

[19] Patents Registry
The Hong Kong Special Administrative Region
香港特別行政區
專利註冊處

[11] 1217552 B
EP 2997438 B1

[12]

STANDARD PATENT SPECIFICATION
標準專利說明書

[21] Application No. 申請編號
16105582.5

[51] Int.Cl.⁸ G06F

[22] Date of filing 提交日期
16.05.2016

[54] ADJUSTABLE PORTABLE DEVICE HOLDER 可調節便攜設備支架

[30] Priority 優先權

17.05.2013 US 13/897,062

[43] Date of publication of application 申請發表日期

13.01.2017

[45] Publication of the grant of the patent 批予專利的發表日期

16.03.2018

EP Application No. & Date 歐洲專利申請編號及日期

EP 14798238.3 15.05.2014

EP Publication No. & Date 歐洲專利申請發表編號及日期

EP 2997438 23.03.2016

Date of Grant in Designated Patent Office 指定專利當局批予專利日期

28.06.2017

[73] Proprietor 專利所有人

Kenu Inc.

560 Alabama Street

San Francisco, CA 94110

UNITED STATES/UNITED STATES OF AMERICA

[72] Inventor 發明人

MINN, Kenneth, Y.

YAO, David, E.

[74] Agent and / or address for service 代理人及/或送達地址

Spruson & Ferguson (Hong Kong) Limited

5001 Hopewell Centre

183 Queen's Road East

HONG KONG



(11) **EP 2 997 438 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
28.06.2017 Bulletin 2017/26

(21) Application number: **14798238.3**

(22) Date of filing: **15.05.2014**

(51) Int Cl.:
G06F 1/16 (2006.01)

(86) International application number:
PCT/US2014/038253

(87) International publication number:
WO 2014/186609 (20.11.2014 Gazette 2014/47)

(54) **ADJUSTABLE PORTABLE DEVICE HOLDER**

EINSTELLBARE HALTERUNG FÜR TRAGBARE VORRICHTUNG

MONTURE RÉGLABLE POUR DISPOSITIF PORTATIF

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **17.05.2013 US 201313897062**

(43) Date of publication of application:
23.03.2016 Bulletin 2016/12

(73) Proprietor: **Kenu Inc.**
San Francisco, CA 94110 (US)

(72) Inventors:
• **MINN, Kenneth, Y.**
San Francisco, CA 94110 (US)

• **YAO, David, E.**
San Francisco, CA 94110 (US)

(74) Representative: **IP Trust**
2, rue de Clichy
75009 Paris (FR)

(56) References cited:
EP-A1- 1 902 736 **CN-U- 202 907 016**
DE-U1-202004 007 340 **DE-U1-202008 010 276**
KR-A- 20000 044 438 **KR-Y1- 200 429 528**
US-A- 5 305 381 **US-A- 5 305 381**
US-A1- 2013 037 590 **US-B1- 6 366 672**
US-B2- 6 988 907

Description

CROSS REFERENCE TO RELATED APPLICATIONS

FIELD OF TECHNOLOGY

[0001] The present application is directed to adjustable portable device holder.

BACKGROUND

[0002] Various electronic and other device mounts are known in the art. Available device mounts have many drawbacks. For instance, suction cup mounts are typically large, bulky and require a large mounting surface such as a windshield. Device mounts often fail to properly and consistently attach to the mounting surface. Some device mounting solutions require adhesive to secure the mount to a vehicle dash, wearing off over time and leaving an undesirable residue on the mounting surface. Current device mounts also fail to effectively accommodate a broad range of devices or mounting surfaces.

[0003] Due to the deficiencies in the currently available device mounts, people choose not use electronic device mounts and often violate state and provincial hands-free driving laws. Other state and provincial laws prohibit objects mounted to the windshield to prevent obstruction of the driver's view.

[0004] This specification is directed to improved portable device holder systems and methods for manufacturing the same. Document CN202907016U is considered to be the closest prior art and discloses an adjustable portable device holder according to the preamble of claim 1.

SUMMARY

[0005] Adjustable portable device holder systems and methods for manufacturing the same are herein disclosed. According to one embodiment, an adjustable portable device holder includes an adjustable clamping element and a rotatable mounting element attached to the adjustable clamping element for removably securing a portable device to the adjustable portable device holder. The adjustable clamping element is capable of being biased into an activated state and unbiased into a deactivated state to secure one of a plurality of different size portable devices to the adjustable portable device holder. The rotatable mounting element, attached to the adjustable clamping element, includes a plurality of mounting arms each spaced a specified distance apart from one another and extending at a specified angle from a bottom surface of the rotatable mounting element. Each pair of the plurality of mounting arms forms a mounting slot therein between. The rotatable mounting element is capable of being rotated to position a first mounting slot in a vertical, horizontal or diagonal orientation and a second mounting slot in a vertical, horizontal or diagonal orien-

tation to engage a first mounting surface in a vertical, horizontal or diagonal orientation or a second mounting surface in a vertical, horizontal or diagonal orientation.

[0006] In another embodiment, a process for manufacturing an exemplary adjustable portable device holder is disclosed. The process includes providing an adjustable clamping element capable of being biased into an activated state and unbiased into a deactivated state to secure one of a plurality of portable device sizes to the adjustable portable device holder. The process also includes providing a rotatable mounting element comprising a plurality of mounting arms each spaced a specified distance apart from one another and extending at a specified angle from a bottom surface of the rotatable mounting element. Each pair of the plurality of mounting arms form a mounting slot therein between. The rotatable mounting element is capable of being rotated to position a first mounting slot in a vertical, horizontal or diagonal orientation and a second mounting slot in a vertical, horizontal or diagonal orientation to engage a first mounting surface in a vertical, horizontal or diagonal orientation or a second mounting surface in a vertical, horizontal or diagonal orientation. The process also includes attaching the rotatable mounting element to the adjustable clamping element.

[0007] The foregoing and other objects, features and advantages of the present disclosure will become more readily apparent from the following detailed description of exemplary embodiments as disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Embodiments of the present application are described, by way of example only, with reference to the attached Figures, wherein:

FIG. 1 illustrates an adjustable portable device holder in a retracted setting according to one embodiment;

FIG. 2 illustrates an adjustable portable device holder in an expanded setting according to one embodiment;

FIG. 3 illustrates an adjustable portable device holder in a retracted setting according to one embodiment;

FIGS. 4A and 4B illustrate an adjustable portable device holder attached to a device and a mounting surface according to one embodiment; and

FIG. 5 illustrates a flow chart of a process for manufacturing an exemplary adjustable portable device holder according to one embodiment.

DETAILED DESCRIPTION

[0009] It will be appreciated that for simplicity and clarity of illustration, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements. In addition, numerous specific details are set forth in order to provide a thorough understanding of the example embodiments described herein. However, it will be understood by those of ordinary skill in the art that the example embodiments described herein may be practiced without these specific details. In other instances, methods, procedures and components have not been described in detail so as not to obscure the embodiments described herein.

[0010] The adjustable portable device holders described in this specification can include an adjustable clamping element attached to a rotatable mounting element. The adjustable portable device holder can be used to attach and mount a portable device to a mounting surface. The portable device can be any device that fits into the adjustable clamping element including, but not limited to a smartphone or other phone, a tablet, an e-reader, a powerbank, a speaker, a multimedia player, a flashlight or other light, a television or other display, a laser or radar detector, an air freshener, a fan, a beverage or other device that can fit into the adjustable clamping element. The adjustable portable device holder can be mounted to various mounting surfaces including, but not limited to an automobile air conditioner vent blade, an automobile dashboard, an automobile sun visor, a credit card, the brim of a hat, a counter, a tripod, a bicycle, a backpack, a utensil, a ledge or other surface.

[0011] FIG. 1 illustrates an adjustable portable device holder 100 in a retracted setting according to one embodiment. The adjustable portable device holder 100 includes an adjustable clamping element 102 attached to a rotatable mounting element 104.

[0012] FIG. 2 illustrates an adjustable portable device holder 100 in an expanded setting according to one embodiment. The adjustable portable device holder 100 includes an adjustable clamping element 102 attached to a rotatable mounting element 104.

[0013] FIG. 3 illustrates an adjustable portable device holder 100 in a retracted setting according to one embodiment. The adjustable portable device holder 100 includes an adjustable clamping element 102 attached to a rotatable mounting element 104.

[0014] The adjustable clamping element 102 illustrated in FIGS. 1-3 can be expanded and retracted to attach devices of different sizes to the adjustable portable device holder 100. A force can be applied to expand or bias the adjustable clamping element 102 into an activated state (shown in FIG. 2) and the force can be released to retract the adjustable clamping element 102 into a deactivated state (shown in FIGS. 1 and 3). An elastic retracting or biasing element (not shown), such as a compression or torsion spring can be incorporated into the ad-

justable clamping element 102. The compression or torsion spring facilitates the expansion and retraction of the adjustable clamping element 102 upon applying or releasing a force on a surface of the adjustable clamping element 102.

[0015] The adjustable clamping element 102 can also include a gripping material on a surface of the adjustable clamping element 102 to provide a better grip, a better viewing angle or better attachment to a device secured within the adjustable clamping element 102. The gripping material can be applied to a portion of the adjustable clamping element 102 or the entire adjustable clamping element 102 can be made of the gripping material. The gripping material can be any material that increases the adhesion, grip or coefficient of friction between the gripping surface of the adjustable clamping element 102 and a surface of a device secured within the adjustable clamping element 102. The gripping material can include, but is not limited to rubber, polymeric material or other plastic, metal, alloy, fabric, composite material or other material capable of increasing the adhesion, grip or coefficient of friction between the gripping surface of the adjustable clamping element 102 and a surface of a device secured within the adjustable clamping element 102. The gripping material and gripping surface can be textured and composed of the same or different material.

[0016] The rotatable mounting element 104 illustrated in FIGS. 1-3 can be directly or indirectly attached to the adjustable clamping element 102. The adjustable clamping element 102 and the rotatable mounting element 104 can be one integral part or component parts that are attached together by any attaching means that allows the rotatable mounting element 104 to rotate. The rotatable mounting element 104 includes a base plate 106 and a plurality of mounting arms 108 extending from the base plate 106. The base plate 106 and the plurality of mounting arms 108 can be one integral part or component parts that are attached together by any attaching means.

[0017] Referring to FIG. 3, the base plate 106 can be a cylindrically shaped disc or other element that is capable of being rotated 360 degrees clockwise or counterclockwise. The base plate 106 provides a rotating platform from which mounting arms 108 extend. The mounting arms 108 are spaced a specified distance apart relative to one another on the base plate 106. The mounting arms 108 also extend from the base plate 106 at a specified angle relative to the base plate 106. The size of the mounting arms 108, the distance between the mounting arms 108 and the angle at which the mounting arms 108 extend from the base plate 106 establish and define mounting slots 110, 112 between pairs of mounting arms 108. The rotatable mounting element 104 can include any number of mounting arms 108 and any number of mounting slots 110, 112.

[0018] The mounting arms 108 can also include a gripping material on a surface of the mounting arms 108 to provide a better grip, a better viewing angle or better attachment to a mounting surface secured between the

mounting arms 108. The gripping material can be applied to a portion of mounting arms 108 or the entirety of the mounting arms 108 can be made of the gripping material. The gripping material can be any material that increases the adhesion, grip or coefficient of friction between the gripping surface of mounting arms 108 and a mounting surface secured between the mounting arms 108. The gripping material can include, but is not limited to rubber, polymeric material or other plastic, metal, alloy, fabric, composite material or other material capable or increasing the adhesion, grip or coefficient of friction between the gripping surface of mounting arms 108 and a mounting surface secured between the mounting arms 108. The gripping material and gripping surface can be textured and composed of the same or different material.

[0019] In one exemplary embodiment, the rotatable mounting element 104 includes four mounting arms and four mounting slots. In another exemplary embodiment, the rotating mounting element 104 includes 6 mounting arms and six mounting slots.

[0020] The mounting arms 108 and mounting slots 110, 112, can engage a mounting surface (not shown) to mount the adjustable portable device holder 100. The adjustable portable device holder 100 is mounted to a mounting surface by positioning, press fitting or wedging a mounting surface within one or more mounting slots 110, 112 to engage two or more mounting arms 108. The adjustable portable device holder 100 can be mounted to various mounting surfaces including, but not limited to an automobile air conditioner vent blade, an automobile dashboard, an automobile sun visor, a credit card, the brim of a hat, a counter, a tripod, a bicycle, a backpack, a utensil, a ledge or other surface that can be positioned, press fit or wedged within one or more mounting slots 110, 112 between two or more mounting arms 108.

[0021] The rotatable mounting element 104 can include any number of mounting arms 108 forming and defining any number of mounting slots 110, 112. The size of the mounting slots 110, 112 can be controlled by adjusting the size of the mounting arms 108, the distance between the mounting arms 108 and the angle at which the mounting arms 108 extend from the base plate 106. The rotatable mounting element 104 can include one or more different size mounting slots 110, 112 to accommodate different size mounting surface. For instance in FIG. 3, one mounting slot 110 having clearance *A* can be larger than another mounting slot 112 having clearance *B*. One or more of the mounting slots 110 formed on the rotatable mounting element 104 can accommodate a larger mounting surface than other mounting slots 112 formed on the rotatable mounting element 104.

[0022] The rotatable mounting element 104 can be rotated to position the mounting arms 108 and mounting slots 110, 112 in a horizontal plane, vertical plane, diagonal plane, circular plane, concave plane, convex plane or any plane between vertical and horizontal planes relative to the force of gravity. The mounting arms 108 and mounting slots 110, 112 can be positioned to engage a

mounting surface in any engagement plane within the 360 degree rotation of the mounting element 104. The rotatable mounting element 104 can be rotated to position a relatively larger mounting slot 110 with clearance *A* in a horizontal, vertical, diagonal, circular, concave or convex plane to engage a relatively larger mounting surface in a horizontal, vertical, diagonal, circular, concave or convex engagement plane. The rotatable mounting element 104 can also be rotated to position a relatively smaller mounting slot 112 with clearance *B* in a horizontal, vertical, diagonal, circular, concave or convex plane to engage a relatively smaller mounting surface in a horizontal, vertical, diagonal, circular, concave or convex engagement plane.

[0023] The rotatable mounting element is capable of being rotated 360 degrees clockwise or counter-clockwise to engage different size mounting surfaces in a horizontal plane, vertical plane, diagonal plane, circular plane, concave plane, convex plane or any plane between vertical and horizontal planes. A device attached to the adjustable portable device holder 100 via the adjustable clamping element 102 can also be rotated 360 degrees clockwise or counter-clockwise while it is attached to the adjustable portable device holder 100 by rotating the rotatable mounting element 104.

[0024] FIGS. 4A and 4B illustrate an adjustable portable device holder 200 attached to a device 214 and a mounting surface 216 according to one embodiment. The device 214 is a smart phone and the mounting surfaces 216 is an automobile air conditioner vent blade.

[0025] Other portable devices can also fit into the adjustable clamping element including, but not limited to a tablet, an e-reader, a powerbank, a speaker, a multimedia player, a flashlight or other light, a television or other display, a laser or radar detector, an air freshener, a fan, a beverage or other device. The adjustable portable device holder 200 can also be mounted to other mounting surfaces including, but not limited to an automobile dashboard, an automobile sun visor, a credit card, the brim of a hat, a counter, a tripod, a bicycle, a backpack, a utensil, a ledge or other surface.

[0026] The adjustable portable device holder 200 includes an adjustable clamping element 202 attached to a rotatable mounting element 204. The adjustable clamping element 202 can be expanded and retracted to attach different size smartphones to the adjustable portable device holder 200. A force can be applied to expand or bias the adjustable clamping element 202 into an activated state and the force can be released to retract the adjustable clamping element 202 into a deactivated state to clamp around the smartphone 214. An elastic retracting or biasing element (not shown), such as a compression or torsion spring can be incorporated into the adjustable clamping element 202 to facilitate the expansion and retraction of the adjustable clamping element 202 and to accommodate different size smartphones.

[0027] The adjustable clamping element 202 can also include a gripping material on a surface of the adjustable

clamping element 202 to provide a better grip, a better viewing angle or better attachment to the smart phone 214 or other device secured within the adjustable clamping element 202. The gripping material can be applied to a portion of the adjustable clamping element 202 or the entire adjustable clamping element 202 can be made of the gripping material. The gripping material can be any material that increases the adhesion, grip or coefficient of friction between the gripping surface of the adjustable clamping element 202 and a surface of a device secured within the adjustable clamping element 202. The gripping material can include, but is not limited to rubber, polymeric material or other plastic, metal, alloy, fabric, composite material or other material capable of increasing the adhesion, grip or coefficient of friction between the gripping surface of the adjustable clamping element 202 and a surface of a device secured within the adjustable clamping element 202. The gripping material and gripping surface can be textured and composed of the same or different material.

[0028] The rotatable mounting element 204 can be directly or indirectly attached to the adjustable clamping element 202. The adjustable clamping element 202 and the rotatable mounting element 204 can be one integral part or component parts that are attached together by any attaching means, such as a screw, ratchet, pin, rod or friction or other device that allows the rotatable mounting element 204 to rotate. The rotatable mounting element 204 includes a base plate 206 and a plurality of mounting arms 208 extending from the base plate 206. The base plate 206 and the plurality of mounting arms 208 can be one integral part or component parts that are attached together by any attaching means.

[0029] The base plate 206 can be a cylindrically shaped disc or other element that is capable of being rotated 360 degrees clockwise or counter-clockwise. The base plate 206 provides a rotating platform from which the mounting arms 208 extend. The mounting arms 208 are spaced a specified distance apart relative to one another on the base plate 206. The mounting arms 208 also extend from the base plate 206 at a specified angle relative to the base plate 206. The size of the mounting arms 208, the distance between the mounting arms 208 and the angle at which the mounting arms 208 extend from the base plate 206 establish and define mounting slots 210, 212 between pairs of mounting arms 208. The rotatable mounting element 204 includes four mounting arms 208 and four mounting slots 210, 212.

[0030] The mounting arms 208 and mounting slots 210, 212, can engage and attach to an air conditioner vent blade 216 to mount the adjustable portable device holder 200. The adjustable portable device holder 200 is mounted to the air conditioner vent blade 216 by positioning, press fitting or wedging a surface of the air conditioner vent blade 216 within one or more mounting slots 210, 212 to engage two or more mounting arms 208.

[0031] The mounting arms 208 can also include a gripping material on a surface of the mounting arms 208 to

provide a better grip, a better viewing angle or better attachment to the air conditioner vent blade 216 secured between mounting arms 208. The gripping material can be applied to a portion of mounting arms 208 or the entirety of the mounting arms 208 can be made of the gripping material. The gripping material can be any material that increases the adhesion, grip or coefficient of friction between the gripping surface of mounting arms 208 and an air conditioner vent blade 216 secured between the mounting arms 208. The gripping material can include, but is not limited to rubber, polymeric material or other plastic, metal, alloy, fabric, composite material or other material capable of increasing the adhesion, grip or coefficient of friction between the gripping surface of mounting arms 208 and the air conditioner vent blade 216 secured between the mounting arms 208. The gripping material can be and gripping surface and composed of the same or different material.

[0032] The rotatable mounting element 204 includes two different sizes of mounting slots 210, 212 to accommodate different size air conditioner vent blades 216 or other mounting surfaces. Two mounting slots 210 having clearance *A* are larger than the other two mounting slots 212 having clearance *B*.

[0033] The rotatable mounting element 204 can be rotated to position the mounting arms 208 and mounting slots 210, 212 in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes to engage air conditioner vent blades 216 oriented in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes. The mounting arms 208 and mounting slots 210, 212 can be positioned to attach to an air conditioner vent blade in any engagement plane within the 360 degree rotation of the mounting element 204. The rotatable mounting element 204 can be rotated to position the larger mounting slots 210 with clearance *A* in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes to engage or attach to larger air conditioner vent blades 216 oriented in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes. The rotatable mounting element 204 can also be rotated to position the smaller mounting slots 212 with clearance *B* in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes to engage or attach to smaller air conditioner vent blades 216 oriented in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes.

[0034] The rotatable mounting element 204 is capable of being rotated 360 degrees clockwise or counter-clockwise to engage different size mounting surfaces in a horizontal, vertical, diagonal, circular, concave, convex or any plane between vertical and horizontal planes relative to the force of gravity. The smart phone 214 attached to the adjustable portable device holder 200 can be rotated into a portrait orientation (shown in FIG. 4A) and a land-

scape orientation (shown in FIG. 4B) by rotating the rotatable mounting element 204. The smart phone 214 attached to the adjustable portable device holder 200 can be rotated 360 degrees clockwise or counter-clockwise while it is attached to the adjustable portable device holder 200 by rotating the smart phone 214 and adjustable clamping element 202, while the rotatable mounting element 204 is secured to a mounting surface.

[0035] FIG. 5 illustrates a flow chart of a process for manufacturing an exemplary adjustable portable device holder according to one embodiment. At step 301, the process includes providing an adjustable clamping element for removably securing a portable device to the adjustable portable device holder. The adjustable clamping element is capable of being biased into an activated state and unbiased into a deactivated state to secure one of a plurality of different size portable device to the adjustable portable device holder.

[0036] For example, to manufacture the adjustable portable device holder, two stainless steel rods can be inserted into an expandable arm cavity of a double injection mold. PC/ABS is injected into the cavities of the mold to hold the rods in place and to produce an expandable arm, main body and cover of an adjustable clamping element. The mold is then rotated and injected with TPE to form side grips of the expandable arm and body of the adjustable clamping element. A stainless steel spring is inserted over each rod and held in place by a stainless steel screw affixed to the end of the rods. Grease is added to the lower portion of the spring and rods (near the screw head). The expandable arm is inserted into the body and the springs are lowered and held in place within the body of the adjustable clamping element. The cover is slid on to the body to hold the adjustable arm in place.

[0037] The adjustable clamping element or a surface thereof can also be formed from rubber, polymeric material or other plastic, metal, alloy, or composite material that is rigid, semi-rigid or textured.

[0038] At step 302, a rotatable mounting element is provided, which can be attached to the adjustable clamping element via screw, ratchet, pin, rod or friction or other attachment means. The rotatable mounting element includes a plurality of mounting arms each spaced a specified distance apart from one another and extending at a specified angle from a bottom surface of the rotatable mounting element. Each pair of the plurality of mounting arms form a mounting slot therein between. The rotatable mounting element is capable of being rotated to position a first mounting slot in a vertical, horizontal or diagonal orientation and a second mounting slot in a vertical, horizontal or diagonal orientation to engage a first mounting surface in a vertical, horizontal or diagonal orientation or a second mounting surface in a vertical, horizontal or diagonal orientation.

[0039] For example, and a rotatable mounting element can be formed in whole or part from stainless metal or other metal, alloy or plastic sheet stamped to form a clip or base plate with four arms extending from the base

plate, spaced a specified distance apart and bent to a desired angle. If metal or other heat treatable material, the rotatable mounting element can be heat treated to form a rigid structure. The rotatable mounting element or a surface thereof can also be formed from rubber, polymeric material or other plastic, metal, alloy, or composite material that is rigid, semi-rigid or textured.

[0040] A zinc-alloy nut or other alloy or material can be formed using a die-cast mold to attach the rotatable mounting element to the adjustable clamping element. Glue is added to the cavity of the nut. The rotatable mounting element is affixed to the main body of the adjustable clamping element via the nut and a second stainless screw. A force gage is used to monitor the rotational force of the rotatable mounting element and the rotatable mounting element is adjusted if screw is too tight or loose.

[0041] TPE is injected into a mold to create a skirt and four socks. The skirt and four socks can also be formed from rubber, polymeric material or other plastic, metal, alloy, or composite material that is rigid, semi-rigid or textured. The skirt is assembled over the mounting arms of the rotatable mounting element. Glue is added to each mounting arm of the rotatable mounting element. A sock is inserted over each mounting arm, which holds the skirt in place.

[0042] Example embodiments have been described hereinabove regarding adjustable portable device holder systems and methods. Various modifications to and departures from the disclosed example embodiments will occur to those having ordinary skill in the art.

Claims

1. An adjustable portable device holder (100; 200) for mounting a portable device to a mounting surface by positioning, press fitting or wedging the mounting surface within a mounting slot (110,112; 210, 212) of the portable device holder (100; 200), the portable device holder (100; 200) comprising:

an adjustable clamping element (102; 202), wherein the adjustable clamping element (102; 202) is capable of being biased into an activated state and unbiased into a deactivated state to removably secure one of a plurality of different size portable devices to the adjustable portable device holder (100; 200);

the adjustable clamping element (102; 202) comprising two side grips opposingly oriented to one another and each side grip has a device engaging surface that abuttingly engages a portable device in the activated state of the adjustable clamping element (102; 202),

a rotatable mounting element (104; 204) attached to the adjustable clamping element (102; 202) by a rotary connection that permits 360 degrees clockwise and counter-clockwise rotation

- of the adjustable clamping element (102; 202) relative to the rotatable mounting element (104; 204); wherein the rotatable mounting element (104; 204) comprises a base plate (106; 206) forming a rotating platform and a pair of mounting arms (108; 208) extending from the base plate (106; 206), spaced a distance apart from one another and converging toward one another, the size of the mounting arms (108; 208), the distance between the mounting arms (108 ; 208) and the angle at which the mounting arms (108 ; 208) extend from the base plate (106; 206) establish and define the mounting slot (110, 112; 210, 212) between the pair of mounting arms (108; 208), wherein the rotary connection positions the mounting slot (110, 112; 210, 212) in various orientations relative to the adjustable clamping element (102; 202) across an entirety of the 360 degrees of rotation; the adjustable portable device holder (100; 200) being **characterized in that** the two side grips linearly translate relative to one another upon transition between the activated and deactivated states of the adjustable clamping element (102; 202); and that the adjustable clamping element (102; 202) further comprising two rods, an expandable arm, a main body, and springs inserted one each over each rod and held in place by a screw affixed to an end of the respective rod.
2. The adjustable portable device holder (100; 200) as recited in claim 1, wherein a width of the mounting slot (110, 112; 210, 212) tapers away from the bottom surface of the base plate (106; 206) and wherein the rotary connection is capable of releasably setting the mounting slot (110, 112; 210, 212) in two 180 degree spaced apart vertical orientations and two 180 degree spaced apart horizontal orientations for alternative engagement with vertically and horizontally oriented mounting surfaces.
 3. The adjustable portable device holder (100; 200) as recited in claim 2, wherein the mounting slot (110, 112; 210, 212) between the pair of mounting arms (108; 208) is configured for engagement with an air conditioner vent blade in an automobile.
 4. The adjustable portable device holder (100; 200) as recited in claim 1, wherein each mounting arm (108; 208) tapers away from the base plate (106; 206).
 5. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the mounting arms (108; 208) comprise a gripping surface formed from gripping material.
 6. The adjustable portable device holder (100; 200) as

recited in claim 5, wherein the gripping material is at least one material selected from the group consisting of: rubber, polymeric material, plastic, metal, alloy and composite material.

- 5 7. The adjustable portable device holder (100; 200) as recited in claim 5, wherein the gripping surface is textured.
- 10 8. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the springs are loadable by an applied expansive force to bias the adjustable clamping element (102) into the activated state.
- 15 9. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the adjustable clamping element (102; 202) comprises a gripping surface formed from gripping material.
- 20 10. The adjustable portable device holder as recited in claim 1, wherein the adjustable clamping element (102; 202) can be expanded and retracted to attach different size smartphones.
- 25 11. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the rotatable mounting element (104; 204) is attached with a screw to the adjustable clamping element (102; 202).
- 30 12. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the rotatable mounting element (104; 204) is attached with a ratchet device to the adjustable clamping element (102; 202).
- 35 13. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the rotatable mounting element (104; 204) is attached with a pin to the adjustable clamping element (104; 204).
- 40 14. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the rotatable mounting element (104; 204) is friction fit to the adjustable clamping element.
- 45 15. The adjustable portable device holder (100; 200) as recited in claim 1, wherein the rotatable mounting element (104; 204) includes a plurality of mounting arms (108; 208) to define two different sizes of mounting slots (110, 112; 210, 212) to accommodate different size mounting surfaces.
- 50

Patentansprüche

- 55 1. Verstellbarer, tragbarer Gerätehalter (100; 200) zur Montage eines tragbaren Geräts an einer Montagefläche durch Positionieren, Einpassen oder Verkeilen der Montagefläche innerhalb eines Montage-

schlitzes (110, 112; 210, 212) eines tragbaren Gerätehalters (100; 200), wobei der tragbare Gerätehalter (100; 200) umfasst:

ein verstellbares Einspannelement (102; 202), wobei das verstellbare Einspannelement (102; 202) geeignet ist, um vorgespannt in einem aktivierten Zustand und nicht vorgespannt in einem deaktivierten Zustand zu sein, um lösbar eines aus einer Vielzahl von tragbaren Geräten unterschiedlicher Größe an dem verstellbaren tragbaren Gerätehalter (100, 200) zu sichern; das verstellbare Einspannelement (102; 202), umfassend zwei seitliche Griffe, die entgegengesetzt zueinander ausgerichtet sind und jeder Griff hat eine in das Gerät eingreifende Fläche, die angrenzend in ein tragbares Gerät im aktivierten Zustand des verstellbaren Einspannelements (102; 202) eingreift, ein drehbares Montageelement (104; 204), das an dem verstellbaren Einspannelement (102; 202) durch eine Drehbindung befestigt ist, die eine Drehung um 360 Grad im Uhrzeigersinn und gegen den Uhrzeigersinn des verstellbaren Einspannelements (102; 202) relativ zu dem drehbaren Montageelement (104; 204) zulässt; wobei das drehbare Montageelement (104; 204) umfasst eine Grundplatte (106; 206), die eine sich drehende Plattform und ein Paar Montagearme (108; 208) bildet, welche sich von der Grundplatte (106; 206) erstrecken, die um eine Entfernung voneinander beabstandet sind und zueinander zulaufen, die Größe der Montagearme (108; 208), die Entfernung zwischen den Montagearmen (108; 208) und der Winkel, in dem sich die Montagearme (108; 208) von der Grundplatte (106; 206) erstrecken, stellen den Montageschlitz (110, 112; 210, 212) zwischen dem Paar Montagearme (108; 208) her und definieren ihn, wobei die Drehverbindung den Montageschlitz (110, 112; 210, 212) in verschiedenen Ausrichtungen relativ zu dem verstellbaren Einspannelement (102; 202) über eine Drehung von insgesamt 360 Grad positioniert; wobei der verstellbare tragbare Gerätehalter (100; 200) **dadurch gekennzeichnet ist, dass** die zwei seitlichen Griffe linear relativ zueinander beim Übergang zwischen dem aktivierten und deaktivierten Zustand des verstellbaren Einspannelements (102; 202) übersetzen; und dass das verstellbare Einspannelement (102; 202) weiterhin zwei Stangen, einen ausziehbaren Arm, einen Hauptkörper und Federn umfasst, die ineinander über jeder Stange eingefügt und durch eine an einem Ende der jeweiligen Stange befestigten Schraube festgehalten

werden.

2. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei eine Breite des Montageschlitzes (110, 112; 210, 212) sich von der Bodenfläche der Grundplatte (106; 206) weg verjüngt und wobei die Drehverbindung geeignet ist, lösbar den Montageschlitz (110, 112; 210, 212) in zwei um 180 Grad beabstandeten vertikalen Ausrichtungen und in zwei um 180 Grad voneinander beabstandeten horizontalen Ausrichtungen für ein alternatives Eingreifen mit den vertikal und horizontal ausgerichteten Montageflächen einzustellen.
3. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 2, wobei der Montageschlitz (100, 112; 210, 212) zwischen dem Paar Montagearme (108; 208) zum Eingreifen mit einer Lüftungslamelle einer Klimaanlage in einem Automobil konfiguriert ist.
4. Verstellbarer, tragbarer Gerätehalter (100, 200) gemäß Anspruch 1, wobei jeder Montagearm (108; 208) sich von der Grundplatte (106; 206) weg verjüngt.
5. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei die Montagearme (108; 208) eine aus Greifmaterial geformte Greiffläche umfassen.
6. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 5, wobei das Greifmaterial wenigstens ein aus der Gruppe ausgewähltes Material ist, bestehend aus: Gummi, Polymermaterial, Plastik, Metall, Legierung und Verbundmaterial.
7. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 5, wobei die Greiffläche strukturiert ist.
8. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei die Federn durch eine angewendete Ausdehnungskraft armierbar sind, um das verstellbare Einspannelement (102) in den aktivierten Zustand zu spannen.
9. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das verstellbare Einspannelement (102; 202) eine aus Greifmaterial geformte Greiffläche umfasst.
10. Verstellbarer, tragbarer Gerätehalter gemäß Anspruch 1, wobei das verstellbare Einspannelement (102; 202) gedehnt und eingezogen werden kann, um Smartphones unterschiedlicher Größen zu befestigen.

11. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das drehbare Montageelement (104; 204) mit einer Schraube an dem verstellbaren Einspannelement (102; 202) befestigt ist. 5
12. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das drehbare Montageelement (104; 204) mit einer Klinkervorrichtung an dem verstellbaren Einspannelement (102; 202) befestigt ist. 10
13. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das drehbare Montageelement (104; 204) mit einem Stift an dem verstellbaren Einspannelement (102; 202) befestigt ist. 15
14. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das drehbare Montageelement (104; 204) reibschlüssig an das verstellbare Montageelement eingepasst ist. 20
15. Verstellbarer, tragbarer Gerätehalter (100; 200) gemäß Anspruch 1, wobei das drehbare Montageelement (104; 204) eine Vielzahl von Montagearmen (108; 208) zur Definition von zwei Montageschlitzen (110, 112; 210, 212) unterschiedlicher Größen einschließt, um Montageflächen unterschiedlicher Größen aufzunehmen. 25

Revendications

1. Monture réglable pour dispositif portatif (100 ; 200) permettant de monter un dispositif portatif sur une surface de montage, d'emboîter ou de caler la surface de montage à l'intérieur d'une fente de montage (110, 112 ; 210, 212) de la monture réglable pour dispositif portatif (100 ; 200), la monture réglable pour dispositif portatif (100 ; 200) comprenant : 35
- un élément de serrage réglable (102 ; 202) dans lequel l'élément de serrage réglable (102 ; 202) peut être incliné dans un état activé et redressé dans un état désactivé afin de fixer, de manière amovible, l'un parmi une pluralité de dispositifs portatifs (100 ; 200) de différentes tailles sur la monture réglable pour dispositif portatif (100 ; 200) ; 40
- l'élément de serrage réglable (102 ; 202) comprenant deux prises latérales opposées orientées l'une vers l'autre et chaque prise latérale possède une surface de saisie de dispositif qui s'engage jusqu'en butée sur un dispositif portatif dans l'état activé de l'élément de serrage réglable (102 ; 202), 45
- un élément de montage rotatif (104 ; 204) fixé à l'élément de serrage réglable (102 ; 202) grâce à un couplage rotatif qui permet une rotation, 50

dans le sens des aiguilles d'une montre et dans le sens contraire des aiguilles d'une montre, sur 360 degrés de l'élément de serrage réglable (102 ; 202) par rapport à l'élément de montage rotatif (104 ; 204) ; 5

dans lequel l'élément de montage rotatif (104 ; 204) comprend :

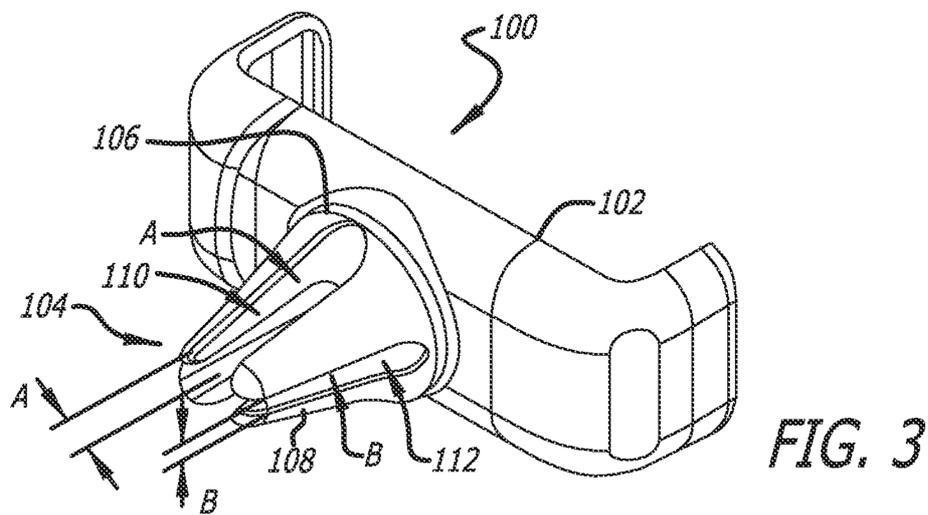
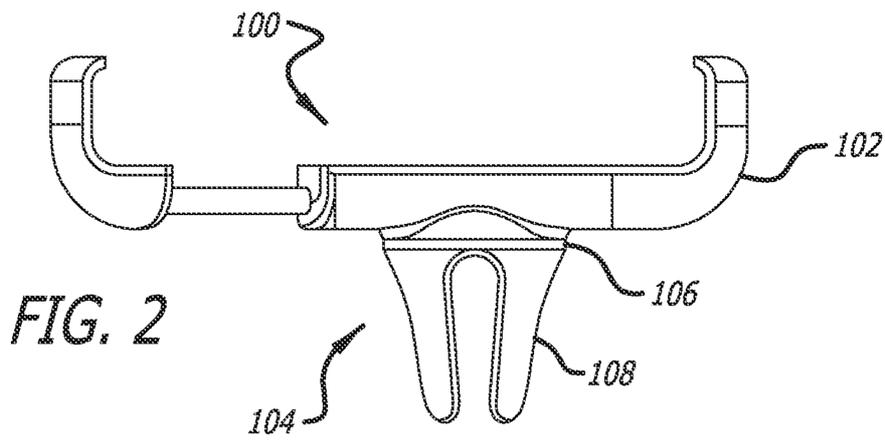
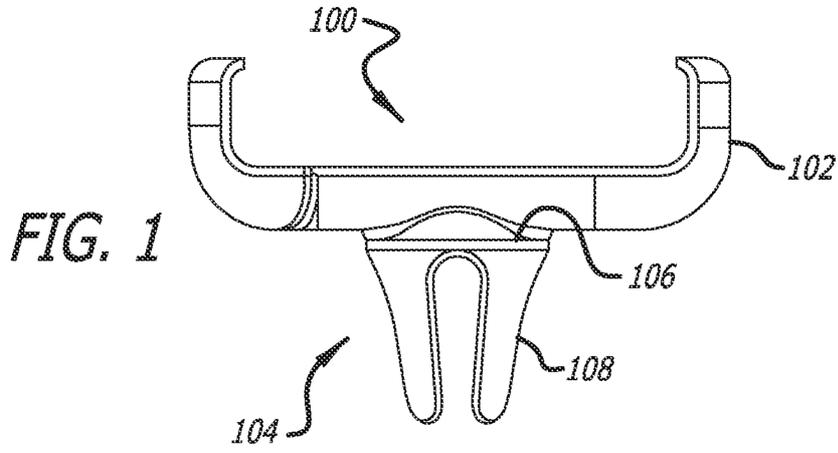
une plaque de base (106 ; 206) formant une plateforme rotative et une paire de bras de montage (108 ; 208) qui s'étendent à partir de la plaque de base (106 ; 206), espacés l'un de l'autre d'une certaine distance et convergeant l'un vers l'autre, la taille des bras de montage (108 ; 208), la distance qui sépare les bras de montage (108 ; 208) et l'angle suivant lequel les bras de montage (108 ; 208) s'étendent à partir de la plaque de base (106 ; 206) établissent et définissent la fente de montage (110, 112 ; 210, 212) entre la paire de bras de montage (108 ; 208), 10

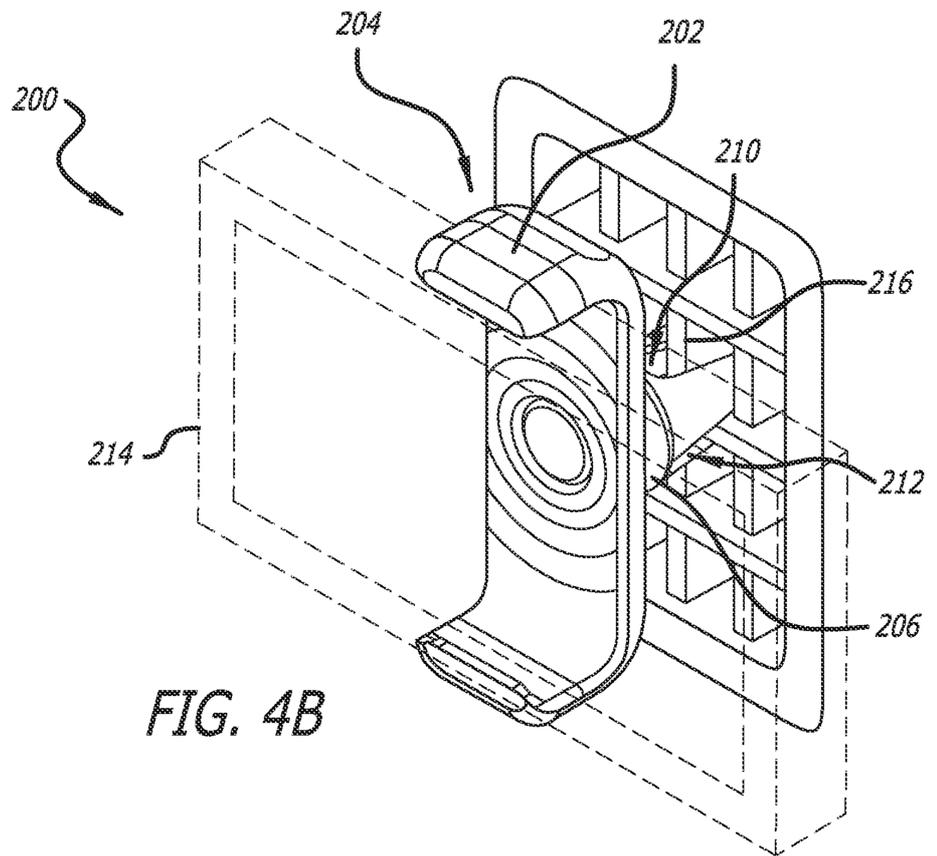
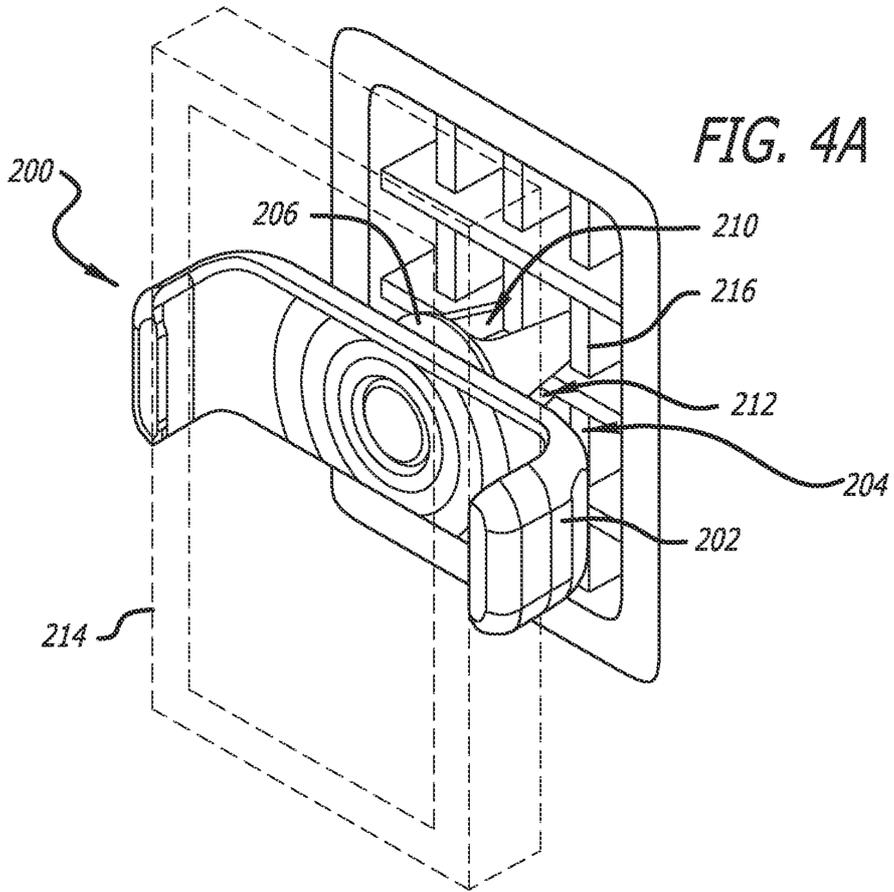
dans lequel le couplage rotatif positionne la fente de montage (110, 112 ; 210, 212) suivant différentes orientations par rapport à l'élément de serrage réglable (102 ; 202) sur l'intégralité de la rotation à 360 degrés ; la monture réglable pour dispositif portatif (100 ; 200) étant **caractérisée en ce que** les deux prises latérales effectuent une translation linéaire l'une par rapport à l'autre au moment de la transition entre les états activé et désactivé de l'élément de serrage réglable (102 ; 202) et **en ce que** l'élément de serrage réglable (102 ; 202) comprend en outre deux tiges, un bras extensible, un corps principal et des ressorts insérés chacun au dessus de chacune des tiges et maintenus en place par une vis fixée sur une extrémité de la tige respective. 15

2. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle une largeur de la fente de montage (110, 112 ; 210, 212) diminue progressivement en s'éloignant de la surface de fond de la plaque de base (106 ; 206) et dans laquelle le couplage rotatif est capable de placer, de manière libérable, la fente de montage (110, 112 ; 210, 212) suivant deux orientations verticales espacées de 180 degrés et deux orientations horizontales espacées de 180 degrés pour permettre un engagement alternatif dans deux surfaces de montage orientées verticalement et horizontalement. 45

3. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 2, dans laquelle la fente de montage (110, 112 ; 210, 212) entre la paire de bras de montage (108 ; 208) est configurée pour s'enga- 50

- ger sur une lame d'aération de la climatisation dans une automobile.
4. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle chaque bras de montage (108 ; 208) diminue progressivement en s'éloignant de la surface de fond de la plaque de base (106 ; 206). 5
5. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle les bras de montage (108 ; 208) comprennent une surface agrippante composée de matériau agrippant. 10
6. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 5, dans laquelle le matériau agrippant est au moins un matériau choisi dans le groupe consistant en : le caoutchouc, un matériau polymère, le plastique, le métal, un alliage et un matériau composite. 15
20
7. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 5, dans laquelle la surface agrippante est texturée. 25
8. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle les ressorts peuvent être chargés par une force d'expansion qui est appliquée pour incliner l'élément de serrage réglable (102) dans l'état activé. 30
9. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de serrage réglable (102 ; 202) comprend une surface de serrage formée dans un matériau agrippant. 35
10. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de serrage réglable (102 ; 202) peut être agrandi et rétréci pour fixer des smartphones de différentes tailles. 40
11. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de montage rotatif (104 ; 204) est fixé sur l'élément de serrage réglable (102 ; 202) à l'aide d'une vis. 45
12. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de montage rotatif (104 ; 204) est fixé à l'élément de serrage réglable (102 ; 202) à l'aide d'un dispositif à cliquet. 50
13. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de montage rotatif (104 ; 204) est fixé sur l'élément de serrage réglable (102 ; 202) à l'aide d'une broche. 55
14. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de montage rotatif (104 ; 204) est emboîté par pression sur l'élément de serrage réglable.
15. Monture réglable pour dispositif portatif (100 ; 200) selon la revendication 1, dans laquelle l'élément de montage rotatif (104 ; 204) inclut une pluralité de bras de montage (108 ; 208) permettant de définir deux fentes de montage (110, 112 ; 210, 212) de tailles différentes pour recevoir des surfaces de montage de tailles différentes.





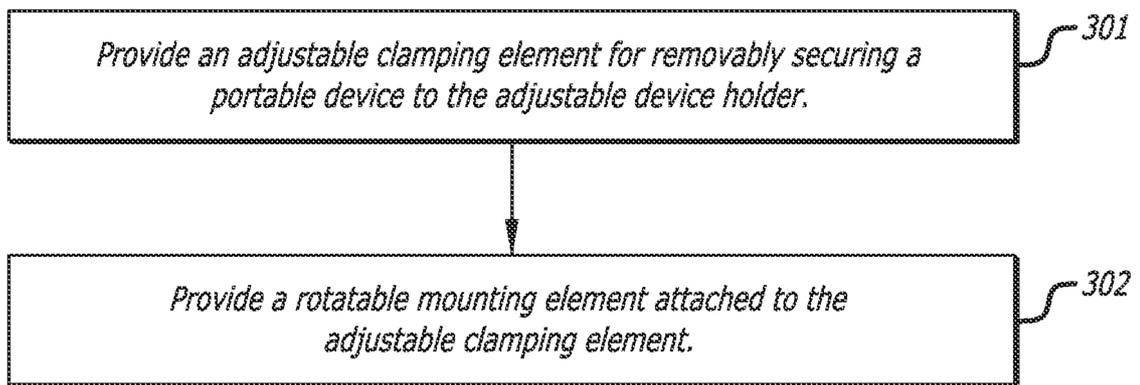


FIG. 5

EP 2 997 438 B1

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 202907016 U [0004]