

(19)



(11)

EP 3 773 060 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
05.01.2022 Bulletin 2022/01

(51) Int Cl.:
A45C 13/18 ^(2006.01) **A45C 13/20** ^(2006.01)
A45F 3/04 ^(2006.01)

(21) Application number: **19717313.1**

(86) International application number:
PCT/EP2019/059343

(22) Date of filing: **11.04.2019**

(87) International publication number:
WO 2019/197576 (17.10.2019 Gazette 2019/42)

(54) SECURE PORTABLE ENCASEMENT

SICHERE TRAGBARE UMHÜLLUNG

ENCEINTE PORTATIF SÉCURISÉ

(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: **11.04.2018 US 201862656002 P**

(43) Date of publication of application:
17.02.2021 Bulletin 2021/07

(73) Proprietor: **Eversafe Technologies Limited
Newry, County Down BT35 6HZ (GB)**

(72) Inventors:
• **MCLEAN, Hugh David Geoffrey**
Scarva BT63 6NZ (GB)
• **ENGLISH, Niall**
Dublin 18 (IE)

(74) Representative: **Haseltine Lake Kempner LLP**
Cheapside House
138 Cheapside
London EC2V 6BJ (GB)

(56) References cited:
WO-A1-2013/006894 US-A1- 2017 231 349

EP 3 773 060 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit under 35 U.S.C. § 119(e) of the earlier filing dates of United States Provisional Patent Application No. 62/656,002 filed on April 11, 2018; and this application is also a continuation-in-part of U.S. Patent Application No. 15/928,219 filed March 22, 2018, which is a continuation of U.S. Patent Application No. 15/429,404 filed February 10, 2017, and now U.S. Patent No. 9,955,763, which claims the benefit under 35 U.S.C. § 119(e) of the earlier filing date of United States Provisional Patent Application No. 62/295,564 filed on February 16, 2016.

BACKGROUND

[0002] This application discloses an invention which is related, generally and in various embodiments, to a conveniently enabled portable encasement that is capable of providing secure storage.

[0003] There is a need for a portable secure encasement such as a backpack having locking and security features. In particular there is a need for a portable secure encasement for transporting goods from place to place while ensuring their security throughout. Document WO2013006894 discloses a security case for transporting valuables, having a body which includes a hardened shell formed of a cut-resistant material.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The above needs are met by providing an encasement according to claim 1. Various embodiments of the invention are described herein in by way of example in conjunction with the following figures, wherein like reference characters designate the same or similar elements. The embodiments of the invention are those having the features of claim 1. The rest of embodiments are for illustrative purposes and are not part of the present invention.

FIG. 1a illustrates various embodiments of a conveniently enabled securement system including a portable secure encasement that is capable of providing secure storage and that is capable of inseparably interacting with a common docking unit;

FIG. 1b illustrates various embodiments of a conveniently enabled securement system including a portable secure encasement that is capable of providing secure storage and that is capable of inseparably interacting with a common docking unit;

FIG. 2 illustrates various embodiments of a portable secure encasement;

FIG. 3 illustrates various embodiments of a mounting scheme within the trunk or boot of an automobile for securely mounting the common docking unit;

FIG. 4 illustrates various embodiments of a common docking unit;

FIG. 5 illustrates various embodiments of the system that allow for contactless authentication and system to use feedback;

FIG. 6 illustrates various embodiments of a portable secure encasement having a top openable door;

FIG. 7 illustrates various embodiments of a secure portable encasement having an opening system wherein the top door is securable to the body of the secure portable encasement via an internal securement mechanism FIG. 8a illustrates various embodiments of the conveniently enabled securement system unmated to the common docking unit;

FIG. 8b illustrates a cross sectional view of various embodiments of the conveniently enabled securement system illustrating how the conveniently enabled securement system mates the secure portable encasement seat onto the common docking unit such that the inseparably interaction is engaged;

FIG. 9a illustrates various embodiments of the conveniently enabled securement system mated to the common docking unit;

FIG. 9b illustrates a cross sectional view of various embodiments of the conveniently enabled securement system illustrating how the conveniently enabled securement system mates the secure portable encasement seat onto the common docking unit such that the inseparably interaction is engaged;

FIG. 10 illustrates various embodiments of a mechanism for enabling the engagement of inseparable interaction between the secure portable encasement and the common docking unit;

FIG. 11 illustrates various embodiments of a mechanism for enabling the engagement of inseparable interaction of the secure portable encasement with the common docking unit;

FIG. 12a illustrates a perspective view of various embodiments of the secure portable encasement having an integral retractable cable and retracting cable mating receptacle for securing the secure portable encasement while away from a common docking unit;

FIG. 12b illustrates a cross sectional view of various embodiments of the secure portable encasement having an integral retractable cable and retracting cable mating receptacle for securing the secure portable encasement while away from a common docking unit;

FIG. 13 illustrates a schematic view of various embodiments of the enabling electronics, control circuitry and related control/data information flow of the conveniently enabled securement system;

FIG. 14a illustrates a perspective view of various embodiments of a rack mountable common docking unit showing a plurality of secure portable encasements rack mounted to the rack mountable common docking units;

FIG. 14b illustrates a perspective view of various embodiments of a rack mountable common docking unit showing barren rack mountable common docking units;

FIG. 15a illustrates a perspective view of various embodiments of a soft secure portable encasement;

FIG. 15b illustrates a front view of various embodiments of a soft secure portable encasement;

FIG. 16a illustrates a perspective view of various embodiments of a soft secure portable encasement

having a mechanism for securing the contents of the soft secure portable encasement within the encasement and an internally accessible simple cable docking mechanism for engaging and disengaging the inseparable interaction between the soft secure portable encasement and a common docking unit;

FIG. 16b illustrates a perspective view of various embodiments of a soft secure portable encasement having a mechanism for securing the contents of the soft secure portable encasement within the encasement;

FIG. 16c illustrates a perspective view of various embodiments of a soft secure portable encasement having a mechanism for securing the contents of the soft secure portable encasement within the encasement;

FIG. 16d illustrates a perspective view of various embodiments of a locking mechanism;

FIG. 16e illustrates a front view of various embodiments of the locking mechanism;

FIG. 16f illustrates an exploded view of various embodiments of a locking mechanism;

FIG. 17a illustrates a cut away perspective view illustrating various embodiments of a soft secure portable encasement showing an embodiment of the mechanism enabling the engagement and disengagement of the inseparable interaction with a common docking unit;

FIG. 17b illustrates a cut away top view illustrating various embodiments of a soft secure portable encasement showing an embodiment of the mechanism enabling the engagement and disengagement of the inseparable interaction with a common docking unit;

FIG. 17c illustrates a more detailed view of an embodiment of the mechanism enabling the engagement and disengagement of the inseparable interaction with a common docking unit shown in FIG. 17a;

FIG. 17d illustrates a partial cross-sectional view of an embodiment of the mechanism enabling the engagement and disengagement of the inseparable interaction with a common docking unit;

FIG. 18a illustrates a close-up perspective view of the mechanism enabling the engagement and disengagement of the inseparable interaction with a common docking unit;

FIG. 18b illustrates a close-up top view of the mech-

anism enabling the engagement and disengagement of the inseparable interaction with a common docking unit;

FIG. 19a shows a front view of the backpack according to an alternative embodiment;

FIG. 19b shows a front view of the backpack of 19a with the front panel in dotted lines;

FIG. 20a shows a rear perspective view of a cut-resistant molded shell according to the invention;

FIG. 20b shows a front perspective view of a the cut-resistant molded shell of FIG. 20a;

FIG. 20c shows a cross-sectional view of a the cut-resistant molded shell of FIG. 20a;

FIG. 20d shows a detail of the cross-sectional view FIG. 20c;

FIG. 21a shows a rear view of an embodiment of the backpack;

FIG. 21b shows a detail view of the lock in FIG. 21a;

FIG. 22a shows a rear view of another embodiment of the backpack;

FIG. 22b shows another rear view of the backpack of FIG. 22a;

FIG. 22c shows a detail view of the lock in FIG. 22b;

FIG. 22d shows a rear view of the backpack of FIG. 22a securely attached to a pole;

FIG. 23a shows a side view of another embodiment of the backpack;

FIG. 23b shows another side view of the backpack of FIG. 23a;

FIG. 23c shows a detail view of the lock in FIG. 23b;

FIG. 23d shows another side view of the backpack of FIG. 23a;

FIG. 24a shows a side view of another embodiment of the backpack;

FIG. 24b shows another side view of the backpack of FIG. 23a;

FIG. 24c shows a detail view of FIG. 24b;

FIG. 25a shows a detail view of another embodiment;

FIG. 25b shows a detail view of the embodiment of FIG. 25a

FIG. 25c shows a detail view of the embodiment of FIG. 25a;

FIG. 25d shows a detail view of the embodiment of FIG. 25a;

FIG. 25e shows a detail view of the embodiment of FIG. 25a;

FIG. 25f shows a detail view of the embodiment of FIG. 25a;

FIG. 26a shows a detail view of the another embodiment of the backpack;

FIG. 26b shows a detail view of the another embodiment of the backpack;

FIG. 27a shows a front exploded view of the another embodiment of the backpack; and

FIG. 27b shows an unexploded view of the backpack in FIG. 27a.

DESCRIPTION OF THE INVENTION

[0005] It is to be understood that at least some of the figures and descriptions of the invention have been simplified to illustrate elements that are relevant for a clear understanding of the invention, while eliminating, for purposes of clarity, other elements that those of ordinary skill in the art will appreciate may also comprise a portion of the invention. However, because such elements are well known in the art, and because they do not facilitate a better understanding of the invention, a description of such elements is not provided herein.

[0006] Referring now to the drawings, wherein like reference numbers are used herein to designate like elements throughout, the various views and embodiments of a conveniently enabled securement system including portable secure encasements and common docking units are illustrated and described, and other possible embodiments are described. The figures are not necessarily drawn to scale, and in some instances the drawings have been exaggerated and/or simplified in places for illustrative purposes only. One of ordinary skill in the art will appreciate the many possible applications and variations based on the following examples of possible embodiments.

[0007] FIG. 1a and 1b are perspective views of various embodiments of a conveniently enabled securement system 10 and 10' including a hard portable secure encasement 100 and a hard portable secure encasement 100' adapted for storing long items which may be for example a rifle or other firearm. The hard portable secure encasements 100 and 100' according to various embodiments may be a safe, a strongbox, a safe-deposit box, a coffer, a money box, a cashbox, a cash register drawer, a gun case or any similar type of container into which one may put valuable goods, objects or documents. The hard portable secure encasements 100 and 100' according to various embodiments are capable of providing secure storage, and capable of inseparably interacting with a common docking unit 200 when the hard portable secure encasements 100 or 100' are received by the common docking unit 200 and a user engages the system's 10 and 10' conveniently enabled securement functionality. As will be appreciated by the following description encasement 100 is capable of operating in system 10', and encasement 100' is similarly capable of operating in system 10, by virtue of the common docking unit.

[0008] The hard portable secure encasements 100 and 100' and common docking unit 200 of the various embodiments depicted in FIGS. 1a and 1b are configured with dimensional tolerances sufficient to allow a common docking unit 200 to flushly receive the hard portable secure encasements 100 and 100' such that the common docking unit 200 is entirely subsumed within the underside of the casing 135 or 135' of the hard portable secure encasements 100 and 100' without any play or excess space between the common docking unit 200 and the underside of the casing 135 or 135' of the hard portable

secure encasement 100 or 100'.

[0009] To facilitate the receiving of the hard portable secure encasement 100 or 100' onto a common docking unit 200 the underside of the casing 135, 135' of the hard portable secure encasements 100, 100' in the embodiments depicted are formed with a recessed portion of substantially the same dimensions of the common docking unit 200; and, to enable the inseparable interaction between the hard portable secure encasement 100 or 100' and a common docking unit 200 each hard portable secure encasements 100 and 100' includes, in the embodiments depicted, a male securement mechanism 105 (for example see FIGS. 10 and 11) arranged on the periphery of the recessed portion of a hard portable secure encasement for interacting with the female securement mechanism 210 of the common docking unit 200.

[0010] In practice, the common docking unit 200 is strongly and securely mounted to a fixed object (for example see FIGS. 10 and 11) using the strongly secure mounting mechanisms 220. It will be appreciated that the strongly secure mounting mechanism 220 may for example be a bolt, or alternatively may be a weld, or an epoxy, or any other suitable means of strongly securing the common docking unit 200 to a fixed, and preferably immovable, surface, or in another preferred embodiment a mobile fixed surface such as in an automobile. A hard portable secure encasement 100, 100' may be dimensionally configured such that when it is received by the common docking unit 200, which is strongly mounted to a fixed mounting structure, the casing of the hard portable secure encasement 100 may be substantially, and preferably completely, flush with the mounting structure, thereby preventing access to the common docking unit 200, the male mechanism 105 (for example see FIGS. 10 and 11) and female mechanisms 210, which mechanisms 105, 210 when engaged cause the hard portable secure encasement 100 and the common docking unit 200 to inseparably interact with each other until disengaged.

[0011] Various additional features are depicted that further enable the convenient operation of the conveniently enabled securement system 10. According to various embodiments, the system 10 may include for example an opening system comprising a top door 110, 110'. The top door 110, 110' may be secured with an internal securement mechanism 125 (an example of which is illustrated at FIG. 7), which may be, for example, in various embodiments retractable steel bolts which are received by the internal strong structure of the hard secure portable encasement 100 or 100'. It will be appreciated that the internal securement mechanism 125 can be of any suitable type, for example in various embodiments the internal securement mechanism 125 may be two steel bolts having a diameter of 15 mm, but it will be appreciated that such bolts serving as the internal securement mechanism may be of any suitable size so long as they are capable of providing a desired level of security. The system 10 may alternatively include a two-stage opening

system including a side door 112, 112' in addition to top door 110, 110'. When closed, top door 110, 110' secures side door 112, 112'. Additionally, the system 10 may include a carrying handle 130 or 130' for ease of transport; a remote receiver (not shown) which may be identified by an icon 150 or 150' on the surface of the hard portable secure encasement 100 or 100'; and, a machine-to-human feedback mechanism 160 or 160', which for example, may be an array of LEDs configured to illuminate in certain configurations in order to convey information to a human user. One will appreciate that any suitable feedback mechanism will suffice, for example the feedback mechanism could be a digital display, and LCD display or an audible sound. In another embodiment, the feedback mechanism is a vibration in the body of the case that can be felt by the user.

[0012] FIG. 2 is a perspective view of various embodiments of a hard portable secure encasement 100 that is capable of providing secure storage. The casing body of the hard portable secure encasement 100 (and similarly 100' illustrated in FIG. 1b), including top door 110 (or 110'), is formed from any suitable material that prevents a determined attacker from readily gaining access to the contents (not shown) of the hard portable secure encasement 100 (or 100'). For example, the casing body is formed from a suitable material such as, but not limited to, structural plastic, reinforced thermoplastic acrylic, glass filled nylon, fiberglass, acrylonitrile-butadiene-styrene (ABS), structural foam, carbon fiber, other polymer materials, other woven fibrous material, other woven fibrous polymers, aluminum, steel, other suitable metals, etc., or any combination of such suitable materials. It will also be appreciated that the hard portable secure encasement can be formed into any suitable shape, symmetrical or asymmetrical, and for example may be adapted for the storage of long firearms as depicted in FIG. 1b. As will be appreciated the casing body may also be adapted to house small arm firearms, such as a pistol.

[0013] In various embodiments, for example, the hard portable secure encasement, for example 100, is constructed in a box shape having substantially rectangular sides and dimensions of 350 mm tall by 430 mm long by 170 mm deep. It will be further appreciated that the dimensions of the components of the system (for example a hard portable secure encasement 100, a soft portable secure encasement 600 and the common docking unit 200) are not restricted by anything other than the practicality of use of the intended system by a user and the contents intended for securement within a respective encasement, for example 100 or 100'. It will also be appreciated that the edges where the various sides meet may be square or beveled, and that any hinging mechanisms allowing top door 110 or 110' to hingeably open are entirely contained within the hard portable secure encasement 100 or 100' when the top door 110 or 110' is closed and secured, thereby preventing any tampering with such hinges by a would be intruder or thief. The various embodiments depicted in FIG. 2 additionally include an in-

tegral retractable cable 170 or 170' and retracting cable mating receptacle 180 or 180'. The combination of the integral retractable cable 170 (or 170') and the retractable cable mating receptacle 180 (or 180') allow a user to strongly secure the hard portable secure encasement 100 (or 100') or alternatively soft portable secure encasement 600, such as a backpack, (an example of which is illustrated at FIGS. 15a, 15b) when a common docking unit is not readily available.

[0014] FIG. 3 depicts a schematic view 300 of various orientations in which a common docking unit 200 may be strongly securely mounted within the trunk or boot of an automobile. It will be appreciated that the common docking unit 200 may in various embodiments be strongly securely mounted to any suitable fixed, or mobile, structure. Preferably when secured to a mobile structure the mobile structure is otherwise securable, for example an automobile trunk. Preferably when secured to a fixed structure, such a structure itself is immovable. Other examples (not shown) of mounting structures are concrete slabs which are configured to accept mounting screws (not shown), the bed of a truck, the floor of a house, a fixed steel beam, or any structure suitable for securely mounting structures thereto, by for example a bolt, or a weld, or any suitable means.

[0015] FIG. 4 depicts a common docking unit 200 that is capable of receiving a hard portable secure encasement 100, 101' (FIG. 1a, 1b) or a soft portable secure encasement 600 (an example of which is illustrated at FIG. 15a) such that the respective encasement and the common docking unit 200 are capable of inseparably interacting. The common docking unit 200 of the various embodiments depicted includes a common docking unit body 240 having a female securement mechanism 210, preferably two female securement mechanisms 210 arranged opposite of or distally from each other, and is preferably strongly securely mounted using to a fixed object or mobile object (not shown) using the strongly secure mounting mechanisms 220. Here, the strongly secure mounting mechanisms 220 are shown as through-holes capable of receiving a bolt or screw, but it will be appreciated that any strongly secure mounting mechanism or means will suffice (for example a metal to metal weld, or a strong epoxy, or a glue, or a clamp). It will be appreciated that the common docking unit body 240 may be singularly formed as a molded object of any suitable material, or it may be comprised of a body housing (not shown) containing various internal workings (not shown) of the common docking unit. For example, in various embodiments the body may be formed of a body housing in which resides a steel plate, in which case the body is formed to assist proper reception of a portable secure encasement while the steel plate provides the strong securement mountable functionality. In other embodiments, the common docking unit may be shaped metal, die cast, or an extruded metal body, and subjected to various cutting, drilling, tapping machining operations. It will be appreciated that the common docking unit may

be formed or assembled from any suitable materials and in any configuration that allows for strongly secure mounting and inseparable interaction with a portable secure encasement, for example 100.

[0016] Additionally, it will be appreciated that the common docking unit may be configured with either a male securement mechanism, a female securement mechanism 210 as depicted or any other suitable securement mechanism, and that the remote securement mechanism actuation mechanism may reside in either the portable secure encasement 100, 100', 600, or in the common docking unit 200 (in which case the system 10, 10' may be configured such that the respective secure encasements instead have a passive securement mechanism). It will be further appreciated that the common docking unit 200 may have any suitable dimensional configuration, so long as the receiving portion of the attendant secure encasements is suitably shaped. In one embodiment for example the common docking unit has a length of 250 mm a height of 27 mm and a width of 75 mm, while in another embodiment the common docking unit may be cylindrical in shape with a radius of approximately 200 mm and a height of 30 mm. In any case, it will be appreciated that the size and shape of the common docking unit is necessarily derived in relation to the design, shape and size of a corresponding secure portable encasement while also taking into consideration the intended contents of such a secure portable encasement and the level of security deemed necessary. It will be further appreciated that the dimensions of the components of the system (for example a hard portable secure encasement 100, a soft portable secure encasement 600 and the common docking unit 200) are not restricted by anything other than the practicality of use of the intended system by a user and the contents intended for securement within a respective encasement.

[0017] FIG. 5 illustrates various embodiments of a remote interaction device 190 for interacting with a hard portable secure encasement 100. In the embodiments depicted in FIG. 5 a user using RFID based embodiment of remote interaction device 190 may, for example, interact with the hard portable secure encasement 100 (or 100') in order to engage the docking securement mechanism of the hard portable secure encasement 100 such that the hard portable secure encasement 100 inseparably interacts with a common docking unit 200. Alternatively, for example, a user may use the remote interaction device 190 in order to disengage the internal securement mechanism 125 of the portable secure encasement thereby allowing a user to open the top door 110 (or 110'). For example, the user may hold the RFID chip within a certain proximity of a logo or other indicia 150, 150' which identifies the location of a remote receiver (not shown) within the hard portable secure encasement 100, 101' for less than one second to disengage the internal securement mechanism 125 (illustrated in FIG. 7) and for two or more seconds to disengage the male securement mechanism 105 from the female securement mechanism

210 of the common docking unit 200.

[0018] FIG. 5 also illustrates various embodiments having a machine-to-human feedback mechanism 160. It will be appreciated that this machine-to-human feedback mechanism 160 or 160' can be of any suitable design, for example, as depicted in FIG. 5 the machine-to-human feedback mechanism is a series of LEDs which are configured to light in particular combinations, with each combination being a specific message tailored to provide the user with information relevant to the current user interaction with the convenient securement system 10, for example, one light may indicate that the male securement mechanism 105 is engaged with the female securement mechanism 210 of a common docking unit 200 yet the internal securement mechanism 125 is not engaged while five lights may mean that all securement mechanisms are engaged indicating the system is providing maximum security of the contents contained within a hard portable secure encasement 100. The use of an icon 150 and LEDs 160 for indicating information to a user simplifies the interaction while overcoming language barriers. It will also be appreciated that any suitable icons may be used to convey relevant information to a user, and that any machine-to-human feedback mechanism internal or external to the secure encasement may be employed in concert with a portable secure encasement 100, 100', 600 in order to convey information about the system 10 to a user.

[0019] It will be further appreciated that in various embodiments the common docking unit 200 may be configured with the circuitry (not shown) and mechanisms (not shown) necessary to enable human-to-machine and machine to human interaction. For example, while hereinabove the common docking unit 200 has been described as operating in a passive manner, it is within the scope and intention of this invention that the common docking unit may have active components for engaging securement mechanisms and thereby causing the common docking unit 200 and, for example, the hard portable secure encasement 100 to engage in inseparable interaction until the common docking unit 200 disengages the securement mechanisms. In these cases, a user may wish to remotely interact with the common docking unit 200, for example in a situation where a user has a bank of common docking units 200 for storing a bank of portable secure encasements (for example as depicted in FIG. 14a) and has a need to be able to remotely disengage individual portable secure encasements on an as needed basis.

[0020] FIGS. 6 and 7 illustrate the operation of an embodiment of the opening system. FIG. 6 shows the closed top door 110. A user opens the top door 110 by first disengaging the internal securement mechanism 125 using, for example, an RFID type remote interaction device 190, and then by lifting an opening latch 140, or the carrying handle 130, the top door 110 hingeably opens. It will be appreciated that the opening system may be designed, configured and operated in any suitable manner that

does not interfere with either the strongly securing of casing of the hard portable secure encasement 100, 100' or the inseparable interaction of the hard portable secure encasement 100, 100' with a common docking unit 200. FIG. 7 illustrates various embodiments of the hard portable secure encasement unsecured and opened with internal securement mechanism 125 and pins 126 visible.

[0021] FIGS. 8a, 8b, 9a, 9b and 10, and 11 illustrate how various embodiments of the hard portable secure encasement 100 and 100' are received by the common docking unit 200. The embodiments depicted in FIG. 8a illustrate that a hard portable secure encasement 100 is placed over and on a common docking unit 200 which is configured to receive the encasement 100. The common docking unit 200 is strongly securely mounted to a fixed mounting surface 260 by bolts 250 (shown in FIG. 8b) received by the strong mounting mechanism 220 and embedded into fixed mounting surface 260. FIG. 8b illustrate a cutaway view of a hard portable secure encasement 100 that is received by a common docking unit 200 such that the encasement 100 and common docking unit 200 are engaging in inseparable interaction, with male securement mechanism 105 engaged with female securement mechanism 210. FIG. 9a shows encasement 101' received by a common docking unit (not visible) such that the underside 135' of encasement 101' is substantially flush fixed mounting surface 260. FIG. 9b illustrate a cutaway view of a hard portable secure encasement 100' that is received by a common docking unit 200 such that the encasement 100' and common docking unit 200 are engaging in inseparable interaction, with male securement mechanism 105' engaged with female securement mechanism 210. FIG. 9b also illustrates bolts 250 passing through strong mounting mechanism 220 to secure the common docking unit to the fixed mounting surface 260.

[0022] FIGS. 10 and 11 illustrate cut away cross sectional views of both the hard portable secure encasement 100 and the common docking unit 200 showing embodiments of the securement mechanisms 105 and 210 and illustrating how they engage to inseparably interact.

[0023] FIG. 10 illustrates various embodiments of the male securement mechanism 105 and the female securement mechanism 210. As illustrated the male securement mechanism 105 is a sprung pin having a beveled end which when the hard portable secure encasement 100 is properly placed over the common docking unit 200 aligns such that the beveled end 106 of the sprung pin interacts with a lip of the female securement mechanism 210 forcing the sprung pin of the male mechanism 105 first away from the female securement mechanism 210 against the tensions of one or more springs such that once the male mechanism 105 passes beneath the lip of the female securement mechanism 210 the spring 107 force pushes the end of male securement mechanism 105 into the female securement mechanism 210. While in an unsecured state only the beveled end of the male securement mechanism 105 resides within

the female securement mechanism 210, allowing a user to easily remove the hard portable secure encasement 100 from the common docking unit by lifting the hard portable secure encasement 100 causing the beveled end of the male securement mechanism to interact with the lip of the female securement mechanism again forcing the sprung pin to retract away from the lip and therefore pass out of the female securement mechanism.

[0024] In various embodiments, the female securement mechanism is merely a passive receptacle as illustrated in FIG. 10, however it would be appreciated that the female securement mechanism 210 can alternatively be any suitable securement mechanism configured to allow inseparable interaction with a mating securement mechanism of a portable securement encasement. Similarly, it will be appreciated that while in the various embodiments illustrated in FIG. 10 the male securement mechanism 105 is depicted as a steel sprung bolt, it would be appreciated that the male securement mechanism 105 can be any suitable securement mechanism configured to allow inseparable interaction with a mating securement mechanism of a common docking unit.

[0025] FIG. 11 depicts various embodiments of the male and female securement mechanisms 105 and 210 in a secured state such that the securement mechanisms 105 and 210 are inseparably interacting. In the embodiments illustrated, to place the system 10 into a secured state a motor 108 driven locking pin 115 engages the male securement mechanism 105 by forcing it to the maximum extent possible into the female securement mechanism thereby preventing removal of the hard portable securement encasement 100 from the common docking unit 200. It will be appreciated that because the docking unit is preferably shaped to be flush with the body of the encasement 100, there is no play or movement or shifting of the encasement in relation to the common docking unit, such that when the securement mechanisms 105, 210 are engaged, the encasement 100 and the common docking unit are inseparable until the securement mechanisms 105, 210 are disengaged. Also depicted in FIGS. 10 and 11, is the strongly securely mounting of the common docking unit 200 to a mounting surface 260 using strongly secure mounting mechanisms 220, through which bolts 250 are passed and embedded in the fixed mounting surface 260.

[0026] The various embodiments depicted in FIGS. 10 and 11 illustrate the strongly secure mounting mechanisms 220 are receptacles comprising a narrow base receptacle below a wider up receptacle each of which are configured to receiving a mounting bolt 250, having a diameter of the upper receptacle portion of mechanism 220, through the mechanism 220, which bolt 250 inseparably interacts with the mounting surface 260 by being threaded into the mounting surface 260. The bolt having a wider head portion cannot pass through the narrow base receptacle and thereby allows for the application of a force to the narrow base receptacle as the mounting bolt 250 is threaded further into the mounting surface

260. It will be appreciated, however, that the strongly secure mounting mechanisms 220 may be any suitable strongly secure mounting mechanism that will effectively and inseparably bind the common docking to the mounting surface without interfering with the inseparable interaction between the hard portable secure encasement 100 and the common docking unit 200. FIG. 11 further illustrates that when properly seated and received onto the common docking unit 200, the hard portable securement encasement 100 sits flush, or substantially flush, with the mounting surface 260.

[0027] It will be appreciated that any of the male securement mechanism 105, the female securement receptacle 210, the sprung bolt 105, the driving pin 115 and the secure mounting mechanisms 220 may be formed or constructed of any suitable material capable of providing the secure interactions between the various identified mechanisms.

[0028] FIG. 12a is a perspective view of various embodiments, with particular emphasis on various embodiments of an integral retractable cable 170 and corresponding retractable cable mating receptacle 180. FIG. 12b illustrates a cutaway view of encasement 100. In the embodiments described in FIG. 12a, when a user is in a location where a common docking unit, for example 200, is not available the user may secure the hard portable secure encasement using the retractable cable 170. To do so, the user would extend the retractable cable 170 from the body of the secure portable encasement 100 wrap it around a fixed object (not shown), and insert the cable securement mechanism 175 into the retractable cable mating receptacle 180. Once inserted the cable securement mechanism 175 engages with the cable mating receptacle 180 such that the two inseparably interact. Once engaged, the cable is effectively inseparably bound to the hard portable secure encasement at each end and around the fixed object and thus is secured to the fixed object.

[0029] The engagement of the cable securement mechanism 175 and the retractable cable mating receptacle 180 may occur automatically, or may require some human-to-machine interaction between a user and the portable secure encasement, for example by using remote interaction device 190. To disengage the cable securement mechanism 175 from the retractable cable mating receptacle 180, the user may disengage, for example with device 190, the inseparable interaction between the two, 175 and 180, thus releasing the retractable cable 170 allowing it to retract within the body of the hard secure portable encasement 100, as illustrated in FIG. 12b, where it may be contained on a reel mechanism 171. It will be appreciated that the retractable cable 170, the cable securement mechanism 175, the cable retaining reel mechanism 171, and retractable cable mating receptacle 180 may be formed, assembled or constructed of any suitable materials. It will be further appreciated that while FIGS. 12a and 12b depicts the retractable cable 170 and retractable cable mating mechanism 180

within a hard portable secure encasement 100, they can also be employed within a soft portable secure encasement 600.

[0030] FIG. 13 describes a schematic view of control components 400 for enabling the functionality of a conveniently enabled securement system, for example 10. In the various embodiments described by FIG. 13 the illustrated control components shown are housed within a hard portable secure encasement, for example 200. Comprising the control components 400 are a microcontroller 410, external securement mechanism motor controllers 420 and internal securement mechanism motor controllers 430, external securement mechanism position sensors 440 and internal securement bolt sensors 445, a battery 450, a charging and battery management control circuit 470, a machine-to-human feedback control circuit 480, a human-to-machine interaction device receiver 490, such as an RFID receiver, a BLUETOOTH™ receiver, a WIFI receiver, an optical receiver, or any other suitable remote receiver capable with interacting with a corresponding remote interaction device 190. Also shown are an AC-DC power supply 460, which may be internal or external to the encasement, as well as a remote interaction device 190.

[0031] The motor control 430 provides the driving forces to engage or disengage the internal securement mechanisms, for example 125, which secure the top door 110. 110' to the casing of the hard portable secure encasement 100, and motor control 420 provides the driving forces for engaging or disengaging the external securement mechanism, for example the male securement mechanism 105, which inseparably interact with securement mechanisms of a common docking unit, for example 200. The bolt position sensor 440 monitors and communicates the position of an external securement mechanism, for example a male securement mechanism 105, while the bolt position sensor 445 monitors and communicates the position of an internal securement mechanism, for example 125.

[0032] The battery 450 provides power to the various components illustrated in the schematic view of control components 400, and may be one or more of any suitable battery having a long life, for example a Lithium ion battery. The charging and battery management control circuit 470 may monitor and communicate the remaining charge of the battery 450 and when the portable secure encasement receives power from a source, for example an AC-DC power supply 460, circuit 470 may control the recharging of the battery 450. The machine-to-human feedback control circuit may receive information from various components directly or via the micro controller 410 and may convert that information to a human readable format, for example lighting a series of LEDs in a particular sequence, or sending output to a display device.

[0033] The human-to-machine interaction device control circuit 490 receives input from an input device, for example a remote interaction device 190 or a manual input mechanism, and converts that input into a machine

readable format and forwards that converted input to the microcontroller 410 which translates the converted input into a series of commands issued to the various components, for example upon receiving input from a remote interaction device 190 the human-to-machine interaction device control circuit converts the input into machine readable format and sends the converted input to microcontroller 410 which interprets the command as, for example, an instruction to engage the internal securement mechanism 125, and thereafter the microcontroller 410 issues a command to the motor control 430 which provides driving force to the internal securement mechanism 125 thereby engaging, for example, steel bolts from the top door into the casing of the portable secure encasement 100, subsequently the bolt position sensor 445 monitor the position of the engaging steel bolts of the internal securement mechanism 125 and when the engagement is complete the bolt position sensor 445 issues a communication in machine readable format to the microcontroller 410 to inform the microcontroller 410 that the internal securement mechanism has been engaged. Thereafter, the microcontroller issues a command corresponding to the engagement of the internal securement mechanism 125 to the machine-to-human interaction control circuit 480 which receives the command and converts it to a human readable format by, for example lighting a particular sequence or series of LEDs.

[0034] Microcontroller 410 comprises a microcontroller and attendant memory 415 and processor 416 wherein the attendant memory 415 contains instructions which when executed by the attendant processor 416 cause the microcontroller to receive communications between the various components illustrated in the schematic view of control components 400, translate those communications into corresponding commands, and then issue those commands to the designated component. For example, when the charging and battery management control circuit 470 senses that the battery charge is low, it issues a communication to the microcontroller which interprets the communication into a series of commands, for example a command to the machine-to-human interaction mechanism 480 and a command to the motor controllers 420 and 430, subsequently the machine-to-human interaction mechanism 480 displays, for example a series of LEDs indicating that the battery has little charge and the motor controllers 420 and 430 interpret their respective command to, for example prohibit disengaging of the securement mechanisms.

[0035] It will be appreciated that the above examples are intended for illustrative purposes only and that in practice the communications issued and received by any component of the conveniently enabled securement system 10 may be any suitable communications. It will also be appreciated that in various embodiments of the system 10 there may be a desire for communications between a portable secure encasement, for example 100, and a common docking unit, for example 200, in which case the respective portable secure encasement and

common docking unit will contain the necessary circuitry and mechanisms for providing a communications channel between the two and for relaying information between the two. Such a communication channel may be a wireless communication channel or a wired channel that is established when the securement mechanisms 105 and 210 are engaged.

[0036] FIGS. 14a and 14b illustrate various embodiments of a rack 500 of common docking units 520 for storing a set 510 of hard portable secure encasements 100. FIG. 14b also depicts an empty rack of common docking units capable of storing portable secure encasements 100. It will be appreciated that the rack 500 can be adapted for storing any portable secure encasement 100, 100' and 600 or otherwise so long as the encasement has a securement mechanism capable of securely interacting with the common docking units 520. As shown in FIG. 14b, the common docking units 520 shown here are formed of two separate formed metal plates, which may be secured to the rack 500 by for example a weld.

[0037] FIGS. 15a and 15b illustrates various embodiments of a soft portable secure encasement 600. Contents reside within the soft portable secure encasement 600 and are so secured within the encasement 600 by, for example a combination lock constituting a locking mechanism 660 (shown in FIGS. 16a, 16b, 16c, 16d, 16e and 16f) that secures a securable mouth opening 625 (shown in FIGS. 16a, 16b and 16c) which as depicted in FIGS. 15a and 15b are hidden beneath soft top cover 630. FIG. 15b illustrates the encasement 600 secured to a common docking unit (not visible) that is secured to a fixed surface 260, by bolts 250, which are visible by virtue of a cutaway view of the surface 260. The casing of the soft portable secure encasement may be formed from a cable webbing (not shown) running throughout the casing 650, which is covered by a soft, aesthetically pleasing, shell, for example giving it the appearance of a knapsack or book bag. Alternatively, the casing 650 of the soft portable secure encasement 600 may be a cut proof fabric material, in which case the cable webbing is not required.

[0038] Any suitable cut proof fabric material may be used to form the casing 650, for example, Cut-Tex® Pro, developed by PPSS Group of Whitfield Business Park, Knaresborough HG5 8BS, UK. In such a case the casing 650 formed of Cut-Tex® Pro may be for example 1 mm thick, and is internally overlock stitched to protect the seams. In various embodiments, the cut proof fabric material may be sewn into a separate bag, which may be constructed like a standard backpack, but with no base. These two components, the cut proof material and the separate bag, are then sewn together to leave a tube of at least the cut proof fabric at the base. Into the tube of fabric, an inner plastic part is inserted inside the tube, and is clamped to an external strong plastic base 668, thereby wedging the fabric tube in between the walls of the two plastic parts. This prevents the necessity of a seam at the junction between the fabric and the base of the bag, which may be a point of intrusion. As shown in

FIG. 17d, the fabric tube is attached to plastic base 668 by screws.

[0039] When the soft top cover is closed over the mouth opening 625 it is secured using connector straps 640. The soft portable secure encasement 600 may be carried via a carrying handle 610 or carrying straps 620. It will be appreciated that the soft top cover 630, carrying handle 610, and carrying straps 620 may or may not also have a cable webbing running throughout depending on the level of security desired, or alternatively will also be made of cut proof fabric, in such away the carrying straps may be protected from a would be thief attempting to cut the straps 620 while the encasement 600 is being carried during transport.

[0040] FIG. 16a, 16b and 16c illustrate various embodiments of a soft portable secure encasement 600 with soft top cover 630 removed and so showing the securable mouth opening 625 and corresponding locking mechanism 660, which may be, for example, a combination lock. FIG. 16a provides a perspective view of the soft portable secure encasement 600 with the locking mechanism 660 (FIGS. 16d, 16e and 16f) disengaged from the securement cable 665. Securement cable 665 may for example run through a seam in the mouth portion of the casing 650 such that two pins 667 are exposed which are capable of securely interacting with the locking mechanism 660. Securement cable 665 may be double parallel cables to prevent the roll top from being accessed. FIG. 16b illustrates various embodiments of encasement 600 with the pins 667 of the cable 665 engaged with the locking mechanism 660. In order to secure the mouth opening 625 of the encasement 600, the mouth opening portion of the casing 650 may be formed to have an excess length of cut proof fabric, or fabric lined with cable webbing, that extends away from the mouth in a tube like manner, which excess length would be closed and rolled over several times (as would be done with a standard roll top dry bag), and then the cable 665 would be cinched over the rolled excess fabric, and secured by the interaction of the pins 667 and the locking mechanism 660 thus preventing access to the internal compartment (not shown) of the soft portable secure encasement 600.

[0041] FIG 16c provides another perspective view of various embodiments of the soft secure portable encasement 600, and further demonstrating how the soft secure portable encasement 600 is capable of being secured when a common docking unit 200 is not available. Carrying straps 620 may comprise, for example, a steel cable 622 running through the length of the strap. Steel cable 622 may be adapted to have a loop portion at one end, and strap 620 may be adapted with a connector 624 which allows one end of strap 620 to be disengaged from the body of the encasement 600. By disengaging connector 624, cable 622 of strap 620 may be used to secure the soft secure portable encasement 600 to a fixed object by passing pin 667 through the loop end of cable 622, and then securing pins 667 to the locking mechanism 660.

[0042] Referring to FIGS. 16d, 16e and 16f, locking mechanism 660 is preferably a double sided combination lock having an internal mechanism with two independent and separately movable latches 663 allowing two separate pins 667 (FIG. 16c) locked into one combination lock. Pins 667 are preferably rectangular in cross-section (FIG. 16a) so that the mouth opening portion of the casing 650 cannot be unrolled providing access to the contents. Both latches 663 and pins 667 include hook portions 663a and 667a, respectively, which cooperate with one another to form a secure releasable locking arrangement. Locking mechanism 660 includes a combination lock mechanism 664 having individually rotatable locking rollers 677 for which a user may enter in a unique unlock code by rotating the rollers 677 to an unlock position. Referring to FIG. 16f, which shows pins 667 partially disengaged from latches 663, locking mechanism 660 further includes a rear casing 661 and a front support plate 671 forming a housing for a latch mount release box 662. Latch mount release box 662 includes the two independent latches 663, a release button 673 and a locking spindle 674. Latch mount release box 662 can slide vertically against a spring 659 within rear casing 661. Latches 663 are each biased by a spring 675. Locking spindle 674 engages with the lock rollers 677 of combination lock mechanism 664. When release button 673 is pressed down, latch mount release box 662 slides down against spring 659 causing both latches 663 to move downwards to release hook portions 663a and 667a of latches 663 and pins 667 from one another. If the lock rollers 677 of combination lock mechanism 664 are in a lock position, spindle 674 prevents latch mount release box 662 from moving downward, thus preventing the hook portions 663a and 667a of latches 663 and pins 667 from releasing from one another. As shown in FIG. 16f, hook portions 663a and 667a of latches 663 and pins 667 are preferably rectangular to prevent the hook portions 663a and 667a from turning in locking mechanism 660. However, other non-rotatable shapes could be used. The independent and separately movable latches 663 allow for each end of cable 665 to be secured separately rather than at the same time.

[0043] FIGS. 17a, 17b, 17c and 17d depict the internal mechanism allowing a user to engage and disengage the soft secure portable encasement 600 from a common docking unit. Soft portable secure encasement 600 is capable of inseparably interacting with the common docking unit 200 via an external securement mechanism, for example a male securement mechanism 680 which is shown in FIGS. 17a and 17b from an internal perspective passing through secure base 668 into a portion of the base adapted to receive a common docking unit 669. FIG. 17a provides a cutaway perspective view of a portion of a soft portable secure encasement 600 illustrating the external securement mechanism 680 and its male securement mechanism 681 and disengagement mechanism 695 which is actuated by pull tab 670. Pull tab 670 preferably includes a plastic release bracket 670a (FIG.

16a) to allow the user to use the release bracket as a trigger. The release bracket 670a may include a two-way hoop and loop closure tab fastened over the release bracket 670a to add extra protection against being able to release the release bracket 670a from outside of the encasement. In the embodiments depicted a male type external securement mechanism 680 inseparably interacts with a common docking unit's 200 female type securement mechanism 210 that is received into base portion 669.

[0044] According to the various embodiments depicted and referring to FIGS. 17a, 17b, 17c, 17d, 18a and 18b, the external securement mechanism 680 includes a male securement mechanism 681 having a male engagement pin 682 biased and telescopically engaged within a male engagement body 681 by a spring 683 disposed within male engagement body 681. Male engagement body 681 and male engagement pin includes aligned through slots 681a and 682a, respectively. Male engagement pin 682 includes a beveled or angled end 682b. A lever 685 is attached to external securement mechanism 680 and includes a lever arm 685a which is insertable through aligned through slots 681a and 682a to retain male engagement pin 682 correctly aligned within male engagement body 681. Lever 685 further includes a pivot 685b. The male securement mechanism 681 engages with the common docking unit's 200 female type securement mechanism 210, as with the hard secure portable encasement 100 or 100', by applying a downward force to the soft portable secure encasement 600 which causes the angled end 682b of the male engagement pin 682 of securement mechanism 680 to push the external securement mechanism 680 away from the common docking unit against a lever 685 attached to securement mechanism 680, which opposes an applied force provided by the male securement mechanism 681, for example a spring 683, such that once the external securement mechanism 680 passes into the level of the common docking unit's female type securement mechanism 210 the force provided by male securement mechanism 681 causes the external securement mechanism 680 to inseparably interact with the common docking unit 200 until the disengagement mechanism 695 is actuated. To disengage the soft portable secure encasement 600 from the common docking unit 200, a user may pull on a draw tab 670 which conveys a force through the disengagement mechanism 695, for example in the embodiments depicted a cable, to a lever 685 attached to securement mechanism 680, causing lever 685 to pivot about pivot 685b and lever arm 685a to move outwardly within aligned through slots 681a and 682a which pulls the male engagement pin 682 against the applied spring 683 force thereby disengaging the external securement mechanism 680 from the common docking unit 200. As will be appreciated any suitable mechanism may serve as the external securement mechanism 680 such that it enables inseparable interaction between the soft portable secure encasement 600 and the common docking unit 200.

[0045] Referring to FIGS. 19a-27b, embodiments of a backpack or other soft-sided encasement which has security features which prevent theft of contents secured within the backpack or theft of the backpack itself are shown. In the illustrated embodiments, the encasement is a backpack, designated generally by reference numeral 700. Backpack 700 includes a body 712 and a pair of backpack straps 714 configured to permit backpack 700 to be worn on the back of a user. Body 712 includes a front portion 716, a rear portion 718, a top portion 720, a bottom portion 722 and two side portions 724. Body 712 further includes an exterior portion 726, and further includes an interior portion 728 (FIG. 26a) configured to hold contents.

[0046] The exterior portion 726 includes a fabric outer covering 730 formed from a cut-proof or cut-resistant fabric such as that discussed above with reference to the soft portable secure encasement 600 having a cut-resistant level of at least 4 and preferably at least 7 in accordance with ANSI/ISEA 105 standard (2016 ed.).

[0047] The interior portion (interior storage compartment) 728 (FIG. 26a) includes an inner fabric lining 732 formed from a waterproof fabric, for example, polyvinyl chloride fabric.

[0048] Referring to FIGS. 20a-20d and FIG. 26, in this embodiment being part of the invention, a substantially rigid, cut-resistant molded shell 734 is substantially L-shaped and is configured to be disposed between the fabric outer covering 730 and the inner fabric lining 732 (FIG. 26) in the rear portion 718, top portion 720, bottom portion 722 and side portions 724 of body 712. Accordingly, cut-resistant molded shell 734 has a rear portion 736, a top portion 738, a bottom portion 740 and side portions 742. In this embodiment, cut-resistant molded shell 734 is formed from an injection molded plastic, such as injected molded polymers including glass fibers. Other than an edge portion 735, cut-resistant molded shell 734 is configured to be substantially cut-resistant or cut-proof. Edge portion 735 encircles the top portion 738, the bottom portion 740 and the side portions 742 of cut-resistant molded shell 734. Edge portion 735 is thinner than the remaining portion of cut-resistant molded shell 734 and is configured to allow the fabric outer covering 730 and the inner fabric lining 732 to be sewn directly to the cut-resistant molded shell 734. For example, the normal thickness of cut-resistant molded shell 734 is 3 mm but the edge portion 735 is reduced to 1.4 mm so that a needle is able to punch through the edge portion 735 during stitching of the fabric outer covering 730 and the inner fabric lining 732 to the edge portion 735.

[0049] Referring to FIG. 19b, in this embodiment, a front panel 744 is disposed between the outer fabric shell 730 and the inner fabric lining 732 in the front portion 716 of body 712. The front panel 744 may be configured to stop slash and grab robberies and prevent undesired access to the contents by preventing slashing or cutting of the exterior portion 726 of the backpack. In this embodiment, front panel 744 is formed from a polycarbonate

sheet cut to the shape of the front portion 716 of body 712.

[0050] Referring to FIG. 21a, in this embodiment, the rear portion 718 of the body 712 is cushioned with two back foam panels 750 disposed between the rear portion 736 of cut-resistant molded shell 734 and the fabric outer covering 730.

[0051] Referring to FIG. 22a, in this embodiment, the rear portion 718 of the body 12 further includes a zippered rear stash pocket 752.

[0052] Referring to FIG. 19a, in this embodiment, the front portion 716 of the body 712 further includes a zippered front stash pocket 754.

[0053] Referring to FIG. 19b, in this embodiment, the side portions 724 of the body 712 further include zippered side stash pockets 756.

[0054] Referring to FIG. 21a, in this embodiment, backpack straps 714 are connected to the rear portion 718 of body 712 at top portions thereof. Backpack straps 714 are formed from, for example, foam covered in the same fabric as body 712. The body-facing side 758 (FIG. 23a) of backpack straps 714 may be lined in a mesh fabric.

[0055] Referring to FIG. 21a, a first securement strap 760 is connected to a lower portion 762 of each of the backpack straps 714. A second securement strap 764 is connected to each backpack strap 714 at the lower portion 762 thereof above a respective first securement strap 760. Note the proximal ends of second securement straps 764 are blocked in this view by lock cover flaps 765. A third securement strap 766 is connected to the rear portion 718 of body 712 near the bottom portion 722 of body 712. Each first securement strap 760 is configured to connect with a third securement strap 764 utilizing quick release connectors 768 disposed on the distal ends of first and third securement straps 760, 766. Each second securement strap 764 is configured to connect with the second connecting strap 764 on the opposite backpack strap 714 utilizing quick release connectors 768 disposed on the distal ends of second securement straps 764. First, second and third securement straps 760, 764, 766 are formed from, for example, a woven nylon.

[0056] Referring to FIGS. 22a-22d and 26a, backpack 700 may include a backpack strap securement cable 770 which ensures that backpack straps 714 cannot be cut through and backpack 700 is still secured and locked. Cable 770 may be, for example, a 5 mm plastic coated steel cable. Cable 770 extends through the backpack straps 714 and cut-resistant molded shell 734. Cut-resistant molded shell 734 anchors cable 770 to backpack 700 by having cable 770 thread through holes 774, 775 in cut-resistant molded shell 734. Specifically, as shown in FIG. 22a-, cable 770 extends from a first hole 774 in the lower portion 762 of one the backpack straps 714, through the interior of the upper portion 772 said backpack strap 714, through a first hole 774 in the rear portion 736 of the cut-resistant molded shell 734, between the cut-resistant molded shell 734 and the inner fabric lining 732 (FIG. 26a), through a second hole 775 in the rear portion 736 of the cut-resistant molded shell 734, into the

interior of the upper portion 772 the other backpack strap 714 and out through a second hole 776 in the lower portion 762 of the other backpack strap 714 such that first and second ends 778, 780 of the cable 770 extend outside the backpack straps 714. The first and second ends 778, 780 of the cable 770 have locking features which allow the first and second ends 778, 780 to be secured and locked together. In the illustrated embodiment, the first end 778 of the cable 770 is, for example, a female end having a rotating tumbler combination lock 782, and the second end 780 is a male end insertable into the female end 778 and lockable by rotating the rotating tumbler combination lock 782. This allows the backpack 700 to be secured on secure fixtures other than the docking unit 200 described above and below.

[0057] FIG. 22d shows cable 770 secured around a pole 771, for example, by locking the first and second ends 778, 780 with lock 780. A personal identification number (PIN) may be entered into the lock 780 to release the cable 770.

[0058] Referring to FIGS. 23a-24c, 26a and 26b, embodiments are shown having a heavy-duty waterproof backpack zipper 784 which is configured to selectively open and close an opening 786 to the interior portion 728 of body and is protected from attack. As shown in FIGS. 23a and 23b, backpack zipper 784 may include a lock 794a. As shown in FIG. 23b, a heavily cut-resistant flap 796 is attached to the side portions 724 and top portion 720 of body 712 and extends rearwardly to selectively cover the zipper 784.

[0059] Referring to FIGS. 24a-25f, embodiments are shown in which with the flap 796 itself is held down by a cable 798a or 798b. The side portions 724 and top portion 720 of body 712 include a plurality of cable receiving elements, for example, pillars 800 having a loop 802a (FIG. 24c) or through hole 802b (FIGS. 25a-25f). The cable receiving elements 800 are secured to pillar receiving holes 803 (FIGS. 20a-20d) in the side portions 742 and top portion 738 of cut-resistant molded shell 734 through the fabric outer covering 730. In the illustrated embodiment, there are four cable receiving elements 800: one cable receiving element 800 on each side portion 724 and two cable receiving elements 800 on each top portion 720 of body 712. At least one of the cable receiving elements 800a disposed on one of the side portion 724 of body 712 includes a second through hole 802c (FIGS. 25e-25f). In this embodiment, there are also four corresponding holes or slots 804 disposed on the flap 796 and configured to receive a corresponding cable receiving element 800. Holes or slots 804 are reinforced with grommets. In order to secure flap 796 over zipper 784, flap 796 is folded down over a closed and locked zipper 784 such that each cable receiving element 800 on body 712 is inserted into a corresponding grommets hole 804 on flap 796. Cable 798b has a first end 805 which is threadable through the through holes 802c in cable receiving elements 800 (FIG. 25d). A second end 806 of cable 798b is enlarged such that it is not able to

be threaded through the through holes 802b in cable receiving elements 800 (FIG. 25c). Cable 798b is threaded through the through holes 802b and a lock 808 (FIG. 25g-25f), for example, a padlock is inserted through the second through hole 802c on the at least one of the cable receiving elements 800 disposed on one of the side portion 724 of body 712. Lock 808 is then locked preventing cable 798b from being withdrawn through the cable receiving elements 800.

[0060] Referring to FIGS. 26a and 26b, in this embodiment, zipper 784 may be a two-way zipper extending from a side portion 724, across the top portion 720 and to the opposite side portion 724 of body 712. Zipper 784 includes two sliders 788 arranged in a head-to-head fashion. Each slider 788 includes a male locking element 790 configured to be received in a female locking element 792 of a combination lock 794b. Combination lock 794b is attached through a rectangular hole 795 in the top portion 738 of cut-resistant molded shell 734 through the fabric outer covering 730 and is configured to lock the sliders 788 of zipper 784 in a closed position.

[0061] Referring to FIGS. 27a-27b, an embodiment is shown having a detachable dock attachment 810 which is attached to the bottom of the backpack 700 by four thumb bolts 812 which can only be removed from the inside of the backpack 700 so, if it is locked, the detachable dock attachment 810 cannot be removed from the backpack 700. Thumb bolts 812 are insertable from the interior portion 728 of backpack 700 into corresponding holes 813 in cut-resistant molded shell (FIGS. 20b-20c), through corresponding holes 815 in the outer fabric shell 730 and into corresponding holes 817 in detachable dock attachment 810. Detachable docking unit 810 allows backpack 700 the option of having extra securement of attaching to a docking unit 200 when desired or for the removal of the detachable dock attachment 810 when a docking unit 200 will not be available. The detachable dock attachment 810 is selectively lockable with a docking unit (like docking unit 200, FIG. 17d) bolted to the floor, for example. The functional elements within dock attachment 810 are described in more detail above with reference to the embodiment of FIGS. 17a-18b. A release handle 814 (like handle 670, FIG. 17a) is configured to be attachable to detachable dock attachment 810 and to retract male engagement pins (like male engagement pins 682, FIG. 17d) within the dock attachment 810 to release the backpack 700 from the docking unit (like docking unit 200) when pulled. To attach release handle 814 to detachable dock attachment 810, release handle 814 is insertable from the interior portion 728 of backpack 700 into a corresponding holes 819 in cut-resistant molded shell (FIG. 20b), through a corresponding holes 821 in the outer fabric shell 730 to be operatively connected to the male engagement pin within detachable dock attachment 810.

Claims

1. An encasement (100) comprising:

a body (712) having an interior storage compartment (728) including an inner fabric lining (732) formed from a waterproof fabric;
a cut-resistant fabric outer layer (730) on the outside of the body (712);
a molded shell (734) attached to an interior portion of the cut-resistant fabric, wherein the molded shell (734) is configured to be disposed between the cut-resistant fabric outer layer (730) and the inner fabric lining (732) in a rear portion (718), a bottom portion (722) and side portions (724) of the body (712); wherein the molded shell (734) has a curved L-shape having an upright portion lining the rear of the body (712), a bottom portion (740) lining the bottom of the body (712), and side portions (742) lining the side portions of the body (712); wherein the molded shell (734) has an edge portion (735), wherein, other than the edge portion (735), the molded shell (734) is configured to be substantially cut-resistant;
an opening (786) to the interior storage compartment formed between a front portion (716) and a rear portion (718) of the body (712);
a zipper (784) attached to the front portion (716) and the rear portion (718) of the body (712) configured to selectively open and close the opening (786);
a cut resistant flap (796) attached to the side portions (724) and top portion (720) of the body (712) on the front portion (716) of the body (712), wherein the cut resistant flap (796) selectively covers the zipper (784);
at least one flap hole in the cut resistant flap (796); and
at least one cable receiving element (800) attached to the side portions (724) and top portion (720) of the body (712) on the rear portion (736) of the body (712), wherein each of the at least one cable receiving elements (800) is configured to be insertable into a corresponding one of the at least one flap holes and is also configured to receive a zipper securement cable when the cut resistant flap (796) covers the zipper (784).

2. The encasement (100) of claim 1, further comprising:

at least one strap (714) attached to the body (712); and
at least one strap securement cable (770) embedded therein.

3. The encasement (100) of claim 2, wherein the at

least one strap securement cable (770) is comprised of steel.

4. The encasement (100) of claim 2, further comprising a cable lock (782) configured to join and lock first and second ends (778, 780) of the at least one strap securement cable (770). 5
5. The encasement (100) of claim 2, wherein the at least one strap securement cable (770) is threaded through at least one hole in the cut-resistant molded shell (734). 10
6. The encasement (100) of claim 1, wherein the at least one cable receiving element (800) is secured to the cut-resistant molded shell (734). 15
7. The encasement (100) of claim 1, wherein each of the at least one cable receiving elements (800) has a first hole configured to receive the zipper securement cable. 20
8. The encasement (100) of claim 7, wherein one of the at least one cable receiving elements (800) has a second hole configured to receive a lock. 25
9. The encasement (100) of claim 1, further comprising a detachable dock attachment (810) configured to engage and subsequently disengage with a docking unit (200), wherein the detachable dock attachment (810) is detachably secured to the bottom portion (740) of the cut-resistant molded shell (734). 30
10. The encasement (100) of claim 9, wherein the detachable dock attachment (810) is detachably secured to the bottom portion (740) of the cut-resistant molded shell (734) by thumb bolts (812) insertable from the inner storage compartment (728). 35
11. The encasement (100) of claim 9, further comprising a release handle (814) within the inner storage compartment (728) configured to be operationally attached to the detachable dock attachment (810). 40

45

Patentansprüche

1. Umhüllung (100), umfassend:

einen Körper (712), der ein inneres Staufach (728) aufweist, das eine innere Stoffauskleidung (732) beinhaltet, die aus einem wasserdichten Stoff gebildet ist;
eine äußere schnittfeste Stoffschicht (730) auf der Außenseite des Körpers (712);
eine geformte Schale (734), die an einem inneren Abschnitt des schnittfesten Stoffs angebracht ist, wobei die geformte Schale (734) kon-

2. Umhüllung (100) gemäß Anspruch 1, ferner umfassend:

mindestens ein Band (714), das an dem Körper (712) angebracht ist; und
mindestens ein Bandsicherungskabel (770), das darin eingebettet ist.

3. Umhüllung (100) gemäß Anspruch 2, wobei das mindestens eine Bandsicherungskabel (770) aus Stahl besteht.

figuriert ist, um zwischen der äußeren schnittfesten Stoffschicht (730) und der inneren Stoffauskleidung (732) in einem hinteren Abschnitt (718), einem unteren Abschnitt (722) und seitlichen Abschnitten (724) des Körpers (712) angeordnet ist; wobei die geformte Schale (734) eine gebogene L-Form aufweist, die einen aufrechten Abschnitt, der die Rückseite des Körpers (712) auskleidet, einen unteren Abschnitt (740), der den Boden des Körpers (712) auskleidet, und seitliche Abschnitte (742), die die Seitenabschnitte des Körpers (712) auskleiden, aufweist; wobei die geformte Schale (734) einen Randabschnitt (735) aufweist, wobei die geformte Schale (734) außer dem Randabschnitt (735) konfiguriert ist, um im Wesentlichen schnittfest zu sein;
eine Öffnung (786) zu dem inneren Staufach, die zwischen einem vorderen Abschnitt (716) und einem hinteren Abschnitt (718) des Körpers (712) gebildet ist;
einen Reißverschluss (784), der an dem vorderen Abschnitt (716) und dem hinteren Abschnitt (718) des Körpers (712) angebracht und konfiguriert ist, um die Öffnung (786) selektiv zu öffnen und zu schließen;
eine schnittfeste Klappe (796), die an den seitlichen Abschnitten (724) und dem oberen Abschnitt (720) des Körpers (712) an dem vorderen Abschnitt (716) des Körpers (712) angebracht ist, wobei die schnittfeste Klappe (796) selektiv den Reißverschluss (784) abdeckt;
mindestens ein Klappenloch in der schnittfesten Klappe (796); und
mindestens ein kabelaufnehmendes Element (800), das an den seitlichen Abschnitten (724) und dem oberen Abschnitt (720) des Körpers (712) an dem hinteren Abschnitt (736) des Körpers (712) angebracht ist, wobei jedes von den mindestens einen kabelaufnehmenden Elementen (800) konfiguriert ist, um in ein entsprechendes der mindestens einen Klappenlöcher einführbar zu sein und auch konfiguriert ist, um ein Reißverschluss-Sicherungskabel aufzunehmen, wenn die schnittfeste Klappe (796) den Reißverschluss (784) abdeckt.

4. Umhüllung (100) gemäß Anspruch 2, ferner umfassend ein Kabelschloss (782), das konfiguriert ist, um ein erstes und ein zweites Ende (778, 780) des mindestens einen Bandsicherungskabels (770) zu verbinden und zu verschließen. 5
5. Umhüllung (100) gemäß Anspruch 2, wobei das mindestens eine Bandsicherungskabel (770) durch mindestens ein Loch in der schnittfesten geformten Schale (734) hindurchgeführt ist. 10
6. Umhüllung (100) gemäß Anspruch 1, wobei das mindestens eine kabelaufnehmende Element (800) an der schnittfesten geformten Schale (734) befestigt ist. 15
7. Umhüllung (100) gemäß Anspruch 1, wobei jedes von dem mindestens einen kabelaufnehmenden Element (800) ein erstes Loch aufweist, das konfiguriert ist, um das Reißverschluss-Sicherungskabel aufzunehmen. 20
8. Umhüllung (100) gemäß Anspruch 7, wobei eines von dem mindestens einen kabelaufnehmenden Element (800) ein zweites Loch aufweist, das konfiguriert ist, um ein Schloss aufzunehmen. 25
9. Umhüllung (100) gemäß Anspruch 1, ferner umfassend eine abnehmbare Dock-Befestigung (810), die konfiguriert ist, um in eine Docking-Einheit (200) einzugreifen und sich anschließend von ihr zu lösen, wobei die abnehmbare Dock-Befestigung (810) abnehmbar an dem unteren Abschnitt (740) der schnittfesten geformten Schale (734) befestigt ist. 30
10. Umhüllung (100) gemäß Anspruch 9, wobei die abnehmbare Dock-Befestigung (810) durch Rändelschrauben (812), die von dem inneren Aufbewahrungsfach (728) aus einföhrbar sind, abnehmbar an dem unteren Abschnitt (740) der schnittfesten geformten Schale (734) befestigt ist. 35
11. Umhüllung (100) gemäß Anspruch 9, ferner umfassend einen Freigabegriff (814) innerhalb des inneren Staufachs (728), der konfiguriert ist, um funktionell an der abnehmbaren Dock-Befestigung (810) angebracht zu werden. 40

Revendications 50

1. Une enveloppe (100) comprenant :

un corps (712) ayant un compartiment de stockage intérieur (728) comprenant une doublure intérieure en tissu (732) formée à partir d'un tissu imperméable ;
une couche extérieure en tissu résistant aux

coupures (730) sur l'extérieur du corps (712) ;
une coque moulée (734) fixée à une partie intérieure du tissu résistant aux coupures, dans laquelle la coque moulée (734) est configurée pour être disposée entre la couche extérieure en tissu résistant aux coupures (730) et la doublure intérieure en tissu (732) dans une partie arrière (718), une partie inférieure (722) et des parties latérales (724) du corps (712) ; dans lequel la coque moulée (734) a une forme en L incurvée ayant une partie verticale revêtant l'arrière du corps (712), une partie inférieure (740) revêtant le fond du corps (712), et des parties latérales (742) revêtant les parties latérales du corps (712) ; dans lequel la coque moulée (734) a une partie de bord (735), dans lequel, autre que la partie de bord (735), la coque moulée (734) est configurée pour être sensiblement résistante aux coupures ;
une ouverture (786) vers le compartiment de stockage intérieur formée entre une partie avant (716) et une partie arrière (718) du corps (712) ;
une fermeture à glissière (784) fixée à la partie avant (716) et à la partie arrière (718) du corps (712) configurée pour ouvrir et fermer sélectivement l'ouverture (786) ;
un rabat résistant aux coupures (796) fixé aux parties latérales (724) et à la partie supérieure (720) du corps (712) sur la partie avant (716) du corps (712), dans lequel le rabat résistant aux coupures (796) couvre sélectivement la fermeture à glissière (784) ;
au moins un trou de rabat dans le rabat résistant aux coupures (796) ; et
au moins un élément de réception de câble (800) fixé aux parties latérales (724) et à la partie supérieure (720) du corps (712) sur la partie arrière (736) du corps (712), dans lequel chacun des au moins un élément de réception de câble (800) est configuré pour pouvoir être inséré dans l'un correspondant des au moins un trou de rabat et est également configuré pour recevoir un câble de fixation de fermeture à glissière lorsque le rabat résistant aux coupures (796) couvre la fermeture à glissière (784).

2. L'enveloppe (100) selon la revendication 1, comprenant en outre :

au moins une sangle (714) fixée au corps (712) ;
et
au moins un câble de fixation de sangle (770) intégré.

3. L'enveloppe (100) selon la revendication 2, dans laquelle l'au moins un câble de fixation de sangle (770) est constitué d'acier.

4. L'enveloppe (100) selon la revendication 2, comprenant en outre un verrou de câble (782) configuré pour joindre et verrouiller les première et deuxième extrémités (778, 780) de l'au moins un câble de fixation de sangle (770). 5
5. L'enveloppe (100) selon la revendication 2, dans laquelle l'au moins un câble de fixation de sangle (770) est enfilé à travers au moins un trou dans la coque moulée résistante aux coupures (734). 10
6. L'enveloppe (100) selon la revendication 1, dans laquelle l'au moins un élément de réception de câble (800) est fixé à la coque moulée résistante aux coupures (734). 15
7. L'enveloppe (100) selon la revendication 1, dans laquelle chacun des au moins un élément de réception de câble (800) a un premier trou configuré pour recevoir le câble de fixation de fermeture à glissière. 20
8. L'enveloppe (100) selon la revendication 7, dans laquelle l'un des au moins un élément de réception de câble (800) a un deuxième trou configuré pour recevoir un verrou. 25
9. L'enveloppe (100) selon la revendication 1, comprenant en outre une fixation d'amarrage détachable (810) configurée pour s'engager et se désengager ultérieurement avec une unité d'amarrage (200), dans laquelle la fixation d'amarrage détachable (810) est fixée de manière détachable à la partie inférieure (740) de la coque moulée résistante aux coupures (734). 30
35
10. L'enveloppe (100) selon la revendication 9, dans laquelle la fixation d'amarrage détachable (810) est fixée de manière détachable à la partie inférieure (740) de la coque moulée résistante aux coupures (734) par des boulons à oreilles (812) pouvant être insérés depuis le compartiment de stockage intérieur (728). 40
11. L'enveloppe (100) selon la revendication 9, comprenant en outre une poignée de libération (814) à l'intérieur du compartiment de stockage intérieur (728) configurée pour être attachée de manière opérationnelle à la fixation d'amarrage détachable (810). 45

50

55

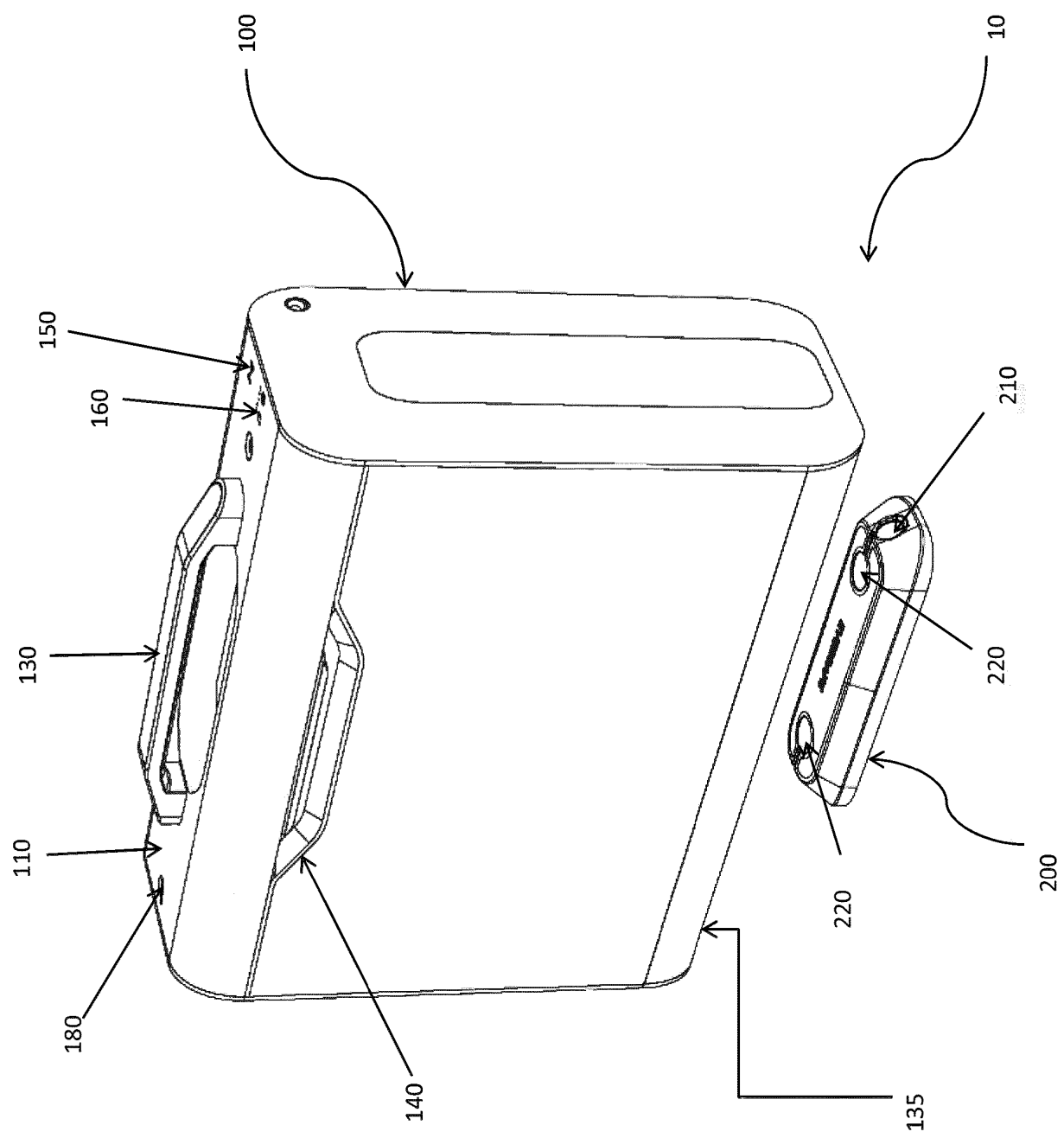


FIG. 1a

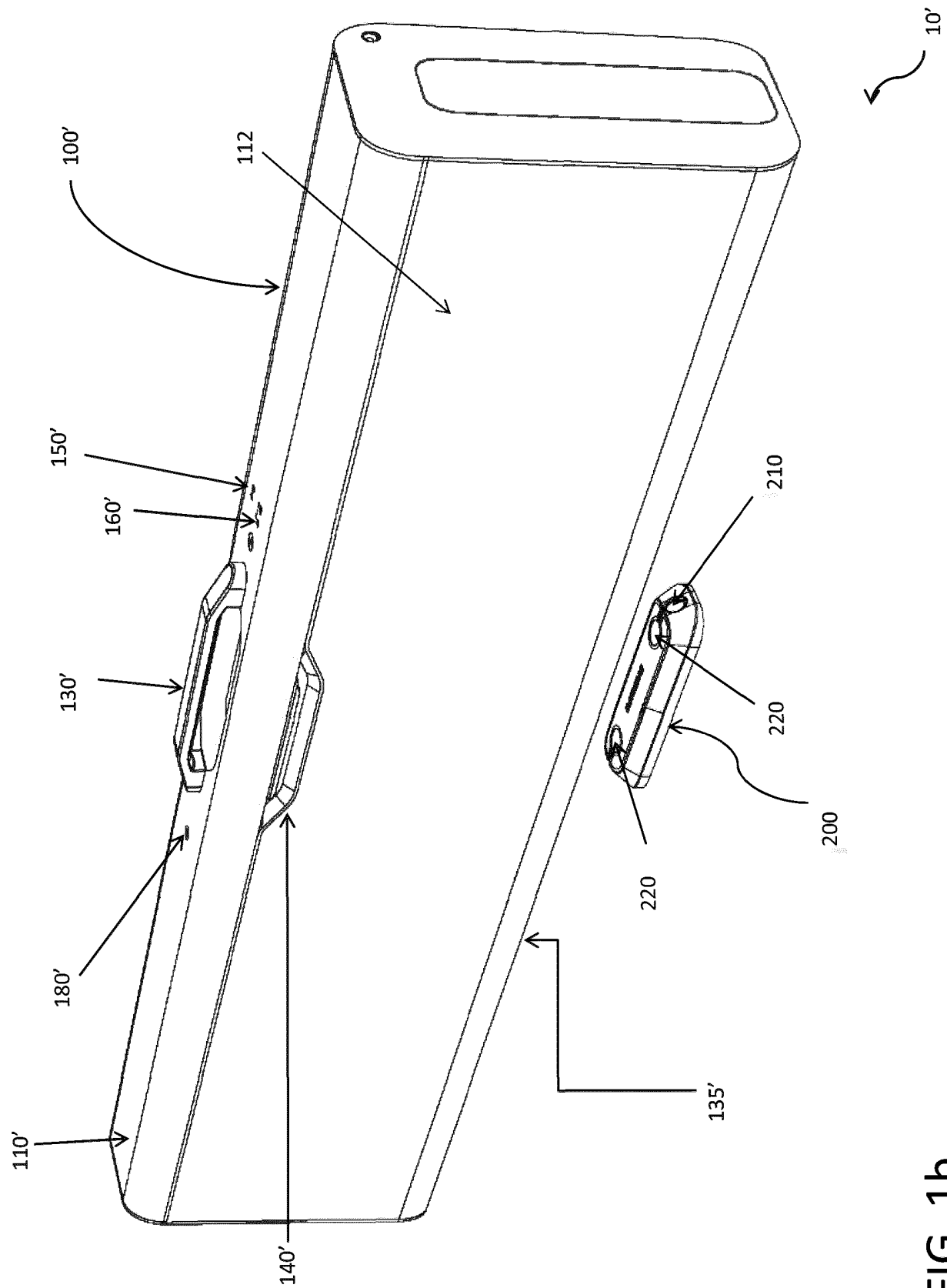


FIG. 1b

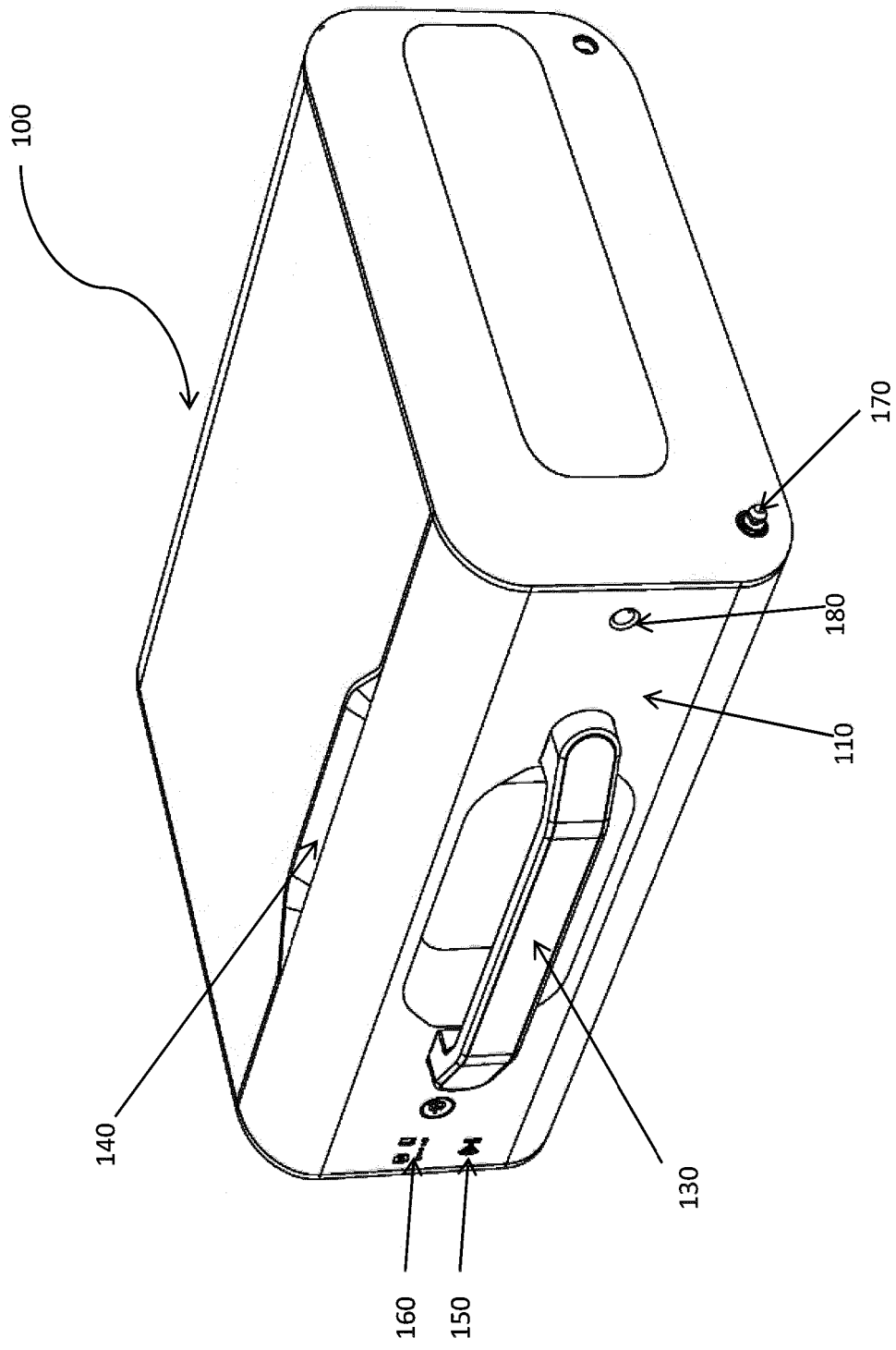


FIG. 2

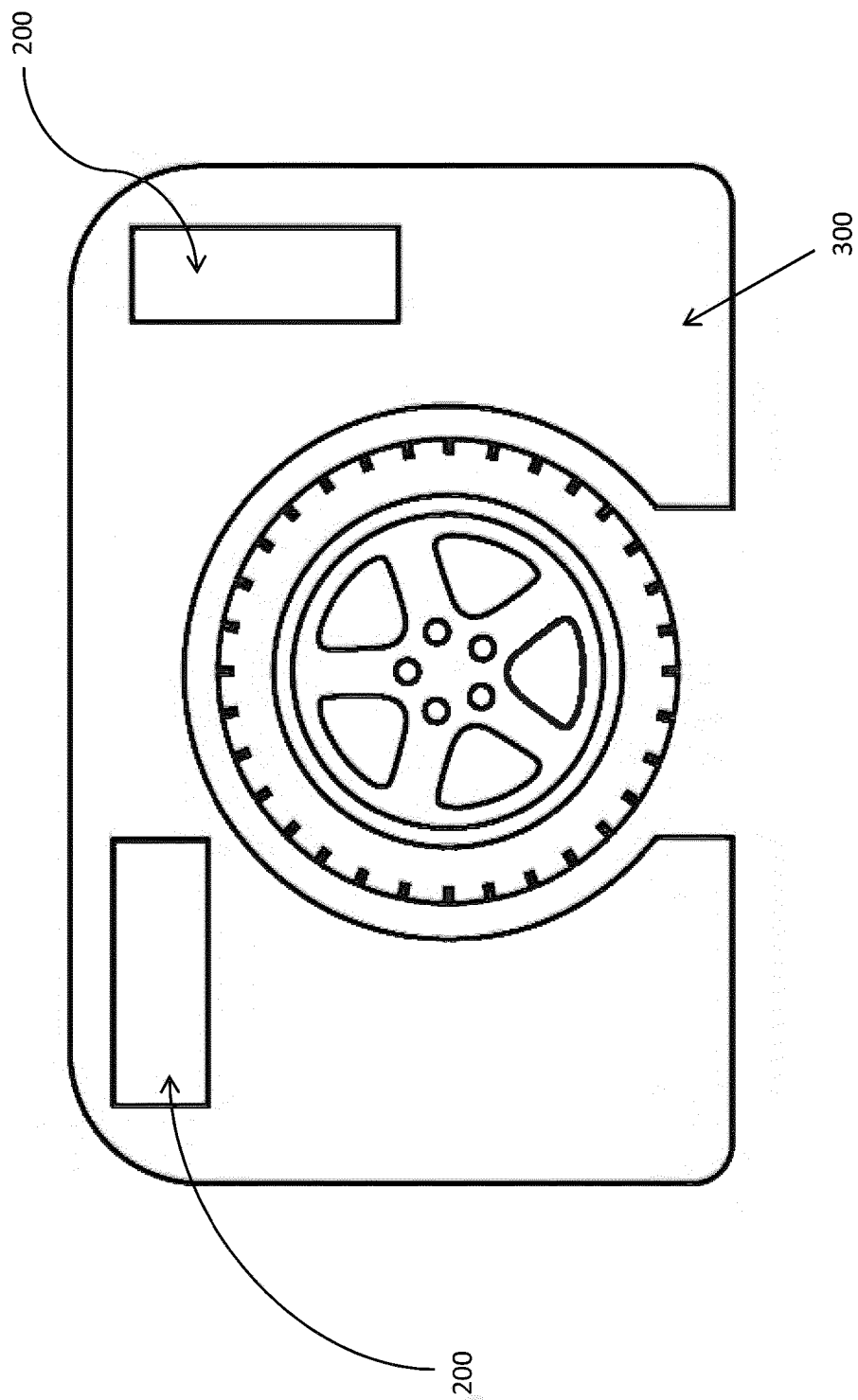


FIG. 3

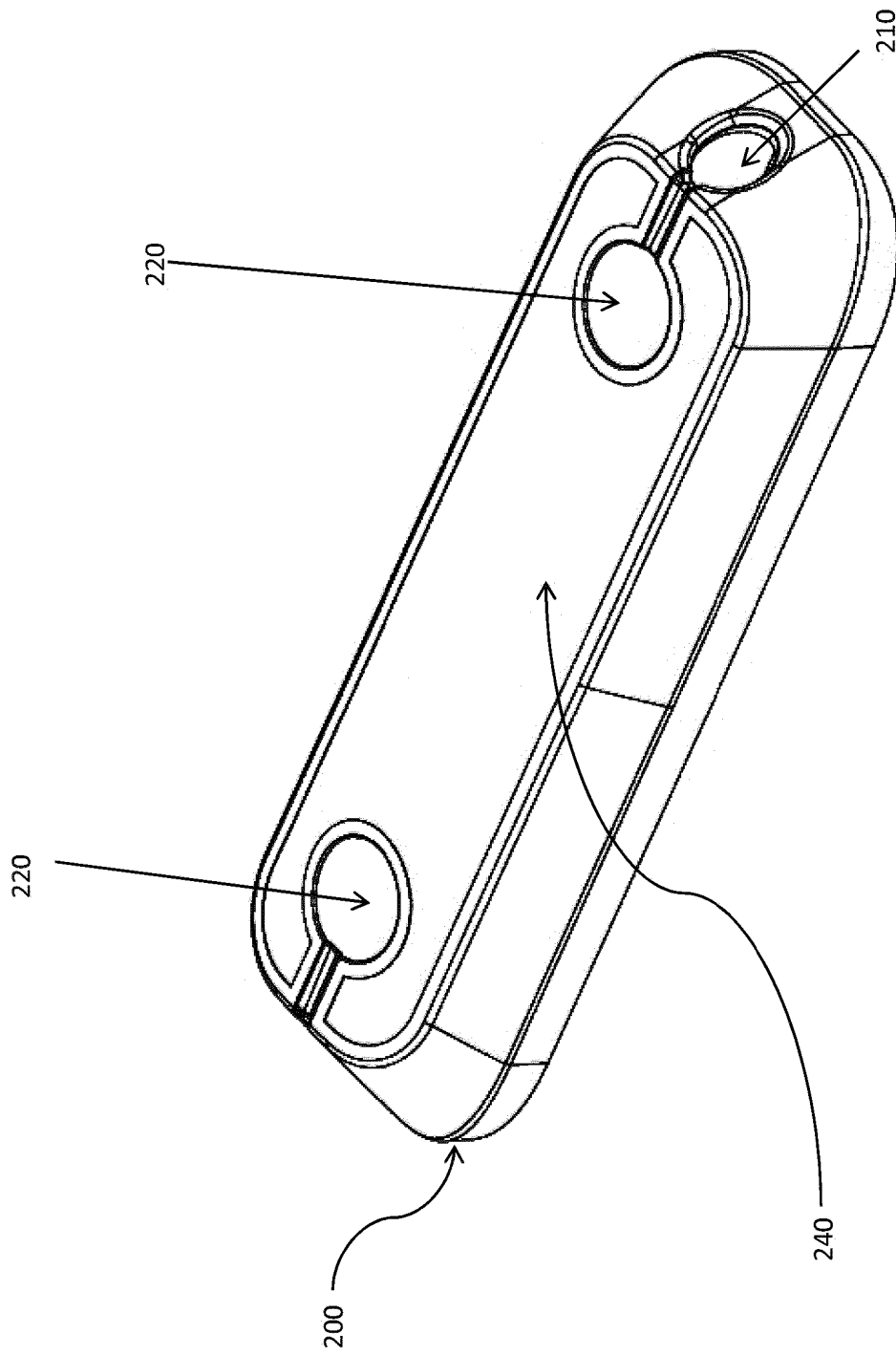
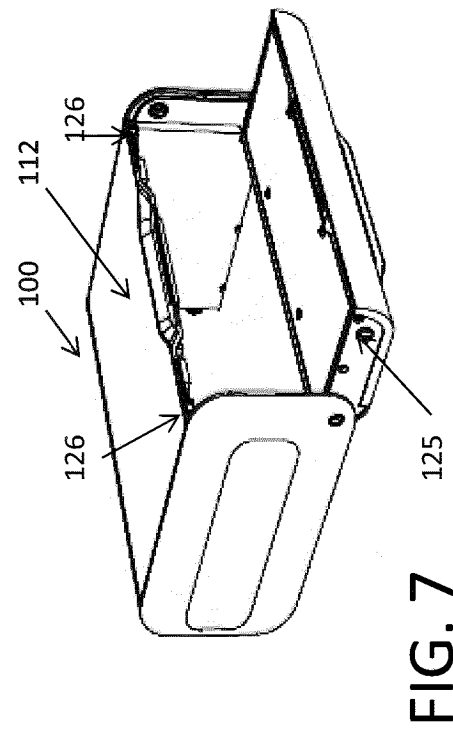
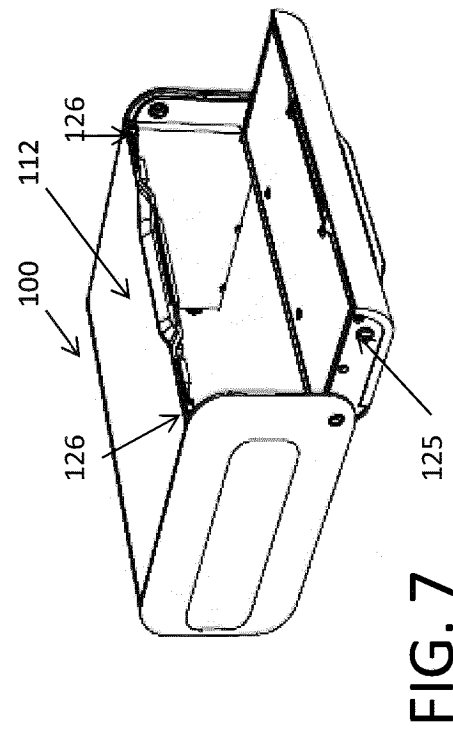
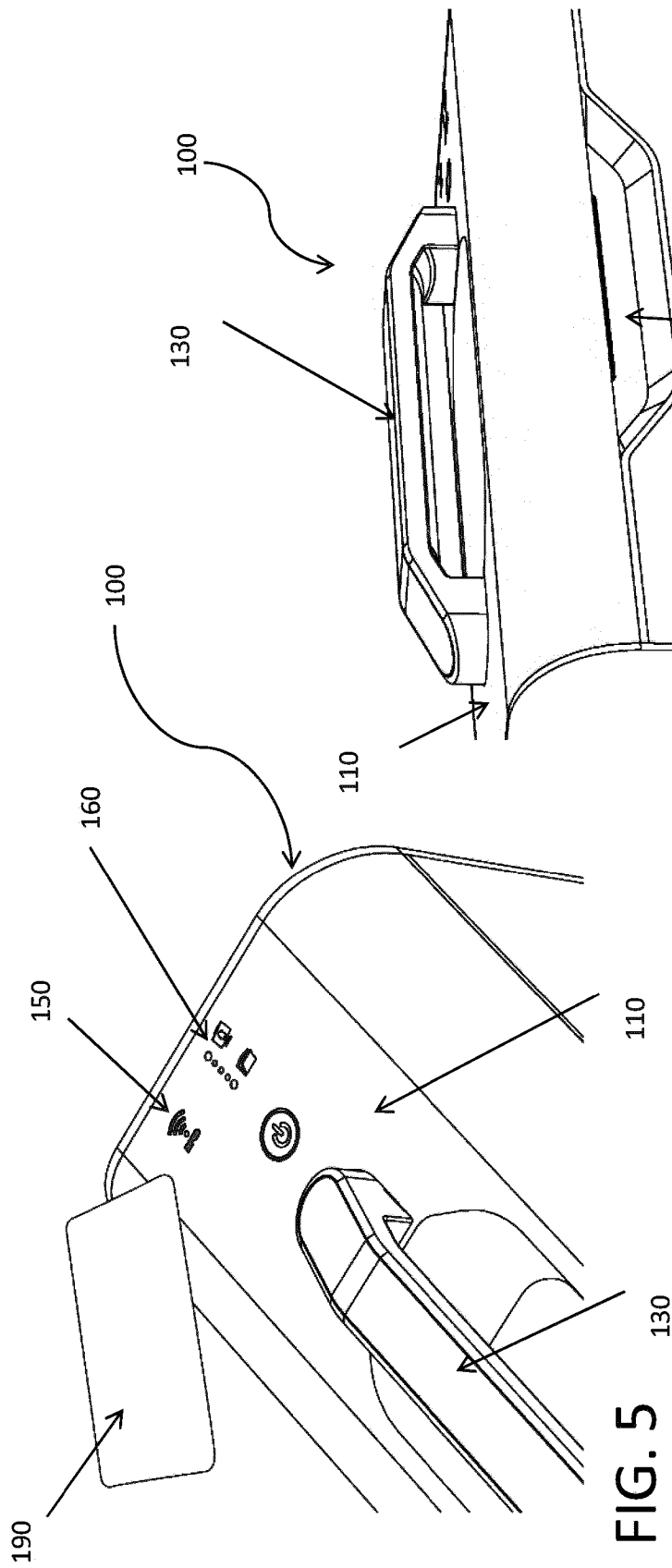
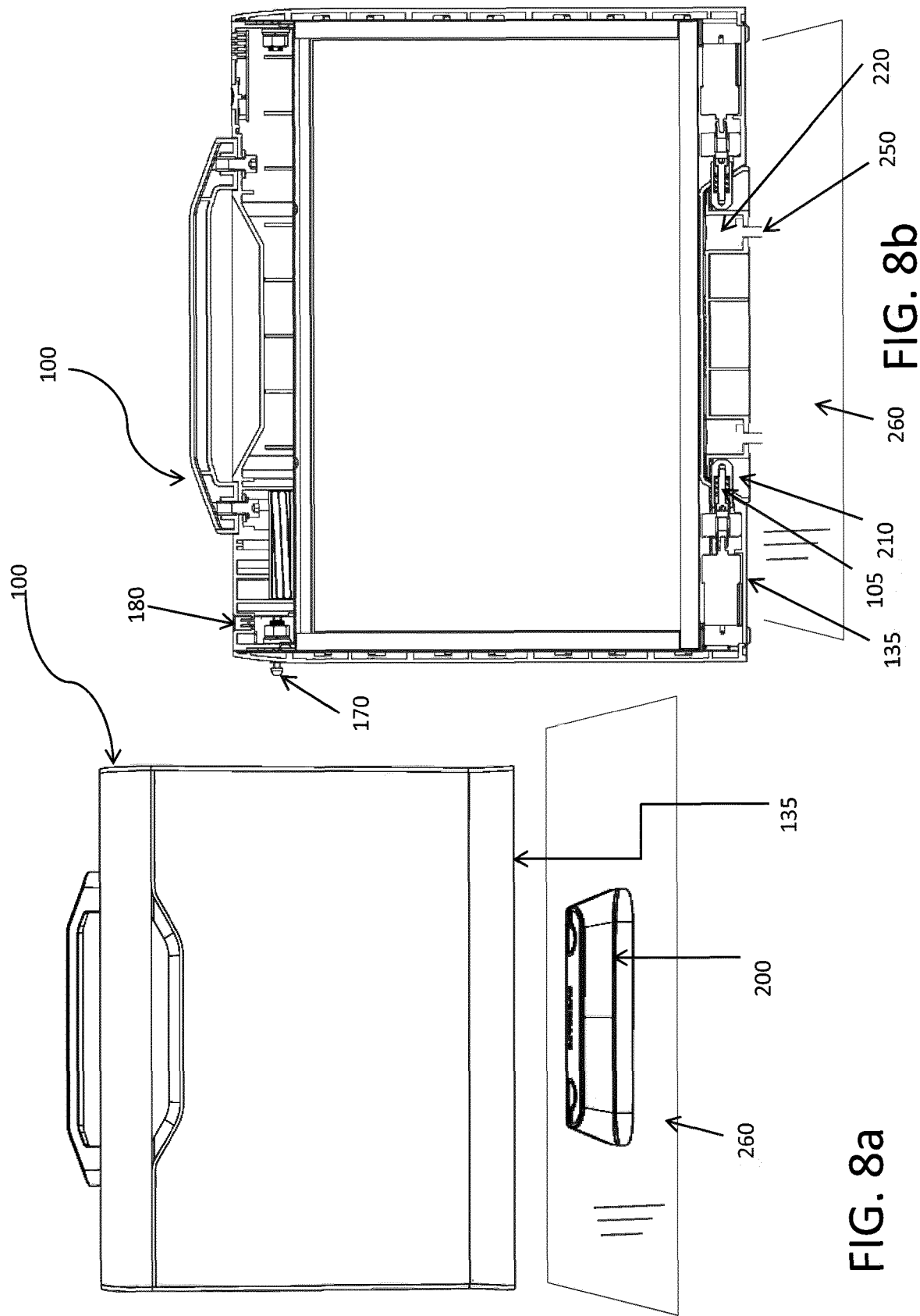


FIG. 4





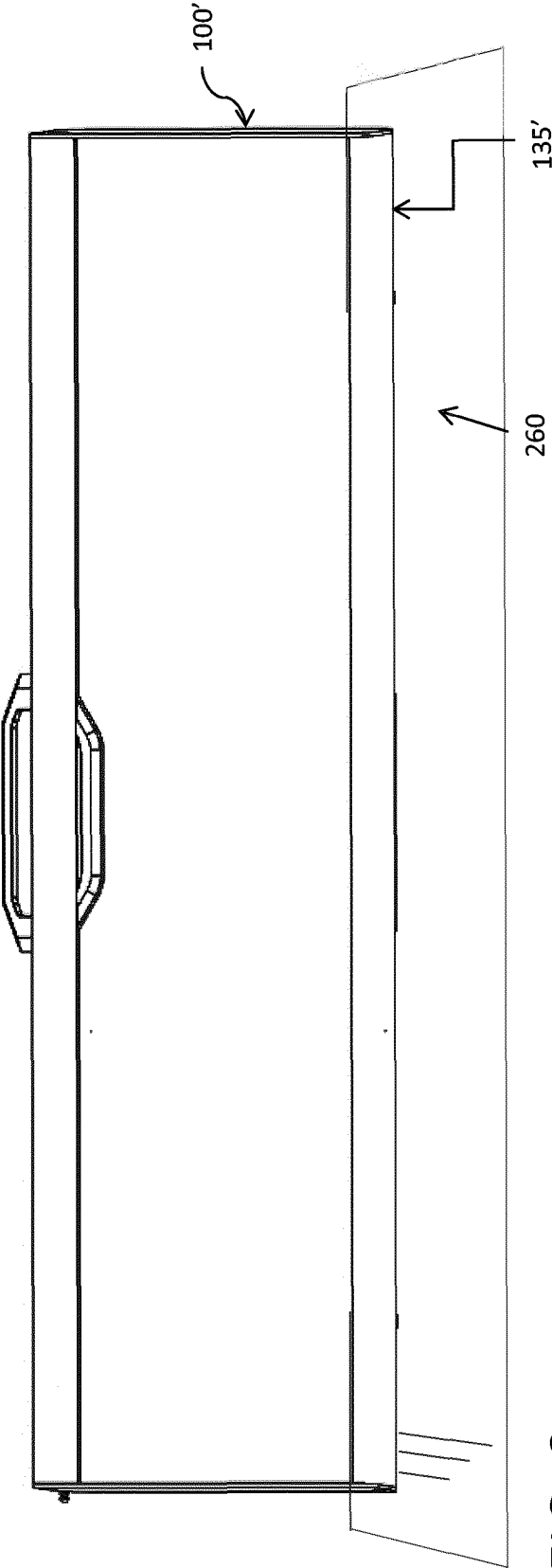


FIG. 9a

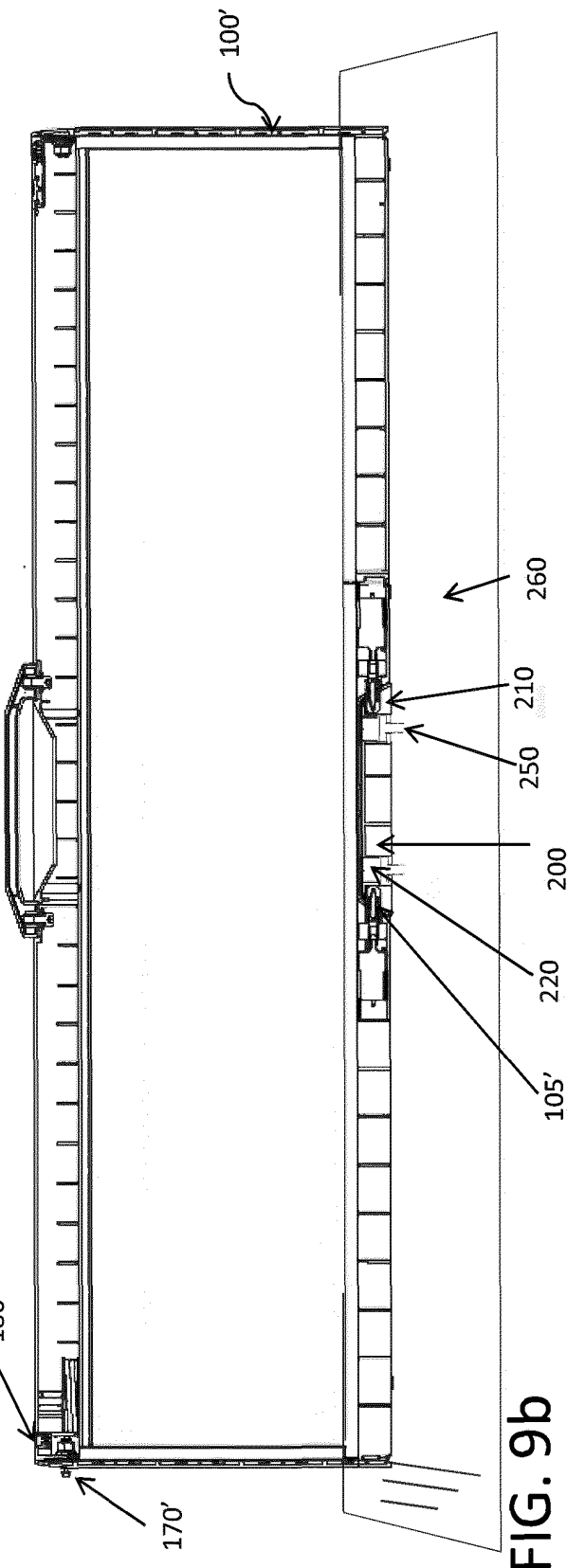
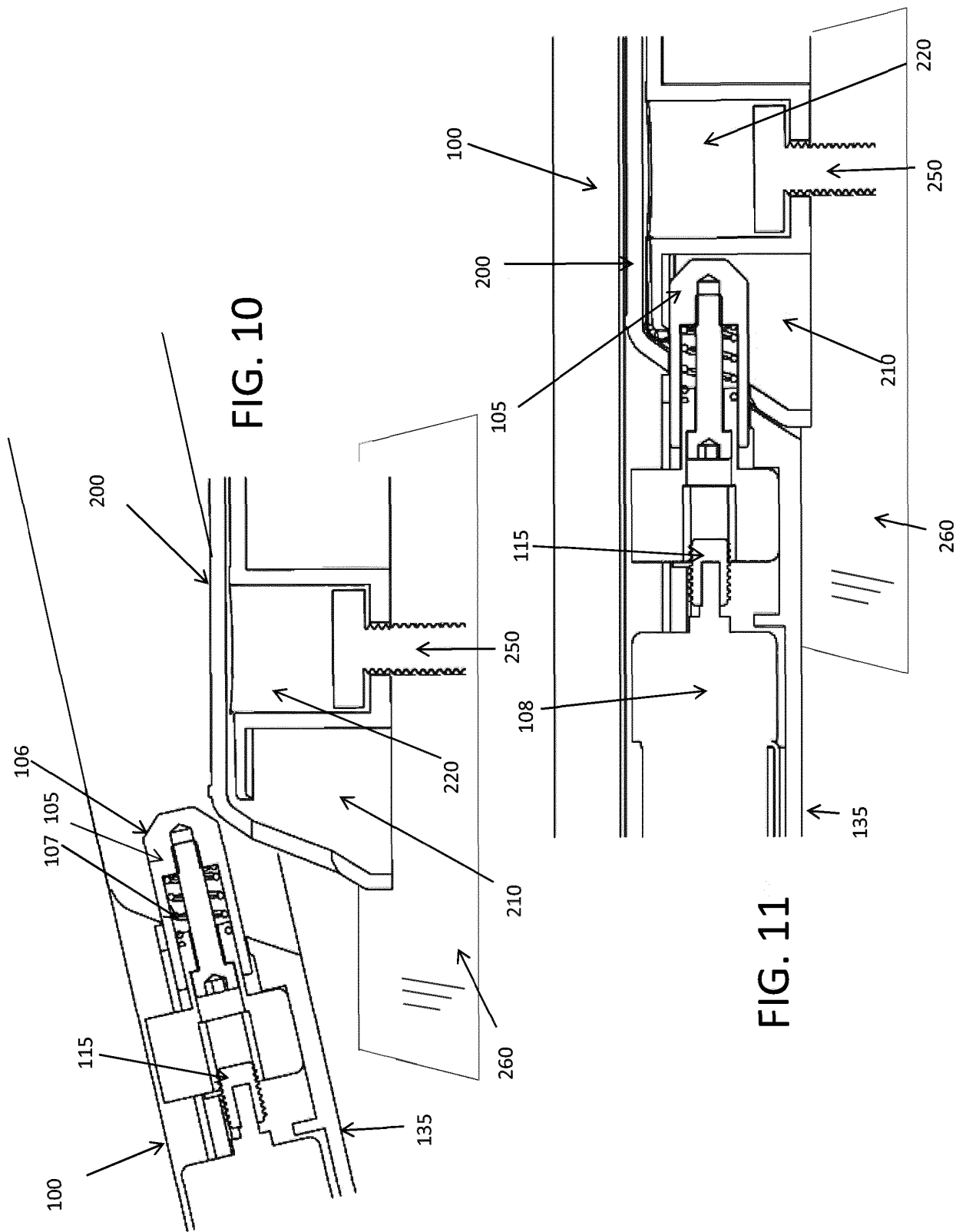


FIG. 9b



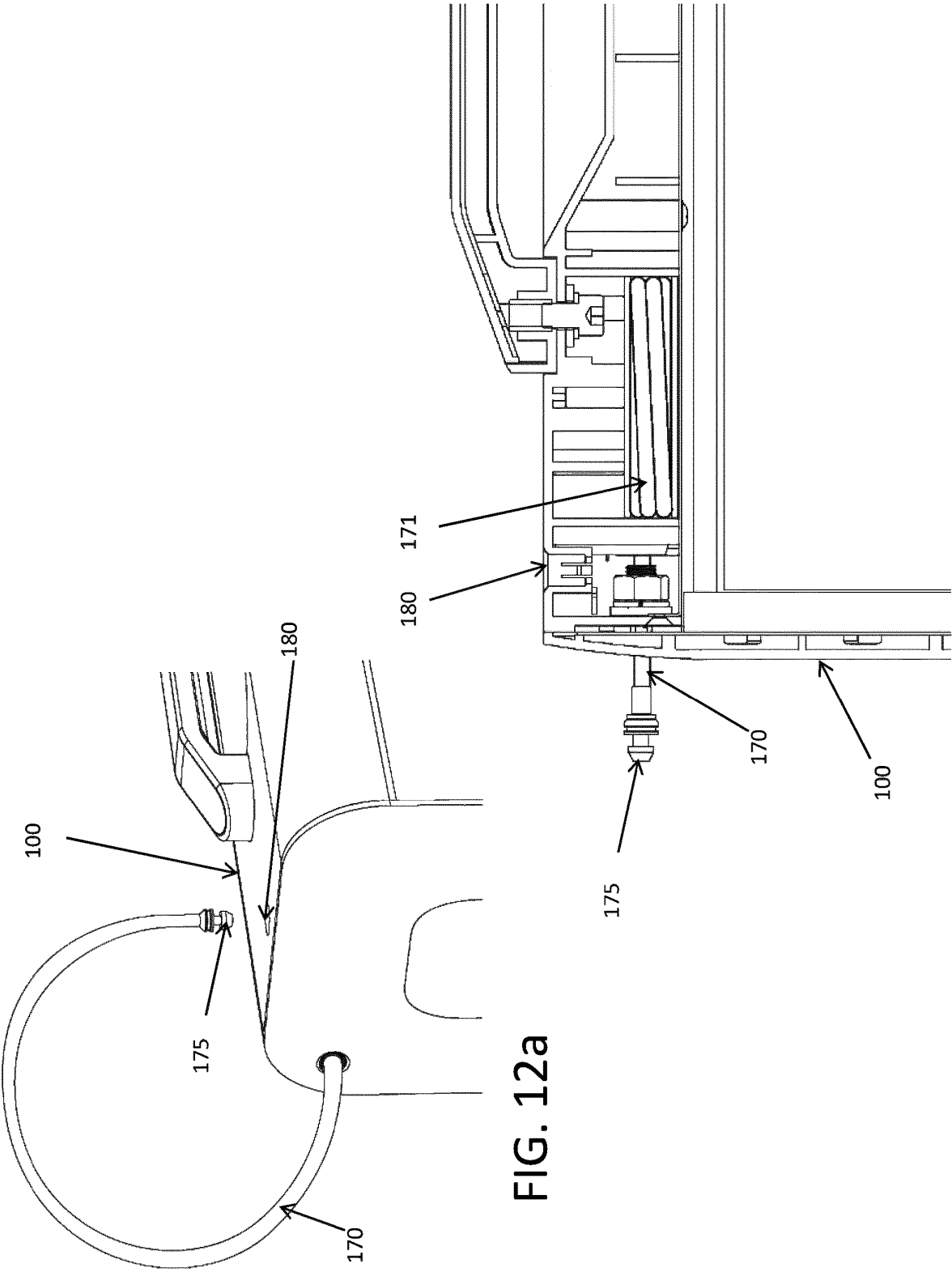


FIG. 12a

FIG. 12b

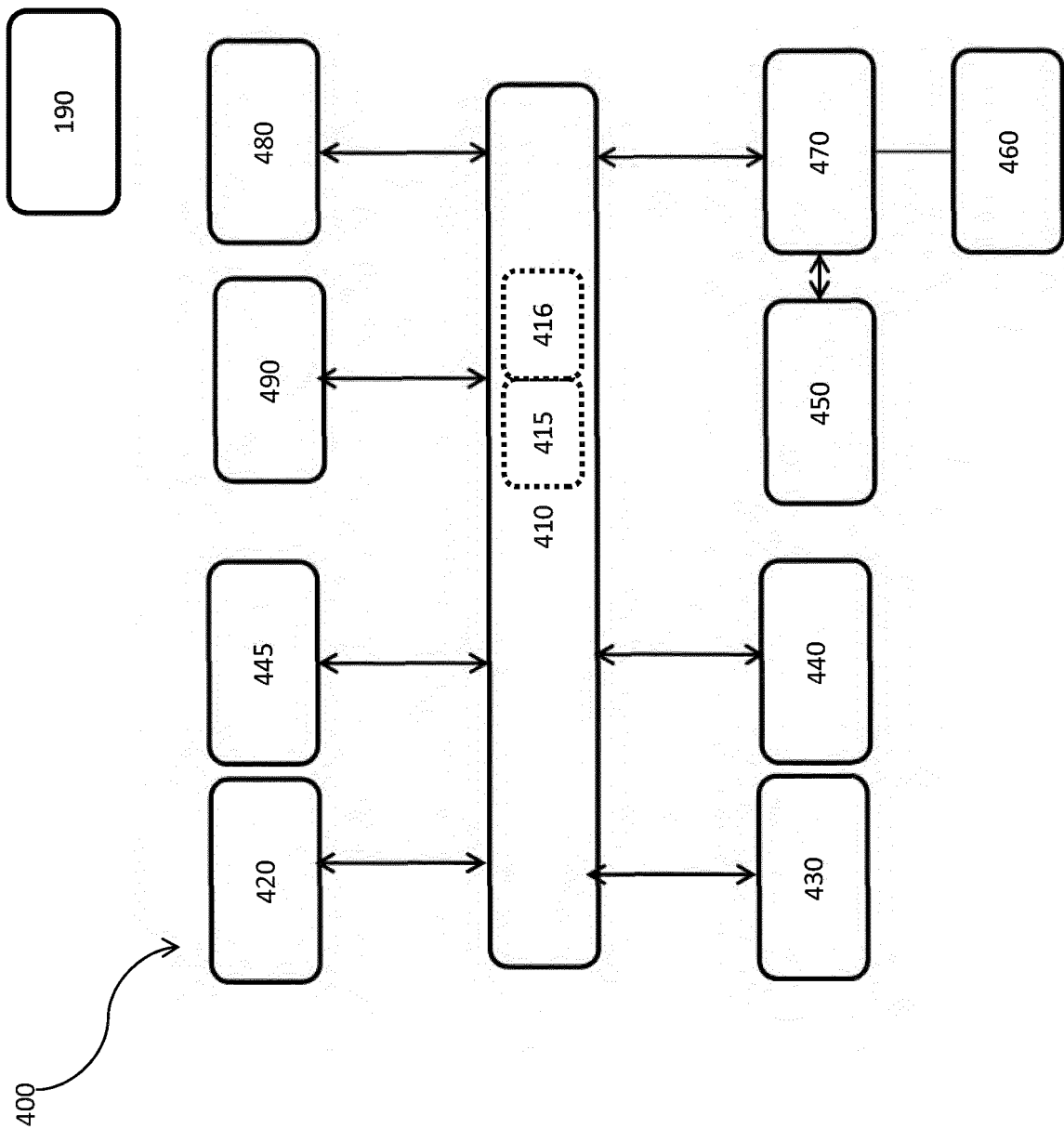


FIG. 13

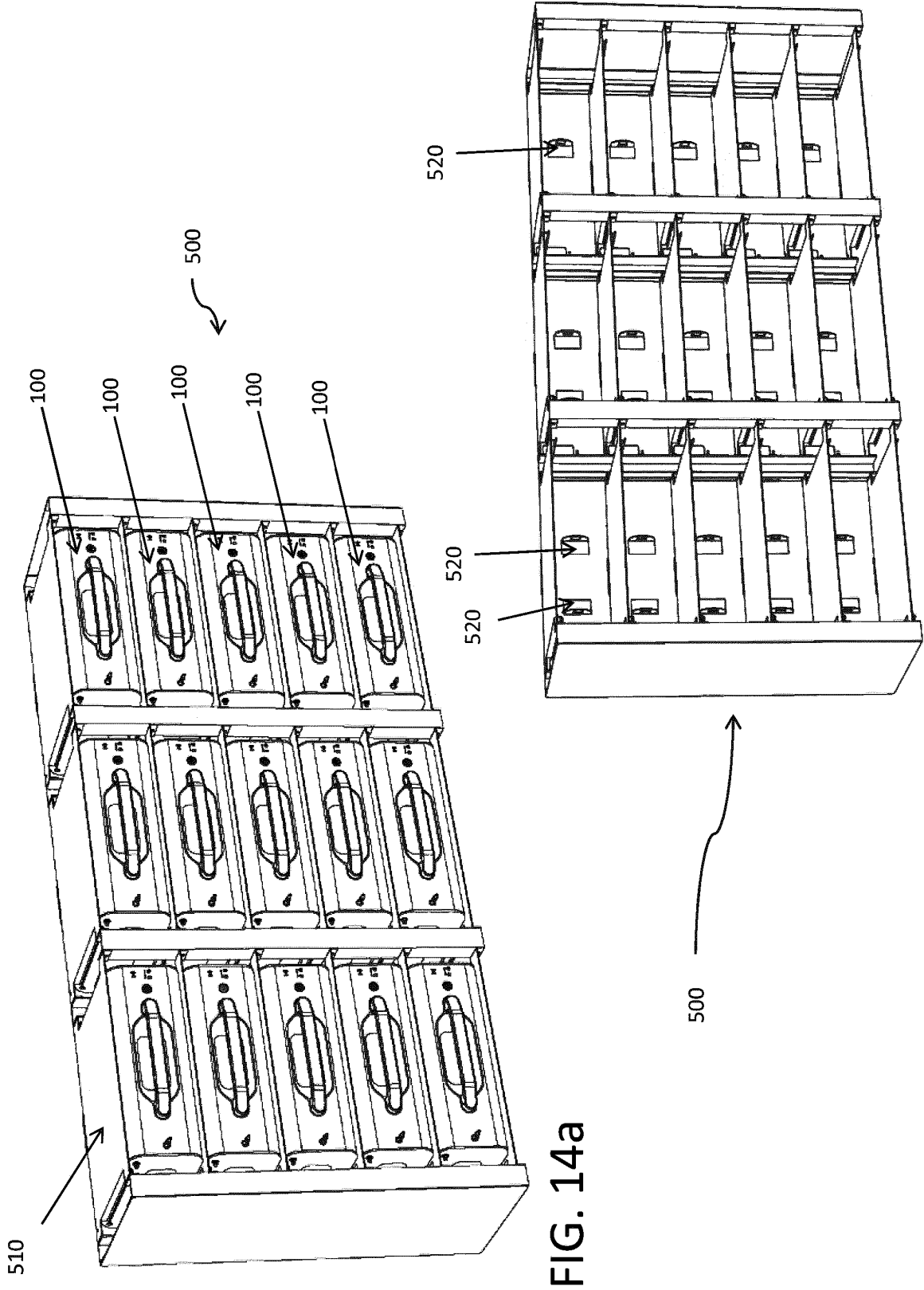


FIG. 14a

FIG. 14b

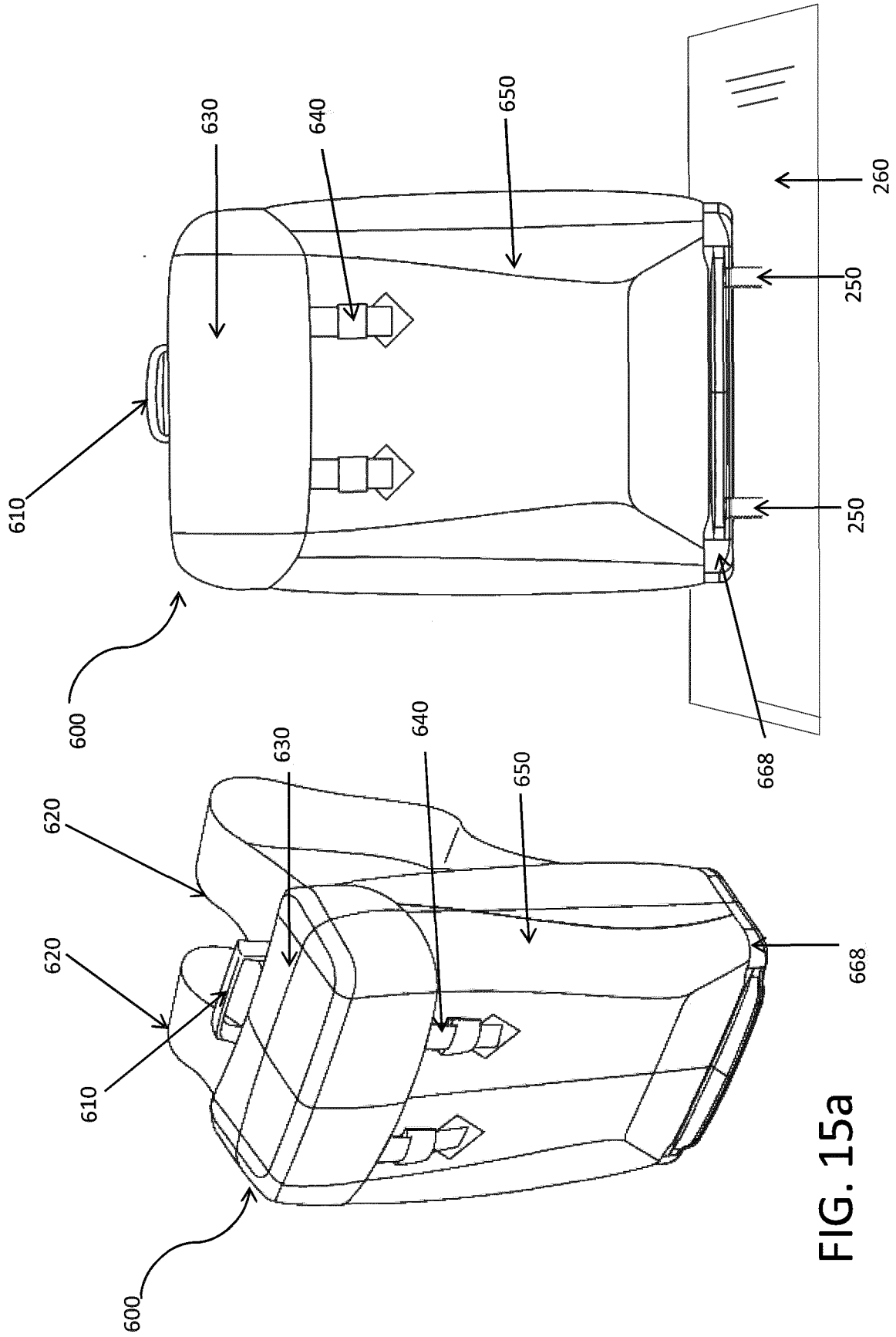


FIG. 15b

FIG. 15a

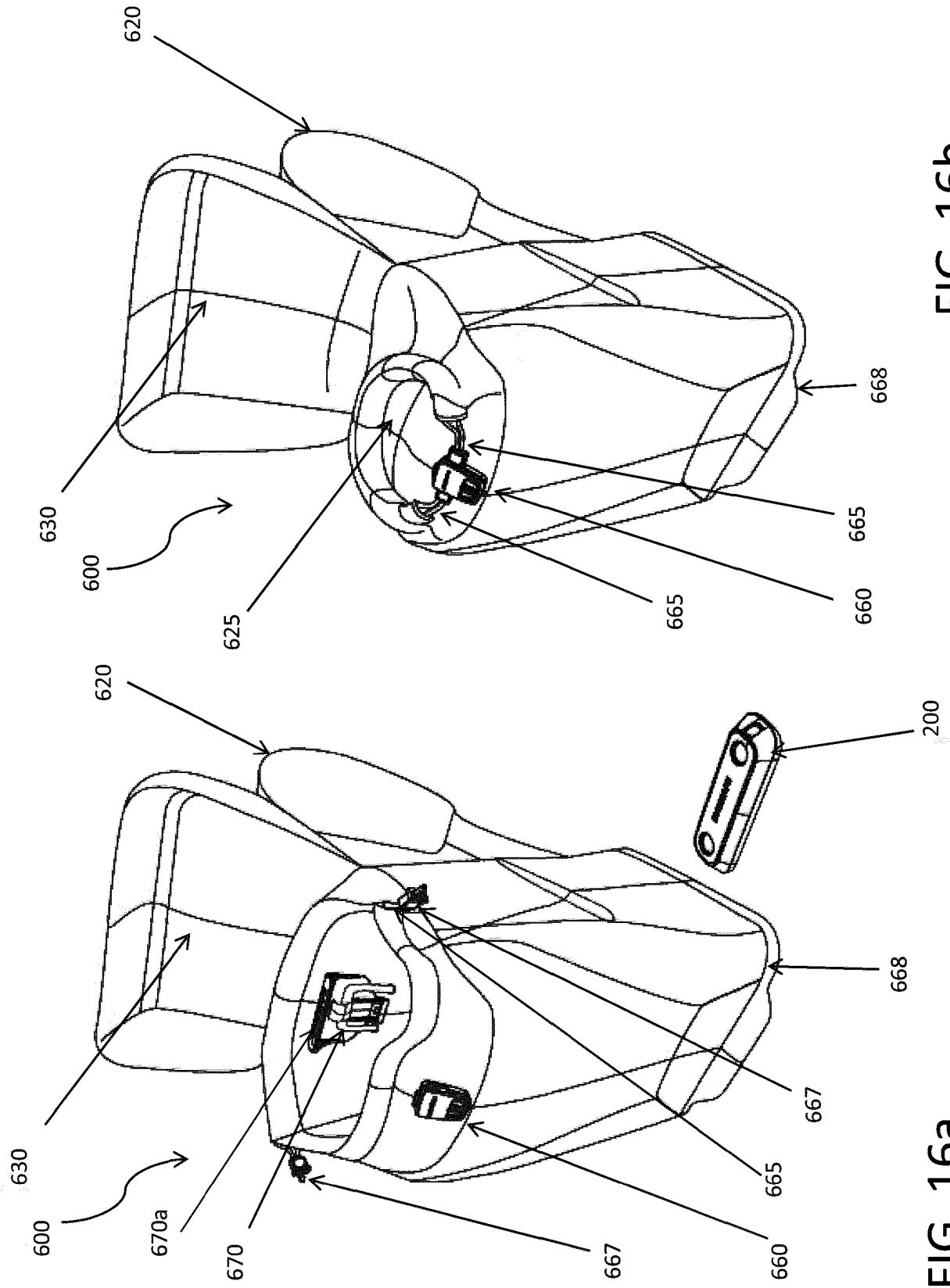


FIG. 16b

FIG. 16a

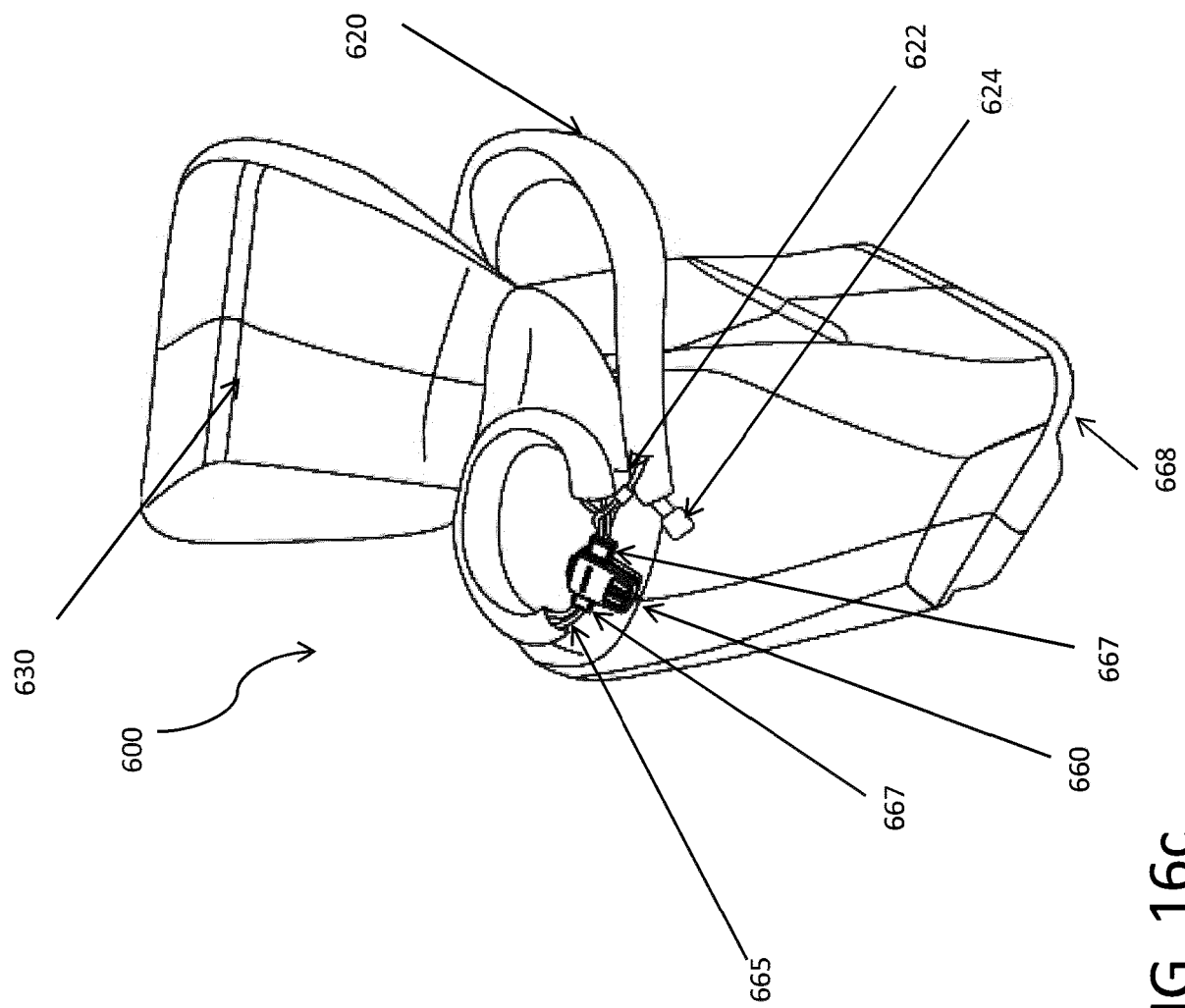


FIG. 16c

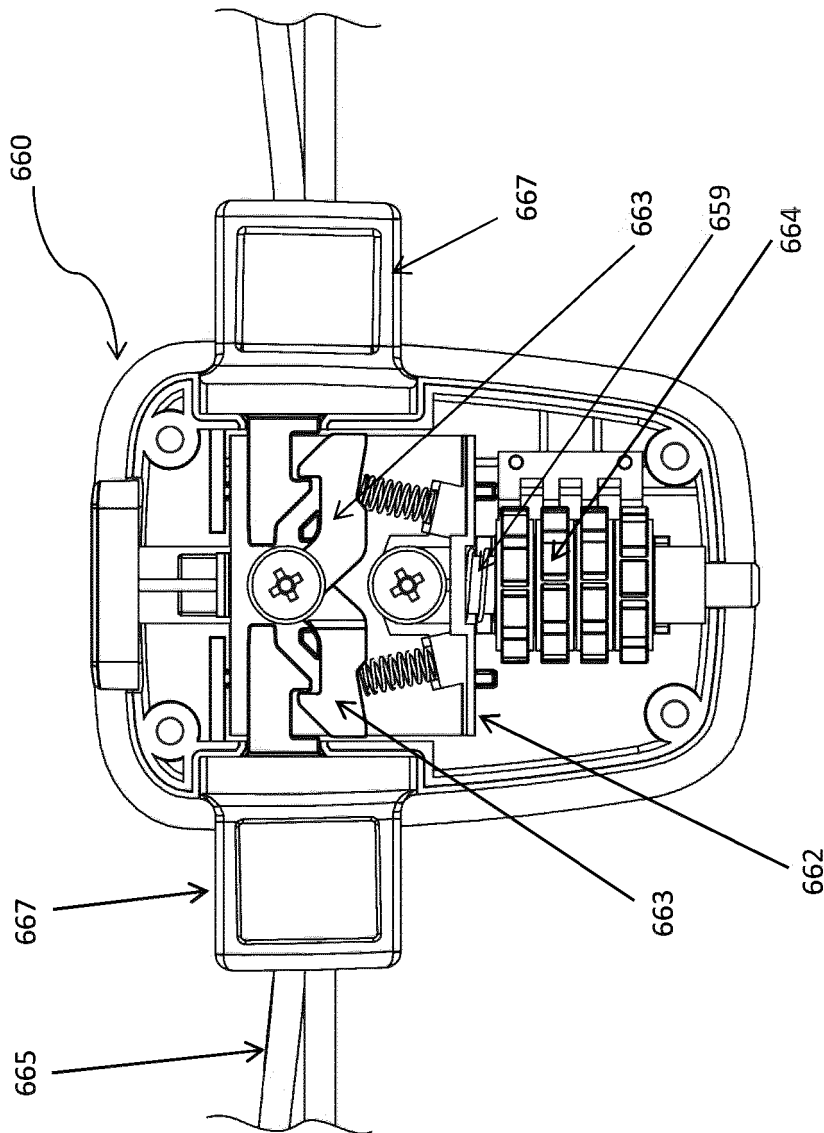


FIG. 16e

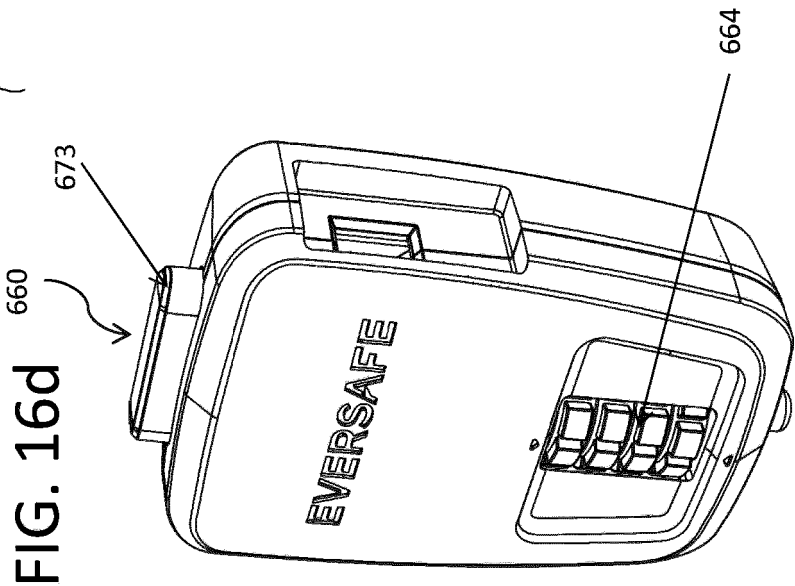


FIG. 16d

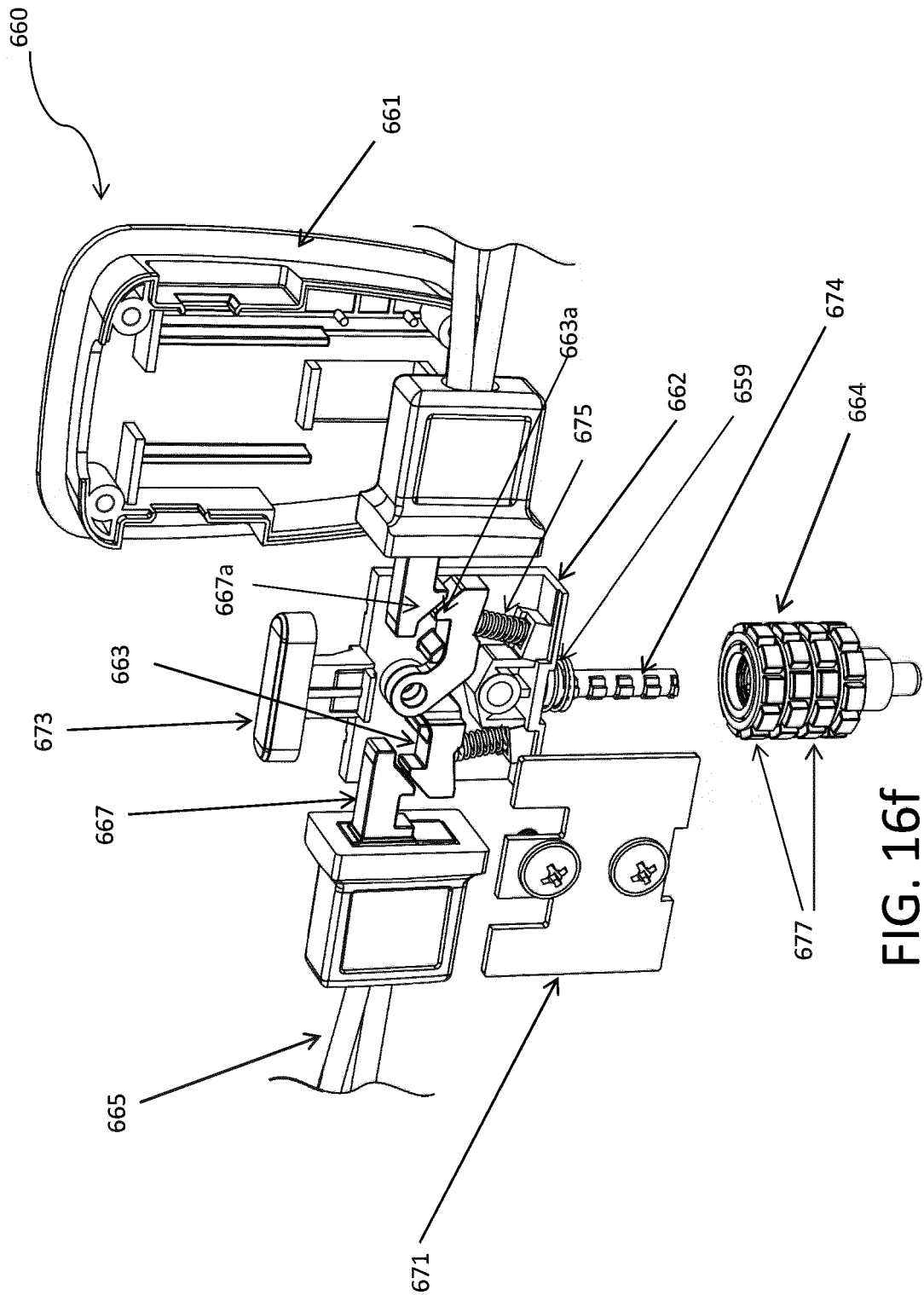


FIG. 16f

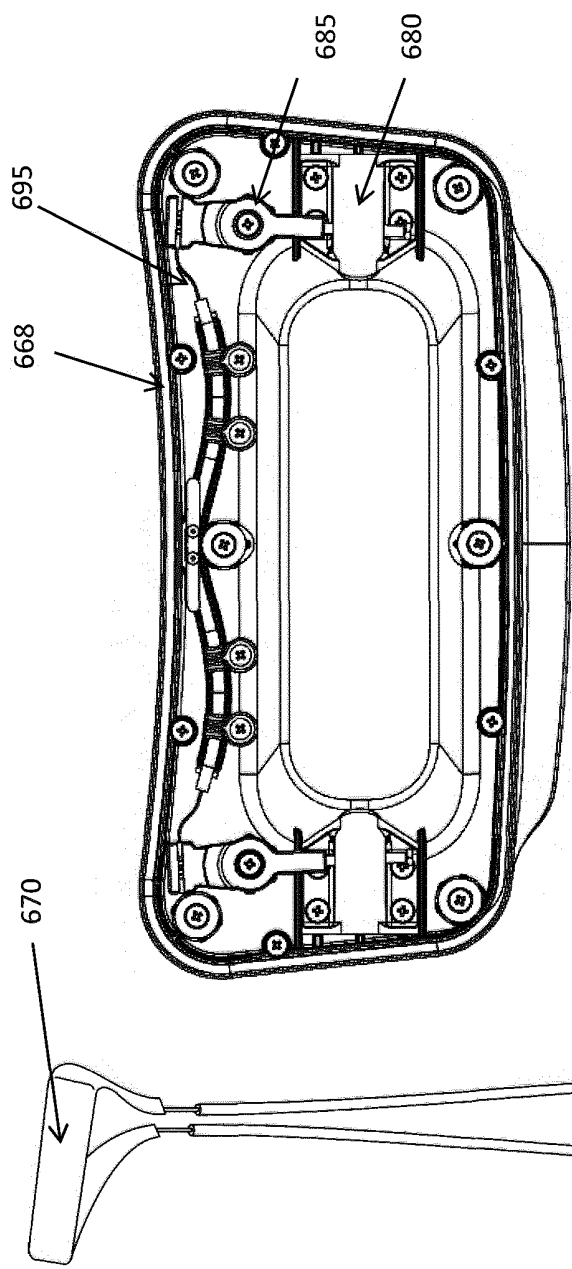


FIG. 17b

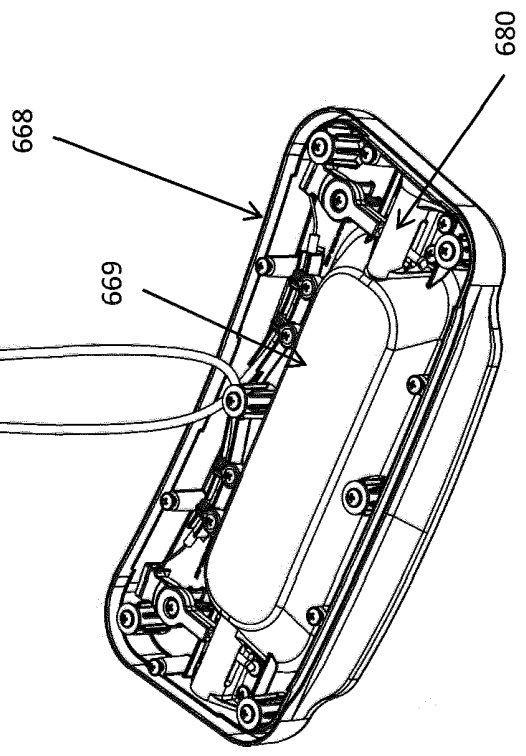


FIG. 17a

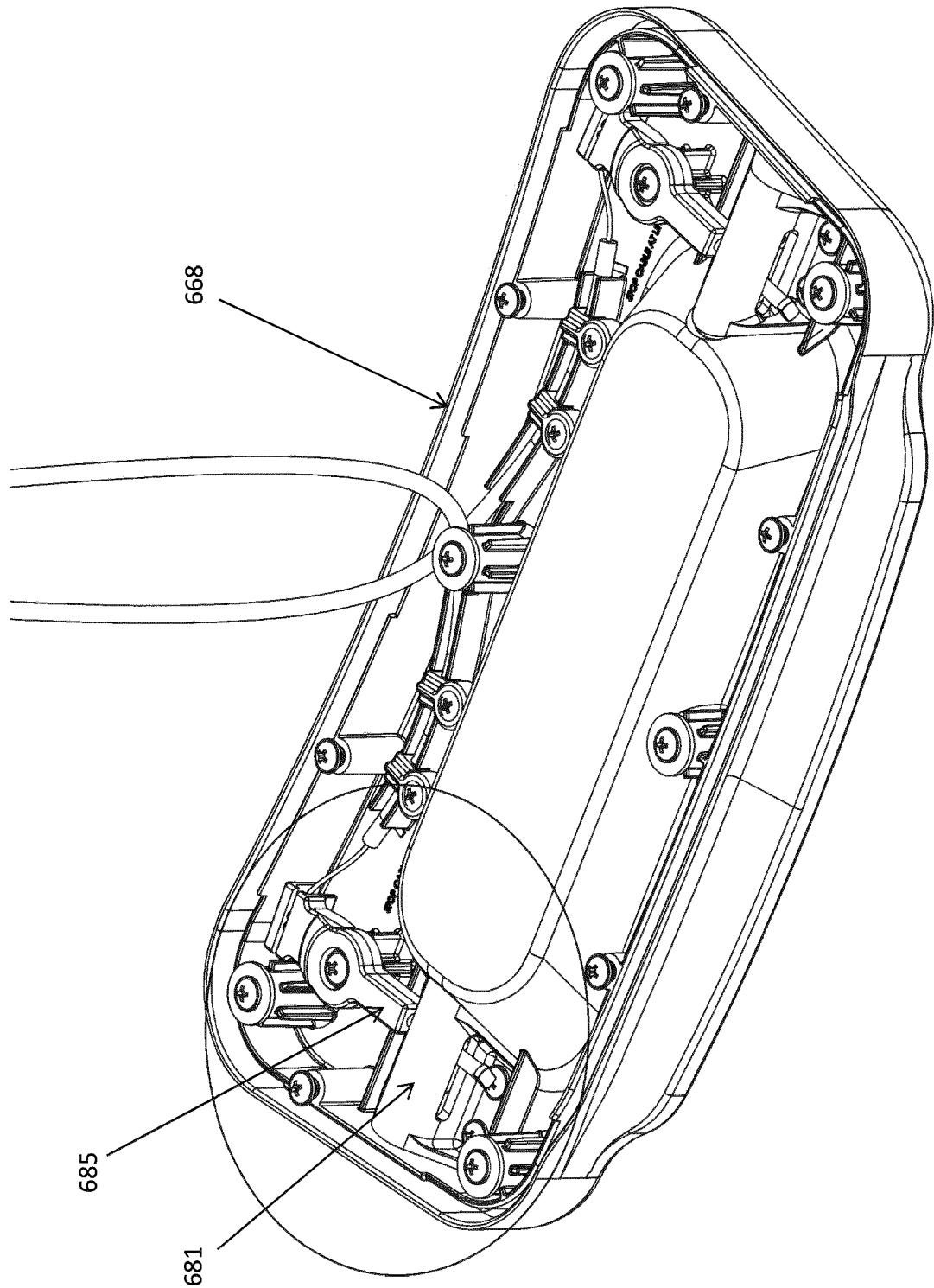


FIG. 17c

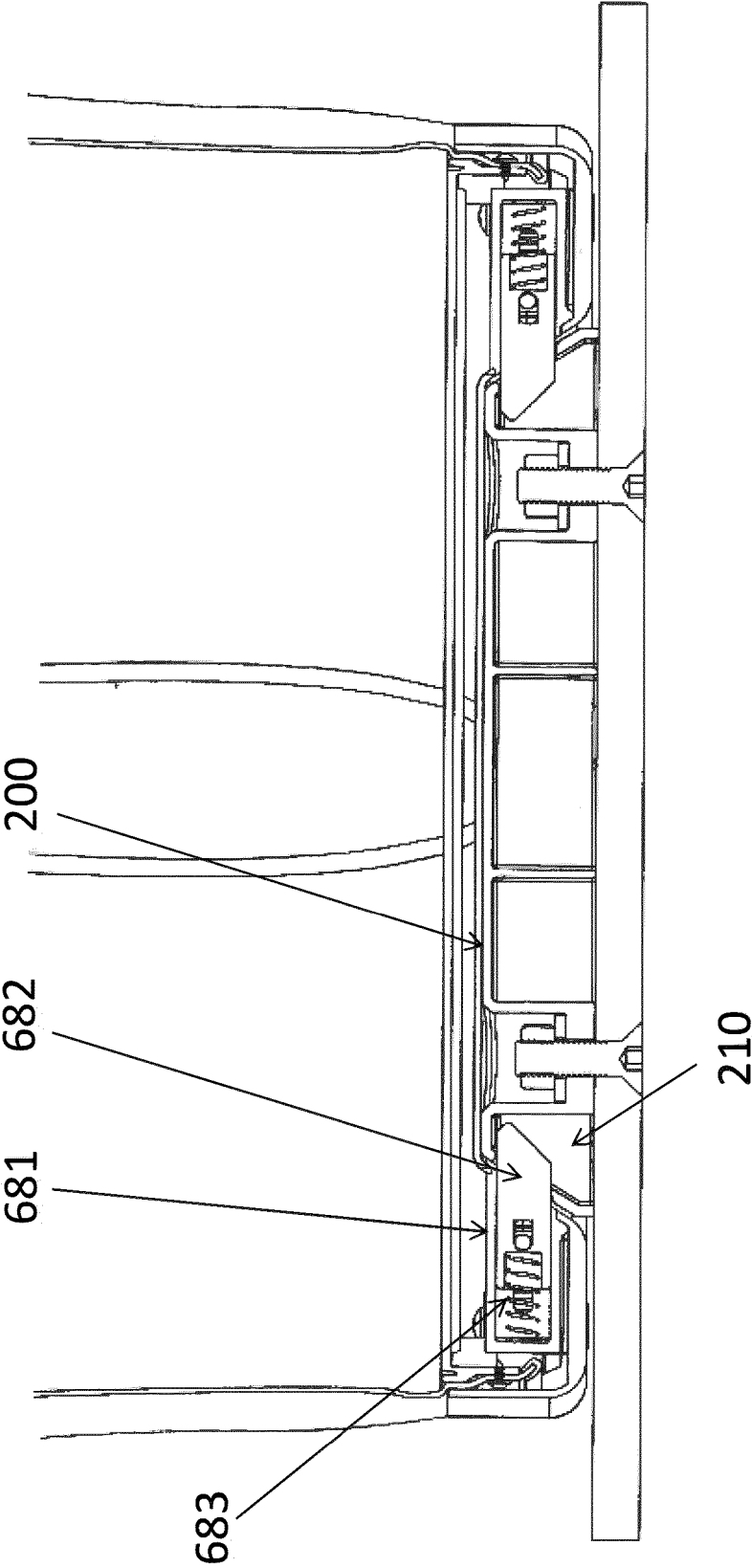


FIG. 17d

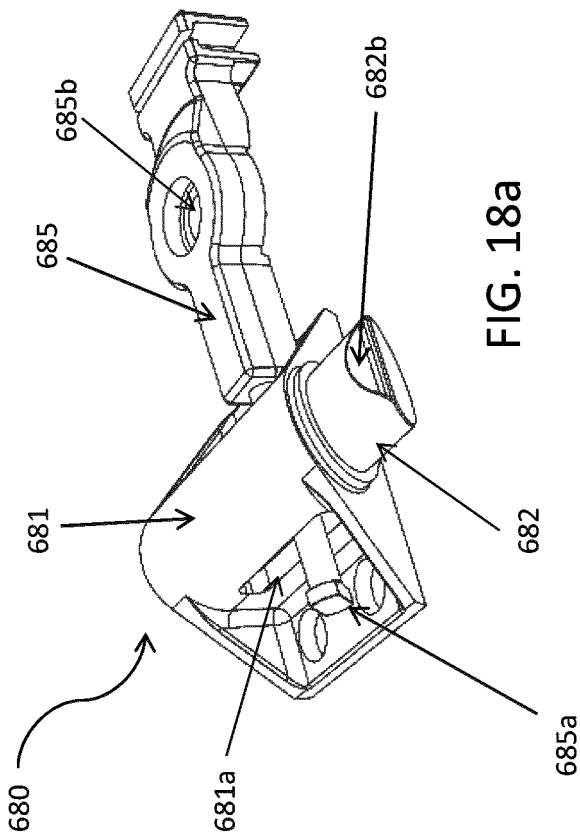


FIG. 18a

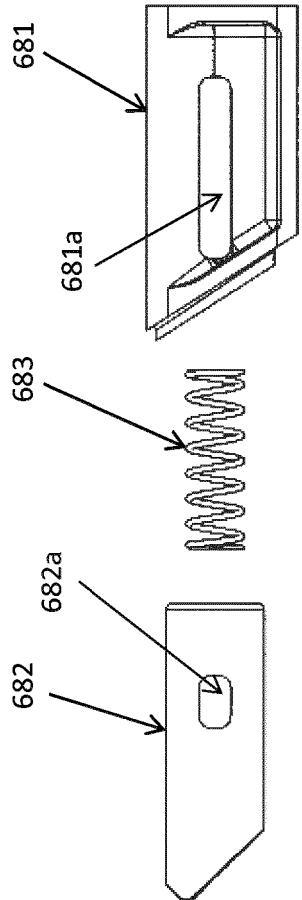


FIG. 18b

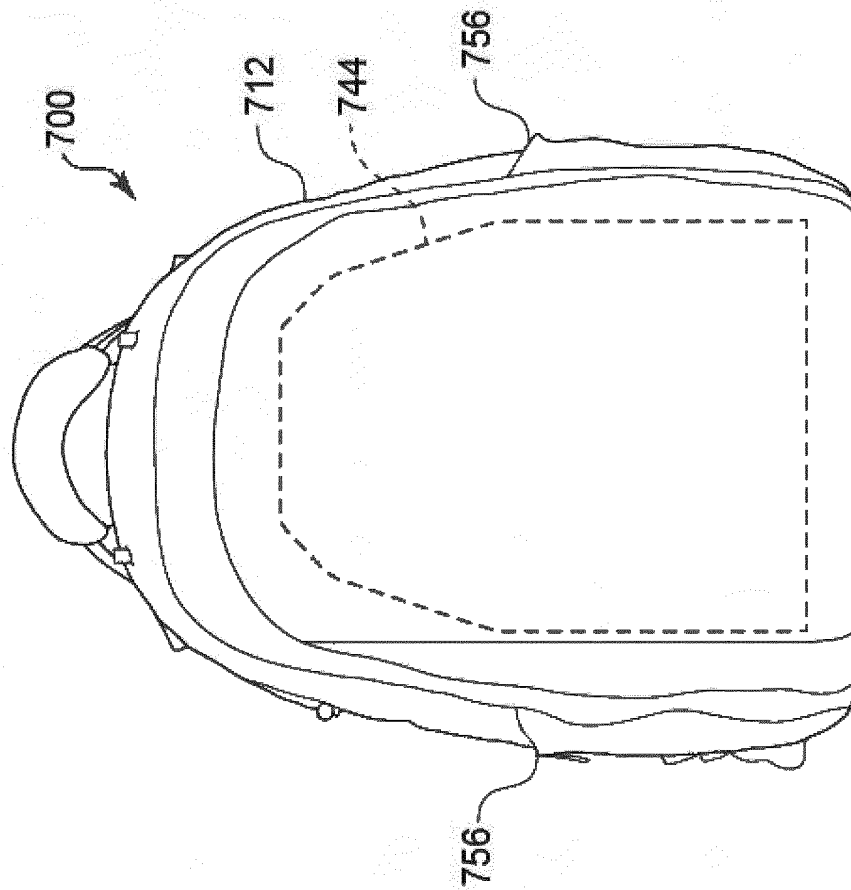


FIG. 19a

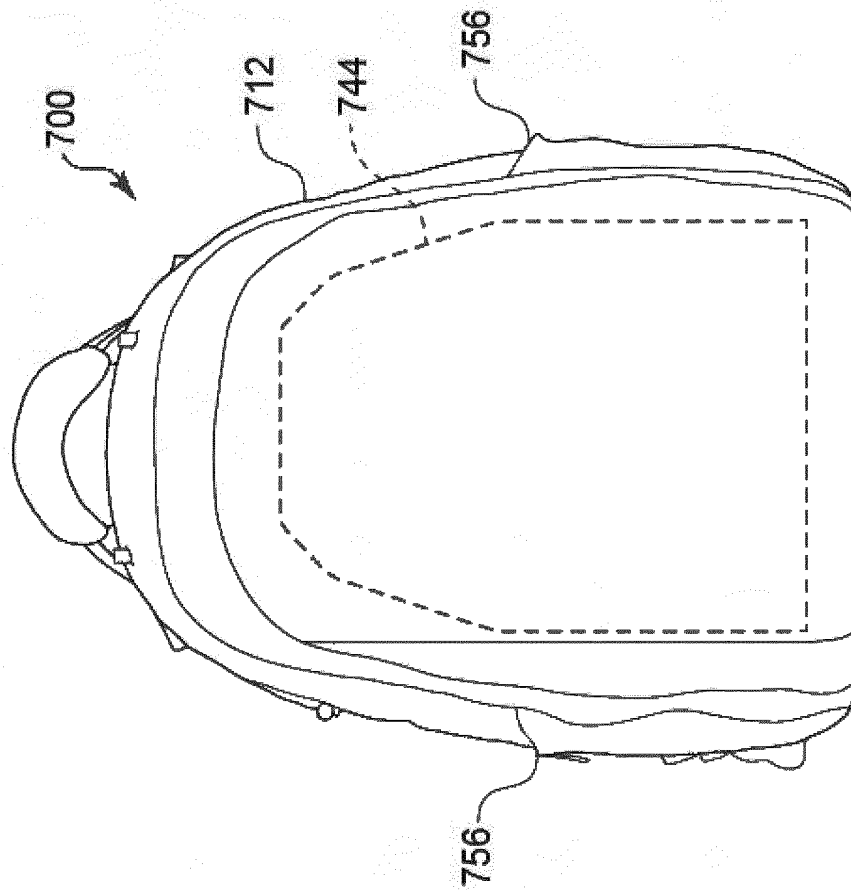


FIG. 19b

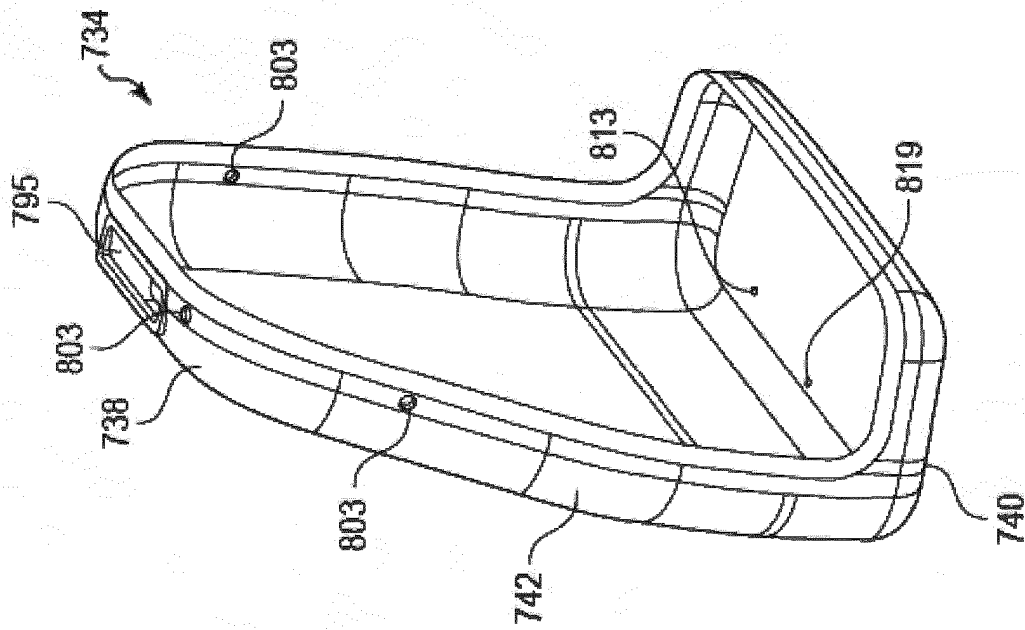


FIG. 20b

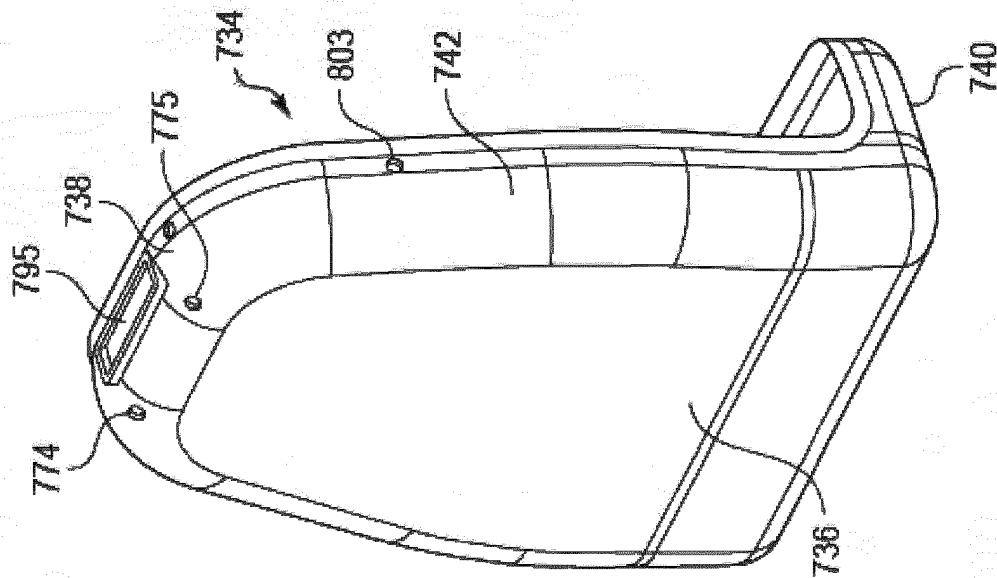


FIG. 20a

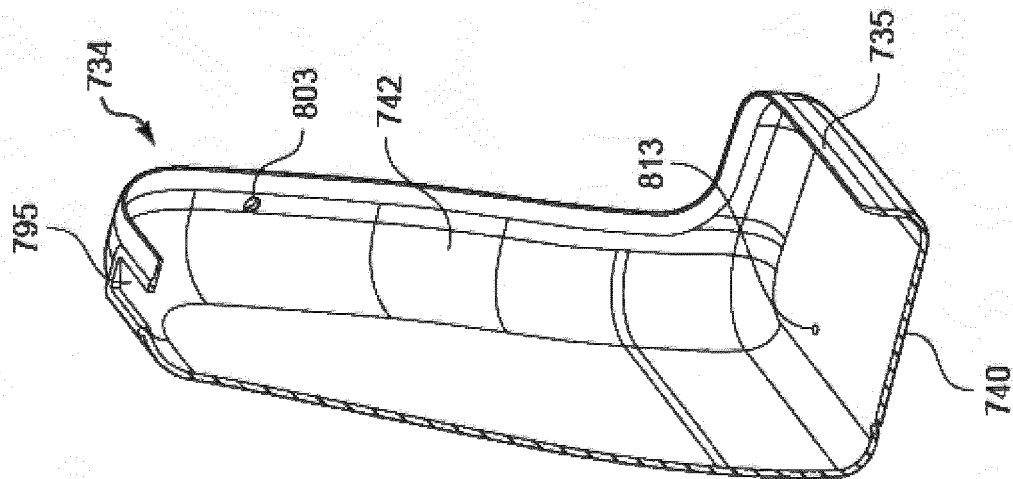


FIG. 20c

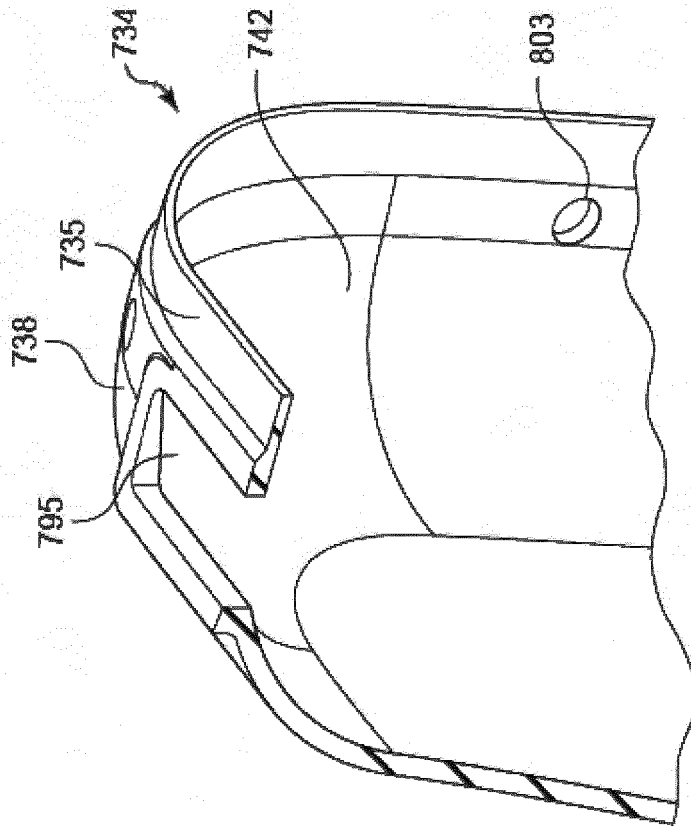


FIG. 20d

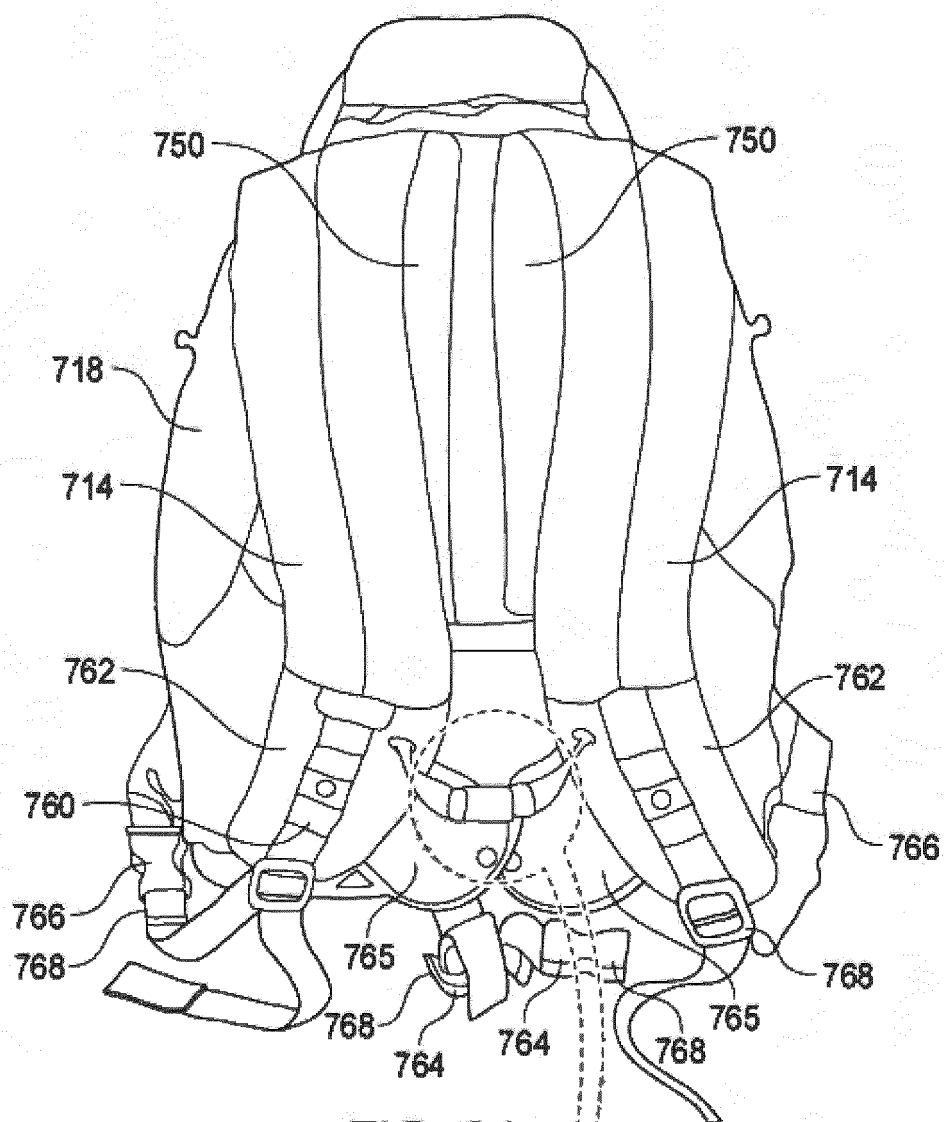


FIG. 21a

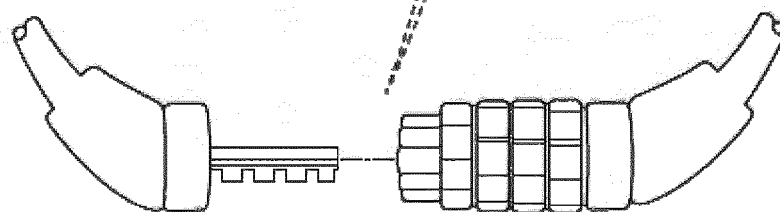
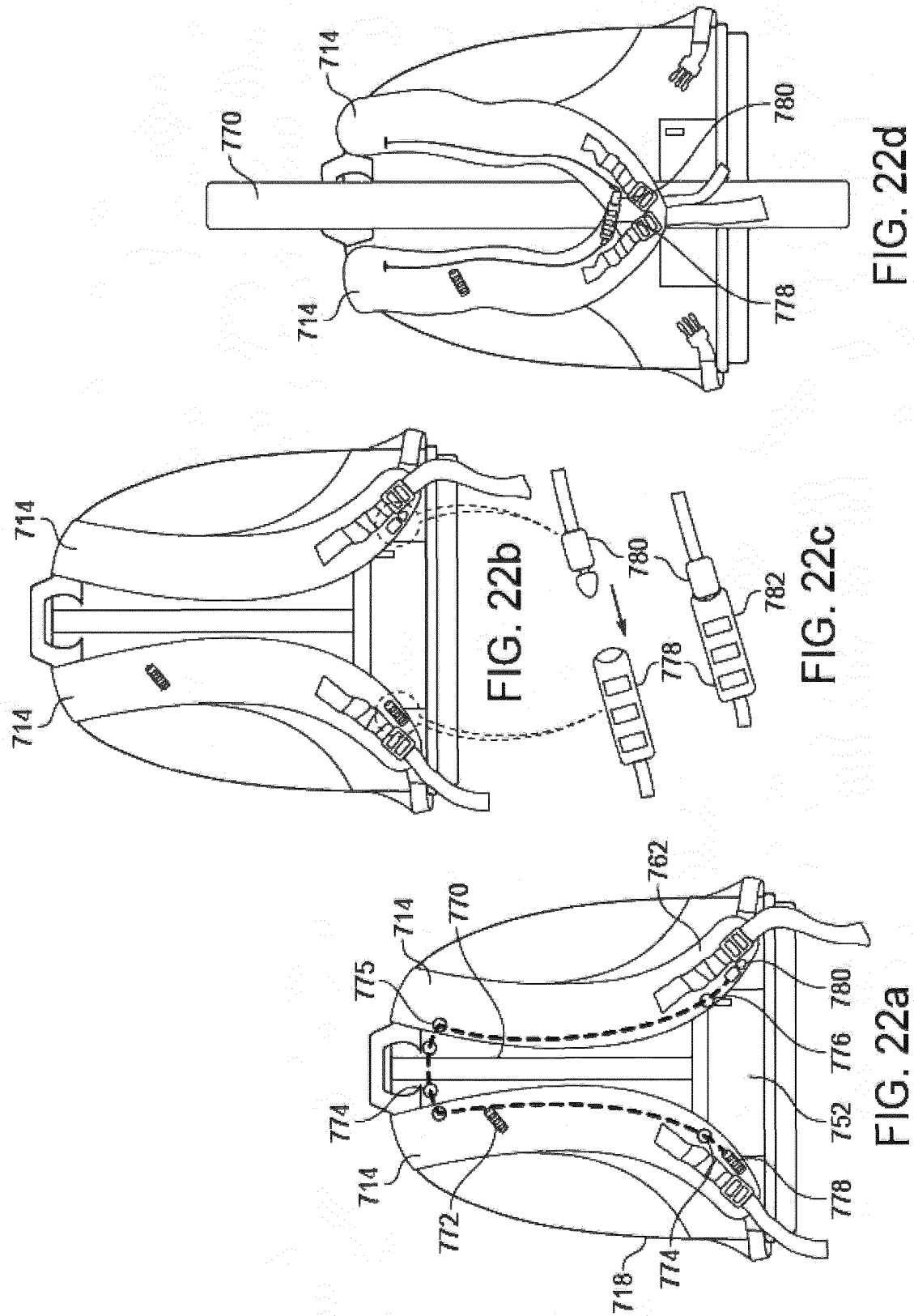
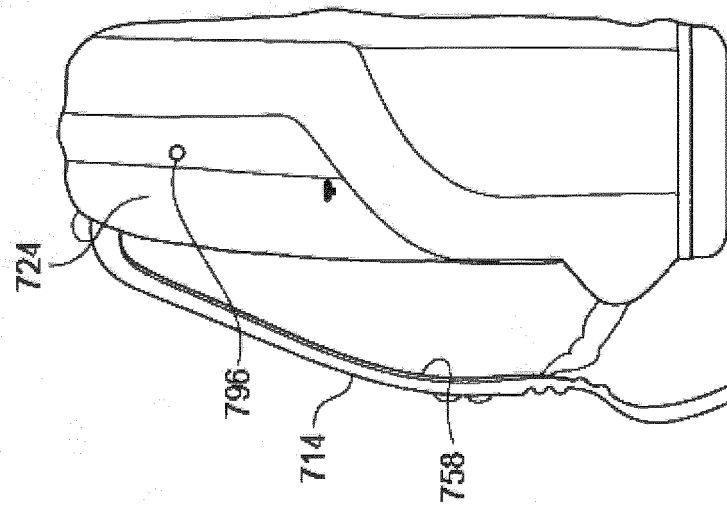
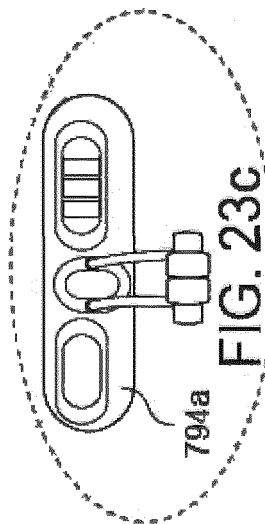
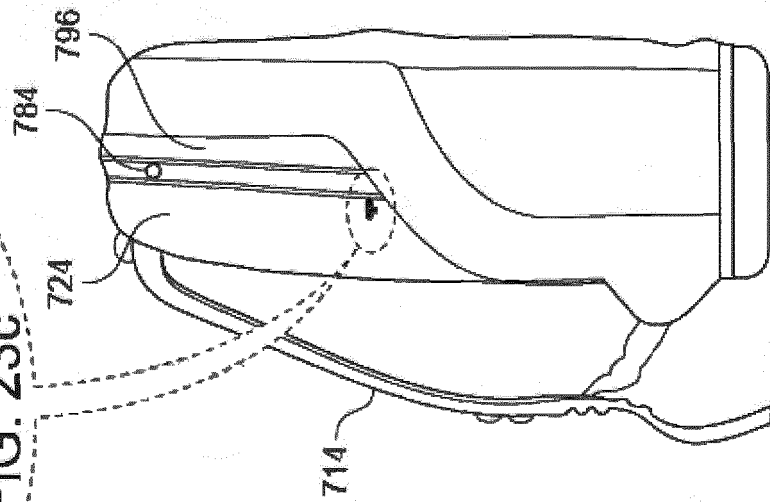
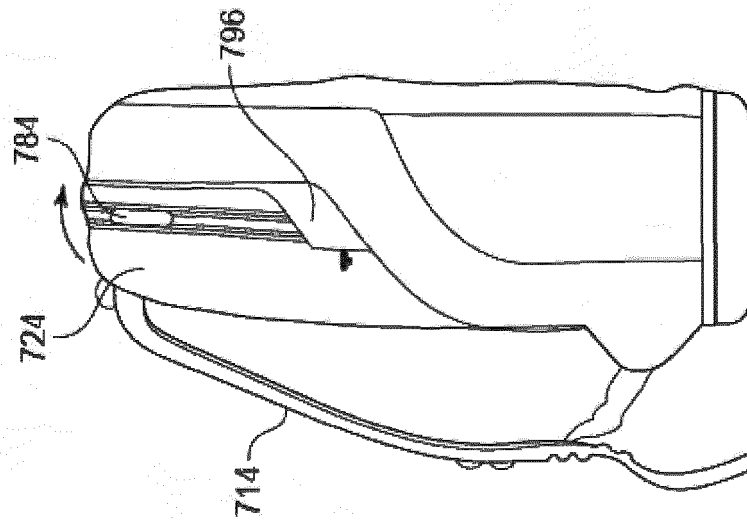


FIG. 21b





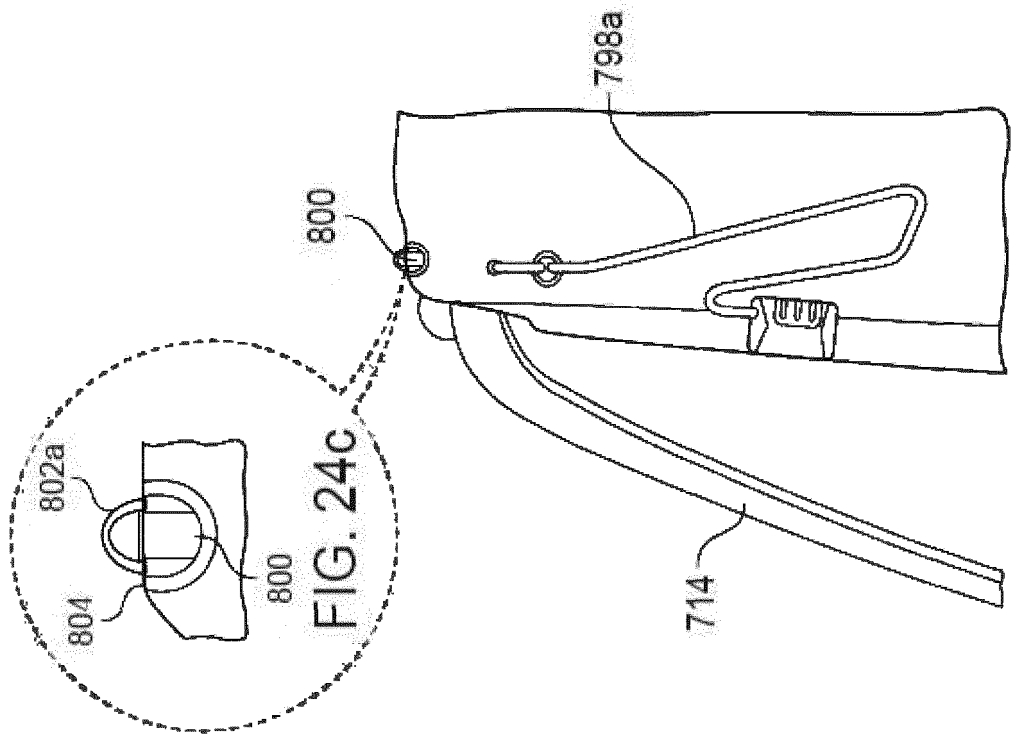


FIG. 24b

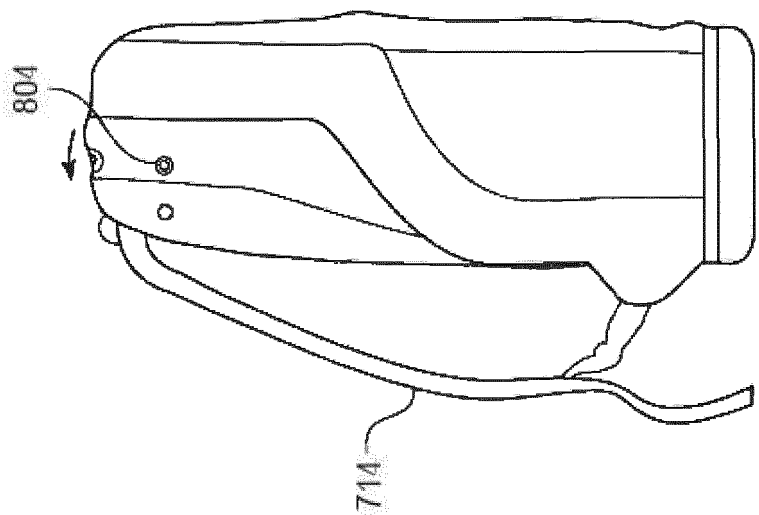


FIG. 24a

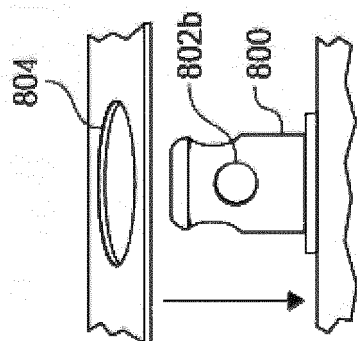


FIG. 25a

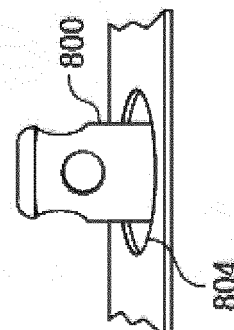


FIG. 25b

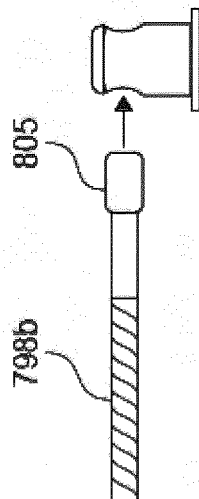


FIG. 25d

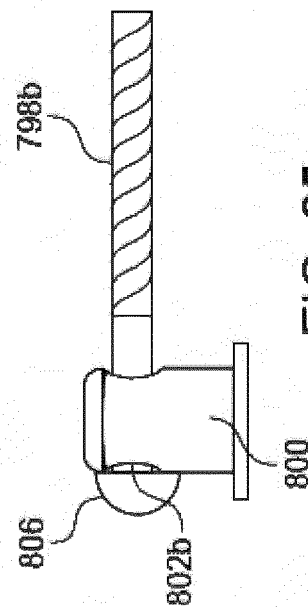


FIG. 25c

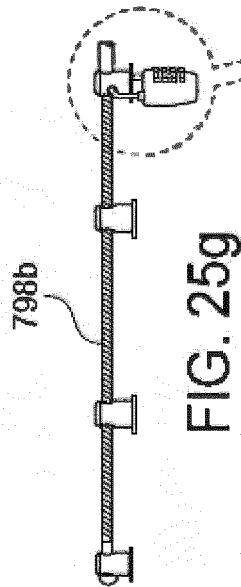


FIG. 25g

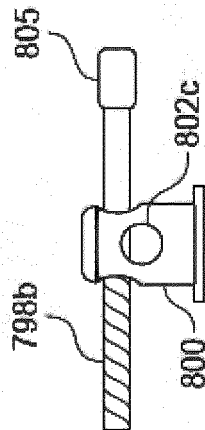


FIG. 25e

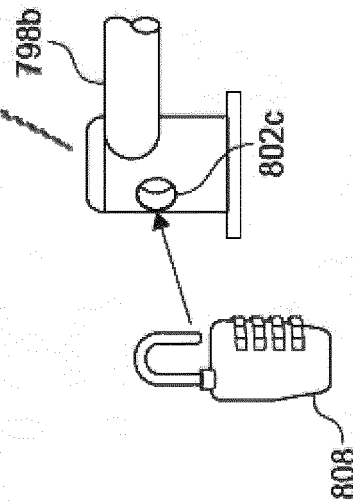


FIG. 25f

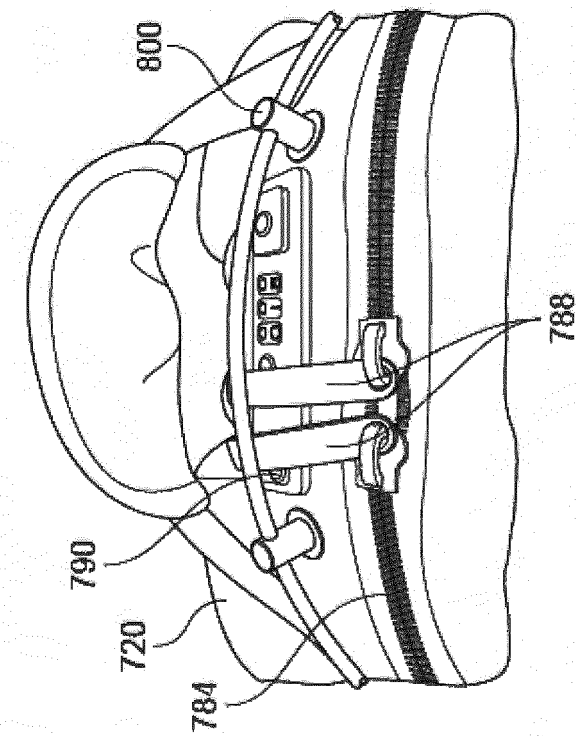


FIG. 26b

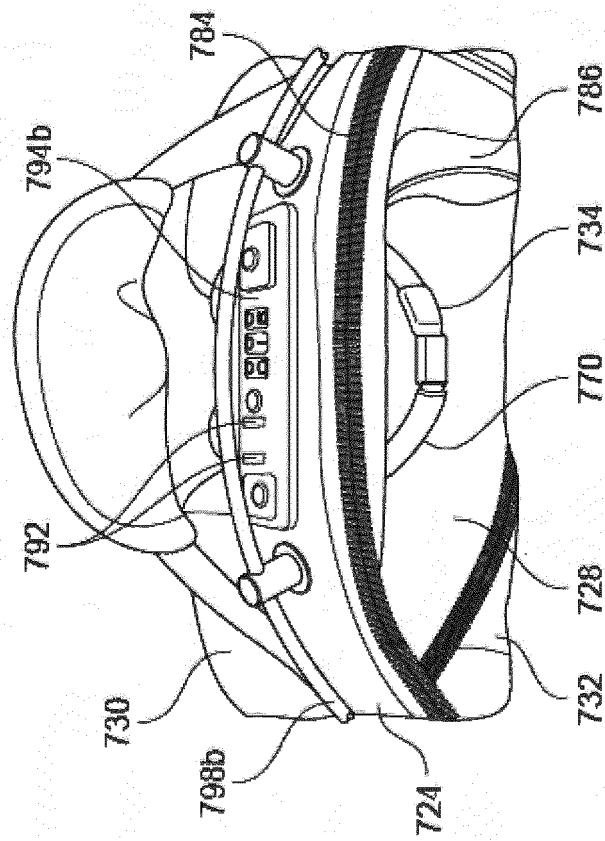


FIG. 26a

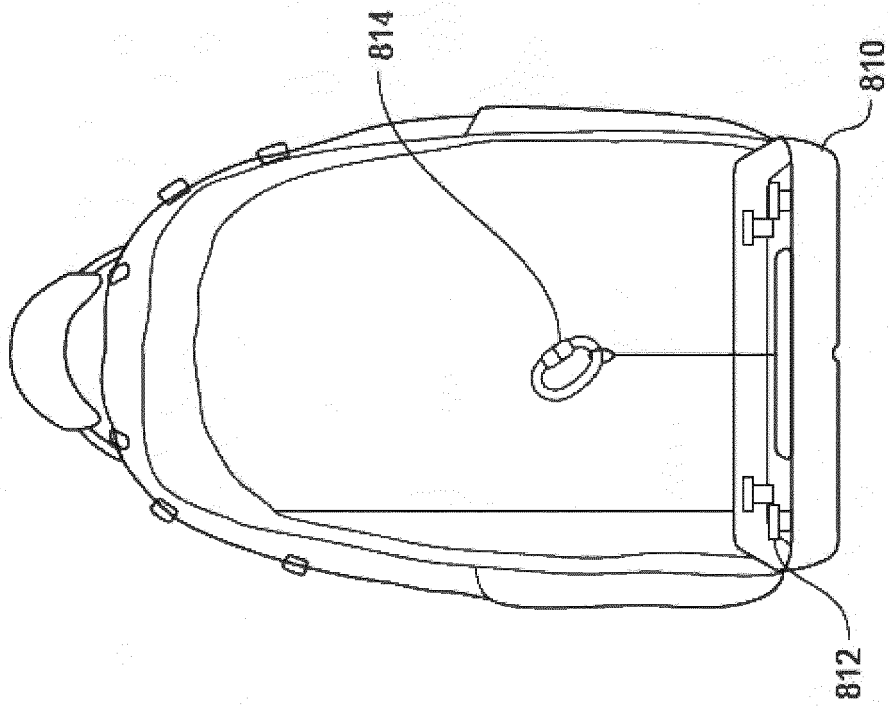


FIG. 27b

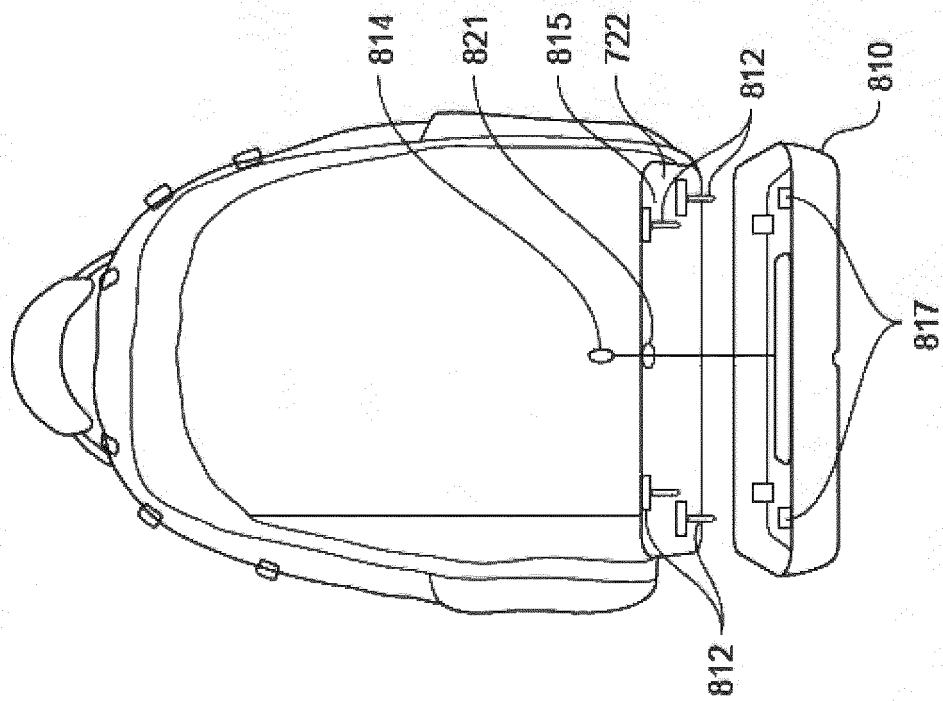


FIG. 27a

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

- US 62656002 [0001]
- US 92821918 [0001]
- US 42940417 [0001]
- US 9955763 B [0001]
- US 62295564 [0001]
- WO 2013006894 A [0003]