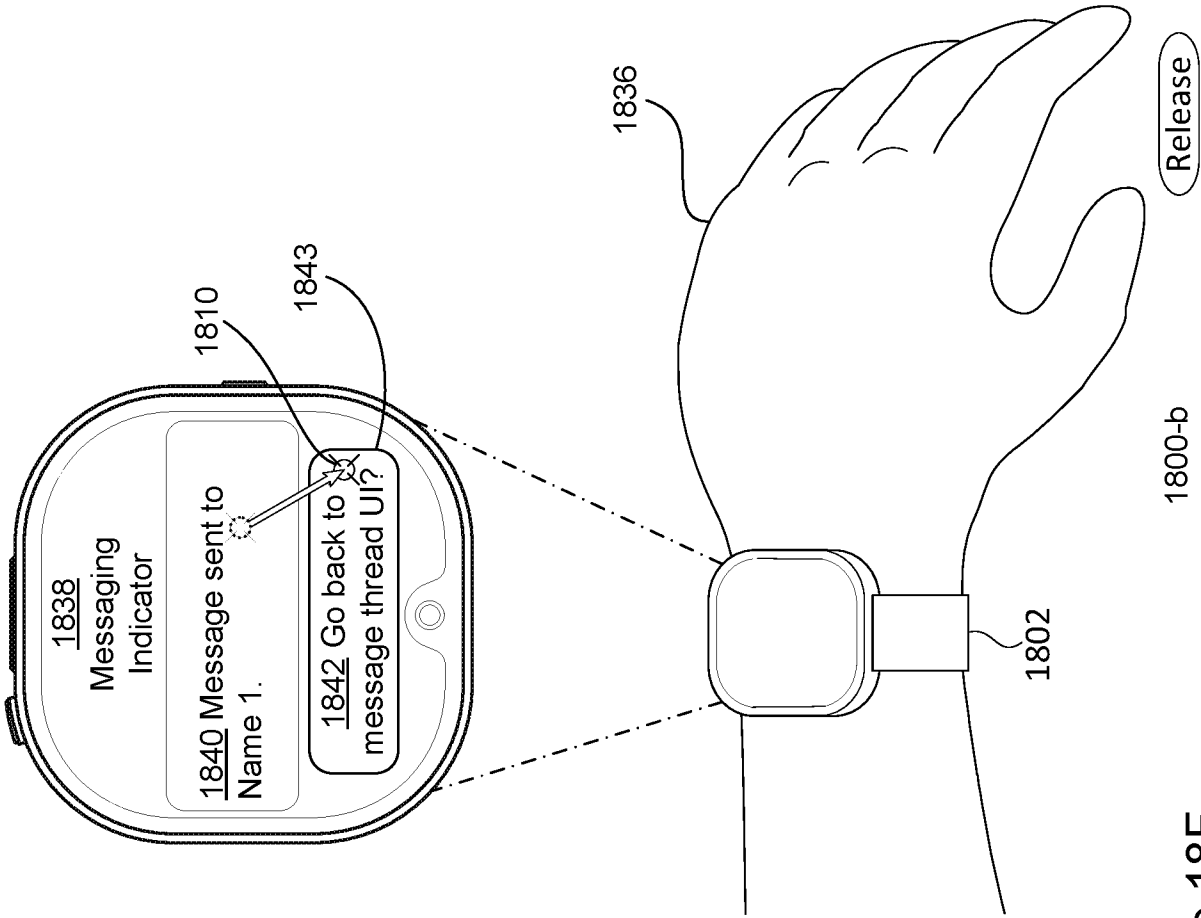
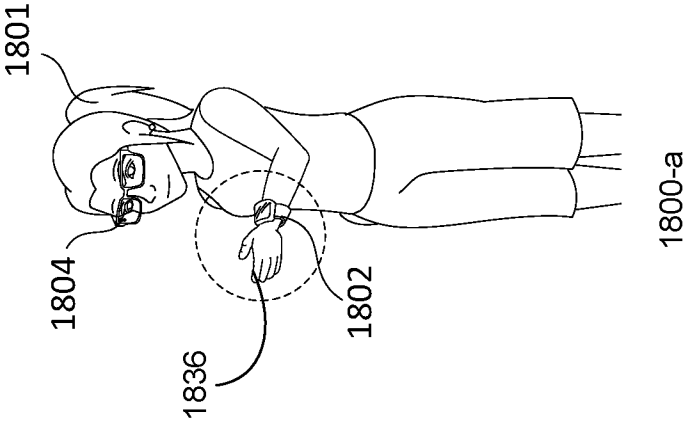
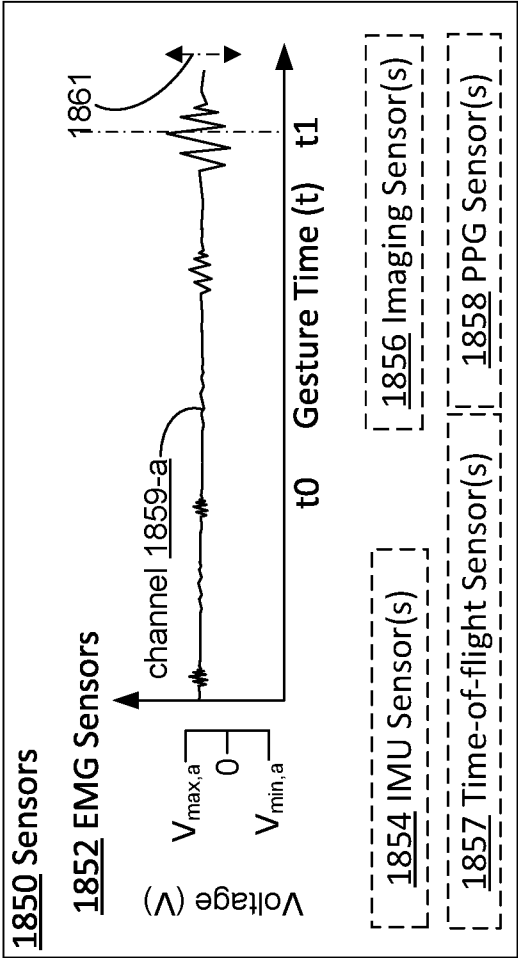
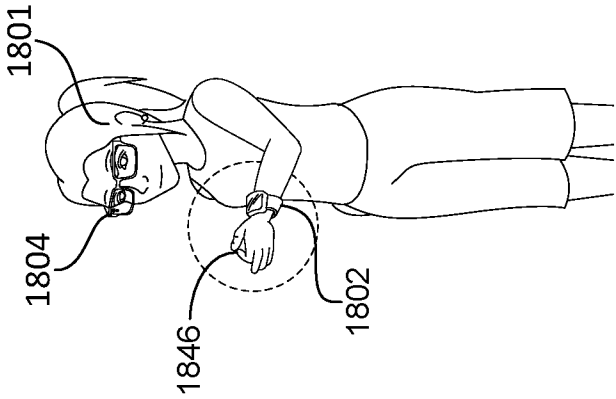
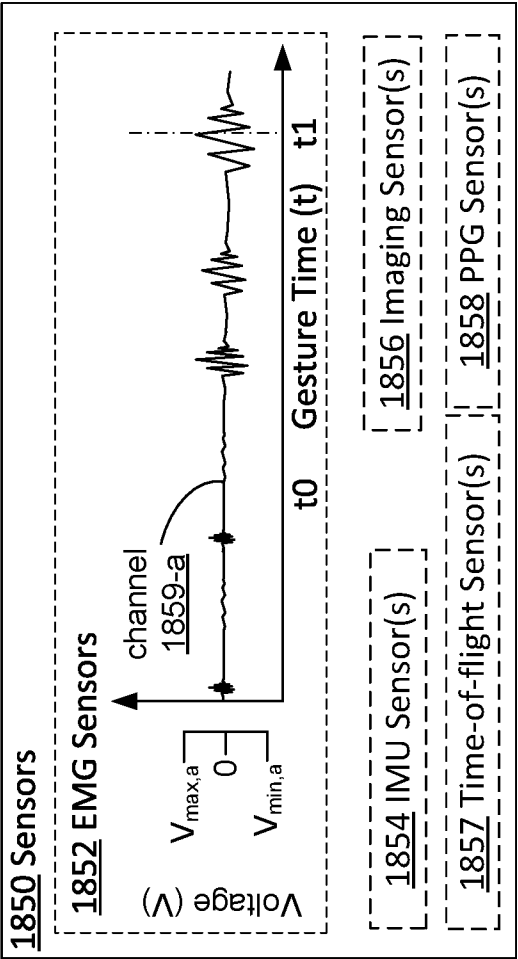
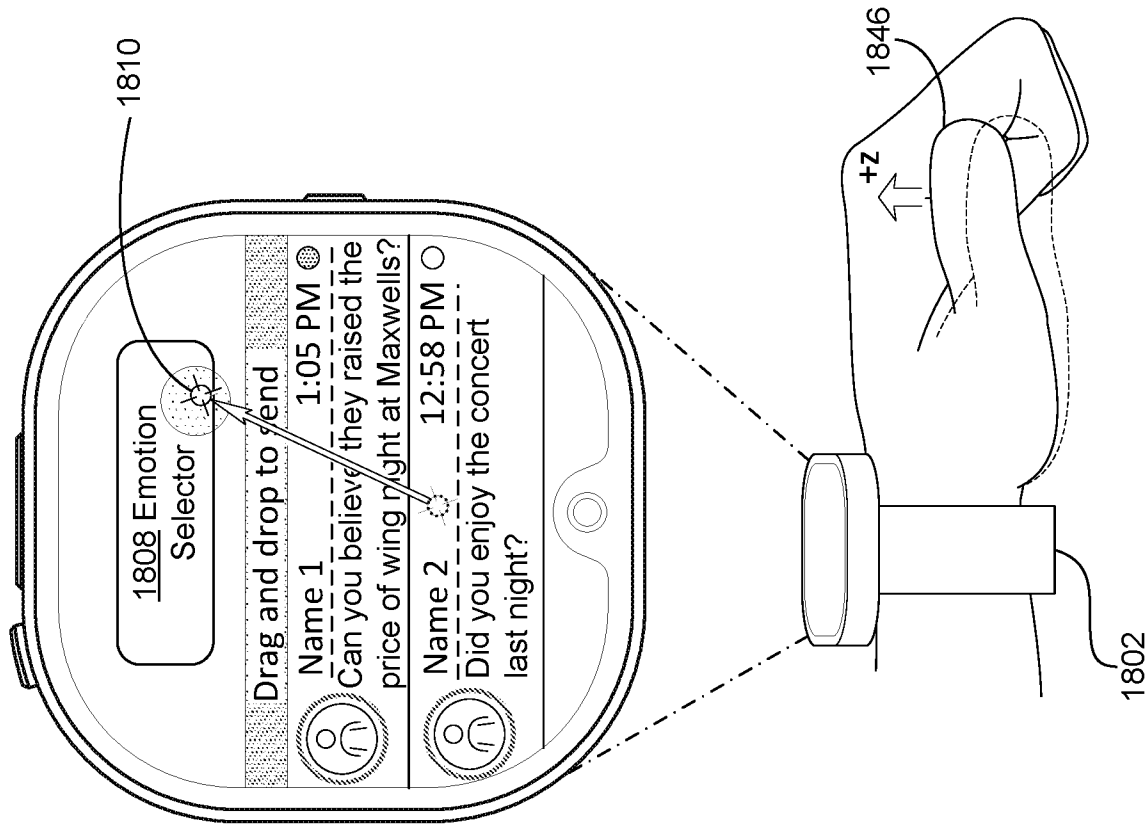


Figure 18F



1800-a



1800-b

Figure 18G

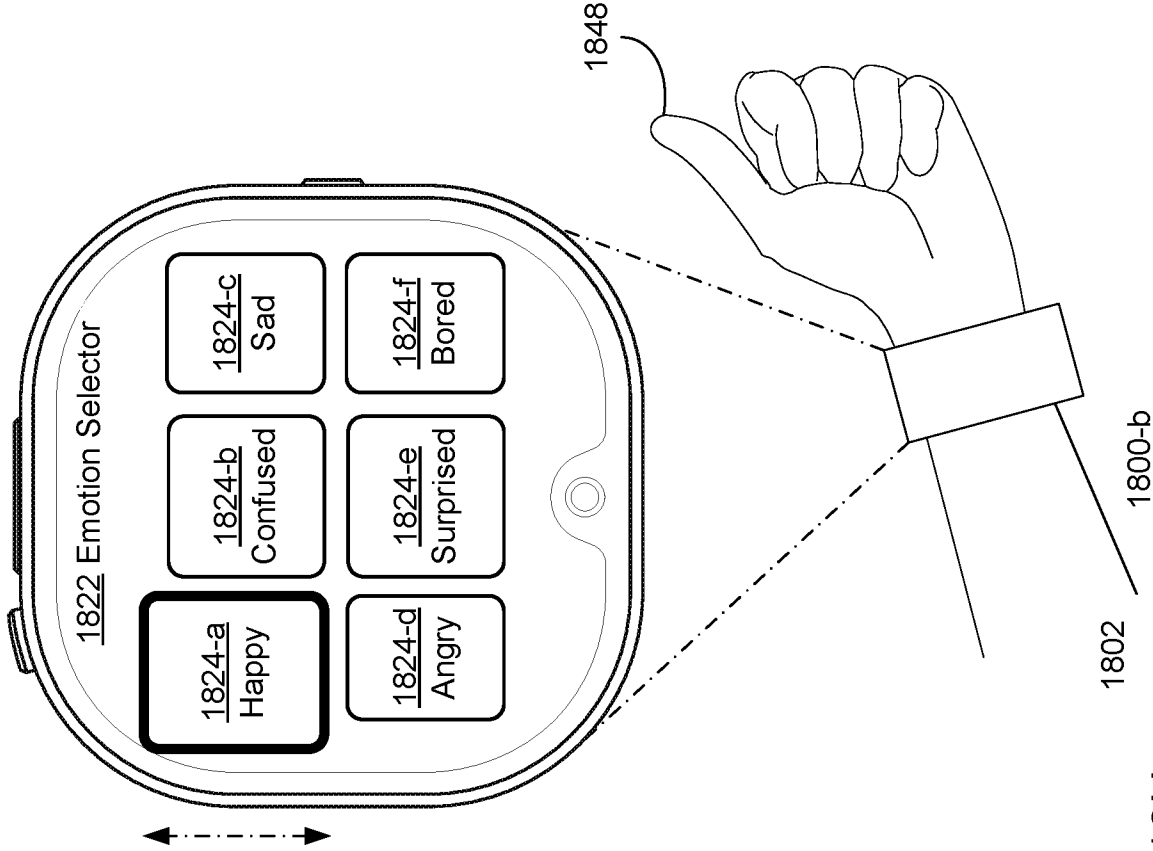
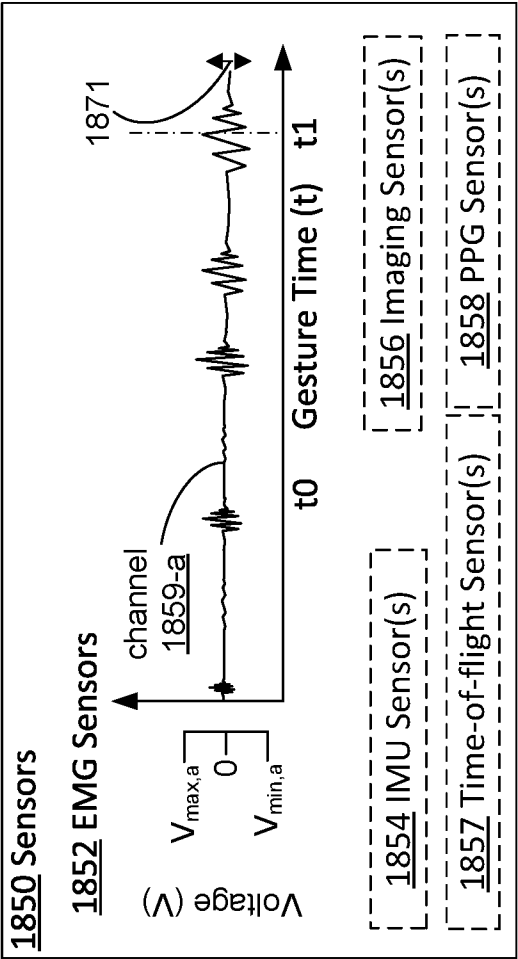
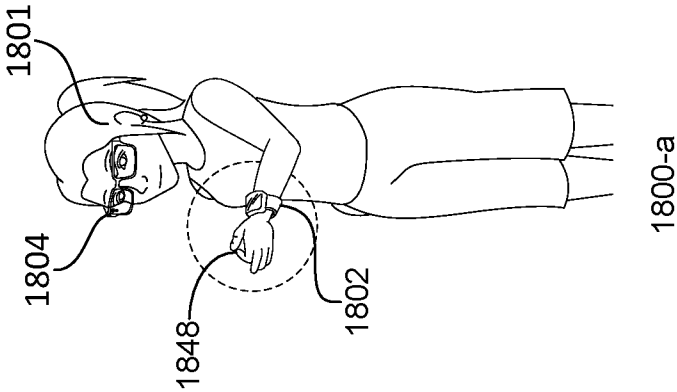


Figure 18H



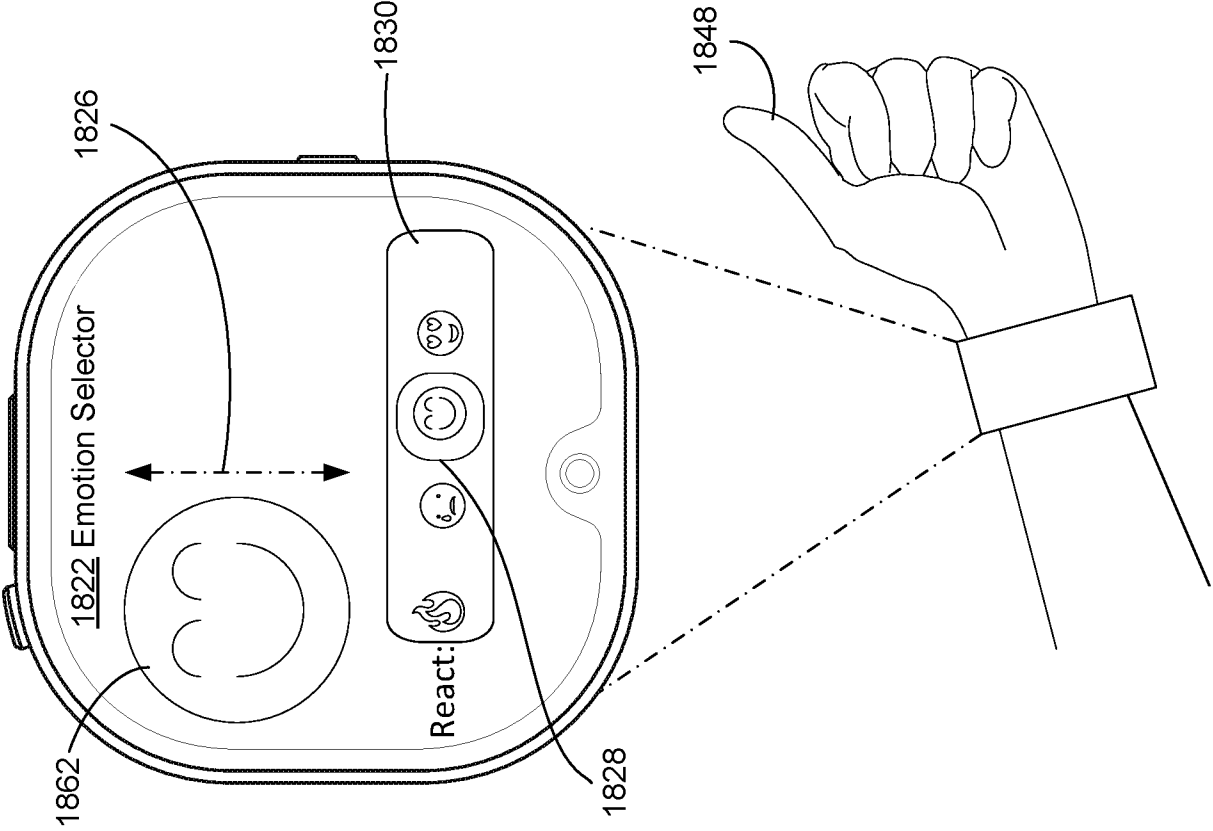
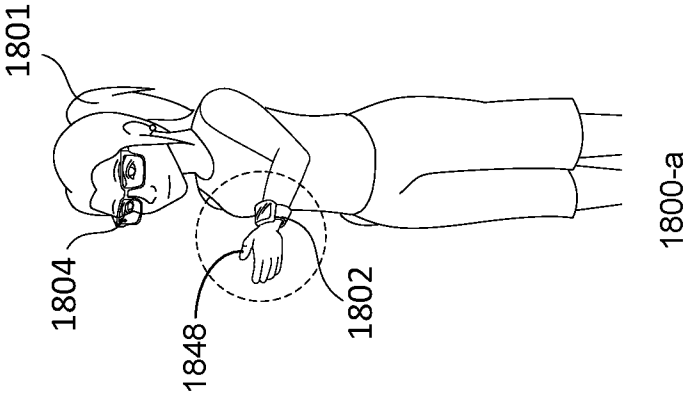
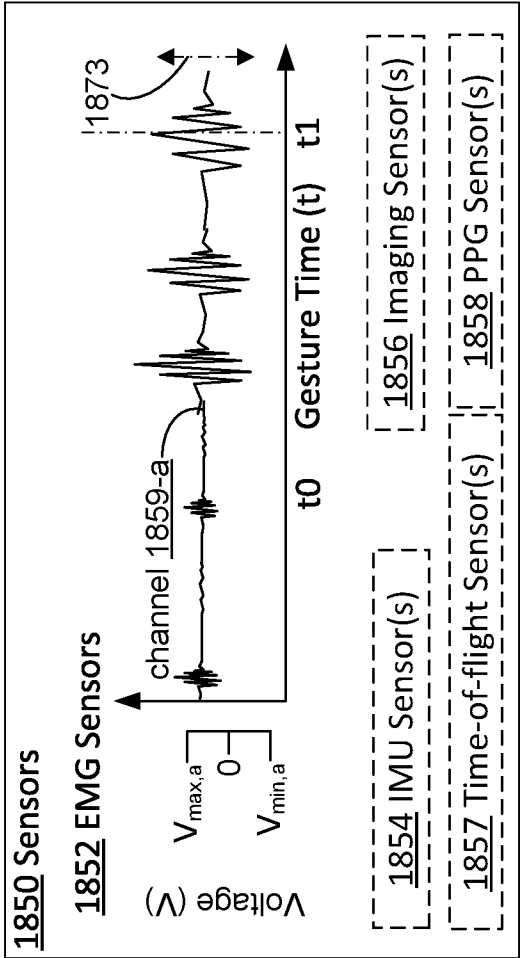


Figure 18I

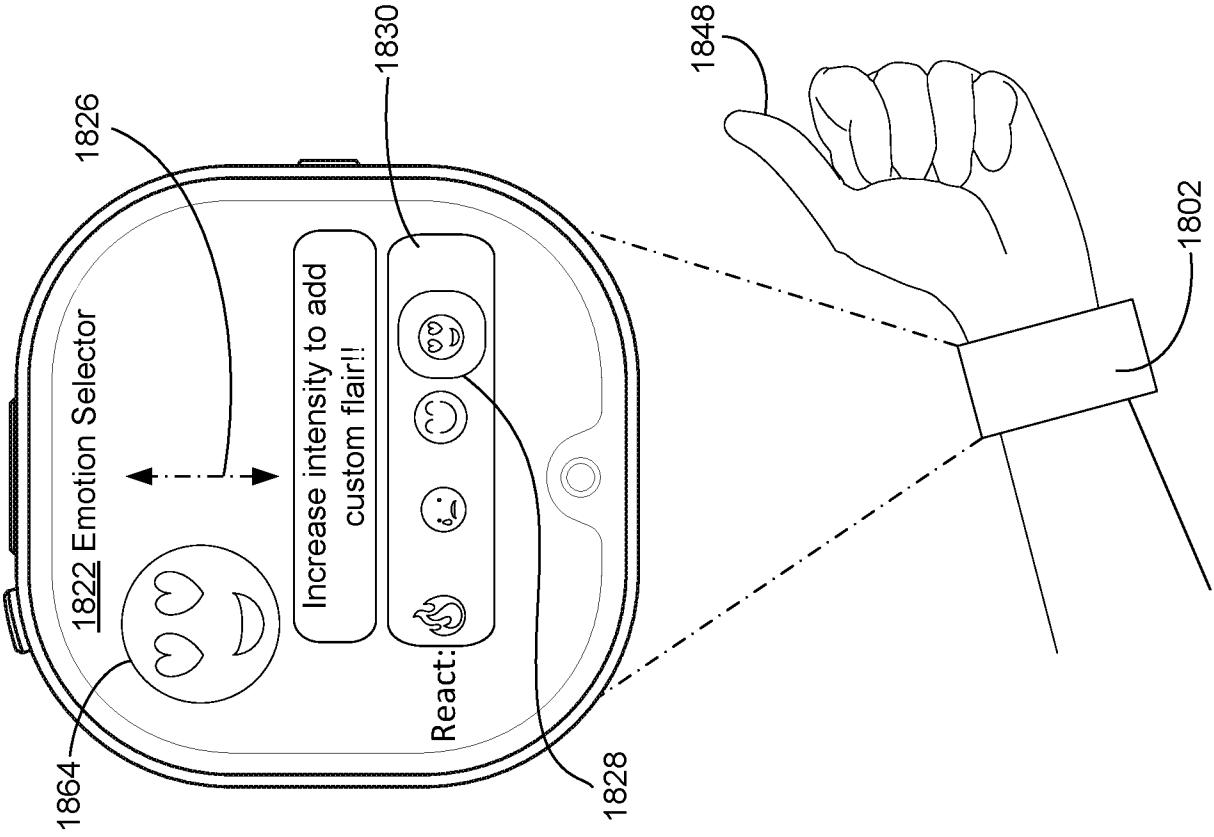
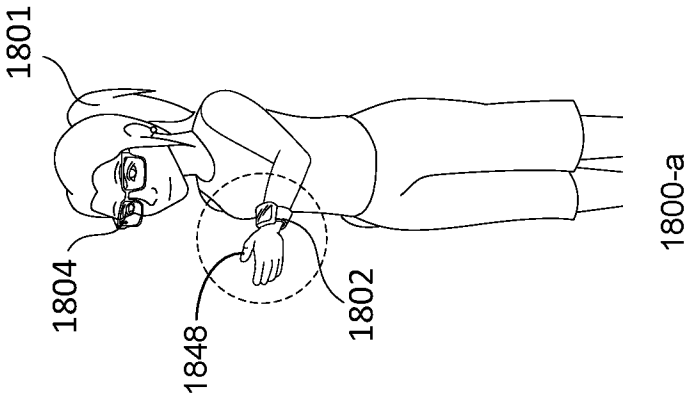
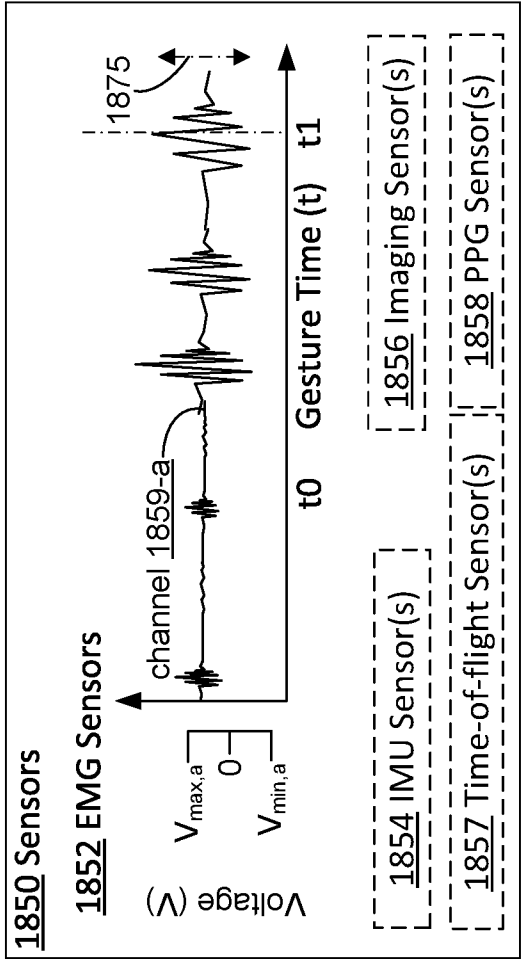


Figure 18J

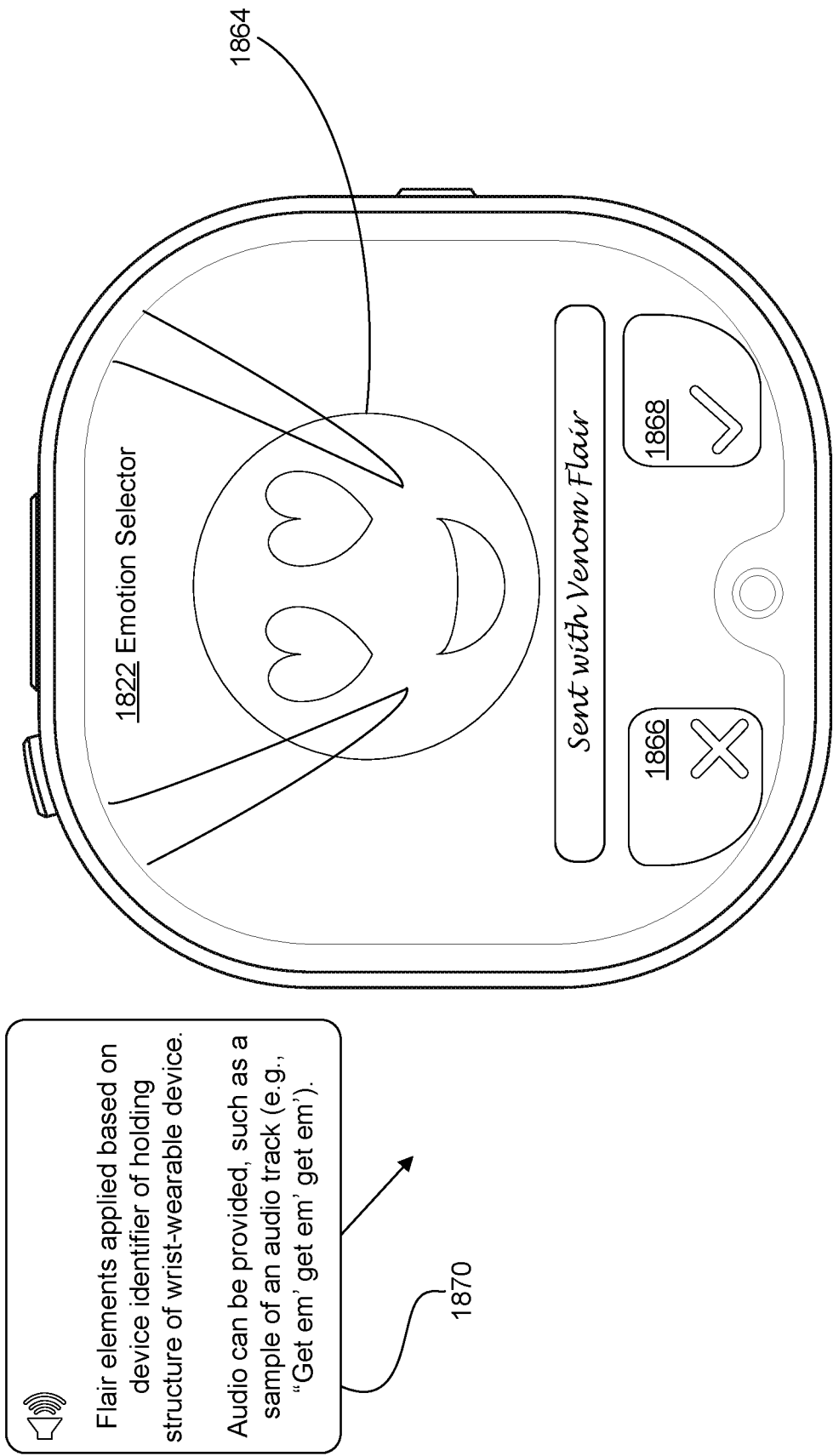


Figure 18K

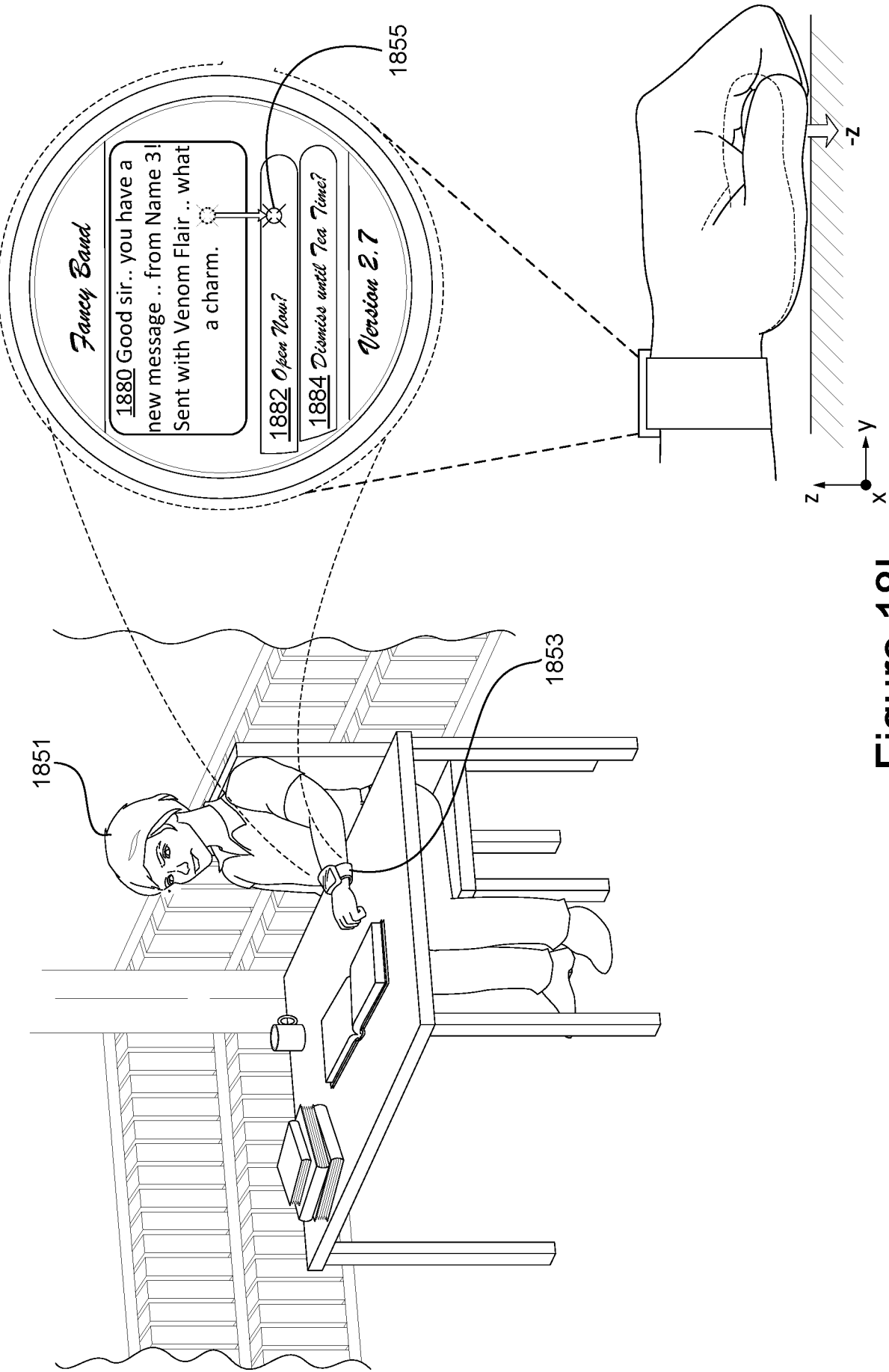


Figure 18L

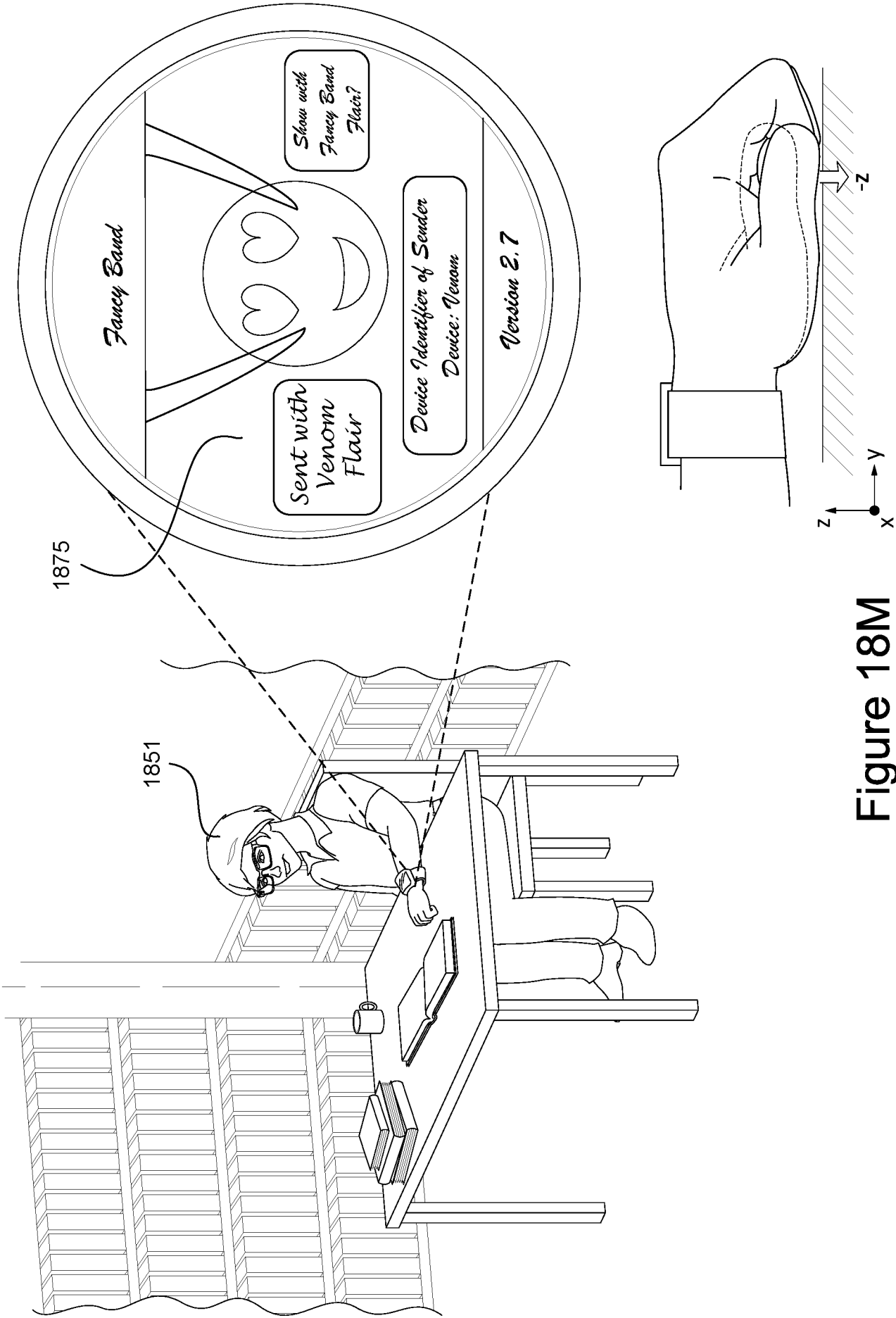


Figure 18M

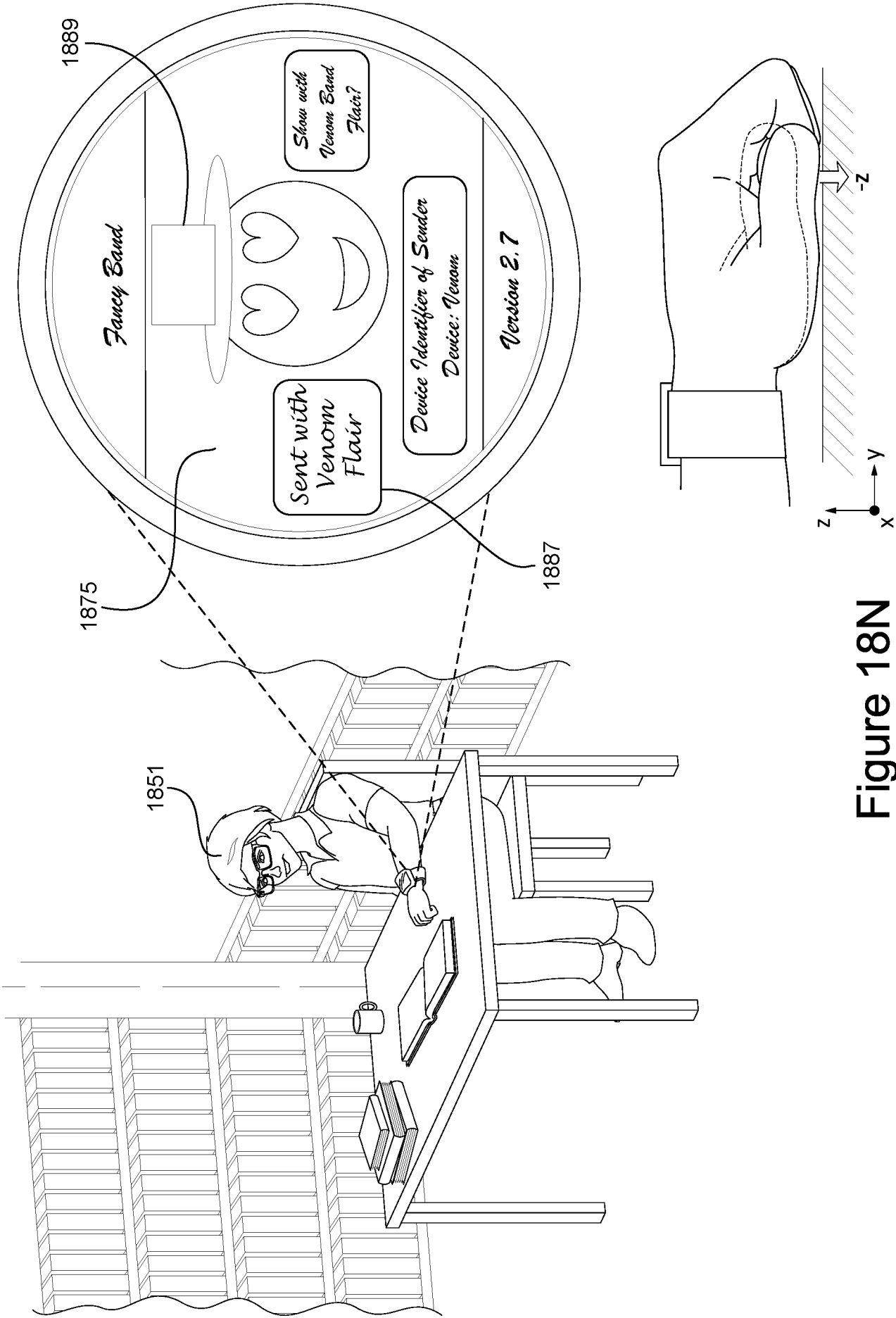


Figure 18N

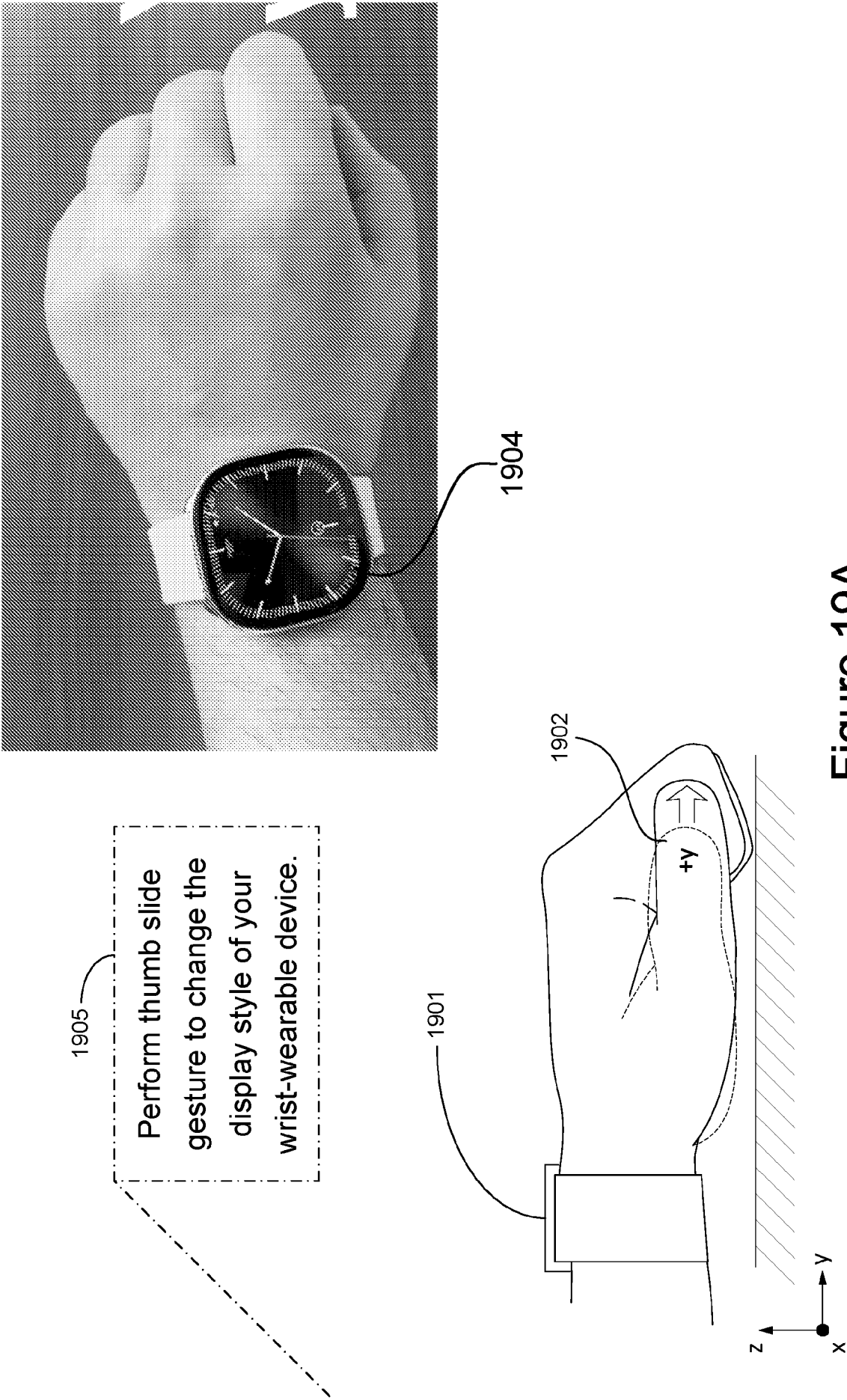


Figure 19A

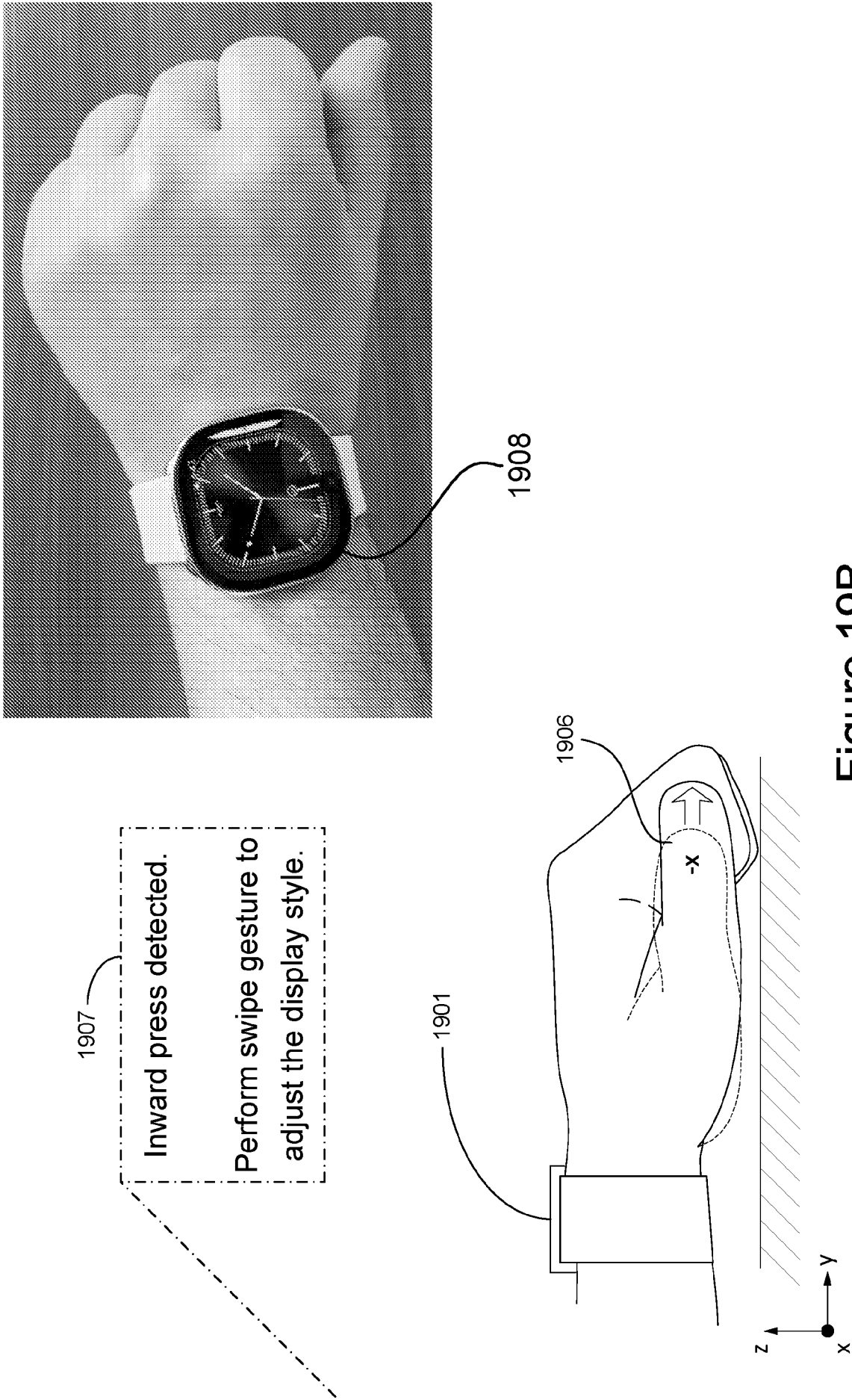


Figure 19B

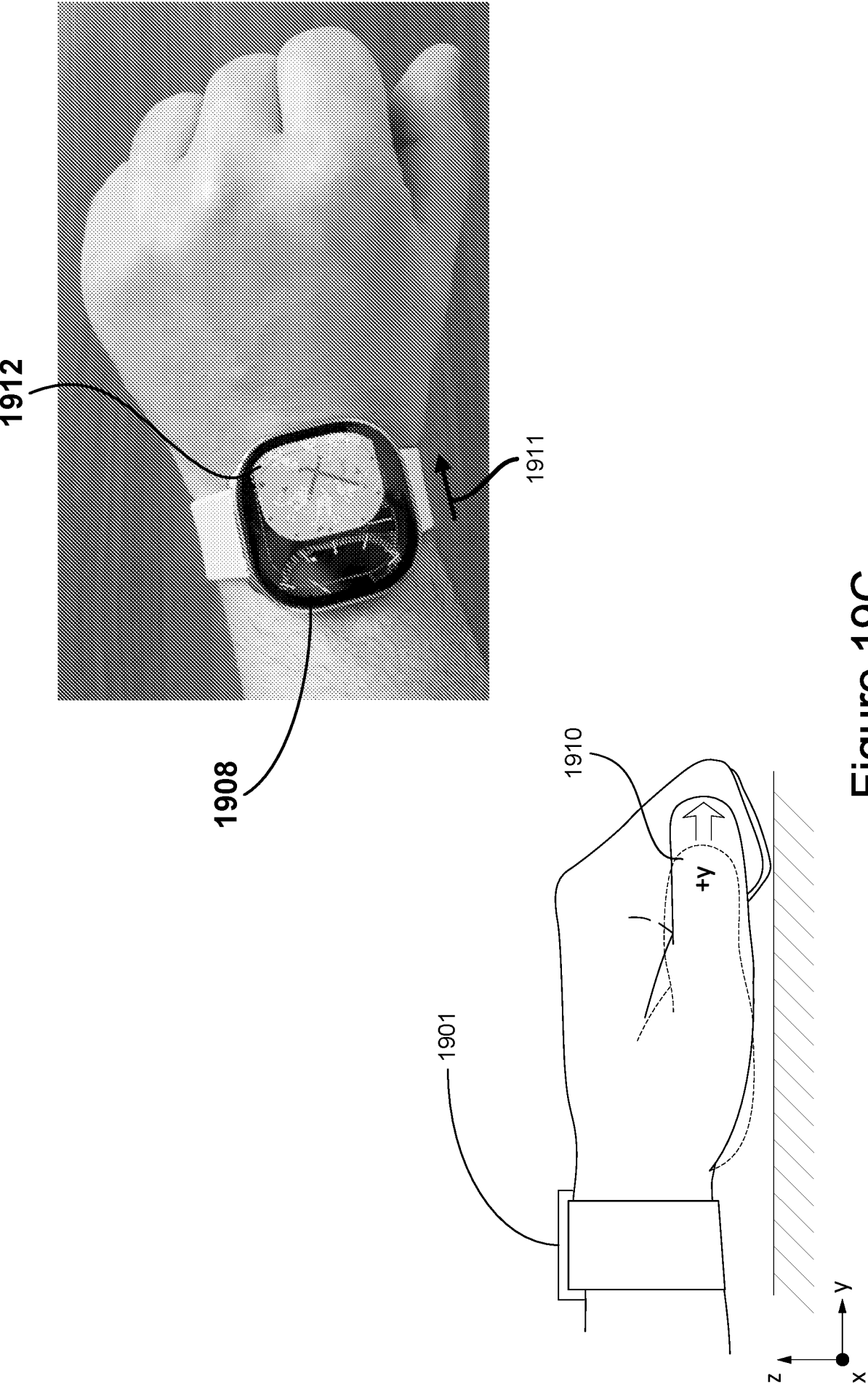
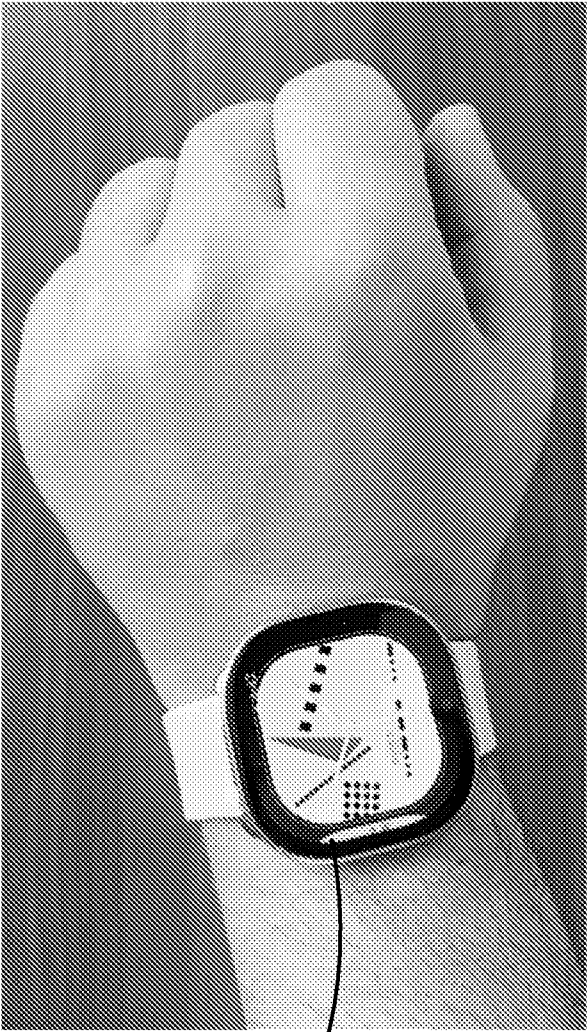


Figure 19C



1916

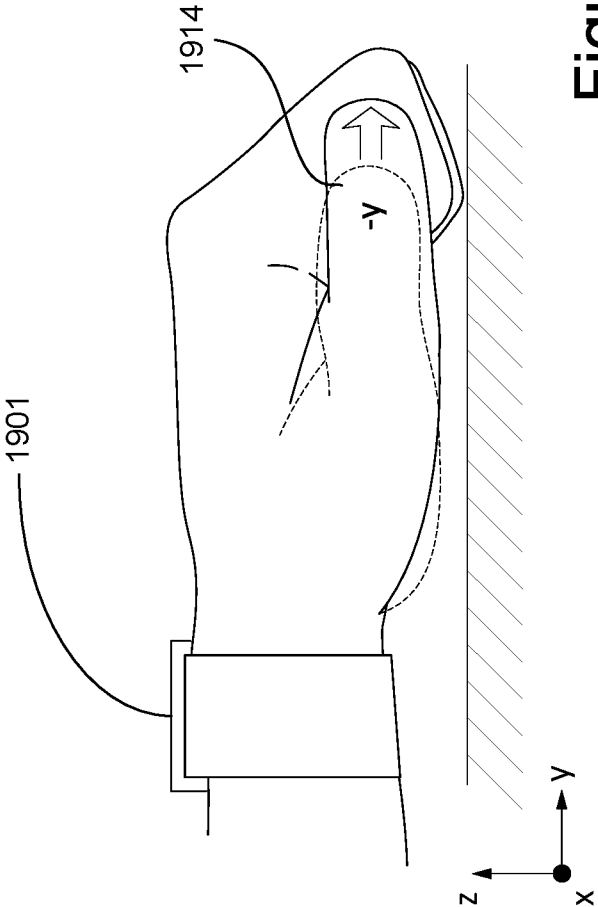


Figure 19D



1920

1901

1918

-x

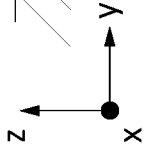
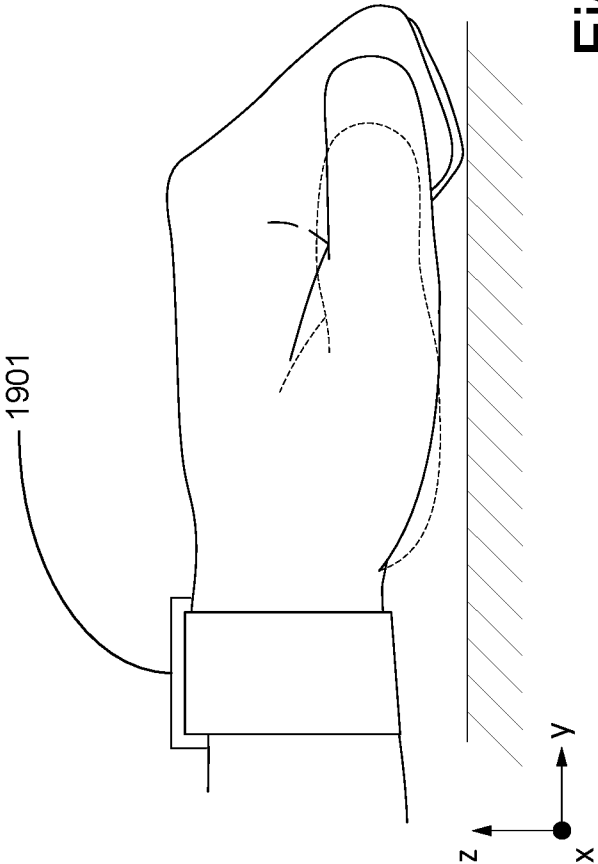


Figure 19E



1924



1901

Figure 19F

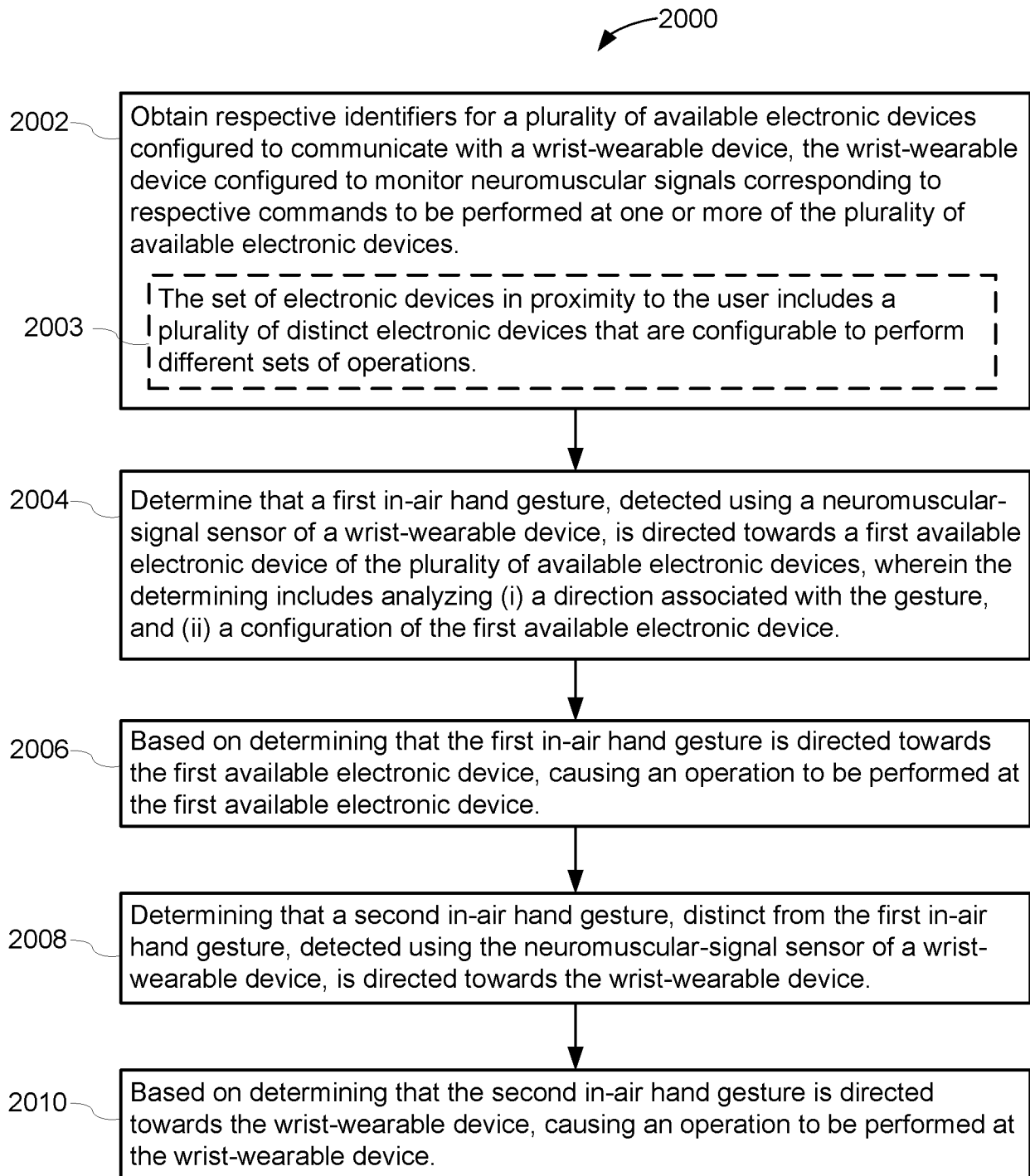


Figure 20

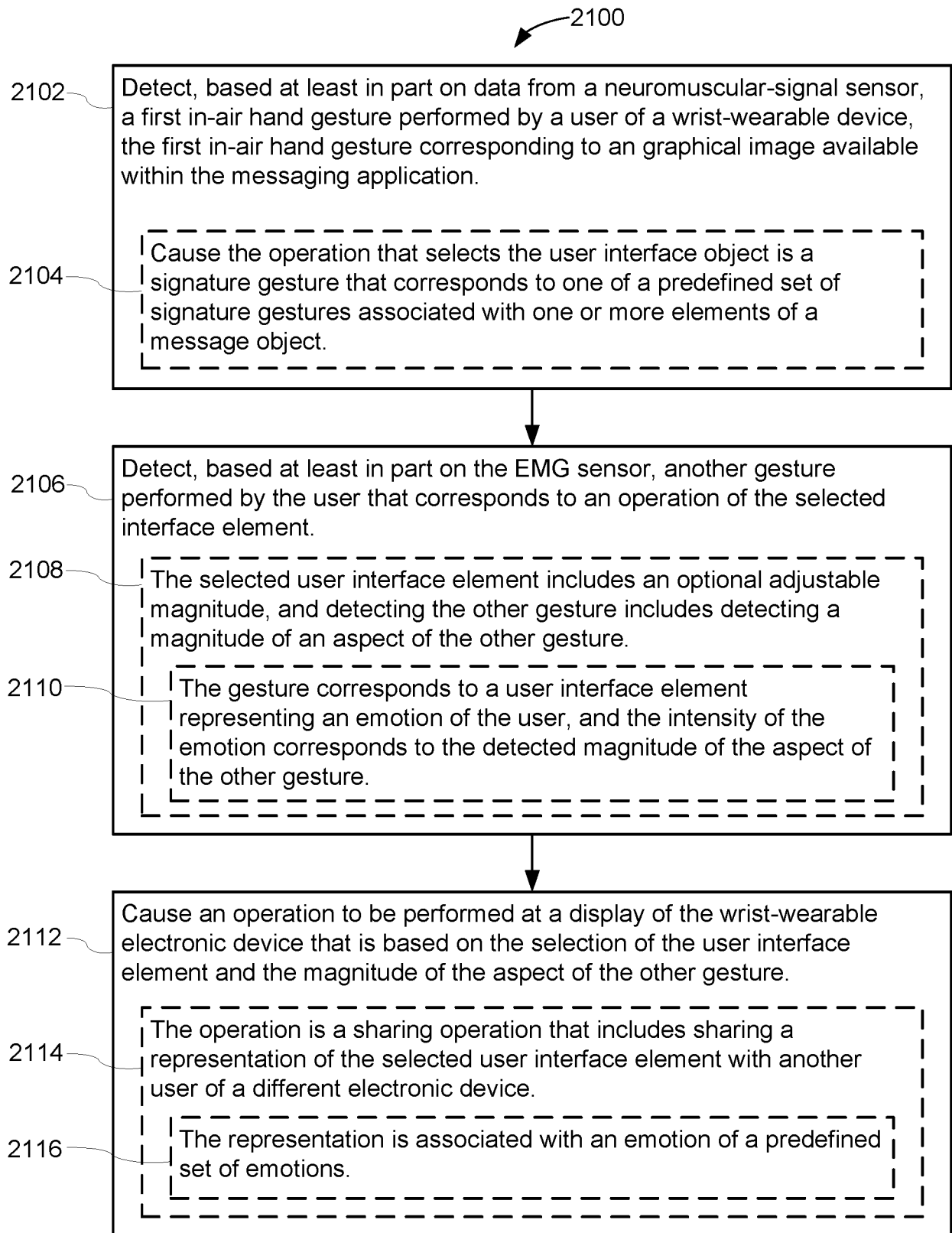


Figure 21

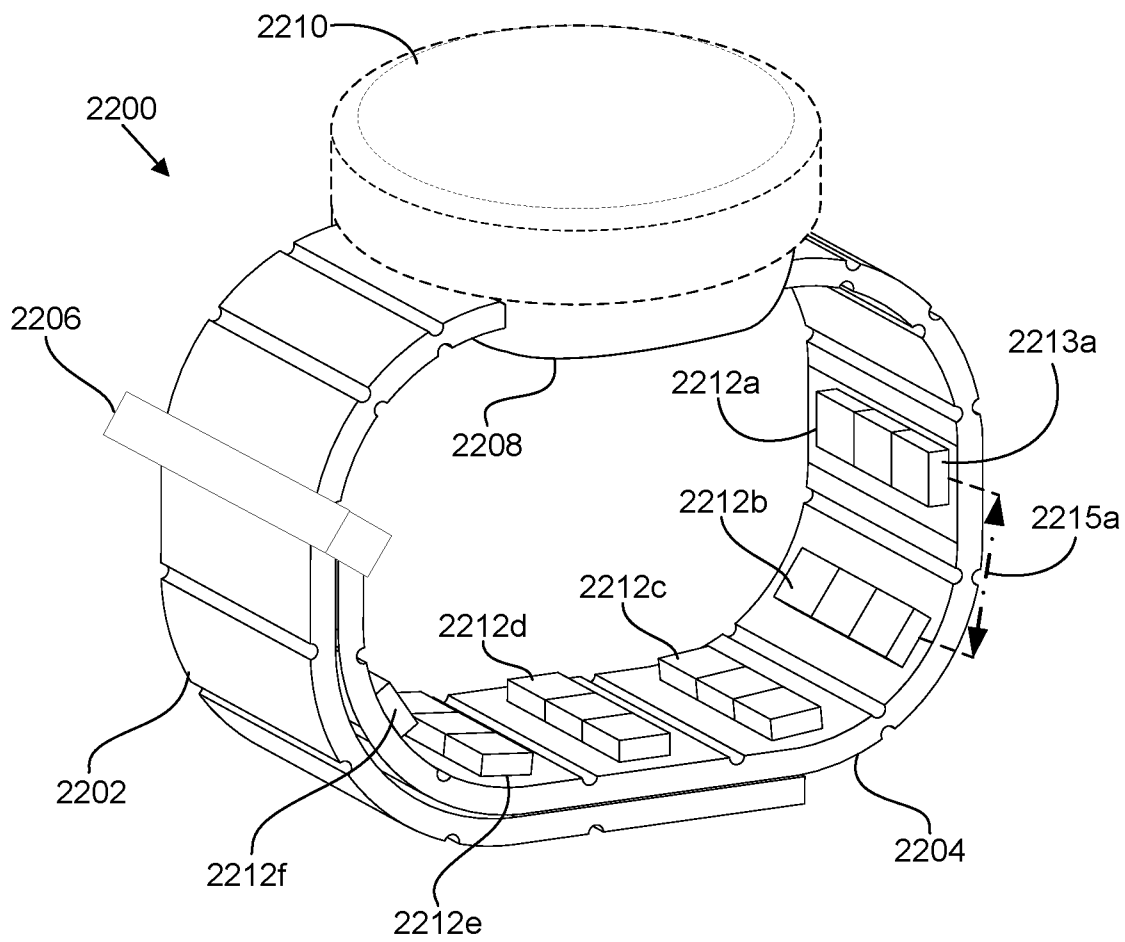


Figure 22A

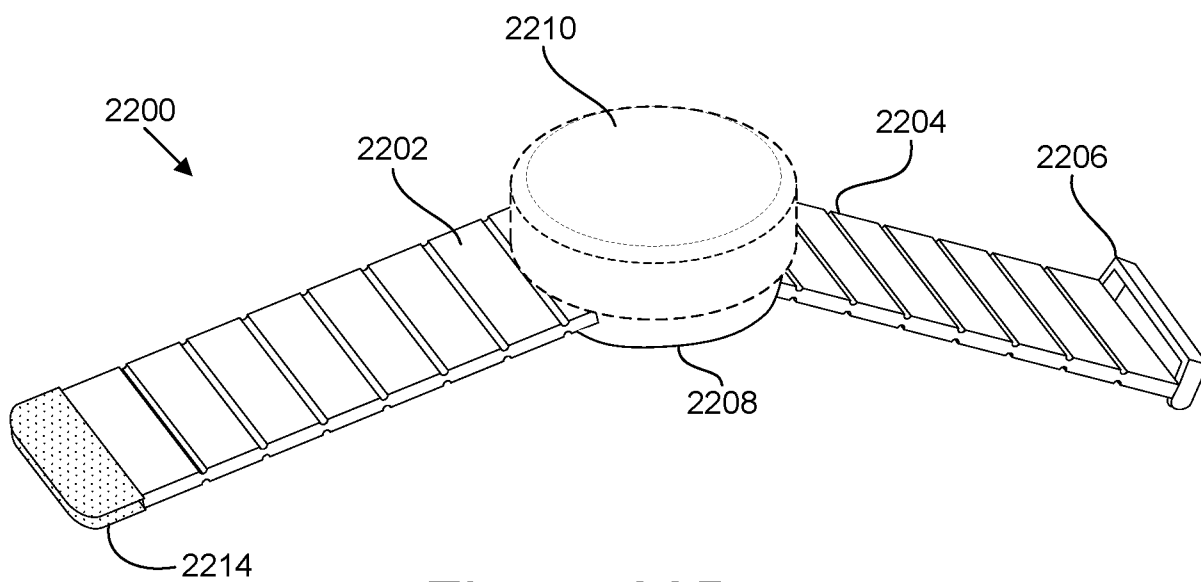


Figure 22B

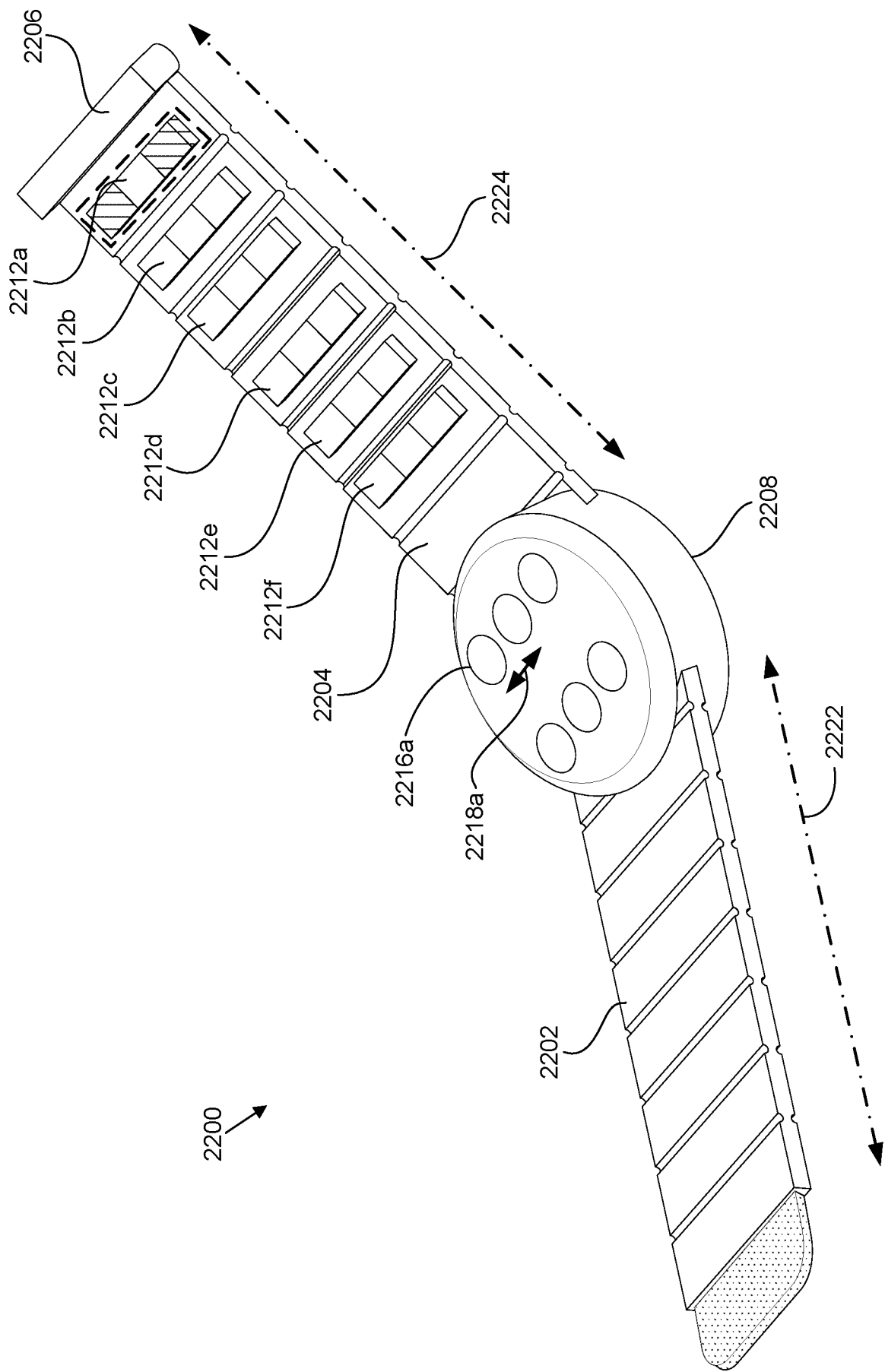


Figure 22C

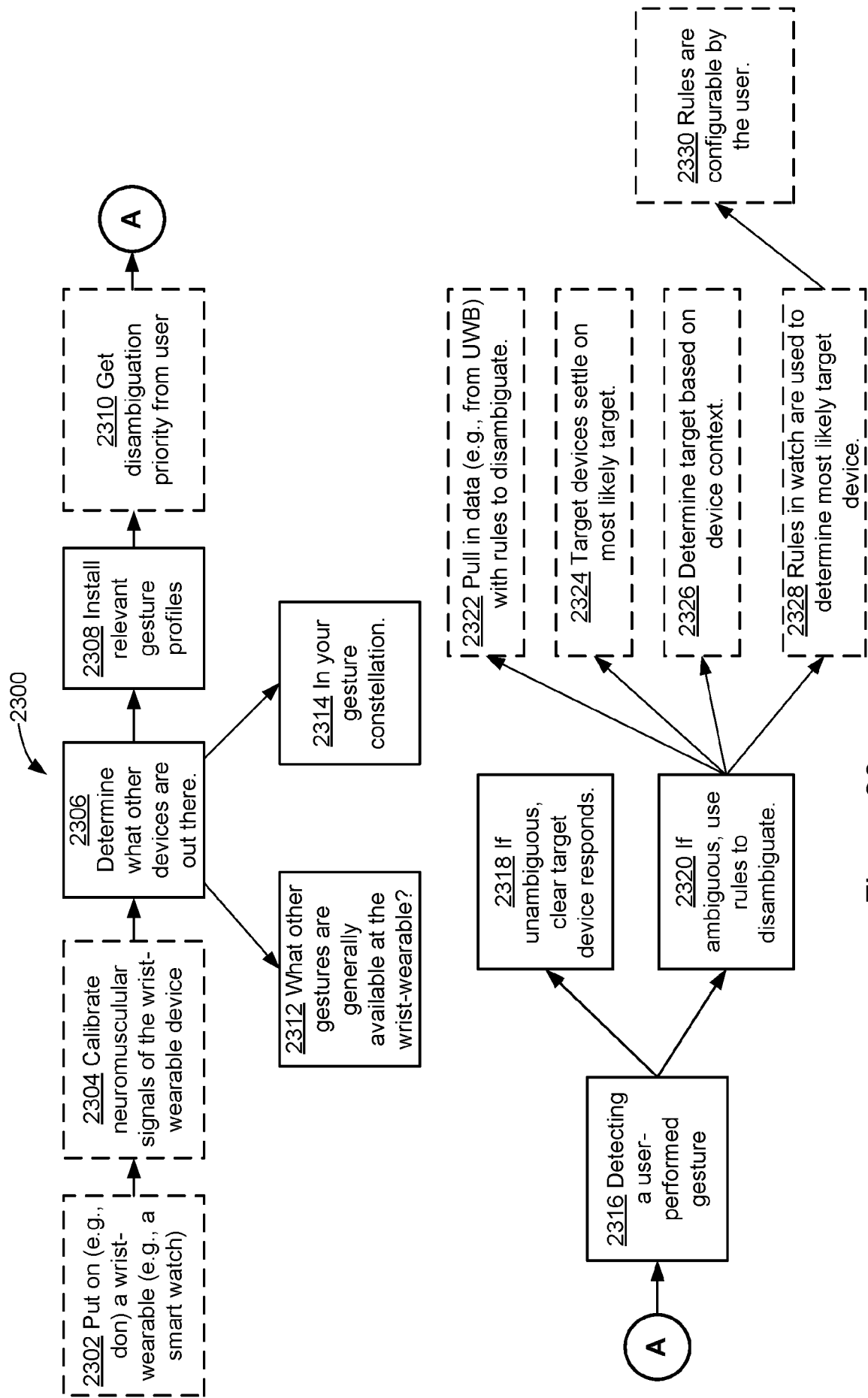


Figure 23

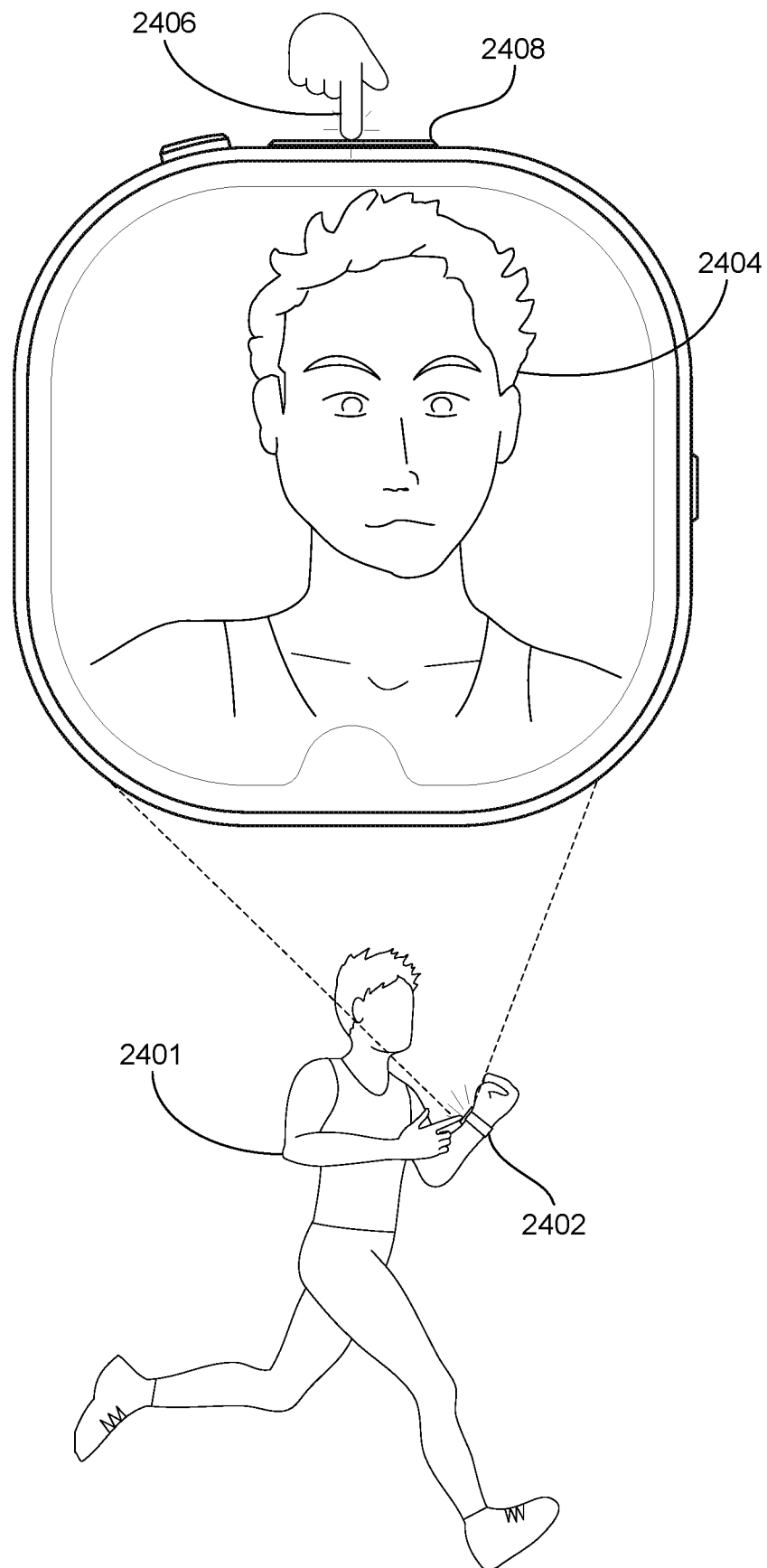


Figure 24A

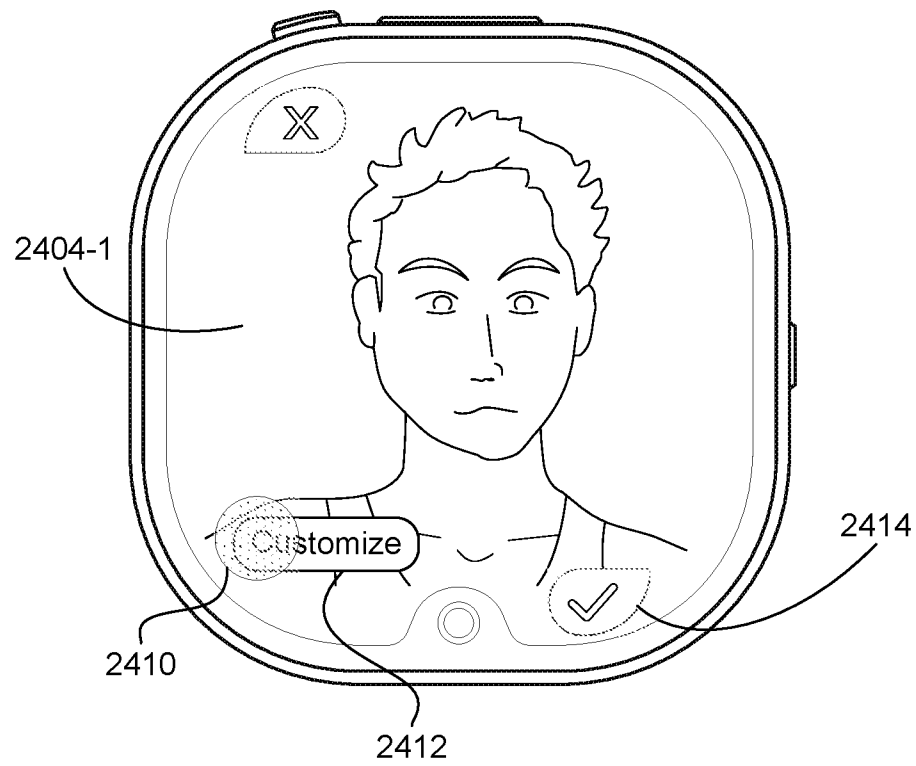


Figure 24B

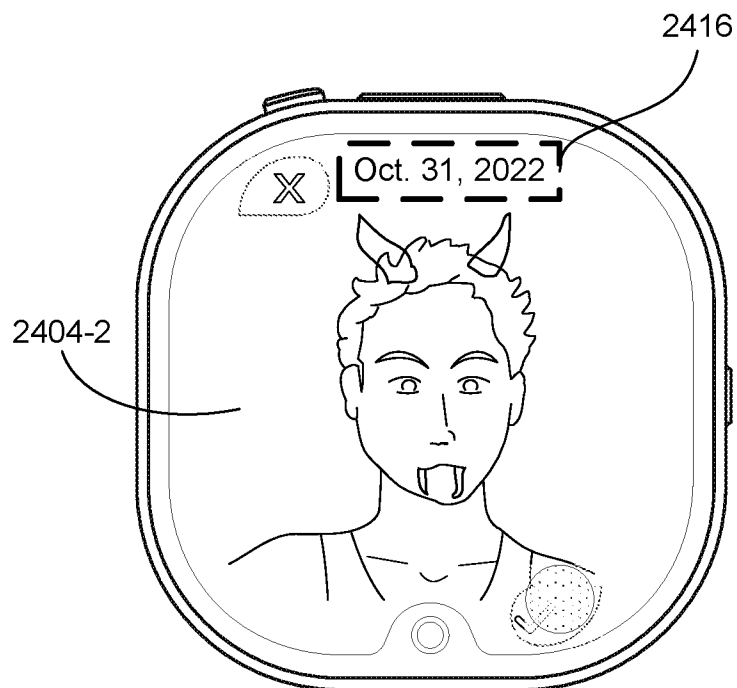


Figure 24C

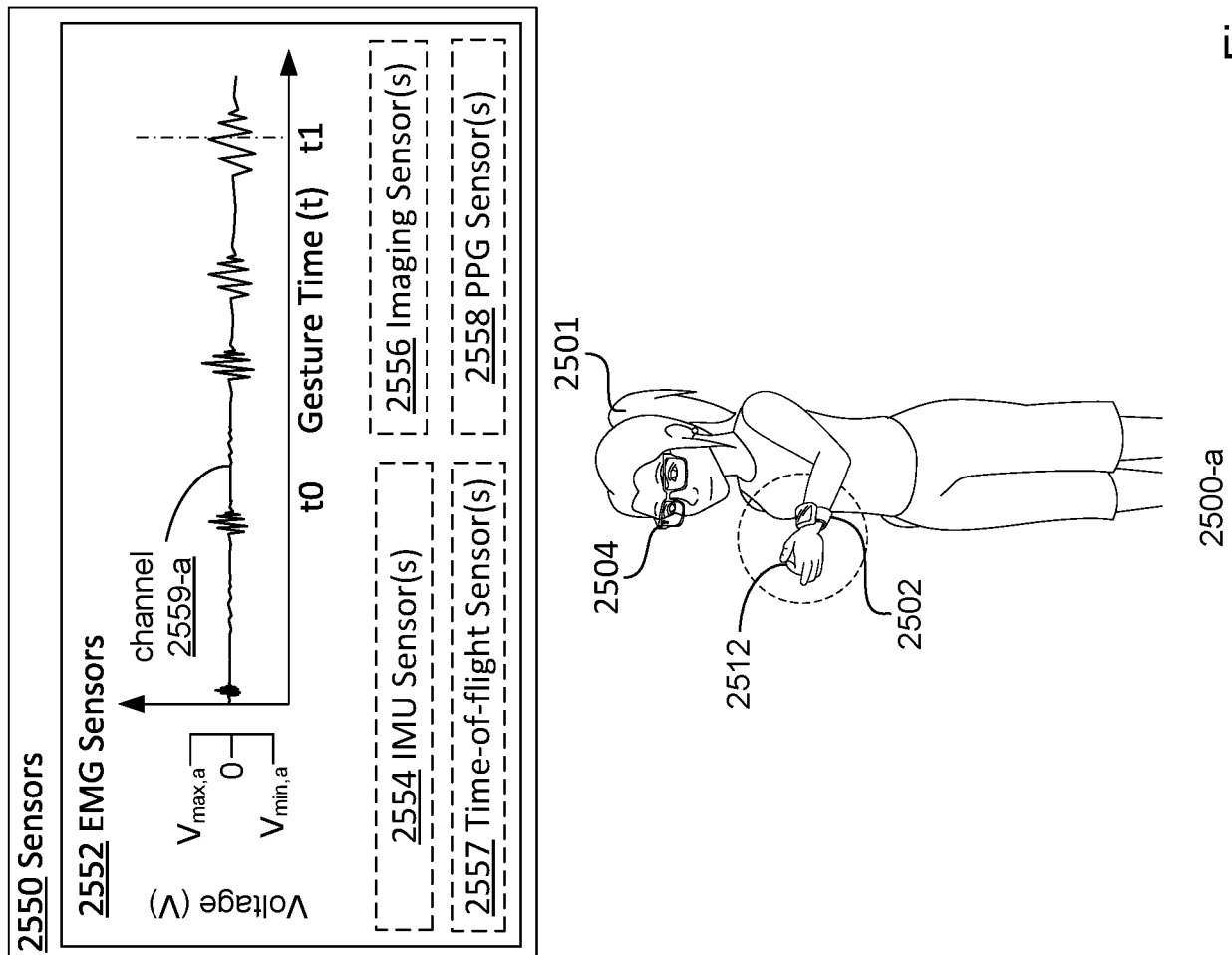
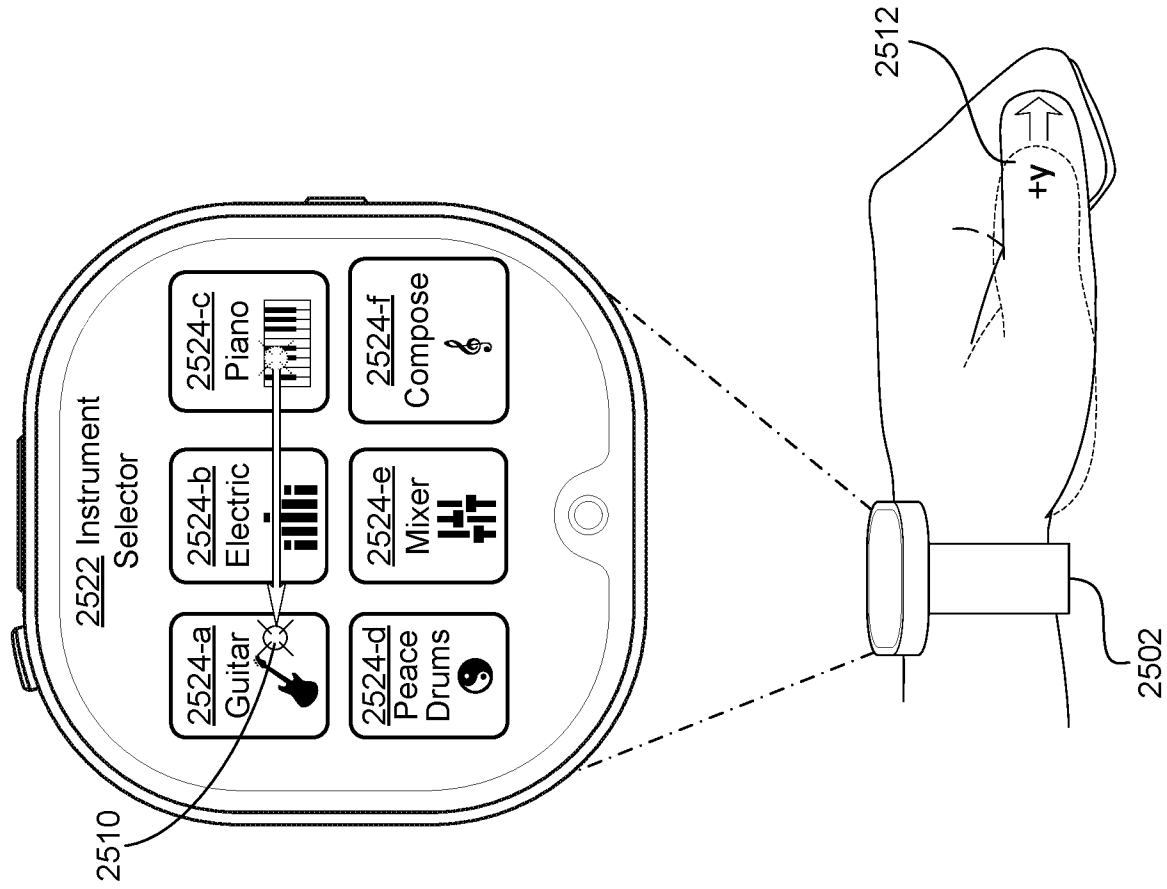
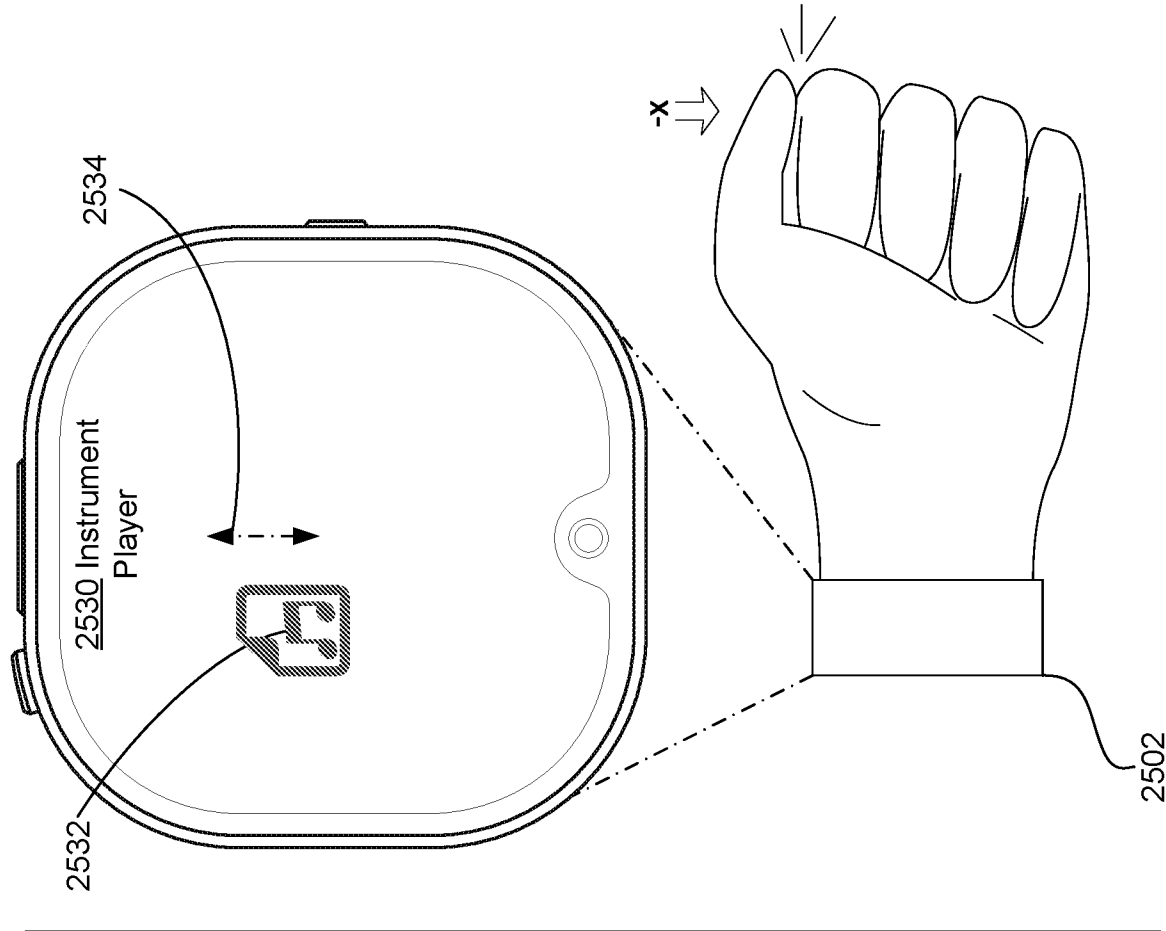
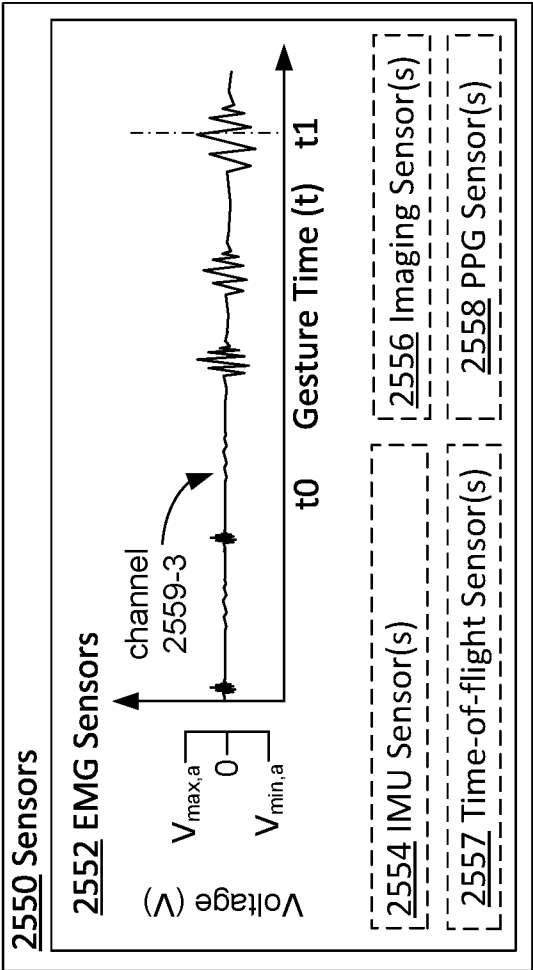


Figure 25A



2500-b



2500-b

2500-a

Figure 25B

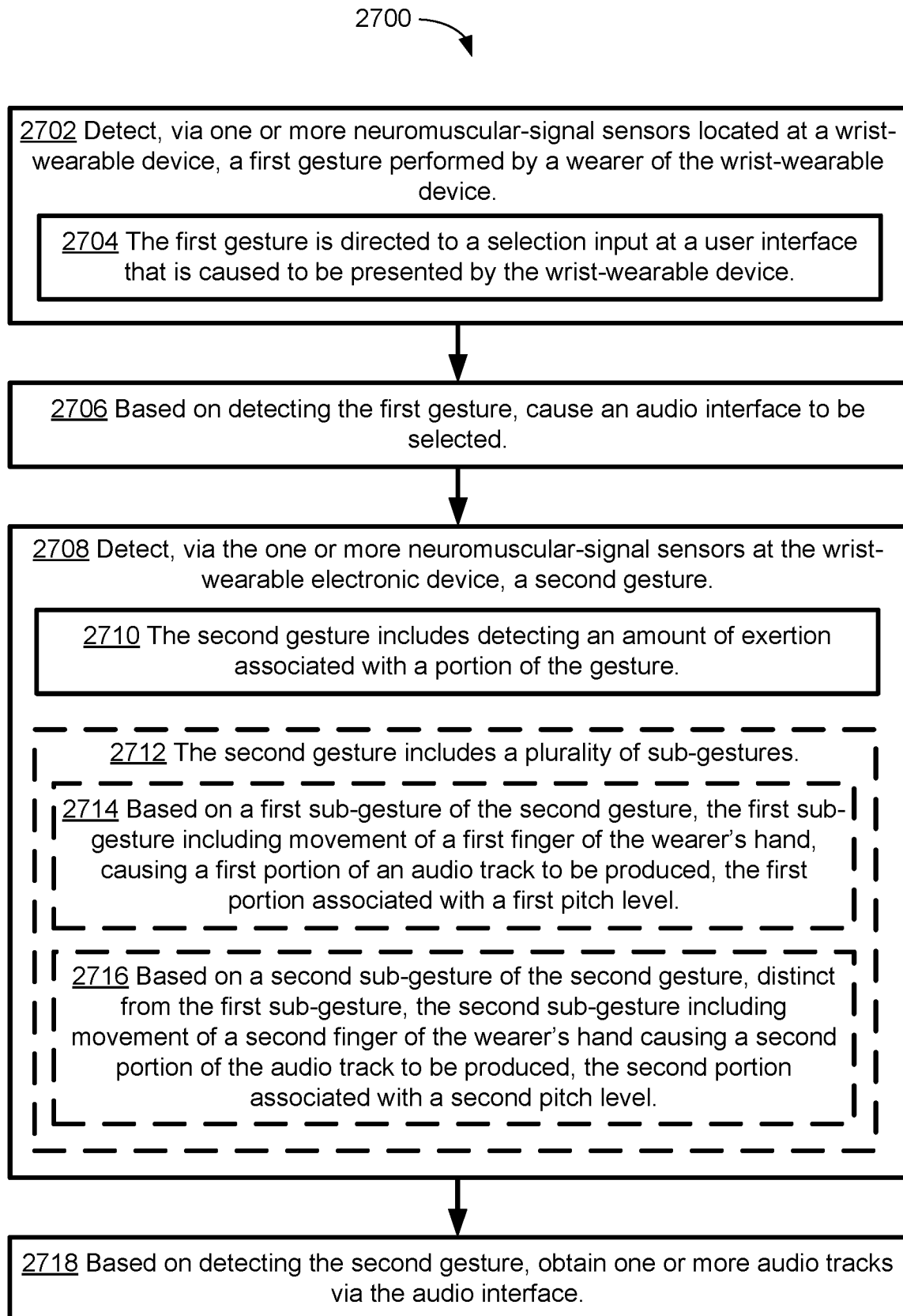


Figure 26

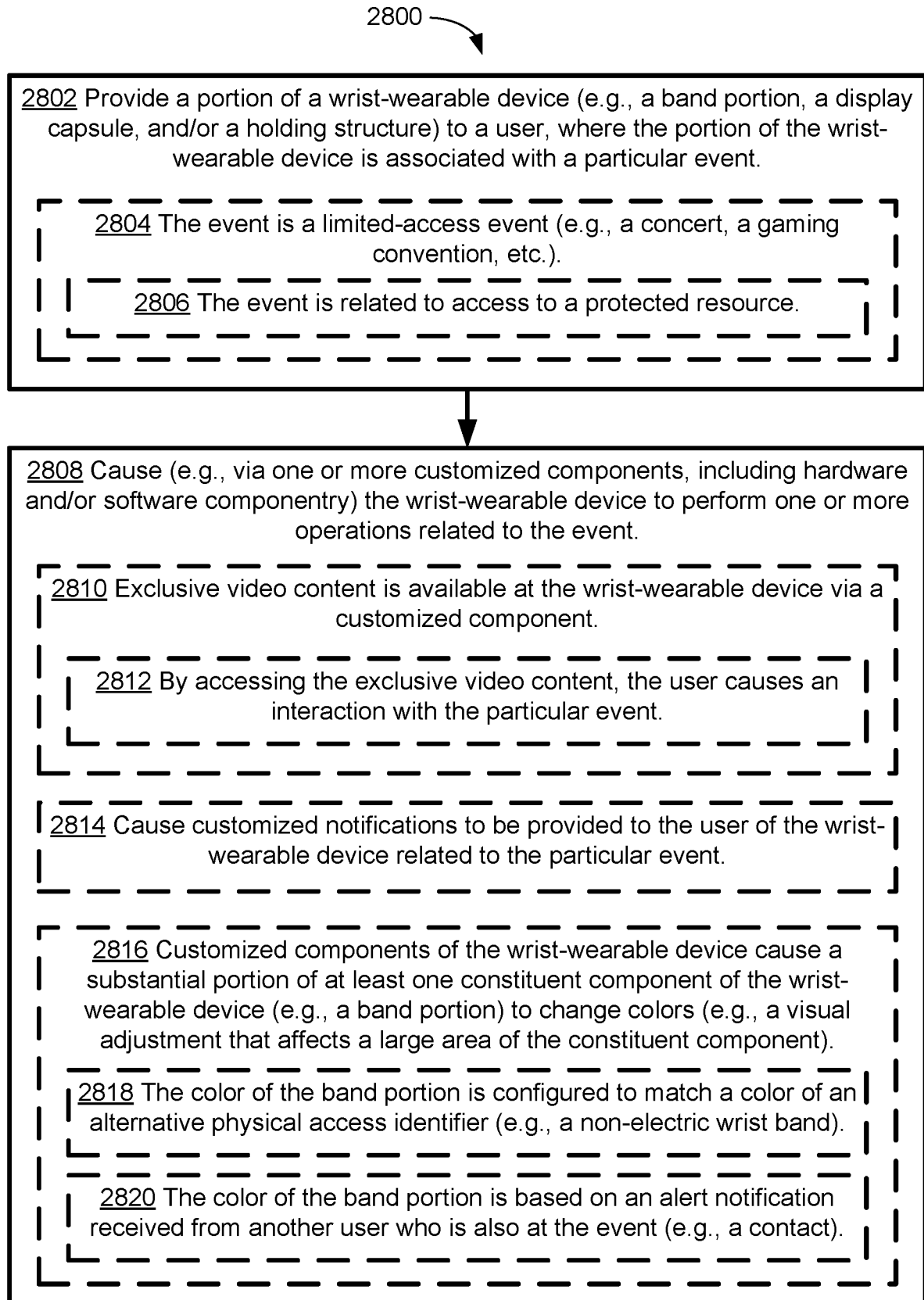


Figure 27

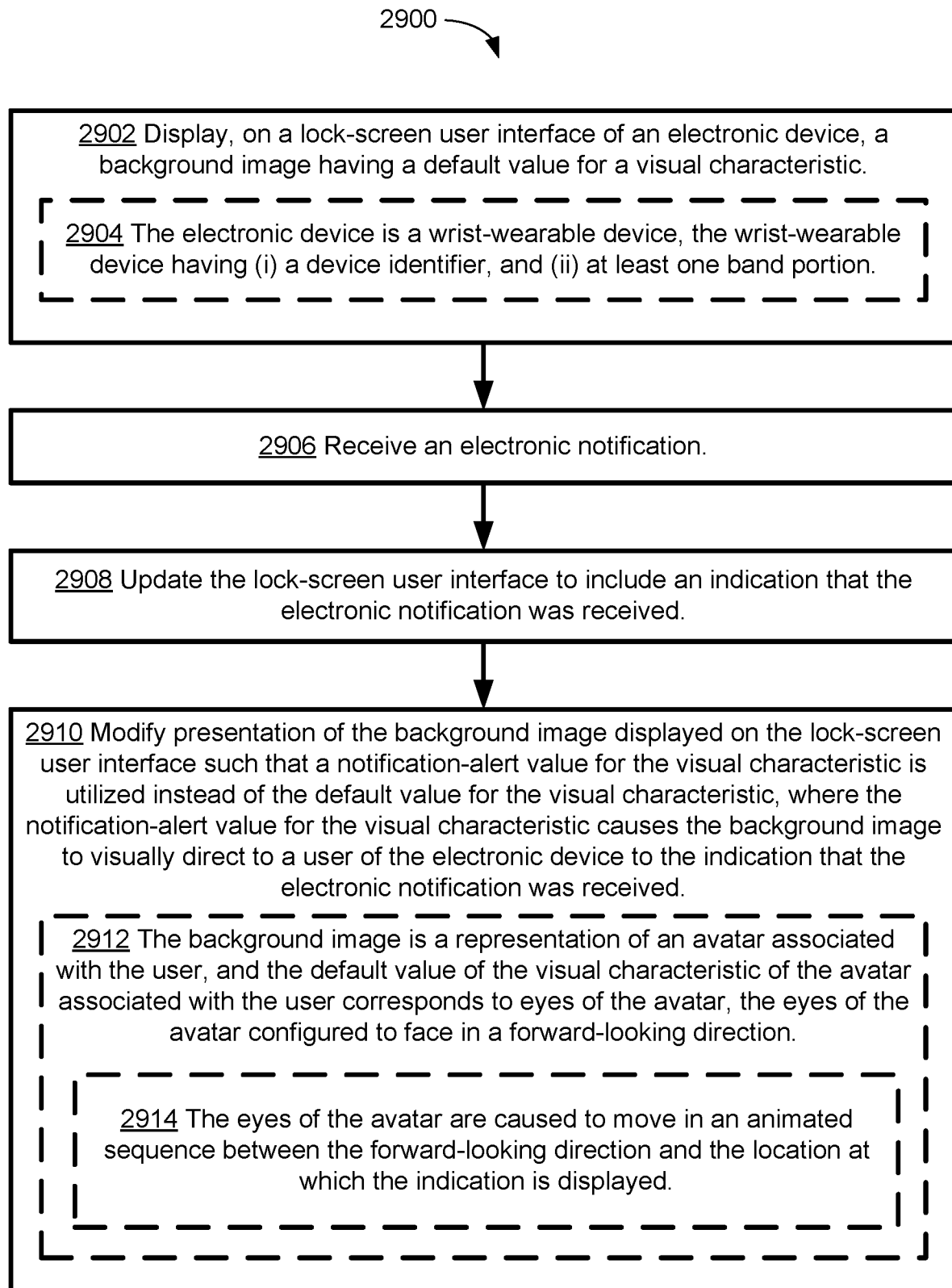


Figure 28

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2023/021285

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06F1/16 G06F3/0482
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2015/362951 A1 (HICKS SCOTT [US] ET AL) 17 December 2015 (2015-12-17) paragraph [0001] - paragraph [0037] figures 1-6 -----	1-20
X	US 2017/075551 A1 (ROBINSON QUENTIN N [US] ET AL) 16 March 2017 (2017-03-16) paragraph [0012] - paragraph [0064] figures 1-12 -----	1-20
A	US 2020/233380 A1 (ROTHKOPF FLETCHER R [US] ET AL) 23 July 2020 (2020-07-23) paragraph [0084] - paragraph [0098] figure 3 -----	1-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

7 September 2023

Date of mailing of the international search report

15/09/2023

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Heider, Thomas

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2023/021285

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2015362951 A1	17-12-2015	NONE	
US 2017075551 A1	16-03-2017	US 2017075551 A1	16-03-2017
		US 2019302995 A1	03-10-2019
US 2020233380 A1	23-07-2020	CN 205121417 U	30-03-2016
		DE 212015000214 U1	12-05-2017
		KR 20170001187 U	31-03-2017
		KR 20190097314 A	20-08-2019
		KR 20200080343 A	06-07-2020
		KR 20210042178 A	16-04-2021
		KR 20210118978 A	01-10-2021
		KR 20220098801 A	12-07-2022
		KR 20230097197 A	30-06-2023
		TW 201626121 A	16-07-2016
		TW 201732467 A	16-09-2017
		US 2016058375 A1	03-03-2016
		US 2016378069 A1	29-12-2016
		US 2016378070 A1	29-12-2016
		US 2016378071 A1	29-12-2016
		US 2020233380 A1	23-07-2020
		US 2021181690 A1	17-06-2021
		US 2021181691 A1	17-06-2021
		US 2021181692 A1	17-06-2021
		US 2022171344 A1	02-06-2022
		US 2022413446 A1	29-12-2022
		US 2023028554 A1	26-01-2023
		US 2023097827 A1	30-03-2023
		US 2023213893 A1	06-07-2023
		WO 2016036747 A1	10-03-2016