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Stallings et al.

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(54) **INTERACTIVE LOCKED STATE MOBILE COMMUNICATION DEVICE**

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(51) **Int. Cl.**
H04M 1/00 (2006.01)
H04M 1/725 (2006.01)
H04B 1/38 (2006.01)

(52) **U.S. Cl.** **455/566**; 455/412.2

(58) **Field of Classification Search** 455/566, 455/412.2

See application file for complete search history.

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Primary Examiner — Marisol Figueroa

(57) **ABSTRACT**

A mobile communication device receives current information while the mobile communication device is in one of a sleep state or a locked state, and associates one or more portions of the current information with one or more corresponding windows. The mobile communication device also displays, via a display associated with the mobile communication device, the one or more corresponding windows and the one or more associated portions of the current information while the mobile communication device is in the locked state. The mobile communication device further enables a user associated with the mobile communication device to manipulate the one or more displayed corresponding windows while the mobile communication device is in the locked state.

25 Claims, 17 Drawing Sheets

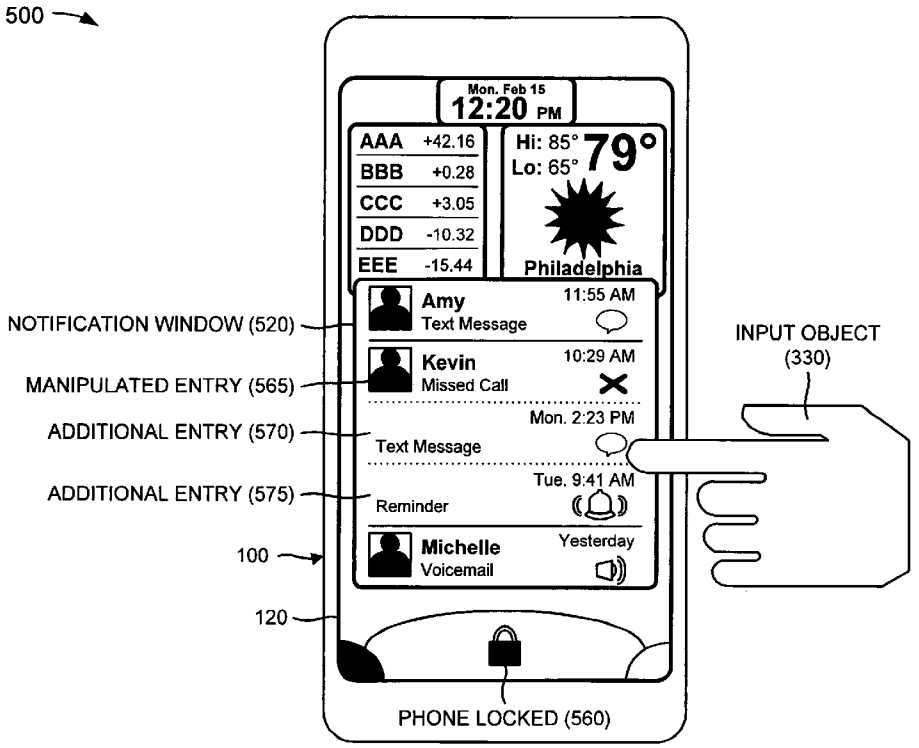


FIG. 1

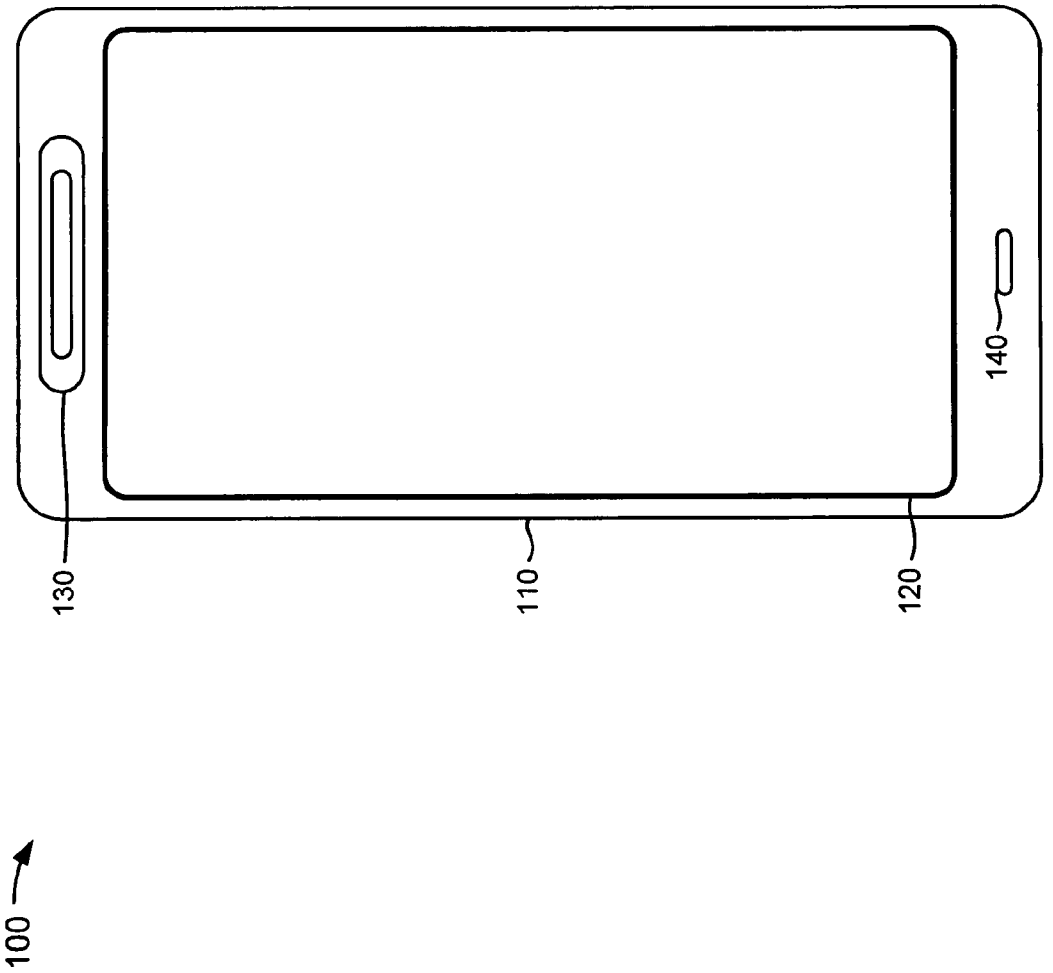


FIG. 2

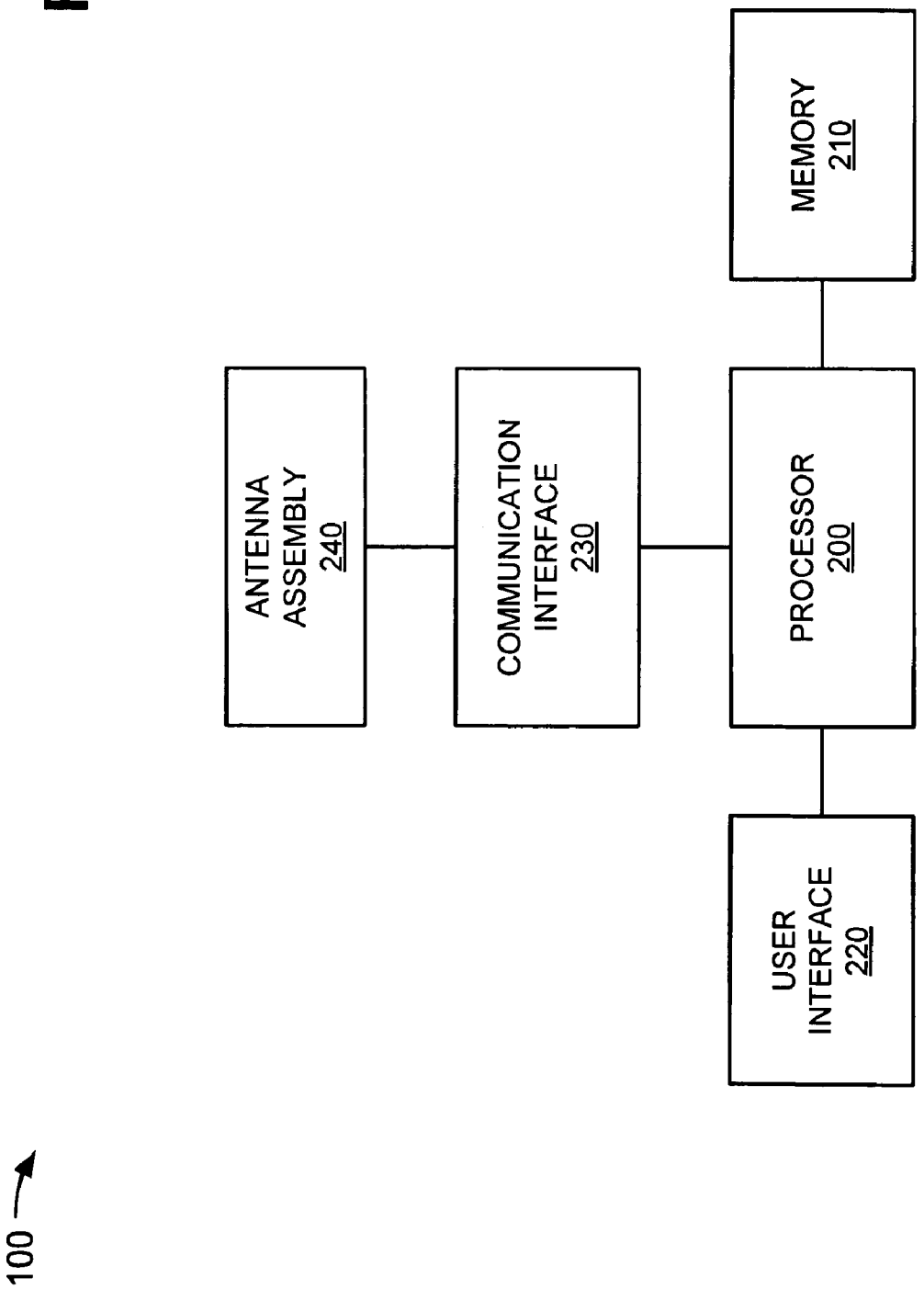

ANTENNA ASSEMBLY 240
COMMUNICATION INTERFACE 230
PROCESSOR 200
MEMORY 210
USER INTERFACE 220
100

FIG. 3

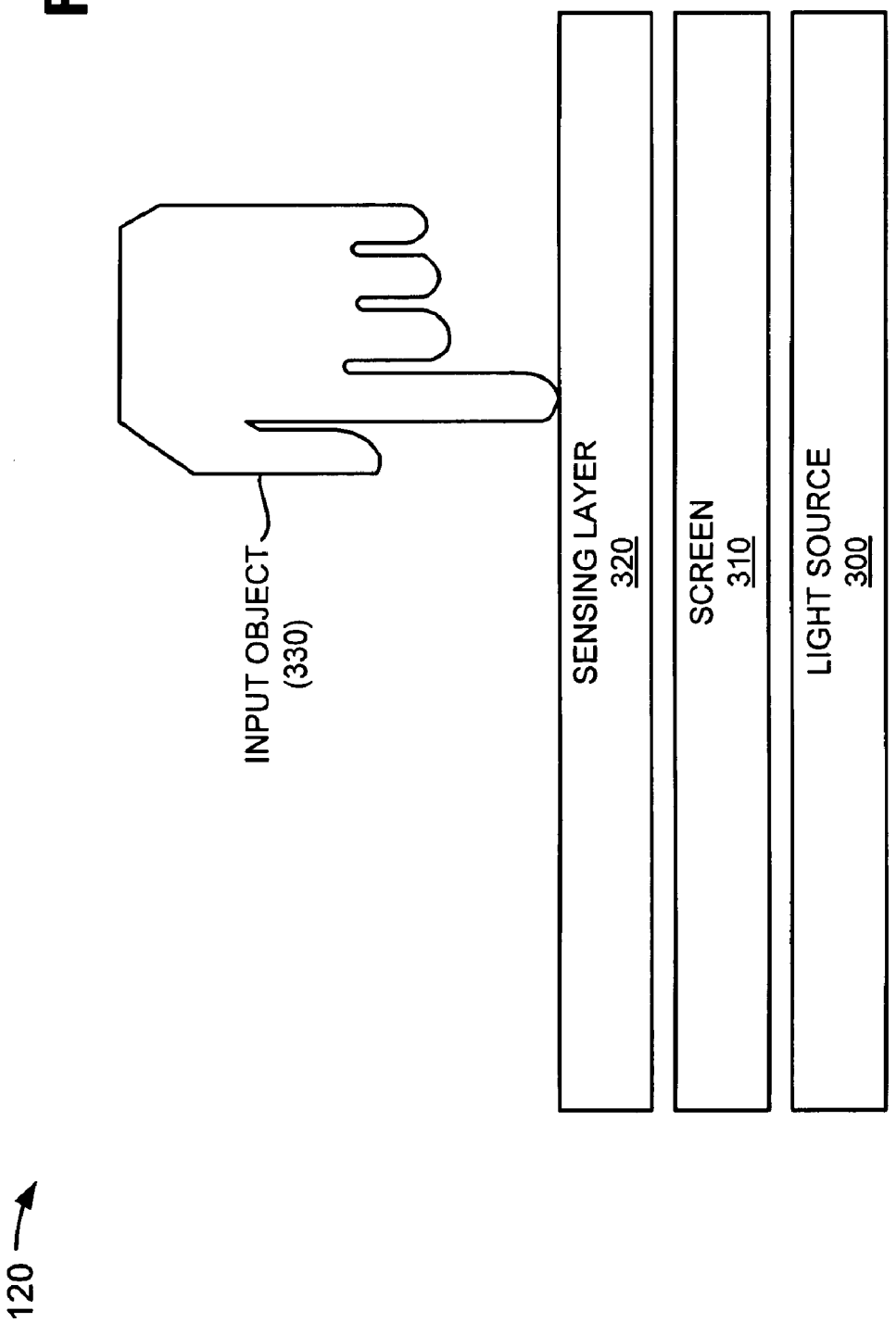

INPUT OBJECT
(330)
SENSING LAYER
320
SCREEN
310
LIGHT SOURCE
300
120

FIG. 4

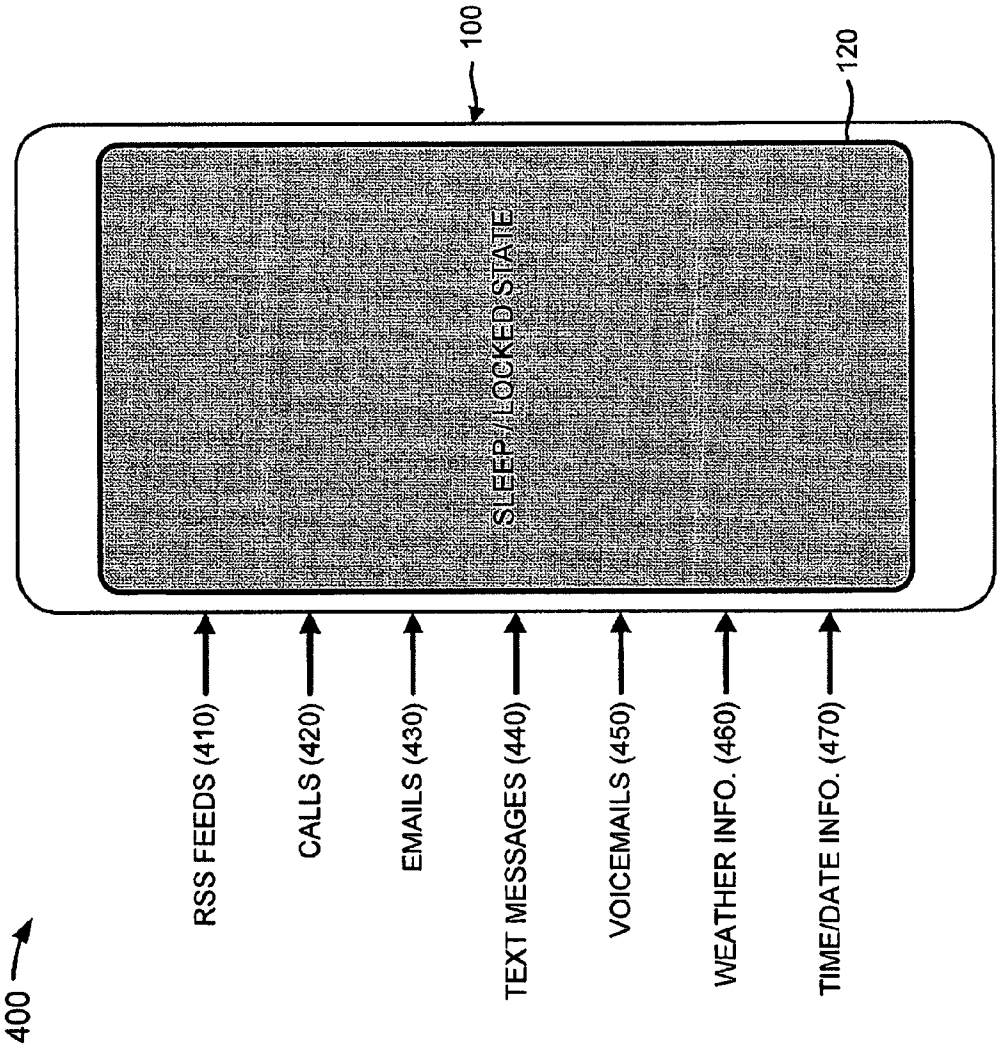

400
RSS FEEDS (410)
CALLS (420)
EMAILS (430)
TEXT MESSAGES (440)
VOICEMAILS (450)
WEATHER INFO. (460)
TIME/DATE INFO. (470)
100
120
SLEEP/LOCKED STATE

FIG. 5A

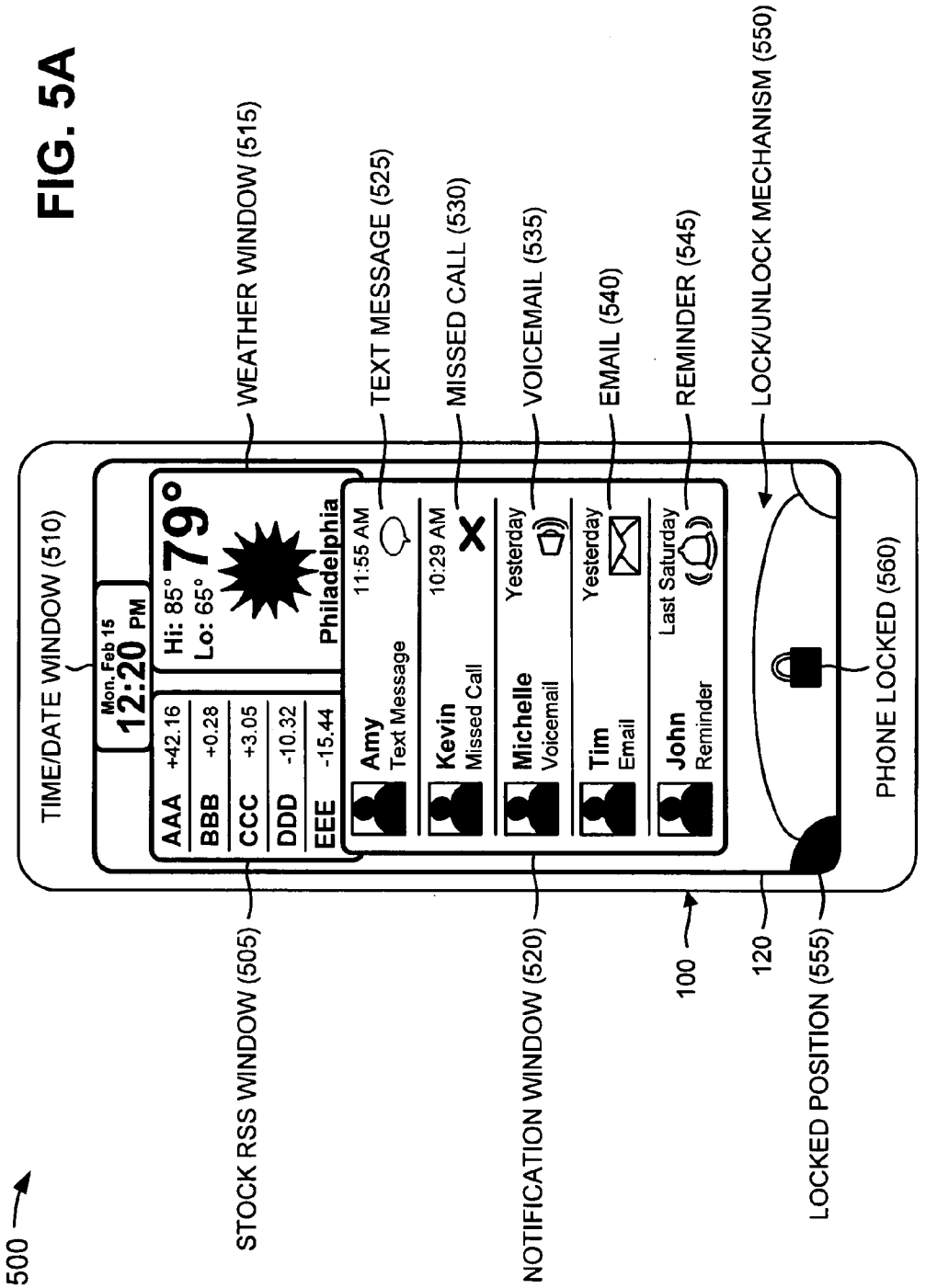

500
TIME/DATE WINDOW (510)
Mon. Feb 15
12:20 PM
AAA +42.16
BBB +0.28
CCC +3.05
DDD -10.32
EEE -15.44
Hi: 85°
Lo: 65°
79°
Philadelphia
Amy
Text Message
11:55 AM
Kevin
Missed Call
10:29 AM
Michelle
Voicemail
Yesterday
Tim
Email
Yesterday
John
Reminder
Last Saturday
PHONE LOCKED (560)
STOCK RSS WINDOW (505)
WEATHER WINDOW (515)
NOTIFICATION WINDOW (520)
TEXT MESSAGE (525)
MISSED CALL (530)
VOICEMAIL (535)
EMAIL (540)
REMINDER (545)
100
120
LOCKED POSITION (555)
LOCK/UNLOCK MECHANISM (550)

FIG. 5B

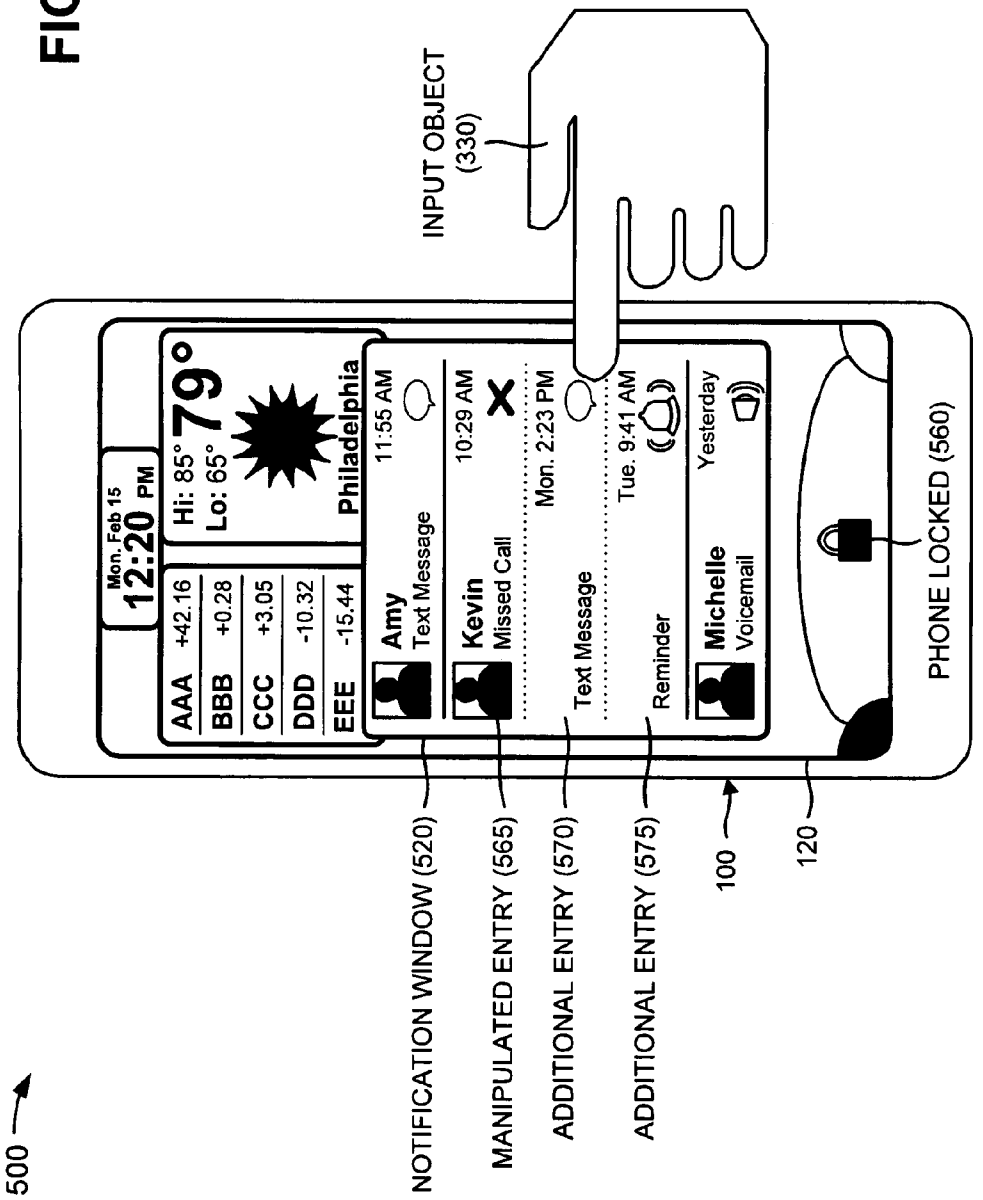

500
NOTIFICATION WINDOW (520)
MANIPULATED ENTRY (565)
ADDITIONAL ENTRY (570)
ADDITIONAL ENTRY (575)
100
120
INPUT OBJECT (330)
PHONE LOCKED (560)
Mon. Feb 15
12:20 PM
AAA +42.16
BBB +0.28
CCC +3.05
DDD -10.32
EEE -15.44
Hi: 85°
Lo: 65°
79°
Philadelphia
Amy
Text Message
11:55 AM
Kevin
Missed Call
10:29 AM
Text Message
Mon. 2:23 PM
Reminder
Tue. 9:41 AM
Michelle
Voicemail
Yesterday

FIG. 6A

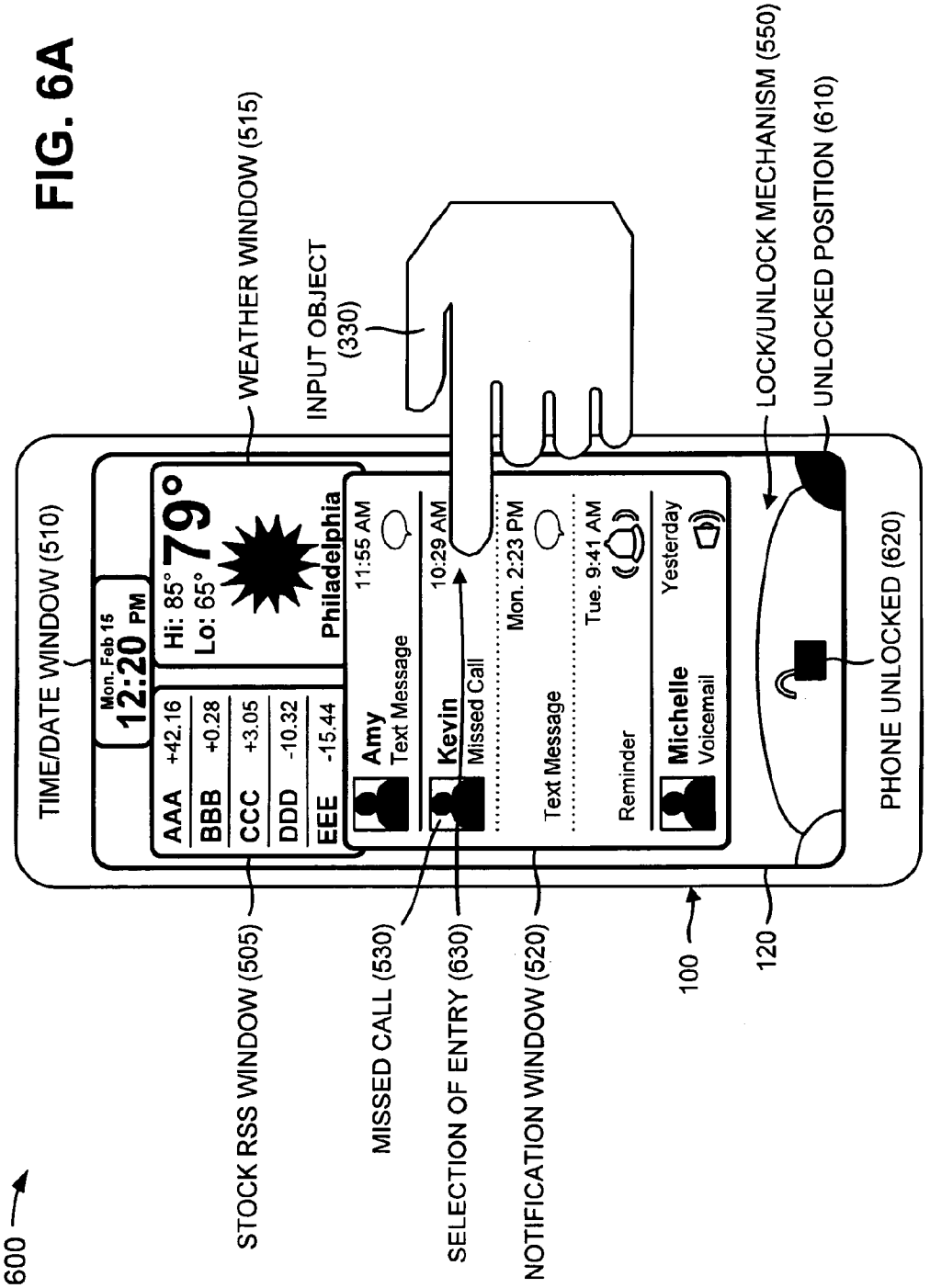

600
TIME/DATE WINDOW (510)
Mon. Feb 15
12:20 PM
WEATHER WINDOW (515)
Hi: 85°
Lo: 65°
79°
Philadelphia
AAA +42.16
BBB +0.28
CCC +3.05
DDD -10.32
EEE -15.44
STOCK RSS WINDOW (505)
INPUT OBJECT (330)
Amy
Text Message
11:55 AM
Kevin
Missed Call
10:29 AM
MISSED CALL (530)
SELECTION OF ENTRY (630)
Mon. 2:23 PM
Text Message
Tue. 9:41 AM
Reminder
Yesterday
Michelle
Voicemail
NOTIFICATION WINDOW (520)
100
120
LOCK/UNLOCK MECHANISM (550)
UNLOCKED POSITION (610)
PHONE UNLOCKED (620)

FIG. 6B

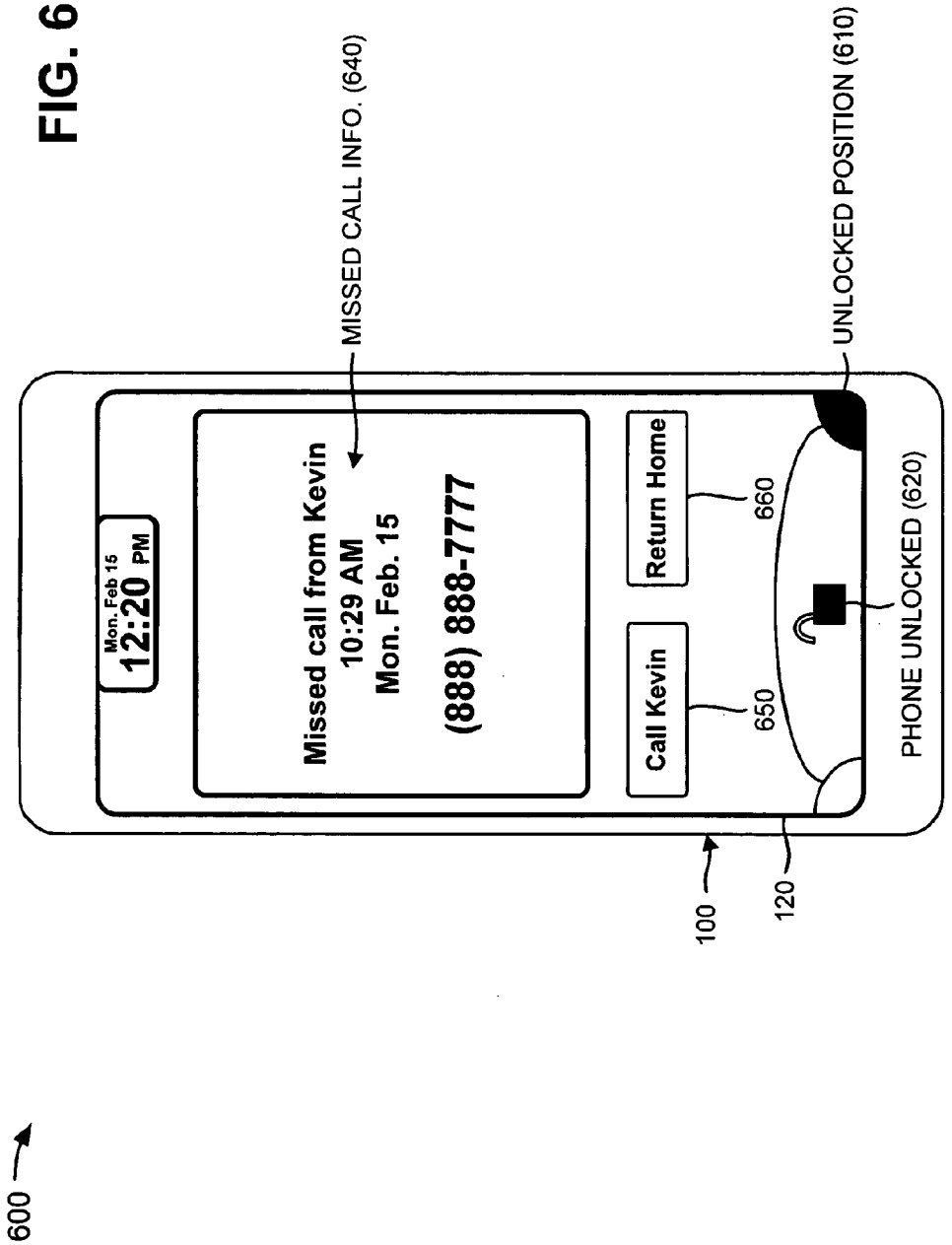

MISSED CALL INFO. (640)
UNLOCKED POSITION (610)
Mon. Feb 15
12:20 PM
Missed call from Kevin
10:29 AM
Mon. Feb. 15
(888) 888-7777
Return Home
Call Kevin
660
650
PHONE UNLOCKED (620)
100
120
600

FIG. 7A

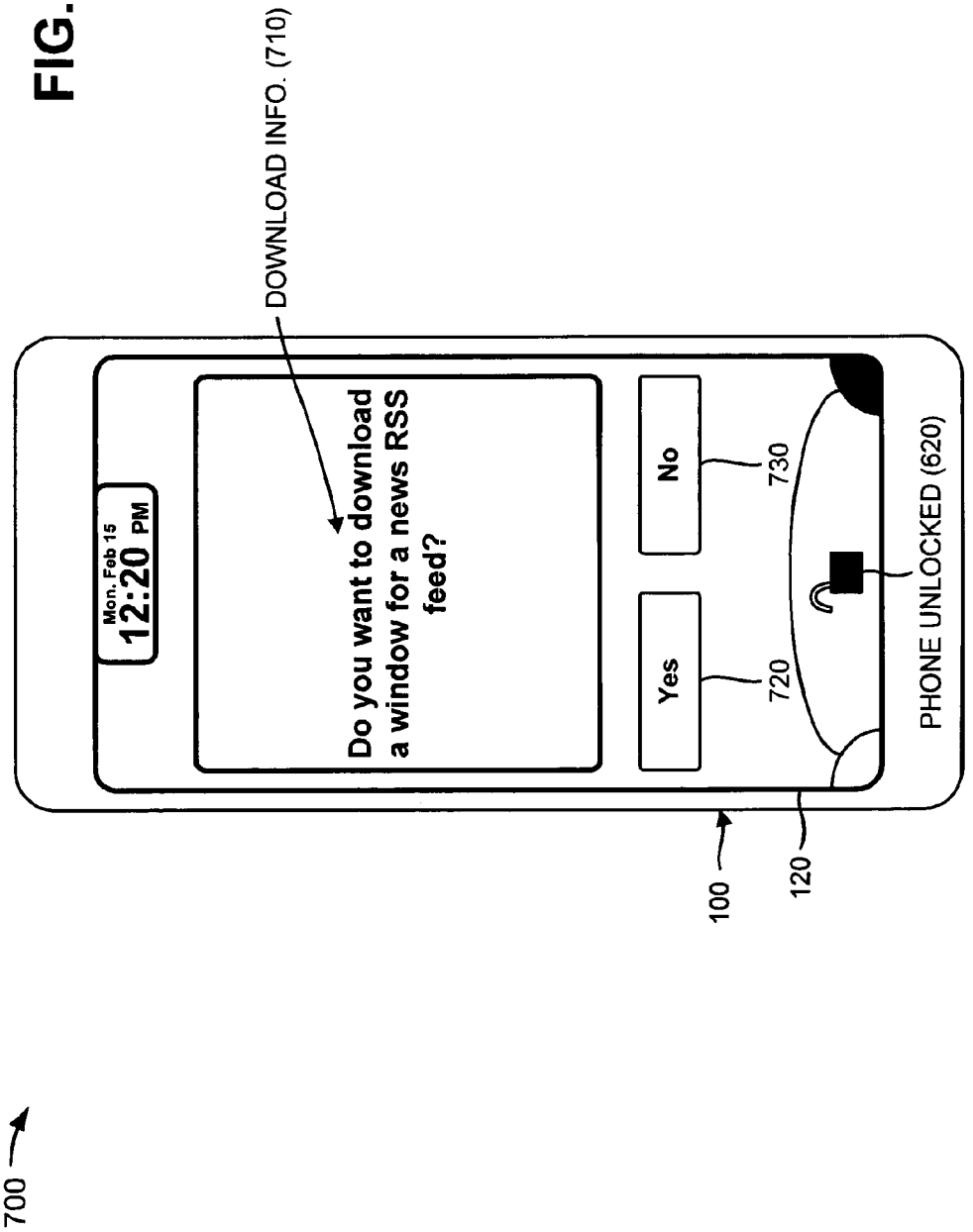

DOWNLOAD INFO. (710)
Mon. Feb 15
12:20 PM
Do you want to download a window for a news RSS feed?
Yes
No
720
730
PHONE UNLOCKED (620)
100
120
700

FIG. 7B

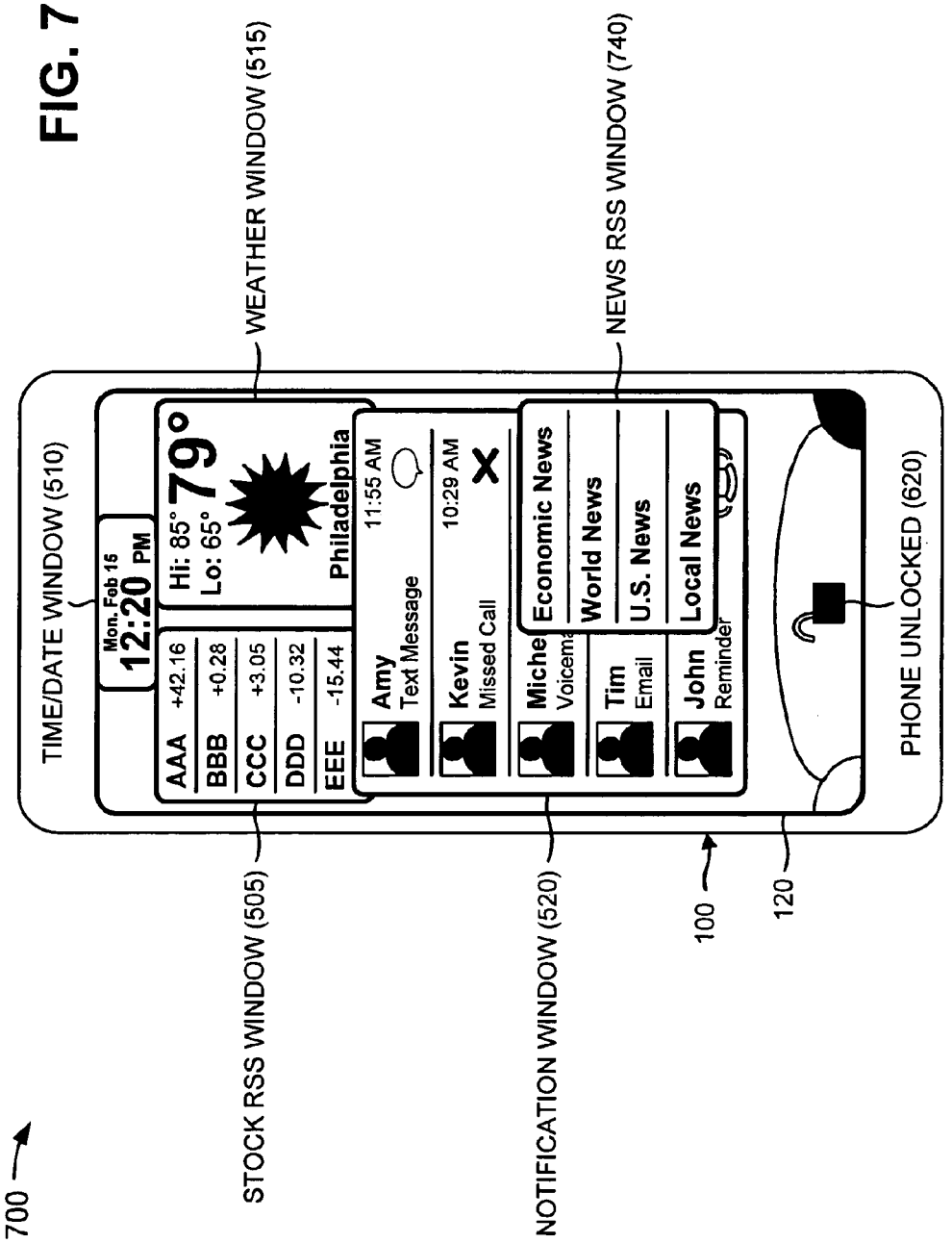

700
TIME/DATE WINDOW (510)
Mon. Feb 15
12:20 PM
WEATHER WINDOW (515)
Hi: 85°
Lo: 65°
79°
Philadelphia
STOCK RSS WINDOW (505)
AAA +42.16
BBB +0.28
CCC +3.05
DDD -10.32
EEE -15.44
NOTIFICATION WINDOW (520)
Amy
Text Message
11:55 AM
Kevin
Missed Call
10:29 AM
Miche
Voicema
Tim
Email
John
Reminder
NEWS RSS WINDOW (740)
Economic News
World News
U.S. News
Local News
100
120
PHONE UNLOCKED (620)

FIG. 8

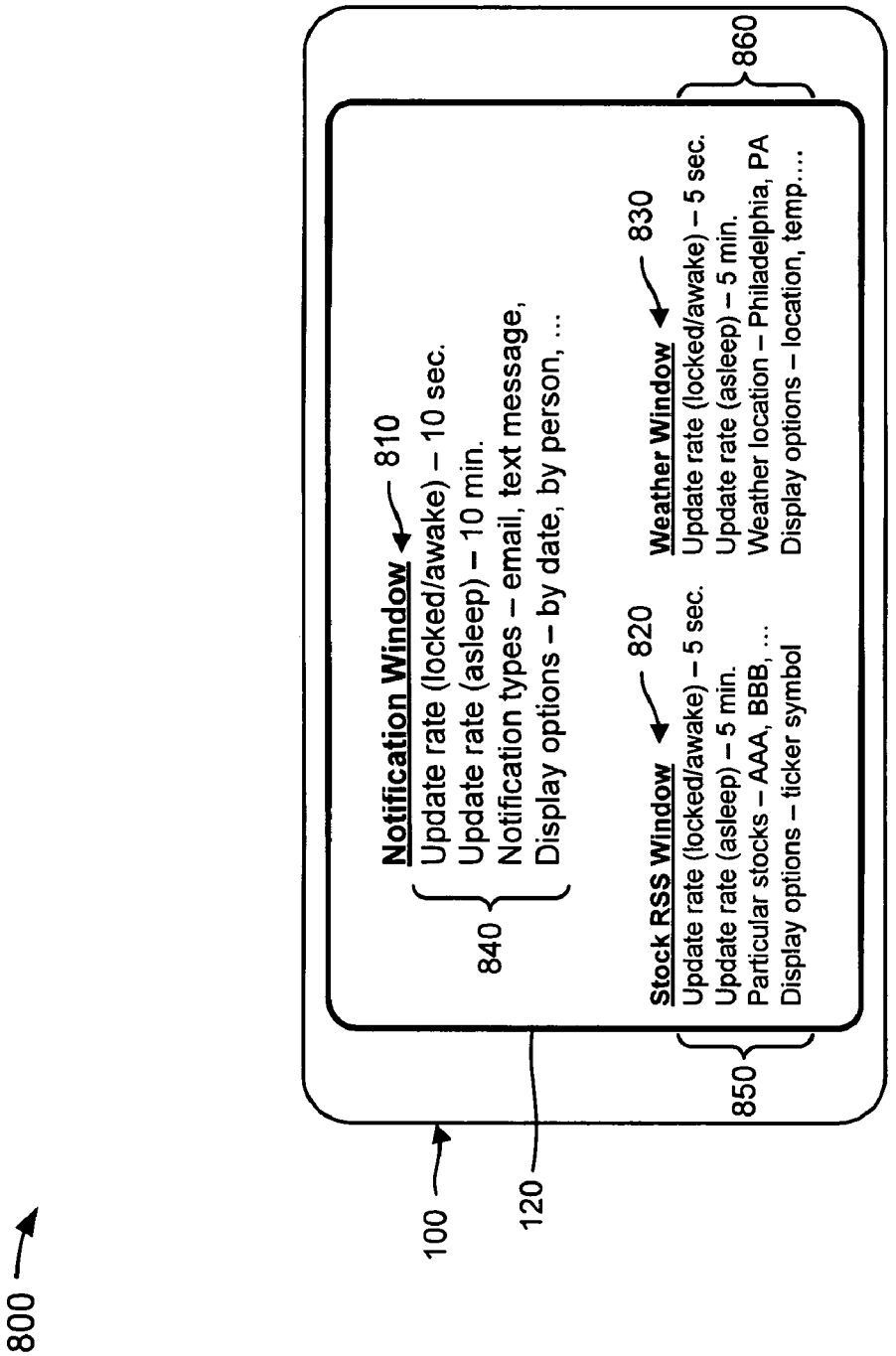

800
100
120
Notification Window
810
Update rate (locked/awake) – 10 sec.
Update rate (asleep) – 10 min.
Notification types – email, text message,
Display options – by date, by person, ...
840
Stock RSS Window
820
Update rate (locked/awake) – 5 sec.
Update rate (asleep) – 5 min.
Particular stocks – AAA, BBB, ...
Display options – ticker symbol
850
Weather Window
830
Update rate (locked/awake) – 5 sec.
Update rate (asleep) – 5 min.
Weather location – Philadelphia, PA
Display options – location, temp....
860

FIG. 9

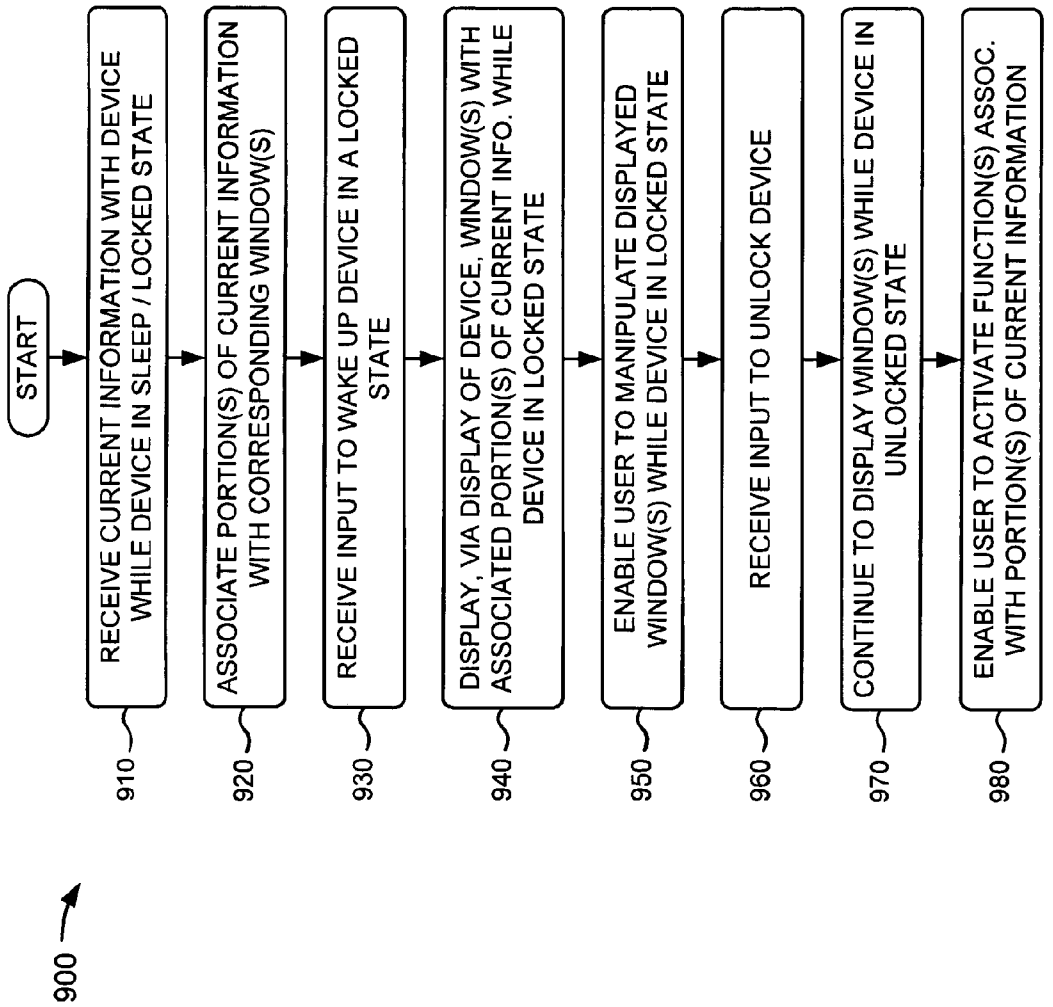

900
START
910
RECEIVE CURRENT INFORMATION WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
920
ASSOCIATE PORTION(S) OF CURRENT INFORMATION WITH CORRESPONDING WINDOW(S)
930
RECEIVE INPUT TO WAKE UP DEVICE IN A LOCKED STATE
940
DISPLAY, VIA DISPLAY OF DEVICE, WINDOW(S) WITH ASSOCIATED PORTION(S) OF CURRENT INFO. WHILE DEVICE IN LOCKED STATE
950
ENABLE USER TO MANIPULATE DISPLAYED WINDOW(S) WHILE DEVICE IN LOCKED STATE
960
RECEIVE INPUT TO UNLOCK DEVICE
970
CONTINUE TO DISPLAY WINDOW(S) WHILE DEVICE IN UNLOCKED STATE
980
ENABLE USER TO ACTIVATE FUNCTION(S) ASSOC. WITH PORTION(S) OF CURRENT INFORMATION

FIG. 10

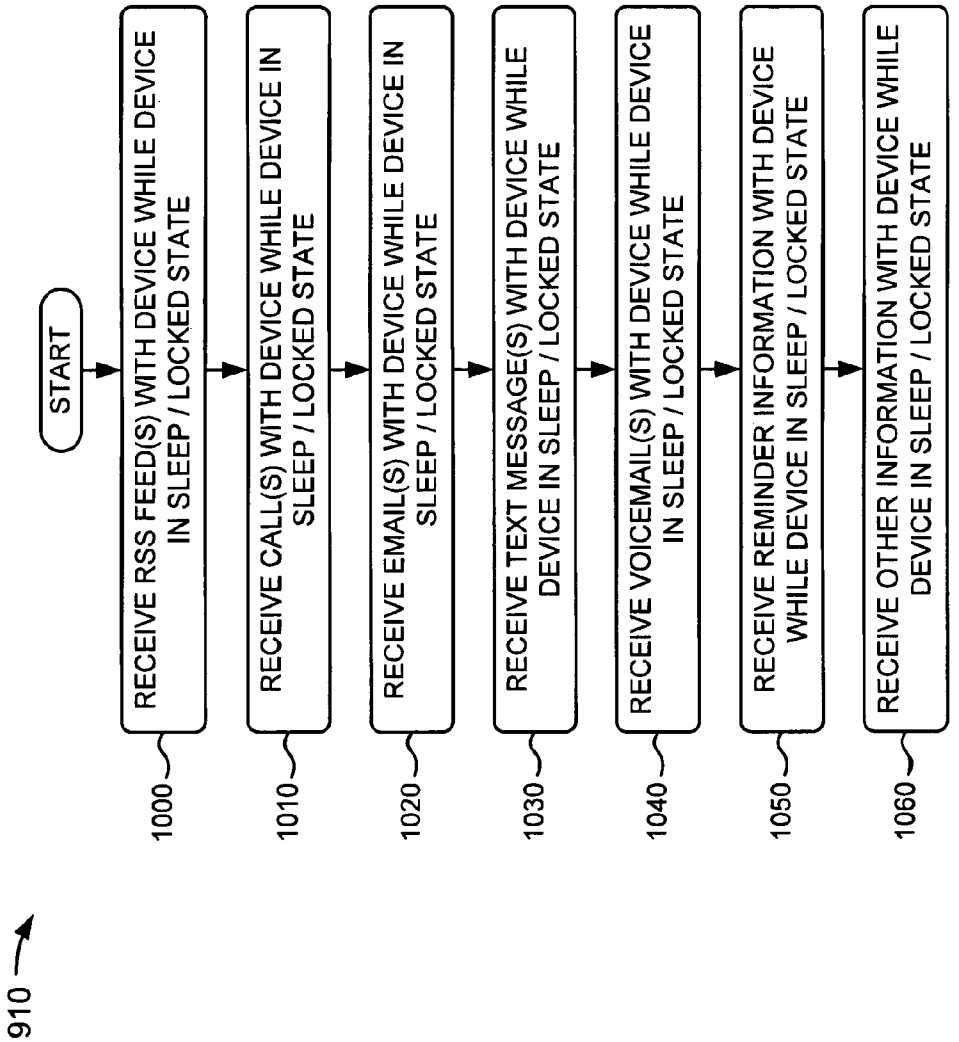

START
RECEIVE RSS FEED(S) WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE CALL(S) WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE EMAIL(S) WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE TEXT MESSAGE(S) WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE VOICEMAIL(S) WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE REMINDER INFORMATION WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
RECEIVE OTHER INFORMATION WITH DEVICE WHILE DEVICE IN SLEEP / LOCKED STATE
1000
1010
1020
1030
1040
1050
1060
910

FIG. 11

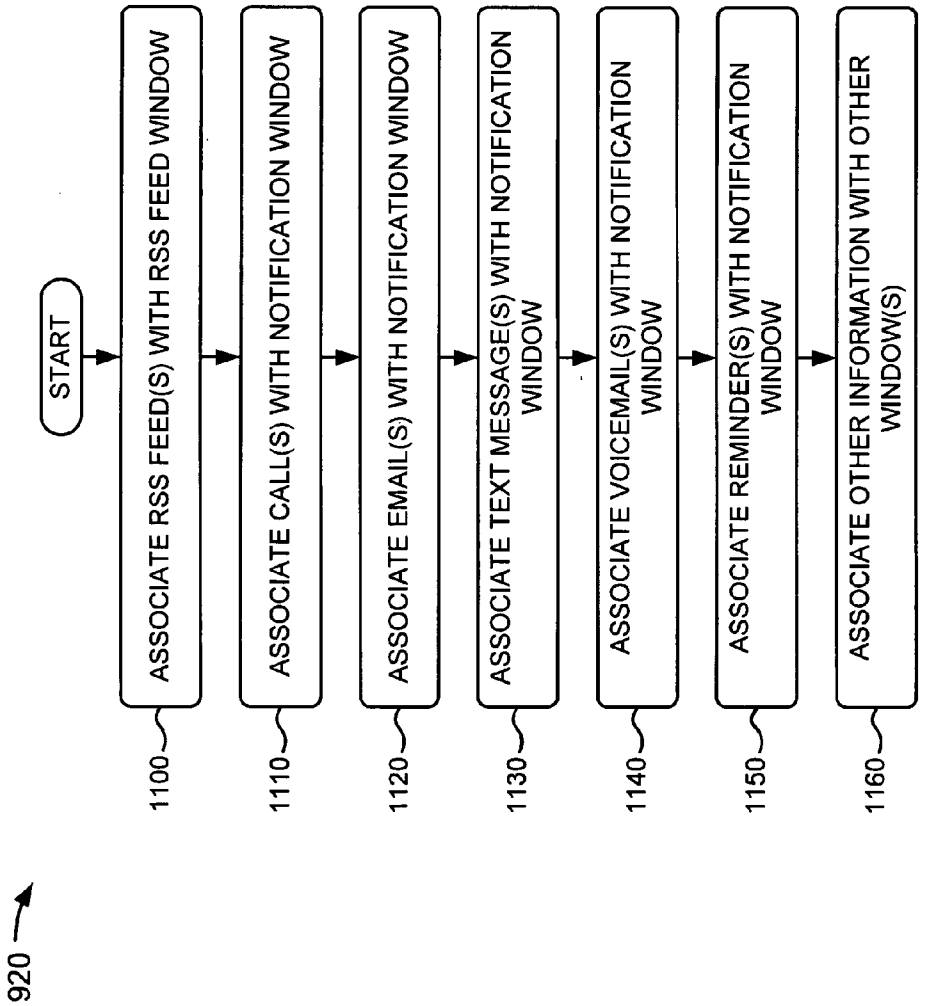

920
START
ASSOCIATE RSS FEED(S) WITH RSS FEED WINDOW
1100
ASSOCIATE CALL(S) WITH NOTIFICATION WINDOW
1110
ASSOCIATE EMAIL(S) WITH NOTIFICATION WINDOW
1120
ASSOCIATE TEXT MESSAGE(S) WITH NOTIFICATION WINDOW
1130
ASSOCIATE VOICEMAIL(S) WITH NOTIFICATION WINDOW
1140
ASSOCIATE REMINDER(S) WITH NOTIFICATION WINDOW
1150
ASSOCIATE OTHER INFORMATION WITH OTHER WINDOW(S)
1160

FIG. 12

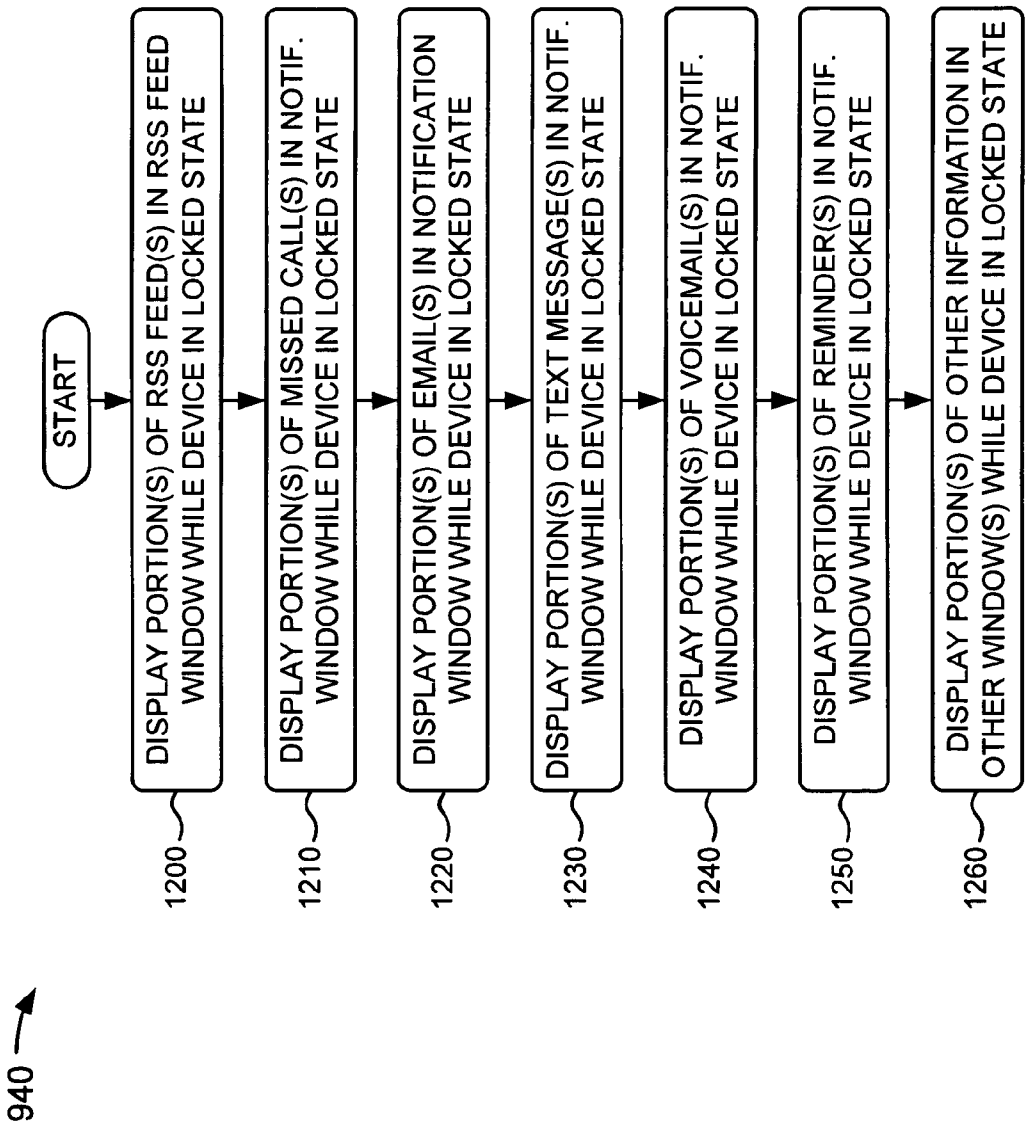

940
START
DISPLAY PORTION(S) OF RSS FEED(S) IN RSS FEED WINDOW WHILE DEVICE IN LOCKED STATE
1200
DISPLAY PORTION(S) OF MISSED CALL(S) IN NOTIF. WINDOW WHILE DEVICE IN LOCKED STATE
1210
DISPLAY PORTION(S) OF EMAIL(S) IN NOTIFICATION WINDOW WHILE DEVICE IN LOCKED STATE
1220
DISPLAY PORTION(S) OF TEXT MESSAGE(S) IN NOTIF. WINDOW WHILE DEVICE IN LOCKED STATE
1230
DISPLAY PORTION(S) OF VOICEMAIL(S) IN NOTIF. WINDOW WHILE DEVICE IN LOCKED STATE
1240
DISPLAY PORTION(S) OF REMINDER(S) IN NOTIF. WINDOW WHILE DEVICE IN LOCKED STATE
1250
DISPLAY PORTION(S) OF OTHER INFORMATION IN OTHER WINDOW(S) WHILE DEVICE IN LOCKED STATE
1260

FIG. 13

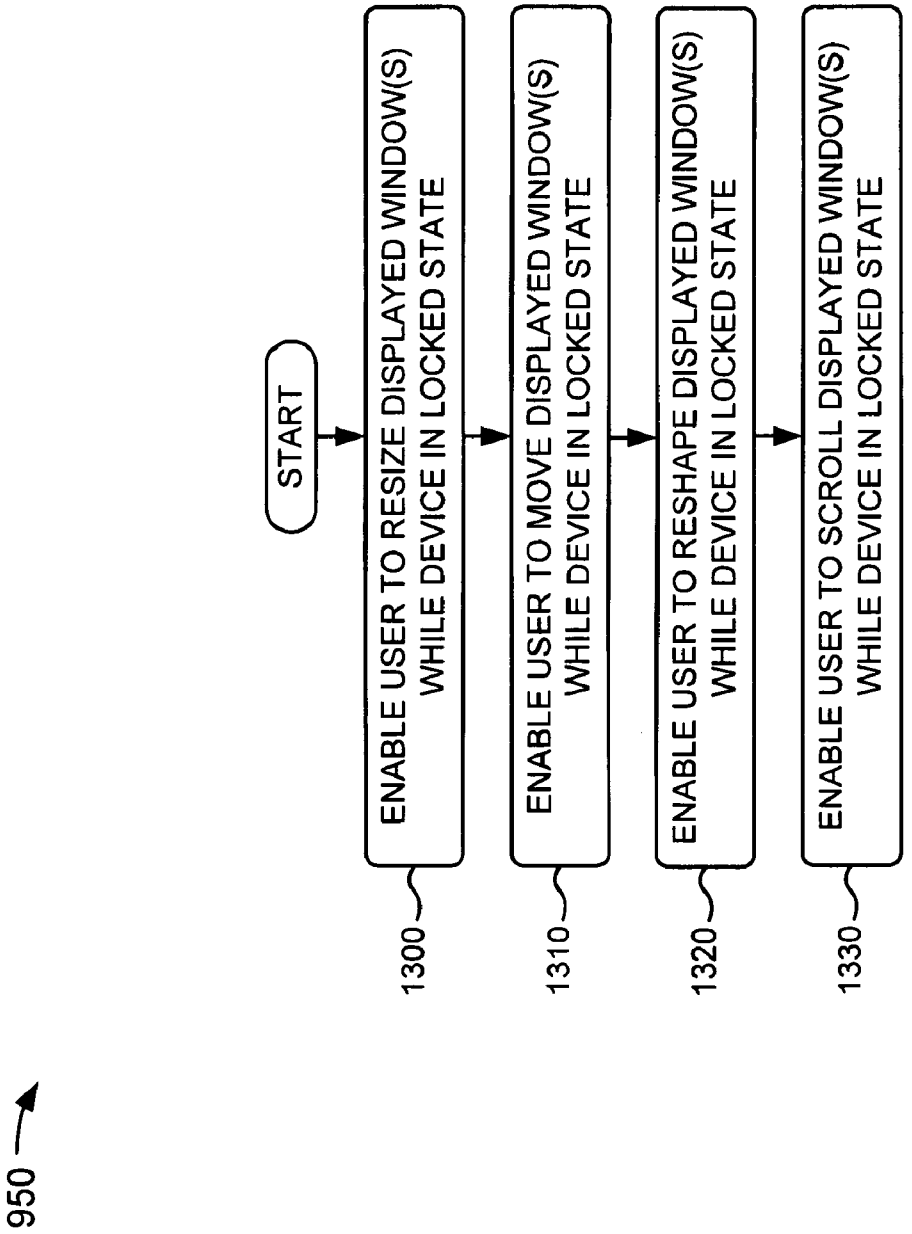
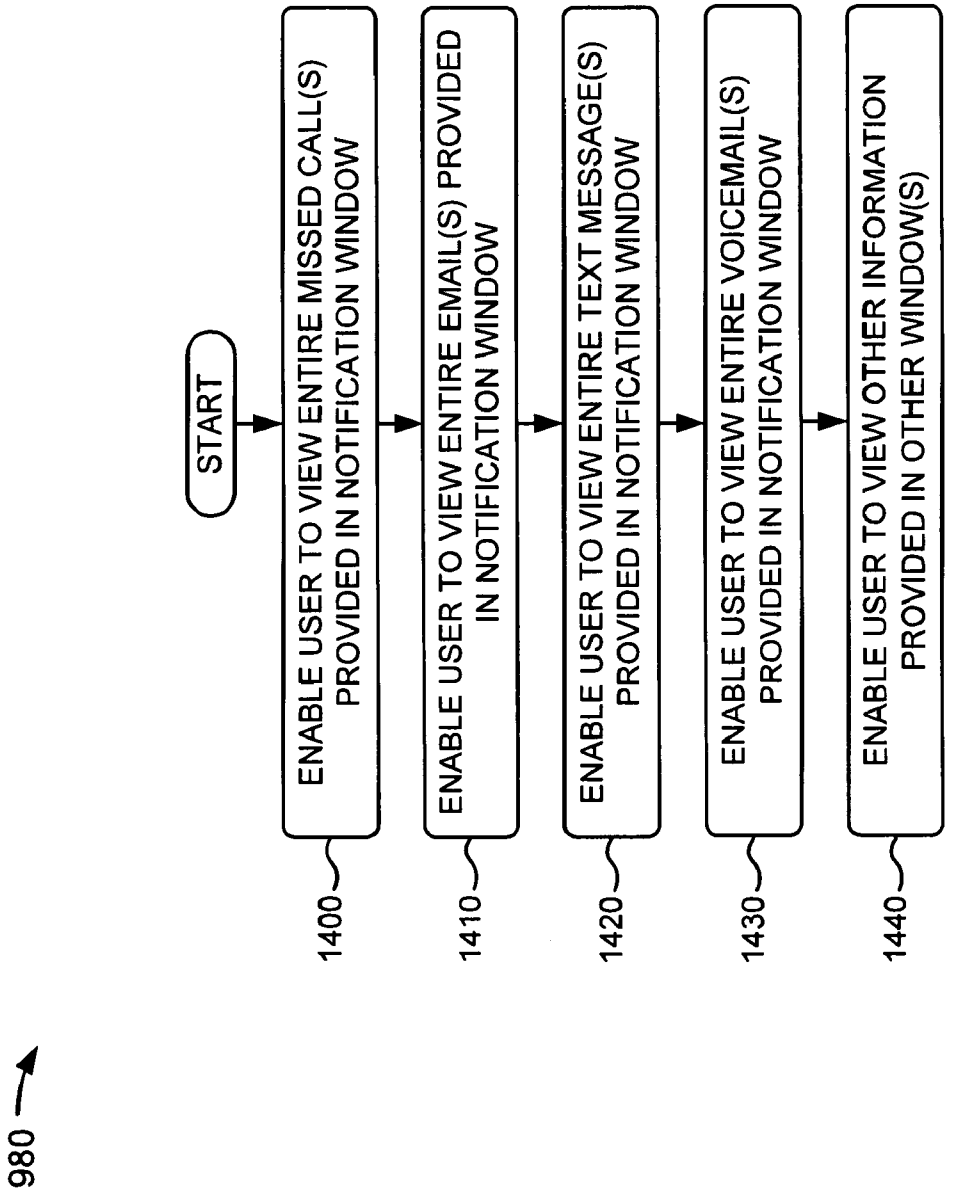

START
ENABLE USER TO RESIZE DISPLAYED WINDOW(S) WHILE DEVICE IN LOCKED STATE
1300
ENABLE USER TO MOVE DISPLAYED WINDOW(S) WHILE DEVICE IN LOCKED STATE
1310
ENABLE USER TO RESHAPE DISPLAYED WINDOW(S) WHILE DEVICE IN LOCKED STATE
1320
ENABLE USER TO SCROLL DISPLAYED WINDOW(S) WHILE DEVICE IN LOCKED STATE
1330
950

FIG. 14


980
START
ENABLE USER TO VIEW ENTIRE MISSED CALL(S) PROVIDED IN NOTIFICATION WINDOW
1400
ENABLE USER TO VIEW ENTIRE EMAIL(S) PROVIDED IN NOTIFICATION WINDOW
1410
ENABLE USER TO VIEW ENTIRE TEXT MESSAGE(S) PROVIDED IN NOTIFICATION WINDOW
1420
ENABLE USER TO VIEW ENTIRE VOICEMAIL(S) PROVIDED IN NOTIFICATION WINDOW
1430
ENABLE USER TO VIEW OTHER INFORMATION PROVIDED IN OTHER WINDOW(S)
1440

INTERACTIVE LOCKED STATE MOBILE COMMUNICATION DEVICE

BACKGROUND

Devices, such as mobile communication devices (e.g., cell phones, personal digital assistants (PDAs), etc.), include touch sensitive input devices (e.g., touch sensitive interfaces or displays, touch screens, etc.). Touch screens are usually formed with either a resistive or capacitive film layer, located above a display, which is used to sense a touch of the user's finger or a stylus. Some touch screens enable the user to input information (e.g., text, numbers, etc.) via interaction with information displayed on the touch screen. Mobile communication devices can be placed in a locked state (e.g., when not in use) to prevent their inadvertent use, or in a sleep state (or mode) to conserve energy.

However, such mobile communication devices do not permit the user to interact with the touch screen when the mobile communication device is in a locked state. In the locked state, the touch screen is also unable to display current information (e.g., missed calls, recently received text messages, recently received emails, etc.) received by the mobile communication device during the sleep state. Furthermore, when the touch screen is unlocked, the touch screen typically displays the last application used by the mobile communication device.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** depicts a diagram of an exemplary device in which systems and/or methods described herein may be implemented;

FIG. **2** illustrates a diagram of exemplary components of the device depicted in FIG. **1**;

FIG. **3** depicts a diagram of exemplary components of a display (e.g., a touch screen) of the device illustrated in FIG. **1**;

FIG. **4** illustrates a diagram of exemplary current information capable of being received by the device depicted in FIG. **1**, when the device is in a sleep and/or locked state;

FIGS. **5**A and **5**B depict diagrams of exemplary interactive touch screen operations capable of being performed by the device illustrated in FIG. **1**, when the device is awake and in a locked state;

FIGS. **6**A and **6**B illustrate diagrams of exemplary interactive touch screen operations capable of being performed by the device depicted in FIG. **1**, when the device is awake and in an unlocked state;

FIGS. **7**A and **7**B depict diagrams of exemplary download operations capable of being performed by the device illustrated in FIG. **1**;

FIG. **8** illustrates a diagram of exemplary configuration options associated with the touch screen of the device depicted in FIG. **1**; and

FIGS. **9**-**14** depict flow charts of an exemplary process for interacting with a touch screen of a device in locked and unlocked states according to implementations described herein.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The following detailed description refers to the accompanying drawings. The same reference numbers in different drawings may identify the same or similar elements. Also, the following detailed description does not limit the invention.

Systems and/or methods described herein may enable a user to interact with a touch screen of a mobile communication device (e.g., a cell phone, a PDA, etc.) and to view current information when the mobile communication device is in a locked state. In one implementation, for example, the systems and/or methods may receive current information with a device, while the device is in a sleep (or locked) state, may associate one or more portions of the current information with one or more corresponding windows, and may receive an input to wake up the device in a locked state. The systems and/or methods may display, via a device display, the window (s) with the associated portion(s) of the current information while the device is in the locked state, may enable a user to manipulate, via the device display, the displayed window(s) while the device is in the locked state, and may receive an input to unlock the device. The systems and/or methods may continue to display the window(s) while the device is in the unlocked state, and may enable the user to activate one or more functions associated with the associated portion(s) of the current information.

As used herein, the term "user" is intended to be broadly interpreted to include a mobile communication device or a user of a mobile communication device. The term "touch screen," as used herein, is intended to be broadly interpreted to include a touch screen display, a touch sensitive input device, a touch sensitive interface, etc. The term "sleep state," as used herein, is intended to be broadly interpreted to include a low power mode for a mobile communication device that prevents having to reset programming codes or wait for the mobile communication device to reboot. The term "locked state," as used herein, is intended to be broadly interpreted to include a state where a mobile communication device is awake (e.g., in a non-sleep state) but functionality associated with the mobile communication device is limited to prevent inadvertent use. The term "unlocked state," as used herein, is intended to be broadly interpreted to include a state where a mobile communication device is awake (e.g., in a non-sleep state) and fully functional.

FIG. **1** is a diagram of an exemplary mobile communication device (hereinafter referred to as "device **100**") in which systems and/or methods described herein may be implemented. Device **100** may include a radiotelephone, a personal communications system (PCS) terminal (e.g., that may combine a cellular radiotelephone with data processing and data communications capabilities), a PDA (e.g., that can include a radiotelephone, a pager, Internet/intranet access, etc.), a portable gaming system, a global positioning system (GPS) device, any other mobile communication device capable of utilizing a touch screen display, a thread or process running on one of these devices, and/or an object executable by one of these devices. As illustrated in FIG. **1**, device **100** may include a housing **110**, a display **120**, a speaker **130**, and/or a microphone **140**.

Housing **110** may protect the components of device **100** from outside elements. Housing **110** may include a structure configured to hold devices and components used in device **100**, and may be formed from a variety of materials. For example, housing **110** may be formed from plastic, metal, or a composite, and may be configured to support display **120**, speaker **130**, and/or microphone **140**.

Display **120** may provide visual information to the user. For example, display **120** may display text input into device **100**, text, images, video, and/or graphics received from another device, and/or information regarding incoming or outgoing calls or text messages, emails, media, games, phone books, address books, the current time, etc. In one implementation, display **120** may include a touch screen display that

may be configured to receive a user input when the user touches display **120**. For example, the user may provide an input to display **120** directly, such as via the user's finger, or via other input objects, such as a stylus. User inputs received via display **120** may be processed by components and/or devices operating in device **100**. The touch screen display may permit the user to interact with device **100** in order to cause device **100** to perform one or more operations. Further details of display **120** are provided below in connection with, for example, FIGS. **2-8**.

Speaker **130** may provide audible information to a user of device **100**. Speaker **130** may be located in an upper portion of device **100**, and may function as an ear piece when a user is engaged in a communication session using device **100**. Speaker **130** may also function as an output device for music and/or audio information associated with games and/or video images played on device **100**.

Microphone **140** may receive audible information from the user. Microphone **140** may include a device that converts speech or other acoustic signals into electrical signals for use by device **100**. Microphone **140** may be located proximate to a lower side of device **100**.

Although FIG. **1** shows exemplary components of device **100**, in other implementations, device **100** may contain fewer, different, differently arranged, or additional components than depicted in FIG. **1**. In still other implementations, one or more components of device **100** may perform one or more other tasks described as being performed by one or more other components of device **100**.

FIG. **2** illustrates a diagram of exemplary components of device **100**. As illustrated, device **100** may include a processor **200**, memory **210**, a user interface **220**, a communication interface **230**, and/or an antenna assembly **240**.

Processor **200** may include one or more microprocessors, application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), or the like. Processor **200** may control operation of device **100** and its components. In one implementation, processor **200** may control operation of components of device **100** in a manner described herein.

Memory **210** may include a random access memory (RAM), a read-only memory (ROM), and/or another type of memory to store data and instructions that may be used by processor **200**.

User interface **220** may include mechanisms for inputting information to device **100** and/or for outputting information from device **100**. Examples of input and output mechanisms might include buttons (e.g., control buttons, keys of a keypad, a joystick, etc.) or a touch screen interface (e.g., display **120**) to permit data and control commands to be input into device **100**; a speaker (e.g., speaker **130**) to receive electrical signals and output audio signals; a microphone (e.g., microphone **140**) to receive audio signals and output electrical signals; a display (e.g., display **120**) to output visual information (e.g., text input into device **100**); a vibrator to cause device **100** to vibrate; etc.

Communication interface **230** may include, for example, a transmitter that may convert baseband signals from processor **200** to radio frequency (RF) signals and/or a receiver that may convert RF signals to baseband signals. Alternatively, communication interface **230** may include a transceiver to perform functions of both a transmitter and a receiver. Communication interface **230** may connect to antenna assembly **240** for transmission and/or reception of the RF signals.

Antenna assembly **240** may include one or more antennas to transmit and/or receive RF signals over the air. Antenna assembly **240** may, for example, receive RF signals from communication interface **230** and transmit them over the air, and receive RF signals over the air and provide them to communication interface **230**. In one implementation, for example, communication interface **230** may communicate with a network and/or devices connected to a network.

As will be described in detail below, device **100** may perform certain operations described herein in response to processor **200** executing software instructions of an application contained in a computer-readable medium, such as memory **210**. A computer-readable medium may be defined as a physical or logical memory device. A logical memory device may include memory space within a single physical memory device or spread across multiple physical memory devices. The software instructions may be read into memory **210** from another computer-readable medium or from another device via communication interface **230**. The software instructions contained in memory **210** may cause processor **200** to perform processes described herein. Alternatively, hardwired circuitry may be used in place of or in combination with software instructions to implement processes described herein. Thus, implementations described herein are not limited to any specific combination of hardware circuitry and software.

Although FIG. **2** shows exemplary components of device **100**, in other implementations, device **100** may contain fewer, different, differently arranged, or additional components than depicted in FIG. **2**. In still other implementations, one or more components of device **100** may perform one or more other tasks described as being performed by one or more other components of device **100**.

FIG. **3** depicts a diagram of exemplary components of display **120** of device **100**. As shown, display **120** may include a light source **300**, a screen **310**, and/or a sensing layer **320**.

Light source **300** may include a mechanism (e.g., a backlight) that provides backlighting to a lower surface of screen **310** in order to display information. For example, light source **300** may include one or more incandescent light bulbs, one or more light-emitting diodes (LEDs), an electroluminescent panel (ELP), one or more cold cathode fluorescent lamps (CCFL), one or more hot cathode fluorescent lamps (HCFL), etc. that illuminate portions of screen **310**. Incandescent light bulbs may be used when very high brightness is desired. LEDs may be used in small, inexpensive lighting arrangements, and may include colored or white light. An ELP may be used for larger lighting arrangements or when even lighting is desired, and may be either colored or white. CCFLs may be used in large lighting arrangements and may be white in color. In another example, light source **300** may employ one or more diffusers or light guides to provide even lighting from an uneven source. In still another example, light source **300** can include any color light source (e.g., yellow, green, blue, white, etc.) or any combination of colored/non-colored light sources. The light provided by light source **300** may also be used to provide front lighting to an upper surface of screen **310** that faces a user.

Screen **310** may include any mechanism capable of providing visual information (e.g., text, images, video, incoming or outgoing calls, games, phone books, the current time, emails, etc.) to a user. For example, screen **310** may include a liquid crystal display (LCD), such as a thin film transistor (TFT) LCD, etc. In one exemplary implementation, screen **310** may include a plastic substrate that arranges TFT on a metal foil (rather than on glass), which may permit screen **310** to recover its original shape after being bent. Screen **310** may include a color filter coated onto the plastic substrate, which may permit screen **310** to display color images. In other implementations, screen **310** may include a monochrome LCD.

In one implementation, screen **310** may include any number of color and/or monochrome pixels. In another implementation, screen **310** may include a passive-matrix structure or an active-matrix structure. In a further implementation, if screen **310** is a color array, each pixel may be divided into three cells, or subpixels, which may be colored red, green, and blue by additional filters (e.g., pigment filters, dye filters, metal oxide filters, etc.). Each subpixel may be controlled independently to yield numerous possible colors for each pixel. In other implementations, each pixel of screen **310** may include more or less than three subpixels of various colors other than red, green, and blue.

Sensing layer **320** may include a mechanism that detects the presence of an input object **330** (e.g., a user's finger, a stylus, etc.) on display **120**, detects the location (or touch area) of input object **330** on display **120**, determines how many fingers a user has on display **120**, etc. For example, sensing layer **320** may include a layer of capacitive material (e.g., provided under a protective covering (not shown)) that may experience a change in electrical charges (e.g., a change in the amount of charge stored) when finger **330** contacts sensing layer **320**. In one exemplary implementation, sensing layer **320** may include self capacitance circuitry that includes an array of electrodes and monitors changes in the array of electrodes when a user contacts sensing layer **320** (e.g., with finger **330**). In another exemplary implementation, sensing layer **320** may include a layer of driving lines that carry current, and a separate layer of sensing lines that detect changes in electrical charge when a user contacts sensing layer **320**.

Sensing layer **320** may sense a change associated with its electrical properties every time a user contacts sensing layer **320**, and may provide this information to processor **200** and/or memory **210**. Processor **200** may utilize this information to determine a shape, a size, and/or a location of a user's finger (or fingers) on display **120**.

Although FIG. **3** shows exemplary components of display **120**, in other implementations, display **120** may contain fewer, different, differently arranged, or additional components than depicted in FIG. **3**. In still other implementations, one or more components of display **120** may perform one or more other tasks described as being performed by one or more other components of display **120**.

FIG. **4** illustrates a diagram of exemplary current information **400** capable of being received by device **100** when device **100** is in a sleep state and/or a locked state. In one implementation, current information **400** may be received via communication interface **230** and antenna assembly **240**, may be stored in memory **210**, and/or may be displayed via display **120**. Display **120** may include the features described above in connection with FIGS. **1** and **3**. As further shown in FIG. **4**, current information **400** may include Really Simple Syndication (RSS) feeds **410**, calls **420**, emails **430**, text messages **440**, voicemails **450**, weather information **460**, time/date information **470**, etc.

RSS feeds **410** may include one or more feeds for frequently updated content, such as news, stocks, blog entries, news headlines, audio, video etc. RSS feeds **410** may include full or summarized text, metadata (e.g., publishing dates and authorship), and other information. RSS feeds **410** may be received using software such as an RSS reader, a feed reader, or an aggregator. A user of device **100** may subscribe to RSS feeds **410** by entering uniform resource locators (URLs) associated with RSS feeds **410** into the RSS reader. The RSS reader may check the user's subscribed to RSS feeds **410** regularly for new content, and may download any updates (e.g., to device **100**).

Calls **420** may include one or more telephone calls received by device **100** when device **100** is in the sleep and/or locked states. For example, calls **420** may include calls received from other mobile communication devices, PDAs, voice-over-Internet protocol (VoIP) devices, standard telephones, etc.

Emails **430** may include one or more emails received by device **100** when device **100** is in the sleep and/or locked states. For example, emails **430** may include emails received from other mobile communication devices, PDAs, VoIP devices, laptop computers, personal computers, etc.

Text messages **440** may include one or more text (or Short Message Service (SMS)) messages received by device **100** when device **100** is in the sleep and/or locked states. For example, text messages **440** may include text messages received from other mobile communication devices, PDAs, VoIP devices, laptop computers, personal computers, etc.

Voicemails **450** may include one or more voicemail messages received by device **100** when device **100** is in the sleep and/or locked states. For example, voicemails **450** may include voicemail messages received from other mobile communication devices, PDAs, voice-over-Internet protocol (VoIP) devices, standard telephones, etc.

Weather information **460** may include forecasts (e.g., a daily forecast, a weekly forecast, etc.), temperature information (e.g., a high temperature, a low temperature, a current temperature, etc.), and/or other weather-related information for a location associated with device **100** and/or for a user-defined location (e.g., unassociated with device **100**).

Time/date information **470** may include a current time (e.g., 12:00 PM) and/or a current date (e.g., a day of the week (e.g., Monday), a month (e.g., February), a day of the month (e.g., the 15th), etc.) for a location associated with device **100** and/or a user-defined location (e.g., unassociated with device **100**).

Although FIG. **4** shows exemplary current information **400** that may be received by device **100**, in other implementations, device **100** may receive less, different, or additional information than depicted in FIG. **4**. In one exemplary implementation, device **100** may receive current information **400** (or other similar information) when device **100** is in an unlocked state.

FIGS. **5**A and **5**B depict diagrams of exemplary interactive touch screen operations **500** capable of being performed by device **100** when device **100** is awake (e.g., in a non-sleep state) and in a locked state. In one implementation, the operations described in connection with FIGS. **5**A and **5**B may be performed by processor **200** (FIG. **2**). As shown in FIGS. **5**A and **5**B, device **100** may include display **120**. Display **120** may include the features described above in connection with FIGS. **1** and **3**. As further shown in FIG. **5**A, display **120** may display a stock RSS window **505**, a time/date window **510**, a weather window **515**, and/or a notification window **520**.

A "window," as used herein, is intended to be broadly interpreted to include any display mechanism (e.g., a window, a menu, etc.) capable of being displayed by display **120** and of displaying current (or live) information (e.g., current information **400**) received by device **100** when device **100** is in the locked state. For example, a window may include an enclosed area on a display screen (e.g., display **120**) that may display information and/or may permit execution of an application (e.g., by device **100**). The number of windows provided by display **120**, the types of windows (e.g., weather, notification, etc.), the types of information provided in windows (e.g., weather information for particular city, certain stocks, etc.), the arrangement of windows on display **120**, etc. may be

configured by a user of device **100**. Further details of configuring windows are provided below in connection with, for example, FIG. **8**.

In one exemplary implementation, device **100** may receive current information **400** (e.g., RSS feeds **410**, calls **420**, emails **430**, text messages **440**, voicemails **450**, weather information **460**, time/date information **470**, etc.) when device **100** is in a sleep/locked state, and may associate current information **400** with one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**. For example, device **100** may associate RSS feeds **410** with stock RSS window **505**, may associate calls **420**, emails **430**, text messages **440**, and voicemails **450** with notification window **520**, may associate weather information **460** with weather window **515**, and may associate time/date information **470** with time/date window **510**.

If a user provides an input to wake up device **100** (e.g., via selecting a portion of display **120**), device **100** may receive the input and may wake up (e.g., may illuminate display **120**) in a locked state. Device **100** may display (e.g., via display **120** and while still in a locked state) one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as any associated current information **400**. For example, device **100** may display portions of RSS feeds **410** in stock RSS window **505**, may display portions of calls **420**, emails **430**, text messages **440**, and voicemails **450** in notification window **520**, may display portions of weather information **460** in weather window **515**, and may display portions of time/date information **470** time/date window **510**.

Stock RSS window **505** may include a window that displays current stock information (e.g., as configured by a user of device **100**) received via RSS feeds (e.g., RSS feeds **410**). For example, the user may configure device **100** to include stock information for five companies (e.g., companies associated with ticker symbols "AAA," "BBB," "CCC," "DDD," and "EEE") in stock RSS window **505**. Device **100** may receive current stock information (e.g., via RSS feeds **410**) associated with the five companies (e.g., current gains and/or losses associated with the five companies' stocks), may associate the current stock information with stock RSS window **505**, and may display the current stock information in stock RSS window **505** (e.g., while device **100** is in a locked state).

Time/date window **510** may include a window that displays current time and/or date information (e.g., as configured by the user) received via time/date information **470**. For example, the user may configure device **100** to include a current time (e.g., "12:20 PM") and date (e.g., "Mon. February 15"), of a geographic location associated with device **100**, in time/date window **510**. Device **100** may receive the current time and date (e.g., via time/date information **470**), may associate the current time and date with time/date window **510**, and may display the current time and date in time/date window **510** (e.g., while device **100** is in a locked state).

Weather window **515** may include a window that displays current weather information (e.g., as configured by the user) received via weather information **460**. For example, the user may configure device **100** to include current weather information (e.g., a high temperature—"85°", a low temperature—"65°", a current temperature—"79°", current conditions—sunny, etc.) for a location (e.g., "Philadelphia") in weather window **515**. Device **100** may receive the current weather information (e.g., via weather information **460**) for Philadelphia, may associate the current weather information with weather window **515**, and may display the current weather information in weather window **515** (e.g., while device **100** is in a locked state).

Notification window **520** may include a window that displays current notification information (e.g., as configured by the user) received from a variety of sources (e.g., via calls **420**, emails **430**, text messages **440**, voicemails **450**, etc.). For example, as shown in FIG. **5**A, the user may configure device to include a text message **525**, a missed call **530**, a voicemail **535**, an email **540**, and a reminder **545** in notification window **520**. Although FIG. **5**A shows only a single text message **525**, missed call **530**, voicemail **535**, email **540**, and reminder **545** in notification window **520**, in other implementations, notification window **520** may include more text messages **525**, missed calls **530**, voicemails **535**, emails **540**, and/or reminders **545**. Device **100** may receive text message **525**, missed call **530**, voicemail **535**, email **540**, and reminder **545** (e.g., via calls **420**, emails **430**, text messages **440**, voicemails **450**, etc.), may associate text message **525**, missed call **530**, voicemail **535**, email **540**, and reminder **545** with notification window **545**, and may display text message **525**, missed call **530**, voicemail **535**, email **540**, and reminder **545** in notification window **520** (e.g., while device **100** is in a locked state). In exemplary implementations, device **100** may arrange notification information displayed in notification window **520** based on time received (e.g., as shown in FIG. **5**A), alphabetically based on names associated with the notification information, based on the type of notification (e.g., text messages first, followed by emails, etc.), etc.

Text message **525** may include an image associated with an originator of the text message, a name (e.g., "Amy") of the originator of the text message, a time (e.g., "11:55 AM") when the text message was received by device **100**, an icon symbolizing a text message, etc. In one exemplary implementation, although not shown in FIG. **5**A, text message **525** may include some or all of a message contained in text message **525**.

Missed call **530** may include an image associated with an originator of the missed call, a name (e.g., "Kevin") of the originator of the missed call, a time (e.g., "10:29 AM") when the missed call was received by device **100**, an icon symbolizing a missed call, etc. In one exemplary implementation, although not shown in FIG. **5**A, missed call **530** may include some or all of the call information (e.g., a phone number as associated with Kevin, etc.) associated with missed call **530**.

Voicemail **535** may include an image associated with an originator of the voicemail, a name (e.g., "Michelle") of the originator of the voicemail, a time (e.g., "Yesterday") when the voicemail was received by device **100**, an icon symbolizing a voicemail, etc. In one exemplary implementation, although not shown in FIG. **5**A, voicemail **535** may include some or all of the call information (e.g., a phone number as associated with Michelle, a duration of the voicemail, etc.) associated with voicemail **535**.

Email **540** may include an image associated with an originator of the email, a name (e.g., "Tim") of the originator of the email, a time (e.g., "Yesterday") when the email was received by device **100**, an icon symbolizing an email, etc. In one exemplary implementation, although not shown in FIG. **5**A, email **540** may include some or all of a message contained in email **540**.

Reminder **545** may include an image associated with an originator of the reminder, a name (e.g., "John") of the originator of the reminder, a time (e.g., "Last Saturday") when the reminder was received by device **100**, an icon symbolizing a reminder, etc. In one exemplary implementation, although not shown in FIG. **5**A, reminder **545** may include some or all of the details (e.g., an anniversary, a birthday, etc.) associated with reminder **545**. In another exemplary implementation,

reminder **545** may be provided to device **100** by the user of device **100** (e.g., rather than received from another user).

As further shown in FIG. **5**A, display **120** may provide a lock/unlock mechanism **550** that includes a locked position **555** and an image **560** (e.g., a locked padlock) indicating that device **100** is in a locked state. Lock/unlock mechanism **550** may include a touch screen-based mechanism that requires the user to slide his/her finger (or a stylus) from locked position **555** (e.g., in the bottom left corner of display **120**), along an arc, to the bottom right corner of display **120** (e.g., the unlocked position, as shown in FIGS. **6**A-**7**B).

As shown in FIG. **5**B, device **100** may enable a user (e.g., via input object **330**, such as the user's finger) to manipulate one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as information (e.g., entries) provided in windows **505**-**520** when device **100** is still in a locked state. In one exemplary implementation, device **100** may enable a user (e.g., via input object **330**) to resize, reshape, move, zoom, expand, scroll, etc. one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520** when device **100** is in a locked state. In other implementations, device **100** may enable a user (e.g., via input object **330**) to resize, reshape, move, zoom, expand, scroll, etc. one or more entries associated with windows **505**-**520** when device **100** is in a locked state.

For example, as shown in FIG. **5**B, a user (e.g., via input object **330**) may wish to manipulate an entry, as indicated by reference number **565**, provided in notification window **520** when device **100** is in a locked state. The user may touch (e.g., with input object **330**) display **120** where manipulated entry **565** is located, and may slide input object **330** downward to cause display **120** to further reveal additional entries **570** and **575** associated with manipulated entry **565** (e.g., additional entries provided by Kevin). As further shown in FIG. **5**B, additional entry **570** may include a text message provided by Kevin on Monday at 2:23 PM, and additional entry **575** may include a reminder provided by Kevin on Tuesday at 9:41 PM. If more additional entries are associated with manipulated entry **565**, device **100** may enable the user to scroll through the additional entries via manipulation of display **120**.

Although FIGS. **5**A and **5**B show exemplary interactive touch screen operations **500** associated with device **100**, when device **100** is awake and in a locked state, in other implementations, device **100** may perform fewer, different, or additional operations than depicted in FIGS. **5**A and **5**B.

FIGS. **6**A and **6**B illustrate diagrams of exemplary interactive touch screen operations **600** capable of being performed by device **100** when device **100** is awake and in an unlocked state. In one implementation, the operations described in connection with FIGS. **6**A and **6**B may be performed by processor **200** (FIG. **2**). As shown in FIGS. **6**A and **6**B, device **100** may include display **120**. Display **120** may include the features described above in connection with FIGS. **1** and **3**. As further shown in FIG. **6**A, device **100** may be in an unlocked state due to the user manipulating lock/unlock mechanism **550** and moving lock/unlock mechanism **550** to an unlocked position **610**. Lock/unlock mechanism **550** may display an image **620** (e.g., an unlocked padlock) indicating that device **100** is in an unlocked state.

Unlike some touch screen devices, which return a user to a last-used application when the user unlocks the device, device **100** may continue to display the interface provided by display **120** when device **100** was in a locked state. For example, as shown in FIG. **6**A, display **120** may provide the same interface as shown in FIG. **5**B (e.g., including stock RSS window **505**, time/date window **510**, weather window **515**, and notification window **520** (e.g., in its manipulated state)), when device **100** was in a locked state. If device **100** is in an unlocked state, the user may manipulate (e.g., resize, move, etc.) display **120** in the manner described above in connection with FIG. **5**B. However, once device **100** is in an unlocked state, user manipulation of display **120** may activate functions associated with the information provided by display **120**. For example, if the user selects (e.g., via input object **330**) an entry **630** (e.g., missed call **530** received from Kevin), device **100** may activate the functions associated with entry **630** (e.g., device **100** may display all information associated with entry **630**).

As shown in FIG. **6**B, activation of the functions associated with entry **630** may cause device **100** to display (e.g., via display **120**) missed call information **640**, a first selection mechanism **650**, and a second selection mechanism **660**.

Missed call information **640** may include information associated with missed call **530** received from Kevin. For example, missed call information **640** may include identification information (e.g., "Missed call from Kevin"), a time associated with missed call **530** (e.g., "10:29 AM"), a date associated with missed call **530** (e.g., "Mon. February 15"), a phone number associated with Kevin (e.g., "(888) 888-7777").

First selection mechanism **650** may include a button, an icon, a link, and/or other similar selection mechanisms (e.g., a "Call Kevin" button) that, when selected, instructs device **100** to call Kevin (e.g., at "(888) 888-7777"). Second selection mechanism **660** may include a button, an icon, a link, and/or other similar selection mechanisms (e.g., a "Return Home" button) that, when selected, instructs device **100** to return to the interface depicted in, for example, FIG. **6**A. In such an arrangement, device **100** may enable the user to quickly and easily connect with people who recently communicated with device **100** (e.g., via a call, a text message, etc.).

Although FIGS. **6**A and **6**B show exemplary interactive touch screen operations **600** associated with device **100**, when device **100** is awake and in a locked state, in other implementations, device **100** may perform fewer, different, or additional operations than depicted in FIGS. **6**A and **6**B.

FIGS. **7**A and **7**B depict diagrams of exemplary download operations **700** capable of being performed by device **100**. In one implementation, the operations described in connection with FIGS. **7**A and **7**B may be performed by processor **200** (FIG. **2**). As shown in FIGS. **7**A and **7**B, device **100** may include display **120**. Display **120** may include the features described above in connection with FIGS. **1** and **3**. As further shown in FIGS. **7**A and **7**B, device **100** may be in an unlocked state as indicated by image **620** (e.g., an unlocked padlock).

As described above, a user may configure the number of windows provided by display **120**, the types of windows (e.g., weather, notification, etc.), the types of information provided in windows (e.g., weather information for particular city, certain stocks, etc.), the arrangement of windows on display **120**, etc. Furthermore, the user may download one or more additional windows to be provided by display **120**. In such an arrangement, device **100** may connect with a service (e.g., a server) associated with a provider of windows (e.g., a service that enables the user to browse, select, download, etc. a variety of windows offered by the provider). As shown in FIG. **6**A, if the user wishes to download one or more additional windows, the user may select a download option (e.g., via a menu, an icon, etc.) provided by device **100** and device **100** may provide (e.g., via display **120**) download information **710**, a first selection mechanism **720**, and a second selection mechanism **730**.

Download information **710** may ask a user whether the user wants device **100** to download a window (e.g., for a news RSS feed) for display via display **120**. In other implementations, download information **710** may ask the user whether the user wants device **100** to download one or more other windows for display via display **120**.

First selection mechanism **720** may include a button, an icon, a link, and/or other similar selection mechanisms (e.g., a "Yes" button) that, when selected, instructs device **100** to download the window for the news RSS feed. Second selection mechanism **730** may include a button, an icon, a link, and/or other similar selection mechanisms (e.g., a "No" button) that, when selected, instructs device **100** to not download the window for the news RSS feed.

If the user selects the first selection mechanism **720**, device **100** may access the provider's service, may download the window for the RSS news feed, and may store information associated with the window for the RSS news feed (e.g., in memory **210**). In one implementation, device **100** may provide (e.g., via display **120**) a news RSS window **740** (as shown in FIG. **7**B) along with one or more other windows provided by display **120** (e.g., stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**), as shown in FIG. **7**B.

News RSS window **740** may include a window that displays current news information (e.g., as configured by a user of device **100**) received via RSS feeds (e.g., RSS feeds **410**). For example, the user may configure device **100** to include four types of news information (e.g., "Economic News," "World News," "U.S. News," and "Local News") in news RSS window **740**. Device **100** may receive current news information (e.g., via RSS feeds **410**) associated with the four types of news, may associate the current news information with news RSS window **740**, and may display the current news information in news RSS window **740** (e.g., while device **100** is in a locked state). In one implementation, the user may manipulate (e.g., move, resize, etc.) news RSS window **740** in the manner described above in connection with FIG. **5**B (e.g., while device **100** is in a locked state) and/or in the manner described above in connection with FIGS. **6**A and **6**B (e.g., while device **100** is in an unlocked state).

Although FIGS. **7**A and **7**B show exemplary download operations **700** associated with device **100**, in other implementations, device **100** may perform fewer, different, or additional operations than depicted in FIGS. **7**A and **7**B.

FIG. **8** illustrates a diagram of exemplary configuration options **800** associated with the touch screen (e.g., display **120**) of device **100**. Display **120** may include the features described above in connection with FIGS. **1** and **3**. Configuration options **800** may enable a user to configure windows (e.g., stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**) provided by display **120**, and/or to filter information provided in the windows. As shown in FIG. **8**, configuration options **800** may include configuration options **810** for notification window **520**, configuration options **820** for stocks RSS window **505**, and/or configuration options **830** for weather window **515**.

Configuration options **810** may provide a variety of options **840** for configuring notification window **520**. For example, as shown in FIG. **8**, options **840** may include an update rate (e.g., when device **100** is locked and awake) for receiving information associated with notification window **520** (e.g., receive information every ten seconds), an update rate (e.g., when device **100** is asleep) for receiving information associated with notification window **520** (e.g., receive information every ten minutes), notification types to be associated with notification window **520** (e.g., email, text message, etc.), display options for notification window **520** (e.g., sort by date, by person, etc.), etc.

Configuration options **820** may provide a variety of options **850** for configuring stock RSS window **505**. For example, as shown in FIG. **8**, options **850** may include an update rate (e.g., when device **100** is locked and awake) for receiving information associated with stock RSS window **505** (e.g., receive information every five seconds), an update rate (e.g., when device **100** is asleep) for receiving information associated with stock RSS window **505** (e.g., receive information every five minutes), particular stocks to be associated with stock RSS window **505** (e.g., "AAA," "BBB," etc.), display options for stock RSS window **505** (e.g., display ticker symbol, etc.), etc.

Configuration options **830** may provide a variety of options **860** for configuring weather window **515**. For example, as shown in FIG. **8**, options **860** may include an update rate (e.g., when device **100** is locked and awake) for receiving information associated with weather window **515** (e.g., receive information every five seconds), an update rate (e.g., when device **100** is asleep) for receiving information associated with weather window **515** (e.g., receive information every five minutes), a weather location to be associated with weather window **515** (e.g., "Philadelphia, Pa.," etc.), display options for weather window **515** (e.g., display location, temperatures, etc.), etc.

Although FIG. **8** shows exemplary configuration options **800** associated with display **120**, in other implementations, display **120** may include fewer, different, or additional configuration options than depicted in FIG. **8**. For example, in one implementation, regardless of the update rate associated with a configuration option (e.g., the update rate of five minutes associated with stock RSS window **505**), device **100** may implement a "push" technology and may push (or provide) breaking news (e.g., a stock market crash) to stock RSS window **505** immediately. In another example, device **100** may "push" (or provide) dangerous weather information (e.g., a tornado) to weather window **515** regardless of the update rate associated with weather window **515**. Such an arrangement may enable the user of device **100** to be made immediately aware of important information without waiting for device **100** to update.

FIGS. **9**-**14** depict flow charts of an exemplary process **900** for interacting with a touch screen of a device in locked and unlocked states according to implementations described herein. In one implementation, process **900** may be performed by device **100**. In another implementation, some or all of process **900** may be performed by another device or group of devices, including or excluding device **100**.

As illustrated in FIG. **9**, process **900** may begin with receiving current information with a device while the device is in a sleep or locked state (block **910**), associating one or more portions of the current information with one or more corresponding windows (block **920**), and receiving an input to wake up the device in a locked state (block **930**). For example, in implementations described above in connection with FIG. **5**A, device **100** may receive current information **400** when device **100** is in a sleep state, and may associate current information **400** with one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**. If a user provides an input to wake up device **100** (e.g., via selecting a portion of display **120**), device **100** may receive the input and may wake up (e.g., may illuminate display **120**) in a locked state.

As further shown in FIG. **9**, the window(s) with the associated portion(s) of the current information may be displayed,

via a display of the device, while the device is in a locked state (block **940**), and the user may be enabled to manipulate the displayed window(s) while the device is in the locked state (block **950**). For example, in implementations described above in connection with FIGS. **5**A and **5**B, device **100** may display (e.g., via display **120** and while still in a locked state) one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as any associated current information **400**. Device **100** may enable a user (e.g., via input object **330**, such as the user's finger) to manipulate one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as information (e.g., entries) provided in windows **505-520**, when device **100** is still in a locked state. In one example, device **100** may enable a user (e.g., via input object **330**) to resize, reshape, move, zoom, etc. one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520** when device **100** is in a locked state.

Returning to FIG. **9**, an input to unlock the device may be received (block **960**), the window(s) may continue to be displayed while the device is in an unlocked state (block **970**), and the user may be enabled to activate one or more functions associated with the portion(s) of the current information (block **980**). For example, in implementations described above in connection with FIGS. **6**A and **6**B, device **100** may be in an unlocked state due to the user manipulating lock/unlock mechanism **550** and moving lock/unlock mechanism **550** to unlocked position **610**. In an unlocked state, device **100** may continue to display the interface provided by display **120** when device **100** was in a locked state. If device **100** is in an unlocked state, the user may manipulate (e.g., resize, move, etc.) display **120** in the manner described above in connection with FIG. **5**B. However, once device **100** is in an unlocked state, user manipulation of display **120** may activate functions associated with the information provided by display **120**. In one example, if the user selects (e.g., via input object **330**) entry **630** (e.g., missed call **530** received from Kevin), device **100** may activate the functions associated with entry **630**. Activation of the functions associated with entry **630** may cause device **100** to display (e.g., via display **120**) missed call information **640**, first selection mechanism **650**, and second selection mechanism **650**.

Process block **910** may include the process blocks illustrated in FIG. **10**. As shown in FIG. **10**, process block **910** may include, while the device is in the sleep or locked state, receiving one or more RSS feeds with the device (block **1000**), receiving one or more calls with the device (block **1010**), receiving one or more emails with the device (block **1020**), receiving one or more text messages with the device (block **1030**), receiving one or more voicemails with the device (block **1040**), receiving reminder information with the device (block **1050**), and/or receiving other information with the device (block **1060**). For example, in implementations described above in connection with FIG. **4**, device **100** may receive current information **400** when device **100** is in a sleep state and/or a locked state. Current information **400** may include RSS feeds **410**, calls **420**, emails **430**, text messages **440**, voicemails **450**, weather information **460**, time/date information **470**, etc.

Process block **920** may include the process blocks illustrated in FIG. **11**. As shown in FIG. **11**, process block **920** may include associating one or more RSS feeds with an RSS feed window (block **1100**), associating one or more calls with a notification window (block **1110**), associating one or more emails with the notification window (block **1120**), associating one or more text messages with the notification window (block **1130**), associating one or more voicemails with the notification window (block **1140**), associating one or more reminders with the notification window (block **1150**), and/or associating other information with one or more other windows (block **1160**). For example, in implementations described above in connection with FIG. **5**A, device **100** may receive current information **400** (e.g., RSS feeds **410**, calls **420**, emails **430**, text messages **440**, voicemails **450**, weather information **460**, time/date information **470**, etc.) when device **100** is in a sleep/locked state, and may associate current information **400** with one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**. In one example, device **100** may associate RSS feeds **410** with stock RSS window **505**, may associate calls **420**, emails **430**, text messages **440**, and voicemails **450** with notification window **520**, may associate weather information **460** with weather window **515**, and may associate time/date information **470** with time/date window **510**.

Process block **940** may include the process blocks illustrated in FIG. **12**. As shown in FIG. **12**, process block **940** may include, while the device is in the locked state, displaying one or more portions of the RSS feed(s) in the RSS feed window (block **1200**), displaying one or more portions of the missed call(s) in the notification window (**1210**), displaying one or more portions of the email(s) in the notification window (**1220**), displaying one or more portions of the text message (s) in the notification window (block **1230**), displaying one or more portions of the voicemail(s) in the notification window (block **1240**), displaying one or more portions of the reminder (s) in the notification window (block **1250**), and/or displaying one or more portions of the other information in the other window(s) (block **1260**). For example, in implementations described above in connection with FIG. **5**A, device **100** may display (e.g., via display **120** and while still in a locked state) one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as any associated current information **400**. For example, device **100** may display portions of RSS feeds **410** in stock RSS window **505**, may display portions of calls **420**, emails **430**, text messages **440**, and voicemails **450** in notification window **520**, may display portions of weather information **460** in weather window **515**, and may display portions of time/date information **470** time/date window **510**.

Process block **950** may include the process blocks illustrated in FIG. **13**. As shown in FIG. **13**, process block **950** may include, while the device is in the locked state, enabling the user to resize the displayed window(s) (block **1300**), enabling the user to move the displayed window(s) (block **1310**), enabling the user to reshape the displayed window(s) (block **1320**), and/or enabling the user to scroll the displayed window(s) (block **1330**). For example, in implementations described above in connection with FIG. **5**B, device **100** may enable a user to manipulate one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520**, as well as information (e.g., entries) provided in windows **505-520** when device **100** is still in a locked state. In one exemplary implementation, device **100** may enable a user (e.g., via input object **330**) to resize, reshape, move, zoom, expand, scroll, etc. one or more of stock RSS window **505**, time/date window **510**, weather window **515**, and/or notification window **520** when device **100** is in a locked state. In other implementations, device **100** may enable a user (e.g., via input object **330**) to resize, reshape, move, zoom, expand, scroll, etc. one or more entries associated with windows **505-520** when device **100** is in a locked state.

Process block **980** may include the process blocks illustrated in FIG. **14**. As shown in FIG. **14**, process block **980** may include enabling the user to view an entire set of information about a missed call(s) provided in the notification window (block **1400**), enabling the user to view entire email(s) provided in the notification window (block **1410**), enabling the user to view entire text message(s) provided in the notification window (block **1420**), enabling the user to view (and/or listen to) entire description information about voicemail(s) provided in the notification window (block **1430**), and/or enabling the user to view other information provided in the other window(s) (block **1440**). For example, in implementations described above in connection with FIGS. **6**A and **6**B, once device **100** is in an unlocked state, user manipulation of display **120** may activate functions associated with the information provided by display **120**. In one example, if the user selects (e.g., via input object **330**) entry **630** (e.g., missed call **530** received from Kevin), device **100** may activate the functions associated with entry **630** (e.g., device **100** may display all information associated with entry **630**). Activation of the functions associated with entry **630** may cause device **100** to display (e.g., via display **120**) missed call information **640**, a first selection mechanism **650**, and a second selection mechanism **650**. Missed call information **640** may include information associated with missed call **530** received from Kevin.

Systems and/or methods described herein may enable a user to interact with a touch screen of a mobile communication device and to view current information when the mobile communication device is in a locked state. In one implementation, for example, the systems and/or methods may receive current information with a device, while the device is in a sleep (or locked) state, may associate one or more portions of the current information with one or more corresponding windows, and may receive an input to wake up the device in a locked state. The systems and/or methods may display, via a device display, the window(s) with the associated portion(s) of the current information while the device is in the locked state, may enable a user to manipulate, via the device display, the displayed window(s) while the device is in the locked state, and may receive an input to unlock the device. The systems and/or methods may continue to display the window (s) while the device is in the unlocked state, and may enable the user to activate one or more functions associated with the associated portion(s) of the current information.

The foregoing description of implementations provides illustration and description, but is not intended to be exhaustive or to limit the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practice of the invention.

For example, while a series of blocks has been described with regard to FIGS. **9-14**, the order of the blocks may be modified in other implementations. Further, non-dependent blocks may be performed in parallel.

It will be apparent that aspects, as described herein, may be implemented in many different forms of software, firmware, and hardware in the implementations illustrated in the figures. The actual software code or specialized control hardware used to implement these aspects is not limiting of the invention. Thus, the operation and behavior of these aspects were described without reference to the specific software code—it being understood that software and control hardware may be designed to implement these aspects based on the description herein.

Further, certain portions of the invention may be implemented as "logic" that performs one or more functions. This logic may include hardware, such as an application specific integrated circuit or a field programmable gate array, or a combination of hardware and software.

Even though particular combinations of features are recited in the claims and/or disclosed in the specification, these combinations are not intended to limit the invention. In fact, many of these features may be combined in ways not specifically recited in the claims and/or disclosed in the specification.

No element, act, or instruction used in the present application should be construed as critical or essential to the invention unless explicitly described as such. Also, as used herein, the article "a" is intended to include one or more items. Where only one item is intended, the term "one" or similar language is used. Further, the phrase "based on" is intended to mean "based, at least in part, on" unless explicitly stated otherwise.

What is claimed is:

1. A mobile communication device-implemented method, the method comprising:

receiving information with the mobile communication device while the mobile communication device is in a locked state;

associating one or more portions of the information with one or more corresponding first windows;

displaying, via a display associated with the mobile communication device, the one or more corresponding first windows and the one or more associated portions of the information while the mobile communication device is in the locked state;

displaying, via the display, a second window that includes information regarding the locked state, where the second window is different than the corresponding first windows; and

enabling a user associated with the mobile communication device to manipulate the one or more displayed corresponding first windows while the mobile communication device is in the locked state, the manipulating including at least one of:

resizing, reshaping, zooming, or expanding the one or more displayed corresponding first windows.

2. The mobile communication device-implemented method of claim **1**, further comprising:

enabling the user to manipulate the one or more displayed and associated portions of the information while the mobile communication device is in the locked state.

3. The mobile communication device-implemented method of claim **1**, where enabling the user to manipulate the one or more displayed and associated portions of the information comprises at least one of:

enabling the user to resize the one or more displayed and associated portions of the information while the mobile communication device is in the locked state,

enabling the user to move the one or more displayed and associated portions of the information while the mobile communication device is in the locked state,

enabling the user to reshape the one or more displayed and associated portions of the information while the mobile communication device is in the locked state, or

enabling the user to scroll the one or more displayed and associated portions of the information while the mobile communication device is in the locked state.

4. The mobile communication device-implemented method of claim **1**, further comprising:

receiving an input from the user to wake up the mobile communication device when the mobile communication device is in a sleep state; and

waking up the mobile communication device in the locked state based on the received input.

5. The mobile communication device-implemented method of claim 1, further comprising:

receiving an input from the user to unlock the mobile communication device; and

setting the mobile communication device to an unlocked state based on the received input.

6. The mobile communication device-implemented method of claim 5, further comprising:

continuing to display, via the display, the one or more corresponding first windows and the one or more associated portions of the information while the mobile communication device is in the unlocked state; and

enabling the user to activate one or more functions associated with the one or more associated portions of the information while the mobile communication device is in the unlocked state.

7. The mobile communication device-implemented method of claim 6, where the one or more corresponding first windows include a notification window and enabling the user to activate one or more functions comprises at least one of:

enabling the user to view an entire set of information about a missed call provided in the notification window,

enabling the user to view an entire email provided in the notification window,

enabling the user to view an entire text message provided in the notification window,

enabling the user to view an entire set of information about a voicemail provided in the notification window, or

enabling the user to view an entire reminder provided in the notification window.

8. The mobile communication device-implemented method of claim 1, where receiving information comprises at least one of:

receiving one or more Really Simple Syndication (RSS) feeds while the mobile communication device is in the locked state,

receiving one or more calls while the mobile communication device is in the locked state,

receiving one or more emails while the mobile communication device is in the locked state,

receiving one or more text messages while the mobile communication device is in the locked state,

receiving one or more voicemails while the mobile communication device is in the locked state,

receiving reminder information while the mobile communication device is in the locked state,

receiving time and date information while the mobile communication device is in the locked state, or

receiving weather information while the mobile communication device is in the locked state.

9. The mobile communication device-implemented method of claim 8, where associating one or more portions of the information comprises at least one of:

associating the one or more RSS feeds with an RSS feed window,

associating the one or more calls with a notification window,

associating the one or more emails with the notification window,

associating one or more text messages with the notification window,

associating the one or more voicemails with the notification window,

associating the reminder information with the notification window,

associating the time and date information with a time and date window, or

associating the weather information with a weather window.

10. The mobile communication device-implemented method of claim 9, where displaying, via a display associated with the mobile communication device, the one or more corresponding first windows comprises at least one of:

displaying one or more portions of the one or more RSS feeds in the RSS feed window while the mobile communication device is in the locked state,

displaying one or more portions of the one or more calls in the notification window while the mobile communication device is in the locked state,

displaying one or more portions of the one or more emails in the notification window while the mobile communication device is in the locked state,

displaying one or more portions of one or more text messages in the notification window while the mobile communication device is in the locked state,

displaying one or more portions of the one or more voicemails in the notification window while the mobile communication device is in the locked state,

displaying one or more portions of the reminder information in the notification window while the mobile communication device is in the locked state,

displaying one or more portions of the time and date information in the time and date window while the mobile communication device is in the locked state, or

displaying one or more portions of the weather information in the weather window while the mobile communication device is in the locked state.

11. The mobile communication device-implemented method of claim 1, where enabling the user associated with the mobile communication device to manipulate the one or more displayed corresponding first windows comprises at least one of:

enabling the user to move the one or more displayed corresponding first windows while the mobile communication device is in the locked state,

or

enabling the user to scroll the one or more displayed corresponding first windows while the mobile communication device is in the locked state.

12. A mobile communication device comprising:

a touch screen;

a memory to store a plurality of instructions; and

a processor to execute instructions in the memory to:

receive information while the mobile communication device is in a locked state,

associate one or more portions of the information with one or more corresponding first windows,

display, via the touch screen, the one or more corresponding first windows and the one or more associated portions of the information while the mobile communication device is in the locked state,

display, via the touch screen, a second window that includes information regarding the locked state, the second window being different than the corresponding first windows; and

enable a user associated with the mobile communication device to manipulate the one or more displayed corresponding first windows while the mobile communication device is in the locked state, when enabling the user to manipulate the one or more displayed corresponding first windows, the processor being further to:

enable the user to resize, reshape, zoom, or expand the one or more displayed corresponding first windows.

13. The mobile communication device of claim **12**, where the mobile communication device comprises one or more of:

a radiotelephone,

a personal communications system (PCS) terminal,

a personal digital assistant (PDA),

a portable gaming system, or

a global positioning system (GPS) device.

14. The mobile communication device of claim **12**, where, when enabling the user to manipulate the one or more displayed and associated portions of the information, the processor further executes instructions in the memory to at least one of:

enable the user to resize the one or more displayed and associated portions of the information while the mobile communication device is in the locked state,

enable the user to move the one or more displayed and associated portions of the information while the mobile communication device is in the locked state,

enable the user to reshape the one or more displayed and associated portions of the information while the mobile communication device is in the locked state, or

enable the user to scroll the one or more displayed and associated portions of the information while the mobile communication device is in the locked state.

15. The mobile communication device of claim **12**, where the processor further executes instructions in the memory to:

receive an input from the user to wake up the mobile communication device when the mobile communication device is in a sleep state; and

wake up the mobile communication device in the locked state based on the received input.

16. The mobile communication device of claim **12**, where the processor further executes instructions in the memory to:

receive an input from the user to unlock the mobile communication device; and

set the mobile communication device to an unlocked state based on the received input.

17. The mobile communication device of claim **16**, where the processor further executes instructions in the memory to:

continue to display, via the touch screen, the one or more corresponding first windows and the one or more associated portions of the information while the mobile communication device is in the unlocked state, and

enable the user to activate one or more functions associated with the one or more associated portions of the information while the mobile communication device is in the unlocked state.

18. The mobile communication device of claim **17**, where the one or more corresponding first windows include a notification window and, when enabling the user to activate one or more functions, the processor further executes instructions in the memory to at least one of:

enable the user to view an entire set of information about a missed call provided in the notification window,

enable the user to view an entire email provided in the notification window,

enable the user to view an entire text message provided in the notification window,

enable the user to view an entire set of information about a voicemail provided in the notification window, or

enable the user to view an entire reminder provided in the notification window.

19. The mobile communication device of claim **12**, where, when receiving information, the processor further executes instructions in the memory to at least one of:

receive one or more Really Simple Syndication (RSS) feeds while the mobile communication device is in the locked state,

receive one or more calls while the mobile communication device is in the locked state,

receive one or more emails while the mobile communication device is in the locked state,

receive one or more text messages while the mobile communication device is in the locked state,

receive one or more voicemails while the mobile communication device is in the locked state,

receive reminder information while the mobile communication device is in the locked state,

receive time and date information while the mobile communication device is in the locked state, or

receive weather information while the mobile communication device is in the locked state.

20. The mobile communication device of claim **19**, where, when associating one or more portions of the information, the processor further executes instructions in the memory to at least one of:

associate the one or more RSS feeds with an RSS feed window,

associate the one or more calls with a notification window,

associate the one or more emails with the notification window,

associate one or more text messages with the notification window,

associate the one or more voicemails with the notification window,

associate the reminder information with the notification window,

associate the time and date information with a time and date window, or

associate the weather information with a weather window.

21. The mobile communication device of claim **20**, where, when displaying, via the touch screen, the one or more corresponding first windows, the processor further executes instructions in the memory to at least one of:

display one or more portions of the one or more RSS feeds in the RSS feed window while the mobile communication device is in the locked state,

display one or more portions of the one or more calls in the notification window while the mobile communication device is in the locked state,

display one or more portions of the one or more emails in the notification window while the mobile communication device is in the locked state,

display one or more portions of one or more text messages in the notification window while the mobile communication device is in the locked state,

display one or more portions of the one or more voicemails in the notification window while the mobile communication device is in the locked state,

display one or more portions of the reminder information in the notification window while the mobile communication device is in the locked state,

display one or more portions of the time and date information in the time and date window while the mobile communication device is in the locked state, or

display one or more portions of the weather information in the weather window while the mobile communication device is in the locked state.

22. The mobile communication device of claim **12**, where, when enabling the user associated with the mobile communication device to manipulate the one or more displayed corresponding first windows, the processor further executes instructions in the memory to at least one of:

enable the user to move the one or more displayed corresponding first windows while the mobile communication device is in the locked state,

or

enable the user to scroll the one or more displayed corresponding first windows while the mobile communication device is in the locked state.

23. The mobile communication device of claim **12**, where the processor further executes instructions in the memory to:

enable the user to configure the one or more portions of the information associated with the one or more displayed corresponding first windows.

24. A device comprising:

means for receiving information with the device while the device is in a locked state;

means for associating one or more portions of the information with one or more corresponding first windows;

means for displaying, via a display associated with the device, the one or more corresponding first windows and the one or more associated portions of the information while the device is in the locked state;

means for displaying, via the display, a second window that includes information regarding the locked state, where the second window is different than the corresponding first windows;

means for enabling a user associated with the device to manipulate the one or more displayed corresponding first windows while the device is in the locked state;

means for enabling the user to manipulate the one or more displayed and associated portions of the information while the device is in the locked state, the means for enabling including at least one of:

means for resizing, means for reshaping, means for zooming, or means for expanding the one or more displayed corresponding first windows;

means for continuing to display, via the display, the one or more corresponding first windows and the one or more associated portions of the information while the device is in an unlocked state; and

means for enabling the user to activate one or more functions associated with the one or more associated portions of the information while the device is in the unlocked state.

25. The device of claim **24**, where the means for enabling includes at least one of:

means for enabling the user to move the one or more displayed corresponding first windows while the device is in the locked state; or

means for enabling the user to scroll the one or more displayed corresponding first windows while the device is in the locked state.

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