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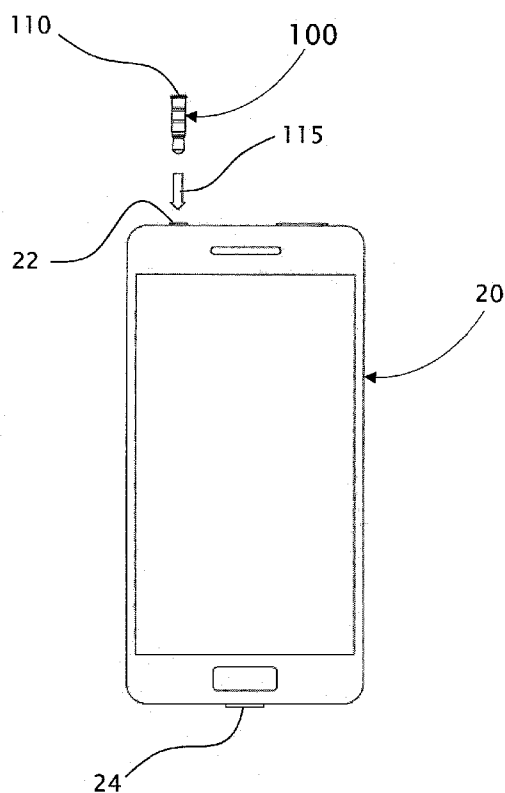


Fig. 1

(57) Abstract: A selecting device coupled to operate with a port of a smart-phone, wherein the device configured to perform variety of activities on the smart-phone, using customized sequences of button presses. For example, pressing the button a single time activates the camera of the smart-phone and pressing the button twice activates the flashlight of the smart-phone.



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APPLICATION SELECTING DEVICE COUPLED TO OPERATE WITH A SMART-PHONE CONNECTOR AND METHODS OF USE THEREOF

FIELD OF THE INVENTION

The present invention relates to an application selecting device coupled to operate with a designated smart-phone connector such as an earphone jack, a charging port, a USB connector, an HDMI connector or any other port for an external device.

BACKGROUND OF THE INVENTION

Mobile electronic devices, such as smart-phones, are becoming increasingly more popular and are expected to be more compact and friendly to use. As a result, there is less room for input mechanisms, such as function keys. The small size of most smart-phones also makes it difficult for some users with physical disabilities to operate function using the touch screen.

Auguste, et al, US8,405,606, disclose a remote control system comprising: a remote control device operative to develop a plurality of button control signals; and a button actuator responsive to the button control signals. The button actuator includes: a frame configured to engage a digital electronic display device, a physical actuator configured to move with respect to the frame between a neutral position and a button-press position, a motor coupled to the physical actuator to move the physical actuator between the neutral position and the button-press position, a digital controller operative to develop motor control signals, a motor controller coupled between the digital controller and the motor, and a remote control interface coupled to the digital controller and operative to receive the plurality of button control signals from the remote control device; whereby when the frame is engaged with a digital electronic display device, the remote control device is operative to cause the physical actuator to press a real or virtual button of the digital electronic display device and thereby control a functionality of the digital electronic display device.

Ladoucer, EP2458474 discloses an input mechanism for a mobile electronic device is disclosed. A cap shaped to wrap around an edge of the mobile electronic device is moveable in a first direction and a second direction. A first switch for activating a first function is covered by the cap and actuatable upon movement of the cap in the first direction toward the first switch. A second switch for activating a second function is covered by the cap and actuatable upon movement of the cap in the second direction toward the second switch. Ladoucer further discloses a mobile electronic device, compatible to the input mechanism, comprising: an input mechanism comprising a processor for implementing the first function upon actuation of the first switch and the second function upon actuation of the second switch; and a circuit connecting the input mechanism to the processor.

There is a long felt need for smart-phones and other mobile communication devices to have a simplified mechanism for a user to activate a desired application of an "of the shelf" mobile communication device.

SUMMARY OF THE INVENTION

It is one object of the present invention to disclose a selecting device coupled to operate with a port of a smart-phone, wherein said device configured to perform variety of activities on said smart-phone, using customized sequences of button presses.

It is another object of the present invention to disclose the device as defined above, wherein said port is an earphone jack.

It is another object of the present invention to disclose the device as defined above, wherein said port is selected from a group consisting of: charging port, USB connector, and HDMI connector.

It is another object of the present invention to disclose the device as defined above, wherein said customized sequences of button presses are defined and controlled by non-transitory computer readable instructions stored on said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said non-transitory computer readable instructions include an application programming interface (API) to facilitate a third party vendor to embed software instructions therein.

It is another object of the present invention to disclose the device as defined above, wherein said variety of activities are configured for at least one action selected from a group consisting of:

- a. acquire an image frame or a sequence of image frames;
- b. turn on and turn off a flashlight, by means of a LED light;
- c. start and end a voice recording session;
- d. start and end a video recording session;
- e. launch and dismiss a software application;
- f. change said smart-phone's settings;
- g. send current location of said smart-phone;
- h. toggle between WiFi, Bluetooth, and cellular communication means;
- i. initiate and end a phone call session;
- j. activate and deactivate a navigation application;
- k. check-in and leave a predetermined social network;
- l. send an emergency message;
- m. select predefined options within a software application; and
- n. any combination thereof.

It is another object of the present invention to disclose the device as defined above, wherein said device further configured to be coupled to and operate at least one other device selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).

It is another object of the present invention to disclose the device as defined above, wherein said device comprising a body and an activation button configured to be depressed by said sequences of button presses.

It is another object of the present invention to disclose the device as defined above, wherein structure of said body is of standard earphone connector, having at least two conductive regions selected from a group consisting of: ground-pin, mic-pin, right-pin and left-pin; all conductive regions are separated by insulators.

It is another object of the present invention to disclose the device as defined above, wherein said activation button configured to be held in an OFF-position by a biasing element, and in ON-position, when pressed against said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said biasing element is electrically conductive and when depressed towards said smart-phone it is configured to electrically interconnect at least two of said conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said device further comprising a helical string, connected between said activation button and said biasing element, configured to facilitate a semi-press to said activation button.

It is another object of the present invention to disclose the device as defined above, wherein number of interconnected said conductive regions is set by said semi-press.

It is another object of the present invention to disclose the device as defined above, wherein said biasing element is elastic metal-dome.

It is another object of the present invention to disclose the device as defined above, wherein said activation button is configured for use of a user's finger.

It is another object of the present invention to disclose the device as defined above, wherein said activation button is configured to exploit said finger electronic connectivity to electronically connect said at least two conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said device is built into a body of a smart-phone protecting cover.

It is another object of the present invention to disclose the device as defined above, wherein said protecting cover further comprising at least one cover-activation-button built into said body of said protecting cover, and wired by at least one wire to be operatively coupled with at least one of said conductive regions, such that when said at least one activating button is depressed at least two of said conductive regions are electrically connected.

It is another object of the present invention to disclose the device as defined above, wherein each of said sequences of button presses comprising at least one click characterized by press time and at least one pause, and wherein each of said sequences is characterized by a predetermined stack of predefined short and/or predefined long clicks, pauses and their order.

It is another object of the present invention to disclose the device as defined above, wherein said device further comprising a securing element, configured for securing said device to said smart-phone and for removal of said device from said port.

It is another object of the present invention to disclose the device as defined above, wherein said securing element configured to activate an alarm application upon separation from said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said securing element comprises a tying-ring with an first opening, and an engagement-ring with a second opening; said tying-ring configured to be secured to a user's accessory; said engagement-ring configured to fasten said device's body under a annular rib of said device, between said smart-phone and said activation button, such that said device is removed from said smart-phone by pulling out said securing element.

It is another object of the present invention to disclose the device as defined above, wherein said activation button comprises a current resisting element.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is located underneath said biasing element.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is a printed circuit board (PCB) with conductive section and a resistor configured to control said electrical interconnection of at least two of said conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said resistor is a costume resistor with resistance between about 0.1 and about 60 Kilo Ohm.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is made of conductive polymer material.

It is another object of the present invention to disclose a method for selection of a software-application of a smart-phone or a predetermined option within a software-application of said smart-phone comprising steps of:

- a. providing said smart-phone with a selecting device, configured for performing variety of activities on said smart-phone; said device comprises a body and an activation button configured to be depressed by sequences of button presses;
- b. providing said smart-phone with a selection-application for activating said device; selection-application said configured by a non-transitory computer readable instructions;
- c. coupling said device with a port of said smart-phone;
- d. activating said selection-application, by pressing said activation button with a pressing-sequence;
- e. analyzing said pressing-sequence, by means of determining at least one predefined long and/or predefined short press, at least one pause and their order;
- f. identifying said pressing-sequence out of at least one predefined pressing-sequence associated with at least one said software-application or said predetermined option within said software-application;
- g. activating desired said software-application or said predetermined option within said software-application of said smart-phone.

It is another object of the present invention to disclose the method as defined above, wherein said port is an earphone jack.

It is another object of the present invention to disclose the method as defined above, further comprising step of selecting said port a group a consisting of: charging port, USB connector, and HDMI connector.

It is another object of the present invention to disclose the method as defined above, further comprising step of customizing at least one said pressing sequence of button presses.

It is another object of the present invention to disclose the method as defined above, further comprising a step of selecting an action, for said step of activating as in step g, from a group consisting of:

- a. acquiring an image frame or a sequence of image frames;
- b. turning on and turning off a flashlight, by means of a LED light;
- c. starting or ending a voice recording session;
- d. starting or ending a video recording session;
- e. launching or dismissing a software-application;
- f. changing said smart-phone's settings;
- g. sending current location of said smart-phone;
- h. toggling between WiFi, Bluetooth, and cellular communication means;
- i. initiating and ending a phone call session;
- j. activating or deactivating a navigation application;
- k. checking-in or leaving a predetermined social network;
- l. sending an emergency message;
- m. selecting predefined options within a software application; and
- n. any combination thereof.

It is another object of the present invention to disclose the method as defined above, wherein step of selecting said action depends upon current software status of said smart-phone;

It is another object of the present invention to disclose the method as defined above, further comprising step of coupling said device to at least one other device selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).

It is another object of the present invention to disclose the method as defined above, further comprising step of providing said device within a body of a smart-phone protecting cover.

It is another object of the present invention to disclose the method as defined above, further comprising step of providing said device with a securing element, configured for securing said device to said smart-phone and for removing of said device from said port.

It is another object of the present invention to disclose the method as defined above, further comprising step activating an alarm upon separation of said securing element from said smart-phone.

It is another object of the present invention to disclose a selecting device to be coupled to a port of a smart-phone comprising:

- a. a body; and
- b. an activation button configured to be depressed by sequences of button-presses, for activation of said smart-phone;

wherein structure of said body has at least two electro conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said port is an ear-phone jack; and wherein said structure of said body is of standard earphone connector; and wherein said at least two electro conductive regions are selected from a group consisting of: ground-pin, mic-pin, right-pin and left-pin.

It is another object of the present invention to disclose the device as defined above, wherein said at least two electro conductive regions are separated by insulators.

It is another object of the present invention to disclose the device as defined above, wherein said port is selected from a group consisting of: ear-phone jack, charging port, USB connector, and HDMI connector.

It is another object of the present invention to disclose the device as defined above, wherein said activation button configured to be held in an OFF-position by a biasing element, and in ON-position, when pressed against said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said biasing element is electrically conductive and when depressed towards said smart-phone it is configured to electrically interconnect at least two of said at least two electro conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said device further comprising a helical string, connected between said activation button and said biasing element, configured to facilitate a semi-press to said activation button.

It is another object of the present invention to disclose the device as defined above, wherein number of interconnected said at least two electro conductive regions is set by said semi-press.

It is another object of the present invention to disclose the device as defined above, wherein said biasing element is elastic metal-dome.

It is another object of the present invention to disclose the device as defined above, wherein said activation button is configured for use of a user's finger.

It is another object of the present invention to disclose the device as defined above, wherein said activation button is configured to exploit said finger's electric conductivity for electronic connection of said at least two of said at least two electro conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said device is configured to be built into a body of a smart-phone protecting cover.

It is another object of the present invention to disclose the device as defined above, wherein said protecting cover further comprising at least one cover-activation-button built into said body, and wired by at least one wire to be operatively coupled with at least two of said at least two electro conductive regions, such that when said at

least one cover-activating-button is depressed, at least two of said at least two electro conductive regions are electrically connected.

It is another object of the present invention to disclose the device as defined above, wherein each of said sequences of button-presses comprises at least one click characterized by press time and at least one pause, and wherein each of said sequences is characterized by a predetermined stack of predefined short and/or predefined long clicks, pauses and their order.

It is another object of the present invention to disclose the device as defined above, wherein said device further comprising a securing element, configured to secure said device to said smart-phone and for removal of said device from said port.

It is another object of the present invention to disclose the device as defined above, wherein said securing element configured to activate an alarm application, upon separation from said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said securing element comprises a tying-ring with an first opening, and an engagement-ring with a second opening; said tying-ring configured to be secured to a user's accessory; said engagement-ring configured to fasten said device's body under a annular rib of said device between said smart-phone **20** and said activation button, such that said device can be removed from said smart-phone by pulling out said securing element.

It is another object of the present invention to disclose the device as defined above, wherein said activation button comprises a current resisting element.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is located underneath said biasing element.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is a printed circuit board (PCB) with conductive section and a resistor configured to control said electrical interconnection between said at least two of said at least two electro conductive regions.

It is another object of the present invention to disclose the device as defined above, wherein said resistor is a costume resistor with resistance between about 0.1 and about 60 Kilo Ohm.

It is another object of the present invention to disclose the device as defined above, wherein said current resisting element is made of conductive polymer material.

It is another object of the present invention to disclose the device as defined above, wherein said customized sequences of button-presses are defined and controlled by non-transitory computer readable instructions stored on said smart-phone.

It is another object of the present invention to disclose the device as defined above, wherein said non-transitory computer readable instructions include an application programming interface (API) to facilitate a third party vendor to embed software instructions therein.

It is another object of the present invention to disclose the device as defined above, wherein said activation of said smart-phone is at least one selected from a group consisting of:

- a. acquire an image frame or a sequence of image frames;
- b. turn on and turn off a flashlight, by means of a LED light;
- c. start and end a voice recording session;
- d. start and end a video recording session;
- e. launch and dismiss a software application;
- f. change said smart-phone's settings;
- g. send current location of said smart-phone;
- h. toggle between WiFi, Bluetooth, and cellular communication means;
- i. initiate and end a phone call session;
- j. activate and deactivate a navigation application;
- k. check-in and leave a predetermined social network;
- l. send an emergency message;
- m. select predefined options within a software application; and
- n. any combination thereof.

It is still an object of the present invention to disclose the device as defined above, wherein said activation is selected according to current software status of said smart-phone.

It is lastly an object of the present invention to disclose the device as defined above, wherein said device further configured to be coupled to- and for operation of- at least one selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become fully understood from the detailed description given herein below and the accompanying drawings, which are given by way of illustration and example only, and thus not limiting in any way, wherein:

Figs. 1 and 2 include side views of an application selecting device;

Fig. 3 includes a top perspective view of the application selecting device;

Figs. 4, 5 and 6 are cross section views of an application selecting device;

Fig. 7 is demonstrating the selecting device, built into a smart-phone protecting cover;

Figs. 8 and 9 are schematic diagrams demonstrating the use of the selecting device;

Figs. 10 and 11 are describing a securing element for the selecting device; and

Figs. 12, 13A, 13B and 13C are describing a current resisting element for the selecting device's pressing button.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which preferred embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided, so that this disclosure will be thorough and complete, and will fully convey the scope of the invention to those skilled in the art.

Meanings of technical and scientific terms used herein are to be commonly understood as to which the invention belongs, unless otherwise defined. The present invention can be implemented in the testing or practice with methods and materials equivalent or similar to those described herein. It should be noted that orientation related descriptions such as “bottom”, “up”, “upper”, “down”, “lower”, “top” and the like, assumes that the associated item is in operationally situated.

The term 'shortening' refers hereinafter to an electrical connection.

The present invention provides a selecting device **100,200** coupled to operate with a port of a smart-phone **20**, wherein said device **100,200** configured to perform variety of activities on said smart-phone **20**, using customized sequences of button presses ("clicks").

According to a preferred embodiment the device is small, light and compact, like a nail for example; the device can be easily installed and easily removed and stored in a pocket, wallet, key chain and such.

The present invention further provide a method for selection of a software-application of a smart-phone **20** or a predetermined option within a software-application of said smart-phone **20** comprising steps of:

- a. providing said smart-phone **20** with a selecting device **100,200**, configured for performing variety of activities on said smart-phone **20**; said device **100,200** comprises a body **120,220** and an activation button **110,210** configured to be depressed by sequences of button presses;
- b. providing said smart-phone **20** with a selection-application **250** for activating said device **100,200**; selection-application **250** said configured by a non-transitory computer readable instructions;
- c. coupling said device **100,200** with a port of said smart-phone **20**;
- d. activating said selection-application **250**, by pressing said activation button **110,210** with a pressing-sequence;
- e. analyzing said pressing-sequence, by means of determining at least one predefined long and/or predefined short press, at least one pause and their order;
- f. identifying said pressing-sequence out of at least one predefined pressing-sequence associated with at least one said software-application or said predetermined option within said software-application;

activating desired said software-application or said predetermined option within said software-application of said smart-phone **20**.

Reference is made to the drawings. Fig. 1 is a side view of an application selecting device **100** coupled to operate with the earphone jack **22** of a smart-phone **20**, according to embodiments of the present invention.

Application selecting device **100** to perform a variety of activities on smart-phone **20**, using simple, customized clicks. The customized sequences of button presses are defined and controlled by non-transitory computer readable instructions ("Button Application") stored on smart-phone **20**. Optionally, the computer readable instructions include an application programming interface (API) that facilitates third party vendors to embed their own software instructions therein.

A predefined sequence of presses of application selecting device **100** may include:

- a. acquire an image frame or a sequence of image frames;
- b. turn on and turn off a flashlight, by means of a LED light;
- c. start and end a voice recording session;
- d. start and end a video recording session;
- e. launch and dismiss a software application;
- f. change said smart-phone **20** settings;
- g. send current location of said smart-phone **20**;
- h. toggle between WiFi, Bluetooth, and cellular communication means;
- i. initiate and end a phone call session;
- j. activate and deactivate a navigation application;
- k. check-in and leave a predetermined social network
- l. send an emergency message; and
- m. any combination thereof.

Application selecting device **100** includes a body **120** and an activation button **110**. After application selecting device **100** is inserted into earphone jack **22** of a smart-phone **20**, and is in operational position within earphone jack **22** of a smart-phone **20**, application selecting device **100** is ready for operation. When activation button **110** is depressed in a preconfigured sequence of pressing events, the Button Application is activated to identify that sequence of pressing events and thereby activate the application associated with that sequence of pressing events.

It should be noted that the present invention is described in terms of application selecting device **100** being coupled to operate with a smart-phone **20**. But

application selecting device **100** is not limited to operate with a smart-phone **20**, and may be used with other mobile and stationary devices, such as, with no limitations, tablets, MP3 players, computers, laptops, personal digital assist (PDAs), etc.

It should be further noted that the present invention is described in terms of application selecting device **100** being inserted into an operational position within earphone jack **22** of a smart-phone **20**. But is not limited to operate in conjunction with earphone jack **22** of a smart-phone **20**, and may be used with input communication port of a smart-phone **20**. For example, Fig. 2 is a side view of an application selecting device **200** having an activation button **210** coupled to operate with the charging port **24** of a smart-phone **20**, according to some embodiments of the present invention.

Reference is also made to Fig. 3, a top perspective view of application selecting device **100**, including activation button **110**, the activation button being inserted into an operation position inside earphone jack **22** of smart-phone **20**.

Fig. 4 is a side, cross section view of an application selecting device **100**, coupled to operate with earphone jack **22** of smart-phone **20**, according to one embodiments of the present invention. Application selecting device **100** includes a body **120** and an activation button **110**. The structure of body **120** is quite similar to a standard earphone connector, having at least two conductive regions: ground-pin **130** and mic-pin **150**, wherein all conductive regions are separated by insulators **140**. Activation button **110** is held in OFF position (as shown in Fig. 4) by an elastic metal-dome **112** (or any other biasing element).

In the example shown in Fig. 4, when activation button **110** is depressed in direction **115**, elastic metal-dome **112**, being electrically conductive, electrically interconnects ground-pin **130** to mic-pin **150**. Thereby, the Button Application is activated to activate the application associated stored on smart-phone **20**.

It should be noted that right-pin **160** and left-pin **170** are not used in the example embodiment shown in Fig. 4. However, right-pin **160** and left-pin **170** may be used in other variation embodiments, within the scope of the present invention, wherein the shortening between the right-pin **160** and/or the left-pin **170**, and the

ground-pin **130**, may activate other aspects of the Button Application stored on smart-phone **20**.

The shortening between ground-pin **130** and mic-pin **150** may be embodied in other ways known in the art. Some embodiments facilitate a semi-press as well as a full press. Fig. 5 is a side, cross section view of an example application selecting device **102**, coupled to operate with earphone jack **22** of smart-phone **20**. Application selecting device **102** includes a body **121** and an activation button **111**. The structure of body **121** is quite similar to a standard phone connector, having at least three conductive regions: ground-pin **131**, mic-pin **151** and right-pin **161**, wherein all conductive regions are separated by insulators **140**. Activation button **111** is held in OFF position (as shown in Fig. 5) by a helical spring **114** (used by way of example only with no limitation) and elastic metal dome **112** (or any other biasing element).

In the example shown in Fig. 5, when activation button **111** is depressed against helical spring **114**, in direction **115**, until the bottom surface **117** of activation button **111**, being electrically conductive reaches elastic metal-dome **112**, being also electrically conductive, ground-pin **131** to mic-pin **151** are electrically shortened. Thereby, the Button Application is activated to activate an aspect the application associated with the shortening of ground-pin **131** to mic-pin **151**. When activation button **111** is further depressed in direction **115**, elastic metal-dome **112** electrically interconnects ground-pin **131** to right-pin **161**. Thereby, the Button Application is activated to activate another aspect of the application stored on smart-phone **20**, and associated with the shortening of ground-pin **131** to right-pin **161**.

In other embodiments of the present invention, the shortening between ground-pin **130** and mic-pin **150** is performed by a finger of the user. Fig. 6 is a side, cross section view of an application selecting device **104**, coupled to operate with the earphone jack **22** of a smart-phone **20**, according to some embodiments of the present invention, wherein Button Application is electrically activated by the conductivity of user's finger **10**. As the user touches to upper surface **113** of application selecting device **104**, ground-pin **130** and mic-pin **150** shortened to thereby activate the Button Application.

Reference is now made to Fig. 7, a bottom, side perspective view of a protecting cover **600** of a smart-phone, including an application selecting device **620**,

coupled to operate with the earphone jack of a smart-phone, according to some embodiments of the present invention, wherein application selecting device **620** is built into the body **602** protecting cover **600**.

Application selecting device **620** is similar in structure to a standard phone connector, having at least two conductive regions: ground-pin **630** and mic-pin **650**, wherein all conductive regions are separated by insulators. Application selecting device **620** may further include more active regions: right-pin **660** and left-pin **670**.

Protecting cover **600** further includes one or more activation buttons, built into the body **602** protecting cover **600**, and wired to be operatively couple with the active conductive regions of application selecting device **620**. In the example shown in Fig. 7, an activating button **610** is electrically connected by wire **690** to application selecting device **620**, such that when pressing on activating button **610** two preconfigured conductive regions are shorten. Thereby, the Button Application is activated to activate the application associated stored on the smart-phone, operatively coupled with protecting cover **600**.

Similarly, an activating button **612** is electrically connected by wire **692** to application selecting device **620**, such that when pressing on activating button **612** two preconfigured conductive regions are shorten. Thereby, the Button Application is activated to activate the application associated stored on the smart-phone, operatively coupled with protecting cover **600**. Similarly, an activating button **614** is electrically connected by wire **694** to application selecting device **620**, such that when pressing on the activating button **614**, two preconfigured conductive regions are shorten. Thereby, the Button Application is activated to activate the application associated stored on the smart-phone, operatively coupled with protecting cover **600**.

It should be noted that have more then on activation button, facilitates more activation combinations to thereby being able to activate more applications residing on the smart-phone.

Reference is now made to Fig. 8, a schematic flow diagram **300** that outlines an example for the operational steps of selecting an application of a smart-phone **20**, according to embodiments of the present invention. An application selecting device (**100**, **102**, **104**, or the like) of the present invention is provided, and Button

Application of the present invention is installed in smart-phone **20**. Method **300** begins by activating the application selecting device (**100**, **102**, **104**, or the like), in step **310**, for example, by depressing the activation button (**110**, **111**, or the like, or placing his/her finger against surface **113**) by the user. Thereby, the Button Application is also activated.

The example **300** proceeds with the following steps:

Step 320: the user stops pressing the activation button.

The user stops pressing the activation button (**110**, **111**, or the like, or lifting his/her finger from surface **113**).

Step 330: determining if the press was a long press, according to preconfigured time features.

The Button Application determines if the press was a long press. That is, if the press time $T_p > Thr$, wherein Thr is a preconfigured value.

If the press time $T_p > Thr$, go to step **350**.

Step 340: adding a short press to the stack.

It is determined that $T_p \leq Thr$. The Button Application adds a short press to the stack.

Go to step **360**.

Step 350: adding a long press to the stack.

The Button Application adds a long press to the stack.

Step 360: determining if a preconfigured time interval T_i has passed.

The Button Application determines if a preconfigured time interval T_i has passed, since the user relieved the activation button.

If so, the Button Application determines that the current pressing sequence is concluded, as accumulated in the stack.

Go to step **380**.

Step 370: adding a long press to the stack.

It is determined that time interval T_i has not passed yet. The Button Application checks if the user activated the activation button, again.

If the user activated the activation button, go to step **320**.

Else, go to step **360**.

Step 380: Calculating the pressing sequence.

The Button Application analyzes the stack to determine the current pressing sequence.

Step 390: activating the desired application of smart-phone **20**.

The Button Application determines and activates the desired application of smart-phone **20**, associated with the current pressing sequence.

(end of steps details of cyclic process **300**)

Optionally, the activation of the smart-phone application, associated with the determined current pressing sequence, is also determined as a function of the current activity state of the smart-phone. For example, if the current activity state of the smart-phone is ready to acquire a still image frame, running a pressing sequence associated with the camera, will change the activity state of the smart-phone to acquire a sequence of image frames with HD quality. In another example, if the current activity state of the smart-phone is conducting a phone conversation and the user executes a particular pressing sequence, the smart-phone will record the conversation. Otherwise, if no conversation is taking place, the same pressing sequence will activate a voice recorder mode.

Optionally, an environmental condition may replace the current activity state of the smart-phone. For example, a particular pressing sequence may activate a particular application in a particular time interval of the day, and another application, when the current time is not within that particular time interval of the day.

Reference is now made to Fig. 9, a schematic flow diagram **400** that outlines another example for the operational steps of selecting an application of a smart-phone **20**, using an application selecting device (**100**, **102**, **104**, or the like) of the present invention, with dependence on the operational state of smart-phone **20**. After steps **310-380** of method **300**, have been concluded (steps **310-380** are annotated as **302**).

In step **405** of method **400**, the Button Application determines the activity state of smart-phone **20**:

if the activity state of smart-phone **20** is determined to be "A", the Button Application activates (step **410**) the desired application of smart-phone **20**, associated with the current pressing sequence and state "A" of smart-phone **20**;

if the activity state of smart-phone **20** is determined to be "B", the Button Application activates (step **420**) the desired application of smart-phone **20**, associated with the current pressing sequence and state "B" of smart-phone **20**;

hence, if the activity state of smart-phone **20** is determined to be "i", the Button Application activates the desired application of smart-phone **20**, associated with the current pressing sequence and state "i" of smart-phone **20**;

this is performed (step **430**) for each of the "N" states of smart-phone **20**, as defined in the Button Application;

(end of steps details of cyclic process **400**)

Optionally, the present invention further includes a securing element. Reference is now made to Fig. 10, an exploded perspective view of an application selecting device (**100, 102, 104**, or the like) of the present invention, before engaging with a securing element **500**, configured to activate an alarm application upon being separated from smart-phone **20**. Fig. 11 is a perspective view of an application selecting device (**100, 102, 104**, or the like) of the present invention, assembled with securing element **500**, wherein the alarm application is activated upon separation of the application selecting device (**100, 102, 104**, or the like) from smart-phone **20**.

In one embodiment, securing element **500** includes a body composed of a tying-ring **510**, having a first opening **515**, and a smart-phone engagement-ring **520**, having a second opening **525**. Tying-ring **510** is secured to a user's garment or accessory such as the pants, a key holder ring, a bag or any other item of his/her choice, for example by a cord **30**. The application selecting device is inserted through opening **525** of smart-phone engagement-ring **520**, wherein an annular rib **124**, protruding from the external surface of body **120**, at the top section of body **120**, having a wider diameter than opening **525** of smart-phone engagement-ring **520**, removably attaches smart-phone-engagement-ring **520** to smart-phone **20** and activates the Button Application.

Should smart-phone **20** be uncontrollably detached from the application selecting device (**100, 102, 104**, or the like), the Button Application activates an alarm application. The alarm application may, with no limitation, activate a vocal alarm, start transmitting the geographical location of smart-phone **20** and/or call a preconfigured phone number.

Reference is now made to figures 12, 13A, 13B, and 13C disclosing another embodiment for the present invention, where the activation button **110,120** comprises a current resisting element **116**.

According to a preferred embodiment the PCB **116** is located underneath the biasing element **112**, as shown in Fig. 12.

According to another embodiment, current resisting element **116** is a printed circuit board (PCB) **116A** with conductive section **118** and a resistor **119** configured to control the electrical interconnection between the at least two of conductive regions **130, 150, 160, 170**.

According to another embodiment the resistor **119** is a costume bought resistor with resistance which can vary between about 1 and about 60 Kilo Ohm.

According to another embodiment the current resisting element **116** is made of conductive polymer material, having low dielectric strength. Conductive polymers or, more precisely, intrinsically conducting polymers (ICPs) are organic polymers that conduct electricity. Such compounds may have metallic conductivity or can be semiconductors. The linear-backbone "polymer blacks" (polyacetylene, polypyrrole, and polyaniline) and their copolymers are the main class of conductive polymers. Poly (p-phenylene vinylene) (PPV) and its soluble derivatives have emerged as the prototypical electroluminescent semiconducting polymers.

The present invention being thus described in terms of several embodiments and examples, it will be appreciated that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the invention, and all such modifications as would be obvious to one skilled in the art are contemplated.

WHAT IS CLAIMED IS:

1. A selecting device **100,200** coupled to operate with a port of a smart-phone **20**, wherein said device **100,200** configured to perform variety of activities on said smart-phone **20**, using customized sequences of button presses.
2. The device **100** according to claim 1, wherein said port is an earphone jack **22**.
3. The device **200** according to claim 1, wherein said port is selected from a group a consisting of: charging port **24**, USB connector, and HDMI connector.
4. The device **100,200** according to claim 1, wherein said customized sequences of button presses are defined and controlled by non-transitory computer readable instructions stored on said smart-phone **20**.
5. The device **100,200** according to claim 3, wherein said non-transitory computer readable instructions include an application programming interface (API) to facilitate a third party vendor to embed software instructions therein.
6. The device **100,200** according to claim 1, wherein said variety of activities are configured for at least one action selected from a group consisting of:
 - a. acquire an image frame or a sequence of image frames;
 - b. turn on and turn off a flashlight, by means of a LED light;
 - c. start and end a voice recording session;
 - d. start and end a video recording session;
 - e. launch and dismiss a software application;
 - f. change said smart-phone's **20** settings;
 - g. send current location of said smart-phone **20**;
 - h. toggle between WiFi, Bluetooth, and cellular communication means;
 - i. initiate and end a phone call session;
 - j. activate and deactivate a navigation application;
 - k. check-in and leave a predetermined social network;
 - l. send an emergency message;
 - m. select predefined options within a software application; and
 - n. any combination thereof.

7. The device **100,200** according to claim 1, wherein said device **100,200** further configured to be coupled to and operate at least one other device selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).
8. The device **100,200** according to claim 1, wherein said device **100,200** comprising a body **120,220** and an activation button **110,210** configured to be depressed by said sequences of button presses.
9. The device **100** according to claims 2 and 8, wherein structure of said body **120** is of standard earphone connector, having at least two conductive regions selected from a group consisting of: ground-pin **130**, mic-pin **150**, right-pin **160** and left-pin **170**; all conductive regions are separated by insulators **140**.
10. The device **100,200** according to claim 8, wherein said activation button **110,210** configured to be held in an OFF-position by a biasing element **112**, and in ON-position, when pressed against said smart-phone **20**.
11. The device **100** according to claims 9 and 10, wherein said biasing element **112** is electrically conductive and when depressed towards said smart-phone **20** it is configured to electrically interconnect at least two of said conductive regions **130, 150, 160, 170**.
12. The device **100** according to claim 10, wherein said device **100** further comprising a helical string **114**, connected between said activation button **110** and said biasing element **112**, configured to facilitate a semi-press to said activation button **110**.
13. The device **100** according to claims 11 and 12, wherein number of interconnected said conductive regions **130, 150, 160, 170** is set by said semi-press.
14. The device **100,200** according to claim 10, wherein said biasing element **112** is elastic metal-dome.
15. The device **100,200** according to claim 8, wherein said activation button **110** is configured for use of a user's finger **10**.
16. The device **100** according to claim 9 and 15, wherein said activation button **110** is configured to exploit said finger **10** electronic connectivity to electronically connect said at least two conductive regions **130,150,160,170**.

17. The device **100,200** according to claim 1, wherein said device **100,200** is built into a body **602** of a smart-phone protecting cover **600**.
18. The device **100** according to claims 9 and 17, wherein said protecting cover **600** further comprising at least one cover-activation-button **610,612,614** built into said body **602** of said protecting cover **600**, and wired by at least one wire **690,692,694** to be operatively coupled with at least one of said conductive regions **130,150,160,170**, such that when said at least one activating button **610,612,614** is depressed at least two of said conductive regions **130,150,160,170** are electrically connected.
19. The device **100,200** according to claim 1, wherein each of said sequences of button presses comprising at least one click characterized by press time and at least one pause, and wherein each of said sequences is characterized by a predetermined stack of predefined short and/or predefined long clicks, pauses and their order.
20. The device **100,200** according to claim 1, wherein said device **100,200** further comprising a securing element **500**, configured for securing said device **100,200** to said smart-phone **20** and for removal of said device **100,200** from said port **22,24**.
21. The device **100,200** according to claim 20, wherein said securing element **500** configured to activate an alarm application upon separation from said smart-phone **20**.
22. The device **100** according to claim 20, wherein said securing element **500** comprises a tying-ring **510** with an first opening **515**, and an engagement-ring **520** with a second opening **525**; said tying-ring **510** configured to be secured to a user's accessory; said engagement-ring **520** configured to fasten said device's body **210** under a annular rib **124** of said device **100**, between said smart-phone **20** and said activation button **110**, such that said device is removed from said smart-phone **20** by pulling out said securing element **500**.
23. The device **100** according to claim 11, wherein said activation button **110,120** comprises a current resisting element **116**.

24. The device **100** according to claim 23, wherein said current resisting element **116** is located underneath said biasing element **112**.
25. The device **100** according to claim 23, wherein said current resisting element **116** is a printed circuit board (PCB) **116A** with conductive section **118** and a resistor **119** configured to control said electrical interconnection of at least two of said conductive regions **130, 150, 160, 170**.
26. The device **100** according to claim 25, wherein said resistor **119** is a costume resistor with resistance between about 0.1 and about 60 Kilo Ohm.
27. The device **100** according to claim 23, wherein said current resisting element **116** is made of conductive polymer material.
28. A method for selection of a software-application of a smart-phone **20** or a predetermined option within a software-application of said smart-phone **20** comprising steps of:
- providing said smart-phone **20** with a selecting device **100,200**, configured for performing variety of activities on said smart-phone **20**; said device **100,200** comprises a body **120,220** and an activation button **110,210** configured to be depressed by sequences of button presses;
 - providing said smart-phone **20** with a selection-application **250** for activating said device **100,200**; selection-application **250** said configured by a non-transitory computer readable instructions;
 - coupling said device **100,200** with a port of said smart-phone **20**;
 - activating said selection-application **250**, by pressing said activation button **110,210** with a pressing-sequence;
 - analyzing said pressing-sequence, by means of determining at least one predefined long and/or predefined short press, at least one pause and their order;
 - identifying said pressing-sequence out of at least one predefined pressing-sequence associated with at least one said software-application or said predetermined option within said software-application;

- g. activating desired said software-application or said predetermined option within said software-application of said smart-phone **20**.
29. The method according to claim 28, wherein said port is an earphone jack **22**.
30. The method according to claim 28, further comprising step of selecting said port a group consisting of: charging port **24**, USB connector, and HDMI connector.
31. The method according to claim 28, further comprising step of customizing at least one said pressing sequence of button presses.
32. The method according to claim 28, further comprising a step of selecting an action, for said step of activating as in step g, from a group consisting of:
- a. acquiring an image frame or a sequence of image frames;
 - b. turning on and turning off a flashlight, by means of a LED light;
 - c. starting or ending a voice recording session;
 - d. starting or ending a video recording session;
 - e. launching or dismissing a software-application;
 - f. changing said smart-phone's **20** settings;
 - g. sending current location of said smart-phone **20**;
 - h. toggling between WiFi, Bluetooth, and cellular communication means;
 - i. initiating and ending a phone call session;
 - j. activating or deactivating a navigation application;
 - k. checking-in or leaving a predetermined social network;
 - l. sending an emergency message;
 - m. selecting predefined options within a software application; and
 - n. any combination thereof.
33. The method according to claim 32, wherein step of selecting said action depends upon current software status of said smart-phone **20**;
34. The method according to claim 28, further comprising step of coupling said device **100,200** to at least one other device selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).
35. The method according to claim 28, further comprising step of providing said device **100,200** within a body **602** of a smart-phone protecting cover **600**.

36. The method according to claim 28, further comprising step of providing said device **100,200** with a securing element **500**, configured for securing said device **100,200** to said smart-phone **20** and for removing of said device **100,200** from said port **22,24**.
37. The method according to claim 36, further comprising step activating an alarm upon separation of said securing element **500** from said smart-phone **20**.
38. A selecting device **100,200** to be coupled to a port of a smart-phone **20** comprising:
- a. a body **120,220**; and
 - b. an activation button **110,210** configured to be depressed by sequences of button-presses, for activation of said smart-phone **20**;
- wherein structure of said body **120,220** has at least two electro conductive regions.
39. The device **100** according to claim 38, wherein said port is an ear-phone jack **22**; and wherein said structure of said body **120** is of standard earphone connector; and wherein said at least two electro conductive regions are selected from a group consisting of: ground-pin **130**, mic-pin **150**, right-pin **160** and left-pin **170**.
40. The device **100** according to claim 38 or 39, wherein said at least two electro conductive regions are separated by insulators **140**.
41. The device **100,200** according to claim 38, wherein said port is selected from a group a consisting of: ear-phone jack **22**, charging port **24**, USB connector, and HDMI connector.
42. The device **100,200** according to claim 38, wherein said activation button **110,210** configured to be held in an OFF-position by a biasing element **112**, and in ON-position, when pressed against said smart-phone **20**.
43. The device **100,200** according to claim 42, wherein said biasing element **112** is electrically conductive and when depressed towards said smart-phone **20** it is configured to electrically interconnect at least two of said at least two electro conductive regions.

44. The device **100,200** according to claim 42, wherein said device **100,200** further comprising a helical string **114**, connected between said activation button **110** and said biasing element **112**, configured to facilitate a semi-press to said activation button **110,210**.
45. The device **100,200** according to claim 44, wherein number of interconnected said at least two electro conductive regions is set by said semi-press.
46. The device **100,200** according to claim 42, wherein said biasing element **112** is elastic metal-dome.
47. The device **100,200** according to claim 38, wherein said activation button **110,210** is configured for use of a user's finger **10**.
48. The device **100,200** according to claim 47, wherein said activation button **110,210** is configured to exploit said finger's **10** electric conductivity for electronic connection of said at least two of said at least two electro conductive regions.
49. The device **100,200** according to claim 38, wherein said device **100,200** is configured to be built into a body **602** of a smart-phone protecting cover **600**.
50. The device **100,200** according to claim 49, wherein said protecting cover **600** further comprising at least one cover-activation-button **610,612,614** built into said body **602**, and wired by at least one wire **690,692,694** to be operatively coupled with at least two of said at least two electro conductive regions, such that when said at least one cover-activating-button **610,612,614** is depressed, at least two of said at least two electro conductive regions are electrically connected.
51. The device **100,200** according to claim 38, wherein each of said sequences of button-presses comprises at least one click characterized by press time and at least one pause, and wherein each of said sequences is characterized by a predetermined stack of predefined short and/or predefined long clicks, pauses and their order.
52. The device **100,200** according to claim 38, wherein said device **100,200** further comprising a securing element **500**, configured to secure said device **100,200** to said smart-phone **20** and for removal of said device **100,200** from said port.

53. The device **100,200** according to claim 52, wherein said securing element **500** configured to activate an alarm application, upon separation from said smart-phone **20**.
54. The device **100,200** according to claim 52, wherein said securing element **500** comprises a tying-ring **510** with an first opening **515**, and an engagement-ring **520** with a second opening **525**; said tying-ring **510** configured to be secured to a user's accessory; said engagement-ring **520** configured to fasten said device's body **120,220** under a annular rib **124** of said device **100,200**, between said smart-phone **20** and said activation button **110,210**, such that said device can be removed from said smart-phone **20** by pulling out said securing element **500**.
55. The device **100,200** according to claim 38, wherein said activation button **110,210** comprises a current resisting element **116**.
56. The device **100,200** according to claim 55, wherein said current resisting element **116** is located underneath said biasing element **112**.
57. The device **100,200** according to claim 55, wherein said current resisting element **116** is a printed circuit board (PCB) **116A** with conductive section **118** and a resistor **119** configured to control said electrical interconnection between said at least two of said at least two electro conductive regions.
58. The device **100,200** according to claim 57, wherein said resistor **119** is a costume resistor with resistance between about 0.1 and about 60 Kilo Ohm.
59. The device **100,200** according to claim 55, wherein said current resisting element **116** is made of conductive polymer material.
60. The device **100,200** according to claim 38, wherein said customized sequences of button-presses are defined and controlled by non-transitory computer readable instructions stored on said smart-phone **20**.
61. The device **100,200** according to claim 60, wherein said non-transitory computer readable instructions include an application programming interface (API) to facilitate a third party vendor to embed software instructions therein.
62. The device **100,200** according to claim 38, wherein said activation of said smart-phone **20** is at least one selected from a group consisting of:

- a. acquire an image frame or a sequence of image frames;
 - b. turn on and turn off a flashlight, by means of a LED light;
 - c. start and end a voice recording session;
 - d. start and end a video recording session;
 - e. launch and dismiss a software application;
 - f. change said smart-phone's **20** settings;
 - g. send current location of said smart-phone **20**;
 - h. toggle between WiFi, Bluetooth, and cellular communication means;
 - i. initiate and end a phone call session;
 - j. activate and deactivate a navigation application;
 - k. check-in and leave a predetermined social network;
 - l. send an emergency message;
 - m. select predefined options within a software application; and
 - n. any combination thereof.
63. The device **100,200** according to claim 62, wherein said activation is selected according to current software status of said smart-phone **20**.
64. The device **100,200** according to claim 38, wherein said device **100,200** further configured to be coupled to- and for operation of- at least one selected from a group consisting of: tablet, MP3 player, computer, laptop and personal digital assist (PDA).

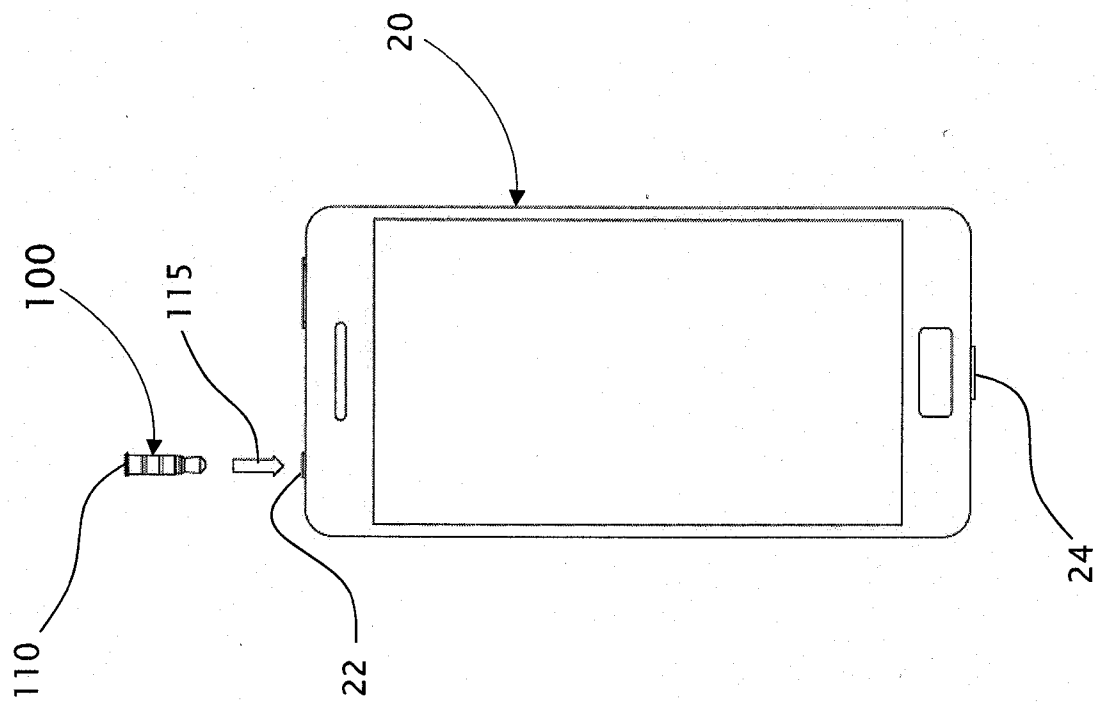


Fig. 1

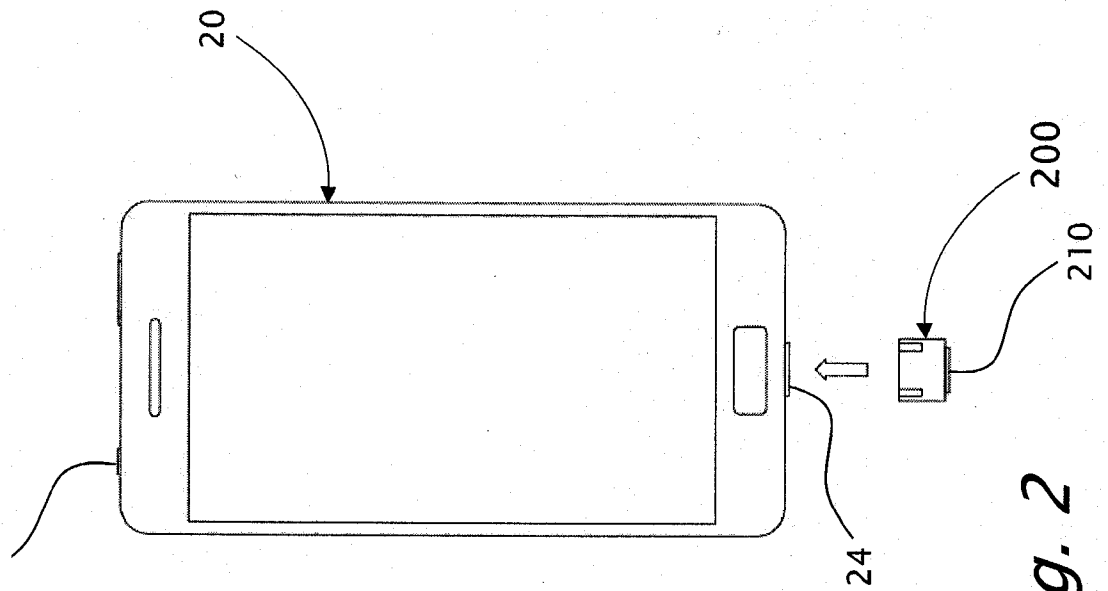


Fig. 2

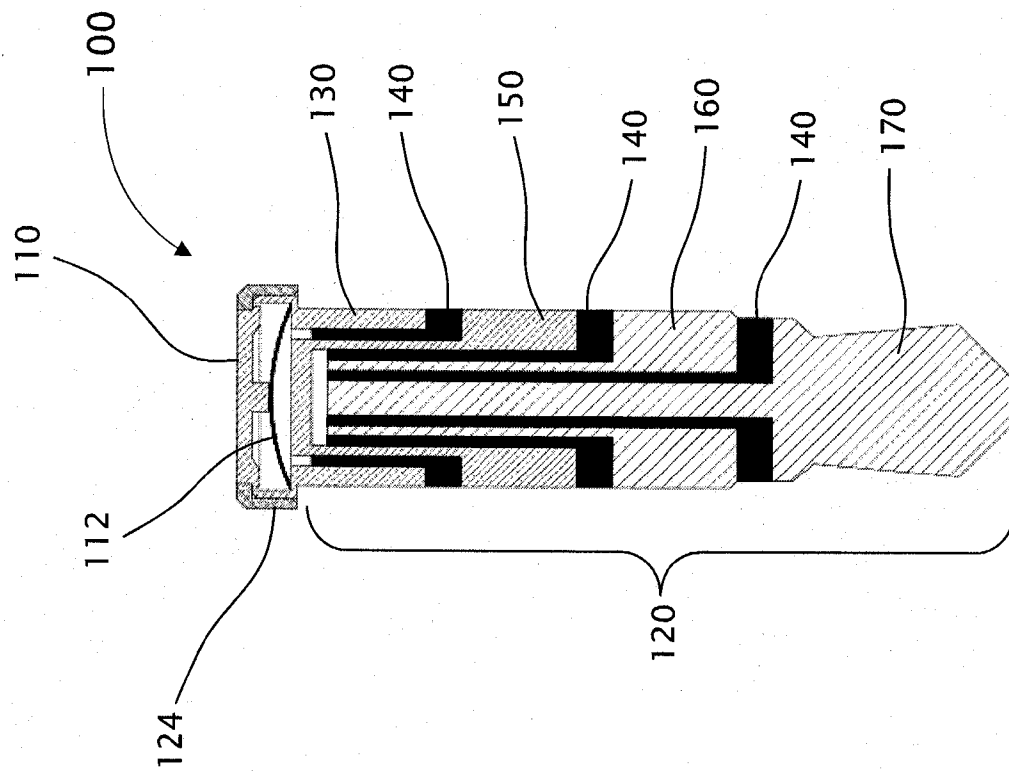


Fig. 4

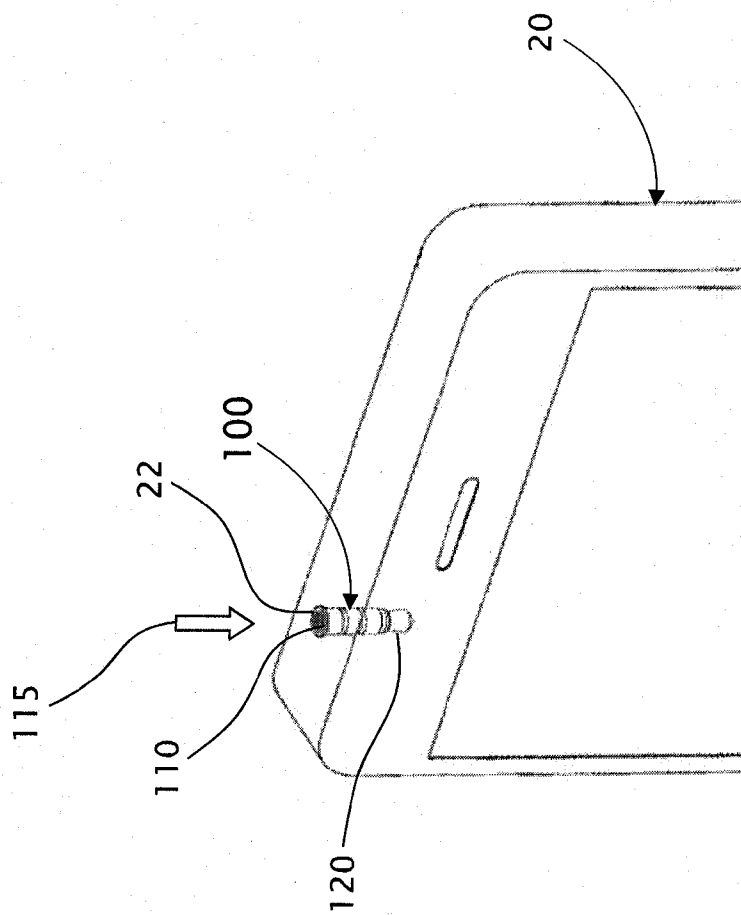


Fig. 3

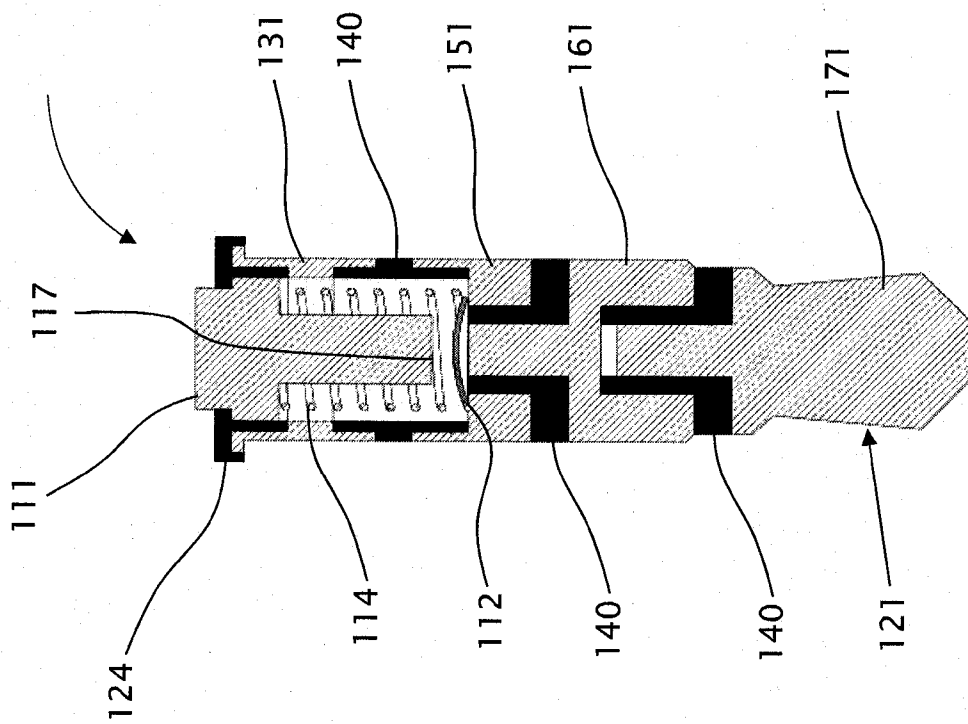


Fig. 5

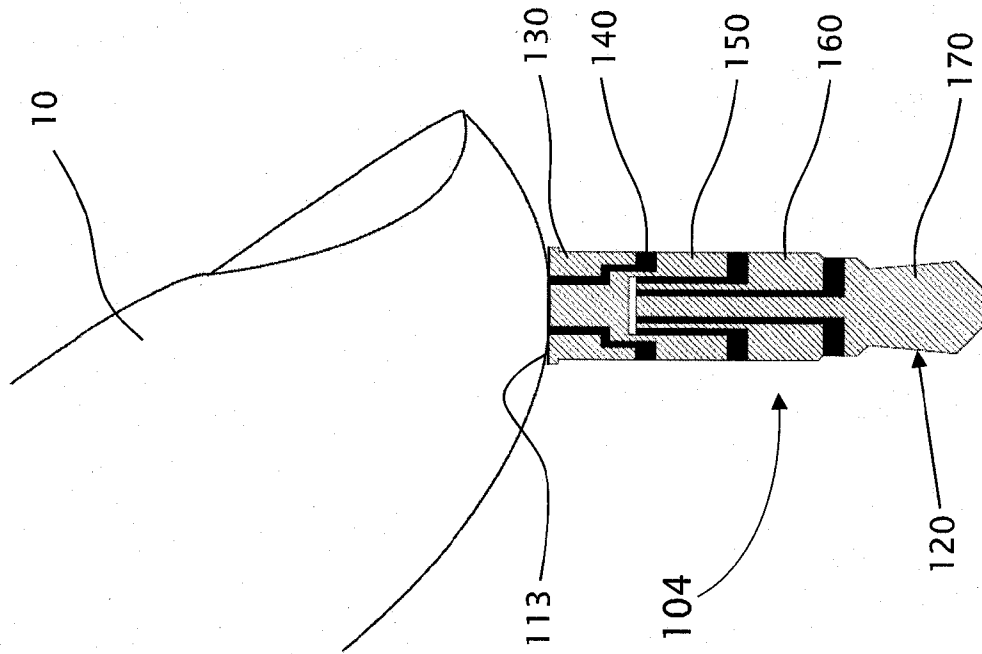


Fig. 6

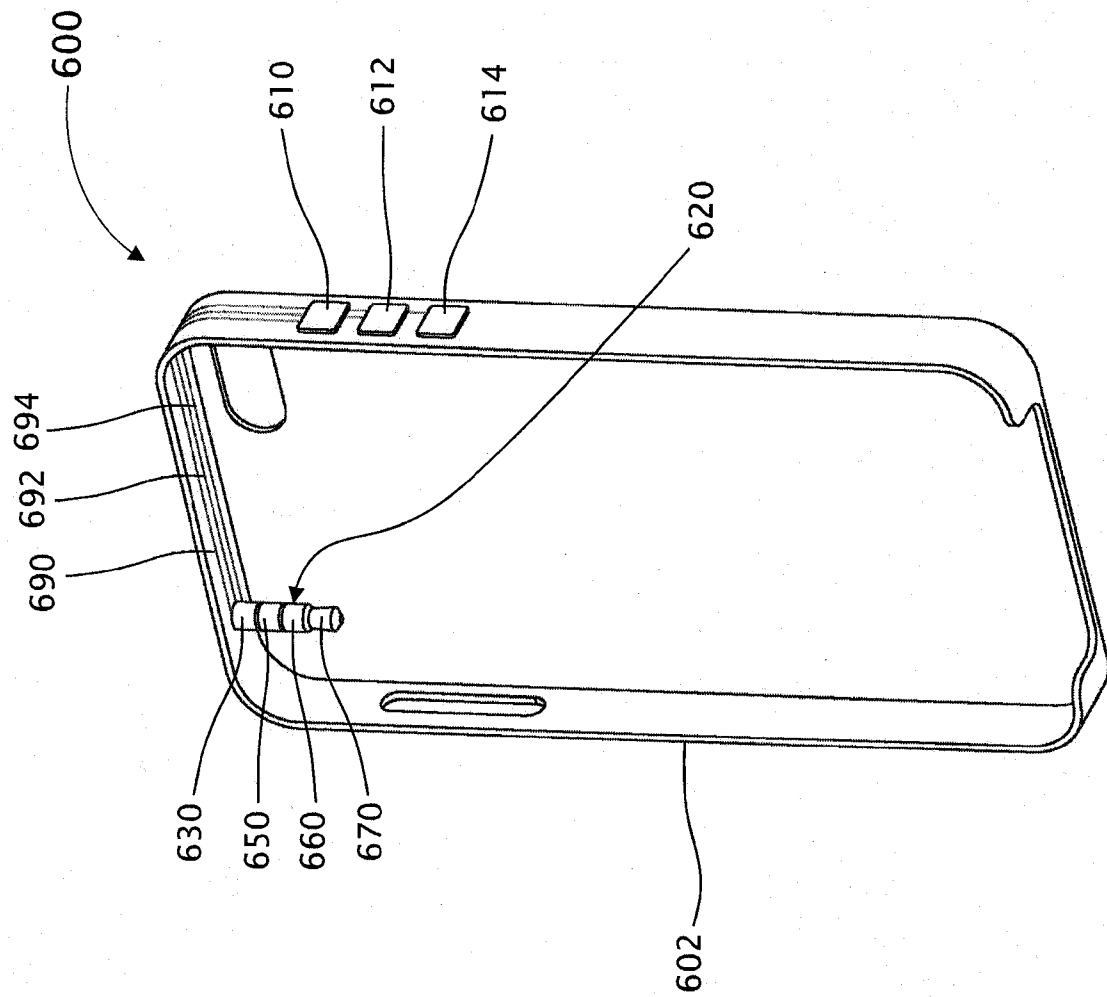
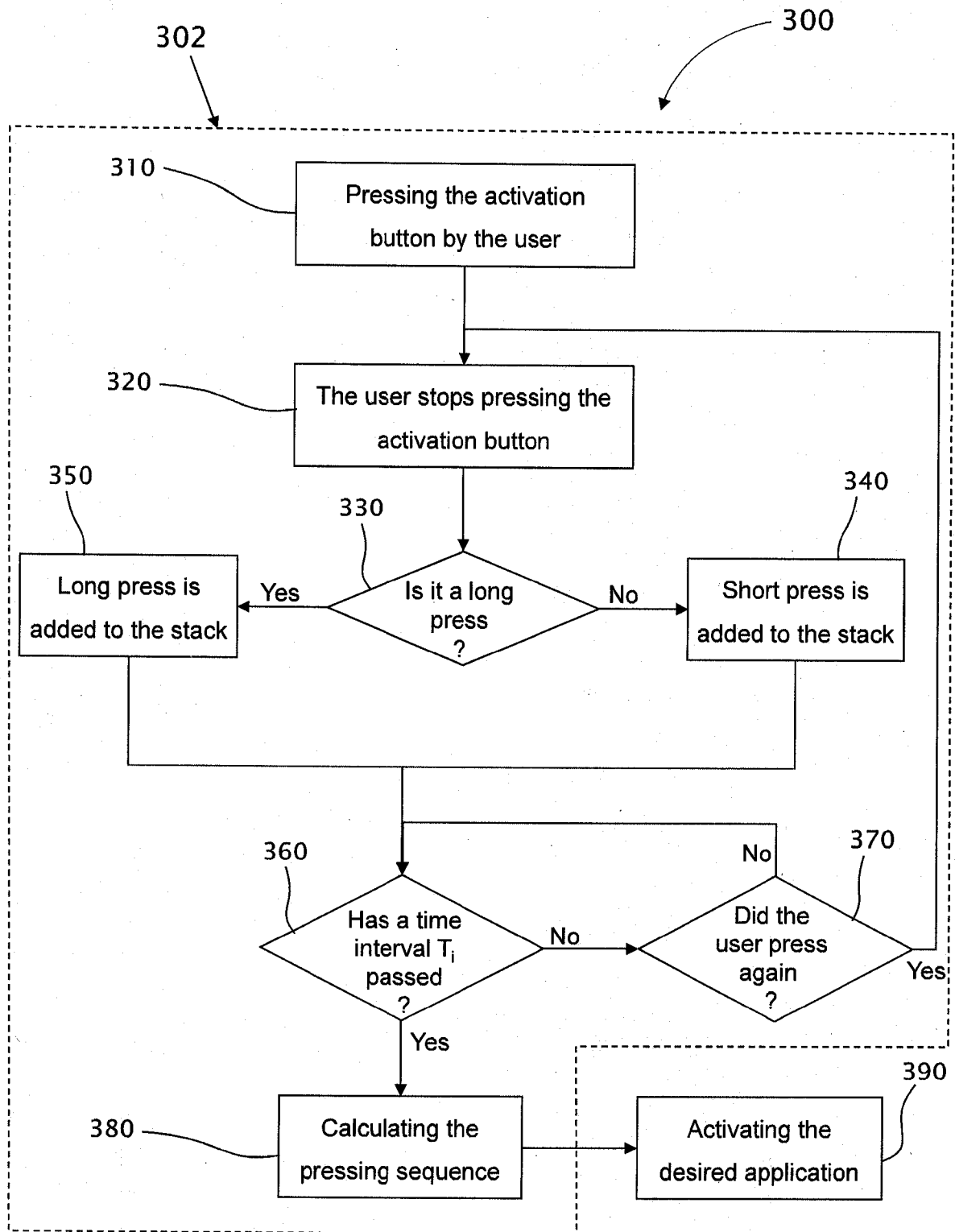
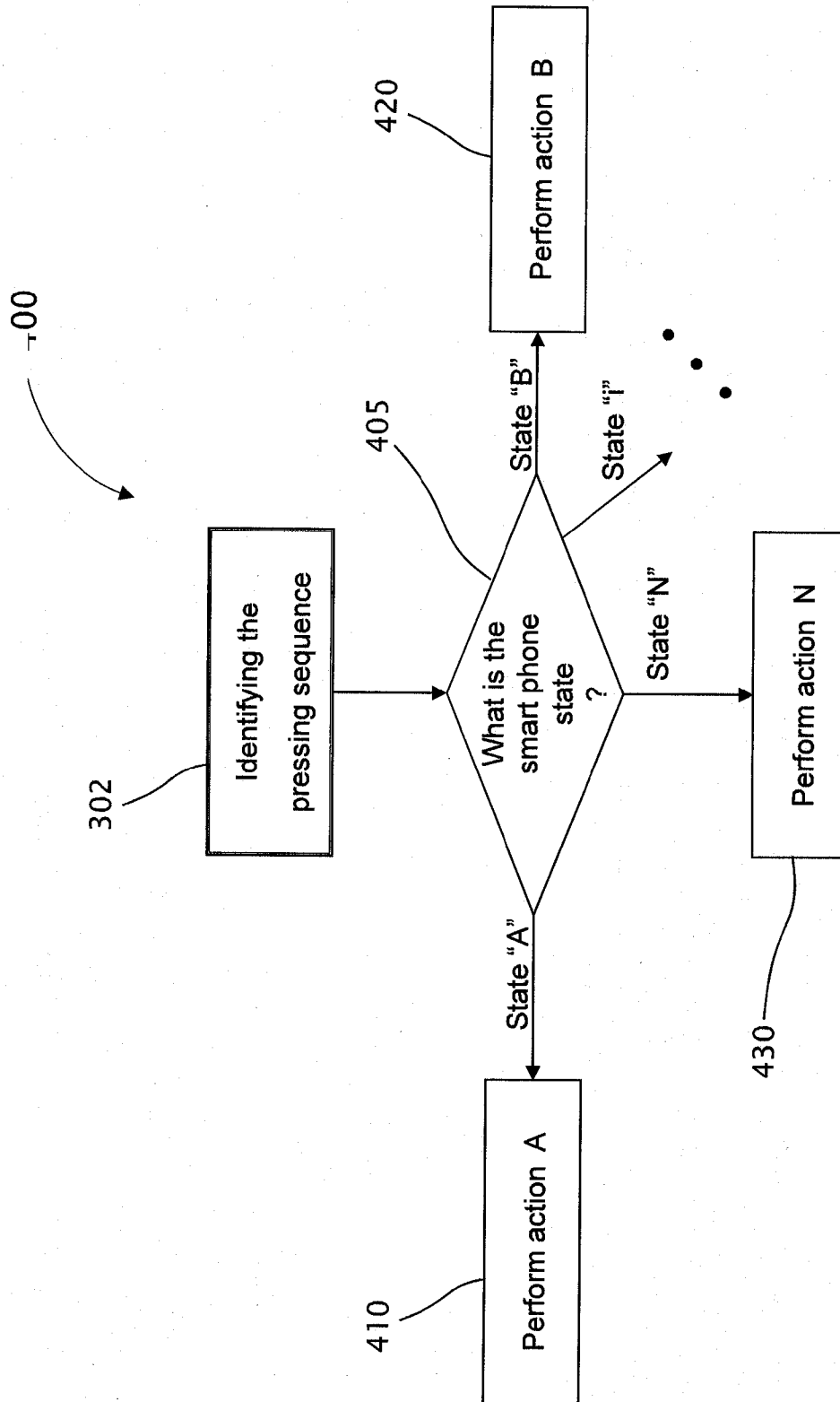


Fig. 7

*Fig. 8*

*Fig. 9*

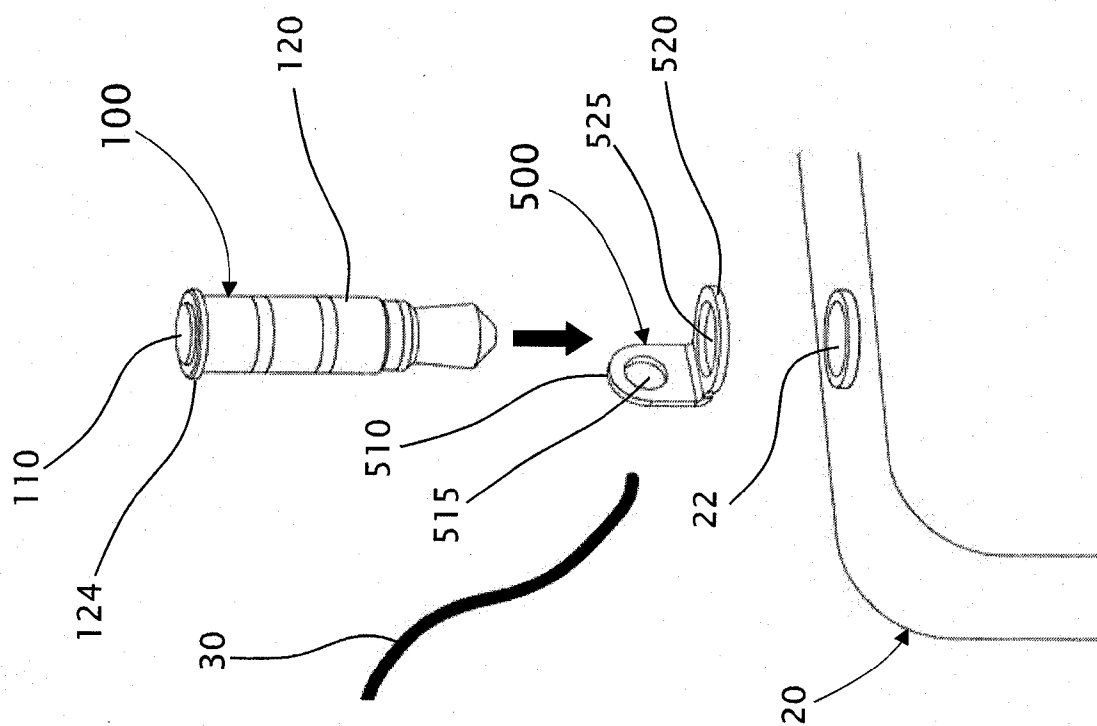


Fig. 10

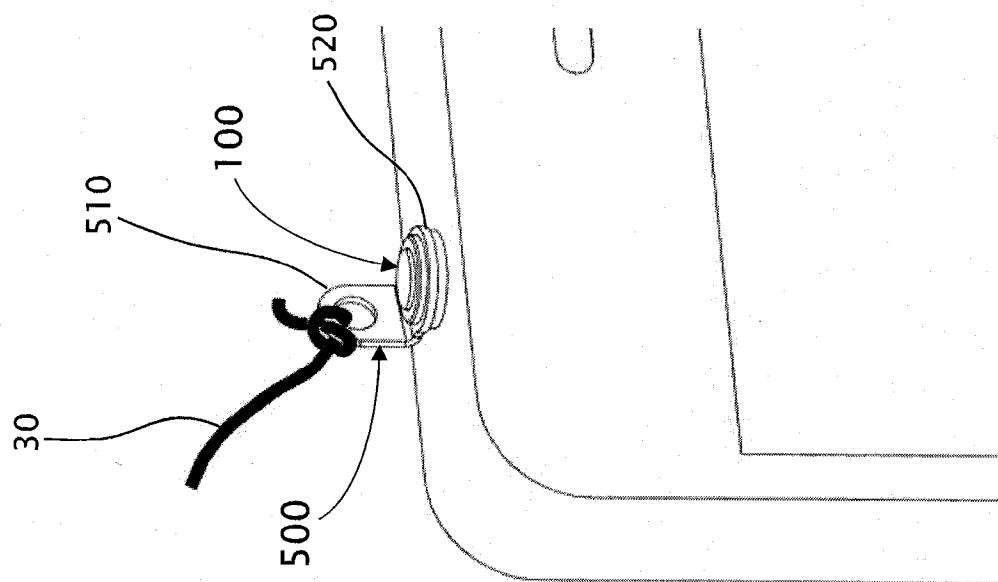
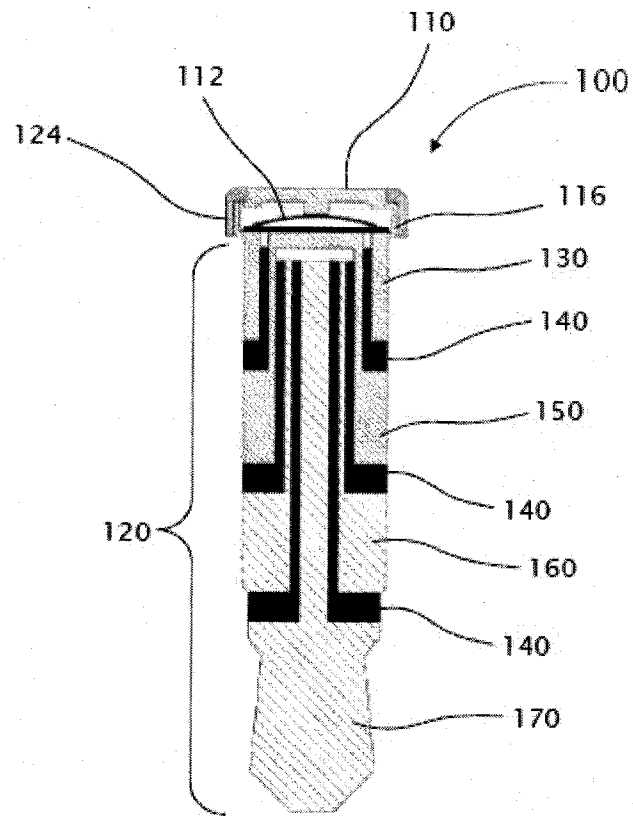


Fig. 11

*Fig. 12*

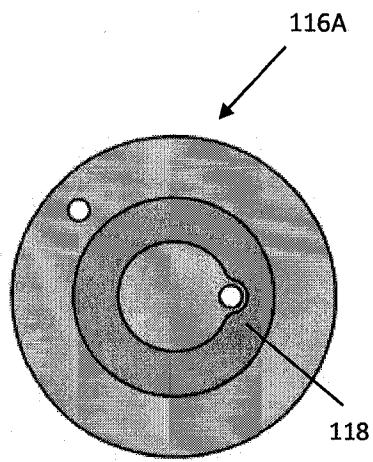


Fig. 13 A

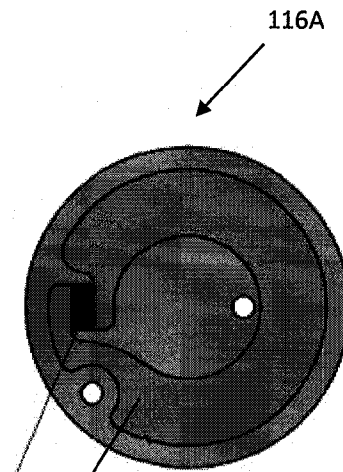


Fig. 13 B

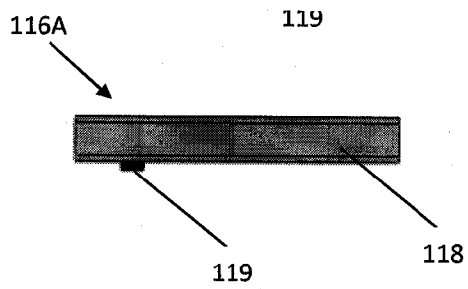


Fig. 13 C