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(54) **Title:** METHOD AND APPARATUS FOR OPERATION IN RELATION TO ROTATIONAL PIVOT INPUT

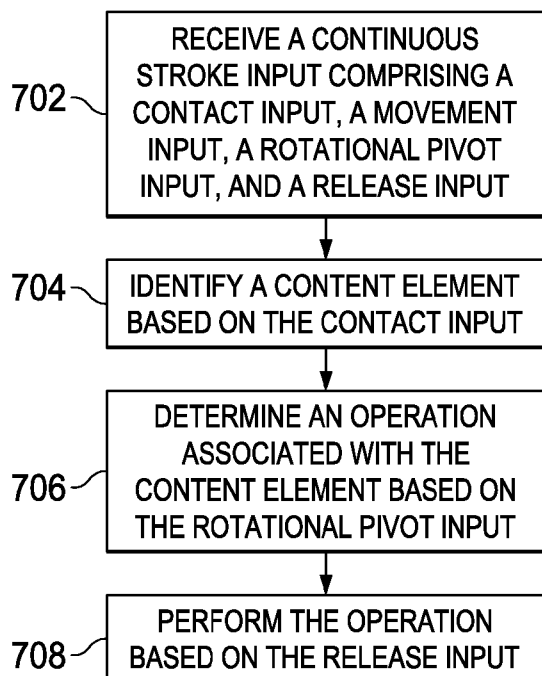


FIG. 7

(57) **Abstract:** A method comprising receiving an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input, identifying a content element based, at least in part, on the contact input, determining an operation associated with the content element based, at least in part, on the rotational pivot input, and performing the operation based, at least in part, on the release input is disclosed.





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METHOD AND APPARATUS FOR OPERATION IN RELATION
TO ROTATIONAL PIVOT INPUT

5 **TECHNICAL FIELD**

[0001] The present application relates generally to an operation in relation to a rotational pivot input.

BACKGROUND

10 [0001] Electronic apparatuses, such as mobile communication apparatuses, are becoming more and more versatile. Apparatuses can perform numerous functions and a user can provide inputs that will cause an apparatus to take desired actions or change its behavior based on the inputs. It may be desirable for input of apparatuses to be convenient for the user. It may also be desirable to design the apparatus so that the apparatus does what the user wants it to
15 do in response to input from the user.

SUMMARY

[0002] Various aspects of examples of the invention are set out in the claims.

[0003] One or more embodiments may provide an apparatus, a computer readable
20 medium, a non-transitory computer readable medium, a computer program product, and a method for receiving an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input, identifying a content element based, at least in part, on the contact input, determining an operation associated with the content element based, at least in part, on the rotational pivot input, and performing the operation based,
25 at least in part, on the release input.

[0004] One or more embodiments may provide an apparatus, a computer readable medium, a computer program product, and a non-transitory computer readable medium having means for receiving an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input, means for identifying a content
30 element based, at least in part, on the contact input, means for determining an operation

associated with the content element based, at least in part, on the rotational pivot input, and means for performing the operation based, at least in part, on the release input.

[0005] In at least one example embodiment, the movement input relates to movement such that a position associated with the contact input is different from a position associated with the release input.

[0006] In at least one example embodiment, the determination of the operation associated with the content element comprises causing display of an operations list based, at least in part, on the rotational pivot input, and selecting the operation from the operations list based, at least in part, on the rotational pivot input.

[0007] In at least one example embodiment, selection is caused by receipt of the release input.

[0008] One or more example embodiments further perform determining an initial orientation associated with the rotational pivot input, determining that a current orientation associated with the rotational pivot input fails to correspond with the initial orientation, wherein causation of display of the operations list is based, at least in part on the determination that the current orientation associated with the rotational pivot input fails to correspond with the initial orientation, determining that a current orientation associated with the rotational pivot input corresponds with the initial orientation, and causing termination of display of the operations list based, at least in part, on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation.

[0009] One or more example embodiments further perform receiving an indication of another movement input that is comprised by the continuous stroke input, and causing termination of display of the operations list based, at least in part, on the other movement input.

[0010] In at least one example embodiment, the causation of display of the operations list is caused by the rotational pivot input.

[0011] In at least one example embodiment, the causation of display of the operations list is caused by receipt of the rotational pivot input.

[0012] In at least one example embodiment, the selection of an operation from the operations list comprises identifying a list position in the operations list based, at least in part, on the rotational pivot input, wherein the operation corresponds with the list position.

[0013] In at least one example embodiment, identification of the list position comprises determining a list selection point to relate to an initial list position in the operations list, changing the list selection point to relate to a different list position based, at least in part, on direction of rotation of the rotational pivot input.

5 [0014] One or more example embodiments further perform causing display of an indication of the list selection point.

[0015] In at least one example embodiment, changing the list selection point to relate to a different list position comprises decreasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction, and
10 increasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction.

[0016] In at least one example embodiment, changing the list selection point to relate to a different list position is based, at least in part, on magnitude of the rotational pivot input.

[0017] In at least one example embodiment, the amount of change of the list selection
15 point is directly proportional to the magnitude of the rotational pivot input.

[0018] In at least one example embodiment, selection is caused by receipt of the release input such that an operation, which is designated by the list selection point when the release input is received, is selected.

[0019] In at least one example embodiment, the operation is based, at least in part, on a
20 position of the release input.

[0020] In at least one example embodiment, the position of the release input corresponds with a different content item, and the operation relates to the different content item.

[0021] In at least one example embodiment, the operation relates to inclusion of, at least part of, the content item in the different content item.

25 [0022] In at least one example embodiment, the different content item relates to a container, and the operation relates to at least one of moving the content item to the container, copying the content item to the container, or creating a shortcut to the content item in the container.

[0023] In at least one example embodiment, the continuous stroke input relates to a
30 touch input.

[0024] In at least one example embodiment, the touch input relates to a touch display.

[0025] In at least one example embodiment, the rotational pivot input is based, at least in part, on determination that a contact region associated with the continuous stroke input has rotated.

5 [0026] In at least one example embodiment, the rotation pivot input is based, at least in part, on determination that an object performing the continuous stroke input has rotated.

[0027] In at least one example embodiment, determination that an object performing the continuous stroke input has rotated comprises determining information indicative of orientation of the object and determining that the orientation of the object has changed.

10 [0028] In at least one example embodiment, the information indicative of the orientation of the object relates to information indicative of a surface that is not in contact with a touch sensor.

[0029] In at least one example embodiment, the rotational pivot input relates to a corresponding position to a position of the release input.

15 [0030] In at least one example embodiment, performance of the operation is based, at least in part, on a determination that the rotational pivot input relates to a corresponding position to a position of the release input.

BRIEF DESCRIPTION OF THE DRAWINGS

20 [0031] For a more complete understanding of embodiments of the invention, reference is now made to the following descriptions taken in connection with the accompanying drawings in which:

[0032] FIGURE 1 is a block diagram showing an apparatus according to at least one example embodiment;

25 [0033] FIGURES 2A-2E are diagrams illustrating touch inputs according to at least one example embodiment;

[0034] FIGURES 3A-3C are diagrams illustrating performance of a rotational pivot input according to at least one example embodiment;

[0035] FIGURES 4A – 4D are diagrams illustrating a contact region associated with a rotational pivot input according to at least one example embodiment;

30 [0036] FIGURES 5A – 5B are diagrams illustrating a plurality of menu items according to at least one example embodiment;

[0037] FIGURE 6 is a diagram illustrating content items according to at least one example embodiment;

[0038] FIGURE 7 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;

5 [0039] FIGURE 8 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;

[0040] FIGURE 9 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;

10 [0041] FIGURE 10 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;

[0042] FIGURE 11 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;

[0043] FIGURE 12 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment;
15 and

[0044] FIGURE 13 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment.

DETAILED DESCRIPTION OF THE DRAWINGS

20 [0045] At least one example embodiment of the invention and its potential advantages are understood by referring to FIGURES 1 through 13 of the drawings.

[0046] Some embodiments will now be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all, embodiments are shown. Various embodiments of the invention may be embodied in many different forms and should not be
25 construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like reference numerals refer to like elements throughout. As used herein, the terms “data,” “content,” “information,” and similar terms may be used interchangeably to refer to data capable of being transmitted, received and/or stored in accordance with embodiments of the present invention. Thus, use of any such
30 terms should not be taken to limit the spirit and scope of embodiments of the present invention.

[0047] Additionally, as used herein, the term ‘circuitry’ refers to (a) hardware-only circuit implementations (e.g., implementations in analog circuitry and/or digital circuitry); (b) combinations of circuits and computer program product(s) comprising software and/or firmware instructions stored on one or more computer readable memories that work together to cause an apparatus to perform one or more functions described herein; and (c) circuits, such as, for example, a microprocessor(s) or a portion of a microprocessor(s), that require software or firmware for operation even if the software or firmware is not physically present. This definition of ‘circuitry’ applies to all uses of this term herein, including in any claims. As a further example, as used herein, the term ‘circuitry’ also includes an implementation comprising one or more processors and/or portion(s) thereof and accompanying software and/or firmware. As another example, the term ‘circuitry’ as used herein also includes, for example, a baseband integrated circuit or applications processor integrated circuit for a mobile phone or a similar integrated circuit in a server, a cellular network apparatus, other network apparatus, and/or other computing apparatus.

[0048] As defined herein, a “non-transitory computer-readable medium,” which refers to a physical medium (e.g., volatile or non-volatile memory device), can be differentiated from a “transitory computer-readable medium,” which refers to an electromagnetic signal.

[0049] FIGURE 1 is a block diagram showing an apparatus, such as an electronic apparatus 10, according to at least one example embodiment. It should be understood, however, that an electronic apparatus as illustrated and hereinafter described is merely illustrative of an electronic apparatus that could benefit from embodiments of the invention and, therefore, should not be taken to limit the scope of the invention. While electronic apparatus 10 is illustrated and will be hereinafter described for purposes of example, other types of electronic apparatuses may readily employ embodiments of the invention. Electronic apparatus 10 may be a portable digital assistant (PDAs), a pager, a mobile computer, a desktop computer, a television, a gaming apparatus, a laptop computer, a media player, a camera, a video recorder, a mobile phone, a global positioning system (GPS) apparatus, and/or any other types of electronic systems. Moreover, the apparatus of at least one example embodiment need not be the entire electronic apparatus, but may be a component or group of components of the electronic apparatus in other example embodiments.

[0050] Furthermore, apparatuses may readily employ embodiments of the invention regardless of their intent to provide mobility. In this regard, even though embodiments of the invention may be described in conjunction with mobile applications, it should be understood that embodiments of the invention may be utilized in conjunction with a variety of other applications, both in the mobile communications industries and outside of the mobile communications industries.

[0051] In at least one example embodiment, electronic apparatus 10 comprises processor 11 and memory 12. Processor 11 may be any type of processor, controller, embedded controller, processor core, and/or the like. In at least one example embodiment, processor 11 utilizes computer program code to cause an apparatus to perform one or more actions. Memory 12 may comprise volatile memory, such as volatile Random Access Memory (RAM) including a cache area for the temporary storage of data and/or other memory, for example, non-volatile memory, which may be embedded and/or may be removable. The non-volatile memory may comprise an EEPROM, flash memory and/or the like. Memory 12 may store any of a number of pieces of information, and data. The information and data may be used by the electronic apparatus 10 to implement one or more functions of the electronic apparatus 10, such as the functions described herein. In at least one example embodiment, memory 12 includes computer program code such that the memory and the computer program code are configured to, working with the processor, cause the apparatus to perform one or more actions described herein.

[0052] The electronic apparatus 10 may further comprise a communication device 15. In at least one example embodiment, communication device 15 comprises an antenna, (or multiple antennae), a wired connector, and/or the like in operable communication with a transmitter and/or a receiver. In at least one example embodiment, processor 11 provides signals to a transmitter and/or receives signals from a receiver. The signals may comprise signaling information in accordance with a communications interface standard, user speech, received data, user generated data, and/or the like. Communication device 15 may operate with one or more air interface standards, communication protocols, modulation types, and access types. By way of illustration, the electronic communication device 15 may operate in accordance with second-generation (2G) wireless communication protocols IS-136 (time division multiple access (TDMA)), Global System for Mobile communications (GSM), and IS-95 (code division multiple access (CDMA)), with third-generation (3G) wireless communication protocols, such as

Universal Mobile Telecommunications System (UMTS), CDMA2000, wideband CDMA (WCDMA) and time division-synchronous CDMA (TD-SCDMA), and/or with fourth-generation (4G) wireless communication protocols, wireless networking protocols, such as 802.11, short-range wireless protocols, such as Bluetooth, and/or the like. Communication device 15 may operate in accordance with wireline protocols, such as Ethernet, digital subscriber line (DSL), asynchronous transfer mode (ATM), and/or the like.

[0053] Processor 11 may comprise means, such as circuitry, for implementing audio, video, communication, navigation, logic functions, and/or the like, as well as for implementing embodiments of the invention including, for example, one or more of the functions described herein. For example, processor 11 may comprise means, such as a digital signal processor device, a microprocessor device, various analog to digital converters, digital to analog converters, processing circuitry and other support circuits, for performing various functions including, for example, one or more of the functions described herein. The apparatus may perform control and signal processing functions of the electronic apparatus 10 among these devices according to their respective capabilities. The processor 11 thus may comprise the functionality to encode and interleave message and data prior to modulation and transmission. The processor 1 may additionally comprise an internal voice coder, and may comprise an internal data modem. Further, the processor 11 may comprise functionality to operate one or more software programs, which may be stored in memory and which may, among other things, cause the processor 11 to implement at least one embodiment including, for example, one or more of the functions described herein. For example, the processor 11 may operate a connectivity program, such as a conventional internet browser. The connectivity program may allow the electronic apparatus 10 to transmit and receive internet content, such as location-based content and/or other web page content, according to a Transmission Control Protocol (TCP), Internet Protocol (IP), User Datagram Protocol (UDP), Internet Message Access Protocol (IMAP), Post Office Protocol (POP), Simple Mail Transfer Protocol (SMTP), Wireless Application Protocol (WAP), Hypertext Transfer Protocol (HTTP), and/or the like, for example.

[0054] The electronic apparatus 10 may comprise a user interface for providing output and/or receiving input. The electronic apparatus 10 may comprise an output device 14. Output device 14 may comprise an audio output device, such as a ringer, an earphone, a speaker, and/or the like. Output device 14 may comprise a tactile output device, such as a vibration transducer,

an electronically deformable surface, an electronically deformable structure, and/or the like.

Output Device 14 may comprise a visual output device, such as a display, a light, and/or the like.

The electronic apparatus may comprise an input device 13. Input device 13 may comprise a light sensor, a proximity sensor, a microphone, a touch sensor, a force sensor, a button, a keypad, a motion sensor, a magnetic field sensor, a camera, and/or the like. A touch sensor and a display may be characterized as a touch display. In an embodiment comprising a touch display, the touch display may be configured to receive input from a single point of contact, multiple points of contact, and/or the like. In such an embodiment, the touch display and/or the processor may determine input based, at least in part, on position, motion, speed, contact area, and/or the like.

[0055] The electronic apparatus 10 may include any of a variety of touch displays including those that are configured to enable touch recognition by any of resistive, capacitive, infrared, strain gauge, surface wave, optical imaging, dispersive signal technology, acoustic pulse recognition or other techniques, and to then provide signals indicative of the location and other parameters associated with the touch. Additionally, the touch display may be configured to receive an indication of an input in the form of a touch event which may be defined as an actual physical contact between a selection object (e.g., a finger, stylus, pen, pencil, or other pointing device) and the touch display. Alternatively, a touch event may be defined as bringing the selection object in proximity to the touch display, hovering over a displayed object or approaching an object within a predefined distance, even though physical contact is not made with the touch display. As such, a touch input may comprise any input that is detected by a touch display including touch events that involve actual physical contact and touch events that do not involve physical contact but that are otherwise detected by the touch display, such as a result of the proximity of the selection object to the touch display. A touch display may be capable of receiving information associated with force applied to the touch screen in relation to the touch input. For example, the touch screen may differentiate between a heavy press touch input and a light press touch input. In at least one example embodiment, a display may display two-dimensional information, three-dimensional information and/or the like.

[0056] In embodiments including a keypad, the keypad may comprise numeric (for example, 0-9) keys, symbol keys (for example, #, *), alphabetic keys, and/or the like for operating the electronic apparatus 10. For example, the keypad may comprise a conventional QWERTY keypad arrangement. The keypad may also comprise various soft keys with

associated functions. In addition, or alternatively, the electronic apparatus 10 may comprise an interface device such as a joystick or other user input interface.

[0057] Input device 13 may comprise a media capturing element. The media capturing element may be any means for capturing an image, video, and/or audio for storage, display or transmission. For example, in at least one example embodiment in which the media capturing element is a camera module, the camera module may comprise a digital camera which may form a digital image file from a captured image. As such, the camera module may comprise hardware, such as a lens or other optical component(s), and/or software necessary for creating a digital image file from a captured image. Alternatively, the camera module may comprise only the hardware for viewing an image, while a memory device of the electronic apparatus 10 stores instructions for execution by the processor 11 in the form of software for creating a digital image file from a captured image. In at least one example embodiment, the camera module may further comprise a processing element such as a co-processor that assists the processor 11 in processing image data and an encoder and/or decoder for compressing and/or decompressing image data. The encoder and/or decoder may encode and/or decode according to a standard format, for example, a Joint Photographic Experts Group (JPEG) standard format.

[0058] FIGURES 2A-2E are diagrams illustrating touch inputs according to at least one example embodiment. The examples of FIGURES 2A-2E are merely examples of touch inputs, and do not limit the scope of the claims. For example, number of inputs may vary, relationship between inputs may vary, orientation of inputs may vary, and/or the like.

[0059] In FIGURES 2A - 2E, a circle represents an input related to contact with a touch sensor, such as a touch display, two crossed lines represent an input related to releasing a contact from a touch sensor, and a line represents input related to movement on a touch sensor. Although the examples of FIGURES 2A - 2E indicate continuous contact with a touch sensor, there may be a part of the input that fails to make direct contact with the touch sensor. Under such circumstances, the apparatus may, nonetheless, determine that the input is a continuous stroke input. For example, the apparatus may utilize proximity information, for example information relating to nearness of an input implement to the touch sensor, to determine part of a touch input.

[0060] It should be understood that, even though touch sensor information is described in terms of contact and release, many touch sensors may determine that a contact occurs when

the user's hand is within a threshold distance from the apparatus, without physically contacting the apparatus. Therefore, contact may relate to circumstances where the touch sensor determines that proximity is sufficiently close enough to determine existence of contact. Similarly, release may relate to circumstances where the touch sensor determines that proximity is sufficiently distant enough to determine termination of contact.

[0061] In the example of FIGURE 2A, input 200 relates to receiving contact input 202 and receiving a release input 204. In this example, contact input 202 and release input 204 occur at the same position. In at least one example embodiment, an apparatus utilizes the time between receiving contact input 202 and release input 204. For example, the apparatus may interpret input 200 as a tap for a short time between contact input 202 and release input 204, as a press for a longer time between contact input 202 and release input 204, and/or the like.

[0062] In the example of FIGURE 2B, input 220 relates to receiving contact input 222, a movement input 224, and a release input 226. Input 220 relates to a continuous stroke input. In this example, contact input 222 and release input 226 occur at different positions. Input 220 may relate to dragging an object from one position to another, to moving a scroll bar, to panning a virtual screen, to drawing a shape, and/or the like. In at least one example embodiment, an apparatus interprets input 220 based at least in part on the speed of movement 224. For example, if input 220 relates to panning a virtual screen, the panning motion may be small for a slow movement, large for a fast movement, and/or the like. In another example embodiment, an apparatus interprets input 220 based at least in part on the distance between contact input 222 and release input 226. For example, if input 220 relates to a scaling operation, such as resizing a box, the scaling may relate to the distance between contact input 222 and release input 226. An apparatus may interpret the input before receiving release input 226. For example, the apparatus may evaluate a change in the input, such as speed, position, and/or the like. In such an example, the apparatus may perform one or more determinations based upon the change in the touch input. In such an example, the apparatus may modify a text selection point based at least in part on the change in the touch input.

[0063] In the example of FIGURE 2C, input 240 relates to receiving contact input 242, a movement input 244, and a release input 246 as shown. Input 240 relates to a continuous stroke input. In this example, contact input 242 and release input 246 occur at different positions. Input 240 may relate to dragging an object from one position to another, to moving a scroll bar,

to panning a virtual screen, to drawing a shape, and/or the like. In at least one example embodiment, an apparatus interprets input 240 based at least in part on the speed of movement 244. For example, if input 240 relates to panning a virtual screen, the panning motion may be small for a slow movement, large for a fast movement, and/or the like. In another example embodiment, an apparatus interprets input 240 based at least in part on the distance between contact input 242 and release input 246. For example, if input 240 relates to a scaling operation, such as resizing a box, the scaling may relate to the distance between contact input 242 and release input 246. In still another example embodiment, the apparatus interprets the position of the release input. In such an example, the apparatus may modify a text selection point based at least in part on the change in the touch input.

[0064] In the example of FIGURE 2D, input 260 relates to receiving contact input 262, and a movement input 264, where contact is released during movement. Input 260 relates to a continuous stroke input. Input 260 may relate to dragging an object from one position to another, to moving a scroll bar, to panning a virtual screen, to drawing a shape, and/or the like. In at least one example embodiment, an apparatus interprets input 260 based at least in part on the speed of movement 264. For example, if input 260 relates to panning a virtual screen, the panning motion may be small for a slow movement, large for a fast movement, and/or the like. In another example embodiment, an apparatus interprets input 260 based at least in part on the distance associated with the movement input 264. For example, if input 260 relates to a scaling operation, such as resizing a box, the scaling may relate to the distance of the movement input 264 from the contact input 262 to the release of contact during movement.

[0065] In at least one example embodiment, an apparatus may receive multiple touch inputs at coinciding times. For example, there may be a tap input at a position and a different tap input at a different location during the same time. In another example there may be a tap input at a position and a drag input at a different position. An apparatus may interpret the multiple touch inputs separately, together, and/or a combination thereof. For example, an apparatus may interpret the multiple touch inputs in relation to each other, such as the distance between them, the speed of movement with respect to each other, and/or the like.

[0066] In the example of FIGURE 2E, input 280 relates to receiving contact inputs 282 and 288, movement inputs 284 and 290, and release inputs 286 and 292. Input 280 relates to two continuous stroke inputs. In this example, contact input 282 and 288, and release input 286 and

292 occur at different positions. Input 280 may be characterized as a multiple touch input. Input 280 may relate to dragging an object from one position to another, to moving a scroll bar, to panning a virtual screen, to drawing a shape, to indicating one or more user selected text positions and/or the like. In at least one example embodiment, an apparatus interprets input 280 based at least in part on the speed of movements 284 and 290. For example, if input 280 relates to zooming a virtual screen, the zooming motion may be small for a slow movement, large for a fast movement, and/or the like. In another example embodiment, an apparatus interprets input 280 based at least in part on the distance between contact inputs 282 and 288 and release inputs 286 and 292. For example, if input 280 relates to a scaling operation, such as resizing a box, the scaling may relate to the collective distance between contact inputs 282 and 288 and release inputs 286 and 292.

[0067] In at least one example embodiment, the timing associated with the apparatus receiving contact inputs 282 and 288, movement inputs 284 and 290, and release inputs 286 and 292 varies. For example, the apparatus may receive contact input 282 before contact input 288, after contact input 288, concurrent to contact input 288, and/or the like. The apparatus may or may not utilize the related timing associated with the receiving of the inputs. For example, the apparatus may utilize an input received first by associating the input with a preferential status, such as a primary selection point, a starting position, and/or the like. In another example, the apparatus may utilize non-concurrent inputs as if the apparatus received the inputs concurrently. In such an example, the apparatus may utilize a release input received first the same way that the apparatus would utilize the same input if the apparatus had received the input second.

[0068] Even though an aspect related to two touch inputs may differ, such as the direction of movement, the speed of movement, the position of contact input, the position of release input, and/or the like, the touch inputs may be similar. For example, a first touch input comprising a contact input, a movement input, and a release input, may be similar to a second touch input comprising a contact input, a movement input, and a release input, even though they may differ in the position of the contact input, and the position of the release input.

[0069] FIGURES 3A-3C are diagrams illustrating performance of a rotational pivot input according to at least one example embodiment. The examples of FIGURES 3A-3C are merely examples, and do not limit the scope of the claims. For example, contact with the

apparatus may vary, object contacting the apparatus may vary, the number of objects contacting the apparatus may vary, orientation of the hand may vary, and/or the like.

[0070] In some circumstances, it may be desirable to provide for a user to be able to perform further input during a continuous stroke input. In at least one example embodiment, an apparatus is configured to receive a rotational pivot input. In at least one example embodiment, a rotational pivot input relates to an input associated with rotation of an object that is performing a touch input. The rotation may be substantially absent translational movement. In at least one example embodiment, substantially absent translational movement relates to any translational movement during the rotational pivot input being consistent with inadvertent translational movement by the user. For example, there may be some translational movement associated with the user rotating the object. Such translational movement may be insubstantial.

[0071] FIGURES 3A-3C indicate a hand performing a rotational pivot input. It can be seen that hand 304 is performing a contact input on apparatus 302. It can be seen that FIGURE 3B relates to circumstances where hand 304 has rotated in a clockwise direction from the orientation of hand 304 in FIGURE 3A. It can be seen that FIGURE 3C relates to circumstances where hand 304 has rotated in a clockwise direction from the orientation of hand 304 in FIGURE 3B. The apparatus may determine whether rotation is in a clockwise direction or in a counter-clockwise direction based, at least in part, on a perspective facing the touch sensor which is receiving the rotational pivot input. It can be seen that the position of the contact between hand 304 and apparatus 302 is substantially similar in the examples of FIGURES 3A-3C. In this manner, the rotational input may be substantially absent translational movement.

[0072] In at least one example embodiment, the apparatus receives a continuous stroke input comprising a contact input, a rotational pivot input, and a release input. The rotational pivot input may be comprises by the continuous stroke input by way of occurring between the contact input and the release input without any intervening release input.

[0073] The apparatus may determine the rotational input based, at least in part, on a determination that a contact region associated with the continuous stroke input has rotated, similar as described regarding FIGURES 4A-4D. The apparatus may determine the rotation pivot input based, at least in part, on determination that an object performing the continuous stroke input has rotated. For example, the apparatus may be configured to receive information indicative of the object, such as hand 304. In at least one example embodiment, the apparatus

determines information indicative of orientation of the object. In at least one example embodiment, the information indicative of the orientation of the object relates to information indicative of a surface that is not in contact with a touch sensor. For example, the apparatus may utilize a proximity sensor, an imaging sensor, a capacitive sensor, and/or the like to determine information indicative of at least one surface of the object that is not in contact with the apparatus. In this manner, the apparatus may determine a rotational input based on a determination that the orientation of the object has changed.

[0074] In at least one example embodiment, the apparatus may determine orientation of the rotational pivot input associated with one or more parts of the rotational pivot input. For example, the apparatus may determine an initial orientation associated with the rotational pivot input. In at least one example embodiment, the initial orientation relates to an orientation associated with the rotational pivot input that reflects the orientation at the time the rotational pivot input is initiated. At various times during a rotational pivot input, the apparatus may determine a current orientation associated with the rotational pivot input. For example, the apparatus may determine direction of the rotation pivot input, magnitude of the rotational pivot input, and/or the like, based, at least in part, on the current orientation of the rotational pivot input. In at least one example embodiment, the magnitude of the rotational input relates to an amount of angular change during the rotational pivot input.

[0075] FIGURES 4A – 4D are diagrams illustrating a contact region associated with a rotational pivot input according to at least one example embodiment. Although the contact regions of the examples of FIGURES 4A – 4D illustrate elliptical regions, the shape of the contact region may vary and does not limit the claims in any way.

[0076] FIGURE 4A is a diagram illustrating contact region 401 associated with a rotational pivot input according to at least one example embodiment. Although the example of FIGURE 4A illustrates counter-clockwise rotation, the rotational pivot input may relate to clockwise rotation. In addition, even though the example of FIGURE 4A illustrates a lack of positional change of any part of contact region 401, a rotational pivot input may relate to a positional change associated with a part of contact region 401, a positional change associated with the entirety of contact region 401, and/or the like. In at least one example embodiment, contact region 401 is associated with a touch display contact, such as the contact illustrated in

FIGURES 3A-3C. Contact region 401 may be associated with a touch input, such as touch input 200 of FIGURE 2A.

[0077] FIGURE 4B is a diagram illustrating contact region 411 associated with a rotational pivot input according to at least one example embodiment. Although the example of FIGURE 4B illustrates clockwise rotation, the rotational pivot input may relate to counter-clockwise rotation. In addition, even though the example of FIGURE 4B illustrates a positional change of part of contact region 411, a rotational pivot input may relate to a lack of positional change associated with any part of contact region 411, a positional change associated with the entirety of contact region 411, and/or the like. In at least one example embodiment, contact region 411 is associated with a touch display contact, such as the contact illustrated in FIGURE 1B. Contact region 411 may be associated with a touch input, such as touch input 200 of FIGURE 2A, touch input 220 of FIGURE 2B, touch input 240 of FIGURE 2C, touch input 260 of FIGURE 2D, and/or the like.

[0078] FIGURE 4C is a diagram illustrating contact region 421 associated with a rotational pivot input according to at least one example embodiment. Although the example of FIGURE 4C illustrates clockwise rotation, the rotational pivot input may relate to counter-clockwise rotation. In addition, even though the example of FIGURE 4C illustrates a positional change of the entirety of contact region 421, a rotational pivot input may relate to a lack of positional change associated with any part of contact region 421, an insubstantial positional change associated with a part of contact region 421, and/or the like. In at least one example embodiment, contact region 421 is associated with a touch display contact, such as the contact illustrated in FIGURE 1C. Contact region 421 may be associated with a touch input, such as touch input 200 of FIGURE 2A, touch input 220 of FIGURE 2B, touch input 240 of FIGURE 2C, touch input 260 of FIGURE 2D, and/or the like.

[0079] FIGURE 4D is a diagram illustrating contact region 431 associated with a rotational pivot input according to at least one example embodiment. Although the example of FIGURE 4D illustrates counter-clockwise rotation, the rotational pivot input may relate to clockwise rotation. In addition, even though the example of FIGURE 4D illustrates a positional change of a part of contact region 431, a rotational pivot input may relate to a lack of positional change associated with any part of contact region 431, a positional change associated with the entirety of contact region 431, and/or the like. In at least one example embodiment, contact

region 431 is associated with a touch display contact, such as the contact illustrated in FIGURE 1D. Contact region 431 may be associated with a touch input, such as touch input 200 of FIGURE 2A, touch input 220 of FIGURE 2B, touch input 240 of FIGURE 2C, touch input 260 of FIGURE 2D, and/or the like.

5 **[0080]** FIGURES 5A – 5B are diagrams illustrating a plurality of menu items according to at least one example embodiment. The arrangement of menu items may vary in ways different from those illustrated in the examples of FIGURES 5A – 5B. The examples of FIGURES 5A – 5B are merely examples, and do not limit the claims in any way.

10 **[0081]** In at least one example embodiment a menu item relates to a representation of an operation that may be performed by the apparatus, a setting that may be configured by the apparatus, an option that may be taken by the apparatus, and/or the like. For example, a user may perform an input indicative of selection of a menu item, and the apparatus may perform an action associated with the menu item. For example, the menu item may relate to a setting. In such an example, the apparatus may modify the setting based, at least in part, on selection of the menu item. In another example, the menu item may relate to an operation. In such an example, the apparatus may perform the operation based, at least in part, on selection of the menu item.

15 **[0082]** In at least one example embodiment, the menu item comprises an indication of the action performed in response to selection of the menu item. For example, the menu item may comprise an indication of an operation, an indication of an option, and indication of a setting, and/or the like. The indication may relate to text information, graphical information, and/or the like.

20 **[0083]** In at least one example embodiment, there is a menu item list that comprises one or more menu items. The menu item list may be referred to in terms of the type of menu items that the menu item list comprises. For example, a menu item list comprising menu items that relate to operations may be referred to as an operations list. In circumstances where the menu item list comprises a plurality of menu items, the apparatus may identify a menu item in the menu item list by way of a list position. For example, the list position may indicate a position in the menu item list that corresponds with a menu item to be selected.

25 **[0084]** FIGURE 5A is a diagram illustrating menu item list 500 of a plurality of menu items 501 – 504, according to at least one example embodiment. In the example of Figure 5A, menu item list 500 relates to a linear arrangement of menu items. Although menu item list 510

relates to a vertical linear arrangement, an arrangement of menu items may relate to a horizontal arrangement, a diagonal arrangement, and/or the like. Even though the example of FIGURE 5A illustrates four menu items, the number of menu items may vary and does not limit the claims below.

5 **[0085]** FIGURE 5B is a diagram illustrating a menu item list 510 of a plurality of menu items 511 – 513, according to at least one example embodiment. In the example of Figure 5B, menu item list 510 relates to a curved arrangement of menu items. Although arrangement 510 relates to a leftward curve, an arrangement of menu items may relate to a rightward curve, an upward curve, a downward curve, and/or the like. Even though the example of FIGURE 5B
10 illustrates three menu items, the number of menu items may vary and does not limit the claims below.

[0086] In at least one example embodiment, the apparatus determines a menu item from a menu item list based, at least in part on a rotational pivot input. In at least one example embodiment, the apparatus may select the menu item, based, at least in part, on the rotational
15 pivot input. For example, the apparatus may identify a list position in the menu item list based, at least in part, on the rotational pivot input. In such an example, the apparatus may select the menu item that corresponds with the list position. In at least one example embodiment, the apparatus determines a number of menu items comprised by the menu item list based, at least in part, on size of the contact region associated with the input. For example, the apparatus may
20 determine a greater number of menu items based on a larger contact region and determine a lesser number of menu items based on a smaller contact region. In at least one example embodiment, the apparatus may vary the number of menu items in proportion to a variation in size of the contact region. For example, the apparatus may increase the number of menu items based on an increase in the size of the contact region. In such an example, the user may cause an
25 increase in the size of the contact region by increasing the surface area, on a touch sensor, of a finger that is performing the contact.

[0087] In at least one example embodiment, the apparatus may provide a lesser number of menu items than are available for a menu item list. For example, the menu item list may comprise 3 menu items, even though there may be 5 menu items available for selection. In such
30 an embodiment, the menu item list may vary the menu items provided by the menu item list, based, at least in part, on the rotational pivot input. For example, the apparatus may scroll

available menu items in the menu item list to provide for display of menu items that were previously non-included in the menu item list.

[0088] In at least one example embodiment, the apparatus may select a menu item in the menu item list by way of a selection point. In at least one example embodiment, the selection point relates to a list position that is indexed for possible selection. The apparatus may cause display of an indication of the list selection point. For example, the indication may relate to highlighting a menu item associated with the list selection point, changing color of the menu item associated with the list selection point, representing an indication of the identity of the menu item associated with the list selection point, and/or the like. In at least one example embodiment, the apparatus determines a list selection point to relate to an initial list position in the menu item list. In at least one example embodiment, the initial list position relates to a predetermined list position which the list selection point may reference when the menu item list is initially caused to be displayed. For example, the initial list position may relate to the first list position in the menu item list, the last list position in the menu item list, the list position associated with the most recently selected menu item, and/or the like.

[0089] In at least one example embodiment, the apparatus changes the list selection point to relate to a different list position based, at least in part, on the rotational pivot input. For example, the apparatus may change the list selection point to relate to a different list position based, at least in part, on a direction of rotation of the rotational pivot input. For example, the apparatus may decrease list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction and increase list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction. In another example, the apparatus may increase list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction and decrease list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction.

[0090] In at least one example embodiment, the apparatus changes the list selection point to relate to a different list position is based, at least in part, on a magnitude of the rotational pivot input. For example, the apparatus may increase the list position based on a magnitude of the rotational pivot input, and more greatly increase the list position based on a greater

magnitude of the rotational pivot input. In this manner, the amount of change of the list selection point may be directly proportional to the magnitude of the rotational pivot input.

[0091] In at least one example embodiment, a release input subsequent to the rotational pivot input is indicative of selection of a menu item designated by the selection point. For example, the apparatus may select the menu item designated by the selection point based, at least in part, on receipt of the release input. In this manner, rotation of the rotational pivot input may cause the apparatus to change selection point until the apparatus receives the release input. In such an example, the apparatus may perform selection of the menu item upon receipt of the release input.

[0092] In at least one example embodiment, a movement input subsequent to the rotational pivot input is indicative of selection of a menu item designated by the selection point. For example, the apparatus may select the menu item designated by the selection point based, at least in part, on receipt of the movement input. In this manner, rotation of the rotational pivot input may cause the apparatus to change selection point until the apparatus receives the movement input. In such an example, the apparatus may perform selection of the menu item upon receipt of the movement input.

[0093] FIGURE 6 is a diagram illustrating content items according to at least one example embodiment. The example of FIGURE 6 is merely an example, and does not limit the scope of the claims. For example, position of one or more content items may vary, number of content items may vary, orientation of the content items may vary, and/or the like.

[0094] In some circumstances, it may be desirable for the user to be able to select content items with which to perform an operation, and to select the operation by way of a single continuous stroke input. For example, it may be desirable for a user to perform a continuous stroke input that designates a content item, another content item, and an operation to perform in relation to at least one of the content item or the other content item.

[0095] In at least one example embodiment a content item relates to a selectable indicator that represents content of an apparatus. The content may relate to a program, a file, a document, and/or the like. The indicator may relate to text information an icon, a tile, a selectable region, a window, and/or the like. For example, content item 604 may relate to a document, content item 606 may relate to a telephony program, content item 608 may relate to a

folder, and content item 610 may relate to a message. In the example of FIGURE 6, content items 604, 606, 608, and 610 may be displayed on display 602.

[0096] In at least one example embodiment, the apparatus receives a continuous stroke input that comprises a contact input, a movement input, a rotational pivot input, and a release input, and performs an operation associated with a content item identified by the contact input. In such an example, the apparatus may utilize an operations list that comprises one or more operations, similarly as described regarding FIGURES 5A-5B. In at least one example embodiment, the apparatus may determine that a contact input identifies a content item based, at least in part, on determination that the content item corresponds with a position of the contact input and the rotational pivot input.

[0097] The apparatus may determine an operation associated with the content element based, at least in part, on the rotational pivot input, similarly as described regarding the menu item of FIGURES 5A-5B. In at least one example embodiment, the apparatus performs the operation based, at least in part, on the release input. For example, the apparatus may predicate performance of the operation on receipt of the release input. In at least one example embodiment, the apparatus selects the operation from the operations list based, at least in part, on the rotational pivot input, similarly as described regarding the menu item and the menu item list of FIGURES 5A-5B. In at least one example embodiment, selection is caused by receipt of the release input. For example, the apparatus may select the operation based, at least in part, on the operation corresponding with a selection point at a time when the release input is received. In this manner, the apparatus may select an operation that is designated by the list selection point when the release input is received.

[0098] In at least one example embodiment, the continuous stroke input comprises a movement input. In at least one example embodiment, the movement input relates to movement such that a position associated with the contact input is different from a position associated with the release input. In at least one example embodiment, the operation is based, at least in part, on a position of the release input and/or the rotational pivot input. For example, the rotational pivot input and/or the release input may correspond with a region that may be associated with a set of potential operations instead of a different region associated with a different set of operations.

[0099] In at least one example embodiment, the rotational pivot input and/or the release input correspond with a different content item. In such an example, the operation may relate to

the different content item. For example, the operation may relate to inclusion of, at least part of, the content item in the different content item. For example, the different content item may relate to a container, such as a file, a repository, a folder, etc. In such an example, the operation may relate to moving the content item to the container, copying the content item to the container, creating a shortcut to the content item in the container, and/or the like.

[00100] In at least one example embodiment, the rotational pivot input relates to a corresponding position to a position of the release input. For example, the rotational pivot input and the release input may correspond with a particular content item. In at least one example embodiment, performance of the operation is based, at least in part, on a determination that the rotational pivot input relates to a corresponding position to a position of the release input. For example, the apparatus may preclude performance of an operation identified by a rotation pivot input based, at least in part, on occurrence of a movement input between the time of the rotational pivot input and the release input. In this manner, performance of the operation may be predicated on a determination that the rotational pivot input relates to a corresponding position to a position of the release input. In this manner, the user may avoid performance of an operation by merely performing a movement input subsequent to the rotational pivot input as part of the same continuous stroke input.

[00101] For example, a contact input may relate to a music file, and a release input may relate to a compact disk icon. In such an example, the apparatus may determine menu items based, at least in part on the music file and the compact disk icon. In such an example, the menu items may relate to burning the music file to the compact disk, merging the music file to another music file on the compact disk, and/or the like. In another example, a contact input may relate to the same music file, and a release input may relate to a universal serial bus icon. In such an example, the apparatus may determine menu items based, at least in part, on the music file and the universal serial bus icon. In such an example, the menu items may relate to copying the music file to an apparatus connected by way of the universal serial bus, playing the music file on an apparatus connected by way of the universal serial bus, and/or the like. In such examples, the number of menu items may vary based, at least in part on the rotation pivot occurring in relation to the compact disk icon versus the universal serial bus icon.

[00102] In at least one example, embodiment, the apparatus causes display of an operations list based, at least in part, on the rotational pivot input. For example, the causation of

display of the operations list may be caused by the rotational pivot input. In such an example, the causation of display of the operations list may be caused by receipt of the rotational pivot input. For example, the apparatus may cause display of the operations list in response to receipt of the rotational pivot input. In at least one example embodiment, the operations list and/or the operation is based, at least in part on the content item identified by the contact input. For example, there may be operations comprised in the operations list that are based, at least in part, on the content item. For example, the content item may relate to a media file, and an operation may relate to playing the media file. In another example, the content item may relate to a program, and the operation may relate to running the program. In this manner, the apparatus may preclude inclusion of one or more operations from an operations list that are unassociated with the content item.

[00103] In at least one example embodiment, the apparatus causes termination of display of the operations list. The apparatus may cause such termination based, at least in part, on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation. For example, the apparatus may cause termination of display of the operations list upon determining that the rotational pivot input has returned to an initial orientation. In such circumstances, the user may cause termination of display of the operations list by returning the orientation of the rotation pivot to the initial orientation. In at least one example embodiment, the apparatus may cause termination of display of the operations list after elapse of a threshold time. For example, the apparatus may retain display of the operations list for a threshold time after the apparatus determines that the rotational pivot input has returned to an initial orientation, before causing termination of display of the operations list. In another, the apparatus may retain display of the operations list for a threshold time, such as 2 seconds, after the apparatus receives an indication of the release input, before causing termination of display of the operations list.

[00104] In some circumstances, the user may desire to operating the apparatus by moving a content item around the display to another content item. In such an example user may want to copy a file to a folder. The user may perform a contact input with a finger on an icon representing the file and drag the icon on top of a target folder. While maintaining contact with the apparatus, the user may rotate the finger counter-clockwise to invoke display of an operation list. The apparatus may provide three options, such as move, copy, and cancel. The user may

then further rotate the finger to move a selection point to correspond with the copy operation. The user may cause the file to be copied to the target folder by releasing the input.

[00105] FIGURE 7 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment.

5 In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 7. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is
10 transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 7.

[00106] At block 702, the apparatus receives an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input. The
15 receipt, the continuous stroke input, the contact input, the movement input, the rotational pivot input, and the release input may be similar as described regarding FIGURES 2A-2E, FIGURES 3A-3C, and/or the like. The apparatus may receive the indication of the continuous stroke input from one or more sensors, from a separate apparatus, and/or the like. The indication of the continuous stroke input may relate to any information that conveys occurrence of the input,
20 content of the input, an aspect of the input, and/or the like.

[00107] At block 704, the apparatus identifies a content element based, at least in part, on the contact input. The identification and the content element may be similar as described regarding FIGURE 6.

[00108] At block 706, the apparatus determines an operation associated with the content
25 element based, at least in part, on the rotational pivot input. The determination, the operation, the association with the content element may be similar as described regarding FIGURE 6.

[00109] At block 708, the apparatus performs the operation based, at least in part, on the release input. The performance of the operation may be similar as described regarding FIGURE
6.

30 **[00110]** FIGURE 8 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment.

In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 8. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one
5 example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 8.

[00111] In some circumstances, the apparatus may perform actions associated with input
10 as the apparatus receives the input. For example, the receipt of each of the inputs described in relation to block 702 may be received at one or more different stages of FIGURE 7.

[00112] At block 802, the apparatus receives an indication of a contact input that is part of a continuous stroke input. The receipt, the continuous stroke input, and the contact input may be similar as described regarding FIGURES 2A-2E, FIGURES 3A-3C, and/or the like.

15 [00113] At block 804, the apparatus identifies a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7. At block 806, the apparatus receives an indication of a movement input and a rotational pivot input that are part of the continuous stroke input. The receipt, the movement input, and the rotational pivot input may be similar as described regarding FIGURES 2A-2E, FIGURES 3A-3C, and/or the like.

20 [00114] At block 808, the apparatus determines an operation associated with the content element based, at least in part, on the rotational pivot input, similarly as described regarding block 706 of FIGURE 7.

[00115] At block 810, the apparatus receives an indication of a release input that is part of the continuous stroke input. The receipt, and the release input may be similar as described
25 regarding FIGURES 2A-2E, FIGURES 3A-3C, and/or the like.

[00116] At block 812, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

[00117] FIGURE 9 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment.
30 In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 9. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a

portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 9.

[00118] At block 902, the apparatus receives an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input, similarly as described regarding block 702 of FIGURE 7. At block 904, the apparatus identifies a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7.

[00119] At block 906, the apparatus causes display of an operations list based, at least in part, on the rotational pivot input. The causation of display and the operations list may be similar as described regarding FIGURES 5A-5B, FIGURE 6, and/or the like.

[00120] At block 908, the apparatus selects the operation from the operations list based, at least in part, on the rotational pivot input. The selection may be similar as described regarding FIGURES 5A-5B, FIGURE 6, and/or the like. At block 910, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

[00121] FIGURE 10 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment. In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 10. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 10.

[00122] At block 1002, the apparatus receives an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input,

similarly as described regarding block 702 of FIGURE 7. At block 1004, the apparatus identifies a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7. At block 1006, the apparatus causes display of an operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 906 of

5 FIGURE 9.

[00123] At block 1008, the apparatus determines a list selection point to relate to an initial list position in the operations list. The determination, the list selection point, and the initial list position may be similar as described regarding FIGURES 5A-5B, FIGURE 6, and/or the like.

10 [00124] At block 1010, the apparatus changes the list selection point to relate to a different list position based, at least in part, on direction of rotation of the rotational pivot input. The change, the different list position, and the direction of rotation may be similar as described regarding FIGURES 5A-5B.

[00125] At block 1012, the apparatus selects the operation from the operations list based,

15 at least in part, on the selection point. The selection may be similar as described regarding FIGURES 5A-5B, FIGURE 6, and/or the like. At block 1014, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

[00126] FIGURE 11 is a flow diagram illustrating activities associated determination of

20 an operation in relation to a rotational pivot input according to at least one example embodiment. In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 11. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one

25 example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 11.

[00127] At block 1102, the apparatus receives an indication of a continuous stroke input

30 comprising a contact input, a movement input, a rotational pivot input, and a release input, similarly as described regarding block 702 of FIGURE 7. At block 1104, the apparatus identifies

a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7. At block 1106, the apparatus causes display of an operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 906 of FIGURE 9. At block 1108, the apparatus determines a list selection point to relate to an initial
5 list position in the operations list, similar as described regarding block 1008 of FIGURE 10.

[00128] At block 1110, the apparatus determines whether the rotational pivot is in a clockwise direction. If apparatus determines that the rotational pivot is in a clockwise direction, flow proceeds to block 1112. If apparatus determines that the rotational pivot is in a counter-clockwise direction, flow proceeds to block 1114.

10 **[00129]** At block 1112, the apparatus decreases list position related to the selection point. The decrease may be similar as described regarding FIGURES 5A-5B. In this manner, the apparatus may decrease list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction.

[00130] At block 1114, the apparatus increases list position related to the selection point.
15 The increase may be similar as described regarding FIGURES 5A-5B. In this manner, the apparatus may increase list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction.

[00131] At block 1116, the apparatus selects the operation from the operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 908 of
20 FIGURE 9. At block 1118, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

[00132] Even though the example of FIGURE 11 associates a clockwise rotation pivot input with a decrease in the list position, and a counter-clockwise rotational pivot input with an increase in the list position, in other examples, a clockwise rotation pivot input may be
25 associated with a decrease in the list position, and a counter-clockwise rotational pivot input may be associated with an increase in the list position, similarly as described regarding FIGURES 5A-5B.

[00133] FIGURE 12 is a flow diagram illustrating activities associated determination of an operation in relation to a rotational pivot input according to at least one example embodiment.
30 In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 12. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a

portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer
5 code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 12.

[00134] At block 1202, the apparatus receives an indication of a continuous stroke input comprising a contact input, a movement input, and a rotational pivot input. The receipt, the continuous stroke input, the contact input, the movement input, and the rotational pivot input
10 may be similar as described regarding FIGURES 2A-2E, FIGURES 3A-3C, and/or the like.

[00135] At block 1204, the apparatus identifies a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7. At block 1206, the apparatus determines an initial orientation associated with the rotational pivot input. The determination and the initial orientation may be similar as described regarding FIGURES 3A-3C.

[00136] At block 1208, the apparatus determines whether a current orientation associated with the rotational pivot input corresponds with the initial orientation. The determination and the correspondence may be similar as described regarding FIGURES 3A-3C. If the apparatus determines that a current orientation associated with the rotational pivot input fails to correspond with the initial orientation, flow proceeds to block 1210. If the apparatus
15 determines that a current orientation associated with the rotational pivot input corresponds with the initial orientation, flow proceeds to block 1212.

[00137] At block 1210, the apparatus causes display of an operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 906 of FIGURE 9. In this manner, causation of display of the operations list may be based, at least in part, on the
20 determination that the current orientation associated with the rotational pivot input fails to correspond with the initial orientation.

[00138] At block 1212, the apparatus causes termination of display of the operations list. The causation and the termination may be similar as described regarding FIGURE 6. In this manner, the causation termination of display of the operations list may be based, at least in part,
30 on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation.

[00139] At block 1214, the apparatus determines whether a release input has been received as part of the continuous stroke input. If the apparatus determines that the release input has not been received, flow returns to block 1208. If the apparatus determines that the release input has been received, flow proceeds to block 1216.

5 [00140] At block 1216, the apparatus selects the operation from the operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 908 of FIGURE 9. At block 1218, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

[00141] FIGURE 13 is a flow diagram illustrating activities associated determination of
10 an operation in relation to a rotational pivot input according to at least one example embodiment. In at least one example embodiment, there is a set of operations that corresponds with the activities of FIGURE 13. An apparatus, for example electronic apparatus 10 of FIGURE 1, or a portion thereof, may utilize the set of operations. The apparatus may comprise means, including, for example processor 11 of FIGURE 1, for performance of such operations. In at least one
15 example embodiment, an apparatus, for example electronic apparatus 10 of FIGURE 1, is transformed by having memory, for example memory 12 of FIGURE 1, comprising computer code configured to, working with a processor, for example processor 11 of FIGURE 1, cause the apparatus to perform set of operations of FIGURE 13.

[00142] At block 1302, the apparatus receives an indication of a continuous stroke input
20 comprising a contact input, a movement input, and a rotational pivot input, similarly as described regarding block 1202 of FIGURE 12. At block 1304, the apparatus identifies a content element based, at least in part, on the contact input, similarly as described regarding block 704 of FIGURE 7.

[00143] At block 1306, the apparatus determines whether another movement input has
25 been received. If the apparatus has received another movement input, flow proceeds to block 1310. If the apparatus has not received another movement input, flow proceeds to block 1308.

[00144] At block 1308, the apparatus causes display of an operations list based, at least
in part, on the rotational pivot input, similarly as described regarding block 906 of FIGURE 9. In this manner, causation of display of the operations list may be based, at least in part, on
30 absence of a movement input between the rotational pivot input and the release input.

[00145] At block 1310, the apparatus causes termination of display of the operations list, similar as described regarding block 1212 of FIGURE 12. In this manner, the apparatus may cause termination of display of the operations list based, at least in part, on the other movement input.

5 [00146] At block 1312, the apparatus receives another pivotal rotation input that is part of the continuous stroke input, and flow returns to block 1306. In this manner, subsequent activities associated with the blocks of FIGURE 13 may be performed based on the other pivotal rotation input.

10 [00147] At block 1314, the apparatus determines whether a release input has been received as part of the continuous stroke input. If the apparatus determines that the release input has not been received, flow returns to block 1306. If the apparatus determines that the release input has been received, flow proceeds to block 1316.

15 [00148] At block 1316, the apparatus selects the operation from the operations list based, at least in part, on the rotational pivot input, similarly as described regarding block 908 of FIGURE 9. At block 1318, the apparatus performs the operation based, at least in part, on the release input, similarly as described regarding block 708 of FIGURE 7.

20 [00149] Embodiments of the invention may be implemented in software, hardware, application logic or a combination of software, hardware, and application logic. The software, application logic and/or hardware may reside on the apparatus, a separate device, or a plurality of separate devices. If desired, part of the software, application logic and/or hardware may reside on the apparatus, part of the software, application logic and/or hardware may reside on a separate device, and part of the software, application logic and/or hardware may reside on a plurality of separate devices. In at least one example embodiment, the application logic, software or an instruction set is maintained on any one of various computer-readable media.

25 [00150] If desired, the different functions discussed herein may be performed in a different order and/or concurrently with each other. For example, block 804 of FIGURE 8 may be performed after block 806. Furthermore, if desired, one or more of the above-described functions may be optional or may be combined. For example, blocks 1008, 1010, and 1011 of FIGURE 10 may be optional and/or combined with block 706 of FIGURE 7.

30 [00151] Although various aspects of the invention are set out in the independent claims, other aspects of the invention comprise other combinations of features from the described

embodiments and/or the dependent claims with the features of the independent claims, and not solely the combinations explicitly set out in the claims.

[00152] It is also noted herein that while the above describes example embodiments of the invention, these descriptions should not be viewed in a limiting sense. Rather, there are
5 variations and modifications which may be made without departing from the scope of the present invention as defined in the appended claims.

WHAT IS CLAIMED IS:

1. An apparatus, comprising:

at least one processor;

at least one memory including computer program code, the memory and
the computer program code configured to, working with the processor, cause the
apparatus to perform at least the following:

receiving an indication of a continuous stroke input comprising a
contact input, a movement input, a rotational pivot input, and a release
input;

identifying a content element based, at least in part, on the contact
input;

determining an operation associated with the content element
based, at least in part, on the rotational pivot input; and

performing the operation based, at least in part, on the release input.

2. The apparatus of Claim 1, wherein the determination of the operation associated
with the content element comprises:

causing display of an operations list based, at least in part, on the
rotational pivot input; and

selecting the operation from the operations list based, at least in part, on
the rotational pivot input.

3. The apparatus of Claim 2, wherein the memory further includes computer
program code, the memory and the computer program code configured to, working with
the processor, cause the apparatus to:

determine an initial orientation associated with the rotational pivot input;

determine that a current orientation associated with the rotational pivot
input fails to correspond with the initial orientation, wherein causation of display
of the operations list is based, at least in part on the determination that the current
orientation associated with the rotational pivot input fails to correspond with the
initial orientation;

determine that a current orientation associated with the rotational pivot input corresponds with the initial orientation; and

cause termination of display of the operations list based, at least in part, on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation.

4. The apparatus of any of Claims 2-3, wherein the memory further includes computer program code, the memory and the computer program code configured to, working with the processor, cause the apparatus to:

receive an indication of another movement input that is comprised by the continuous stroke input; and

cause termination of display of the operations list based, at least in part, on the other movement input.

5. The apparatus of any of Claims 2-4, wherein the selection of an operation from the operations list comprises:

determining a list selection point to relate to an initial list position in the operations list; and

changing the list selection point to relate to a different list position based, at least in part, on direction of rotation of the rotational pivot input, wherein the operation corresponds with the list position.

6. The apparatus of Claim 5, wherein changing the list selection point to relate to a different list position comprises:

decreasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction; and

increasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction.

7. The apparatus of any of Claims 5-6, wherein changing the list selection point to relate to a different list position is based, at least in part, on magnitude of the rotational pivot input.

5 8. The apparatus of any of Claims 1-7, wherein the operation is based, at least in part, on a position of the release input.

9. The apparatus of any of Claims 1-8, wherein the apparatus comprises a display.

10 10. A method comprising:
receiving an indication of a continuous stroke input comprising a
contact input, a movement input, a rotational pivot input, and a release
input;
15 identifying a content element based, at least in part, on the contact
input;
determining an operation associated with the content element
based, at least in part, on the rotational pivot input; and
performing the operation based, at least in part, on the release input.

20 11. The method of Claim 10, wherein the determination of the operation associated with the content element comprises:

causing display of an operations list based, at least in part, on the
rotational pivot input; and
25 selecting the operation from the operations list based, at least in part, on
the rotational pivot input.

12. The method of Claim 11, further comprising:
determining an initial orientation associated with the rotational pivot input;
determining that a current orientation associated with the rotational pivot
30 input fails to correspond with the initial orientation, wherein causation of display
of the operations list is based, at least in part on the determination that the current

orientation associated with the rotational pivot input fails to correspond with the initial orientation;

determining that a current orientation associated with the rotational pivot input corresponds with the initial orientation; and

5 causing termination of display of the operations list based, at least in part, on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation.

13. The method of any of Claims 11-12, further comprising:

10 receiving an indication of another movement input that is comprised by the continuous stroke input; and

causing termination of display of the operations list based, at least in part, on the other movement input.

15 14. The method of any of Claims 11-13, wherein the selection of an operation from the operations list comprises:

determining a list selection point to relate to an initial list position in the operations list; and

20 changing the list selection point to relate to a different list position based, at least in part, on direction of rotation of the rotational pivot input, wherein the operation corresponds with the list position.

15. The method of Claim 14, wherein changing the list selection point to relate to a different list position comprises:

25 decreasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a clockwise direction; and

increasing list position related to the selection point based, at least in part, on the direction of the rotational pivot input relating to a counter-clockwise direction.

30

16. The method of any of Claims 14-15, wherein changing the list selection point to relate to a different list position is based, at least in part, on magnitude of the rotational pivot input.

5

17. At least one computer-readable medium encoded with instructions that, when executed by a processor, perform:

10

receiving an indication of a continuous stroke input comprising a contact input, a movement input, a rotational pivot input, and a release input;

identifying a content element based, at least in part, on the contact input;

determining an operation associated with the content element based, at least in part, on the rotational pivot input; and

15

performing the operation based, at least in part, on the release input.

18. The medium of Claim 17, wherein the determination of the operation associated with the content element comprises:

20

causing display of an operations list based, at least in part, on the rotational pivot input; and

selecting the operation from the operations list based, at least in part, on the rotational pivot input.

25

19. The medium of Claim 18, wherein the medium is further encoded with instructions that, when executed by the processor, perform:

determining an initial orientation associated with the rotational pivot input;

determining that a current orientation associated with the rotational pivot input fails to correspond with the initial orientation, wherein causation of display of the operations list is based, at least in part on the determination that the current orientation associated with the rotational pivot input fails to correspond with the initial orientation;

30

determining that a current orientation associated with the rotational pivot input corresponds with the initial orientation; and

causing termination of display of the operations list based, at least in part, on the determination that the current orientation associated with the rotational pivot input corresponds with the initial orientation.

5

20. The medium of any of Claims 18-19, wherein the medium is further encoded with instructions that, when executed by the processor, perform:

receiving an indication of another movement input that is comprised by the continuous stroke input; and

10

causing termination of display of the operations list based, at least in part, on the other movement input.

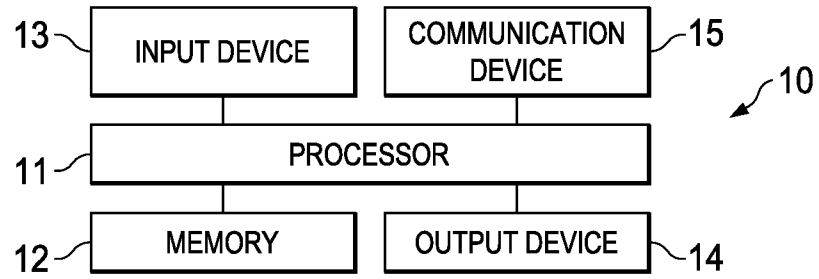


FIG. 1

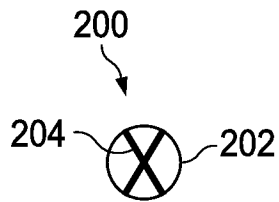


FIG. 2A

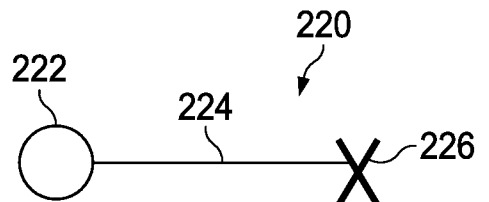


FIG. 2B

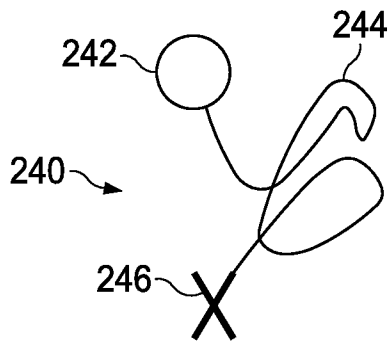


FIG. 2C

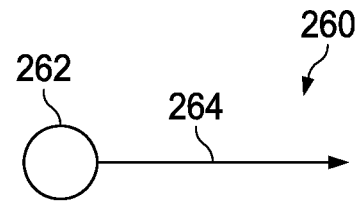


FIG. 2D

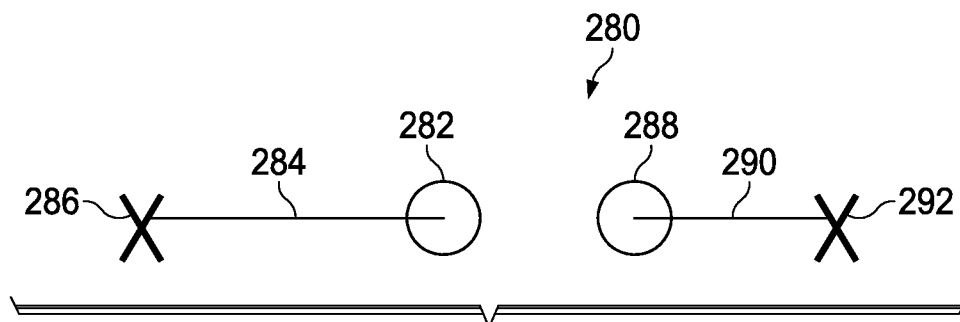


FIG. 2E

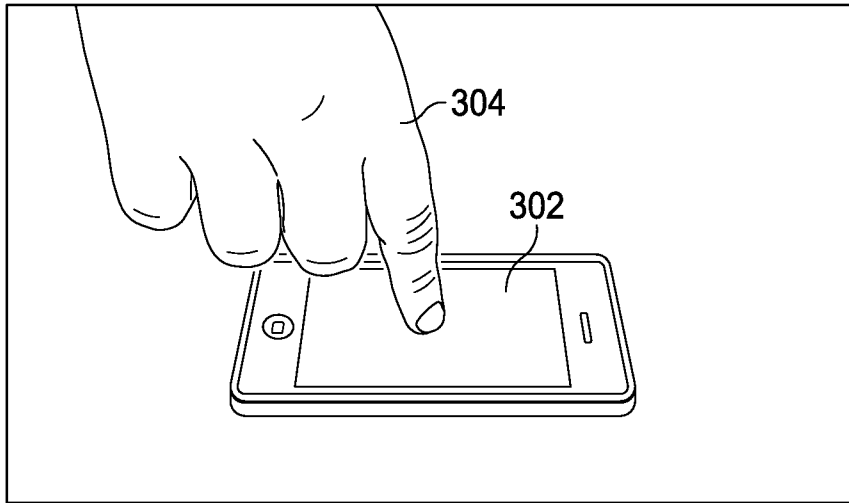


FIG. 3A

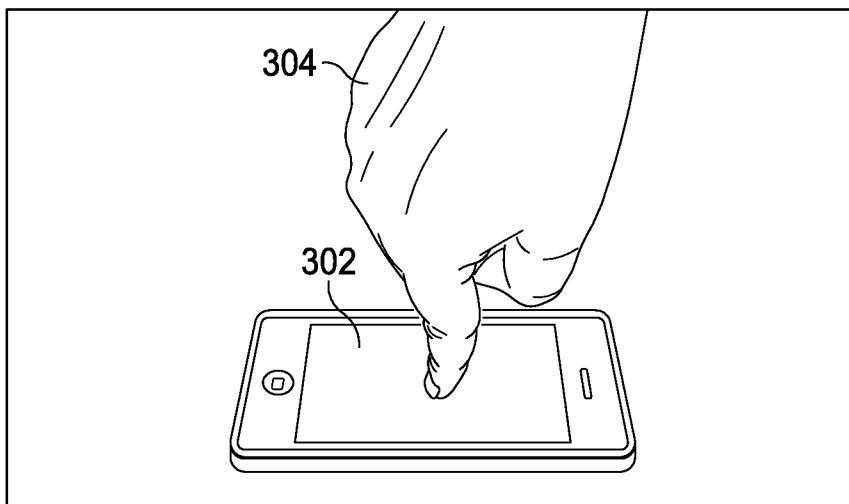


FIG. 3B

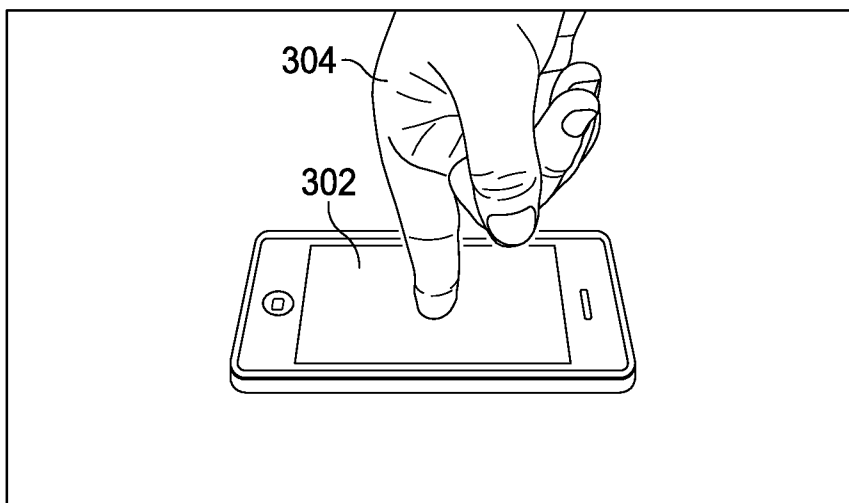


FIG. 3C

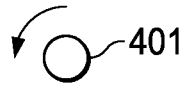


FIG. 4A

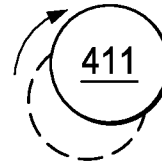


FIG. 4B

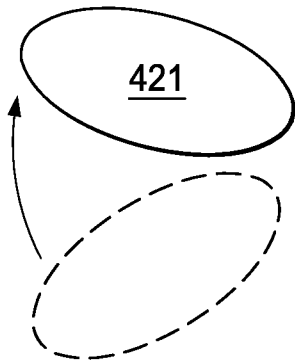


FIG. 4C

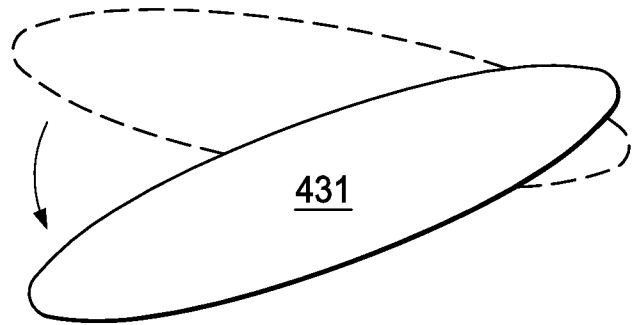


FIG. 4D

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<u>501</u>
<u>502</u>
<u>503</u>
<u>504</u>

FIG. 5A

510

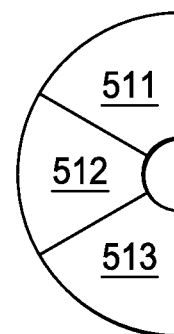


FIG. 5B

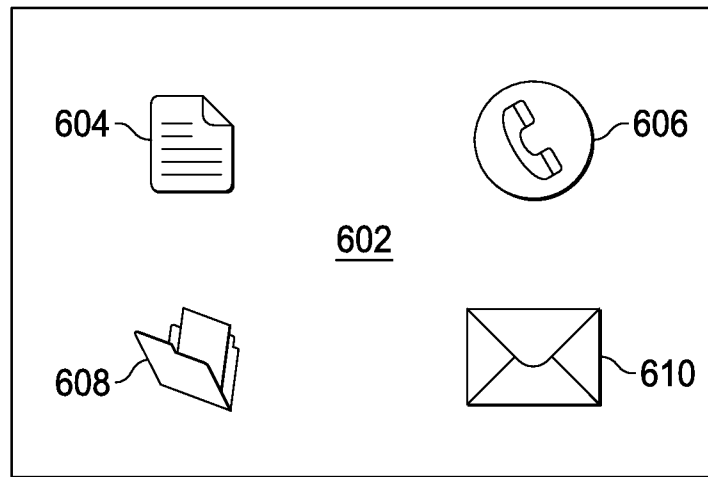


FIG. 6

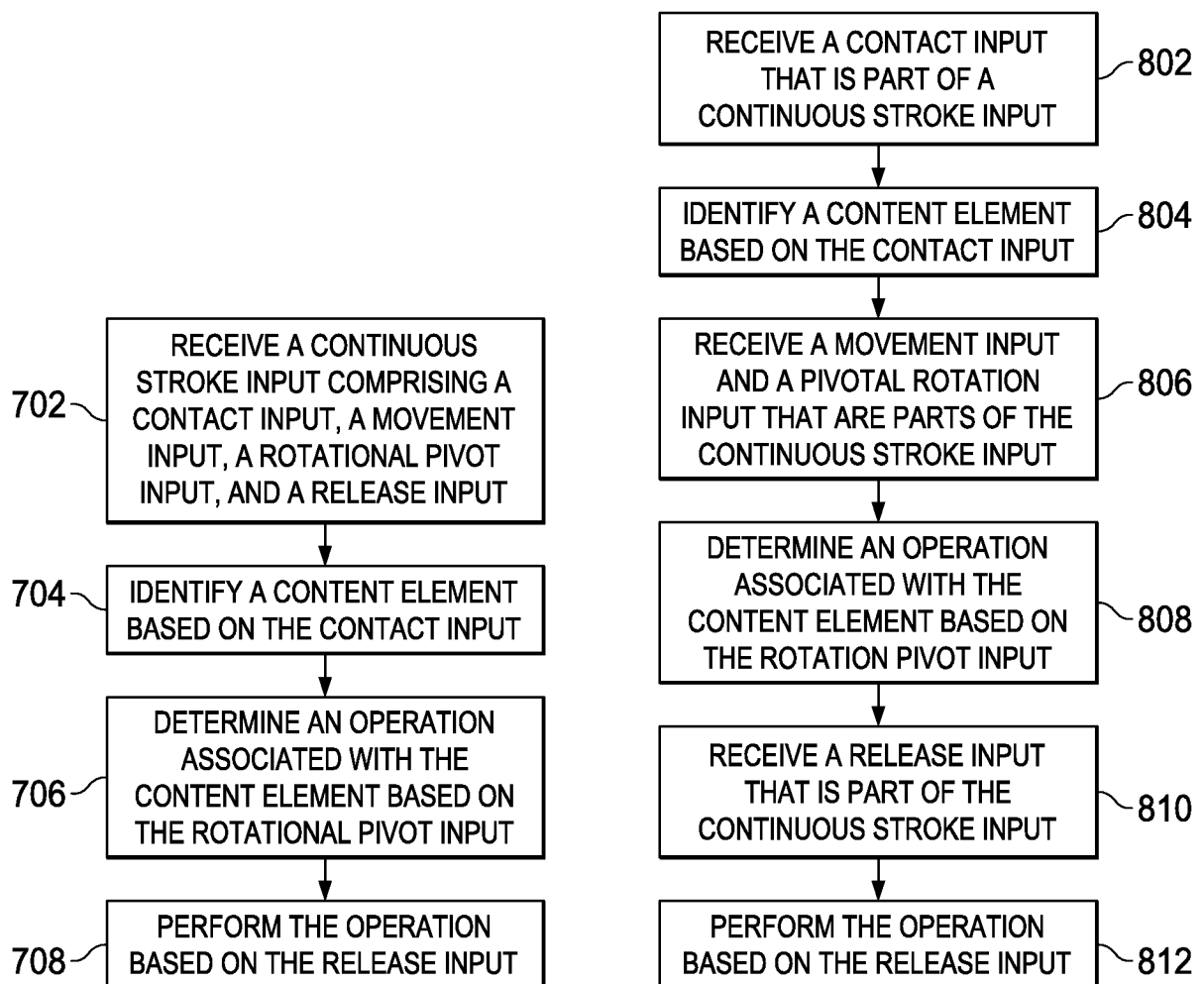


FIG. 7

FIG. 8

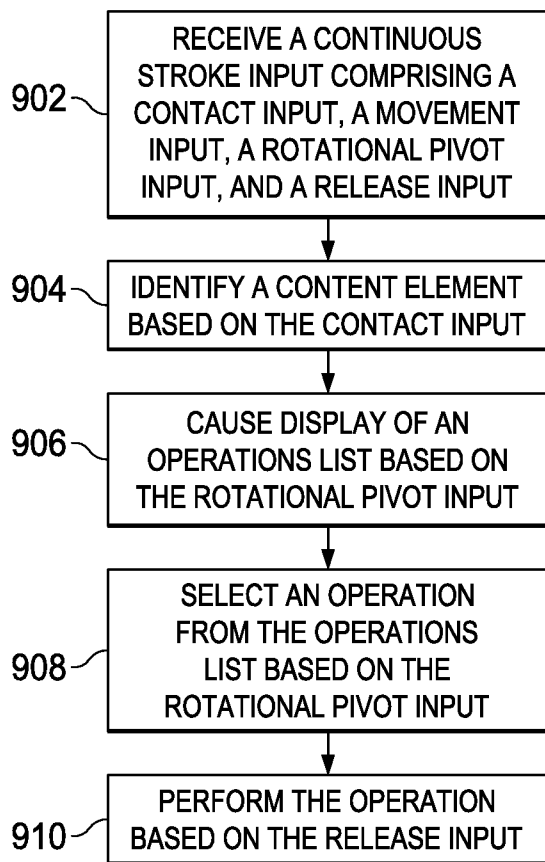


FIG. 9

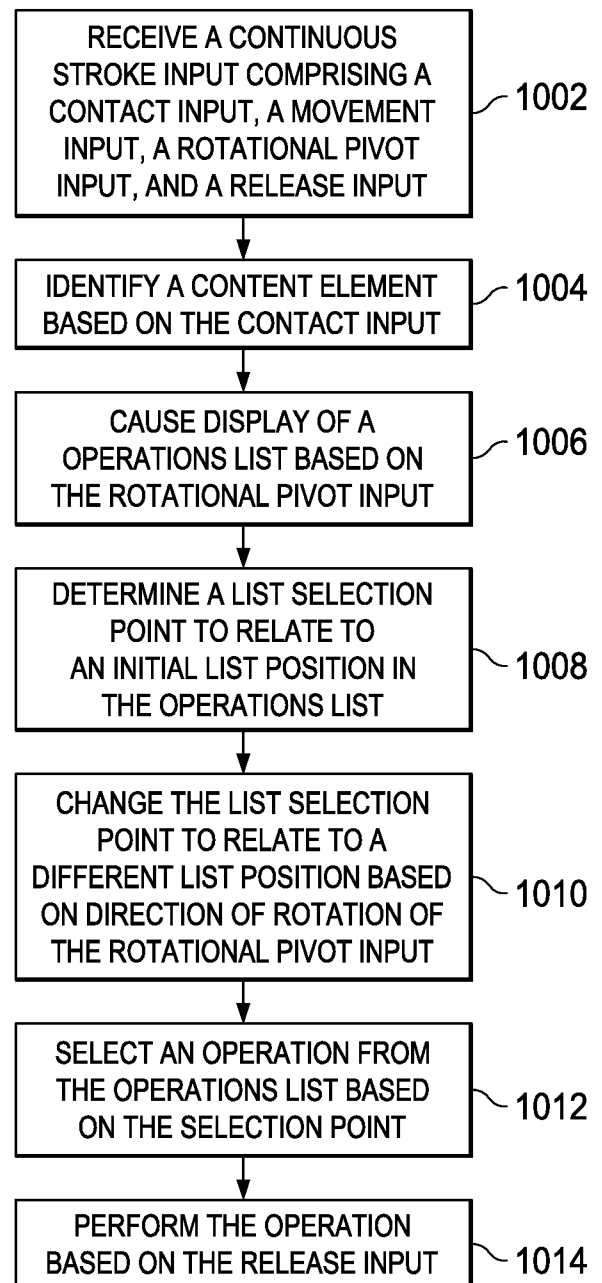


FIG. 10

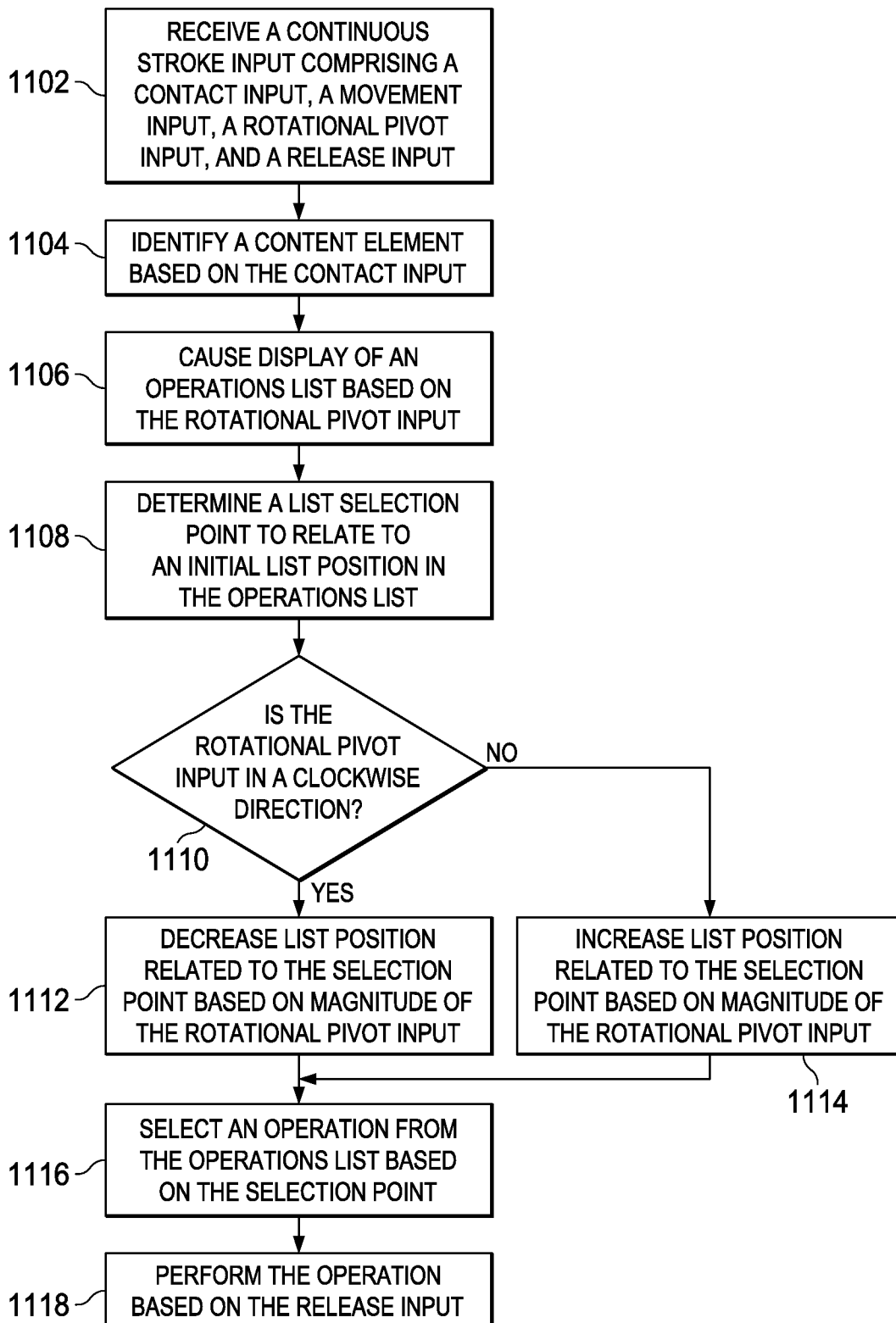


FIG. 11

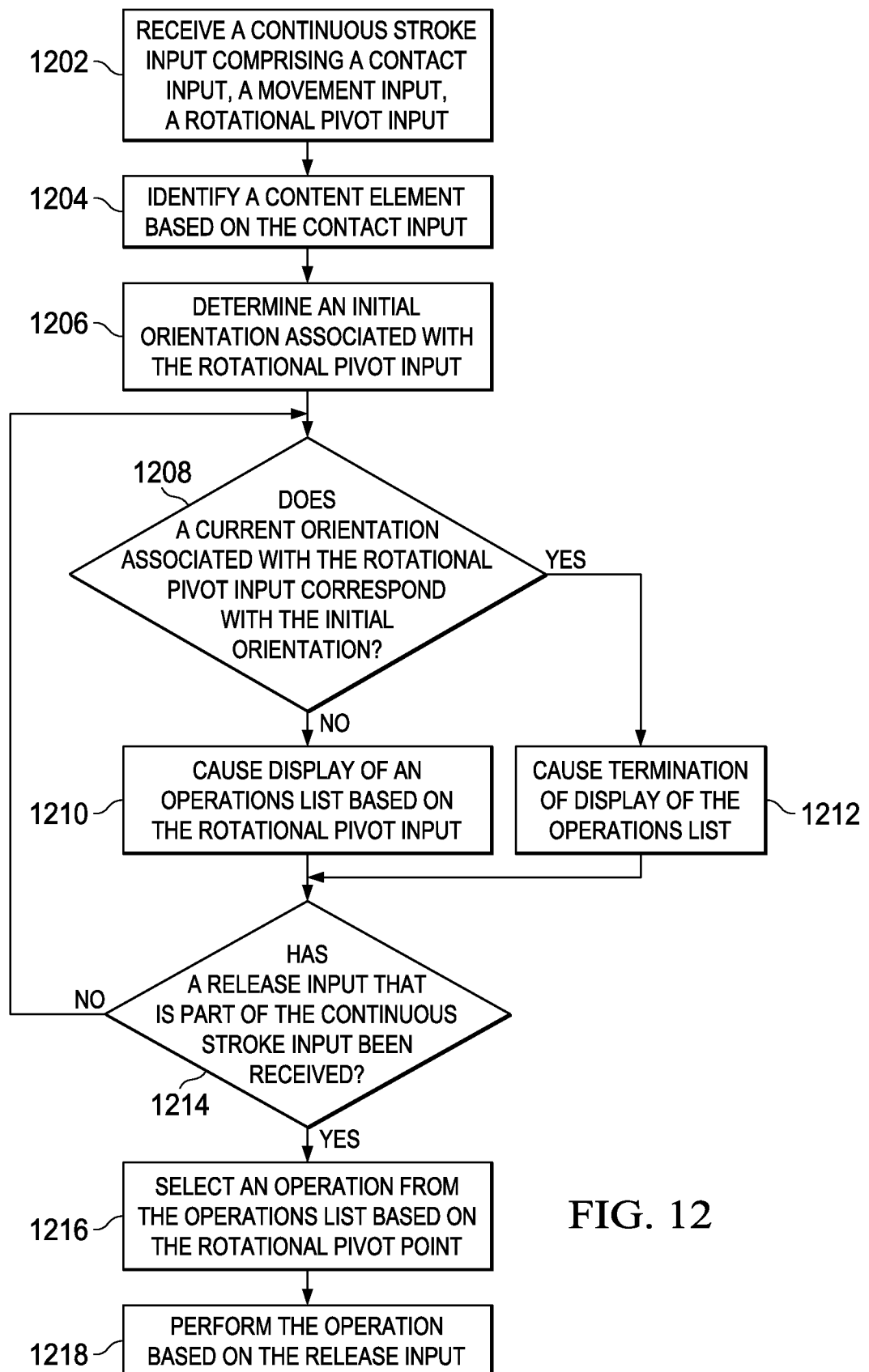


FIG. 12

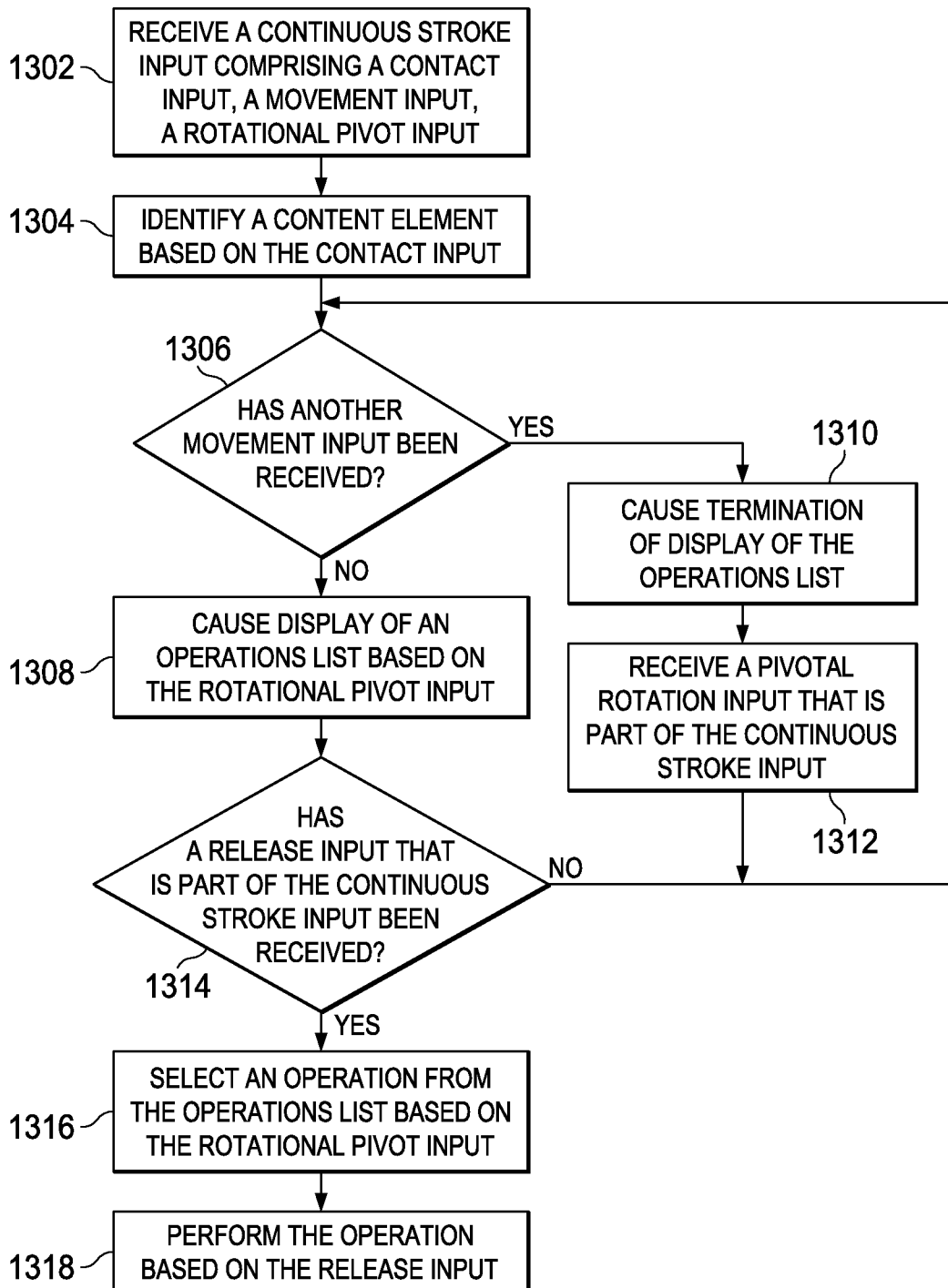


FIG. 13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2013/078427

A. CLASSIFICATION OF SUBJECT MATTER

G06F 3/041 (2006.01) i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: G06F

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

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

CNKI,CNPAT,EPODOC,WPI,IEEE: touch, input, rotational, pivot, move, release, operation, list, menu

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US2008/0062137A1 (APPLE COMPUTER, INC.) 13 March 2008(13.03.2008) see description, paragraphs [0067]-[0071], [0080], [0167]-[0191], [0225]-[0233]	1-20
A	US2007/0291018A1 (SAMSUNG ELECTRONICS CO., LTD.) 20 December 2007 (20.12.2007) the whole document	1-20
A	US2007/0271528A1 (LG ELECTRONICS INC.) 22 November 2007(22.11.2007) the whole document	1-20

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

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

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

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

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

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

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

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

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

“&”document member of the same patent family

Date of the actual completion of the international search
07 March 2014(07.03.2014)Date of mailing of the international search report
03 Apr. 2014 (03.04.2014)Name and mailing address of the ISA/CN
The State Intellectual Property Office, the P.R.China
6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China
100088
Facsimile No. 86-10-62019451

Authorized officer

ZHAO, Xiaochun

Telephone No. (86-10)62413113

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2013/078427

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
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