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(54) **GRIP DEVICE TO ENABLE A NUMBER OF OPERATIONS ASSOCIATED WITH A PORTABLE ELECTRONIC DEVICE BASED ON ATTACHMENT THERETO**

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(21) Appl. No.: **17/892,025**

(22) Filed: **Aug. 19, 2022**

Related U.S. Application Data

(63) Continuation-in-part of application No. 16/691,636, filed on Nov. 22, 2019, now Pat. No. 11,452,365.

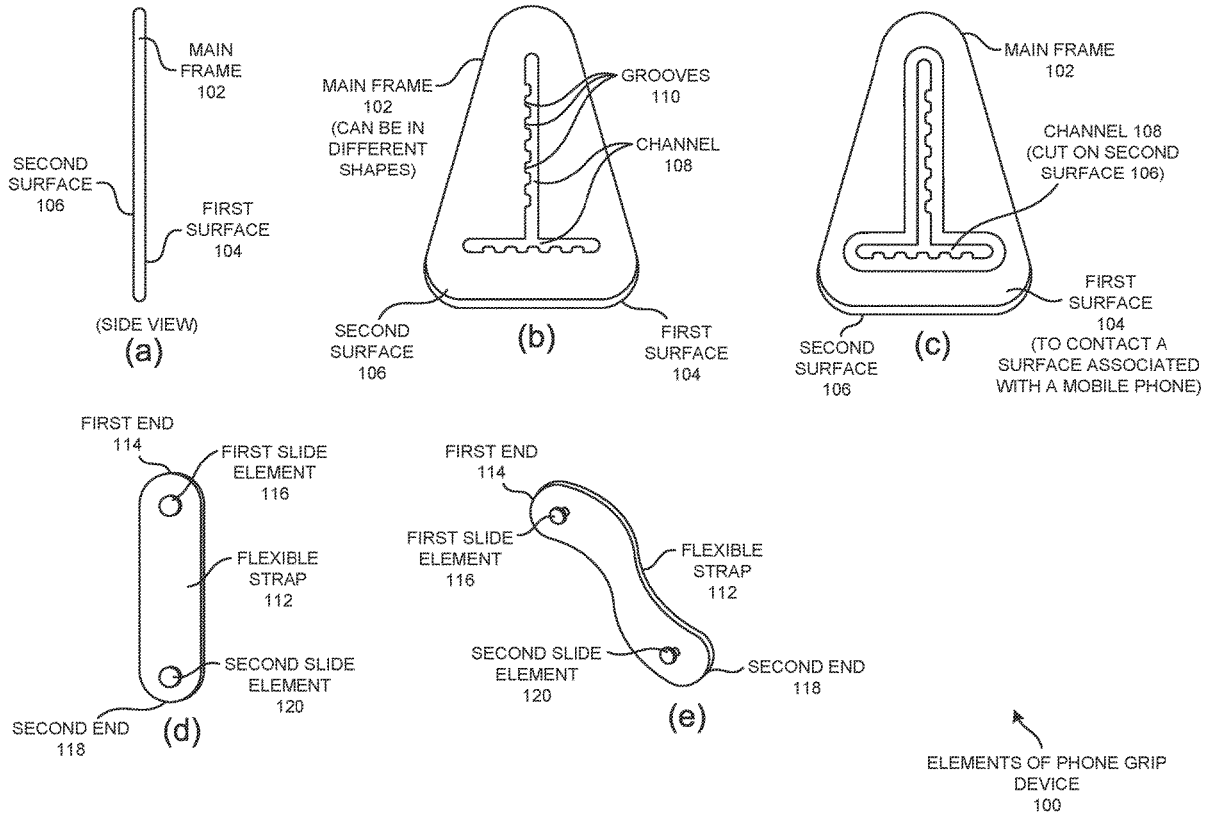
Publication Classification

(51) **Int. Cl.**
A45F 5/10 (2006.01)

(52) **U.S. Cl.**
CPC ***A45F 5/10*** (2013.01); *A45F 2200/0516* (2013.01); *A45F 2005/1013* (2013.01)

(57) **ABSTRACT**

A method includes providing a main frame configured to be attached to a surface associated with a portable electronic device, and providing a grip element. The method also includes forming a grip device based on receiving one or more slide element(s) of the grip element through a channel of the main frame, and enabling portrait and landscape orientation based operations associated with the portable electronic device through the attachment of the formed grip device to the portable electronic device.



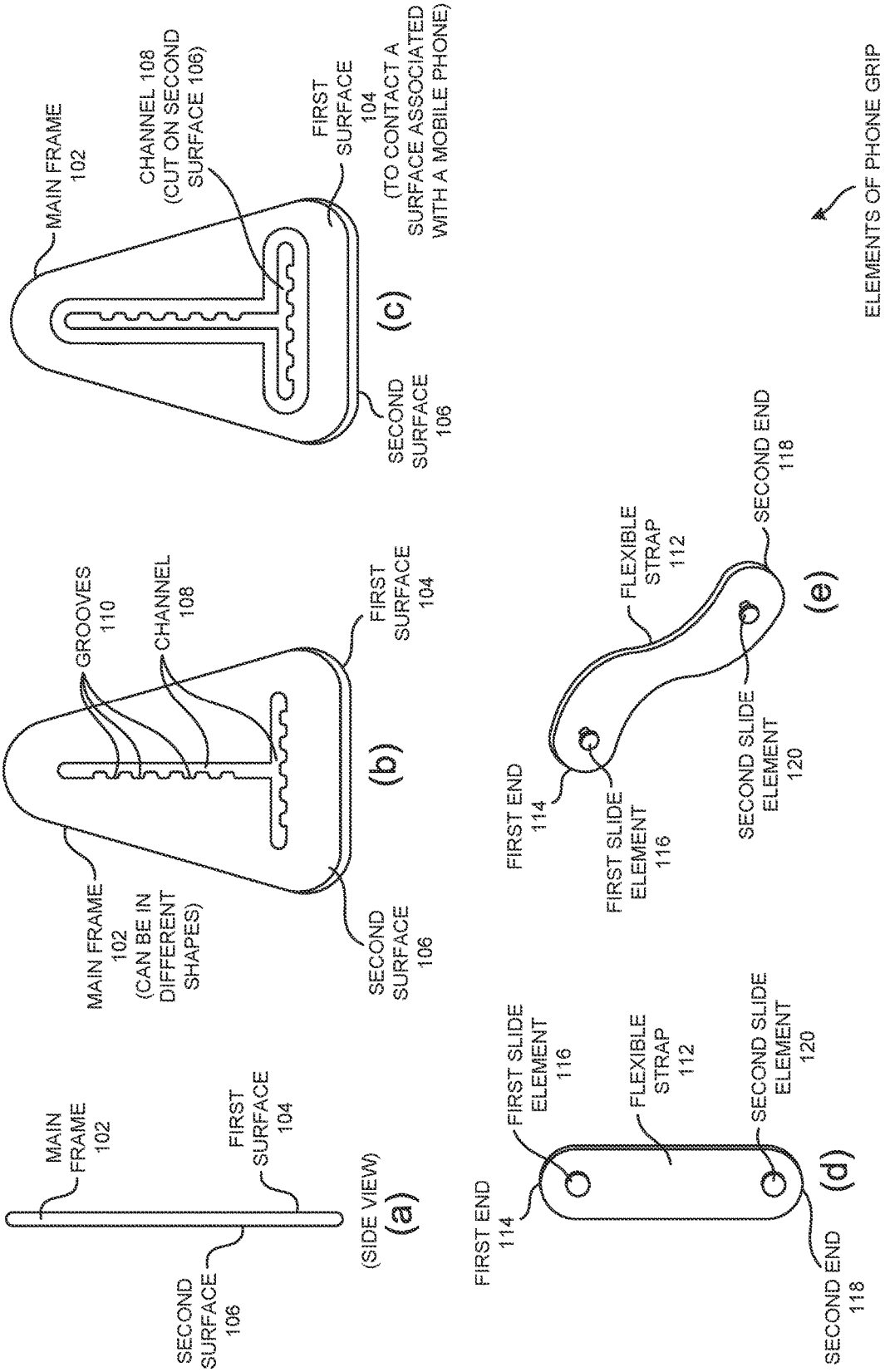

MAIN FRAME 102
FIRST SURFACE 104
SECOND SURFACE 106
(SIDE VIEW)
(a)
MAIN FRAME 102 (CAN BE IN DIFFERENT SHAPES)
GROOVES 110
CHANNEL 108
FIRST SURFACE 104
SECOND SURFACE 106
(b)
MAIN FRAME 102
CHANNEL 108 (CUT ON SECOND SURFACE 106)
FIRST SURFACE 104
(TO CONTACT A SURFACE ASSOCIATED WITH A MOBILE PHONE)
SECOND SURFACE 106
(c)
FIRST END 114
FIRST SLIDE ELEMENT 116
FLEXIBLE STRAP 112
SECOND SLIDE ELEMENT 120
SECOND END 118
(d)
FIRST END 114
FIRST SLIDE ELEMENT 116
FLEXIBLE STRAP 112
SECOND SLIDE ELEMENT 120
SECOND END 118
(e)
ELEMENTS OF PHONE GRIP DEVICE 100

FIG. 1

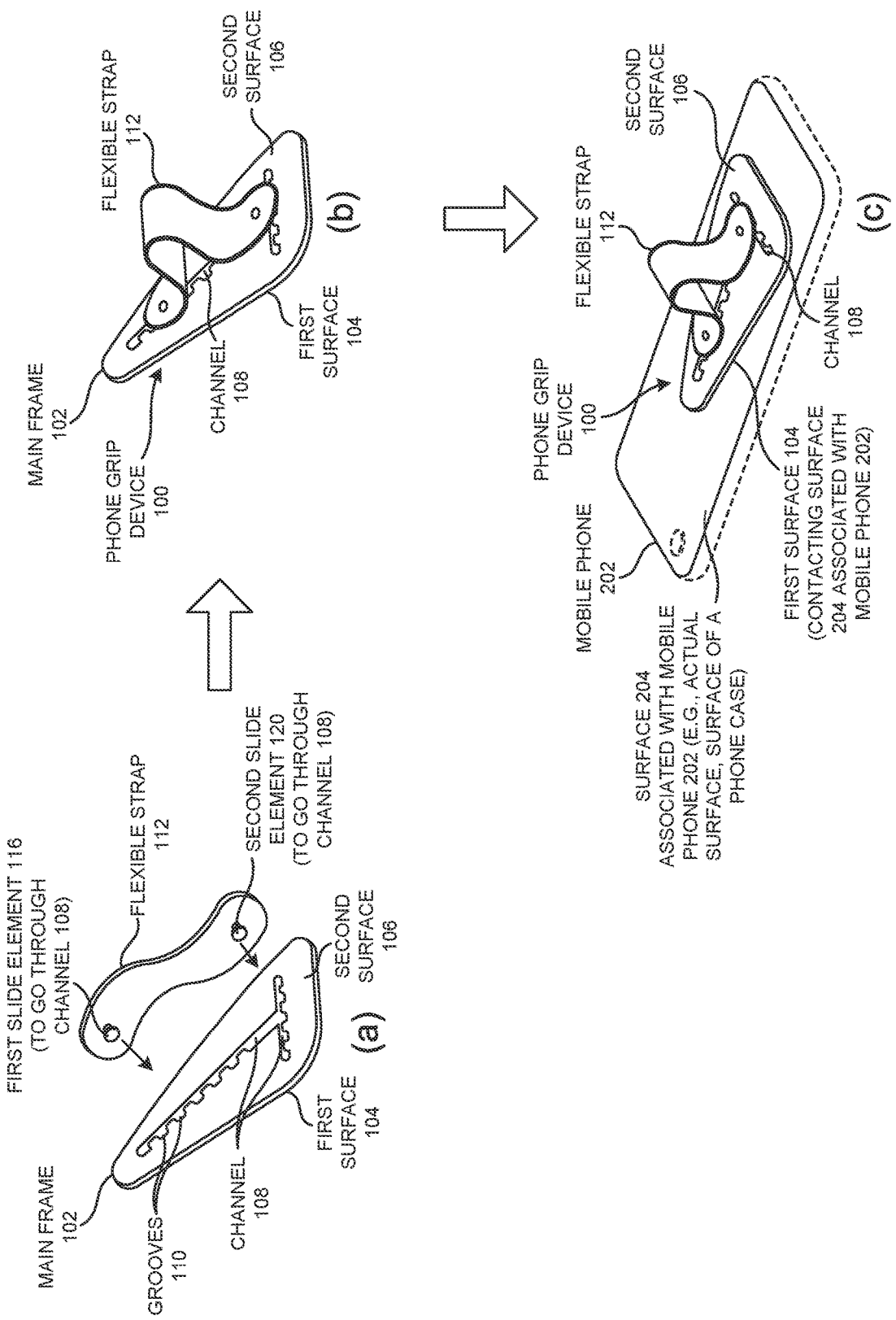

FIRST SLIDE ELEMENT 116
(TO GO THROUGH
CHANNEL 108)
FLEXIBLE STRAP
112
SECOND SLIDE
ELEMENT 120
(TO GO THROUGH
CHANNEL 108)
SECOND
SURFACE
106
MAIN FRAME
102
GROOVES
110
CHANNEL
108
FIRST
SURFACE
104
(a)
FLEXIBLE STRAP
112
SECOND
SURFACE
106
MAIN FRAME
102
PHONE GRIP
DEVICE
100
CHANNEL
108
FIRST
SURFACE
104
(b)
PHONE GRIP
DEVICE
100
FLEXIBLE STRAP
112
SECOND
SURFACE
106
MOBILE PHONE
202
SURFACE 204
ASSOCIATED WITH MOBILE
PHONE 202 (E.G., ACTUAL
SURFACE, SURFACE OF A
PHONE CASE)
FIRST SURFACE 104
(CONTACTING SURFACE
204 ASSOCIATED WITH
MOBILE PHONE 202)
CHANNEL
108
(c)

FIG. 2

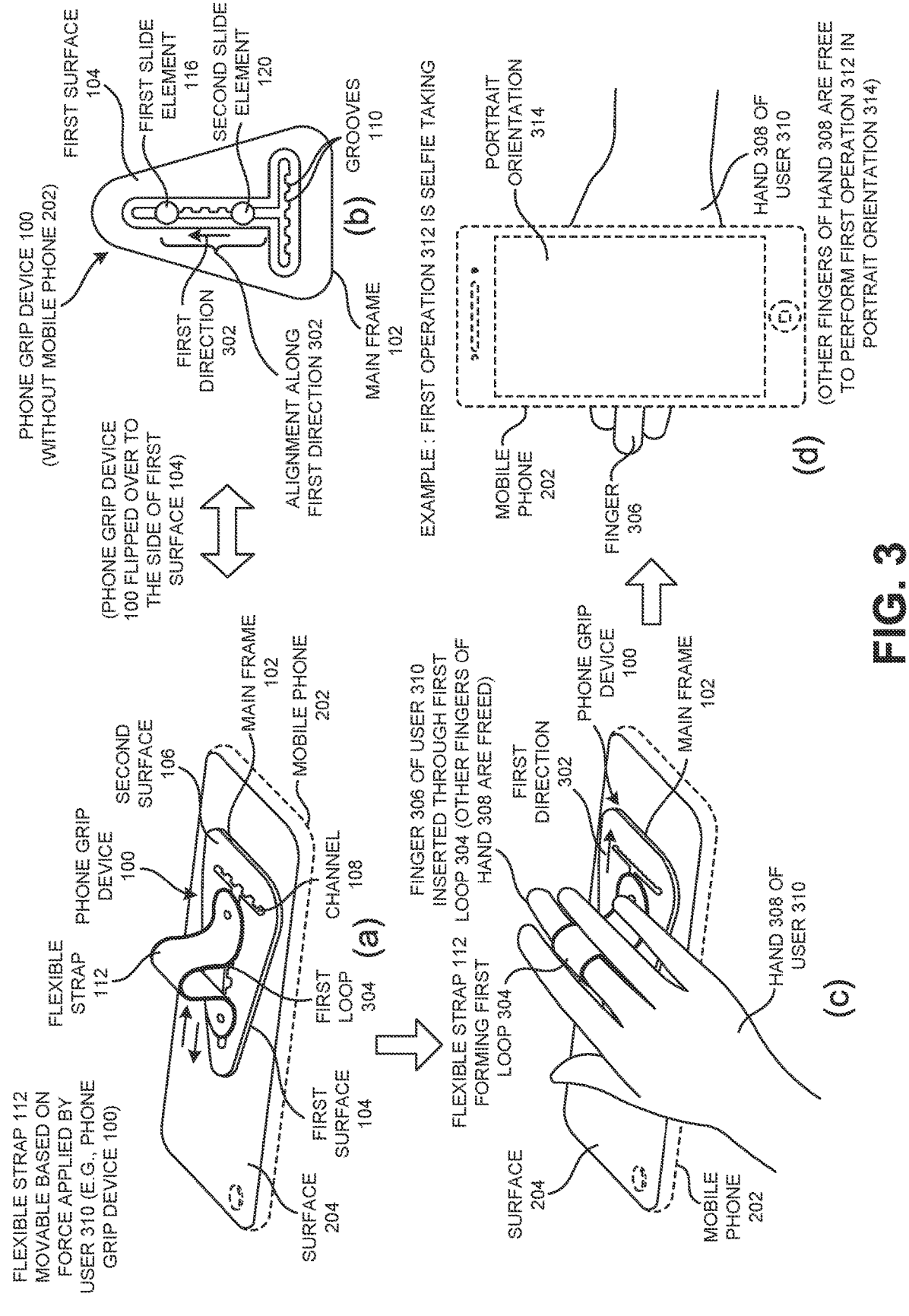

FLEXIBLE STRAP 112 MOVABLE BASED ON FORCE APPLIED BY USER 310 (E.G., PHONE GRIP DEVICE 100)
FLEXIBLE STRAP 112
PHONE GRIP DEVICE 100
SECOND SURFACE 106
MAIN FRAME 102
MOBILE PHONE 202
CHANNEL 108
FIRST LOOP 304
FIRST SURFACE 104
SURFACE 204
(a)
(PHONE GRIP DEVICE 100 FLIPPED OVER TO THE SIDE OF FIRST SURFACE 104)
PHONE GRIP DEVICE 100 (WITHOUT MOBILE PHONE 202)
FIRST SURFACE 104
FIRST SLIDE ELEMENT 116
SECOND SLIDE ELEMENT 120
GROOVES 110
FIRST DIRECTION 302
ALIGNMENT ALONG FIRST DIRECTION 302
MAIN FRAME 102
(b)
FINGER 306 OF USER 310 INSERTED THROUGH FIRST LOOP 304 (OTHER FINGERS OF HAND 308 ARE FREED)
FLEXIBLE STRAP 112 FORMING FIRST LOOP 304
FIRST DIRECTION 302
PHONE GRIP DEVICE 100
MAIN FRAME 102
HAND 308 OF USER 310
SURFACE 204
MOBILE PHONE 202
(c)
EXAMPLE : FIRST OPERATION 312 IS SELFIE TAKING
MOBILE PHONE 202
FINGER 306
PORTRAIT ORIENTATION 314
HAND 308 OF USER 310
(d)
(OTHER FINGERS OF HAND 308 ARE FREE TO PERFORM FIRST OPERATION 312 IN PORTRAIT ORIENTATION 314)

FIG. 3

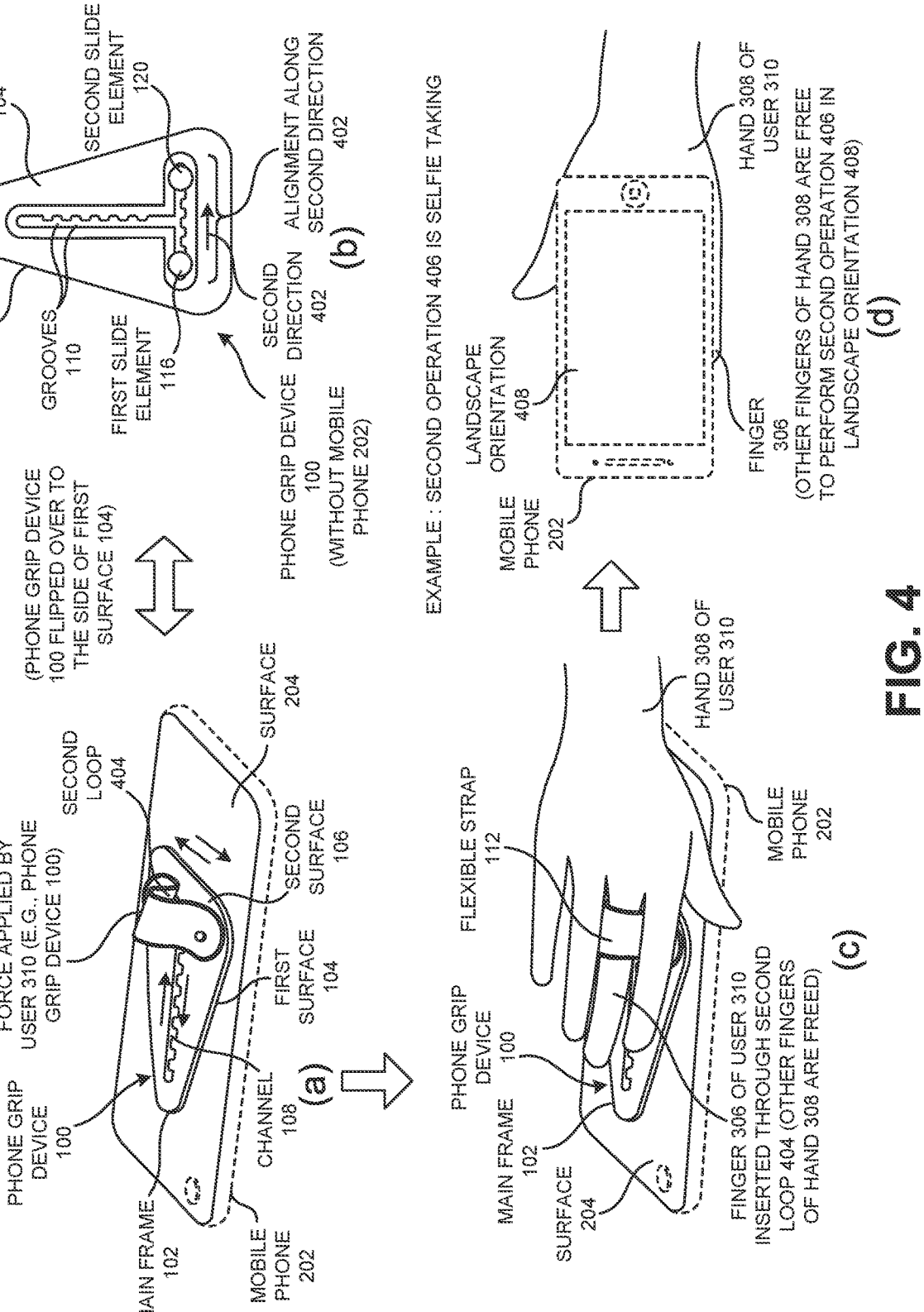

FLEXIBLE STRAP 112
MOVABLE BASED ON
FORCE APPLIED BY
USER 310 (E.G., PHONE
GRIP DEVICE 100)
PHONE GRIP
DEVICE
100
SECOND
LOOP
404
MAIN FRAME
102
MOBILE
PHONE
202
CHANNEL
108
FIRST
SURFACE
104
SECOND
SURFACE
106
SURFACE
204
(a)
(PHONE GRIP DEVICE
100 FLIPPED OVER TO
THE SIDE OF FIRST
SURFACE 104)
MAIN FRAME
102
FIRST SURFACE
104
GROOVES
110
FIRST SLIDE
ELEMENT
116
SECOND SLIDE
ELEMENT
120
SECOND
DIRECTION
402
PHONE GRIP DEVICE
100
(WITHOUT MOBILE
PHONE 202)
ALIGNMENT ALONG
SECOND DIRECTION
402
(b)
PHONE GRIP
DEVICE
100
FLEXIBLE STRAP
112
MAIN FRAME
102
SURFACE
204
FINGER 306 OF USER 310
INSERTED THROUGH SECOND
LOOP 404 (OTHER FINGERS
OF HAND 308 ARE FREED)
MOBILE
PHONE
202
HAND 308 OF
USER 310
(c)
EXAMPLE : SECOND OPERATION 406 IS SELFIE TAKING
LANDSCAPE
ORIENTATION
408
MOBILE
PHONE
202
FINGER
306
(OTHER FINGERS OF HAND 308 ARE FREE
TO PERFORM SECOND OPERATION 406 IN
LANDSCAPE ORIENTATION 408)
HAND 308 OF
USER 310
(d)

FIG. 4

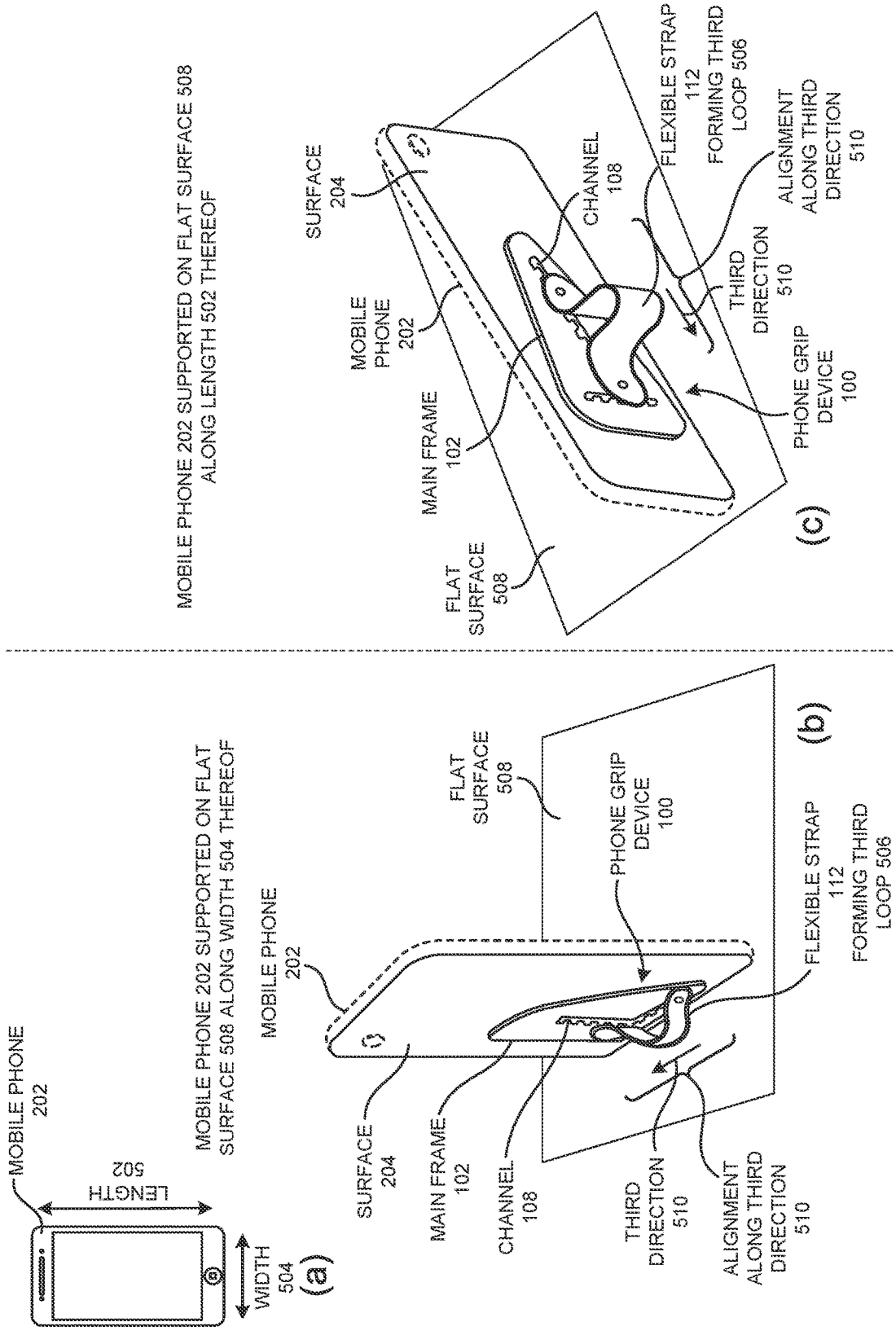

MOBILE PHONE 202
LENGTH 502
WIDTH 504
(a)
MOBILE PHONE 202 SUPPORTED ON FLAT SURFACE 508 ALONG WIDTH 504 THEREOF
MOBILE PHONE 202
SURFACE 204
MAIN FRAME 102
CHANNEL 108
THIRD DIRECTION 510
ALIGNMENT ALONG THIRD DIRECTION 510
FLAT SURFACE 508
PHONE GRIP DEVICE 100
FLEXIBLE STRAP 112 FORMING THIRD LOOP 506
(b)
MOBILE PHONE 202 SUPPORTED ON FLAT SURFACE 508 ALONG LENGTH 502 THEREOF
SURFACE 204
MOBILE PHONE 202
MAIN FRAME 102
FLAT SURFACE 508
CHANNEL 108
PHONE GRIP DEVICE 100
THIRD DIRECTION 510
FLEXIBLE STRAP 112 FORMING THIRD LOOP 506
ALIGNMENT ALONG THIRD DIRECTION 510
(c)

FIG. 5

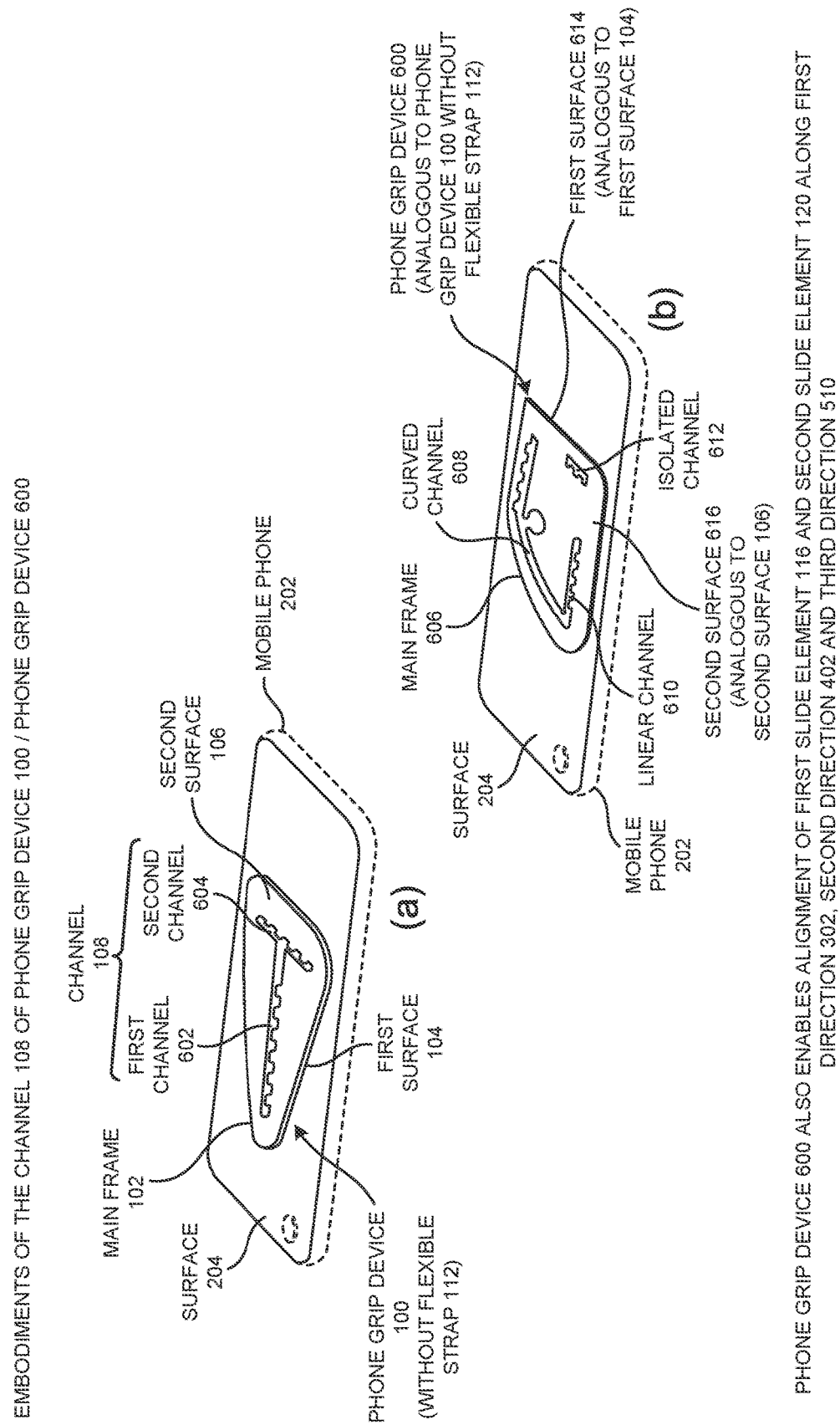

EMBODIMENTS OF THE CHANNEL 108 OF PHONE GRIP DEVICE 100 / PHONE GRIP DEVICE 600
CHANNEL 108
FIRST CHANNEL 602
SECOND CHANNEL 604
MAIN FRAME 102
SURFACE 204
SECOND SURFACE 106
MOBILE PHONE 202
FIRST SURFACE 104
PHONE GRIP DEVICE 100 (WITHOUT FLEXIBLE STRAP 112)
(a)
MAIN FRAME 606
CURVED CHANNEL 608
PHONE GRIP DEVICE 600 (ANALOGOUS TO PHONE GRIP DEVICE 100 WITHOUT FLEXIBLE STRAP 112)
FIRST SURFACE 614 (ANALOGOUS TO FIRST SURFACE 104)
SURFACE 204
LINEAR CHANNEL 610
ISOLATED CHANNEL 612
SECOND SURFACE 616 (ANALOGOUS TO SECOND SURFACE 106)
MOBILE PHONE 202
(b)
PHONE GRIP DEVICE 600 ALSO ENABLES ALIGNMENT OF FIRST SLIDE ELEMENT 116 AND SECOND SLIDE ELEMENT 120 ALONG FIRST DIRECTION 302, SECOND DIRECTION 402 AND THIRD DIRECTION 510

FIG. 6

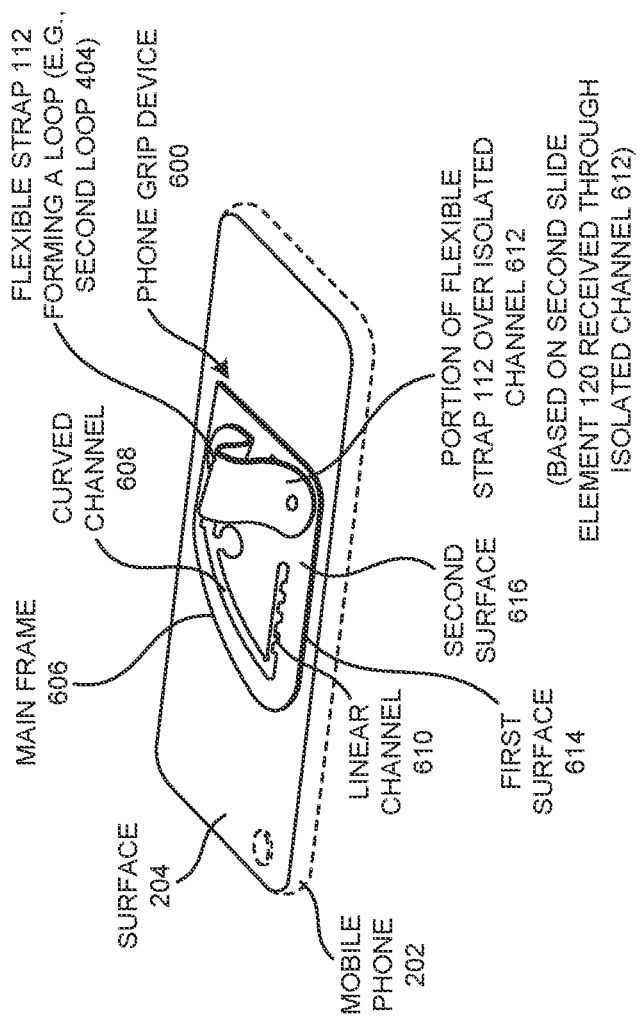

FLEXIBLE STRAP 112 FORMING A LOOP (E.G., SECOND LOOP 404)
PHONE GRIP DEVICE 600
CURVED CHANNEL 608
PORTION OF FLEXIBLE STRAP 112 OVER ISOLATED CHANNEL 612 (BASED ON SECOND SLIDE ELEMENT 120 RECEIVED THROUGH ISOLATED CHANNEL 612)
MAIN FRAME 606
SECOND SURFACE 616
LINEAR CHANNEL 610
FIRST SURFACE 614
SURFACE 204
MOBILE PHONE 202

FIG. 7

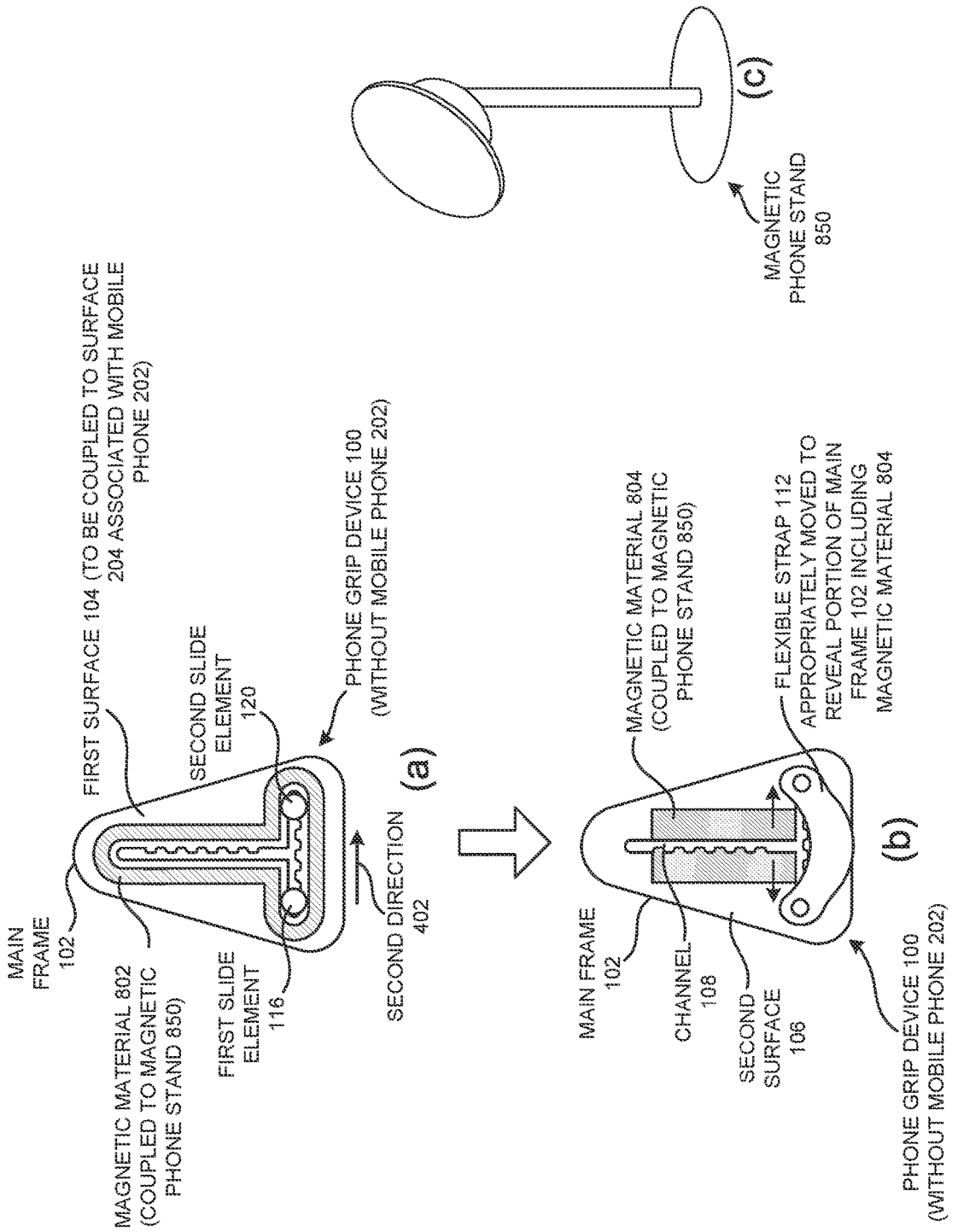

MAIN FRAME 102
MAGNETIC MATERIAL 802 (COUPLED TO MAGNETIC PHONE STAND 850)
FIRST SLIDE ELEMENT 116
SECOND SLIDE ELEMENT 120
FIRST SURFACE 104 (TO BE COUPLED TO SURFACE 204 ASSOCIATED WITH MOBILE PHONE 202)
PHONE GRIP DEVICE 100 (WITHOUT MOBILE PHONE 202)
SECOND DIRECTION 402
(a)
MAGNETIC MATERIAL 804 (COUPLED TO MAGNETIC PHONE STAND 850)
FLEXIBLE STRAP 112 APPROPRIATELY MOVED TO REVEAL PORTION OF MAIN FRAME 102 INCLUDING MAGNETIC MATERIAL 804
MAIN FRAME 102
CHANNEL 108
SECOND SURFACE 106
PHONE GRIP DEVICE 100 (WITHOUT MOBILE PHONE 202)
(b)
MAGNETIC PHONE STAND 850
(c)

FIG. 8

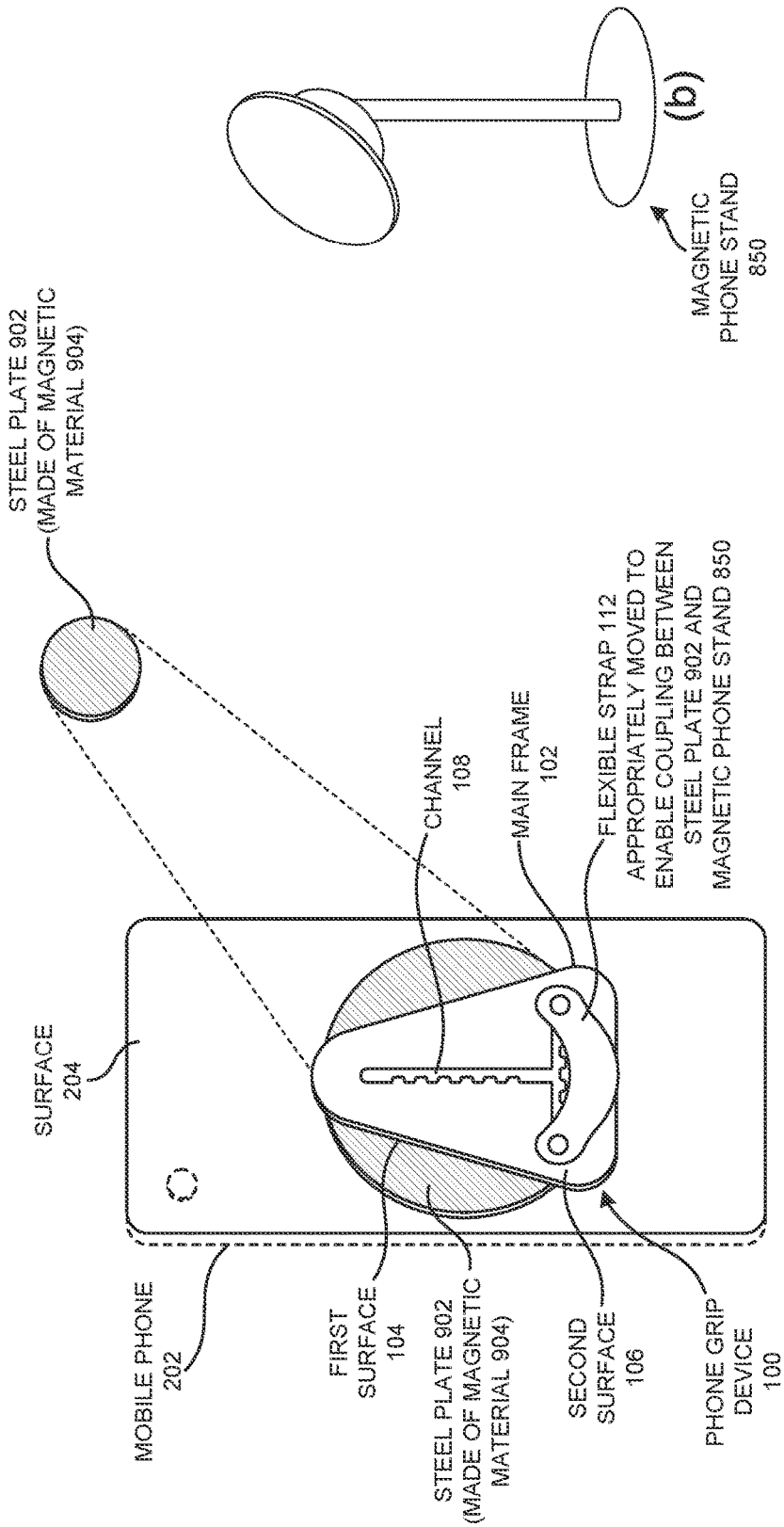

(b)
MAGNETIC PHONE STAND 850
STEEL PLATE 902 (MADE OF MAGNETIC MATERIAL 904)
SURFACE 204
CHANNEL 108
MAIN FRAME 102
FLEXIBLE STRAP 112 APPROPRIATELY MOVED TO ENABLE COUPLING BETWEEN STEEL PLATE 902 AND MAGNETIC PHONE STAND 850
(a)
MOBILE PHONE 202
FIRST SURFACE 104
STEEL PLATE 902 (MADE OF MAGNETIC MATERIAL 904)
SECOND SURFACE 106
PHONE GRIP DEVICE 100

FIG. 9

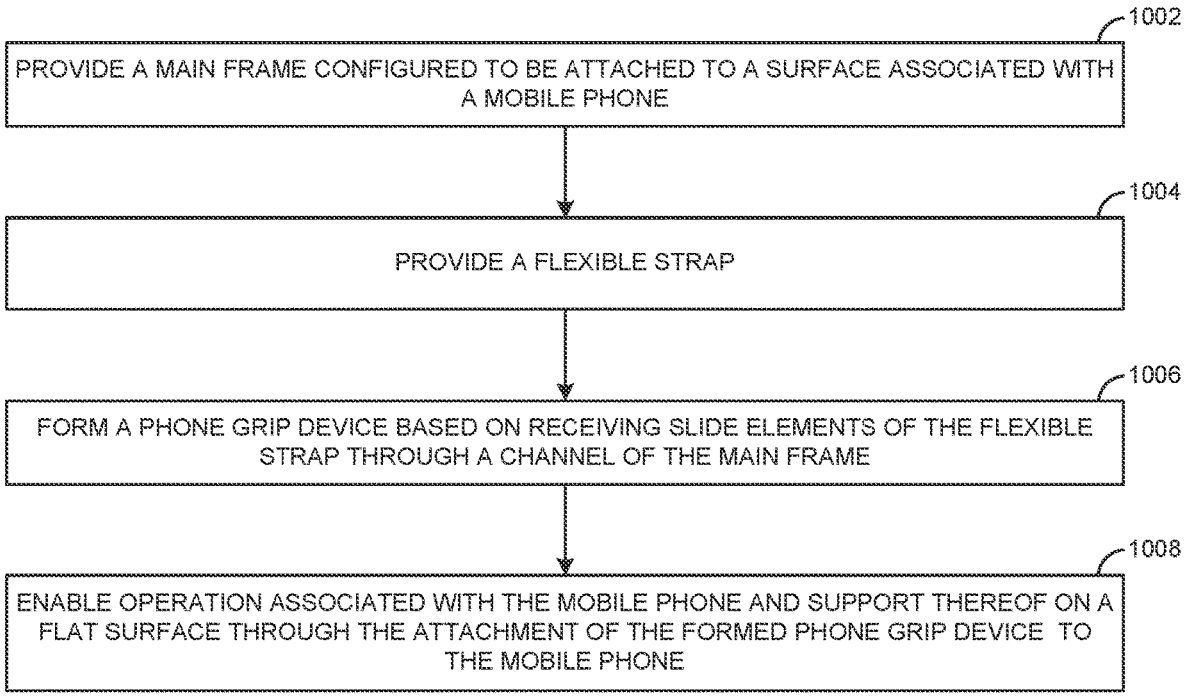

1002
PROVIDE A MAIN FRAME CONFIGURED TO BE ATTACHED TO A SURFACE ASSOCIATED WITH A MOBILE PHONE
1004
PROVIDE A FLEXIBLE STRAP
1006
FORM A PHONE GRIP DEVICE BASED ON RECEIVING SLIDE ELEMENTS OF THE FLEXIBLE STRAP THROUGH A CHANNEL OF THE MAIN FRAME
1008
ENABLE OPERATION ASSOCIATED WITH THE MOBILE PHONE AND SUPPORT THEREOF ON A FLAT SURFACE THROUGH THE ATTACHMENT OF THE FORMED PHONE GRIP DEVICE TO THE MOBILE PHONE

FIG. 10

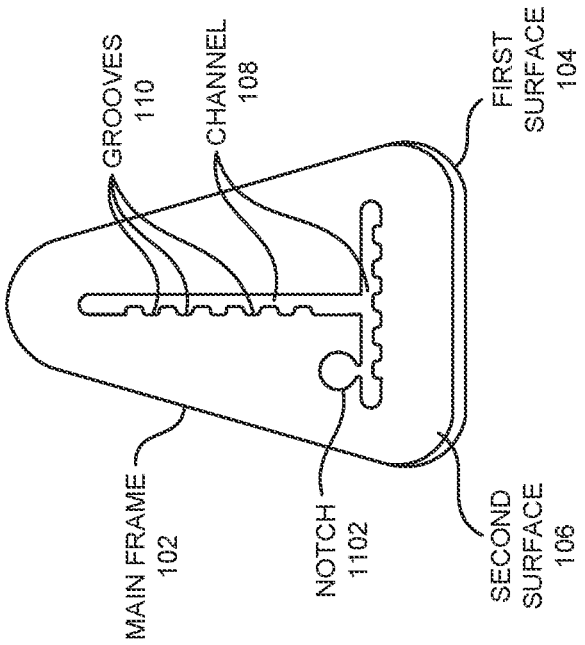

GROOVES
110
CHANNEL
108
FIRST
SURFACE
104
MAIN FRAME
102
NOTCH
1102
SECOND
SURFACE
106

FIG. 11

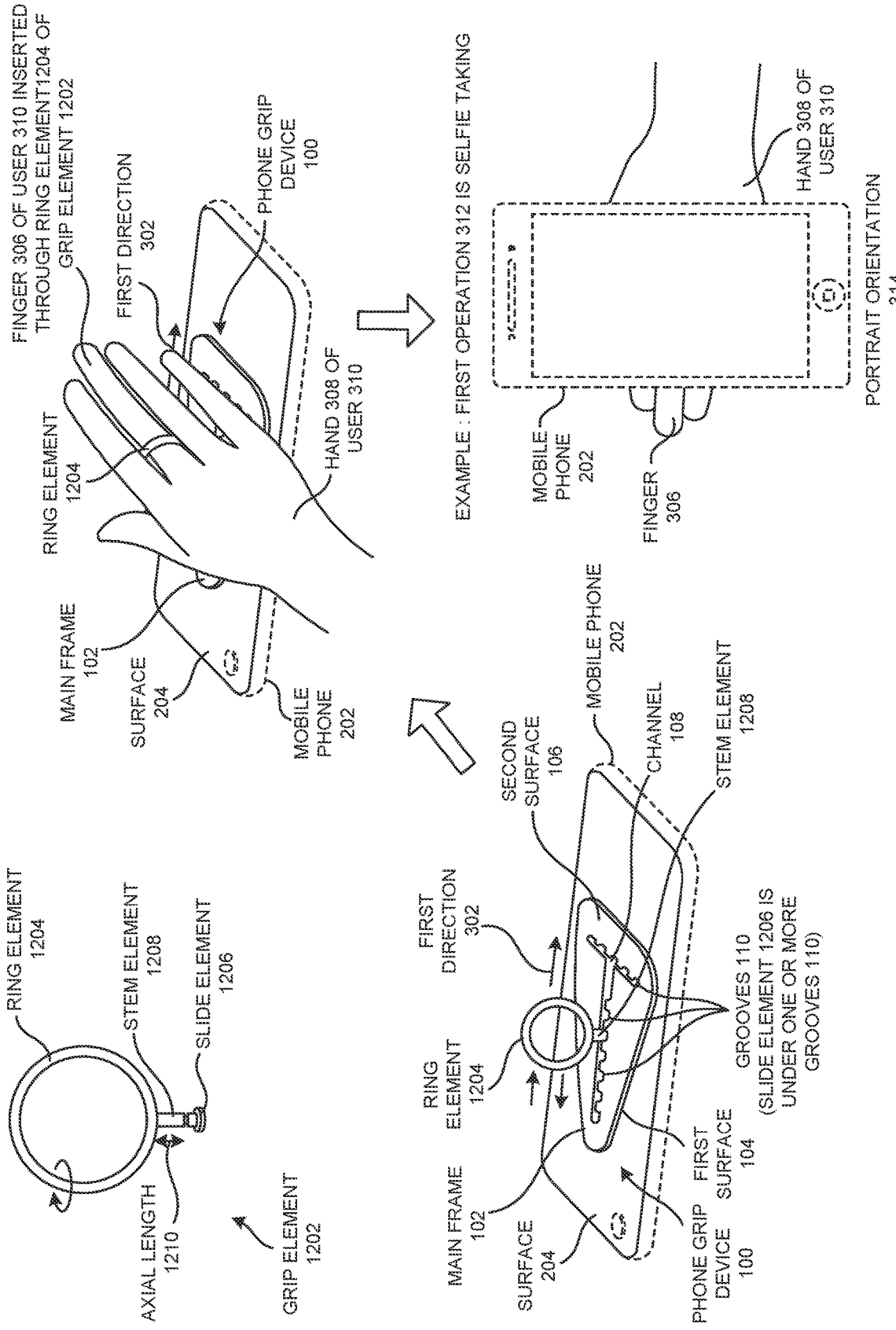

RING ELEMENT 1204
STEM ELEMENT 1208
SLIDE ELEMENT 1206
AXIAL LENGTH 1210
GRIP ELEMENT 1202
FINGER 306 OF USER 310 INSERTED THROUGH RING ELEMENT1204 OF GRIP ELEMENT 1202
RING ELEMENT 1204
FIRST DIRECTION 302
PHONE GRIP DEVICE 100
MAIN FRAME 102
SURFACE 204
MOBILE PHONE 202
HAND 308 OF USER 310
EXAMPLE : FIRST OPERATION 312 IS SELFIE TAKING
MOBILE PHONE 202
FINGER 306
HAND 308 OF USER 310
PORTRAIT ORIENTATION 314
SECOND SURFACE 106
MOBILE PHONE 202
CHANNEL 108
STEM ELEMENT 1208
FIRST DIRECTION 302
RING ELEMENT 1204
GROOVES 110 (SLIDE ELEMENT 1206 IS UNDER ONE OR MORE GROOVES 110)
MAIN FRAME 102
SURFACE 204
PHONE GRIP DEVICE 100
FIRST SURFACE 104

FIG. 12

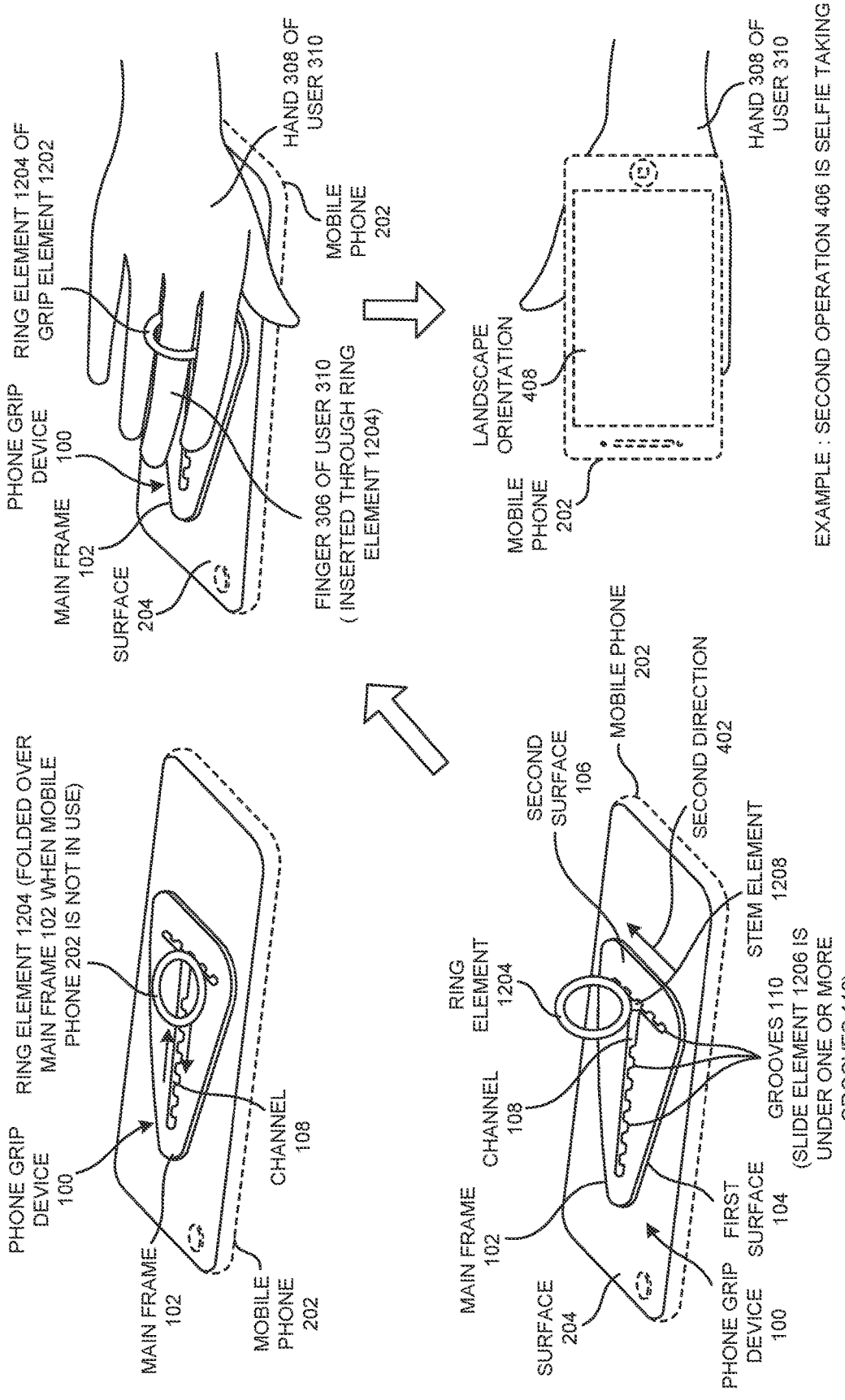

PHONE GRIP DEVICE 100
RING ELEMENT 1204 (FOLDED OVER MAIN FRAME 102 WHEN MOBILE PHONE 202 IS NOT IN USE)
CHANNEL 108
MAIN FRAME 102
MOBILE PHONE 202
PHONE GRIP DEVICE 100
RING ELEMENT 1204 OF GRIP ELEMENT 1202
HAND 308 OF USER 310
MOBILE PHONE 202
MAIN FRAME 102
SURFACE 204
FINGER 306 OF USER 310 (INSERTED THROUGH RING ELEMENT 1204)
LANDSCAPE ORIENTATION 408
MOBILE PHONE 202
HAND 308 OF USER 310
EXAMPLE : SECOND OPERATION 406 IS SELFIE TAKING
SECOND SURFACE 106
MOBILE PHONE 202
SECOND DIRECTION 402
RING ELEMENT 1204
STEM ELEMENT 1208
CHANNEL 108
GROOVES 110 (SLIDE ELEMENT 1206 IS UNDER ONE OR MORE GROOVES 110)
MAIN FRAME 102
SURFACE 204
PHONE GRIP DEVICE 100
FIRST SURFACE 104

FIG. 13

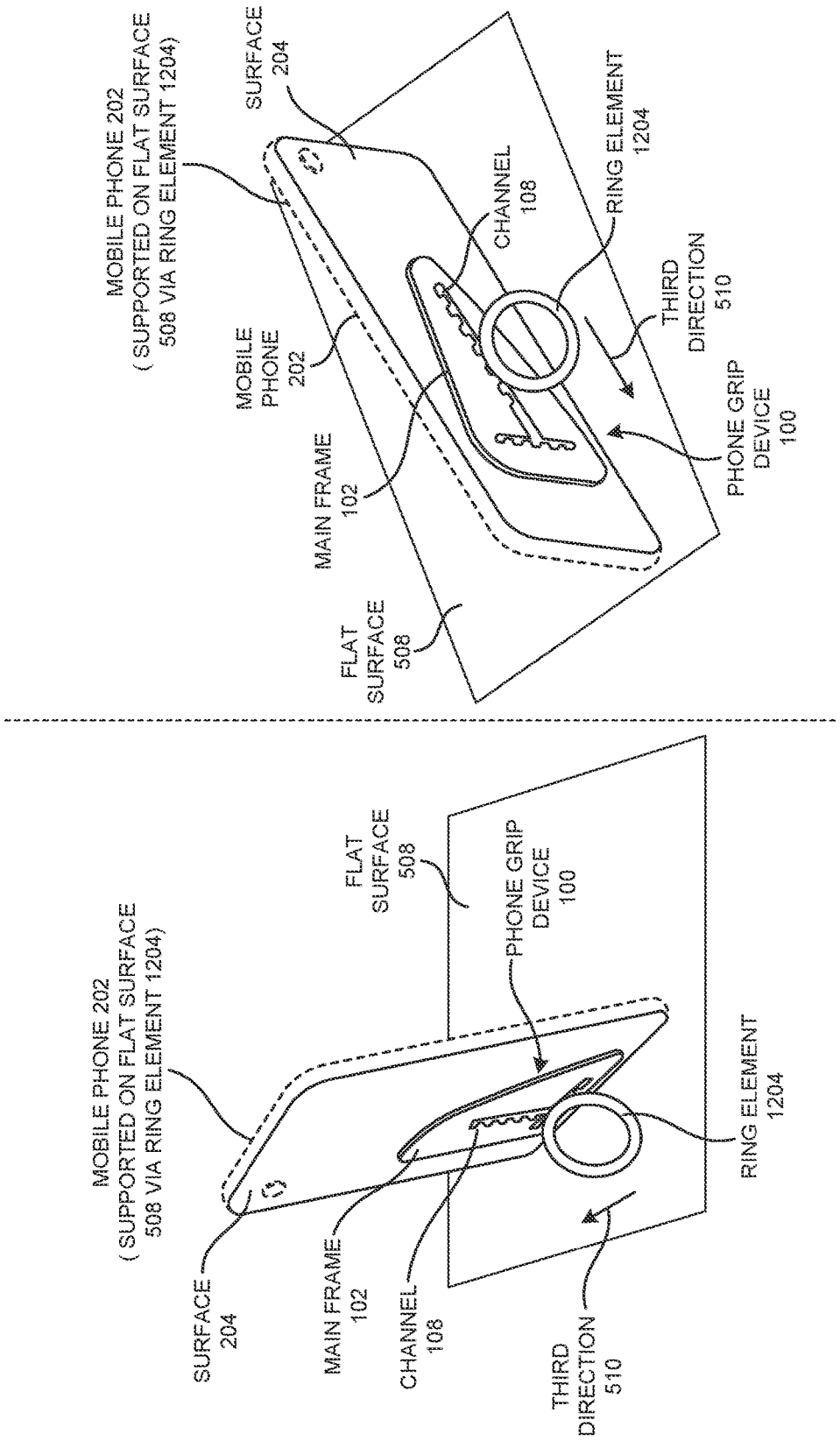

MOBILE PHONE 202
(SUPPORTED ON FLAT SURFACE
508 VIA RING ELEMENT 1204)
SURFACE
204
MOBILE
PHONE
202
MAIN FRAME
102
FLAT
SURFACE
508
CHANNEL
108
RING ELEMENT
1204
THIRD
DIRECTION
510
PHONE GRIP
DEVICE
100
MOBILE PHONE 202
(SUPPORTED ON FLAT SURFACE
508 VIA RING ELEMENT 1204)
FLAT
SURFACE
508
PHONE GRIP
DEVICE
100
SURFACE
204
MAIN FRAME
102
CHANNEL
108
THIRD
DIRECTION
510
RING ELEMENT
1204

FIG. 14

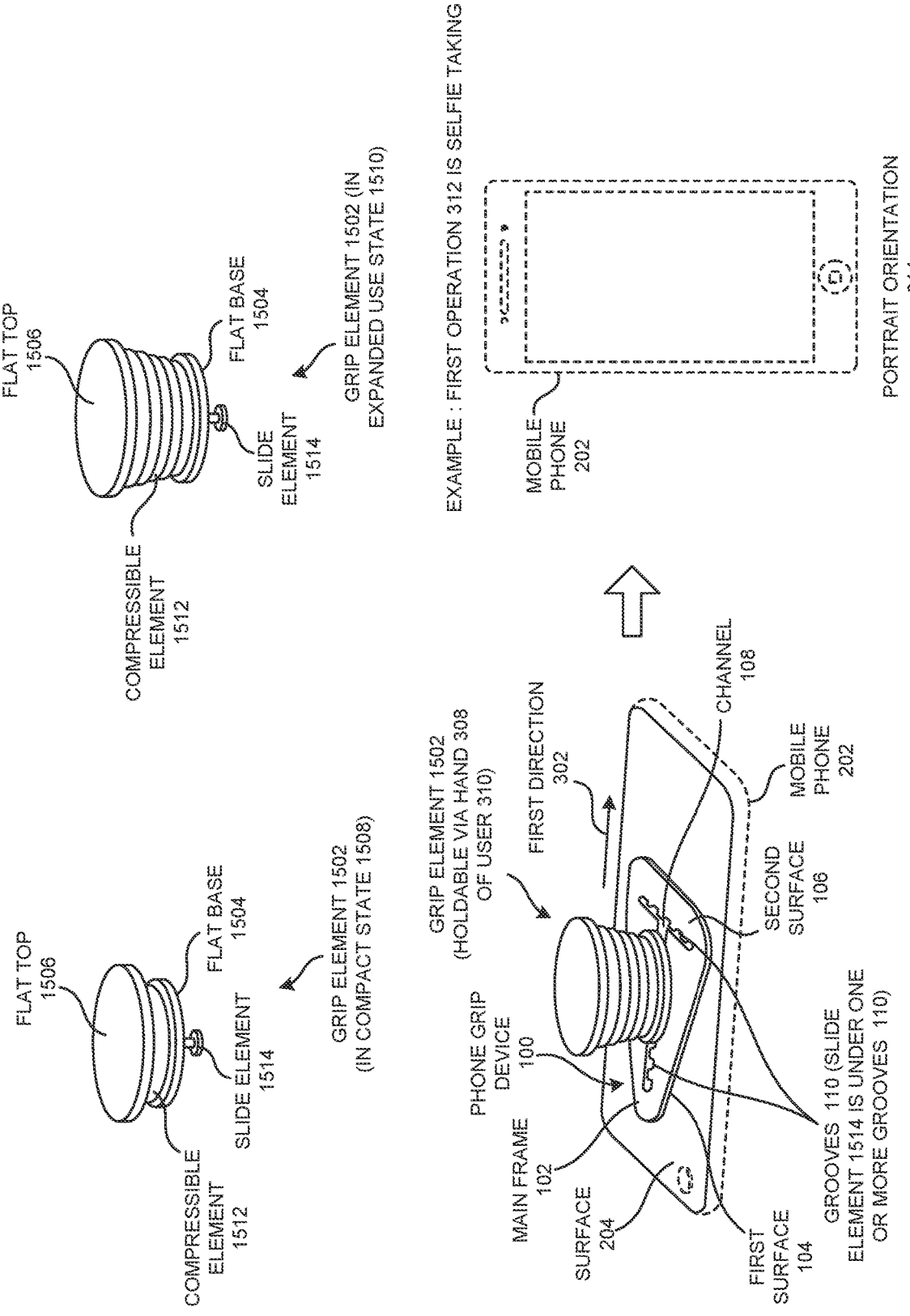

FLAT TOP
1506
FLAT BASE
1504
SLIDE ELEMENT
1514
COMPRESSIBLE ELEMENT
1512
GRIP ELEMENT 1502 (IN EXPANDED USE STATE 1510)
FLAT TOP
1506
FLAT BASE
1504
SLIDE ELEMENT
1514
COMPRESSIBLE ELEMENT
1512
GRIP ELEMENT 1502
(IN COMPACT STATE 1508)
EXAMPLE : FIRST OPERATION 312 IS SELFIE TAKING
MOBILE PHONE
202
PORTRAIT ORIENTATION
314
GRIP ELEMENT 1502
(HOLDABLE VIA HAND 308
OF USER 310)
FIRST DIRECTION
302
CHANNEL
108
PHONE GRIP DEVICE
100
MAIN FRAME
102
SURFACE
204
SECOND SURFACE
106
MOBILE PHONE
202
FIRST SURFACE
104
GROOVES 110 (SLIDE ELEMENT 1514 IS UNDER ONE OR MORE GROOVES 110)

FIG. 15

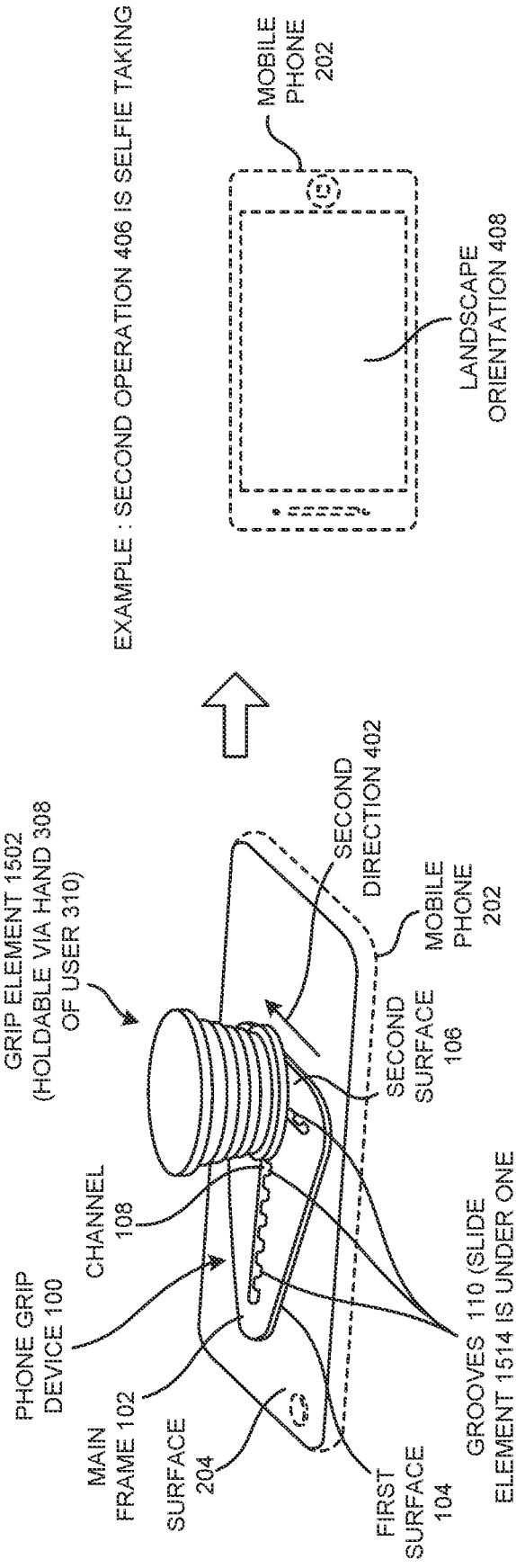

EXAMPLE : SECOND OPERATION 406 IS SELFIE TAKING
MOBILE PHONE 202
LANDSCAPE ORIENTATION 408
GRIP ELEMENT 1502 (HOLDABLE VIA HAND 308 OF USER 310)
SECOND DIRECTION 402
MOBILE PHONE 202
SECOND SURFACE 106
CHANNEL 108
PHONE GRIP DEVICE 100
MAIN FRAME 102
SURFACE 204
FIRST SURFACE 104
GROOVES 110 (SLIDE ELEMENT 1514 IS UNDER ONE OR MORE GROOVES 110)

FIG. 16

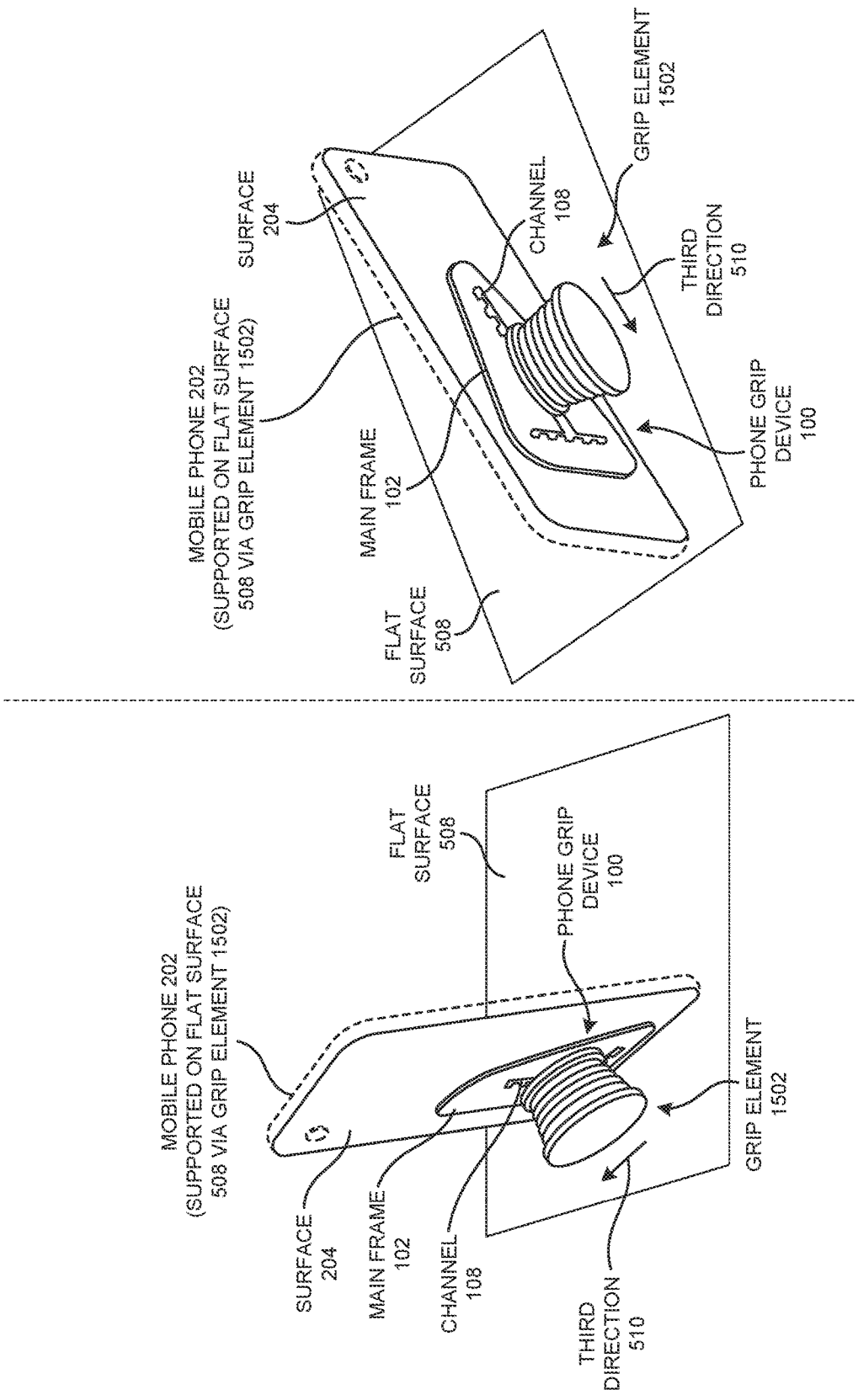

MOBILE PHONE 202
(SUPPORTED ON FLAT SURFACE
508 VIA GRIP ELEMENT 1502)
SURFACE
204
MAIN FRAME
102
CHANNEL
108
THIRD
DIRECTION
510
FLAT
SURFACE
508
PHONE GRIP
DEVICE
100
GRIP ELEMENT
1502

FIG. 17

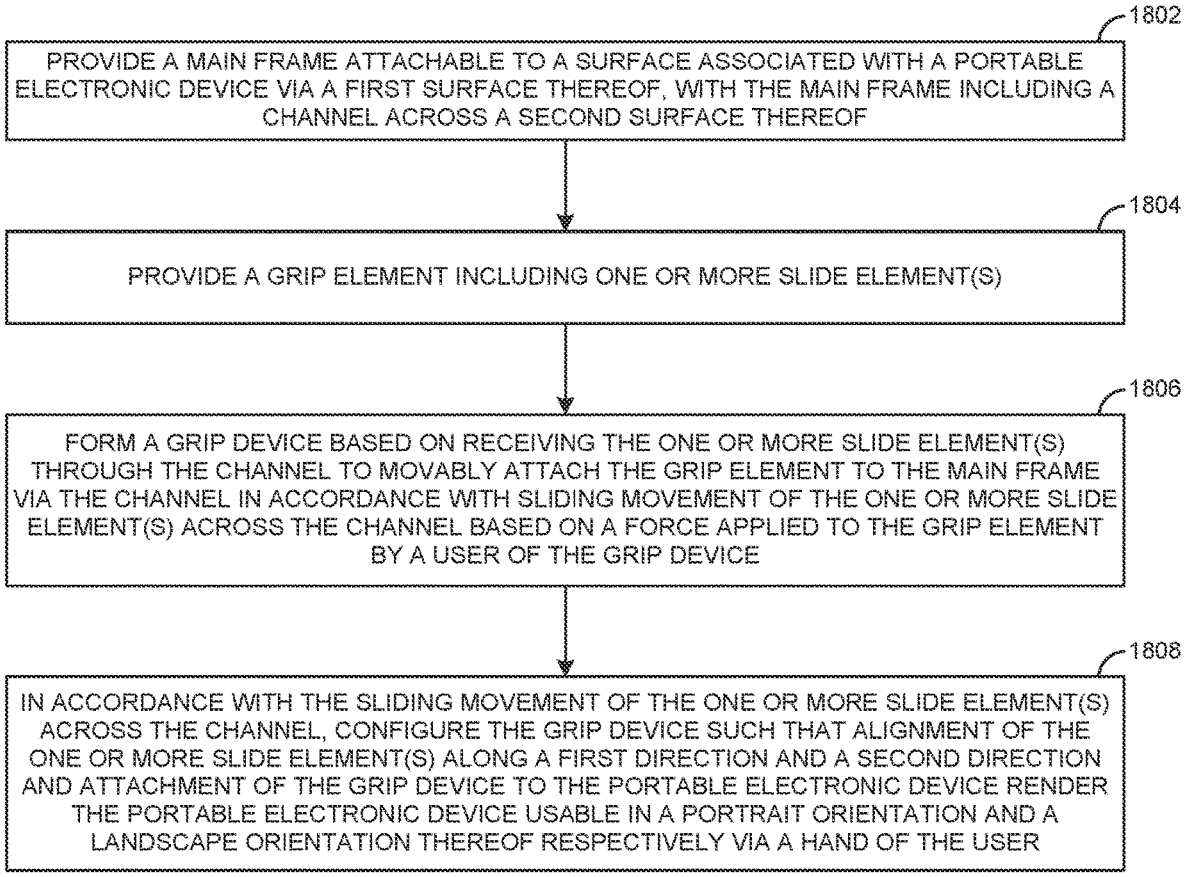

1802
PROVIDE A MAIN FRAME ATTACHABLE TO A SURFACE ASSOCIATED WITH A PORTABLE ELECTRONIC DEVICE VIA A FIRST SURFACE THEREOF, WITH THE MAIN FRAME INCLUDING A CHANNEL ACROSS A SECOND SURFACE THEREOF
1804
PROVIDE A GRIP ELEMENT INCLUDING ONE OR MORE SLIDE ELEMENT(S)
1806
FORM A GRIP DEVICE BASED ON RECEIVING THE ONE OR MORE SLIDE ELEMENT(S) THROUGH THE CHANNEL TO MOVABLY ATTACH THE GRIP ELEMENT TO THE MAIN FRAME VIA THE CHANNEL IN ACCORDANCE WITH SLIDING MOVEMENT OF THE ONE OR MORE SLIDE ELEMENT(S) ACROSS THE CHANNEL BASED ON A FORCE APPLIED TO THE GRIP ELEMENT BY A USER OF THE GRIP DEVICE
1808
IN ACCORDANCE WITH THE SLIDING MOVEMENT OF THE ONE OR MORE SLIDE ELEMENT(S) ACROSS THE CHANNEL, CONFIGURE THE GRIP DEVICE SUCH THAT ALIGNMENT OF THE ONE OR MORE SLIDE ELEMENT(S) ALONG A FIRST DIRECTION AND A SECOND DIRECTION AND ATTACHMENT OF THE GRIP DEVICE TO THE PORTABLE ELECTRONIC DEVICE RENDER THE PORTABLE ELECTRONIC DEVICE USABLE IN A PORTRAIT ORIENTATION AND A LANDSCAPE ORIENTATION THEREOF RESPECTIVELY VIA A HAND OF THE USER

FIG. 18

GRIP DEVICE TO ENABLE A NUMBER OF OPERATIONS ASSOCIATED WITH A PORTABLE ELECTRONIC DEVICE BASED ON ATTACHMENT THERETO

CLAIM OF PRIORITY

[0001] This application is a Continuation-in-Part Application of co-pending U.S. application Ser. No. 16/691,636 titled GRIP DEVICE TO ENABLE A NUMBER OF OPERATIONS ASSOCIATED WITH A PORTABLE ELECTRONIC DEVICE BASED ON ATTACHMENT THERETO filed on Nov. 22, 2019. The contents of the aforementioned application are incorporated by reference herein in entirety thereof.

FIELD OF TECHNOLOGY

[0002] This disclosure relates generally to portable electronic device accessories and, more particularly, to a method, a device and/or a system of a grip device to enable a number of operations associated with a portable electronic device based on attachment thereto.

BACKGROUND

[0003] A portable electronic device such as a mobile phone, a tablet and a smart media player may be held in one hand of a user based on compactness thereof. However, ease of use of features available through the portable electronic device may still depend on design thereof and dexterity of fingers of the one hand of the user. Carelessness (e.g., placing a mobile phone on a wet surface, dropping the mobile phone) on part of the user may lead to damage of the portable electronic device.

[0004] In the case of the portable electronic device being a mobile phone, the mobile phone may be equipped with a case for damage protection purposes. The case may include an anchoring mechanism based on a clip, a grip base and/or an elastic strap. In the case of the elastic strap being the anchoring mechanism, the user may insert a hand or one or more fingers of the hand thereof into the elastic strap to securely hold the mobile phone. However, the elastic strap may enable the user to hold the mobile phone solely in a particular orientation, thereby limiting convenience thereof.

SUMMARY

[0005] Disclosed are a method, a device and/or a system of a grip device to enable a number of operations associated with a portable electronic device based on attachment thereto.

[0006] In one aspect, a grip device for a portable electronic device includes a main frame configured to be attached to a surface associated with the portable electronic device via a first surface thereof, with the main frame including a channel across a second surface thereof, and a grip element including one or more slide element(s) receivable through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the one or more slide element(s) across the channel based on a force applied to the grip element by a user of the grip device. In accordance with the sliding movement of the one or more slide element(s) across the channel, the one or more slide element(s) is aligned along a first direction whereby, in a first configuration of the alignment of the one or more slide element(s) along the first direction, attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user.

[0007] Also, in accordance with the sliding movement of the one or more slide element(s) across the channel, the one or more slide element(s) is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the one or more slide element(s) along the second direction, the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user. The channel includes a linear first channel and a linear second channel, with the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration. The one or more slide element(s) is configured to be received in and slide across the linear first channel and the linear second channel.

[0008] In another aspect, a method includes providing a main frame attachable to a surface associated with a portable electronic device via a first surface thereof, with the main frame including a channel across a second surface thereof, providing a grip element comprising one or more slide element(s), and forming a grip device based on receiving the one or more slide element(s) through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the one or more slide element(s) across the channel based on a force applied to the grip element by a user of the grip device. The method also includes, in accordance with the sliding movement of the one or more slide element(s) across the channel, configuring the grip device such that the one or more slide element(s) is aligned along a first direction whereby, in a first configuration of the alignment of the one or more slide element(s) along the first direction, attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user.

[0009] Further, the method includes, in accordance with the sliding movement of the one or more slide element(s) across the channel, configuring the grip device such that the one or more slide element(s) is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the one or more slide element(s) along the second direction, the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user. The channel includes a linear first channel and a linear second channel, with the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration. The one or more slide element(s) is configured to be received in and slide across the linear first channel and the linear second channel.

[0010] In yet another aspect, a system includes a portable electronic device and a grip device. The grip device includes a main frame configured to be attached to a surface associ-

ated with the portable electronic device via a first surface thereof, with the main frame including a channel across a second surface thereof, and a grip element including one or more slide element(s) receivable through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the one or more slide element(s) across the channel based on a force applied to the grip element by a user of the grip device. In accordance with the sliding movement of the one or more slide element(s) across the channel, the one or more slide element(s) is aligned along a first direction whereby, in a first configuration of the alignment of the one or more slide element(s) along the first direction, attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user.

[0011] Also, in accordance with the sliding movement of the one or more slide element(s) across the channel, the one or more slide element(s) is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the one or more slide element(s) along the second direction, the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user. The channel includes a linear first channel and a linear second channel, with the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration. The one or more slide element(s) is configured to be received in and slide across the linear first channel and the linear second channel.

[0012] The methods and systems disclosed herein may be implemented in any means for achieving various aspects. Other features will be apparent from the accompanying drawings and from the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The embodiments of this invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

[0014] FIG. **1** is a schematic view of a phone grip device configured to be attached to a surface associated with a mobile phone, according to one or more embodiments.

[0015] FIG. **2** is a schematic view of coupling of the phone grip device of FIG. **1** to a mobile phone, according to one or more embodiments.

[0016] FIG. **3** is a schematic view of alignment of a first slide element and a second slide element of a flexible strap of the phone grip device of FIGS. **1-2** along a first direction when attached to the mobile phone of FIG. **2**, according to one or more embodiments.

[0017] FIG. **4** is a schematic view of alignment of the first slide element and the second slide element of the flexible strap of the phone grip device of FIGS. **1-2** along a second direction when attached to the mobile phone of FIG. **2**, according to one or more embodiments.

[0018] FIG. **5** is a schematic view of support of the mobile phone of FIG. **2** on a flat surface by way of the phone grip device of FIGS. **1-4**, according to one or more embodiments.

[0019] FIG. **6** is a schematic view of embodiments of a channel of a main frame of a phone grip device.

[0020] FIG. **7** is a schematic view of coupling of the phone grip device of FIG. **6** to the mobile phone of FIG. **2**, according to one or more embodiments.

[0021] FIG. **8** is a schematic view of implementations of a phone grip device configured to enable coupling of the mobile phone of FIG. **2** to a magnetic phone stand even when the phone grip device is connected to the mobile phone, according to one or more embodiments.

[0022] FIG. **9** is another schematic view of an implementation of a steel plate configured to enable coupling of the mobile phone of FIG. **2** to the magnetic phone stand of FIG. **8** even when a phone grip device is connected to the mobile phone, according to one or more embodiments.

[0023] FIG. **10** is a process flow diagram detailing the operations involved in realizing a grip device, according to one or more embodiments.

[0024] FIG. **11** is a schematic view of another example implementation of the main frame of the phone grip device of FIG. **1**.

[0025] FIG. **12** is a schematic view of a phone grip device with a single slide element configuration of a grip element thereof, according to one or more embodiments.

[0026] FIG. **13** is a schematic view of the phone grip device of FIG. **12** aligned along a second direction different from a first direction of FIG. **12** based on sliding of the grip element thereto, according to one or more embodiments.

[0027] FIG. **14** is a schematic view of the phone grip device of FIGS. **12-13** aligned along a third direction to enable support of a mobile phone on a flat surface, according to one or more embodiments.

[0028] FIG. **15** is a schematic view of a phone grip device with another single slide element configuration of a grip element thereof, according to one or more embodiments.

[0029] FIG. **16** is a schematic view of the phone grip device of FIG. **15** aligned along a second direction different from a first direction of FIG. **15** based on sliding of the grip element thereto, according to one or more embodiments.

[0030] FIG. **17** is a schematic view of the phone grip device of FIGS. **15-16** aligned along a third direction to enable support of a mobile phone on a flat surface, according to one or more embodiments.

[0031] FIG. **18** is a process flow diagram detailing the operations involved in realizing a grip device to enable a number of operations associated with a portable electronic device based on attachment thereto, according to one or more embodiments.

[0032] Other features of the present embodiments will be apparent from the accompanying drawings and from the detailed description that follows.

DETAILED DESCRIPTION

[0033] Example embodiments, as described below, may be used to provide a method, a device and/or a system of a grip device to enable a number of operations associated with a portable electronic device based on attachment thereto. It will be appreciated that the various embodiments discussed herein need not necessarily belong to the same group of exemplary embodiments, and may be grouped into various other embodiments not explicitly disclosed herein. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the various embodiments.

[0034] FIG. **1** shows a phone grip device **100** configured to be attached (to be discussed below) to a surface associated with a mobile phone, according to one or more embodiments. It should be noted that while exemplary embodiments have been discussed with reference to a mobile phone, concepts associated with phone grip device **100** may be applicable to a more generic portable electronic device, examples of which may include but are not limited to a mobile phone, a smart media player, and a tablet. Thus, phone grip device **100** may be interpreted as a device configured to be attached to (and, thereby, to grip onto) the aforementioned generic portable electronic device. The use of phone grip device **100** throughout the Specification is merely for the sake of illustrative and referential convenience.

[0035] As shown in the side view of phone grip device **100** in FIG. **1**(*a*), in one or more embodiments, phone grip device **100** may include a main frame **102** configured to be attached to a surface associated with a mobile phone (again, to be discussed below) by way of a first surface **104** thereof. In one or more embodiments, main frame **102** may be a rigid, a semi-rigid or a flexible structure configured to serve as a backbone of phone grip device **100** and associated operations thereof. While main frame **102** may be configured to be preferentially attached to a center portion of the surface associated with the mobile phone, it should be noted that all possible positions of attachment are within the scope of the exemplary embodiments discussed herein. Further, all possible shapes (e.g., regular, irregular) of main frame **102** of phone grip device **100** are within the scope of the exemplary embodiments discussed herein.

[0036] In one or more embodiments, first surface **104** of main frame **102** may be coated with an adhesive material to attach (e.g., removably) with the surface associated with the mobile phone. In some other embodiments, the attachment of first surface **104** with the surface associated with the mobile phone may be through magnetic means or through means such as VELCRO®. All possible means of attachment of first surface **104** with the surface associated with the mobile phone and combinations thereof are within the scope of the exemplary embodiments discussed herein.

[0037] FIG. **1**(*b*) shows a second surface **106** of main frame **102** across which a channel **108** may be formed, according to one or more embodiments. In one or more embodiments, channel **108** may be a track including grooves **110** (e.g., based on cuts) formed therewith configured to enable reception of slide elements (e.g., first slide element **116** and second slide element **120**; refer to FIGS. **1**(*d*) and **1**(*e*)) therewithin to be locked/engaged at a specific position along channel **108**. It should be noted that channel **108** may be formed all the way through a depth of main frame **102** into first surface **104**, as shown in FIG. **1**(*c*). However, implementations in which a depth of channel **108** is less than the depth of main frame **102** are also within the scope of the exemplary embodiments discussed herein.

[0038] In one or more embodiments, channel **108** may be linear or curved in shape. In some embodiments, channel **108** may be a combination of a linear and a curved channel. In one or more embodiments, channel **108** may be a set of channels contiguous and continuous with one another; in some other embodiments, channel **108** may include a set of channels, at least some of which are discontinuous with one another. Further, channel **108** may be irregular in shape. The depiction of channel **108** across this Specification may, therefore, not be considered limiting.

[0039] FIGS. **1**(*d*) and **1**(*e*) show a flexible strap **112** (e.g., an elastic strap) that is configured to form part of phone grip device **100**, according to one or more embodiments. It should be noted that flexible strap **112** forms part of a mere example implementation of phone grip device **100**. Other implementations involving rings and more rigid elements are within the scope of the exemplary embodiments discussed herein. The "adjective" flexible is a relative term that may encompass other materials deemed to be semi-rigid or rigid. In one or more embodiments, flexible strap **112** may include a first slide element **116** and a second slide element **120** proximate a first end **114** and a second end **118** thereof respectively. As shown in FIGS. **1**(*d*) and **1**(*e*), first slide element **116** and second slide element **120** may be each be a protrusion (e.g., a hook element) from a surface of flexible strap **112** that ends in an element with a flat surface (e.g., disc-shaped); the aforementioned element along with the corresponding protrusion may enable each of first slide element **116** and second slide element **120** to be locked under a groove **110** of channel **108**.

[0040] In one or more embodiments, the abovementioned locking may enable sliding movement of first slide element **116** and second slide element **120** along channel **108** relative to one another in accordance with a force applied by a user of phone grip device **100**. In one or more embodiments, the aforementioned relative movement may encompass a first scenario involving a slide element (e.g., first slide element **116**) being stationary and another slide element (e.g., second slide element **120**) sliding along channel **108**, a second scenario involving the another slide element (e.g., second slide element **120**) being stationary and the slide element (e.g., first slide element **116**) sliding along channel **108**, and a third scenario involving both slide elements (e.g., first slide element **116** and second slide element **120**) sliding along channel **108**. The configuration(s) and structure(s) of first slide element **116** and second slide element **120** are not limited to those depicted in FIG. **1**.

[0041] FIG. **2** shows coupling of phone grip device **100** to a surface **204** associated with a mobile phone **202**, according to one or more embodiments. In one or more embodiments, surface **204** associated with mobile phone **202** may be an actual surface of mobile phone **202** or a surface of a case of mobile phone **202**. For the aforementioned reason, a portion of mobile phone **202** barring surface **204** (which can also be the surface of the case of mobile phone **202**) is shown in dotted lines in FIG. **2**. As shown in FIG. **2**(*a*), flexible strap **112** with first slide element **116** and second slide element **120** may be brought close to channel **108**, following which the aforementioned first slide element **116** and second slide element **120** may be slid through channel **108** to be received therewithin, as shown in FIG. **2**(*b*).

[0042] In one or more embodiments, first slide element **116** and second slide element **120** may then be free to move across channel **108** relative to one another based on the force applied by a user of phone grip device **100**. In one or more embodiments, without the force, first slide element **116** and second slide element **120** may remain locked onto grooves **110** of phone grip device **100**. An example scenario of the force applied by the user may involve the user (e.g., user **310** of FIG. **3**) pulling (e.g., along a location proximate first end **114** or second end **118**, along a location proximate a middle portion of flexible strap **112**) flexible strap **112** along a

desired direction with a hand thereof to effect the relative sliding movement of first slide element **116** and second slide element **120**.

[0043] FIG. **2**(*c*) shows phone grip device **100** attached to surface **204** associated with mobile phone **202**. Again, as discussed above, mobile phone **202** is a mere example device to which phone grip device **100** is directly or indirectly coupled. It should be noted that phone grip device **100** may be attached to any portable electronic device. In one or more embodiments, surface **204** may be a rear exterior surface of mobile phone **202**. In one or more other embodiments, surface **204** may be an exterior surface of a case of mobile phone **202**.

[0044] FIG. **3** shows alignment of first slide element **116** and second slide element **120** of phone grip device **100** along a first direction **302** when attached to mobile phone **202**, according to one or more embodiments. In one or more embodiments, the relative movement of first slide element **116** and second slide element **120** along channel **108** based on a force applied by a user **310** of phone grip device **100** may enable choice of a specific position of alignment of first slide element **116** and second slide element **120** along channel **108** with respect to user **310**. FIG. **3**(*a*) shows movement of flexible strap **112** configured to effect the relative motion of first slide element **116** and second slide element **120** of phone grip device **100** by way of arrows.

[0045] In one or more embodiments, once first slide element **116** and second slide element **120** are aligned along first direction **302** along channel **108**, flexible strap **112** may form a first loop **304** (e.g., a partially open curve), as shown in FIGS. **3**(*a*) and **3**(*c*). It should be noted that FIG. **3**(*b*) depicts phone grip device **100** (without mobile phone **202** for the sake of illustrative convenience) flipped over to the side of first surface **104**. FIG. **3**(*b*) clearly shows first slide element **116** and second slide element **120** aligned along first direction **302** along channel **108**. It is obvious that first slide element **116** and second slide element **120** may be received through channel **108**, moved relative to one another and locked to a position corresponding to the alignment along first direction **302**.

[0046] It should be noted that the alignment along first direction **302** and first loop **304** may still be destroyed based on another force applied by a hand **308** of user **310**. However, in one or more embodiments, as shown clearly in FIGS. **3**(*a*) and **3**(*c*), the alignment along first direction **302** may enable flexible strap **112** to form first loop **304**. In one or more embodiments, user **310** may be able to insert a finger **306** of hand **308** thereof through first loop **304** and pick up/lift mobile phone **202** via phone grip device **100**. In one or more embodiments, one or more other finger(s) of hand **308** may be freed to perform operations such as gripping mobile phone **202**, taking a selfie through mobile phone **202** and so on. FIG. **3**(*d*) shows one or more other finger(s) of hand **308** being free to perform a first operation **312** in a portrait orientation **314** of mobile phone **202**. FIG. **3** shows selfie taking through mobile phone **202** as an example first operation **312** through the one or more other finger(s) of hand **308** of user **310**. Portrait and landscape orientations are well known to one skilled in the art. Detailed discussed thereof is, therefore, skipped for the sake of convenience and brevity. In the example scenarios depicted in FIG. **3**, first direction **302** may be along a length of mobile phone **202**.

[0047] FIG. **4** shows alignment of first slide element **116** and second slide element **120** of phone grip device **100** along a second direction **402** when attached to mobile phone **202**, according to one or more embodiments. Again, in one or more embodiments, the relative movement of first slide element **116** and second slide element **120** along channel **108** based on a force applied by user **310** of phone grip device **100** may enable choice of another specific position of alignment of first slide element **116** and second slide element **120** along channel **108** with respect to user **310**. FIG. **4**(*a*) shows movement of flexible strap **112** configured to effect the relative motion of first slide element **116** and second slide element **120** of phone grip device **100** by way of arrows.

[0048] In one or more embodiments, while FIG. **3** showed relative movement of first slide element **116** and second slide element **120** along the length of mobile phone **202**, FIG. **4** shows the capability of relative movement of first slide element **116** and second slide element **120** along a width of mobile phone **202** perpendicular to the length thereof, according to one or more embodiments. In one or more embodiments, once first slide element **116** and second slide element **120** are aligned along second direction **402** along channel **108**, flexible strap **112** may form a second loop **404** (e.g., another partially open curve), as shown in FIGS. **4**(*a*) and **4**(*c*). It should be noted that FIG. **4**(*b*) depicts phone grip device **100** (without mobile phone **202** for the sake of illustrative convenience) flipped over to the side of first surface **104**. FIG. **4**(*b*) clearly shows first slide element **116** and second slide element **120** aligned along second direction **402** along channel **108**.

[0049] Again, it should be noted that the alignment along second direction **402** and second loop **404** may still be destroyed based on another force applied by a hand **308** of user **310**. However, in one or more embodiments, as shown clearly in FIGS. **4**(*a*) and **4**(*c*), the alignment along second direction **402** may enable flexible strap **112** to form second loop **404**. In one or more embodiments, user **310** may be able to insert finger **306** thereof through second loop **404** and pick up/lift mobile phone **202** via phone grip device **100**. In one or more embodiments, now, one or more other finger(s) of hand **308** may be freed to perform operations such as gripping mobile phone **202**, taking a selfie through mobile phone **202** and so on. FIG. **4**(*d*) shows one or more other finger(s) of hand **308** being free to perform a second operation **406** in a landscape orientation **408** of mobile phone **202**. FIG. **4** also shows selfie taking through mobile phone **202** as an example second operation **406** through the one or more other finger(s) of hand **308** of user **310**. Also, it is obvious that not only second operation **406** may be different from first operation **312**, but also second operation **406** and first operation **312** may involve operations other than selfie taking.

[0050] FIG. **5** shows support of mobile phone **202** on a flat surface **508**, according to one or more embodiments. To provide context, FIG. **5**(*a*) shows a length **502** and a width **504** of mobile phone **202**. It is obvious that width **504** may be perpendicular to length **502**. FIG. **5**(*b*) shows alignment of first slide element **116** and second slide element **120** of phone grip device **100** attached to mobile phone **202** along a third direction **510** along channel **108**, according to one or more embodiments. In one or more embodiments, the alignment along third direction **510** may enable flexible strap **112** to form a third loop **506**. In one or more embodiments, third

direction **510** may be capable of being second direction **402**; similarly, third loop **506** may be capable of being second loop **404**.

[0051] As shown in FIG. **5**(*b*), in one or more embodiments, mobile phone **202** may be supported on flat surface **508** along width **504** thereof by third loop **506**; the aforementioned support may be enabled by way of a portion of third loop **506** contacting flat surface **508**. In one or more embodiments, the aforementioned support may entail mobile phone **202** being at least a bit inclined with respect to flat surface **508**. In one or more embodiments, the angle of inclination may depend on a position of attachment of phone grip device **100** to mobile phone **202**.

[0052] FIG. **5**(*c*) also shows alignment of first slide element **116** and second slide element **120** of phone grip device **100** attached to mobile phone **202** along third direction **510** along channel **108**, according to one or more embodiments. Again, in one or more embodiments, the alignment along third direction **510** may enable flexible strap **112** to form third loop **506**. In one or more embodiments, third direction **510** may, again, be capable of being first direction **302**; similarly, third loop **506** may be capable of being first loop **304**. Again, FIG. **5**(*c*) shows support of mobile phone **202** on flat surface **508** along length **502** thereof by third loop **506**; again, the aforementioned support may be enabled by way of a portion of third loop **506** contacting flat surface **508**. In one or more embodiments, again, the aforementioned support may entail mobile phone **202** being at least a bit inclined with respect to flat surface **508**. In one or more embodiments, again, the angle of inclination may depend on a position of attachment of phone grip device **100** to mobile phone **202**.

[0053] It should be noted that third loop **506** may be different from first loop **304** and second loop **404**, and third direction **510** may be different from first direction **302** and second direction **402**. Further, in some embodiments, phone grip device **100** itself may be slidable across mobile phone **202** to enable modification of the angle of inclination of mobile phone **202** with respect to flat surface **508**. FIG. **6** shows embodiments of a channel (e.g., channel **108**, curved channel **608**, linear channel **610**, isolated channel **612**) of a main frame (e.g., main frame **102**, main frame **606**) of a phone grip device (e.g., phone grip device **100**, phone grip device **600**), according to one or more embodiments. FIG. **6**(*a*) shows phone grip device **100** attached to mobile phone **202**, with channel **108** including first channel **602** and second channel **604** perpendicular to and intersecting one another, according to one or more embodiments. In one or more embodiments, first channel **602** and second channel **604** may be contiguous and continuous with one another to form a closed circuit.

[0054] FIG. **6**(*b*) shows a phone grip device **600** analogous to phone grip device **100**, according to one or more embodiments. Concepts discussed herein with respect to phone grip device **600** are within the scope of the exemplary embodiments discussed herein. In one or more embodiments, phone grip device **600** may include a main frame **606** analogous to main frame **102**, a first surface **614** analogous to first surface **104**, and a second surface **616** analogous to second surface **106**. In one or more embodiments, main frame **606** may have a linear channel **610** implemented thereon in conjunction with a curved channel **608**. It should be noted that, in some embodiments, main frame **606** may solely include curved channel **608**. Here, in one or more embodiments, linear channel **610** may be continuous and contiguous with curved channel **608** to form another closed circuit.

[0055] In one or more embodiments, main frame **606** may also include an isolated channel **612** (e.g., linear in shape) non-continuous and non-contiguous with linear channel **610** and curved channel **608**. The aforementioned channels may be configured to receive first slide element **116** and second slide element **120** therethrough to effect the relative sliding movement discussed above. FIG. **7** shows flexible strap **112** connected through one or more channel(s) (e.g., isolated channel **612**, curved channel **608**, linear channel **610**) to form phone grip device **600** that may, in turn, be connected to surface **204** associated with mobile phone **202**, according to one or more embodiments.

[0056] In a state of connection of phone grip device **600** with mobile phone **202** depicted in FIG. **7**, a portion of flexible strap **112** may be over isolated channel **612** based on reception of second slide element **120** therethrough. First slide element **116** may be received through curved channel **608**, thereby enabling alignment of first slide element **116** and second slide element **120** across radial directions with respect to curved channel **608**. It is obvious that first slide element **116** may also be received through linear channel **610**. Further, other configurations of the channels and/or other alignments (e.g., along first direction **302**, second direction **402** and third direction **510**) of the slide elements are within the scope of the exemplary embodiments discussed herein.

[0057] In one or more embodiments, phone grip device **100**/**600** may be coupled to a magnetic phone stand even in the state of connection thereof to mobile phone **202**. FIG. **8** demonstrates enablement of the aforementioned capability, according to one or more embodiments. In one example implementation shown in FIG. **8**(*a*), on first surface **104**, at least a portion of main frame **102** around channel **108** may be made of a magnetic material **802** (e.g., steel). As first surface **104** is configured to be attached to surface **204** associated with mobile phone **202** (FIG. **8** does not show mobile phone **202** for the sake of illustrative convenience), phone grip device **100**, and, thereby, mobile phone **202**, may be coupled to a magnetic phone stand **850** (refer to FIG. **8**(*c*)) even in the state of attachment thereof.

[0058] FIG. **8**(*b*) illustrates another example implementation in which at least a portion of main frame **102** on second surface **106** is made of a magnetic material **804** (e.g., steel; same magnetic material as magnetic material **802** or a different magnetic material). In the state of attachment of phone grip device **100** to mobile phone **202**, magnetic material **804** may enable direct coupling of phone grip device **100** and mobile phone **202** to magnetic phone stand **850**. It should be noted that magnetic phone stand **850** may be generically referred to as magnetic portable electronic device stand. Just like mobile phone **202** is used herein instead of a portable electronic device for the sake of referential convenience, magnetic phone stand **850** is used herein instead of the magnetic portable electronic device stand.

[0059] FIG. **9** shows an implementation of a steel plate **902** on surface **204** associated with mobile phone **202** configured to enable coupling of mobile phone **202** to magnetic phone stand **850** even with phone grip device **100** attached to mobile phone **202**, according to one or more embodiments. In one or more embodiments, steel plate **902** may be made of a magnetic material **904** (e.g., same as

magnetic material **802**/**804**, different therefrom) and may be attached to surface **204**. Although FIG. **9** shows attachment of steel plate **902** to an exterior of surface **204**, it should be noted that steel plate **902** may also be coupled behind surface **204** to effect the coupling thereof to mobile phone **202**.

[0060] Now, in one or more embodiments, phone grip device **100** may be coupled onto plate **902** or onto surface **204** to be coupled to mobile phone **202**. In one or more embodiments, as shown in FIG. **9**, appropriate sliding movement of flexible strap **112** and coupling of steel plate **902** to mobile phone **202** may enable the coupling (e.g., magnetic) of mobile phone **202** to magnetic phone stand **850** shown in FIG. **9**(*c*) even with phone grip device **100** still attached to surface **204** associated with mobile phone **202**.

[0061] FIG. **10** shows a process flow detailing the operations involved in realizing a grip device (e.g., phone grip device **100**) configured to be attached to a portable electronic device (e.g., mobile phone **202**), according to one or more embodiments. In one or more embodiments, operation **1002** may involve providing a main frame (e.g., main frame **102**) configured to be attached to a surface (e.g., surface **204**) associated with the portable electronic device. In one or more embodiments, the aforementioned attachment may be effected via a first surface (e.g., first surface **104**) of the main frame. In one or more embodiments, the main frame may include a channel (e.g., channel **108**) across a second surface (e.g., surface **106**) thereof.

[0062] In one or more embodiments, operation **1004** may involve providing a flexible strap (e.g., flexible strap **112**). In one or more embodiments, the flexible strap may include a first slide element (e.g., first slide element **116**) and a second slide element (e.g., second slide element **120**) proximate a first end (e.g., first end **114**) and a second end (e.g., second end **118**) thereof respectively. In one or more embodiments, operation **1006** may involve forming the grip device based on receiving the slide elements of the flexible strap through the channel of the main frame. In one or more embodiments, the aforementioned formation may enable movable attachment of the flexible strap to the main frame via the channel in accordance with sliding movement of the first slide element and the second slide element relative to one another across the channel based on a force applied to the flexible strap by a user of the grip device.

[0063] In one or more embodiments, operation **1008** may involve enabling operations associated with the portable electronic device and support thereof on a flat surface (e.g., flat surface **508**) through the attachment of the formed grip device to the portable electronic device. In accordance therewith and the sliding movement of the first slide element and the second slide element of the flexible strap relative to one another across the channel, in one or more embodiments, the grip device may enable the first slide element and the second slide element to both be aligned along a first direction (e.g., first direction **302**) whereby insertion of a finger (e.g., finger **306**) of a user (e.g., user **310**) of the grip device through a first loop (e.g., first loop **304**) formed by the flexible strap following the alignment along the first direction enables a first operation (e.g., first operation **312**) associated with the portable electronic device in a portrait orientation (e.g., portrait orientation **314**) thereof through one or more other finger(s) of the user when the grip device is attached to the surface associated with the portable electronic device.

[0064] In one or more embodiments, the grip device may also enable the first slide element and the second slide element to both be aligned along a second direction (e.g., second direction **402**) perpendicular to the first direction whereby insertion of the finger of the user through a second loop (e.g., second loop **404**) formed by the flexible strap following the alignment along the second direction enables a second operation (e.g., second operation **406**) associated with the portable electronic device in a landscape orientation (e.g., landscape orientation **408**) thereof through the one or more other finger(s) of the user when the grip device is attached to the surface associated with the portable electronic device.

[0065] In one or more embodiments, based on alignment of both the first slide element and the second slide element along a third direction (e.g., third direction **510**) also capable of being the first direction and the second direction and the attachment of the grip device to the surface associated with the portable electronic device, the grip device may further enable the portable electronic device to be supported on the flat surface by a third loop (e.g., third loop **506**) also capable of being the corresponding first loop and the corresponding second loop by way of a portion of the third loop contacting the flat surface.

[0066] FIG. **11** shows another example implementation of main frame **102** of phone grip device **100**. The aforementioned example implementation is within the scope of the exemplary embodiments discussed herein. Here, channel **108** may have a separate section (e.g., a notch **1102**) implemented therein where first slide element **116** and second slide element **120** of flexible strap **112** may be removed one after the other to enable replacement of flexible strap **112** without having to remove main frame **102** from surface **204** associated with mobile phone **202** in the state of connection thereof. It is obvious from FIG. **11** that even when main frame **102** is attached to surface **204** associated with mobile phone **202**, first slide element **116** and second slide element **120** may be slid across channel **108** until notch **1102** is reached; the appropriate size of notch **1102** may enable removal of flexible strap **112** based on removing first slide element **116** and second slide element **120** through notch **1102**. All reasonable variations are within the scope of the exemplary embodiments discussed herein.

[0067] Thus, exemplary embodiments may provide for a grip device configured to be coupled to a portable electronic device to enable a number of operations associated therewith. In one or more embodiments, the grip device (e.g., phone grip device **100**) may enable efficiency, simultaneity and/or stability of the operations associated with the portable electronic device. While exemplary embodiments have been discussed with regard to flexible strap **112** with two slide elements (first slide element **116** at first end **114** and second slide element **120** at second end **118**) enabling the sliding of flexible strap **112** across channel **108** to realize alignment of phone grip device **100** (e.g., or slide elements thereof discussed above and below) along first direction **302**, second direction **402** and third direction **510** when attached to mobile phone **202** to facilitate portrait orientation **314**, landscape orientation **408** and support on flat surface **508** respectively of mobile phone **202**, it should be noted that other configurations of grip elements including one or more slide element(s) analogous to flexible strap **112** are within the scope of the exemplary embodiments discussed herein.

[0068] FIG. **12** shows phone grip device **100** with a single slide element configuration of a grip element **1202** thereof, according to one or more embodiments. In one or more embodiments, grip element **1202** (analogous to flexible strap **112**) may include a ring element **1204** through which finger **306** of hand **308** of user **310** passes when phone grip device **100** is attached to mobile phone **202** and grip element **1202** is locked under one or more grooves **110** of channel **108** formed on main frame **102**, analogous to the discussion pertinent to flexible strap **112** and slide elements thereof, and mobile phone **202** is in use (e.g., to perform first operation **312**, to perform second operation **406**). FIG. **12** shows grip element **1202** as including a slide element **1206** coupled to ring element **1204** by way of a stem element **1208**, according to one or more embodiments. In some embodiments, ring element **1204** may be rotatable around an axial length **1210** of stem element **1208**.

[0069] FIG. **12** shows locking of grip element **1202** onto channel **108** by way of slide element **1206**, according to one or more embodiments. As discussed above, in one or more embodiments, slide element **1206** may be a protrusion from stem element **1208** that ends in an element with a flat surface (e.g., disc-shaped). In one or more embodiments, the aforementioned element along with the protrusion may enable slide element **1206** to be locked under one or more grooves **110** of channel **108**. Again, other configurations of slide element **1206** are within the scope of the exemplary embodiments discussed herein. FIG. **12** also shows phone grip device **100** aligned along first direction **302** based on sliding of grip element **1202** thereto, according to one or more embodiments; as discussed above, the alignment along first direction **302** may enable user **310** of mobile phone **202** to perform first operation **312** in portrait orientation **314** thereof.

[0070] FIG. **13** shows phone grip device **100** aligned along second direction **402** based on sliding of grip element **1202** thereto, according to one or more embodiments; again, as discussed above, the alignment along second direction **402** may enable user **310** of mobile phone **202** to perform second operation **406** in landscape orientation **408** thereof. In some embodiments, user **310** may also have the capability to rotate ring element **1204** to a convenient position for inserting finger **306** thereof. FIG. **14** shows phone grip device **100** aligned along third direction **510** to enable support of mobile phone **202** on flat surface **508** by way of a portion of ring element **1204** contacting said flat surface **508**. Further, FIG. **13** shows the foldability of ring element **1204** over main frame **102** in a state of attachment of grip element **1202** to channel **108** when user **310** does not hold mobile phone **202**, according to one or more embodiments. In one or more embodiments, the foldability of ring element **1204** may lend compactness of the configuration of phone grip device **100**.

[0071] FIG. **15** shows phone grip device **100** with another single slide element configuration of a grip element **1502** thereof, according to one or more embodiments. In one or more embodiments, grip element **1502** (analogous to flexible strap **112** and grip element **1202**) may include a flat base **1504** (e.g., a circular or a rectangular plate; FIG. **15** shows a circular plate for the sake of convenience) and a flat top **1506** (e.g., circular, rectangular) that is larger in dimensional size than flat base **1504**. In one or more embodiments, from a compact state **1508** of grip element **1502**, grip element **1502** may be expanded into a use state **1510** based on connecting grip element **1502** to channel **108** and pulling the flat top **1506** away from flat base **1504**. In one or more embodiments, flat top **1506** may be coupled to flat base **1504** directly by way of a compressible accordion-like element (e.g., compressible element **1512**) that expands into use state **1510** when flat top **1506** is pulled away from flat base **1504** and reverts to compact state **1508** when flat top **1506** is pushed into flat base **1504**.

[0072] In one or more embodiments, grip element **1502** may include a slide element **1514** coupled to flat base **1504**, according to one or more embodiments. FIG. **15** shows locking of grip element **1502** onto channel **108** by way of slide element **1514**, according to one or more embodiments. Again, as discussed above, in one or more embodiments, slide element **1514** may be a protrusion from flat base **1504** that ends in an element with a flat surface (e.g., disc-shaped). In one or more embodiments, the aforementioned element along with the protrusion may enable slide element **1514** to be locked under one or more grooves **110** of channel **108**. Again, other configurations of slide element **1514** are within the scope of the exemplary embodiments discussed herein. FIG. **15** also shows phone grip device **100** aligned along first direction **302** based on sliding of grip element **1502** thereto, according to one or more embodiments; as discussed above, the alignment along first direction **302** may enable user **310** of mobile phone **202** to perform first operation **312** in portrait orientation **314** thereof.

[0073] FIG. **16** shows phone grip device **100** aligned along second direction **402** based on sliding of grip element **1502** thereto, according to one or more embodiments, again, as discussed above, the alignment along second direction **402** may enable user **310** of mobile phone **202** to perform second operation **406** in landscape orientation **408** thereof. FIG. **17** shows phone grip device **100** aligned along third direction **510** to enable support of mobile phone **202** on flat surface **508** by way of a portion of grip element **1502** contacting said flat surface **508**. In the aforementioned configuration of grip element **1502**, FIGS. **15-17** indicate that user **310** uses hand **308** (e.g., fingers of hand **308**) thereof around grip element **1502** to hold grip element **1502** and slide grip element **1502** along channel **108**, according to one or more embodiments.

[0074] Thus, exemplary embodiments involving channel **108** (e.g., T-shaped channel, a linear and/or a curved channel) may encompass grip elements (e.g., flexible strap **112**, grip element **1202**, grip element **1502**) with one, two or even more than two slide elements. Discussions relevant to FIGS. **1-11** may also be relevant to FIGS. **12-17** and vice versa. All reasonable variations are within the scope of the exemplary embodiments discussed herein.

[0075] FIG. **18** shows a process flow diagram detailing the operations involved in realizing a grip device (e.g., phone grip device **100**) to enable a number of operations associated with a portable electronic device (e.g., mobile phone **202**) based on attachment thereto, according to one or more embodiments. In one or more embodiments, operation **1802** may involve providing a main frame (e.g., main frame **102**) attachable to a surface (e.g., surface **204**) associated with the portable electronic device via a first surface (e.g., first surface **104**) thereof, with the main frame including a channel (e.g., channel **108**) across a second surface (e.g., second surface **106**) thereof. In one or more embodiments, operation **1804** may involve providing a grip element (e.g., flexible strap **112**, grip element **1202**, grip element **1502**) including one or more slide element(s) (e.g., first slide element **116**, second slide element **120**, slide element **1206**,

slide element **1514**). In one or more embodiments, operation **1806** may involve forming the grip device based on receiving the one or more slide element(s) through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the one or more slide element(s) across the channel based on a force applied to the grip element by a user (e.g., user **310**) of the grip device.

[0076] In one or more embodiments, operation **1808** may then involve, in accordance with the sliding movement of the one or more slide element(s) across the channel, configuring the grip device such that the one or more slide element(s) is aligned along a first direction and a second direction whereby attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation and a landscape orientation thereof respectively via a hand of the user. In one or more embodiments, the channel may include a linear first channel and a linear second channel, with the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration. In one or more embodiments, the one or more slide element(s) may be configured to be received in and slide across the linear first channel and the linear second channel.

[0077] Although the present embodiments have been described with reference to specific example embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the various embodiments. Accordingly, the Specification and the drawings are to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A grip device for a portable electronic device comprising:

a main frame configured to be attached to a surface associated with the portable electronic device via a first surface thereof, the main frame comprising a channel across a second surface thereof; and

a grip element comprising at least one slide element receivable through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the at least one slide element across the channel based on a force applied to the grip element by a user of the grip device,

wherein, in accordance with the sliding movement of the at least one slide element across the channel:

the at least one slide element is aligned along a first direction whereby, in a first configuration of the alignment of the at least one slide element along the first direction:

attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user, and

the at least one slide element is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the at least one slide element along the second direction:

the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user,

wherein the channel comprises a linear first channel and a linear second channel, the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration, and

wherein the at least one slide element is configured to be received in and slide across the linear first channel and the linear second channel.

2. The grip device of claim **1**, wherein, further, in accordance with the sliding movement of the at least one slide element across the channel:

alignment of the at least one slide element along a third direction and the attachment of the grip device to the surface associated with the portable electronic device render the portable electronic device supportable on a flat surface by a portion of the grip element contacting the flat surface.

3. The grip device of claim **1**, wherein the main frame is attachable to one of: a surface of the portable electronic device and a surface of a case of the portable electronic device as the surface associated with the portable electronic device.

4. The grip device of claim **2**, wherein the third direction is one of: the first direction and the second direction.

5. The grip device of claim **2**, wherein, based on the alignment of the at least one slide element along the third direction and the attachment of the grip device to the surface associated with the portable electronic device, the portable electronic device is positionable on the flat surface both along a length and a width thereof.

6. The grip device of claim **1**, wherein at least one of:

at least a portion of the main frame is made of a magnetic material, and

the main frame is couplable to a plate made of the magnetic material such that, based on an appropriate sliding movement of the grip element and a coupling of the plate to the portable electronic device, the portable electronic device is couplable to a magnetic phone stand via the plate even with the grip device still attached to the surface associated with the portable electronic device.

7. The grip device of claim **1**, wherein:

the main frame includes a notch implemented in the channel to remove the grip element by way of the at least one slide element therethrough without separating the main frame from the portable electronic device when the grip device is attached to the portable electronic device.

8. The grip device of claim **2**, wherein the channel of the main frame comprises a plurality of grooves therealong to hold the at least one slide element of the grip element to a specific position along the channel including the first configuration, the second configuration, and the alignment of the at least one slide element along the third direction.

9. A method comprising:

providing a main frame attachable to a surface associated with a portable electronic device via a first surface thereof, the main frame comprising a channel across a second surface thereof;

providing a grip element comprising at least one slide element;

forming a grip device based on receiving the at least one slide element through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the at least one slide element across the channel based on a force applied to the grip element by a user of the grip device; and

in accordance with the sliding movement of the at least one slide element across the channel, configuring the grip device such that:

the at least one slide element is aligned along a first direction whereby, in a first configuration of the alignment of the at least one slide element along the first direction:

attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user, and

the at least one slide element is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the at least one slide element along the second direction:

the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user,

wherein the channel comprises a linear first channel and a linear second channel, the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration, and

wherein the at least one slide element is configured to be received in and slide across the linear first channel and the linear second channel.

10. The method of claim **9**, further comprising, in accordance with the sliding movement of the at least one slide element across the channel:

alignment of the at least one slide element along a third direction and the attachment of the grip device to the surface associated with the portable electronic device rendering the portable electronic device supportable on a flat surface by a portion of the grip element contacting the flat surface.

11. The method of claim **9**, comprising the main frame being attachable to one of: a surface of the portable electronic device and a surface of a case of the portable electronic device as the surface associated with the portable electronic device.

12. The method of claim **10**, comprising at least one of:

the third direction being one of: the first direction and the second direction; and

based on the alignment of the at least one slide element along the third direction and the attachment of the grip device to the surface associated with the portable electronic device, the portable electronic device being positionable on the flat surface both along a length and a width thereof.

13. The method of claim **9**, comprising at least one of:

at least a portion of the main frame being made of a magnetic material; and

the main frame being couplable to a plate made of the magnetic material such that, based on an appropriate sliding movement of the grip element and a coupling of the plate to the portable electronic device, the portable electronic device is couplable to a magnetic phone stand via the plate even with the grip device still attached to the surface associated with the portable electronic device.

14. The method of claim **10**, further comprising at least one of:

the main frame including a notch implemented in the channel to remove the grip element by way of the at least one slide element therethrough without separating the main frame from the portable electronic device when the grip device is attached to the portable electronic device; and

the channel of the main frame comprising a plurality of grooves therealong to hold the at least one slide element of the grip element to a specific position along the channel including the first configuration, the second configuration, and the alignment of the at least one slide element along the third direction.

15. A system comprising:

a portable electronic device; and

a grip device comprising:

a main frame configured to be attached to a surface associated with the portable electronic device via a first surface thereof, the main frame comprising a channel across a second surface thereof; and

a grip element comprising at least one slide element receivable through the channel to movably attach the grip element to the main frame via the channel in accordance with sliding movement of the at least one slide element across the channel based on a force applied to the grip element by a user of the grip device,

wherein, in accordance with the sliding movement of the at least one slide element across the channel:

the at least one slide element is aligned along a first direction whereby, in a first configuration of the alignment of the at least one slide element along the first direction:

attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a portrait orientation thereof via a hand of the user, and

the at least one slide element is aligned along a second direction perpendicular to the first direction whereby, in a second configuration of the alignment of the at least one slide element along the second direction:

the attachment of the grip device to the portable electronic device by way of the first surface of the grip device and the surface associated with the portable electronic device renders the portable electronic device usable in a landscape orientation thereof via the hand of the user,

wherein the channel comprises a linear first channel and a linear second channel, the linear first channel and the linear second channel intersecting perpendicularly to one another in a T-shaped configuration, and

wherein the at least one slide element is configured to be received in and slide across the linear first channel and the linear second channel.

16. The system of claim **15**, wherein, further, in accordance with the sliding movement of the at least one slide element across the channel of the main frame of the grip device:

alignment of the at least one slide element along a third direction and the attachment of the grip device to the surface associated with the portable electronic device render the portable electronic device supportable on a flat surface by a portion of the grip element contacting the flat surface.

17. The system of claim **15**, wherein the main frame of the grip device is attachable to one of: a surface of the portable electronic device and a surface of a case of the portable electronic device as the surface associated with the portable electronic device.

18. The system of claim **16**, wherein at least one of:

the third direction is one of: the first direction and the second direction, and

based on the alignment of the at least one slide element of the grip element of the grip device along the third direction and the attachment of the grip device to the surface associated with the portable electronic device, the portable electronic device is positionable on the flat surface both along a length and a width thereof.

19. The system of claim **15**, wherein at least one of:

at least a portion of the main frame of the grip device is made of a magnetic material, and

the main frame is couplable to a plate made of the magnetic material such that, based on an appropriate sliding movement of the grip element of the grip device and a coupling of the plate to the portable electronic device, the portable electronic device is couplable to a magnetic phone stand via the plate even with the grip device still attached to the surface associated with the portable electronic device.

20. The system of claim **16**, wherein at least one of:

the main frame of the grip device includes a notch implemented in the channel to remove the grip element by way of the at least one slide element therethrough without separating the main frame from the portable electronic device when the grip device is attached to the portable electronic device, and

the channel of the main frame of the grip device comprises a plurality of grooves therealong to hold the at least one slide element of the grip element to a specific position along the channel including the first configuration, the second configuration, and the alignment of the at least one slide element along the third direction.

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