



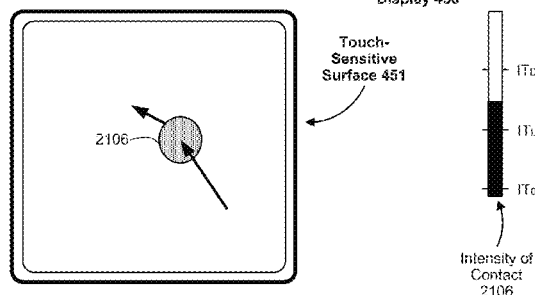
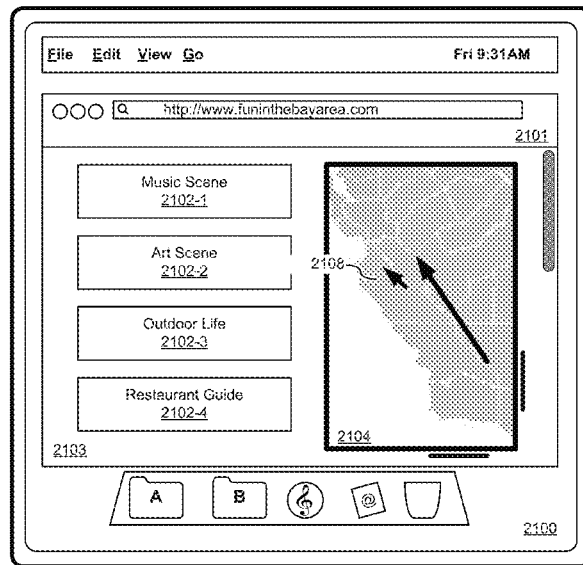
US 20190018562A1

(19) **United States**(12) **Patent Application Publication**
Bernstein et al.(10) **Pub. No.: US 2019/0018562 A1**(43) **Pub. Date: Jan. 17, 2019**(54) **DEVICE, METHOD, AND GRAPHICAL USER
INTERFACE FOR SCROLLING NESTED
REGIONS****Publication Classification**(51) **Int. Cl.****G06F 3/0485** (2006.01)**G06F 3/0488** (2006.01)**G06F 3/041** (2006.01)(52) **U.S. Cl.**CPC **G06F 3/0485** (2013.01); **G06F 3/04883**
(2013.01); **G06F 3/0488** (2013.01); **G06F**
3/0412 (2013.01)(71) Applicant: **Apple Inc.**, Cupertino, CA (US)(72) Inventors: **Jeffrey T. Bernstein**, San Francisco,
CA (US); **Julian Missig**, Redwood City,
CA (US); **Bianca C. Costanzo**, Berlin
(DE); **B. Michael Victor**, Castro Valley,
CA (US)(21) Appl. No.: **16/136,163**(22) Filed: **Sep. 19, 2018****Related U.S. Application Data**(63) Continuation of application No. 14/536,367, filed on
Nov. 7, 2014, now Pat. No. 10,126,930, which is a
continuation of application No. PCT/US2013/
040056, filed on May 8, 2013.(60) Provisional application No. 61/778,179, filed on Mar.
12, 2013, provisional application No. 61/747,278,
filed on Dec. 29, 2012, provisional application No.
61/688,227, filed on May 9, 2012.

(57)

ABSTRACT

A method is performed at an electronic device with a display, touch-sensitive surface and one or more sensors to detect intensity of contacts with the touch-sensitive surface. The method includes displaying a user interface with a first region and a second region embedded in the first, the second region also being independently scrollable such that its content can be moved without moving other content in the first region. In response to detecting a contact and movement of the contact when a focus selection is over the second region, and when the contact has a maximum intensity that is above a respective intensity threshold, content in the second region is translated on the display without other content translating the first region. When the contact has a maximum intensity that is below a respective intensity threshold, content in the first region is translated on the display.



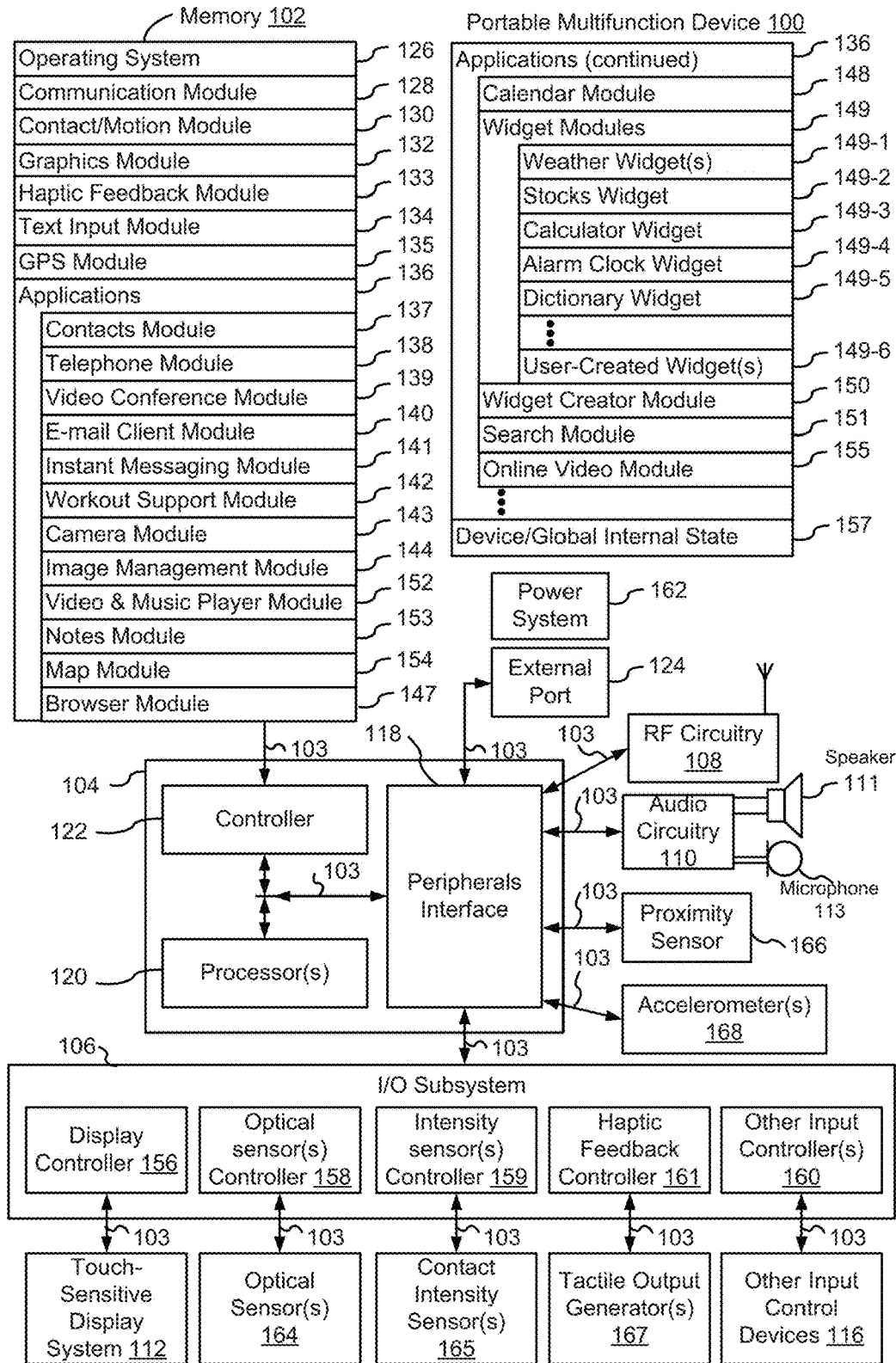


Figure 1A

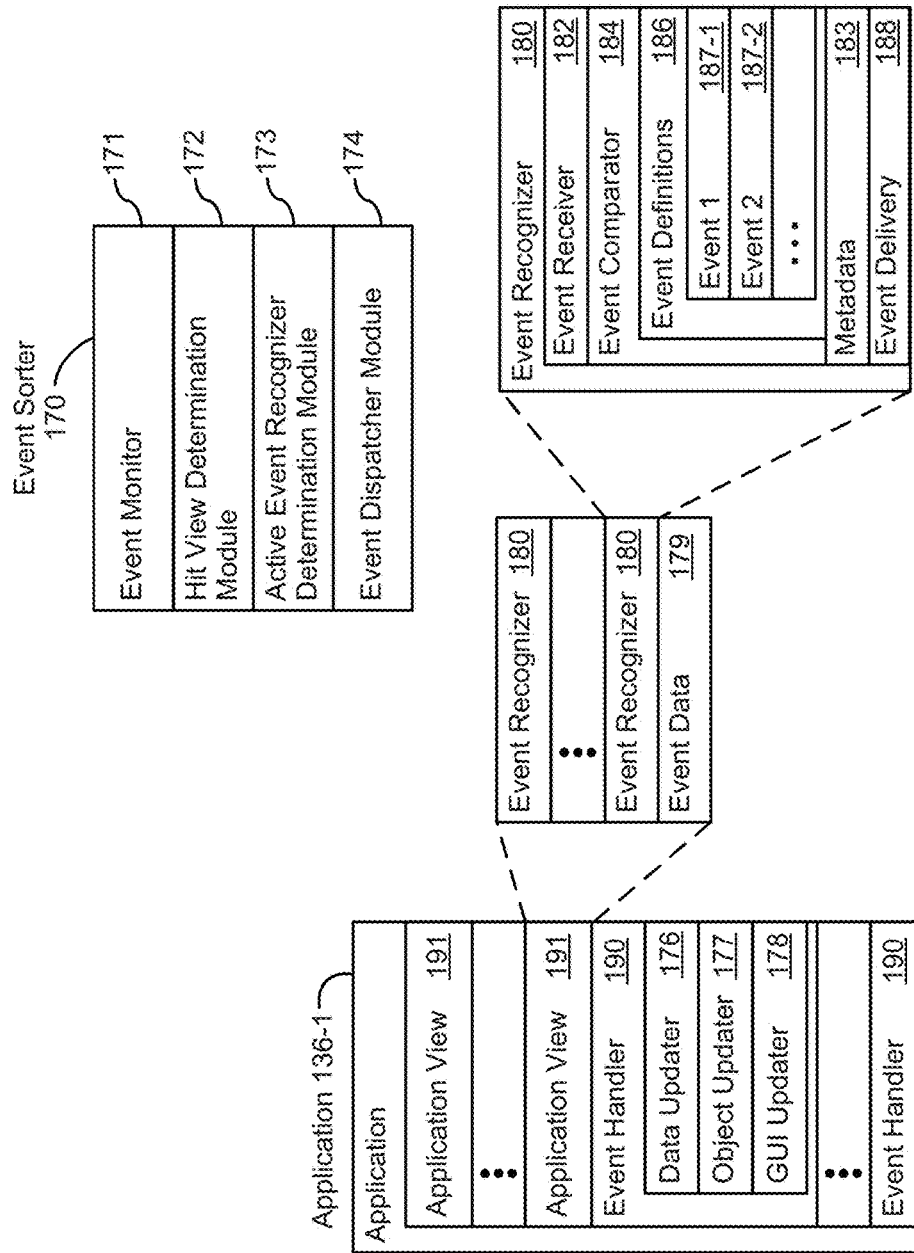


Figure 1B

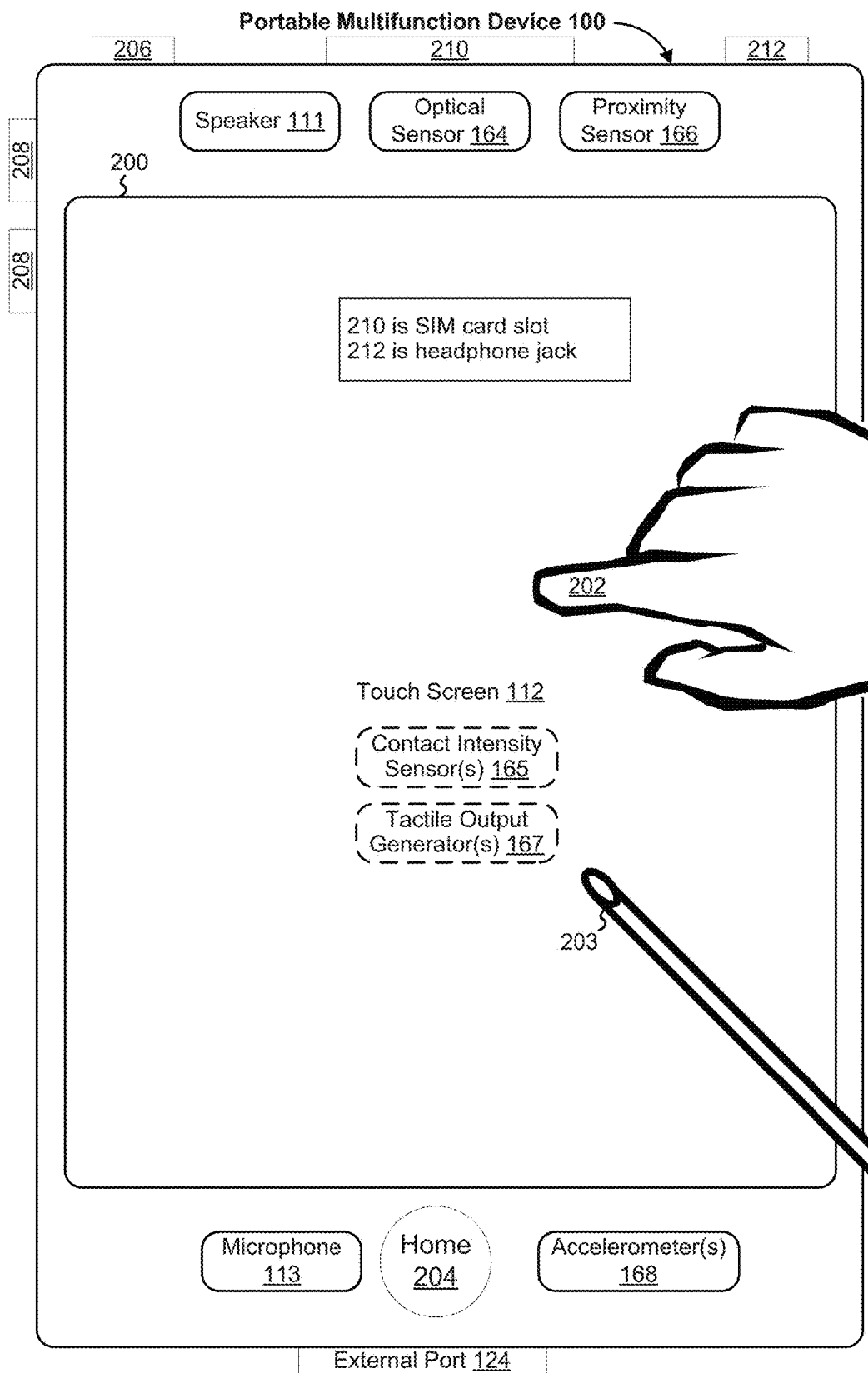


Figure 2

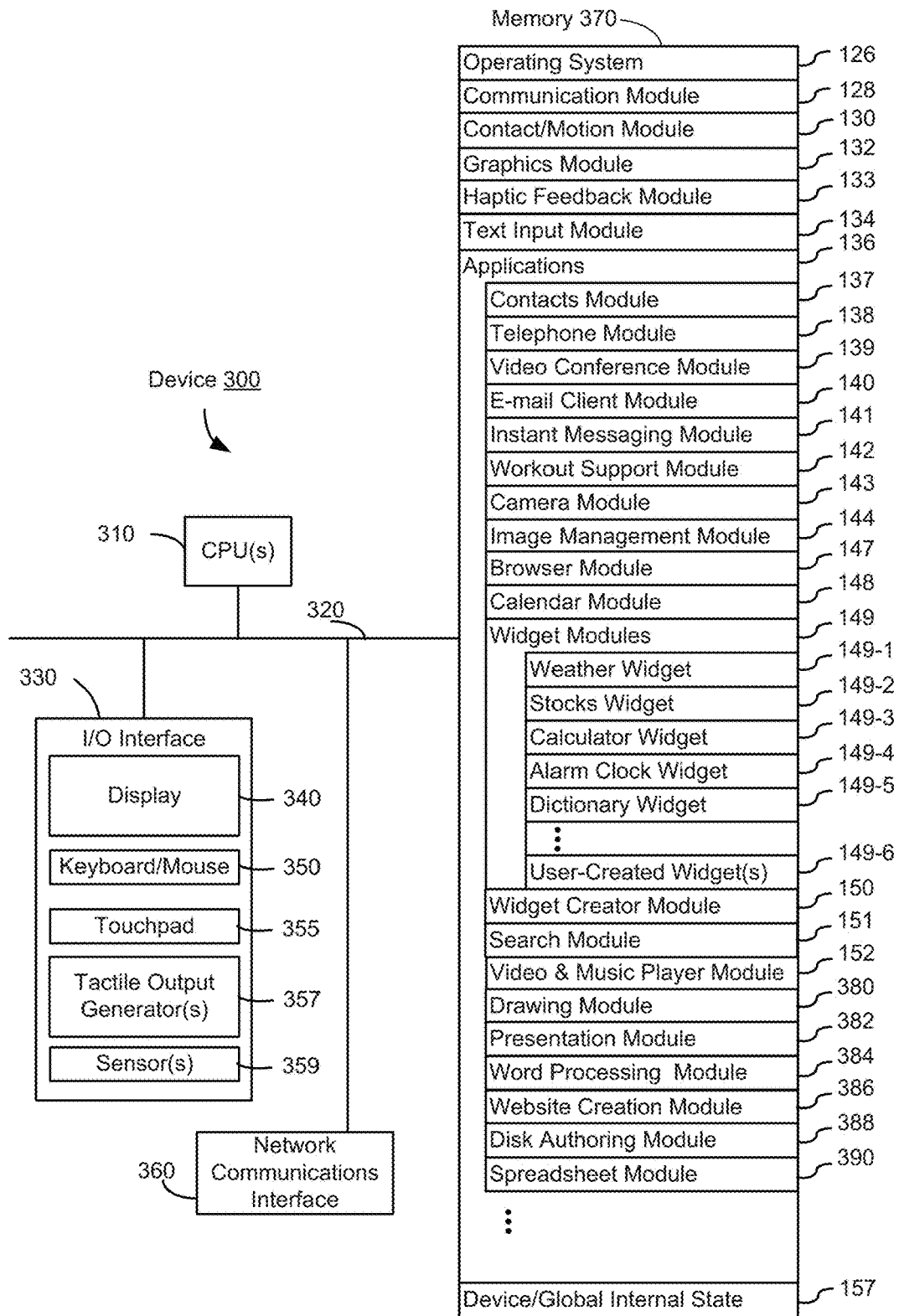


Figure 3

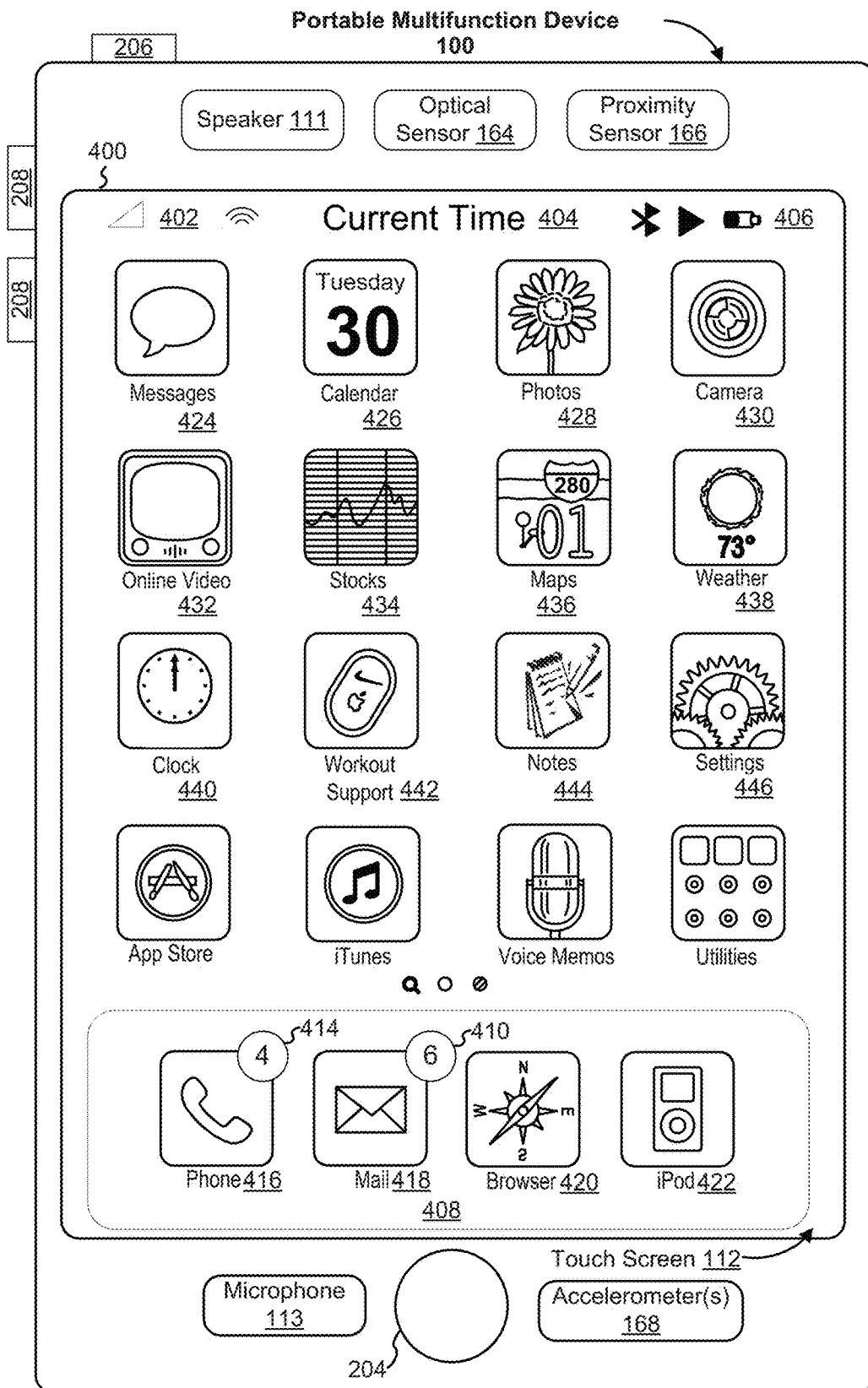


Figure 4A

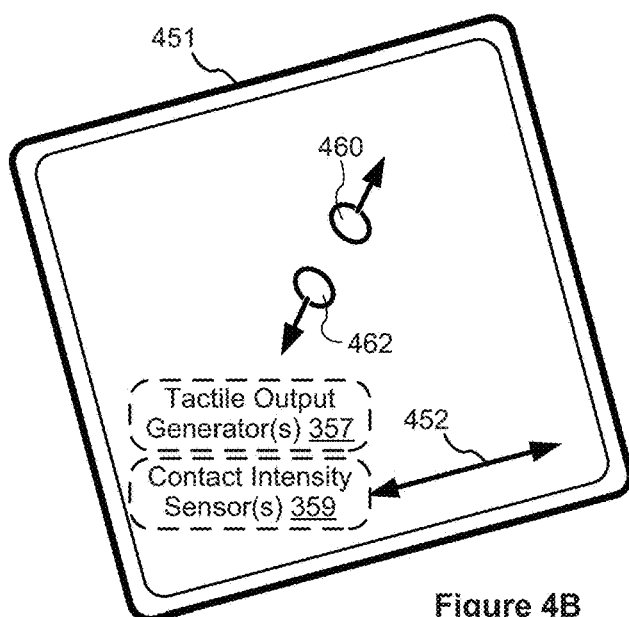
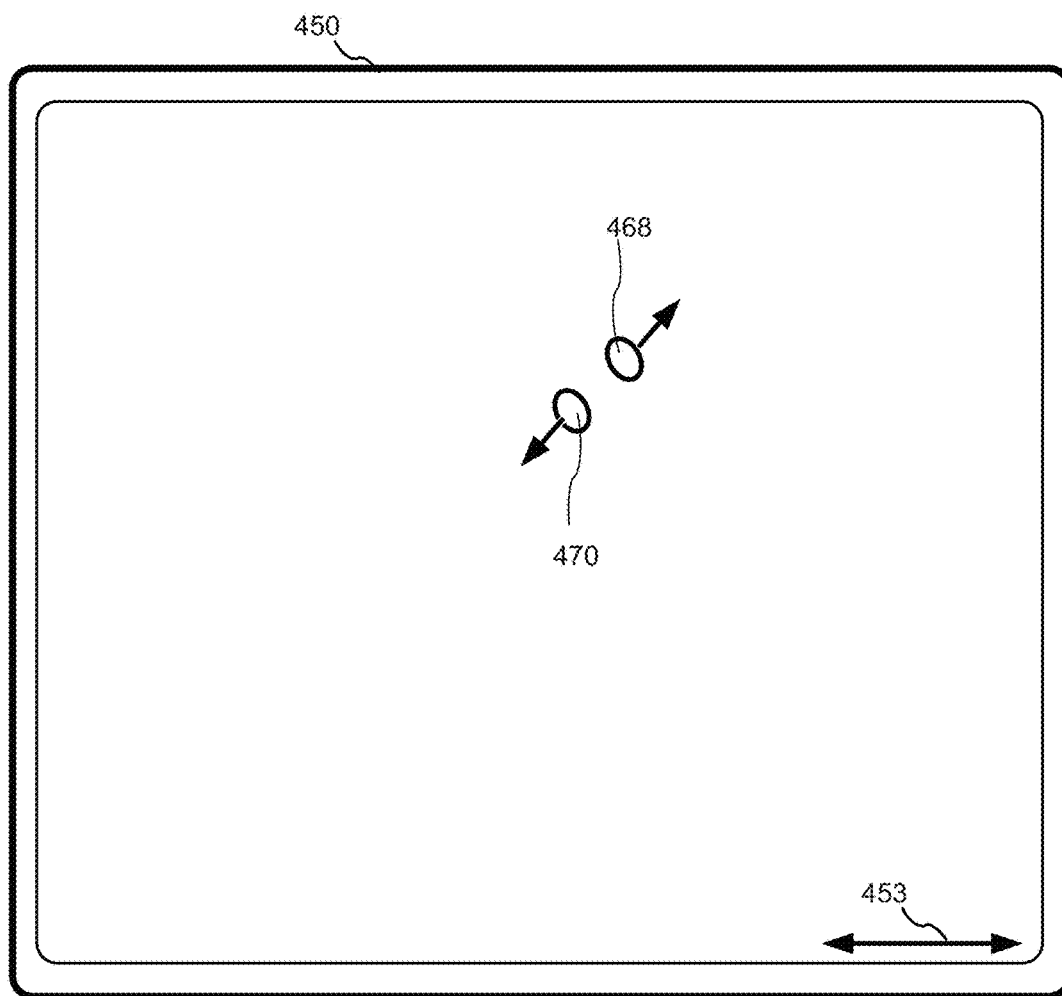


Figure 4B

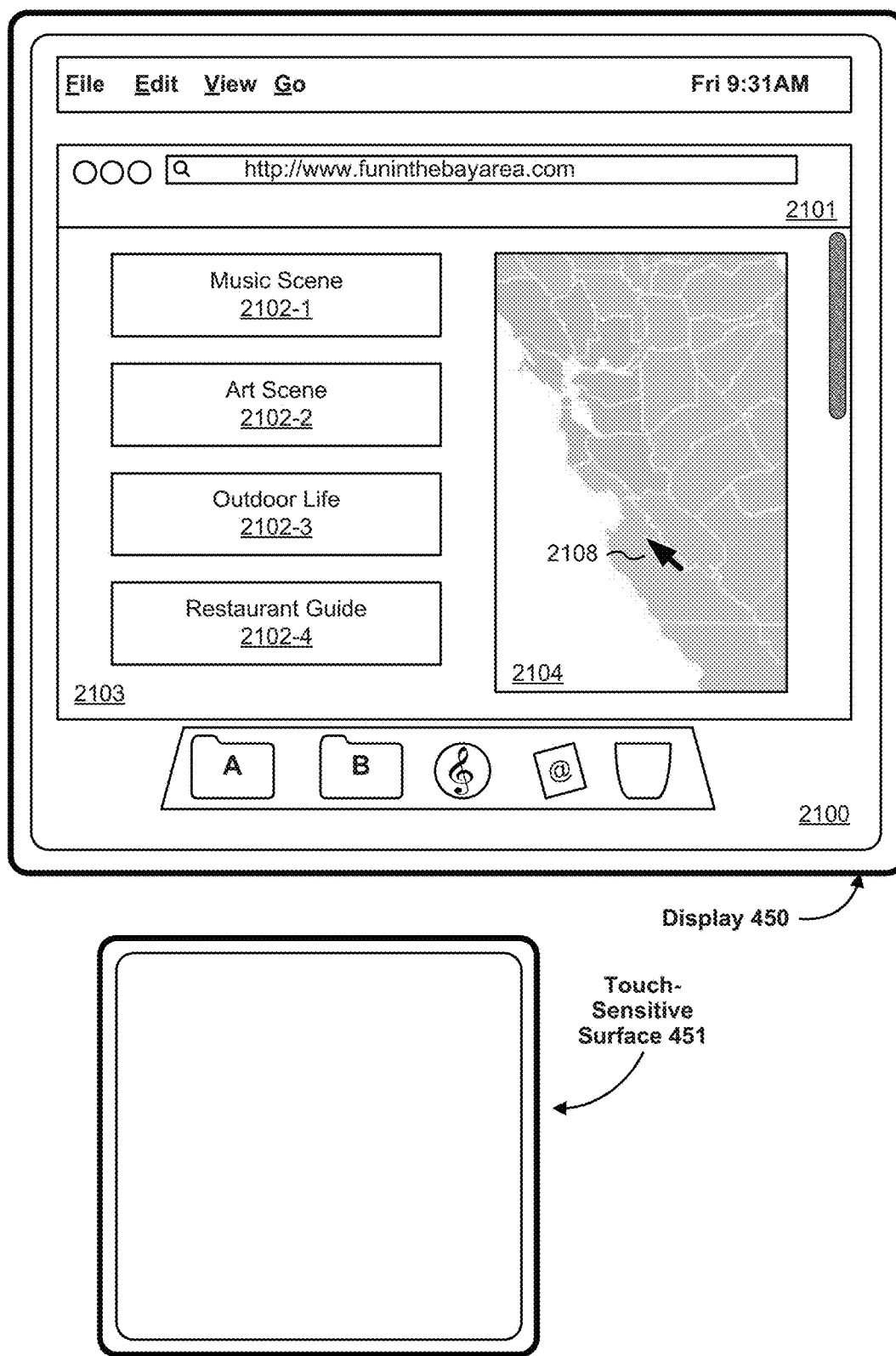
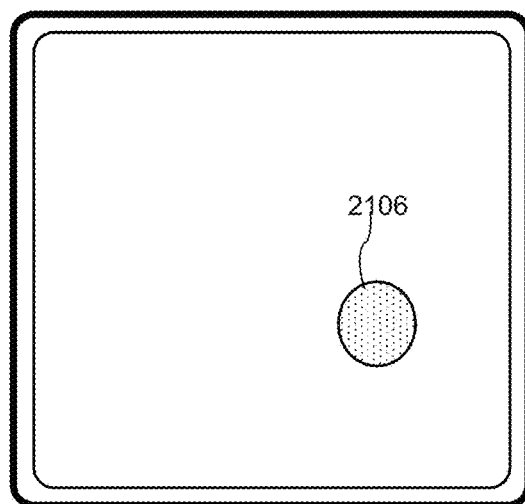
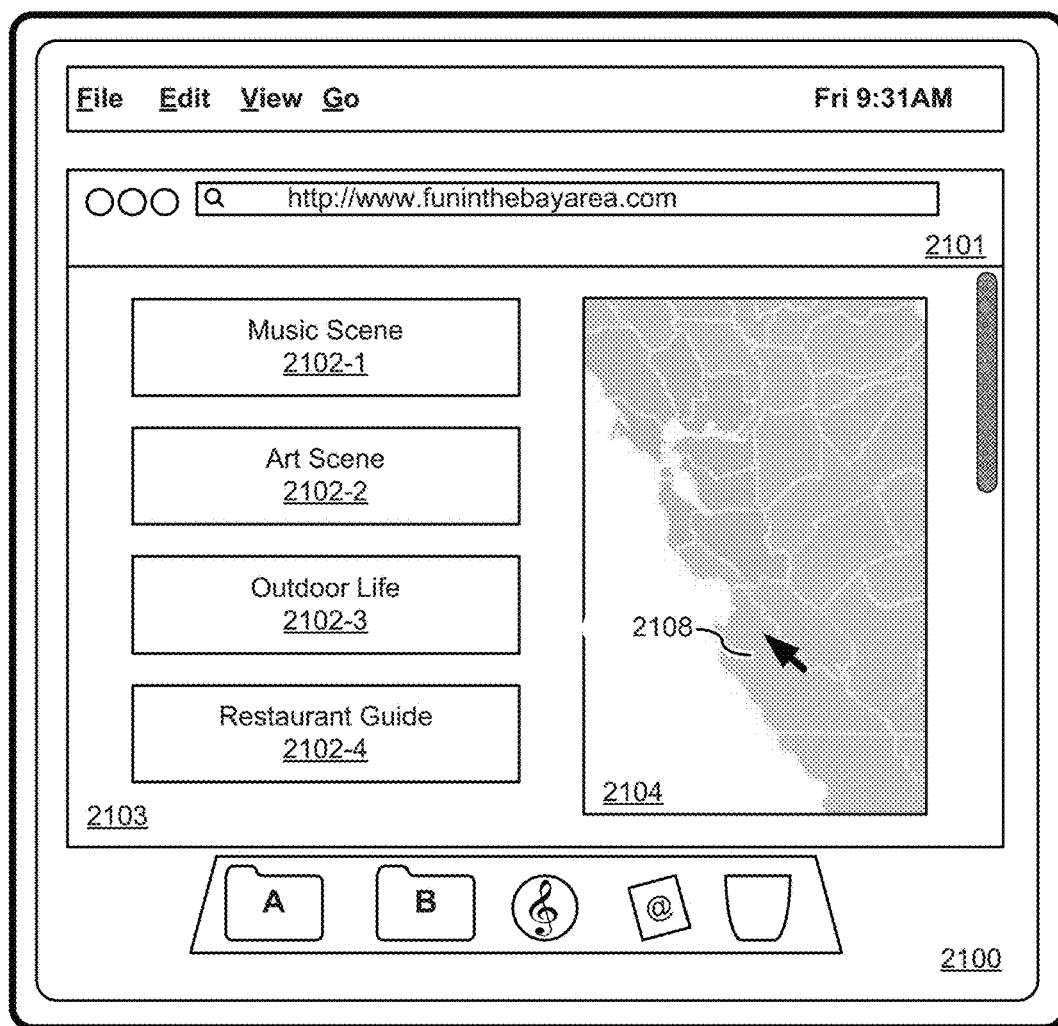


Figure 5A



Touch-Sensitive Surface 451

Display 450

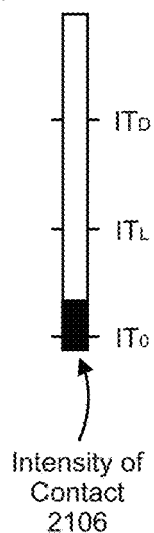
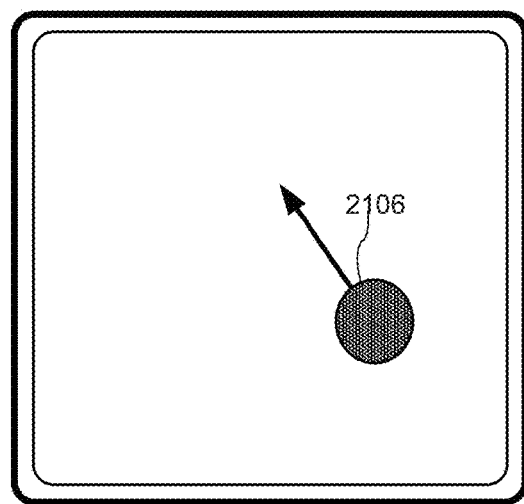
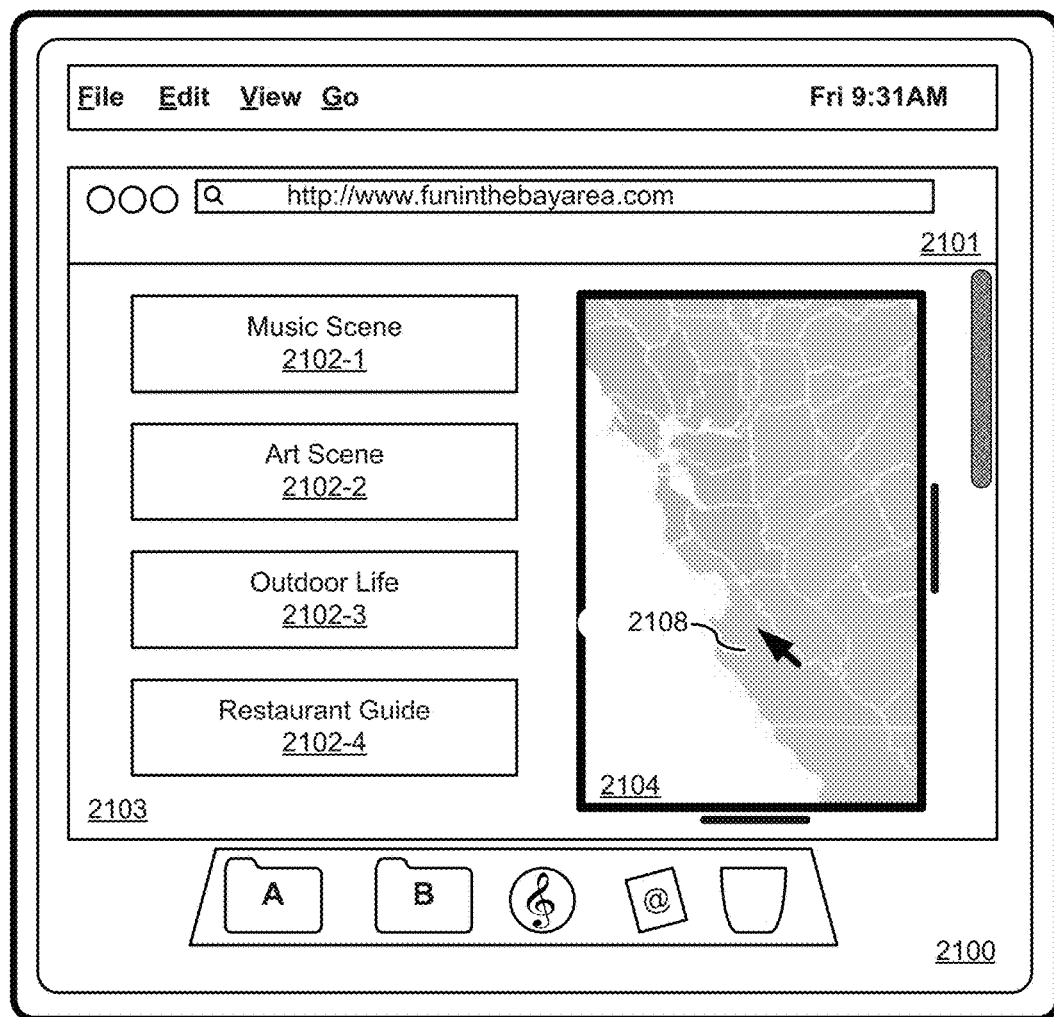


Figure 5B



Display 450

Touch-Sensitive Surface 451

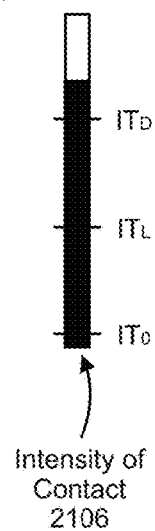


Figure 5C

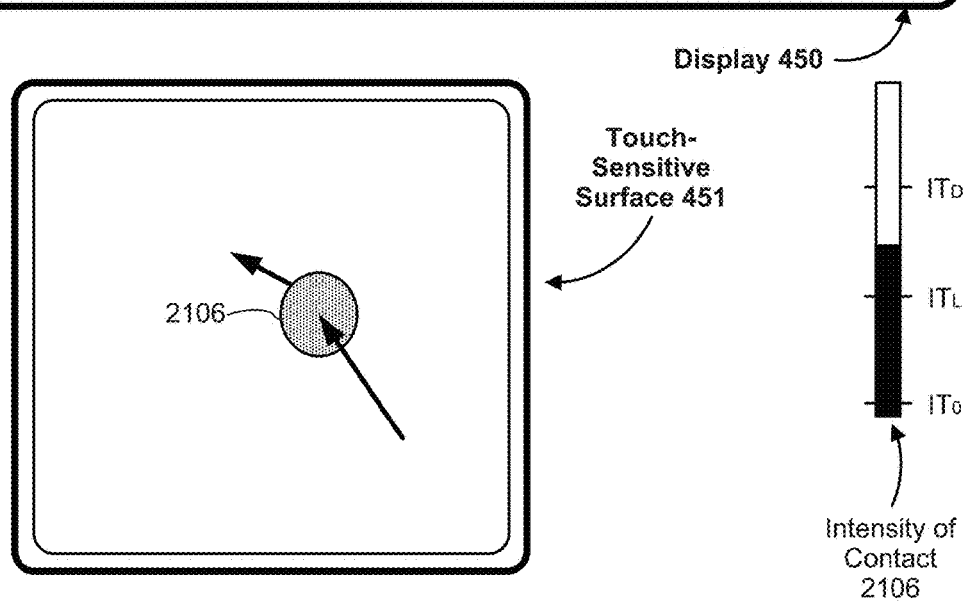
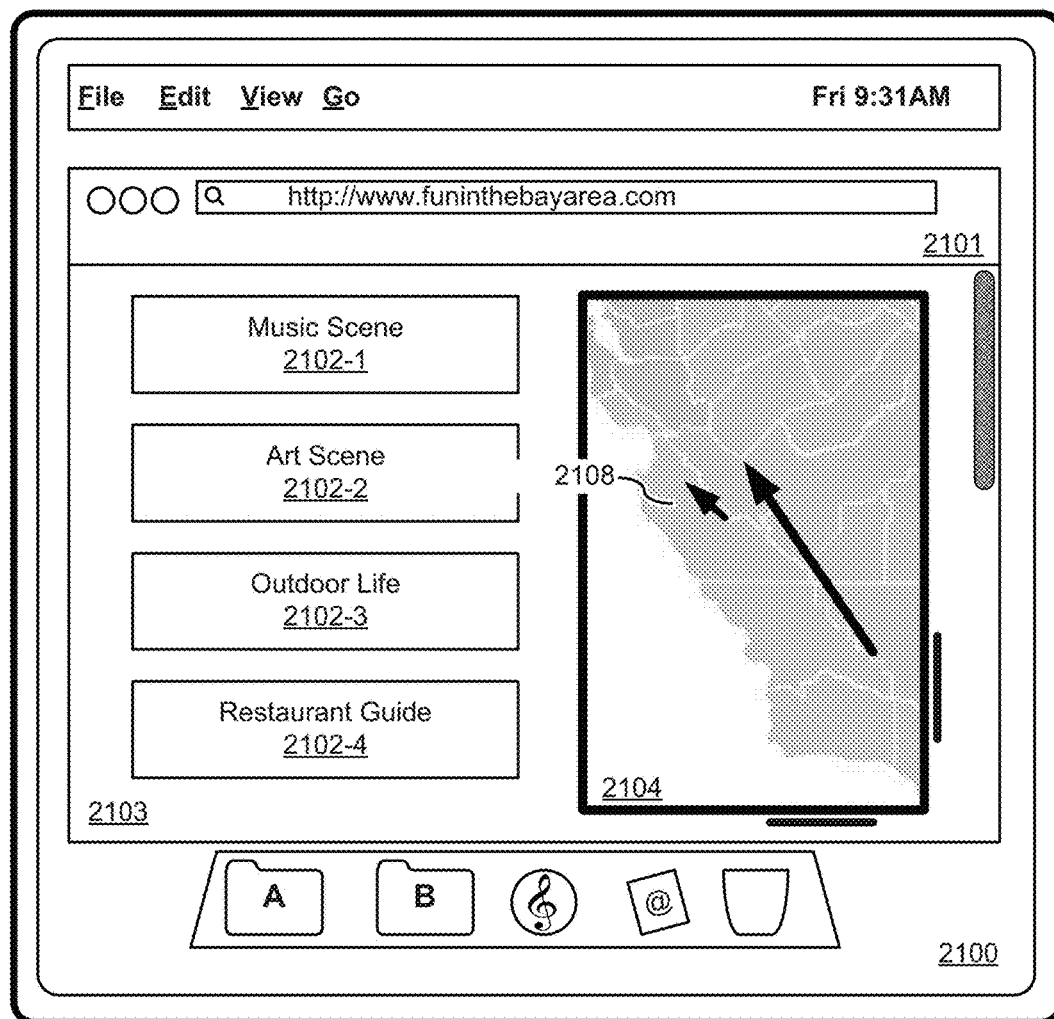


Figure 5D

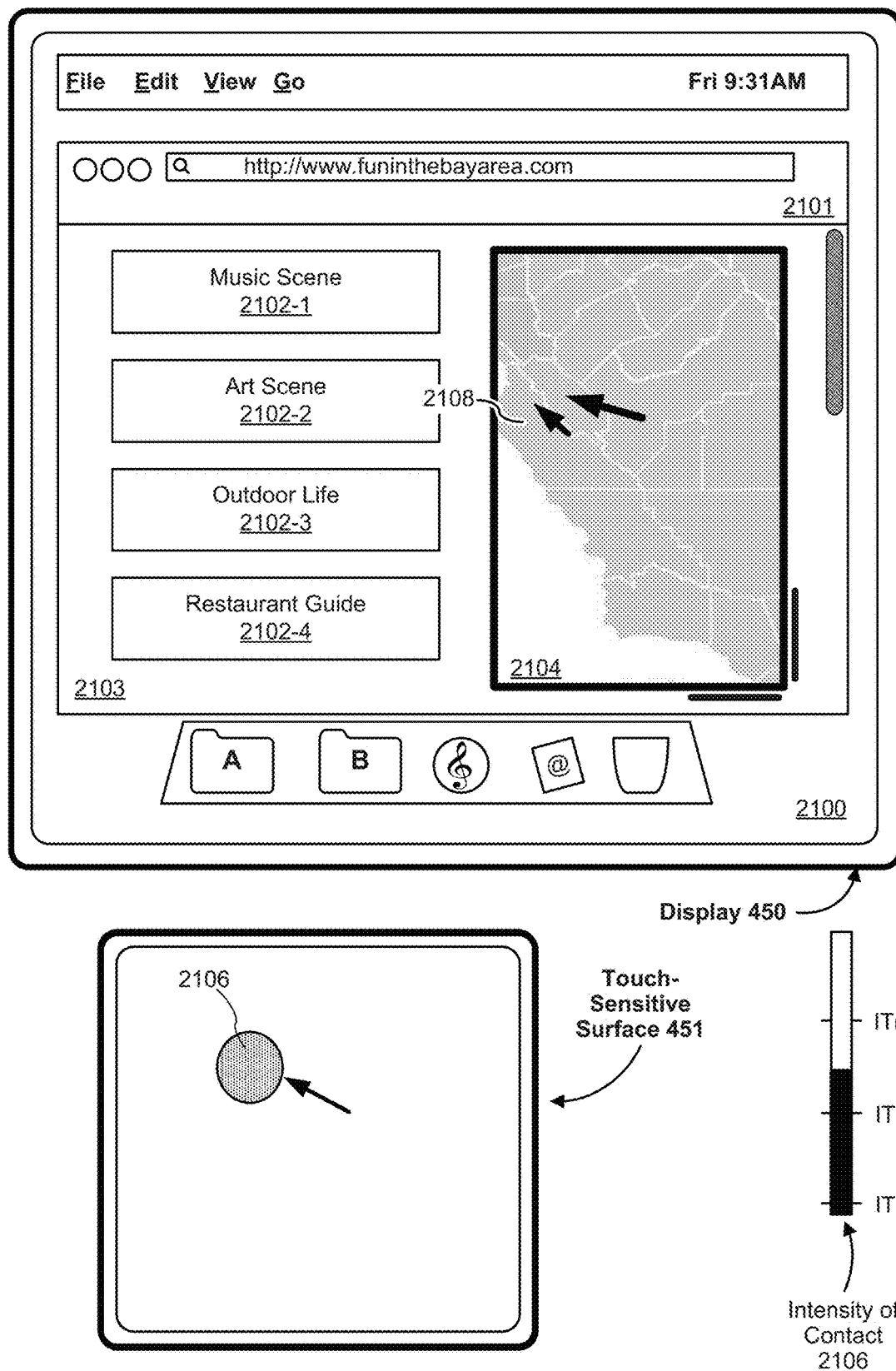


Figure 5E

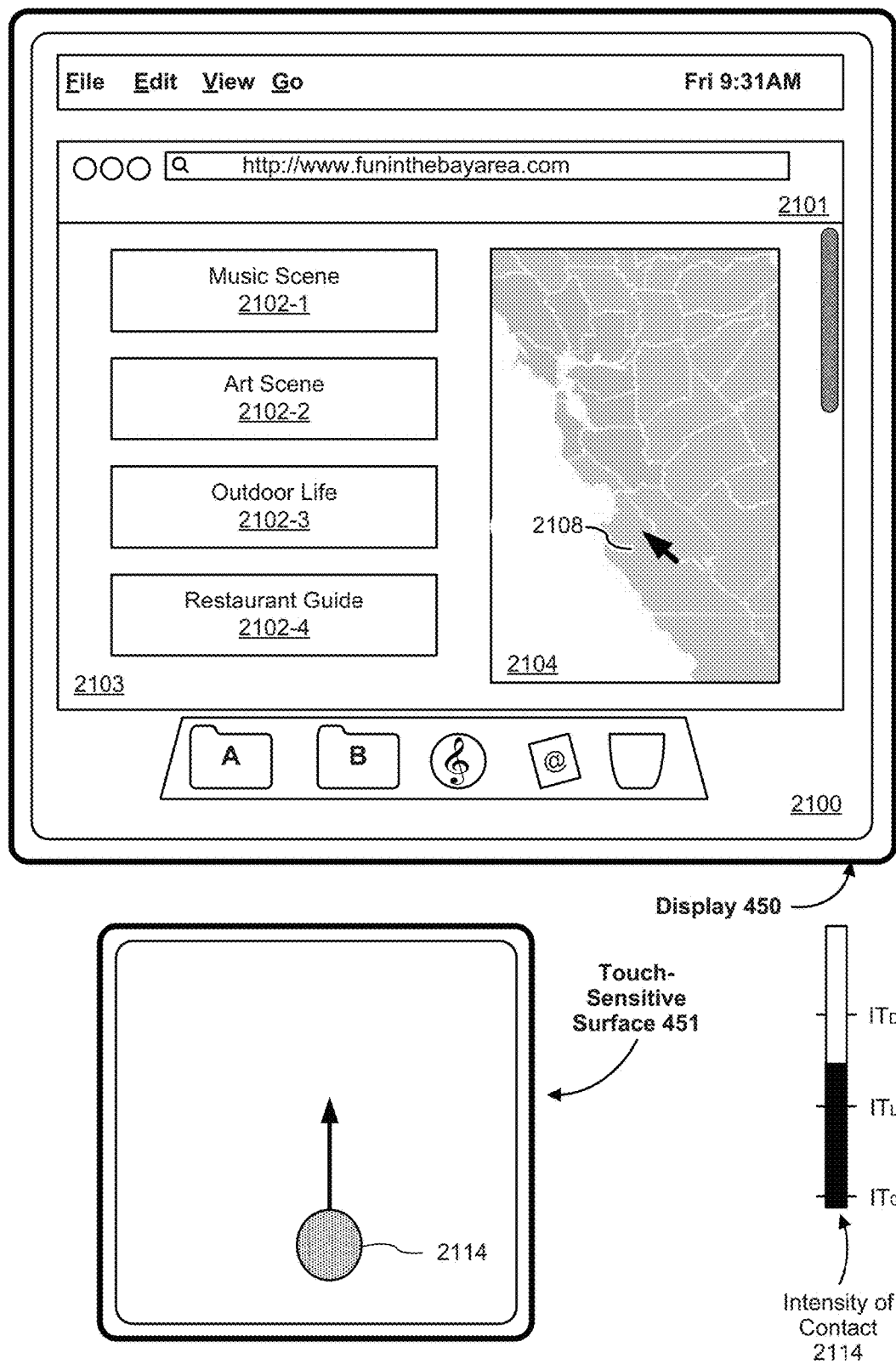


Figure 5F

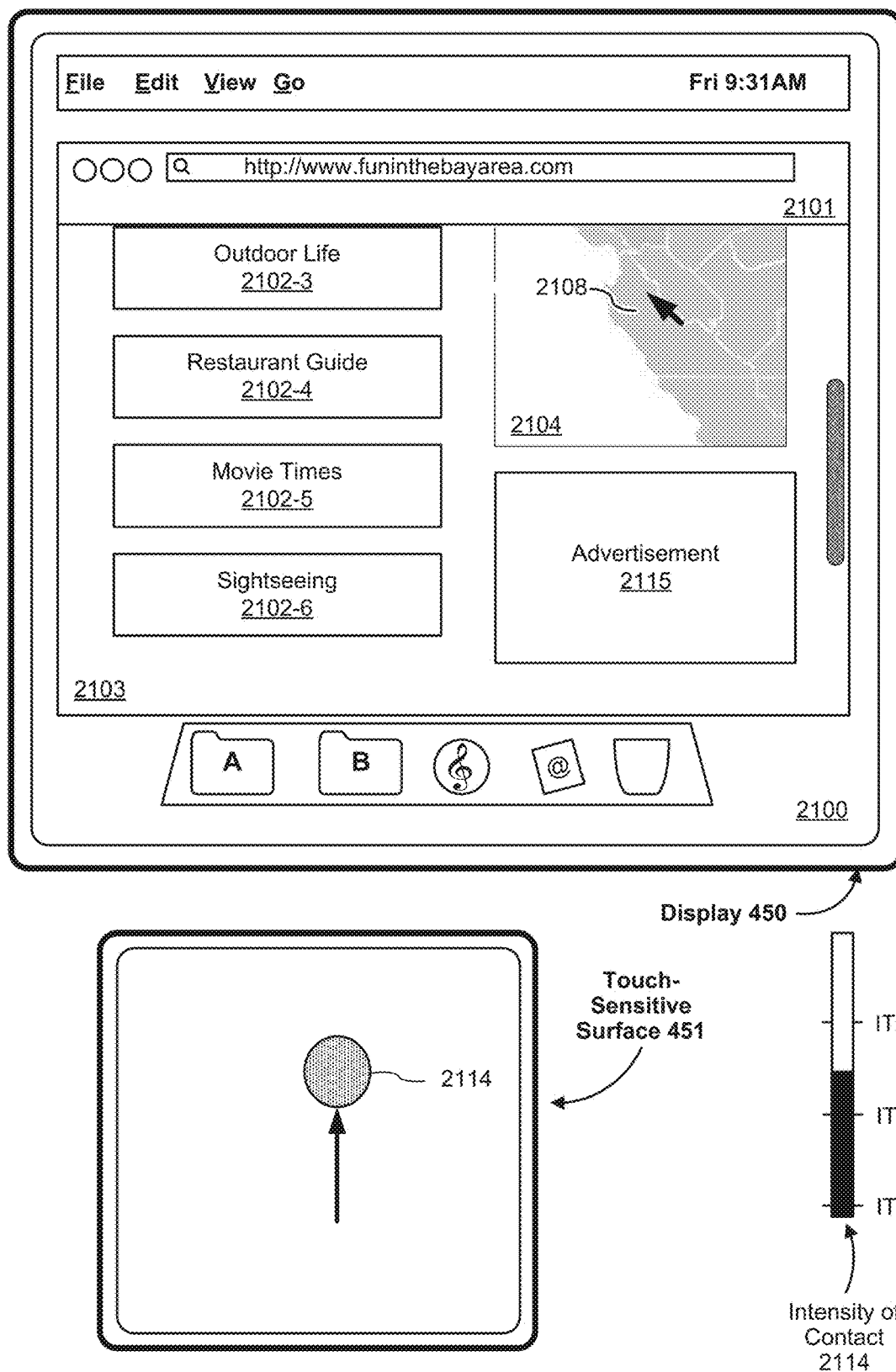


Figure 5G

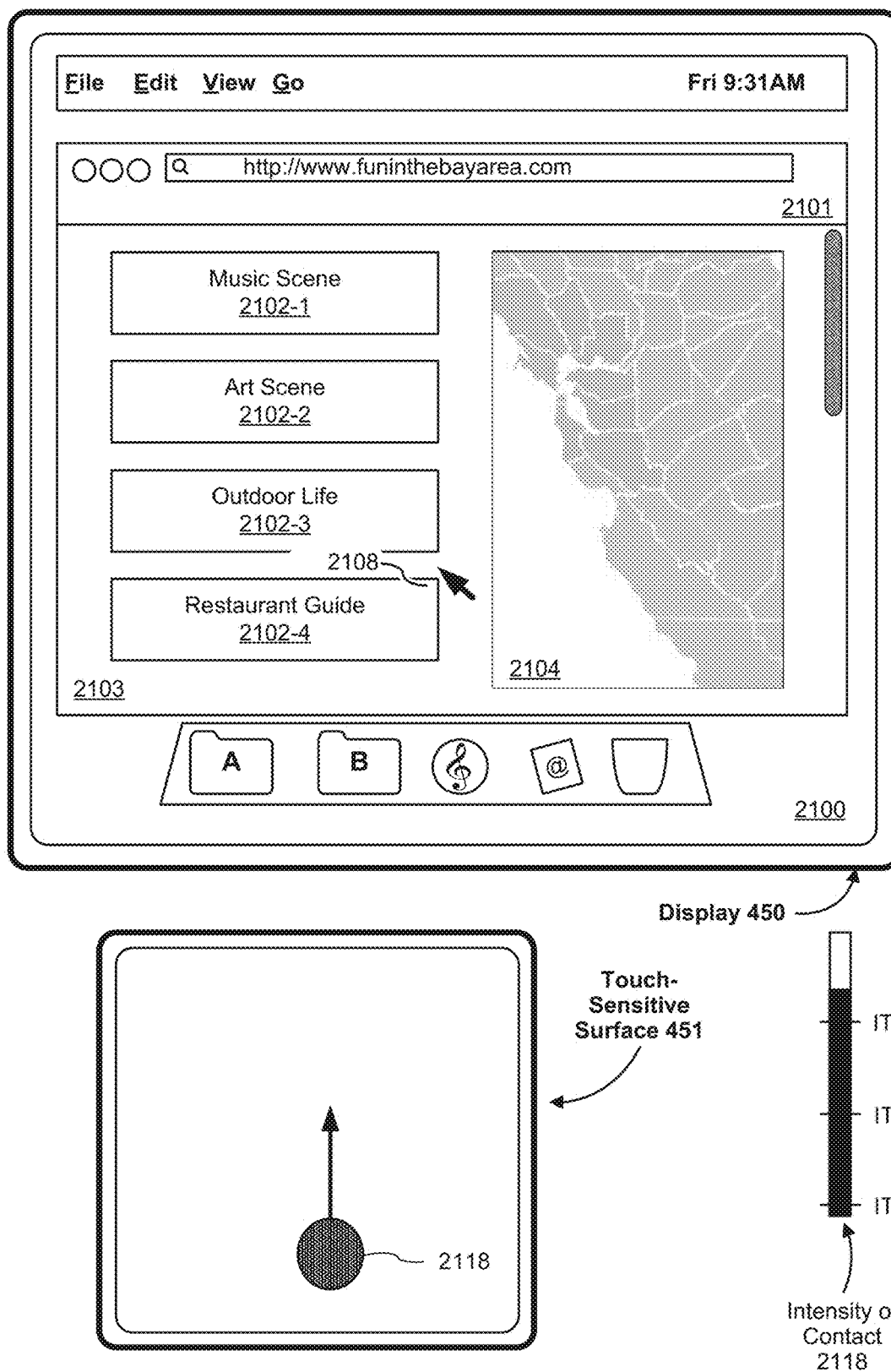
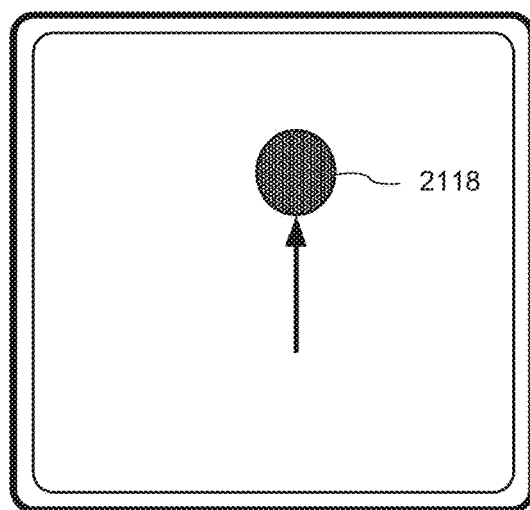
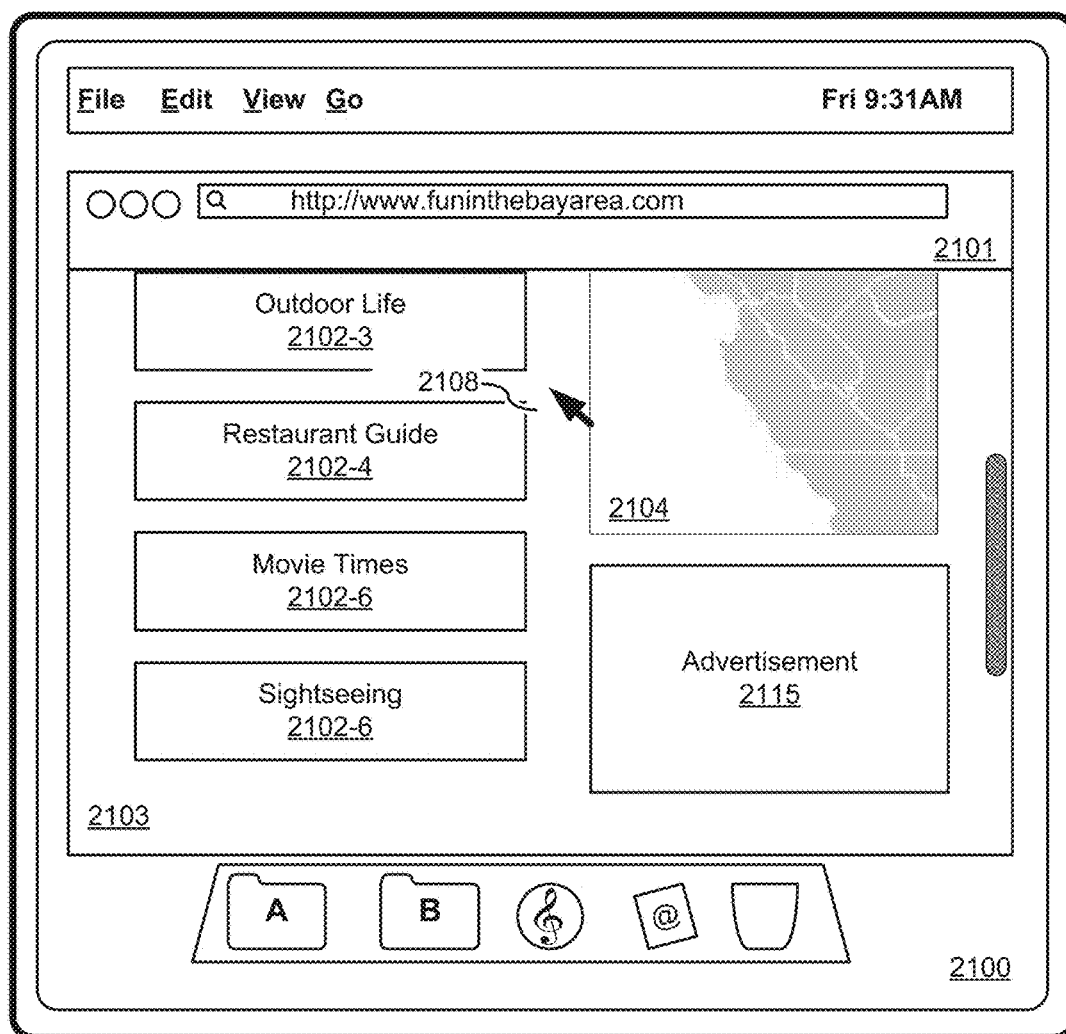


Figure 5H



Touch-Sensitive Surface 451

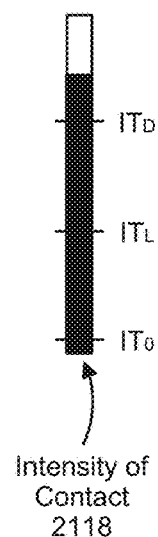


Figure 5I

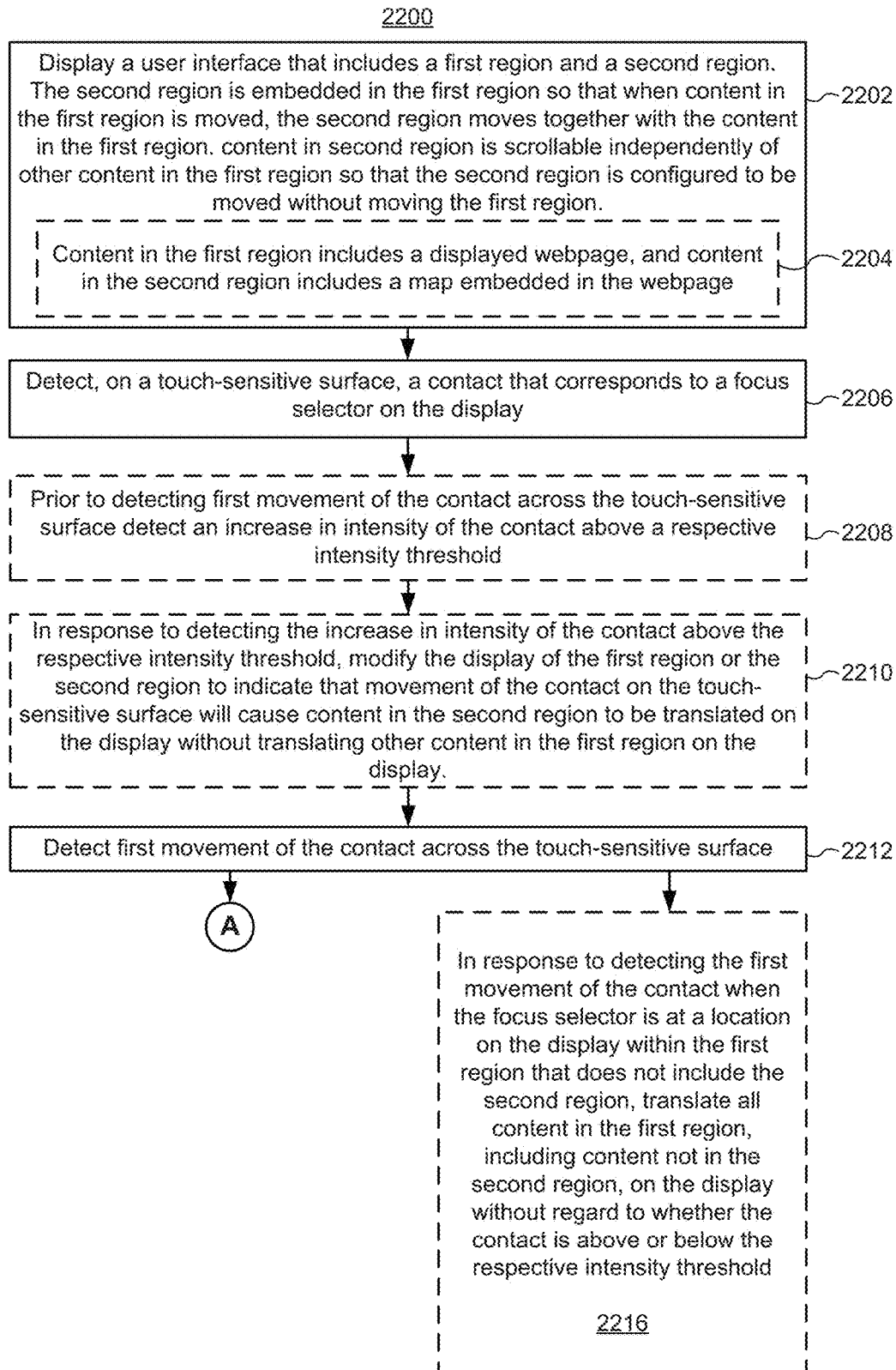


Figure 6A

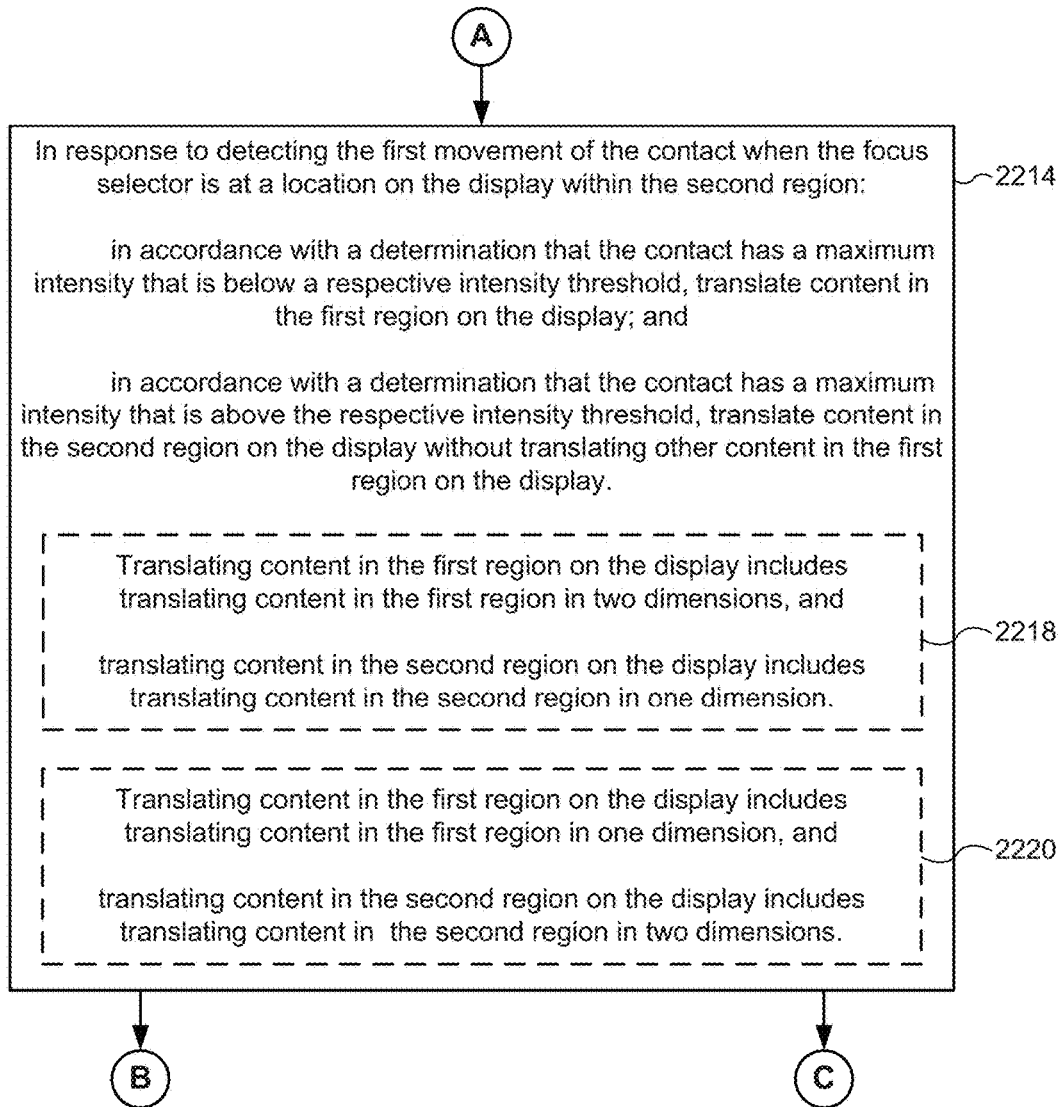


Figure 6B

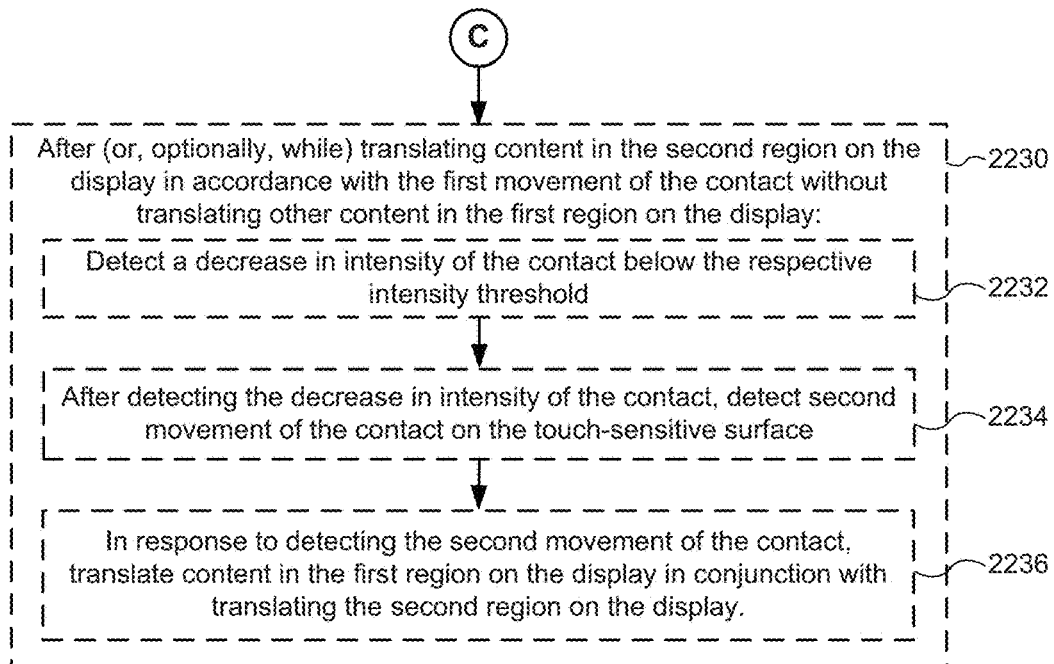
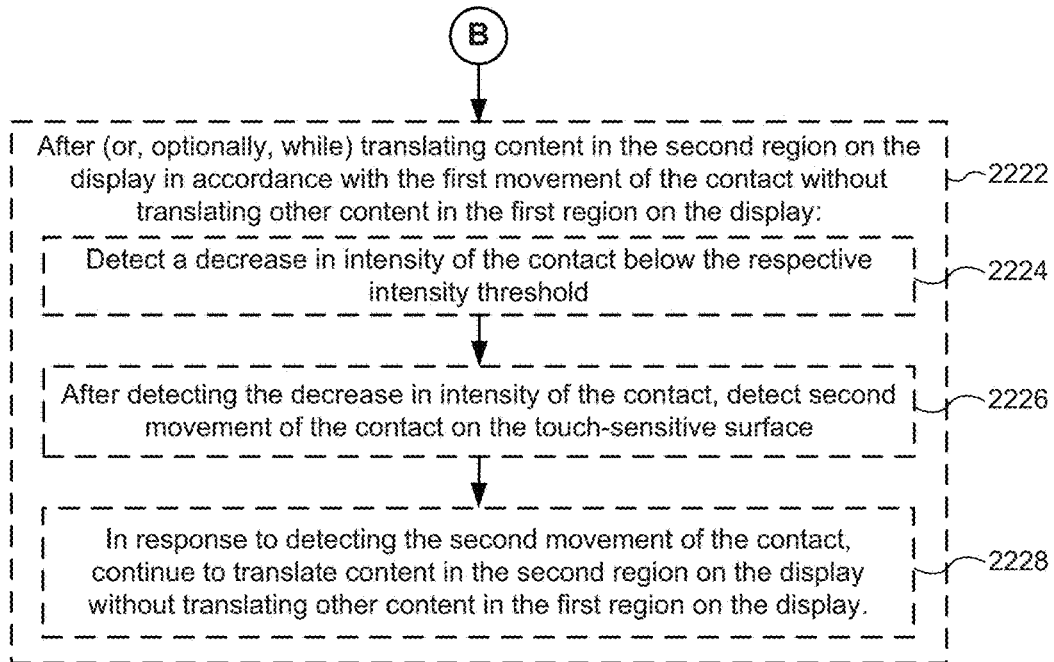


Figure 6C

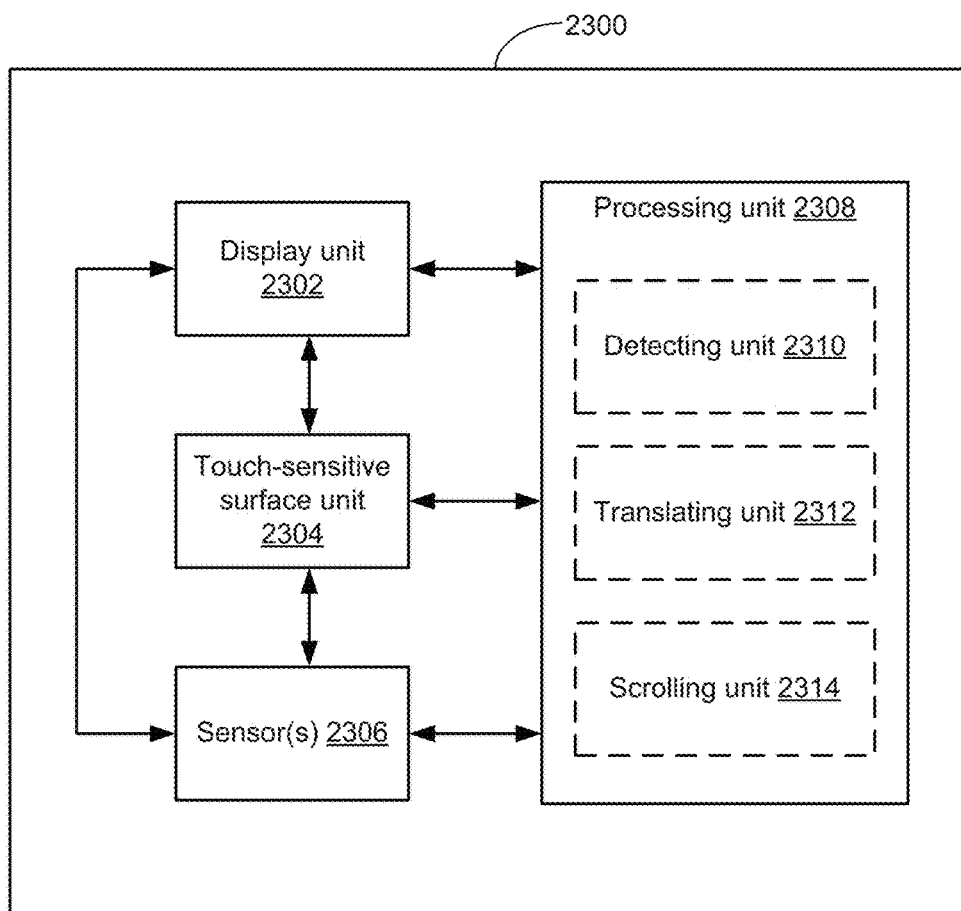
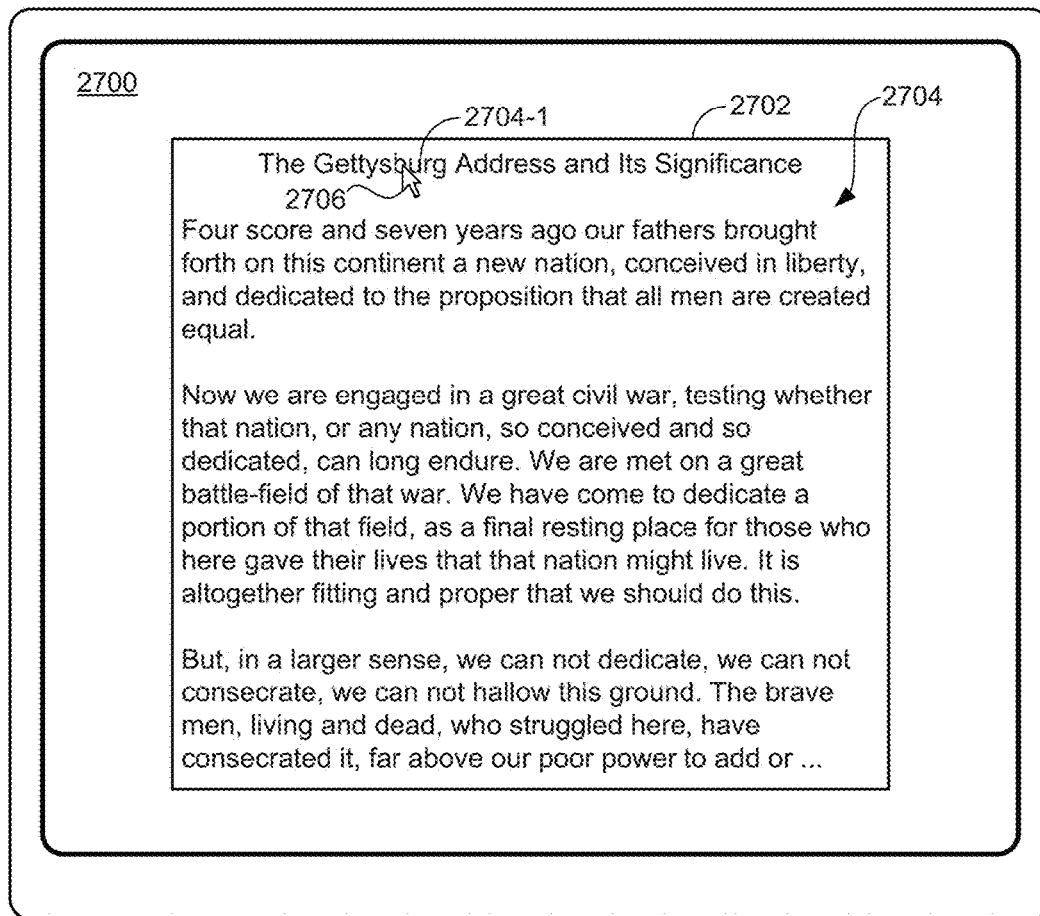


Figure 7



450

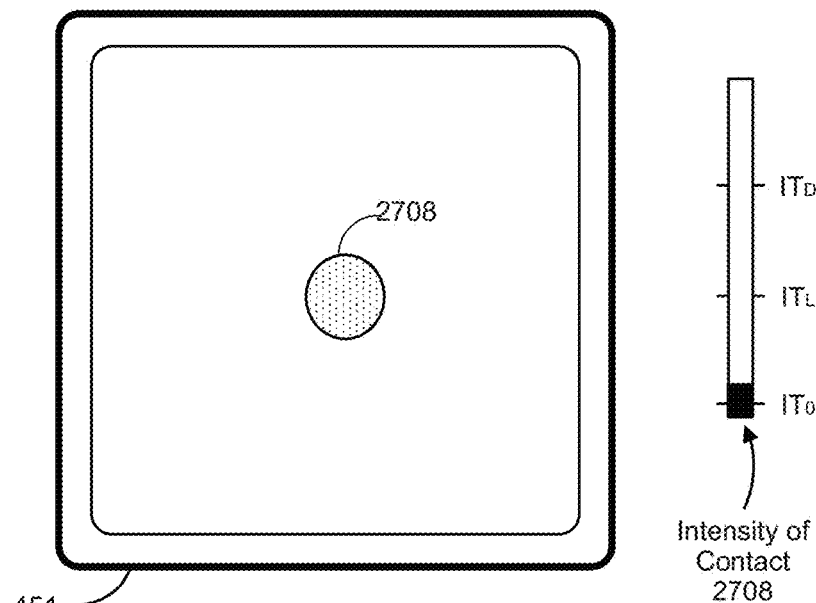
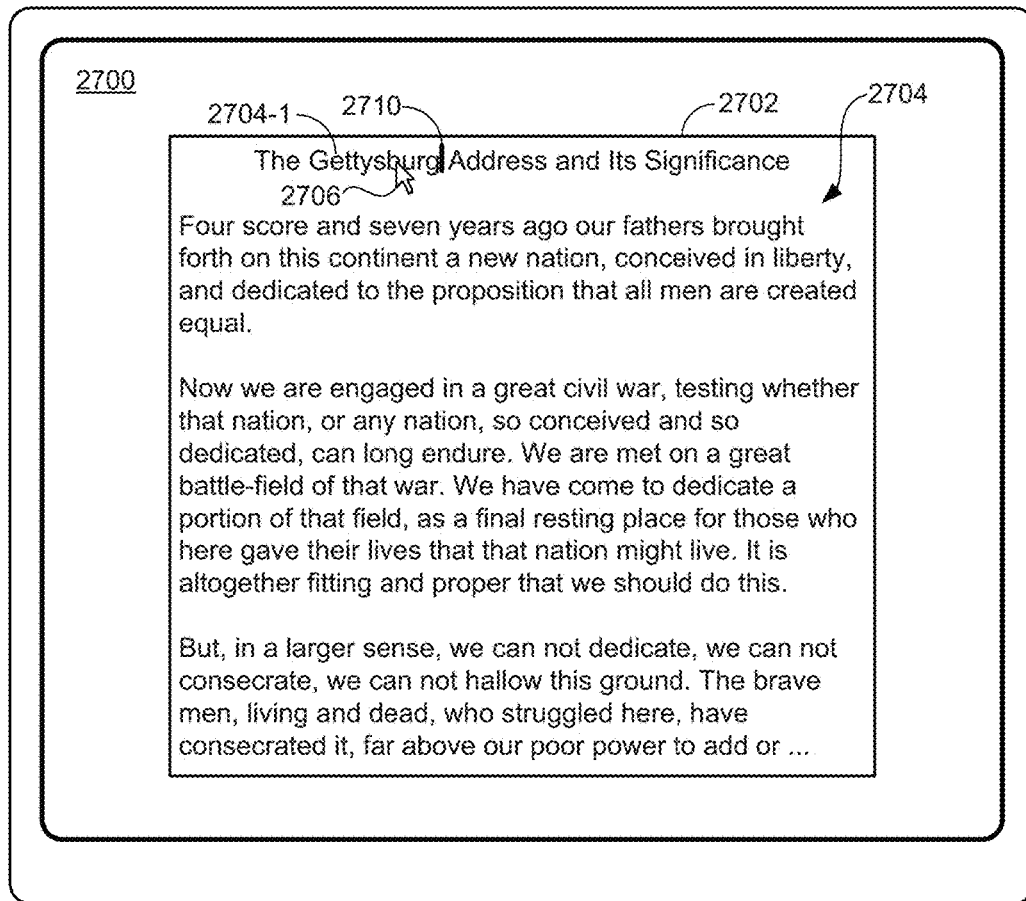


Figure 8A



450

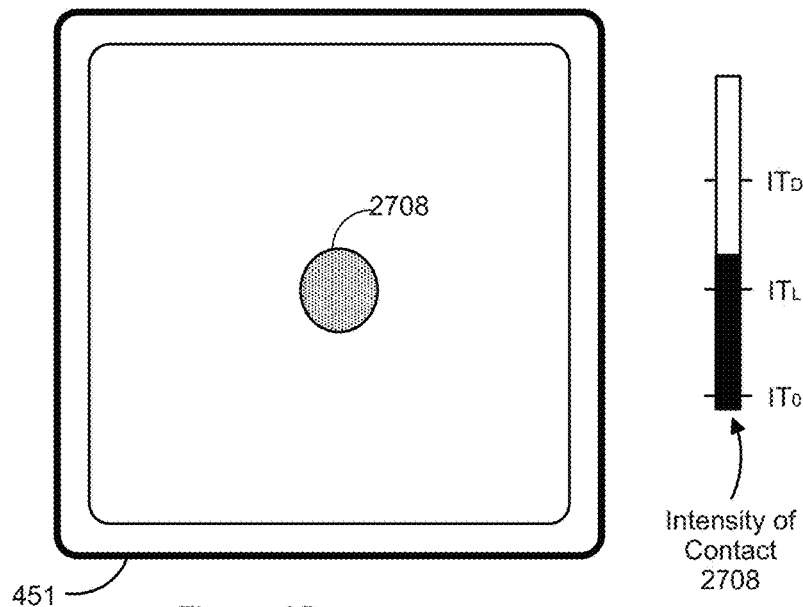
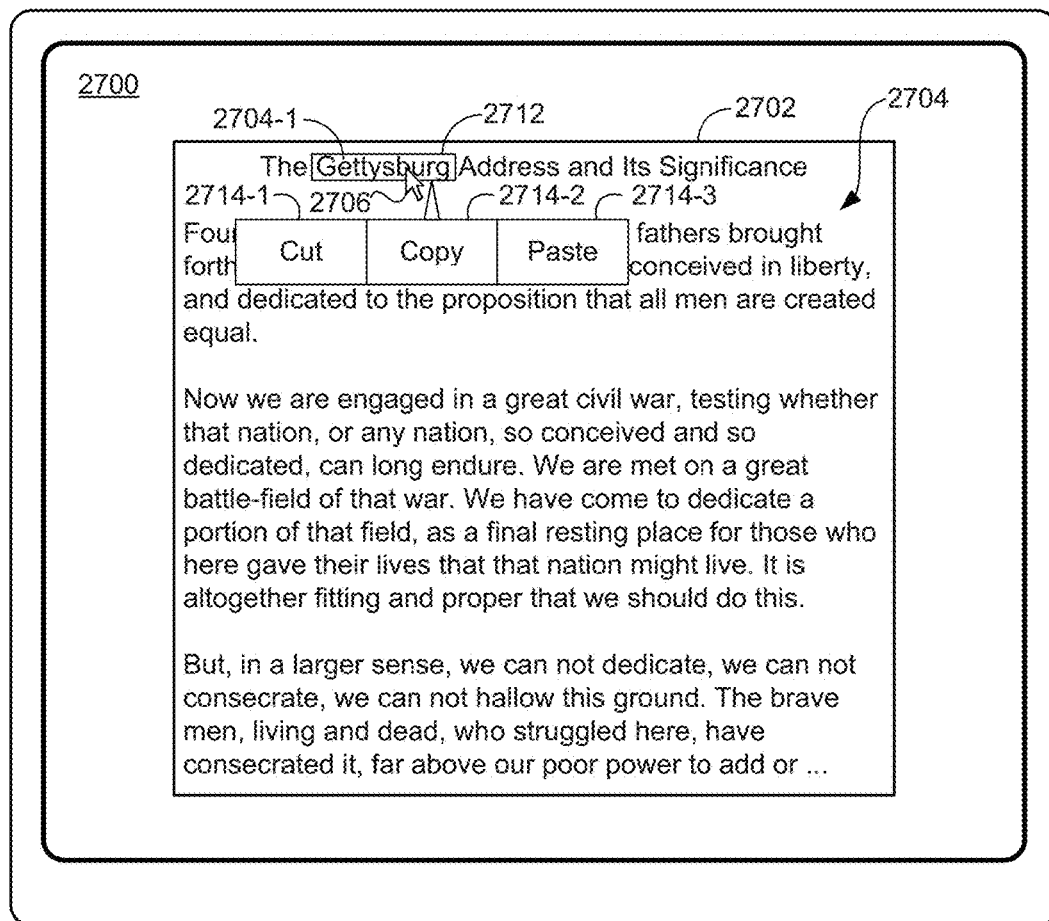


Figure 8B



450

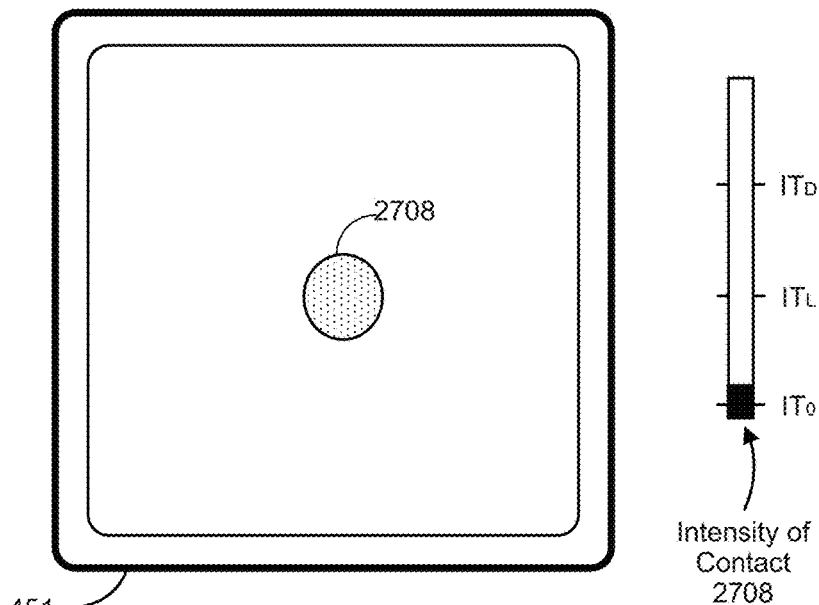


Figure 8C

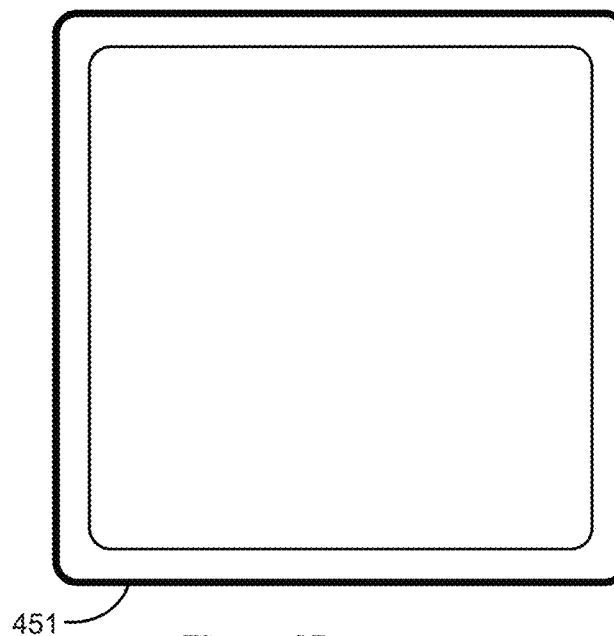
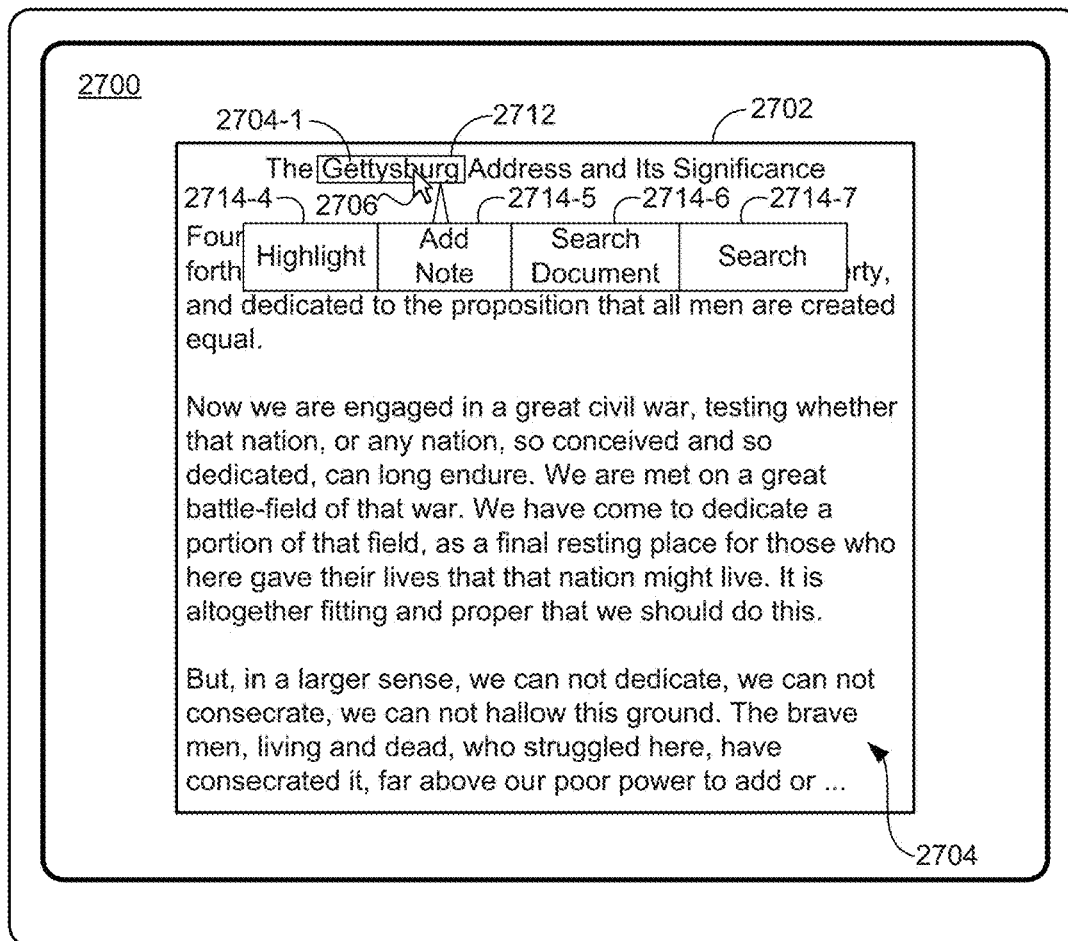
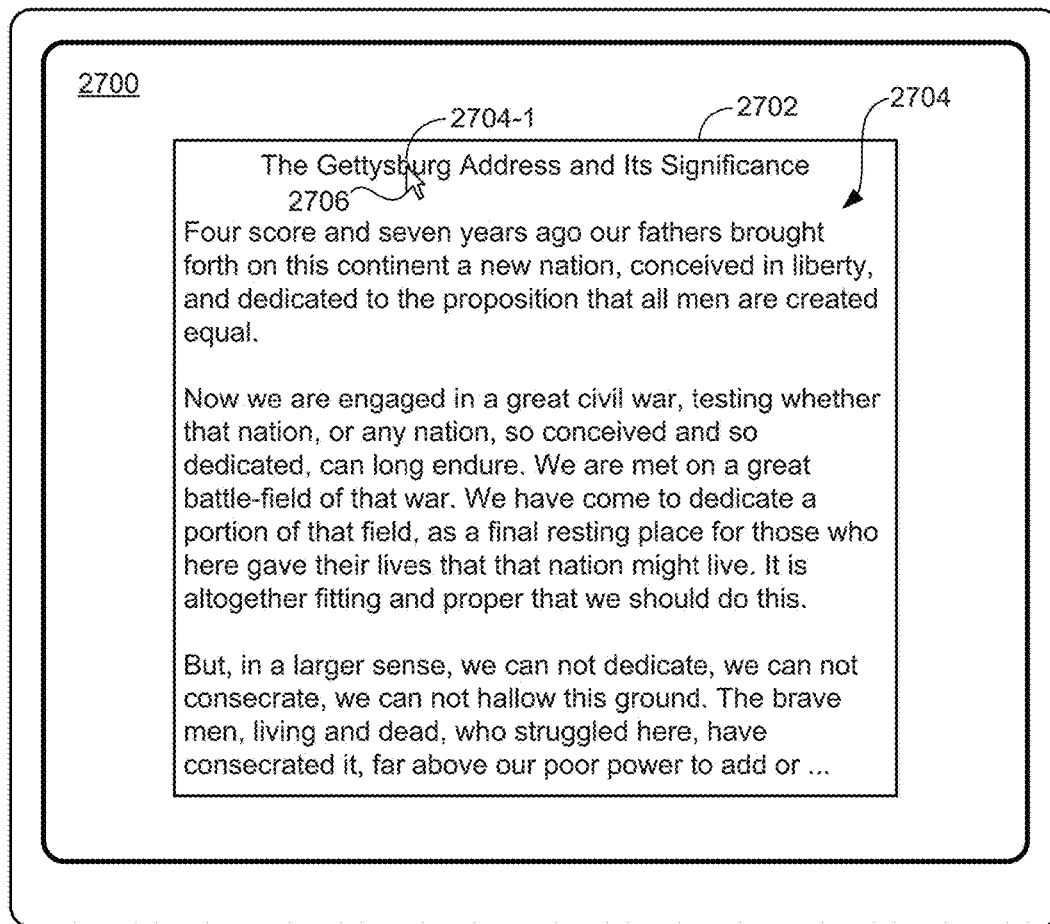


Figure 8D



450

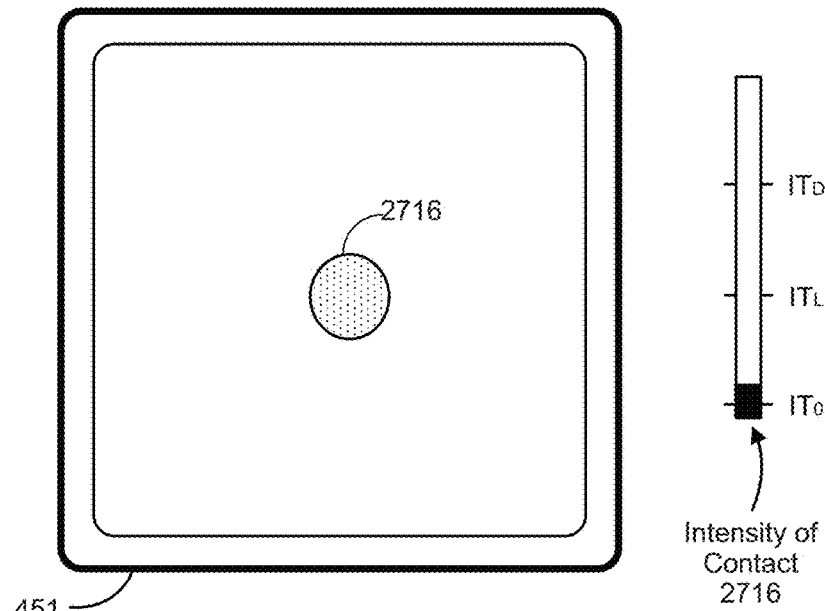
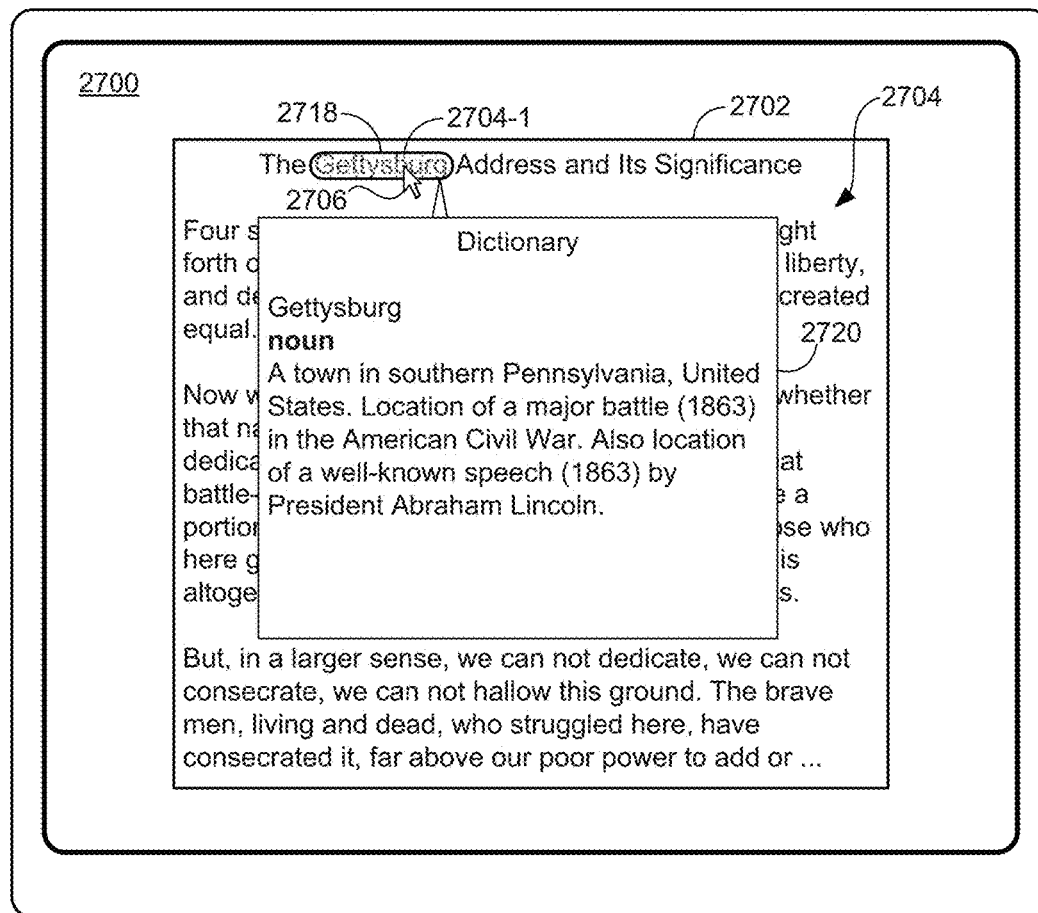


Figure 8E



450

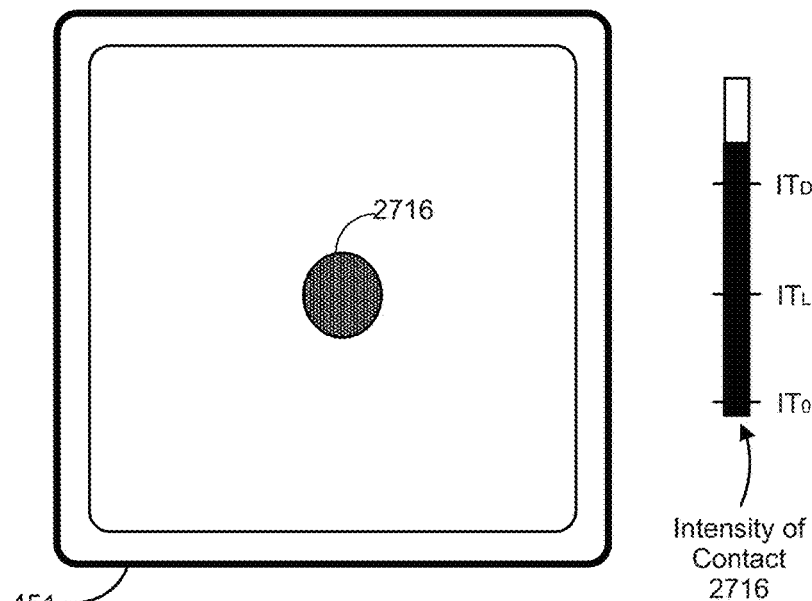


Figure 8F

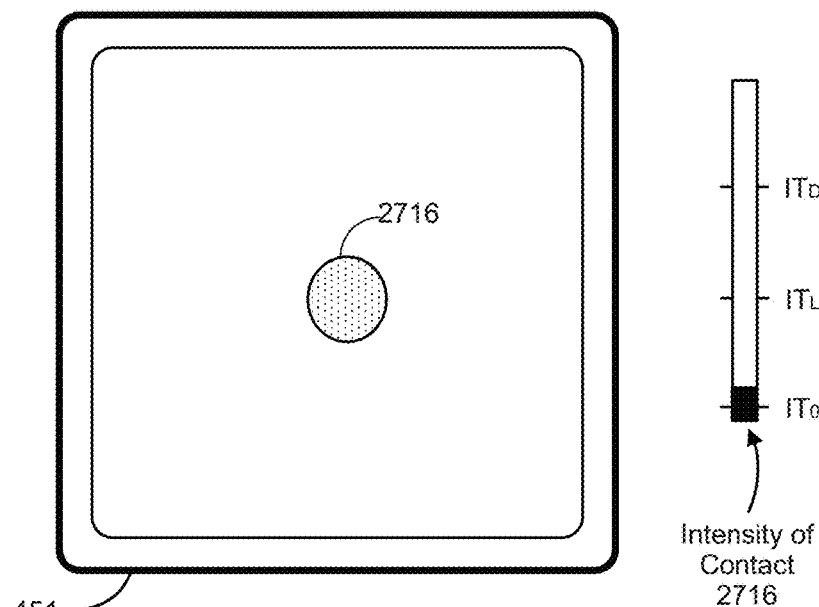
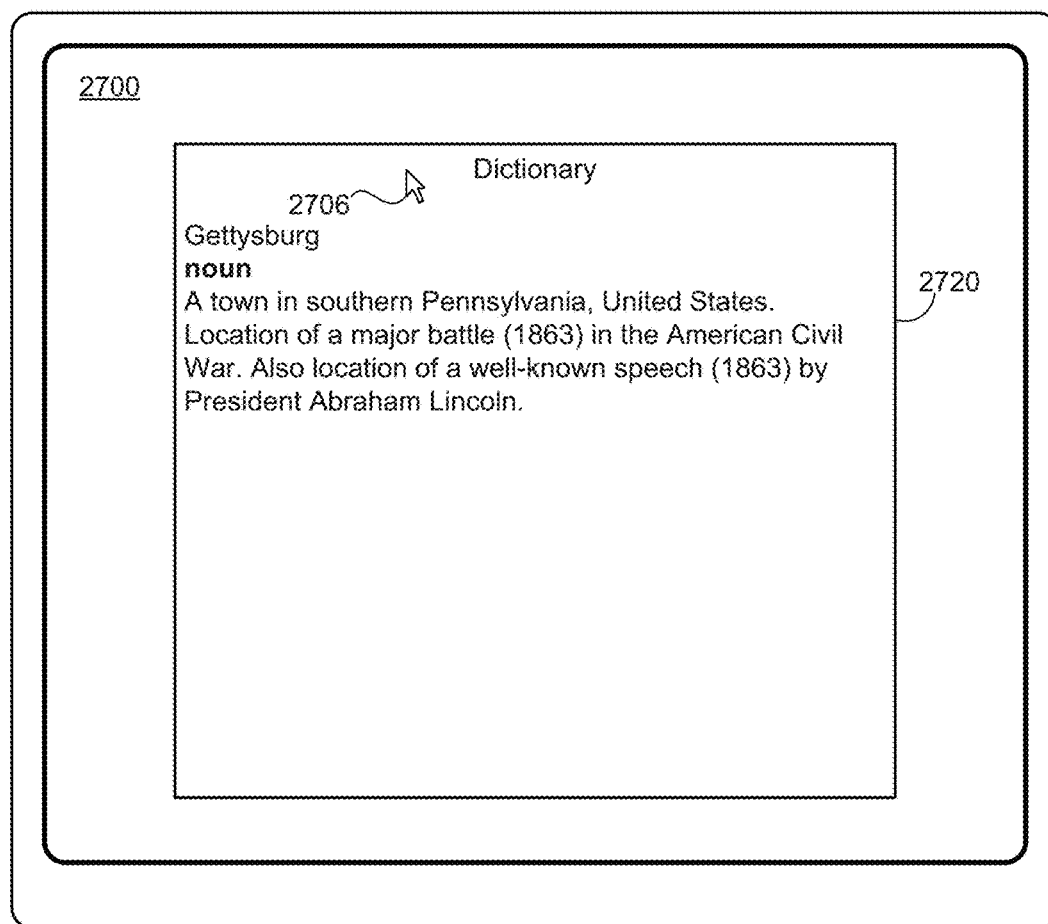


Figure 8G

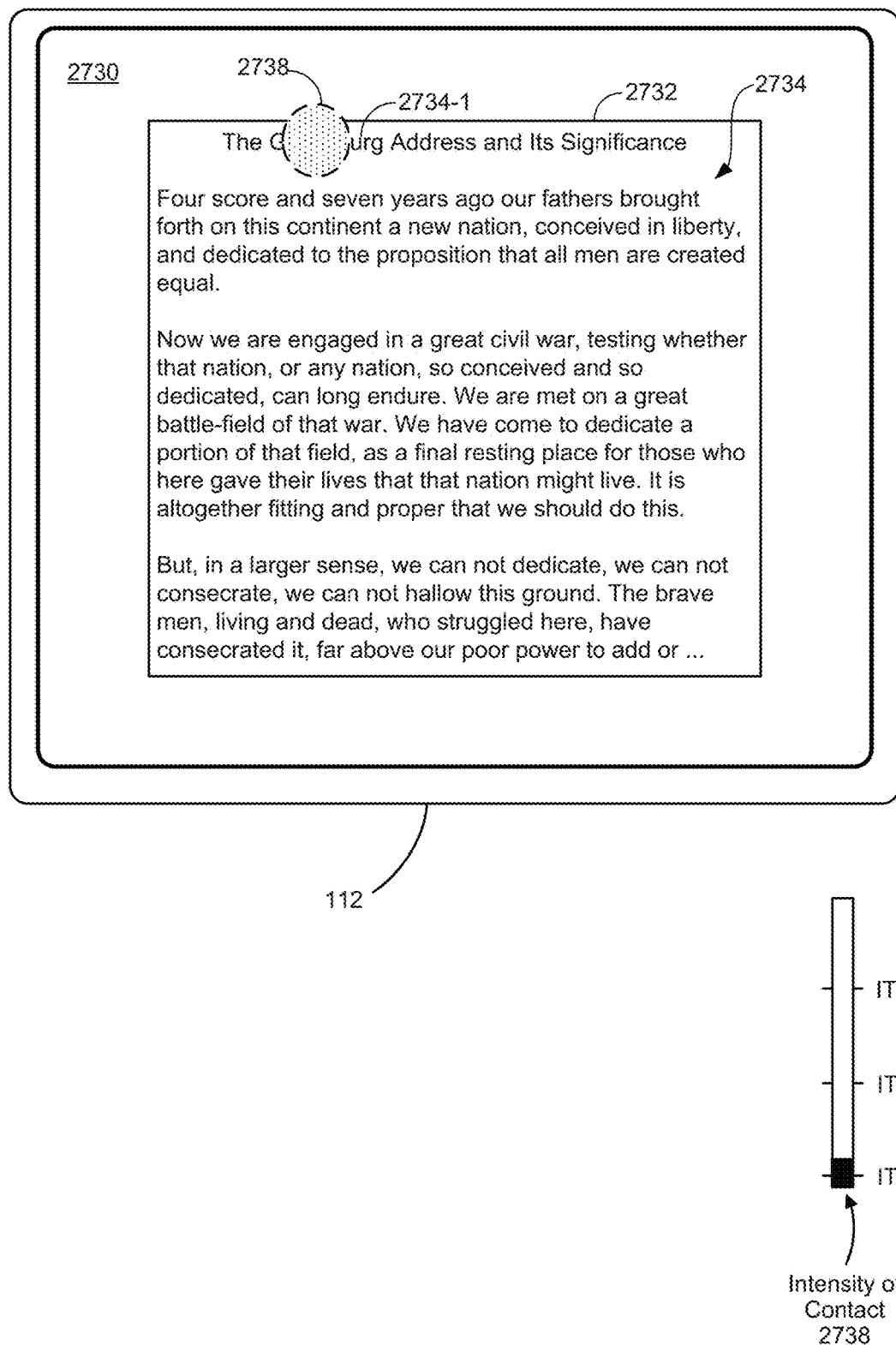


Figure 8H

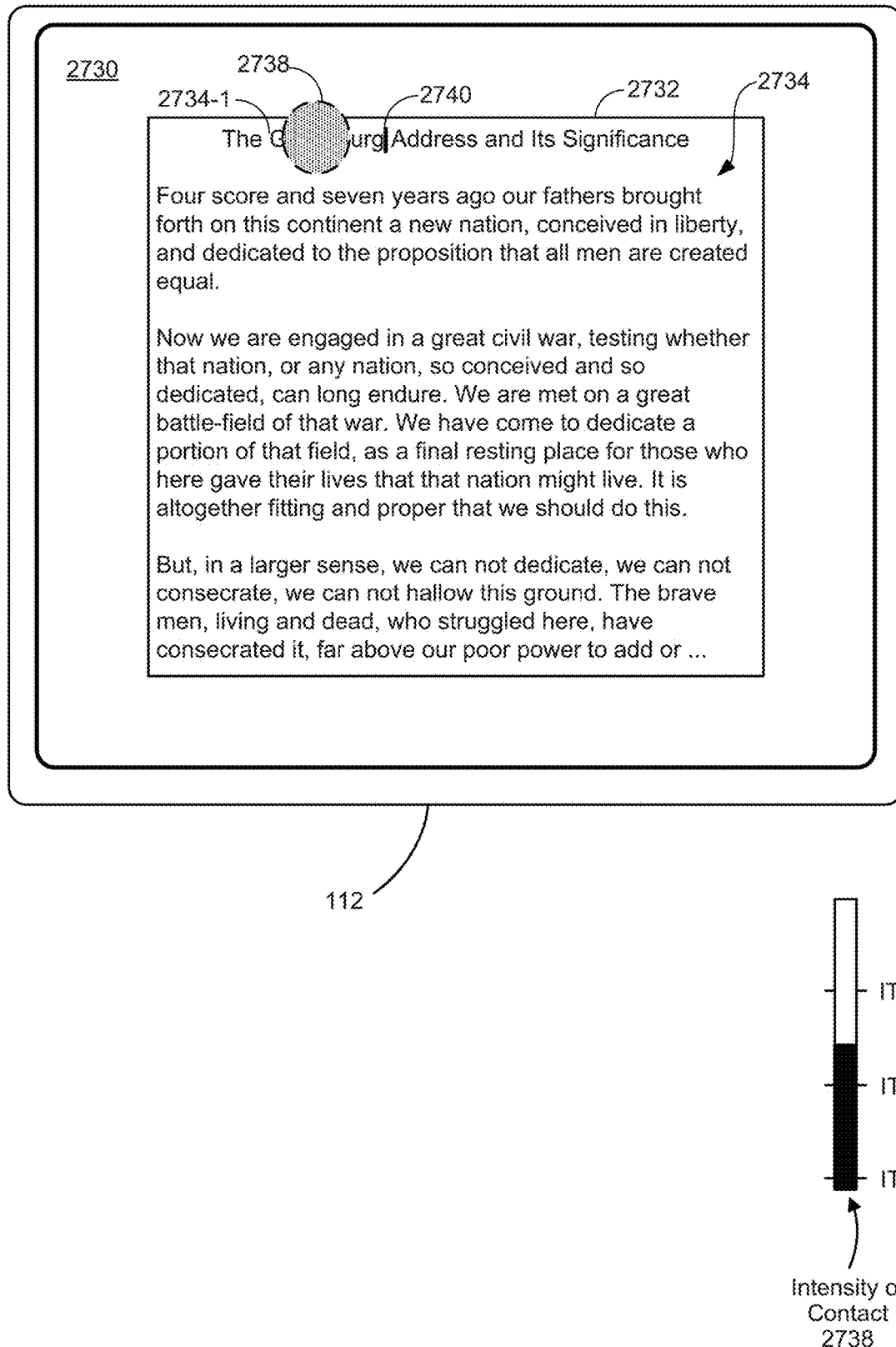


Figure 8I

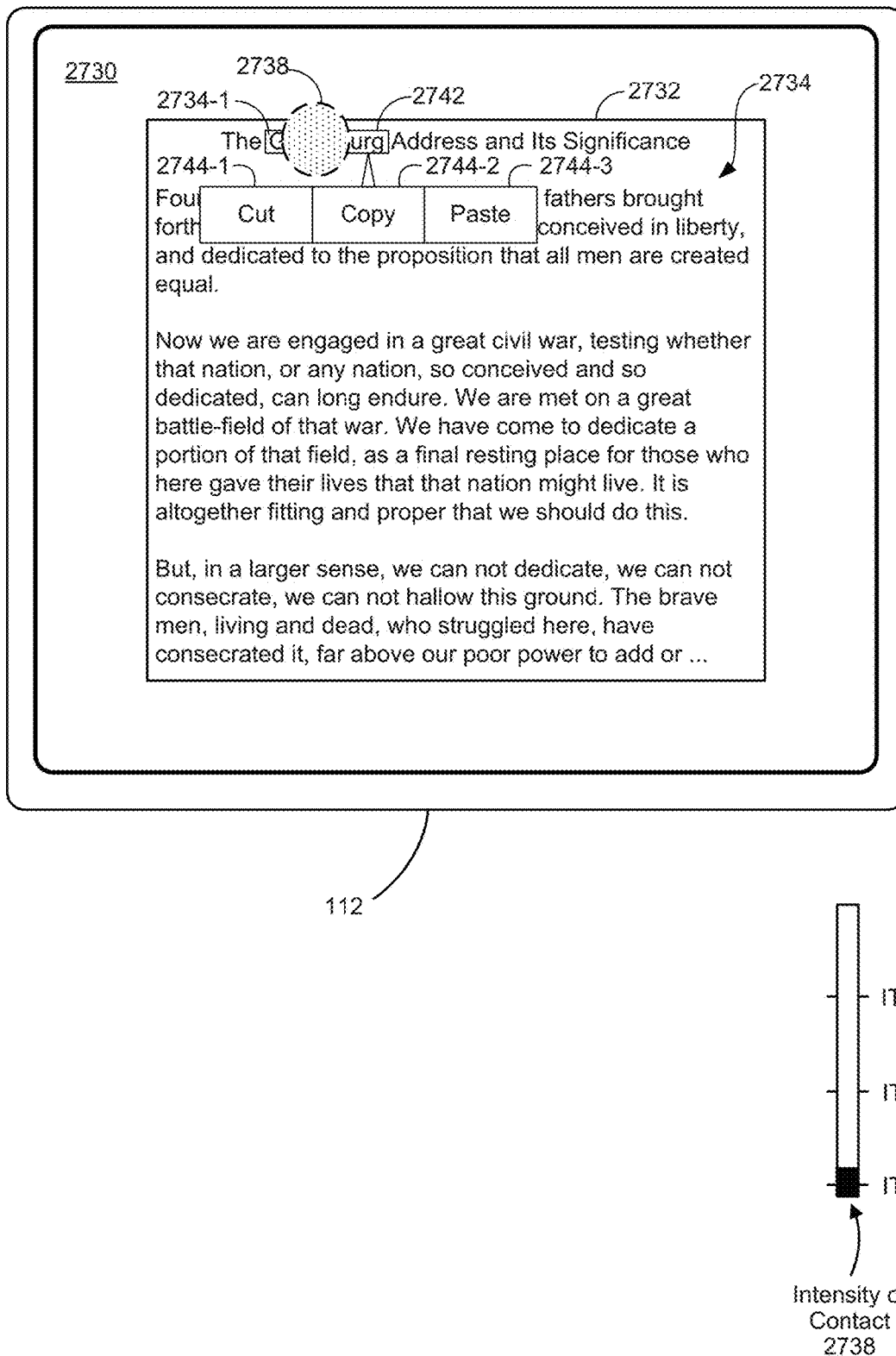


Figure 8J

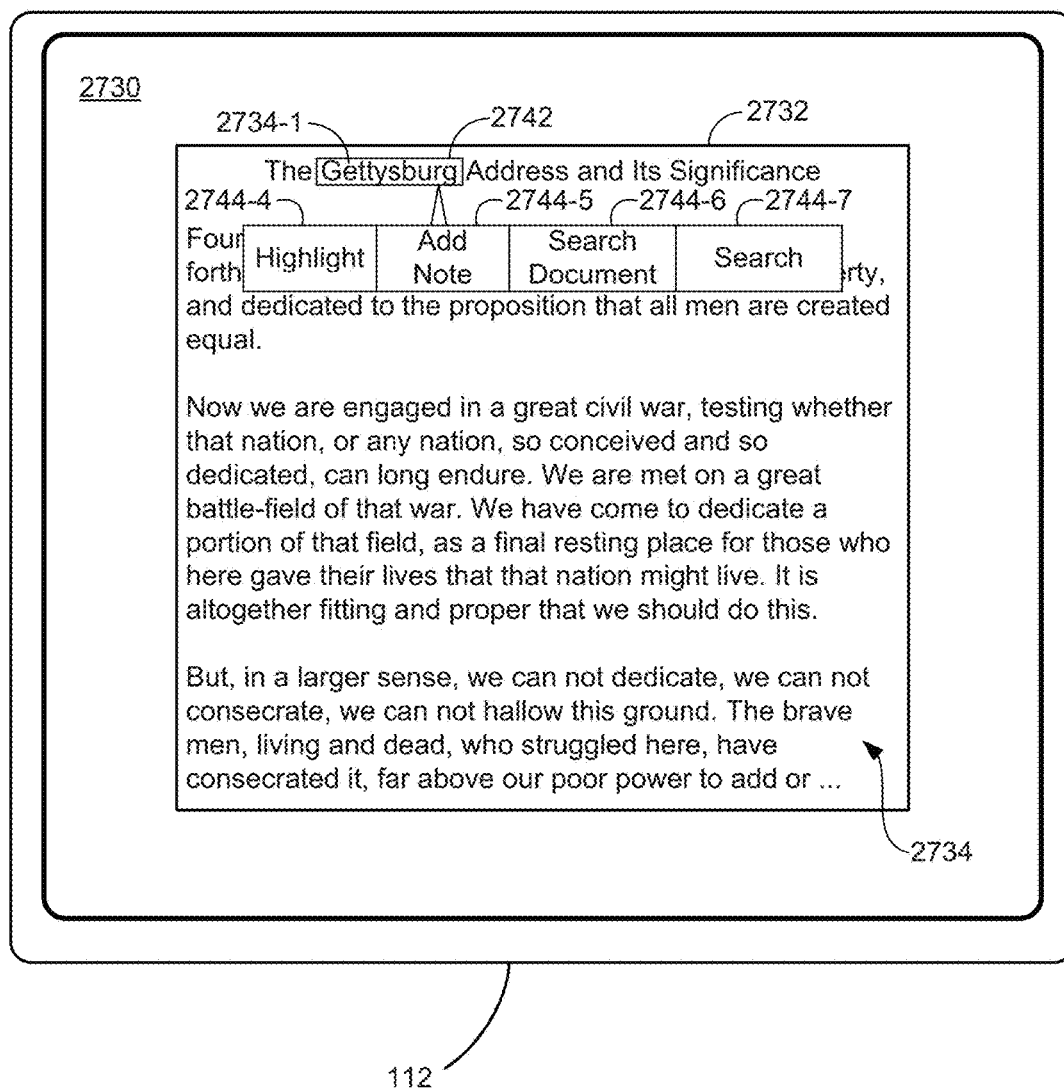


Figure 8K

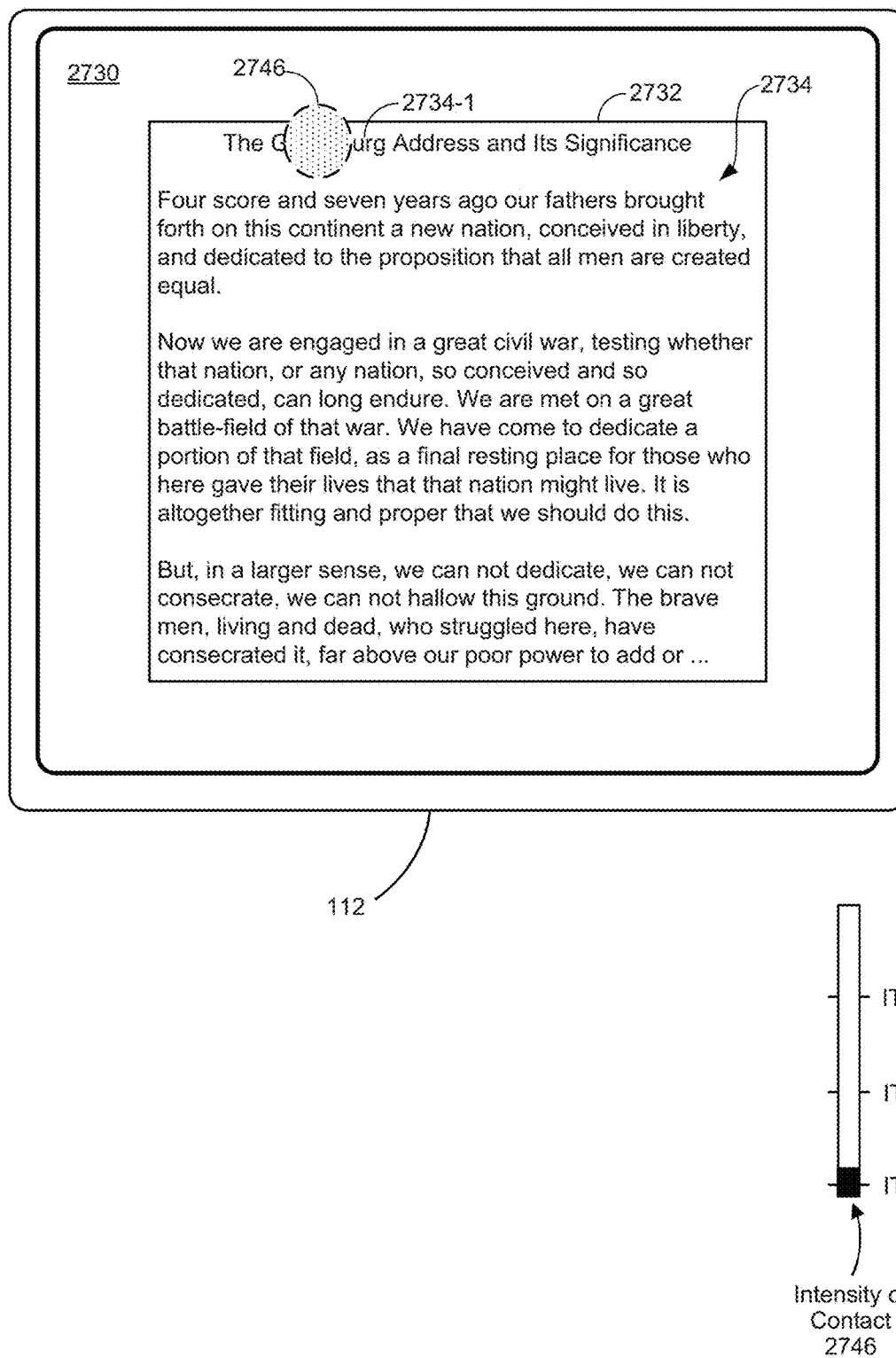


Figure 8L

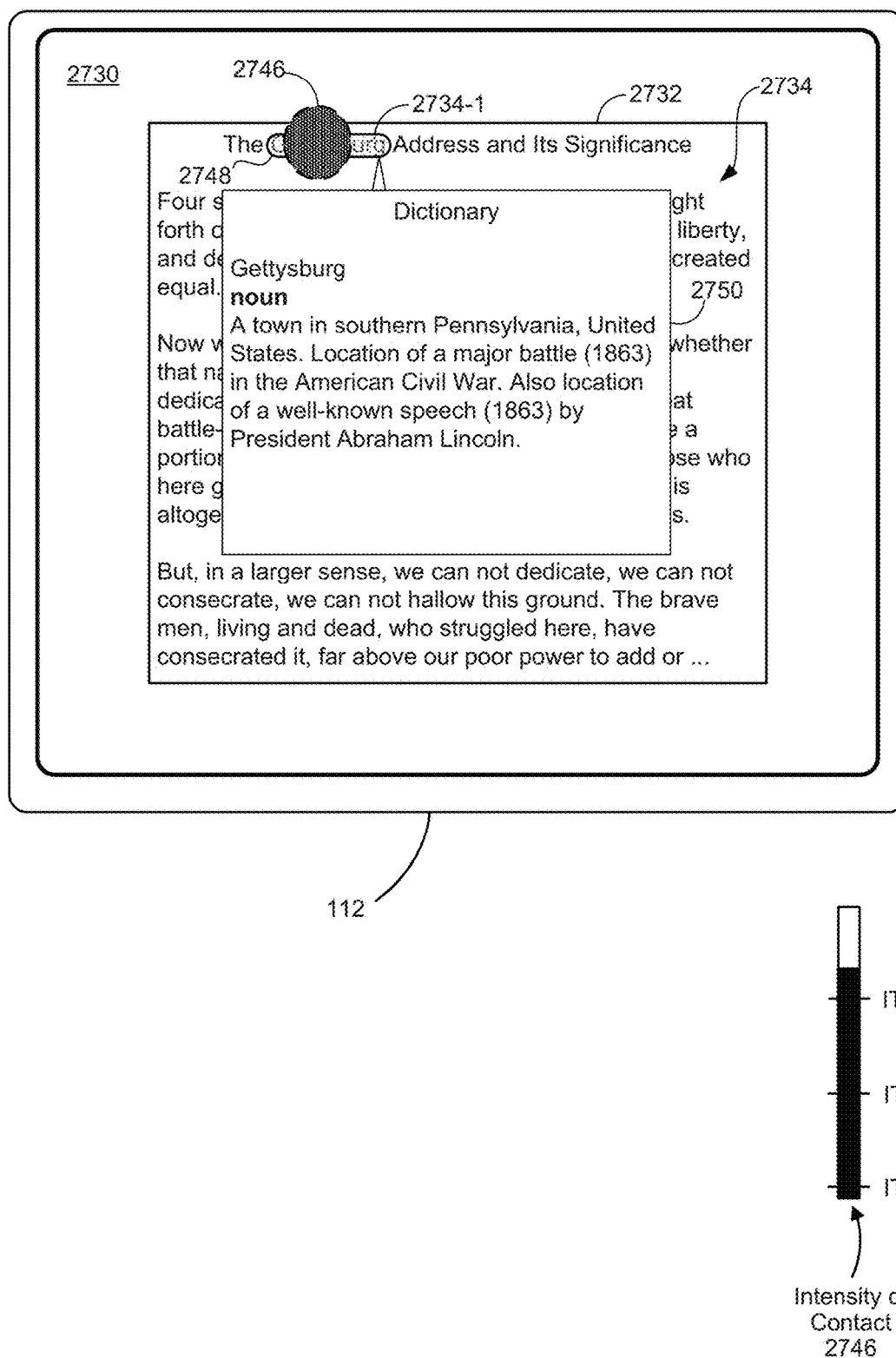


Figure 8M

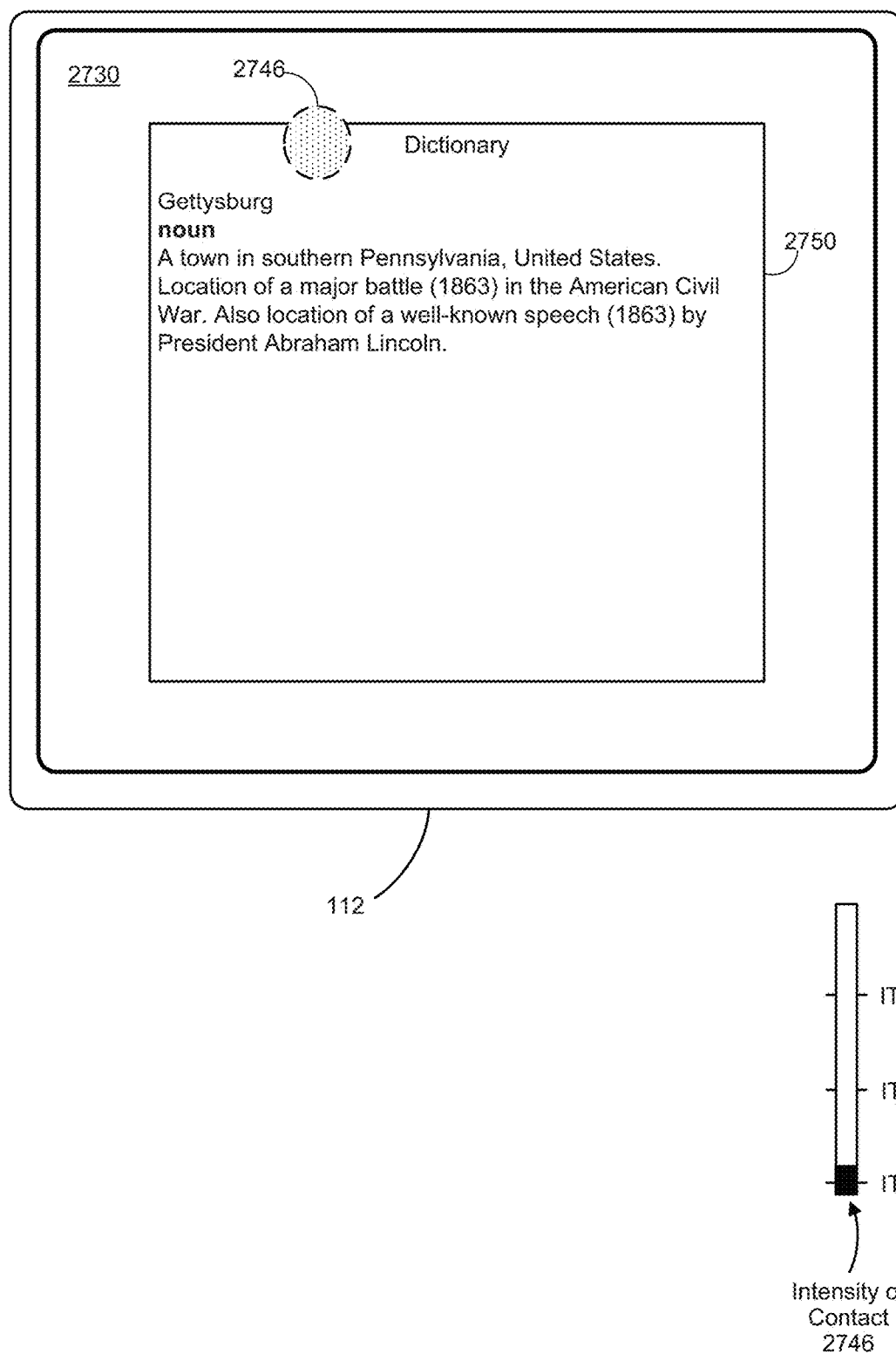


Figure 8N

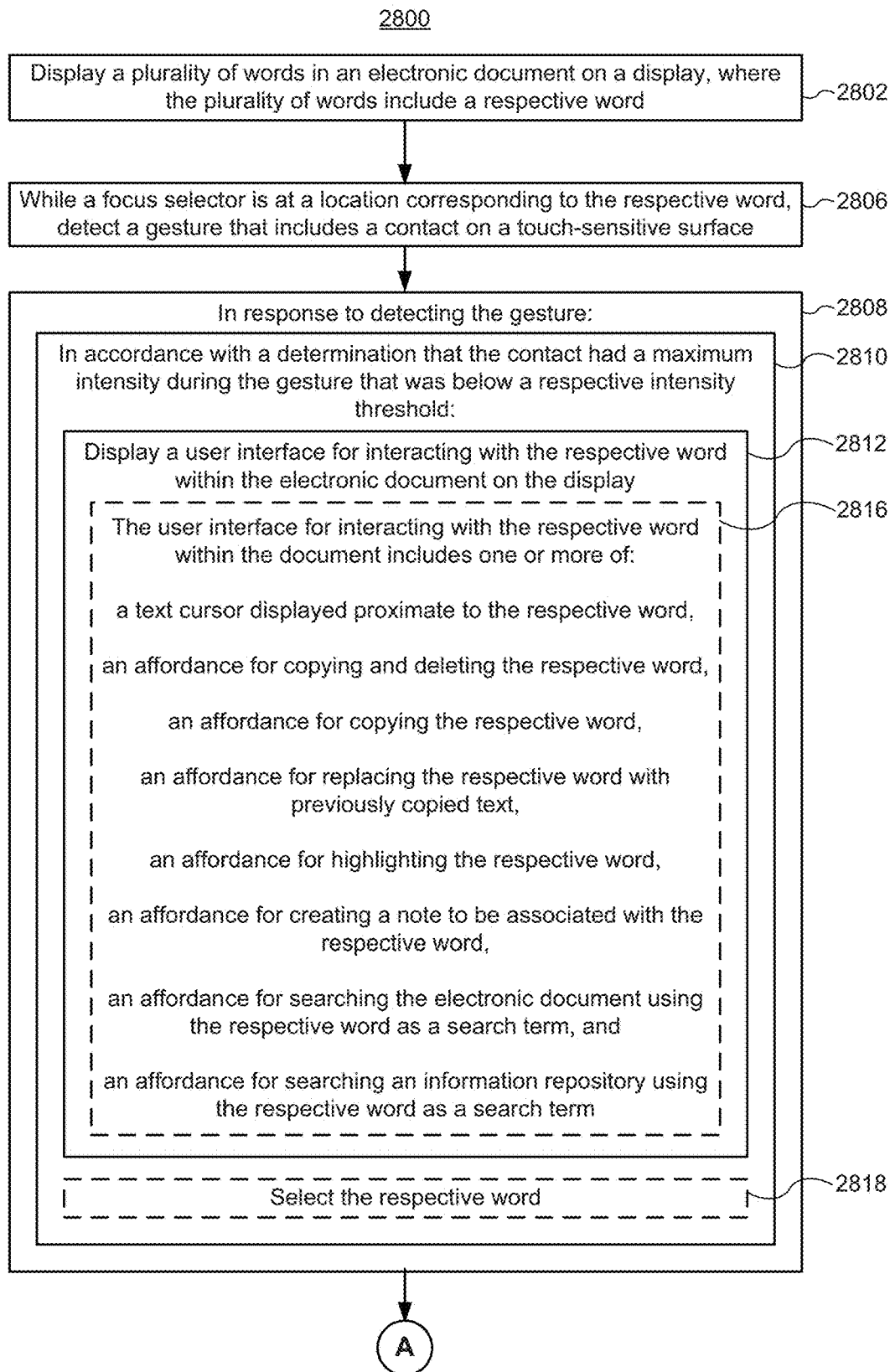


Figure 9A

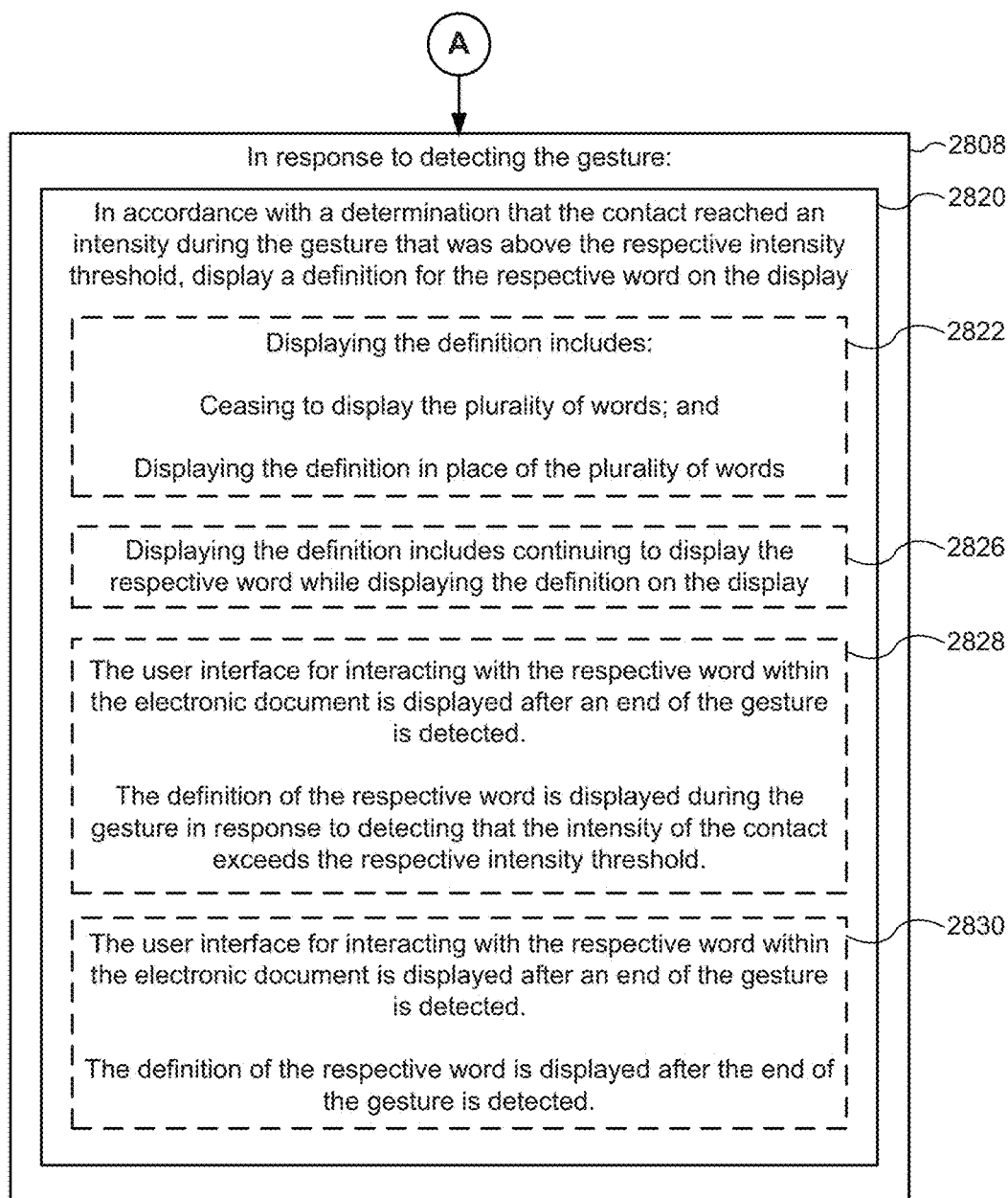


Figure 9B

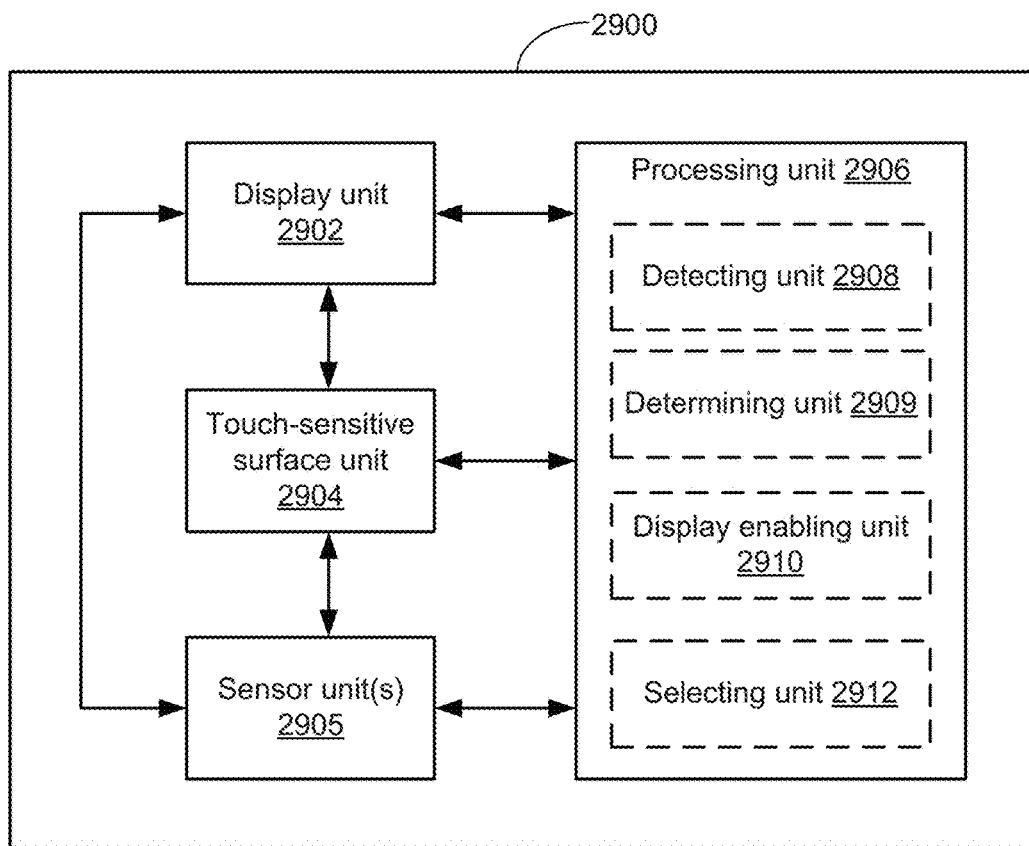


Figure 10

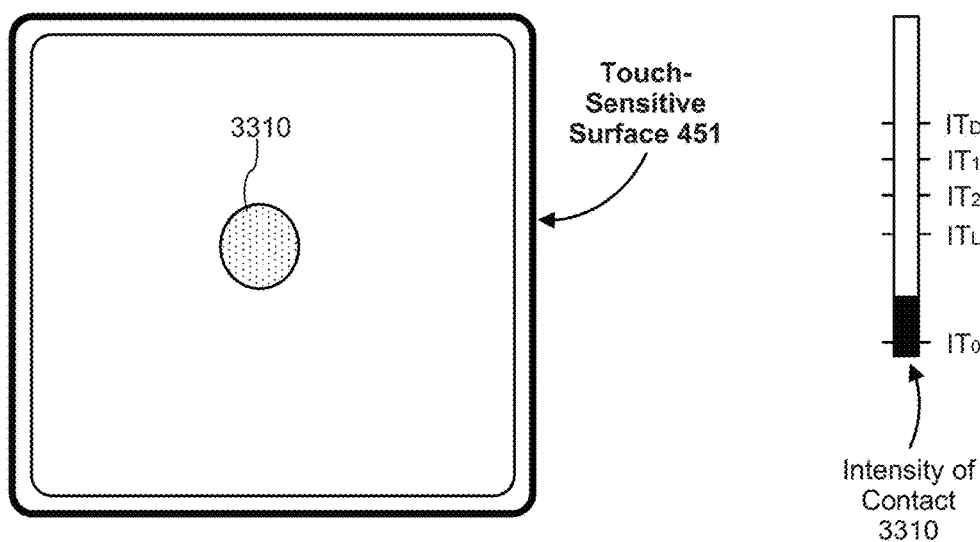
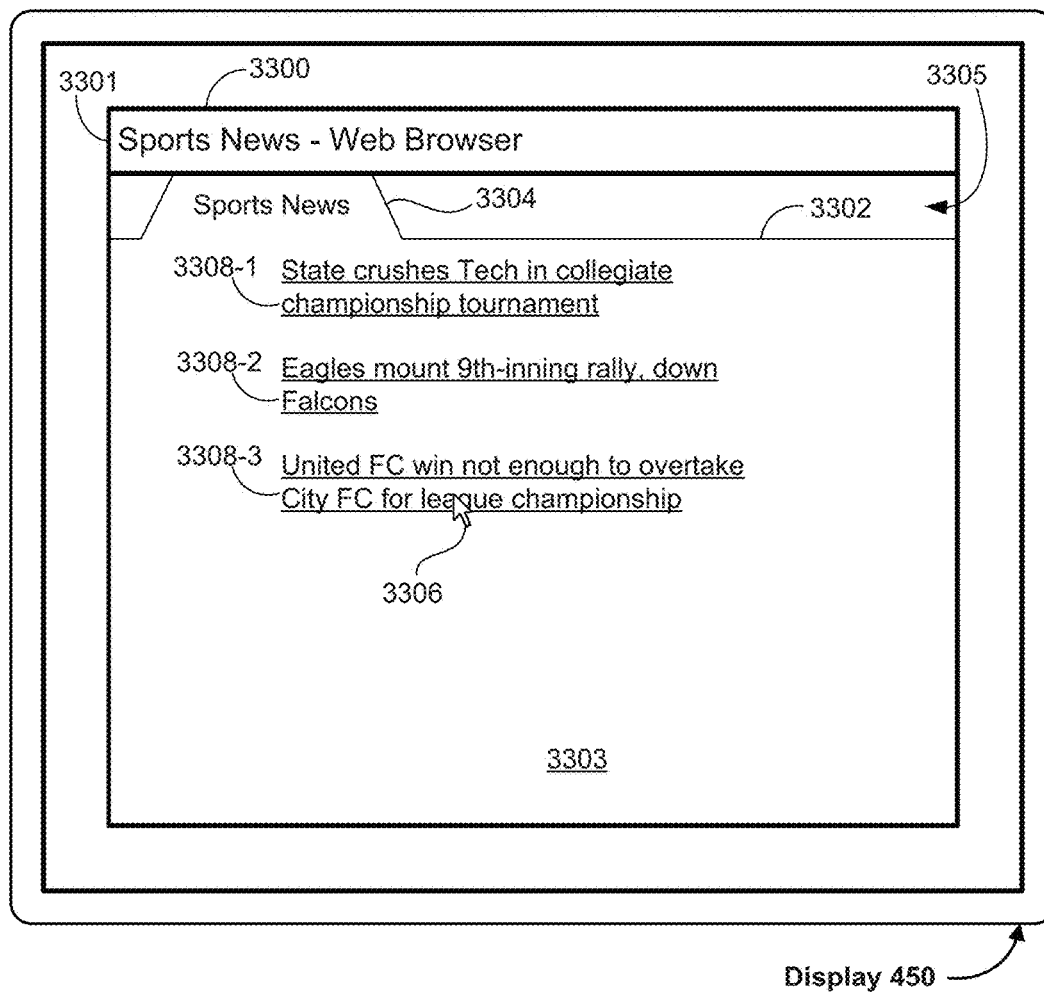


Figure 11A

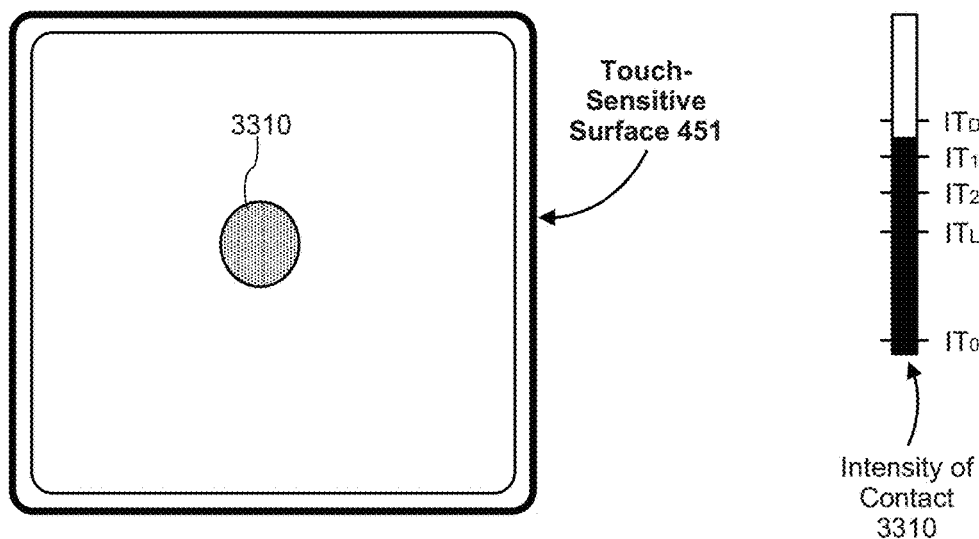
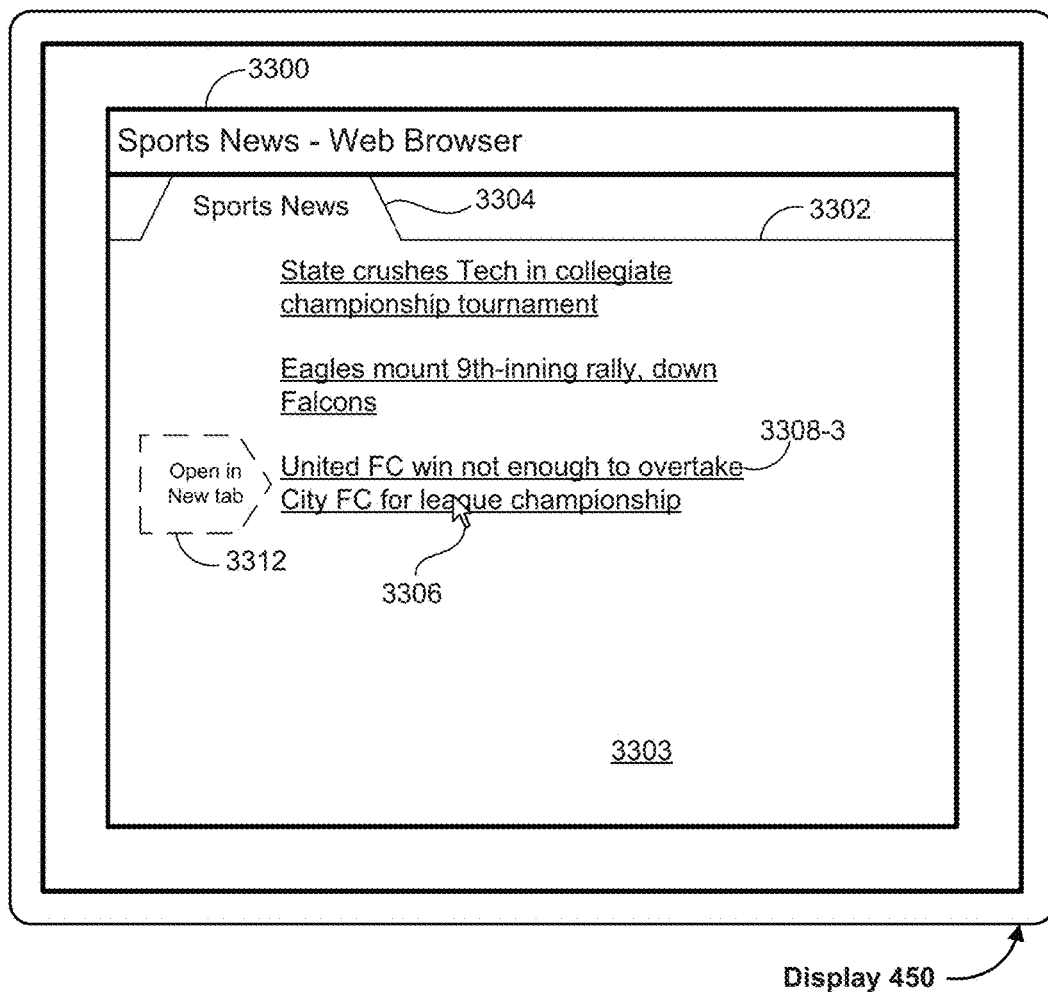


Figure 11B

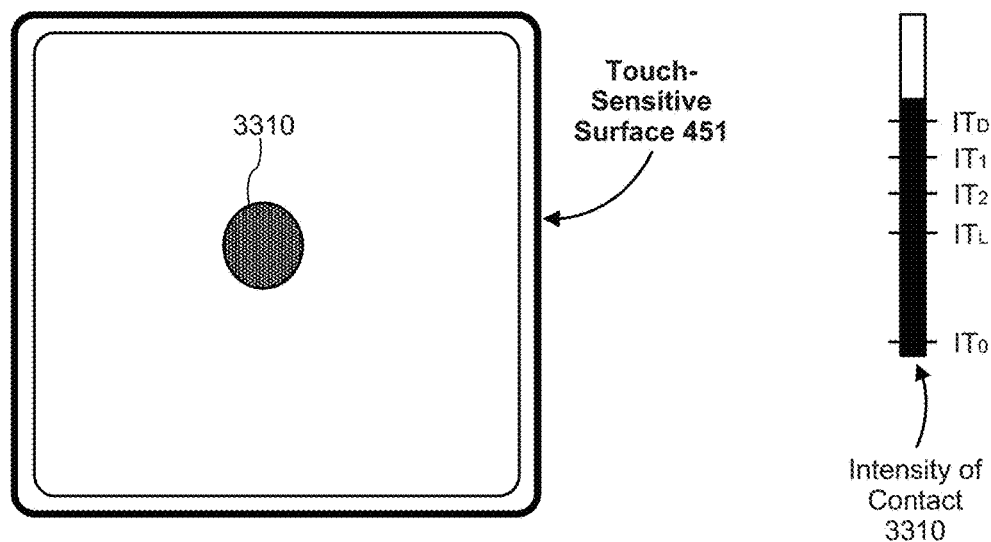
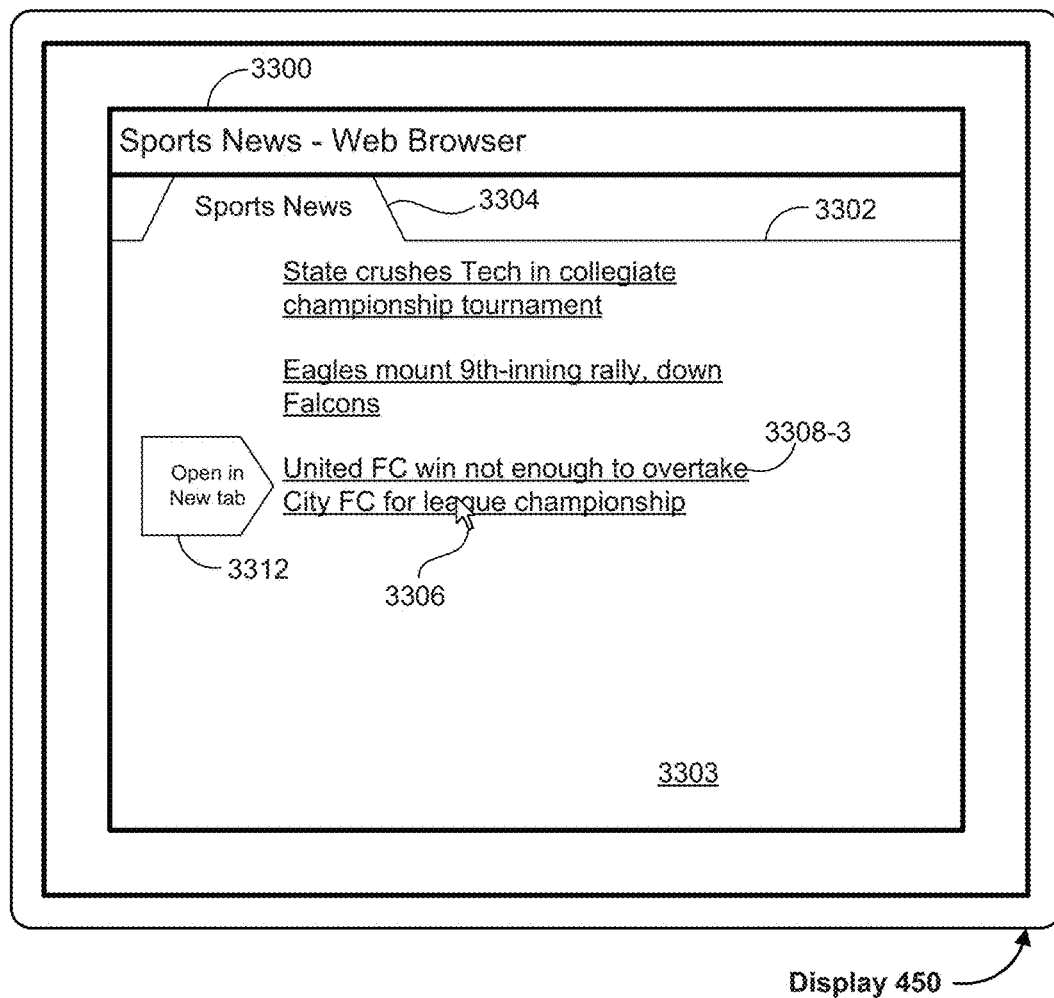


Figure 11C

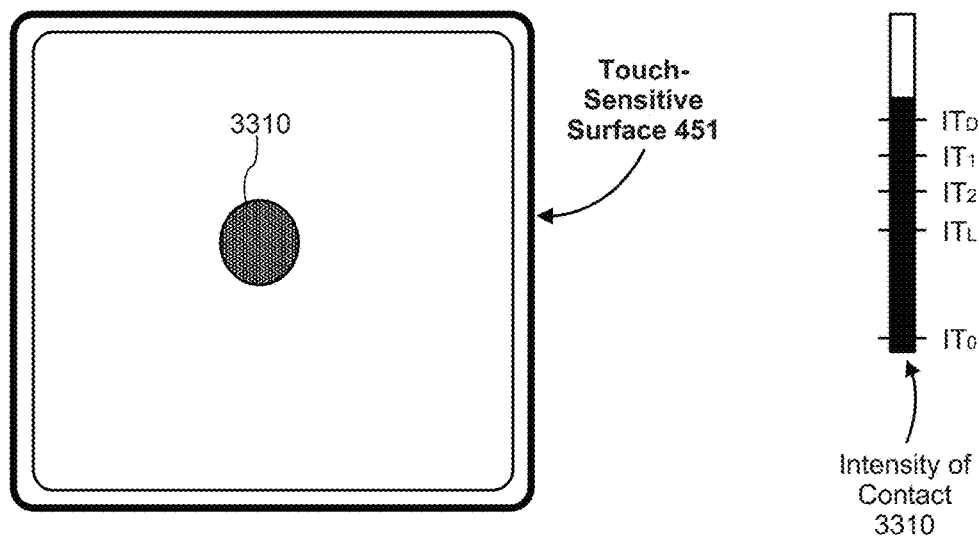
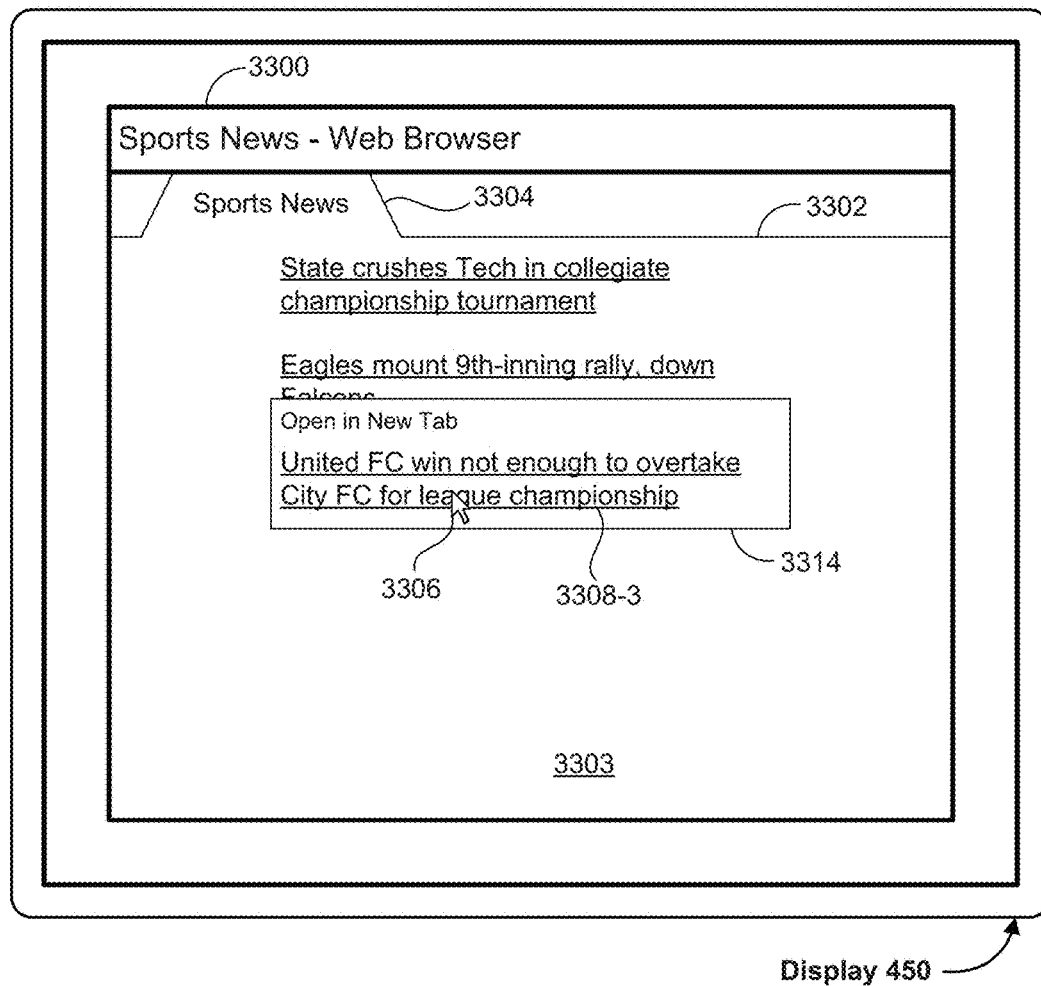


Figure 11D

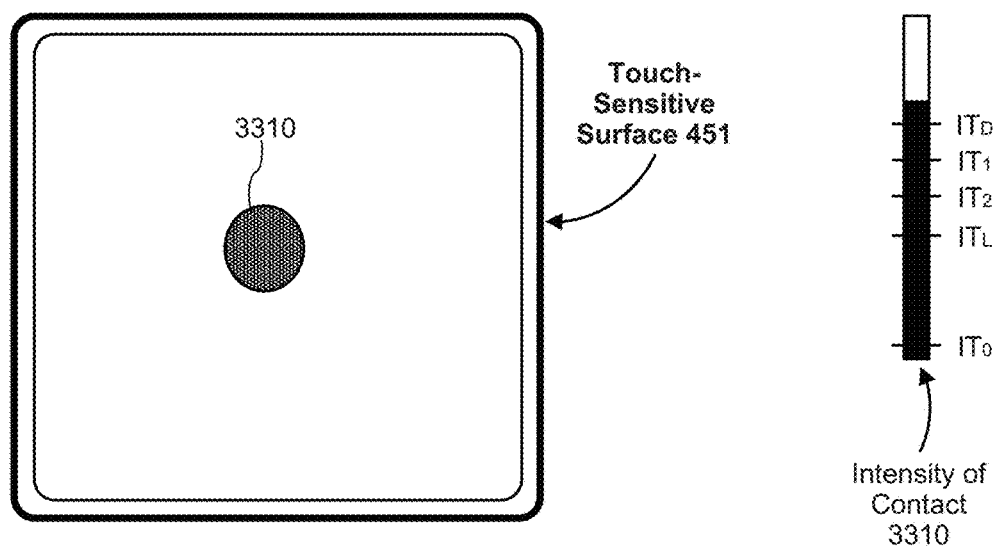
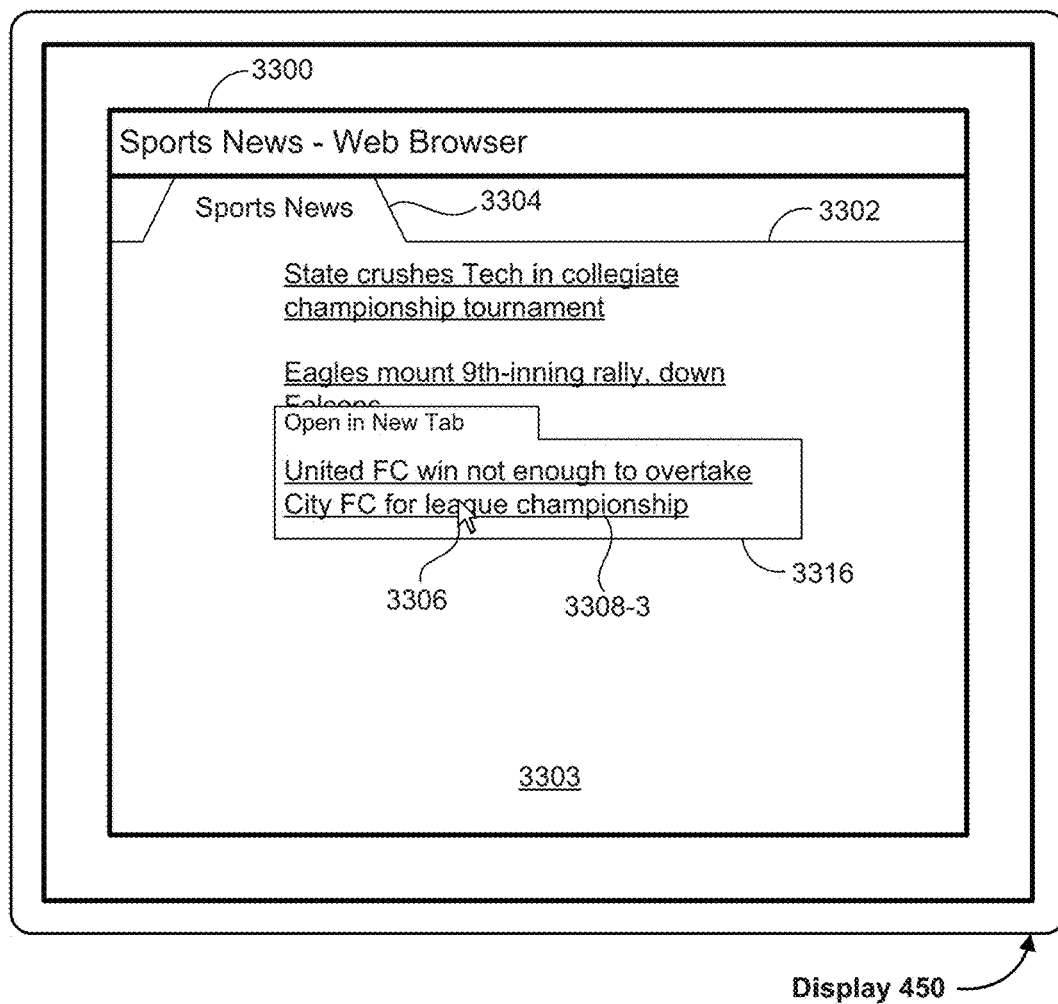


Figure 11E

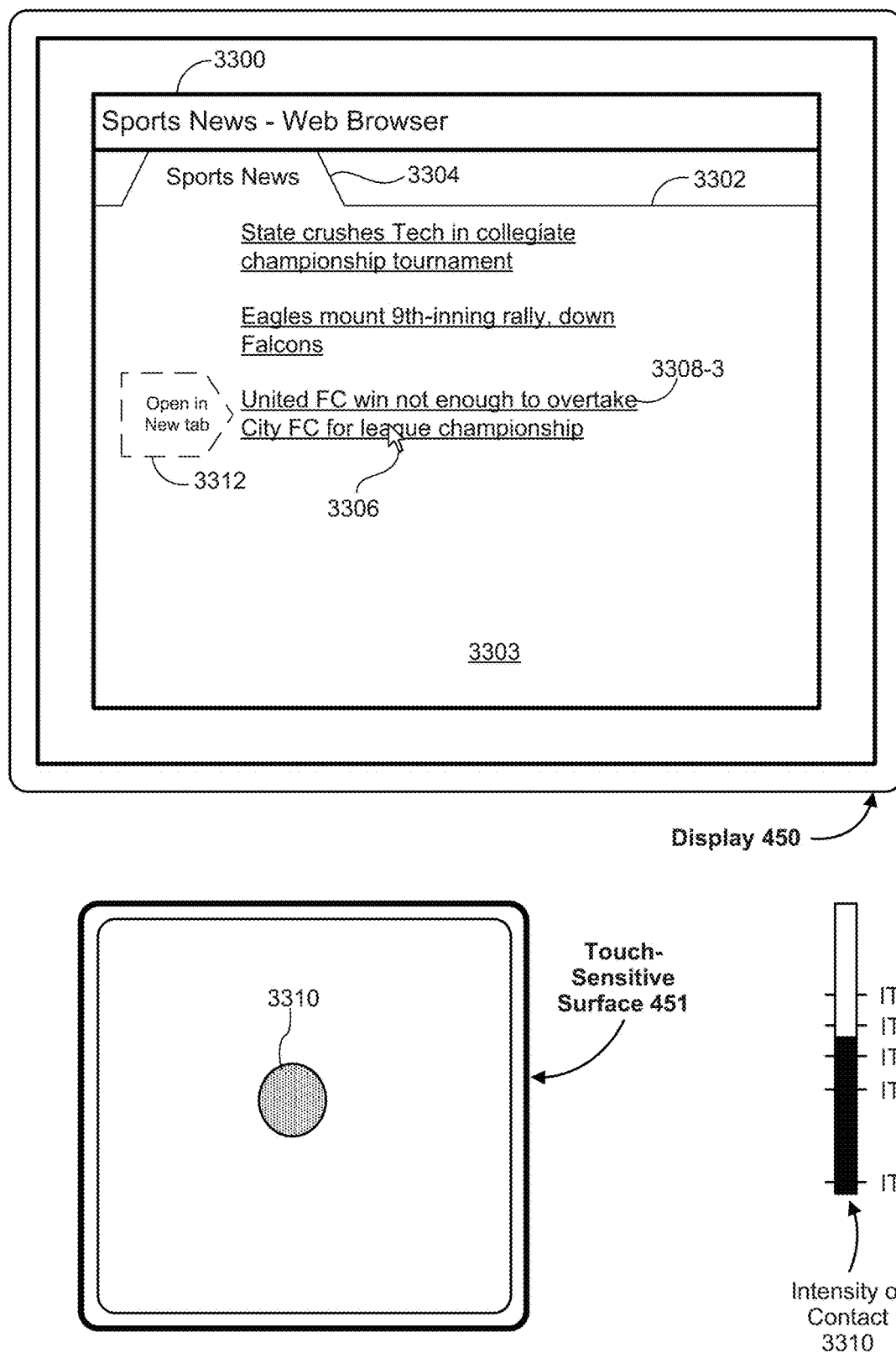


Figure 11F

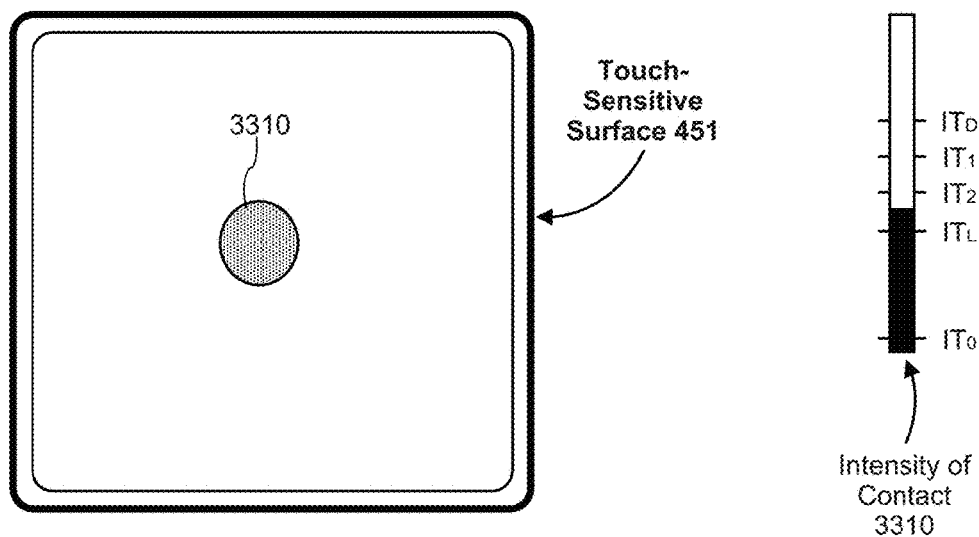
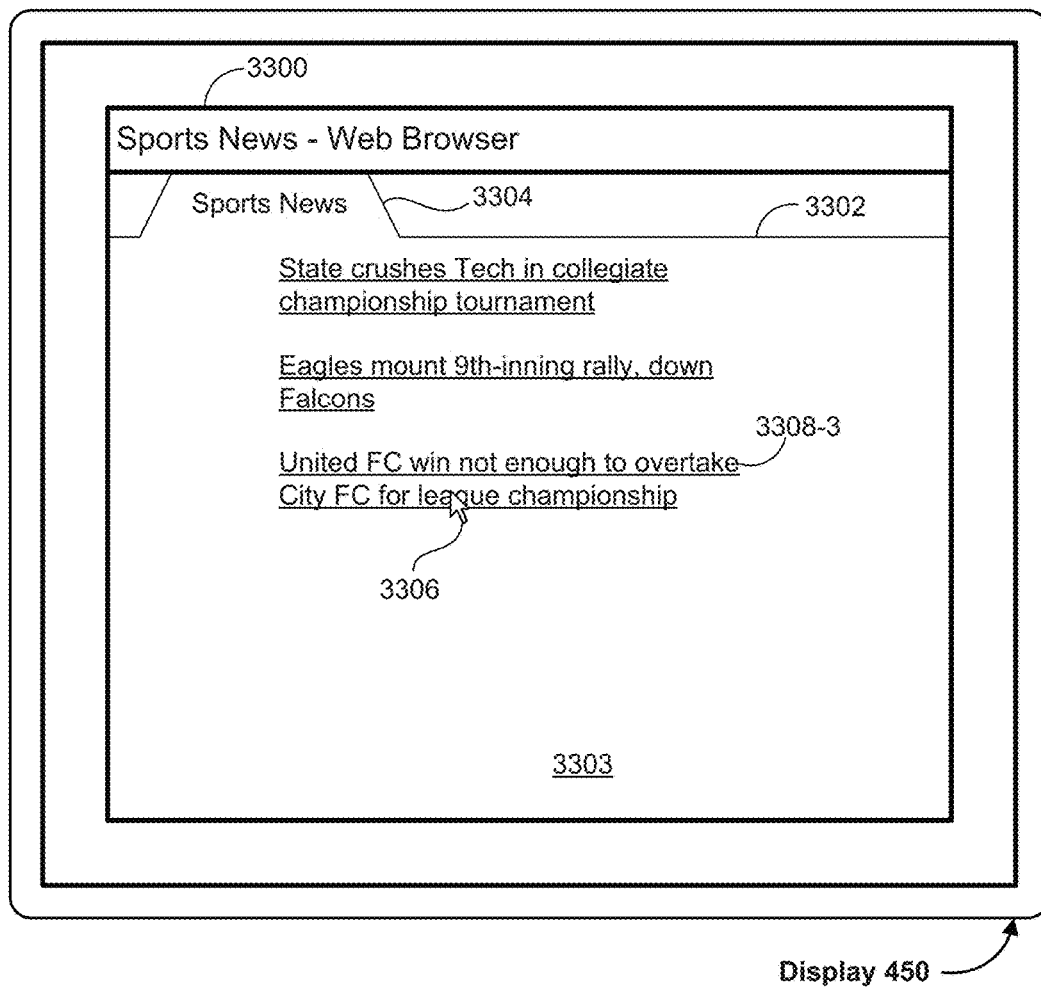


Figure 11G

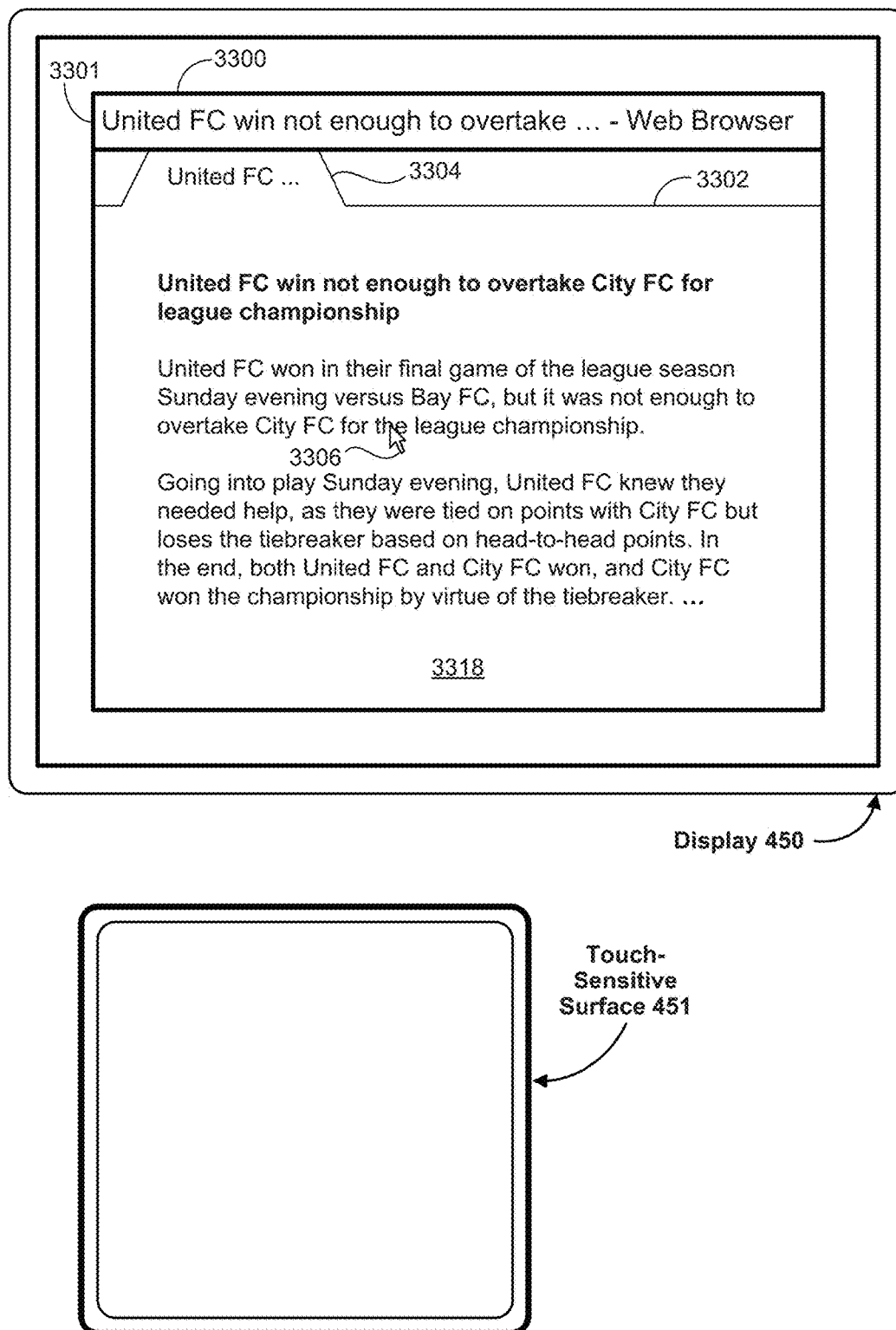


Figure 11H

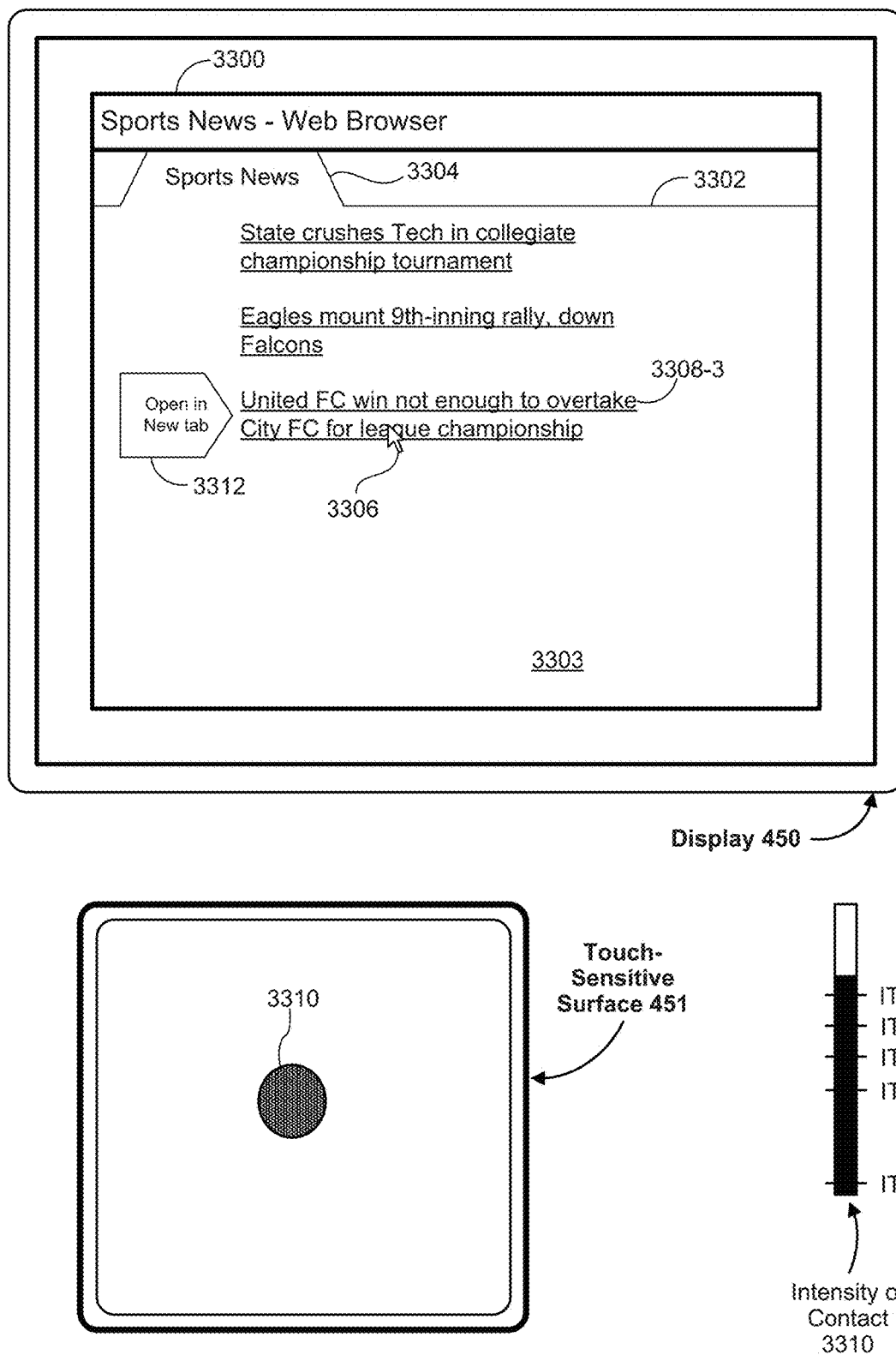


Figure 11I

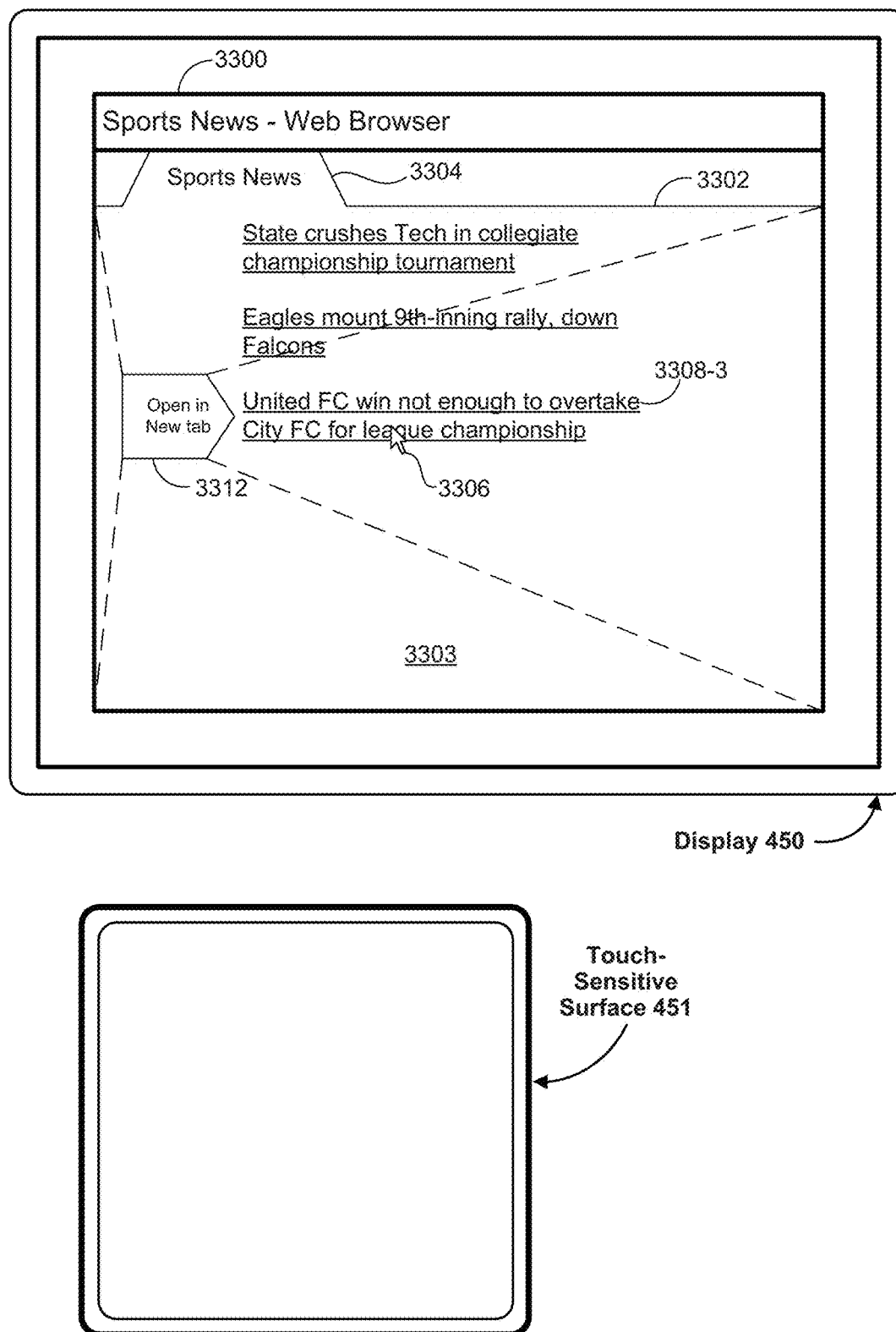


Figure 11J

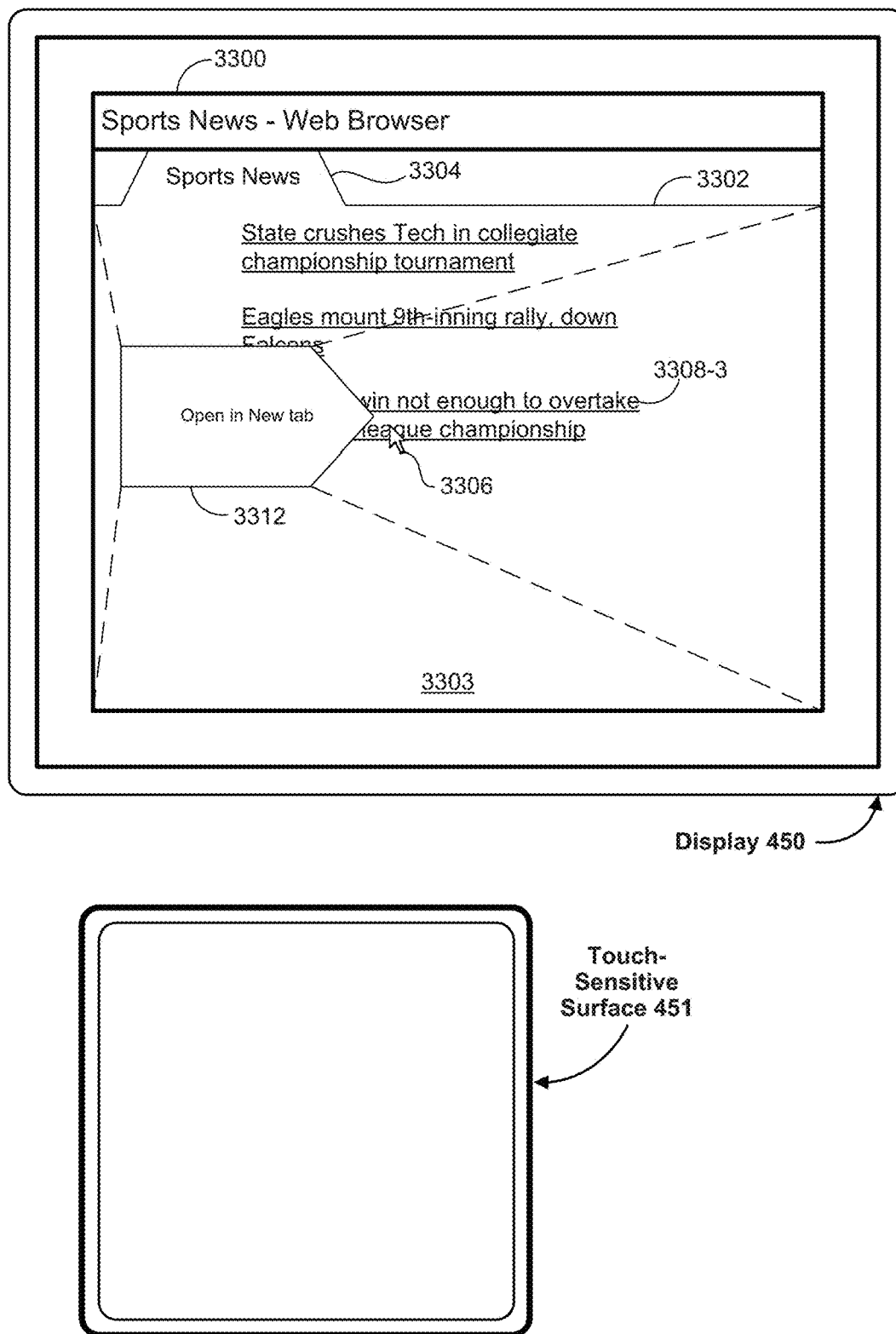


Figure 11K

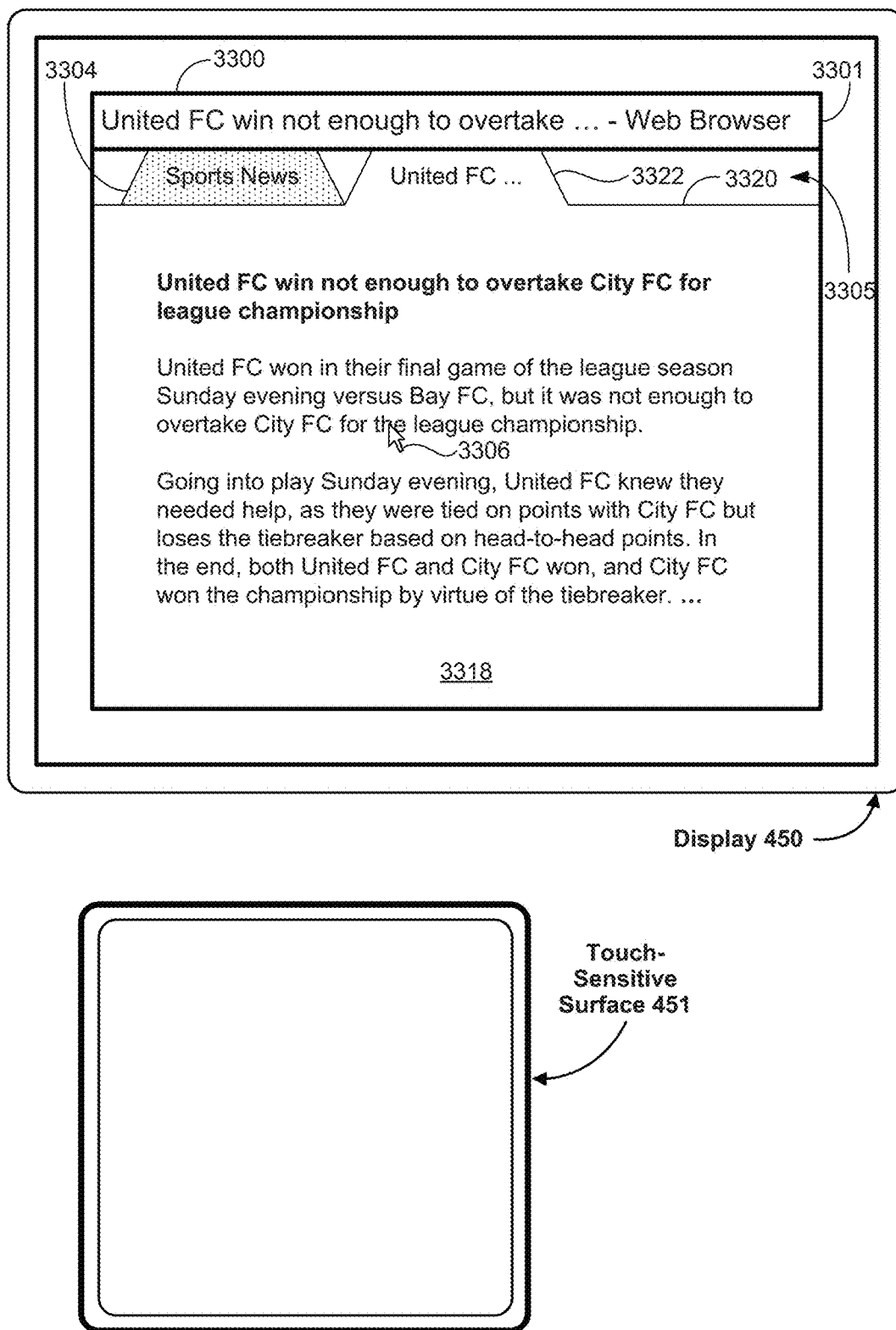


Figure 11L

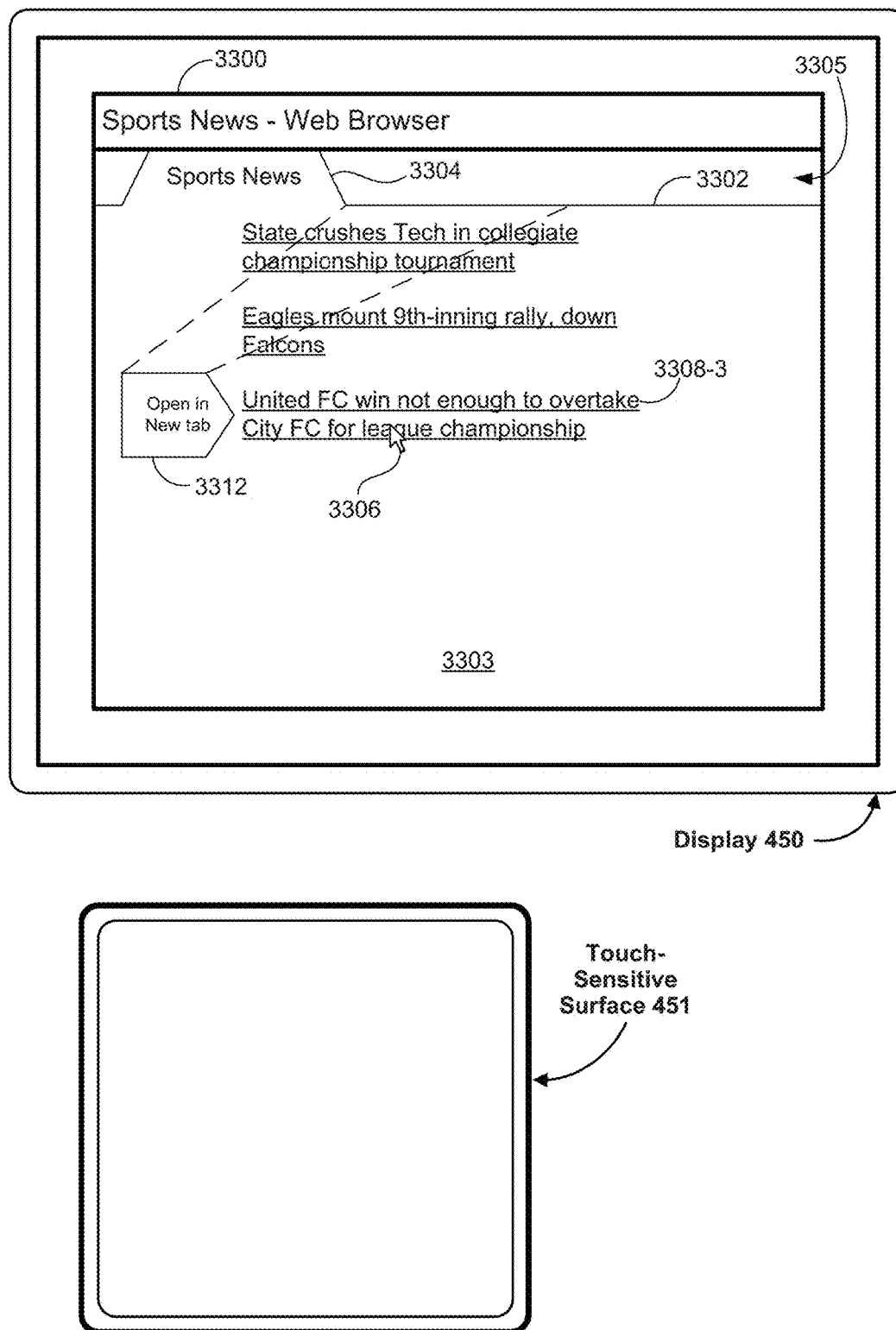


Figure 11M

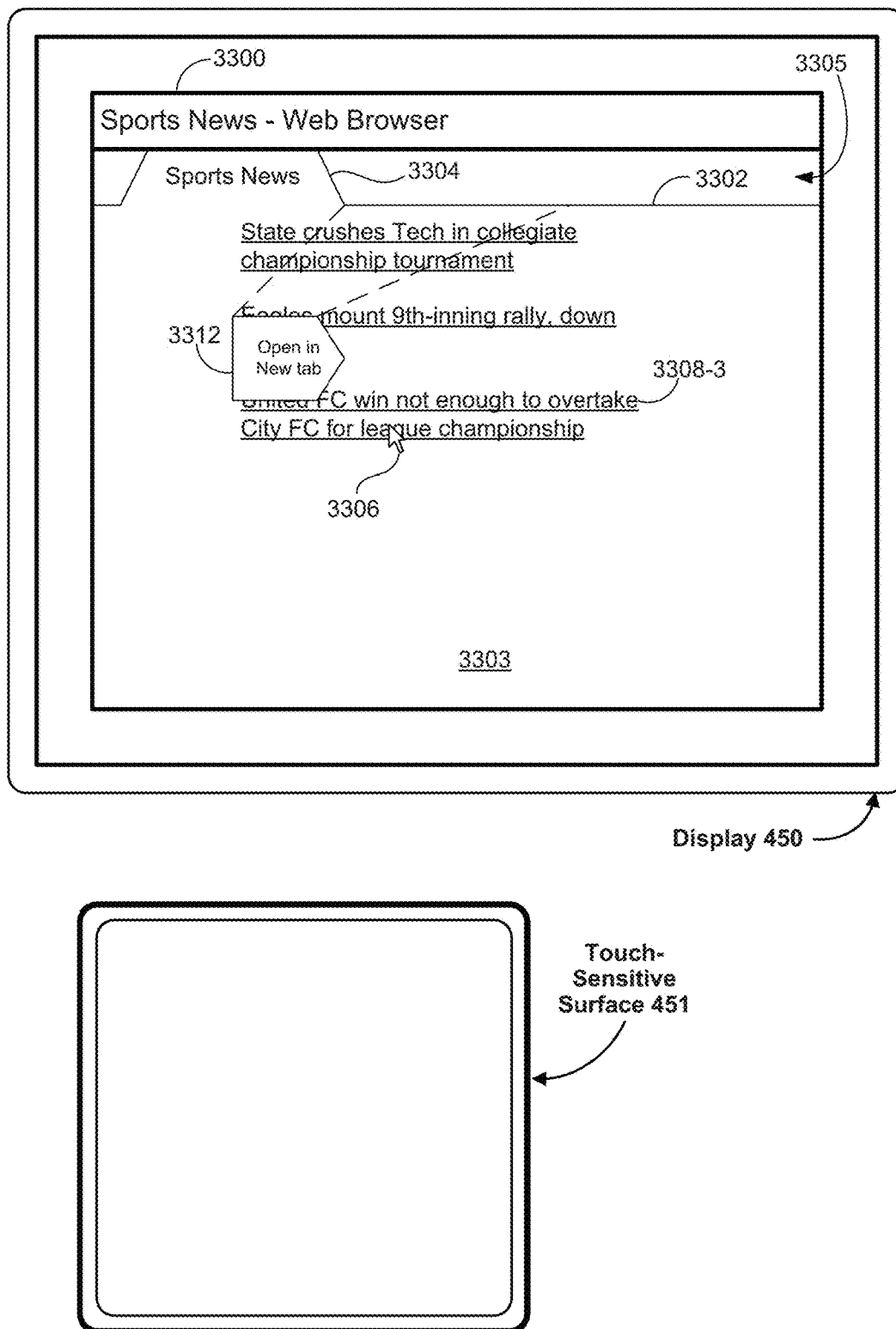


Figure 11N

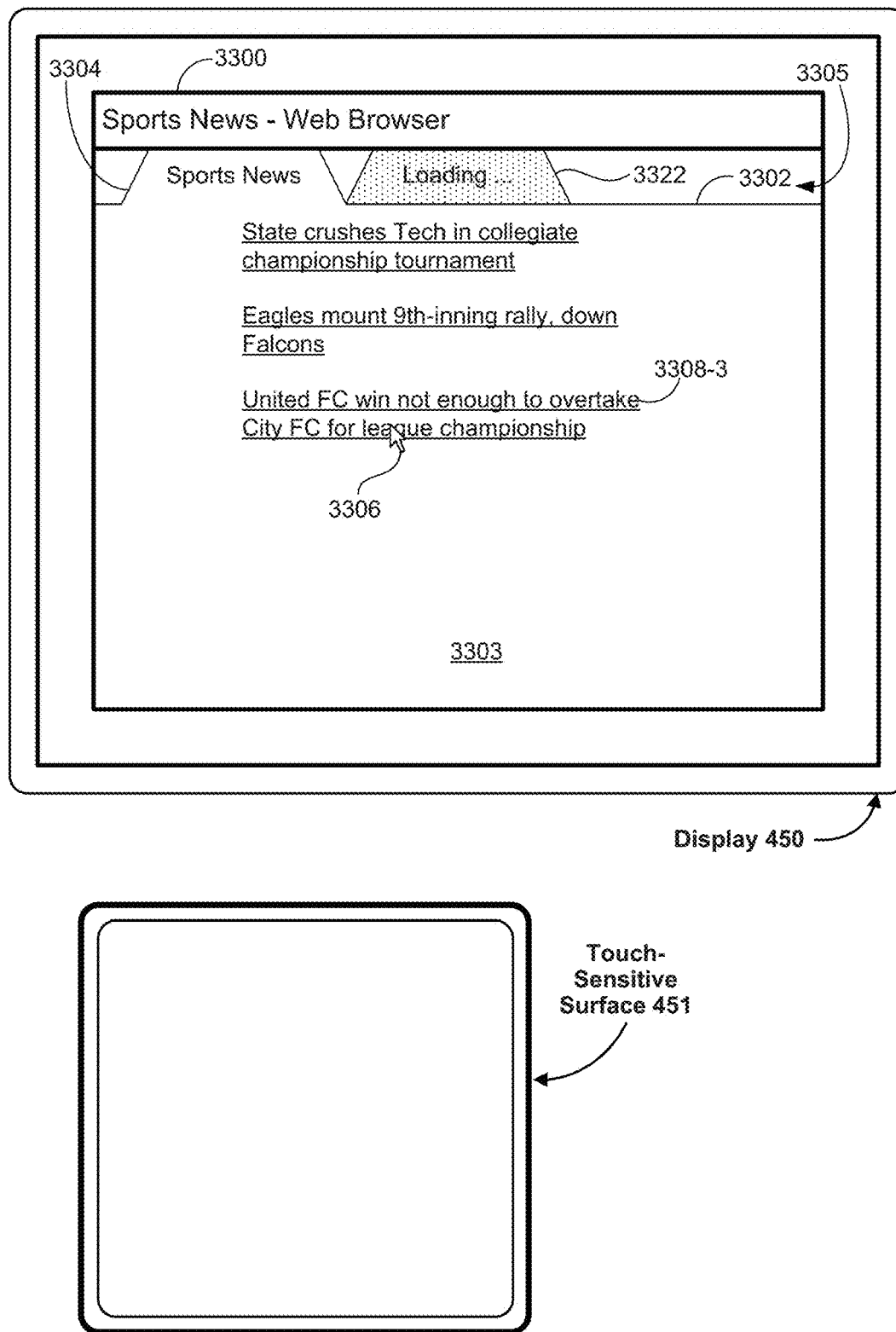


Figure 110

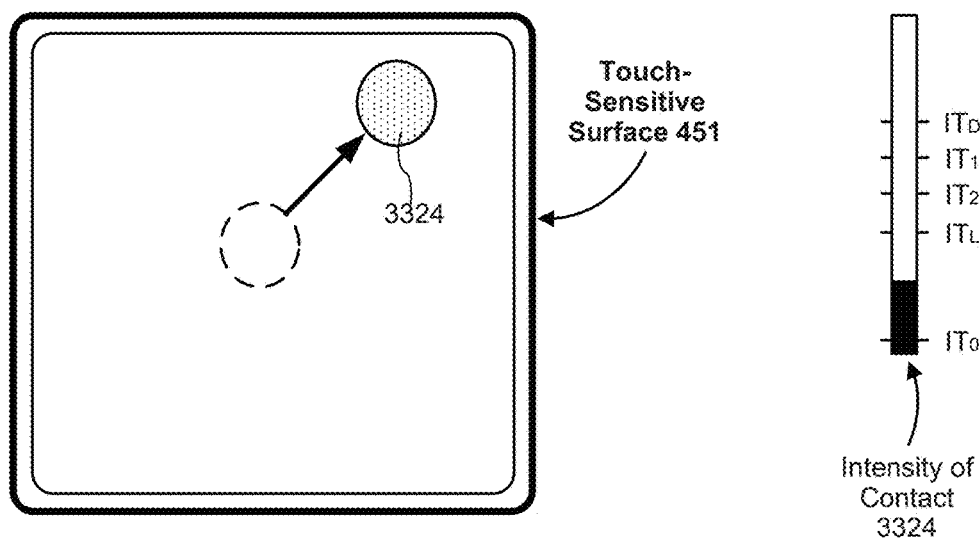
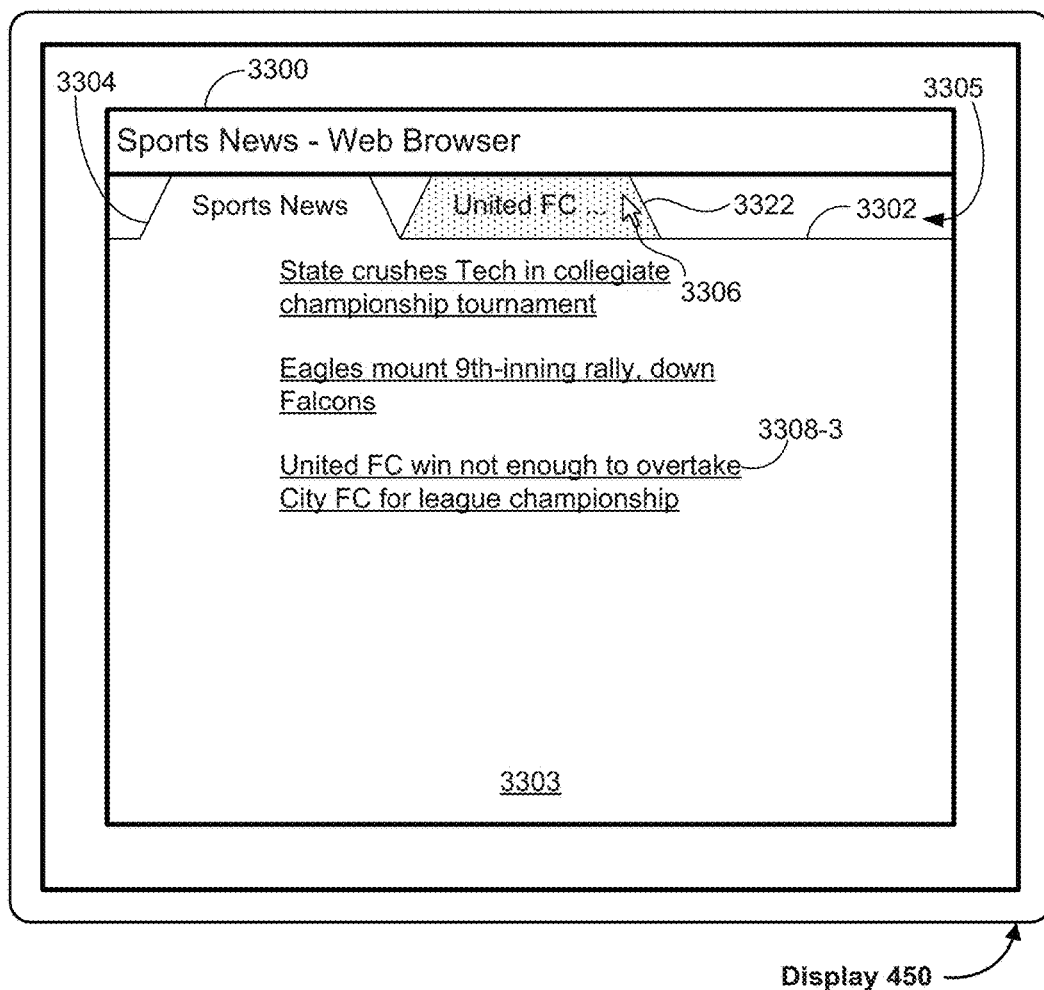


Figure 11P

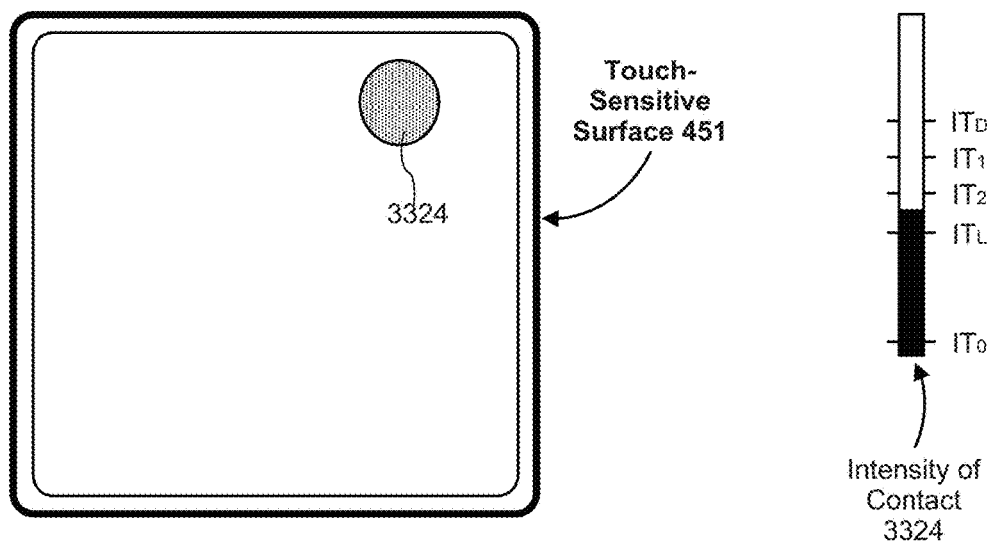
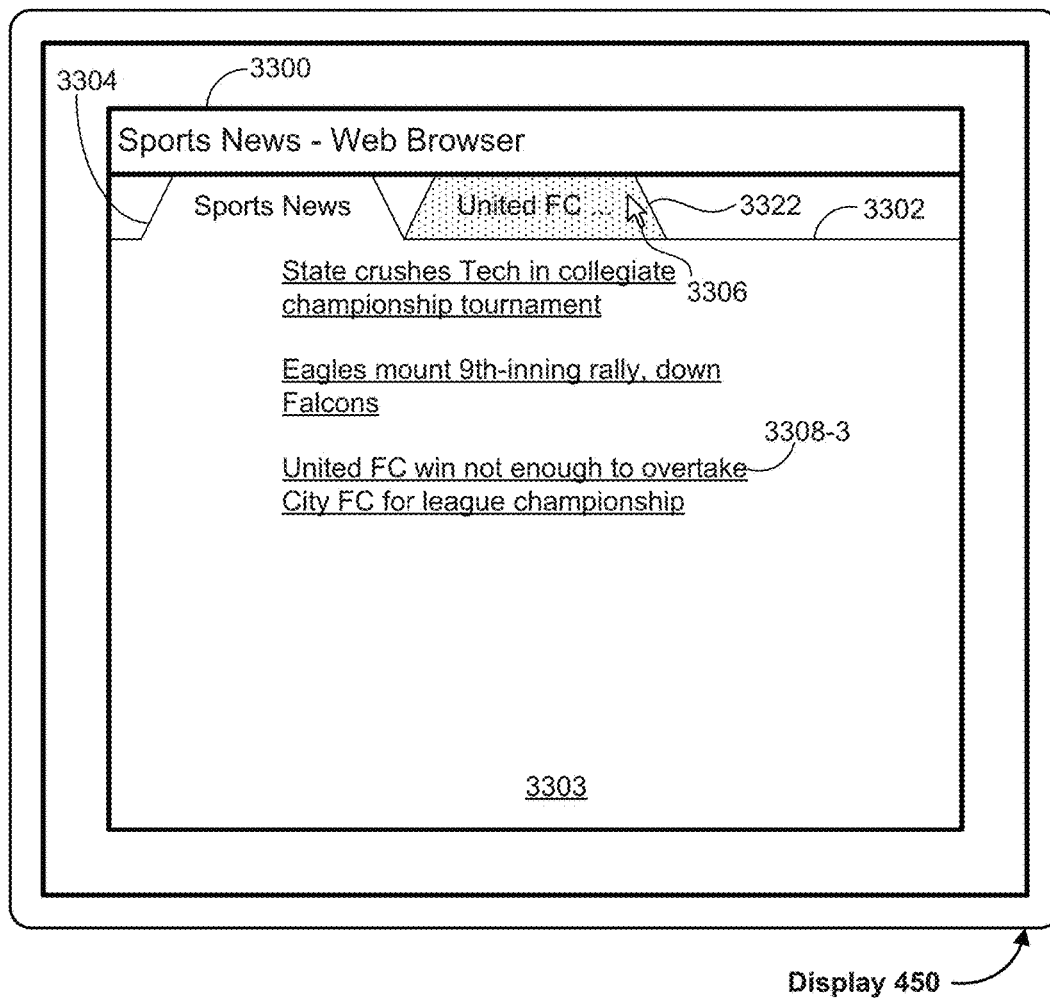


Figure 11Q

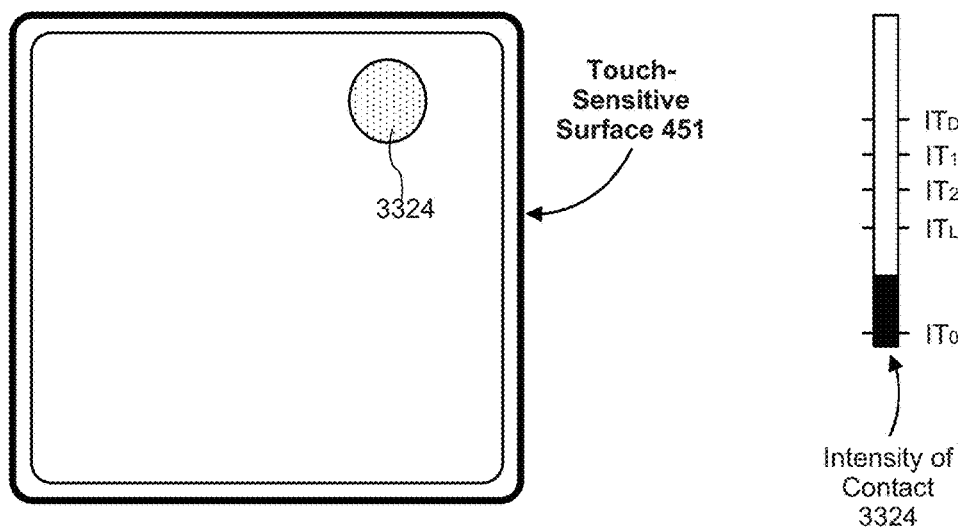
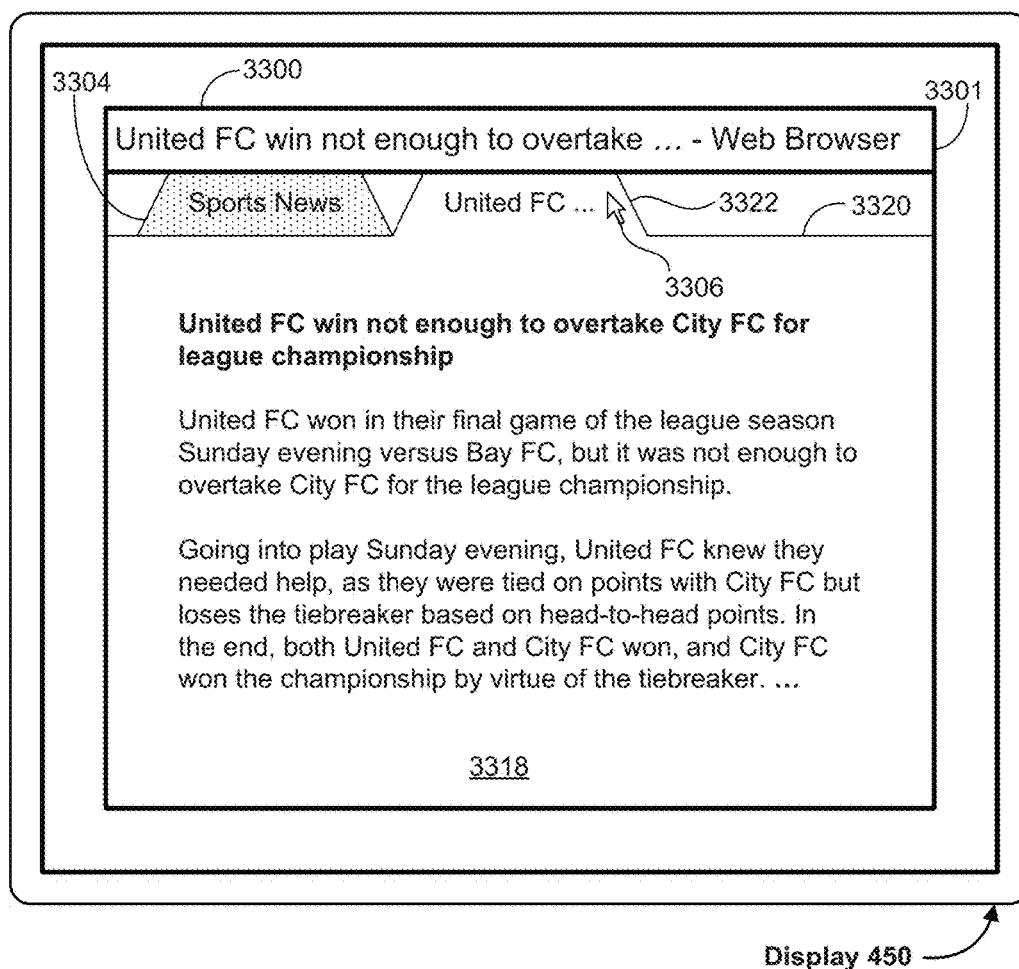


Figure 11R

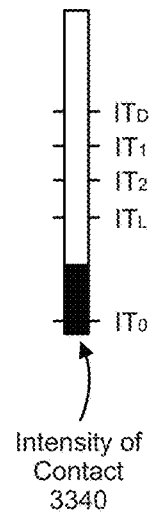
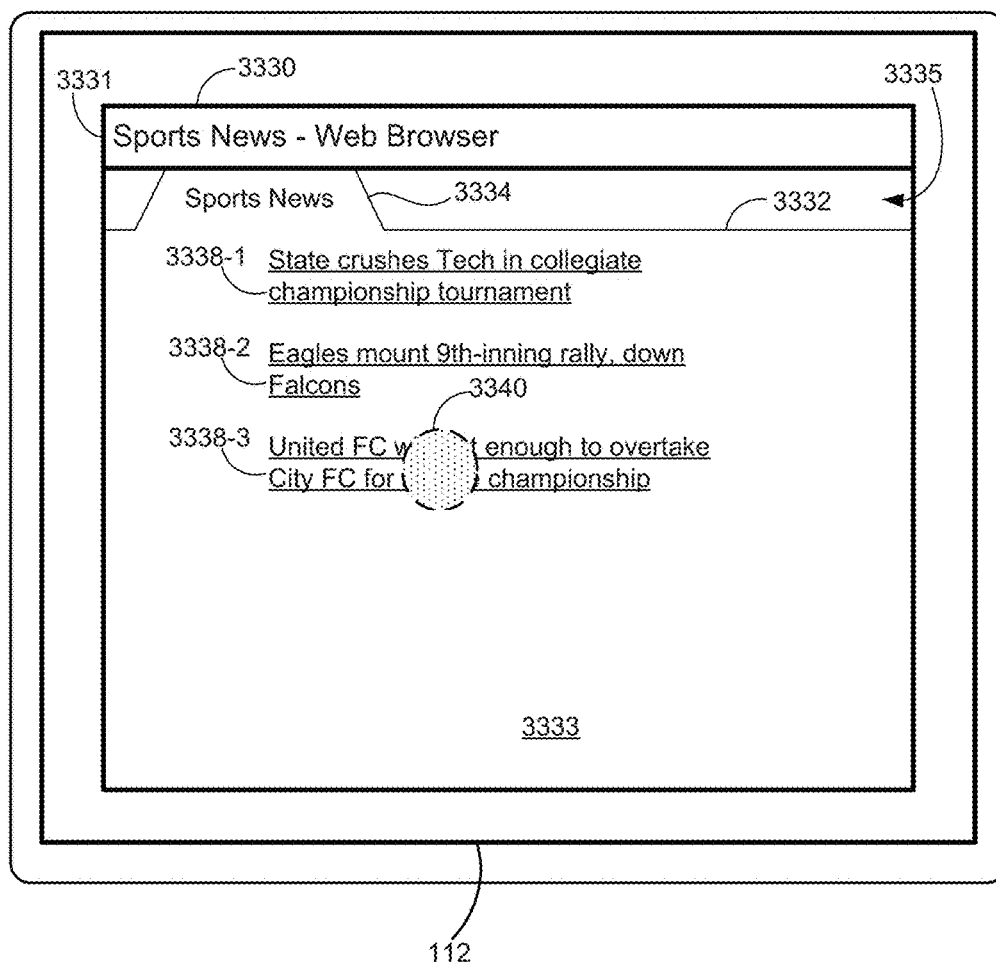


Figure 11S

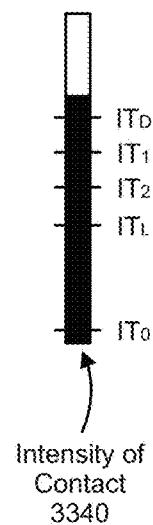
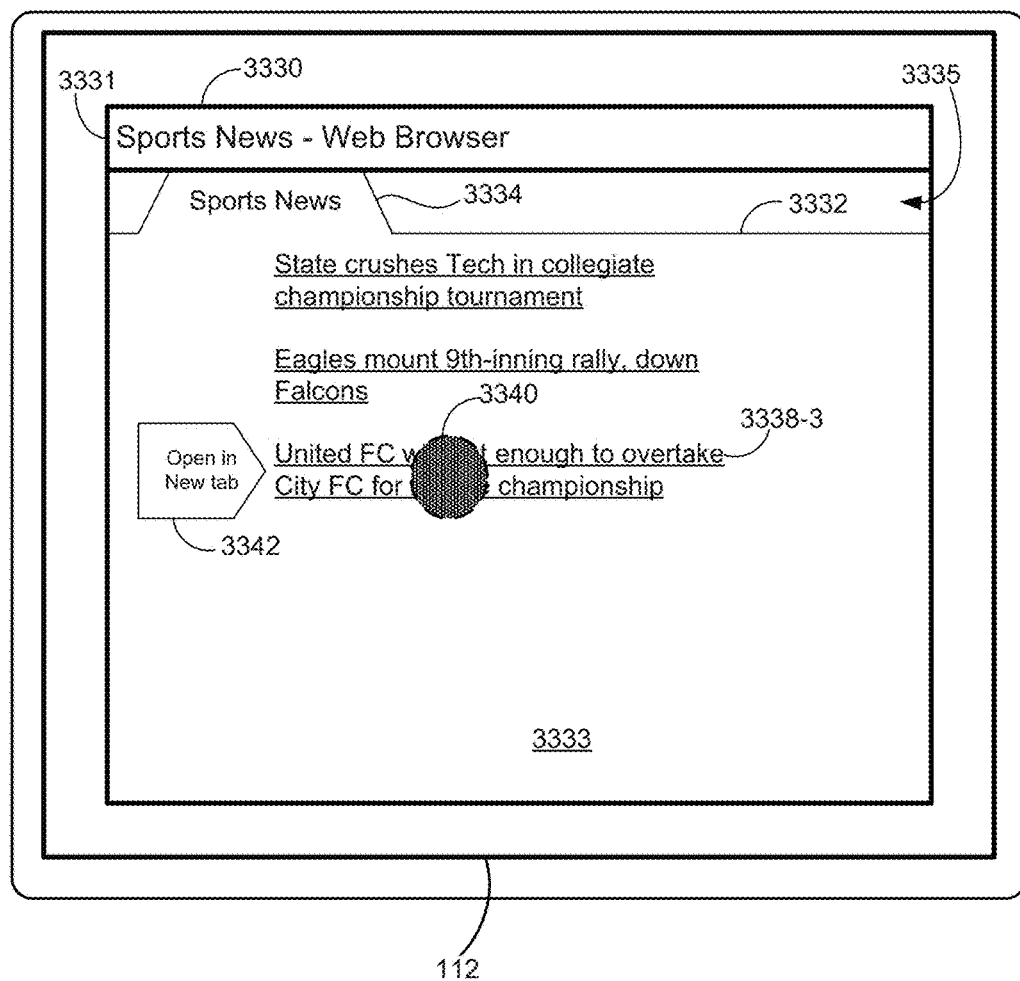


Figure 11T

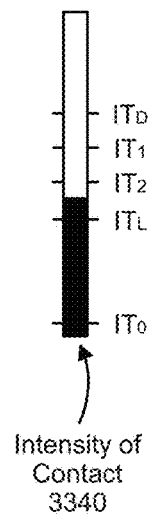
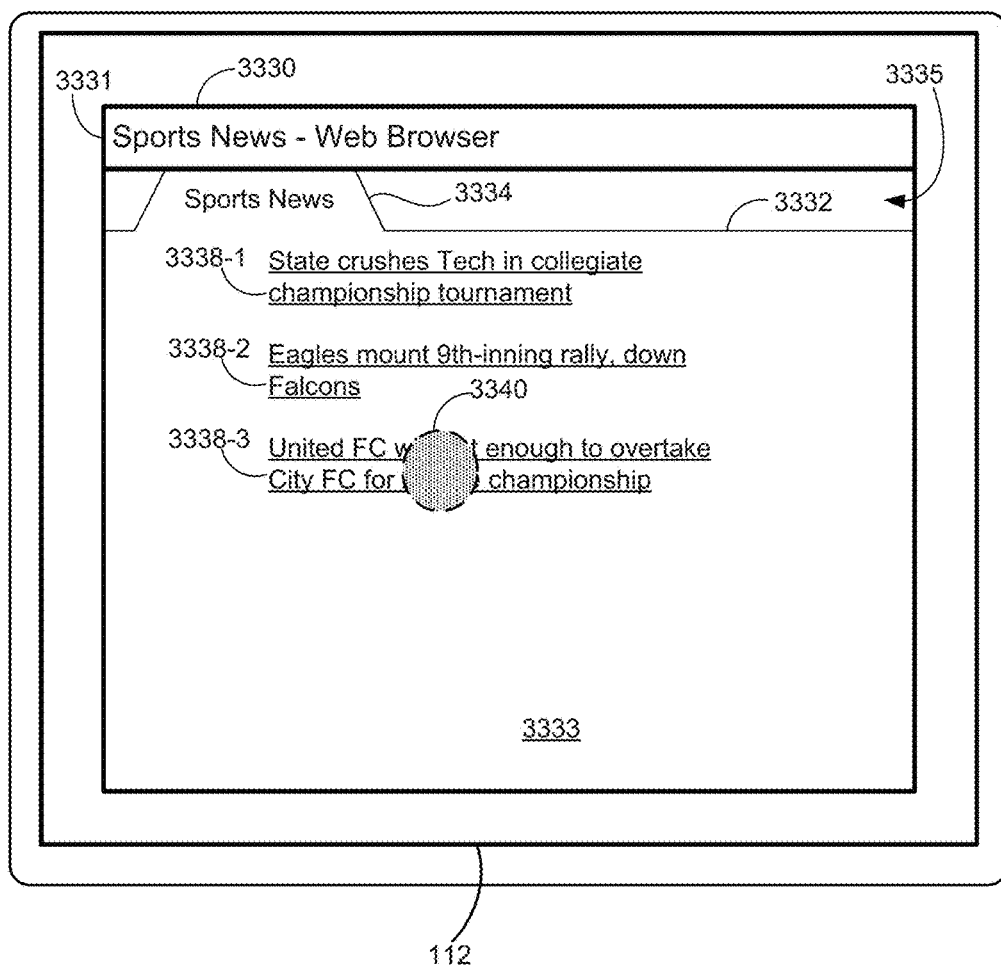


Figure 11U

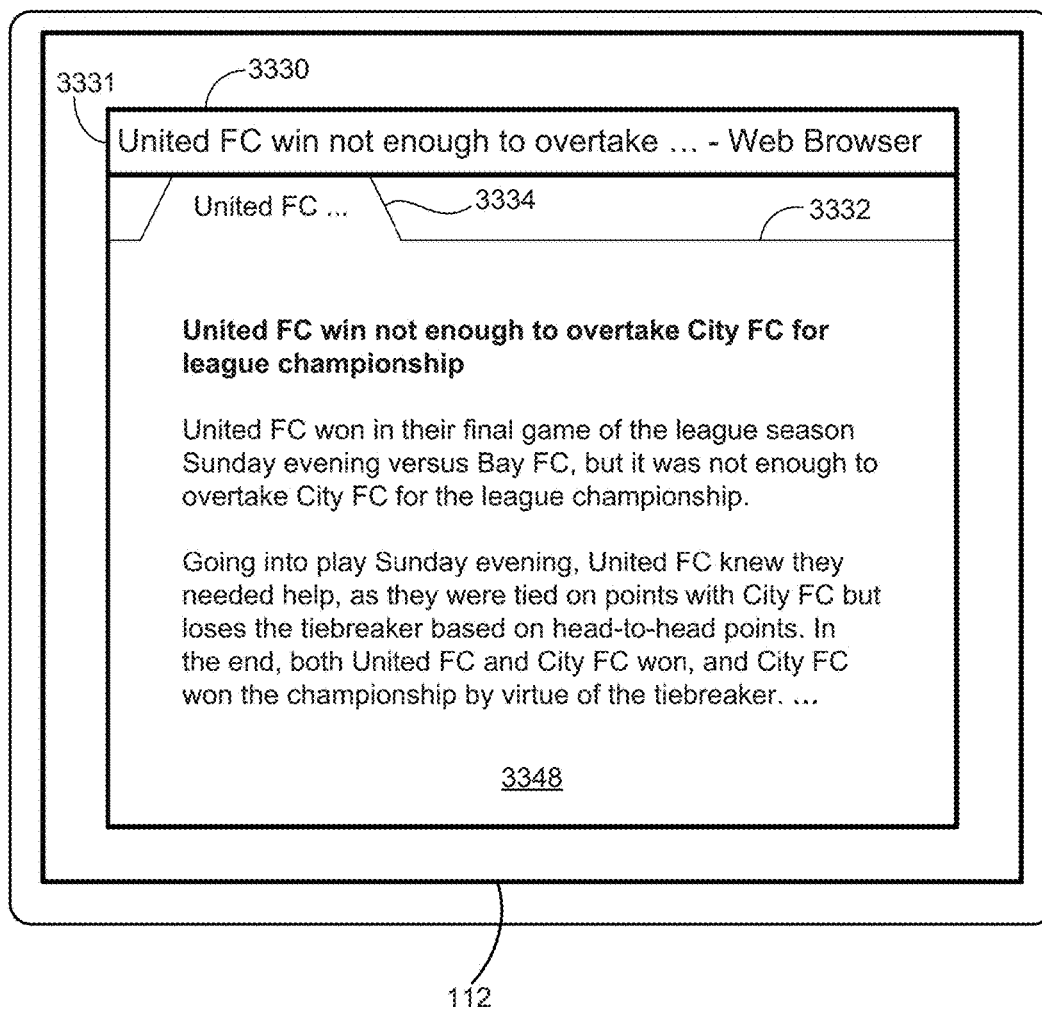


Figure 11V

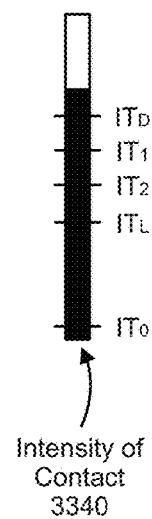
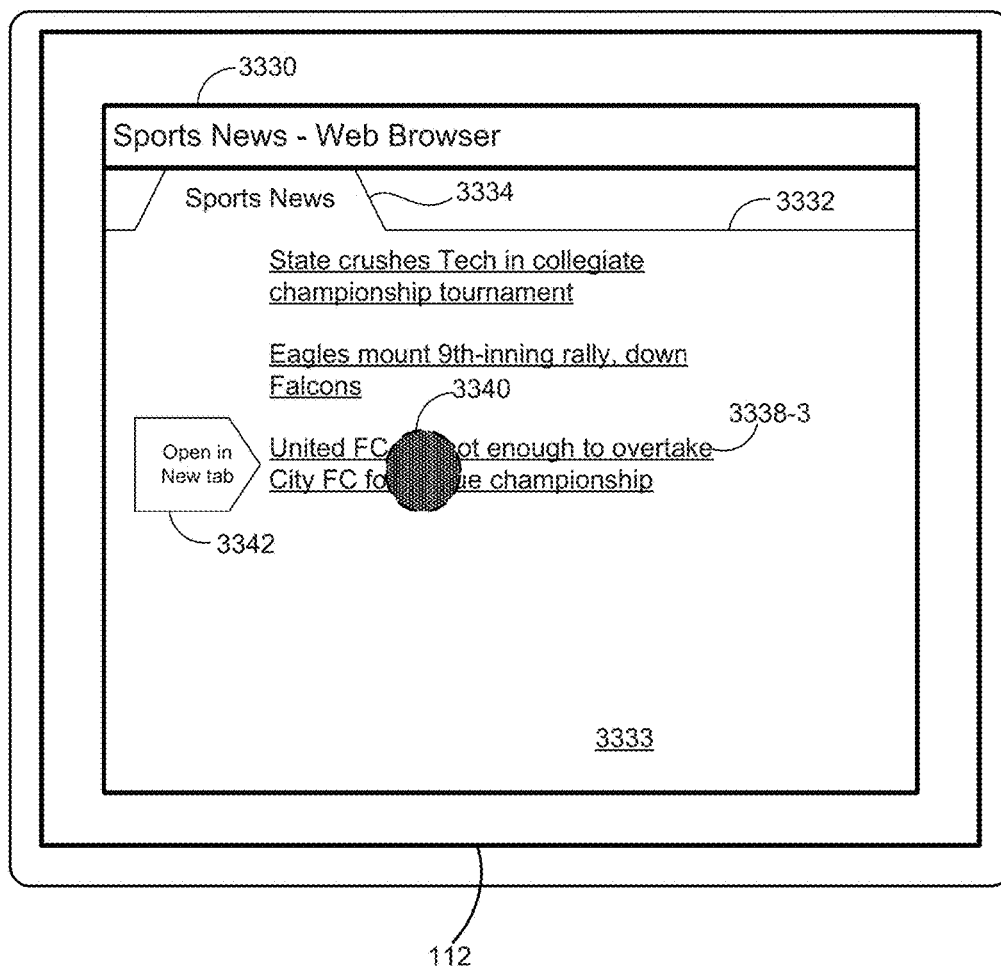


Figure 11W

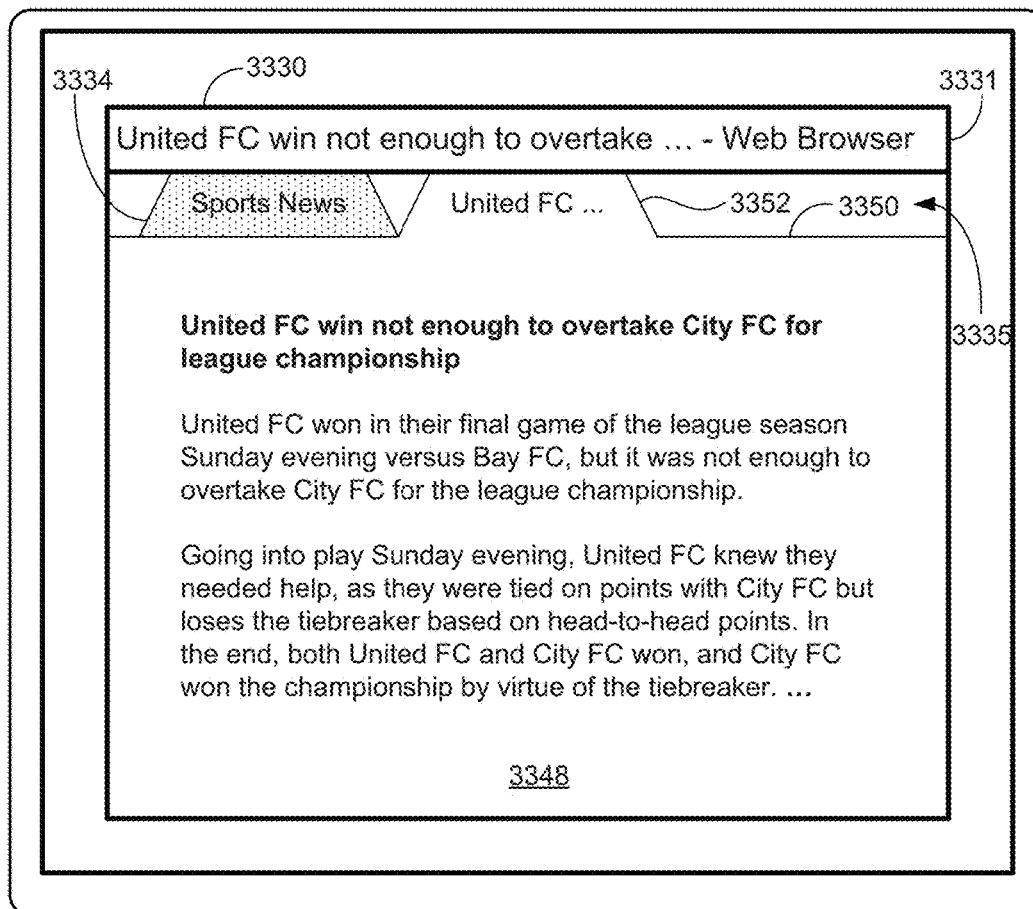


Figure 11X

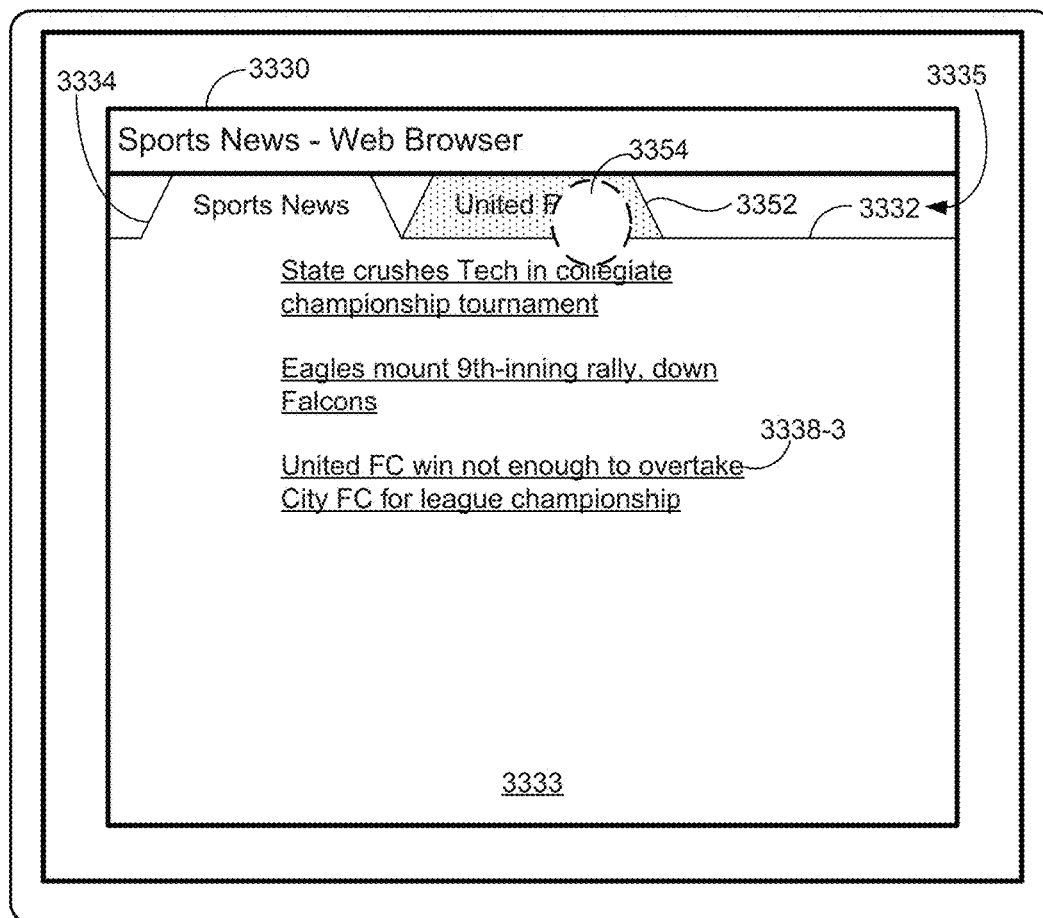


Figure 11Y

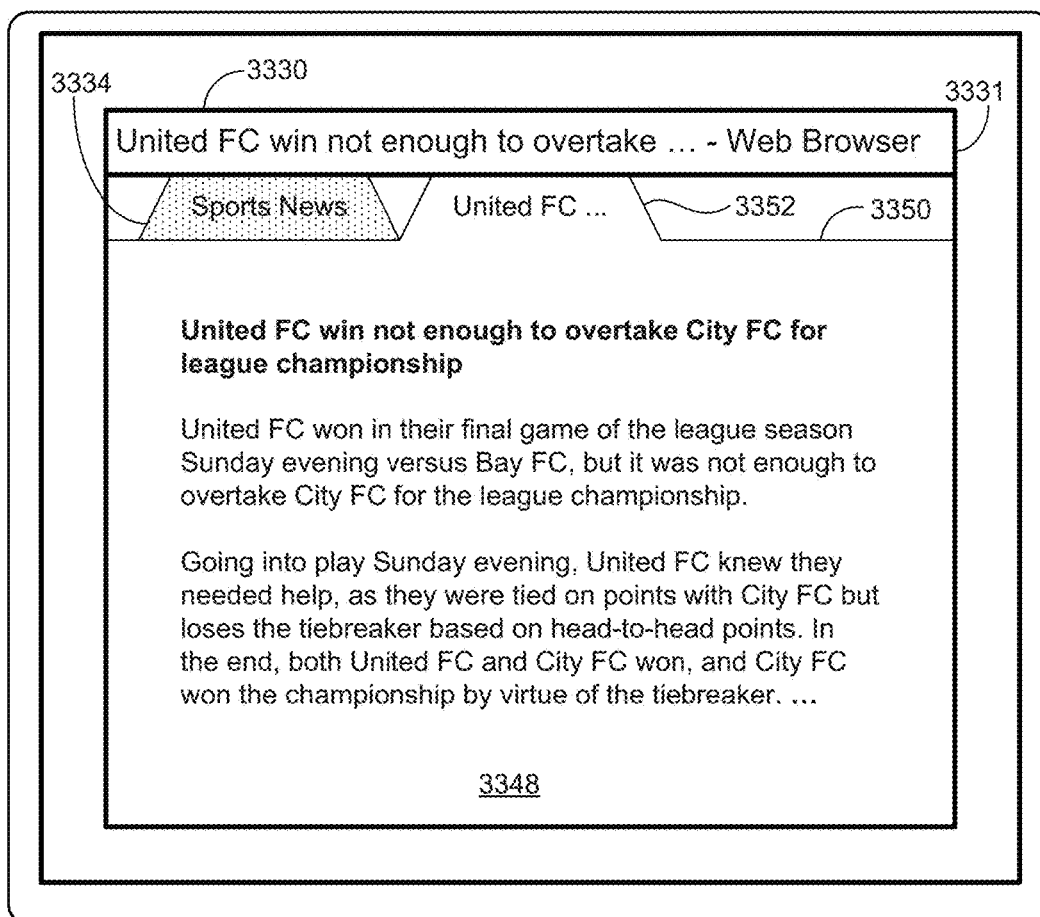


Figure 11Z

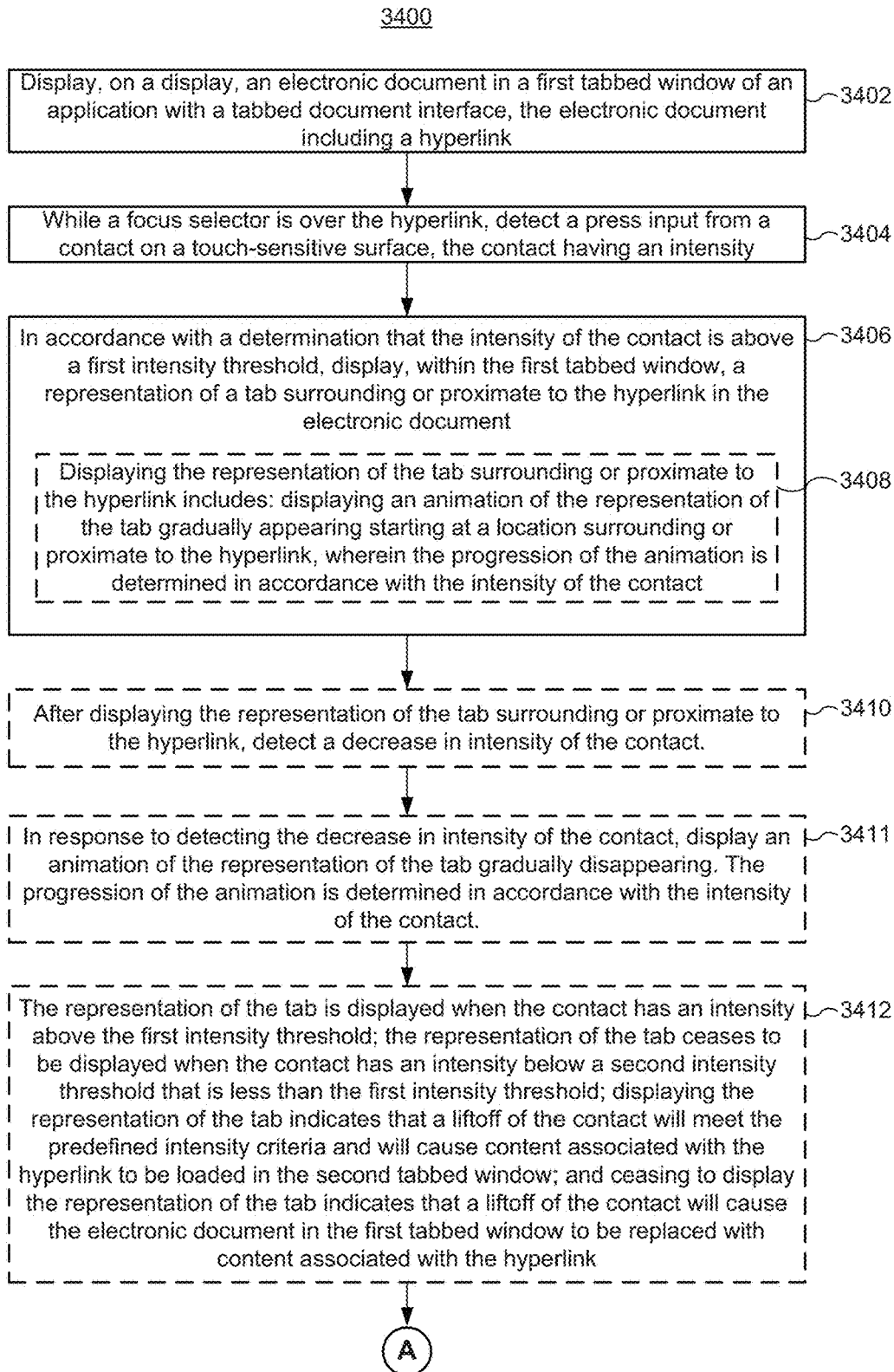


Figure 12A

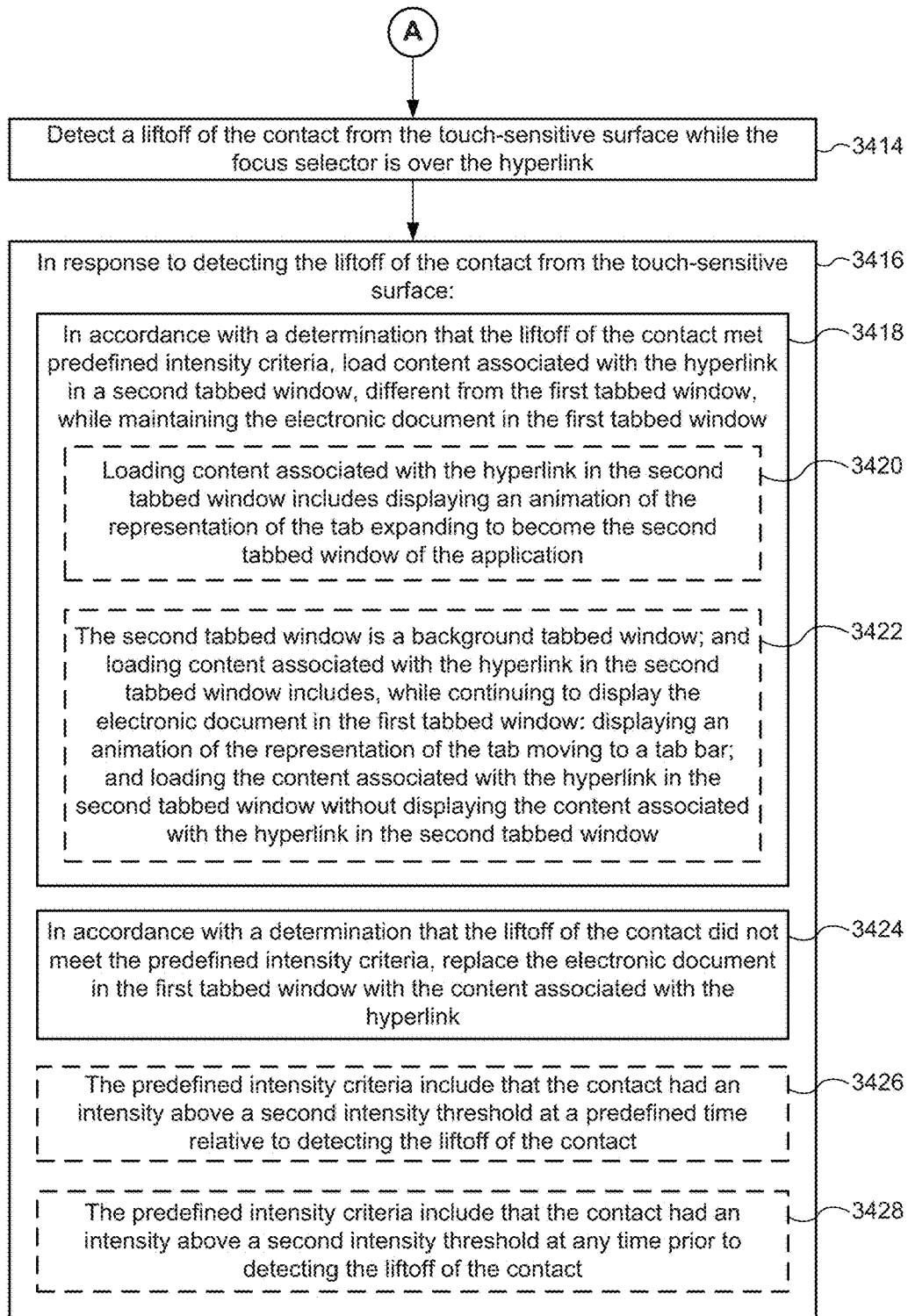


Figure 12B

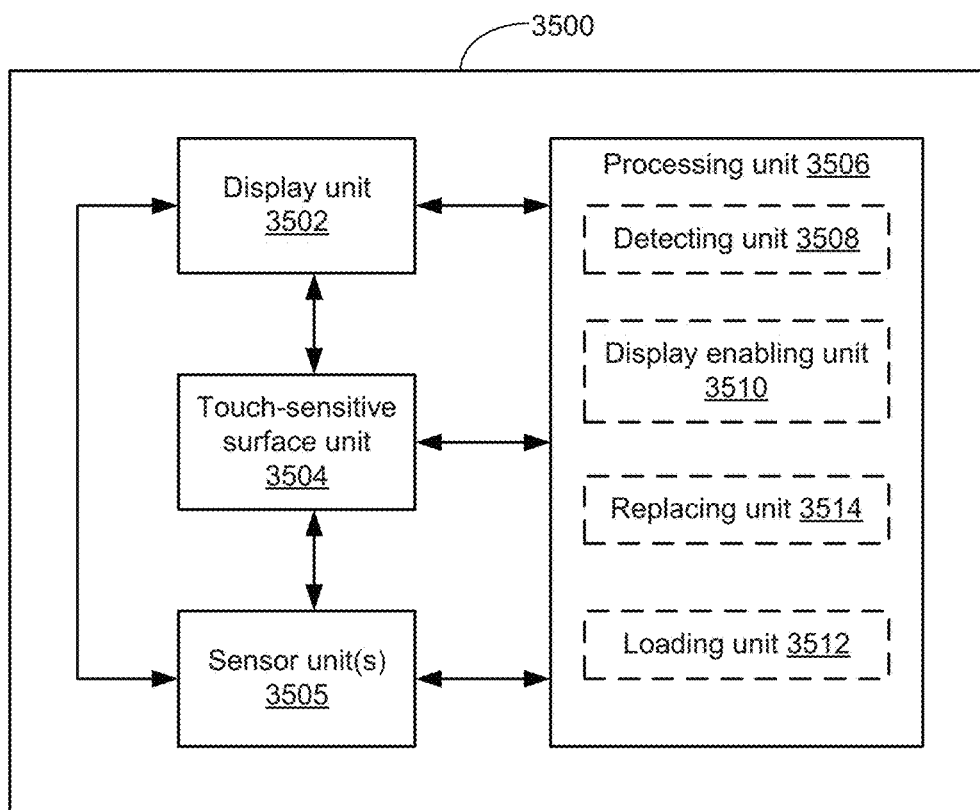


Figure 13

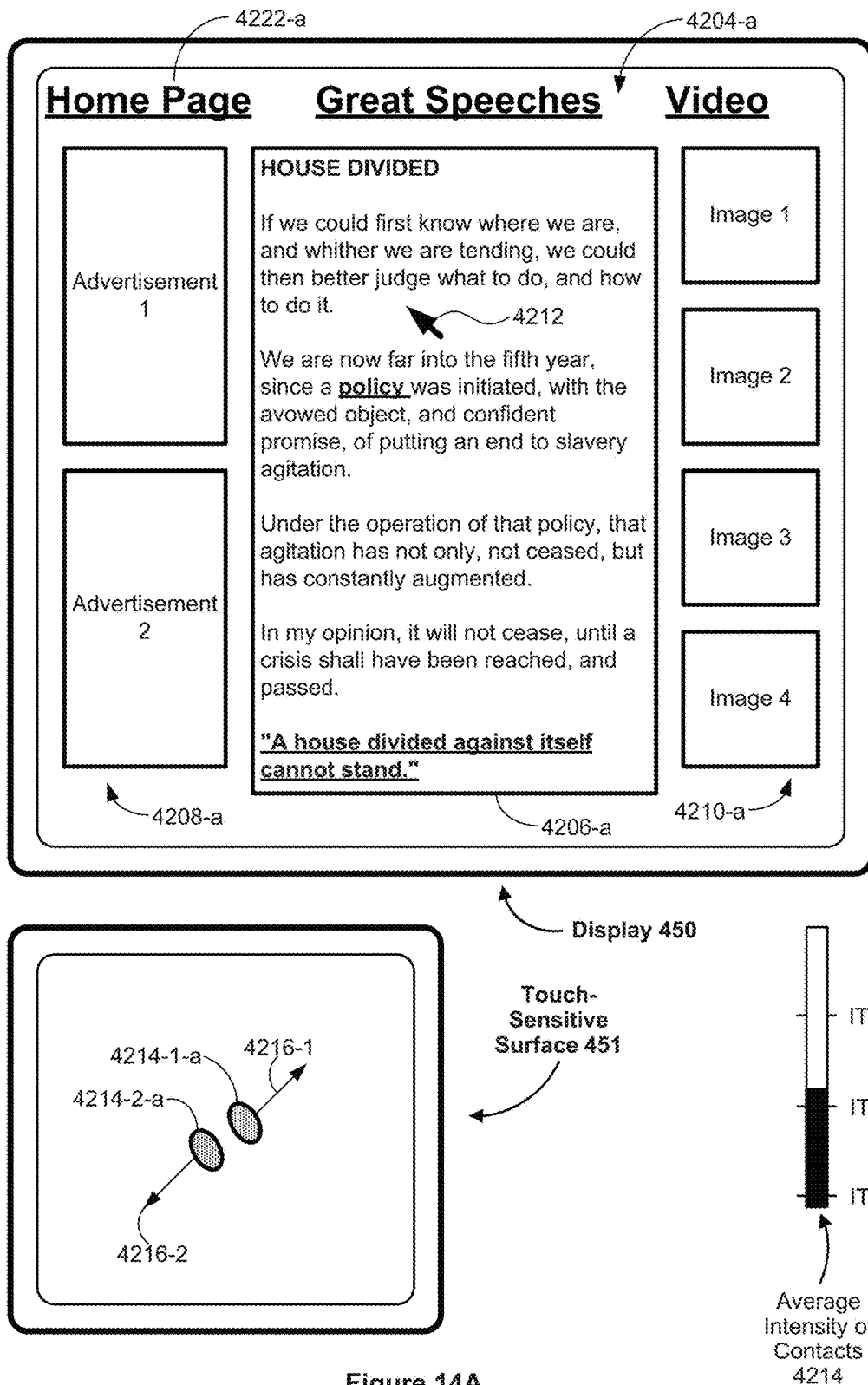


Figure 14A

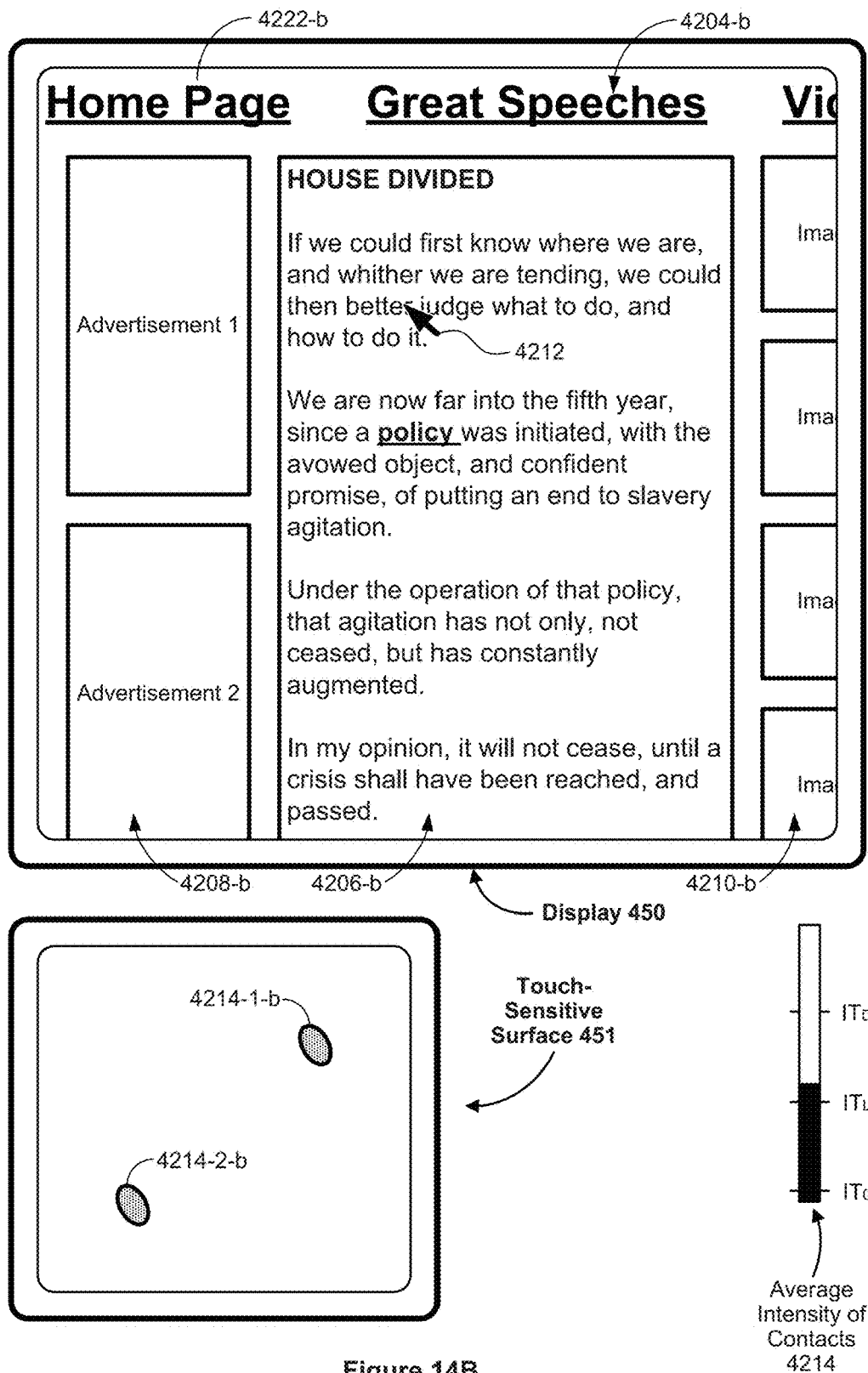


Figure 14B

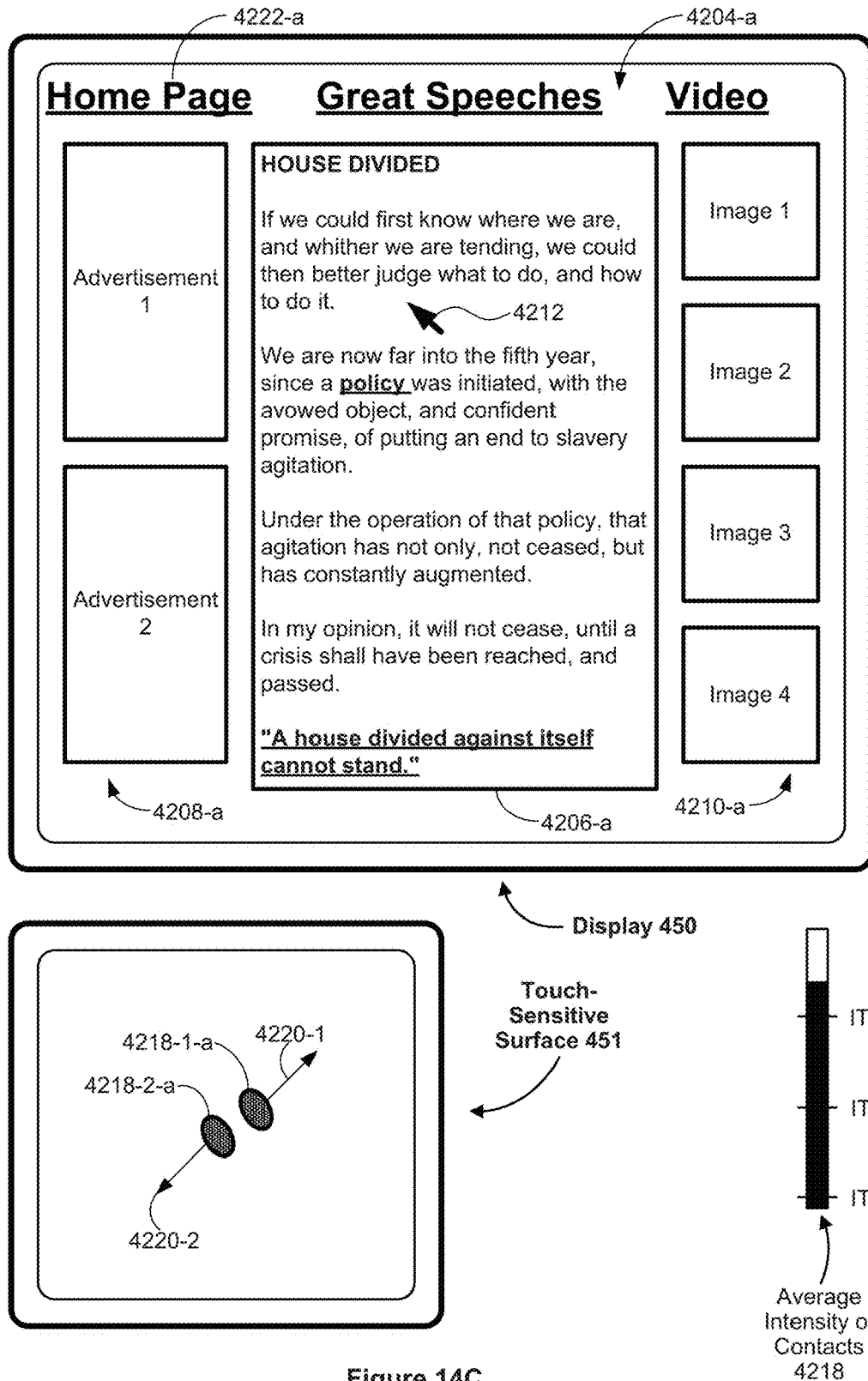


Figure 14C

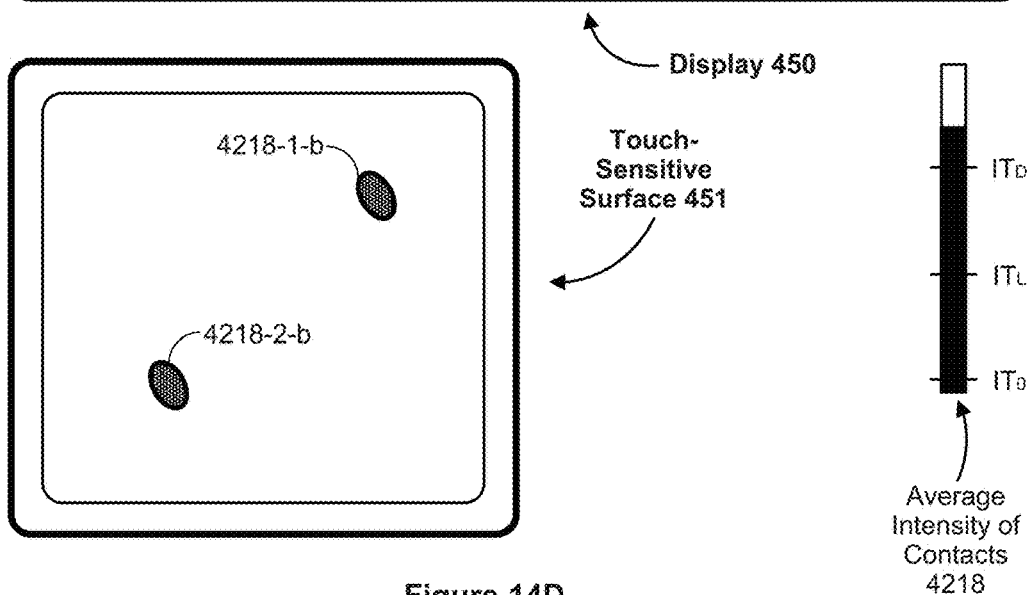
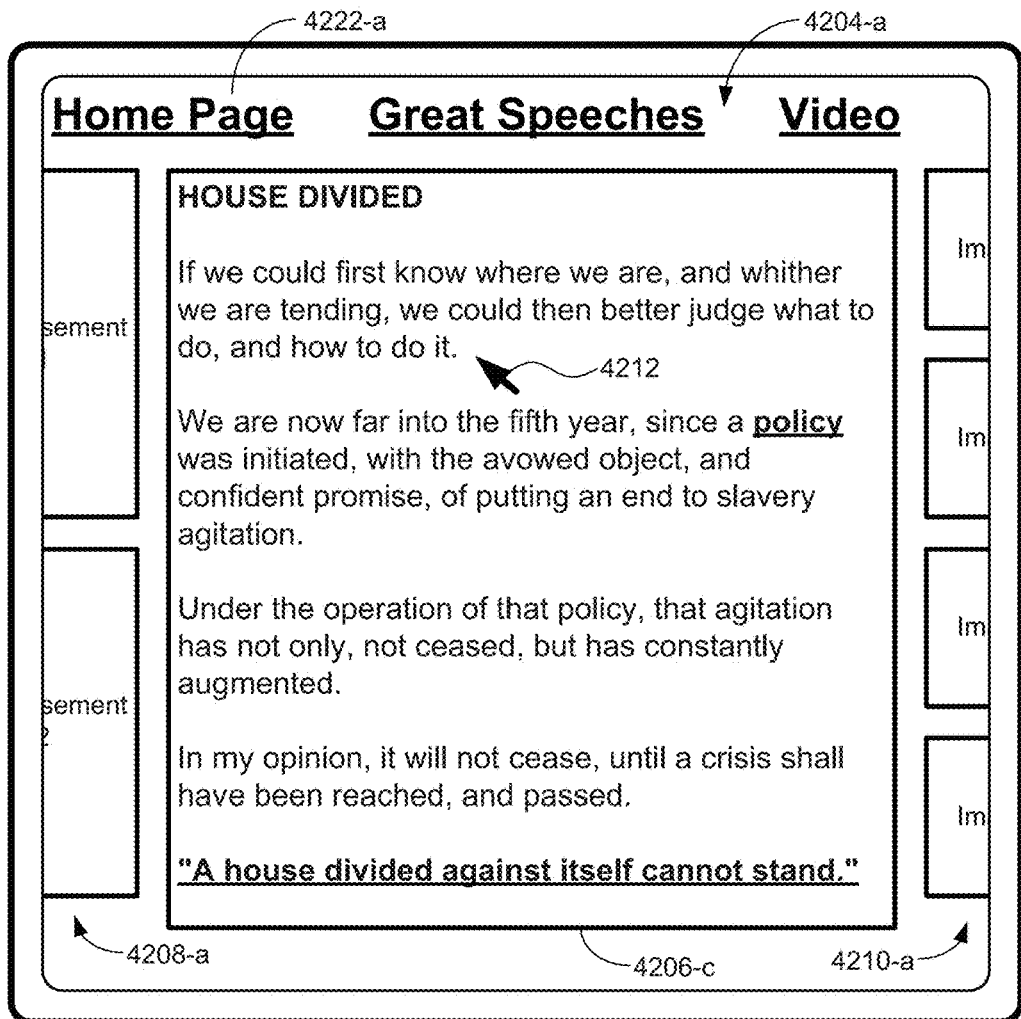


Figure 14D

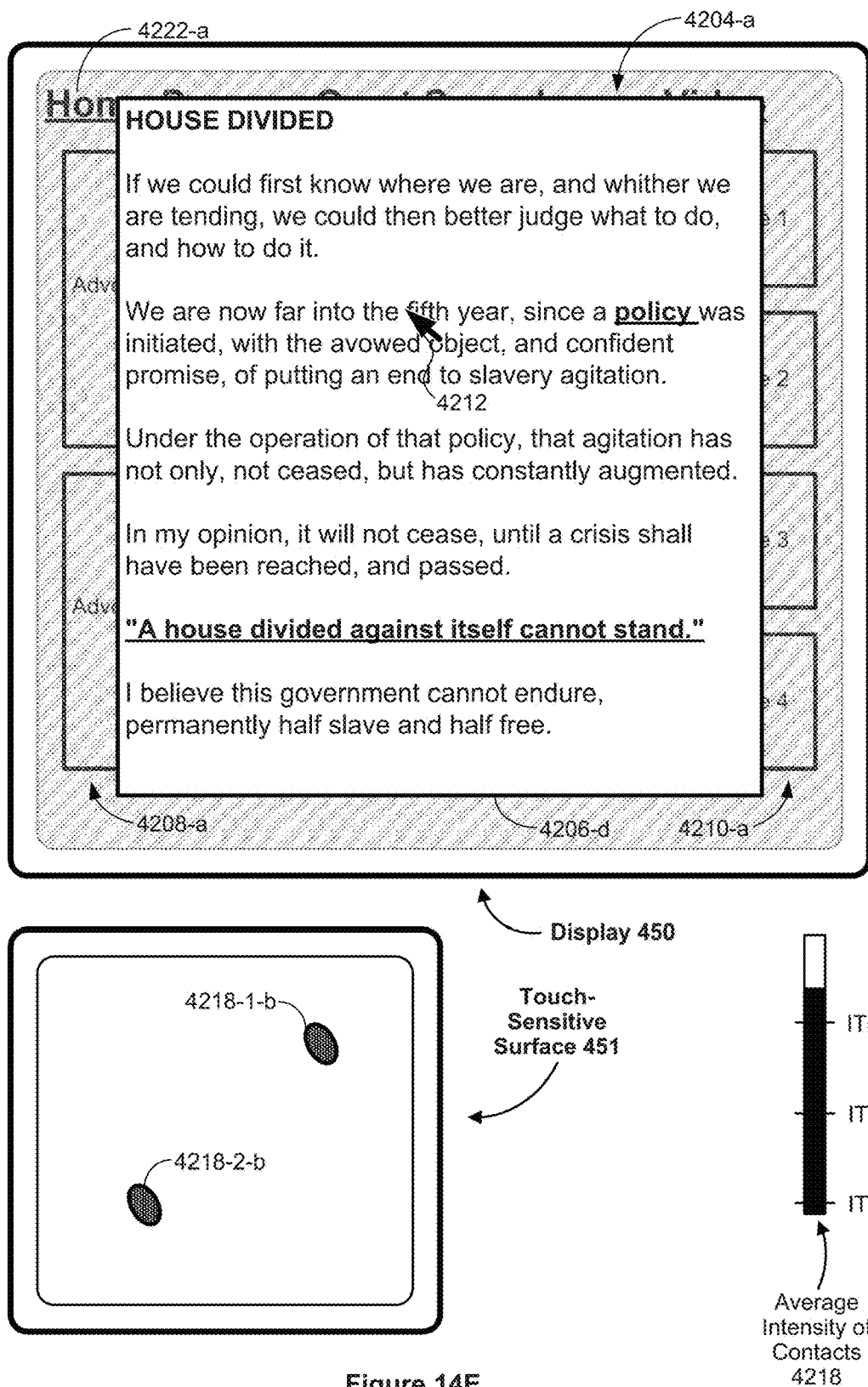


Figure 14E

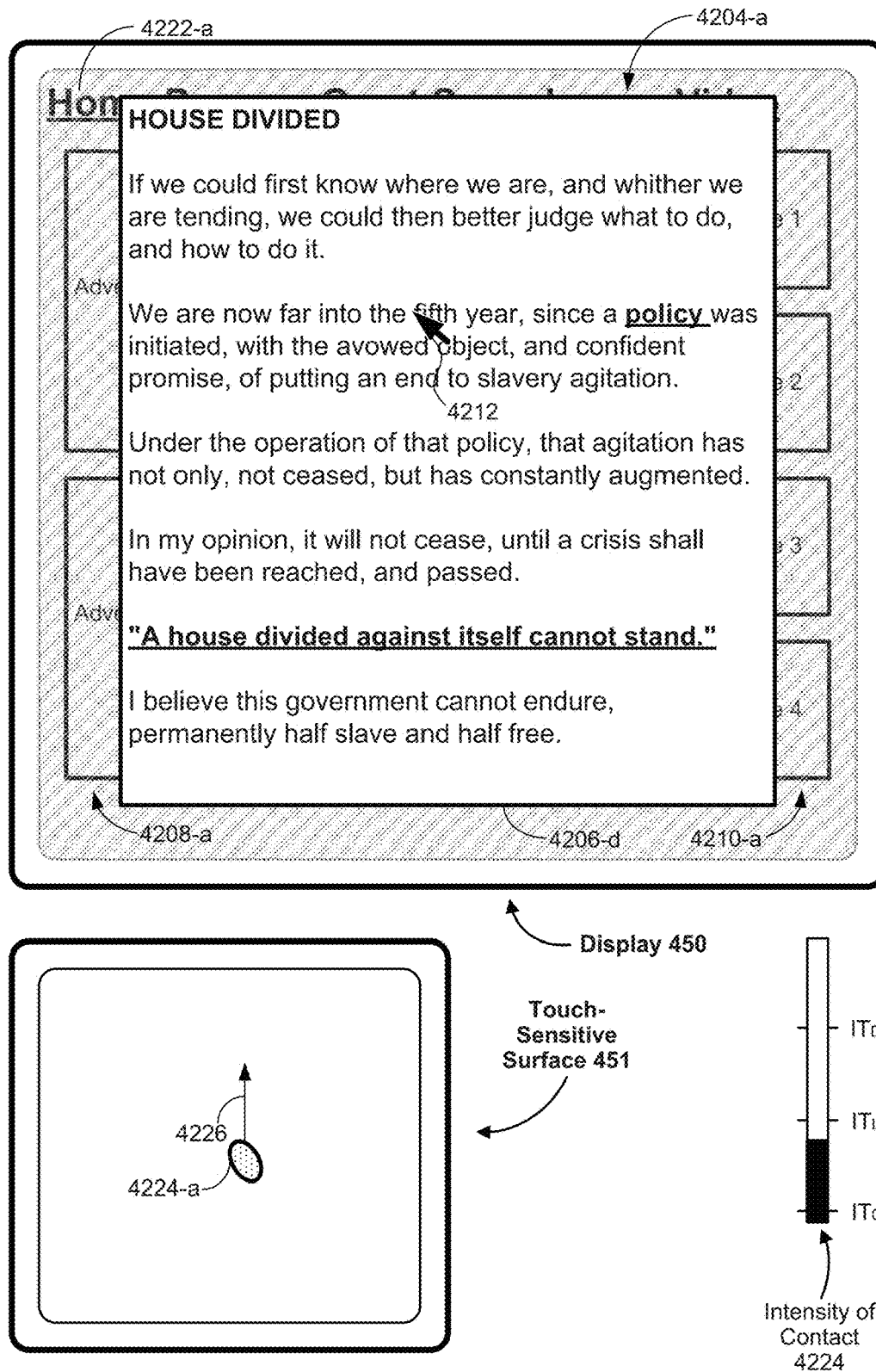


Figure 14F

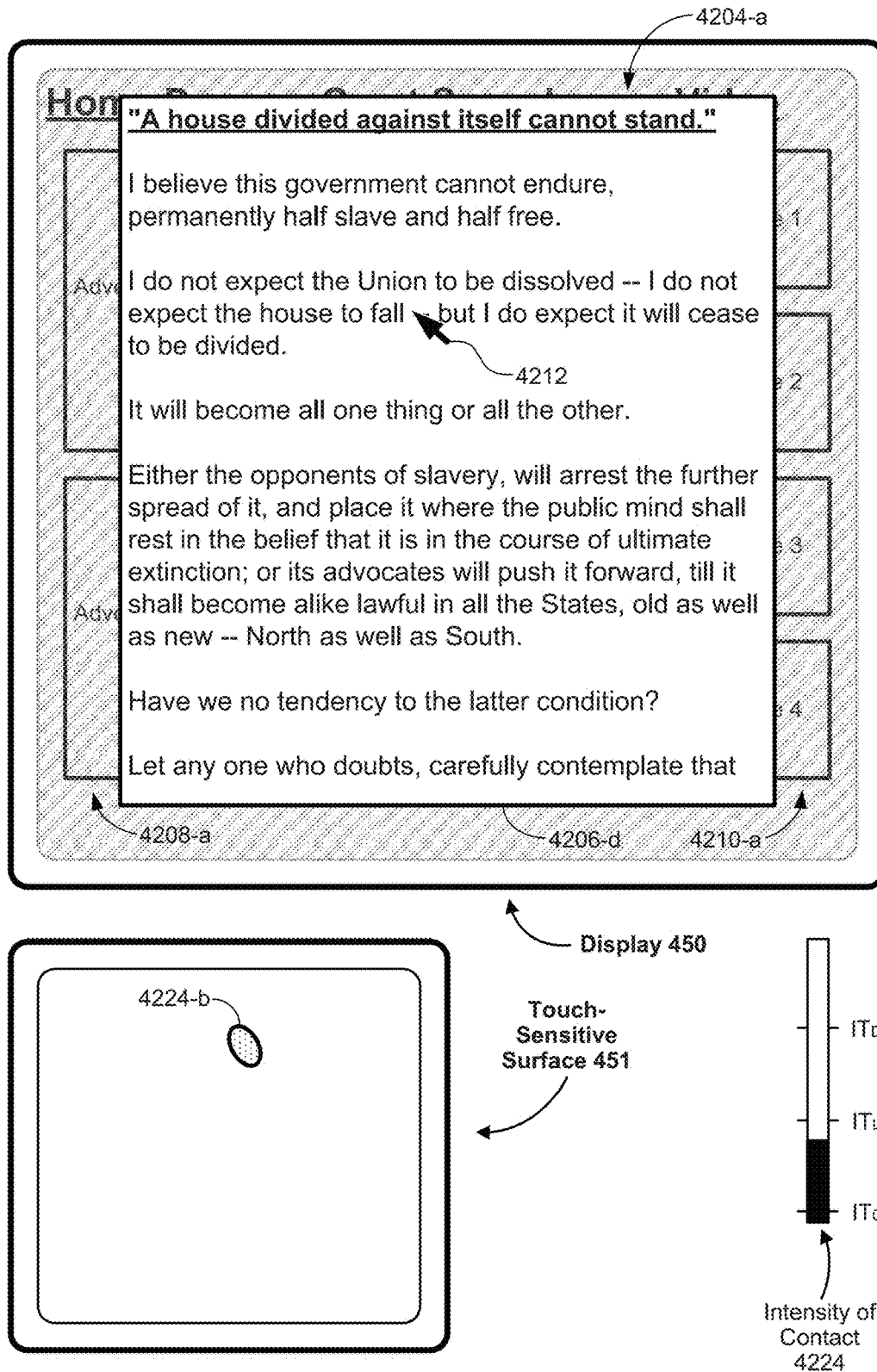


Figure 14G

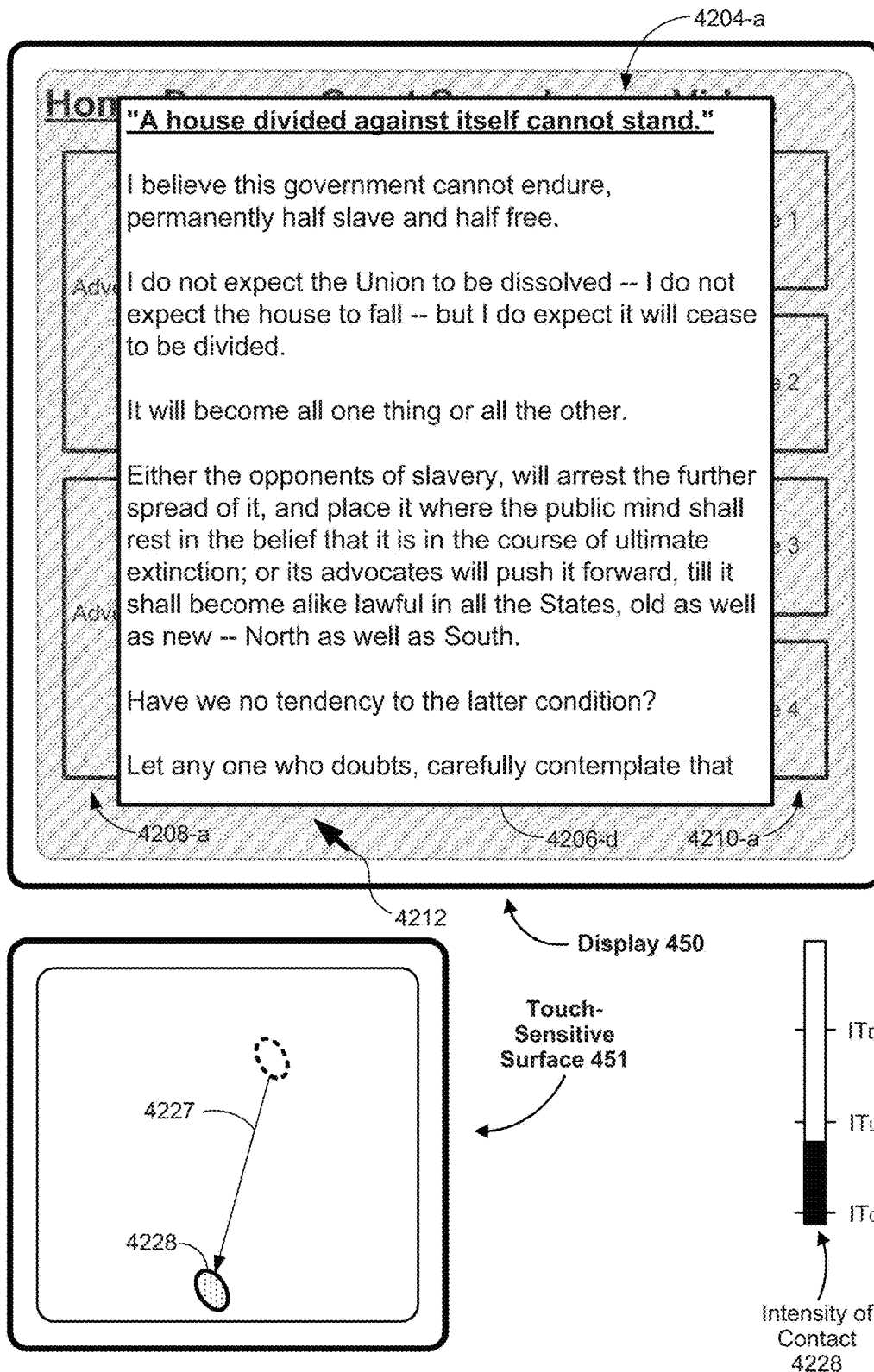


Figure 14H

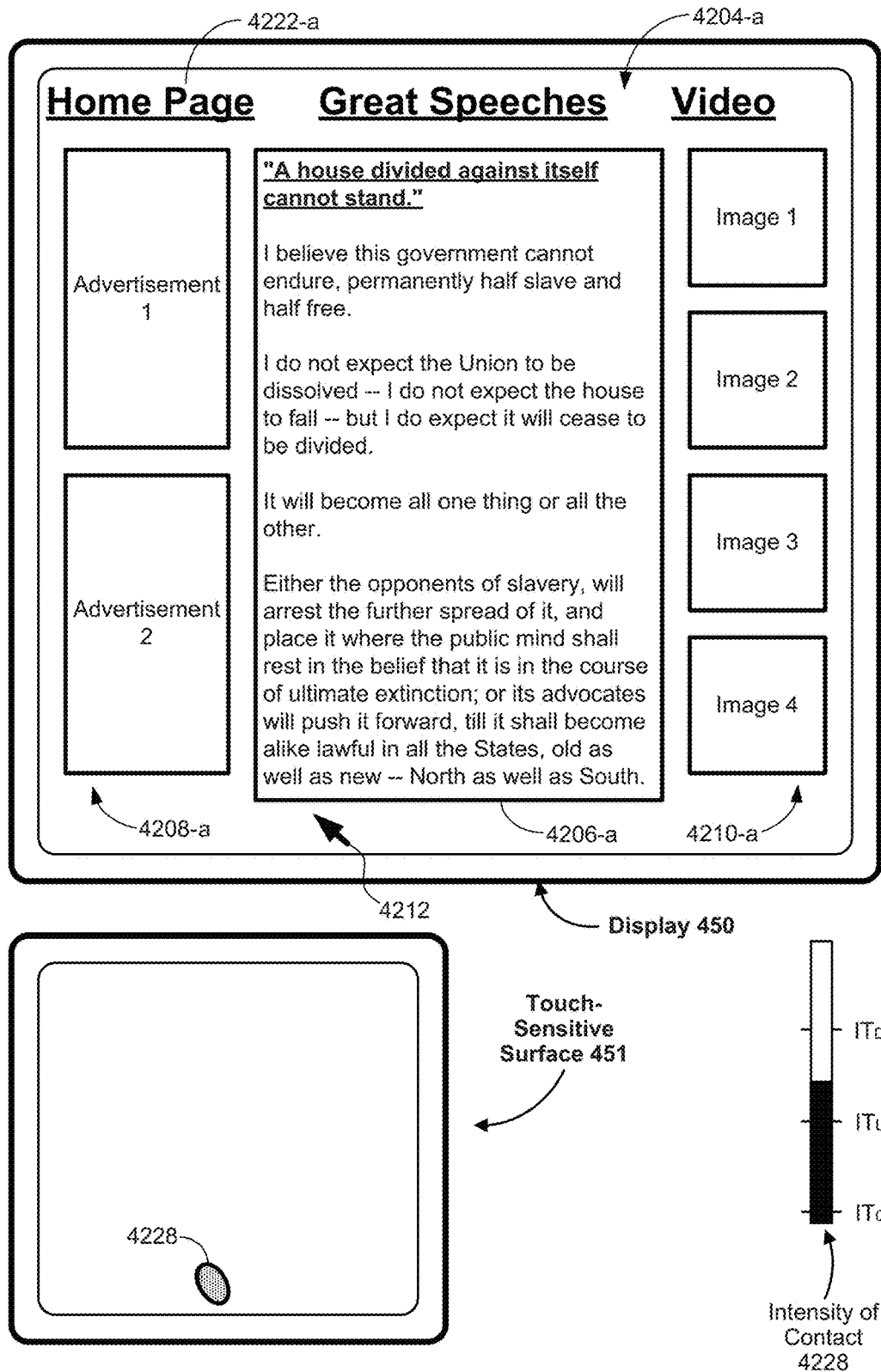


Figure 14I

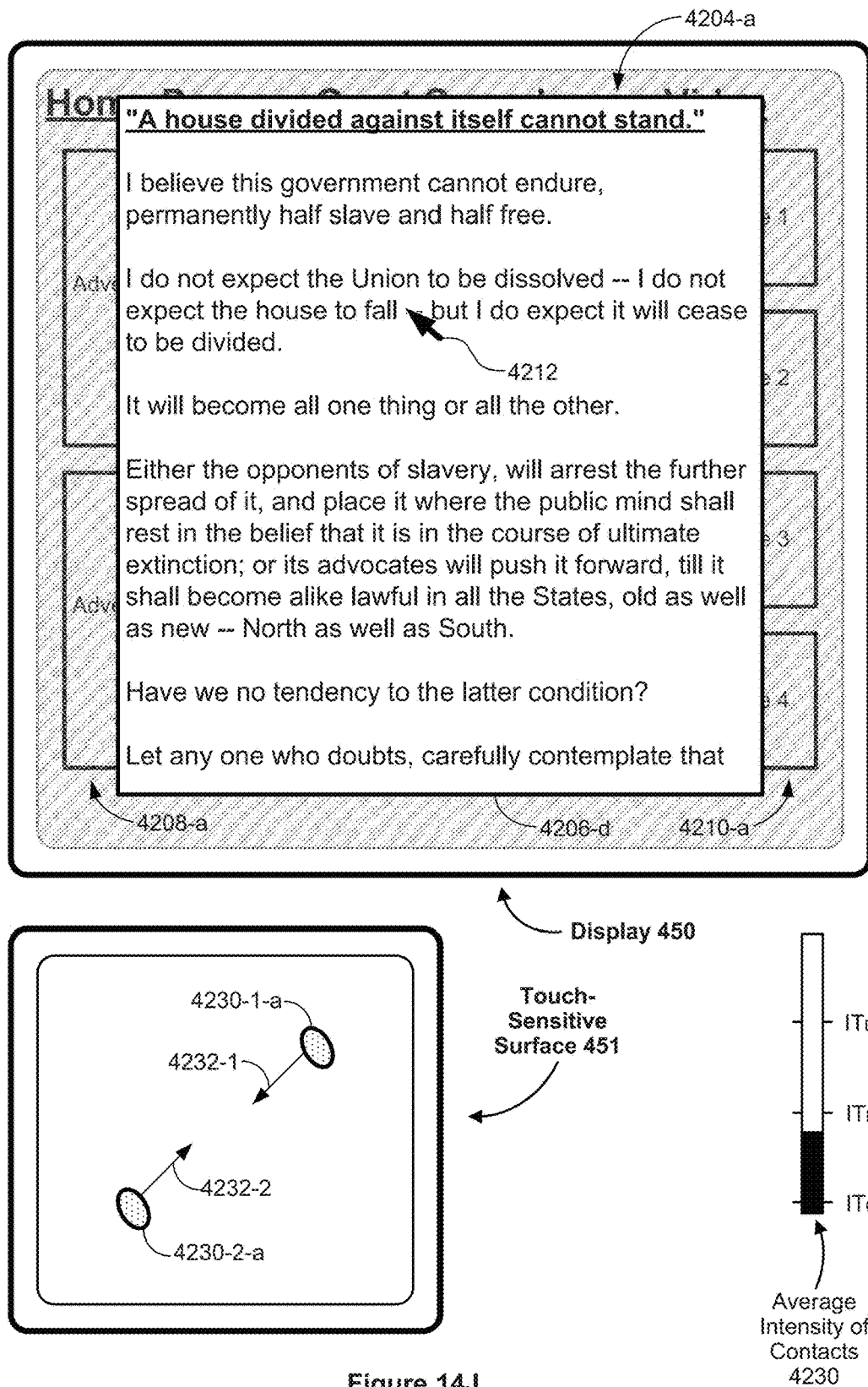


Figure 14J

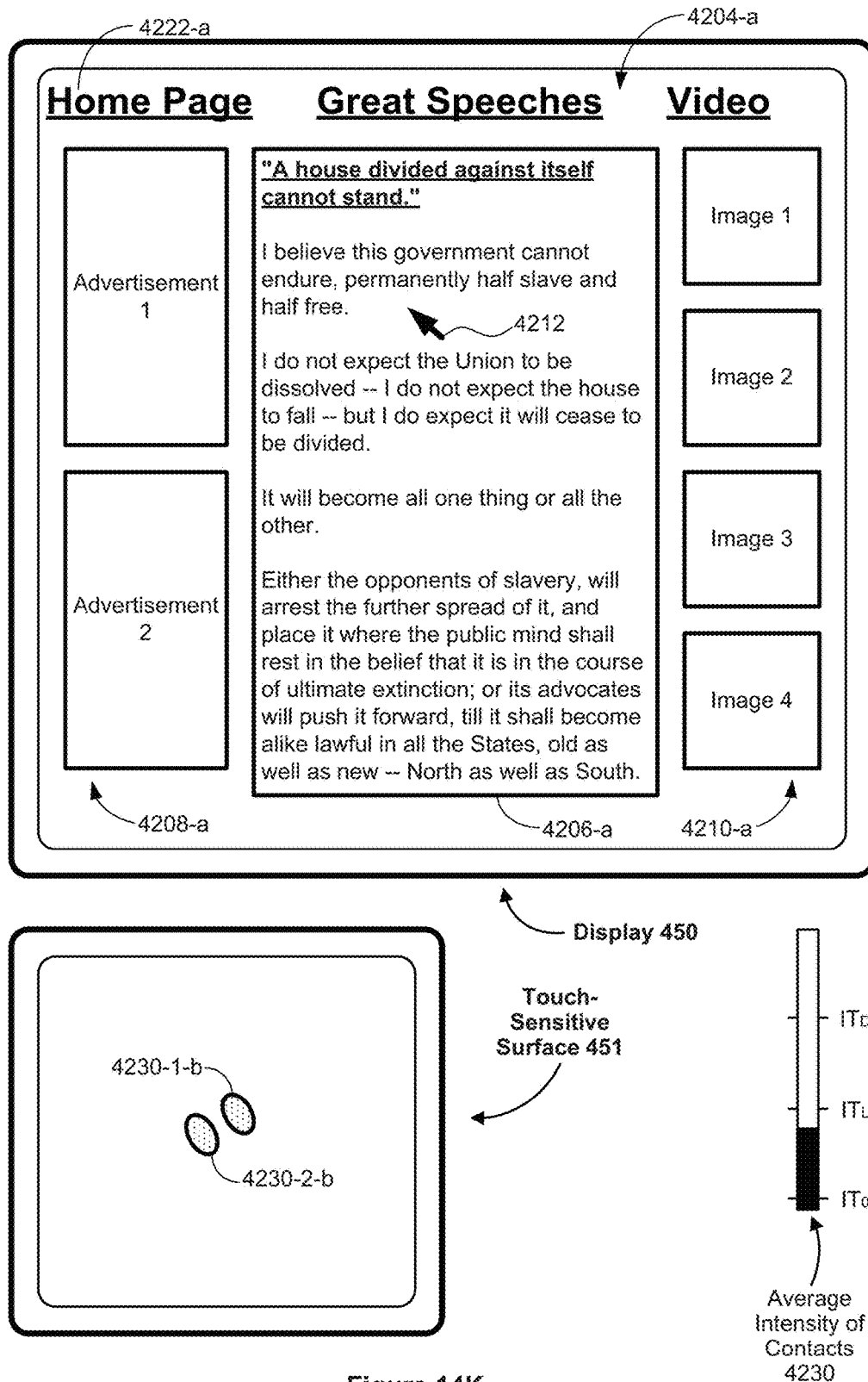
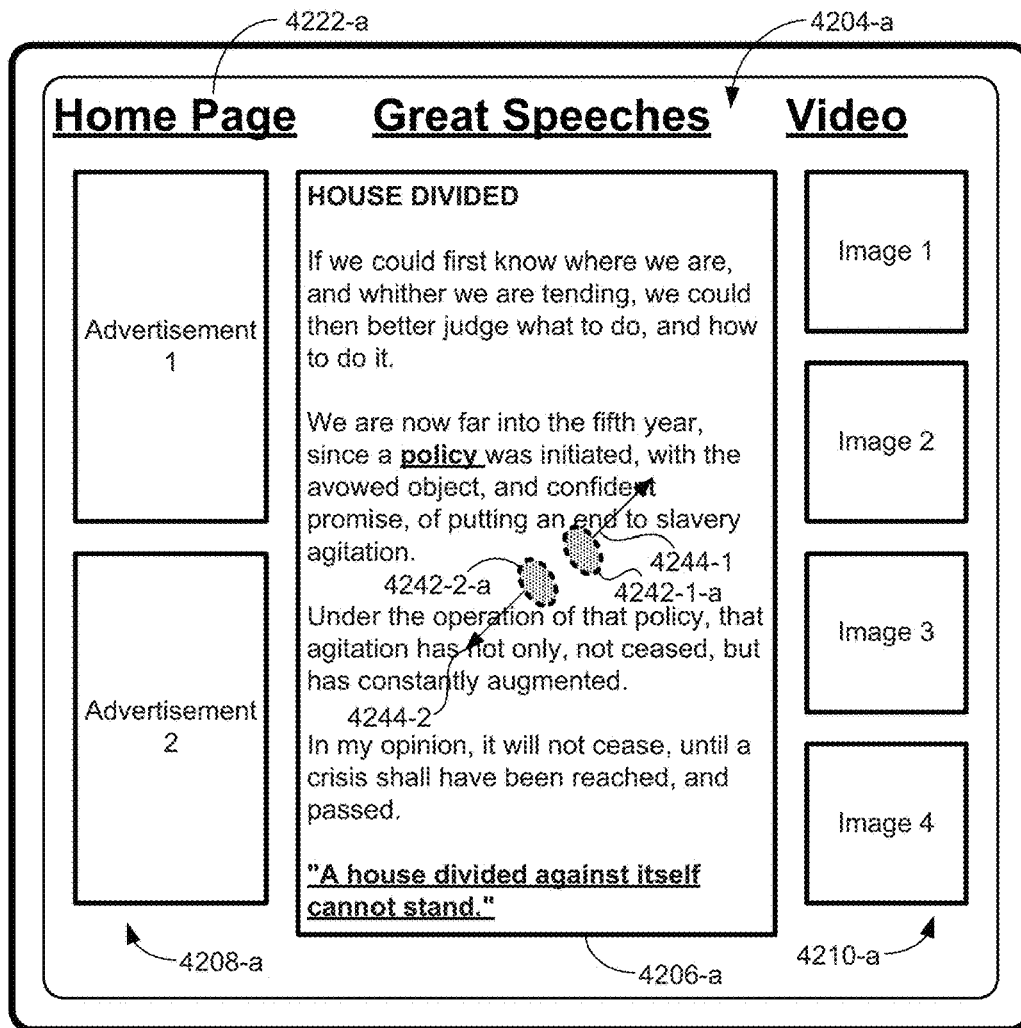


Figure 14K



Touch Screen 112

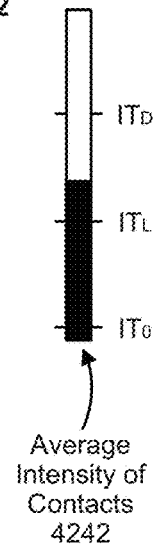
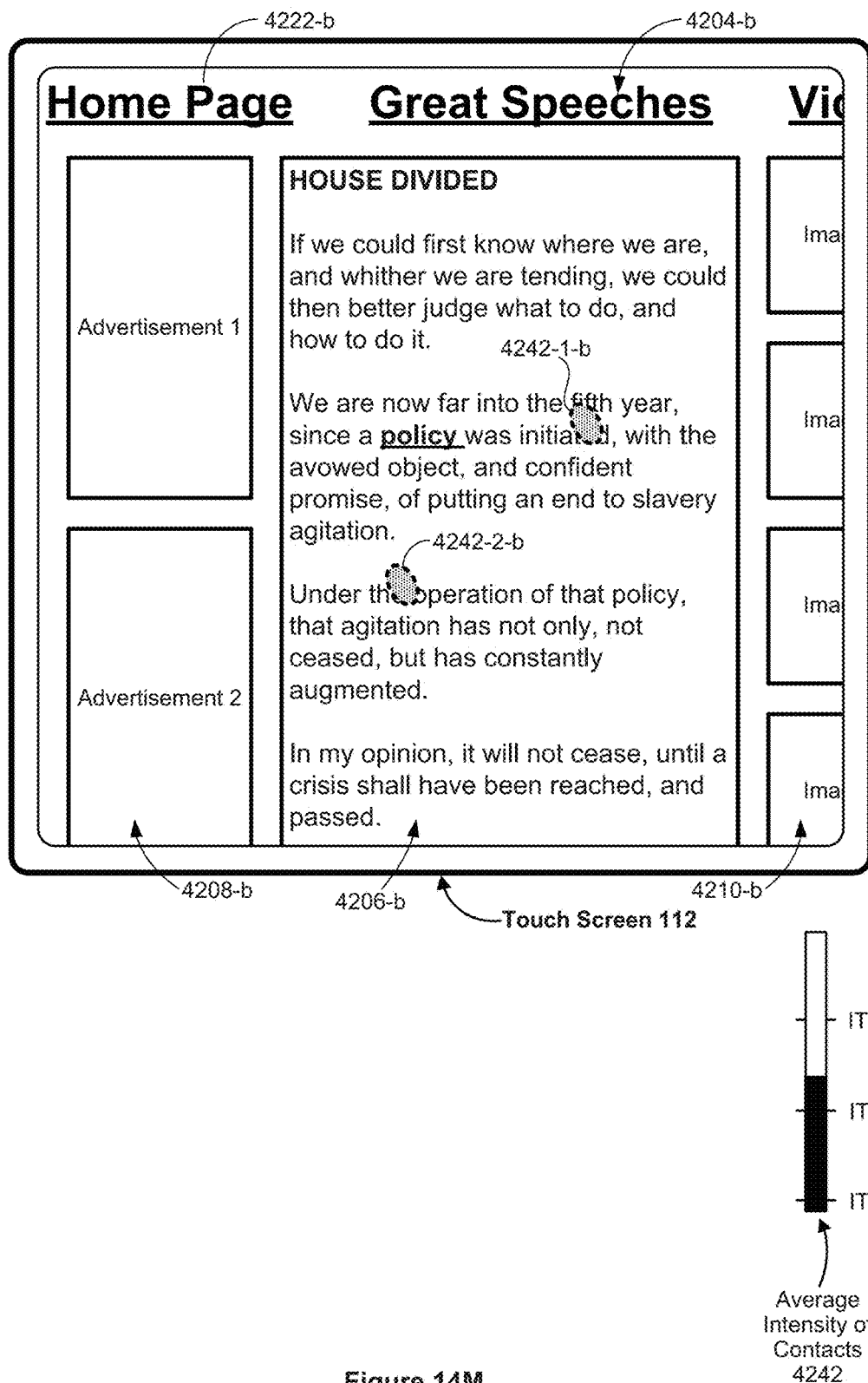
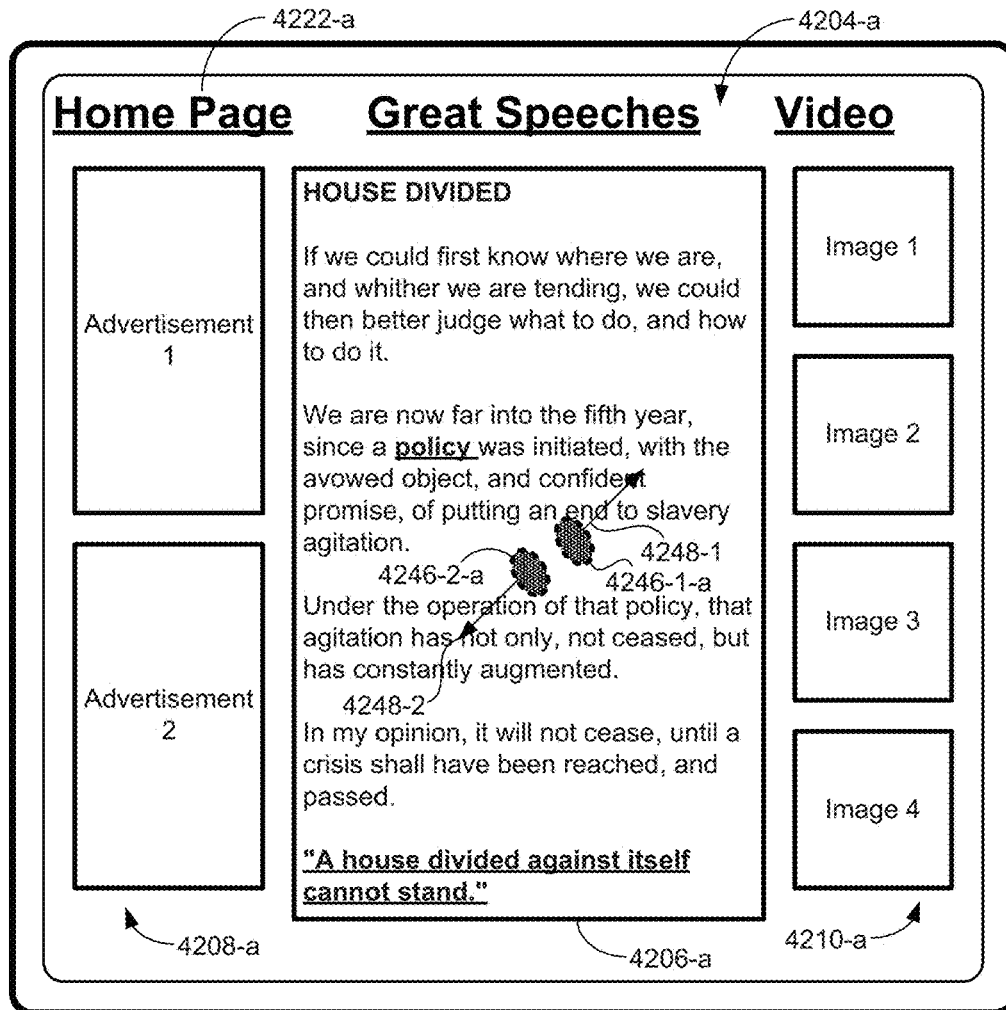


Figure 14L





Touch Screen 112

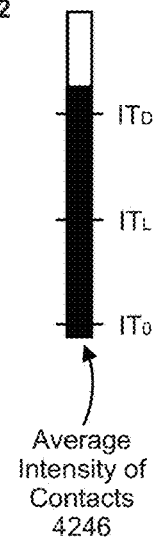


Figure 14N

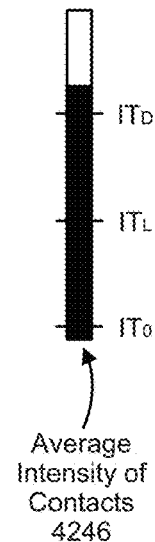
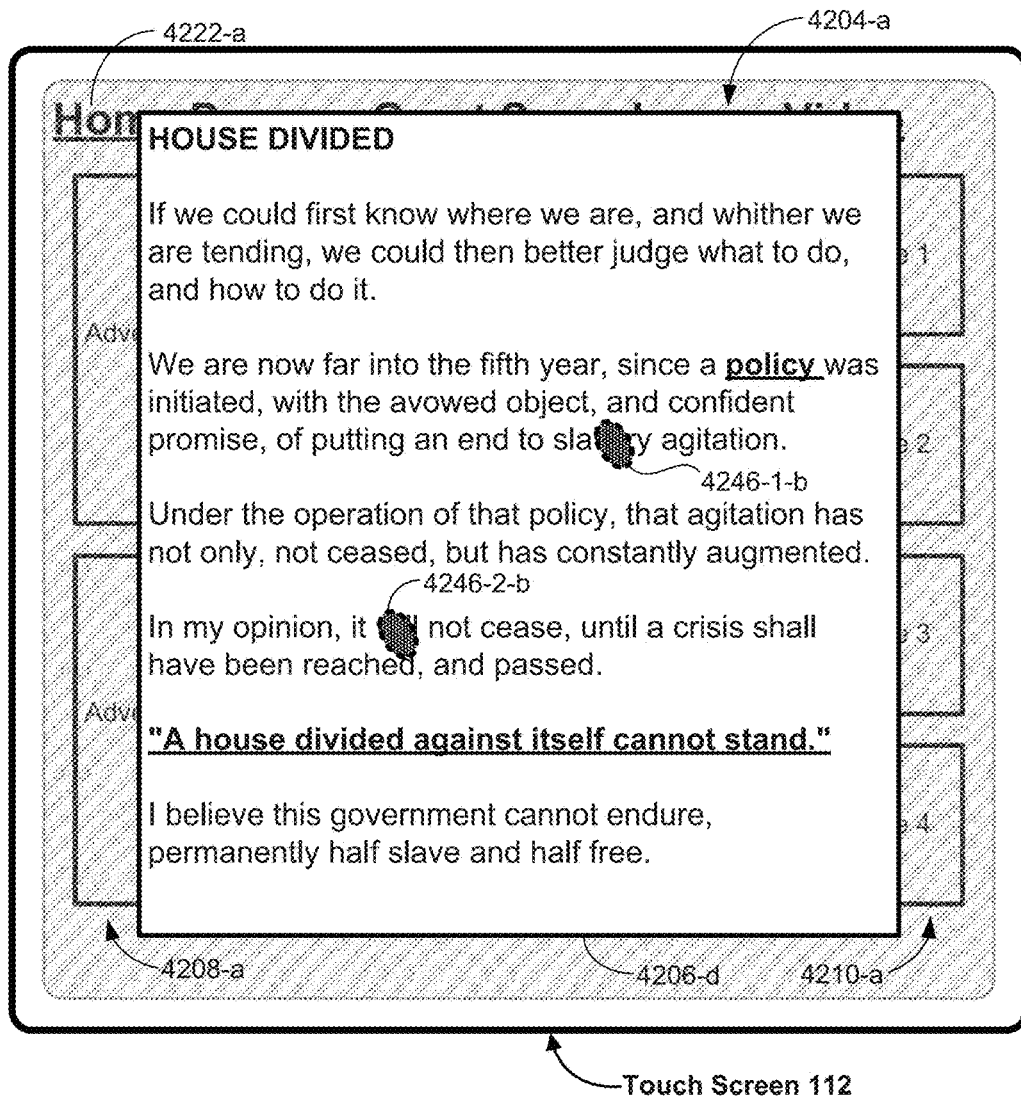


Figure 140

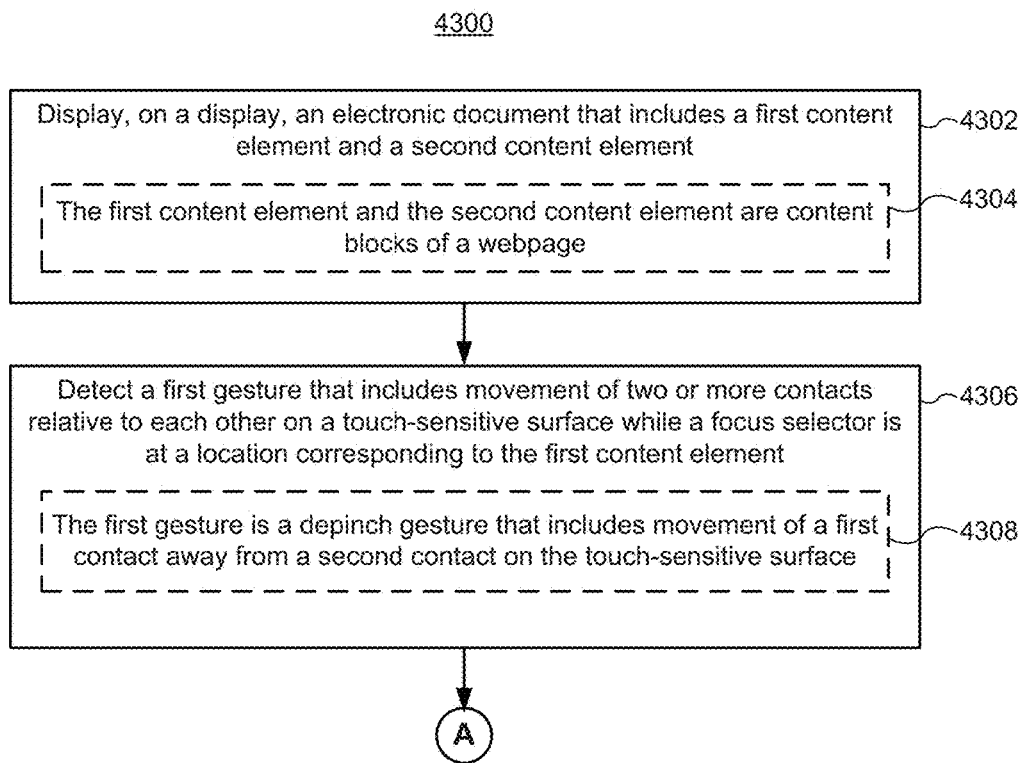


Figure 15A

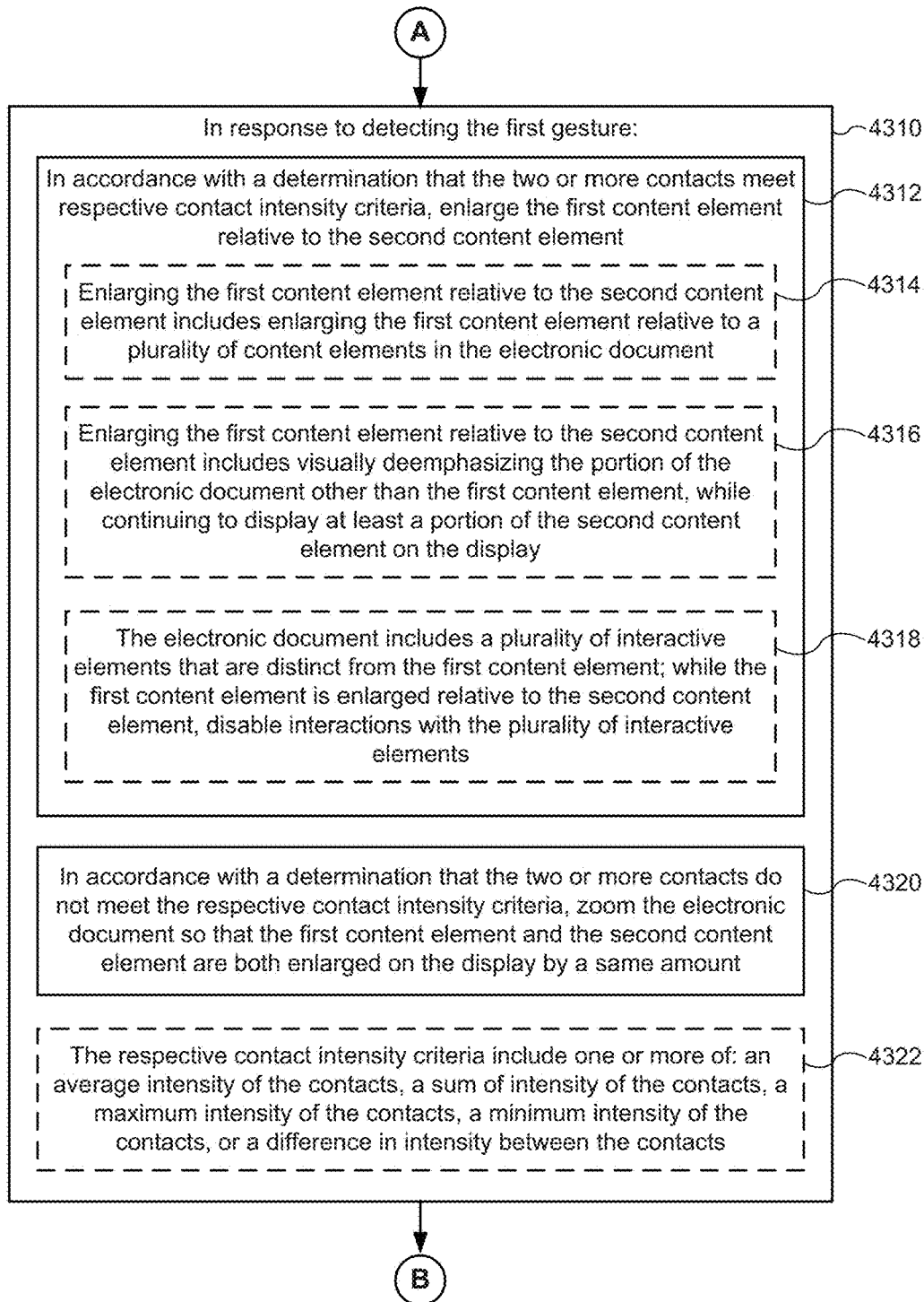


Figure 15B

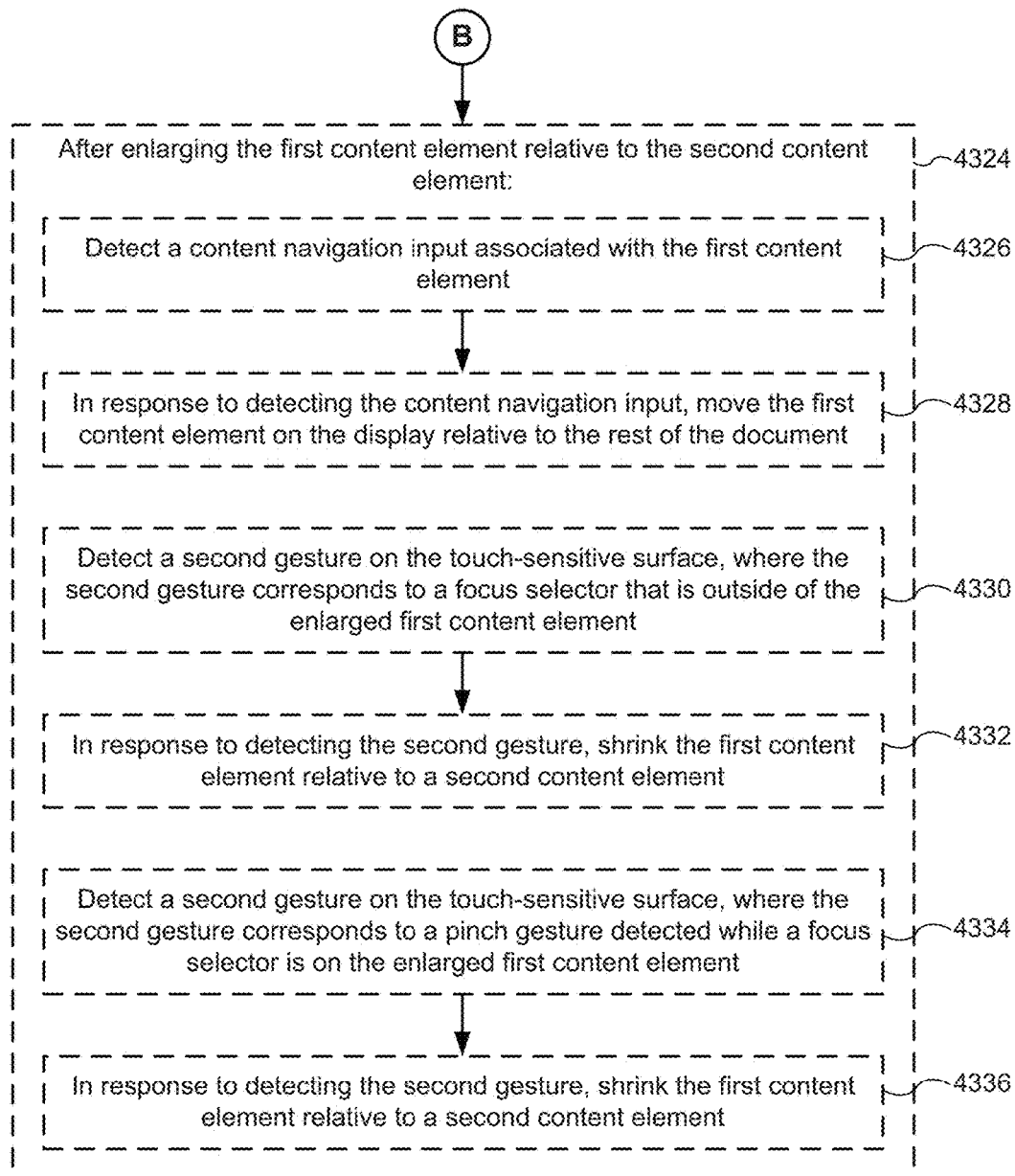


Figure 15C

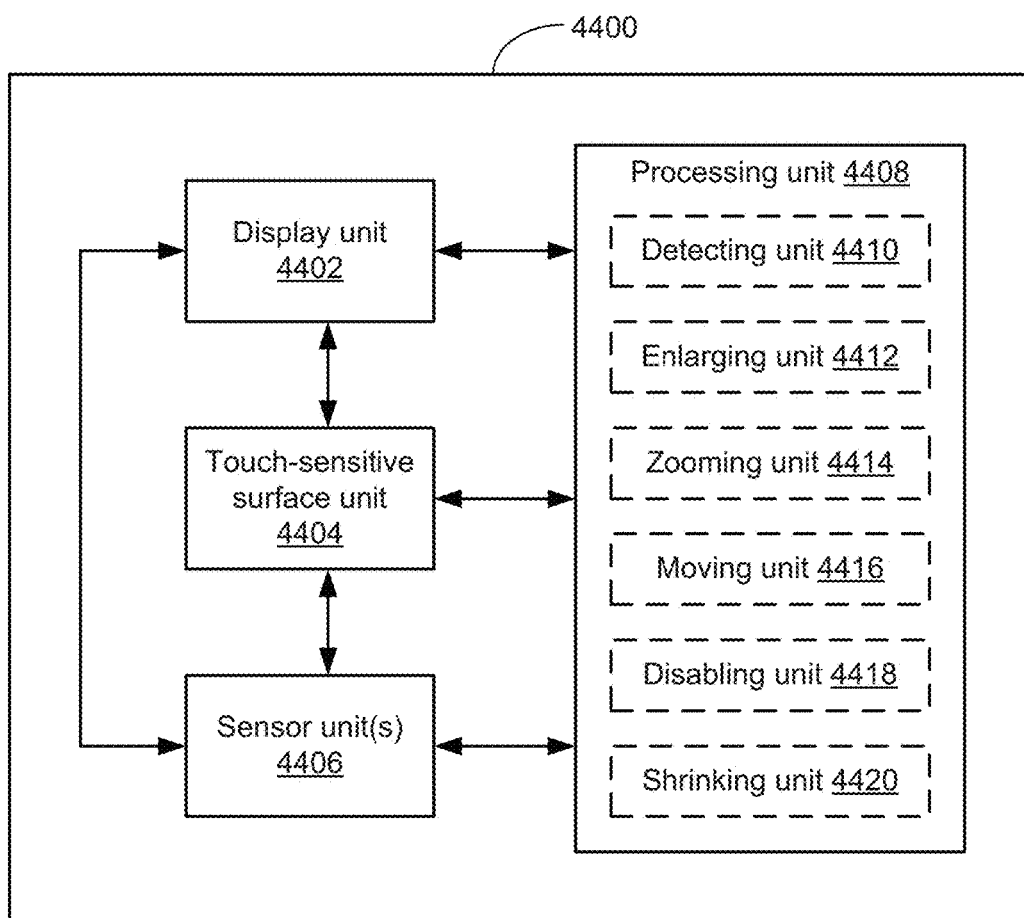


Figure 16

DEVICE, METHOD, AND GRAPHICAL USER INTERFACE FOR SCROLLING NESTED REGIONS

RELATED APPLICATIONS

[0001] This application is a continuation of U.S. application Ser. No. 14/536,367, filed Nov. 7, 2014, which is a continuation of PCT Patent Application Serial No. PCT/US2013/040056, filed on May 8, 2013, which claims the benefit of and priority to U.S. Provisional Patent Application Ser. No. 61/778,179, filed on Mar. 12, 2013; U.S. Provisional Patent Application Ser. No. 61/747,278, filed Dec. 29, 2012; and U.S. Provisional Patent Application Ser. No. 61/688,227, filed May 9, 2012, which applications are incorporated by reference herein in their entireties.

[0002] This application is also related to the following: U.S. Provisional Patent Application Ser. No. 61/778,092, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Selecting Object within a Group of Objects;” U.S. Provisional Patent Application Ser. No. 61/778,125, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Navigating User Interface Hierarchies;” U.S. Provisional Patent Application Ser. No. 61/778,156, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Manipulating Framed Graphical Objects;” U.S. Provisional Patent Application Ser. No. 61/778,171, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Displaying Additional Information in Response to a User Contact;” U.S. Provisional Patent Application Ser. No. 61/778,191, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Displaying User Interface Objects Corresponding to an Application;” U.S. Provisional Patent Application Ser. No. 61/778,211, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Facilitating User Interaction with Controls in a User Interface;” U.S. Provisional Patent Application Ser. No. 61/778,239, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Forgoing Generation of Tactile Output for a Multi-Contact Gesture;” U.S. Provisional Patent Application Ser. No. 61/778,284, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Providing Tactile Feedback for Operations Performed in a User Interface;” U.S. Provisional Patent Application Ser. No. 61/778,287, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Providing Feedback for Changing Activation States of a User Interface Object;” U.S. Provisional Patent Application Ser. No. 61/778,363, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Transitioning between Touch Input to Display Output Relationships;” U.S. Provisional Patent Application Ser. No. 61/778,367, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Moving a User Interface Object Based on an Intensity of a Press Input;” U.S. Provisional Patent Application Ser. No. 61/778,265, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Transitioning between Display States in Response to a Gesture;” U.S. Provisional Patent Application Ser. No. 61/778,373, filed on Mar. 12, 2013, entitled “Device, Method, and Graphical User Interface for Managing Activation of a Control Based on Contact Intensity;” U.S. Provisional Patent Application Ser. No. 61/778,412, filed on Mar. 13, 2013, entitled “Device, Method, and Graphical

User Interface for Displaying Content Associated with a Corresponding Affordance;” U.S. Provisional Patent Application Ser. No. 61/778,413, filed on Mar. 13, 2013, entitled “Device, Method, and Graphical User Interface for Selecting User Interface Objects;” U.S. Provisional Patent Application Ser. No. 61/778,414, filed on Mar. 13, 2013, entitled “Device, Method, and Graphical User Interface for Moving and Dropping a User Interface Object;” U.S. Provisional Patent Application Ser. No. 61/778,416, filed on Mar. 13, 2013, entitled “Device, Method, and Graphical User Interface for Determining Whether to Scroll or Select Content;” and U.S. Provisional Patent Application Ser. No. 61/778,418, filed on Mar. 13, 2013, entitled “Device, Method, and Graphical User Interface for Switching between User Interfaces,” which are incorporated herein by reference in their entireties.

[0003] This application is also related to the following: U.S. Provisional Patent Application Ser. No. 61/645,033, filed on May 9, 2012, entitled “Adaptive Haptic Feedback for Electronic Devices;” U.S. Provisional Patent Application Ser. No. 61/665,603, filed on Jun. 28, 2012, entitled “Adaptive Haptic Feedback for Electronic Devices;” and U.S. Provisional Patent Application Ser. No. 61/681,098, filed on Aug. 8, 2012, entitled “Adaptive Haptic Feedback for Electronic Devices,” which are incorporated herein by reference in their entireties.

TECHNICAL FIELD

[0004] This relates generally to electronic devices with touch-sensitive surfaces, including but not limited to electronic devices with touch-sensitive surfaces that detect inputs for manipulating user interfaces.

BACKGROUND

[0005] The use of touch-sensitive surfaces as input devices for computers and other electronic computing devices has increased significantly in recent years. Exemplary touch-sensitive surfaces include touch pads and touch screen displays. Such surfaces are widely used to manipulate user interface objects on a display.

[0006] Exemplary manipulations include adjusting the position and/or size of one or more user interface objects or activating buttons or opening files/applications represented by user interface objects, as well as associating metadata with one or more user interface objects or otherwise manipulating user interfaces. Exemplary user interface objects include digital images, video, text, icons, control elements such as buttons and other graphics. A user will, in some circumstances, need to perform such manipulations on user interface objects in a file management program (e.g., Finder from Apple Inc. of Cupertino, Calif.), an image management application (e.g., Aperture or iPhoto from Apple Inc. of Cupertino, Calif.), a digital content (e.g., videos and music) management application (e.g., iTunes from Apple Inc. of Cupertino, Calif.), a drawing application, a presentation application (e.g., Keynote from Apple Inc. of Cupertino, Calif.), a word processing application (e.g., Pages from Apple Inc. of Cupertino, Calif.), a website creation application (e.g., iWeb from Apple Inc. of Cupertino, Calif.), a disk authoring application (e.g., iDVD from Apple Inc. of Cupertino, Calif.), or a spreadsheet application (e.g., Numbers from Apple Inc. of Cupertino, Calif.).

[0007] But existing methods for performing these manipulations are cumbersome and inefficient. In addition, existing methods take longer than necessary, thereby wasting energy. This latter consideration is particularly important in battery-operated devices.

SUMMARY

[0008] Accordingly, there is a need for electronic devices with faster, more efficient methods and interfaces for manipulating user interfaces. Such methods and interfaces optionally complement or replace conventional methods for manipulating user interfaces. Such methods and interfaces reduce the cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated devices, such methods and interfaces conserve power and increase the time between battery charges.

[0009] The above deficiencies and other problems associated with user interfaces for electronic devices with touch-sensitive surfaces are reduced or eliminated by the disclosed devices. In some embodiments, the device is a desktop computer. In some embodiments, the device is portable (e.g., a notebook computer, tablet computer, or handheld device). In some embodiments, the device has a touchpad. In some embodiments, the device has a touch-sensitive display (also known as a “touch screen” or “touch screen display”). In some embodiments, the device has a graphical user interface (GUI), one or more processors, memory and one or more modules, programs or sets of instructions stored in the memory for performing multiple functions. In some embodiments, the user interacts with the GUI primarily through finger contacts and gestures on the touch-sensitive surface. In some embodiments, the functions optionally include image editing, drawing, presenting, word processing, website creating, disk authoring, spreadsheet making, game playing, telephoning, video conferencing, e-mailing, instant messaging, workout support, digital photographing, digital videoing, web browsing, digital music playing, and/or digital video playing. Executable instructions for performing these functions are, optionally, included in a non-transitory computer readable storage medium or other computer program product configured for execution by one or more processors.

[0010] There is a need for electronic devices with faster, more efficient methods and user interfaces for scrolling content in regions within said user interfaces by using user inputs, such as inputs on a track pad, touch screen or a mouse. In particular, there is a need for electronic devices with faster, more efficient methods for distinguishing whether to scroll a first region or a second region that is embedded, or nested, in the first region. Such methods and interfaces may complement or replace conventional methods for scrolling regions within interfaces. Such methods and interfaces reduce the cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated devices, such methods and interfaces conserve power and increase the time between battery charges.

[0011] In accordance with some embodiments, a method is performed at an electronic device with a display, a touch-sensitive surface and one or more sensors to detect intensity of contacts with the touch-sensitive surface. The method includes displaying a user interface. The user interface includes a first region and a second region. The second region is embedded in the first region so that when content in the first region is moved, the second region moves

together with the content in the first region. Content in second region is scrollable independently of other content in the first region. The method further includes detecting, on the touch-sensitive surface, a contact that corresponds to a focus selector on the display and detecting first movement of the contact across the touch-sensitive surface. The method further includes, in response to detecting the first movement of the contact when the focus selector is at a location on the display within the second region, in accordance with a determination that the contact has a maximum intensity that is below a respective intensity threshold, translating content in the first region on the display, and, in accordance with a determination that the contact has a maximum intensity that is above the respective intensity threshold, translating content in the second region on the display without translating other content in the first region on the display.

[0012] In accordance with some embodiments, an electronic device includes a display unit configured to display a user interface. The user interface includes a first region and a second region. The second region is embedded in the first region so that when content in the first region is moved, the second region moves together with the content in the first region. Content in second region is scrollable independently of other content in the first region. The electronic device further includes a touch-sensitive surface unit configured to detect a contact that corresponds to a focus selector on the display unit and detect first movement of the contact across the touch-sensitive surface unit. The electronic device further includes a processing unit coupled to the display unit and the touch-sensitive surface unit, the processing unit configured to, in response to detecting the first movement of the contact when the focus selector is at a location on the display unit within the second region and in accordance with a determination that the contact has a maximum intensity that is below a respective intensity threshold, translate content in the first region on the display unit. The processing unit is further configured to, in response to detecting the first movement of the contact when the focus selector is at a location on the display unit within the second region and in accordance with a determination that the contact has a maximum intensity that is above the respective intensity threshold, translate content in the second region on the display unit without translating other content in the first region on the display unit.

[0013] Thus, electronic devices with displays, touch-sensitive surfaces and one or more sensors to detect intensity of contacts with the touch-sensitive surface are provided with faster, more efficient methods and user interfaces for scrolling regions within said user interfaces, thereby increasing the effectiveness, efficiency, and user satisfaction with such devices. Such methods and interfaces may complement or replace conventional methods for scrolling regions within user interfaces.

[0014] There is a need for electronic devices with faster, more efficient methods and interfaces for displaying word definitions. Such methods and interfaces may complement or replace conventional methods for displaying word definitions. Such methods and interfaces reduce the cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated devices, such methods and interfaces conserve power and increase the time between battery charges.

[0015] In accordance with some embodiments, a method is performed at an electronic device with a display, a

touch-sensitive surface and one or more sensors to detect intensity of contacts with the touch-sensitive surface. The method includes: displaying a plurality of words in an electronic document on the display, where the plurality of words include a respective word, and while a focus selector is at a location corresponding to the respective word, detecting a gesture that includes a contact on the touch-sensitive surface. The method further includes, in response to detecting the gesture: in accordance with a determination that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, displaying a user interface for interacting with the respective word within the electronic document on the display; and in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, displaying a definition for the respective word on the display.

[0016] In accordance with some embodiments, an electronic device includes a display unit configured to display a plurality of words in an electronic document, where the plurality of words include a respective word; a touch-sensitive surface unit configured to receive gestures, the gestures including contacts on the touch-sensitive surface unit; and one or more sensors units configured to detect intensity of contacts with the touch-sensitive surface unit; and a processing unit coupled to the display unit, the touch-sensitive surface unit and the sensor units. The processing unit is configured to: while a focus selector is at a location corresponding to the respective word, detect a gesture that includes a contact on the touch-sensitive surface. The processing unit is further configured to, in response to detecting the gesture: in accordance with a determination that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, enable display of a user interface for interacting with the respective word within the electronic document on the display; and in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, enable display of a definition for the respective word on the display.

[0017] Thus, electronic devices with displays, touch-sensitive surfaces and one or more sensors to detect intensity of contacts with the touch-sensitive surface are provided with faster, more efficient methods and interfaces for displaying word definitions, thereby increasing the effectiveness, efficiency, and user satisfaction with such devices. Such methods and interfaces may complement or replace conventional methods for displaying word definitions.

[0018] There is a need for electronic devices with faster, more efficient methods and interfaces for displaying content associated with a hyperlink. Such methods and interfaces may complement or replace conventional methods for displaying content associated with a hyperlink. Such methods and interfaces reduce the cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated devices, such methods and interfaces conserve power and increase the time between battery charges.

[0019] In accordance with some embodiments, a method is performed at an electronic device with a display, a touch-sensitive surface and one or more sensors to detect intensity of contacts with the touch-sensitive surface. The method includes: displaying, on the display, an electronic document in a first tabbed window of an application with a tabbed document interface, the electronic document includ-

ing a hyperlink; while a focus selector is over the hyperlink, detecting a press input from a contact on the touch-sensitive surface, the contact having an intensity. The method further includes, in accordance with a determination that the intensity of the contact is above a first intensity threshold, displaying, within the first tabbed window, a representation of a tab surrounding or proximate to the hyperlink in the electronic document; detecting a liftoff of the contact from the touch-sensitive surface while the focus selector is over the hyperlink. The method also includes, in response to detecting the liftoff of the contact from the touch-sensitive surface: in accordance with a determination that the contact met predefined intensity criteria, loading content associated with the hyperlink in a second tabbed window, different from the first tabbed window, while maintaining the electronic document in the first tabbed window, and in accordance with a determination that the contact did not meet the predefined intensity criteria, replacing the electronic document in the first tabbed window with the content associated with the hyperlink.

[0020] In accordance with some embodiments, an electronic device includes a display unit configured to display an electronic document in a first tabbed window of an application with a tabbed document interface, the electronic document including a hyperlink; a touch-sensitive surface unit configured to receive contacts; one or more sensor unit configured to detect intensity of contacts with the touch-sensitive surface unit; and a processing unit coupled to the display unit, the touch-sensitive surface unit, and the sensor unit. The processing unit is configured to: while a focus selector is over the hyperlink, detect a press input from a contact on the touch-sensitive surface unit, the contact having an intensity; in accordance with a determination that the intensity of the contact is above a first intensity threshold, enable display of, within the first tabbed window, a representation of a tab surrounding or proximate to the hyperlink in the electronic document. The processing unit is further configured to detect a liftoff of the contact from the touch-sensitive surface unit while the focus selector is over the hyperlink; and in response to detecting the liftoff of the contact from the touch-sensitive surface unit: in accordance with a determination that the liftoff of the contact met predefined intensity criteria, load content associated with the hyperlink in a second tabbed window, different from the first tabbed window, while maintaining the electronic document in the first tabbed window; and in accordance with a determination that the liftoff of the contact did not meet the predefined intensity criteria, replace the electronic document in the first tabbed window with the content associated with the hyperlink.

[0021] Thus, electronic devices with displays, touch-sensitive surfaces and one or more sensors to detect intensity of contacts with the touch-sensitive surface are provided with faster, more efficient methods and interfaces for displaying content associated with a hyperlink, thereby increasing the effectiveness, efficiency, and user satisfaction with such devices. Such methods and interfaces may complement or replace conventional methods for displaying content associated with a hyperlink.

[0022] There is a need for electronic devices with faster, more efficient methods and interfaces for enlarging content in a document. Such methods and interfaces may complement or replace conventional methods for enlarging content in a document. Such methods and interfaces reduce the

cognitive burden on a user and produce a more efficient human-machine interface. For battery-operated devices, such methods and interfaces conserve power and increase the time between battery charges.

[0023] In accordance with some embodiments, a method is performed at an electronic device with a display, a touch-sensitive surface, and one or more sensors to detect intensity of contacts with the touch-sensitive surface. The method includes: displaying, on the display, an electronic document that includes a first content element and a second content element; detecting a first gesture that includes movement of two or more contacts relative to each other on the touch-sensitive surface while a focus selector is at a location corresponding to the first content element; and in response to detecting the first gesture: in accordance with a determination that the two or more contacts meet respective contact intensity criteria, enlarging the first content element relative to the second content element, and in accordance with a determination that the two or more contacts do not meet the respective contact intensity criteria, zooming the electronic document so that the first content element and the second content element are both enlarged on the display by a same amount.

[0024] In accordance with some embodiments, an electronic device includes a display unit configured to display an electronic document that includes a first content element and a second content element; a touch-sensitive surface unit configured to receive gestures that include contacts; one or more sensors configured to detect intensity of contacts with the touch-sensitive surface unit; and a processing unit coupled to the display unit, the touch-sensitive surface unit, and the sensors. The processing unit is configured to: detect a first gesture that includes movement of two or more contacts relative to each other on the touch-sensitive surface unit while a focus selector is at a location corresponding to the first content element; and in response to detecting the first gesture: in accordance with a determination that the two or more contacts meet respective contact intensity criteria, enlarge the first content element relative to the second content element, and in accordance with a determination that the two or more contacts do not meet the respective contact intensity criteria, zoom the electronic document so that the first content element and the second content element are both enlarged on the display unit by a same amount.

[0025] Thus, electronic devices with displays, touch-sensitive surfaces, and one or more sensors to detect intensity of contacts with the touch-sensitive surface are provided with faster, more efficient methods and interfaces for enlarging content in a document, thereby increasing the effectiveness, efficiency, and user satisfaction with such devices. Such methods and interfaces may complement or replace conventional methods for enlarging content in a document.

[0026] In accordance with some embodiments, an electronic device includes a display, a touch-sensitive surface, optionally one or more sensors to detect intensity of contacts with the touch-sensitive surface, one or more processors, memory, and one or more programs; the one or more programs are stored in the memory and configured to be executed by the one or more processors and the one or more programs include instructions for performing the operations of any of the methods referred to in the fifth paragraph of the Description of Embodiments. In accordance with some embodiments, a graphical user interface on an electronic device with a display, a touch-sensitive surface, optionally

one or more sensors to detect intensity of contacts with the touch-sensitive surface, a memory, and one or more processors to execute one or more programs stored in the memory includes one or more of the elements displayed in any of the methods referred to in the fifth paragraph of the Description of Embodiments, which are updated in response to inputs, as described in any of the methods referred to in the fifth paragraph of the Description of Embodiments. In accordance with some embodiments, a computer readable storage medium has stored therein instructions which when executed by an electronic device with a display, a touch-sensitive surface, and optionally one or more sensors to detect intensity of contacts with the touch-sensitive surface, cause the device to perform the operations of any of the methods referred to in the fifth paragraph of the Description of Embodiments. In accordance with some embodiments, an electronic device includes: a display, a touch-sensitive surface, and optionally one or more sensors to detect intensity of contacts with the touch-sensitive surface; and means for performing the operations of any of the methods referred to in the fifth paragraph of the Description of Embodiments. In accordance with some embodiments, an information processing apparatus, for use in an electronic device with a display and a touch-sensitive surface, optionally one or more sensors to detect intensity of contacts with the touch-sensitive surface, includes means for performing the operations of any of the methods referred to in the fifth paragraph of the Description of Embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] For a better understanding of the various described embodiments, reference should be made to the Description of Embodiments below, in conjunction with the following drawings in which like reference numerals refer to corresponding parts throughout the figures.

[0028] FIG. 1A is a block diagram illustrating a portable multifunction device with a touch-sensitive display in accordance with some embodiments.

[0029] FIG. 1B is a block diagram illustrating exemplary components for event handling in accordance with some embodiments.

[0030] FIG. 2 illustrates a portable multifunction device having a touch screen in accordance with some embodiments.

[0031] FIG. 3 is a block diagram of an exemplary multifunction device with a display and a touch-sensitive surface in accordance with some embodiments.

[0032] FIG. 4A illustrates an exemplary user interface for a menu of applications on a portable multifunction device in accordance with some embodiments.

[0033] FIG. 4B illustrates an exemplary user interface for a multifunction device with a touch-sensitive surface that is separate from the display in accordance with some embodiments.

[0034] FIGS. 5A-5I illustrate exemplary user interfaces for scrolling regions within said user interfaces in accordance with some embodiments.

[0035] FIGS. 6A-6C are flow diagrams illustrating a method of scrolling regions within user interfaces in accordance with some embodiments.

[0036] FIG. 7 is a functional block diagram of an electronic device in accordance with some embodiments.

[0037] FIGS. 8A-8N illustrate exemplary user interfaces for displaying word definitions in accordance with some embodiments.

[0038] FIGS. 9A-9B are flow diagrams illustrating a method of displaying word definitions in accordance with some embodiments.

[0039] FIG. 10 is a functional block diagram of an electronic device in accordance with some embodiments.

[0040] FIGS. 11A-11Z illustrate exemplary user interfaces for displaying content associated with a hyperlink in accordance with some embodiments.

[0041] FIGS. 12A-12B are flow diagrams illustrating a method of displaying content associated with a hyperlink in accordance with some embodiments.

[0042] FIG. 13 is a functional block diagram of an electronic device in accordance with some embodiments.

[0043] FIGS. 14A-14O illustrate exemplary user interfaces for enlarging content in a document in accordance with some embodiments.

[0044] FIGS. 15A-15C are flow diagrams illustrating a method of enlarging content in a document in accordance with some embodiments.

[0045] FIG. 16 is a functional block diagram of an electronic device in accordance with some embodiments.

DESCRIPTION OF EMBODIMENTS

[0046] The methods, devices and GUIs described herein provide visual and/or haptic feedback that makes manipulation of user interface objects more efficient and intuitive for a user. For example, in a system where the clicking action of a trackpad is decoupled from the contact intensity (e.g., contact force, contact pressure, or a substitute therefore) that is needed to reach an activation threshold, the device can generate different tactile outputs (e.g., “different clicks”) for different activation events (e.g., so that clicks that accomplish a particular result are differentiated from clicks that do not produce any result or that accomplish a different result from the particular result). Additionally, tactile outputs can be generated in response to other events that are not related to increasing intensity of a contact, such as generating a tactile output (e.g., a “detent”) when a user interface object is moved to a particular position, boundary or orientation, or when an event occurs at the device.

[0047] Additionally, in a system where a trackpad or touch-screen display is sensitive to a range of contact intensity that includes more than one or two specific intensity values (e.g., more than a simple on/off, binary intensity determination), the user interface can provide responses (e.g., visual or tactile cues) that are indicative of the intensity of the contact within the range. In some implementations, a pre-activation-threshold response and/or a post-activation-threshold response to an input are displayed as continuous animations. As one example of such a response, a preview of an operation is displayed in response to detecting an increase in contact intensity that is still below an activation threshold for performing the operation. As another example of such a response, an animation associated with an operation continues even after the activation threshold for the operation has been reached. Both of these examples provide a user with a continuous response to the force or pressure of a user's contact, which provides a user with visual and/or haptic feedback that is richer and more intuitive. More specifically, such continuous force responses give the user the experience of being able to press lightly to preview an

operation and/or press deeply to push “past” or “through” a predefined user interface state corresponding to the operation.

[0048] Additionally, for a device with a touch-sensitive surface that is sensitive to a range of contact intensity, multiple contact intensity thresholds can be monitored by the device and different functions can be mapped to different contact intensity thresholds. This serves to increase the available “gesture space” providing easy access to advanced features for users who know that increasing the intensity of a contact at or beyond a second “deep press” intensity threshold will cause the device to perform a different operation from an operation that would be performed if the intensity of the contact is between a first “activation” intensity threshold and the second “deep press” intensity threshold. An advantage of assigning additional functionality to a second “deep press” intensity threshold while maintaining familiar functionality at a first “activation” intensity threshold is that inexperienced users who are, in some circumstances, confused by the additional functionality can use the familiar functionality by just applying an intensity up to the first “activation” intensity threshold, whereas more experienced users can take advantage of the additional functionality by applying an intensity at the second “deep press” intensity threshold.

[0049] Additionally, for a device with a touch-sensitive surface that is sensitive to a range of contact intensity, the device can provide additional functionality by allowing users to perform complex operations with a single continuous contact. For example, when selecting a group of objects, a user can move a continuous contact around the touch-sensitive surface and can press while dragging (e.g., applying an intensity greater than a “deep press” intensity threshold) to add additional elements to a selection. In this way, a user can intuitively interact with a user interface where pressing harder with a contact causes objects in the user interface to be “stickier.”

[0050] A number of different approaches to providing an intuitive user interface on a device where a clicking action is decoupled from the force that is needed to reach an activation threshold and/or the device is sensitive to a wide range of contact intensities are described below. Using one or more of these approaches (optionally in conjunction with each other) helps to provide a user interface that intuitively provides users with additional information and functionality, thereby reducing the user's cognitive burden and improving the human-machine interface. Such improvements in the human-machine interface enable users to use the device faster and more efficiently. For battery-operated devices, these improvements conserve power and increase the time between battery charges. For ease of explanation, systems, methods and user interfaces for including illustrative examples of some of these approaches are described below, as follows:

[0051] Many electronic devices have graphical user interfaces with nested regions for displaying content (e.g., a map nested within a displayed webpage). Consequently, there is a need for methods and user interfaces capable of determining whether such a contact or gesture on a touch-sensitive surface corresponds to a request to scroll a larger region containing an embedded region or the embedded region itself. The embodiments below provide methods for determining which region to scroll based on the location of a contact as

well as the intensity of the contact, thereby providing added control to the user and improving the ease of manipulation of a nested or embedded scrollable region. In particular, FIGS. 5A-5I illustrate exemplary user interfaces for scrolling regions within said user interfaces. FIGS. 6A-6C are flow diagrams illustrating a method of scrolling regions within user interfaces. The user interfaces in FIGS. 5A-5I are used to illustrate the processes in FIGS. 6A-6C.

[0052] When a user is reading or entering text in an electronic document, a user may wish to obtain a definition for a word. However, some methods for obtaining the definition for a word include multiple steps such as navigation through a series of menus or dialogues that are inconvenient and distracting for a user. The embodiments below provide methods and user interfaces for allowing the user to activate display of a definition for a word by performing a gesture with contact whose intensity goes above an intensity threshold, thereby providing a more efficient and intuitive user interface for displaying definitions of words in a document. In particular, Below, FIGS. 8A-8N illustrate exemplary user interfaces for displaying word definitions. FIGS. 9A-9B are flow diagrams illustrating a method of displaying word definitions. The user interfaces in FIGS. 8A-8N are used to illustrate the processes in FIGS. 9A-9B.

[0053] Some applications have tabbed document interfaces, where multiple documents are, in some circumstances, opened in respective tabbed windows within one application window, and the user may switch between the tabbed windows within the application window to view the multiple documents. However, determining whether to load a document in a new tabbed window or in the current tabbed window sometimes is based on navigation through a series of menus or dialogues that are inconvenient and distracting for a user. The embodiments described below provide methods and user interfaces for giving a user per-document control over whether to load a document in a new tabbed window or in the current tabbed window based on an intensity of a contact, thereby providing a more efficient and intuitive user interface for loading a document in a tabbed document interface. In particular, FIGS. 11A-11Z illustrate exemplary user interfaces for displaying content associated with a hyperlink. FIGS. 12A-12B are flow diagrams illustrating a method of displaying content associated with a hyperlink. The user interfaces in FIGS. 11A-11Z are used to illustrate the processes in FIGS. 12A-12B.

[0054] Many electronic documents have multiple content elements (e.g., images, a main article or body text, and advertisements, etc.), however focusing on a particular content element can be difficult when other content elements are distracting.

[0055] Moreover, some methods for zooming or otherwise emphasizing a content element include multiple steps such as navigation through a series of menus or dialogues that are inconvenient and distracting for a user. The embodiments described below provide methods and user interfaces for enlarging a particular content element based on an intensity of one or more contacts, thereby providing a more efficient and intuitive user interface for enlarging a content element in a document. In particular, FIGS. 14A-14O illustrate

exemplary user interfaces for enlarging content in a document. FIGS. 15A-15C are flow diagrams illustrating a method of enlarging content in a document. The user interfaces in FIGS. 14A-14O are used to illustrate the processes in FIGS. 15A-15C.

Exemplary Devices

[0056] Reference will now be made in detail to embodiments, examples of which are illustrated in the accompanying drawings. In the following detailed description, numerous specific details are set forth in order to provide a thorough understanding of the various described embodiments. However, it will be apparent to one of ordinary skill in the art that the various described embodiments may be practiced without these specific details. In other instances, well-known methods, procedures, components, circuits, and networks have not been described in detail so as not to unnecessarily obscure aspects of the embodiments.

[0057] It will also be understood that, although the terms first, second, etc. are, in some instances, used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another. For example, a first contact could be termed a second contact, and, similarly, a second contact could be termed a first contact, without departing from the scope of the various described embodiments. The first contact and the second contact are both contacts, but they are not the same contact.

[0058] The terminology used in the description of the various described embodiments herein is for the purpose of describing particular embodiments only and is not intended to be limiting. As used in the description of the various described embodiments and the appended claims, the singular forms “a,” “an” and “the” are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will also be understood that the term “and/or” as used herein refers to and encompasses any and all possible combinations of one or more of the associated listed items. It will be further understood that the terms “includes,” “including,” “comprises,” and/or “comprising,” when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0059] As used herein, the term “if” is, optionally, construed to mean “when” or “upon” or “in response to determining” or “in response to detecting,” depending on the context. Similarly, the phrase “if it is determined” or “if [a stated condition or event] is detected” is, optionally, construed to mean “upon determining” or “in response to determining” or “upon detecting [the stated condition or event]” or “in response to detecting [the stated condition or event],” depending on the context.

[0060] Embodiments of electronic devices, user interfaces for such devices, and associated processes for using such devices are described. In some embodiments, the device is a portable communications device, such as a mobile telephone, that also contains other functions, such as PDA and/or music player functions. Exemplary embodiments of portable multifunction devices include, without limitation, the iPhone®, iPod Touch®, and iPad® devices from Apple Inc. of Cupertino, Calif. Other portable electronic devices, such as laptops or tablet computers with touch-sensitive

surfaces (e.g., touch screen displays and/or touch pads), are, optionally, used. It should also be understood that, in some embodiments, the device is not a portable communications device, but is a desktop computer with a touch-sensitive surface (e.g., a touch screen display and/or a touch pad).

[0061] In the discussion that follows, an electronic device that includes a display and a touch-sensitive surface is described. It should be understood, however, that the electronic device optionally includes one or more other physical user-interface devices, such as a physical keyboard, a mouse and/or a joystick.

[0062] The device typically supports a variety of applications, such as one or more of the following: a drawing application, a presentation application, a word processing application, a website creation application, a disk authoring application, a spreadsheet application, a gaming application, a telephone application, a video conferencing application, an e-mail application, an instant messaging application, a work-out support application, a photo management application, a digital camera application, a digital video camera application, a web browsing application, a digital music player application, and/or a digital video player application.

[0063] The various applications that are executed on the device optionally use at least one common physical user-interface device, such as the touch-sensitive surface. One or more functions of the touch-sensitive surface as well as corresponding information displayed on the device are, optionally, adjusted and/or varied from one application to the next and/or within a respective application. In this way, a common physical architecture (such as the touch-sensitive surface) of the device optionally supports the variety of applications with user interfaces that are intuitive and transparent to the user.

[0064] Attention is now directed toward embodiments of portable devices with touch-sensitive displays. FIG. 1A is a block diagram illustrating portable multifunction device **100** with touch-sensitive displays **112** in accordance with some embodiments. Touch-sensitive display **112** is sometimes called a “touch screen” for convenience, and is sometimes known as or called a touch-sensitive display system. Device **100** includes memory **102** (which optionally includes one or more computer readable storage mediums), memory controller **122**, one or more processing units (CPU’s) **120**, peripherals interface **118**, RF circuitry **108**, audio circuitry **110**, speaker **111**, microphone **113**, input/output (I/O) subsystem **106**, other input or control devices **116**, and external port **124**. Device **100** optionally includes one or more optical sensors **164**. Device **100** optionally includes one or more intensity sensors **165** for detecting intensity of contacts on device **100** (e.g., a touch-sensitive surface such as touch-sensitive display system **112** of device **100**). Device **100** optionally includes one or more tactile output generators **167** for generating tactile outputs on device **100** (e.g., generating tactile outputs on a touch-sensitive surface such as touch-sensitive display system **112** of device **100** or touchpad **355** of device **300**). These components optionally communicate over one or more communication buses or signal lines **103**.

[0065] As used in the specification and claims, the term “intensity” of a contact on a touch-sensitive surface refers to the force or pressure (force per unit area) of a contact (e.g., a finger contact) on the touch sensitive surface, or to a substitute (proxy) for the force or pressure of a contact on the touch sensitive surface. The intensity of a contact has a range of values that includes at least four distinct values and

more typically includes hundreds of distinct values (e.g., at least 256). Intensity of a contact is, optionally, determined (or measured) using various approaches and various sensors or combinations of sensors. For example, one or more force sensors underneath or adjacent to the touch-sensitive surface are, optionally, used to measure force at various points on the touch-sensitive surface. In some implementations, force measurements from multiple force sensors are combined (e.g., a weighted average) to determine an estimated force of a contact. Similarly, a pressure-sensitive tip of a stylus is, optionally, used to determine a pressure of the stylus on the touch-sensitive surface. Alternatively, the size of the contact area detected on the touch-sensitive surface and/or changes thereto, the capacitance of the touch-sensitive surface proximate to the contact and/or changes thereto, and/or the resistance of the touch-sensitive surface proximate to the contact and/or changes thereto are, optionally, used as a substitute for the force or pressure of the contact on the touch-sensitive surface. In some implementations, the substitute measurements for contact force or pressure are used directly to determine whether an intensity threshold has been exceeded (e.g., the intensity threshold is described in units corresponding to the substitute measurements). In some implementations, the substitute measurements for contact force or pressure are converted to an estimated force or pressure and the estimated force or pressure is used to determine whether an intensity threshold has been exceeded (e.g., the intensity threshold is a pressure threshold measured in units of pressure).

[0066] As used in the specification and claims, the term “tactile output” refers to physical displacement of a device relative to a previous position of the device, physical displacement of a component (e.g., a touch-sensitive surface) of a device relative to another component (e.g., housing) of the device, or displacement of the component relative to a center of mass of the device that will be detected by a user with the user’s sense of touch. For example, in situations where the device or the component of the device is in contact with a surface of a user that is sensitive to touch (e.g., a finger, palm, or other part of a user’s hand), the tactile output generated by the physical displacement will be interpreted by the user as a tactile sensation corresponding to a perceived change in physical characteristics of the device or the component of the device. For example, movement of a touch-sensitive surface (e.g., a touch-sensitive display or trackpad) is, optionally, interpreted by the user as a “down click” or “up click” of a physical actuator button. In some cases, a user will feel a tactile sensation such as an “down click” or “up click” even when there is no movement of a physical actuator button associated with the touch-sensitive surface that is physically pressed (e.g., displaced) by the user’s movements. As another example, movement of the touch-sensitive surface is, optionally, interpreted or sensed by the user as “roughness” of the touch-sensitive surface, even when there is no change in smoothness of the touch-sensitive surface. While such interpretations of touch by a user will be subject to the individualized sensory perceptions of the user, there are many sensory perceptions of touch that are common to a large majority of users. Thus, when a tactile output is described as corresponding to a particular sensory perception of a user (e.g., an “up click,” a “down click,” “roughness”), unless otherwise stated, the generated tactile output corresponds to physical displacement of the device or

a component thereof that will generate the described sensory perception for a typical (or average) user.

[0067] It should be appreciated that device **100** is only one example of a portable multifunction device, and that device **100** optionally has more or fewer components than shown, optionally combines two or more components, or optionally has a different configuration or arrangement of the components. The various components shown in FIG. 1A are implemented in hardware, software, or a combination of both hardware and software, including one or more signal processing and/or application specific integrated circuits.

[0068] Memory **102** optionally includes high-speed random access memory and optionally also includes non-volatile memory, such as one or more magnetic disk storage devices, flash memory devices, or other non-volatile solid-state memory devices. Access to memory **102** by other components of device **100**, such as CPU **120** and the peripherals interface **118**, is, optionally, controlled by memory controller **122**.

[0069] Peripherals interface **118** can be used to couple input and output peripherals of the device to CPU **120** and memory **102**. The one or more processors **120** run or execute various software programs and/or sets of instructions stored in memory **102** to perform various functions for device **100** and to process data.

[0070] In some embodiments, peripherals interface **118**, CPU **120**, and memory controller **122** are, optionally, implemented on a single chip, such as chip **104**. In some other embodiments, they are, optionally, implemented on separate chips.

[0071] RF (radio frequency) circuitry **108** receives and sends RF signals, also called electromagnetic signals. RF circuitry **108** converts electrical signals to/from electromagnetic signals and communicates with communications networks and other communications devices via the electromagnetic signals. RF circuitry **108** optionally includes well-known circuitry for performing these functions, including but not limited to an antenna system, an RF transceiver, one or more amplifiers, a tuner, one or more oscillators, a digital signal processor, a CODEC chipset, a subscriber identity module (SIM) card, memory, and so forth. RF circuitry **108** optionally communicates with networks, such as the Internet, also referred to as the World Wide Web (WWW), an intranet and/or a wireless network, such as a cellular telephone network, a wireless local area network (LAN) and/or a metropolitan area network (MAN), and other devices by wireless communication. The wireless communication optionally uses any of a plurality of communications standards, protocols and technologies, including but not limited to Global System for Mobile Communications (GSM), Enhanced Data GSM Environment (EDGE), high-speed downlink packet access (HSDPA), high-speed uplink packet access (HSUPA), Evolution, Data-Only (EV-DO), HSPA, HSPA+, Dual-Cell HSPA (DC-HSPDA), long term evolution (LTE), near field communication (NFC), wideband code division multiple access (W-CDMA), code division multiple access (CDMA), time division multiple access (TDMA), Bluetooth, Wireless Fidelity (Wi-Fi) (e.g., IEEE 802.11a, IEEE 802.11b, IEEE 802.11g and/or IEEE 802.11n), voice over Internet Protocol (VoIP), Wi-MAX, a protocol for e-mail (e.g., Internet message access protocol (IMAP) and/or post office protocol (POP)), instant messaging (e.g., extensible messaging and presence protocol (XMPP), Session Initiation Protocol for Instant Messaging and Presence

Leveraging Extensions (SIMPLE), Instant Messaging and Presence Service (IMPS)), and/or Short Message Service (SMS), or any other suitable communication protocol, including communication protocols not yet developed as of the filing date of this document.

[0072] Audio circuitry **110**, speaker **111**, and microphone **113** provide an audio interface between a user and device **100**. Audio circuitry **110** receives audio data from peripherals interface **118**, converts the audio data to an electrical signal, and transmits the electrical signal to speaker **111**. Speaker **111** converts the electrical signal to human-audible sound waves. Audio circuitry **110** also receives electrical signals converted by microphone **113** from sound waves. Audio circuitry **110** converts the electrical signal to audio data and transmits the audio data to peripherals interface **118** for processing. Audio data is, optionally, retrieved from and/or transmitted to memory **102** and/or RF circuitry **108** by peripherals interface **118**. In some embodiments, audio circuitry **110** also includes a headset jack (e.g., **212**, FIG. 2). The headset jack provides an interface between audio circuitry **110** and removable audio input/output peripherals, such as output-only headphones or a headset with both output (e.g., a headphone for one or both ears) and input (e.g., a microphone).

[0073] I/O subsystem **106** couples input/output peripherals on device **100**, such as touch screen **112** and other input control devices **116**, to peripherals interface **118**. I/O subsystem **106** optionally includes display controller **156**, optical sensor controller **158**, intensity sensor controller **159**, haptic feedback controller **161** and one or more input controllers **160** for other input or control devices. The one or more input controllers **160** receive/send electrical signals from/to other input or control devices **116**. The other input control devices **116** optionally include physical buttons (e.g., push buttons, rocker buttons, etc.), dials, slider switches, joysticks, click wheels, and so forth. In some alternate embodiments, input controller(s) **160** are, optionally, coupled to any (or none) of the following: a keyboard, infrared port, USB port, and a pointer device such as a mouse. The one or more buttons (e.g., **208**, FIG. 2) optionally include an up/down button for volume control of speaker **111** and/or microphone **113**. The one or more buttons optionally include a push button (e.g., **206**, FIG. 2).

[0074] Touch-sensitive display **112** provides an input interface and an output interface between the device and a user. Display controller **156** receives and/or sends electrical signals from/to touch screen **112**. Touch screen **112** displays visual output to the user. The visual output optionally includes graphics, text, icons, video, and any combination thereof (collectively termed “graphics”). In some embodiments, some or all of the visual output corresponds to user-interface objects.

[0075] Touch screen **112** has a touch-sensitive surface, sensor or set of sensors that accepts input from the user based on haptic and/or tactile contact. Touch screen **112** and display controller **156** (along with any associated modules and/or sets of instructions in memory **102**) detect contact (and any movement or breaking of the contact) on touch screen **112** and converts the detected contact into interaction with user-interface objects (e.g., one or more soft keys, icons, web pages or images) that are displayed on touch screen **112**. In an exemplary embodiment, a point of contact between touch screen **112** and the user corresponds to a finger of the user.

[0076] Touch screen 112 optionally uses LCD (liquid crystal display) technology, LPD (light emitting polymer display) technology, or LED (light emitting diode) technology, although other display technologies are used in other embodiments. Touch screen 112 and display controller 156 optionally detect contact and any movement or breaking thereof using any of a plurality of touch sensing technologies now known or later developed, including but not limited to capacitive, resistive, infrared, and surface acoustic wave technologies, as well as other proximity sensor arrays or other elements for determining one or more points of contact with touch screen 112. In an exemplary embodiment, projected mutual capacitance sensing technology is used, such as that found in the iPhone®, iPod Touch®, and iPad® from Apple Inc. of Cupertino, Calif.

[0077] Touch screen 112 optionally has a video resolution in excess of 100 dpi. In some embodiments, the touch screen has a video resolution of approximately 160 dpi. The user optionally makes contact with touch screen 112 using any suitable object or appendage, such as a stylus, a finger, and so forth. In some embodiments, the user interface is designed to work primarily with finger-based contacts and gestures, which can be less precise than stylus-based input due to the larger area of contact of a finger on the touch screen. In some embodiments, the device translates the rough finger-based input into a precise pointer/cursor position or command for performing the actions desired by the user.

[0078] In some embodiments, in addition to the touch screen, device 100 optionally includes a touchpad (not shown) for activating or deactivating particular functions. In some embodiments, the touchpad is a touch-sensitive area of the device that, unlike the touch screen, does not display visual output. The touchpad is, optionally, a touch-sensitive surface that is separate from touch screen 112 or an extension of the touch-sensitive surface formed by the touch screen.

[0079] Device 100 also includes power system 162 for powering the various components. Power system 162 optionally includes a power management system, one or more power sources (e.g., battery, alternating current (AC)), a recharging system, a power failure detection circuit, a power converter or inverter, a power status indicator (e.g., a light-emitting diode (LED)) and any other components associated with the generation, management and distribution of power in portable devices.

[0080] Device 100 optionally also includes one or more optical sensors 164. FIG. 1A shows an optical sensor coupled to optical sensor controller 158 in I/O subsystem 106. Optical sensor 164 optionally includes charge-coupled device (CCD) or complementary metal-oxide semiconductor (CMOS) phototransistors. Optical sensor 164 receives light from the environment, projected through one or more lens, and converts the light to data representing an image. In conjunction with imaging module 143 (also called a camera module), optical sensor 164 optionally captures still images or video. In some embodiments, an optical sensor is located on the back of device 100, opposite touch screen display 112 on the front of the device, so that the touch screen display is enabled for use as a viewfinder for still and/or video image acquisition. In some embodiments, another optical sensor is located on the front of the device so that the user's image is,

optionally, obtained for videoconferencing while the user views the other video conference participants on the touch screen display.

[0081] Device 100 optionally also includes one or more contact intensity sensors 165. FIG. 1A shows a contact intensity sensor coupled to intensity sensor controller 159 in I/O subsystem 106. Contact intensity sensor 165 optionally includes one or more piezoresistive strain gauges, capacitive force sensors, electric force sensors, piezoelectric force sensors, optical force sensors, capacitive touch-sensitive surfaces, or other intensity sensors (e.g., sensors used to measure the force (or pressure) of a contact on a touch-sensitive surface). Contact intensity sensor 165 receives contact intensity information (e.g., pressure information or a proxy for pressure information) from the environment. In some embodiments, at least one contact intensity sensor is collocated with, or proximate to, a touch-sensitive surface (e.g., touch-sensitive display system 112). In some embodiments, at least one contact intensity sensor is located on the back of device 100, opposite touch screen display 112 which is located on the front of device 100.

[0082] Device 100 optionally also includes one or more proximity sensors 166. FIG. 1A shows proximity sensor 166 coupled to peripherals interface 118. Alternately, proximity sensor 166 is coupled to input controller 160 in I/O subsystem 106. In some embodiments, the proximity sensor turns off and disables touch screen 112 when the multifunction device is placed near the user's ear (e.g., when the user is making a phone call).

[0083] Device 100 optionally also includes one or more tactile output generators 167. FIG. 1A shows a tactile output generator coupled to haptic feedback controller 161 in I/O subsystem 106. Tactile output generator 167 optionally includes one or more electroacoustic devices such as speakers or other audio components and/or electromechanical devices that convert energy into linear motion such as a motor, solenoid, electroactive polymer, piezoelectric actuator, electrostatic actuator, or other tactile output generating component (e.g., a component that converts electrical signals into tactile outputs on the device). Contact intensity sensor 165 receives tactile feedback generation instructions from haptic feedback module 133 and generates tactile outputs on device 100 that are capable of being sensed by a user of device 100. In some embodiments, at least one tactile output generator is collocated with, or proximate to, a touch-sensitive surface (e.g., touch-sensitive display system 112) and, optionally, generates a tactile output by moving the touch-sensitive surface vertically (e.g., in/out of a surface of device 100) or laterally (e.g., back and forth in the same plane as a surface of device 100). In some embodiments, at least one tactile output generator sensor is located on the back of device 100, opposite touch screen display 112 which is located on the front of device 100.

[0084] Device 100 optionally also includes one or more accelerometers 168. FIG. 1A shows accelerometer 168 coupled to peripherals interface 118. Alternately, accelerometer 168 is, optionally, coupled to an input controller 160 in I/O subsystem 106. In some embodiments, information is displayed on the touch screen display in a portrait view or a landscape view based on an analysis of data received from the one or more accelerometers. Device 100 optionally includes, in addition to accelerometer(s) 168, a magnetometer (not shown) and a GPS (or GLONASS or other global

navigation system) receiver (not shown) for obtaining information concerning the location and orientation (e.g., portrait or landscape) of device 100.

[0085] In some embodiments, the software components stored in memory 102 include operating system 126, communication module (or set of instructions) 128, contact/motion module (or set of instructions) 130, graphics module (or set of instructions) 132, text input module (or set of instructions) 134, Global Positioning System (GPS) module (or set of instructions) 135, and applications (or sets of instructions) 136. Furthermore, in some embodiments memory 102 stores device/global internal state 157, as shown in FIGS. 1A and 3. Device/global internal state 157 includes one or more of: active application state, indicating which applications, if any, are currently active; display state, indicating what applications, views or other information occupy various regions of touch screen display 112; sensor state, including information obtained from the device's various sensors and input control devices 116; and location information concerning the device's location and/or attitude.

[0086] Operating system 126 (e.g., Darwin, RTXC, LINUX, UNIX, OS X, WINDOWS, or an embedded operating system such as VxWorks) includes various software components and/or drivers for controlling and managing general system tasks (e.g., memory management, storage device control, power management, etc.) and facilitates communication between various hardware and software components.

[0087] Communication module 128 facilitates communication with other devices over one or more external ports 124 and also includes various software components for handling data received by RF circuitry 108 and/or external port 124. External port 124 (e.g., Universal Serial Bus (USB), FIREWIRE, etc.) is adapted for coupling directly to other devices or indirectly over a network (e.g., the Internet, wireless LAN, etc.). In some embodiments, the external port is a multi-pin (e.g., 30-pin) connector that is the same as, or similar to and/or compatible with the 30-pin connector used on iPod (trademark of Apple Inc.) devices.

[0088] Contact/motion module 130 optionally detects contact with touch screen 112 (in conjunction with display controller 156) and other touch sensitive devices (e.g., a touchpad or physical click wheel). Contact/motion module 130 includes various software components for performing various operations related to detection of contact, such as determining if contact has occurred (e.g., detecting a finger-down event), determining an intensity of the contact (e.g., the force or pressure of the contact or a substitute for the force or pressure of the contact) determining if there is movement of the contact and tracking the movement across the touch-sensitive surface (e.g., detecting one or more finger-dragging events), and determining if the contact has ceased (e.g., detecting a finger-up event or a break in contact). Contact/motion module 130 receives contact data from the touch-sensitive surface. Determining movement of the point of contact, which is represented by a series of contact data, optionally includes determining speed (magnitude), velocity (magnitude and direction), and/or an acceleration (a change in magnitude and/or direction) of the point of contact. These operations are, optionally, applied to single contacts (e.g., one finger contacts) or to multiple simultaneous contacts (e.g., "multitouch"/multiple finger contacts). In some embodiments, contact/motion module 130 and display controller 156 detect contact on a touchpad.

[0089] In some embodiments, contact/motion module 130 uses a set of one or more intensity thresholds to determine whether an operation has been performed by a user (e.g., to determine whether a user has "clicked" on an icon). In some embodiments at least a subset of the intensity thresholds are determined in accordance with software parameters (e.g., the intensity thresholds are not determined by the activation thresholds of particular physical actuators and can be adjusted without changing the physical hardware of device 100). For example, a mouse "click" threshold of a trackpad or touch screen display can be set to any of a large range of predefined thresholds values without changing the trackpad or touch screen display hardware. Additionally, in some implementations a user of the device is provided with software settings for adjusting one or more of the set of intensity thresholds (e.g., by adjusting individual intensity thresholds and/or by adjusting a plurality of intensity thresholds at once with a system-level click "intensity" parameter).

[0090] Contact/motion module 130 optionally detects a gesture input by a user. Different gestures on the touch-sensitive surface have different contact patterns and intensities. Thus, a gesture is, optionally, detected by detecting a particular contact pattern. For example, detecting a finger tap gesture includes detecting a finger-down event followed by detecting a finger-up (lift off) event at the same position (or substantially the same position) as the finger-down event (e.g., at the position of an icon). As another example, detecting a finger swipe gesture on the touch-sensitive surface includes detecting a finger-down event followed by detecting one or more finger-dragging events, and subsequently followed by detecting a finger-up (lift off) event.

[0091] Graphics module 132 includes various known software components for rendering and displaying graphics on touch screen 112 or other display, including components for changing the visual impact (e.g., brightness, transparency, saturation, contrast or other visual property) of graphics that are displayed. As used herein, the term "graphics" includes any object that can be displayed to a user, including without limitation text, web pages, icons (such as user-interface objects including soft keys), digital images, videos, animations and the like.

[0092] In some embodiments, graphics module 132 stores data representing graphics to be used. Each graphic is, optionally, assigned a corresponding code. Graphics module 132 receives, from applications etc., one or more codes specifying graphics to be displayed along with, if necessary, coordinate data and other graphic property data, and then generates screen image data to output to display controller 156.

[0093] Haptic feedback module 133 includes various software components for generating instructions used by tactile output generator(s) 167 to produce tactile outputs at one or more locations on device 100 in response to user interactions with device 100.

[0094] Text input module 134, which is, optionally, a component of graphics module 132, provides soft keyboards for entering text in various applications (e.g., contacts 137, e-mail 140, IM 141, browser 147, and any other application that needs text input).

[0095] GPS module 135 determines the location of the device and provides this information for use in various applications (e.g., to telephone 138 for use in location-based dialing, to camera 143 as picture/video metadata, and to

applications that provide location-based services such as weather widgets, local yellow page widgets, and map/navigation widgets).

[0096] Applications 136 optionally include the following modules (or sets of instructions), or a subset or superset thereof:

- [0097] contacts module 137 (sometimes called an address book or contact list);
- [0098] telephone module 138;
- [0099] video conferencing module 139;
- [0100] e-mail client module 140;
- [0101] instant messaging (IM) module 141;
- [0102] workout support module 142;
- [0103] camera module 143 for still and/or video images;
- [0104] image management module 144;
- [0105] browser module 147;
- [0106] calendar module 148;
- [0107] widget modules 149, which optionally include one or more of: weather widget 149-1, stocks widget 149-2, calculator widget 149-3, alarm clock widget 149-4, dictionary widget 149-5, and other widgets obtained by the user, as well as user-created widgets 149-6;
- [0108] widget creator module 150 for making user-created widgets 149-6;
- [0109] search module 151;
- [0110] video and music player module 152, which is, optionally, made up of a video player module and a music player module;
- [0111] notes module 153;
- [0112] map module 154; and/or
- [0113] online video module 155.

[0114] Examples of other applications 136 that are, optionally, stored in memory 102 include other word processing applications, other image editing applications, drawing applications, presentation applications, JAVA-enabled applications, encryption, digital rights management, voice recognition, and voice replication.

[0115] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, contacts module 137 are, optionally, used to manage an address book or contact list (e.g., stored in application internal state 192 of contacts module 137 in memory 102 or memory 370), including: adding name(s) to the address book; deleting name(s) from the address book; associating telephone number(s), e-mail address(es), physical address(es) or other information with a name; associating an image with a name; categorizing and sorting names; providing telephone numbers or e-mail addresses to initiate and/or facilitate communications by telephone 138, video conference 139, e-mail 140, or IM 141; and so forth.

[0116] In conjunction with RF circuitry 108, audio circuitry 110, speaker 111, microphone 113, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, telephone module 138 are, optionally, used to enter a sequence of characters corresponding to a telephone number, access one or more telephone numbers in address book 137, modify a telephone number that has been entered, dial a respective telephone number, conduct a conversation and disconnect or hang up when the conversation is completed. As noted above, the wireless communication optionally uses any of a plurality of communications standards, protocols and technologies.

[0117] In conjunction with RF circuitry 108, audio circuitry 110, speaker 111, microphone 113, touch screen 112, display controller 156, optical sensor 164, optical sensor controller 158, contact module 130, graphics module 132, text input module 134, contact list 137, and telephone module 138, videoconferencing module 139 includes executable instructions to initiate, conduct, and terminate a video conference between a user and one or more other participants in accordance with user instructions.

[0118] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, e-mail client module 140 includes executable instructions to create, send, receive, and manage e-mail in response to user instructions. In conjunction with image management module 144, e-mail client module 140 makes it very easy to create and send e-mails with still or video images taken with camera module 143.

[0119] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, and text input module 134, the instant messaging module 141 includes executable instructions to enter a sequence of characters corresponding to an instant message, to modify previously entered characters, to transmit a respective instant message (for example, using a Short Message Service (SMS) or Multimedia Message Service (MMS) protocol for telephony-based instant messages or using XMPP, SIMPLE, or IMPS for Internet-based instant messages), to receive instant messages and to view received instant messages. In some embodiments, transmitted and/or received instant messages optionally include graphics, photos, audio files, video files and/or other attachments as are supported in a MMS and/or an Enhanced Messaging Service (EMS). As used herein, "instant messaging" refers to both telephony-based messages (e.g., messages sent using SMS or MMS) and Internet-based messages (e.g., messages sent using XMPP, SIMPLE, or IMPS).

[0120] In conjunction with RF circuitry 108, touch screen 112, display controller 156, contact module 130, graphics module 132, text input module 134, GPS module 135, map module 154, and music player module 146, workout support module 142 includes executable instructions to create workouts (e.g., with time, distance, and/or calorie burning goals); communicate with workout sensors (sports devices); receive workout sensor data; calibrate sensors used to monitor a workout; select and play music for a workout; and display, store and transmit workout data.

[0121] In conjunction with touch screen 112, display controller 156, optical sensor(s) 164, optical sensor controller 158, contact module 130, graphics module 132, and image management module 144, camera module 143 includes executable instructions to capture still images or video (including a video stream) and store them into memory 102, modify characteristics of a still image or video, or delete a still image or video from memory 102.

[0122] In conjunction with touch screen 112, display controller 156, contact module 130, graphics module 132, text input module 134, and camera module 143, image management module 144 includes executable instructions to arrange, modify (e.g., edit), or otherwise manipulate, label, delete, present (e.g., in a digital slide show or album), and store still and/or video images.

[0123] In conjunction with RF circuitry 108, touch screen 112, display system controller 156, contact module 130,

graphics module **132**, and text input module **134**, browser module **147** includes executable instructions to browse the Internet in accordance with user instructions, including searching, linking to, receiving, and displaying web pages or portions thereof, as well as attachments and other files linked to web pages.

[0124] In conjunction with RF circuitry **108**, touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, text input module **134**, e-mail client module **140**, and browser module **147**, calendar module **148** includes executable instructions to create, display, modify, and store calendars and data associated with calendars (e.g., calendar entries, to do lists, etc.) in accordance with user instructions.

[0125] In conjunction with RF circuitry **108**, touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, text input module **134**, and browser module **147**, widget modules **149** are mini-applications that are, optionally, downloaded and used by a user (e.g., weather widget **149-1**, stocks widget **149-2**, calculator widget **149-3**, alarm clock widget **149-4**, and dictionary widget **149-5**) or created by the user (e.g., user-created widget **149-6**). In some embodiments, a widget includes an HTML (Hypertext Markup Language) file, a CSS (Cascading Style Sheets) file, and a JavaScript file. In some embodiments, a widget includes an XML (Extensible Markup Language) file and a JavaScript file (e.g., Yahoo! Widgets).

[0126] In conjunction with RF circuitry **108**, touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, text input module **134**, and browser module **147**, the widget creator module **150** are, optionally, used by a user to create widgets (e.g., turning a user-specified portion of a web page into a widget).

[0127] In conjunction with touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, and text input module **134**, search module **151** includes executable instructions to search for text, music, sound, image, video, and/or other files in memory **102** that match one or more search criteria (e.g., one or more user-specified search terms) in accordance with user instructions.

[0128] In conjunction with touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, audio circuitry **110**, speaker **111**, RF circuitry **108**, and browser module **147**, video and music player module **152** includes executable instructions that allow the user to download and play back recorded music and other sound files stored in one or more file formats, such as MP3 or AAC files, and executable instructions to display, present or otherwise play back videos (e.g., on touch screen **112** or on an external, connected display via external port **124**). In some embodiments, device **100** optionally includes the functionality of an MP3 player, such as an iPod (trademark of Apple Inc.).

[0129] In conjunction with touch screen **112**, display controller **156**, contact module **130**, graphics module **132**, and text input module **134**, notes module **153** includes executable instructions to create and manage notes, to do lists, and the like in accordance with user instructions.

[0130] In conjunction with RF circuitry **108**, touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, text input module **134**, GPS module **135**, and browser module **147**, map module **154** are, optionally, used to receive, display, modify, and store maps and data associated with maps (e.g., driving directions; data on

stores and other points of interest at or near a particular location; and other location-based data) in accordance with user instructions.

[0131] In conjunction with touch screen **112**, display system controller **156**, contact module **130**, graphics module **132**, audio circuitry **110**, speaker **111**, RF circuitry **108**, text input module **134**, e-mail client module **140**, and browser module **147**, online video module **155** includes instructions that allow the user to access, browse, receive (e.g., by streaming and/or download), play back (e.g., on the touch screen or on an external, connected display via external port **124**), send an e-mail with a link to a particular online video, and otherwise manage online videos in one or more file formats, such as H.264. In some embodiments, instant messaging module **141**, rather than e-mail client module **140**, is used to send a link to a particular online video.

[0132] Each of the above identified modules and applications correspond to a set of executable instructions for performing one or more functions described above and the methods described in this application (e.g., the computer-implemented methods and other information processing methods described herein). These modules (i.e., sets of instructions) need not be implemented as separate software programs, procedures or modules, and thus various subsets of these modules are, optionally, combined or otherwise re-arranged in various embodiments. In some embodiments, memory **102** optionally stores a subset of the modules and data structures identified above. Furthermore, memory **102** optionally stores additional modules and data structures not described above.

[0133] In some embodiments, device **100** is a device where operation of a predefined set of functions on the device is performed exclusively through a touch screen and/or a touchpad. By using a touch screen and/or a touchpad as the primary input control device for operation of device **100**, the number of physical input control devices (such as push buttons, dials, and the like) on device **100** is, optionally, reduced.

[0134] The predefined set of functions that are performed exclusively through a touch screen and/or a touchpad optionally include navigation between user interfaces. In some embodiments, the touchpad, when touched by the user, navigates device **100** to a main, home, or root menu from any user interface that is displayed on device **100**. In such embodiments, a "menu button" is implemented using a touchpad. In some other embodiments, the menu button is a physical push button or other physical input control device instead of a touchpad.

[0135] FIG. 1B is a block diagram illustrating exemplary components for event handling in accordance with some embodiments. In some embodiments, memory **102** (in FIG. 1A) or **370** (FIG. 3) includes event sorter **170** (e.g., in operating system **126**) and a respective application **136-1** (e.g., any of the aforementioned applications **137-151**, **155**, **380-390**).

[0136] Event sorter **170** receives event information and determines the application **136-1** and application view **191** of application **136-1** to which to deliver the event information. Event sorter **170** includes event monitor **171** and event dispatcher module **174**. In some embodiments, application **136-1** includes application internal state **192**, which indicates the current application view(s) displayed on touch sensitive display **112** when the application is active or executing. In some embodiments, device/global internal

state **157** is used by event sorter **170** to determine which application(s) is (are) currently active, and application internal state **192** is used by event sorter **170** to determine application views **191** to which to deliver event information.

[0137] In some embodiments, application internal state **192** includes additional information, such as one or more of: resume information to be used when application **136-1** resumes execution, user interface state information that indicates information being displayed or that is ready for display by application **136-1**, a state queue for enabling the user to go back to a prior state or view of application **136-1**, and a redo/undo queue of previous actions taken by the user.

[0138] Event monitor **171** receives event information from peripherals interface **118**. Event information includes information about a sub-event (e.g., a user touch on touch-sensitive display **112**, as part of a multi-touch gesture). Peripherals interface **118** transmits information it receives from I/O subsystem **106** or a sensor, such as proximity sensor **166**, accelerometer(s) **168**, and/or microphone **113** (through audio circuitry **110**). Information that peripherals interface **118** receives from I/O subsystem **106** includes information from touch-sensitive display **112** or a touch-sensitive surface.

[0139] In some embodiments, event monitor **171** sends requests to the peripherals interface **118** at predetermined intervals. In response, peripherals interface **118** transmits event information. In other embodiments, peripheral interface **118** transmits event information only when there is a significant event (e.g., receiving an input above a predetermined noise threshold and/or for more than a predetermined duration).

[0140] In some embodiments, event sorter **170** also includes a hit view determination module **172** and/or an active event recognizer determination module **173**.

[0141] Hit view determination module **172** provides software procedures for determining where a sub-event has taken place within one or more views, when touch sensitive display **112** displays more than one view. Views are made up of controls and other elements that a user can see on the display.

[0142] Another aspect of the user interface associated with an application is a set of views, sometimes herein called application views or user interface windows, in which information is displayed and touch-based gestures occur. The application views (of a respective application) in which a touch is detected optionally correspond to programmatic levels within a programmatic or view hierarchy of the application. For example, the lowest level view in which a touch is detected is, optionally, called the hit view, and the set of events that are recognized as proper inputs are, optionally, determined based, at least in part, on the hit view of the initial touch that begins a touch-based gesture.

[0143] Hit view determination module **172** receives information related to sub-events of a touch-based gesture. When an application has multiple views organized in a hierarchy, hit view determination module **172** identifies a hit view as the lowest view in the hierarchy which should handle the sub-event. In most circumstances, the hit view is the lowest level view in which an initiating sub-event occurs (i.e., the first sub-event in the sequence of sub-events that form an event or potential event). Once the hit view is identified by the hit view determination module, the hit view typically receives all sub-events related to the same touch or input source for which it was identified as the hit view.

[0144] Active event recognizer determination module **173** determines which view or views within a view hierarchy should receive a particular sequence of sub-events. In some embodiments, active event recognizer determination module **173** determines that only the hit view should receive a particular sequence of sub-events. In other embodiments, active event recognizer determination module **173** determines that all views that include the physical location of a sub-event are actively involved views, and therefore determines that all actively involved views should receive a particular sequence of sub-events. In other embodiments, even if touch sub-events were entirely confined to the area associated with one particular view, views higher in the hierarchy would still remain as actively involved views.

[0145] Event dispatcher module **174** dispatches the event information to an event recognizer (e.g., event recognizer **180**). In embodiments including active event recognizer determination module **173**, event dispatcher module **174** delivers the event information to an event recognizer determined by active event recognizer determination module **173**. In some embodiments, event dispatcher module **174** stores in an event queue the event information, which is retrieved by a respective event receiver module **182**.

[0146] In some embodiments, operating system **126** includes event sorter **170**. Alternatively, application **136-1** includes event sorter **170**. In yet other embodiments, event sorter **170** is a stand-alone module, or a part of another module stored in memory **102**, such as contact/motion module **130**.

[0147] In some embodiments, application **136-1** includes a plurality of event handlers **190** and one or more application views **191**, each of which includes instructions for handling touch events that occur within a respective view of the application's user interface. Each application view **191** of the application **136-1** includes one or more event recognizers **180**. Typically, a respective application view **191** includes a plurality of event recognizers **180**. In other embodiments, one or more of event recognizers **180** are part of a separate module, such as a user interface kit (not shown) or a higher level object from which application **136-1** inherits methods and other properties. In some embodiments, a respective event handler **190** includes one or more of: data updater **176**, object updater **177**, GUI updater **178**, and/or event data **179** received from event sorter **170**. Event handler **190** optionally utilizes or calls data updater **176**, object updater **177** or GUI updater **178** to update the application internal state **192**. Alternatively, one or more of the application views **191** includes one or more respective event handlers **190**. Also, in some embodiments, one or more of data updater **176**, object updater **177**, and GUI updater **178** are included in a respective application view **191**.

[0148] A respective event recognizer **180** receives event information (e.g., event data **179**) from event sorter **170**, and identifies an event from the event information. Event recognizer **180** includes event receiver **182** and event comparator **184**. In some embodiments, event recognizer **180** also includes at least a subset of: metadata **183**, and event delivery instructions **188** (which optionally include sub-event delivery instructions).

[0149] Event receiver **182** receives event information from event sorter **170**. The event information includes information about a sub-event, for example, a touch or a touch movement. Depending on the sub-event, the event

information also includes additional information, such as location of the sub-event. When the sub-event concerns motion of a touch, the event information optionally also includes speed and direction of the sub-event. In some embodiments, events include rotation of the device from one orientation to another (e.g., from a portrait orientation to a landscape orientation, or vice versa), and the event information includes corresponding information about the current orientation (also called device attitude) of the device.

[0150] Event comparator **184** compares the event information to predefined event or sub-event definitions and, based on the comparison, determines an event or sub-event, or determines or updates the state of an event or sub-event. In some embodiments, event comparator **184** includes event definitions **186**. Event definitions **186** contain definitions of events (e.g., predefined sequences of sub-events), for example, event **1** (**187-1**), event **2** (**187-2**), and others. In some embodiments, sub-events in an event **187** include, for example, touch begin, touch end, touch movement, touch cancellation, and multiple touching. In one example, the definition for event **1** (**187-1**) is a double tap on a displayed object. The double tap, for example, comprises a first touch (touch begin) on the displayed object for a predetermined phase, a first lift-off (touch end) for a predetermined phase, a second touch (touch begin) on the displayed object for a predetermined phase, and a second lift-off (touch end) for a predetermined phase. In another example, the definition for event **2** (**187-2**) is a dragging on a displayed object. The dragging, for example, comprises a touch (or contact) on the displayed object for a predetermined phase, a movement of the touch across touch-sensitive display **112**, and lift-off of the touch (touch end). In some embodiments, the event also includes information for one or more associated event handlers **190**.

[0151] In some embodiments, event definition **187** includes a definition of an event for a respective user-interface object. In some embodiments, event comparator **184** performs a hit test to determine which user-interface object is associated with a sub-event. For example, in an application view in which three user-interface objects are displayed on touch-sensitive display **112**, when a touch is detected on touch-sensitive display **112**, event comparator **184** performs a hit test to determine which of the three user-interface objects is associated with the touch (sub-event). If each displayed object is associated with a respective event handler **190**, the event comparator uses the result of the hit test to determine which event handler **190** should be activated. For example, event comparator **184** selects an event handler associated with the sub-event and the object triggering the hit test.

[0152] In some embodiments, the definition for a respective event **187** also includes delayed actions that delay delivery of the event information until after it has been determined whether the sequence of sub-events does or does not correspond to the event recognizer's event type.

[0153] When a respective event recognizer **180** determines that the series of sub-events do not match any of the events in event definitions **186**, the respective event recognizer **180** enters an event impossible, event failed, or event ended state, after which it disregards subsequent sub-events of the touch-based gesture. In this situation, other event recognizers, if any, that remain active for the hit view continue to track and process sub-events of an ongoing touch-based gesture.

[0154] In some embodiments, a respective event recognizer **180** includes metadata **183** with configurable properties, flags, and/or lists that indicate how the event delivery system should perform sub-event delivery to actively involved event recognizers. In some embodiments, metadata **183** includes configurable properties, flags, and/or lists that indicate how event recognizers interact, or are enabled to interact, with one another. In some embodiments, metadata **183** includes configurable properties, flags, and/or lists that indicate whether sub-events are delivered to varying levels in the view or programmatic hierarchy.

[0155] In some embodiments, a respective event recognizer **180** activates event handler **190** associated with an event when one or more particular sub-events of an event are recognized. In some embodiments, a respective event recognizer **180** delivers event information associated with the event to event handler **190**. Activating an event handler **190** is distinct from sending (and deferred sending) sub-events to a respective hit view. In some embodiments, event recognizer **180** throws a flag associated with the recognized event, and event handler **190** associated with the flag catches the flag and performs a predefined process.

[0156] In some embodiments, event delivery instructions **188** include sub-event delivery instructions that deliver event information about a sub-event without activating an event handler. Instead, the sub-event delivery instructions deliver event information to event handlers associated with the series of sub-events or to actively involved views. Event handlers associated with the series of sub-events or with actively involved views receive the event information and perform a predetermined process.

[0157] In some embodiments, data updater **176** creates and updates data used in application **136-1**. For example, data updater **176** updates the telephone number used in contacts module **137**, or stores a video file used in video player module **145**. In some embodiments, object updater **177** creates and updates objects used in application **136-1**. For example, object updater **177** creates a new user-interface object or updates the position of a user-interface object. GUI updater **178** updates the GUI. For example, GUI updater **178** prepares display information and sends it to graphics module **132** for display on a touch-sensitive display.

[0158] In some embodiments, event handler(s) **190** includes or has access to data updater **176**, object updater **177**, and GUI updater **178**. In some embodiments, data updater **176**, object updater **177**, and GUI updater **178** are included in a single module of a respective application **136-1** or application view **191**. In other embodiments, they are included in two or more software modules.

[0159] It shall be understood that the foregoing discussion regarding event handling of user touches on touch-sensitive displays also applies to other forms of user inputs to operate multifunction devices **100** with input-devices, not all of which are initiated on touch screens. For example, mouse movement and mouse button presses, optionally coordinated with single or multiple keyboard presses or holds; contact movements such as taps, drags, scrolls, etc., on touch-pads; pen stylus inputs; movement of the device; oral instructions; detected eye movements; biometric inputs; and/or any combination thereof are optionally utilized as inputs corresponding to sub-events which define an event to be recognized.

[0160] FIG. 2 illustrates a portable multifunction device **100** having a touch screen **112** in accordance with some embodiments. The touch screen optionally displays one or

more graphics within user interface (UI) **200**. In this embodiment, as well as others described below, a user is enabled to select one or more of the graphics by making a gesture on the graphics, for example, with one or more fingers **202** (not drawn to scale in the figure) or one or more styluses **203** (not drawn to scale in the figure). In some embodiments, selection of one or more graphics occurs when the user breaks contact with the one or more graphics. In some embodiments, the gesture optionally includes one or more taps, one or more swipes (from left to right, right to left, upward and/or downward) and/or a rolling of a finger (from right to left, left to right, upward and/or downward) that has made contact with device **100**. In some implementations or circumstances, inadvertent contact with a graphic does not select the graphic. For example, a swipe gesture that sweeps over an application icon optionally does not select the corresponding application when the gesture corresponding to selection is a tap.

[0161] Device **100** optionally also includes one or more physical buttons, such as “home” or menu button **204**. As described previously, menu button **204** is, optionally, used to navigate to any application **136** in a set of applications that are, optionally executed on device **100**. Alternatively, in some embodiments, the menu button is implemented as a soft key in a GUI displayed on touch screen **112**.

[0162] In one embodiment, device **100** includes touch screen **112**, menu button **204**, push button **206** for powering the device on/off and locking the device, volume adjustment button(s) **208**, Subscriber Identity Module (SIM) card slot **210**, head set jack **212**, and docking/charging external port **124**. Push button **206** is, optionally, used to turn the power on/off on the device by depressing the button and holding the button in the depressed state for a predefined time interval; to lock the device by depressing the button and releasing the button before the predefined time interval has elapsed; and/or to unlock the device or initiate an unlock process. In an alternative embodiment, device **100** also accepts verbal input for activation or deactivation of some functions through microphone **113**. Device **100** also, optionally, includes one or more contact intensity sensors **165** for detecting intensity of contacts on touch screen **112** and/or one or more tactile output generators **167** for generating tactile outputs for a user of device **100**.

[0163] FIG. 3 is a block diagram of an exemplary multifunction device with a display and a touch-sensitive surface in accordance with some embodiments. Device **300** need not be portable. In some embodiments, device **300** is a laptop computer, a desktop computer, a tablet computer, a multimedia player device, a navigation device, an educational device (such as a child’s learning toy), a gaming system, or a control device (e.g., a home or industrial controller). Device **300** typically includes one or more processing units (CPU’s) **310**, one or more network or other communications interfaces **360**, memory **370**, and one or more communication buses **320** for interconnecting these components. Communication buses **320** optionally include circuitry (sometimes called a chipset) that interconnects and controls communications between system components. Device **300** includes input/output (I/O) interface **330** comprising display **340**, which is typically a touch screen display. I/O interface **330** also optionally includes a keyboard and/or mouse (or other pointing device) **350** and touchpad **355**, tactile output generator **357** for generating tactile outputs on device **300** (e.g., similar to tactile output generator(s) **167** described

above with reference to FIG. 1A), sensors **359** (e.g., optical, acceleration, proximity, touch-sensitive, and/or contact intensity sensors similar to contact intensity sensor(s) **165** described above with reference to FIG. 1A). Memory **370** includes high-speed random access memory, such as DRAM, SRAM, DDR RAM or other random access solid state memory devices; and optionally includes non-volatile memory, such as one or more magnetic disk storage devices, optical disk storage devices, flash memory devices, or other non-volatile solid state storage devices. Memory **370** optionally includes one or more storage devices remotely located from CPU(s) **310**. In some embodiments, memory **370** stores programs, modules, and data structures analogous to the programs, modules, and data structures stored in memory **102** of portable multifunction device **100** (FIG. 1A), or a subset thereof. Furthermore, memory **370** optionally stores additional programs, modules, and data structures not present in memory **102** of portable multifunction device **100**. For example, memory **370** of device **300** optionally stores drawing module **380**, presentation module **382**, word processing module **384**, website creation module **386**, disk authoring module **388**, and/or spreadsheet module **390**, while memory **102** of portable multifunction device **100** (FIG. 1A) optionally does not store these modules.

[0164] Each of the above identified elements in FIG. 3 are, optionally, stored in one or more of the previously mentioned memory devices. Each of the above identified modules corresponds to a set of instructions for performing a function described above. The above identified modules or programs (i.e., sets of instructions) need not be implemented as separate software programs, procedures or modules, and thus various subsets of these modules are, optionally, combined or otherwise re-arranged in various embodiments. In some embodiments, memory **370** optionally stores a subset of the modules and data structures identified above. Furthermore, memory **370** optionally stores additional modules and data structures not described above.

[0165] Attention is now directed towards embodiments of user interfaces (“UI”) that is, optionally, implemented on portable multifunction device **100**.

[0166] FIG. 4A illustrates an exemplary user interface for a menu of applications on portable multifunction device **100** in accordance with some embodiments. Similar user interfaces are, optionally, implemented on device **300**. In some embodiments, user interface **400** includes the following elements, or a subset or superset thereof:

[0167] Signal strength indicator(s) **402** for wireless communication(s), such as cellular and Wi-Fi signals;

[0168] Time **404**;

[0169] Bluetooth indicator **405**;

[0170] Battery status indicator **406**;

[0171] Tray **408** with icons for frequently used applications, such as:

[0172] Icon **416** for telephone module **138**, labeled “Phone,” which optionally includes an indicator **414** of the number of missed calls or voicemail messages;

[0173] Icon **418** for e-mail client module **140**, labeled “Mail,” which optionally includes an indicator **410** of the number of unread e-mails;

[0174] Icon **420** for browser module **147**, labeled “Browser,” and

[0175] Icon **422** for video and music player module **152**, also referred to as iPod (trademark of Apple Inc.) module **152**, labeled “iPod,” and

[0176] Icons for other applications, such as:

[0177] Icon 424 for IM module 141, labeled “Text;”

[0178] Icon 426 for calendar module 148, labeled “Calendar;”

[0179] Icon 428 for image management module 144, labeled “Photos;”

[0180] Icon 430 for camera module 143, labeled “Camera;”

[0181] Icon 432 for online video module 155, labeled “Online Video”

[0182] Icon 434 for stocks widget 149-2, labeled “Stocks;”

[0183] Icon 436 for map module 154, labeled “Map;”

[0184] Icon 438 for weather widget 149-1, labeled “Weather;”

[0185] Icon 440 for alarm clock widget 149-4, labeled “Clock;”

[0186] Icon 442 for workout support module 142, labeled “Workout Support;”

[0187] Icon 444 for notes module 153, labeled “Notes;” and

[0188] Icon 446 for a settings application or module, which provides access to settings for device 100 and its various applications 136.

[0189] It should be noted that the icon labels illustrated in FIG. 4A are merely exemplary. For example, icon 422 for video and music player module 152 are labeled “Music” or “Music Player.” Other labels are, optionally, used for various application icons. In some embodiments, a label for a respective application icon includes a name of an application corresponding to the respective application icon. In some embodiments, a label for a particular application icon is distinct from a name of an application corresponding to the particular application icon.

[0190] FIG. 4B illustrates an exemplary user interface on a device (e.g., device 300, FIG. 3) with a touch-sensitive surface 451 (e.g., a tablet or touchpad 355, FIG. 3) that is separate from the display 450 (e.g., touch screen display 112). Device 300 also, optionally, includes one or more contact intensity sensors (e.g., one or more of sensors 357) for detecting intensity of contacts on touch-sensitive surface 451 and/or one or more tactile output generators 359 for generating tactile outputs for a user of device 300.

[0191] Although some of the examples which follow will be given with reference to inputs on touch screen display 112 (where the touch sensitive surface and the display are combined), in some embodiments, the device detects inputs on a touch-sensitive surface that is separate from the display, as shown in FIG. 4B. In some embodiments the touch sensitive surface (e.g., 451 in FIG. 4B) has a primary axis (e.g., 452 in FIG. 4B) that corresponds to a primary axis (e.g., 453 in FIG. 4B) on the display (e.g., 450). In accordance with these embodiments, the device detects contacts (e.g., 460 and 462 in FIG. 4B) with the touch-sensitive surface 451 at locations that correspond to respective locations on the display (e.g., in FIG. 4B, 460 corresponds to 468 and 462 corresponds to 470). In this way, user inputs (e.g., contacts 460 and 462, and movements thereof) detected by the device on the touch-sensitive surface (e.g., 451 in FIG. 4B) are used by the device to manipulate the user interface on the display (e.g., 450 in FIG. 4B) of the multifunction device when the touch-sensitive surface is separate from the display. It should be understood that similar methods are, optionally, used for other user interfaces described herein.

[0192] Additionally, while the following examples are given primarily with reference to finger inputs (e.g., finger contacts, finger tap gestures, finger swipe gestures), it should be understood that, in some embodiments, one or more of the finger inputs are replaced with input from another input device (e.g., a mouse based input or stylus input). For example, a swipe gesture is, optionally, replaced with a mouse click (e.g., instead of a contact) followed by movement of the cursor along the path of the swipe (e.g., instead of movement of the contact). As another example, a tap gesture is, optionally, replaced with a mouse click while the cursor is located over the location of the tap gesture (e.g., instead of detection of the contact followed by ceasing to detect the contact). Similarly, when multiple user inputs are simultaneously detected, it should be understood that multiple computer mice are, optionally, used simultaneously, or a mouse and finger contacts are, optionally, used simultaneously.

[0193] As used herein, the term “focus selector” refers to an input element that indicates a current part of a user interface with which a user is interacting. In some implementations that include a cursor or other location marker, the cursor acts as a “focus selector,” so that when an input (e.g., a press input) is detected on a touch-sensitive surface (e.g., touchpad 355 in FIG. 3 or touch-sensitive surface 451 in FIG. 4B) while the cursor is over a particular user interface element (e.g., a button, window, slider or other user interface element), the particular user interface element is adjusted in accordance with the detected input. In some implementations that include a touch-screen display (e.g., touch-sensitive display system 112 in FIG. 1A or touch screen 112 in FIG. 4A) that enables direct interaction with user interface elements on the touch-screen display, a detected contact on the touch-screen acts as a “focus selector,” so that when an input (e.g., a press input by the contact) is detected on the touch-screen display at a location of a particular user interface element (e.g., a button, window, slider or other user interface element), the particular user interface element is adjusted in accordance with the detected input. In some implementations focus is moved from one region of a user interface to another region of the user interface without corresponding movement of a cursor or movement of a contact on a touch-screen display (e.g., by using a tab key or arrow keys to move focus from one button to another button); in these implementations, the focus selector moves in accordance with movement of focus between different regions of the user interface. Without regard to the specific form taken by the focus selector, the focus selector is generally the user interface element (or contact on a touch-screen display) that is controlled by the user so as to communicate the user’s intended interaction with the user interface (e.g., by indicating, to the device, the element of the user interface with which the user is intending to interact). For example, the location of a focus selector (e.g., a cursor, a contact or a selection box) over a respective button while a press input is detected on the touch-sensitive surface (e.g., a touchpad or touch screen) will indicate that the user is intending to activate the respective button (as opposed to other user interface elements shown on a display of the device).

[0194] The user interface figures described below include various intensity diagrams that show the current intensity of the contact on the touch-sensitive surface relative to one or more intensity thresholds (e.g., a contact detection intensity

threshold IT_0 , a light press intensity threshold IT_L , a deep press intensity threshold IT_D , and/or one or more other intensity thresholds). This intensity diagram is typically not part of the displayed user interface, but is provided to aid in the interpretation of the figures. In some embodiments, the light press intensity threshold corresponds to an intensity at which the device will perform operations typically associated with clicking a button of a physical mouse or a trackpad. In some embodiments, the deep press intensity threshold corresponds to an intensity at which the device will perform operations that are different from operations typically associated with clicking a button of a physical mouse or a trackpad. In some embodiments, when a contact is detected with an intensity below the light press intensity threshold (e.g., and above a nominal contact-detection intensity threshold IT_0 below which the contact is no longer detected), the device will move a focus selector in accordance with movement of the contact on the touch-sensitive surface without performing an operation associated with the light press intensity threshold or the deep press intensity threshold. Generally, unless otherwise stated, these intensity thresholds are consistent between different sets of user interface figures.

[0195] An increase of intensity of the contact from an intensity below the light press intensity threshold IT_L to an intensity between the light press intensity threshold IT_L and the deep press intensity threshold IT_D is sometimes referred to as a “light press” input. An increase of intensity of the contact from an intensity below the deep press intensity threshold IT_D to an intensity above the deep press intensity threshold IT_D is sometimes referred to as a “deep press” input. An increase of intensity of the contact from an intensity below the contact-detection intensity threshold IT_0 to an intensity between the contact-detection intensity threshold IT_0 and the light press intensity threshold IT_L is sometimes referred to as detecting the contact on the touch-surface. A decrease of intensity of the contact from an intensity above the contact-detection intensity threshold IT_0 to an intensity below the contact intensity threshold IT_0 is sometimes referred to as detecting liftoff of the contact from the touch-surface. In some embodiments IT_0 is zero. In some embodiments IT_0 is greater than zero. In some illustrations a shaded circle or oval is used to represent intensity of a contact on the touch-sensitive surface. In some illustrations a circle or oval without shading is used represent a respective contact on the touch-sensitive surface without specifying the intensity of the respective contact.

[0196] In some embodiments described herein, one or more operations are performed in response to detecting a gesture that includes a respective press input or in response to detecting the respective press input performed with a respective contact (or a plurality of contacts), where the respective press input is detected based at least in part on detecting an increase in intensity of the contact (or plurality of contacts) above a press-input intensity threshold. In some embodiments, the respective operation is performed in response to detecting the increase in intensity of the respective contact above the press-input intensity threshold (e.g., a “down stroke” of the respective press input). In some embodiments, the press input includes an increase in intensity of the respective contact above the press-input intensity threshold and a subsequent decrease in intensity of the contact below the press-input intensity threshold, and the respective operation is performed in response to detecting

the subsequent decrease in intensity of the respective contact below the press-input threshold (e.g., an “up stroke” of the respective press input).

[0197] In some embodiments, the device employs intensity hysteresis to avoid accidental inputs sometimes termed “jitter,” where the device defines or selects a hysteresis intensity threshold with a predefined relationship to the press-input intensity threshold (e.g., the hysteresis intensity threshold is X intensity units lower than the press-input intensity threshold or the hysteresis intensity threshold is 75%, 90% or some reasonable proportion of the press-input intensity threshold). Thus, in some embodiments, the press input includes an increase in intensity of the respective contact above the press-input intensity threshold and a subsequent decrease in intensity of the contact below the hysteresis intensity threshold that corresponds to the press-input intensity threshold, and the respective operation is performed in response to detecting the subsequent decrease in intensity of the respective contact below the hysteresis intensity threshold (e.g., an “up stroke” of the respective press input). Similarly, in some embodiments, the press input is detected only when the device detects an increase in intensity of the contact from an intensity at or below the hysteresis intensity threshold to an intensity at or above the press-input intensity threshold and, optionally, a subsequent decrease in intensity of the contact to an intensity at or below the hysteresis intensity, and the respective operation is performed in response to detecting the press input (e.g., the increase in intensity of the contact or the decrease in intensity of the contact, depending on the circumstances).

[0198] For ease of explanation, the description of operations performed in response to a press input associated with a press-input intensity threshold or in response to a gesture including the press input are, optionally, triggered in response to detecting either: an increase in intensity of a contact above the press-input intensity threshold, an increase in intensity of a contact from an intensity below the hysteresis intensity threshold to an intensity above the press-input intensity threshold, a decrease in intensity of the contact below the press-input intensity threshold, and/or a decrease in intensity of the contact below the hysteresis intensity threshold corresponding to the press-input intensity threshold. Additionally, in examples where an operation is described as being performed in response to detecting a decrease in intensity of a contact below the press-input intensity threshold, the operation is, optionally, performed in response to detecting a decrease in intensity of the contact below a hysteresis intensity threshold corresponding to, and lower than, the press-input intensity threshold.

User Interfaces and Associated Processes

Scrolling Nested Regions

[0199] Many electronic devices have graphical user interfaces for displaying content. For example, a web browser in a graphical user interface will display the content of a webpage, which may include nested regions. Both the webpage and the nested regions may be independently scrollable. For example, in some circumstances, a user will need to scroll the entire webpage, including the nested region, to view content “below” the currently displayed content. In other circumstances, for example when a webpage includes an embedded map, the user will want to

translate the displayed content of the map to view additional areas of the map not originally shown, without scrolling the entire webpage.

[0200] Electronic devices with touch-sensitive surfaces often utilize contacts or gestures on the touch-sensitive surface for scrolling. Consequently, there is a need for user interfaces capable of determining whether such a contact or gesture on a touch-sensitive surface corresponds to a request to scroll a larger region containing an embedded region or the embedded region itself (e.g., a webpage with an embedded map or the embedded map). Some methods use only the location at which the contact originates. For example, on electronic devices with separate touch-sensitive surfaces (e.g., touchpads), some methods utilize the initial location of a cursor when a “click” is detected through the touchpad to determine whether to translate content in (e.g., scroll) the embedded region or the larger region. As another example, on electronic devices with touch screen displays, some methods use the initial location of a contact to determine whether to translate content in (e.g., scroll) the embedded region or the larger region (e.g., when a contact is detected over the map, the map will be translated while, on the other hand, when the contact is detected over a region other than the map, the webpage will be scrolled). These methods, however, are susceptible to accidental scrolling of the wrong region and also require multiple separate contacts for separate scrolling events. Such methods therefore limit user satisfaction and increase the cognitive burden on the user. In the embodiments described below, an improved method for determining whether to translate content in a larger region containing a nested region, or the nested region itself is provided. In some embodiments of this method, the determination of which region to scroll is based on the location of a contact as well as the intensity of the contact, therefore providing added control to the user and ease of manipulation of scrollable regions.

[0201] FIGS. 5A-5I illustrate exemplary user interfaces for scrolling regions within said user interfaces in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIGS. 6A-6C. Where a contact is present (e.g., contact 2106, FIG. 5B), FIGS. 5A-5I include intensity diagrams that show the current intensity of the contact on the touch-sensitive surface relative (e.g., the intensity at a particular time) compared to a plurality of intensity thresholds including a respective intensity threshold (e.g., “ IT_D ”). In some embodiments, operations similar to those described below with reference IT_D are performed with reference to a different intensity threshold (e.g., “ IT_L ”).

[0202] In some embodiments, the device is an electronic device with a separate display (e.g., display 450) and a separate touch-sensitive surface (e.g., touch-sensitive surface 451). In some embodiments, the device is portable multifunction device 100, the display is touch-sensitive display system 112, and the touch-sensitive surface includes tactile output generators 167 on the display (FIG. 1A). For convenience of explanation, the embodiments described with reference to FIGS. 5A-5I and FIGS. 6A-6C will be discussed with reference to display 450 and a separate touch-sensitive surface 451, however analogous operations are, optionally, performed on a device with a touch-sensitive display system 112 in response to detecting the contacts described in FIGS. 5A-5I on the touch-sensitive display system 112 while displaying the user interfaces shown in

FIGS. 5A-5I on the touch-sensitive display system 112; in such embodiments, the focus selector is, optionally: a respective contact, a representative point corresponding to a contact (e.g., a centroid of a respective contact or a point associated with a respective contact), or a centroid of two or more contacts detected on the touch-sensitive display system 112, in place of cursor 2108.

[0203] FIG. 5A illustrates an exemplary user interface (e.g., a graphic user interface) 2100. User interface 2100 is displayed on display 450 and includes user interface objects (e.g., thumbnails, a dock, taskbar, etc.) as well as a focus selector (e.g., cursor 2108). The device also displays a browser window 2103 (e.g., a first region) that displays content. In the instant example, browser window 2103 is a web browser window displaying content of a webpage (e.g., the content corresponding to the identified universal resource locator “http://www.funinthebayarea.com” shown in bar 2101). The content of the webpage includes user interface objects 2102. In some embodiments, such user interface objects include images or banners with hyperlinks to more information about a particular topic (e.g., user interface object 2102-1 is a banner that is linked to another webpage with more information about the music scene in the bay area). Browser window 2103 also includes a map 2104 that is used, for example, to indicate the location of various bay area activities. In some embodiments, map 2104 is embedded (e.g., nested) within the web browser window (e.g., a second region is nested within the first region). In some circumstances, map 2104 is configured to be scrolled with the rest of the content in web browser window 2103. In some circumstances, map 2104 is also configured to be scrolled independently of the rest of the content of web browser window 2103. For example, map 2104 can be scrolled to reveal areas of California not shown in FIG. 5A while continuing to display user interface objects 2102-1 through 2102-4, as described below.

[0204] FIG. 5B illustrates detection of a contact 2106 having an intensity above IT_0 but below IT_L . FIG. 5C illustrates detection of an increase in the intensity of contact 2106. In the instant example, cursor 2108 is initially located over map 2104. It should be understood, however, that, in some circumstances, cursor 2108 is positioned over map 2104 via a series of gestures, contacts, and/or movements of contacts not shown. In any event, detection of an increase in the intensity of contact 2106 above a respective intensity threshold (e.g., the deep press intensity threshold) causes the device to indicate that map 2104 will be scrolled independently of the rest of the content of web browser window 2103. For example, as shown in FIG. 5C, the display of a border of map 2104 is optionally changed by increasing the border line weight as shown and optionally displaying scroll bars for map 2104. Additionally or alternatively, although not shown, map 2104 is optionally displayed with a “shadow” border.

[0205] In some embodiments, detection of a contact with a maximum intensity greater than IT_D (or a different intensity threshold, such as IT_L) while cursor 2108 is initially located over map 2104 is sufficient to cause the device to scroll map 2104 independently of the rest of the content of web browser window 2103 (e.g., a nested region scrolling mode is activated, or triggered by a maximum intensity rather than a change in intensity across a particular threshold).

[0206] FIG. 5C also shows detection of movement of contact 2106 when cursor 2108 is over map 2104. Because the device is in a nested region scrolling mode, map 2104 is translated on the display without translating the webpage displayed in web browser window 2103, as shown in FIG. 5D. For example, map 2104 has been translated in FIG. 5D southeast as indicated by the arrow on map 2104. (The arrow is, itself, not typically displayed but is instead illustrated in the figure for ease of explanation.) In some embodiments, including the instant example, scrolling is performed using a direct scrolling paradigm (i.e., content is translated in the direction of movement of contact 2106, for example, more typical of touch-screen devices and modern touch-pads). In some embodiments, though not shown, scrolling is performed using a reverse scrolling paradigm (e.g., content is translated in the opposite direction of movement of contact 2106, for example, more typical of scroll wheels in conventional mice).

[0207] FIG. 5D also illustrates detection of a decrease in intensity of contact 2106 while scrolling map 2104 and while cursor 2108 is still within the region of map 2104. In some embodiments, as illustrated in FIGS. 5D-5E, the device continues to translate map 2104 without translating the webpage displayed in web browser window 2103 despite the drop in intensity below the respective intensity threshold (e.g., IT_D).

[0208] In some embodiments, though not shown, when a decrease in intensity of contact 2106 is detected below the respective intensity threshold the device ceases translating map 2104 independently and instead scrolls web browser window 2103 (including the currently displayed region of map 2104). Scrolling of web browser window 2103 including map 2104 is described in greater detail below with reference to FIGS. 5F-5G.

[0209] In some embodiments, when a contact crosses from a location within map 2104 to a location within web browser 2103 but outside of map 2104, the original scrolling behavior is maintained (e.g., depending on the intensity of contact, map 2104 is scrolled independently or, alternatively, web browser 2103 is scrolled). In some embodiments, the scrolling behavior is changed (e.g., the device translates the webpage displayed in web browser window 2103 regardless of intensity, as described below with reference to FIGS. 5H-5I).

[0210] FIG. 5F illustrates detection of a contact 2114 having an intensity above IT_L but below IT_D while cursor 2108 is over map 2104. FIG. 5F also illustrates detection of movement of contact 2114 corresponding to movement of cursor 2108 shown in FIGS. 5F-5G. As a result, as shown in FIG. 5G, the device translates the content of web browser window 2103 including the currently displayed content of map 2104 (e.g., the region of California displayed in map 2104 remains the same while web browser window 2103 is scrolled). Content below the previously displayed content, including user interface objects 2102-5 and 2102-6 and advertisement 2115 is displayed in this manner.

[0211] In some embodiments, as shown in FIGS. 5H-5I, detection of a contact 2118 while cursor 2108 is within web browser window 2103 but outside of map 2104 (e.g., within the first region but outside the embedded second region), and detection of movement of contact 2118 while cursor 2108 is within web browser window 2103 but outside of map 2104 results in scrolling of web browser window 2103.

[0212] In some embodiments, when a contact crosses from a location within web browser 2103 but outside of map 2104 to a location within map 2104 the original scrolling behavior is maintained (e.g., the device continues to translate the content of web browser window 2103 regardless of intensity). In some embodiments, the scrolling behavior is changed (e.g., depending on the intensity of contact, map 2104 is scrolled independently or web browser 2103 is scrolled).

[0213] FIGS. 6A-6C are flow diagrams illustrating a method 2200 of scrolling regions within user interfaces in accordance with some embodiments. The method 2200 is performed at an electronic device (e.g., device 300, FIG. 3, or portable multifunction device 100, FIG. 1A) with a display and a touch-sensitive surface. In some embodiments, the display is a touch screen display and the touch-sensitive surface is on the display. In some embodiments, the display is separate from the touch-sensitive surface. Some operations in method 2200 are, optionally, combined and/or the order of some operations are, optionally, changed.

[0214] As described below, the method 2200 provides an intuitive way to scroll regions within user interfaces. The method reduces the cognitive burden on a user when scrolling regions within user interfaces, thereby creating a more efficient human-machine interface. For battery-operated electronic devices, enabling a user to scroll regions within user interfaces faster and more efficiently conserves power and increases the time between battery charges.

[0215] The device displays (2202) a user interface (e.g., user interface 2100, FIG. 5A) that includes a first region and a second region. The second region is embedded in the first region so that when content in the first region is moved, the second region moves together with the content in the first region. Content in second region is scrollable independently of other content in the first region. In some embodiments, content in the first region includes (2204) a displayed webpage (e.g., the webpage displayed in browser window 2103, FIG. 5A), and content in the second region includes a map embedded in the webpage (e.g., map 2104, FIG. 5A).

[0216] The device detects (2206), on a touch-sensitive surface, a contact (e.g., contact 2106, FIG. 5B) that corresponds to a focus selector (e.g., cursor 2108) on the display. In some embodiments, prior to detecting first movement of the contact across the touch-sensitive surface, the device detects (2208) an increase in intensity of the contact above a respective intensity threshold (e.g., the device detects an increase in intensity of contact 2106 above IT_D , FIG. 5C). In some embodiments, the respective intensity threshold is an intensity threshold that is higher than an input-detection intensity threshold at which the contact is initially detected. In some embodiments, in response to detecting the increase in intensity of the contact above the respective intensity threshold, the device modifies (2210) the display of the first region or the second region to indicate that movement of the contact on the touch-sensitive surface will cause content in the second region to be translated on the display without translating other content in the first region on the display (e.g., displaying a drop shadow that corresponds to the first region or the second region on the display to indicate that the first region has been "pushed below" the second region or that the second region has been "pushed below" the first region).

[0217] The device detects (2212) first movement of the contact across the touch-sensitive surface. For example, in

FIGS. 5C-5D, the device detects movement of contact 2106, in FIGS. 5F-5G, the device detects movement of contact 2114, and in FIGS. 5H-5I, the device detects movement of contact 2118.

[0218] In response to detecting the first movement of the contact when the focus selector is at a location on the display within the second region and in accordance with a determination that the contact has a maximum intensity that is below the respective intensity threshold, the device translates (2214) content in the first region on the display (e.g., scrolling the webpage displayed in browser window 2103, FIGS. 5F-5G). In some embodiments, translating content in the first region includes translating all of the content in the first region including content not in the second region. In some embodiments, translating content in the first region also includes translating the second region (e.g., translating the second region rather than translating content in the second region).

[0219] In response to detecting the first movement of the contact when the focus selector is at a location on the display within the second region and in accordance with a determination that the contact has a maximum intensity that is above the respective intensity threshold, the device translates (2214) content in the second region on the display without translating other content in the first region on the display (e.g., translating map 2104, FIGS. 5C-5E). In some embodiments, translating content in the first region on the display includes translating (2218) content in the first region in two dimensions, and translating content in the second region on the display includes translating content in the second region in one dimension. In some embodiments, translating content in the first region on the display includes translating (2220) content in the first region in one dimension, and translating content in the second region on the display includes translating content the second region in two dimensions.

[0220] In some embodiments, (e.g., scrolling web browser window 2103 in FIGS. 5H-5I) in response to detecting the first movement of the contact when the focus selector is at a location on the display within the first region that does not include the second region, the device translates (2216) all content in the first region, including content not in the second region, on the display without regard to whether the contact is above or below the respective intensity threshold (e.g., when the device detects a gesture on a part of the first region that does not include the second region, the device translates content in the first region without regard to whether or not the contact has an intensity above the respective intensity threshold). In some of these circumstances, translating content in the first region on the display includes translating content in the first region in two dimensions. In some of these circumstances, translating content in the first region on the display includes translating content in the first region in one dimension.

[0221] In some embodiments, after (or, optionally, while) translating (2222) content in the second region on the display in accordance with the first movement of the contact without translating other content in the first region on the display, the device detects (2224) a decrease in intensity of the contact below the respective intensity threshold. After detecting the decrease in intensity of the contact, the device detects (2226) second movement of the contact on the touch-sensitive surface. In response to detecting the second movement of the contact, the device continues (2228) to translate content in the second region on the display without

translating other content in the first region on the display (e.g., if the intensity of the contact is reduced after independent movement of the second region is initiated, content in the second region continues to move independently of the first region while the contact is continuously detected on the touch-sensitive surface, as shown, for example, in FIGS. 5D-5E).

[0222] In some embodiments, after (or, optionally, while) translating (2230) content in the second region on the display in accordance with the first movement of the contact without translating other content in the first region on the display, the device detects (2232) a decrease in intensity of the contact below the respective intensity threshold. After detecting the decrease in intensity of the contact, the device detects (2234) second movement of the contact on the touch-sensitive surface. In response to detecting the second movement of the contact, the device translates (2236) content in the first region on the display in conjunction with translating the second region on the display (e.g., if the intensity of the contact is reduced after independent movement of the second region is initiated, content in the second region stops moving independently of the first region and content in the first region, including the second region, begins to move in response to detection of the second movement of the contact).

[0223] It should be understood that the particular order in which the operations in FIGS. 6A-6C have been described is merely exemplary and is not intended to indicate that the described order is the only order in which the operations could be performed. One of ordinary skill in the art would recognize various ways to reorder the operations described herein. Additionally, it should be noted that details of other processes described herein with respect to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) are also applicable in an analogous manner to method 2200 described above with respect to FIGS. 6A-6C. For example, the contacts, gestures, user interface objects, intensity thresholds, and focus selectors described above with reference to method 2200 optionally have one or more of the characteristics of the contacts, gestures, user interface objects, intensity thresholds, and focus selectors described herein with reference to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments). For brevity, these details are not repeated here.

[0224] In accordance with some embodiments, FIG. 7 shows a functional block diagram of an electronic device 2300 configured in accordance with the principles of the various described embodiments. The functional blocks of the device are, optionally, implemented by hardware, software, or a combination of hardware and software to carry out the principles of the various described embodiments. It is understood by persons of skill in the art that the functional blocks described in FIG. 7 are, optionally, combined or separated into sub-blocks to implement the principles of the various described embodiments. Therefore, the description herein optionally supports any possible combination or separation or further definition of the functional blocks described herein. As shown in FIG. 7, an electronic device 2300 includes a display unit 2302 configured to display a user interface. The user interface includes a first region and a second region. The second region is embedded in the first region so that when content in the first region is moved, the second region moves together with the content in the first

region. Content in second region is scrollable independently of other content in the first region. In some embodiments, content in the first region includes a displayed webpage, and content in the second region includes a map embedded in the webpage.

[0225] The electronic device **2300** includes a touch-sensitive surface unit **2304** configured to receive contacts, one or more sensor units **2306** configured to detect intensity of contacts with the touch-sensitive surface unit **2304**; and a processing unit **2308** coupled to the display unit **2302**, the touch-sensitive surface unit **2304** and the one or more sensor units **2306**. In some embodiments, the processing unit **2308** includes a detecting unit **2310**, a translating unit **2312**, and a scrolling unit **2314**.

[0226] The touch-sensitive surface unit **2304** is configured to detect a contact that corresponds to a focus selector on the display unit **2302** and detect first movement of the contact across the touch-sensitive surface unit **2304**. The processing unit **2308** is configured to, in response to detecting the first movement of the contact when the focus selector is at a location on the display unit **2302** within the second region and in accordance with a determination that the contact has a maximum intensity that is below a respective intensity threshold, translate content in the first region on the display unit **2302** (e.g., with translating unit **2312**). The processing unit **2308** is further configured to, in response to detecting the first movement of the contact when the focus selector is at a location on the display unit **2302** within the second region and in accordance with a determination that the contact has a maximum intensity that is above the respective intensity threshold, translate content in the second region on the display unit **2302** without translating other content in the first region on the display unit **2302**.

[0227] In some embodiments, the processing unit **2308** is further configured to, prior to detecting the first movement of the contact across the touch-sensitive surface unit **2304**, detect (e.g., with detecting unit **2310**) an increase in intensity of the contact above the respective intensity threshold. In response to detecting the increase in intensity of the contact above the respective intensity threshold, modify the display of the first region or the second region to indicate that movement of the contact on the touch-sensitive surface unit **2304** will cause the second region to be translated on the display unit **2302** without translating the first region on the display unit **2302**.

[0228] In some embodiments, the processing unit **2308** is further configured to, in response to detecting the first movement of the contact when the focus selector is at a location on the display unit **2302** within the first region that does not include the second region, translate all content in the first region, including content not in the second region, on the display unit **2302** without regard to whether the contact is above or below the respective intensity threshold.

[0229] In some embodiments, translating content in the first region on the display unit **2302** includes translating content in the first region in two dimensions, and translating content in the second region on the display unit **2302** includes translating content in the second region in one dimension. In some embodiments, translating content in the first region on the display unit **2302** includes translating content in the first region in one dimension; and translating content in the second region on the display unit **2302** includes translating content in the second region in two dimensions.

[0230] In some embodiments, the processing unit **2308** is further configured to, after translating content in the second region on the display unit **2302** in accordance with the first movement of the contact without translating other content in the first region on the display unit **2302**, detect a decrease in intensity of the contact below the respective intensity threshold. After detecting the decrease in intensity of the contact, the processing unit **2308** is further configured to detect second movement of the contact on the touch-sensitive surface unit **2304** and, in response to detecting the second movement of the contact, continue to translate content in the second region on the display unit **2302** without translating other content in the first region on the display unit **2302**.

[0231] In some embodiments, the processing unit **2308** is further configured to, after translating content in the second region on the display unit **2302** in accordance with the first movement of the contact without translating other content in the first region on the display unit **2302**, detect a decrease in intensity of the contact below the respective intensity threshold. After detecting the decrease in intensity of the contact, the processing unit **2308** is configured to detect second movement of the contact on the touch-sensitive surface unit **2304**, and in response to detecting the second movement of the contact, translate content in the first region on the display unit **2302** in conjunction with translating the second region on the display unit **2302**.

[0232] The operations in the information processing methods described above are, optionally implemented by running one or more functional modules in information processing apparatus such as general purpose processors (e.g., as described above with respect to FIGS. 1A and 3) or application specific chips.

[0233] The operations described above with reference to FIGS. 6A-6C are, optionally, implemented by components depicted in FIGS. 1A-1B or FIG. 7. For example, displaying operation **2202**, detecting operation **2204**, and translating operation **2214** are, optionally, implemented by event sorter **170**, event recognizer **180**, and event handler **190**. Event monitor **171** in event sorter **170** detects a contact on touch-sensitive display **112**, and event dispatcher module **174** delivers the event information to application **136-1**. A respective event recognizer **180** of application **136-1** compares the event information to respective event definitions **186**, and determines whether a first contact at a first location on the touch-sensitive surface corresponds to a predefined event or sub-event, such as selection of an object on a user interface. When a respective predefined event or sub-event is detected, event recognizer **180** activates an event handler **190** associated with the detection of the event or sub-event. Event handler **190** optionally utilizes or calls data updater **176** or object updater **177** to update the application internal state **192**. In some embodiments, event handler **190** accesses a respective GUI updater **178** to update what is displayed by the application. Similarly, it would be clear to a person having ordinary skill in the art how other processes can be implemented based on the components depicted in FIGS. 1A-1B.

[0234] Displaying Word Definitions

[0235] When a user is reading or entering text in an electronic document, the user may wish to interact with a particular word in the text. For example, the user may wish to obtain a definition for the word. In some methods, the user can request display of the definition for a word by selecting the word, performing another input while the word is

selected (for example, a right-click) to bring up an affordance for looking the word up in a dictionary, and then activating the affordance. This process involves multiple steps on the part of the user, and thus can be tedious and time-consuming. The embodiments below improve on these methods by allowing the user to activate display of a definition for a word by, while a focus selector is located at the word, performing a gesture with contact whose intensity goes above an intensity threshold. This makes reading and text input more efficient by allowing the user to get word definitions more quickly.

[0236] FIGS. 8A-8N illustrate exemplary user interfaces for displaying word definitions in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIGS. 9A-9B. FIGS. 8A-8C, 8E-8J and 8L-8N include intensity diagrams that show the current intensity of the contact on the touch-sensitive surface relative to a plurality of intensity thresholds including a respective threshold (e.g., “IT_D”). In some embodiments, operations similar to those described below with reference to “IT_D” are performed with reference to a different intensity threshold (e.g., “IT_L”).

[0237] FIG. 8A illustrates user interface 2700 displayed on display 450 (e.g., display 340) of a device (e.g., device 300), and textual content 2702 displayed in user interface 2700. User interface 2700 is an interface corresponding to an application that can display text. For example, user interface 2700 is, optionally, an interface for a web browser application, text editor application, word processor application, note application, messaging (e.g., email, chat) application, e-book application, document reader application, and so on. Depending on the application to which user interface 2700 corresponds, textual content 2702 is, optionally, editable by a user from within user interface 2700. In some embodiments, textual content 2702 is an electronic document (for example, text document, word processor document, email message, web page, electronic book). Textual content 2702 includes one or more words 2704. For example, as shown in FIG. 8A, words 2704 includes word 2704-1 “Gettysburg,” as well as other words.

[0238] Cursor 2706 (for example, a mouse pointer) is also displayed in user interface 2700. Cursor 2706 is an example of a focus selector. A user may use an input device (e.g., mouse 350, touchpad 355, touch-sensitive surface 451) to position pointer 2704 to a location in user interface 2700.

[0239] A gesture (for example, a tap gesture or a press input) that includes an increase in intensity of contact 2708 from an intensity below a light press intensity threshold (e.g., “IT_L”) to an intensity above the light press intensity threshold (e.g., “IT_L”) is detected on touch-sensitive surface 451 (e.g., touchpad 355) of the device while a focus selector (e.g., cursor 2706) is displayed at a location corresponding to word 2704-1 (for example, over the word 2704-1 “Gettysburg”). The device determines, based on measurements from one or more sensors for detecting the intensity of contacts on touch-sensitive surface 451, that the maximum intensity of contact 2708 is below a predefined intensity threshold (e.g., below deep press intensity threshold “IT_D”). Contact 2708 is depicted as a shape with a blank background to represent its status of having a maximum intensity below the predefined threshold. In some embodiments, the gesture ends with a decrease in intensity of contact 2708 to an intensity below a gesture-detection intensity threshold that is

at or below the light press intensity threshold (e.g., “IT_L”) as shown in FIG. 8C. In some embodiments, the gesture ends with liftoff of contact 2708, as shown in FIG. 8D.

[0240] In response to detecting the gesture that included a press input performed with contact 2708, and in accordance with the determination that the maximum intensity of contact 2708 is below the predefined threshold (e.g., “IT_D”), a user interface for interacting with word 2704-1 is displayed when the end of the gesture is detected. In some embodiments, the use interface for interacting with word 2704-1 includes a text cursor, insertion point, or the like. For example, if textual content 2702 is editable from within user interface 2700, text cursor 2710 is, optionally, displayed near word 2704-1 (for example, at the beginning or end of word 2704-1, or within word 2704-1), as shown in FIG. 8B. Text cursor 2710 indicates a current location in textual content 2702 at which the user optionally request that the device insert additional characters or delete characters from textual content 2702 (e.g., by activating keys on a physical or virtual keyboard).

[0241] In some embodiments, word 2704-1 is selected, as shown in FIGS. 8C-8D, where word 2704-1 is shown with selection area 2712. In some embodiments, the use interface for interacting with word 2704-1 includes one or more affordances 2714 for interacting with word 2704-1. For example, “Cut” affordance 2714-1, “Copy” affordance 2714-2, and “Paste” affordance 2714-3 is, optionally, displayed, as shown in FIG. 8C. A user optionally activates “Cut” affordance 2714-1 to copy word 2704-1 (e.g., to a virtual clipboard for pasting elsewhere) and to delete word 2704-1 from textual content 2702. A user optionally activates “Copy” affordance 2714-2 to copy word 2704-1 (e.g., to a virtual clipboard for pasting elsewhere). A user optionally activates “Paste” affordance 2714-3 to insert previously copied text (e.g., text copied into a virtual clipboard) as a replacement for word 2704-1.

[0242] Other examples of affordances for interacting with word 2704-1 include, for example, “Highlight” affordance 2714-4, “Add Note” affordance 2714-5, “Search Document” affordance 2714-6, and “Search” affordance 2714-7, as shown in FIG. 8D. A user optionally activates “Highlight” affordance 2714-4 to highlight (e.g., with yellow or green color) word 2704-1. A user optionally activates “Add Note” affordance 2714-5 to create a note to be associated with word 2704-1. A user optionally activates “Search Document” affordance 2714-6 to search textual content 2702 using word 2704-1 as a search term. A user optionally activates “Search” affordance 2714-7 to search an information repository (e.g., a search engine, an online encyclopedia) using word 2704-1 as a search term.

[0243] FIGS. 8E-8F show, instead of (or after) detecting the gesture that includes an increase in intensity of contact 2708, detecting a gesture (e.g., a pressing gesture) that includes an increase in intensity of contact 2716 from an intensity below a deep press intensity threshold (e.g., “IT_D”) to an intensity above the deep press intensity threshold (e.g., “IT_D”) on touch-sensitive surface 451. The device determines, based on measurements from one or more sensors for detecting the intensity of contacts on touch-sensitive surface 451, that intensity of contact 2716 goes above the predefined threshold (e.g., “IT_D”) during the gesture. In some embodiments, the gesture ends with a liftoff of contact 2716 or a decrease in intensity of contact 2716 below a gesture-

detection intensity threshold that is at or below the deep press intensity threshold (e.g., “IT_D”).

[0244] In response to detecting the gesture that corresponds to the increase in intensity of contact 2716, and in accordance with the determination that the maximum intensity of contact 2716 is above the predefined threshold (e.g., “IT_D”), definition 2720 for word 2704-1 is displayed, as shown in FIGS. 8F-8G. Definition 2720 for word 2704-1 is, optionally, retrieved from a dictionary stored in memory (e.g., memory 370) or from an online source (e.g., an online dictionary).

[0245] In some embodiments, word 2704-1 is, optionally, displayed with visual embellishments or emphasis to indicate the association between definition 2720 and word 2704-1. For example, word 2704-1 is, optionally, displayed with colored background area 2718, as shown in FIG. 8F. Other visual embellishments optionally include highlighting, bold font, italics, larger font size, and visual effects that make word 2704-1 appear to hover above textual content 2702.

[0246] In some embodiments, words 2704 cease to be displayed and definition 2720 is displayed in place of words 2704, as shown in FIG. 8G. For example, definition 2720 is, optionally, displayed in place of textual content 2702 or as an overlay or pop-up over the part of textual content 2702 with words 2704. In some other embodiments, word 2704-1 (and at least parts of textual content 2702) continues to be displayed while definition 2720 is displayed, as shown in FIG. 8F. For example, definition 2720 is, optionally, displayed as an overlay or pop-up that does not cover word 2704-1.

[0247] In some embodiments, definition 2720 is displayed during the gesture, in response to the intensity of contact 2716 going above the predefined threshold (e.g., “IT_D”), as shown in FIG. 8F. In some other embodiments, definition 2720 is displayed when the end of the gesture (e.g., in response to detecting a liftoff of contact 2716 or a decrease in intensity of contact 2716 below a contact-detection threshold that is below the predefined threshold) is detected, as shown in FIG. 8G.

[0248] FIGS. 8H-8N illustrate examples of the user interfaces described above, with reference to FIGS. 8A-8G, implemented on a device (e.g., device 100) with a touch-sensitive display (e.g., touch screen 112). FIG. 8H illustrates user interface 2730 displayed on touch-sensitive display (e.g., touch screen 112) of a device (e.g., device 100), and textual content 2732 is displayed in user interface 2730. In some embodiments, textual content 2732 is an electronic document (for example, text document, word processor document, email message, web page, electronic book). Textual content 2732 includes one or more words 2734. For example, as shown in FIG. 8H, words 2734 includes word 2734-1 “Gettysburg,” as well as other words.

[0249] A gesture (for example, a tap gesture or a press input) that includes an increase in intensity of contact 2738 from an intensity below a light press intensity threshold (e.g., “IT_L”) to an intensity above the light press intensity threshold (e.g., “IT_L”) is detected on touch-sensitive display 112 at a location corresponding to word 2734-1 (for example, over word 2734-1). The device determines, based on measurements from one or more sensors for detecting the intensity of contacts on touch-sensitive display 112 that the maximum intensity of contact 2738 is below a predefined intensity threshold (e.g., below deep press intensity thresh-

old “IT_D”). In some embodiments, the gesture ends with a decrease in intensity of contact 2738 to an intensity below a gesture-detection intensity threshold that is at or below the light press intensity threshold (e.g., “IT_L”) as shown in FIG. 8J. In some embodiments, the gesture ends with liftoff of contact 2738, as shown in FIG. 8K.

[0250] In response to detecting the gesture that included a press input performed with contact 2738, and in accordance with the determination that the maximum intensity of contact 2738 is below the predefined threshold (e.g., “IT_D”), a user interface for interacting with word 2734-1 is displayed when the end of the gesture is detected. In some embodiments, the use interface for interacting with word 2734-1 includes a text cursor, insertion point, or the like. For example, if textual content 2732 is editable from within user interface 2730, text cursor 2740 is, optionally, displayed near word 2734-1 (for example, at the beginning or end of word 2734-1, or within word 2704-1), as shown in FIG. 8I. Text cursor 2740 indicates a current location in textual content 2732 at which the user optionally requests that the device insert additional characters or delete characters from textual content 2732. In some embodiments, word 2734-1 is selected, as shown in FIGS. 8J-8K, where word 2734-1 is shown with selection area 2742 (e.g., by activating keys on a physical or virtual keyboard).

[0251] In some embodiments, the use interface for interacting with word 2734-1 includes one or more affordances 2744 for interacting with word 2734-1. For example, “Cut” affordance 2744-1, “Copy” affordance 2744-2, and “Paste” affordance 2744-3 is, optionally, displayed, as shown in FIG. 8J. A user optionally activates “Cut” affordance 2744-1 to copy word 2734-1 (e.g., to a virtual clipboard for pasting elsewhere) and to delete word 2734-1 from textual content 2732. A user optionally activates “Copy” affordance 2744-2 to copy word 2734-1 (e.g., to a virtual clipboard for pasting elsewhere). A user optionally activates “Paste” affordance 2744-3 to insert previously copied text (e.g., text copied into a virtual clipboard) as a replacement for word 2734-1.

[0252] Other examples of affordances for interacting with word 2734-1 include, for example, “Highlight” affordance 2744-4, “Add Note” affordance 2744-5, “Search Document” affordance 2744-6, and “Search” affordance 2744-7, as shown in FIG. 8K. A user optionally activates “Highlight” affordance 2744-4 to highlight (e.g., with yellow or green color) word 2734-1. A user optionally activates “Add Note” affordance 2744-5 to create a note to be associated with word 2734-1. A user optionally activates “Search Document” affordance 2744-6 to search textual content 2732 using word 2734-1 as a search term. A user optionally activates “Search” affordance 2744-7 to search an information repository (e.g., a search engine, an online encyclopedia) using word 2734-1 as a search term.

[0253] FIGS. 8L-8M show, instead of (or after) detecting the gesture that includes an increase in intensity of contact 2738, detecting a gesture (e.g., a pressing gesture) that includes an increase in intensity of contact 2746 from an intensity below a deep press intensity threshold (e.g., “IT_D”) to an intensity above the deep press intensity threshold (e.g., “IT_D”) on touch-sensitive display 112. The device determines, based on measurements from one or more sensors for detecting the intensity of contacts on touch-sensitive display 112 that intensity of contact 2746 goes above the predefined threshold (e.g., “IT_D”) during the gesture. In some embodiments, the gesture ends with a liftoff of contact 2746 or a

decrease in intensity of contact **2716** below a gesture-detection intensity threshold that is at or below the deep press intensity threshold (e.g., “IT_D”).

[0254] In response to detecting the gesture that corresponds to the increase in intensity of contact **2746**, and in accordance with the determination that the maximum intensity of contact **2746** is above the predefined threshold (e.g., “IT_D”), definition **2750** for word **2734-1** is displayed, as shown in FIGS. **8M-8N**. Definition **2750** for word **2734-1** is, optionally, retrieved from a dictionary stored in memory (e.g., memory **370**) or from an online source (e.g., an online dictionary).

[0255] In some embodiments, word **2734-1** is, optionally, displayed with visual embellishments or emphasis to indicate the association between definition **2750** and word **2734-1**. For example, word **2734-1** is, optionally, displayed with colored background area **2748**, as shown in FIG. **8M**. Other visual embellishments optionally include highlighting, bold font, italics, larger font size, and visual effects that make word **2734-1** appear to hover above textual content **2732**.

[0256] In some embodiments, words **2734** cease to be displayed and definition **2750** is displayed in place of words **2734**, as shown in FIG. **8N**. For example, definition **2750** is, optionally, displayed in place of textual content **2732** or as an overlay or pop-up over the part of textual content **2732** with words **2734**. In some other embodiments, word **2734-1** (and at least parts of textual content **2732**) continues to be displayed while definition **2750** is displayed, as shown in FIG. **8M**. For example, definition **2750** is, optionally, displayed as an overlay or pop-up that does not cover word **2734-1**.

[0257] In some embodiments, definition **2750** is displayed during the gesture, in response to the intensity of contact **2746** going above the predefined threshold (e.g., “IT_D”), as shown in FIG. **8M**. In some other embodiments, definition **2750** is displayed when the end of the gesture (e.g., in response to detecting a liftoff of contact **2746** or a decrease in intensity of contact **2746** below a contact-detection threshold that is below the predefined threshold) is detected, as shown in FIG. **8N**.

[0258] FIGS. **9A-9B** are flow diagrams illustrating a method **2800** of displaying word definitions in accordance with some embodiments. The method **2800** is performed at an electronic device (e.g., device **300**, FIG. **3**, or portable multifunction device **100**, FIG. **1A**) with a display and a touch-sensitive surface. In some embodiments, the display is a touch screen display and the touch-sensitive surface is on the display. In some embodiments, the display is separate from the touch-sensitive surface. Some operations in method **2800** are, optionally, combined and/or the order of some operations are, optionally, changed.

[0259] As described below, the method **2800** provides an intuitive way to display word definitions. The method reduces the cognitive burden on a user when displaying word definitions, thereby creating a more efficient human-machine interface. For battery-operated electronic devices, enabling a user to display word definitions faster and more efficiently conserves power and increases the time between battery charges.

[0260] The device displays (**2802**) a plurality of words in an electronic document on the display, where the plurality of words include a respective word. FIG. **8A** shows, for example, words **2704** in textual content **2702** displayed on

display **450**. Words **2704** include word **2704-1** “Gettysburg.” FIG. **8H** shows words **2734** in textual content **2732** displayed on touch-sensitive display **112**. Words **2734** include word **2734-1** “Gettysburg.”

[0261] While a focus selector is at a location corresponding to the respective word, the device detects (**2806**) a gesture that includes a contact (e.g., a finger contact) on the touch-sensitive surface. As shown in FIG. **8A**, for example, a gesture that includes contact **2708** is detected on touch-sensitive surface **451** while a focus selector (e.g., cursor **2706**) is over word **2704-1**. As another example, in FIG. **8E**, a gesture that includes contact **2716** is detected on touch-sensitive surface **451** a focus selector (e.g., while cursor **2706**) is over word **2704-1**.

[0262] In embodiments, where the touch-sensitive surface is a touch-sensitive display, the position of the contact is optionally the location of the focus selector described above. As shown in FIGS. **8H-8J**, for example, a gesture that includes contact **2738** (e.g., a press input performed with contact **2738**) is detected on touch-sensitive display **112** at a location over word **2734-1**. As another example, in FIGS. **8L-8N**, a gesture that includes contact **2746** (e.g., a press input performed with contact **2746**) is detected on touch-sensitive display **112** at a location over word **2734-1**.

[0263] In response (**2808**) to detecting the gesture, in accordance with a determination that the contact had a maximum intensity during the gesture that was below (**2810**) a respective intensity threshold, the device displays (**2812**) a user interface for interacting with the respective word within the electronic document on the display. In contrast, in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, the device displays a definition for the respective word on the display, as described in greater detail below.

[0264] For example, in FIG. **8B**, contact **2708** is determined to have a maximum intensity that is below a predefined threshold (e.g., “IT_D”). In accordance with that determination, in response to detecting the gesture that includes the increase in intensity of contact **2708**, user interfaces for interacting with word **2704-1** are displayed (e.g., a cut/copy/paste interface or a highlight/add note/search document/search interface), as shown in FIGS. **8C-8D**. In FIG. **8F**, the intensity of contact **2716** is determined to have reached above the predefined threshold (e.g., “IT_D”) during the gesture. In accordance with that determination, in response to detecting the gesture that includes the increase in intensity of contact **2716**, definition **2720** for word **2704-1** is displayed, as shown in FIGS. **8F-8G**.

[0265] As another example, in FIG. **8I**, contact **2738** is determined to have a maximum intensity that is below a predefined threshold (e.g., “IT_D”). In accordance with that determination, in response to detecting the gesture that includes the increase in intensity of contact **2738**, user interfaces for interacting with word **2734-1** are displayed (e.g., a cut/copy/paste interface or a highlight/add note/search document/search interface), as shown in FIGS. **8J-8K**. In FIG. **8M**, the intensity of contact **2746** is determined to have reached above the predefined threshold (e.g., “IT_D”) during the gesture. In accordance with that determination, in response to detecting the gesture that includes the increase in intensity of contact **2746**, definition **2750** for word **2734-1** is displayed, as shown in FIGS. **8M-8N**.

[0266] In some embodiments, the user interface for interacting with the respective word within the document (e.g., the user interface displayed in accordance with a determination that the contact had a maximum intensity during the gesture that was below the respective intensity threshold) includes (2816) one or more of: a text cursor displayed proximate to the respective word, an affordance for copying and deleting the respective word (e.g., a “cut” button), an affordance for copying the respective word, an affordance for replacing the respective word with previously copied text (e.g., a paste button), an affordance for highlighting the respective word, an affordance for creating a note to be associated with the respective word, an affordance for searching the electronic document using the respective word as a search term, and an affordance for searching an information repository using the respective word as a search term. (e.g., submitting the respective word to a search engine or Wikipedia). The user interface for interacting with word 2704-1 or 2734-1 is, optionally, text cursor 2710 (FIG. 8B) or 2740 (FIG. 8I), “Cut” affordance 2714-1 (FIG. 8C) or 2744-1 (FIG. 8J), “Copy” affordance 2714-2 (FIG. 8C) or 2744-2 (FIG. 8J), “Paste” affordance 2714-3 (FIG. 8C) or 2744-3 (FIG. 8J), “Highlight” affordance 2714-4 (FIG. 8D) or 2744-4 (FIG. 8K), “Add Note” affordance 2714-5 (FIG. 8D) or 2744-5 (FIG. 8K), “Search Document” affordance 2714-6 (FIG. 8D) or 2744-6 (FIG. 8K), and “Search” affordance 2714-7 (FIG. 8D) or 2744-7 (FIG. 8K). Text cursor 2710 or 2740 and affordances 2714 or 2744 are described in greater detail above with reference to FIGS. 8B-8D and 8I-8K.

[0267] In some embodiments, in accordance with a determination that the contact had a maximum intensity during the gesture that was below (2810) the respective intensity threshold, the device selects (2818) the respective word. For example, as shown in FIGS. 8C-8D, in accordance with the determination that contact 2708 had a maximum intensity during the gesture that was below the predefined threshold (e.g., IT_D), word 2704-1 is displayed with selection area 2712. As shown in FIGS. 8I-8K, in accordance with the determination that contact 2738 had a maximum intensity during the gesture that was below the predefined threshold, word 2734-1 is displayed with selection area 2742.

[0268] In contrast, in response (2808) to detecting the gesture, in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold (e.g., IT_D), the device displays (2820) a definition for the respective word on the display. In some embodiments, displaying the definition includes ceasing (2822) to display the plurality of words and displaying the definition in place of the plurality of words. For example, in FIG. 8G, words 2704 cease to be displayed and definition 2720 is displayed in place of words 2704 (and textual content 2702). As another example, in FIG. 8N, words 2734 cease to be displayed and definition 2750 is displayed in place of words 2734 (and textual content 2732). In contrast, in some embodiments, displaying the definition includes continuing (2826) display the respective word while displaying the definition on the display. For example, in FIG. 8F, word 2704-1 continues to be displayed while definition 2720 is displayed. As another example, in FIG. 8M, word 2734-1 continues to be displayed while definition 2750 is displayed.

[0269] In some embodiments, the user interface for interacting with the respective word within the electronic docu-

ment is displayed after an end of the gesture is detected, and the definition of the respective word is (2828) displayed during the gesture in response to detecting that the intensity of the contact exceeds the respective intensity threshold. For example, in FIGS. 8C-8D, the user interfaces for interacting with word 2704-1 are displayed after detection of the end of gesture as detected in accordance with a reduction in intensity of the contact below a gesture-detection intensity threshold that is lower than the respective intensity threshold (e.g., IT_D) as shown in FIG. 8C, or by liftoff of contact 2708 as shown in FIG. 8D. In contrast, in FIG. 8F, definition 2720 is displayed during the gesture (e.g., while contact 2716 is still detected and above IT_D) in response to the intensity of contact 2716 going above the predefined threshold. In FIGS. 8I-8K, the user interfaces for interacting with word 2734-1 are displayed after detection of the end of gesture (e.g., by liftoff of contact 2738 or reduction in intensity of contact 2738 below a gesture-detection intensity threshold that is lower than the respective intensity threshold). In FIG. 8M, definition 2750 is displayed during the gesture (e.g., while contact 2746 is still detected and above IT_D) in response to the intensity of contact 2746 going above the predefined threshold (e.g., IT_D).

[0270] In some embodiments, the user interface for interacting with the respective word within the electronic document is displayed after an end of the gesture is detected, and the definition of the respective word is displayed after the end of the gesture is detected (2830). For example, in FIGS. 8C-8D, the user interfaces for interacting with word 2704-1 are displayed after detection of the end of gesture as detected in accordance with a reduction in intensity of the contact below a gesture-detection intensity threshold that is lower than the respective intensity threshold (e.g., IT_D) as shown in FIG. 8C, or by liftoff of contact 2708 as shown in FIG. 8D. Similarly, in FIG. 8G, definition 2720 is displayed after detection of the end of gesture as detected in accordance with a reduction in intensity of the contact below a gesture-detection intensity threshold that is lower than the respective intensity threshold (e.g., IT_D) as shown in FIG. 8G, or by liftoff of contact 2716. In FIGS. 8I-8K, the user interfaces for interacting with word 2734-1 are displayed after detection of the end of gesture (e.g., by liftoff of contact 2738 or reduction in intensity of contact 2738 below a gesture-detection intensity threshold that is lower than the respective intensity threshold). In FIG. 8N, definition 2750 is displayed after detection of the end of gesture by detecting a reduction in intensity of contact 2746 below a gesture-detection intensity threshold that is lower than the respective intensity threshold (e.g., IT_D).

[0271] It should be understood that the particular order in which the operations in FIGS. 9A-9B have been described is merely exemplary and is not intended to indicate that the described order is the only order in which the operations could be performed. One of ordinary skill in the art would recognize various ways to reorder the operations described herein. Additionally, it should be noted that details of other processes described herein with respect to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) are also applicable in an analogous manner to method 2800 described above with respect to FIGS. 9A-9B. For example, the contacts, gestures, user interface objects, intensity thresholds, and focus selectors described above with reference to method 2800 optionally have one or more of the characteristics of the contacts,

gestures, user interface objects, intensity thresholds, and focus selectors described herein with reference to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments). For brevity, these details are not repeated here.

[0272] In accordance with some embodiments, FIG. 10 shows a functional block diagram of an electronic device 2900 configured in accordance with the principles of the various described embodiments. The functional blocks of the device are, optionally, implemented by hardware, software, or a combination of hardware and software to carry out the principles of the various described embodiments. It is understood by persons of skill in the art that the functional blocks described in FIG. 10 are, optionally, combined or separated into sub-blocks to implement the principles of the various described embodiments. Therefore, the description herein optionally supports any possible combination or separation or further definition of the functional blocks described herein.

[0273] As shown in FIG. 10, an electronic device 2900 includes a display unit 2902 configured to display a plurality of words in an electronic document, where the plurality of words include a respective word; a touch-sensitive surface unit 2904 configured to receive gestures, the gestures including contacts on the touch-sensitive surface unit 2904; and one or more sensors units configured to detect intensity of contacts with the touch-sensitive surface unit 2904; and a processing unit 2906 coupled to the display unit 2902, the touch-sensitive surface unit 2904 and the sensor units 2905. In some embodiments, the processing unit 2906 includes a detecting unit 2908, a determining unit 2909, a display enabling unit 2910, and a selecting unit 2912.

[0274] The processing unit 2906 is configured to: while a focus selector is at a location corresponding to the respective word, detect a gesture that includes a contact on the touch-sensitive surface unit 2904 (e.g., with the detecting unit 2908); and in response to detecting the gesture: in accordance with a determination (e.g., with the determining unit 2909) that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, enable display of a user interface for interacting with the respective word within the electronic document on the display unit 2902 (e.g., with the display enabling unit 2910); and in accordance with a determination (e.g., with the determining unit 2909) that the contact reached an intensity during the gesture that was above the respective intensity threshold, enable display of a definition for the respective word on the display unit 2902 (e.g., with the display enabling unit 2910).

[0275] In some embodiments, displaying the definition includes ceasing to display the plurality of words and displaying the definition in place of the plurality of words.

[0276] In some embodiments, displaying the definition includes continuing to display the respective word while displaying the definition on the display unit 2902.

[0277] In some embodiments, the processing unit 2906 is configured to, in accordance with a determination (e.g., with the determining unit 2909) that the contact had a maximum intensity during the gesture that was below the respective intensity threshold, select the respective word (e.g., with the selecting unit 2912).

[0278] In some embodiments, the user interface for interacting with the respective word within the electronic document is displayed after an end of the gesture is detected, and

the definition of the respective word is displayed during the gesture in response to detecting (e.g., with the detecting unit 2908) that the intensity of the contact exceeds the respective intensity threshold.

[0279] In some embodiments, the user interface for interacting with the respective word within the electronic document is displayed after an end of the gesture is detected, and the definition of the respective word is displayed after the end of the gesture is detected.

[0280] In some embodiments, the user interface for interacting with the respective word within the document includes one or more of: a text cursor displayed proximate to the respective word, an affordance for copying and deleting the respective word, an affordance for copying the respective word, an affordance for replacing the respective word with previously copied text, an affordance for highlighting the respective word, an affordance for creating a note to be associated with the respective word, an affordance for searching the electronic document using the respective word as a search term, and an affordance for searching an information repository using the respective word as a search term.

[0281] The operations in the information processing methods described above are, optionally implemented by running one or more functional modules in information processing apparatus such as general purpose processors (e.g., as described above with respect to FIGS. 1A and 3) or application specific chips.

[0282] The operations described above with reference to FIGS. 9A-9B are, optionally, implemented by components depicted in FIGS. 1A-1B or FIG. 10. For example, detection operation 2806 and displaying operations 2812 and 2820 are, optionally, implemented by event sorter 170, event recognizer 180, and event handler 190. Event monitor 171 in event sorter 170 detects a contact on touch-sensitive display 112, and event dispatcher module 174 delivers the event information to application 136-1. A respective event recognizer 180 of application 136-1 compares the event information to respective event definitions 186, and determines whether a first contact at a first location on the touch-sensitive surface corresponds to a predefined event or sub-event, such as selection of an object on a user interface. When a respective predefined event or sub-event is detected, event recognizer 180 activates an event handler 190 associated with the detection of the event or sub-event. Event handler 190 optionally utilizes or calls data updater 176 or object updater 177 to update the application internal state 192. In some embodiments, event handler 190 accesses a respective GUI updater 178 to update what is displayed by the application. Similarly, it would be clear to a person having ordinary skill in the art how other processes can be A-1B.

Displaying Content Associated with a Hyperlink

[0283] Some applications have tabbed document interfaces, where multiple documents are, in some circumstances, opened in respective tabbed windows within one application window, and the user may switch between the tabbed windows within the application window to view the multiple documents. When a user clicks on a document hyperlink, the document is, optionally, opened in a new tabbed window or replaces the document in the currently active tabbed window. In some methods, whether the document is loaded in a new tabbed window or the current tabbed

window is controlled by an application setting that the user is enabled to change or by contextual menus or other multi-step interfaces. The embodiments described below improve on these methods by giving the user per-document control over whether to load the document in a new tabbed window or in the current tabbed window that does not require the user to perform multiple steps to perform. The user makes an input that includes a contact and liftoff of the contact to click on a hyperlink. Depending on whether the liftoff of the contact meets predefined intensity criteria, the document is either loaded in a new tabbed window or in the current tabbed window. Thus, some of the embodiments described below give the user per-document control over how the document is loaded, as well as facilitating more efficient tabbed document interfaces on touch-screen devices.

[0284] FIGS. 11A-11Z illustrate exemplary user interfaces for displaying content associated with a hyperlink in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIGS. 12A-12B. FIGS. 11A-11Z include intensity diagrams that show the current intensity of the contact on the touch-sensitive surface relative to a plurality of intensity thresholds including a light press intensity threshold (e.g., “ IT_L ”), a representation appearance intensity threshold (e.g., “ IT_1 ”), a representation disappearance intensity threshold (e.g., “ IT_2 ”), and a new tab intensity threshold (e.g., “ IT_D ”).

[0285] FIG. 11A illustrates user interface 3300 displayed on display 450 (e.g., display 340) of a device (e.g., device 300). User interface 3300 corresponds to an application (e.g., web browser application, word processor application, spreadsheet application, presentation application, drawing application, image editing application, text editor application, messaging application, email application, electronic reader, e-book application) configured to display electronic documents (e.g., web page, text document, word processing document, spreadsheet, presentation slides, drawing, image, message, email, electronic book, electronic magazine) or other content in a tabbed document interface. In a tabbed document interface, multiple items of content (e.g., electronic documents) is, optionally, displayed in respective tabbed windows or views within, for example, an application window. Each tabbed window or view (hereinafter “tabbed window” for convenience) has a corresponding tab that optionally displays information about the electronic document being displayed in the respective tabbed window. Also, a user optionally selects the tab for a corresponding tabbed window to cause the corresponding tabbed window to be displayed in the foreground. In FIG. 11A, user interface 3300 is an application window for a web browser application. Tabbed window 3302 is displayed within user interface 3300. Electronic document 3303 (in this case, a web page titled “Sports News”) is displayed in tabbed window 3302.

[0286] Tab 3304, corresponding to tabbed window 3302, is, optionally, displayed in tab bar 3305 in user interface 3300. In FIG. 11A, tab bar 3305 is located between tabbed window 3302 and title bar 3301 of user interface 3300. Tab 3304 is, optionally, visually connected to tabbed window 3302 as shown in FIG. 11A; there is no clear boundary line between tab 3304 and tabbed window 3302. The title “Sports News” of electronic document 3303 is, optionally, displayed in tab 3304. The title of the electronic document

displayed in the active tabbed window in user interface 3300 is, optionally, displayed in title bar 3301. For example, in FIG. 11A, the title “Sports News,” corresponding to electronic document 3303 displayed in active tabbed window 3302, is displayed in title bar 3301.

[0287] User interface 3300 optionally includes other elements that are not shown, including, for example, an address bar, one or more buttons or icons for activating various operations or functions, and one or more menus. Electronic document 3303 includes one or more hyperlinks 3308 to other electronic documents (e.g., other web pages) or items of content. For example, electronic document 3303 includes hyperlinks 3308 to respective electronic documents. FIG. 11A also shows cursor 3306 displayed at a location over hyperlink 3308-3. Cursor 3306 is an example of a focus selector. Cursor 3306 is, optionally, positioned over hyperlink 3308-3 by a user performing an input on touch-sensitive surface 451 (e.g., touchpad 355) of the device to move cursor 3306 to the desired position over hyperlink 3308-3.

[0288] FIG. 11A shows contact 3310 detected on touch-sensitive surface 451 while cursor 3306 is located over hyperlink 3308-3. Contact 3310 is, optionally, used to perform a gesture including a press input on touch-sensitive surface 451 (e.g., a user pushing down on touch-sensitive surface 451 with contact 3310 so as to increase the intensity of contact 3310). Contact 3310 has an intensity that is detected by the device. If the device determines that the intensity of contact 3310 is above the representation appearance intensity threshold (e.g., “ IT_1 ”), a representation (e.g., representation 3312) of a tab is displayed, within tabbed window 3302, surrounding or near hyperlink 3308-3 (the hyperlink over which cursor 3306 is positioned), as shown in FIG. 11C, 11D, or 11E.

[0289] As described above, the representation of a tab is, optionally, displayed as surrounding or near hyperlink 3308-3. In some embodiments, the representation (e.g., representation 3312) is displayed proximate to or near (e.g., adjacent to) hyperlink 3308-3, as shown in FIG. 11C. In some other embodiments, the representation (e.g., representation 3314 or 3316) is displayed as surrounding hyperlink 3308-3, as shown in FIG. 11D or 11E. In some embodiments, the representation (e.g., representation 3312, 3314, or 3316) is, optionally, displayed such that the representation (and hyperlink 3308-3, if the representation is surrounding the hyperlink) appears to be hovering over electronic document 3303.

[0290] The description below uses representation 3312 as an illustrative example of the representation that is displayed in accordance with the determination that the intensity of contact 3310 is above the representation appearance intensity threshold. It should be appreciated that the description below is applicable to other representations of a tab, including representation 3314 in FIG. 11D and representation 3316 in FIG. 11E.

[0291] In FIGS. 11A-11C, the device detects an increase in intensity of contact 3310 from an intensity below the light press intensity threshold (e.g., “ IT_L ”) in FIG. 11A to an intensity between the representation appearance intensity threshold (e.g., IT_1) and the new tab intensity threshold (e.g., “ IT_D ”) in FIG. 11B and then to an intensity above the new tab intensity threshold (e.g., “ IT_D ”) in FIG. 11C. In some embodiments, displaying representation 3312 includes displaying an animation in which representation 3312 gradually appears. When the device determines that the intensity of

contact 3310 is above the representation appearance intensity threshold, as described above, representation 3312 is, optionally, animated to fade in, as shown in FIG. 11B, until it is completely displayed, as shown in FIG. 11C. In some embodiments, the animation of the representation to gradually appear has a progression (e.g., rate of fade-in) that is determined in accordance with the intensity of contact 3310. For example, a higher intensity corresponds to a faster fade-in speed. In some embodiments, animation of the representation appearing is based on a current intensity of the contact (e.g., sequential stages in the animation are mapped to sequential intensity values between the representation appearance intensity threshold and the new tab intensity threshold).

[0292] In FIG. 11F, after displaying representation 3312, the device detects a decrease in the intensity of contact 3310, to an intensity below the representation appearance threshold (e.g., “ IT_1 ”) and above the representation disappearance intensity threshold (e.g., “ IT_2 ”) without detecting liftoff of contact 3310. In response to detection of the decrease in intensity, the device displays an animation of representation 3312 gradually disappearing (e.g., fade out), as shown in FIG. 11F. In some embodiments, the animation of the representation to gradually disappear has a progression (e.g., rate of fade-out) that is determined in accordance with the intensity of contact 3310. For example, a lower intensity corresponds to a faster fade-out speed. In some embodiments, animation of the representation disappearing is based on a current intensity of the contact (e.g., sequential stages in the animation are mapped to sequential intensity values between the representation disappearance intensity threshold and the new tab intensity threshold).

[0293] When the intensity of contact 3310 decreases below the representation disappearance intensity threshold (e.g., “ IT_2 ”) that is below the representation appearance intensity threshold (e.g., “ IT_1 ”), but still without liftoff of contact 3310, representation 3312 ceases to be displayed, as shown in FIG. 11G. The cessation of display of representation 3312 in response to the decrease in the intensity of contact 3310 below the representation disappearance intensity threshold (e.g., “ IT_2 ”) is, optionally, a culmination of the animation described above in reference to FIG. 11F.

[0294] In some embodiments, the displaying of representation 3312 indicates that liftoff of contact 3310 at that point in time will meet a set of one or more predefined intensity criteria, and content (e.g., an electronic document) associated with hyperlink 3308-3 will be loaded into a second tabbed window distinct from tabbed window 3302 in response to detection of a liftoff of contact 3310.

[0295] In some embodiments, the predefined intensity criteria includes that the intensity of contact 3310 be above the new tab intensity threshold (e.g., “ IT_D ”) at a predefined time relative to detection of liftoff of contact 3310. In some other embodiments, the predefined intensity criteria includes that the intensity of contact 3310 be above the new tab intensity threshold (e.g., “ IT_D ”) at any time prior to detection of liftoff of contact 3310 (e.g., that contact 3310 had a maximum intensity above IT_D).

[0296] In some embodiments, the new tab intensity threshold is the same as the representation appearance intensity threshold (e.g., the representation appearance intensity threshold and the new tab intensity threshold are both IT_D). In some other embodiments, the new tab intensity threshold is different from the representation appearance intensity

threshold (e.g., the representation appearance intensity threshold is IT_1 , while the new tab intensity threshold is IT_D).

[0297] In some embodiments, cessation of display of representation 3312 indicates that a liftoff of contact 3310 at that point in time will not meet the predefined intensity criteria, and content (e.g., an electronic document) associated with hyperlink 3308-3 will be loaded into tabbed window 3302, replacing electronic document 3303 within tabbed window 3302, in response to detection of a liftoff of contact 3310.

[0298] Returning to FIG. 11G, representation 3312 ceases to be displayed in response to a decrease in the intensity of contact 3310 below the representation disappearance intensity threshold (e.g., “ IT_2 ”), and cursor 3306 remains positioned over hyperlink 3308-3. After representation 3312 ceases to be displayed, the device detects liftoff of contact 3310 from touch-sensitive surface 451, as shown in FIG. 11H. In response to detection of the liftoff of contact 3310 from touch-sensitive surface 451, if the liftoff of contact 3310 does not meet the predefined intensity criteria, electronic document 3318, associated with hyperlink 3308-3, is displayed in tabbed window 3302 in place of electronic document 3303, and title bar 3301 is updated with the title of electronic document 3318, as shown in FIG. 11H.

[0299] In some embodiments, liftoff of contact 3310 with an intensity below the representation disappearance intensity threshold (e.g., “ IT_2 ”) does not meet the predefined intensity criteria. When contact 3310 is lifted off from touch-sensitive surface 451 after representation 3312 ceases to be displayed, electronic document 3318 is displayed within tabbed window 3302 in response to detection of the liftoff, and title bar 3301 is updated with the title of electronic document 3318, as shown in FIG. 11H.

[0300] Returning to, and continuing from, FIG. 11C, FIG. 11I shows contact 3310 on touch-sensitive surface 451 with an intensity that is above the new tab intensity threshold (e.g., “ IT_D ”). Also, representation 3312 is displayed. In response to detection of the liftoff of contact 3310 from touch-sensitive surface 451 (e.g., as detected in FIG. 11J), electronic document 3318 is loaded in a new tabbed window distinct from tabbed window 3302, and electronic document 3303 remains in tabbed window 3302; liftoff of contact 3310 meets the predefined intensity criteria, as shown in FIGS. 11J-11P.

[0301] In some embodiments, a new tabbed window is created over tabbed window 3302, and electronic document 3318 is loaded in the new tabbed window. Further, in some embodiments, an animation of representation 3312 becoming the new tabbed window is, optionally, displayed. For example, FIGS. 11J-11K show instances of an animation in which representation 3312 from FIG. 11I expands, in response to detection of the liftoff of contact 3310 (e.g., in FIG. 11J) and in accordance with the liftoff of contact 3310 meeting the predefined intensity criteria, to become tabbed window 3320, as shown in FIG. 11L. Tabbed window 3320 includes tab 3322, which is displayed in tab bar 3305. Tabbed window 3320 is displayed over tabbed window 3302, hiding tabbed window 3302. Tab 3304 is, optionally, displayed as shaded to indicate that tabbed window 3302 is hidden behind tabbed window 3320 (e.g., to indicate that tabbed window 3302 is not the currently active tabbed window). Electronic document 3318 is loaded and displayed in tabbed window 3320, and title bar 3301 is updated with

the title of electronic document 3318. Electronic document 3303 is maintained in tabbed window 3302.

[0302] In some other embodiments, a new tabbed window is created behind tabbed window 3302, and electronic document 3318 is loaded in the new tabbed window. Further, in some embodiments, an animation of representation 3312 becoming the new tabbed window behind tabbed window 3302 is, optionally, displayed. For example, FIGS. 11M-11O show instances of an animation in which representation 3312 from FIG. 11I moves to tab bar 3305, in response to detection of the liftoff of contact 3310 (e.g., in FIG. 11M). When the animation of representation 3312 moving to tab bar 3305 is complete, tab 3322 is displayed in tab bar 3305, as shown in FIG. 11O. Tab 3322 is, optionally, displayed as shaded to indicate that tabbed window 3320 corresponding to tab 3322 is hidden in the background behind tabbed window 3302. While the loading of electronic document 3318 in hidden tabbed window 3320 is in progress, information or an indication to that effect (e.g., the text “Loading . . .”) is, optionally, displayed in tab 3322, as shown in FIG. 11O. When the loading is complete, the information in tab 3322 changes to the title of electronic document 3318, but tabbed window 3320 remains in the background, behind tabbed window 3302, as shown in FIG. 11P. Throughout, electronic document 3303 is maintained in tabbed window 3302.

[0303] To bring tabbed window 3320 into the foreground, a user selects tab 3322. For example, the user optionally performs an input on touch-sensitive surface 451 to position cursor 3306 over tab 3322 (e.g., by moving contact 3324 across touch-sensitive surface 451, as shown in FIG. 11P), and then perform a gesture (e.g., a press input including an increase in intensity of contact 3324 from an intensity below IT_L to an intensity above IT_L , as shown in FIG. 11Q and a subsequent decrease in intensity of contact 3324 below IT_L , as shown in FIG. 11R) while cursor 3306 is positioned over tab 3322, as shown in FIG. 11Q. In response to detection of the gesture performed with 3324 while cursor 3306 is positioned over tab 3322, tabbed window 3320 with electronic document 3318 is displayed in the foreground, and title bar 3301 is updated with the title of electronic document 3318, as shown in FIG. 11R. Tab 3304 is, optionally, shaded to indicate that tabbed window 3302 is in the background (e.g., that tabbed window 3302 is not the active window), hidden behind tabbed window 3320.

[0304] FIGS. 11S-11Z illustrate an example of the user interfaces described above with reference to FIGS. 11A-11R implemented on a device (e.g., device 100) with a touch-sensitive display (e.g., touch screen 112). FIG. 11S illustrates user interface 3330 displayed on touch screen 112 of a device (e.g., device 100). User interface 3330 corresponds to an application configured to display electronic documents or other content in a tabbed document interface. In a tabbed document interface, multiple items of content (e.g., electronic documents) is, optionally, displayed in respective tabbed windows or views within, for example, an application window. Each tabbed window or view (hereinafter “tabbed window” for convenience) has a corresponding tab that optionally displays information about the electronic document being displayed in the respective tabbed window. Also, a user optionally selects the tab for a corresponding tabbed window to cause the corresponding tabbed window to be displayed in the foreground. In FIG. 11S, user interface 3330 is an application window for a web browser applica-

tion. Tabbed window 3332 is displayed within user interface 3330. Electronic document 3333 (in this case, a web page titled “Sports News”) is displayed in tabbed window 3332.

[0305] Tab 3334, corresponding to tabbed window 3332, is, optionally, displayed in tab bar 3335 in user interface 3330. In FIG. 11S, tab bar 3335 is located between tabbed window 3332 and title bar 3331 of user interface 3330. Tab 3334 is, optionally, visually connected to tabbed window 3332 as shown in FIG. 11S; there is no clear boundary line between tab 3334 and tabbed window 3332. The title “Sports News” of electronic document 3333 is, optionally, displayed in tab 3334. The title of the electronic document displayed in the active tabbed window in user interface 3330 is, optionally, displayed in title bar 3331. For example, in FIG. 11S, the title “Sports News,” corresponding to electronic document 3333 displayed in active tabbed window 3332, is displayed in title bar 3331.

[0306] User interface 3330 optionally includes other elements that are not shown, including, for example, an address bar, one or more buttons or icons for activating various operations or functions, and one or more menus. Electronic document 3333 includes one or more hyperlinks 3338 to other electronic documents (e.g., other web pages) or items of content. For example, electronic document 3333 includes hyperlinks 3338-1 thru 3338-3 to respective electronic documents.

[0307] FIG. 11S shows contact 3340 detected on touch-sensitive display 112 at a location corresponding to hyperlink 3338-3. Contact 3340 is, optionally, used to perform a gesture including a press input on touch-sensitive display 112 (e.g., a user pushing down on touch-sensitive display 112 with contact 3340 so as to increase the intensity of contact 3340). Contact 3340 has an intensity that is detected by the device. If the device determines that the intensity of contact 3340 is above the representation appearance intensity threshold (e.g., “ IT_1 ”), a representation (e.g., representation 3342) of a tab is displayed, within tabbed window 3332, surrounding or near hyperlink 3338-3, as shown in FIG. 11T. In some embodiments, displaying representation 3342 includes displaying an animation (not shown) in which representation 3342 gradually appears. After displaying representation 3342, a decrease in the intensity of contact 3310, but without liftoff of contact 3340, is, optionally, detected. In response to detection of the decrease in intensity, an animation (not shown) of representation 3342 gradually disappearing (e.g., fade out) is, optionally, displayed.

[0308] When the intensity of contact 3340 decreases below the representation disappearance intensity threshold (e.g., “ IT_2 ”) that is below the representation appearance intensity threshold (e.g., “ IT_1 ”), but still without liftoff of contact 3340, representation 3342 ceases to be displayed, as shown in FIG. 11U.

[0309] After representation 3342 ceases to be displayed, contact 3340 is, optionally, lifted off touch-sensitive display 112, as shown in FIG. 11V. In response to detection of the liftoff of contact 3340 from touch-sensitive display 112, if the liftoff of contact 3340 does not meet the predefined intensity criteria, electronic document 3348, associated with hyperlink 3338-3, is displayed in tabbed window 3332 in place of electronic document 3333, and title bar 3331 is updated with the title of electronic document 3348, as shown in FIG. 11V.

[0310] Returning to, and continuing from, FIG. 11T, FIG. 11W shows contact 3340 on touch-sensitive display 112

with an intensity that is above the new tab intensity threshold (e.g., “ IT_D ”). Also, representation 3342 is displayed. In response to detection of the liftoff of contact 3340 from touch-sensitive display 112, electronic document 3348 is loaded in a new tabbed window distinct from tabbed window 3332, and electronic document 3333 remains in tabbed window 3332; liftoff of contact 3340 meets the predefined intensity criteria.

[0311] In some embodiments, new tabbed window 3350 is created over tabbed window 3332, and electronic document 3348 is loaded in tabbed window 3350, as shown in FIG. 11X. Further, in some embodiments, an animation (similar to that shown in FIGS. 11J-11L) of representation 3342 becoming the new tabbed window is, optionally, displayed. Tabbed window 3350 includes tab 3352, which is displayed in tab bar 3335. In FIG. 11X, tabbed window 3350 is displayed over tabbed window 3332, hiding tabbed window 3332. Tab 3334 is, optionally, displayed as shaded to indicate that tabbed window 3332 is hidden behind tabbed window 3350. Electronic document 3348 is loaded and displayed in tabbed window 3350, and title bar 3331 is updated with the title of electronic document 3348. Electronic document 3333 is maintained in tabbed window 3302.

[0312] In some embodiments, a new tabbed window is created behind tabbed window 3332, and electronic document 3348 is loaded in the new tabbed window, as shown in FIG. 11Y. Further, in some embodiments, an animation (similar to that shown in FIGS. 11M-11O) of representation 3342 becoming the new tabbed window behind tabbed window 3332 is, optionally, displayed. Tab 3352 is displayed in tab bar 3335, as shown in FIG. 11Y. Tab 3352 is, optionally, displayed as shaded to indicate that tabbed window 3350 corresponding to tab 3352 is hidden in the background behind tabbed window 3332. When the loading is complete, the information in tab 3352 changes to the title of electronic document, but tabbed window 3350 remains in the background, behind tabbed window 3332, as shown in FIG. 11Y. Throughout, electronic document 3333 is maintained in tabbed window 3332.

[0313] In some embodiments, to bring tabbed window 3350 into the foreground, a user selects tab 3352. For example, the user optionally performs a gesture (e.g., a tap gesture including contact 3354) on touch-sensitive display 112 over tab 3352. In response to detection of the gesture over tab 3352, tabbed window 3350 with electronic document 3348 is displayed in the foreground, and title bar 3331 is updated with the title of electronic document 3348, as shown in FIG. 11Z. Tab 3334 is, optionally, shaded to indicate that tabbed window 3332 is in the background, hidden behind tabbed window 3350.

[0314] FIGS. 12A-12B are flow diagrams illustrating a method 3400 of displaying content associated with a hyperlink in accordance with some embodiments. The method 3400 is performed at an electronic device (e.g., device 300, FIG. 3, or portable multifunction device 100, FIG. 1A) with a display, a touch-sensitive surface, and one or more sensors to detect intensity of contacts with the touch-sensitive surface. In some embodiments, the display is a touch screen display and the touch-sensitive surface is on the display. In some embodiments, the display is separate from the touch-sensitive surface. Some operations in method 3400 are, optionally, combined and/or the order of some operations is, optionally, changed.

[0315] As described below, the method 3400 provides an intuitive way to display content associated with a hyperlink. The method reduces the cognitive burden on a user when displaying content associated with a hyperlink, thereby creating a more efficient human-machine interface. For battery-operated electronic devices, enabling a user to display content associated with a hyperlink faster and more efficiently conserves power and increases the time between battery charges.

[0316] The device displays (3402), on the display, an electronic document in a first tabbed window of an application with a tabbed document interface, and the electronic document includes a hyperlink. FIG. 11A, for example, shows electronic document 3303 displayed in tabbed window 3302 within user interface 3300. Electronic document 3303 includes hyperlink 3308-3. FIG. 11S, for example, shows electronic document 3333 displayed in tabbed window 3332 within user interface 3330. Electronic document 3333 includes hyperlink 3338-3.

[0317] While a focus selector (e.g., cursor 3306 in FIG. 11A or contact 3340 in FIG. 11S) is over the hyperlink, the device detects (3404) a press input from a contact (e.g., a finger contact) on the touch-sensitive surface, and the contact has an intensity. For example, FIG. 11A also shows contact 3310 detected on touch-sensitive surface 451 while cursor 3306 is located over hyperlink 3308-3. Contact 3310 is, optionally, a part of a press input on touch-sensitive surface 451. Contact 3310 has an intensity that is, optionally, determined by the device. As another example, FIG. 11S also shows contact 3340 detected on touch-sensitive display 112 over hyperlink 3338-3. Contact 3340, which has an intensity, is, optionally, a part of a press input on touch-sensitive display 112.

[0318] In accordance with a determination that the intensity of the contact is above a first intensity threshold (e.g., the representation appearance intensity threshold), the device displays (3406), within the first tabbed window, a representation of a tab surrounding or proximate to the hyperlink in the electronic document. In some embodiments, the tab is displayed adjacent to or as part of a user interface element that surrounds the hyperlink. In some embodiments, in accordance with a determination that the maximum intensity of the contact is below the first intensity threshold (e.g., the representation appearance intensity threshold), the device continues to display the hyperlink without displaying, within the first tabbed window, the representation of the tab surrounding or proximate to the hyperlink in the electronic document.

[0319] FIGS. 11C-11E illustrate examples of a representation of a tab displayed in accordance with a determination that contact 3310 has an intensity above the representation appearance intensity threshold (e.g., “ IT_1 ”). FIG. 11C shows representation 3312 displayed adjacent to hyperlink 3308-3 in accordance with a determination that contact 3310 has an intensity above the representation appearance intensity threshold (e.g., “ IT_1 ”). FIGS. 11D and 11E show representation 3314 and 3316, respectively, displayed as surrounding hyperlink 3308-3 in accordance with a determination that contact 3310 has an intensity above the representation appearance intensity threshold (e.g., “ IT_1 ”). FIG. 11T shows representation 3342 displayed adjacent to hyperlink 3338-3 in accordance with a determination that contact 3340 has an intensity above the representation appearance intensity threshold (e.g., “ IT_1 ”).

[0320] In some embodiments, displaying the representation of the tab surrounding or proximate to the hyperlink includes (3408) displaying an animation of the representation of the tab gradually appearing starting at a location surrounding or proximate to the hyperlink, where the progression of the animation is determined in accordance with the intensity of the contact. FIGS. 11B-11C, for example, show an animation of representation 3312 gradually appearing (e.g., fade-in) next to hyperlink 3308-3. In some embodiments, the progression of the animation of representation 3312 gradually appearing is, optionally, determined in accordance with the intensity of contact 3310.

[0321] In some embodiments, after displaying the representation of the tab surrounding or proximate to the hyperlink, the device detects (3410) a decrease in intensity of the contact, and in response to detecting the decrease in intensity of the contact, displays an animation of the representation of the tab gradually disappearing, where the progression of the animation is determined in accordance with the intensity of the contact. FIG. 11F, for example, shows the intensity of contact 3310 decreasing from the intensity of contact 3310 as in FIG. 11C (e.g., the intensity of contact decreases from an intensity above IT_D in FIG. 11C to an intensity between IT_1 and IT_2 in FIG. 11F). In response to detection of the decrease in intensity of contact 3310, an animation of representation 3312 gradually disappearing (e.g., fade-out) is displayed. The progression of the animation of representation 3312 gradually disappearing is, optionally, determined in accordance with the intensity of contact 3310.

[0322] In some embodiments, the representation of the tab is (3412) displayed when the contact has an intensity above the first intensity threshold, the representation of the tab ceases to be displayed when the contact has an intensity below a second intensity threshold that is less than the first intensity threshold, displaying the representation of the tab indicates that a liftoff of the contact will meet the predefined intensity criteria and will cause content associated with the hyperlink to be loaded in the second tabbed window, and ceasing to display the representation of the tab indicates that a liftoff of the contact will cause the electronic document in the first tabbed window to be replaced with content associated with the hyperlink (e.g., in response to detecting liftoff of the contact, in accordance with a determination that the representation of the tab is displayed, the device loads the content associated with the hyperlink in the second tabbed window, and in accordance with a determination that the representation of the tab is not displayed, the device forgoes loading the content associated with the hyperlink in the second tabbed window and instead replaces the electronic document in the first tabbed window with the content associated with the hyperlink). For example, FIG. 11C shows representation 3312 displayed when contact 3310 has an intensity above the representation appearance intensity threshold (e.g., " IT_1 "). Continuing from FIG. 11C, FIGS. 11F-11G show the intensity of contact 3310 decreasing below the representation disappearance intensity threshold (e.g., " IT_2 "), which is less than the representation appearance intensity threshold, and representation 3312 ceasing to be displayed when the intensity of contact 3310 decreases below the representation disappearance intensity threshold (e.g., " IT_2 "), as shown in FIG. 11F. The displaying of representation 3312 indicates that a liftoff of contact 3310 will meet the predefined intensity criteria and will cause electronic document 3318 to be loaded in tabbed window

3320. Cessation of display of representation 3312 indicates that a liftoff of contact 3310 will cause electronic document 3303 in tabbed window 3302 to be replaced with electronic document 3318 associated with hyperlink 3308-3.

[0323] As another example, FIG. 11T shows representation 3342 displayed when contact 3340 has an intensity above the representation appearance intensity threshold (e.g., " IT_1 "). Continuing from FIG. 11T, FIG. 11U shows representation 3342 ceasing to be displayed when the intensity of contact 3340 decreases below the representation disappearance intensity threshold (e.g., " IT_2 "). The displaying of representation 3342 indicates that a liftoff of contact 3340 will meet the predefined intensity criteria and will cause electronic document 3348 to be loaded in tabbed window 3350, as shown in FIG. 11X. Cessation of display of representation 3342 indicates that a liftoff of contact 3340 will cause electronic document 3333 in tabbed window 3332 to be replaced with electronic document 3348 associated with hyperlink 3338-3, as shown in FIG. 11V.

[0324] The device detects (3414) a liftoff of the contact from the touch-sensitive surface while the focus selector is over the hyperlink. FIGS. 11H and 11J-11P show detection of a liftoff of contact 3310 from touch-sensitive surface 451. FIG. 11H shows detection of a liftoff of contact 3310 that does not meet the predefined intensity criteria. FIGS. 11J-11P show detection of a liftoff of contact 3310 that meets the predefined intensity criteria. FIGS. 11V and 11W-11Z show detection of a liftoff of contact 3340 from touch-sensitive display 112. FIG. 11V shows detection of a liftoff of contact 3340 that does not meet the predefined intensity criteria. FIGS. 11W-11Z show detection of a liftoff of contact 3340 that meets the predefined intensity criteria.

[0325] In response (3416) to detecting the liftoff of the contact from the touch-sensitive surface, in accordance with a determination that the liftoff of the contact met predefined intensity criteria, the device loads (3424) content associated with the hyperlink (e.g., a web page that corresponds to the hyperlink) in a second tabbed window, different from the first tabbed window, while maintaining the electronic document in the first tabbed window (3418); and in accordance with a determination that the liftoff of the contact did not meet the predefined intensity criteria, the device replaces the electronic document in the first tabbed window with the content associated with the hyperlink. In FIG. 11H, in response to a liftoff of contact 3310 that does not meet the predefined intensity criteria, electronic document 3303 in tabbed window 3302 is replaced with electronic document 3318. In FIGS. 11L and 11O, in response to a liftoff of contact 3310 that meets the predefined intensity criteria, electronic document 3318 is loaded in tabbed window 3320, and electronic document 3303 is maintained in tabbed window 3302.

[0326] In FIG. 11V, in response to a liftoff of contact 3340 that does not meet the predefined intensity criteria, electronic document 3333 in tabbed window 3332 is replaced with electronic document 3348. In FIGS. 11X and 11Y, in response to a liftoff of contact 3340 that meets the predefined intensity criteria, electronic document 3348 is loaded in tabbed window 3350, and electronic document 3333 is maintained in tabbed window 3332.

[0327] In some embodiments, loading content associated with the hyperlink in the second tabbed window includes displaying (3420) an animation of the representation of the tab expanding to become the second tabbed window of the

application. FIGS. 11J-11L, for example, illustrate an animation of representation 3312 expanding to become tabbed window 3320.

[0328] In some embodiments, the second tabbed window is a background tabbed window, loading content associated with the hyperlink in the second tabbed window includes, while continuing to display the electronic document in the first tabbed window: displaying (3422) an animation of the representation of the tab moving to a tab bar, and loading the content associated with the hyperlink in the second tabbed window without displaying the content associated with the hyperlink in the second tabbed window. In some embodiments, an indication of the content associated with the hyperlink is displayed in the tab (e.g., a title of the webpage or a favicon associated with the webpage) but the body of the webpage is not displayed within the second tabbed window because the second tabbed window is a background window and is thus “behind” the first tabbed window. FIGS. 11M-11P, for example, illustrate representation 3312 moving into tab bar 3305 to become tab 3322 for tabbed window 3320, which remains in the background behind tabbed window 3302 while electronic document 3318 is loaded in tabbed window 3320.

[0329] In some embodiments, the predefined intensity criteria include (3426) that the contact had an intensity above a second intensity threshold at a predefined time relative to detecting the liftoff of the contact (e.g., the force of the contact 10 ms prior to liftoff). In some embodiments, the first intensity threshold is the same as the second intensity threshold. In some embodiments, the first intensity threshold is different from the second intensity threshold. For example, the predefined intensity criteria include that contact 3310 have an intensity above the new tab intensity threshold (e.g., “ IT_D ”) at a predefined time (e.g., 10 ms) prior to liftoff of contact 3310. Depending on the embodiment, the new tab intensity threshold is, optionally, the same as or different from the representation appearance intensity threshold. In some embodiments, the predefined intensity criteria include (3428) that the contact had an intensity above a second intensity threshold at any time prior to detecting the liftoff of the contact (e.g., the criteria is based on the maximum force of contact prior to detecting liftoff). For example, the predefined intensity criteria include that contact 3310 have an intensity above the new tab intensity threshold (e.g., “ IT_D ”) at any time prior to liftoff of contact 3310.

[0330] In some embodiments, the predefined intensity criteria are met for a respective gesture performed with a respective contact when (or, optionally, only when) the respective contact has a maximum intensity above IT_D and the device detects liftoff of the respective contact while the respective contact has an intensity above IT_D . In some embodiments, the predefined intensity criteria are met for a respective gesture performed with a respective contact when (or, optionally, only when) the respective contact has a maximum intensity above IT_D and the device detects liftoff of the respective contact while the respective contact has an intensity above IT_1 . In some embodiments, the predefined intensity criteria are met for a respective gesture performed with a respective contact when (or, optionally, only when) the respective contact has a maximum intensity above IT_D and the device detects liftoff of the respective contact while the respective contact has an intensity above IT_2 . In some embodiments, the predefined intensity criteria are met for a

respective gesture performed with a respective contact when (or, optionally, only when) the respective contact has a maximum intensity above IT_D and the device detects liftoff of the respective contact while the respective contact has an intensity above IT_L .

[0331] It should be understood that the particular order in which the operations in FIGS. 12A-12B have been described is merely exemplary and is not intended to indicate that the described order is the only order in which the operations could be performed. One of ordinary skill in the art would recognize various ways to reorder the operations described herein. Additionally, it should be noted that details of other processes described herein with respect to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) are also applicable in an analogous manner to method 3400 described above with respect to FIGS. 12A-12B. For example, the contacts, gestures, intensity thresholds, focus selectors, animations, and content described above with reference to method 3400 optionally has one or more of the characteristics of the contacts, gestures, intensity thresholds, focus selectors, animations, and content described herein with reference to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments). For brevity, these details are not repeated here.

[0332] In accordance with some embodiments, FIG. 13 shows a functional block diagram of an electronic device 3500 configured in accordance with the principles of the various described embodiments. The functional blocks of the device are, optionally, implemented by hardware, software, or a combination of hardware and software to carry out the principles of the various described embodiments. It is understood by persons of skill in the art that the functional blocks described in FIG. 13 are, optionally, combined or separated into sub-blocks to implement the principles of the various described embodiments. Therefore, the description herein optionally supports any possible combination or separation or further definition of the functional blocks described herein.

[0333] As shown in FIG. 13, an electronic device 3500 includes a display unit 3502 configured to display an electronic document in a first tabbed window of an application with a tabbed document interface, the electronic document including a hyperlink; a touch-sensitive surface unit 3504 configured to receive contacts; one or more sensor unit 3505 configured to detect intensity of contacts with the touch-sensitive surface unit 3504; and a processing unit 3506 coupled to the display unit 3502, the touch-sensitive surface unit 3504, and the sensor unit 3505. In some embodiments, the processing unit 3506 includes a detecting unit 3508, a display enabling unit 3510, a loading unit 3512, and a replacing unit 3514.

[0334] The processing unit 3506 is configured to: while a focus selector is over the hyperlink, detect a press input from a contact on the touch-sensitive surface unit 3504, the contact having an intensity (e.g., with the detecting unit 3508); in accordance with a determination that the intensity of the contact is above a first intensity threshold, enable display of, within the first tabbed window, a representation of a tab surrounding or proximate to the hyperlink in the electronic document (e.g., with the display enabling unit 3510); detect a liftoff of the contact from the touch-sensitive surface unit 3504 while the focus selector is over the hyperlink (e.g., with the detecting unit 3508); and in

response to detecting the liftoff of the contact from the touch-sensitive surface unit **3504**: in accordance with a determination that the liftoff of the contact met predefined intensity criteria, load content associated with the hyperlink in a second tabbed window, different from the first tabbed window, while maintaining the electronic document in the first tabbed window (e.g., with the loading unit **3512**); and in accordance with a determination that the liftoff of the contact did not meet the predefined intensity criteria, replace the electronic document in the first tabbed window with the content associated with the hyperlink (e.g., with the replacing unit **3514**).

[0335] In some embodiments, the predefined intensity criteria include that the contact had an intensity above a second intensity threshold at a predefined time relative to detecting the liftoff of the contact.

[0336] In some embodiments, the predefined intensity criteria include that the contact had an intensity above a second intensity threshold at any time prior to detecting the liftoff of the contact.

[0337] In some embodiments, loading content associated with the hyperlink in the second tabbed window includes enabling display of an animation of the representation of the tab expanding to become the second tabbed window of the application.

[0338] In some embodiments, the second tabbed window is a background tabbed window; and loading content associated with the hyperlink in the second tabbed window includes, while continuing to display the electronic document in the first tabbed window: enabling display of an animation of the representation of the tab moving to a tab bar (e.g., with the display enabling unit **3510**); and loading the content associated with the hyperlink in the second tabbed window without displaying the content associated with the hyperlink in the second tabbed window (e.g., with the loading unit **3512**).

[0339] In some embodiments, enabling display of the representation of the tab surrounding or proximate to the hyperlink includes: enabling display of an animation of the representation of the tab gradually appearing starting at a location surrounding or proximate to the hyperlink, wherein the progression of the animation is determined in accordance with the intensity of the contact (e.g., with the display enabling unit **3510**).

[0340] In some embodiments, the processing unit **3506** is configured to, after enabling display of the representation of the tab surrounding or proximate to the hyperlink: detect a decrease in intensity of the contact (e.g., with the detecting unit **3508**); and in response to detecting the decrease in intensity of the contact, enable display of an animation of the representation of the tab gradually disappearing, wherein the progression of the animation is determined in accordance with the intensity of the contact (e.g., with the display enabling unit **3510**).

[0341] In some embodiments, the representation of the tab is displayed when the contact has an intensity above the first intensity threshold; the representation of the tab ceases to be displayed when the contact has an intensity below a second intensity threshold that is less than the first intensity threshold; displaying the representation of the tab indicates that a liftoff of the contact will meet the predefined intensity criteria and will cause content associated with the hyperlink to be loaded in the second tabbed window; and ceasing to display the representation of the tab indicates that a liftoff of

the contact will cause the electronic document in the first tabbed window to be replaced with content associated with the hyperlink.

[0342] The operations in the information processing methods described above are, optionally implemented by running one or more functional modules in information processing apparatus such as general purpose processors (e.g., as described above with respect to FIGS. **1A** and **3**) or application specific chips.

[0343] The operations described above with reference to FIGS. **12A-12B** are, optionally, implemented by components depicted in FIGS. **1A-1B** or FIG. **13**. For example, detection operations **3404**, **3414**, displaying operation **3406**, loading operation **3418**, and replacing operation **3424** are, optionally, implemented by event sorter **170**, event recognizer **180**, and event handler **190**. Event monitor **171** in event sorter **170** detects a contact on touch-sensitive display **112**, and event dispatcher module **174** delivers the event information to application **136-1**. A respective event recognizer **180** of application **136-1** compares the event information to respective event definitions **186**, and determines whether a first contact at a first location on the touch-sensitive surface (or whether rotation of the device) corresponds to a predefined event or sub-event, such as selection of an object on a user interface, or rotation of the device from one orientation to another. When a respective predefined event or sub-event is detected, event recognizer **180** activates an event handler **190** associated with the detection of the event or sub-event. Event handler **190** optionally utilizes or calls data updater **176** or object updater **177** to update the application internal state **192**. In some embodiments, event handler **190** accesses a respective GUI updater **178** to update what is displayed by the application. Similarly, it would be clear to a person having ordinary skill in the art how other processes can be implemented based on the components depicted in FIGS. **1A-1B**.

Enlarging Content in a Document

[0344] Some electronic documents have multiple content elements. For example, a document optionally has images, a main article or body text, and advertisements. A user may be interested in a particular content element and want to focus on that element by, e.g., enlarging that element. In some methods, the user would have to zoom in on the entire document in order to enlarge a particular element, which frustrates the intentions of user because the other elements that present a distraction to the user are enlarged also. The embodiments described below improve on these methods. The user performs a zooming gesture (e.g., depinch gesture) on a document, over a particular element in the document. Depending on whether the contacts in the gesture meet respective contact intensity criteria, the entire document is zoomed, or the particular element is enlarged relative to the rest of the document. Thus, the user can choose to enlarge a particular element in a document, in order to focus on it, or to zoom the entire document.

[0345] FIGS. **14A-14O** illustrate exemplary user interfaces for enlarging content in a document in accordance with some embodiments. The user interfaces in these figures are used to illustrate the processes described below, including the processes in FIGS. **15A-15C**. FIGS. **14A-14O** include intensity diagrams that show the current intensity of the contact or average intensity of a plurality of contacts in a gesture performed on the touch-sensitive surface relative to

a plurality of intensity thresholds including a deep press intensity threshold (e.g., “ IT_D ”) and a light press intensity threshold (e.g., “ IT_L ”).

[0346] FIG. 14A illustrates document 4204 displayed on display 450 (e.g., display 340, touch screen 112) of a device (e.g., device 300, device 100). Document 4204 is, optionally, a word processing document, spreadsheet document, presentation document, webpage, Portable Document Format document (sometimes referred to as a PDF), or an electronic book or magazine, to name a few examples. Document 4204 is displayed at a first magnification level 4204-*a*.

[0347] Document 4204 includes multiple content elements, including, for example, body text 4206, advertisements 4208, images 4210, and hyperlinks 4222. It should be appreciated that advertisements 4208 and images 4210 are, optionally, hyperlinks as well, and body text 4206 optionally includes one or more hyperlinks within the text. In accordance with magnification level 4204-*a* of document 4204, body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are displayed at sizes 4206-*a*, 4208-*a*, 4210-*a*, and 4222-*a*, respectively. Other examples of content elements in a document include, for example, an embedded media player (e.g., embedded video or audio). In some elements, the content elements are content blocks of a webpage. For example, if document 4204 is a webpage, then body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are respective content blocks of the webpage.

[0348] A focus selector (e.g., cursor 4212) is also displayed on display 450. Cursor 4212 is, optionally, moved across display 450 by a user (e.g., a mouse input, or a moving contact on touch-sensitive surface 451 as shown in FIG. 14H). In FIG. 14A, cursor 4212 is displayed over body text 4206.

[0349] A first gesture, which includes contacts 4214-1 and 4214-2, is detected on touch-sensitive surface 451 of the device. Contacts 4214-1 and 4214-2 are detected at locations 4214-1-*a* and 4214-2-*a*, respectively, on touch-sensitive surface 451. The first gesture also includes movement 4216-1 of contact 4214-1, from location 4214-1-*a* to location 4214-1-*b* (FIG. 14B), and movement 4216-2 of contact 4214-2, in a direction that is substantially opposite of direction of the movement 4216-1 of contact 4214-1, from location 4214-2-*a* to location 4214-2-*b* (FIG. 14B); the gesture shown in FIGS. 14A-14B is an example of a depinch gesture. Movements of contacts 4214-1 and 4214-2 are detected on touch-sensitive surface 451. The first gesture is detected on touch-sensitive surface 451 while cursor 4212 is located over body text 4206.

[0350] The device includes a set of one or more contact intensity criteria. In some embodiments, the contact intensity criteria are met if one or more of these measures exceeds a threshold (e.g., threshold IT_D in the intensity diagrams shown in the figures): an average intensity of the contacts, a sum of intensity of the contacts, a maximum intensity of the contacts, a minimum intensity of the contacts, or a difference in intensity between the contacts. For a particular embodiment, one or more of these measures are, optionally, considered when evaluating whether the contact intensity criteria are met. For ease of explanation FIGS. 14A-14O use average intensity of the contacts performing pinch and depinch gestures to determine whether the gestures have met contact intensity criteria. In FIG. 14A, contacts 4214-1 and 4214-2 have an average intensity that does not exceed

threshold IT_D , and thus the first gesture does not meet the contact intensity criteria in the example shown in FIGS. 14A-14B.

[0351] In response to the detection of the first gesture, document 4204 is zoomed to magnification level 4204-*b*, as shown in FIG. 14B. In accordance with the zooming of document 4204, the visible content elements in document 4204 are resized (e.g., enlarged) by the same amount. Thus, body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are resized by the same amount as the zooming of document 4204 to sizes 4206-*b*, 4208-*b*, 4210-*b*, and 4222-*b*, respectively. For example, if document 4204 is zoomed in from 100% to 200% (i.e., doubled in size) in response to the detection of the first gesture, body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are all doubled in size as well.

[0352] FIG. 14C shows document 4204 displayed on display 450 at magnification level 4204-*a*, as in FIG. 14A. Body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are displayed as well, at sizes 4206-*a*, 4208-*a*, 4210-*a*, and 4222-*a*, respectively. Cursor 4212 displayed over body text 4206.

[0353] A second gesture, which includes contacts 4218-1 and 4218-2, is detected on touch-sensitive surface 451 of the device. Contacts 4218-1 and 4218-2 are detected at locations 4218-1-*a* and 4218-2-*a*, respectively, on touch-sensitive surface 451. The second gesture also includes movement 4220-1 of contact 4218-1, from location 4218-1-*a* to location 4218-1-*b* (FIG. 14D), and movement of contact 4218-2, in direction that is substantially opposite of the direction of movement 4220-1 of contact 4218-1, from location 4218-2-*a* to location 4218-2-*b* (FIG. 14D). Movements of contacts 4218-1 and 4218-2 are detected on touch-sensitive surface 451. The second gesture is detected on touch-sensitive surface 451 while cursor 4212 is located over body text 4206. Contacts 4218-1 and 4218-2 have an average intensity that exceeds threshold IT_D , and thus the second gesture meets the contact intensity criteria in the example shown in FIG. 14C-14D.

[0354] In some embodiments, in response to the detection of the second gesture, body text 4206 is resized (e.g., enlarged) to size 4206-*c*, but document 4204 remains at magnification level 4204-*a*, as shown in FIG. 14D (e.g., body text 4206 is enlarged “in line”). In accordance with document 4204 remaining at the same magnification level as prior to the detection of the second gesture, the content elements in document 4204 other than body text 4206, such as advertisements 4208, images 4210, and hyperlinks 4222, remain at the same sizes as prior to the detection of the second gesture (i.e., remain at sizes 4208-*a*, 4210-*a*, and 4222-*a*, respectively). In accordance with the enlarging of body text 4206, the other content elements in document 4204 (e.g., advertisements 4208, images 4210, and hyperlinks 4222) are, optionally, re-positioned within document 4204 to accommodate the resized body text 4206.

[0355] In some embodiments, in response to the detection of the second gesture, body text 4206 is enlarged and displayed as pop-up 4206-*d*, as shown in FIG. 14E. Document 4204 and the other content elements in document 4204 remain at the same size or magnification level as prior to the detection of the second gesture (e.g. magnification level 4204-*a* for document 4204). Pop-up 4206-*d* is, optionally, displayed over document 4204 (e.g., hovering over document 4204), thus deemphasizing document 4204. While

pop-up **4206-d** is displayed, interactions with the other content elements in document **4204**, such as advertisements **4208**, images **4210**, and hyperlinks **4222**, are, optionally, disabled (e.g., clicks on hyperlinks **4222** are not selectable or activatable). In some embodiments, the portions of document **4204** that are outside of the document are visually deemphasized by darkening or partially obscuring these portions of document **4204**, as shown in FIG. 14E.

[0356] Thus, in response to detection of a gesture that does not meet the contact intensity criteria, document **4204** is zoomed and the content elements in document **4204**, including body text **4206**, are resized in accordance with the zooming of document **4204** (e.g., as shown in FIGS. 14A-14B). In response to detection of a gesture that meets the contact intensity criteria, document body text **4206** is resized but document **4204** and the content elements in document **4204** other than body text **4206** remain at the same sizes as prior to detection of the gesture that meets the contact intensity criteria (e.g., as shown in FIGS. 14C-14E).

[0357] While the respective gestures with contacts **4214** and **4218**, respectively, are gestures in which the contacts are moving away from each other (with the result being document **4204** as a whole being zoomed in or body text **4206** enlarged relative to the rest of document **4204**, depending on whether the gesture meets the contact intensity criteria), similar multi-contact gestures in which the contacts are moving toward each other (e.g., a pinch or a finger grasp gesture) are, optionally, performed on touch-sensitive surface **451** over a content element (e.g., body text **4206**) and be detected. For example, if such a gesture, detected over body text **4206**, does not meet the contact intensity criteria, then document **4204** as a whole is zoomed out (and the content elements within document **4204** are reduced in size in unison). If such a gesture, detected over body text **4206**, meets the contact intensity criteria, then body text **4206** is reduced in size relative to the rest of document **4204** and the other content elements in document **4204** (e.g., body text **4206** is displayed as a smaller content block within document **4204** or as a pop-up in which body text **4206** is displayed in smaller font).

[0358] While body text **4206** is enlarged (e.g., as enlarged body text **4206-c** or pop-up **4206-d** relative to the rest of the content elements in document **4204** (e.g., document **4204** remains at the same size as prior to detection of the gesture), a drag gesture (e.g., contact **4224** moving in direction **4226** from location **4224-a** to location **4224-b** (FIG. 14G)) is, optionally, detected at a on touch-sensitive surface **451** corresponding to enlarged body text **4206**, as shown on FIG. 14F. In response to detection of the drag gesture, the enlarged body text **4206** is scrolled relative to the rest of document **4204**. For example, FIG. 14G illustrates, in response to detection of the movement of contact **4224** in direction **4226**, body text **4206-d** scrolling and without scrolling the rest of document **4204** (e.g., advertisements **4208-a**, images **4210-a**). In FIGS. 14F-14G, body text **4206** is scrolled in response to movement of a contact with intensity between IT_0 and IT_L . In some embodiments, body text is scrolled in response to detecting movement of a contact with intensity between IT_L and IT_D (optionally, without moving the focus selector), and the focus selector is moved (optionally, without scrolling the body text) in response to detecting movement of a contact with an intensity between IT_0 and IT_L . In some embodiments, body text is scrolled in response to detecting movement of a contact

while the contact is over body text **4206** without regard to the intensity of the contact. In some embodiments, body text is scrolled in response to detecting movement of a plurality of contacts (e.g., a two or three finger swipe gesture) while the focus selector is over body text **4206** without regard to the intensity of the contacts.

[0359] FIG. 14H illustrates a gesture being detected on touch-sensitive surface **451** while pop-up **4206-d** is displayed (or while body text **4206** is enlarged relative to the rest of document **4204**, as in FIG. 14D) and cursor **4212** is located away from pop-up **4206-d** (e.g., the gesture is detected after the device moves cursor **4212** away from body text **4206** in response to detecting movement **4227** of contact **4228** while contact **4228** has an intensity between IT_0 and IT_L). In some embodiments, the detected gesture is a tap gesture. In some embodiments, the detected gesture includes a press input (e.g., an increase in intensity of contact **4228** from an intensity below IT_L in FIG. 14H to an intensity above IT_L in FIG. 14I). In response to the detection of the gesture in FIGS. 14H-14I, the device ceases to display body text **4206** as a pop-up **4206-d** and displays a content block in document **4204** that includes body text **4206** at its original size **4206-a**, as shown in FIG. 14I.

[0360] FIG. 14J illustrates a gesture being detected on touch-sensitive surface **451** while pop-up **4206-d** is displayed (or while body text **4206** is enlarged relative to the rest of document **4204**, as in FIG. 14D) and cursor **4212** is located over pop-up **4206-d**. The gesture includes contacts **4230-1** and **4230-2**. Contact **4230-1** is moving **4232-1** from location **4230-1-a** to location **4230-1-b** (FIG. 14K), toward contact **4230-2**. Contact **4230-2** is moving **4232-2** from location **4230-2-a** to location **4230-2-b** (FIG. 14K), toward contact **4230-1** (e.g., the gesture shown in FIGS. 14J-14K is a pinch gesture). The average intensity of contacts **4230** is between threshold IT_0 and threshold IT_L . In response to the detection of the gesture in FIGS. 14J-14K, the device ceases to display body text **4206** as a pop-up **4206-d** and displays a content block in document **4204** that includes body text **4206** at its original size **4206-a**, as shown in FIG. 14K.

[0361] FIGS. 14L-14O illustrate an example of the user interfaces described above with reference to FIGS. 14A-14K implemented on a device with a touch-sensitive display (e.g., device **100** with touch screen **112**), where a centroid of contacts **4242** is a focus selector in FIGS. 14L-14M and a centroid of contacts **4246** is a focus selector in FIGS. 14N-14O. FIG. 14L illustrates document **4204** displayed on touch screen **112** at size **4204-a**. Document **4204** includes body text **4206**, advertisements **4208**, images **4210**, and hyperlinks **4222**, displayed at sizes **4206-a**, **4208-a**, **4210-a**, and **4222-a**, respectively.

[0362] In FIG. 14L, a gesture is detected on touch screen **112** over body text **4206**. The gesture includes contacts **4242-1** and **4242-2**. Movement **4244-1** of contact **4242-1** away from contact **4242-2**, from location **4242-1-a** to location **4242-1-b** (FIG. 14M), is detected. Movement **4244-2** of contact **4242-2** away from contact **4242-1**, from location **4242-2-a** to location **4242-2-b** (FIG. 14M), is detected (e.g., the gesture shown in FIGS. 14L-14M is a depinch gesture). Contacts **4242** have an average intensity level that is between IT_L and IT_D , and thus do not meet the contact intensity criteria.

[0363] In response to detection of the gesture with contacts **4242** in FIG. 14L, document **4204** is zoomed to magnification level **4204-b**, as shown in FIG. 14M. In

accordance with the zooming of document 4204, the visible content elements in document 4204 are resized (e.g., enlarged) by the same amount. Thus, body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 are resized by the same amount as the zooming of document 4204 to sizes 4206-*b*, 4208-*b*, 4210-*b*, and 4222-*b*, respectively.

[0364] FIG. 14N also illustrates document 4204 displayed on touch screen 112 at size 4204-*a*, and body text 4206, advertisements 4208, images 4210, and hyperlinks 4222 displayed at sizes 4206-*a*, 4208-*a*, 4210-*a*, and 4222-*a*, respectively.

[0365] In FIG. 14N, a gesture is detected on touch screen 112 over body text 4206. The gesture includes contacts 4246-1 and 4246-2. Movement 4248-1 of contact 4246-1 away from contact 4246-2, from location 4246-1-*a* to location 4246-1-*b* (FIG. 14O), is detected. Movement 4248-2 of contact 4246-2 away from contact 4246-1, from location 4246-2-*a* to location 4246-2-*b* (FIG. 14O), is detected (e.g., the gesture shown in FIGS. 14N-14O is a depinch gesture). Contacts 4246 have an average intensity level that is above IT_D , and thus meet the contact intensity criteria.

[0366] In response to detection of the gesture with contacts 4246 in FIG. 14N, body text 4206 is enlarged and displayed as pop-up 4206-*d*, as shown in FIG. 14O. Document 4204 and the other content elements in document 4204 remain at the same size or magnification level as prior to the detection of the gesture. Alternatively, body text 1126 is, optionally, enlarged relative to the other content elements in document 4204 but still displayed within document 4204, as in FIG. 14D.

[0367] While the respective gestures with contacts 4242 and 4246, respectively, are gestures in which the contacts are moving away from each other (with the result being document 4204 as a whole being zoomed in or body text 4206 enlarged relative to the rest of document 4204, depending on whether the gesture meets the contact intensity criteria), similar multi-contact gestures in which the contacts are moving toward each other (e.g., a pinch or a finger grasp gesture) are, optionally, performed on touch screen 112 over a content element (e.g., body text 4206) and be detected. For example, if such a gesture, detected over body text 4206, does not meet the contact intensity criteria, then document 4204 as a whole is zoomed out (and the content elements within document 4204 are reduced in size in unison). If such a gesture, detected over body text 4206, meets the contact intensity criteria, then body text 4206 is reduced in size relative to the rest of document 4204 and the other content elements in document 4204 (e.g., body text 4206 is displayed as a smaller content block within document 4204 or as a pop-up in which body text 4206 is displayed in smaller font).

[0368] FIGS. 15A-15C are flow diagrams illustrating a method 4300 of enlarging content in a document in accordance with some embodiments. The method 4300 is performed at an electronic device (e.g., device 300, FIG. 3, or portable multifunction device 100, FIG. 1A) with a display, a touch-sensitive surface, and one or more sensors to detect intensity of contacts with the touch-sensitive surface. In some embodiments, the display is a touch screen display and the touch-sensitive surface is on the display. In some embodiments, the display is separate from the touch-sensitive

surface. Some operations in method 4300 are, optionally, combined and/or the order of some operations is, optionally, changed.

[0369] As described below, the method 4300 provides an intuitive way to enlarge content in a document. The method reduces the cognitive burden on a user when enlarging content in a document, thereby creating a more efficient human-machine interface. For battery-operated electronic devices, enabling a user to enlarge content in a document faster and more efficiently conserves power and increases the time between battery charges.

[0370] The device displays (4302), on the display, an electronic document (e.g., word processing document, spreadsheet document, presentation document, webpage, PDF) that includes a first content element and a second content element. For example, FIGS. 14A-14O show document 4204 displayed on a display (e.g., display 450, touch screen 112). Document 4204 includes multiple content elements, such as body text 4206, advertisements 4208, images 4210, and hyperlinks 4222.

[0371] In some embodiments, the first content element and the second content element are (4304) content blocks (e.g., images, text blocks, content divs or other units of content such as a news article) of a webpage. For example, a user can expand a particular article on a news website and read the article without the distraction of other content proximate to the article, such as other news articles and advertisements, that are not part of the article. Document 4204, for example, is, optionally, a webpage, and the content elements (e.g., body text 4206, advertisements 4208, images 4210, and hyperlinks 4222) in document 4204 are content blocks.

[0372] The device detects (4306) a first gesture that includes movement of two or more contacts relative to each other on the touch-sensitive surface (e.g., a pinch gesture or a depinch gesture) while a focus selector is at a location corresponding to the first content element. For example, FIG. 14A shows, while cursor 4212 is located over body text 4206, detection of a gesture that includes contacts 4214-1 and 4214-2 moving away from each other on touch-sensitive surface 451. FIG. 14C shows, while cursor 4212 is located over body text 4206, detection of a gesture that includes contacts 4218-1 and 4218-2 moving away from each other on touch-sensitive surface 451. FIG. 14E shows detection of a gesture that includes contacts 4242-1 and 4242-2 moving away from each other on touch screen 112 over body text 4206. FIG. 14L shows detection of a gesture that includes contacts 4246-1 and 4246-2 moving away from each other on touch screen 112 over body text 4206.

[0373] In some embodiments, the first gesture is (4308) a depinch gesture that includes movement of a first contact away from a second contact on the touch-sensitive surface. In some embodiments, the depinch gesture includes two contacts and one contact moves and the other contact is stationary. In some embodiments, the depinch gesture includes two contacts and both contacts move. In some embodiments, the depinch gesture includes movement of three or more contacts on the touch-sensitive surface (e.g., a three, four, or five finger pinch/depinch gesture). For example, the gestures that include contacts 4214, 4218, 4242, and 4246, depicted in FIGS. 14A, 14C, 14L, and 14N, respectively, are depinch gestures in which both contacts in the respective gesture move. However, in some circumstances, a depinch gesture is performed with a first contact moving away from a second stationary contact.

[0374] In response (4310) to detecting the first gesture, in accordance with a determination that the two or more contacts meet respective contact intensity criteria, the device enlarges (4312) the first content element relative to the second content element. For example, in response to detection of the gesture with contacts 4218, body text 4206 is enlarged relative to the other content elements (e.g., advertisements 4208) in document 4204, as shown in FIG. 14D or 14E. In response to detection of the gesture with contacts 4246, body text 4206 is enlarged relative to the other content elements (e.g., advertisements 4208) in document 4204, as shown in FIG. 14O.

[0375] In some embodiments, enlarging the first content element relative to the second content element includes (4314) enlarging the first content element relative to a plurality of content elements in the electronic document (e.g., the first content element is enlarged relative to the remainder of the document). For example, FIGS. 14D, 14E, and 14O show body text 4206 enlarged relative to the other content elements of document 4204 (e.g., advertisements 4208, images 4210, hyperlinks 4222) in response to detection of a respective gesture that meets the content intensity criteria.

[0376] In some embodiments, enlarging the first content element relative to the second content element includes (4316) visually deemphasizing the portion of the electronic document other than the first content element, while continuing to display at least a portion of the second content element on the display (e.g., display drop shadow/fade out rest of document). In some embodiments, some or all of the other content elements are maintained at the same size that they were displayed at prior to detecting the first gesture. In some embodiments, one or more of the other content elements are reduced in size in response to detecting the first gesture. For example, in FIGS. 14E and 14O, body text 4206 is displayed as pop-up 4206-d off document 4204, which remains at the same magnification level as prior to detection of the gesture. Document 4204 is visually deemphasized by being displayed as under pop-up 4206-d. Additionally, in FIGS. 14E and 14O, one or more respective portions of document 4204 other than the pop-up are faded out or darkened to deemphasize those respective portions of document 4204.

[0377] In some embodiments, the electronic document includes (4318) a plurality of interactive elements that are distinct from the first content element, and while the first content element is enlarged relative to the second content element, the device disables interactions with the plurality of interactive elements. For example, after “popping” the first content element “off of the page,” interactions with the rest of the electronic document are disabled. In particular, links or other selectable elements of the second content element that are still displayed after the first content element is enlarged are not selectable/activatable while the first content element is enlarged. Additionally, in some implementations, certain application/system-level functions for interacting with content (e.g., cut/copy/paste) are disabled for content other than the first content element. For example, while pop-up 4206-d is displayed, interaction with advertisements 4208, images 4210, and hyperlinks 4222 are, optionally, disabled (e.g., tapping, “clicking” or otherwise attempting to activate a respective hyperlink does not activate the hyperlink).

[0378] In response (4310) to detecting the first gesture, in accordance with a determination that the two or more contacts do not meet the respective contact intensity criteria, the device zooms (4320) the electronic document so that the first content element and the second content element are both enlarged on the display by a same amount. For example, in response to detection of the depinch gesture with contacts 4214 in FIG. 14A, document 4204 is zoomed to magnification level 4204-b, and the content elements in document 4204 are zoomed in by the same amount, as shown in FIG. 14B. In response to detection of the depinch gesture with contacts 4242 in FIG. 14L, document 4204 is zoomed to magnification level 4204-b, and the content elements in document 4204 are zoomed in by the same amount, as shown in FIG. 14M.

[0379] In some embodiments, the respective contact intensity criteria include (4322) one or more of: an average intensity of the contacts, a sum of intensity of the contacts, a maximum intensity of the contacts, a minimum intensity of the contacts, or a difference in intensity between the contacts (e.g., the respective contact intensity criteria are met when one of these measures of contact intensity is above a respective intensity threshold). For example, with respect to the respective gestures that include contacts 4214, 4218, 4242, and 4246, respectively, the contact intensity criteria include a measure of the average intensity of the contacts in the gesture and the contact intensity criteria are not met unless that average intensity exceeds threshold IT_D .

[0380] In some embodiments, after (4324) enlarging the first content element relative to the second content element, the device detects (4326) a content navigation input associated with the first content element (e.g., a drag gesture on a trackpad or a drag gesture on a touch-screen display at a location corresponding to the enlarged first content element). In response to detecting the content navigation input, the device moves (4328) the first content element on the display relative to the rest of the document. For example, after “popping” the first content element “off of the page,” the first content element can be moved (e.g., scrolled or translated) separately from a portion of the electronic document that is still displayed on the display. For example, FIG. 14F shows, after body text 4206 is enlarged into pop-up 4206-d, the device detecting a drag gesture with contact 4224 detected on touch-sensitive surface 451. In response to detection of the drag gesture, body text 4206 in pop-up 4206-d is scrolled, without scrolling the rest of document 4204, as shown in FIG. 14G.

[0381] In some embodiments, after (4324) enlarging the first content element relative to the second content element, the device detects (4330) a second gesture on the touch-sensitive surface, where the second gesture corresponds to a focus selector that is outside of the enlarged first content element (e.g., the second gesture is a tap gesture on a touch-screen display outside of a region where the enlarged first content element is displayed or the second gesture is a tap gesture on a touch-sensitive surface while a cursor on the display is outside of a region where the enlarged first content element is displayed). In response to detecting the second gesture, the device shrinks (4332) the first content element relative to a second content element (e.g., exiting the first content element display mode and returning to a normal display mode for the electronic document). For example, in FIG. 14H, after body text 4206 is enlarged into pop-up 4206-d and while cursor 4212 is located away from pop-up

4206-d, a press input (e.g., an increase in intensity of contact **4228** from an intensity below IT_L in FIG. 14H to an intensity above IT_L in FIG. 14I) is detected on touch-sensitive surface **451**. In response to detection of the gesture, pop-up **4206-d** ceases to be displayed, and body text **4206** is reduced back to original size **4206-a** and displayed within document **4204**, as shown in FIG. 14I.

[0382] In some embodiments, after (4324) enlarging the first content element relative to the second content element, the device detects (4334) a second gesture on the touch-sensitive surface, where the second gesture corresponds to a pinch gesture detected while a focus selector is on the enlarged first content element (e.g., the second gesture is a two-finger pinch gesture on a touch-screen display within a region where the enlarged first content element is displayed or the second gesture is a two-finger pinch gesture on a touch-sensitive surface while a cursor on the display is within a region where the enlarged first content element is displayed). In response to detecting the second gesture, the device shrinks (4336) the first content element relative to a second content element (e.g., exiting the first content element display mode and returning to a normal display mode for the electronic document). For example, in FIG. 14J, after body text **4206** is enlarged into pop-up **4206-d** and while cursor **4212** is located over pop-up **4206-d**, a pinch gesture that includes movement of contacts **4230-1** and **4230-2** toward each other is detected on touch-sensitive surface **451**. In response to detection of the gesture in FIG. 14J, pop-up **4206-d** ceases to be displayed, and body text **4206** is reduced back to original size **4206-a** and displayed within document **4204**, as shown in FIG. 14K.

[0383] It should be understood that the particular order in which the operations in FIGS. 15A-15C have been described is merely exemplary and is not intended to indicate that the described order is the only order in which the operations could be performed. One of ordinary skill in the art would recognize various ways to reorder the operations described herein. Additionally, it should be noted that details of other processes described herein with respect to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) are also applicable in an analogous manner to method **4300** described above with respect to FIGS. 15A-15C. For example, the contacts, gestures, content elements, intensity thresholds, and focus selectors described above with reference to method **4300** optionally have one or more of the characteristics of the contacts, gestures, content elements, intensity thresholds, and focus selectors described herein with reference to other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments). For brevity, these details are not repeated here.

[0384] In accordance with some embodiments, FIG. 16 shows a functional block diagram of an electronic device **4400** configured in accordance with the principles of the various described embodiments. The functional blocks of the device are, optionally, implemented by hardware, software, or a combination of hardware and software to carry out the principles of the various described embodiments. It is understood by persons of skill in the art that the functional blocks described in FIG. 16 are, optionally, combined or separated into sub-blocks to implement the principles of the various described embodiments. Therefore, the description

herein optionally supports any possible combination or separation or further definition of the functional blocks described herein.

[0385] As shown in FIG. 16, an electronic device **4400** includes a display unit **4402** configured to display an electronic document that includes a first content element and a second content element; a touch-sensitive surface unit **4404** configured to receive gestures that include contacts; one or more sensors **4406** configured to detect intensity of contacts with the touch-sensitive surface unit **4404**; and a processing unit **4408** coupled to the display unit **4402**, the touch-sensitive surface unit **4404**, and the sensors **4406**. In some embodiments, the processing unit **4408** includes a detecting unit **4410**, an enlarging unit **4412**, a zooming unit **4414**, a moving unit **4416**, a disabling unit **4418**, and a shrinking unit **4420**.

[0386] The processing unit **4408** is configured to: detect a first gesture that includes movement of two or more contacts relative to each other on the touch-sensitive surface unit **4404** while a focus selector is at a location corresponding to the first content element (e.g., with the detecting unit **4410**); and in response to detecting the first gesture: in accordance with a determination that the two or more contacts meet respective contact intensity criteria, enlarge the first content element relative to the second content element (e.g., with the enlarging unit **4412**), and in accordance with a determination that the two or more contacts do not meet the respective contact intensity criteria, zoom the electronic document so that the first content element and the second content element are both enlarged on the display unit **4402** by a same amount (e.g., with the zooming unit **4414**).

[0387] In some embodiments, the first gesture is a depinch gesture that includes movement of a first contact away from a second contact on the touch-sensitive surface unit **4404**.

[0388] In some embodiments, the first content element and the second content element are content blocks of a webpage.

[0389] In some embodiments, enlarging the first content element relative to the second content element includes enlarging the first content element relative to a plurality of content elements in the electronic document.

[0390] In some embodiments, enlarging the first content element relative to the second content element includes visually deemphasizing the portion of the electronic document other than the first content element, while continuing to display at least a portion of the second content element on the display unit **4402**.

[0391] In some embodiments, the processing unit **4408** is configured to, after enlarging the first content element relative to the second content element: detect a content navigation input associated with the first content element (e.g., with the detecting unit **4410**); and in response to detecting the content navigation input, move the first content element on the display unit **4402** relative to the rest of the document (e.g., with the moving unit **4416**).

[0392] In some embodiments, the electronic document includes a plurality of interactive elements that are distinct from the first content element; and the processing unit **4408** is configured to, while the first content element is enlarged relative to the second content element, disable interactions with the plurality of interactive elements (e.g., with the disabling unit **4418**).

[0393] In some embodiments, the processing unit **4408** is configured to, after enlarging the first content element relative to the second content element: detect a second gesture

on the touch-sensitive surface unit **4404**, wherein the second gesture corresponds to a focus selector that is outside of the enlarged first content element (e.g., with the detecting unit **4410**); and in response to detecting the second gesture, shrink the first content element relative to a second content element (e.g., with the shrinking unit **4420**).

[0394] In some embodiments, the processing unit **4408** is configured to, after enlarging the first content element relative to the second content element: detect a second gesture on the touch-sensitive surface unit **4404**, wherein the second gesture corresponds to a pinch gesture detected while a focus selector is on the enlarged first content element (e.g., with the detecting unit **4410**); and in response to detecting the second gesture, shrink the first content element relative to a second content element (e.g., with the shrinking unit **4420**).

[0395] In some embodiments, the respective contact intensity criteria include one or more of: an average intensity of the contacts, a sum of intensity of the contacts, a maximum intensity of the contacts, a minimum intensity of the contacts, or a difference in intensity between the contacts.

[0396] The operations in the information processing methods described above are, optionally implemented by running one or more functional modules in information processing apparatus such as general purpose processors (e.g., as described above with respect to FIGS. 1A and 3) or application specific chips.

[0397] The operations described above with reference to FIGS. 15A-15C are, optionally, implemented by components depicted in FIGS. 1A-1B or FIG. 16. For example, detection operation **4306**, enlarging operation **4312**, and zooming operation **4320** are, optionally, implemented by event sorter **170**, event recognizer **180**, and event handler **190**. Event monitor **171** in event sorter **170** detects a contact on touch-sensitive display **112**, and event dispatcher module **174** delivers the event information to application **136-1**. A respective event recognizer **180** of application **136-1** compares the event information to respective event definitions **186**, and determines whether a first contact at a first location on the touch-sensitive surface (or whether rotation of the device) corresponds to a predefined event or sub-event, such as selection of an object on a user interface, or rotation of the device from one orientation to another. When a respective predefined event or sub-event is detected, event recognizer **180** activates an event handler **190** associated with the detection of the event or sub-event. Event handler **190** optionally utilizes or calls data updater **176** or object updater **177** to update the application internal state **192**. In some embodiments, event handler **190** accesses a respective GUI updater **178** to update what is displayed by the application. Similarly, it would be clear to a person having ordinary skill in the art how other processes can be implemented based on the components depicted in FIGS. 1A-1B.

[0398] It should be understood that the particular order in which the operations have been described above is merely exemplary and is not intended to indicate that the described order is the only order in which the operations could be performed. One of ordinary skill in the art would recognize various ways to reorder the operations described herein. Additionally, it should be noted that the various processes separately described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) can be combined with each other in different arrangements. For example, the contacts, user interface objects, tactile sensa-

tions, intensity thresholds, and/or focus selectors described above with reference to any one of the various processes separately described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments) optionally have one or more of the characteristics of the contacts, gestures, user interface objects, tactile sensations, intensity thresholds, and focus selectors described herein with reference to one or more of the other methods described herein (e.g., those listed in the fifth paragraph of the Description of Embodiments). For brevity, all of the various possible combinations are not specifically enumerated here, but it should be understood that the claims described above may be combined in any way that is not precluded by mutually exclusive claim features.

[0399] The foregoing description, for purpose of explanation, has been described with reference to specific embodiments. However, the illustrative discussions above are not intended to be exhaustive or to limit the various described embodiments to the precise forms disclosed. Many modifications and variations are possible in view of the above teachings. The embodiments were chosen and described in order to best explain the principles of the various described embodiments and their practical applications, to thereby enable others skilled in the art to best utilize the various described embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. A method, comprising:

at an electronic device with a touch-sensitive surface and a display, wherein the device includes one or more sensors to detect intensities of contacts with the touch-sensitive surface;

displaying a plurality of words in an electronic document on the display, wherein the plurality of words include a respective word; and

while a focus selector is at a location corresponding to the respective word, detecting a gesture that includes a contact on the touch-sensitive surface; and

in response to detecting the gesture:

in accordance with a determination that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, displaying a user interface for interacting with the respective word within the electronic document on the display; and

in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, displaying a definition for the respective word on the display.

2. The method of claim 1, wherein displaying the definition includes:

ceasing to display the plurality of words; and

displaying the definition in place of the plurality of words.

3. The method of claim 1, wherein displaying the definition includes continuing to display the respective word while displaying the definition on the display.

4. The method of claim 1, including, in accordance with a determination that the contact had a maximum intensity during the gesture that was below the respective intensity threshold, selecting the respective word.

5. The method of claim 1, wherein:
 the user interface for interacting with the respective word within the electronic document is displayed after an end of the gesture is detected; and
 the definition of the respective word is displayed during the gesture in response to detecting that the intensity of the contact exceeds the respective intensity threshold.
6. The method of claim 1, wherein:
 the user interface for interacting with the respective word within the electronic document is displayed after an end of the gesture is detected; and
 the definition of the respective word is displayed after the end of the gesture is detected.
7. The method of claim 1, wherein the user interface for interacting with the respective word within the document includes one or more of: a text cursor displayed proximate to the respective word, an affordance for copying and deleting the respective word, an affordance for copying the respective word, an affordance for replacing the respective word with previously copied text, an affordance for highlighting the respective word, an affordance for creating a note to be associated with the respective word, an affordance for searching the electronic document using the respective word as a search term, and an affordance for searching an information repository using the respective word as a search term.
8. An electronic device, comprising:
 a display;
 a touch-sensitive surface;
 one or more sensors to detect intensities of contacts with the touch-sensitive surface;
 one or more processors;
 memory; and
 one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including instructions for:
 displaying a plurality of words in an electronic document on the display, wherein the plurality of words include a respective word; and

while a focus selector is at a location corresponding to the respective word, detecting a gesture that includes a contact on the touch-sensitive surface; and

in response to detecting the gesture:

in accordance with a determination that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, displaying a user interface for interacting with the respective word within the electronic document on the display; and

in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, displaying a definition for the respective word on the display.

9. A computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which when executed by an electronic device with a display, a touch-sensitive surface and one or more sensors to detect intensities of contacts with the touch-sensitive surface, cause the device to:

display a plurality of words in an electronic document on the display, wherein the plurality of words include a respective word; and

while a focus selector is at a location corresponding to the respective word, detect a gesture that includes a contact on the touch-sensitive surface; and

in response to detecting the gesture:

in accordance with a determination that the contact had a maximum intensity during the gesture that was below a respective intensity threshold, display a user interface for interacting with the respective word within the electronic document on the display; and

in accordance with a determination that the contact reached an intensity during the gesture that was above the respective intensity threshold, display a definition for the respective word on the display.

* * * * *